S01 of 63174 D

CS: 63174

ID: S01

MICHIGAN

STATE HIGHWAY DEPARTMENT

JOHN C. MACKIE

STATE HIGHWAY COMMISSIONER

MICHIGAN PROJECT I 75-2 (75)62

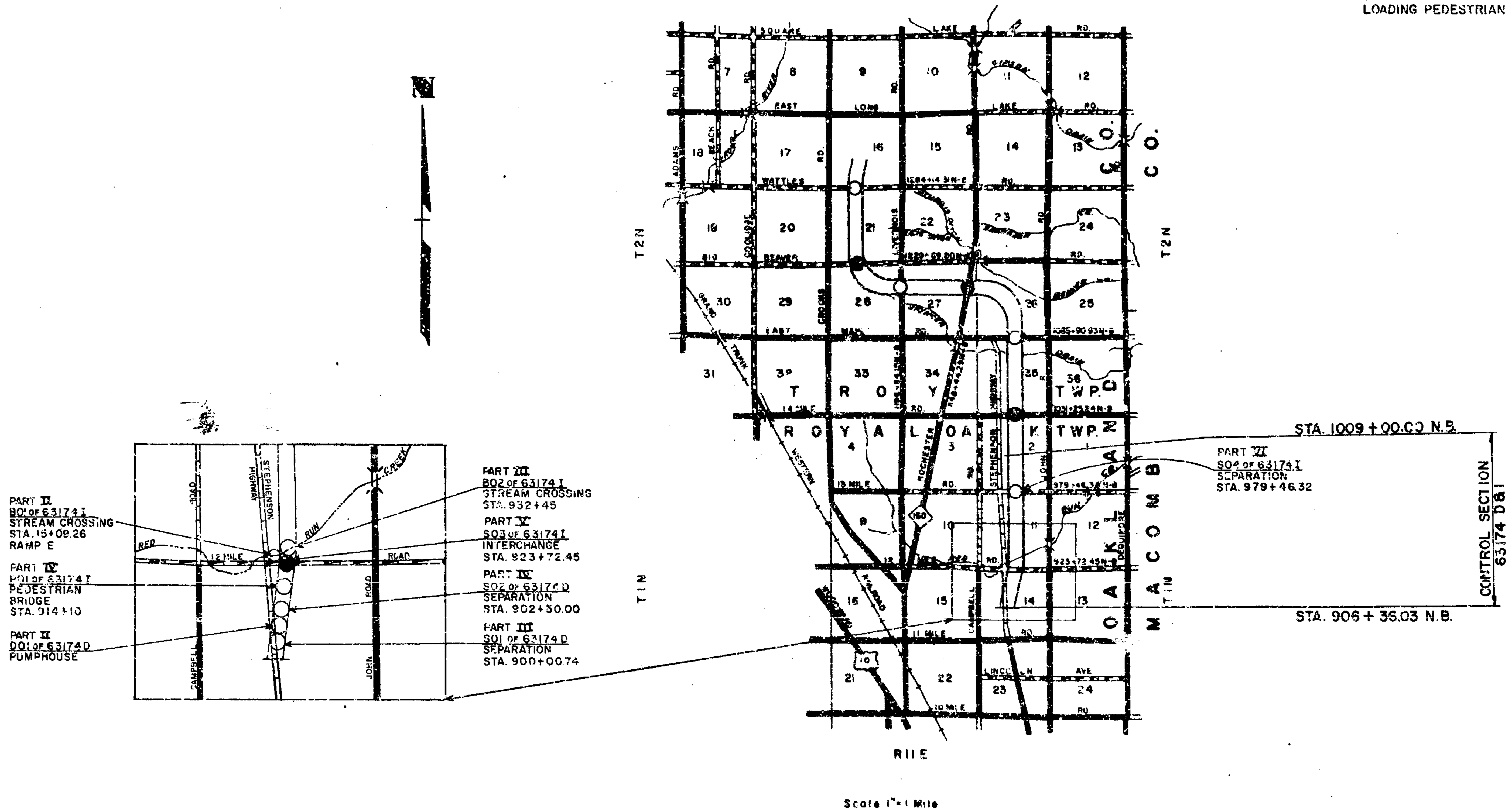
CONTROL SECTION B1 63174 D C14 PARTS II THRU IV / B1 63174 I C5 PARTS II THRU VI

WALTER P. CHRYSLER EXPRESSWAY

OAKLAND COUNTY

TROY - ROYAL OAK TWP.

R11E



NOTES:

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN STATE HIGHWAY DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1960 EDITION.

THE DESIGN OF THESE STRUCTURES IS BASED ON THE MICHIGAN STATE HIGHWAY DEPARTMENT'S SPECIFICATIONS FOR THE DESIGN OF HIGHWAY BRIDGES, 1958 EDITION H20-S16-44 AND ALTERNATE MILITARY LOADING, LIVE LOAD PLUS IMPACT DEFLECTION = $\frac{1}{1000}$ OF SPAN LENGTH.*

THE CHARACTER OF ALL MATERIALS AND THE EXTENT THEREOF AS SHOWN BY BORINGS HAS BEEN OBTAINED BY METHODS AND FROM SOURCES BELIEVED TO BE RELIABLE. THE EXACTNESS OF THIS INFORMATION IS, HOWEVER, IN NO CASE GUARANTEED. BORING DATA IS AVAILABLE IN THE DESIGN OFFICE AT LANSING.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH ½" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

TRUNK LINE TRAFFIC WILL BE REROUTED BY THE DEPARTMENT DURING CONSTRUCTION.

THE LOCATION OF GAS MAINS SHOWN ON THESE PLANS IS BELIEVED TO BE CORRECT. THE CONTRACTOR SHALL, HOWEVER, CHECK ALL SUCH LOCATIONS WITH THE MICHIGAN CONSOLIDATED GAS CO. BEFORE EXCAVATION IS STARTED.

* H20-44 LOADING FOR 11½ MILE ROAD (S01 OF 63174D) AND NORTHBOUND SERVICE ROAD (S02 OF 63174D) LIVE LOAD PLUS IMPACT DEFLECTION = $\frac{1}{800}$ OF SPAN LENGTH. FOR DESIGN LOADING PEDESTRIAN BRIDGE (P01 OF 63174 I) SEE SHEET 139.

CONTROL SECTIONS NO. 63174 D & I

CONTRACT FOR BRIDGES & PUMPHOUSE

DIVISION APPROVAL

CHECKED ______ ENGINEER OF DESIGN - CONSULTANTS ______ DATE

RECOMMENDED FOR APPROVAL ______ TRAFFIC ENGINEER ______ DATE

RECOMMENDED FOR APPROVAL ______ ENGINEER OF BRIDGE AND ROAD DESIGN ______ DATE

OFFICES OF DESIGN AND CONSTRUCTION

APPROVED ______ CONSTRUCTION ENGINEER ______ DATE

APPROVED ______ CHIEF OF DESIGN ______ DATE

STATE HIGHWAY DEPARTMENT APPROVAL

APPROVED JOHN C. MACKIE, STATE HIGHWAY COMMISSIONER

BY ______ DIRECTOR OF ENGINEERING - CHIEF ENGINEER ______ DATE

PLANS PREPARED BY TECON ENGINEERS INC.

DEPARTMENT OF COMMERCE BUREAU OF PUBLIC ROADS

APPROVED [redacted]

DIVISION ENGINEER DATE

CONTROL SECTION 63174 D & I

P01,S03,S04, B01 & B02 of 63174 I — S01,S02 of 63174D

FILE NO.		CONTROL SECTION	FEDERAL PROJECT	SHEET
	P01,S03,S04 B01 & B02 of 63174 I / S01,S02,B01 of 63174 D	63174		101

PLAN INDEX

SHEET NO.	DESCRIPTION
101	TITLE SHEET
102	INDEX OF DRAWINGS
	S01 OF 63174D - 11½ MILE ROAD
103	GENERAL PLAN OF SITE
104	LOG BORINGS
105	GENERAL PLAN OF STRUCTURE
106	BILL OF MATERIAL
107	ABUTMENT A DETAILS
108	ABUTMENT A DETAILS
109	ABUTMENT B DETAILS
110	ABUTMENT B DETAILS
111	ABUTMENT DETAILS
112	PIER DETAILS
113	SUPERSTRUCTURE DETAILS
114	SUPERSTRUCTURE DETAILS
115	SUPERSTRUCTURE DETAILS
116	STRUCTURAL STEEL DETAILS
117	STRUCTURAL STEEL DETAILS
118	STEEL REINFORCEMENT DETAILS
	S02 OF 63174D - NORTHBOUND SERVICE ROAD
119	GENERAL PLAN OF SITE
120	LOG OF BORINGS
121	GENERAL PLAN OF STRUCTURE
122	BILL OF MATERIAL
123	ABUTMENT A DETAILS
124	ABUTMENT A DETAILS
(B) 125A	ABUTMENT A DETAILS
126	ABUTMENT B DETAILS
127	ABUTMENT B DETAILS
128	ABUTMENT DETAILS
129	PIER DETAILS
130	SUPERSTRUCTURE DETAILS
131	SUPERSTRUCTURE DETAILS
132	SUPERSTRUCTURE DETAILS
133	SUPERSTRUCTURE DETAILS
134	METAL EXPANSION JOINT DETAILS
135	STRUCTURAL STEEL DETAILS
136	STRUCTURAL STEEL DETAILS
(B) 137A	STEEL REINFORCEMENT DETAILS
(B) 137B	STEEL REINFORCEMENT DETAILS
	P01 OF 63174D - PEDESTRIAN BRIDGE
138	GENERAL PLAN OF SITE
139	GENERAL PLAN OF STRUCTURE
140	BILL OF MATERIAL
141	RAMP APPROACH DETAILS
142	RAMP APPROACH DETAILS
143	RAMP PIER & DECK DETAILS
144	RAMP PIER & DECK DETAILS
145	BRIDGE PIER DETAILS
146	BRIDGE DECK DETAILS
147	STRUCTURAL STEEL DETAILS
148	STRUCTURAL STEEL DETAILS
149	HANDRAIL DETAILS
150	STEEL REINFORCEMENT DETAILS
(B) 125B	ABUTMENT A DETAILS
(B) 125C	ABUTMENT A DETAILS
	S03 OF 63174 I - 12 MILE ROAD
151	GENERAL PLAN OF SITE
152	LOG OF BORINGS
153	GENERAL PLAN OF STRUCTURE
154	BILL OF MATERIAL
155	STAKE OUT DIAGRAM
156	ABUTMENT A DETAILS
157	ABUTMENT A DETAILS

SHEET NO.	DESCRIPTION
158	ABUTMENT B DETAILS
159	ABUTMENT B DETAILS
160	ABUTMENT DETAILS
161	PIER DETAILS - PIER NO. 1 & 4
162	PIER DETAILS - PIER NO. 2 & 5
163	PIER DETAILS - PIER NO. 3 & 6
164	SUPERSTRUCTURE DETAILS
165	SUPERSTRUCTURE DETAILS
166	SUPERSTRUCTURE DETAILS
167	SUPERSTRUCTURE DETAILS
168	SUPERSTRUCTURE DETAILS
169	SUPERSTRUCTURE DETAILS
170	SUPERSTRUCTURE DETAILS
171	SUPERSTRUCTURE DETAILS
172	PRESTRESSED CONCRETE I BEAM DETAILS
173	PRESTRESSED CONCRETE I BEAM DETAILS
174	STEEL REINFORCEMENT DETAILS
	B01 OF 63174 I - RAMPE (12 MILE ROAD)
175	GENERAL PLAN OF SITE
176	LOG OF BORINGS
177	GENERAL PLAN OF STRUCTURE
178	BILL OF MATERIAL
179	ABUTMENT DETAILS
180	PIER DETAILS - PIERS NO. 1 & 2
181	SUPERSTRUCTURE DETAILS
182	SUPERSTRUCTURE DETAILS
183	SUPERSTRUCTURE DETAILS
184	SUPERSTRUCTURE DETAILS
185	METAL EXPANSION JOINT DETAILS
186	STRUCTURAL STEEL DETAILS
187	STRUCTURAL STEEL DETAILS
188	STEEL REINFORCEMENT DETAILS
	B02 OF 63174 I - RED RUN DRAIN
189	GENERAL PLAN OF SITE
190	LOG OF BORINGS
191	GENERAL PLAN OF STRUCTURE
192	GENERAL PLAN OF STRUCTURE
193	CHANNEL CHANGE LAYOUT
194	CHANNEL CROSS SECTIONS
195	CHANNEL CROSS SECTIONS
196	BILL OF MATERIAL
197	ABUTMENT A DETAILS
198	ABUTMENT A DETAILS
199	ABUTMENT B DETAILS
200	ABUTMENT B DETAILS
201	ABUTMENT DETAILS
202	PIER DETAILS - PIER NO. 1 & 2
203	PIER DETAILS - PIER NO. 3 & 4
204	PIER DETAILS
205	SUPERSTRUCTURE DETAILS
206	SUPERSTRUCTURE DETAILS
207	SUPERSTRUCTURE DETAILS
208	SUPERSTRUCTURE DETAILS
209	SUPERSTRUCTURE DETAILS
210	SUPERSTRUCTURE DETAILS
211	SUPERSTRUCTURE DETAILS
212	SUPERSTRUCTURE DETAILS
213	SUPERSTRUCTURE DETAILS
214	SUPERSTRUCTURE DETAILS
215	METAL EXPANSION JOINT DETAILS - NORTHBOUND STR.
216	METAL EXPANSION JOINT DETAILS - SOUTHBOUND STR.
217	STRUCTURAL STEEL DETAILS
218	STRUCTURAL STEEL DETAILS
219	STRUCTURAL STEEL DETAILS
220	STEEL REINFORCEMENT DETAILS
202A	PIERS 1 & 3 CAP DETAILS

SHEET NO.	DESCRIPTION
	S04 OF 63174 I - 13 MILE ROAD
221	GENERAL PLAN OF SITE
222	LOG OF BORINGS
223	GENERAL PLAN OF STRUCTURE
224	BILL OF MATERIAL
225	ABUTMENT DETAILS
226	ABUTMENT DETAILS
227	PIERS NO. 1, 2, 3 & 4 DETAILS
228	SUPERSTRUCTURE DETAILS
229	SUPERSTRUCTURE DETAILS
230	SUPERSTRUCTURE DETAILS
231	SUPERSTRUCTURE DETAILS
232	BEAM LAYOUT
233	STEEL REINFORCEMENT DETAILS
	S05 OF 63174 I - 14 MILE ROAD
234	GENERAL PLAN OF SITE
235	LOG OF BORINGS
236	GENERAL PLAN OF STRUCTURE
237	BILL OF MATERIAL
238	ABUTMENT DETAILS
239	ABUTMENT DETAILS
240	PIERS NO. 1, 2, 3 & 4 DETAILS
241	SUPERSTRUCTURE DETAILS
242	SUPERSTRUCTURE DETAILS
243	SUPERSTRUCTURE DETAILS
244	METAL EXPANSION JOINT DETAILS
245	STRUCTURAL STEEL DETAILS
246	STRUCTURAL STEEL DETAILS
247	STRUCTURAL STEEL DETAILS
248	STEEL REINFORCEMENT DETAILS
	S21 OF 63174 J - 15 MILE ROAD
249	GENERAL PLAN OF SITE
250	LOG OF BORINGS
251	GENERAL PLAN OF STRUCTURE
252	BILL OF MATERIAL
253	ABUTMENT DETAILS
254	ABUTMENT DETAILS
255	PIERS NO. 1, 2, 3 & 4 DETAILS
256	SUPERSTRUCTURE DETAILS
257	SUPERSTRUCTURE DETAILS
258	SUPERSTRUCTURE DETAILS
259	SUPERSTRUCTURE DETAILS
260	BEAM LAYOUT
261	STEEL REINFORCEMENT DETAILS
	D01 OF 63174 D - PUMPHOUSE
301	GENERAL PLAN OF SITE
302	GENERAL PLAN OF STRUCTURE
303	BILL OF MATERIAL
304	PUMPHOUSE DETAILS
305	PUMPHOUSE DETAILS
306	PUMPHOUSE DETAILS
307	PUMPHOUSE DETAILS
308	PUMPHOUSE DETAILS
309	PUMPHOUSE DETAILS
310	MISCELLANEOUS DETAILS
311	MECHANICAL & ELECTRICAL DETAILS
312	STEEL REINFORCEMENT DETAILS
R 11B	BRIDGE RAILING, DRAIN CASTING, BAR CHAIR, MOLDING & BEVEL DETAILS

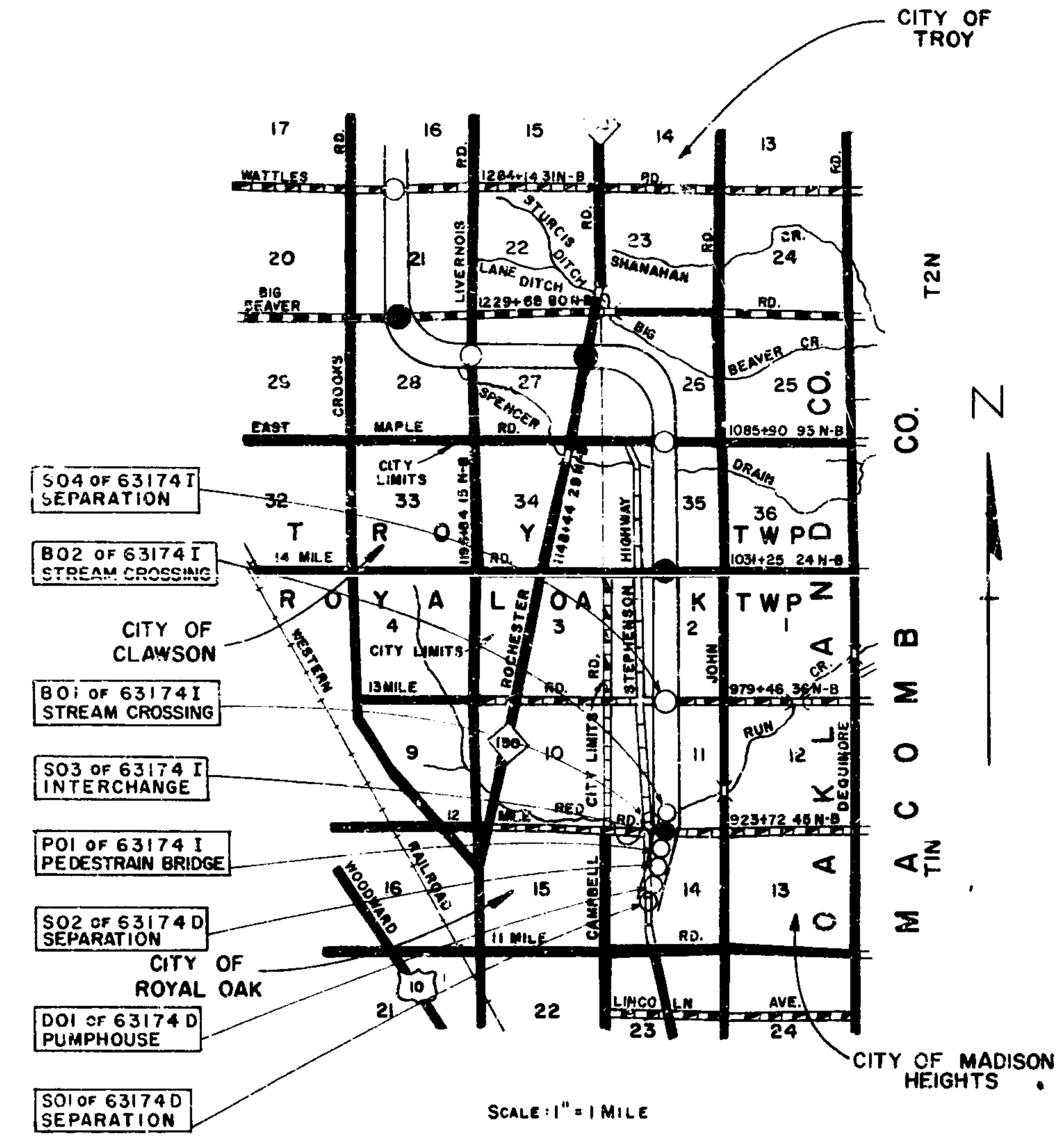


TABLE OF LOADINGS			
STRUCTURE	LOCATION	DESIGN LIVE LOADINGS	LIMITING LIVE LOAD DEFLECTION
S01 OF 63174D	11½ MILE RD.	H20-44	L/800
S02 OF 63174D	N-B SERVICE RD.	H20-44	L/800
P01 OF 63174I	PEDESTRIAN BR.	SEE SH.139	L/1000
S03 OF 63174I	12 MILE RD	H20-S16-44	L/1000
B01 OF 63174I	RAMP E (12 MILE RD.)	H20-S16-44	L/1000
B02 OF 63174I	RED RUN DRAIN	H20-S16-44	L/1000
S04 OF 63174I	13 MILE RD.	H20-S16-44	L/1000

STANDARD PLANS TO BE PRINTED	
SHEET NO.	DESCRIPTION
SP 2 D	STANDARD SLOPE PAVING DETAILS

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

TECON ENGINEERS, INC.

REVISIONS

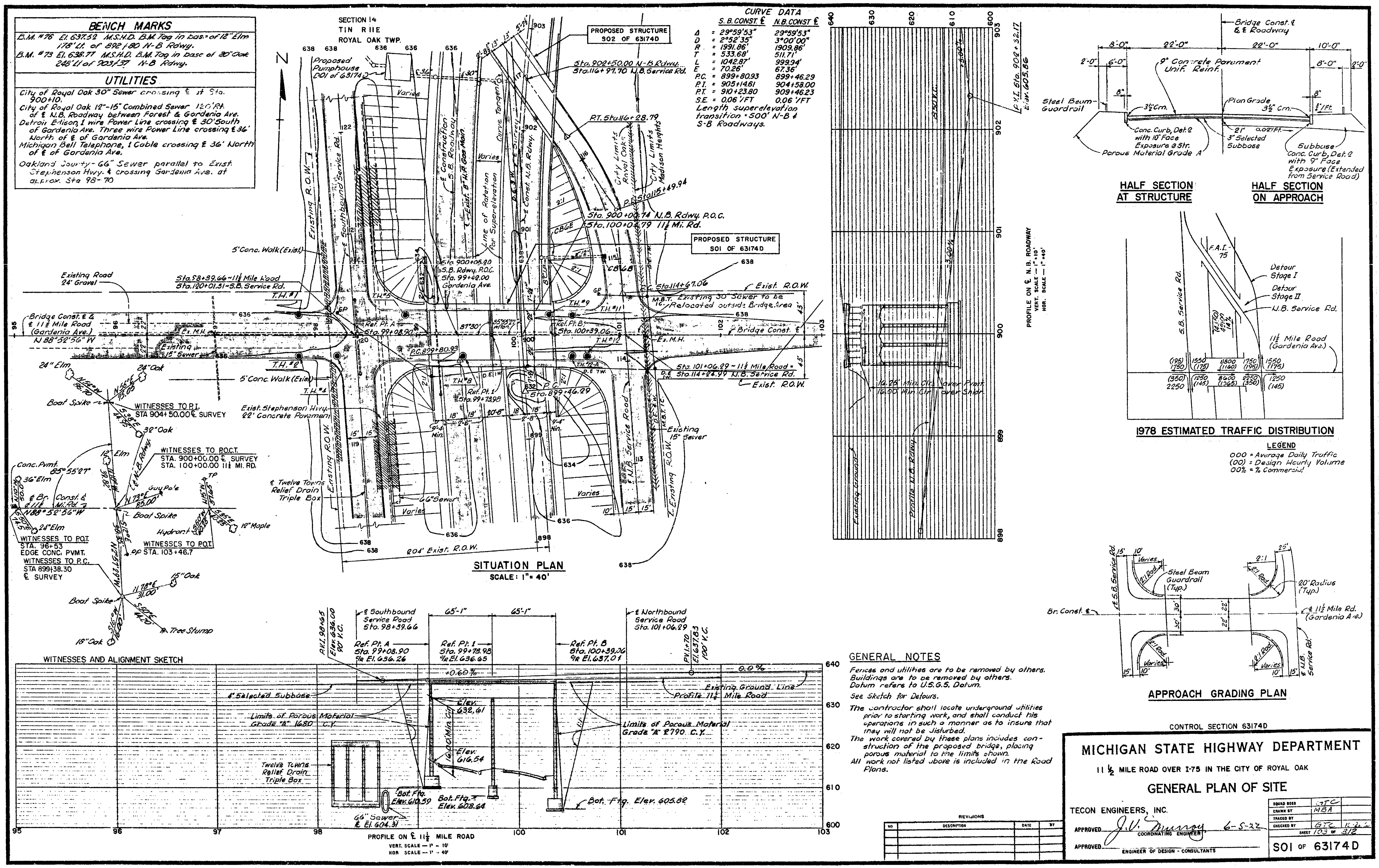
NO	DESCRIPTION	DATE	BY
B	Added sh. 202A to B02 of 63174	1-17-63	R.E.
B	Added Shts to S02 of 63174	10-4-62	A.F.B.

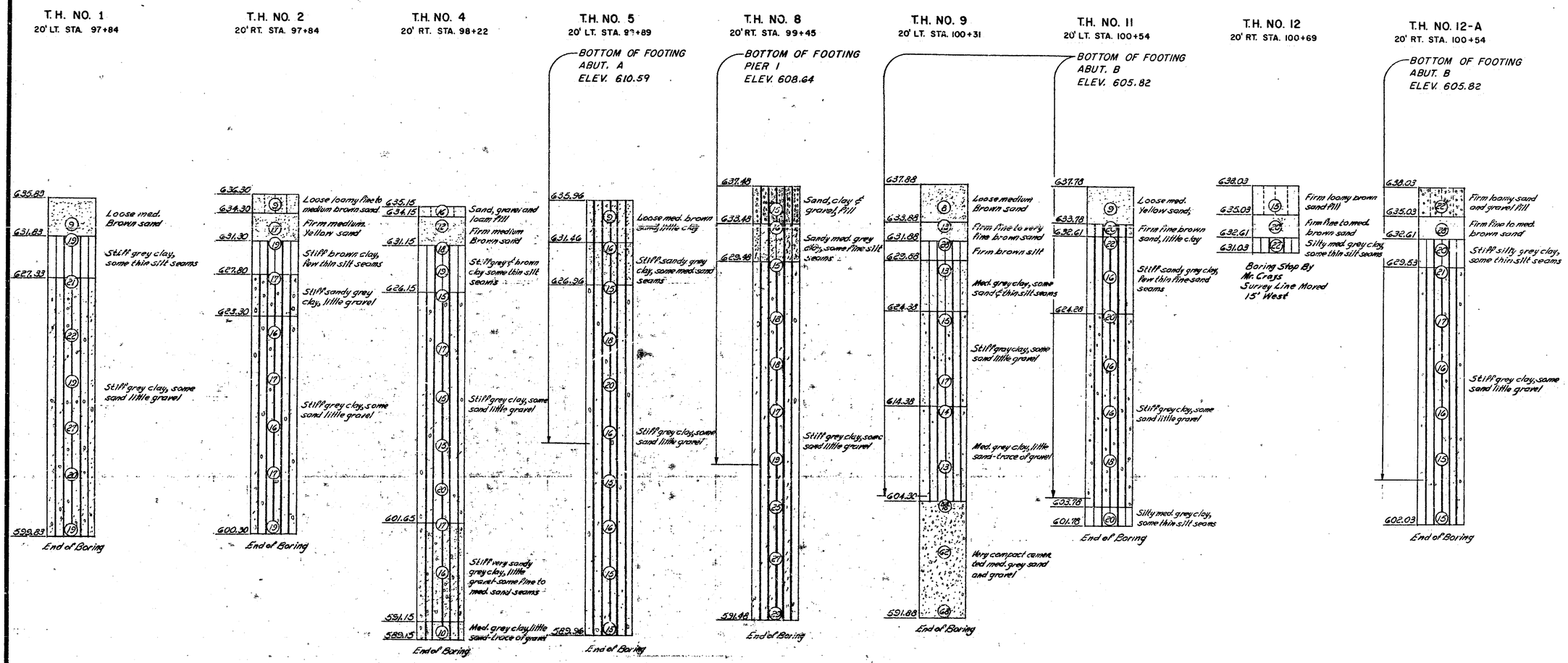
SQUAD BOSS	3-26-62
DRAWN BY	CBS
TRACED BY	
CHECKED BY	3-26-62

SHEET 102 OF 312

S01 & S02 OF 63174 D
P01 OF 63174 I
S03 OF 63174 I
B01 & B02 OF 63174 I
S04 OF 63174 I

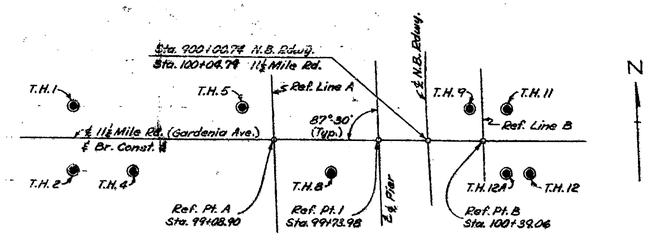
D01 OF 63174 D


BENCH MARKS
B.M. #76 El. 637.52 M.S.H.D. B.M. Tag in base of 12" Elm 178' Lt. of 892+80 N-B Rdwy.
B.M. #73 El. 638.77 M.S.H.D. B.M. Tag in base of 20" Oak 248' Lt. of 903+37 N-B Rdwy.
UTILITIES
City of Royal Oak 30" Sewer crossing ℄ at Sta. 900+10.
City of Royal Oak 12"-15" Combined Sewer 120' Rt. of ℄ N.B. Roadway between Forest & Gardenia Ave.
Detroit Edison, 1 wire Power Line crossing ℄ 30' South of Gardenia Ave. Three wire Power Line crossing ℄ 36' North of ℄ of Gardenia Ave.
Michigan Bell Telephone, 1 Cable crossing ℄ 36' North of ℄ of Gardenia Ave.
Oakland County - 66" Sewer parallel to Exist. Stephenson Hwy. & crossing Gardenia Ave. at approx. Sta 98-70
SECTION 14
T1N R11E
ROYAL OAK TWP.
PROPOSED STRUCTURE 902 OF 63174D
PROPOSED STRUCTURE S01 OF 63174D
CURVE DATA
S.B. CONST. ℄ N.B. CONST ℄
Δ = 29°59'53" 29°59'53"
D = 2°52'35" 3°00'00"
R = 1991.86' 1909.86'
T = 533.68' 511.71'
L = 1042.87' 999.94'
E = 70.26' 67.36'
P.C. = 899+80.93 899+46.29
P.I. = 905+14.61 904+58.00
P.T. = 910+23.80 909+46.23
S.E. = 0.06'/FT 0.06'/FT
Length superelevation transition = 500' N-B & S-B Roadways.
SITUATION PLAN
SCALE: 1" = 40'
WITNESSES AND ALIGNMENT SKETCH
WITNESSES TO P.I. STA 904+50.00 ℄ SURVEY
WITNESSES TO P.O.C.T. STA. 900+00.00 ℄ SURVEY STA. 100+00.00 11½ MI. RD.
WITNESSES TO P.O.T. STA. 96+53 EDGE CONC. PVMT.
WITNESSES TO P.O.T. STA. 103+46.7
WITNESSES TO P.C. STA 899+38.30 ℄ SURVEY
PROFILE ON ℄ N.B. ROADWAY
VERT. SCALE — 1" = 10'
HOR. SCALE — 1" = 40'
PROFILE ON ℄ 11½ MILE ROAD
VERT. SCALE — 1" = 10'
HOR. SCALE — 1" = 40'
HALF SECTION AT STRUCTURE
HALF SECTION ON APPROACH
1978 ESTIMATED TRAFFIC DISTRIBUTION
LEGEND
000 = Average Daily Traffic
(00) = Design Hourly Volume
00% = % Commercial
APPROACH GRADING PLAN
GENERAL NOTES
Fences and utilities are to be removed by others. Buildings are to be removed by others.
Datum refers to U.S.G.S. Datum.
See Sketch for Detours.
The contractor shall locate underground utilities prior to starting work, and shall conduct his operations in such a manner as to insure that they will not be disturbed.
The work covered by these plans includes construction of the proposed bridge, placing porous material to the limits shown.
All work not listed above is included in the Road Plans.
CONTROL SECTION 63174D
MICHIGAN STATE HIGHWAY DEPARTMENT
11½ MILE ROAD OVER I-75 IN THE CITY OF ROYAL OAK
GENERAL PLAN OF SITE
TECON ENGINEERS, INC.
APPROVED J.V. Murray 6-5-72 COORDINATING ENGINEER
APPROVED ENGINEER OF DESIGN - CONSULTANTS
REVISIONS
S01 OF 63174D



NOTES:

Consistence determined by inspection of samples & by soil resistance to motile drill 8-52 samples obtained with 2" O.D. x 1.5" I.D. Split Spoon Sampler through center of hollow Stem Auger.
Blows Number of free 30" falls by 140 lb. weight.
Data from boring report prepared by Raymond Concrete Pile Co.
Foreman J. Alexander
Report dated Dec. 7, 1960.
Due to the impervious nature of the soil, no free water should be encountered in the clay. 24 Hours after completion in most of the boring, the holes had caved in at 3'± below the ground surface.



Scale: 1" = 40'

BORING LOCATION SKETCH

CONTROL SECTION 63174D

MICHIGAN STATE HIGHWAY DEPARTMENT

11½ MILE ROAD OVER I-75 IN THE CITY OF MADISON HEIGHTS

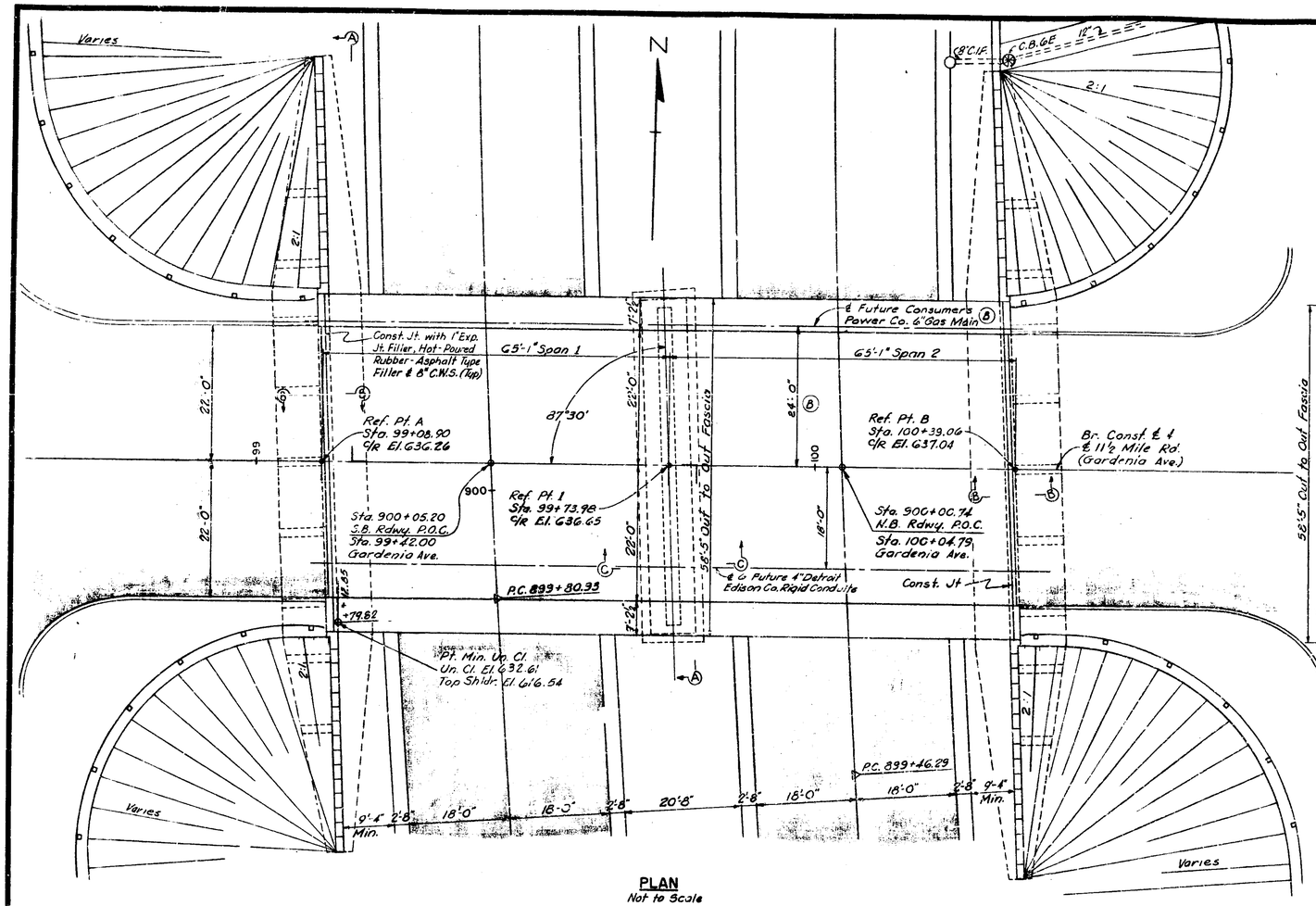
LOG OF BORINGS

TECON ENGINEERS, INC.

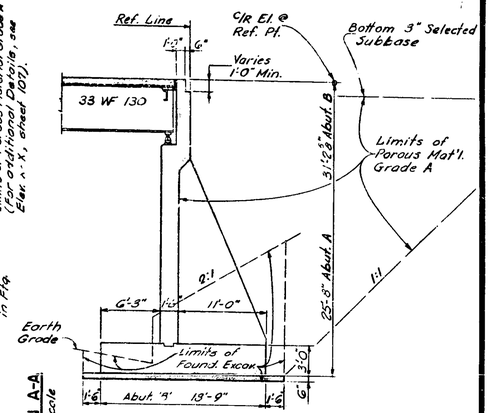
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	GTC	12-28-61
DRAWN BY		
TRACED BY	E.R.	12-22-61
CHECKED BY	GTC	12-29-61
SHEET 102 OF 212		

SOI OF 63174D

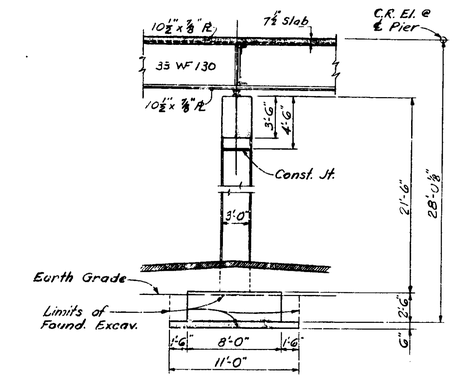


PLAN
Not to Scale



SECTION A-A
Not to Scale

SECTION B-B
Not to Scale

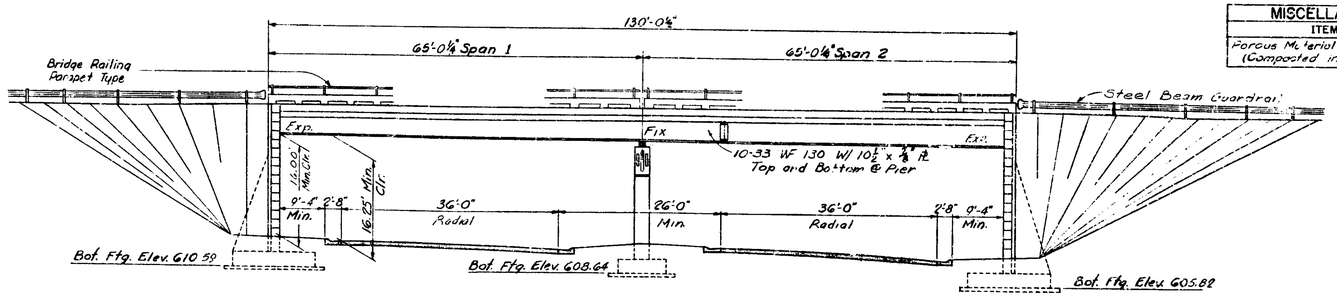


SECTION C-C
Not to Scale

GENERAL NOTES

Top of roadway slab is parallel to the tangent.
Tops of Sidewalks shall have a permanent camber of 1".
The design of this structure is based on the M.S.H.D. Standard Specifications for the Design of Highway Bridges - 1969 Edition H20-44 Loading. Live Load plus impact deflection = 1/800 of span length.

MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
Porous Material - grade A (Compacted in Place)	Cu. Yds.	4470



ELEVATION
Shown Normal to Substructure
Not to Scale

REVISIONS			
NO	DESCRIPTION	DATE	BY
B	Added Prov. for 6" Gas Main	4-24-63	R.E.

CONTROL SECTION 63174D

MICHIGAN STATE HIGHWAY DEPARTMENT

11½ MILE ROAD OVER I-75 IN THE CITY OF ROYAL OAK

GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC.

APPROVED J. V. Murray 6-5-62
COORDINATING ENGINEER

APPROVED
ENGINEER OF DESIGN — CONSULTANTS

SQUAD BOSS	GTC	
DRAWN BY	JDC	4-24-61
TRACED BY		
CHECKED BY	GTC	
SHEET 105 OF 312		

SOI OF 63174D

ITEM	UNIT	QUANTITY	B	C	D	FINAL
BRIDGE S01 of 63174D						
Unclassified Excavation	Cu. Yds.	1448	-33 01001			1,415
Grade A (6A) Concrete - Substructure	Cu. Yds.	548				548
Grade A (6AA) Concrete - Substructure	Cu. Yds.	497				492
Grade A (6AA) Concrete - Superstructure	Cu. Yds.	244				244
Water-Reducing Retarding Admixture	Lump Sum				-15.0%	84.96%
Steel Reinforcement	Lbs.	169,080				169,086
Structural Steel - Furnishing & Fabricating	Lbs.	202,900	-1,713 01002			201,187
Structural Steel - Erection	Lbs.	202,900	-1,713 01002			201,187
Structural Tile - 6"x12"x12"	Each	992				992
¼" Joint Filler	Sq. Ft.	36		-2 01005		34
⅜" Joint Filler	Sq. Ft.	4				4
1" Joint Filler	Sq. Ft.	255				255
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	115		+9 01006		124
Joint Waterproofing	Sq. Ft.	650				650
Copper	Lbs.	247		+7 01007		254
Field Painting	Lump Sum					100%
Bridge Railing - Parapet Type	Lin. Ft.	260.0				260
Porous Material Grade A (Compacted-in-Place)	Cu. Yds.	4470	-347 01004			4123
5" Pipe Sleeves - Placed	Each	12				12

DATE

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL
1-28-66	02001 - Auth A - 10" Pipe Sleeves - Placed	Each	2	2
12-21-66	02002 - Auth E - Borrow Material used as Porous Material Grade A	Cu. Yds.	4469	4469

BALANCED BY A.F.B. 1-20-66
CHECKED BY R.B. 1-25-66

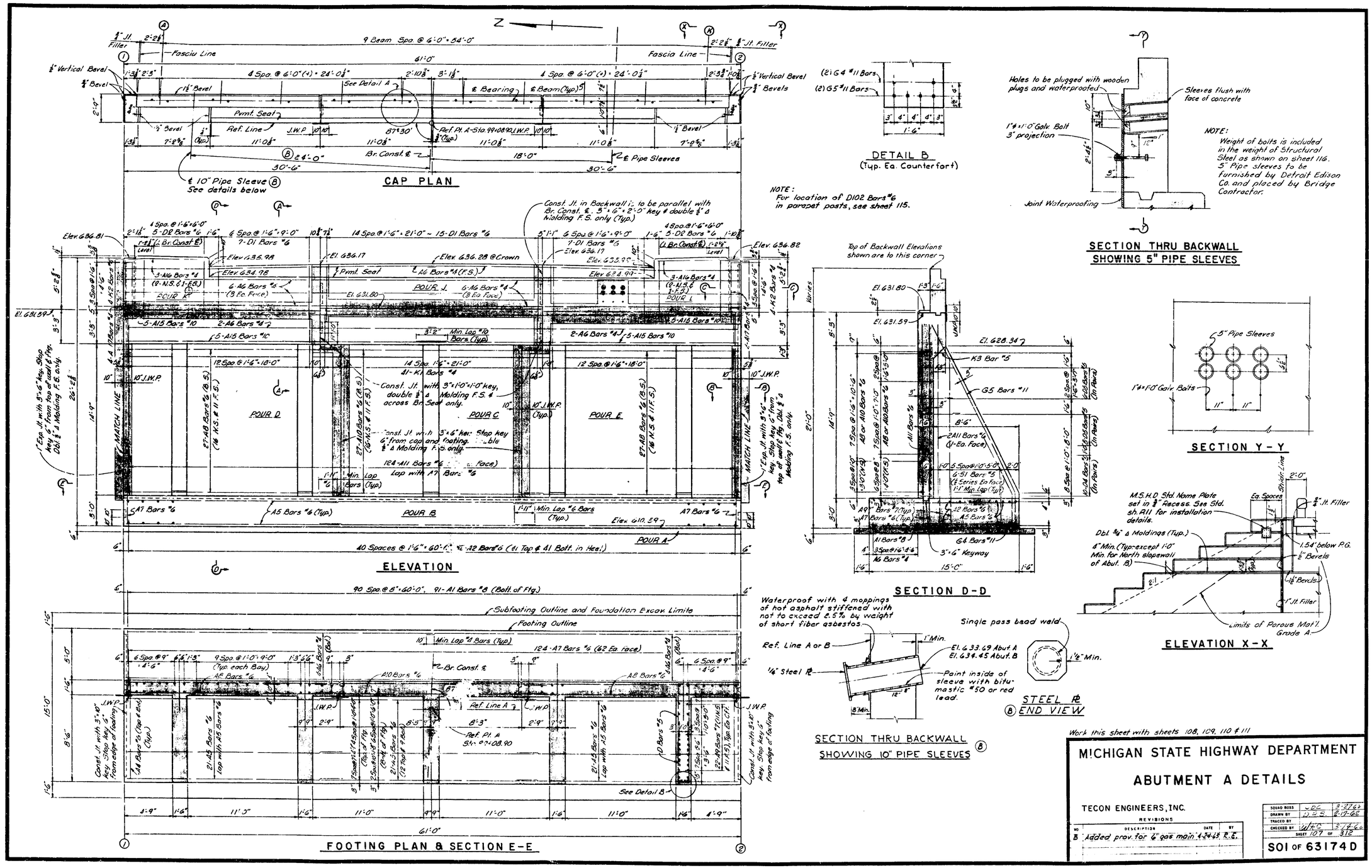
MICHIGAN STATE HIGHWAY DEPARTMENT

BILL OF MATERIAL

SQUAD BOSS	JDC	3-27-62
DRAWN BY	RAD	3-24-62
TRACED BY		
CHECKED BY	JDC	3-26-62
SHEET 106 OF 312		

TECON ENGINEERS, INC.

S01 OF 63174D



Work this sheet with sheets 108, 109, 110 & 111

MICHIGAN STATE HIGHWAY DEPARTMENT

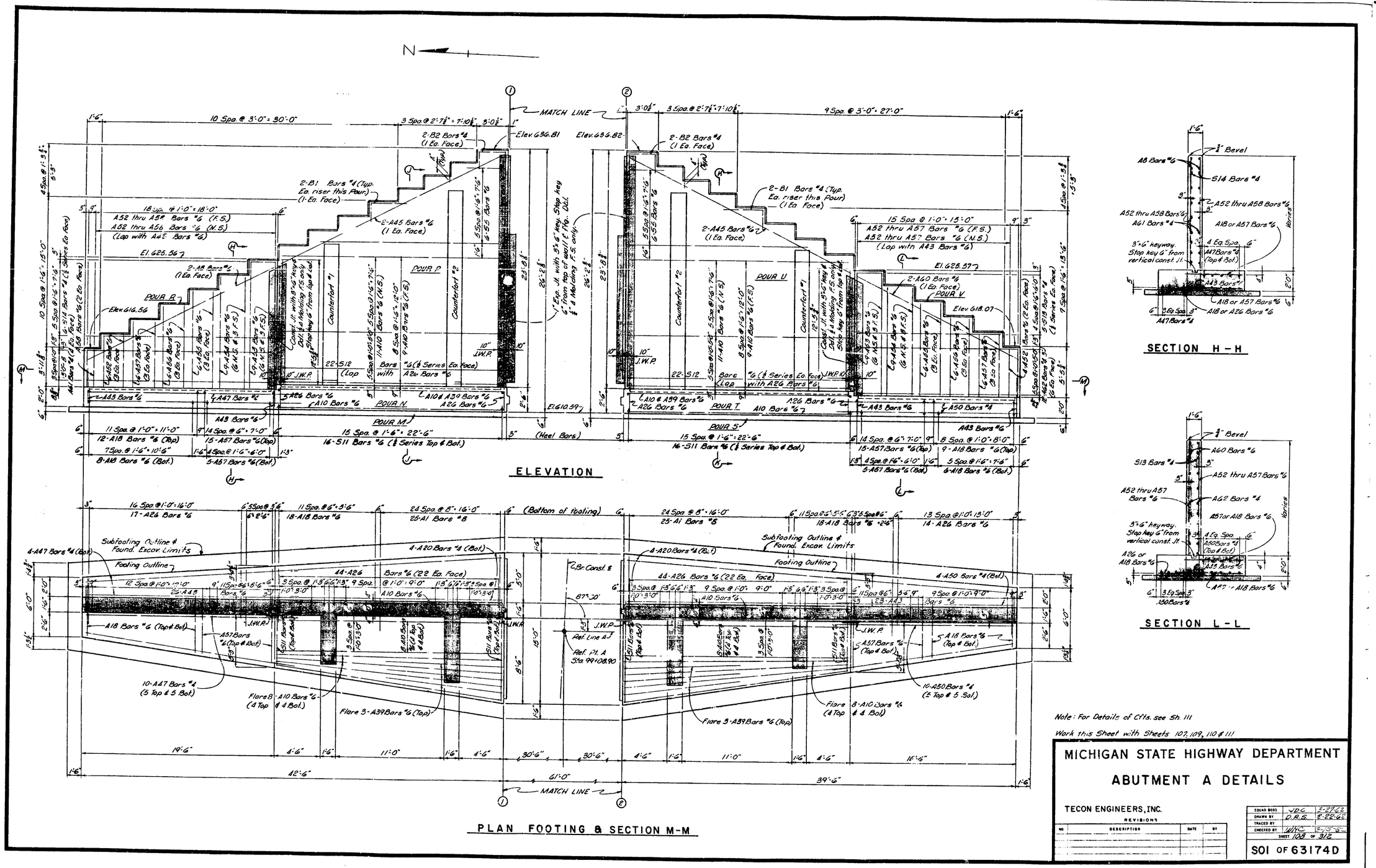
ABUTMENT A DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO	DESCRIPTION	DATE	BY
B	Added prov. for 6" gas main	4-24-63	R.E.

SQUAD BOSS	J.D.C.	3-27-62
DRAWN BY	J.L.S.	2-17-62
TRACED BY		
CHECKED BY	W.H.D.	3-26-62
SHEET 107 OF 312		

S01 OF 63174 D



MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

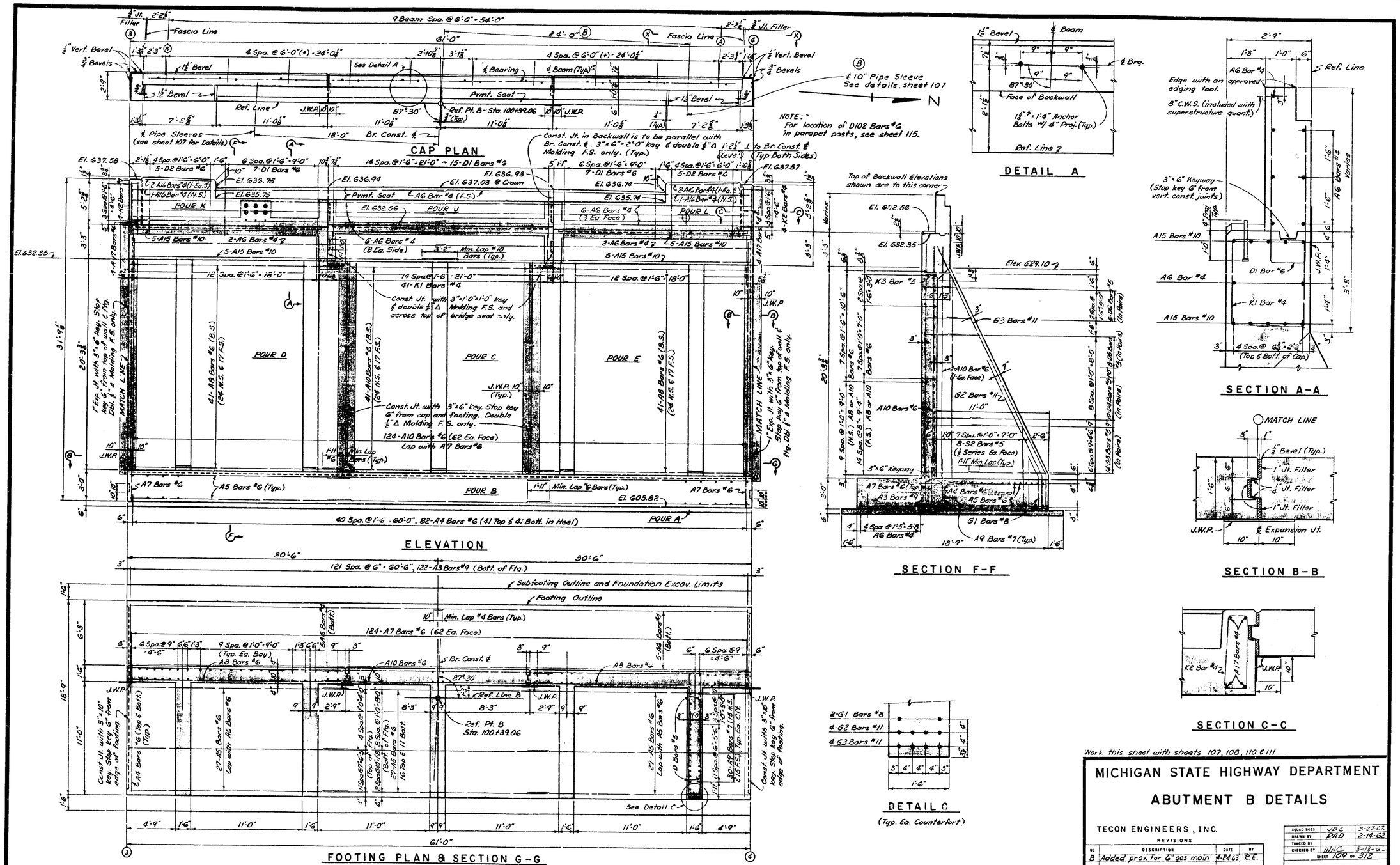
REVISIONS

NO	DESCRIPTION	DATE	BY

SQUAD BOSS	VDC	2-27-62
DRAWN BY	D.R.S.	2-22-62
TRACED BY		
CHECKED BY	WHC	2-15-62

SHEET 108 OF 312

S01 OF 63174D



MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT B DETAILS

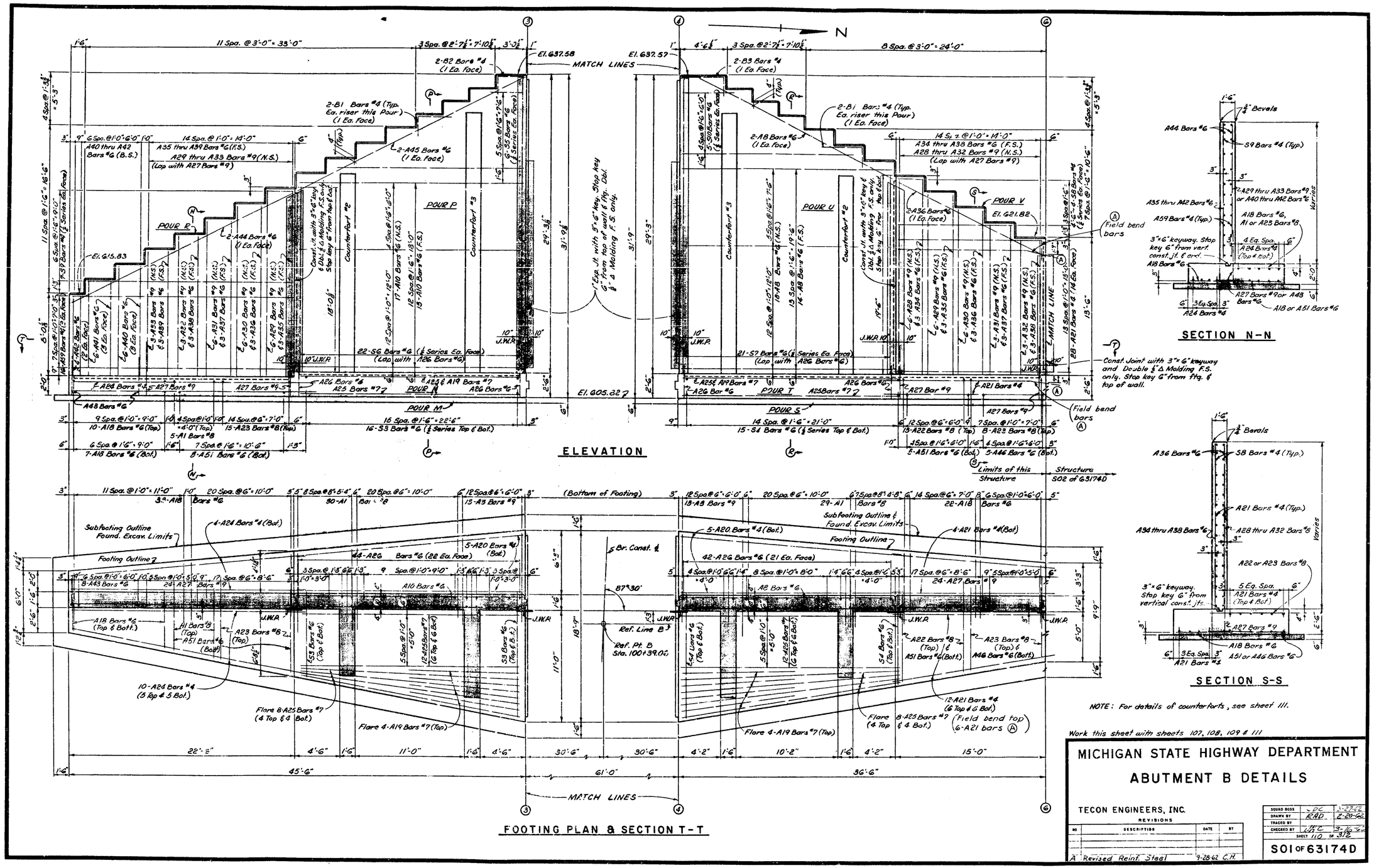
TECON ENGINEERS, INC.

REVISIONS

NO	DESCRIPTION	DATE	BY
8	Added prov. for 6" gas main	4-24-63	R.E.

SQUAD BOSS	JDC	3-27-63
DRAWN BY	RAD	2-14-62
TRACED BY		
CHECKED BY	WHC	3-13-62
SHEET 109 OF 312		

S01 OF 63174D



MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT B DETAILS

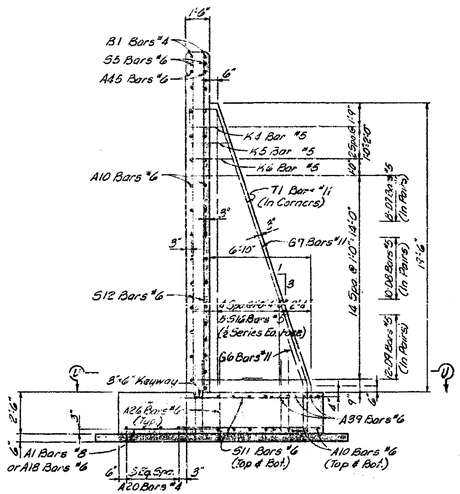
TECON ENGINEERS, INC.

REVISIONS

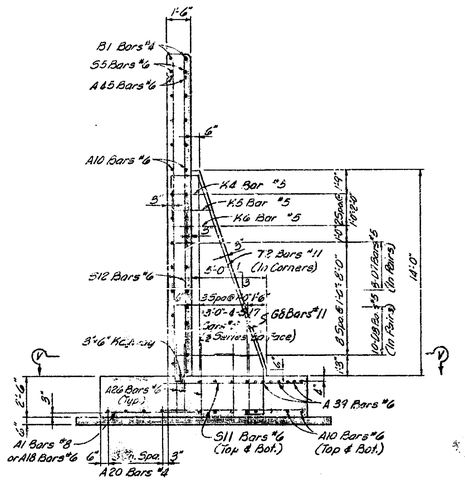
NO	DESCRIPTION	DATE	BY
A	Revised Reinf. Steel	9-28-62	C.H.

SQUAD BOSS	J.D.C.	2-27-62
DRAWN BY	E.R.D.	2-20-62
TRACED BY		
CHECKED BY	J.D.C.	3-16-62
SHEET 110 OF 312		

S01 OF 63174D



SECTION J-J



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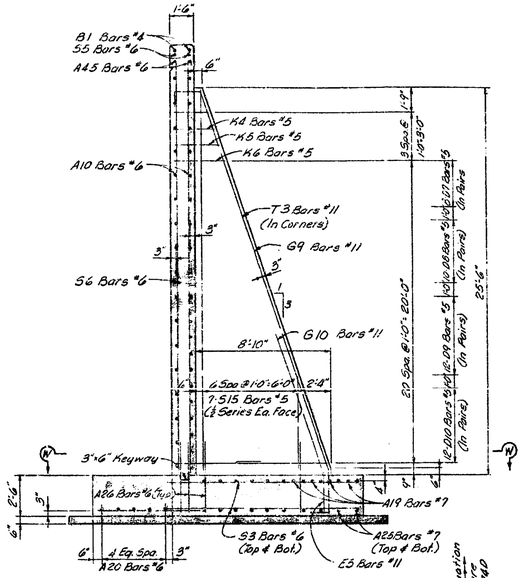
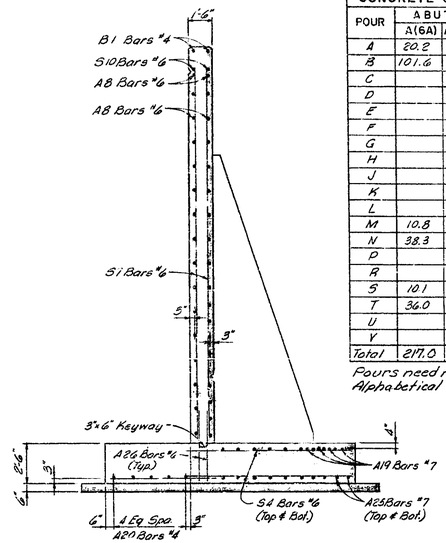


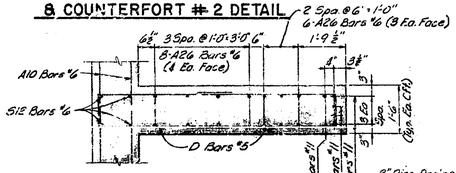
SECTION P-P



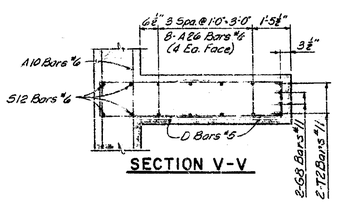
SECTION R-R

CONCRETE QUANTITIES—CU. YDS.				
POUR	ABUT. A		ABUT. B	
	A(6A)	A(6AA)	A(6A)	A(6AA)
A	20.2		24.6	
B	101.6		127.1	
C		27.2		35.6
D		32.8		45.2
E		32.8		45.2
F		Not	Used	
G		Not	Used	
H		Not	Used	
J		4.9		4.9
K		5.2		5.2
L		5.2		5.2
M	10.8		13.2	
N	38.3		48.3	
P		30.2		41.8
R		9.5		17.0
S	10.1		11.6	
T	36.0		48.2	
U		30.4		41.2
Y		8.8		13.7
Total	217.0	187.0	273.0	255.0

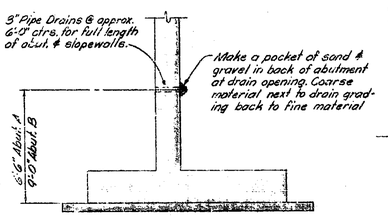
Pours need not be made in Alphabetical order.



SECTION U-U

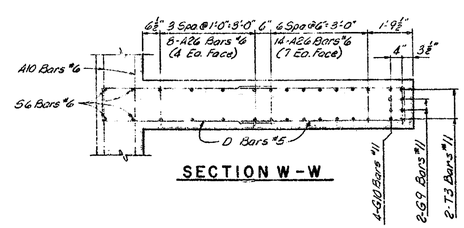


SECTION V-V

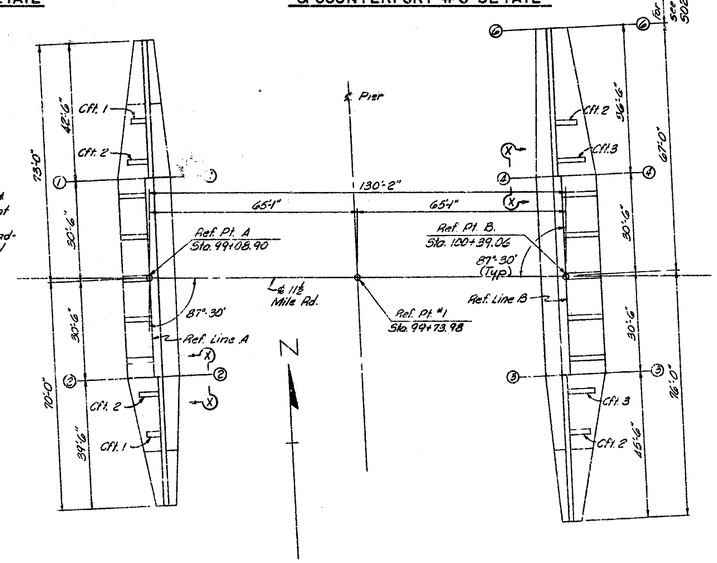


WALL DRAIN DETAIL

(Incidental to substructure concrete)



SECTION W-W



LOCATION DIAGRAM

MISCELLANEOUS QUANTITIES				
ITEM	UNIT	ABUT. A	ABUT. B	TOTAL
½" Joint Filler	Sq. Ft.	16	20	36
¾" Joint Filler	Sq. Ft.	2	2	4
1" Joint Filler	Sq. Ft.	71	88	159
Jt. Waterprfg.	Sq. Ft.	290	360	650**
Unclass. Excav.	Cu. Yds.	526	852	1378
*5" Pipe Sleeves, Placed	Each	(See Sheet 114)		

* Chargeable to Detroit Edison Co.

** Includes 14 Sq. Ft. Chargeable to Detroit Edison Co.

NOTES:

C.W.S. denotes copper waterstop.
J.W.P. denotes joint waterproofing.
N.S. denotes nearside.
F.S. denotes farside.
B.S. denotes bothsides.
For Bevel and Molding Details, see Standard Sheet R11.
For location of Name Plates, see Sheet 107 and R11; for mounting Details, see Standard Sheet R11.
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 anchor bolts.
Field bend steel reinforcement to clear drain holes.
The top of abut. shall be finished to a true plane at the elevation shown and shall not vary more than ⅛" under a ten foot straight edge nor more than 1/16" under any bearing.
This design is based on a maximum foundation pressure of 5300 pounds per square foot and a maximum average foundation pressure of 5100 pounds per square foot.

Work this Sheet with Sheets 107, 108, 109 & 110

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT DETAILS

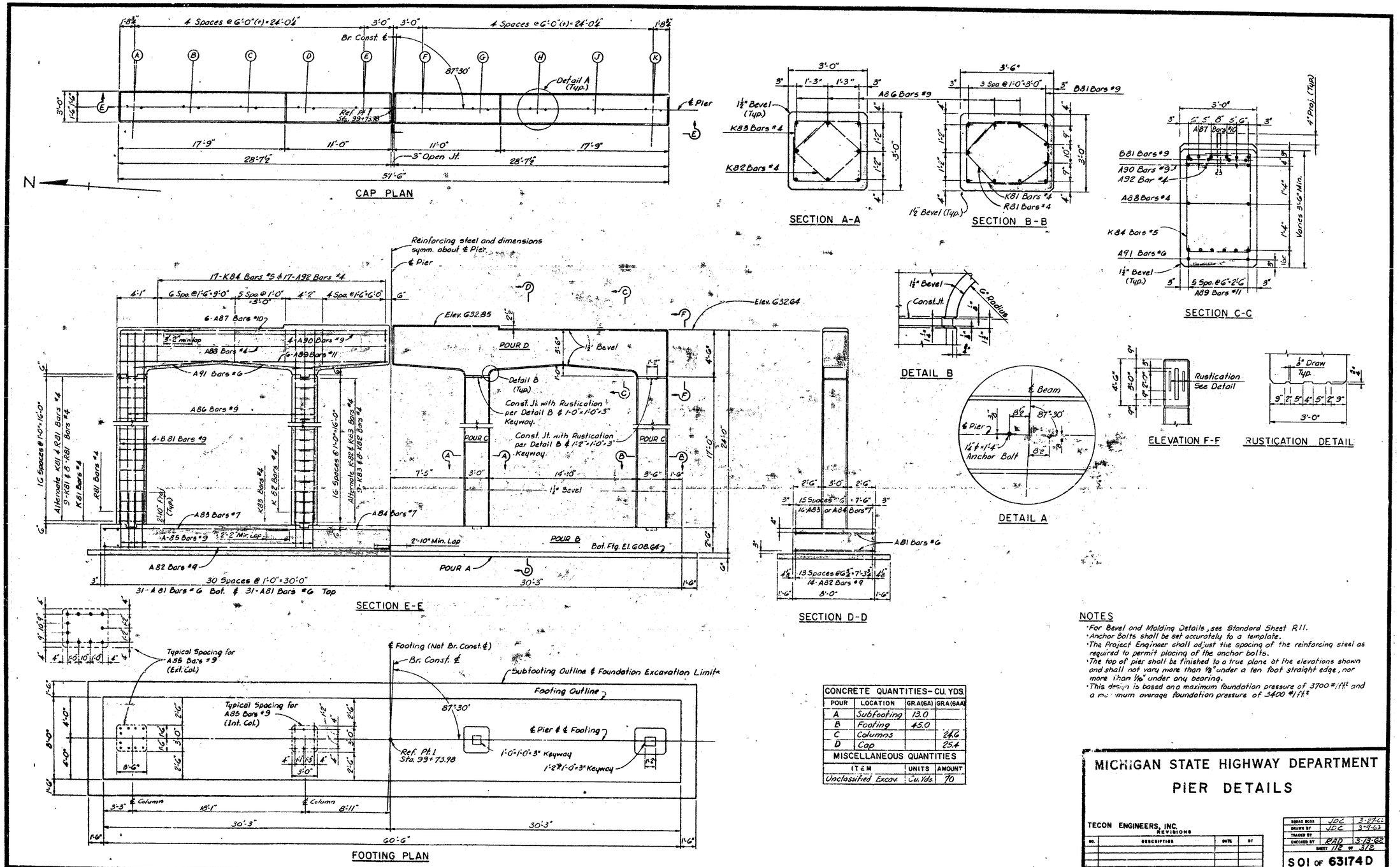
TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	JDC	2-27-62
DRAWN BY	D.R.S.	2-28-62
TRACED BY		
CHECKED BY	WEC	3-15-62
SHEET 111 OF 312		

S01 OF 63174D



CONCRETE QUANTITIES – CU. YDS.			
POUR	LOCATION	GR.A(GA)	GR.A(GAA)
A	Subfooting	13.0	
B	Footing	45.0	
C	Columns		24.6
D	Cap		25.4

MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
Unclassified Excav.	Cu. Yds	70

NOTES

- For Bevel and Molding Details, see Standard Sheet R11.
- 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 shall be finished to a true plane at the elevations shown and shall not vary more than 1/8" under a ten foot straight edge, nor more than 1/16" under any bearing.
- This design is based on a maximum foundation pressure of 3700 #/ft² and a maximum average foundation pressure of 3400 #/ft².

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER DETAILS

TECON ENGINEERS, INC.

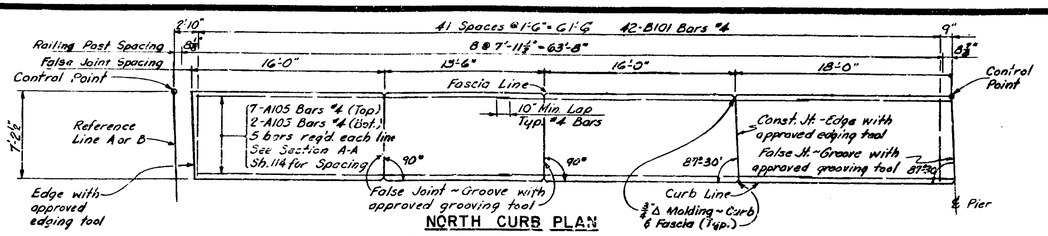
REVISIONS

NO.	DESCRIPTION	DATE	BY

ROAD BOSS	JDC	3-27-62
DRAWN BY	JDC	3-4-62
TRACED BY		
CHECKED BY	RAD	3-13-62

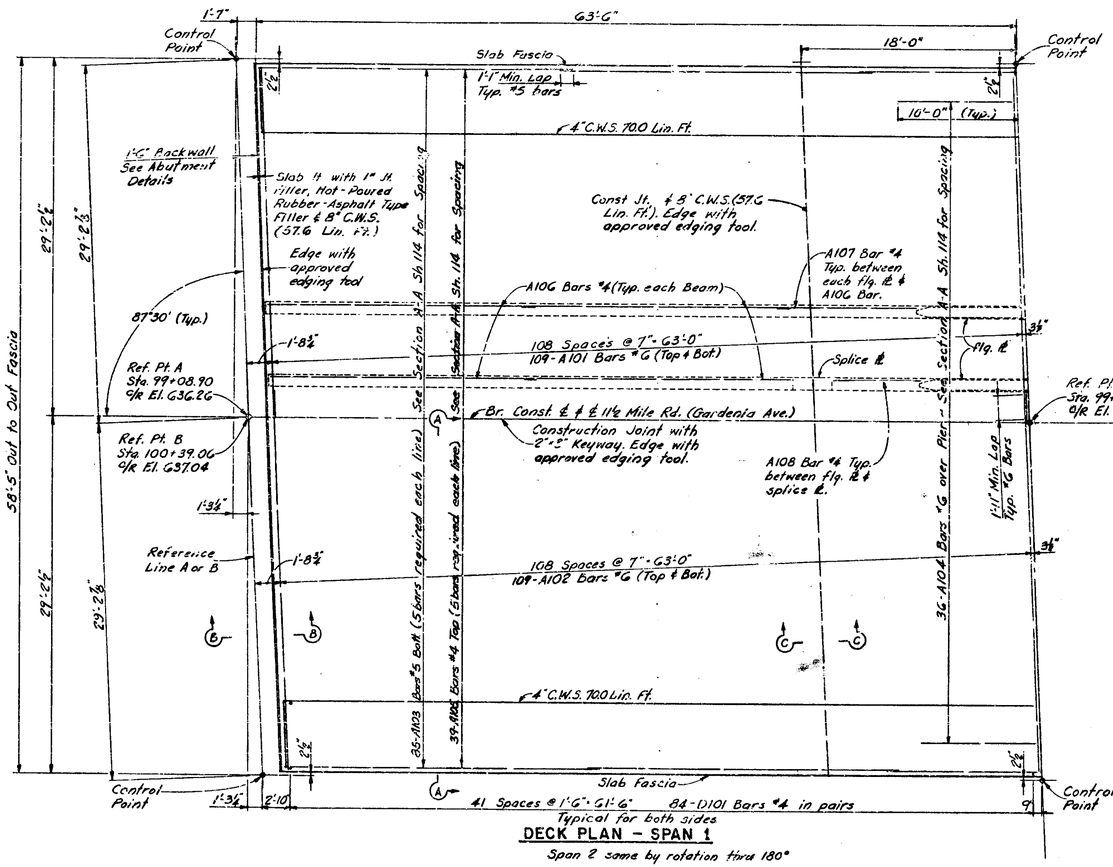
SHEET 12 OF 32

S01 OF 63174D



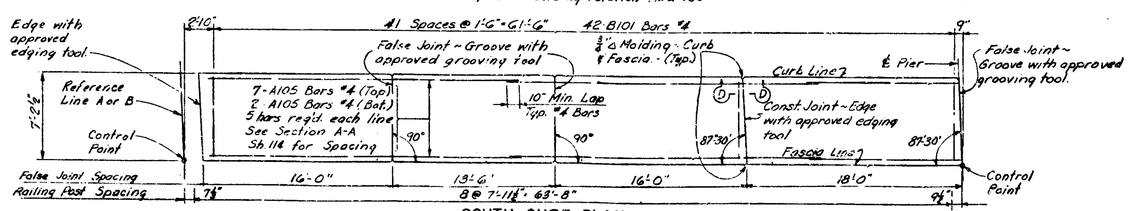
NORTH CURB PLAN

Railing not shown, for details see Sh. 115



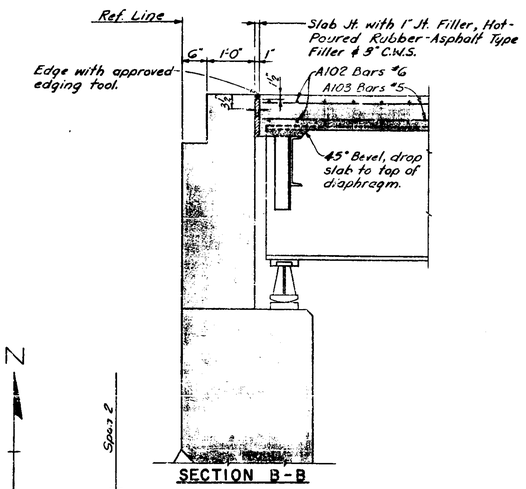
DECK PLAN - SPAN 1

Span 2 same by rotation thru 180°

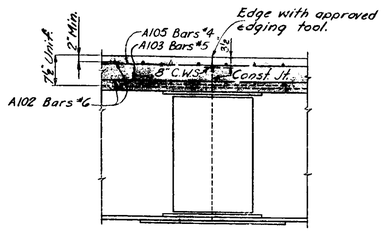


SOUTH CURB PLAN

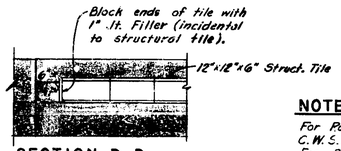
Railing not shown, for details see Sh. 115



SECTION B-B



SECTION C-C



SECTION D-D

NOTES

For Railing Details, See Sheet No. 115.
C.W.S. indicates copper waterstop.
For Bevel and Molding Details, See Std. Sheet P11.
Edge and Groove denote Edging or Grooving with an approved tool.
*A permanent camber, extending over the entire length of the bridge with a middle ordinate of 1", shall be placed in the tops of the sidewalks.
Elevations shown are for top of screed before pouring any concrete and are based on a minimum slab thickness of 7½". After screeds are set, if check indicates that less than the minimum thickness will be obtained, adjust screeds accordingly.
The slab ordinates shown provide for dead load deflection & crown, and are to be measured from the top of the beam indicated (on a line parallel to the reference lines) to the top of the screed.
Screeds affected by loads in other spans are to be set to the elevations shown and checked for minimum slab thickness before pouring any concrete.
Concrete in Pours A thru D is to be placed before the concrete in Pours E and F. Concrete in Pours E and F is to be placed from each construction joint toward the ℄ Pier.
Deflection at ℄ of Span 1 and Span 2, which includes structural steel erected, formwork, and steel reinforcement in place, is 0.093".
Work this Sheet with Sheets 114 & 115

MICHIGAN STATE HIGHWAY DEPARTMENT

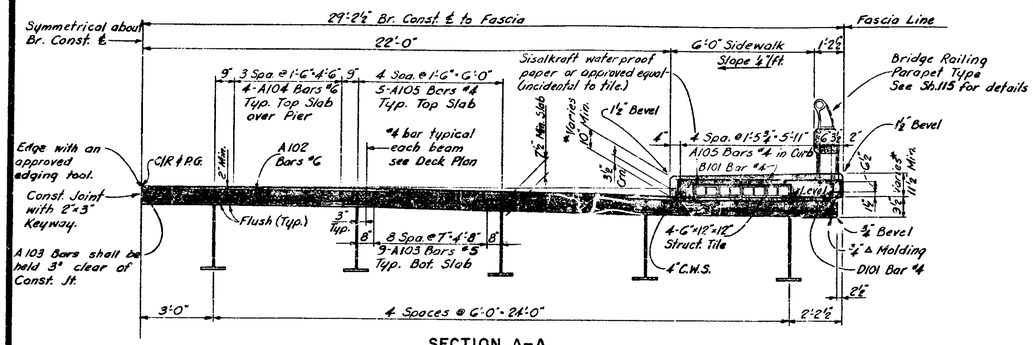
SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO	DESCRIPTION	DATE	BY

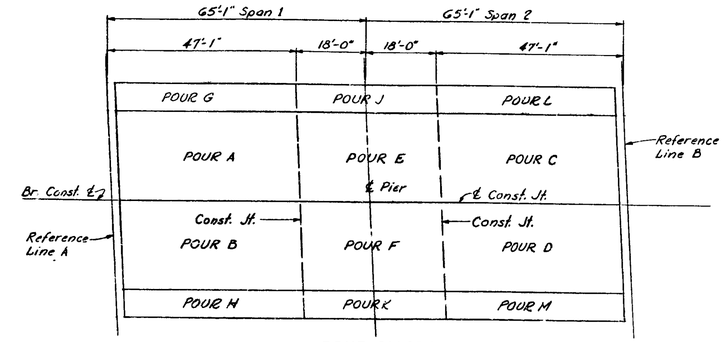
SQUAD NOS	JZC	3-27-62
DRAWN BY	JLC	1-26-62
TRACED BY		
CHECKED BY	RAD	2-15-62
SHEET 113 OF 312		

S01 OF 63174 D



SECTION A-A

*See Sidewalk Camber Note Sheet 113

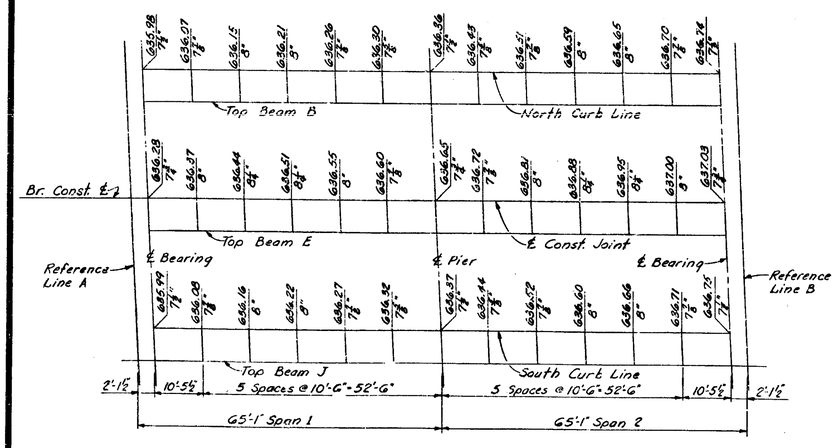


POUR DIAGRAM

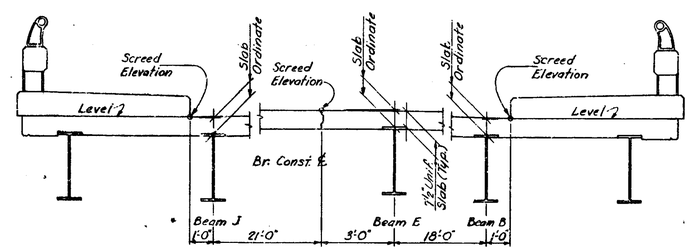
Pours are to be placed in alphabetical order.

CONCRETE QUANTITIES GRADE A (6AA) - CU. YDS.													
POUR	A	B	C	D	E	F	G	H	J	K	L	M	Total
AMOUNT	36.1	36.1	36.1	36.1	27.1	27.1	8.0	8.0	6.7	6.7	8.0	8.0	244.0

MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
1" Joint Filler	Sq. Ft.	96
Copper	Lbs.	247
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	115
Bridge Railing - Parapet Type	Lin. Ft.	260.0
12"x12"x6" Structural Tile	ea.	792



TOP OF SCREED ELEVATIONS AND SLAB ORDINATES



SECTION SHOWING METHOD FOR MEASURING SLAB ORDINATES

Work this Sheet with Sheets 113 & 115

MICHIGAN STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

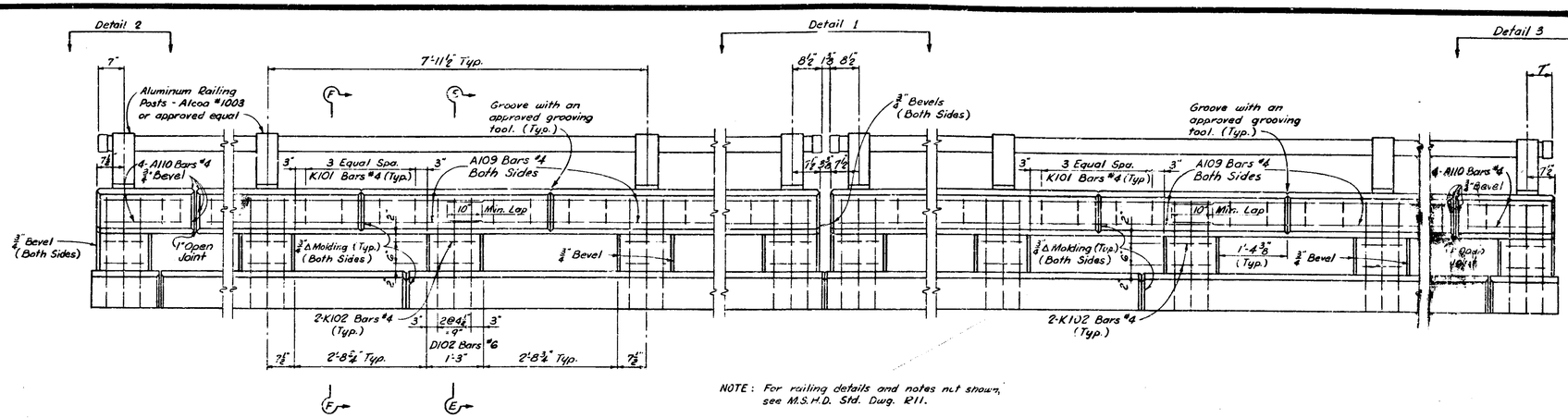
REVISIONS

NO.	DESCRIPTION	DATE	BY

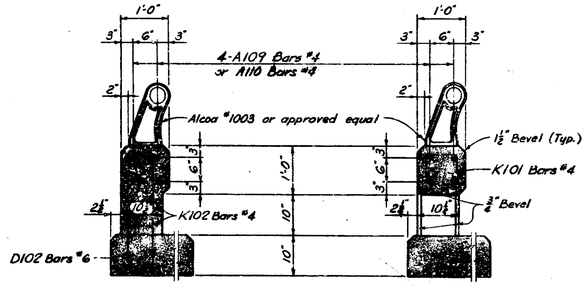
SQUAD BOSS	JDC	3-7-62
DRAWN BY	JDC	1-29-62
TRACED BY		
CHECKED BY	RAD	2-13-62

SHEET 114 OF 812

S01 OF 63174 D

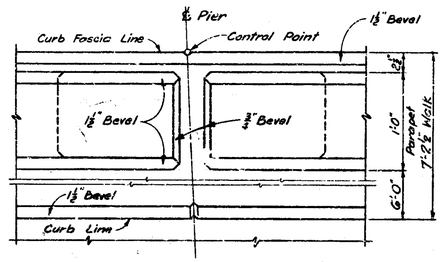


INSIDE ELEVATION - BRIDGE RAILING - PARAPET TYPE

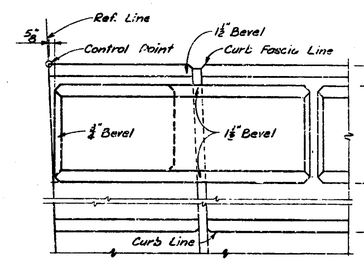


SECTION E-E

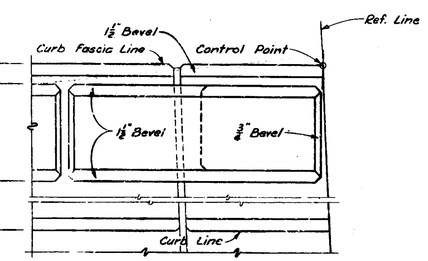
SECTION F-F



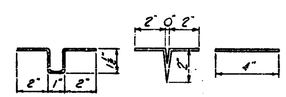
DETAIL 1



DETAIL 2

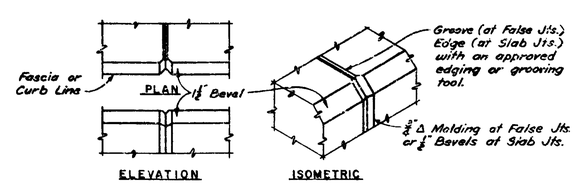


DETAIL 3



8" C.W.S. @ Abutments — 8" C.W.S. @ Const. Jts. — 4" C.W.S.

COPPER WATERSTOP DETAILS



MOLDING DETAILS

Work this sheet with sheets 113 & 114

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

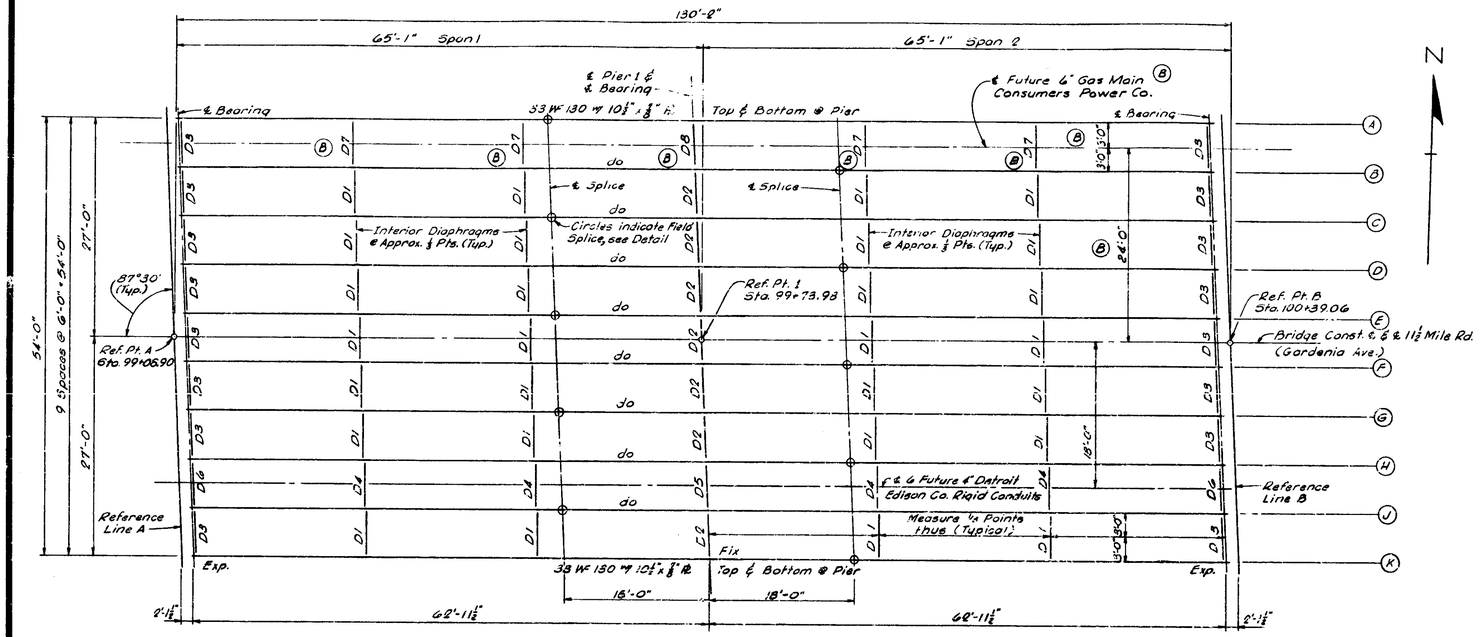
REVISIONS

no.	DESCRIPTION	DATE	BY

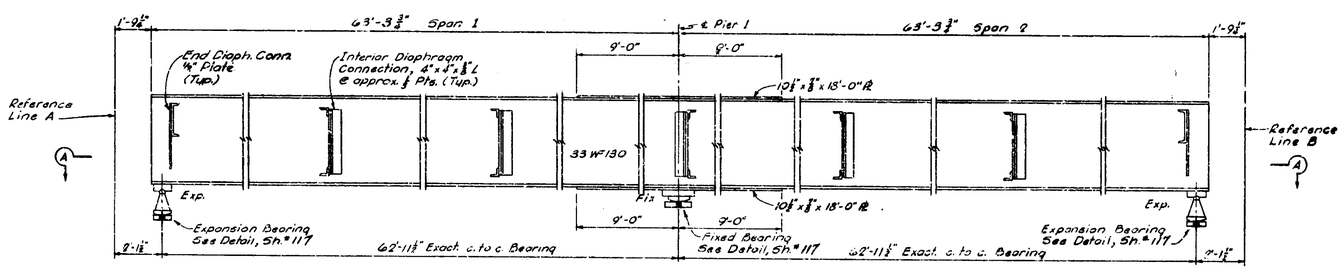
SQUAD BOSS	JDC	3-27-62
DRAWN BY	JDC	1-30-62
TRACED BY		
CHECKED BY	RAD	2-15-62

SHEET 113 OF 312

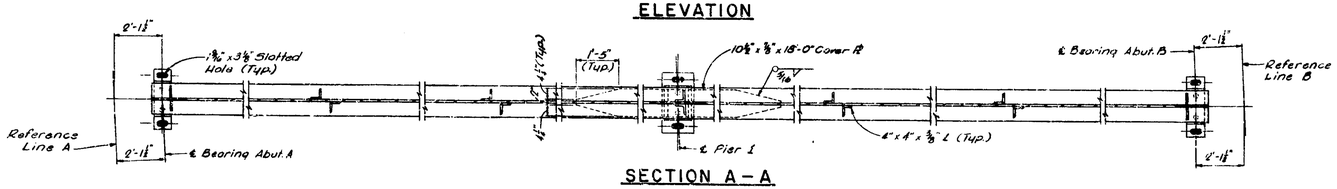
S01 OF 63174D



ERECTION DIAGRAM



ELEVATION



SECTION A-A

NOTE: Interior Beam shown. Fascia Beam same except diaphragm connections on one side only.

ITEMS CHARGEABLE TO DETROIT EDISON CO.	
Structural Steel	200 lbs.
5" Pipe Sleeves - Placed	12 Ea.
Joint Waterproofing	14 S.F.

ITEMS CHARGEABLE TO CONSUMERS POWER CO.		
Item	Unit	Quantity
10" Pipe Sleeves - Placed	Each	2

STRUCTURAL STEEL NOTES:

Fabrication: Michigan State Highway Department's Standard Specifications for Road & Bridge Construction - 1960 Edition.
Design: Michigan State Highway Department's Specifications for Design of Highway Bridges - 1958 Edition. H20-44 Loading. Allowable Live Load + Impact Deflection = Span ÷ 800.
Shop Connections: All Shop connections shall be welded as shown on the plans.
Field Connections: Field connections, unless otherwise noted, shall be bolted with high-strength bolts. Contact surfaces shall be thoroughly cleaned immediately prior to assembly of joints.
High-Strength Bolts: ¾" ϕ except Field Splice. ⅞" ϕ High-Strength Bolts for Field Splice.
Open Holes: Open holes for high-strength bolts shall be 13/16" ϕ for ¾" Bolts and 15/16" for ⅞" ϕ bolts.
Shop Paint: In addition to the shop paint provisions of the Standard Specifications the top surfaces of masonry plates shall be coated in accordance with the requirements for machine finished surfaces.
No camber required. Any beam with natural camber shall be fabricated with the camber up.
Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ⅜" and welded, with a continuous weld, for the full perimeter. Welds shall be ground flush with faces of plate.
All beams and cover plates shall conform to the requirements for welding A.S.T.M. A-373. All other steel shall be A-7.
The quantity "Structural Steel - Furnishing and Fabricating" includes:

A-7 Steel	26,800#	(Includes 200# chargeable to Detroit Edison Co.)
A-373 Steel	175,850#	
Lead Plates	250#	
Total 202,900#	Structural Steel - Furnishing & Fabricating	
Total 202,900#	Structural Steel - Erection	

Field Painting - Lump Sum

NOTE: Steel fabricator to furnish 2 - 1" ϕ x 1'-0" anchor bolts to be placed in backwall of abutments as shown on sheet 107.

Work this sheet with sheet 117

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

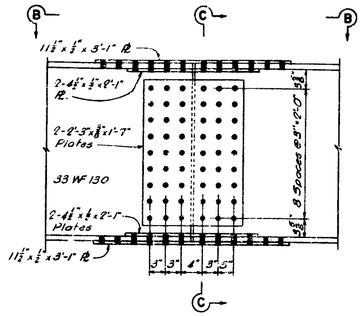
TECON ENGINEERS, INC.

REVISIONS

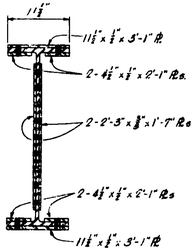
NO.	DESCRIPTION	DATE	BY
8	Added prov. for 6" gas main	4-24-63	R.E.

SQUAD BOSS	JCC	3-27-62
DRAWN BY	M.B.A.	
TRACED BY		
CHECKED BY	RAD	2-16-62
SHEET 116 OF 372		

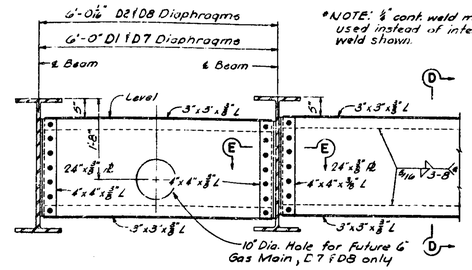
S01 OF 63174D



FIELD SPLICE DETAIL

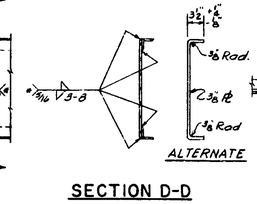


SECTION C-C

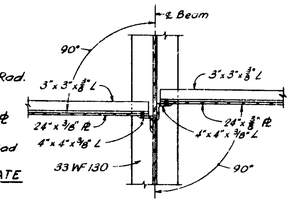


*NOTE: ⅛" cont. weld may be used instead of intermittent weld shown.

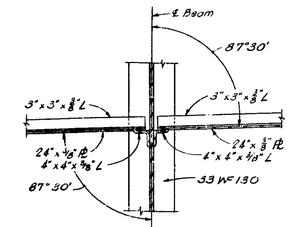
DIAPHRAGM D1, D2, D7 & D8 (8)



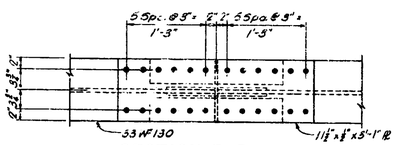
SECTION D-D



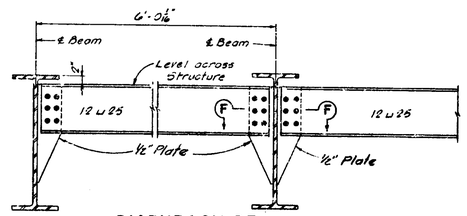
SECTION E-E
FOR DIAPHRAGM D1



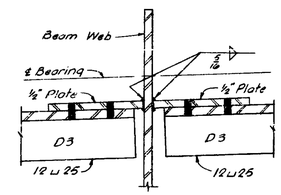
SECTION E-E
FOR DIAPHRAGM D2



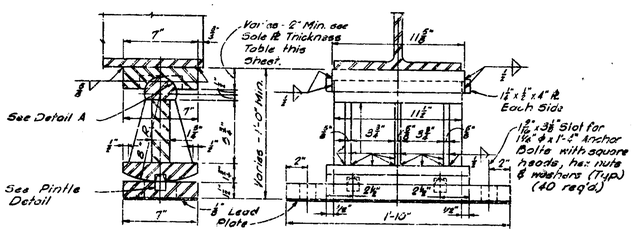
SECTION B-B



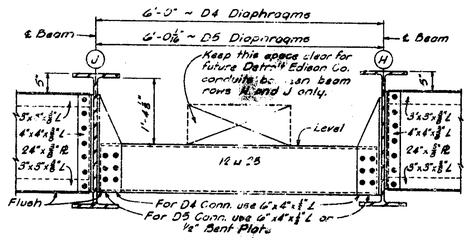
DIAPHRAGM D3



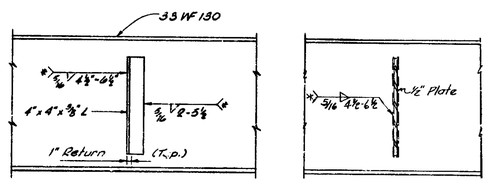
SHOWING CONNECTIONS FOR DIAPHRAGM D3 & D6
SECTION F-F



EXPANSION BEARING DETAIL - ABUT. A & B

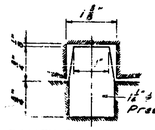


DIAPHRAGMS D4 & D5



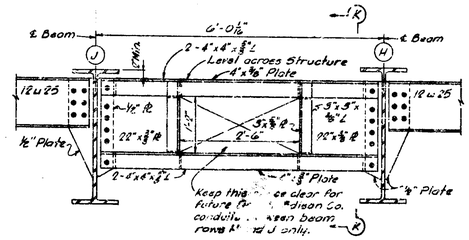
TYPICAL CONNECTION FOR D1, D2, D4, D5 - ALTERNATE CONN.

SOLE PLATE THICKNESS TABLE			
BEAM LINE	ABUT. A	PIER 1	ABUT. B
A	2"	2"	2"
B	2"	2"	2"
C	3⅛"	3⅜"	3⅜"
D	2"	2"	2"
E	2⅜"	2⅜"	2⅜"
F	2⅜"	2⅜"	2⅜"
G	2"	2"	2"
H	3½"	3½"	3½"
J	2½"	2½"	2½"
K	2⅛"	2⅛"	2⅛"

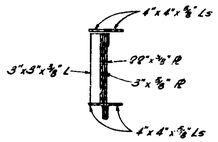


PINTLE DETAIL

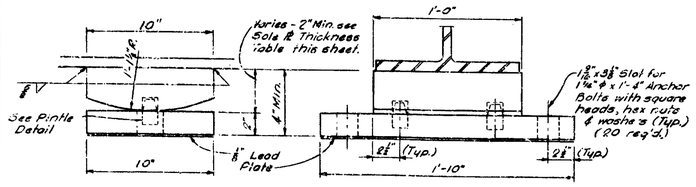
DETAIL A



DIAPHRAGM D6



SECTION K-K



FIXED BEARING DETAIL - PIER 1

Work this sheet with sheet 116

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

TECON ENGINEERS, INC.

REVISIONS

NO	DESCRIPTION	DATE	BY
B	Added prov. for 6" Gas Main	4-24-63	R.E.

SQUAD BOSS	J.D.C.	3-27-62
DRAWN BY	N.B.A.	
TRACED BY		
CHECKED BY	R.A.D.	2-18-62
SHEET 117 OF 312		

S01 OF 63174D

ABUTMENTS

BAR	DIMENSIONS a	b	c	d	e	ABUTMENT A	B	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A1	7'-6"					140	64	8	7'-6"	204	4085
A2	9'-10"					82	0	6	9'-10"	82	1211
A3	8'-4"					0	148	9	8'-4"	148	4193
A4	12'-4"					0	82	6	12'-4"	82	1519
A5	21'-6"					63	81	6	21'-6"	144	4650
A6	30'-9"					26	28	4	30'-9"	54	1109
A7	4'-11"					124	124	6	4'-11"	248	1831
A8	21'-0"					56	116	6	21'-0"	172	5425
A9	5'-2"					110	150	7	5'-2"	260	2746
A10	22'-6"					99	205	6	22'-6"	304	10274
A11	17'-0"					134	0	6	17'-0"	134	3422
A12		Not Used									
A13		Not Used									
A14		Not Used									
A15	32'-0"					20	20	10	32'-0"	40	5508
A16	8'-0"					6	6	4	8'-0"	12	64
A17	6'-0"					8	8	4	6'-0"	16	64
A18	5'-7"					71	72	6	5'-7"	143	1199
A19	11'-0"					0	8	7	11'-0"	8	180
A20	22'-6"					8	10	4	22'-6"	18	271
A21	15'-9"					0	44	4	15'-9"	44	463
A22	9'-2"					0	13	8	9'-2"	13	318
A23	8'-6"					0	23	8	8'-6"	23	522
A24	23'-6"					0	14	4	23'-6"	14	220
A25	22'-6"					0	40	7	22'-6"	40	1840
A26	4'-5"					163	158	6	4'-5"	321	2129
A27	5'-4"					0	48	9	5'-4"	48	870
A28	19'-4"					0	6	9	19'-4"	6	394
A29	17'-10"					0	12	9	17'-10"	12	728
A30	16'-4"					0	12	9	16'-4"	12	666
A31	14'-10"					0	9	9	14'-10"	9	454
A32	13'-4"					0	6	9	13'-4"	6	272
A33	12'-4"					0	3	9	12'-4"	3	126
A34	19'-4"					0	3	6	19'-4"	3	87
A35	17'-10"					0	6	6	17'-10"	6	161
A36	16'-4"					0	8	6	16'-4"	8	196
A37	14'-10"					0	6	6	14'-10"	6	134
A38	13'-4"					0	6	6	13'-4"	6	120
A39	12'-4"					6	3	6	12'-4"	9	167
A40	10'-10"					0	6	6	10'-10"	6	98
A41	9'-4"					0	6	6	9'-4"	6	84
A42	7'-10"					0	4	6	7'-10"	4	47
A43	3'-11"					49	8	6	3'-11"	57	335
A44	24'-6"					0	2	6	24'-6"	2	74
A45	25'-0"					4	2	6	25'-0"	6	225
A46	7'-3"					0	5	6	7'-3"	5	54
A47	20'-6"					14	0	4	20'-6"	14	192
A48			Not Used								
A49			Not Used								
A50	17'-6"					14	0	4	17'-6"	14	164
A51	8'-7"					0	13	6	8'-7"	13	168
A52	5'-4"					10	0	6	5'-4"	10	80
A53	12'-10"					18	0	6	12'-10"	18	347
A54	11'-4"					18	0	6	11'-4"	18	306
A55	9'-10"					12	0	6	9'-10"	12	177
A56	8'-4"					12	0	6	8'-4"	12	150
A57	6'-10"					52	0	6	6'-10"	52	534
A58	3'-10"					4	0	6	3'-10"	4	23
A59	22'-2"					0	16	4	22'-2"	16	237
A60	18'-3"					2	0	6	18'-3"	2	55
A61	19'-2"					8	0	4	19'-2"	8	102
A62	16'-2"					12	0	4	16'-2"	12	130
B1	2'-0"	4'-0"				28	26	4	6'-0"	54	216
B2	2'-0"	2'-9"				4	2	4	4'-9"	6	19
B3	2'-0"	4'-3"				0	2	4	6'-3"	2	8
D1	5'-3"	1'-2"	4'-3"			29	29	6	10'-6"	58	915
D2	6'-1"	1'-2"	6'-1"			10	10	6	13'-2"	20	396
D3	6'-8"	1'-2"	6'-8"			0	70	5	14'-5"	70	1053
D4	5'-5"	1'-2"	5'-5"			50	50	5	11'-11"	100	1243
D5	4'-2"	1'-2"	4'-2"			40	40	5	9'-5"	80	786
D6	3'-0"	1'-2"	3'-0"			30	30	5	7'-1"	60	443
D7	2'-8"	1'-2"	2'-8"			32	32	5	6'-5"	64	428
D8	3'-6"	1'-2"	3'-6"			40	40	5	8'-1"	80	674
D9	4'-6"	1'-2"	4'-6"			24	48	5	10'-1"	72	757
D10	5'-6"	1'-2"	5'-6"			0	24	5	12'-1"	24	303

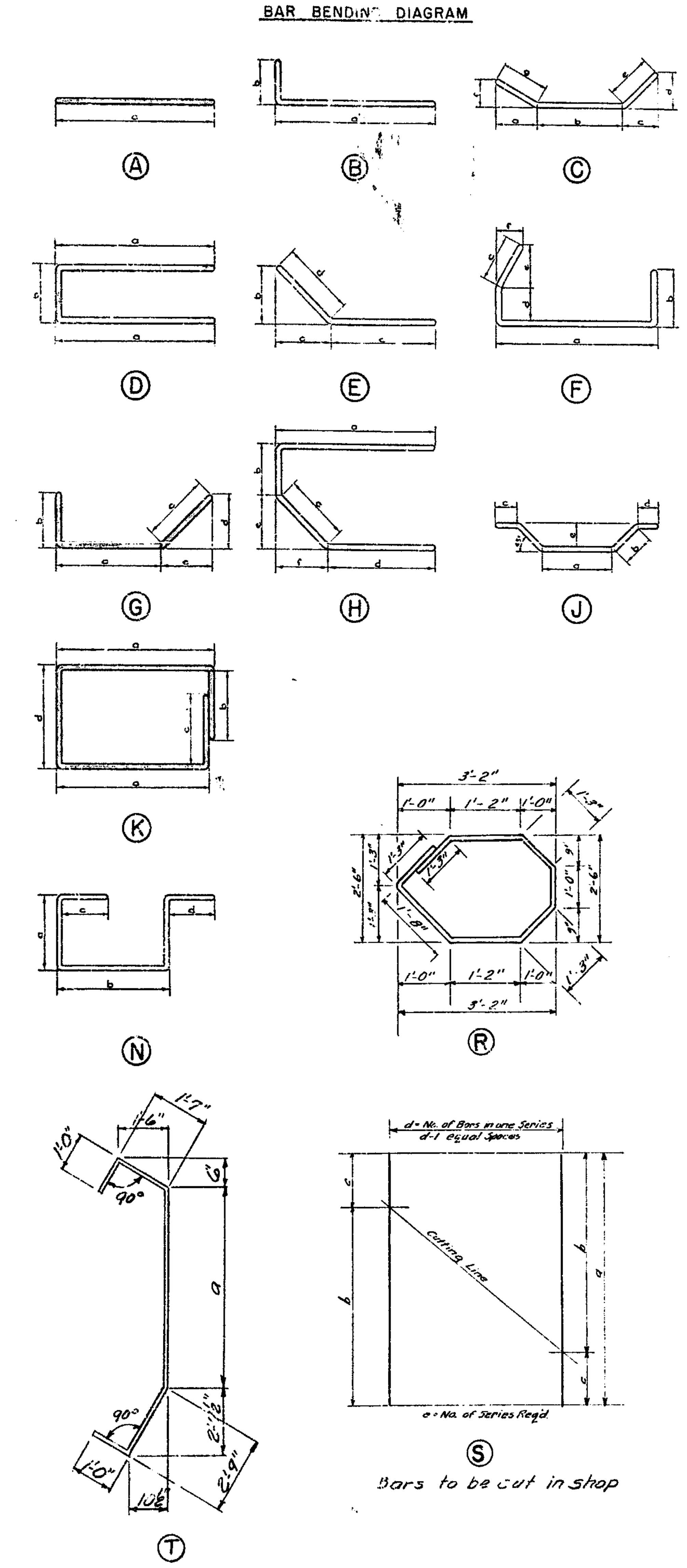
ABUTMENTS

BAR	DIMENSIONS a	b	c	d	e	ABUTMENT A	B	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
G1	3'-3"	1'-0"	2'-6	1'-1½"	2'-3"	0	10	8	6'-9"	10	180
G2	3'-3"	1'-0"	12'-6"	5'-6⅛"	11'-2½"	0	20	11	16'-9"	20	1780
G3	3'-3"	1'-0"	24'-6"	10-10"	21'-11"	0	20	11	28'-9	20	3055
G4	3'-3"	1'-0"	6'-6"	2'-11"	5'-10"	10	0	11	10'-9"	10	571
G5	3'-3"	1'-0"	18'-6"	8'-5"	16'-6"	20	0	11	22'-9"	20	2417
G6	2'-9"	1'-0"	3'-6"	1'-1½"	3'-4"	4	4	11	7'-3"	8	308
G7	2'-9"	1'-0"	8'-0"	2'-6½"	7'-7"	4	4	11	11'-9"	8	499
G8	2'-9"	1'-0"	4'-0"	1'-3"	3'-9½"	4	0	11	[illegible]	4	165
G9	2'-9"	1'-0"	14'-0"	4'-5"	13'-3½"	0	4	11	[illegible]	4	377
G10	2'-9"	1'-0"	9'-0"	2'-10"	8'-6½"	0	8	11	[illegible]	8	542
K1	2'-11"	1'-7"	1'-7"	2'-5"		41	41	4	11'-4"	82	621
K2	8"	1'-7"	1'-7"	2'-5"		8	8	4	6'-10"	16	73
K3	1'-2"	1'-10"	1'-10"	2'-8"		5	5	5	8'-7"	10	90
K4	1'-2"	1'-6"	1'-6"	2'-3"		4	4	5	7'-6"	8	63
K5	1'-2"	1'-9"	1'-9"	2'-7"		4	4	5	8'-4"	8	70
K6	1'-2"	1'-11"	1'-11"	2'-11"		4	4	5	9'-0"	8	75
S1	18'-0"	13'-9"	4'-3"	6	5	30	0	5	18'-0"	30	563
S2	24'-9"	19'-6"	5'-3"	8	5	0	40	5	24'-9"	40	1033
S3	20'-7"	12'-4"	8'-3"	16	1	0	16	6	20'-7"	16	495
S4	21'-1"	12'-4"	8'-9"	15	1	0	15	6	21'-1"	15	475
S5	22'-0"	18'-6"	3'-6"	6	3	12	6	6	22'-0"	18	595
S6	47'-0"	29'-0"	18'-0"	22	7	0	22	6	47'-0"	22	1553
S7	48'-6"	29'-0"	19'-6"	21	7	0	21	6	48'-6"	21	1530
S8	14'-0"	11'-6"	2'-6"	4	1	0	4	4	14'-0"	4	37
S9	23'-0"	20'-6"	2'-6"	7	1	0	7	4	23'-0"	7	108
S10	22'-0"	17'-0"	5'-0"	5	1	0	5	6	22'-0"	5	165
S11	16'-9"	10'-0"	6'-9"	16	2	32	0	6	16'-9"	32	805
S12	36'-0"	23'-6"	12'-6"	22	2	44	0	6	36'-0"	44	2379
S13	17'-0"	14'-6"	2'-6"	5	1	5	0	4	17'-0"	5	57
S14	20'-0"	17'-6"	2'-6"	6	1	6	0	4	20'-0"	6	80
S15	32'-6"	25'-3"	7'-3"	7	2	0	14	5	32'-6"	14	475
S16	26'-6"	19'-3"	7'-3"	5	4	10	10	5	26'-6"	20	553
S17	18'-3"	13'-9"	4'-6"	4	2	8	0	5	18'-3"	8	152
T1	20'-0"					4	4	11	26'-4"	8	1119
T2	14'-3"					4	0	11	20'-7"	4	437
T3	26'-4"					0	4	11	32'-8"	4	694
					Total	Weight	Abutments	-	Lbs.		92631

PIER / SUPERSTRUCTURE

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A81	7'-6"							6	7'-6"	122	1374
A82	31'-6"							9	31'-6"	28	2999
A83	19'-6"							7	19'-6"	32	1275
A84	25'-6"							7	25'-6"	16	834
A85	5'-4"							9	5'-4"	38	689
A86	21'-0"							9	21'-0"	30	2142
A87	25'-4"							10	25'-4"	12	1308
A88	28'-2"							4	28'-2"	4	75
A89	28'-2"							11	28'-2"	12	1796
A90	28'-2"							9	28'-2"	8	766
A91	9'-10"							6	9'-10"	12	177
A92	2'-8"							4	2'-8"	34	61
B81	21'-2"	6'-0"						9	27'-1"	8	737
K81	3'-2"	1'-7½"	1'-7½"	2'-6"				4	12'-0"	18	144
K82	1'-11"	1'-4"	1'-4"	1'-11"				4	8'-4"	16	89
K83	2'-8"	1'-7½"	1'-7½"	2'-6"				4	11'-0"	18	132
K84	3'-2"	1'-10"	1'-10"	2'-8"				5	12'-7"	34	446
R81								4	10'-0"	16	107
						Total	Weight	Pier	- Lbs.		15151
A101	28'-8"							6	28'-8"	436	18773
A102	30'-11"							6	30'-11"	436	20246
A103	26'-3"							5	26'-3"	425	11636
A104	20'-0"							6	20'-0"	36	1081
A105	26'-0"							4	26'-0	285	4950
A106	22'-4"							4	22'-4"	40	597
A107	11'-4"							4	11'-4"	10	76
A108	7'-6"							4	7'-6"	10	50
A109	31'-5"							4	31'-5"	32	672
A110	2'-3"							4	2'-3"	16	24
B101	8"	6'-10"						4	7'-6"	168	842
D101	6"	1'-4"	6"					4	2'-4"	336	524
D102	2'-5⅞"	6¾"	2'-5⅞"					6	5'-5"	204	1660
K101	7½"	5½"	6"	7½"				4	2'-9"	256	470
K102	10¾"	5¾"	6"	7¾"				4	3'-4"	136	303
					Total	Weight	Superstructure -	Lbs.			61904

BAR BENDING DIAGRAM



Note :—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 169,686 #

MICHIGAN STATE HIGHWAY DEPARTMENT

STEEL REINFORCEMENT DETAILS

TECON ENGINEERS, INC.

REVISIONS

NO	DESCRIPTION	DATE	BY

SQUAD BOSS	JFC	3-27-62
DRAWN BY	JFC	
TRACED BY		
CHECKED BY	RAD	3-27-62
SHEET 118 OF 312		

S01 OF 63174D

S02 of 63174 D

CS: 63174

ID: S02

MICHIGAN

STATE HIGHWAY DEPARTMENT

JOHN C. MACKIE

STATE HIGHWAY COMMISSIONER

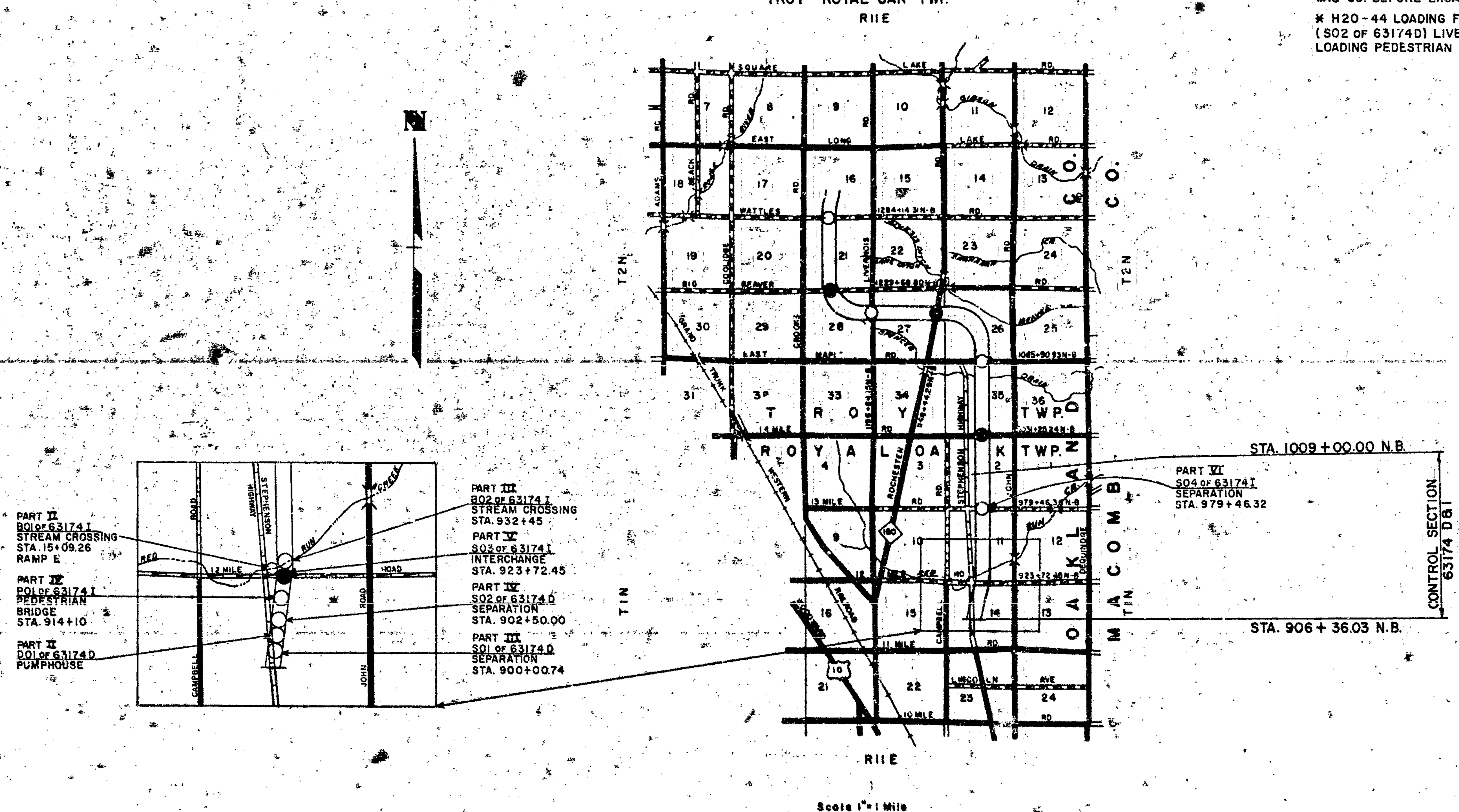
MICHIGAN PROJECT I 75-2 (75)62

CONTROL SECTION BI 63174 D C14 PARTS II THRU IV / BI 63174 I C5 PARTS II THRU VI

WALTER P. CHRYSLER EXPRESSWAY

OAKLAND COUNTY

TROY - ROYAL OAK TWP.



NOTES:

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN STATE HIGHWAY DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1960 EDITION.

THE DESIGN OF THESE STRUCTURES IS BASED ON THE MICHIGAN STATE HIGHWAY DEPARTMENT'S SPECIFICATIONS FOR THE DESIGN OF HIGHWAY BRIDGES, 1958 EDITION H20-S16-44 AND ALTERNATE MILITARY LOADING, LIVE LOAD PLUS IMPACT DEFLECTION = $\frac{1}{1000}$ OF SPAN LENGTH.*

THE CHARACTER OF ALL MATERIALS AND THE EXTENT THEREOF AS SHOWN BY BORINGS HAS BEEN OBTAINED BY METHODS AND FROM SOURCES BELIEVED TO BE RELIABLE. THE EXACTNESS OF THIS INFORMATION IS, HOWEVER, IN NO CASE GUARANTEED. BORING DATA IS AVAILABLE IN THE DESIGN OFFICE AT LANSING.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH ½" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

TRUNK LINE TRAFFIC WILL BE REROUTED BY THE DEPARTMENT DURING CONSTRUCTION.

THE LOCATION OF GAS MAINS SHOWN ON THESE PLANS IS BELIEVED TO BE CORRECT. THE CONTRACTOR SHALL, HOWEVER, CHECK ALL SUCH LOCATIONS WITH THE MICHIGAN CONSOLIDATED GAS CO. BEFORE EXCAVATION IS STARTED.

* H20-44 LOADING FOR 11½ MILE ROAD (S01 OF 63174D) AND NORTHBOUND SERVICE ROAD (S02 OF 63174D) LIVE LOAD PLUS IMPACT DEFLECTION = $\frac{1}{800}$ OF SPAN LENGTH. FOR DESIGN LOADING PEDESTRIAN BRIDGE (P01 OF 63174 I) SEE SHEET 139.

CONTROL SECTIONS NO. 63174 D & I

CONTRACT FOR BRIDGES & PUMPHOUSE

DIVISION APPROVAL

CHECKED ______ ENGINEER OF DESIGN - CONSULTANTS ______ DATE

RECOMMENDED FOR APPROVAL ______ TRAFFIC ENGINEER ______ DATE

RECOMMENDED FOR APPROVAL ______ ENGINEER OF BRIDGE AND ROAD DESIGN ______ DATE

OFFICES OF DESIGN AND CONSTRUCTION

APPROVED ______ CONSTRUCTION ENGINEER ______ DATE

APPROVED ______ CHIEF OF DESIGN ______ DATE

STATE HIGHWAY DEPARTMENT APPROVAL

APPROVED JOHN C. MACKIE, STATE HIGHWAY COMMISSIONER

BY ______ DIRECTOR OF ENGINEERING - CHIEF ENGINEER ______ DATE

PLANS PREPARED BY TECON ENGINEERS INC.

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED [redacted]
DIVISION ENGINEER DATE

CONTROL SECTION 63174 D & I

P01, S03, S04, B01 & B02 OF 63174I — D01, S01, S02 OF 63174D

FILE NO. USE NO. 500 STENCIL		CONTROL SECTION	FEDERAL PROJECT	SHEET NO.
	P01, S03, S04, B01 & B02 OF 63174I D01, S01, S02 OF 63174 D	63174		101

PLAN INDEX

SHEET NO.	DESCRIPTION
101	TITLE SHEET
102	INDEX OF DRAWINGS
	S01 OF 63174D - 11½ MILE ROAD
103	GENERAL PLAN OF SITE
104	LOG BORINGS
105	GENERAL PLAN OF STRUCTURE
106	BILL OF MATERIAL
107	ABUTMENT A DETAILS
108	ABUTMENT A DETAILS
109	ABUTMENT B DETAILS
110	ABUTMENT B DETAILS
111	ABUTMENT DETAILS
112	PIER DETAILS
113	SUPERSTRUCTURE DETAILS
114	SUPERSTRUCTURE DETAILS
115	SUPERSTRUCTURE DETAILS
116	STRUCTURAL STEEL DETAILS
117	STRUCTURAL STEEL DETAILS
118	STEEL REINFORCEMENT DETAILS
	S02 OF 63174D - NORTHBOUND SERVICE ROAD
119	GENERAL PLAN OF SITE
120	LOG OF BORINGS
121	GENERAL PLAN OF STRUCTURE
122	BILL OF MATERIAL
123	ABUTMENT A DETAILS
124	ABUTMENT A DETAILS
125A	ABUTMENT A DETAILS
126	ABUTMENT B DETAILS
127	ABUTMENT B DETAILS
128	ABUTMENT DETAILS
129	PIER DETAILS
130	SUPERSTRUCTURE DETAILS
131	SUPERSTRUCTURE DETAILS
132	SUPERSTRUCTURE DETAILS
133	SUPERSTRUCTURE DETAILS
134	METAL EXPANSION JOINT DETAILS
135	STRUCTURAL STEEL DETAILS
136	STRUCTURAL STEEL DETAILS
137A	STEEL REINFORCEMENT DETAILS
137B	STEEL REINFORCEMENT DETAILS
	P01 OF 63174D - PEDESTRIAN BRIDGE
138	GENERAL PLAN OF SITE
139	GENERAL PLAN OF STRUCTURE
140	BILL OF MATERIAL
141	RAMP APPROACH DETAILS
142	RAMP APPROACH DETAILS
143	RAMP PIER & DECK DETAILS
144	RAMP PIER & DECK DETAILS
145	BRIDGE PIER DETAILS
146	BRIDGE DECK DETAILS
147	STRUCTURAL STEEL DETAILS
148	STRUCTURAL STEEL DETAILS
149	HANDRAIL DETAILS
150	STEEL REINFORCEMENT DETAILS
125B	ABUTMENT A DETAILS
125C	ABUTMENT A DETAILS
	S03 OF 63174 I - 12 MILE ROAD
151	GENERAL PLAN OF SITE
152	LOG OF BORINGS
153	GENERAL PLAN OF STRUCTURE
154	BILL OF MATERIAL
155	STAKE OUT DIAGRAM
156	ABUTMENT A DETAILS
157	ABUTMENT A DETAILS

SHEET NO.	DESCRIPTION
158	ABUTMENT B DETAILS
159	ABUTMENT B DETAILS
160	ABUTMENT DETAILS
161	PIER DETAILS - PIER NO. 1 & 4
162	PIER DETAILS - PIER NO. 2 & 5
163	PIER DETAILS - PIER NO. 3 & 6
164	SUPERSTRUCTURE DETAILS
165	SUPERSTRUCTURE DETAILS
166	SUPERSTRUCTURE DETAILS
167	SUPERSTRUCTURE DETAILS
168	SUPERSTRUCTURE DETAILS
169	SUPERSTRUCTURE DETAILS
170	SUPERSTRUCTURE DETAILS
171	SUPERSTRUCTURE DETAILS
172	PRESTRESSED CONCRETE I BEAM DETAILS
173	PRESTRESSED CONCRETE I BEAM DETAILS
174	STEEL REINFORCEMENT DETAILS
	B01 OF 63174I - RAMPE (12 MILE ROAD)
175	GENERAL PLAN OF SITE
176	LOG OF BORINGS
177	GENERAL PLAN OF STRUCTURE
178	BILL OF MATERIAL
179	ABUTMENT DETAILS
180	PIER DETAILS - PIERS NO. 1 & 2
181	SUPERSTRUCTURE DETAILS
182	SUPERSTRUCTURE DETAILS
183	SUPERSTRUCTURE DETAILS
184	SUPERSTRUCTURE DETAILS
185	METAL EXPANSION JOINT DETAILS
186	STRUCTURAL STEEL DETAILS
187	STRUCTURAL STEEL DETAILS
188	STEEL REINFORCEMENT DETAILS
	B02 OF 63174 I - RED RUN DRAIN
189	GENERAL PLAN OF SITE
190	LOG OF BORINGS
191	GENERAL PLAN OF STRUCTURE
192	GENERAL PLAN OF STRUCTURE
193	CHANNEL CHANGE LAYOUT
194	CHANNEL CROSS SECTIONS
195	CHANNEL CROSS SECTIONS
196	BILL OF MATERIAL
197	ABUTMENT A DETAILS
198	ABUTMENT A DETAILS
199	ABUTMENT B DETAILS
200	ABUTMENT B DETAILS
201	ABUTMENT DETAILS
202	PIER DETAILS - PIER NO. 1 & 2
203	PIER DETAILS - PIER NO. 3 & 4
204	PIER DETAILS
205	SUPERSTRUCTURE DETAILS
206	SUPERSTRUCTURE DETAILS
207	SUPERSTRUCTURE DETAILS
208	SUPERSTRUCTURE DETAILS
209	SUPERSTRUCTURE DETAILS
210	SUPERSTRUCTURE DETAILS
211	SUPERSTRUCTURE DETAILS
212	SUPERSTRUCTURE DETAILS
213	SUPERSTRUCTURE DETAILS
214	SUPERSTRUCTURE DETAILS
215	METAL EXPANSION JOINT DETAILS - NORTHBOUND STR.
216	METAL EXPANSION JOINT DETAILS - SOUTHBOUND STR.
217	STRUCTURAL STEEL DETAILS
218	STRUCTURAL STEEL DETAILS
219	STRUCTURAL STEEL DETAILS
220	STEEL REINFORCEMENT DETAILS
202A	PIERS 1 & 3 CAP DETAILS

SHEET NO.	DESCRIPTION
	S04 OF 63174I - 13 MILE ROAD
221	GENERAL PLAN OF SITE
222	LOG OF BORINGS
223	GENERAL PLAN OF STRUCTURE
224	BILL OF MATERIAL
225	ABUTMENT DETAILS
226	ABUTMENT DETAILS
227	PIERS NO. 1, 2, 3 & 4 DETAILS
228	SUPERSTRUCTURE DETAILS
229	SUPERSTRUCTURE DETAILS
230	SUPERSTRUCTURE DETAILS
231	SUPERSTRUCTURE DETAILS
232	BEAM LAYOUT
233	STEEL REINFORCEMENT DETAILS
	S05 OF 63174 I - 14 MILE ROAD
234	GENERAL PLAN OF SITE
235	LOG OF BORINGS
236	GENERAL PLAN OF STRUCTURE
237	BILL OF MATERIAL
238	ABUTMENT DETAILS
239	ABUTMENT DETAILS
240	PIERS NO. 1, 2, 3 & 4 DETAILS
241	SUPERSTRUCTURE DETAILS
242	SUPERSTRUCTURE DETAILS
243	SUPERSTRUCTURE DETAILS
244	METAL EXPANSION JOINT DETAILS
245	STRUCTURAL STEEL DETAILS
246	STRUCTURAL STEEL DETAILS
247	STRUCTURAL STEEL DETAILS
248	STEEL REINFORCEMENT DETAILS
	S21 OF 63174J - 15 MILE ROAD
249	GENERAL PLAN OF SITE
250	LOG OF BORINGS
251	GENERAL PLAN OF STRUCTURE
252	BILL OF MATERIAL
253	ABUTMENT DETAILS
254	ABUTMENT DETAILS
255	PIERS NO. 1, 2, 3 & 4 DETAILS
256	SUPERSTRUCTURE DETAILS
257	SUPERSTRUCTURE DETAILS
258	SUPERSTRUCTURE DETAILS
259	SUPERSTRUCTURE DETAILS
260	BEAM LAYOUT
261	STEEL REINFORCEMENT DETAILS
	D01 OF 63174 D - PUMPHOUSE
301	GENERAL PLAN OF SITE
302	GENERAL PLAN OF STRUCTURE
303	BILL OF MATERIAL
304	PUMPHOUSE DETAILS
305	PUMPHOUSE DETAILS
306	PUMPHOUSE DETAILS
307	PUMPHOUSE DETAILS
308	PUMPHOUSE DETAILS
309	PUMPHOUSE DETAILS
310	MISCELLANEOUS DETAILS
311	MECHANICAL & ELECTRICAL DETAILS
312	STEEL REINFORCEMENT DETAILS
R 118	BRIDGE RAILING, DRAIN CASTING, BAR CHAIR, MOLDING & BEVEL DETAILS

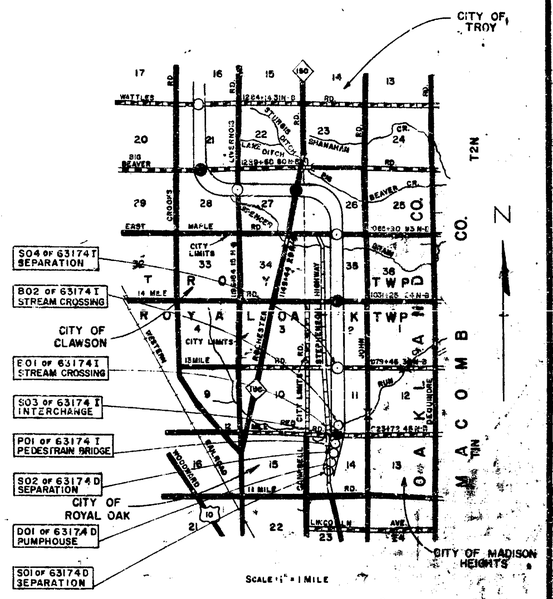


TABLE OF LOADINGS

STRUCTURE	LOCATION	DESIGN LIVE LOADINGS	LIMITING LIVE LOAD DEFLECTION
S01 OF 63174D	11½ MILE RD.	H20-44	L/800
S02 OF 63174D	N-B SERVICE RD.	H20-44	L/800
P01 OF 63174I	PEDESTRIAN BR.	SEE SH.139	L/1000
S03 OF 63174I	12 MILE RD	H20-S16-44	L/1000
B01 OF 63174I	RAMPE (12 MILE RD.)	H20-S16-44	L/1000
B02 OF 63174I	RED RUN DRAIN	H20-S16-44	L/1000
S04 OF 63174I	13 MILE RD.	H20-S16-44	L/1000

STANDARD PLANS TO BE PRINTED

SHEET NO.	DESCRIPTION
SP 2 D	STANDARD SLOPE PAVING DETAILS

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUARE SIZE
DRAWN BY
TRACED BY
CHECKED BY
SHEET

S02 OF 63174D
P01 OF 63174 I
S03 OF 63174 I
B01 & B02 OF 63174 I
S04 OF 63174I

D01 OF 63174D

BENCH MARKS

B.M. #76 El 637.52 M.S.H.D. B.M Tag in base of 12" Elm 178' Lt. of 898+80 N.B. Rdwy.

B.M. #13 El. 638.77 M.S.H.D. B.M. Tag in base of 20" Oak 248' Lt. of 903+57 N.B. Rdwy.

UTILITIES

City of Royal Oak Combined Sewer 30" pipe crosses ℄ approx. at Sta. 900+10.

City of Royal Oak Combined Sewer 12"-15" pipe 120' Rt. of ℄ N.B. between Forest and Gardenia Ave.

Detroit Edison Co. Power Line 1 Wire, crosses ℄ 30' South of ℄ of Gardenia Ave.

Detroit Edison Co. Power Line 3 Wires, crosses ℄ 36' North of ℄ of Gardenia Ave.

Mich. Bell Telephone Co. 1 Telephone Cable crosses ℄ 36' North of ℄ of Gardenia Ave.

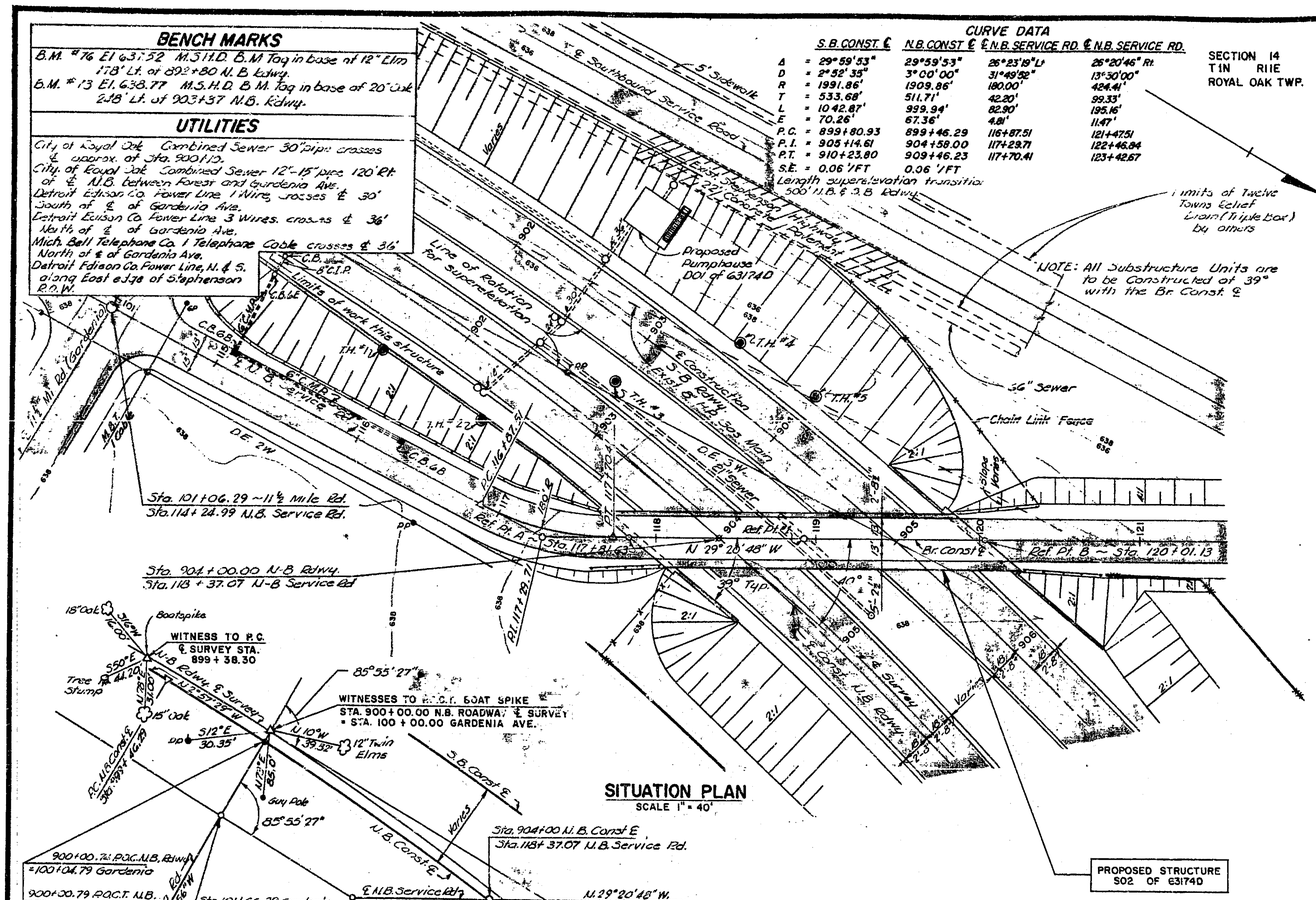
Detroit Edison Co. Power Line, N. & S. along East edge of Stephenson R.O.W.

CURVE DATA

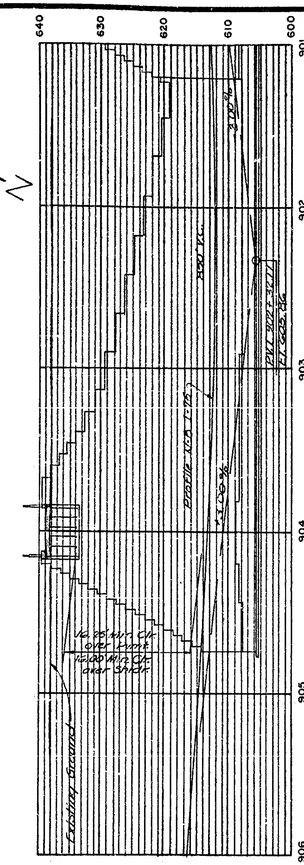
	S.B. CONST. ℄	N.B. CONST ℄	℄ N.B. SERVICE RD.	℄ N.B. SERVICE RD.
Δ =	29°59'53"	29°59'53"	26°23'19" Lt	26°20'46" Rt.
D =	2°52'35"	3°00'00"	31°49'52"	13°30'00"
R =	1991.86'	1909.86'	180.00'	424.41'
T =	533.68'	511.71'	42.20'	99.33'
L =	1042.87'	999.94'	82.90'	195.16'
E =	70.26'	67.36'	4.8'	11.47'
P.C. =	899+80.93	899+46.29	116+87.51	121+47.51
P.I. =	905+14.61	904+58.00	117+23.71	122+46.94
P.T. =	910+23.80	909+46.23	117+70.41	123+42.67
S.E. =	0.06'/FT	0.06'/FT		

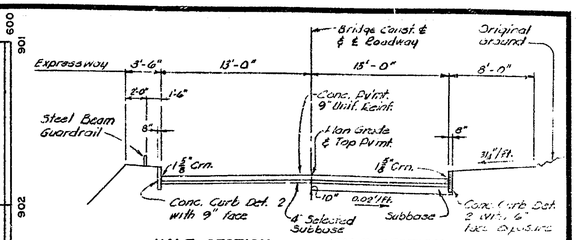
Length superelevation transition 500' N.B. ℄ S.B. Rdwy.

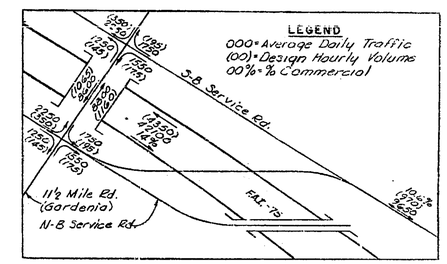
SECTION 14
T1N R11E
ROYAL OAK TWP.



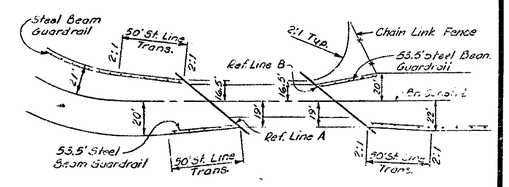
SITUATION PLAN
SCALE 1" = 40'







1978 ESTIMATED TRAFFIC DISTRIBUTION



APPROACH GRADING PLAN

GENERAL NOTES

Fences & utilities are to be removed by others
Buildings are to be removed by others.
Datum Refers to U.S.G.S. Datum
See Sketch above for Detours.
The contractor shall locate underground utilities prior to starting work and shall conduct his operations in such a manner as to insure that they will not be disturbed.
The work covered by these plans includes construction of the proposed bridge & placing porous material to the limits shown.
All work not listed above is included in the Road Plans.

REVISIONS

NO	DESCRIPTION	DATE	BY
A	Relocated Structure	9-10-62	Tecon

CONTROL SECTION 63174D

MICHIGAN STATE HIGHWAY DEPARTMENT

NORTHBOUND SERVICE ROAD OVER I75 IN THE CITY OF ROYAL OAK

GENERAL PLAN OF SITE

TECON ENGINEERS, INC.

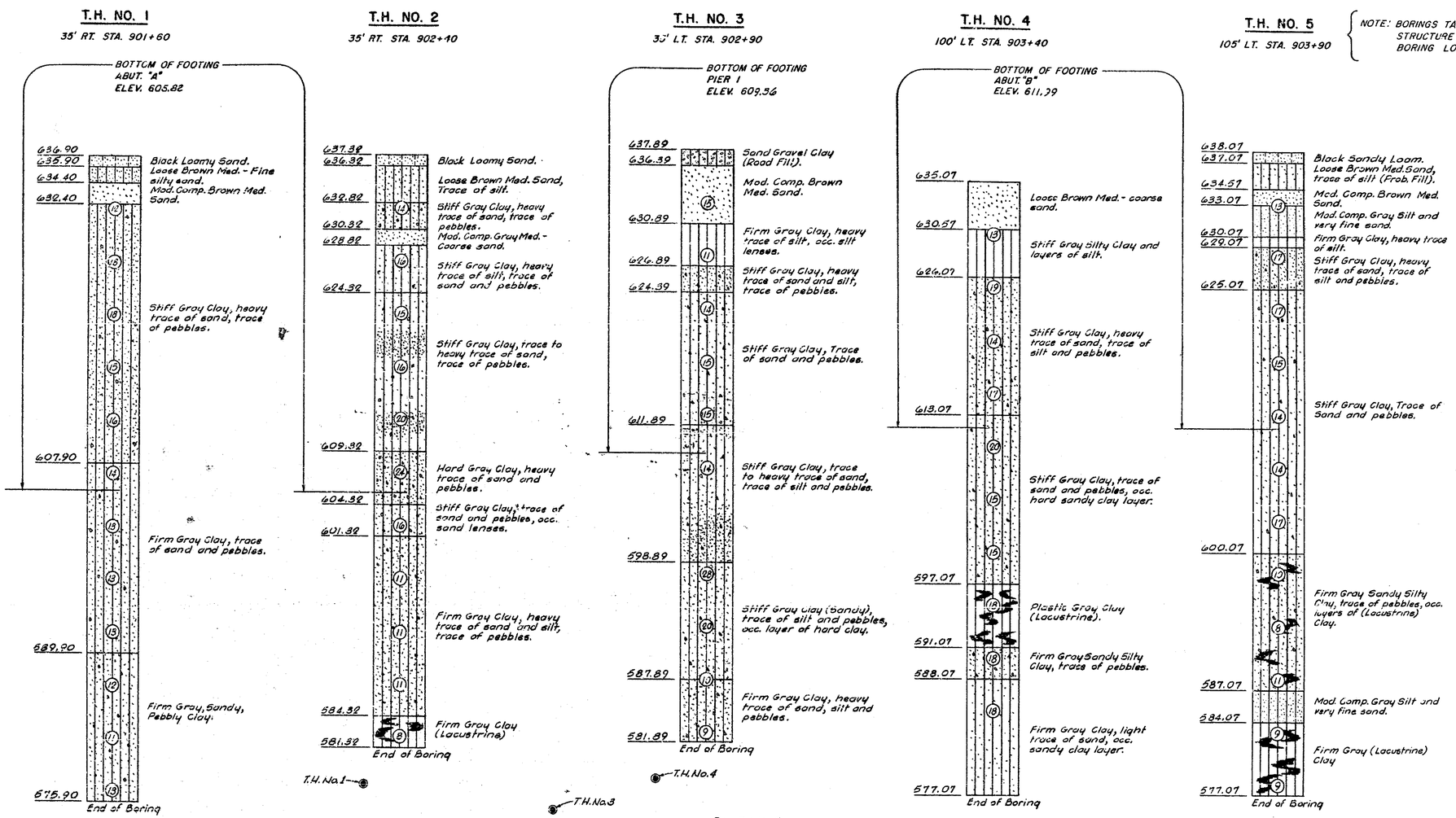
APPROVED _____ COORDINATING ENGINEER

APPROVED _____ ENGINEER OF DESIGN-CONSULTANTS

SQUAD BOSS		
DRAWN BY	G.V.O.	
TRACED BY		
CHECKED BY		9-1-62

SHEET 119 OF 312

S02 OF 63174D



BORING LOCATION SKETCH

NOTES:

Samples on all Test Holes were taken with a 1⅜" O.D., 1⅛" I.D. Spoon. (140 lb. Hammer - 30" Fall).
Data from boring report, dated May 19, 1961, prepared by Michigan State Highway Department. Hubert C. Foital - Party Chief

CONTROL SECTION 63174D

MICHIGAN STATE HIGHWAY DEPARTMENT

NORTHBOUND SERVICE ROAD OVER I75 IN THE CITY OF ROYAL OAK

LOG OF BORINGS

TECON ENGINEERS, INC.

REVISIONS

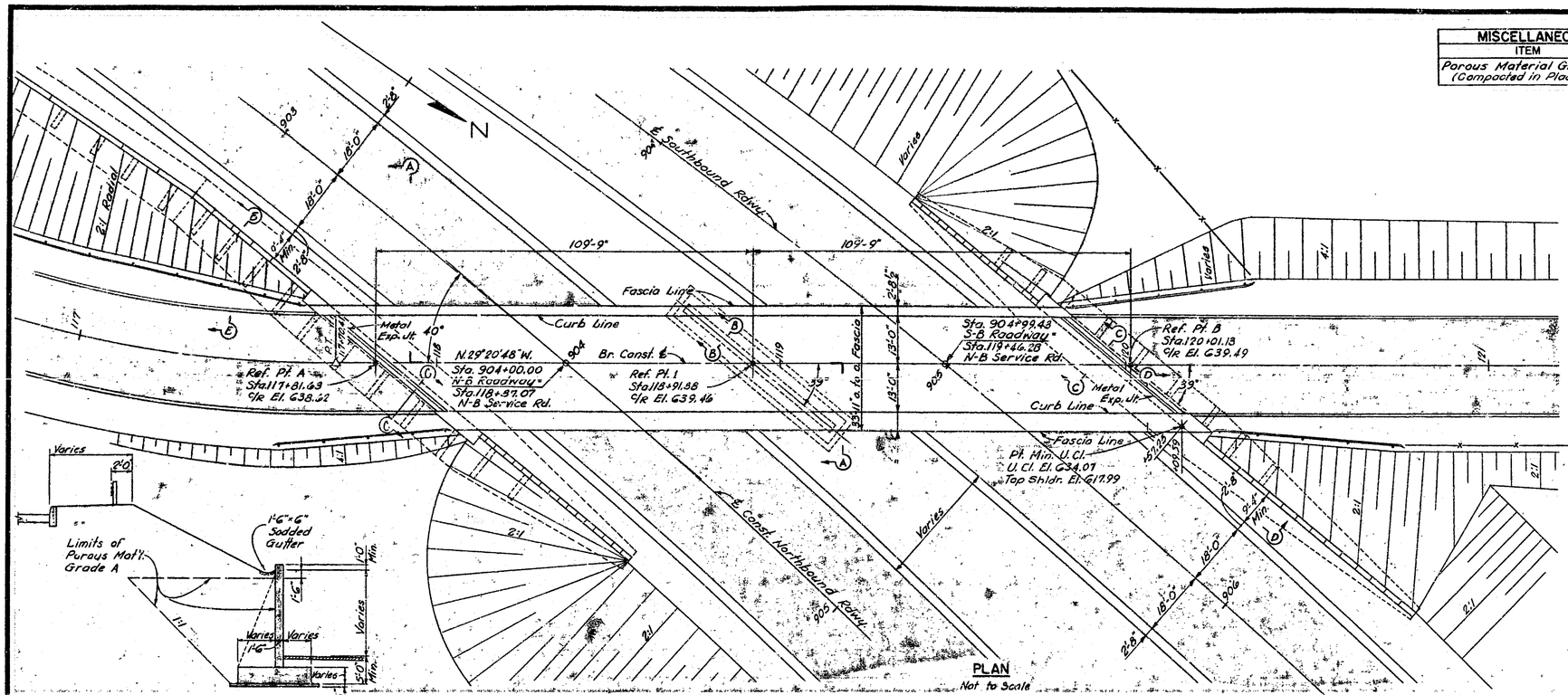
NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

SQUAD BOSS	G.T.C.	5-29-61
DRAWN BY	M.B.A.	
TRACED BY		
CHECKED BY	G.T.C.	

SHEET 120 OF 312

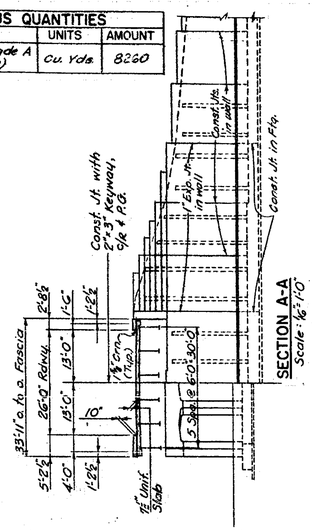
S02 OF 63174D

MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
Porous Material Grade A (Compacted in Place)	Cu. Yds.	8260

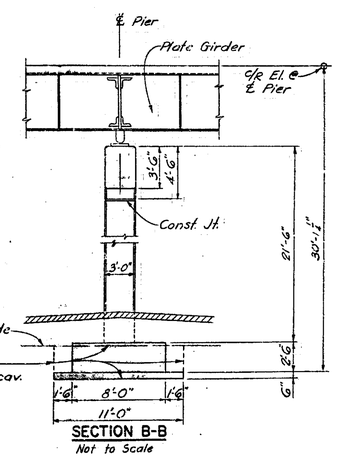


PLAN
Not to Scale

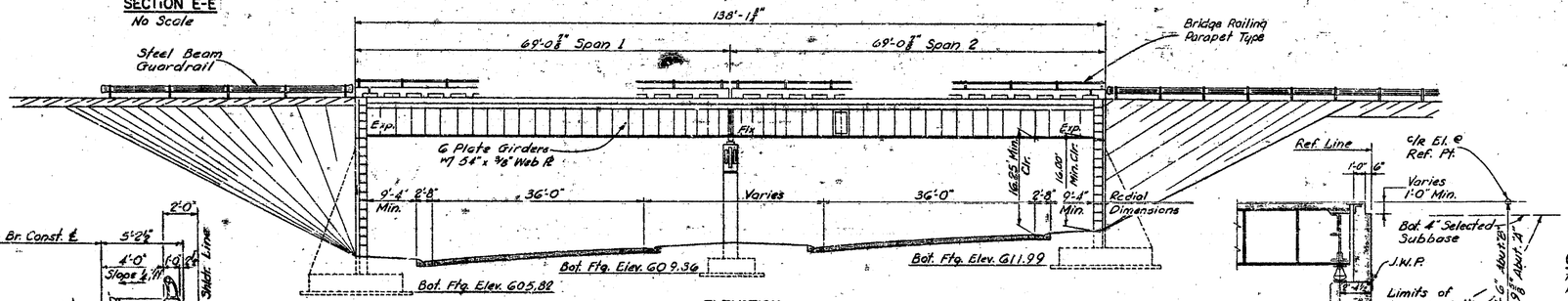
SECTION E-E
No Scale



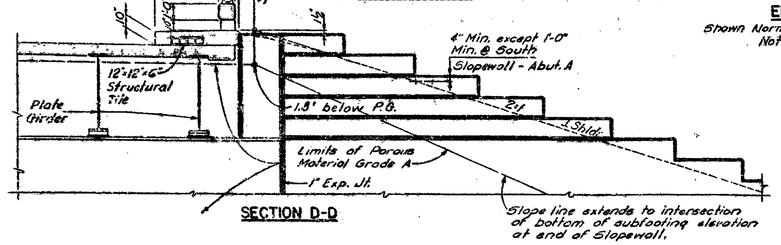
SECTION A-A
Scale: 1/8"=1'-0"



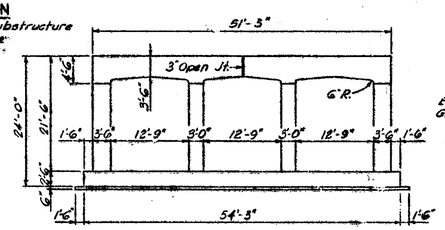
SECTION B-B
Not to Scale



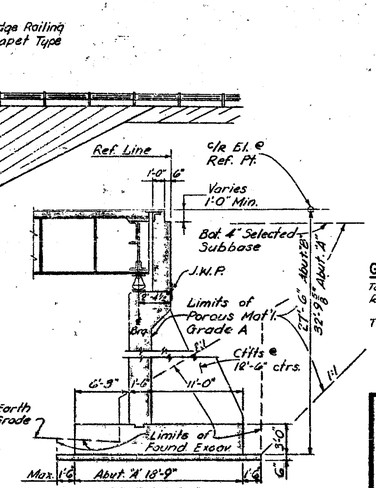
ELEVATION
Shown Normal to Substructure
Not to Scale



SECTION D-D



PIER ELEVATION
Not to Scale



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

GENERAL NOTES

Top of roadway slab and tops of curbs are parallel to the vertical curve. Retaining wall and integral catch basin are a part of this contract.

The design of this structure is based on the M.S.H.D. Standard Specifications for the Design of Highway Bridges - 1958 Edition H20-44 Loading. Live Load plus impact deflection = 1/800 of Span Length.

CONTROL SECTION 63174D

REVISIONS

NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

MICHIGAN STATE HIGHWAY DEPARTMENT

NORTHBOUND SERVICE ROAD OVER I-75 IN CITY OF ROYAL OAK

GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC.

APPROVED J.W. Murray 6-8-62
COORDINATING ENGINEER

APPROVED
ENGINEER OF DESIGN — CONSULTANTS

SQUAD BOSS	GTC	
DRAWN BY	JDC	5-2-61
TRACED BY		
CHECKED BY	GTC	
SHEET 121 OF 312		

S02 OF 63174D

ITEM	UNIT	QUANTITY	A	B	C	D	E	G	H	I	K	
BRIDGE S02 of 63174 D												
Unclassified Excavation	Cu. Yds.	1636	+136 01001							-295 01020		1777
Grade A (6P) Concrete - Substructure	Cu. Yds.	711	+147 01002									858
Grade A (6AA) Concrete - Substructure	Cu. Yds.	666	+154 01003									820
Grade A (6AA) Concrete - Superstructure	Cu. Yds.	248		+2 01004								250
Water-Reducing Retarding Admixture	Lump Sum							-3.42% 01015				96.58%
Steel Reinforcement	Lbs.	199,171		+29,969 01005								229,111
Structural Steel - Furnishing & Fabricating	Lbs.	264,200		+6,200 01006						+23,186 01021		291,586
Structural Steel - Erection	Lbs.	264,200			+6,200 01007					+23,186 01022		291,586
Structural Tile - 6"x12"x12"	Each	404			+10 01008							414
½" Joint Filler	Sq. Ft.	61			+9 01009				+8 01016			54
¾" Joint Filler	Sq. Ft.	4										4
1" Joint Filler	Sq. Ft.	187				+50 01010			-23 01017			214
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	108							-2 01018			104
Joint Waterproofing	Sq. Ft.	775				+172 01011					-31 01024	916
Copper	Lbs.	146				+3 01012						149
Field Painting	Lump Sum											100%
Bridge Railing - Parapet Type	Lin. Ft.	426.9					+9 01013		+0.4 01019			436.3
Porous Material Grade A (Compacted-in-Place)	Cu. Yds.	6150					+2110 01014			-1618 01023		6642

DATE

BALANCED BY AFB 1-20-66
CHECKED BY R.E. 1-25-66

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL
1-4-63	02001- Auth. F- Structural Steel Shop Plan Changes	L.S.	100%	100%
12-21-64	02002- Auth. 1- Borrow Material used as Porous Material Grade A	Cu. Yds.	719.1	719.1

MICHIGAN STATE HIGHWAY DEPARTMENT

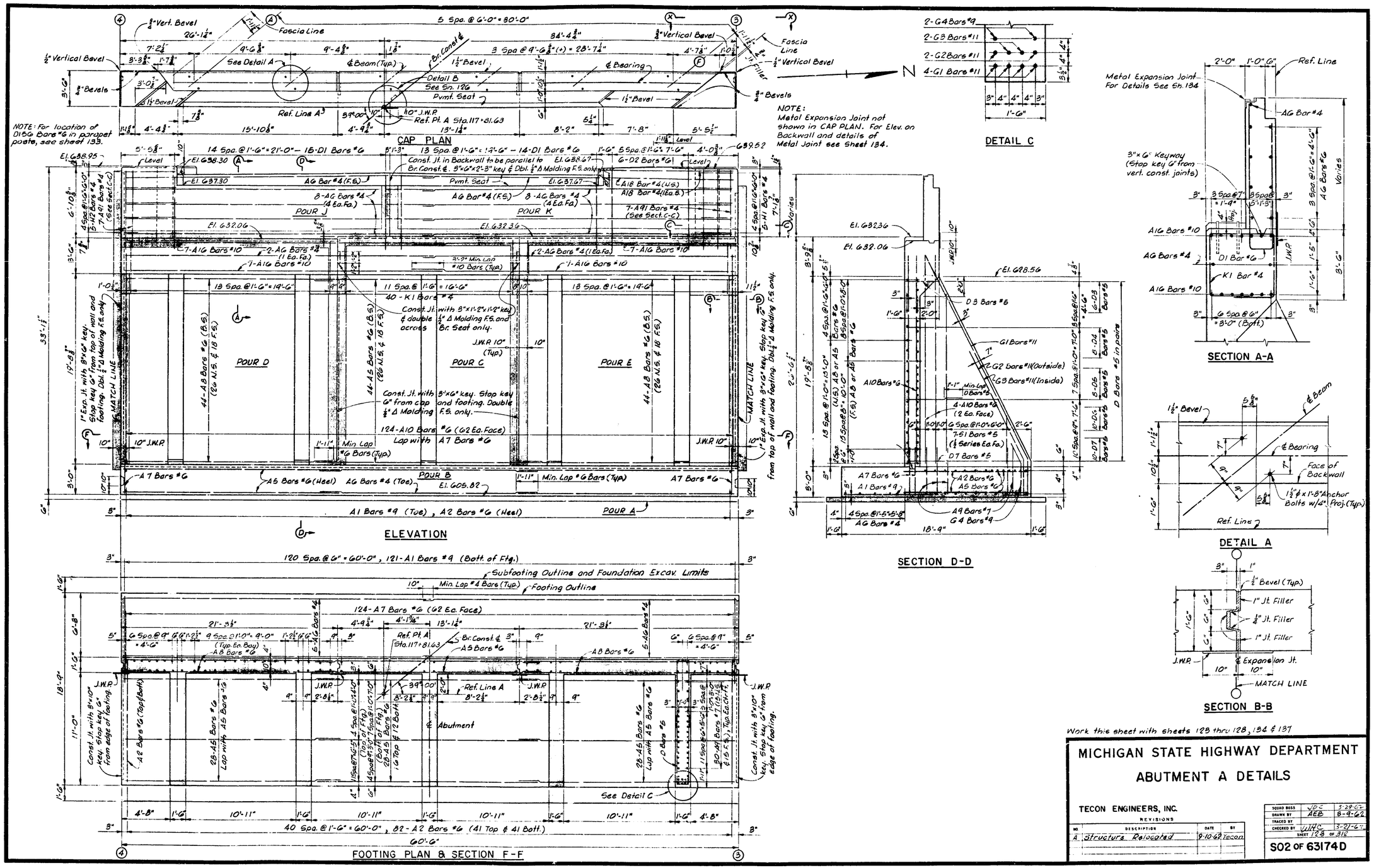
BILL OF MATERIAL

SQUAD BOSS	VDC	3-29-62
DRAWN BY	RAD	3-29-62
TRACED BY		
CHECKED BY	VDC	3-29-62

SHEET 122 OF 312

TECON ENGINEERS, INC.

S02 OF 63174 D



MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT A DETAILS

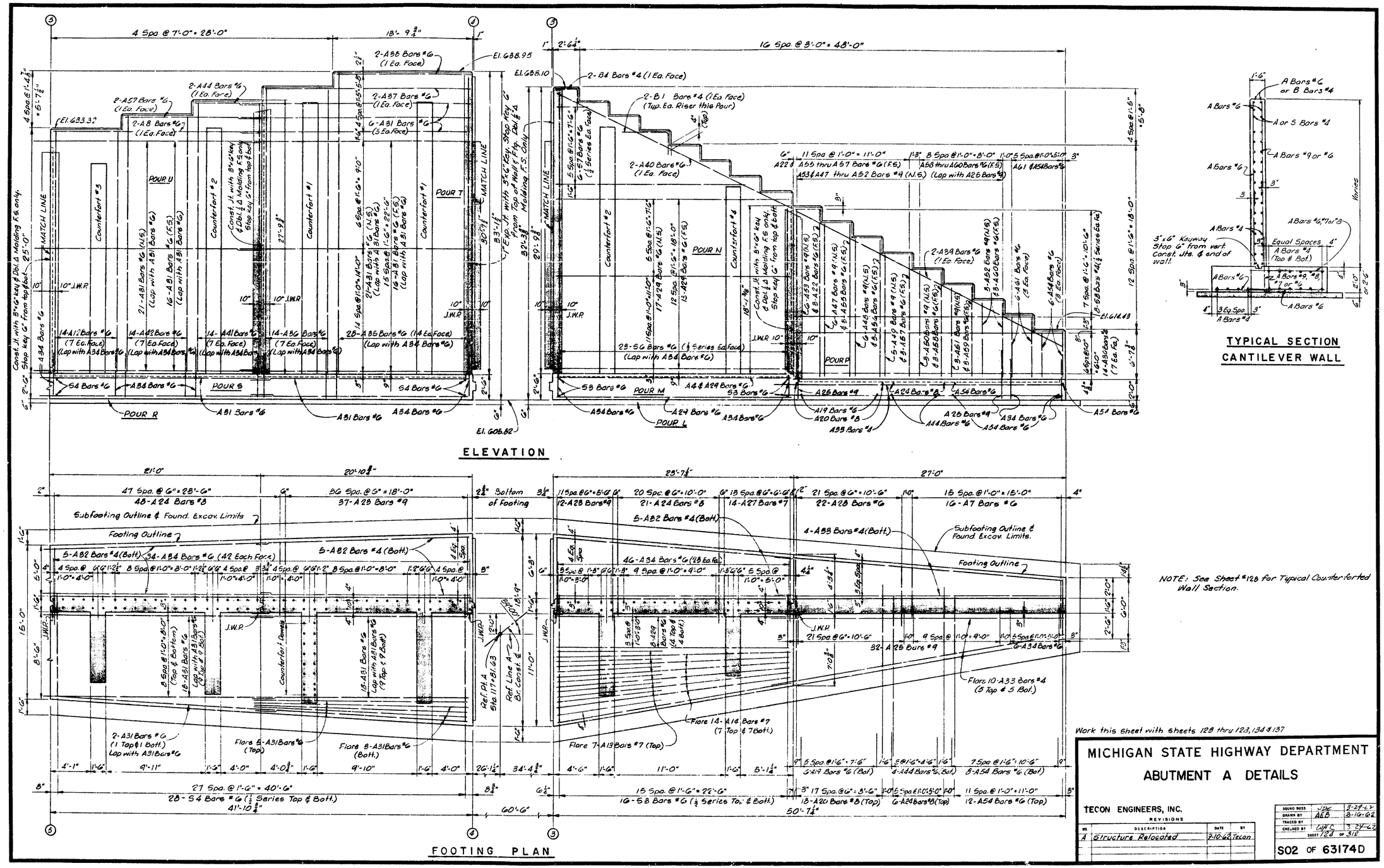
TECON ENGINEERS, INC.

REVISIONS

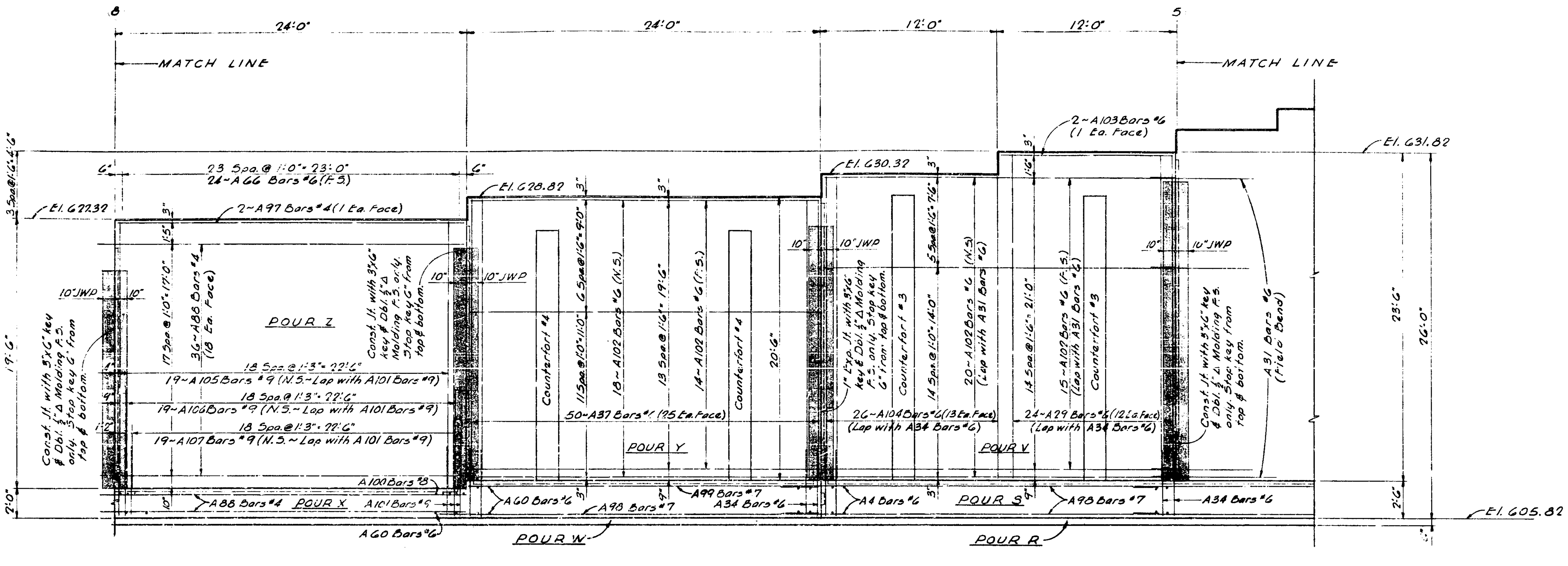
NO	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

SQUAD BOSS	VDC	3-29-62
DRAWN BY	AEB	8-9-62
TRACED BY		
CHECKED BY	WHC	3-27-62
SHEET 128 OF 318		

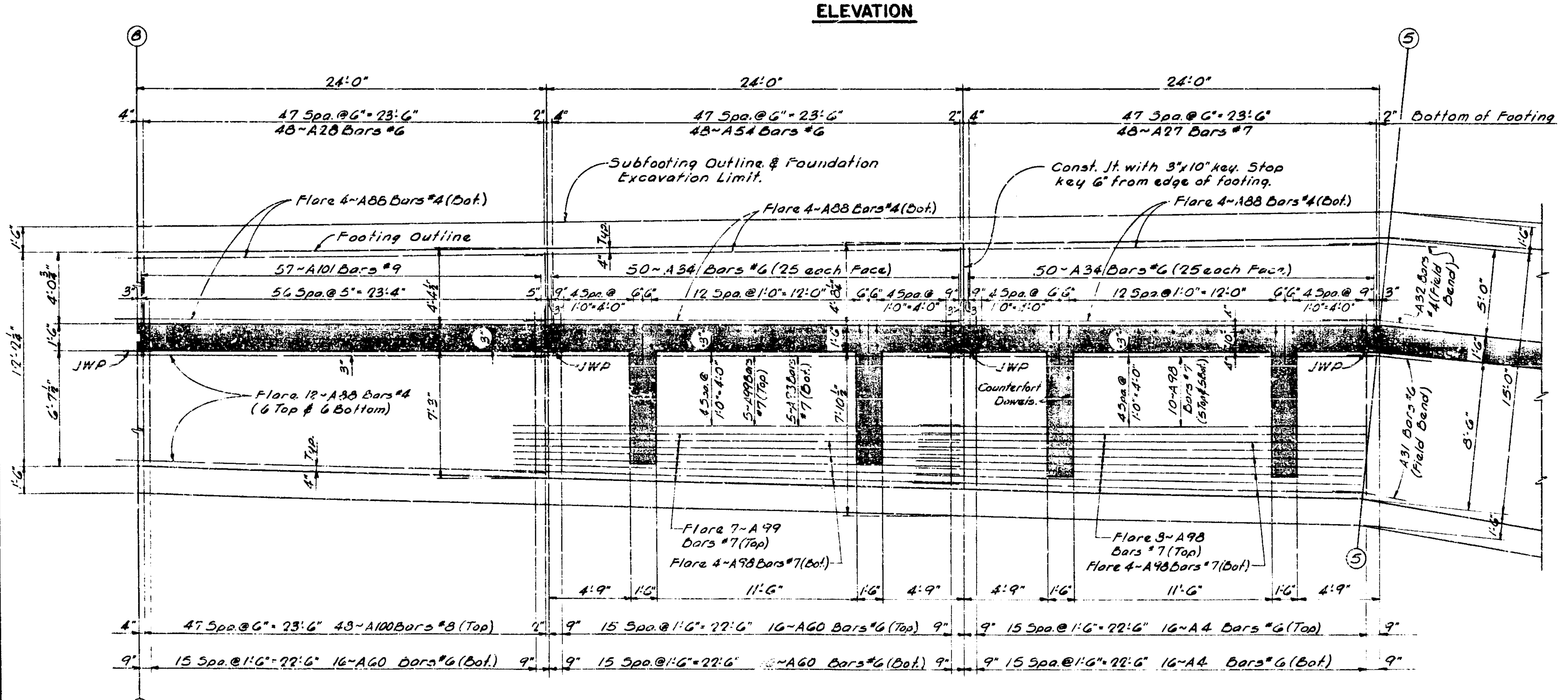
S02 OF 63174D



NOTE: See Sheet #12B for Typical Counterforted Wall Section.



ELEVATION



FOOTING PLAN

Note: See Sheet #124 for Typical Cantilever Wall Sections.
See Sheet #128 for Typical Counterforted Wall Section.

Work this sheet with sheets 123 thru 128, 134 & 137

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT A DETAILS

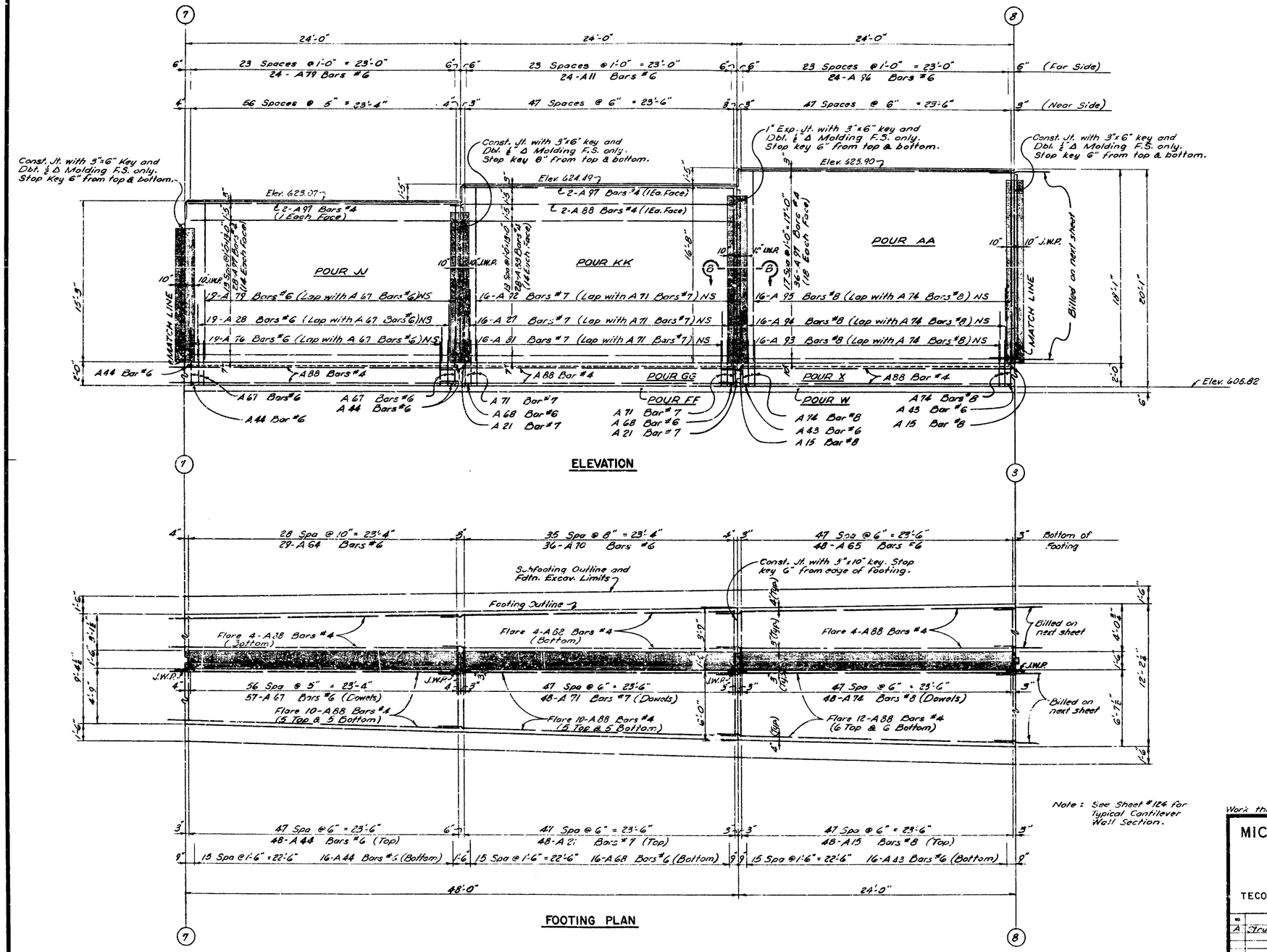
TECON ENGINEERS, INC.

REVISIONS

NO	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

SQUAD BOSS	JDC	9-5-62
DRAWN BY	RLN	8-30-62
TRACED BY		
CHECKED BY	HMW	9-5-62
SHEET	125A = 312	

S02 OF 63174D



Note: See Sheet #124 for Typical Cantilever Wall Section.

Work this sheet with sheets 123 thru 128, 134, 137

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT A DETAILS

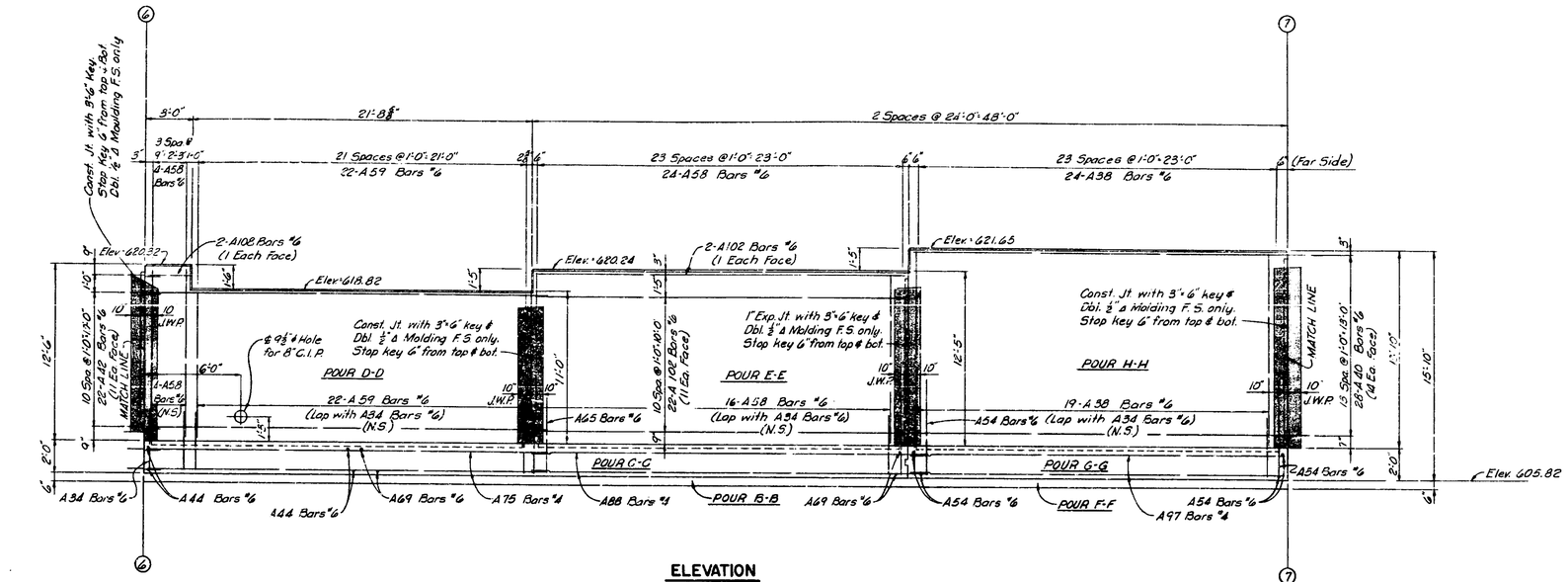
TECON ENGINEERS, INC.

REVISIONS

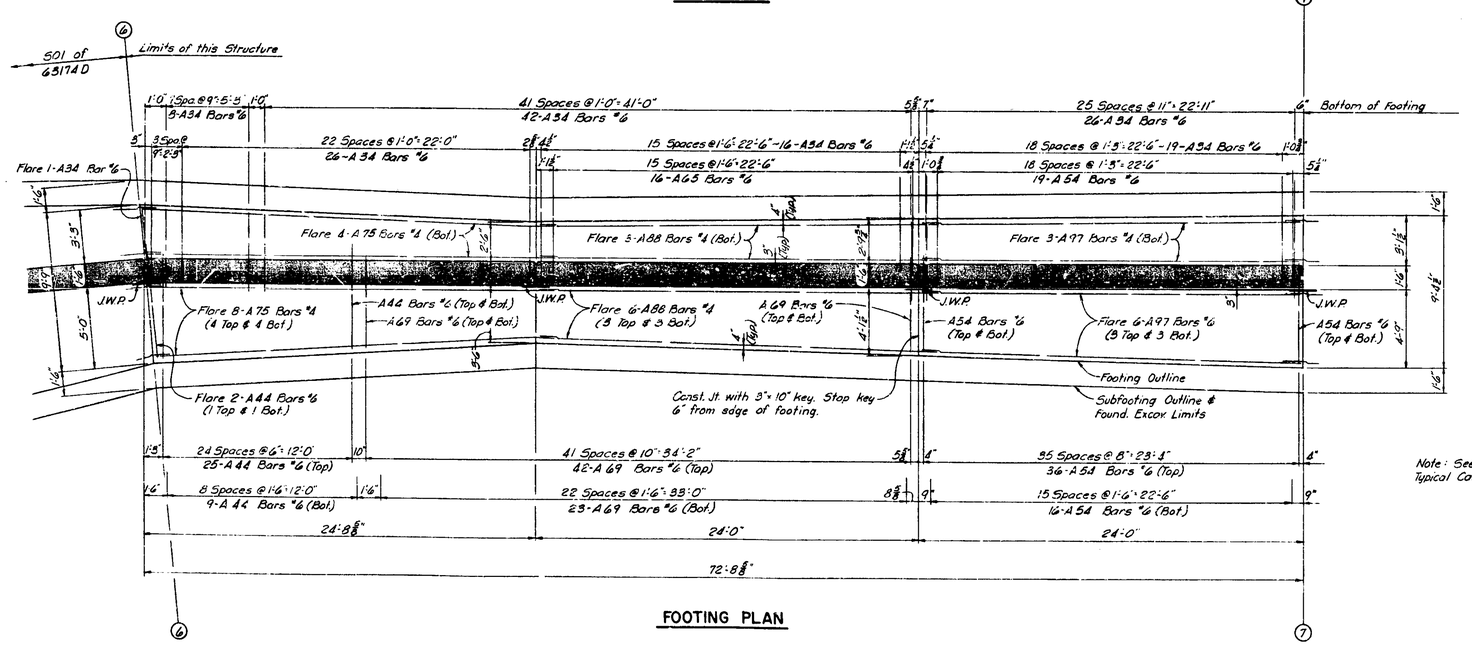
NO	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

SQUAD BOSS	JJC	9-5-62
DRAWN BY	JEV	9-5-62
TRACED BY		
CHECKED BY	HMW	9-5-62
SHEET	125 B of 312	

S02 OF 63174 D



ELEVATION



FOOTING PLAN

Note: See Sheet #124 for Typical Cantilever wall section.

Work this sheet with sheets 123 thru 128, 134 & 137

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT A DETAILS

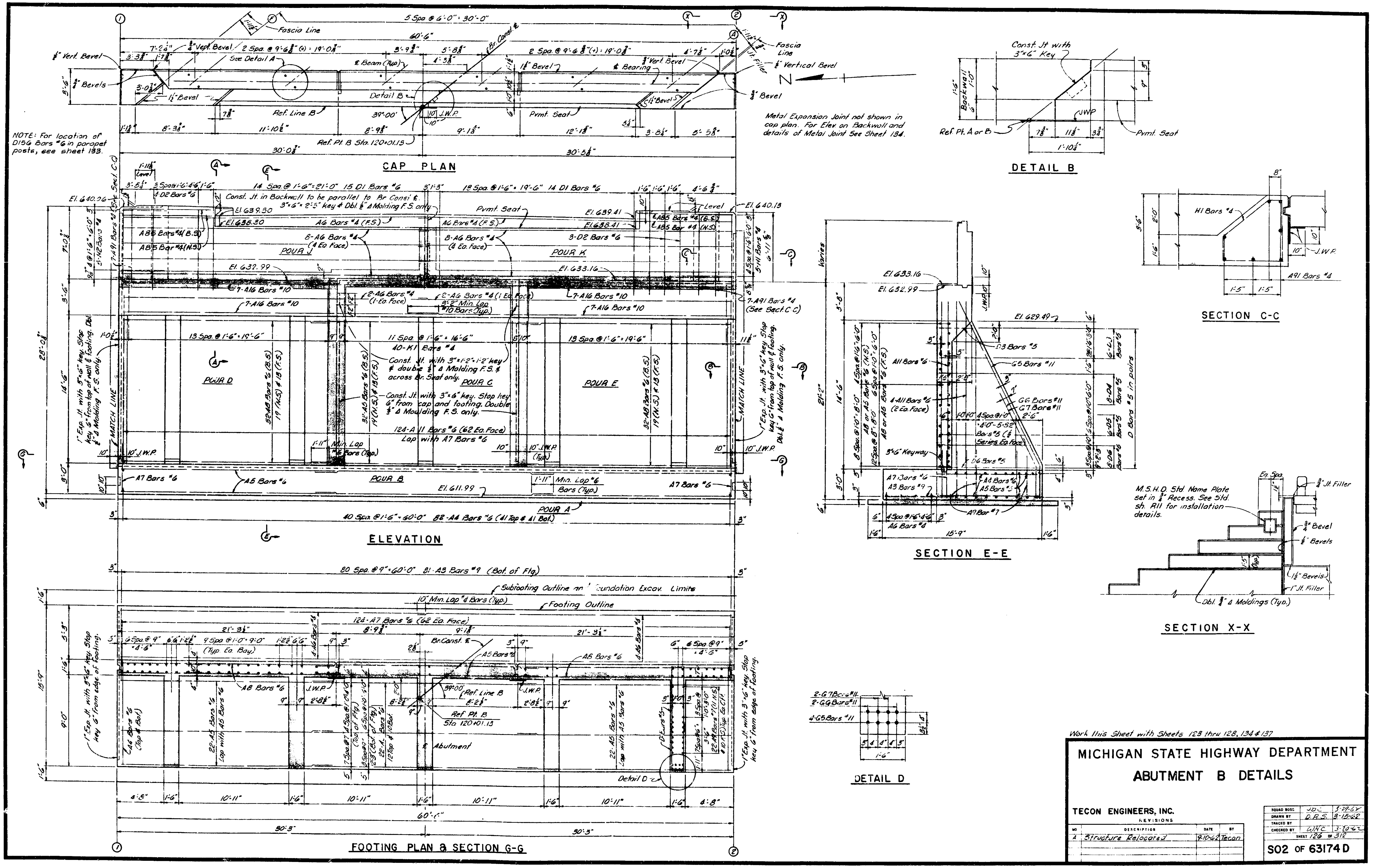
TECON ENGINEERS, INC.

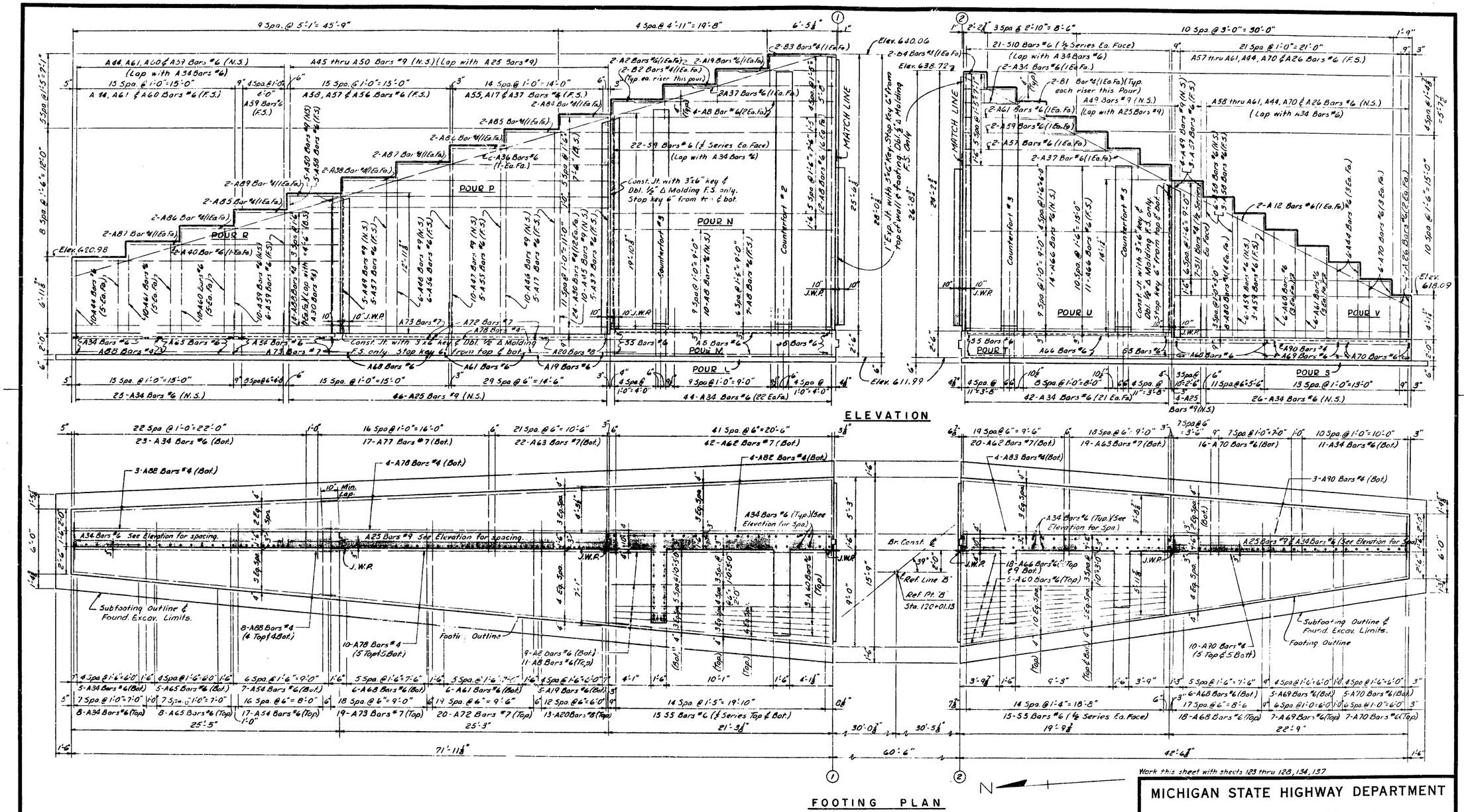
REVISIONS

NO	DESCRIPTION	DATE	BY
1	Structure Relocated	9-10-62	Tecon

SQUAD BOSS	JDC	7-5-62
DRAWN BY	DRS	8-30-62
TRACED BY		
CHECKED BY		9-5-62
SHEET	6 OF 312	

S02 OF 63174 D


CAP PLAN
DETAIL B
SECTION C-C
ELEVATION
SECTION E-E
SECTION X-X
FOOTING PLAN & SECTION G-G
DETAIL D
NOTE: For location of D156 Bars #6 in parapet posts, see sheet 133.
Metal Expansion Joint not shown in cap plan. For Elev on Backwall and details of Metal Joint See Sheet 134.
M.S.H.D. Std Name Plate set in ⅜" Recess. See Std. sh. R11 for installation details.
Work this Sheet with Sheets 123 thru 128, 134 & 137
MICHIGAN STATE HIGHWAY DEPARTMENT
ABUTMENT B DETAILS
TECON ENGINEERS, INC.
REVISIONS
A Structure Relocated 9-10-62 Tecon
SHEET 126 of 312
S02 OF 63174D



MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT B DETAILS

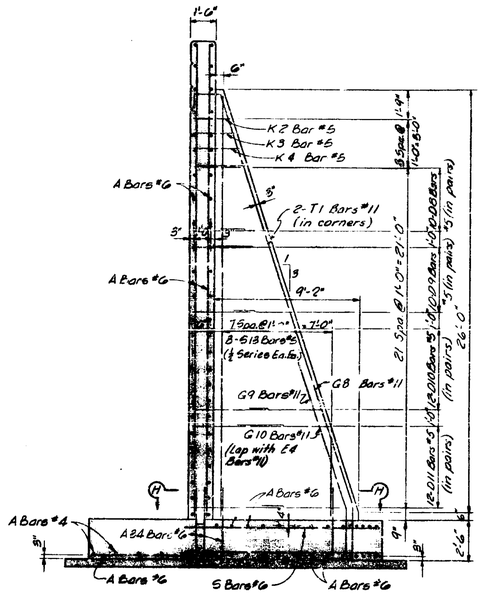
TECON ENGINEERS, INC.

REVISIONS

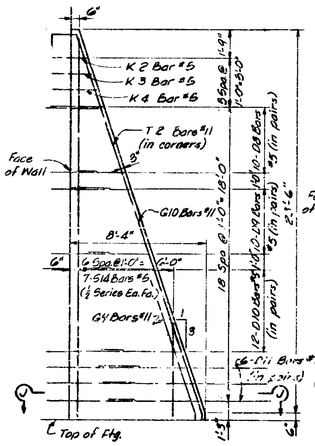
NO	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

SQUAD BOSS	G.D.C.	3-27-62
DRAWN BY	R.B.J.	3-20-62
TRACED BY		
CHECKED BY	J.W.C.	3-27-62
SHEET 127 OF 312		

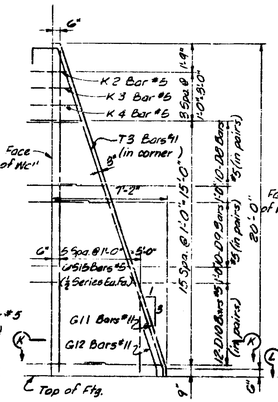
S02 OF 63174 D



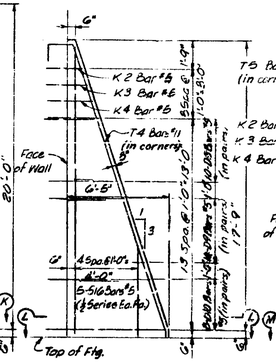
TYPICAL COUNTERFORT SECTION
& COUNTERFORT #1



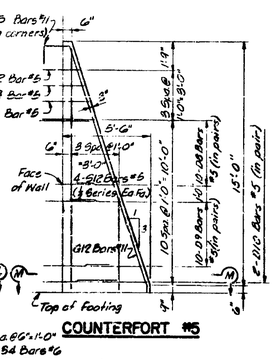
COUNTERFORT #2



COUNTERFORT #3



COUNTERFORT #4



COUNTERFORT #5

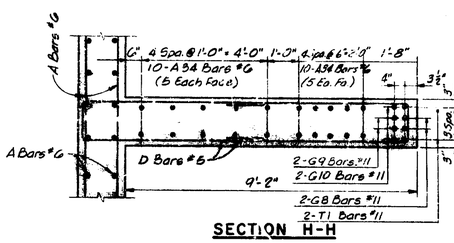
MISCELLANEOUS QUANTITIES

ITEM	UNIT	ABUT. A	ABUT. B	TOTAL
1/4" Joint Filler	Sq. Ft.	34	16	50
3/4" Joint Filler	Sq. Ft.	2	2	4
1" Joint Filler	Sq. Ft.	164	73	237
Jt. Waterprf'g	Sq. Ft.	620	327	947
Unclass. Excav.	Cu. Yds.	1323	684	2007

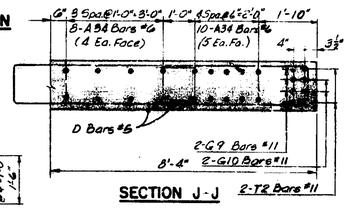
CONCRETE QUANTITIES

POUR	ABUTMENT A		ABUTMENT B	
	A(6A)	A(6AA)	A(6A)	A(6AA)
A	24.4		21.0	
B	126.0		106.1	
C		38.7		28.3
D		48.9		37.4
E		49.7		37.4
F		Not	Used	
G		Not	Used	
H		Not	Used	
J		11.5		13.2
K		13.0		11.5
L	14.6		18.7	
M	53.2		63.7	
N		41.7		38.3
P		18.9		24.4
R	23.7			14.1
S	100.1		11.2	
T		49.3	39.3	
U		41.1		28.8
V		39.2		12.1
W	20.8			
X	73.5			
Y		34.5		
Z		26.0		
A-A		24.1		
B-B	10.2			
C-C	29.9			
D-D		15.3		
E-E		16.5		
F-F	17.1			
G-G	52.5			
H-H		18.4		
J-J		20.3		
K-K		22.2		
Total	546.0	527.5	260.0	245.5

Pours need not be made in alphabetical order, except pours H-H, J-J & K-K are to be made last.



SECTION H-H



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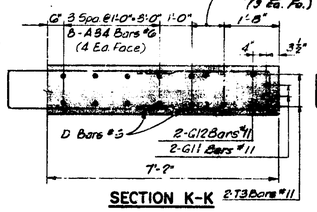

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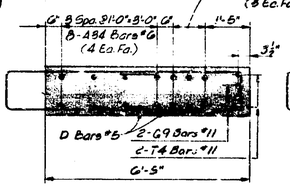
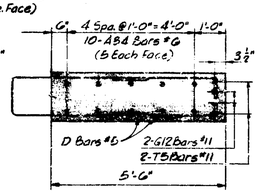
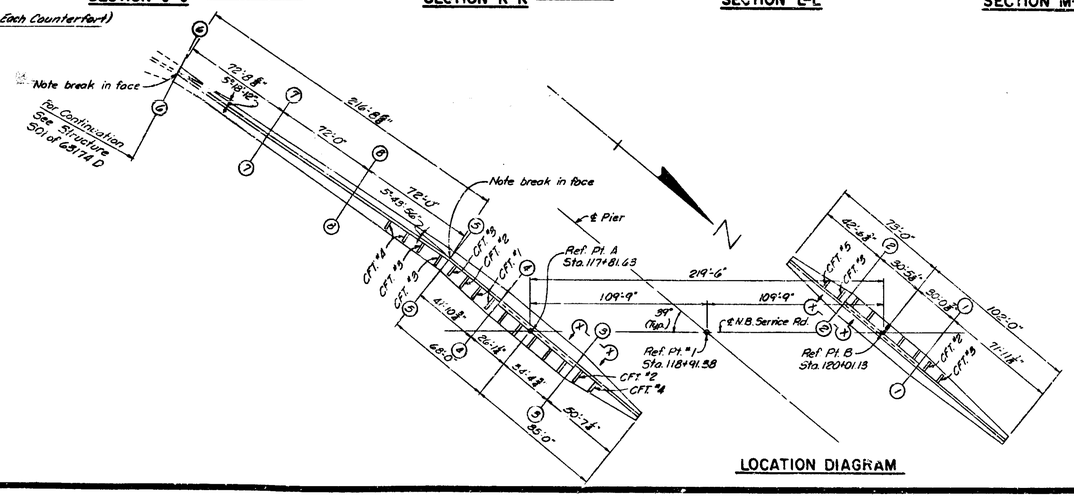


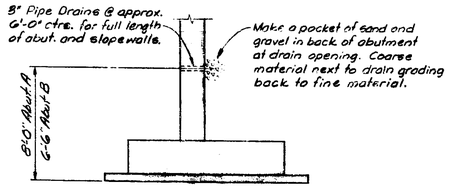
SECTION L-L



SECTION M-M



LOCATION DIAGRAM



WALL DRAIN DETAIL
(Incidental to substructure concrete)

NOTES:

J.W.P. denotes joint waterproofing.
N.S. denotes nearside.
F.S. denotes farside.
B.S. denotes bothsides.
For Bevel and Molding Details, see Standard Sheet R11.
For location of Name Plates, see Sheet 107 and Standard Sheet R11; for mounting Details, see Standard Sheet R11.
Anchor bolts shall be set accurately to a template.
The Project Engineer shall adjust the spacing of the reinforcing steel to permit placing of anchor bolts.
Field bend steel reinforcing to clear drain holes.
The top of abutment shall be finished to a true plane at the elevation shown and shall not vary more than 1/8" under a ten foot straight edge nor more than 1/16" under any bearing.
This design is based on a maximum foundation pressure of 5350 pounds per square foot and a maximum average foundation pressure of 3100 pounds per square foot.

Work this sheet with sheets 123 thru 123, 134 and 137

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT DETAILS

TECON ENGINEERS, INC.

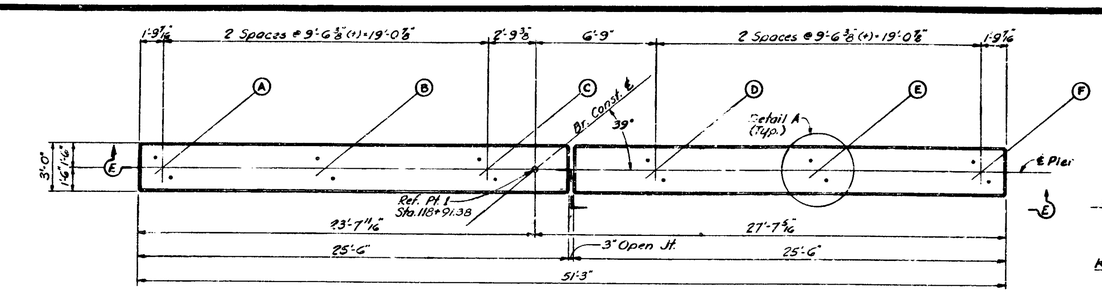
REVISIONS

NO	DESCRIPTION	DATE	BY
1	Structure Relocated	9-10-62	Tecon

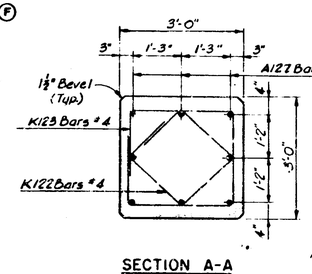
SQUAD DESIG	JDC	3-27-62
DRAWN BY	AEB	3-22-62
TRACED BY		
CHECKED BY	WHC	3-27-62

SHEET 128 OF 312

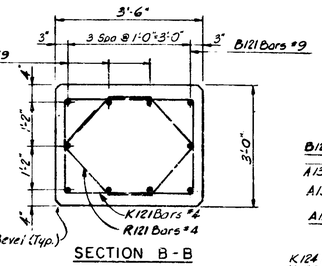
S02 OF 63174 D



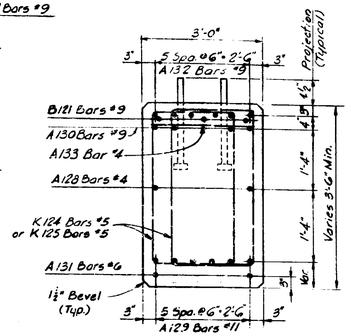
CAP PLAN



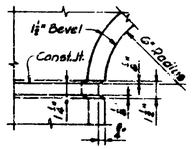
SECTION A-A



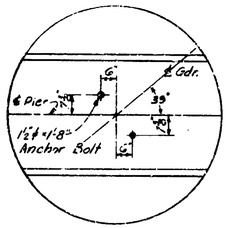
SECTION B-B



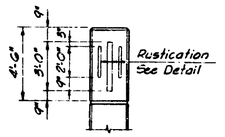
SECTION C-C



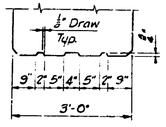
DETAIL B



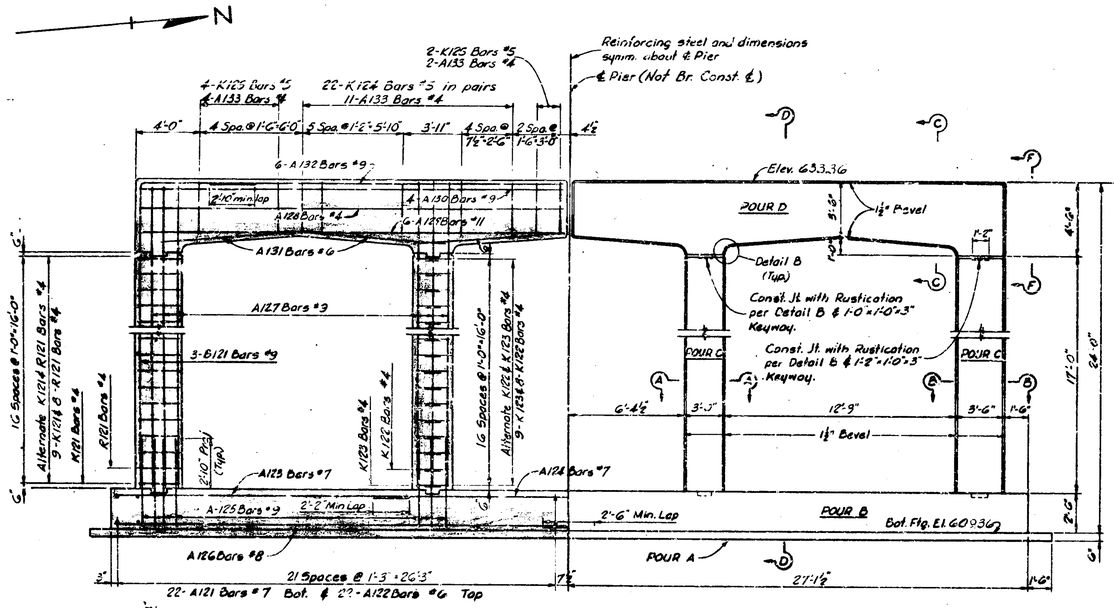
DETAIL A



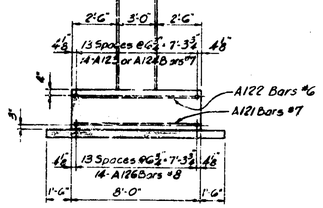
ELEVATION F-F



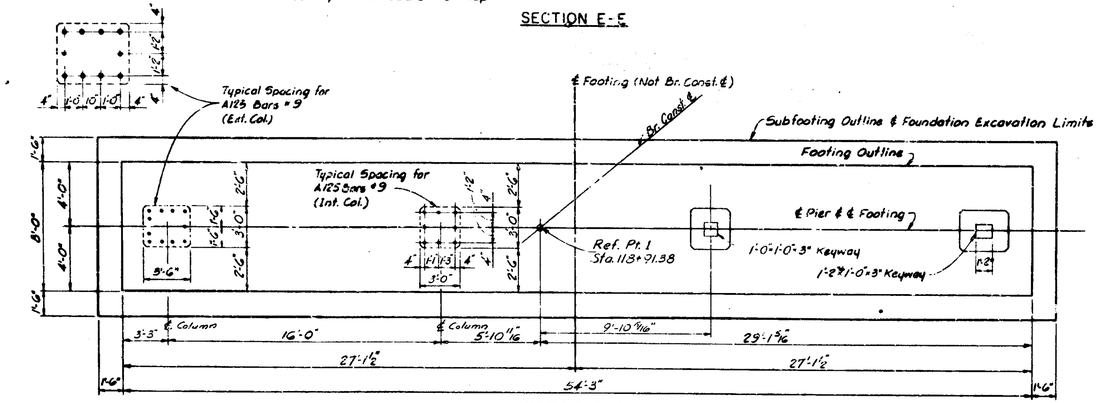
RUSTICATION DETAIL



SECTION E-E



SECTION D-D



FOOTING PLAN

CONCRETE QUANTITIES – CU. YDS.			
POUR	LOCATION	GR.A(6A)	GR.A(6AA)
A	Subfooting	11.7	
B	Footing	40.3	
C	Columns		24.6
D	Cap		22.4

MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
Unclassified Excav.	Cu. Yds.	65

NOTES

- For Bevel and Molding Details, see Standard Sheet R11.
- 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 shall be finished to a true plane at the elevations shown and shall not vary more than 1/8" under a ten foot straight edge, nor more than 1/16" under any bearing.
- This design is based on a maximum foundation pressure of 4050 #/ft² and a maximum average foundation pressure of 3850 #/ft².

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER DETAILS

TECON ENGINEERS, INC.

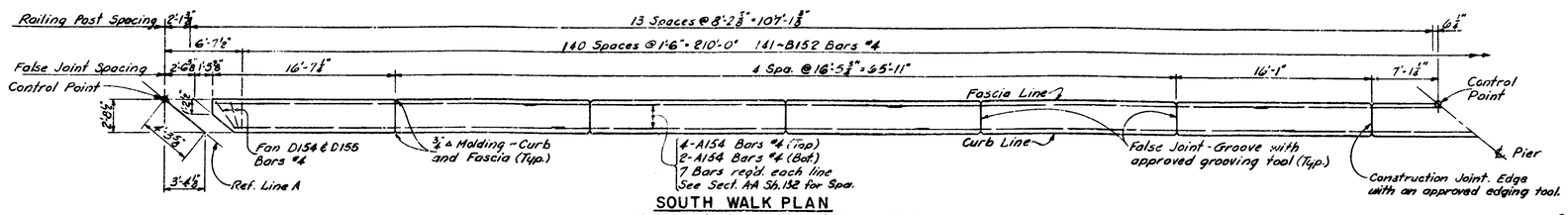
REVISIONS

NO	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-60	Tecon

SQUAD BOSS	JPC	3-21-62
DRAWN BY	JEC	3-7-62
TRACED BY		
CHECKED BY	RAD	3-17-62

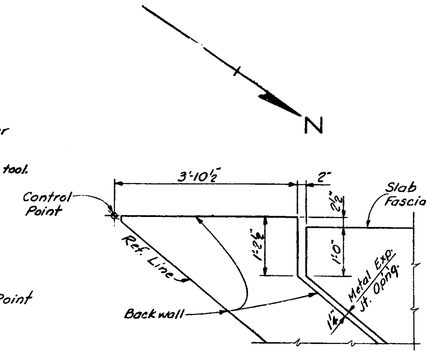
SHEET 129 OF 312

S 02 OF 63174 D

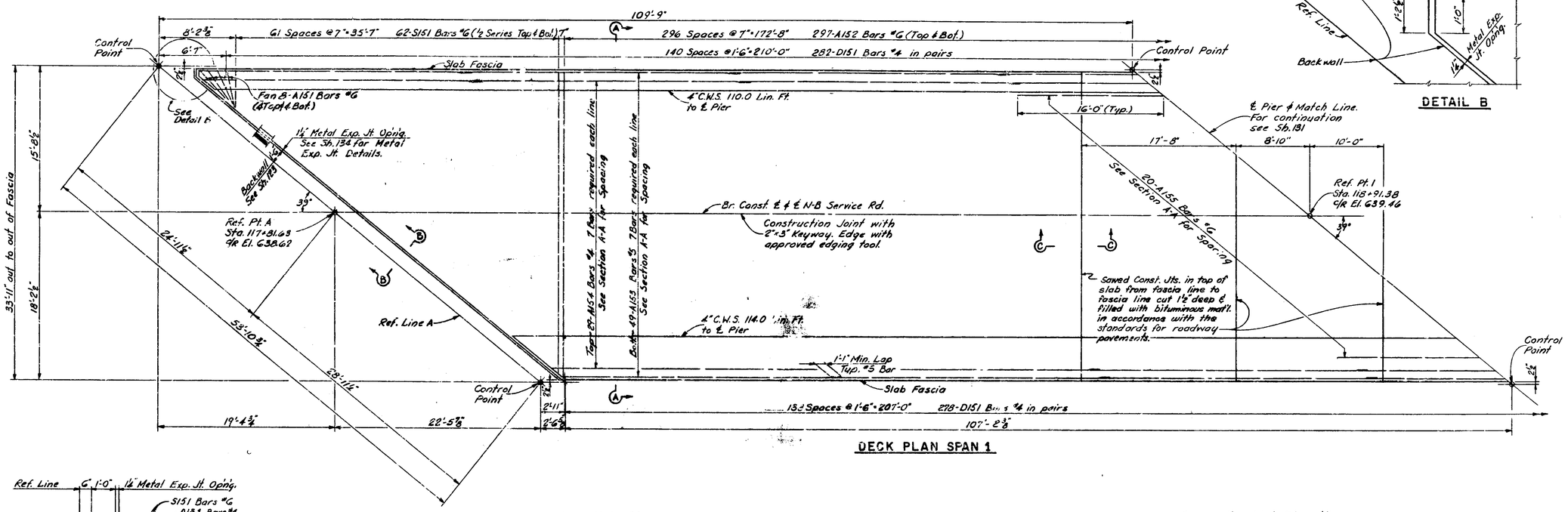


SOUTH WALK PLAN

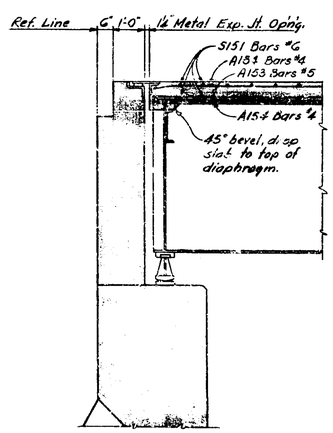
Railing not shown, for details see Sh. 133



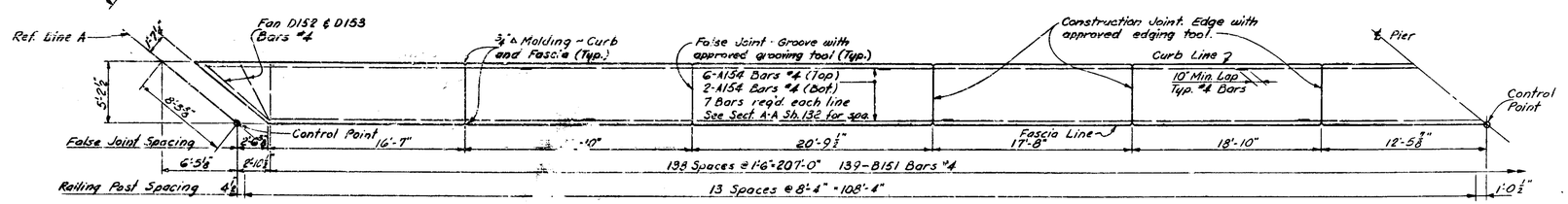
DETAIL B



DECK PLAN SPAN 1



SECTION B-B



NORTH WALK PLAN

Railing not shown, for details see Sh. 133

Work this sheet with sheets 131, 132 & 133

MICHIGAN STATE HIGHWAY DEPARTMENT

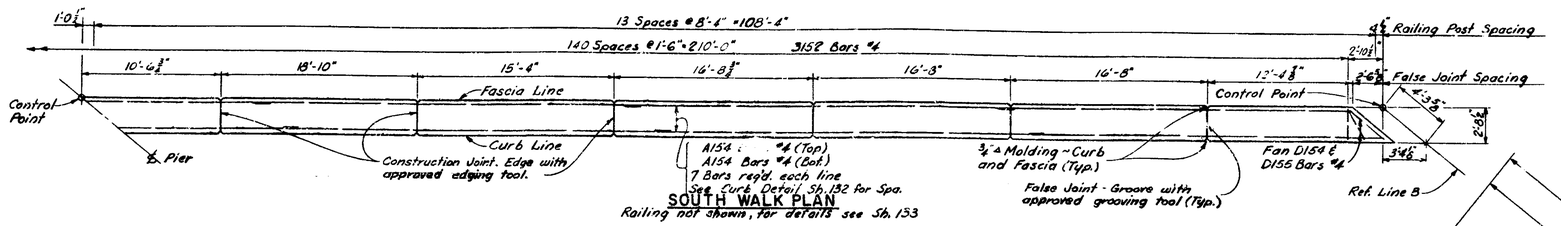
SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

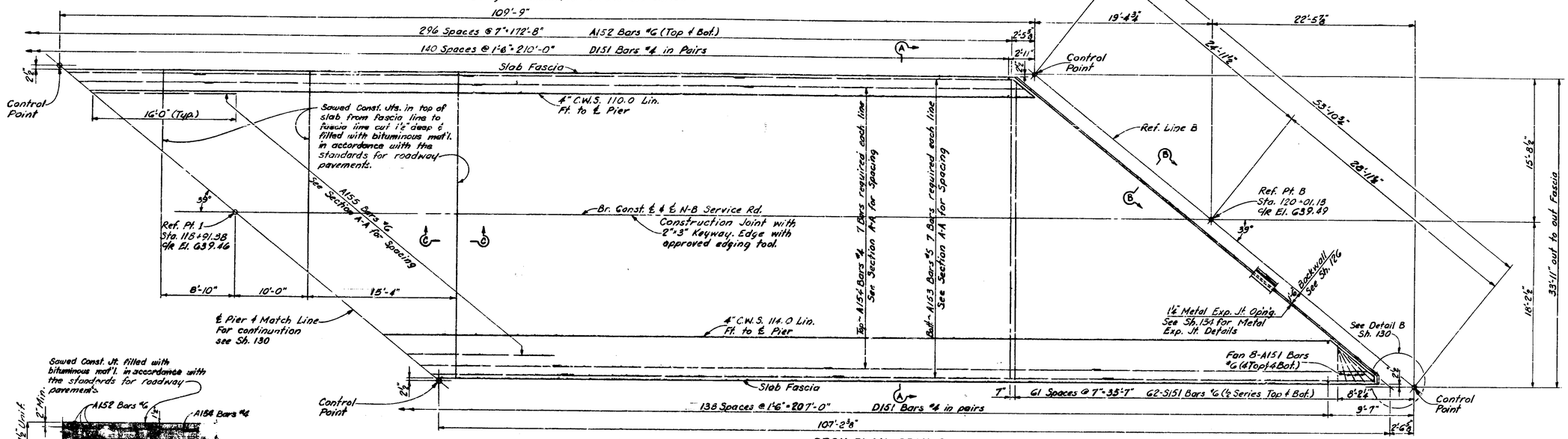
SQUAD BOSS	JDC	3-29-62
DRAWN BY	JDC	2-5-62
TRACED BY		
CHECKED BY	RAD	3-9-62
SHEET 130 OF 312		

S02 OF 63174D

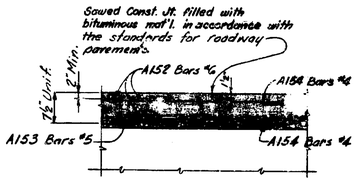


SOUTH WALK PLAN

Railing not shown, for details see Sh. 133

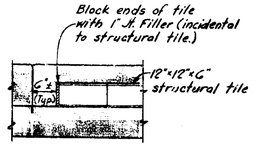


DECK PLAN SPAN 2

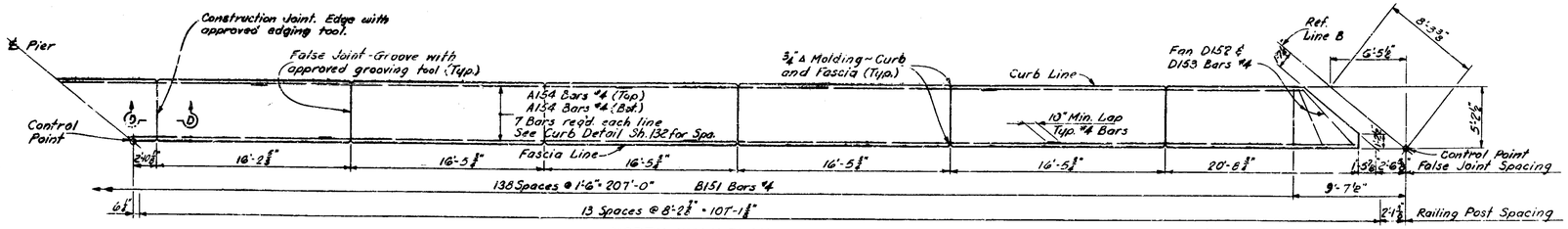


SECTION C-C

Note: Sawed joint and filler are incidental to superstructure concrete.



SECTION D-D



NORTH WALK PLAN

Railing not shown, for details see Sh. 133

Work this sheet with sheets 132 & 133

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

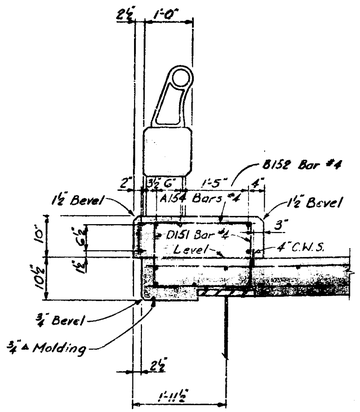
TECON ENGINEERS, INC.

REVISIONS

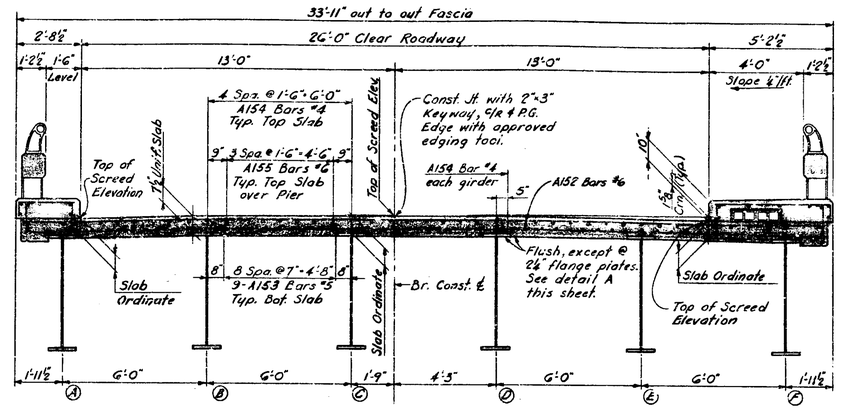
NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

SQUAD BOSS	JDC	3-29-62
DRAWN BY	JDC	2-6-62
TRACED BY		
CHECKED BY	RAD	3-9-62
SHEET 131 OF 312		

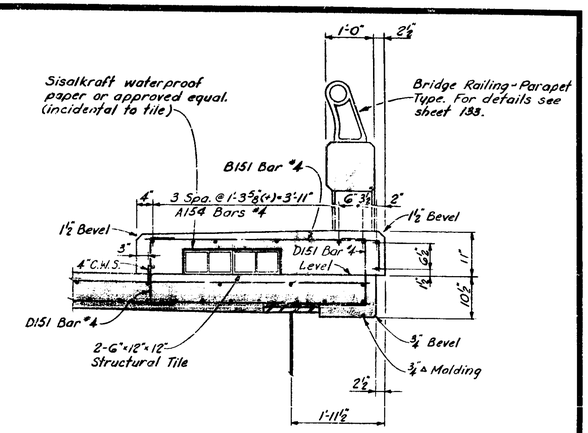
S02 OF 63174D



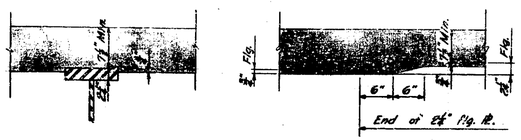
CURB DETAIL



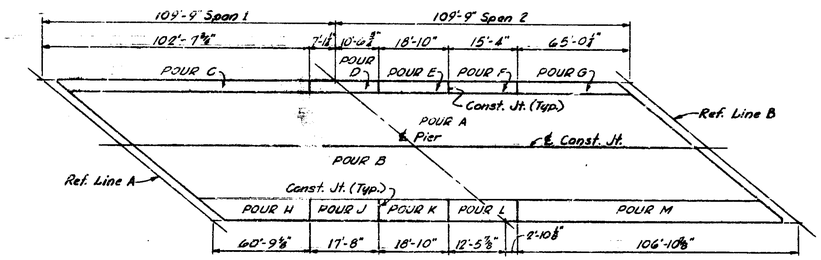
SECTION A-A



CURB DETAIL



DETAIL A

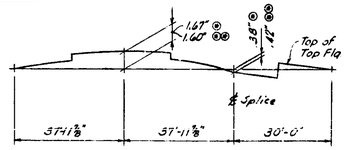


POUR DIAGRAM

CONCRETE QUANTITIES GRADE A (6AA)-CU. YDS.													
POUR	A	B	C	D	E	F	G	H	J	K	L	M	Total
AMOUNT	94.1	109.2	8.1	1.5	1.6	1.2	5.4	8.5	2.3	2.5	2.1	12.5	250.0

Concrete Pours need not be placed in alphabetical order.

MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
12"x12"x6" Structural Tile	Ea.	414
Copper	Lbs.	149
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	106
Bridge Railing-Parapet Type	Lin. Ft.	435.9



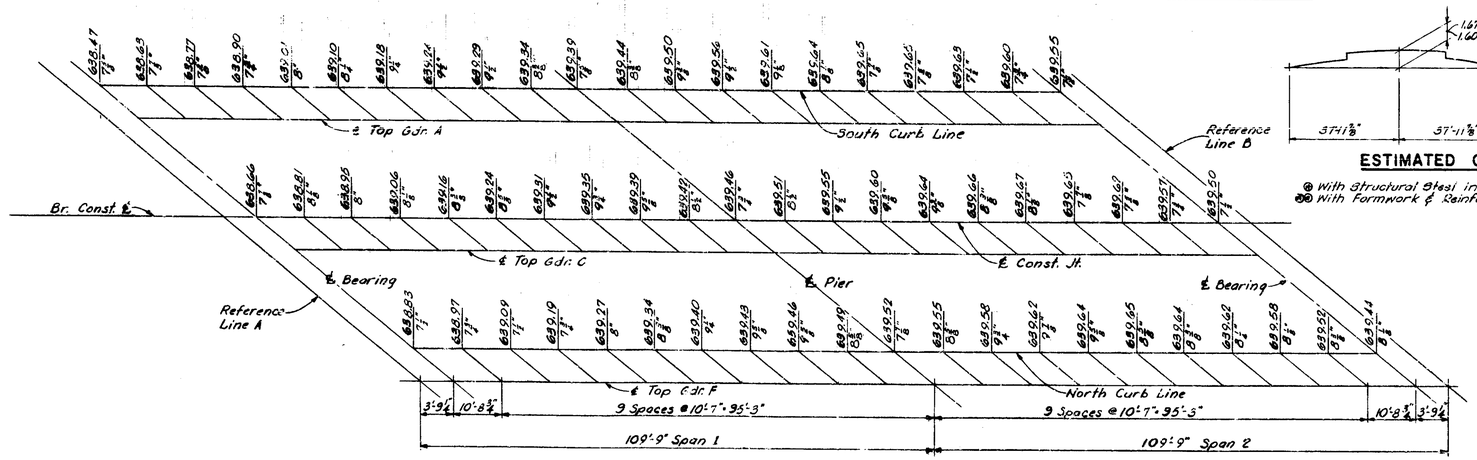
ESTIMATED CAMBER

⊛ With Structural Steel in place.
⊛⊛ With Formwork & Reinforcing Steel in place.

NOTES

For Railing Details, See Sheet No. 133.
C.W.S. indicates copper waterstop.
For Bevel and Molding Details, See Std. Sheet R11.
Edge and Groove denote Edging or Grooving with an approved tool.

Elevations shown are for top of screed before pouring any concrete and are based on a minimum slab thickness of 7½". After screeds are set if check indicates that less than the minimum thickness will be obtained, adjust screeds and expansion dams accordingly. The slab ordinates shown provide for dead load deflection, crown, girder camber, and are to be measured from the top of the girder indicated (on a line parallel to the reference lines) to the top of the screed.
Screeds affected by loads in other spans are to be set to the elevations shown and checked for minimum slab thickness before pouring any concrete.



TOP OF SCREED ELEVATIONS AND SLAB ORDINATES

Work this Sheet with Sheets 130, 131, 133

MICHIGAN STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE DETAILS

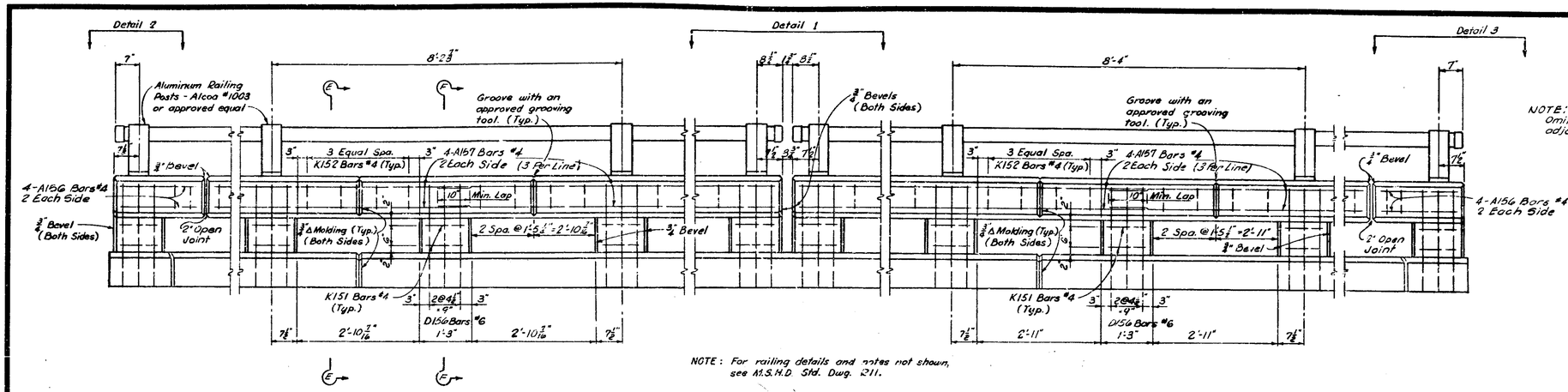
TECON ENGINEERS, INC.

REVISIONS			
NO	DESCRIPTION	DATE	BY
1	Structure Relocated	9-10-62	Tecon

SQUAD BOSS	JDC	3-29-62
DRAWN BY	JDC	2-6-62
TRACED BY		
CHECKED BY	RAD	3-9-62

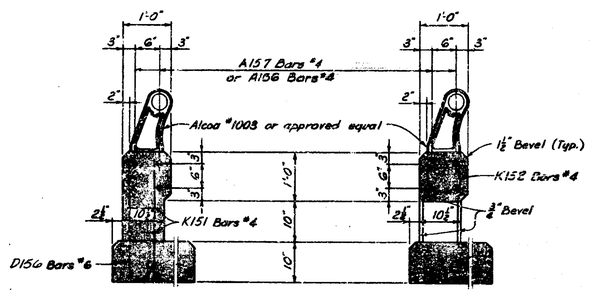
SHEET 132 OF 312

S02 OF 63174D



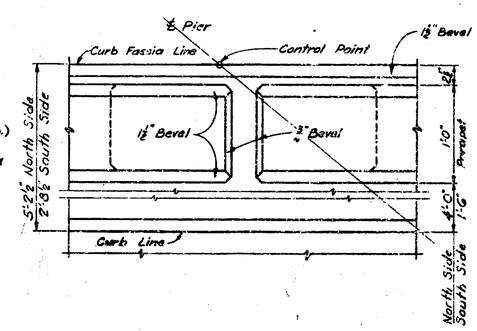
NOTE: For railing details and notes not shown, see M.S.H.D. Std. Dwg. 211.

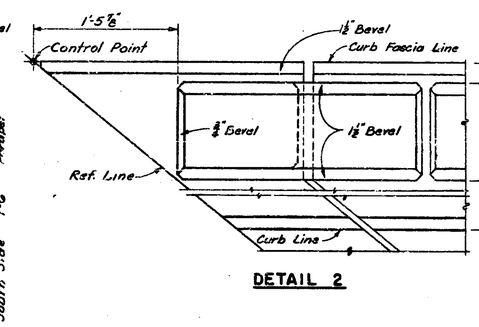
INSIDE ELEVATION - BRIDGE RAILING - PARAPET TYPE



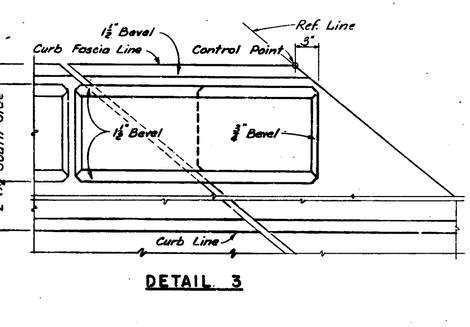
SECTION F-F

SECTION E-E





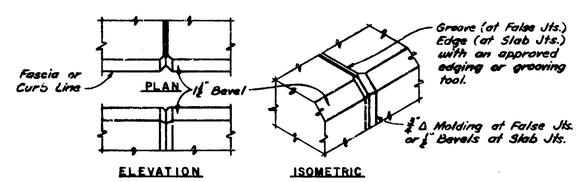
DETAIL 2



DETAIL 3

4" C.W.S.

COPPER WATERSTOP DETAILS



MOLDING DETAILS

Work this sheet with sheets 130, 131 & 132

MICHIGAN STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

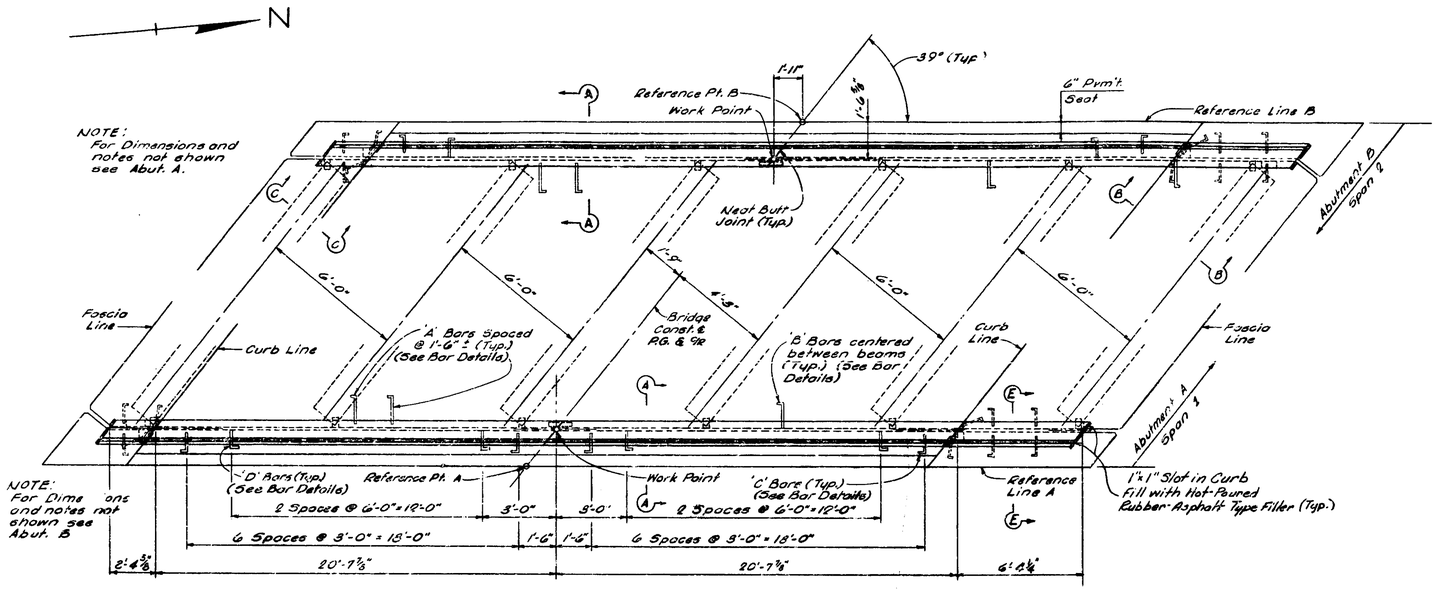
REVISIONS

NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

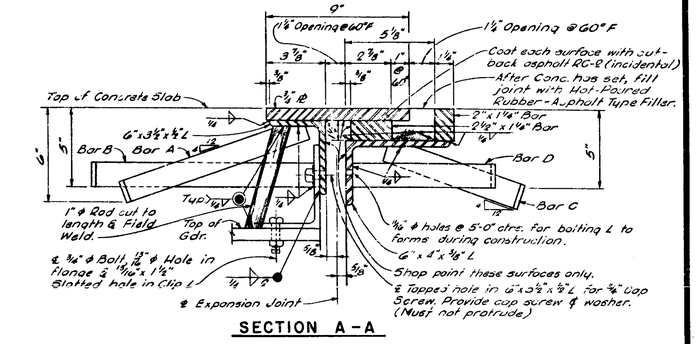
DESIGN BASIS	JDC	3-29-62
DRAWN BY	JDC	2-7-62
TRACED BY		
CHECKED BY	RPD	3-9-62

SHEET 133 OF 312

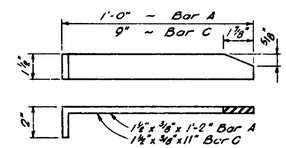
S02 OF 63174D



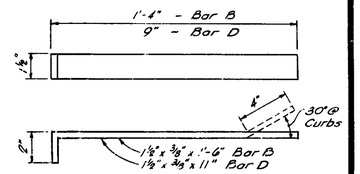
PLAN – ABUT. A & B



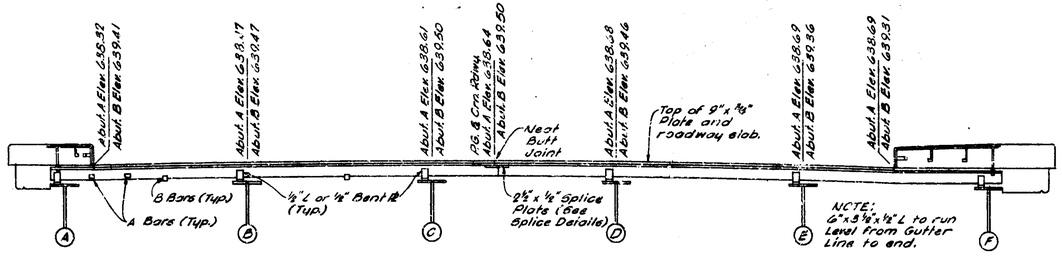
SECTION A-A



BAR 'A' & 'C' DETAILS



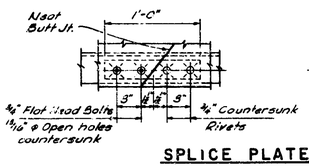
BAR 'B' & 'D' DETAILS



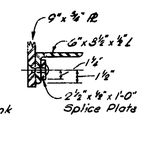
ELEVATION

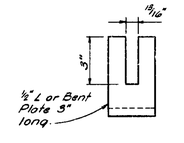
(Looking up sta. Abut. A & back sta. Abut. B)

NOTE: Elevations shown are finished grade elevations at the intersection of ℄ Expansion Joint with ℄ girders and curb lines.

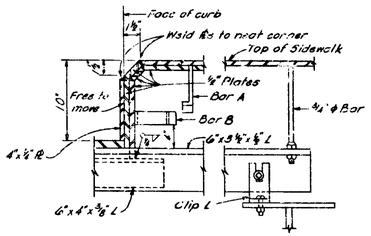


SPLICE PLATE DETAILS

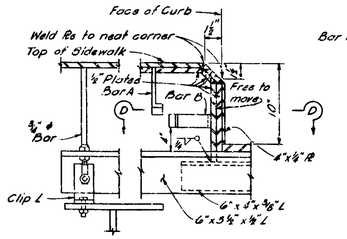




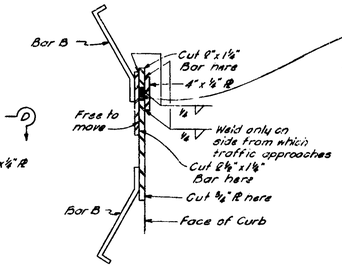
CLIP L DETAIL



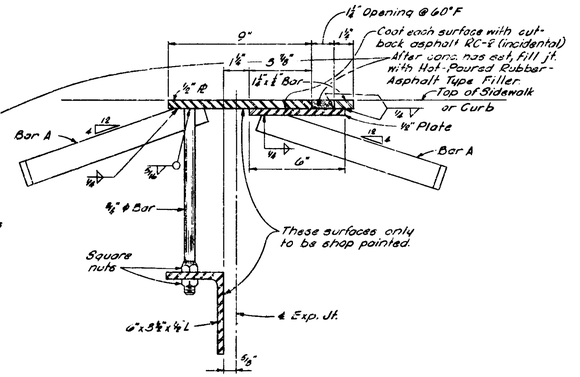
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

NOTES

The Metal Expansion Joint shall be bent in the shop to conform with the contour of the top of roadway slab. Hot-Poured Rubber-Asphalt Type Filler is included in the Superstructure Quantities on sheet # 132. Weight of Metal Expansion Joint is included in the Structural Steel weight on sheet # 135.

Work this sheet with sheets 135 & 136

MICHIGAN STATE HIGHWAY DEPARTMENT
METAL EXPANSION JOINT DETAILS

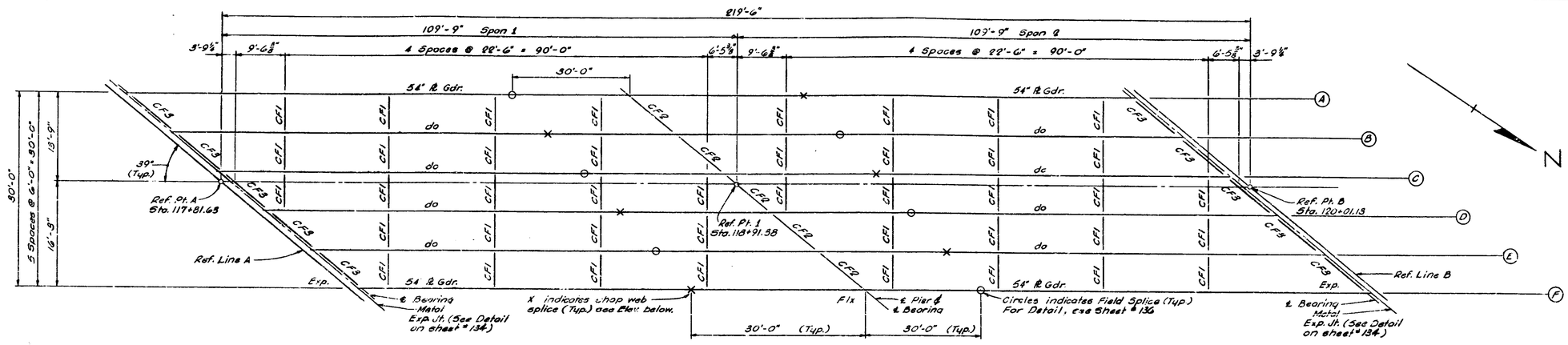
TECON ENGINEERS, INC.

REVISIONS

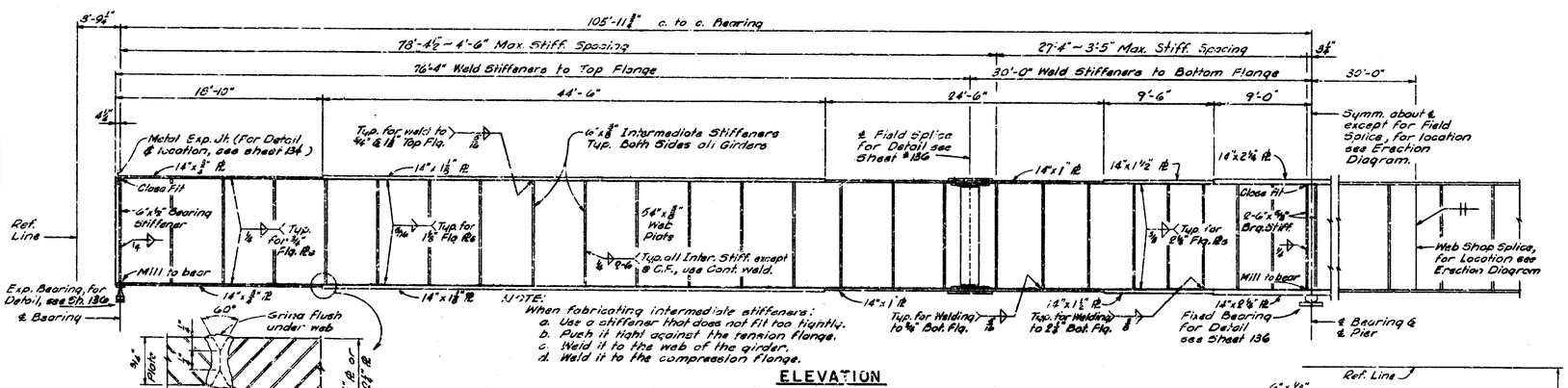
NO.	DESCRIPTION	DATE	BY
1	Structure Relocated	7-10-64	Tecon

SQUAD BOSS	JDC	8-24-62
DRAWN BY	M.B.A.	
TRACED BY		
CHECKED BY	RND	8-12-62
SHEET 134 OF 312		

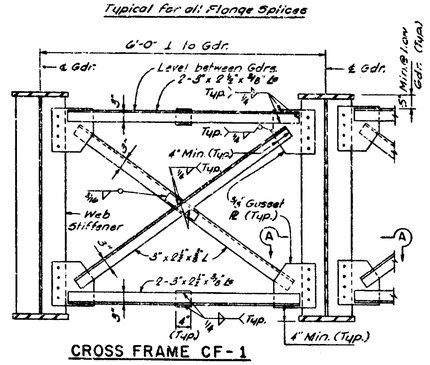
S02 OF 63174D



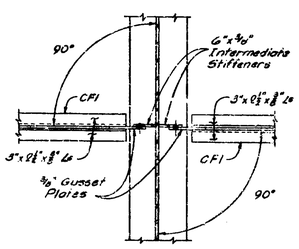
ERECTION DIAGRAM



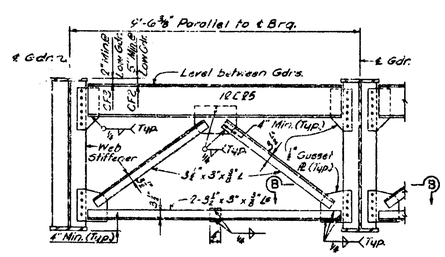
ELEVATION



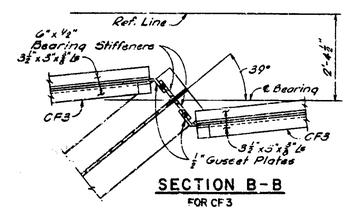
CROSS FRAME CF-1



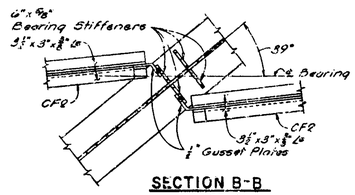
SECTION A-A



CROSS FRAME CF-2 & CF3



SECTION B-B
FOR CF3



SECTION B-B
FOR CF-2

Typical for all Flange Splices

STRUCTURAL STEEL NOTES:

Fabrication: Michigan State Highway Department's Standard Specifications for Road & Bridge Construction - 1960 Edition.

Design: Michigan State Highway Department's Specifications For Design of Highway Bridges - 1958 Edition. H20-44 Loading. Allowable Live Load + Impact Deflection = Span ÷ 800.

Shop Connections: All shop connections shall be welded or riveted as shown on the plans.

Field Connections: Field connections, unless otherwise noted, shall be bolted with high-strength bolts. Contact surfaces shall be thoroughly cleaned immediately prior to assembly of joints.

High-Strength Bolts: ¾" ϕ.

Open Holes: Open holes for high-strength bolts shall be 13/16" ϕ.

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

Metal floor joints shall not be painted in shop except as noted on the plans.

Camber: The girders shall be cambered as shown on the plans.

Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ⅜" and welded, with a continuous weld, for the full perimeter. Welds shall be ground flush with faces of plate.

All web plates, flange plates and stiffeners shall conform to the requirements for welding A.S.T.M. A-373. All other steel shall be A-7.

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

A-7 Steel	34,900 (Includes Wt. Metal Exp. Jt.)
A-373 Steel	233,300
Lead Plates	200
Total 268,400 Structural Steel - Furnishing & Fabricating	
Total 268,400 Structural Steel - Erection	
Field Painting: Lump Sum	

Camber and other dimensional tolerances are to be in accordance with American Welding Society Specifications.

Work this sheet with sheets 134 & 136

MICHIGAN STATE HIGHWAY DEPARTMENT
STRUCTURAL STEEL DETAILS

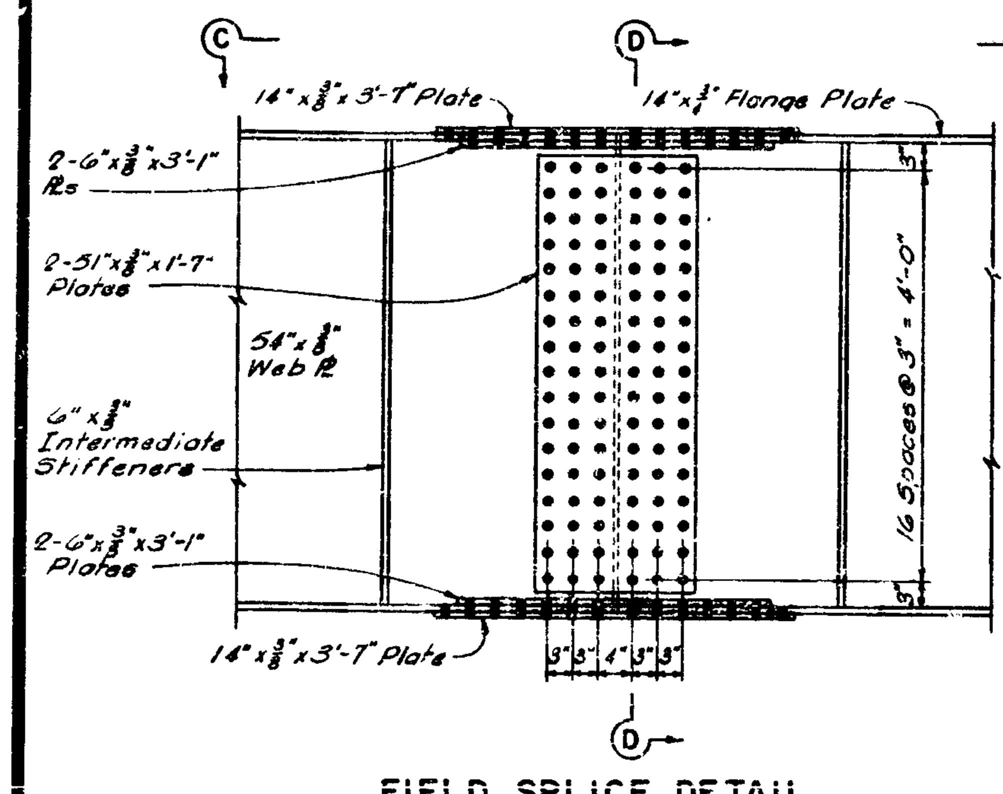
TECON ENGINEERS, INC.

REVISIONS

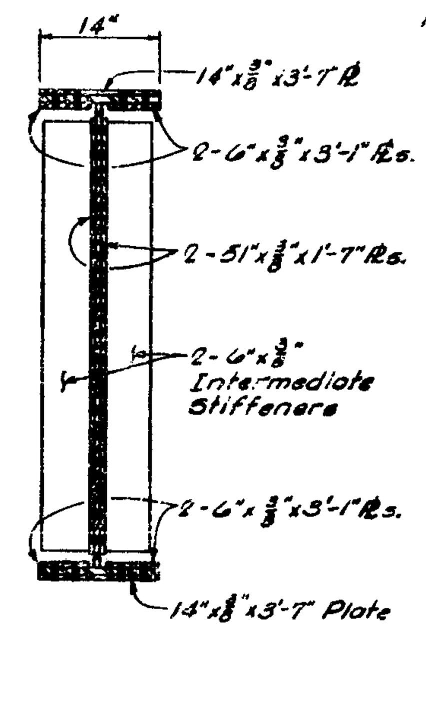
NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

SQUAD BOSS	JDC	3-29-62
DRAWN BY	M.B.A.	
TRACED BY		
CHECKED BY	RAD	3-10-62
SHEET 135 OF 312		

S02 OF 63174D



FIELD SPLICE DETAIL



SECTION D-D

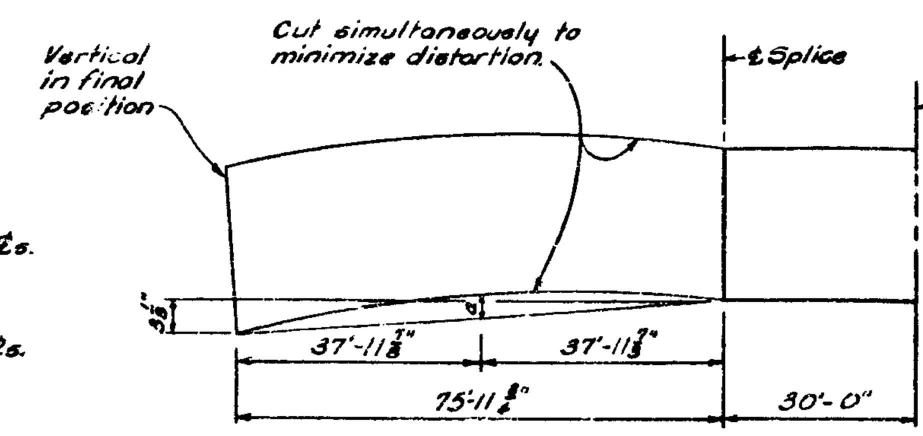


TABLE OF THEORETICAL CAMBER (INCHES)		
CONSTRUCTION STAGE	BEAM POSITION	
	FLAT	UPRIGHT
After cutting web and assembling	1¾"	
After welding flanges & Stiffeners*	1¾"	1½"

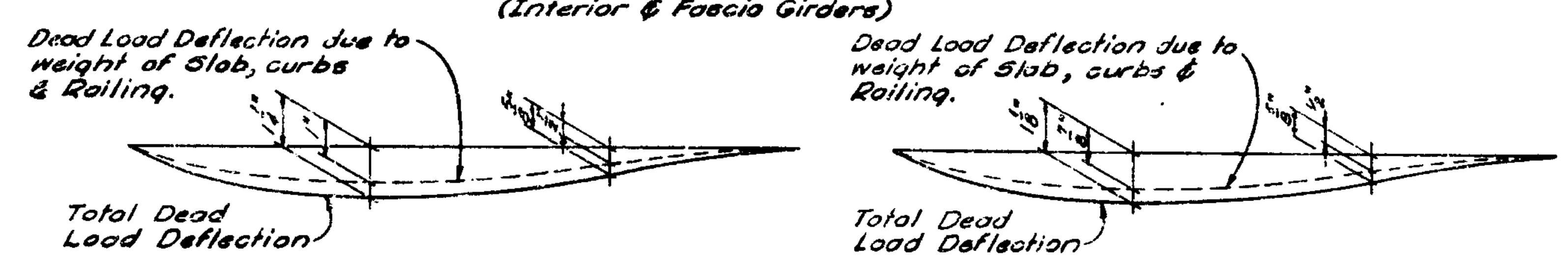
Cut Web plates to parabolic camber indicated by diagram.

a = Total camber required at mid-span at stage indicated.

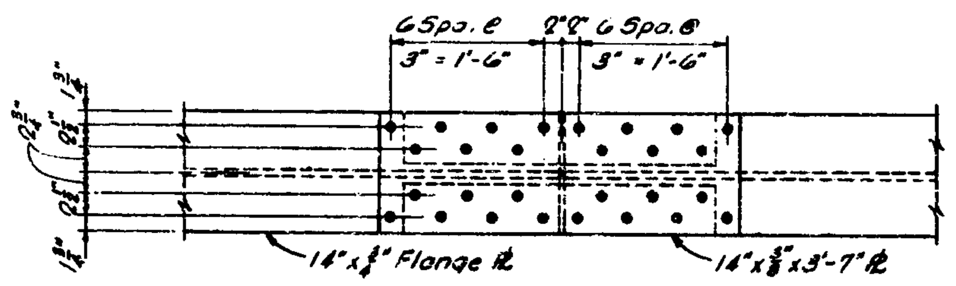
* At this stage camber should be corrected within ± 1/32" x 4/10 ft. tolerance by heating in the shop.

SOLE PLATE THICKNESS TABLE			
BEAM LINE	ABUT. A	PIER 1	ABUT. B
A	2"	2"	2"
B	3⅞"	3¼"	2½"
C	2"	4⅜"	3"
D	2⅝"	4½"	2⅝"
E	3"	4"	3¼"
F	3"	3⅜"	2"

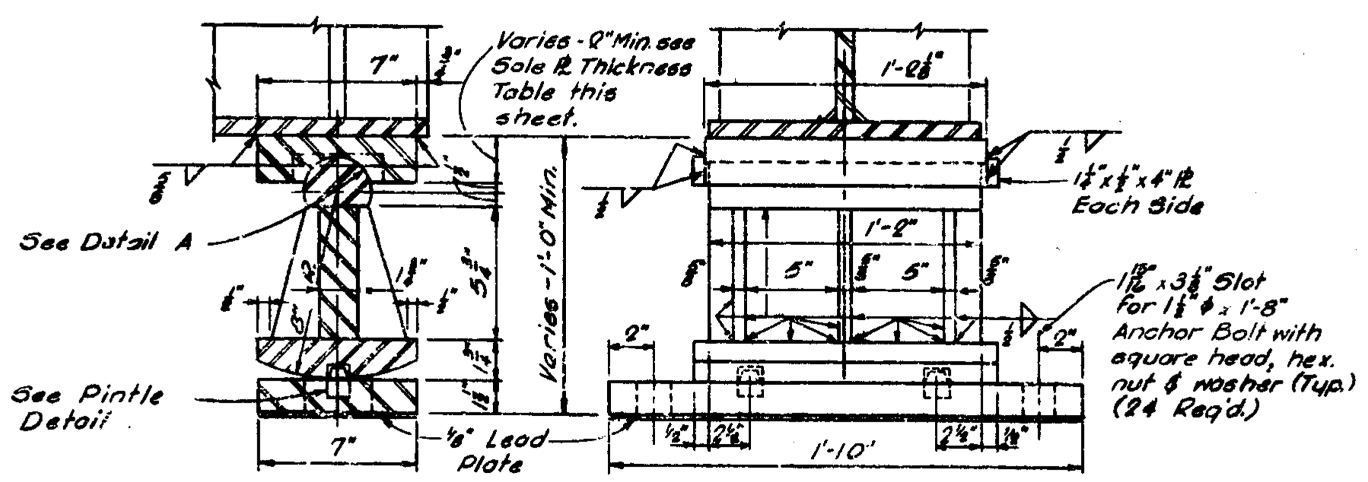
CAMBER & BLOCKING DIAGRAM FOR FABRICATION OF SPLICES
(Interior & Fascia Girders)



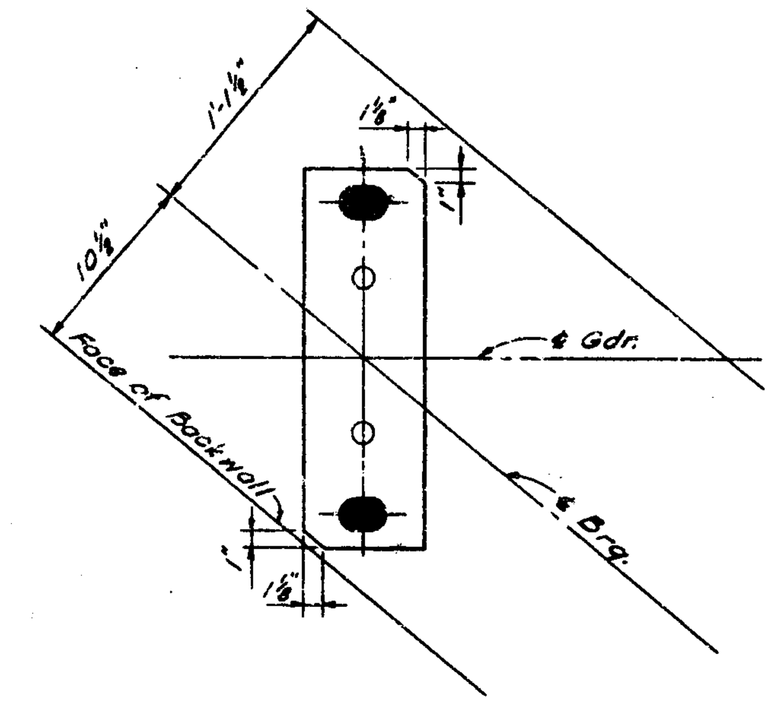
DEFLECTION DIAGRAMS



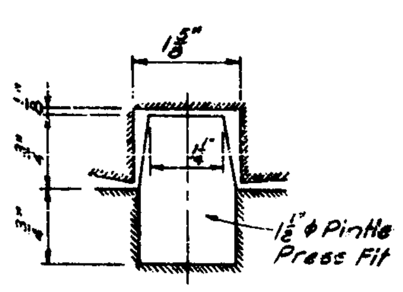
SECTION C-C



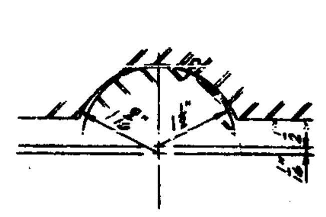
EXPANSION BEARING DETAIL - ABUT. A & B



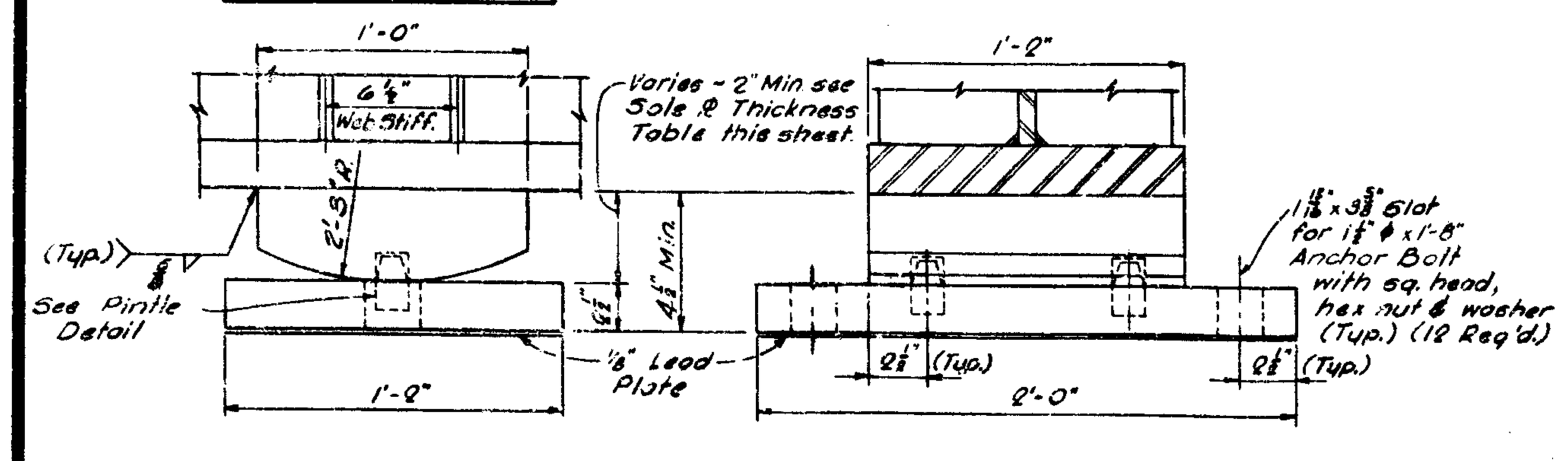
DETAIL OF ABUTMENT BEARING PLATE SHOWING CLIP



PINTLE DETAIL



DETAIL A



FIXED BEARING DETAIL — PIER 1

Work this sheet with sheets 134 & 135

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

SQUAD BOSS	JPC	3-29-62
DRAWN BY	M.B.A.	
TRACED BY		
CHECKED BY	RAC	3-10-62

SHEET 136 OF 312

S02 OF 53174D

ABUTMENTS

BAR	DIMENSIONS a	b	c	d	e	ABUTMENT A	B	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A1	6'-5"					121	0	9	8'-5"	121	3463
A2	12'-5"					82	2	6	12'-5"	84	1567
A3	7'-6"					0	81	9	7'-6"	81	2066
A4	10'-5"					32	82	6	10'-5"	114	1784
A5	22'-0"					128	98	6	22'-0"	226	7468
A6	30'-6"					52	50	4	30'-6"	62	1263
A7	5'-0"					140	124	6	5'-0"	264	1983
A8	20'-10"					90	117	6	20'-10"	207	6177
A9	5'-3"					150	110	7	5'-3"	260	2790
A10	21'-0"					144	0	6	21'-0"	144	4542
A11	16'-6"					24	144	6	16'-6"	168	4164
A12	24'-9"					14	2	6	24'-9"	16	595
A13	10'-5"					7	0	7	10'-5"	7	149
A14	23'-3"					14	0	7	23'-3"	14	665
A15	8'-9"					48	0	8	8'-9"	48	1121
A16	31'-9"					28	28	10	31'-9"	56	7651
A17	18'-9"					0	5	6	18'-9"	5	141
A18	11'-0"					3	0	4	11'-0"	3	22
A19	8'-6"					6	7	6	8'-6"	13	166
A20	9'-0"					18	13	8	9'-0"	31	745
A21	7'-10"					48	0	7	7'-10"	48	769
A22	18'-5"					3	0	6	18'-5"	3	83
A23	8'-4"					49	0	9	8'-4"	49	1388
A24	7'-6"					75	0	8	7'-6"	75	1502
A25	4'-10"					32	50	9	4'-10"	82	1348
A26	3'-9"					0	4	6	3'-9"	4	23
A27	6'-8"					78	0	7	6'-8"	78	1063
A28	5'-8"					89	0	6	5'-8"	89	758
A29	23'-3"					62	0	6	23'-3"	62	2165
A30	26'-8"					14	24	4	26'-8"	38	677
A31	22'-11"					126	0	6	22'-11"	126	4337
A32	23'-0"					15	0	4	23'-0"	15	230
A33	29'-0"					14	0	4	29'-0"	14	271
A34	4'-6"					534	242	6	4'-6"	776	5265
A35	30'-5"					28	0	6	30'-5"	28	1279
A36	29'-0"					14	2	6	29'-0"	16	697
A37	20'-0"					52	9	6	20'-0"	61	1832
A38	13'-6"					45	0	6	13'-6"	45	912
A39	29'-6"					2	0	6	29'-6"	2	89
A40	25'-9"					30	2	6	25'-9"	32	1238
A41	27'-7"					14	0	6	27'-7"	14	580
A42	26'-2"					36	0	6	26'-2"	36	1415
A43	8'-1"					16	0	6	8'-1"	16	194
A44	6'-9"					106	16	6	6'-9"	122	1237
A45	20'-8"					0	10	9	20'-8"	10	689
A46	18'-9"					0	10	9	18'-9"	10	638
A47	16'-9"					6	10	9	16'-9"	16	911
A48	15'-3"					6	6	9	15'-3"	12	622
A49	13'-9"					5	9	9	13'-9"	14	655
A50	12'-3"					3	5	9	12'-3"	8	333
A51	10'-9"					3	0	9	10'-9"	3	110
A52	9'-3"					3	0	9	9'-3"	3	94
A53	18'-5"					6	0	9	18'-5"	6	376
A54	6'-3"					145	24	6	6'-3"	169	1586
A55	16'-9"					3	5	6	16'-9"	8	201
A56	15'-3"					3	6	6	15'-3"	9	206
A57	13'-9"					5	10	6	13'-9"	15	310
A58	12'-3"					51	14	6	12'-3"	65	1196
A59	10'-9"					47	25	6	10'-9"	72	1163
A60	9'-3"					51	24	6	9'-3"	75	1042
A61	7'-9"					6	24	6	7'-9"	30	349
A62	7'-0"					0	62	7	7'-0"	62	887
A63	6'-3"					0	41	7	6'-3"	41	524
A64	4'-10"					29	0	6	4'-10"	29	211
A65	5'-6"					64	11	6	5'-6"	75	620
A66	19'-4"					24	43	6	19'-4"	67	1946
A67	4'-0"					57	0	6	4'-0"	57	342
A68	7'-4"					16	30	6	7'-4"	46	507
A69	5'-10"					65	12	6	5'-10"	77	675
A70	5'-3"					36	34	6	5'-3"	70	552
A71	4'-3"					48	0	7	4'-3"	48	417
A72	8'-6"					0	20	7	8'-6"	20	347
A73	7'-2"					0	19	7	7'-2"	19	278
A74	4'-6"					48	0	6	4'-6"	48	577
A75	25'-9"					12	0	4	25'-9"	12	206
A76	5'-6"					19	0	6	5'-6"	19	100
A77	5'-6"					0	17	7	5'-6"	17	191
A78	27'-3"					0	14	4	27'-3"	14	255

ABUTMENTS

BAR	DIMENSIONS a	b	c	d	e	ABUTMENT A	B	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A79	15'-0"					43	0	6	15'-0"	43	969
A80	22'-5"					0	8	4	22'-5"	8	120
A81	4'-6"					16	0	7	4'-6"	16	147
A82	20'-10"					0	4	4	20'-10"	4	56
A83	19'-5"					0	4	4	19'-5"	4	52
A84	4'-6"					0	2	4	4'-6"	2	6
A85	9'-8"					0	6	4	9'-8"	6	39
A86	14'-9"					0	4	4	14'-9"	4	39
A87	19'-10"					0	4	4	19'-10"	4	53
A88	25'-0"					141	27	4	25'-0"	168	2806
A89	30'-0"					0	2	4	30'-0"	2	40
A90	24'-6"					0	13	4	24'-6"	13	213
A91	7'-9"					14	14	4	7'-9"	28	145
A92	16'-6"					16	0	7	16'-6"	16	540
A93	4'-10"					16	0	8	4'-10"	16	206
A94	6'-8"					16	0	8	6'-8"	16	285
A95	17'-10"					16	0	8	17'-10"	16	762
A96	17'-10"					24	0	6	17'-10"	24	643
A97	23'-8"					79	0	4	23'-8"	79	1249
A98	25'-10"					31	0	7	25'-10"	31	1637
A99	23'-8"					12	0	7	23'-8"	12	580
A100	9'-6"					48	0	8	9'-6"	48	1218
A101	4'-10"					57	0	9	4'-10"	57	937
A102	23'-8"					91	0	6	23'-8"	91	3235
A103	11'-8"					2	0	6	11'-8"	2	35
A104	21'-9"					26	0	6	21'-9"	26	649
A105	19'-3"					19	0	9	19'-3"	19	1244
A106	6'-6"					19	0	9	6'-6"	19	420
A107	4'-3"					19	0	9	4'-3"	19	275
A108	2'-8"					2	0	6	2'-8"	2	8
B1	4'-3"	3'-0"				14	12	4	7'-3"	26	126
B2	6'-3"	3'-0"				0	6	4	9'-3"	6	37
B3	6'-0"	3'-0"				0	2	4	9'-0"	2	12
B4	3'-0"	1'-10"				2	2	4	4'-10"	4	13
D1	1'-2"	7'-3"	6'-3"			29	29	6	14'-7"	58	1270
D2	1'-2"	8'-1"	8'-1"			6	7	6	17'-3"	13	337
D3	1'-2"	3'-0"	9'-0"			30	30	5	7'-1"	60	443
D4	1'-2"	4'-1"	4'-1"			40	40	5	9'-3"	80	772
D5	1'-2"	5'-1"	5'-1"			40	30	5	11'-3"	70	821
D6	1'-2"	5'-10"	5'-10"			50	40	5	12'-9"	90	1197
D7	1'-2"	6'-7"	6'-7"			50	0	5	14'-5"	50	743
D8	1'-2"	2'-10"	2'-10"			100	40	5	6'-9"	140	956
D9	1'-2"	3'-8"	3'-8"			100	40	5	8'-5"	140	1229
D10	1'-2"	4'-8"	4'-8"			108	38	5	10'-5"	146	1586
D11	1'-2"	5'-8"	5'-8"			36	6	5	12'-5"	42	544
G1	3'-3"	1'-0"	23'-10"	10'-1"	21'-11"	20	0	11	23'-0"	20	2975
G2	3'-3"	1'-0"	13'-9"	5'-10"	12'-5"	10	0	11	17'-11"	10	952
G3	3'-3"	1'-0"	8'-7"	5'-8"	7'-9"	10	0	11	12'-9"	10	677
G4	3'-3"	1'-0"	4'-4"	1'-10"	3'-11"	10	0	9	8'-6"	10	289
G5	3'-3"	1'-0"	18'-9"	8'-5"	16'-9"	0	20	11	22'-11"	20	2435
G6	3'-3"	1'-0"	9'-0"	4'-0"	8'-0"	0	10	11	13'-2"	10	700
G7	3'-3"	1'-0"	3'-6"	1'-7"	3'-1½"	0	10	11	7'-8"	10	407
G8	2'-9"	1'-0"	15'-0"	4'-9"	14'-3"	4	0	11	18'-8"	4	397
G9	2'-9"	1'-0"	7'-6"	2'-4½"	7'-1½"	18	4	11	11'-2"	22	1305
G10	2'-9"	1'-0"	12'-6"	3'-11½"	11'-10½"	8	2	11	16'-2"	10	859
G11	2'-9"	1'-0"	9'-0"	2'-10"	8'-6½"	6	4	11	12'-8"	10	673
G12	2'-9"	1'-0"	5'-6"	1'-1½"	3'-4"	6	6	11	7'-2"	12	457
H1	3'-0"	7"	2'-11"	2'-5"		5	5	4	11'-11"	10	80
H2	4'-7"	3'-0"	2'-5"	1'-7"		5	5	4	15'-3"	10	102

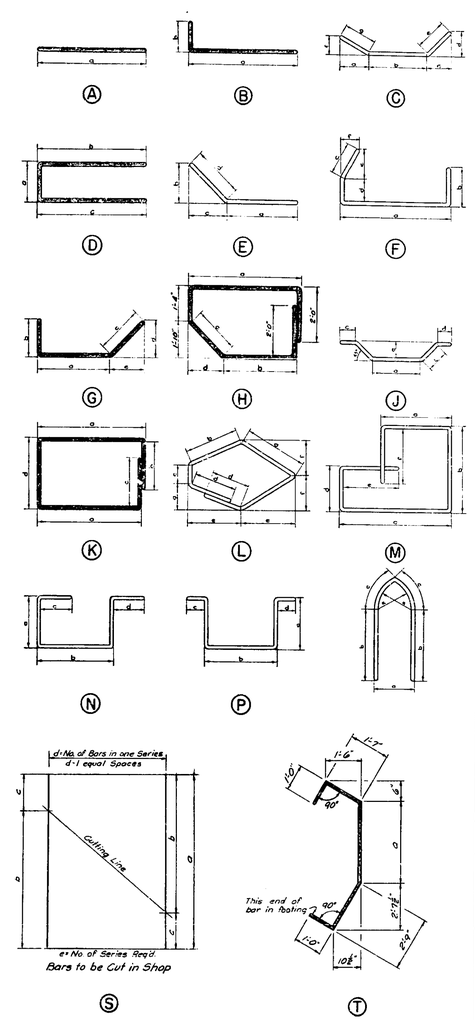
ABUTMENTS

BAR	DIMENSIONS a	b	c	d	e	ABUTMENT A	B	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
K1	3'-2"	2'-0"	2'-0"	3'-2"		40	40	4	13'-5"	80	717
K2	1'-2"	1'-7"	1'-7"	2'-3"		10	4	5	7'-8"	14	112
K3	1'-2"	1'-9"	1'-9"	2'-7"		10	4	5	8'-4"	14	122
K4	1'-2"	1'-11"	1'-11"	2'-11"		10	4	5	9'-0"	14	131
S1	24'-10"	18'-5"	6'-5"	7	5	35	0	5	24'-10"	35	907
S2	18'-4"	13'-2"	5'-2"	5	5	0	25	5	18'-4"	25	478
S3	21'-0"	12'-6"	8'-6"	16	1	16	0	6	21'-0"	16	505
S4	22'-6"	12'-6"	10'-0"	28	1	28	0	6	22'-6"	28	946
S5	19'-0"	10'-6"	8'-6"	15	2	0	30	6	19'-0"	30	856
S6	46'-8"	29'-1"	17'-7"	23	1	23	0	6	46'-8"	23	1612
S7	22'-0"	16'-6"	5'-6"	6	1	6	0	6	22'-0"	6	198
S8	26'-4"	23'-8"	2'-8"	8	1	8	0	4	26'-4"	8	141
S9	45'-0"	25'-3"	19'-9"	22	1	0	22	6	45'-0"	22	1487
S10	37'-3"	23'-6"	13'-9"	21	1	0	21	6	37'-3"	21	1175
S11	23'-4"	20'-8"	2'-8"	7	1	0	7	4	23'-4"	7	109
S12	20'-0"	14'-6"	5'-6"	4	1	0	4	5	20'-0"	4	83
S13	30'-6"	25'-9"	4'-9"	8	2	16	0	5	30'-6"	16	509
S14	28'-0"	23'-0"	5'-0"	7	3	14	7	5	28'-0"	21	613
S15	24'-0"	18'-6"	5'-6"	6	5	18	12	5	24'-0"	30	751
S16	23'-0"	17'-6"	5'-6"	5	3	15	0	5	23'-0"	15	360
T1	27'-6"					4	0	11	33'-7"	4	714
T2	25'-0"					4	2	11	31'-1"	6	991
T3	21'-9"					6	4	11	27'-4"	10	1452
T4	18'-9"					6	0	11	24'-10"	6	792
T5	15'-9"					0	2	11	21'-10"	2	292
						Total Weight Abutments ~ Lbs.					154,495

Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Total This Sheet Steel Reinforcement 154,495 #

BAR BENDING DIAGRAM



MICHIGAN STATE HIGHWAY DEPARTMENT

STEEL REINFORCEMENT DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

SQUAD BOSS JDC 9-6-62
DRAWN BY DRS
TRACED BY
CHECKED BY RAD/HMW 9-6-62
SHEET 137 A of 3:2

S02 OF 63174 D

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.

PIER

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A121	7'-6"							#7	7'-6"	44	675
A122	7'-6"							#6	7'-6"	44	496
A123	17'-4"							#7	17'-4"	28	992
A124	23'-6"							#7	23'-6"	14	672
A125	5'-4"							#9	5'-4"	36	658
A126	28'-2"							#8	28'-2"	28	2106
A127	21'-0"							#9	21'-0"	30	2182
A128	25'-0"							#4	25'-0"	4	67
A129	25'-0"							#11	25'-0"	12	1594
A130	25'-0"							#9	25'-0"	8	680
A131	3'-9"							#6	8'-9"	12	158
A132	21'-10"							#9	21'-10"	12	891
A133	2'-8"							#4	2'-8"	34	61
B121	21'-2"	6'-0"						#9	27'-1"	6	558
K121	3'-2"	1'-7 7/8"	1'-7 7/8"	2'-6"				#4	12'-0"	18	144
K122	1'-11"	1'-4"	1'-4"	1'-11"				#4	6'-4"	16	89
K123	2'-8"	1'-7 7/8"	1'-7 7/8"	2'-6"				#4	11'-0"	18	132
K124	3'-2"	1'-7"	1'-7"	2'-2"				#5	11'-7"	44	532
K125	3'-2"	1'-10"	1'-10"	2'-8"				#5	12'-7"	12	157
C121								#4	9'-4"	16	100
			Total Weight Pier ~ Lbs.								12,894

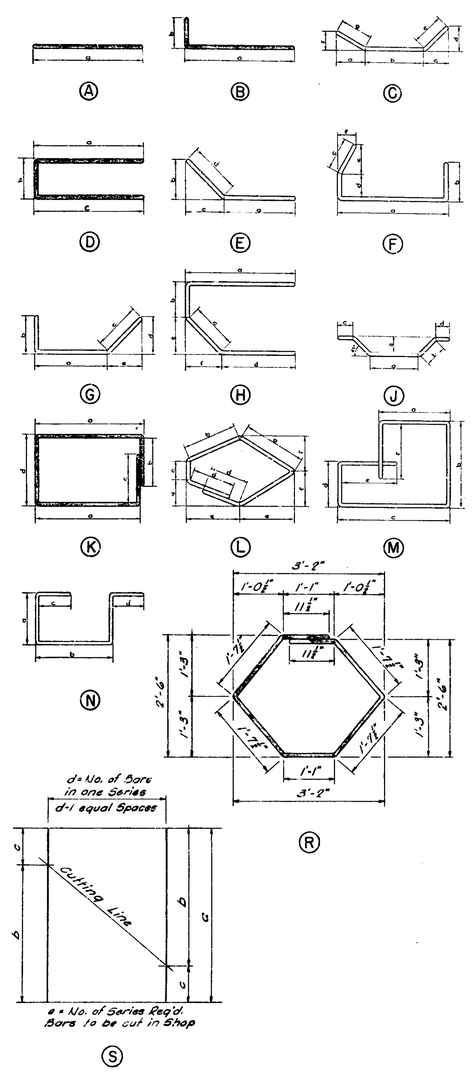
SUPERSTRUCTURE

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A151	4'-0"							#6	4'-0"	16	96
A152	33'-0"							#6	33'-0"	594	29442
A153	31'-7"							#5	31'-7"	343	11299
A154	31'-5"							#4	31'-5"	301	6317
A155	32'-0"							#6	32'-0"	20	961
A156	2'-4"							#4	2'-4"	16	25
A157	36'-0"							#4	36'-0"	48	1154
B151	8"	4'-10"						#4	5'-6"	139	511
B152	8"	2'-4"						#4	3'-0"	141	283
D151	6"	1'-4"	6"					#4	2'-4"	560	873
D152	8"	7'-7"	8"					#4	8'-11"	2	12
D153	8"	6'-2 1/2"	8"					#4	7'-6"	2	10
D154	8"	3'-8"	8"					#4	5'-0"	2	7
D155	8"	3'-0"	8"					#4	4'-4"	2	6
D156	2'-5 1/8"	6 1/8"	2'-5 1/8"					#6	5'-5"	324	2636
K151	10 1/8"	5 1/8"	6"	7 1/8"				#4	3'-4"	216	481
K152	7 1/8"	5 1/8"	6"	7 1/8"				#4	2'-9"	416	764
S151	36'-9"	32'-9"	4'-0"	62	2			#6	36'-9"	124	6845
			Total Weight Superstructure ~ Lbs.								61722

Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Total Steel Reinf. This Sheet 76,616 #
Total Steel Reinf. Sh. No. 137A 154,495 #
Grand Total Steel Reinforcement 229,111 #

BAR BENDING DIAGRAM



MICHIGAN STATE HIGHWAY DEPARTMENT

STEEL REINFORCEMENT DETAILS

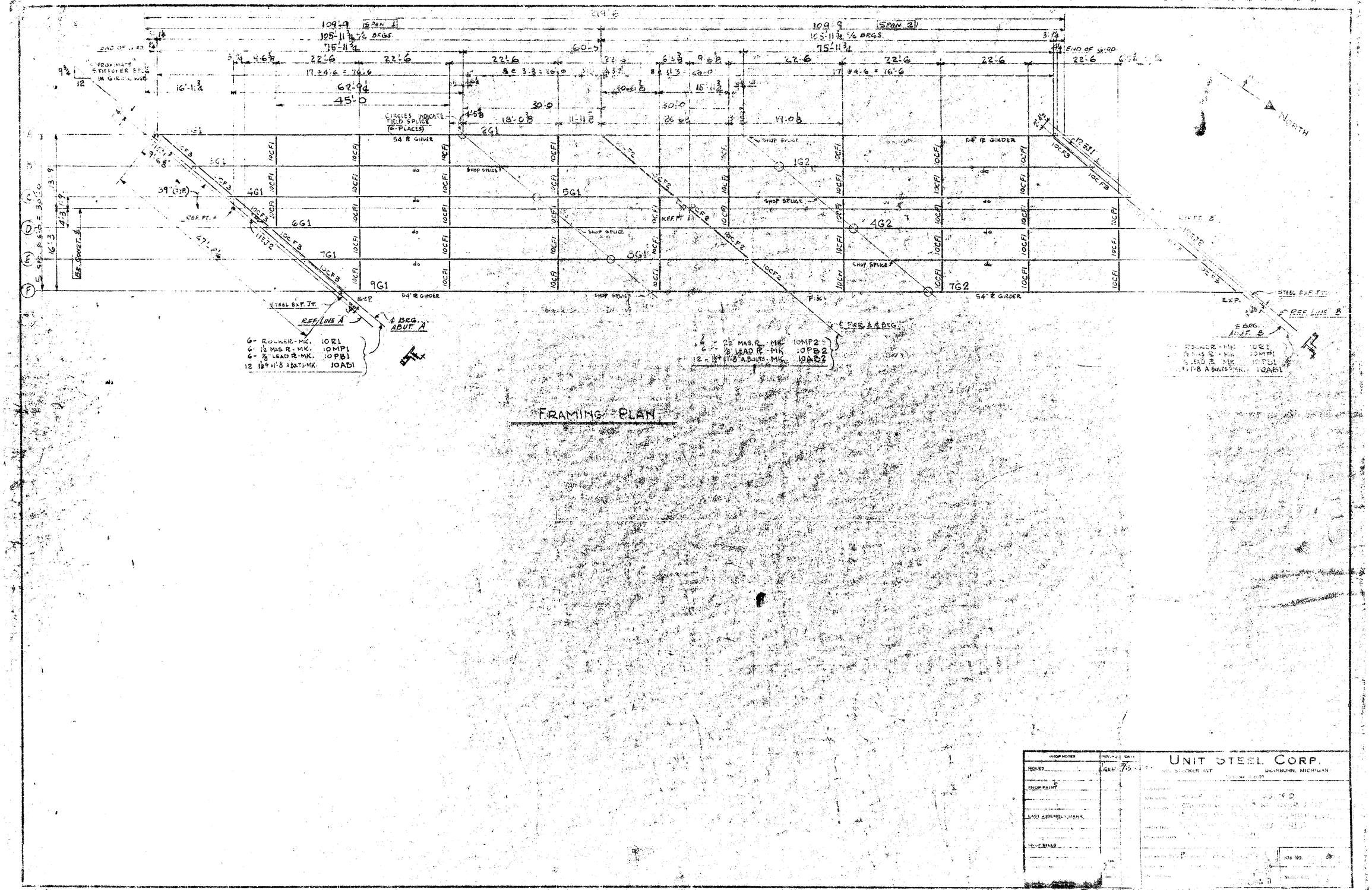
TECON ENGINEERS, INC.

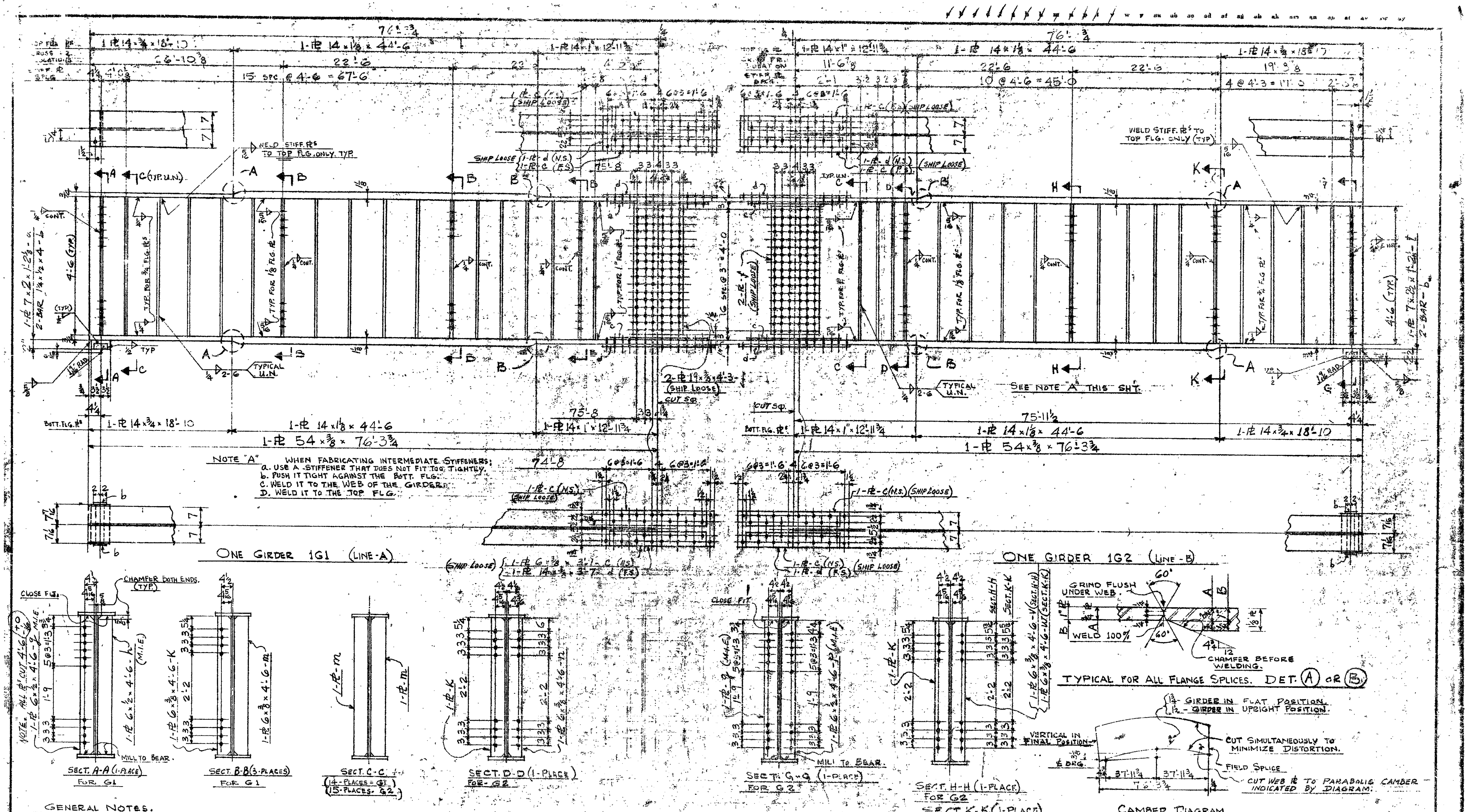
REVISIONS NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

SQUAD BOSS	JDC	9-5-62
DRAWN BY	RAD	9-5-62
TRACED BY		
CHECKED BY	JDC	9-5-62

SHEET 137B OF 312

S02 OF 63174D


SPAN 1
SPAN 2
109'-9
105'-11 3/16 BRGS
75'-11 3/4
END OF GIRD
22'-6
54" R GIRDER
SHOP SPLICE
CIRCLES INDICATE FIELD SPLICE (6 PLACES)
NORTH
STEEL EXP. JT.
REF. LINE A
℄ BRG. ABUT. A
REF. LINE B
℄ BRG. ABUT. B
℄ PIER & ℄ BRG.
6- ROCKER-MK. 10R1
6- 1/2 MAS. R-MK. 10MP1
6- 7/8 LEAD R-MK. 10PB1
12 1 3/4 x 1-8 A.BOLTS-MK. 10AB1
6- 2 1/2 MAS. R-MK. 10MP2
6- 7/8 LEAD R-MK. 10PB2
12 - 1 3/4 x 1-8 A.BOLTS-MK. 10AB2
FRAMING PLAN
UNIT STEEL CORP.
DEARBORN, MICHIGAN
SHOP NOTES
HOLES
SHOP PAINT
LAST ASSEMBLY MARK
JOB NO.



GENERAL NOTES.

M.S.H.D. STANDARD SPECS. FOR ROAD & BRIDGE CONST. 1960 EDITION.

MATERIAL: COVER PLATED BEAMS & THEIR COVER PLATES SHALL BE ASTM. A-373 STEEL. ALL OTHER STEEL ASTM. A-7.

FIELD CONN: ¾Φ HIGH STRENGTH BOLTS. FIELD CONTACT SURFACES TO BE FREE OF PAINT, LOOSE SCALE & BURRS.

SOLE & MAS ℞S: SOLE ℞S & MAS. ℞S TO BE COATED IN ACCORDANCE WITH THE REQUIREMENTS FOR MACHINE FINISHED SURFACES.

CAMBER: BEAMS WITH SHOP CAMBER ARE TO BE MEASURED WITH BEAMS LYING ON THEIR SIDES. TOLERANCES SHALL BE ± ¼ ... ANY NATURAL CAMBER SHALL BE UP ... GIRDER WEB ℞S TO BE CUT TO PROVIDE FOR PARABOLIC CAMBER ... GIRDERS ARE CAMBERED (SEE DETAIL SHEETS)

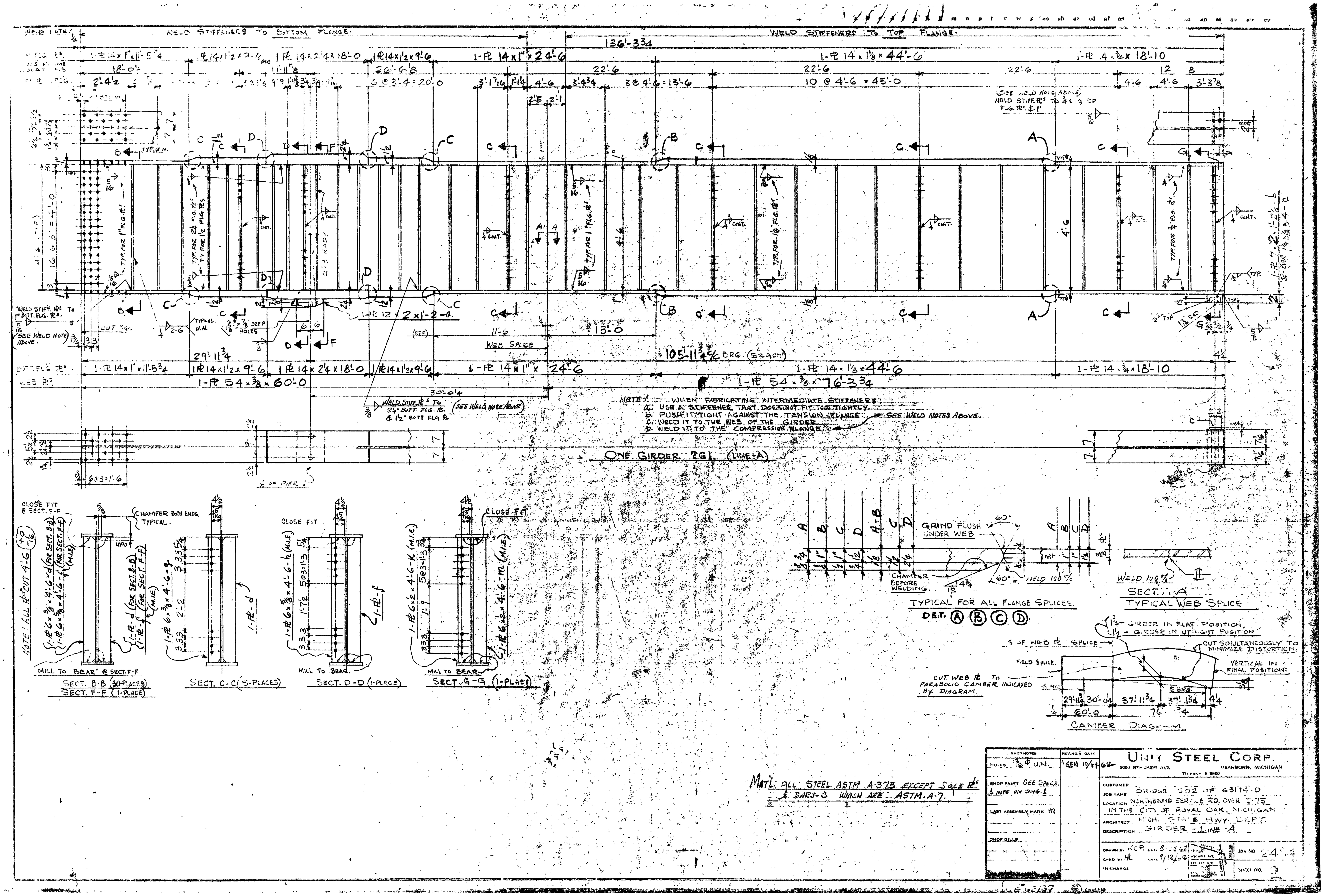
MAT'L. ALL STEEL ASTM A-373 EXCEPT SOLE ℞S & ... WHICH ARE ASTM A-7

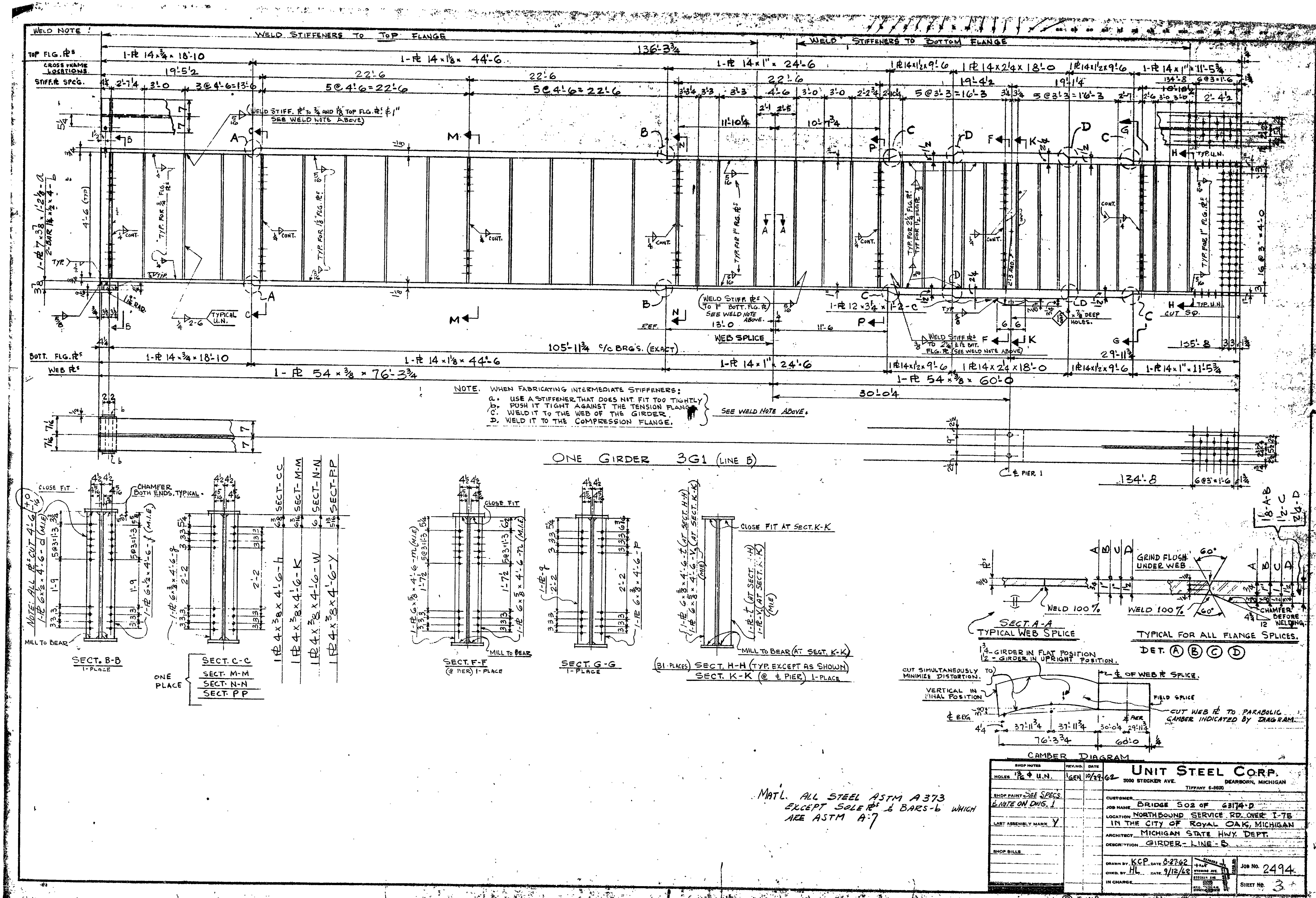
SHOP NOTES	REV. NO.	DATE
HOLES 13/16 Φ U.N.	½GN.	10-25-64
SHOP PAINT SEE SPECS & NOTE ON THIS DWG.		
LAST ASSEMBLY MARK (U)		
SHOP BILLS		

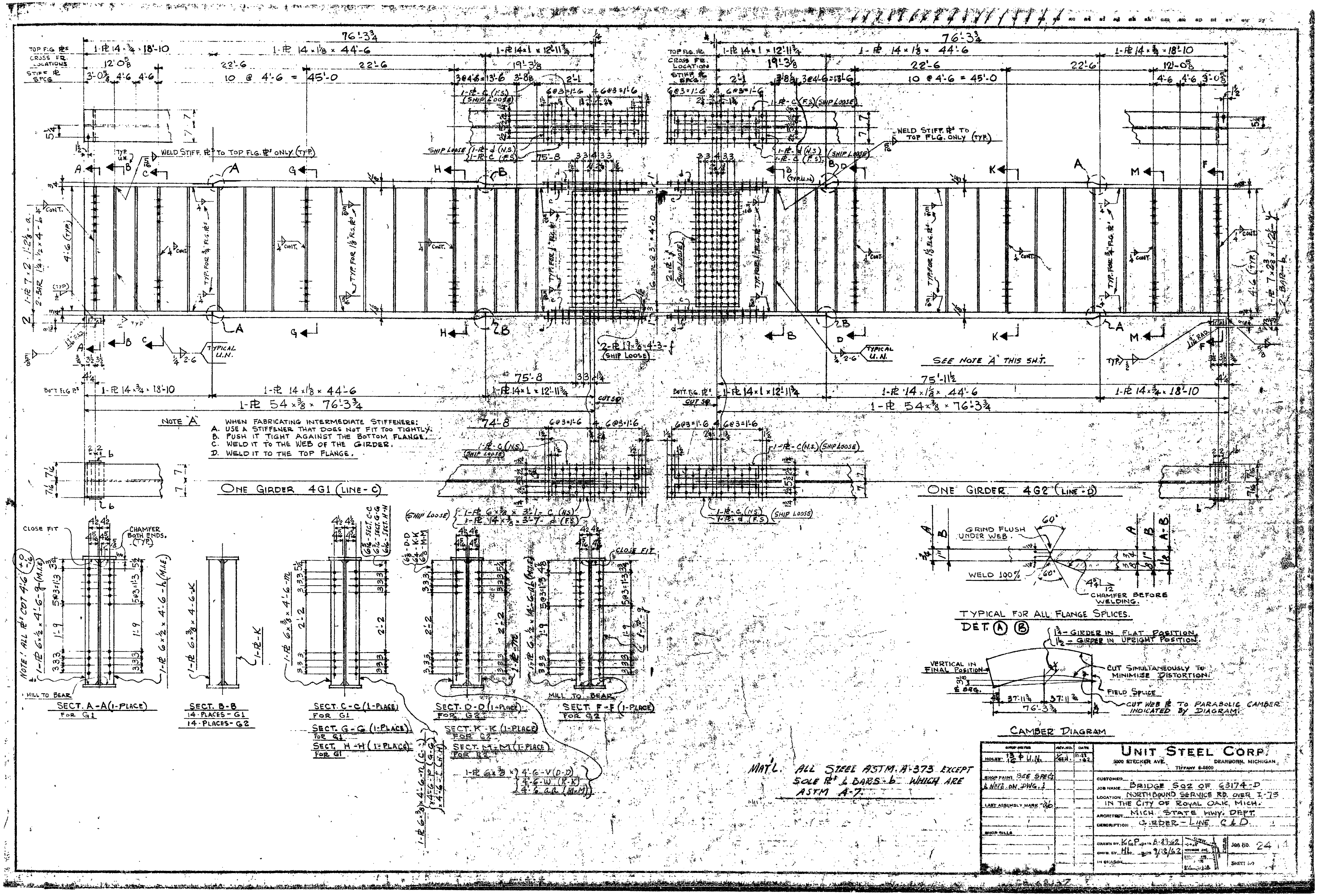
UNIT STEEL CORP.
5000 STECKER AVE. DEARBORN, MICHIGAN
TIFFANY 6-2400

CUSTOMER
JOB NAME BRIDGE S02 OF 63174-D
LOCATION NORTHBOUND SERVICE RD OVER I-75 IN THE CITY OF ROYAL OAK, MICH.
ARCHITECT MICH. STATE HWY. DEPT.
DESCRIPTION GIRDER ...
DRAWN BY KGP.
CHKD. BY H.
IN CHARGE

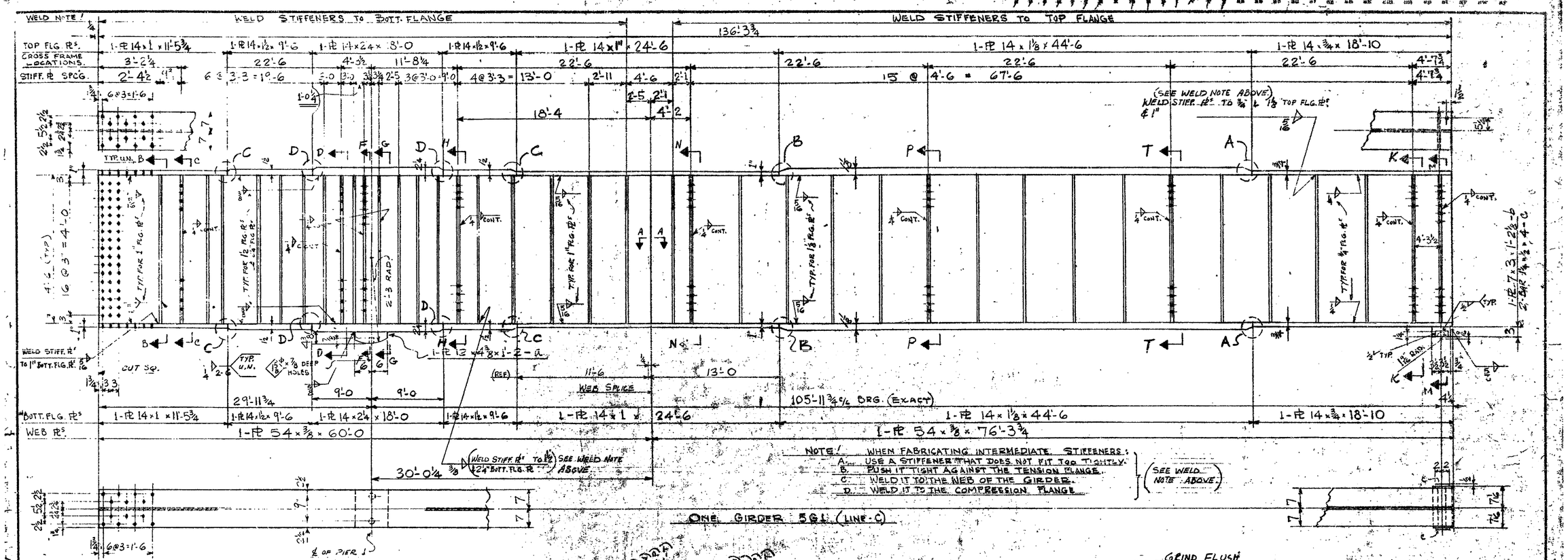
SE 62137

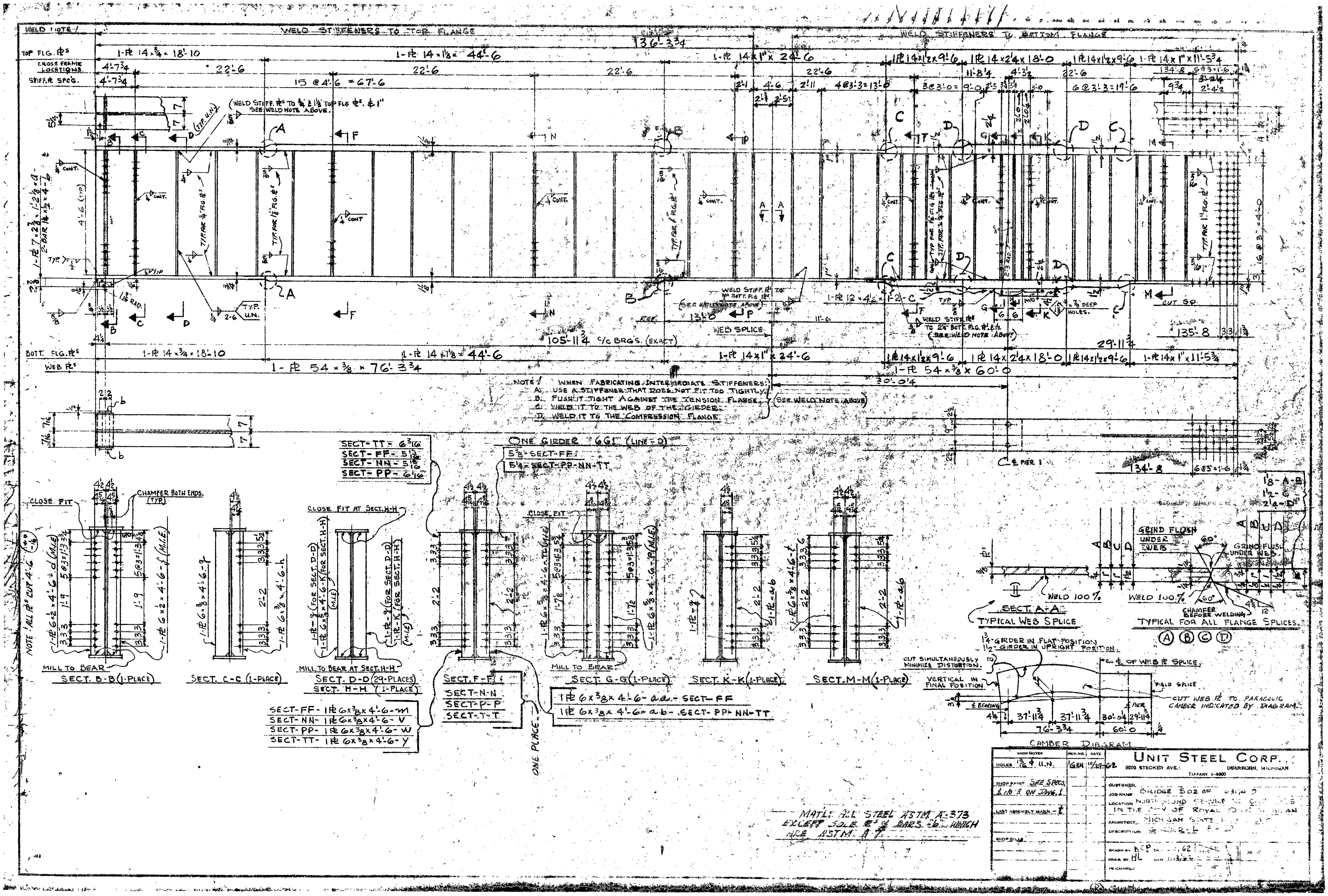

WELD STIFFENERS TO BOTTOM FLANGE.
WELD STIFFENERS TO TOP FLANGE.
136'-3¾
1-PL 14x1"x24'-6
1-PL 14 x 1⅛ x 44'-6
1-PL 54 x ⅜ x 60'-0
1-PL 54 x ⅜ x 76'-3¾
WEB SPLICE
105'-11¾ C/C BRG. (EXACT)
NOTE: WHEN FABRICATING INTERMEDIATE STIFFENERS:
a. USE A STIFFENER THAT DOES NOT FIT TOO TIGHTLY.
b. PUSH IT TIGHT AGAINST THE TENSION FLANGE.
c. WELD IT TO THE WEB OF THE GIRDER.
d. WELD IT TO THE COMPRESSION FLANGE.
SEE WELD NOTES ABOVE.
ONE GIRDER 2G1 (LINE A)
SECT. B-B (30-PLACES)
SECT. F-F (1-PLACE)
SECT. C-C (5-PLACES)
SECT. D-D (1-PLACE)
SECT. G-G (1-PLACE)
MILL TO BEAR
CLOSE FIT
CHAMFER BOTH ENDS. TYPICAL.
GRIND FLUSH UNDER WEB
CHAMFER BEFORE WELDING.
WELD 100%
TYPICAL FOR ALL FLANGE SPLICES.
DET. (A) (B) (C) (D)
SECT. A-A
TYPICAL WEB SPLICE
CUT WEB PL TO PARABOLIC CAMBER INDICATED BY DIAGRAM.
CUT SIMULTANEOUSLY TO MINIMIZE DISTORTION.
CAMBER DIAGRAM
MAT'L: ALL STEEL ASTM A-373, EXCEPT SOLE PL'S & BARS-C WHICH ARE ASTM. A-7.
SHOP NOTES
HOLES 13/16 Φ U.N.
SHOP PAINT SEE SPECS. & NOTE ON DWG. 1
LAST ASSEMBLY MARK
SHOP BILLS
REV. NO. DATE
GEN 10/29/62
UNIT STEEL CORP.
5000 ST[illegible]KER AVE. DEARBORN, MICHIGAN
TIFFANY 6-8500
CUSTOMER
JOB NAME BRIDGE S02 OF 63174-D
LOCATION NORTHBOUND SERVICE RD. OVER I-75 IN THE CITY OF ROYAL OAK, MICHIGAN
ARCHITECT MICH. STATE HWY. DEPT.
DESCRIPTION GIRDER - LINE A
DRAWN BY KCP DATE 8-28-62
CHKD BY HL DATE 9/12/62
IN CHARGE
JOB NO. 2474
SHEET NO. 2

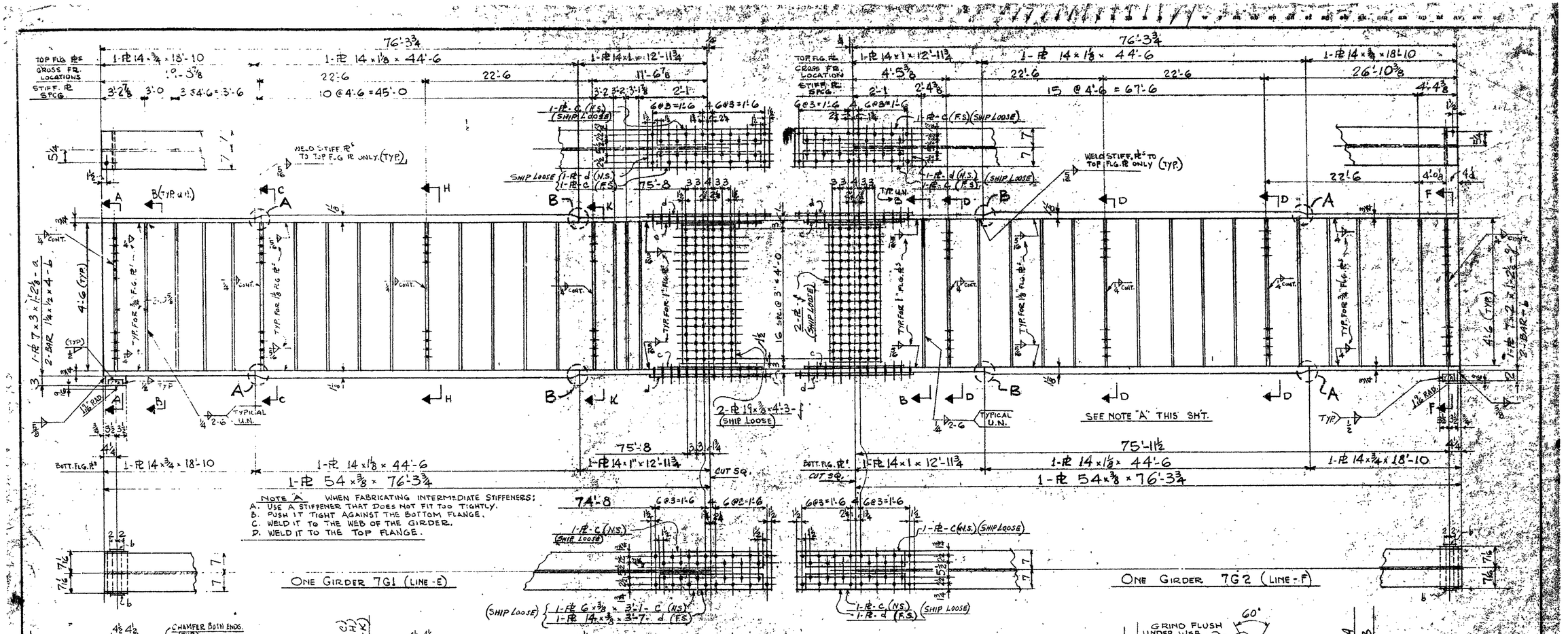

WELD NOTE:
WELD STIFFENERS TO TOP FLANGE
WELD STIFFENERS TO BOTTOM FLANGE
TOP FLG. PLs
CROSS FRAME LOCATIONS
STIFF. PL SPC'G.
BOTT. FLG. PLs
WEB PLs
105'-11 3/4 C/C BRG'S. (EXACT)
WEB SPLICE
NOTE. WHEN FABRICATING INTERMEDIATE STIFFENERS:
a. USE A STIFFENER THAT DOES NOT FIT TOO TIGHTLY
b. PUSH IT TIGHT AGAINST THE TENSION FLANGE
c. WELD IT TO THE WEB OF THE GIRDER
D. WELD IT TO THE COMPRESSION FLANGE.
SEE WELD NOTE ABOVE.
ONE GIRDER 3G1 (LINE B)
SECT. B-B 1-PLACE
SECT. C-C
SECT. M-M
SECT. N-N
SECT. P-P
ONE PLACE
SECT. F-F (℄ PIER) 1-PLACE
SECT. G-G 1-PLACE
(31-PLACES) SECT. H-H (TYP. EXCEPT AS SHOWN)
SECT. K-K (@ ℄ PIER) 1-PLACE
CLOSE FIT AT SECT. K-K
MILL TO BEAR (AT SECT. K-K)
SECT. A-A
TYPICAL WEB SPLICE
TYPICAL FOR ALL FLANGE SPLICES.
DET. (A) (B) (C) (D)
GRIND FLUSH UNDER WEB
WELD 100%
CHAMFER BEFORE WELDING
1 3/4 - GIRDER IN FLAT POSITION
1/2 - GIRDER IN UPRIGHT POSITION
CUT SIMULTANEOUSLY TO MINIMIZE DISTORTION.
VERTICAL IN FINAL POSITION
℄ OF WEB PL SPLICE.
FIELD SPLICE
CUT WEB PL TO PARABOLIC CAMBER INDICATED BY DIAGRAM.
CAMBER DIAGRAM
MAT'L. ALL STEEL ASTM A373 EXCEPT SOLE PLs & BARS-b WHICH ARE ASTM A-7
UNIT STEEL CORP.
3000 STECKER AVE. DEARBORN, MICHIGAN
TIFFANY 6-8600
HOLES 13/16 Ø U.N.
SHOP PAINT SEE SPECS. & NOTE ON DWG. 1
LAST ASSEMBLY MARK Y
JOB NAME BRIDGE S02 OF 63174-D
LOCATION NORTHBOUND SERVICE RD. OVER I-75 IN THE CITY OF ROYAL OAK, MICHIGAN
ARCHITECT MICHIGAN STATE HWY. DEPT.
DESCRIPTION GIRDER - LINE - B
DRAWN BY KCP DATE 8-27-62
CHKD. BY HL DATE 9/12/62
1 GEN 10/29/62
JOB NO. 2494
SHEET NO. 3
CB 62-137
© GWH

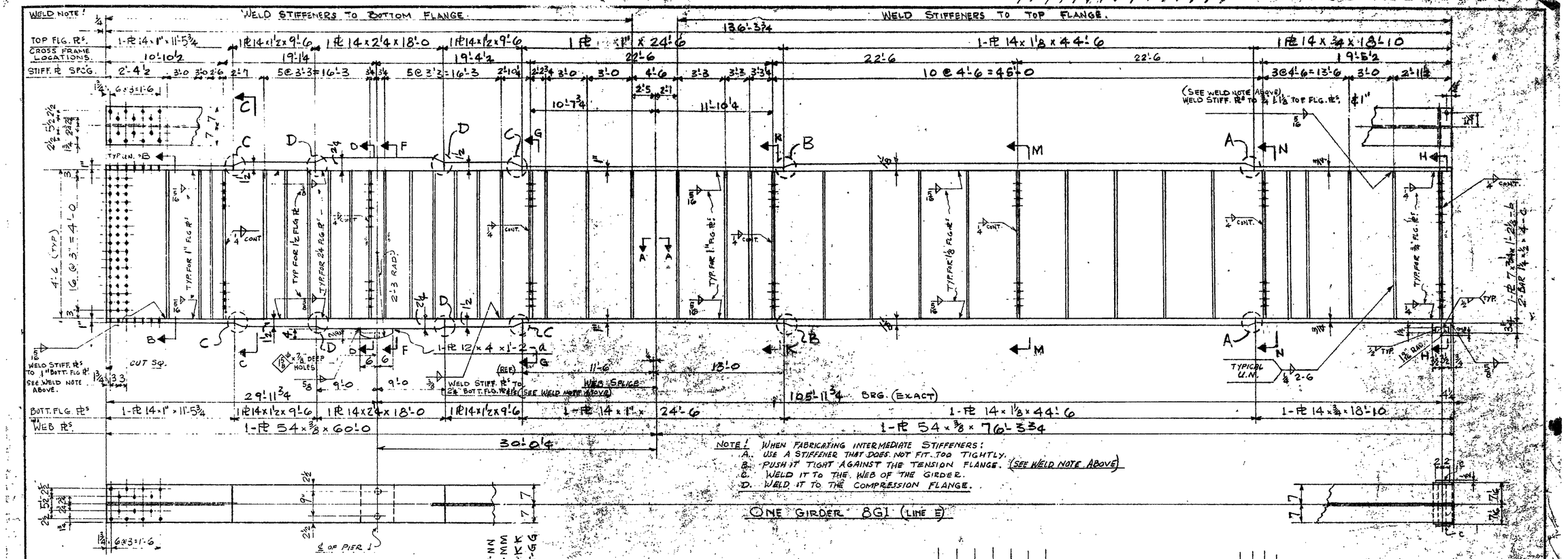


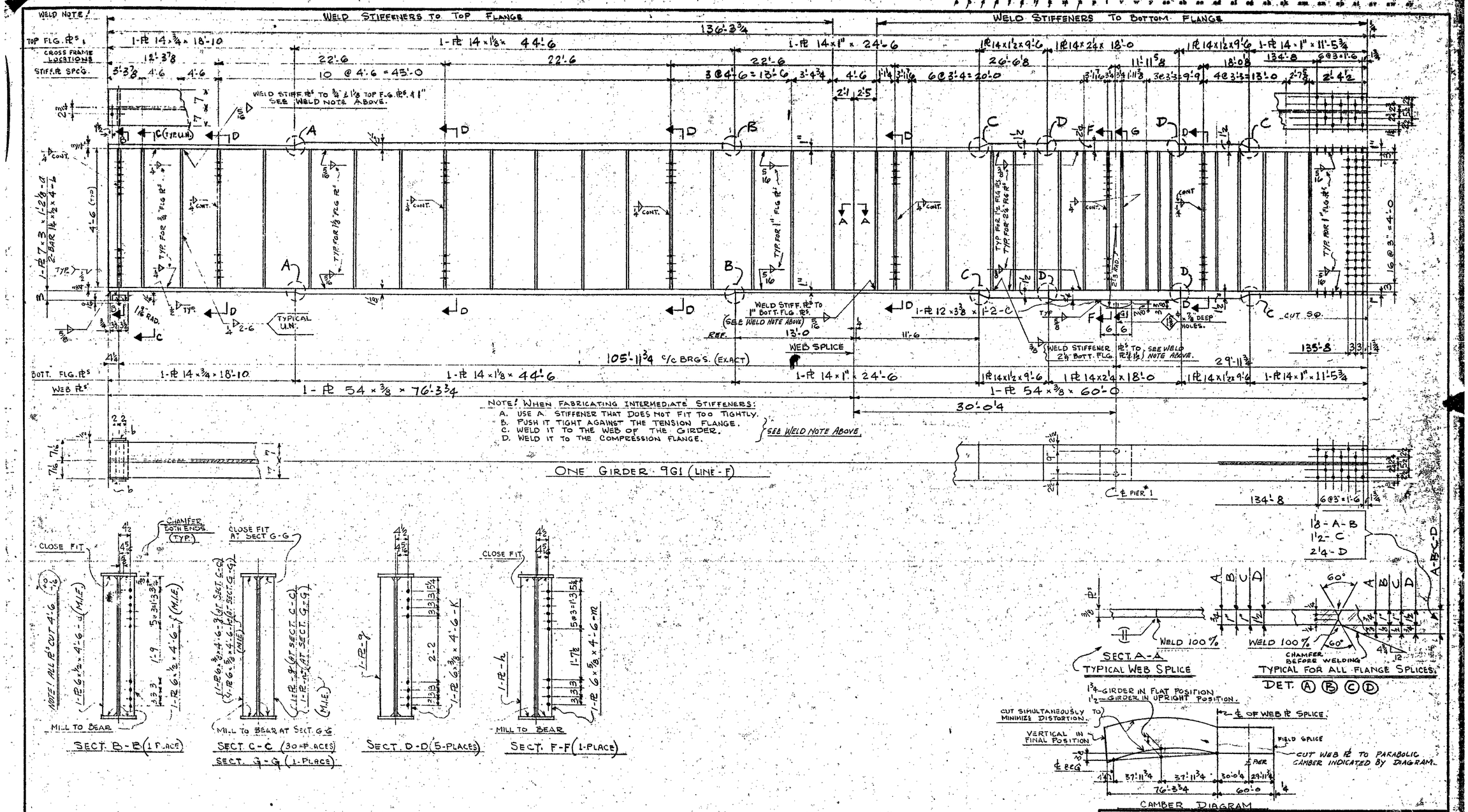
76'-3¾
TOP FLG. PL'S
CROSS FR. LOCATIONS
STIFF PL SPCG
1-PL 14 x ¾ x 18'-10
1-PL 14 x 1⅛ x 44'-6
1-PL 14 x 1 x 12'-11¾
10 @ 4'-6 = 45'-0
WELD STIFF. PL'S TO TOP FLG. PL'S ONLY (TYP.)
SHIP LOOSE
TYPICAL U.N.
SEE NOTE "A" THIS SH'T.
BOT'T FLG PL'S
1-PL 54 x ⅜ x 76'-3¾
CUT SQ.
NOTE "A"
WHEN FABRICATING INTERMEDIATE STIFFENERS:
A. USE A STIFFENER THAT DOES NOT FIT TOO TIGHTLY.
B. PUSH IT TIGHT AGAINST THE BOTTOM FLANGE.
C. WELD IT TO THE WEB OF THE GIRDER.
D. WELD IT TO THE TOP FLANGE.
ONE GIRDER 4G1 (LINE - C)
ONE GIRDER 4G2 (LINE - D)
CLOSE FIT
CHAMFER BOTH ENDS. (TYP.)
MILL TO BEAR
SECT. A-A (1-PLACE) FOR G1
SECT. B-B 14-PLACES - G1 14-PLACES - G2
SECT. C-C (1-PLACE) FOR G1
SECT. G-G (1-PLACE) FOR G1
SECT. H-H (1-PLACE) FOR G1
SECT. D-D (1-PLACE) FOR G2
SECT. K-K (1-PLACE) FOR G2
SECT. M-M (1-PLACE) FOR G2
SECT. F-F (1-PLACE) FOR G2
NOTE: ALL PL'S CUT 4'-6 (+0 -1/16)
GRIND FLUSH UNDER WEB.
WELD 100%
CHAMFER BEFORE WELDING.
TYPICAL FOR ALL FLANGE SPLICES. DET. (A) (B)
1⅜ - GIRDER IN FLAT POSITION.
1½ - GIRDER IN UPRIGHT POSITION.
VERTICAL IN FINAL POSITION
CUT SIMULTANEOUSLY TO MINIMIZE DISTORTION.
FIELD SPLICE
CUT WEB PL TO PARABOLIC CAMBER INDICATED BY DIAGRAM.
37'-1⅞
76'-3¾
CAMBER DIAGRAM
MAT'L. ALL STEEL ASTM A-373 EXCEPT SOLE PL'S & BARS -b- WHICH ARE ASTM A-7.
UNIT STEEL CORP.
5000 STECKER AVE. DEARBORN, MICHIGAN
TIFFANY 6-5600
HOLES 13/16 U.N.
SHOP PAINT SEE SPECS & NOTE ON DWG. 1
JOB NAME BRIDGE S02 OF 63174-D
LOCATION NORTHBOUND SERVICE RD. OVER I-75 IN THE CITY OF ROYAL OAK, MICH.
ARCHITECT MICH. STATE HWY. DEPT.
DESCRIPTION GIRDER - LINE C & D
DRAWN BY KGP 8-23-62
CHKD. BY HL 9/13/62
JOB NO. 2414


WELD NOTE!
WELD STIFFENERS TO BOTT. FLANGE
WELD STIFFENERS TO TOP FLANGE
TOP FLG. PL'S
CROSS FRAME LOCATIONS
STIFF. PL SPCG.
136'-3¾
1-PL 14 x 1 x 11'-5¾
1-PL 14 x 1½ x 9'-6
1-PL 14 x 24 x 8'-0
1-PL 14 x 1½ x 9'-6
1-PL 14 x 1" x 24'-6
1-PL 14 x 1⅛ x 44'-6
1-PL 14 x ¾ x 18'-10
3'-2¼
22'-6
4'-3½
11'-8¼
22'-6
22'-6
22'-6
22'-6
4'-7¾
2'-4½
6 @ 3'-3 = 1'-0
4 @ 3'-3 = 13'-0
15 @ 4'-6 = 67'-6
18'-4
4'-2
(SEE WELD NOTE ABOVE) WELD STIFF. PL'S TO ¾" & 1⅛" TOP FLG. PL'S & 1"
TYP. U.N.
TYP. FOR 1" FLG. PL'S
TYP. FOR 1½" FLG. PL'S
TYP. FOR 1⅛" FLG. PL'S
TYP. FOR ¾" FLG. PL'S
CONT.
2'-3 RAD.
16 @ 3" = 4'-0 (TYP.)
WELD STIFF. PL'S TO 1" BOTT. FLG. PL'S
CUT SQ.
1⅝" Φ x ⅜ DEEP HOLES
1-PL 12 x 4⅜ x 1'-2-a
(REF)
11'-6
13'-0
WEB SPLICE
29'-11¾
9'-0
9'-0
105'-11¾ c/c BRG. (EXACT)
BOTT. FLG. PL'S
WEB PL'S
1-PL 14 x 1 x 11'-5¾
1-PL 14 x 1½ x 9'-6
1-PL 14 x 2¼ x 18'-0
1-PL 14 x 1½ x 9'-6
1-PL 14 x 1 x 24'-6
1-PL 14 x 1⅛ x 44'-6
1-PL 14 x ¾ x 18'-10
1-PL 54 x ⅜ x 60'-0
1-PL 54 x ⅜ x 76'-3¾
30'-0¼
(WELD STIFF. PL'S TO ½" 24" BOTT. FLG. PL) SEE WELD NOTE ABOVE
NOTE! WHEN FABRICATING INTERMEDIATE STIFFENERS:
A. USE A STIFFENER THAT DOES NOT FIT TOO TIGHTLY.
B. PUSH IT TIGHT AGAINST THE TENSION FLANGE.
C. WELD IT TO THE WEB OF THE GIRDER.
D. WELD IT TO THE COMPRESSION FLANGE.
(SEE WELD NOTE ABOVE)
ONE GIRDER 5 GL (LINE-C)
℄ OF PIER 1
6 @ 3 = 1'-6
CLOSE FIT AT SECT. G-G
CHAMFER BOTH ENDS (TYP.)
NOTE: ALL PL'S CUT 4'-6
MILL TO BEAR AT SECT. G-G
SECT. B-B (29-PLACES)
SECT. G-G (1-PLACE)
SECT. C-C (1-PLACE)
SECT. D-D (1-PLACE)
CLOSE FIT
MILL TO BEAR
SECT. F-F (1-PLACE)
SECT. H-H
SECT. N-N
SECT. P-P
SECT. T-T
1-PLACE EACH
SECT. K-K (1-PLACE)
SECT. M-M (1-PLACE)
GRIND FLUSH UNDER WEB
CHAMFER BEFORE WELDING.
WELD 100%
TYPICAL FOR ALL FLANGE SPLICES.
DET. (A) (B) (C) (D)
WELD 100%
SECT. A-A
TYPICAL WEB SPLICE
CUT WEB PL TO PARABOLIC CAMBER INDICATED BY DIAGRAM.
FIELD SPLICE
℄ OF WEB PL SPLICE
CUT SIMULTANEOUSLY TO MINIMIZE DISTORTION.
VERTICAL IN FINAL POSITION.
¼ - GIRDER IN FLAT POSITION
½ - GIRDER IN UPRIGHT POSITION.
℄ PIER
℄ BRG.
24'-11¾
30'-0¼
37'-11¾
37'-11¾
60'-0
76'-3¾
CAMBER DIAGRAM
1-PL 6 x ⅜ x 4'-6-P (H-H)
4'-6-t (N-N)
4'-6-V (P-P)
4'-6-W (T-T)
1-PL 6 x ⅜ x 4'-6-y (H-H)
4'-6-aa (N-N)
4'-6-ab (P-P)
4'-6-ac (T-T)
MAT'L. ALL STEEL ASTM A373
EXCEPT SOLE PL'S & BARS-"C"
WHICH ARE ASTM A-7
SHOP NOTES
HOLES 13/16 Φ U.N.
SHOP PAINT SEE SPECS & NOTE ON DWG. 1
LAST ASSEMBLY MARK a-f
SHOP BILLS
REV. NO. / DATE
UNIT STEEL CORP.
5000 STECKER AVE. DEARBORN, MICHIGAN
TIFFANY 6-8600
CUSTOMER
JOB NAME BRIDGE 502 OF 63174-0
LOCATION NORTHBOUND SERVICE RD OVER I 75
IN THE CITY OF ROYAL OAK, MICHIGAN
ARCHITECT MICH. STATE HWY. DEPT.
DESCRIPTION GIRDER - LINE-C
DRAWN BY
CHKD. BY
IN CHARGE
JOB NO. 2474


WELD NOTE
WELD STIFFENERS TO TOP FLANGE
WELD STIFFENERS TO BOTTOM FLANGE
TOP FLG. PLS
CROSS FRAME LOCATIONS
STIFF. PL SPCG.
BOTT. FLG. PLS
WEB PLS
1-PL 54 x 3/8 x 76'-3 3/4
1-PL 54 x 3/8 x 60'-0
105'-11 3/4 C/C BRG'S. (EXACT)
WEB SPLICE
NOTE: WHEN FABRICATING INTERMEDIATE STIFFENERS:
A. USE A STIFFENER THAT DOES NOT FIT TOO TIGHTLY.
B. FLASH IT TIGHT AGAINST THE TENSION FLANGE.
C. WELD IT TO THE WEB OF THE GIRDER.
D. WELD IT TO THE COMPRESSION FLANGE.
(SEE WELD NOTE ABOVE)
ONE GIRDER "6G1" (LINE-D)
SECT. B-B (1-PLACE)
SECT. C-C (1-PLACE)
SECT. D-D (29-PLACES)
SECT. H-H (1-PLACE)
SECT. F-F
SECT. N-N
SECT. P-P
SECT. T-T
SECT. G-G (1-PLACE)
SECT. K-K (1-PLACE)
SECT. M-M (1-PLACE)
CLOSE FIT
MILL TO BEAR
CHAMFER BOTH ENDS. (TYP.)
SECT. A-A
TYPICAL WEB SPLICE
WELD 100%
GRIND FLUSH UNDER WEB
CHAMFER BEFORE WELDING
TYPICAL FOR ALL FLANGE SPLICES
1 3/4 GIRDER IN FLAT POSITION
1 1/2 GIRDER IN UPRIGHT POSITION
CUT SIMULTANEOUSLY TO MINIMIZE DISTORTION
VERTICAL IN FINAL POSITION
FIELD SPLICE
CUT WEB PL TO PARABOLIC CAMBER INDICATED BY DIAGRAM
CAMBER DIAGRAM
MAT'L: ALL STEEL ASTM A-373 EXCEPT SOLE PL'S & BARS "b" WHICH ARE ASTM A-7
SHOP NOTES
HOLES 13/16 Φ U.N.
SHOP PAINT SEE SPECS. & NOTES ON DWG. 1
LAST ASSEMBLY MARK - Y
SHOP BILLS
REV. NO. DATE
1 GEN 10/29-62
UNIT STEEL CORP.
5800 STECKER AVE. DEARBORN, MICHIGAN
TIFFANY 6-4800
CUSTOMER
JOB NAME BRIDGE S02 OF
LOCATION
ARCHITECT
DESCRIPTION
DRAWN BY
CHKD. BY
IN CHARGE


76'-3¾
TOP FLG. PL
CROSS FR. LOCATIONS
STIFF. PL SPCG
1-PL 14 × ¾ × 18'-10
1-PL 14 × 1⅛ × 44'-6
1-PL 14 × 1 × 12'-11¾
1-PL 14 × ¾ × 18'-10
1-PL 14 × 1 × 12'-11¾
1-PL 14 × 1⅛ × 44'-6
22'-6
11'-6⅞
4'-5⅜
26'-10⅜
4'-4⅜
10 @ 4'-6 = 45'-0
15 @ 4'-6 = 67'-6
WELD STIFF. PLS TO TOP FLG. PL ONLY. (TYP.)
SHIP LOOSE 1-PL-d (N.S.) 1-PL-c (F.S.)
1-PL-c (F.S.) (SHIP LOOSE)
1-PL-d (N.S.) (SHIP LOOSE)
75'-8
75'-11½
74'-8
6@3=1'-6
TYP. U.N.
2-PL 19 × ⅜ × 4'-3 (SHIP LOOSE)
2-PL-f (SHIP LOOSE)
16 SPCG @ 3" = 4'-0
TYP. FOR 1" FLG. PLS
TYP. FOR ⅞" FLG. PLS
TYP. FOR ⅜" FLG. PLS
1-PL 7 × 3 × 1'-2⅛-a
2-BAR 1¼ × ½ × 4'-6
1-PL 7 × 2 × 1'-2⅛-b
2-BAR-b
4'-6 (TYP.)
TYPICAL U.N.
SEE NOTE "A" THIS SHT.
BOTT. FLG. PL
1-PL 54 × ⅜ × 76'-3¾
CUT SQ.
1½" RAD.
NOTE A WHEN FABRICATING INTERMEDIATE STIFFENERS:
A. USE A STIFFENER THAT DOES NOT FIT TOO TIGHTLY.
B. PUSH IT TIGHT AGAINST THE BOTTOM FLANGE.
C. WELD IT TO THE WEB OF THE GIRDER.
D. WELD IT TO THE TOP FLANGE.
ONE GIRDER 7G1 (LINE-E)
ONE GIRDER 7G2 (LINE-F)
(SHIP LOOSE) 1-PL 6 × ⅜ × 3'-1-c (N.S.) 1-PL 14 × ⅜ × 3'-7-d (F.S.)
1-PL-c (N.S.) (SHIP LOOSE)
1-PL-d (F.S.) (SHIP LOOSE)
CHAMFER BOTH ENDS. (TYP.)
CLOSE FIT
NOTE: ALL PL'S CUT 4'-6 ±1/16
1-PL 6 × ½ × 4'-6 (M.I.E.)
MILL TO BEAR
SECT. A-A (1-PLACE) FOR G1
1-PL 6 × ⅜ × 4'-6-m
1-PL-m
SECT. B-B 15-PLACES - G1 14-PLACES - G2
1-PL 6 × ⅜ × 4'-6-n (c-c) 4'-6-p (H-H) 4'-6-t (K-K)
SECT. C-C (1-PLACE) FOR G1
SECT. H-H (1-PLACE) FOR G1
SECT. K-K (1-PLACE FOR G1
1-PL-m
1-PL-v
SECT. D-D (3-PLACES) FOR G2
1-PL 6 × ½ × 4'-6-w (M.I.E.)
1-PL-k
SECT. F-F (1-PLACE) FOR G2
GRIND FLUSH UNDER WEB.
60°
WELD 100%
CHAMFER BEFORE WELDING.
TYPICAL FOR ALL FLANGE SPLICES:
DET (A)(B)
¾ — GIRDER IN FLAT POSITION
1½ — GIRDER IN UPRIGHT POSITION.
VERTICAL IN FINAL POSITION
CUT SIMULTANEOUSLY TO MINIMIZE DISTORTION.
FIELD SPLICE
CUT WEB PL TO PARABOLIC CAMBER AS INDICATED BY DIAGRAM.
37'-11¾
76'-3¾
CAMBER DIAGRAM
MAT'L: ALL STEEL ASTM A373 EXCEPT SOLE PL'S & BARS-b WHICH ARE ASTM A-7
SHOP NOTES
HOLES 13/16 ϕ U.N.
SHOP PAINT SEE SPECS & NOTE ON DWG. 1
LAST ASSEMBLY MARK W
SHOP BILLS
REV. NO.
DATE
UNIT STEEL CORP.
5000 STECKER AVE. DEARBORN, MICHIGAN.
TIFFANY 6-5800
CUSTOMER
JOB NAME BRIDGE S02 OF 63174-D
LOCATION NORTHBOUND SERVICE RD. OVER I-75 IN THE CITY OF ROYAL OAK, MICH.
ARCHITECT MICH. STATE HWY. DEPT.
DESCRIPTION GIRDER - LINE E & F
DRAWN BY KGP DATE 8-29-62
CHKD. BY HL DATE 9/13/62
IN CHARGE
JOB NO. 2494
SHEET NO. 7


WELD NOTE!
WELD STIFFENERS TO BOTTOM FLANGE
WELD STIFFENERS TO TOP FLANGE
TOP FLG. PLS.
CROSS FRAME LOCATIONS.
STIFF. PL SPCG.
136'-3¾
1-PL 14 x 1" x 11'-5¾
1 PL 14 x 1½ x 9'-6
1 PL 14 x 2¼ x 18'-0
1 PL 14 x 1½ x 9'-6
1 PL 14 x 1" x 24'-6
1-PL 14 x 1⅛ x 44'-6
1 PL 14 x ¾ x 18'-10
10'-10½
19'-1¼
19'-4½
22'-6
22'-6
22'-6
19'-5½
2'-4½
5 @ 3'-3 = 16'-3
5 @ 3'-3 = 16'-3
10 @ 4'-6 = 45'-0
3 @ 4'-6 = 13'-6
10'-7¾
11'-10¼
(SEE WELD NOTE ABOVE)
WELD STIFF. PLS TO ¾ x 1⅛ TOP FLG. PLS.
4'-6 (TYP)
16 @ 3" = 4'-0
TYP. FOR 1" FLG PL
TYP. FOR 1½ FLG PL
TYP. FOR 2¼ FLG PL
2'-3 RAD.
TYP. FOR 1¾ FLG PL
TYP. FOR ⅛ FLG PL
TYP. FOR ¾ FLG PL
CONT.
WELD STIFF. PLS TO 1" BOTT. FLG PL
SEE WELD NOTE ABOVE.
CUT SQ.
⅝ x ⅞ DEEP HOLES
1-PL 12 x 4 x 1'-2
(REF)
WEB SPLICE
WELD STIFF. PLS TO 2¼ BOTT. FLG. PL (SEE WELD NOTE ABOVE)
11'-6
13'-0
9'-0
9'-0
29'-11¾
105'-11¾ BRG. (EXACT)
TYPICAL U.N.
BOTT. FLG. PLS
WEB PLS
1-PL 14 x 1" x 11'-5¾
1 PL 14 x 1½ x 9'-6
1 PL 14 x 2¼ x 18'-0
1 PL 14 x 1½ x 9'-6
1-PL 14 x 1" x 24'-6
1-PL 14 x 1⅛ x 44'-6
1-PL 14 x ¾ x 18'-10
1-PL 54 x ⅜ x 60'-0
1-PL 54 x ⅜ x 76'-3¾
30'-0¼
℄ OF PIER 1
NOTE! WHEN FABRICATING INTERMEDIATE STIFFENERS:
A. USE A STIFFENER THAT DOES NOT FIT TOO TIGHTLY.
B. PUSH IT TIGHT AGAINST THE TENSION FLANGE. (SEE WELD NOTE ABOVE)
C. WELD IT TO THE WEB OF THE GIRDER.
D. WELD IT TO THE COMPRESSION FLANGE.
ONE GIRDER 8G1 (LINE E)
6'-6 - SECT-NN
6'-4 - SECT-MM
6'-8 - SECT-KK
5'-5/16 - SECT-GG
CLOSE FIT AT SECT. F-F
NOTE! ALL PL'S CUT 4'-6
MILL TO BEAR AT SECT. F-F
SECT. B-B (31-PLACES)
SECT. F-F (1-PLACE)
SECT. C-C (1-PLACE)
CLOSE FIT
MILL TO BEAR
SECT. D-D (1-PLACE)
SECT. G-G
SECT. KK
SECT. MM
SECT. NN
ONE PLACE
MILL TO BEAR
SECT. H-H (1-PLACE)
SECT. GG - 1 PL 4 x ⅜ x 4'-6 - T
SECT. KK - 1 PL 4 x ⅜ x 4'-6 - V
SECT. MM - 1 PL 4 x ⅜ x 4'-6 - W
SECT. NN - 1 PL 4 x ⅜ x 4'-6 - Y
GRIND FLUSH UNDER WEB
60°
CHAMFER BEFORE WELDING.
WELD 100%
TYPICAL FOR ALL FLANGE SPLICES.
DET Ⓐ Ⓑ Ⓒ Ⓓ
WELD 100%
SECT. A-A
TYPICAL WEB SPLICE
1¾ - GIRDER IN FLAT POSITION
1½ - GIRDER IN UPRIGHT POSITION.
℄ OF WEB PL SPLICE
CUT SIMULTANEOUSLY TO MINIMIZE DISTORTION
FIELD SPLICE
VERTICAL IN FINAL POSITION
CUT WEB PL TO PARABOLIC CAMBER INDICATED BY DIAGRAM.
℄ PIER
29'-11¾
30'-0¼
37'-11¾
37'-11¾
60'-0
76'-3¾
CAMBER DIAGRAM
MAT'L. ALL STEEL ASTM. A373 EXCEPT SOLE PL'S & BARS "C" WHICH ARE ASTM A-7.
SHOP NOTES
HOLES 13/16" Φ U.N.
SHOP PAINT SEE SPECS. & NOTE ON DWG. 1
LAST ASSEMBLY MARK Y
SHOP BILLS
REV. NO. DATE
GEN. 1 10/29/62
UNIT STEEL CORP.
5000 STECKER AVE. DEARBORN, MICHIGAN
TIFFANY 6-8600
CUSTOMER
JOB NAME BRIDGE S02 OF 63174-D
LOCATION NORTHBOUND SERVICE RD. OVER I-75 IN THE CITY OF ROYAL OAK, MICHIGAN.
ARCHITECT MICH. STATE HWY. DEPT.
DESCRIPTION GIRDER - LINE - E
DRAWN BY KCP DATE 8-28-62
CHKD. BY HL DATE 7/2/62
IN CHARGE
JOB NO. 2494
SHEET NO. 8
C.E. 62137
GWH



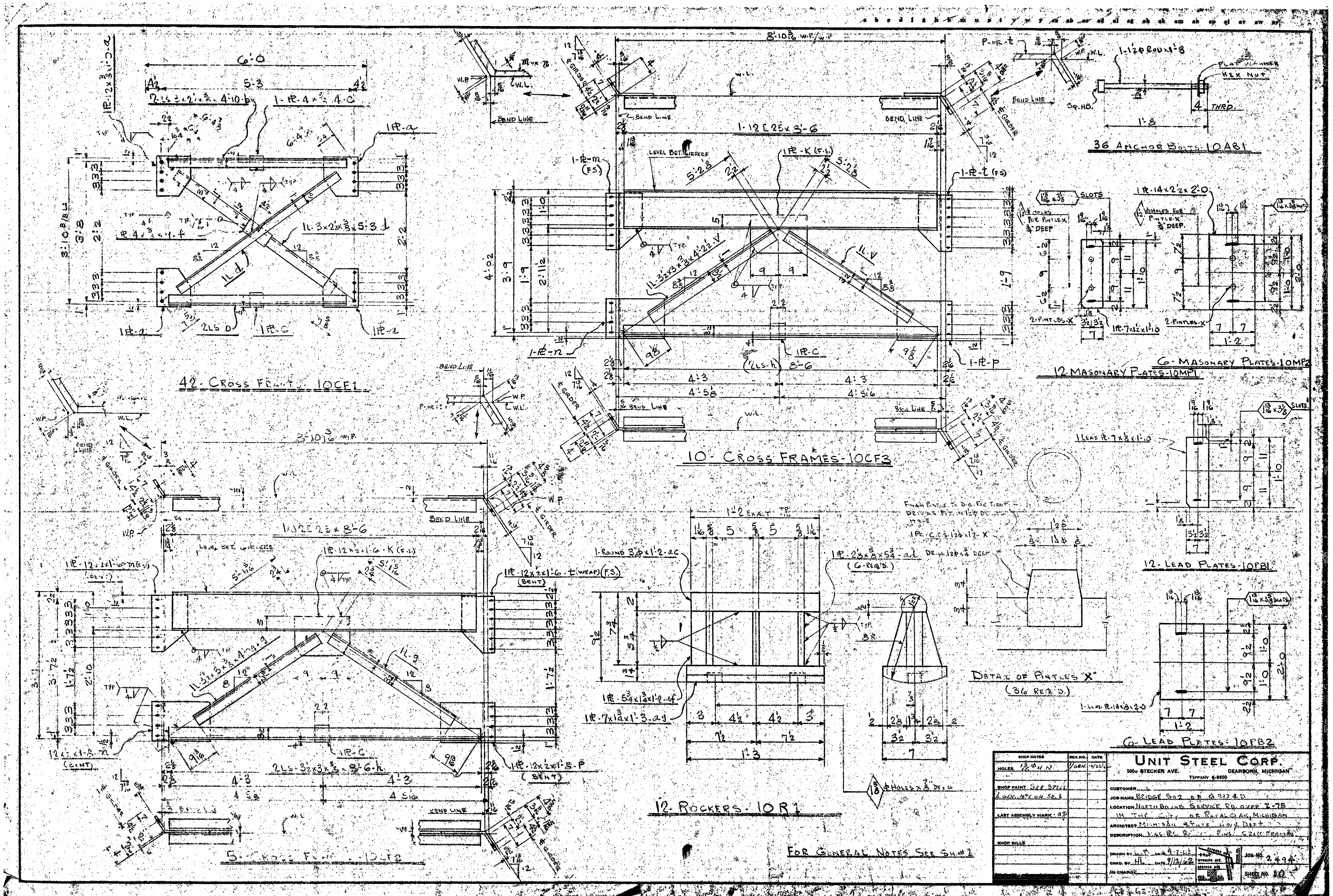
MAT'L. ALL STEEL ASTM. A-373
EXCEPT SOLE PL'S & BARS "b" WHICH ARE ASTM. A-7.

SHOP NOTES	REV. NO.	DATE
HOLES 13/16 ϕ U.N.	GEN	12-21-62
SHOP PAINT SEE SPEC'S. & NOTE ON DWG. 1		
LAST ASSEMBLY MARK - M		
SHOP BILLS		

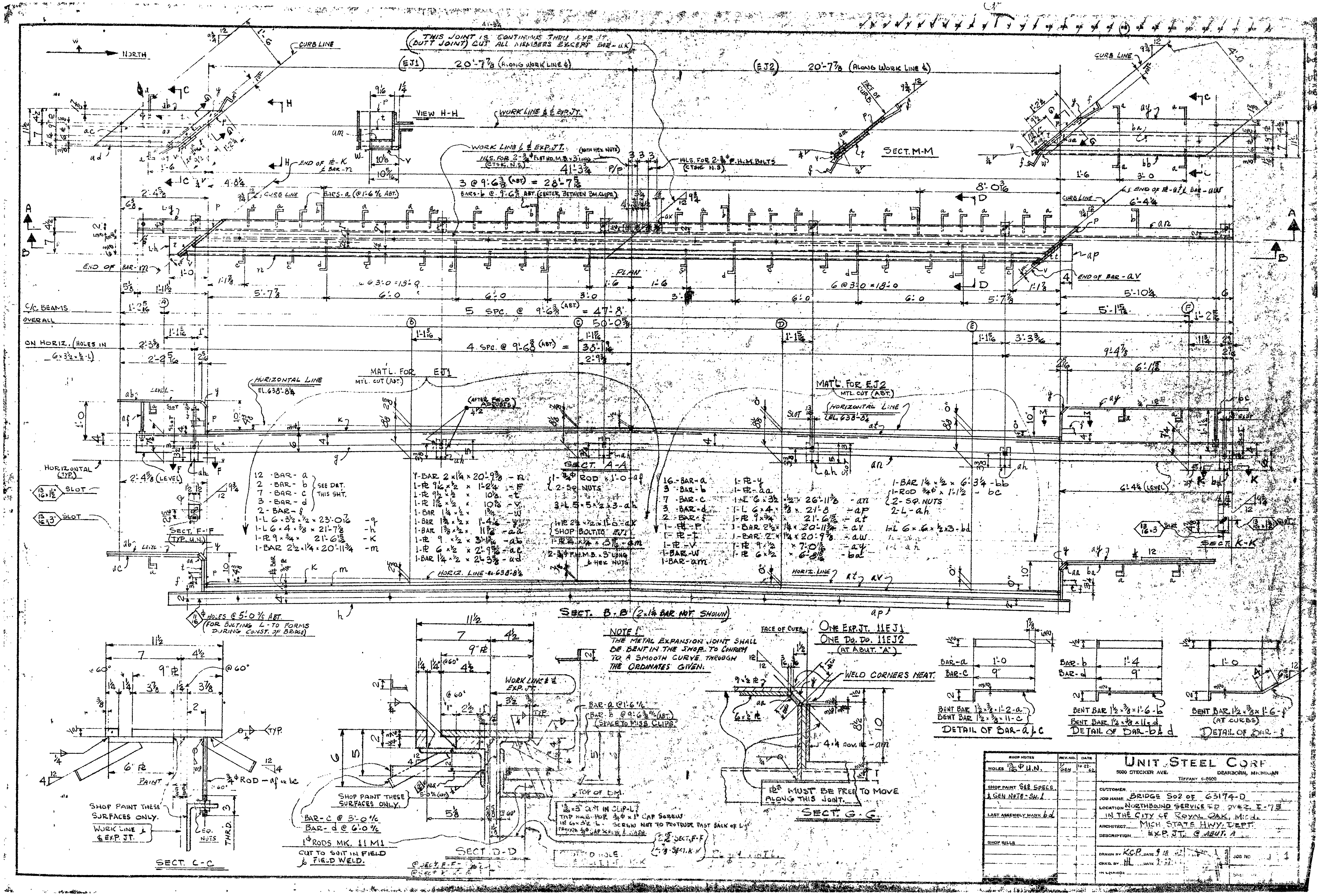
UNIT STEEL CORP.
5000 STECKER AVE. DEARBORN, MICHIGAN
TIFFANY 6-8600

CUSTOMER
JOB NAME BRIDGE 502 OF 63174-D
LOCATION NORTHBOUND SERVICE RD. OVER I-75 IN THE CITY OF ROYAL OAK, MICHIGAN
ARCHITECT MICHIGAN STATE HWY. DEPT.
DESCRIPTION GIRDER - LINE - F
DRAWN BY KCP DATE 6-27-62
CHK'D. BY HL DATE 9/12/62
IN CHARGE
JOB NO. 2494
SHEET NO. 9

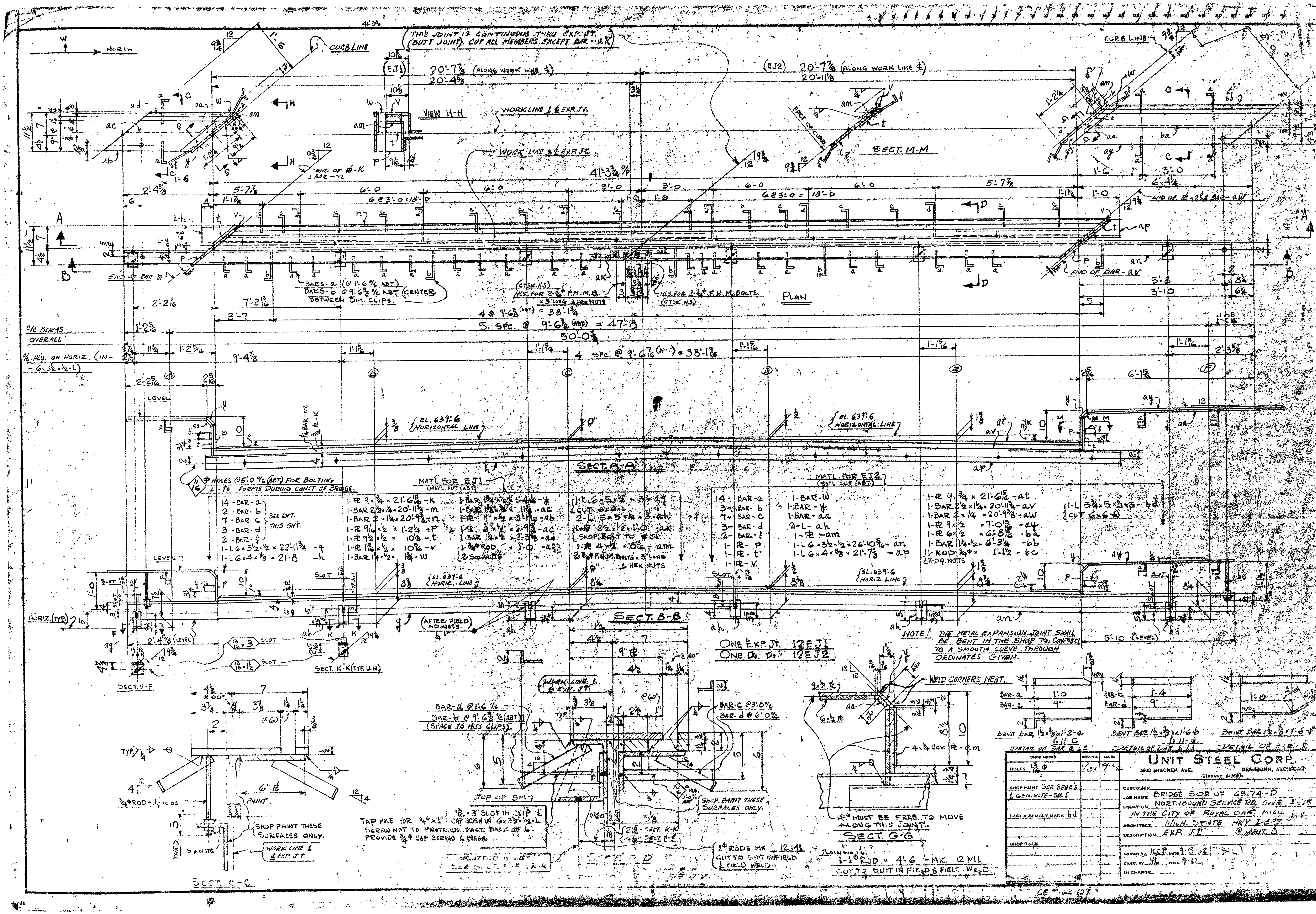
CE 62-137



42- CROSS FRAMES-10CE1
10- CROSS FRAMES-10CF3
5- CROSS FRAMES-10CF2
36 ANCHOR BOLTS-10AB1
12 MASONARY PLATES-10MP1
6- MASONARY PLATES-10MP2
12- LEAD PLATES-10PB1
6- LEAD PLATES-10PB2
12- ROCKERS-10R1
DETAIL OF PINTLES "X" (36 REQ'D.)
FOR GENERAL NOTES SEE SH#1
UNIT STEEL CORP.
5000 STECKER AVE. DEARBORN, MICHIGAN
TIFFANY 6-8600
JOB NAME BRIDGE S02 OF 63174D
LOCATION NORTHBOUND SERVICE RD. OVER I-75 IN THE CITY OF ROYAL OAK, MICHIGAN
ARCHITECT MICHIGAN STATE HWY. DEPT.
JOB NO. 2494
SHEET NO. 10



THIS JOINT IS CONTINUOUS THRU EXP. JT. (BUTT JOINT) CUT ALL MEMBERS EXCEPT BAR-aK
NORTH
CURB LINE
EJ1
20'-7⅞ (ALONG WORK LINE ℄)
EJ2
20'-7⅞ (ALONG WORK LINE ℄)
VIEW H-H
WORK LINE & ℄ EXP. JT.
SECT. M-M
WORK LINE & ℄ EXP. JT.
HLS. FOR 2-¾ Φ F.H.M.B. BOLTS (CTSK. N.S.)
41'-3¾
3 @ 9'-6⅜ (ABT) = 28'-7⅛
BARS-a (@ 1'-6 % ABT.)
BARS-b @ 9'-6⅜ ABT. (CENTER BETWEEN BM. CLIPS)
END OF ℔-K & BAR-n
END OF BAR-m
END OF BAR-av
PLAN
6 @ 3'-0 = 18'-0
5 SPC. @ 9'-6⅜ (ABT) = 47'-8'
C/C BEAMS
OVERALL
ON HORIZ. (HOLES IN 6 x 3½ x ½ L)
50'-0⅜
4 SPC. @ 9'-6⅜ (ABT) = 38'-1⅜
MAT'L. FOR EJ1
MTL. CUT (ABT.)
MAT'L. FOR EJ2
MTL. CUT (ABT.)
HORIZONTAL LINE EL. 638'-8¼
(AFTER FIELD ADJUSTS)
SECT. A-A
HORIZONTAL (TYP.)
2'-4⅝ (LEVEL)
SLOT
SECT. F-F (TYP. U.N.)
12 - BAR - a
2 - BAR - b
7 - BAR - c
3 - BAR - d
SEE DET. THIS SHT.
2 - BAR - f
1-L 6 x 3½ x ½ x 23'-0 1/16 - g
1-L 6 x 4 x ⅜ x 21'-7⅞ - h
1-℔ 9 x ¾ x 21'-6⅝ - K
1-BAR 2½ x 1¼ x 20'-11¾ - m
1-BAR 2 x 1¼ x 20'-9⅜ - n
1-℔ 9¼ x ½ x 1'-2¼ - P
1-℔ 9½ x ½ x 10⅞ - t
1-℔ 1⅞ x ½ x 10⅞ - v
1-BAR 1¼ x ½ - w
1-BAR 1⅜ x 1⅜ x 1'-4¼ - y
1-BAR 1⅜ x 1⅜ x 11⅞ - aa
1-℔ 9 x ½ x 3'-1⅜ - ab
1-℔ 6 x ½ x 2'-9⅝ - ac
1-BAR 1¼ x ½ x 2'-3⅜ - ad
1-¾Φ ROD x 1'-0 - af
2-SQ. NUTS
3-L 5 x 5 x ½ x 3 - ah
SHOP BOLT TO EJ1
2-¾Φ F.H.M.B. x 3" LONG & HEX NUTS
16 - BAR - a
3 - BAR - b
7 - BAR - c
3 - BAR - d
2 - BAR - f
1-L 6 x 3½ x ½ x 26'-11⅜ - an
1-L 6 x 4 x ⅜ x 21'-8 - ap
1-℔ 9 x ¾ x 21'-6⅝ - at
1-BAR 2½ x 1¼ x 20'-11¾ - av
1-BAR 2 x 1¼ x 20'-9⅜ - aw
1-BAR-am
1-BAR 1¼ x ½ x 6'-3¼ - bb
1-ROD ¾Φ x 1'-1½ - bc
2-SQ. NUTS
2-L - ah
1-L 6 x 6 x ½ x 3 - bd
HORIZ. LINE - EL. 638'-8¼
SECT. K-K
SECT. B-B (2 x 1¼ BAR NOT SHOWN)
11/16 Φ HOLES @ 5'-0 % ABT. (FOR BOLTING L TO FORMS DURING CONST. OF BRIDGE)
NOTE! THE METAL EXPANSION JOINT SHALL BE BENT IN THE SHOP TO CONFORM TO A SMOOTH CURVE THROUGH THE ORDINATES GIVEN.
ONE EXP. JT. 11EJ1
ONE DO. DO. 11EJ2
(AT ABUT. "A")
FACE OF CURB
WELD CORNERS NEAT.
4¼ COV. ℔ - am
℔ MUST BE FREE TO MOVE ALONG THIS JOINT.
SECT. G-G
BAR-a 1'-0
BAR-c 9"
BENT BAR 1½ x ⅜ x 1'-2 - a
BENT BAR 1½ x ⅜ x 11 - c
DETAIL OF BAR-a & c
BAR-b 1'-4
BAR-d 9"
BENT BAR 1½ x ⅜ x 1'-6 - b
BENT BAR 1½ x ⅜ x 11 - d
DETAIL OF BAR-b & d
BENT BAR 1½ x ⅜ x 1'-6 - f (AT CURBS)
DETAIL OF BAR-f
9" ℔
@ 60°
6" ℔
PAINT
¾Φ ROD - af or bc
SHOP PAINT THESE SURFACES ONLY.
WORK LINE & ℄ EXP. JT.
SQ. NUTS
THRD.
SECT. C-C
WORK LINE & ℄ EXP. JT.
BAR-a @ 1'-6 %
BAR-b @ 9'-6⅜ % (ABT.) (SPACE TO MISS CLIPS)
SHOP PAINT THESE SURFACES ONLY.
TOP OF BM.
BAR-c @ 3'-0 %
BAR-d @ 6'-0 %
1Φ RODS MK. 11 M1 CUT TO SUIT IN FIELD & FIELD WELD.
SECT. D-D
UNIT STEEL CORP.
5000 STECKER AVE. DEARBORN, MICHIGAN
TIFFANY 6-6600
SHOP NOTES
HOLES 13/16 Φ U.N.
SHOP PAINT SEE SPECS & GEN NOTE - SH. 1
LAST ASSEMBLY MARK bd
SHOP BILLS
JOB NAME BRIDGE S02 OF 63174-D
LOCATION NORTHBOUND SERVICE RD. OVER I-75 IN THE CITY OF ROYAL OAK, MICH.
ARCHITECT MICH. STATE HWY. DEPT.
DESCRIPTION EXP. JT. @ ABUT. A
DRAWN BY KGP
CHKD. BY HL
JOB NO.


NORTH
THIS JOINT IS CONTINUOUS THRU EXP. JT. (BUTT JOINT) CUT ALL MEMBERS EXCEPT BAR - ak
CURB LINE
(EJ1) 20'-7⅞ (ALONG WORK LINE ℄)
20'-4⅝
(EJ2) 20'-7⅞ (ALONG WORK LINE ℄)
20'-11⅛
VIEW H-H
WORK LINE ℄ EXP. JT.
SECT. M-M
FACE OF CURB
END OF BAR - m
BARS - a @ 1'-6 ⁰⁄c (ABT)
BARS - b @ 9'-6⅜ ⁰⁄c ABT (CENTER BETWEEN BM. CLIPS)
HLS. FOR 2-¾ F.H.M.B. x 3" LONG & HEX NUTS (CTSK. N.S.)
HLS. FOR 2-¾ F.H.M. BOLTS (CTSK. N.S.)
PLAN
END OF BAR - av
END OF BAR - aw
4 @ 9'-6⅜ (ABT) = 38'-1¾
5 SPC. @ 9'-6⅜ (ABT) = 47'-8
50'-0⅝
C/C BEAMS OVERALL
⁹⁄₁₆ HLS. ON HORIZ. (IN - 6 x 3½ x ½ - L)
4 SPC. @ 9'-6⁷⁄₁₆ (ABT) = 38'-1⅞
LEVEL
EL. 639'-6 HORIZONTAL LINE
SECT. A-A
¹¹⁄₁₆ Φ HOLES @ 5'-0 ⁰⁄c (ABT) FOR BOLTING L - TO FORMS DURING CONST. OF BRIDGE.
MAT'L. FOR EJ1 (MAT'L. CUT (ABT.))
14 - BAR - a
2 - BAR - b
7 - BAR - c
3 - BAR - d
2 - BAR - f
SEE DET. THIS SH'T.
1 - L 6 x 3½ x ½ x 22'-11¾ - q
1 - L 6 x 4 x ⅜ x 21'-8 - h
1 - PL 9 x ¾ x 21'-6¹⁵⁄₁₆ - k
1 - BAR 2½ x 1¼ x 20'-11¾ - m
1 - BAR 2 x 1¼ x 20'-9⅜ - n
1 - PL 9⅟₁₆ x ½ x 1'-2¼ - p
1 - PL 9½ x ½ x 10⅛ - t
1 - PL 1¹⁵⁄₁₆ x ½ x 10⁵⁄₁₆ - v
1 - BAR 1¼ x ½ x 1¾ - w
1 - ¾Φ ROD x 1'-0 - af
2 - SQ. NUTS
SHOP BOLT TO EJ1
1 - PL 4 x ½ x 8⁵⁄₁₆ - am
2 - ¾Φ F.H.M. BOLTS x 3" LONG & HEX NUTS
MAT'L. FOR EJ2 (MAT'L. CUT (ABT.))
14 - BAR - a
3 - BAR - b
7 - BAR - c
3 - BAR - d
2 - BAR - f
1 - PL - p
1 - PL - t
1 - PL - v
1 - BAR - w
1 - BAR - y
1 - BAR - aa
2 - L - ah
1 - PL - am
1 - L 6 x 3½ x ½ x 26'-10¹⁵⁄₁₆ - an
1 - L 6 x 4 x ⅜ x 21'-7⅛ - ap
1 - PL 9 x ¾ x 21'-6¹⁵⁄₁₆ - at
1 - BAR 2½ x 1¼ x 20'-11¾ - av
1 - BAR 2 x 1¼ x 20'-9⅜ - aw
1 - PL 9 x ½ x 7'-0¹³⁄₁₆ - ay
1 - PL 6 x ½ x 6'-8¹⁵⁄₁₆ - ba
1 - BAR 1¼ x ½ x 6'-3¼ - bb
1 - ROD ¾Φ x 1'-1½ - bc
2 - SQ. NUTS
CUT 6 x 6 - L
SLOT
EL. 639'-6 HORIZ. LINE
SECT. B-B
(AFTER FIELD ADJUSTS.)
HORIZ. (TYP.)
SECT. F-F
SECT. K-K (TYP. U.N.)
ONE EXP. JT. 12EJ1
ONE DO. DO. 12EJ2
NOTE: THE METAL EXPANSION JOINT SHALL BE BENT IN THE SHOP TO CONFORM TO A SMOOTH CURVE THROUGH ORDINATES GIVEN.
5'-10 (LEVEL)
WORK LINE ℄ EXP. JT.
BAR - a @ 1'-6 ⁰⁄c
BAR - b @ 9'-6⅜ ⁰⁄c (ABT) (SPACE TO MISS CLIPS)
BAR - c @ 3'-0 ⁰⁄c
BAR - d @ 6'-0 ⁰⁄c
TOP OF BM.
SHOP PAINT THESE SURFACES ONLY.
TAP HOLE FOR ¾Φ x 1" CAP SCREW IN 6 x 3½ x ½ - L SCREW NOT TO PROTRUDE PAST BACK OF L. PROVIDE ¾Φ CAP SCREWS & WASH.
1Φ RODS MK. 12M1 CUT TO SUIT IN FIELD & FIELD WELD.
SECT. C-C
WORK LINE ℄ EXP. JT.
¾Φ ROD - 1'-6 ⁰⁄c
PAINT
WELD CORNERS NEAT.
4 x ½ COV. PL - am
PL MUST BE FREE TO MOVE ALONG THIS JOINT.
SECT. G-G
1 - 1Φ ROD x 4'-6 - MK. 12M1
CUT TO SUIT IN FIELD & FIELD WELD.
BENT BAR 1½ x ⅜ x 1'-2 - a & 11 - c
DETAIL OF BAR a & c
BENT BAR 1½ x ⅜ x 1'-6 - b & 11 - d
DETAIL OF BAR b & d
BENT BAR 1½ x ⅜ x 1'-6 - f
DETAIL OF BAR f
SHOP NOTES
REV. NO.
DATE
HOLES ¹³⁄₁₆ Φ
SHOP PAINT SEE SPEC'S & GEN. NOTE - SH. 1
LAST ASSEMBLY MARK bd
SHOP BILLS
UNIT STEEL CORP.
5000 STECKER AVE.
DEARBORN, MICHIGAN
TIFFANY 6-8600
CUSTOMER
JOB NAME BRIDGE SO2 OF 63174-D
LOCATION NORTHBOUND SERVICE RD. OVER I-75 IN THE CITY OF ROYAL OAK, MICH.
ARCHITECT MICH. STATE HWY DEPT.
DESCRIPTION EXP. JT. @ ABUT. B
DRAWN BY KCP DATE 9-13-62
CHKD. BY HL DATE 9-17
IN CHARGE
CE 166137

S03 of 63174

(Mm 5BR-9A)

CS: 63174

ID: S03 MM 5BR-9A

STATE OF MICHIGAN

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

CONTROL SECTIONS 50111, 63082, 63101, 63174, 82022, 82023, 82024, 82025, 82112, 82192 AND 82194

STATE PROJECT: MM5BR-9A

COUNTIES: MACOMB, OAKLAND, WAYNE.

CITIES: ST. CLAIRS SHORE, SOUTHFIELD, MADISON HEIGHTS, TROY, HAZEL PARK, DEARBORN AND DETROIT

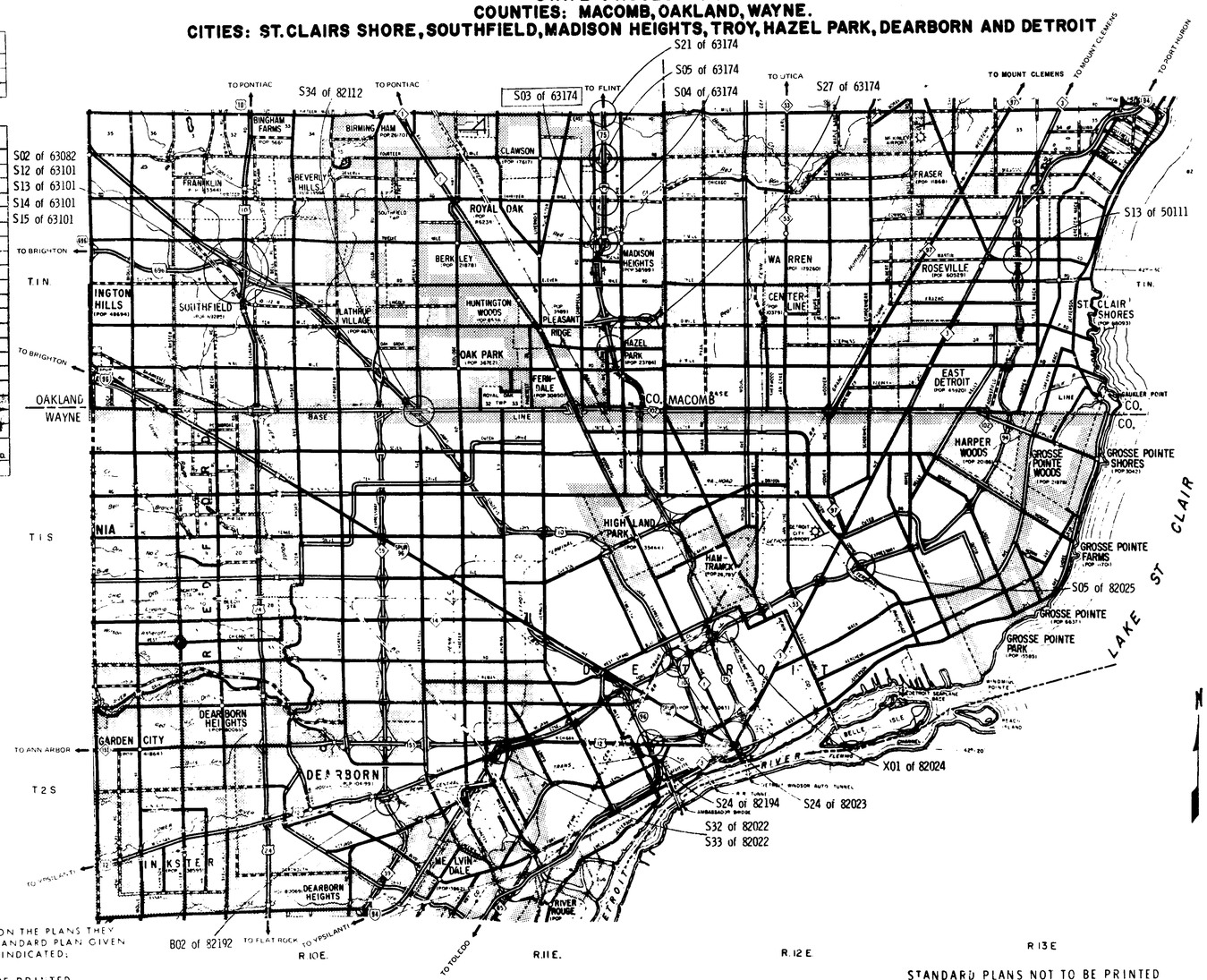
GENERAL NOTES:
EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF STATE HIGHWAY'S STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 1973 EDITION.

PLAN INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
1A THRU 1E	QUANTITY SHEET

PLAN INDEX

STRUCTURE NO.	SHEET NO.	DESCRIPTION
S13 of 50111	2	REPAIR DETAILS ABUTMENT B
S02 of 63082	2	REPAIR DETAILS ABUTMENT A
S12 of 63101	2	REPAIR DETAILS ABUTMENT A&B
S13 of 63101	2	REPAIR DETAILS ABUTMENT B
S14 of 63101	2	REPAIR DETAILS ABUTMENT A&B
S15 of 63101	2	REPAIR DETAILS ABUTMENT A
S03 of 63174	2	REPAIR DETAILS ABUTMENT A
	3	REPAIR DETAILS ABUTMENT B
S04 of 63174	2	REPAIR DETAILS ABUTMENT A
S05 of 63174	2	REPAIR DETAILS ABUTMENT A
S21 of 63174	2	REPAIR DETAILS ABUTMENT A&B
S27 of 63174	2	REPAIR DETAILS ABUTMENT A&B
S32 of 82022	2	REPAIR DETAILS ABUTMENT A
S33 of 82022	2	REPAIR DETAILS ABUTMENT A
	3	REPAIR DETAILS ABUTMENT A
S24 of 82023	2	REPAIR DETAILS ABUTMENT
X01 of 82024	2	REPAIR DETAILS ABUTMENT
S05 of 82025	2	[illegible]
S34 of 82112	2	[illegible]
B02 of 82192	2	REPAIR DETAILS ABUTMENT A UNDER E. SERVICE RD.
S24 of 82194	2	REPAIR DETAILS ABUTMENT A



NOTE:

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED:

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE

ITEM NO.

CONTRACT FOR ABUTMENT REPAIRS

APPROVALS

CHECKED	ENGINEER-BRIDGE DESIGN	1-7-75 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF DESIGN	1-9-75 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF TRAFFIC & SAFETY	1-14-75 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF CONSTRUCTION	1/13/75 DATE

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
JOHN P. WOODFORD - DIRECTOR

APPROVED BY: DEPUTY DIRECTOR - HIGHWAYS — 1/15/75 DATE

PLANS PREPARED BY MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
WONG

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED [redacted]

~~S13 of 50111; S02 of 63082; S12, S13, S14 & S15 of 63101;~~ S03, ~~S04, S05, S21 & S27~~ of 63174; ~~S32 & S33 of~~ 82022; S24 of 82023; X01 of 82024; S05 of 82025; S34 of 82112; B02 of 82192; S24 of 82194.

JOB NUMBER	FEDERAL PROJECT	SHEET NO.
		1

CONTROL SECTION - JOB NUMBER

50111, 63082, 63101, 63174, 82022, 82023, 82024, 82025, 82112, 82192, 82194

S03 of 63174 (MM5BR-9A)

ITEM	UNIT	CONTR. QUANT.	FINAL QUANT.	UNIT PRICE	FINAL COST	S14 of 63101 CONTR QUANT	REMARKS (AUTH. NO'S.)		FINAL QUANT	FINAL COST	S15 of 63101 CONTR QUANT	REMARKS (AUTH. NO'S.)		FINAL QUANT	FINAL COST	S03 of 63174 CONTR QUANT	REMARKS (AUTH. NO'S.)		FINAL QUANT	FINAL COST	S04 of 63174 CONTR QUANT	REMARKS (AUTH. NO'S.)		FINAL QUANT	FINAL COST
REPAIR OF STRUCTURAL CRACKS - TYPE A	LIN. FT.					67		1001	41		24		1001	17.8		25		1001	20.3		13		1001	10.5	
REPAIR OF STRUCTURAL CRACKS - TYPE B	LIN. FT.					12		1001	39.2		14		1001	14.1		4		1001	0						
REPAIR OF STRUCTURAL CONCRETE	CU. FT.					1		1001	1.77		3		1001	1.14		3		1001	1.77		0		1001	.25	
TOTAL																									

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

QUANTITY SHEET

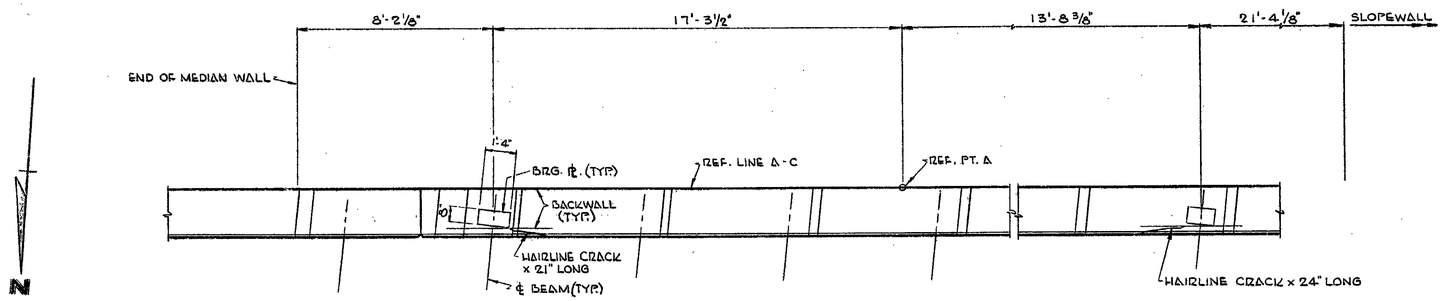
SUBMITTED BY	WONG	1-7-75
DRAWN BY	G.Z. HOLL	JAN 2, 1975
TRACED BY		
CHECKED BY	E.P.	1-23-75

SHEET 16 OF

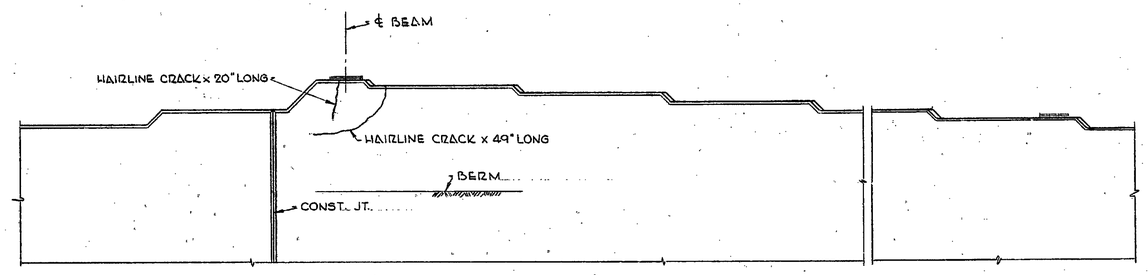
STATE PROJECT: MM5BR-9A S03 of P

CONTROL SECTIONS: ~~50111~~, 63082, 63101, 63174, ~~82022, 82023, 82024, 82025, 82112, 82192, 82194~~

RM 1 (10-23-74)



PLAN OF ABUTMENT WALL



ELEVATION

*MISCELLANEOUS QUANTITIES					As Const.
ITEM	UNIT	ABUT. A	ABUT. B	TOTAL	
REPAIR OF STRUCTURAL CRACKS - TYPE A	LIN. FT.	10	~~15~~ 10.3	~~25~~	20.3
REPAIR OF STRUCTURAL CRACKS - TYPE B	LIN. FT.		~~40~~	~~40~~	
REPAIR OF STRUCTURAL CONCRETE	CU. FT.	152	~~4.25~~	~~$1.77~~	

* QUANTITIES MAY VARY. THE EXTENT OF WORK SHALL BE AS DETERMINED BY THE ENGINEER.

GENERAL NOTES:

INJECT ALL CRACKS WITH EPOXY RESIN ADHESIVE. LARGE CRACKS SHALL BE PREPACKED WITH A SUITABLE AGGREGATE - INCIDENTAL.

REPAIR STRUCTURAL CRACKS PRIOR TO REPAIR OF STRUCTURAL CONCRETE.

REMOVAL OF UNSOUND CONCRETE IS INCIDENTAL TO "REPAIR OF STRUCTURAL CONCRETE."

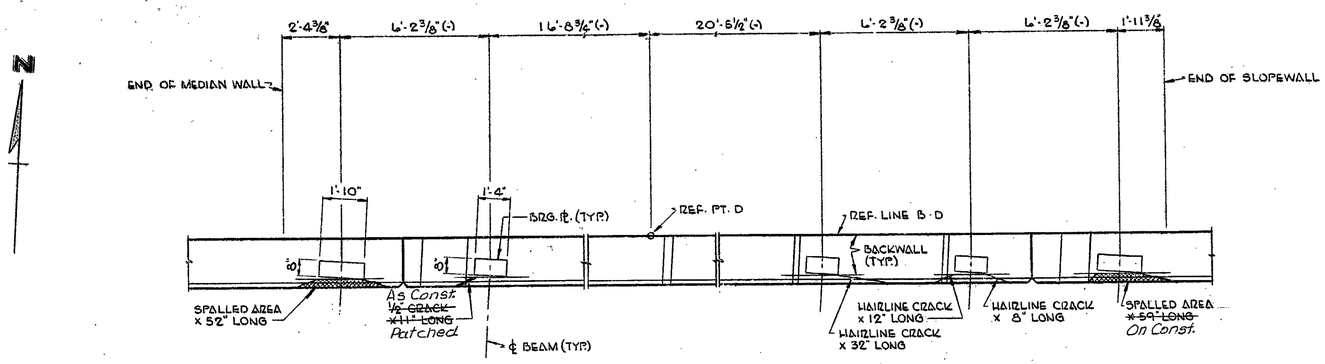
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
I-75 OVER 12 MILE RD. IN MADISON HEIGHTS.
REPAIR DETAILS
ABUTMENT A

REVISIONS

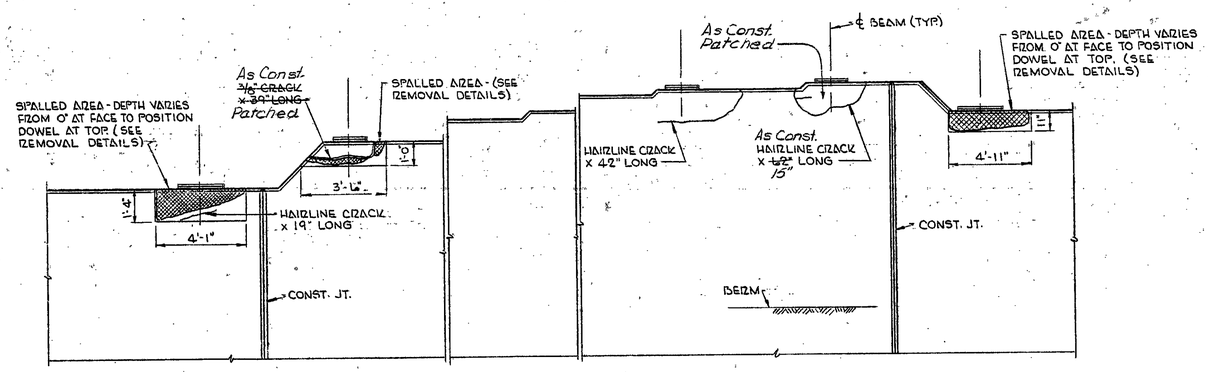
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	WONG	1-7-75
DRAWN BY	G.R. HALL	APR 18, 1974
TRACED BY		
CHECKED BY	RB	1-7-75
SHEET 2 OF 3		

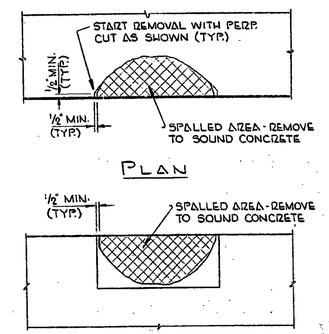
S03 of 63174



PLAN OF ABUTMENT WALL



ELEVATION



SPALL REMOVAL DETAILS

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

I-75 OVER 12 MILE RD. IN MADISON HEIGHTS.

REPAIR DETAILS

ABUTMENT B

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	WONG	1-7-75
DRAWN BY	G.R. HALL	APR.30,1974
TRACED BY		
CHECKED BY	B.B.	1-7-75
SHEET 3 OF 3		

S03 of 63174

S03 of 63174 I

CS: 63174

ID: S03

MICHIGAN

STATE HIGHWAY DEPARTMENT

JOHN C. MACKIE

STATE HIGHWAY COMMISSIONER

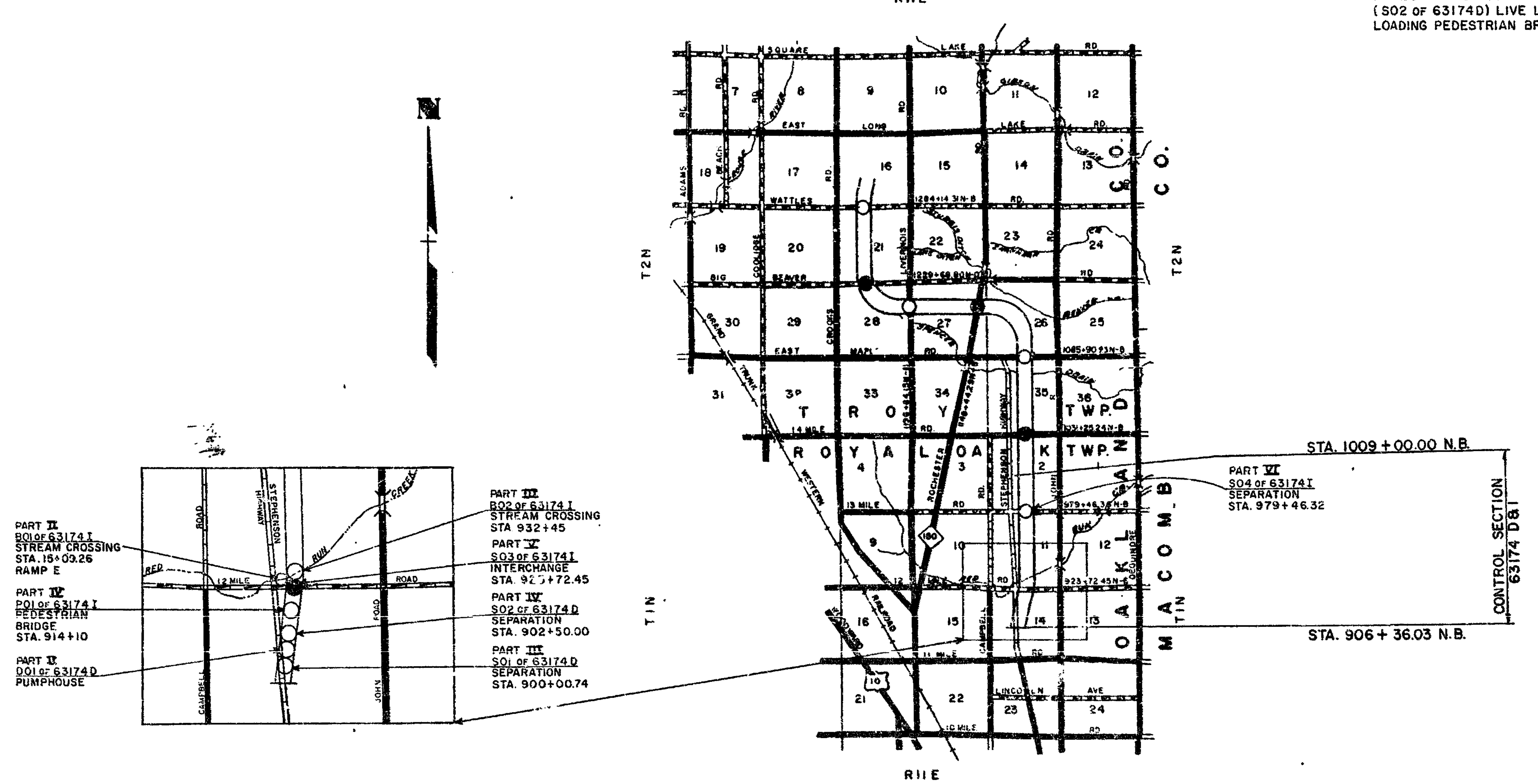
MICHIGAN PROJECT I 75-2 (75) 62

CONTROL SECTION B1 63174 D C14 PARTS II THRU IV; B1 63174 I C5 PARTS II THRU VI

WALTER P. CHRYSLER EXPRESSWAY

OAKLAND COUNTY

TROY - ROYAL OAK TWP.



Scale 1" = 1 Mile

NOTES:

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN STATE HIGHWAY DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1960 EDITION.

THE DESIGN OF THESE STRUCTURES IS BASED ON THE MICHIGAN STATE HIGHWAY DEPARTMENT'S SPECIFICATIONS FOR THE DESIGN OF HIGHWAY BRIDGES, 1956 EDITION H20-S16-44 AND ALTERNATE MILITARY LOADING, LIVE LOAD PLUS IMPACT DEFLECTION = $\frac{1}{1000}$ OF SPAN LENGTH.*

THE CHARACTER OF ALL MATERIALS AND THE EXTENT THEREOF AS SHOWN BY BORINGS HAS BEEN OBTAINED BY METHODS AND FROM SOURCES BELIEVED TO BE RELIABLE. THE EXACTNESS OF THIS INFORMATION IS, HOWEVER, IN NO CASE GUARANTEED. BORING DATA IS AVAILABLE IN THE DESIGN OFFICE AT LANSING.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH ½" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

TRUNK LINE TRAFFIC WILL BE REROUTED BY THE DEPARTMENT DURING CONSTRUCTION.

THE LOCATION OF GAS MAINS SHOWN ON THESE PLANS IS BELIEVED TO BE CORRECT. THE CONTRACTOR SHALL, HOWEVER, CHECK ALL SUCH LOCATIONS WITH THE MICHIGAN CONSOLIDATED GAS CO. BEFORE EXCAVATION IS STARTED.

* H20-44 LOADING FOR 11½ MILE ROAD (S01 OF 63174 D) AND NORTHBOUND SERVICE ROAD (S02 OF 63174 D) LIVE LOAD PLUS IMPACT DEFLECTION = $\frac{1}{800}$ OF SPAN LENGTH. FOR DESIGN LOADING PEDESTRIAN BRIDGE (P01 OF 63174 I) SEE SHEET 139.

CONTROL SECTIONS NO. 63174 D & I

CONTRACT FOR BRIDGES & PUMPHOUSE

DIVISION APPROVAL

CHECKED ______ ENGINEER OF DESIGN - CONSULTANTS ______ DATE

RECOMMENDED FOR APPROVAL ______ TRAFFIC ENGINEER ______ DATE

RECOMMENDED FOR APPROVAL ______ ENGINEER OF BRIDGE AND ROAD DESIGN ______ DATE

OFFICES OF DESIGN AND CONSTRUCTION

APPROVED ______ CONSTRUCTION ENGINEER ______ DATE

APPROVED ______ CHIEF OF DESIGN ______ DATE

STATE HIGHWAY DEPARTMENT APPROVAL

APPROVED JOHN C. MACKIE, STATE HIGHWAY COMMISSIONER

BY ______ DIRECTOR OF ENGINEERING - CHIEF ENGINEER ______

PLANS PREPARED BY TECON ENGINEERS INC.

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

______ DIVISION ENGINEER ______ DATE

CONTROL SECTION 63174 D & I

P01, S03, S04, B01 & B02 OF 63174 I — D01, S01, S02 OF 63174 D

1

PLAN INDEX

SHEET NO.	DESCRIPTION
101	TITLE SHEET
102	INDEX OF DRAWINGS
	S01 OF 63174D - 11½ MILE ROAD
103	GENERAL PLAN OF SITE
104	LOG BORINGS
105	GENERAL PLAN OF STRUCTURE
106	BILL OF MATERIAL
107	ABUTMENT A DETAILS
108	ABUTMENT A DETAILS
109	ABUTMENT B DETAILS
110	ABUTMENT B DETAILS
111	ABUTMENT DETAILS
112	PIER DETAILS
113	SUPERSTRUCTURE DETAILS
114	SUPERSTRUCTURE DETAILS
115	SUPERSTRUCTURE DETAILS
116	STRUCTURAL STEEL DETAILS
117	STRUCTURAL STEEL DETAILS
118	STEEL REINFORCEMENT DETAILS
	S02 OF 63174D - NORTHBOUND SERVICE ROAD
119	GENERAL PLAN OF SITE
120	LOG OF BORINGS
121	GENERAL PLAN OF STRUCTURE
122	BILL OF MATERIAL
123	ABUTMENT A DETAILS
124	ABUTMENT A DETAILS
(B) 125A	ABUTMENT A DETAILS
126	ABUTMENT B DETAILS
127	ABUTMENT B DETAILS
128	ABUTMENT DETAILS
129	PIER DETAILS
130	SUPERSTRUCTURE DETAILS
131	SUPERSTRUCTURE DETAILS
132	SUPERSTRUCTURE DETAILS
133	SUPERSTRUCTURE DETAILS
134	METAL EXPANSION JOINT DETAILS
135	STRUCTURAL STEEL DETAILS
136	STRUCTURAL STEEL DETAILS
(B) 137A	STEEL REINFORCEMENT DETAILS
(B) 137B	STEEL REINFORCEMENT DETAILS
	P01 OF 63174D - PEDESTRIAN BRIDGE
138	GENERAL PLAN OF SITE
139	GENERAL PLAN OF STRUCTURE
140	BILL OF MATERIAL
141	RAMP APPROACH DETAILS
142	RAMP APPROACH DETAILS
143	RAMP PIER & DECK DETAILS
144	RAMP PIER & DECK DETAILS
145	BRIDGE PIER DETAILS
146	BRIDGE DECK DETAILS
147	STRUCTURAL STEEL DETAILS
148	STRUCTURAL STEEL DETAILS
149	HANDRAIL DETAILS
150	STEEL REINFORCEMENT DETAILS
(B) 125B	ABUTMENT A DETAILS
(B) 125C	ABUTMENT A DETAILS
	S03 OF 63174 I - 12 MILE ROAD
151	GENERAL PLAN OF SITE
152	LOG OF BORINGS
153	GENERAL PLAN OF STRUCTURE
154	BILL OF MATERIAL
155	STAKE OUT DIAGRAM
156	ABUTMENT A DETAILS
157	ABUTMENT A DETAILS

SHEET NO.	DESCRIPTION
158	ABUTMENT B DETAILS
159	ABUTMENT B DETAILS
160	ABUTMENT DETAILS
161	PIER DETAILS - PIER NO. 1 & 4
162	PIER DETAILS - PIER NO. 2 & 5
163	PIER DETAILS - PIER NO. 3 & 6
164	SUPERSTRUCTURE DETAILS
165	SUPERSTRUCTURE DETAILS
166	SUPERSTRUCTURE DETAILS
167	SUPERSTRUCTURE DETAILS
168	SUPERSTRUCTURE DETAILS
169	SUPERSTRUCTURE DETAILS
170	SUPERSTRUCTURE DETAILS
171	SUPERSTRUCTURE DETAILS
172	PRESTRESSED CONCRETE I BEAM DETAILS
173	PRESTRESSED CONCRETE I BEAM DETAILS
174	STEEL REINFORCEMENT DETAILS
	B01 OF 63174I - RAMP E (12 MILE ROAD)
175	GENERAL PLAN OF SITE
176	LOG OF BORINGS
177	GENERAL PLAN OF STRUCTURE
178	BILL OF MATERIAL
179	ABUTMENT DETAILS
180	PIER DETAILS - PIERS NO. 1 & 2
181	SUPERSTRUCTURE DETAILS
182	SUPERSTRUCTURE DETAILS
183	SUPERSTRUCTURE DETAILS
184	SUPERSTRUCTURE DETAILS
185	METAL EXPANSION JOINT DETAILS
186	STRUCTURAL STEEL DETAILS
187	STRUCTURAL STEEL DETAILS
188	STEEL REINFORCEMENT DETAILS
	B02 OF 63174 I - RED RUN DRAIN
189	GENERAL PLAN OF SITE
190	LOG OF BORINGS
191	GENERAL PLAN OF STRUCTURE
192	GENERAL PLAN OF STRUCTURE
193	CHANNEL CHANGE LAYOUT
194	CHANNEL CROSS SECTIONS
195	CHANNEL CROSS SECTIONS
196	BILL OF MATERIAL
197	ABUTMENT A DETAILS
198	ABUTMENT A DETAILS
199	ABUTMENT B DETAILS
200	ABUTMENT B DETAILS
201	ABUTMENT DETAILS
202	PIER DETAILS - PIER NO. 1 & 2
203	PIER DETAILS - PIER NO. 3 & 4
204	PIER DETAILS
205	SUPERSTRUCTURE DETAILS
206	SUPERSTRUCTURE DETAILS
207	SUPERSTRUCTURE DETAILS
208	SUPERSTRUCTURE DETAILS
209	SUPERSTRUCTURE DETAILS
210	SUPERSTRUCTURE DETAILS
211	SUPERSTRUCTURE DETAILS
212	SUPERSTRUCTURE DETAILS
213	SUPERSTRUCTURE DETAILS
214	SUPERSTRUCTURE DETAILS
215	METAL EXPANSION JOINT DETAILS - NORTHBOUND STR.
216	METAL EXPANSION JOINT DETAILS - SOUTHBOUND STR.
217	STRUCTURAL STEEL DETAILS
218	STRUCTURAL STEEL DETAILS
219	STRUCTURAL STEEL DETAILS
220	STEEL REINFORCEMENT DETAILS
202A	PIERS 1 & 3 CAP DETAILS

SHEET NO.	DESCRIPTION
	S04 OF 63174I - 13 MILE ROAD
221	GENERAL PLAN OF SITE
222	LOG OF BORINGS
223	GENERAL PLAN OF STRUCTURE
224	BILL OF MATERIAL
225	ABUTMENT DETAILS
226	ABUTMENT DETAILS
227	PIERS NO. 1, 2, 3 & 4 DETAILS
228	SUPERSTRUCTURE DETAILS
229	SUPERSTRUCTURE DETAILS
230	SUPERSTRUCTURE DETAILS
231	SUPERSTRUCTURE DETAILS
232	BEAM LAYOUT
233	STEEL REINFORCEMENT DETAILS
	S05 OF 63174I - 14 MILE ROAD
234	GENERAL PLAN OF SITE
235	LOG OF BORINGS
236	GENERAL PLAN OF STRUCTURE
237	BILL OF MATERIAL
238	ABUTMENT DETAILS
239	ABUTMENT DETAILS
240	PIERS NO. 1, 2, 3, & 4 DETAILS
241	SUPERSTRUCTURE DETAILS
242	SUPERSTRUCTURE DETAILS
243	SUPERSTRUCTURE DETAILS
244	METAL EXPANSION JOINT DETAILS
245	STRUCTURAL STEEL DETAILS
246	STRUCTURAL STEEL DETAILS
247	STRUCTURAL STEEL DETAILS
248	STEEL REINFORCEMENT DETAILS
	S21 OF 63174J - 15 MILE ROAD
249	GENERAL PLAN OF SITE
250	LOG OF BORINGS
251	GENERAL PLAN OF STRUCTURE
252	BILL OF MATERIAL
253	ABUTMENT DETAILS
254	ABUTMENT DETAILS
255	PIERS NO. 1, 2, 3 & 4 DETAILS
256	SUPERSTRUCTURE DETAILS
257	SUPERSTRUCTURE DETAILS
258	SUPERSTRUCTURE DETAILS
259	SUPERSTRUCTURE DETAILS
260	BEAM LAYOUT
261	STEEL REINFORCEMENT DETAILS
	D01 OF 63174D - PUMPHOUSE
301	GENERAL PLAN OF SITE
302	GENERAL PLAN OF STRUCTURE
303	BILL OF MATERIAL
304	PUMPHOUSE DETAILS
305	PUMPHOUSE DETAILS
306	PUMPHOUSE DETAILS
307	PUMPHOUSE DETAILS
308	PUMPHOUSE DETAILS
309	PUMPHOUSE DETAILS
310	MISCELLANEOUS DETAILS
311	MECHANICAL & ELECTRICAL DETAILS
312	STEEL REINFORCEMENT DETAILS
R 11B	BRIDGE RAILING, DRAIN CASTING, BAR CHAIR, MOLDING & BEVEL DETAILS

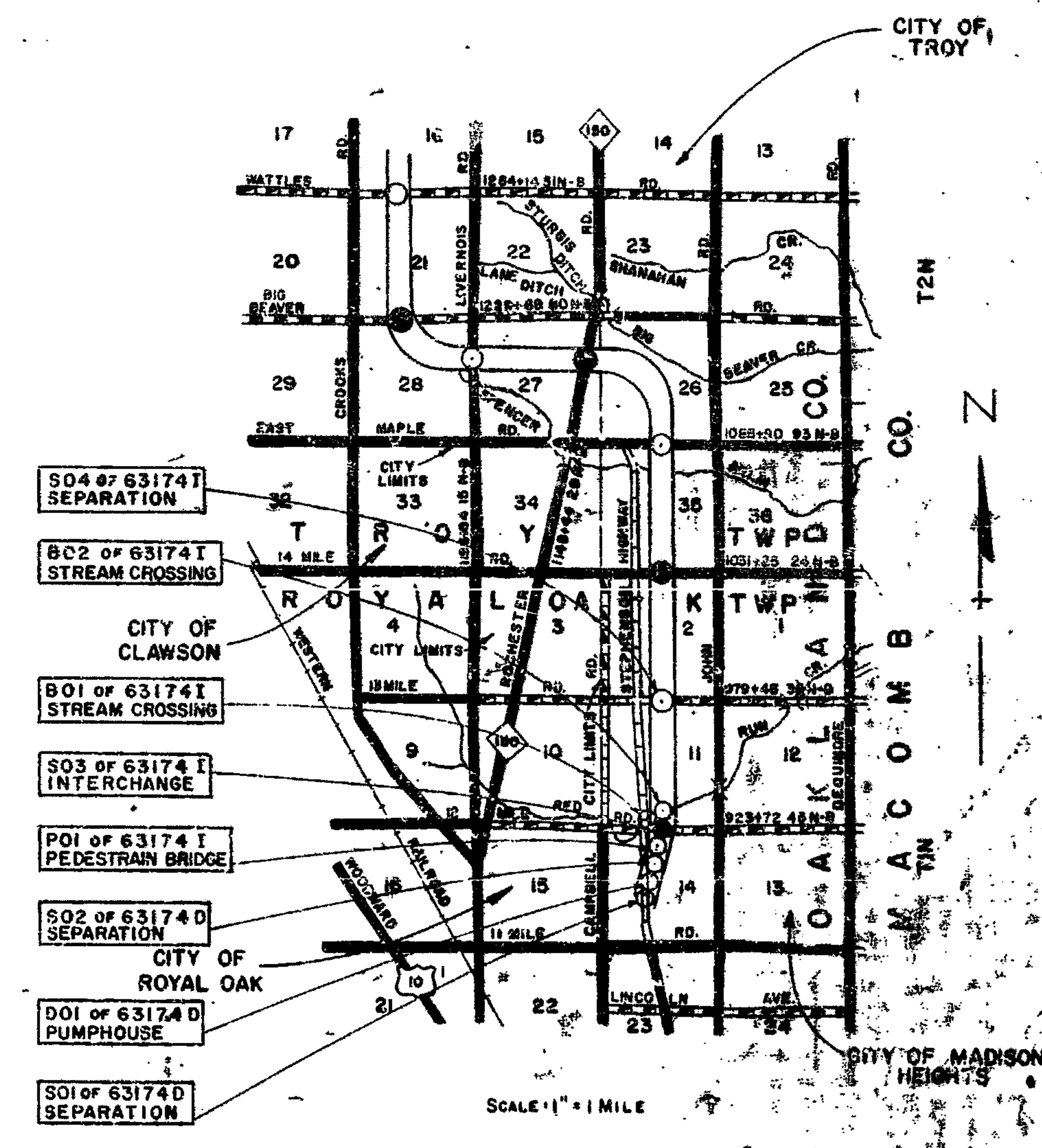


TABLE OF LOADINGS			
STRUCTURE	LOCATION	DESIGN LIVE LOADINGS	LIMITING LIVE LOAD DEFLECTION
S01 OF 63174D	11½ MILE RD.	H20-44	L/800
S02 OF 63174D	N-B SERVICE RD.	H20-44	L/800
P01 OF 63174I	PEDESTRIAN BR.	SEE SH.139	L/1000
S03 OF 63174I	12 MILE RD.	H20-S16-44	L/1000
B01 OF 63174I	RAMP E (12 MILE RD.)	H20-S16-44	L/1000
B02 OF 63174I	RED RUN DRAIN	H20-S16-44	L/1000
S04 OF 63174I	13 MILE RD.	H20-S16-44	L/1000

STANDARD PLANS TO BE PRINTED	
SHEET NO.	DESCRIPTION
SP 2 D	STANDARD SLOPE PAVING DETAILS

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD GUIDE / DRAWN BY CAG / TRACED BY / CHECKED BY

SHEET

S01 & S02 OF 63174D
P01 OF 63174 I
S03 OF 63174 I
B01 & B02 OF 63174 I
S04 OF 63174 I
D01 OF 63174 D

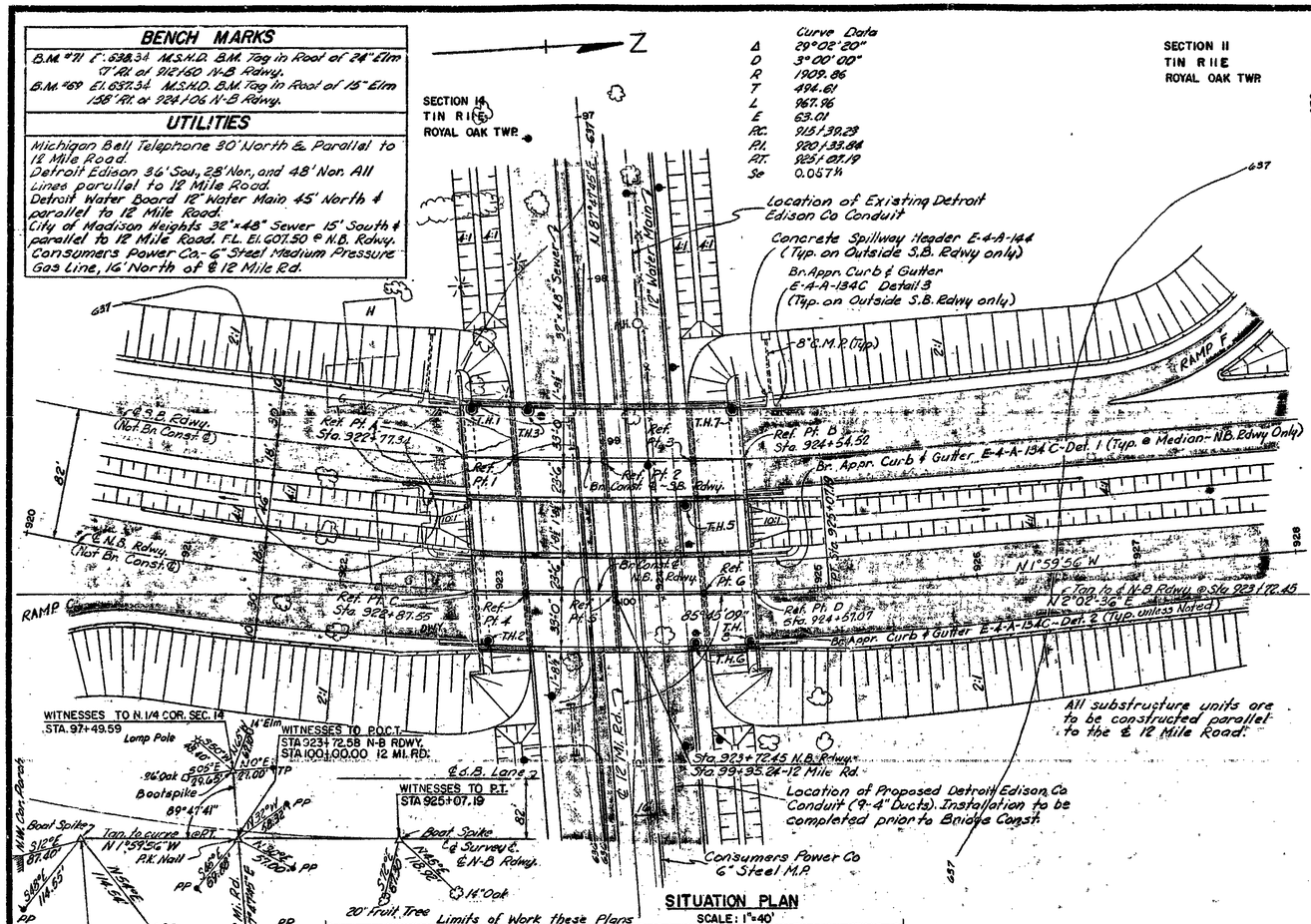
BENCH MARKS

B.M. #71 El. 638.34 M.S.H.D. B.M. Tag in Root of 24" Elm 7' Rt. of 912+60 N-B Rdwy.
B.M. #69 El. 637.34 M.S.H.D. B.M. Tag in Root of 15" Elm 138' Rt. of 924+06 N-B Rdwy.

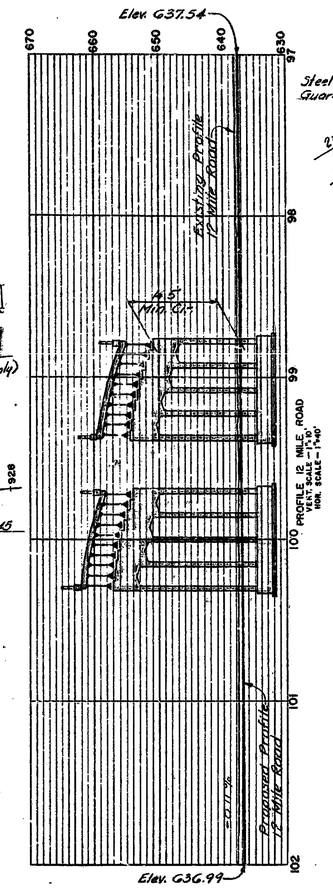
UTILITIES

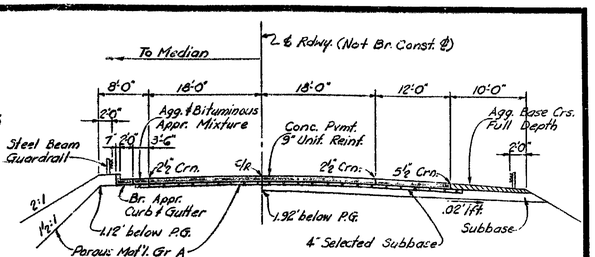
Michigan Bell Telephone 30' North & Parallel to 12 Mile Road.
Detroit Edison 36' Sou., 28' Nor., and 48' Nor. All Lines parallel to 12 Mile Road.
Detroit Water Board 12" Water Main 45' North & parallel to 12 Mile Road.
City of Madison Heights 32"x48" Sewer 15' South & parallel to 12 Mile Road. F.L. El. 607.50 @ N.B. Rdwy.
Consumers Power Co.- 6" Steel Medium Pressure Gas Line, 14' North of ℄ 12 Mile Rd.

Curve Data	
Δ	29°02'20"
D	3°00'00"
R	1909.86
T	494.61
L	967.96
E	63.01
P.C.	915+39.23
P.I.	920+33.84
P.T.	924+07.19
Se	0.057ft



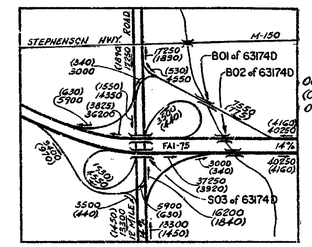
SITUATION PLAN





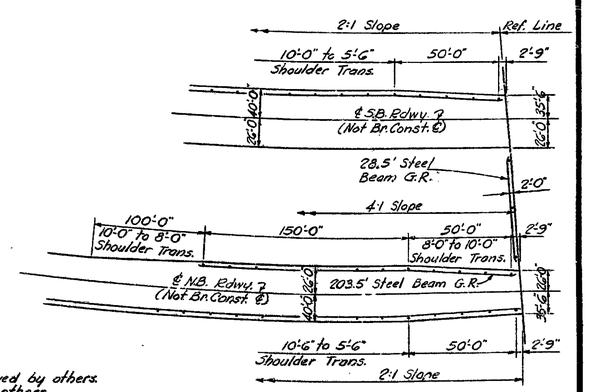
HALF SECTION AT STRUCTURE

HALF SECTION ON APPROACH

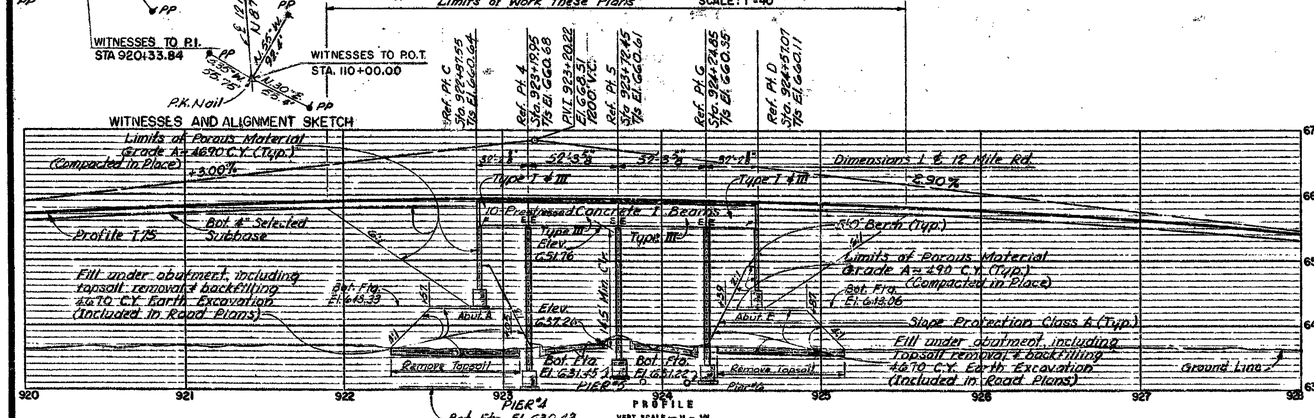


1978 ESTIMATED TRAFFIC DISTRIBUTION

LEGEND
000' Average Daily Traffic
(00)' Design Hourly Volume
00.0% % Commercial



HALF APPROACH GRADING PLAN



WITNESSES AND ALIGNMENT SKETCH

GENERAL NOTES

Fences and utilities are to be moved by others.
Buildings are to be removed by others.
Datum refers to U.S.G.S. datum.
Traffic is to be maintained over the temporary road, until half the structure is complete.
This bridge is part of an interchange and all the area shown is within M.S.H.D. R.O.W.
Piers #1, 3, & #6 shall be constructed and backfilled prior to construction of the abutment fills.
The work covered by these plans includes construction of the proposed bridge, placing porous material and placing slope protection class A to the limits shown.
All work not listed above is included in the road plans.
Hampden Road to be closed at edge of interchange R.O.W.

REVISIONS

NO	DESCRIPTION	DATE	BY

CONTROL SECTION 63174 I

MICHIGAN STATE HIGHWAY DEPARTMENT

I 75 OVER 12 MILE ROAD IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF SITE

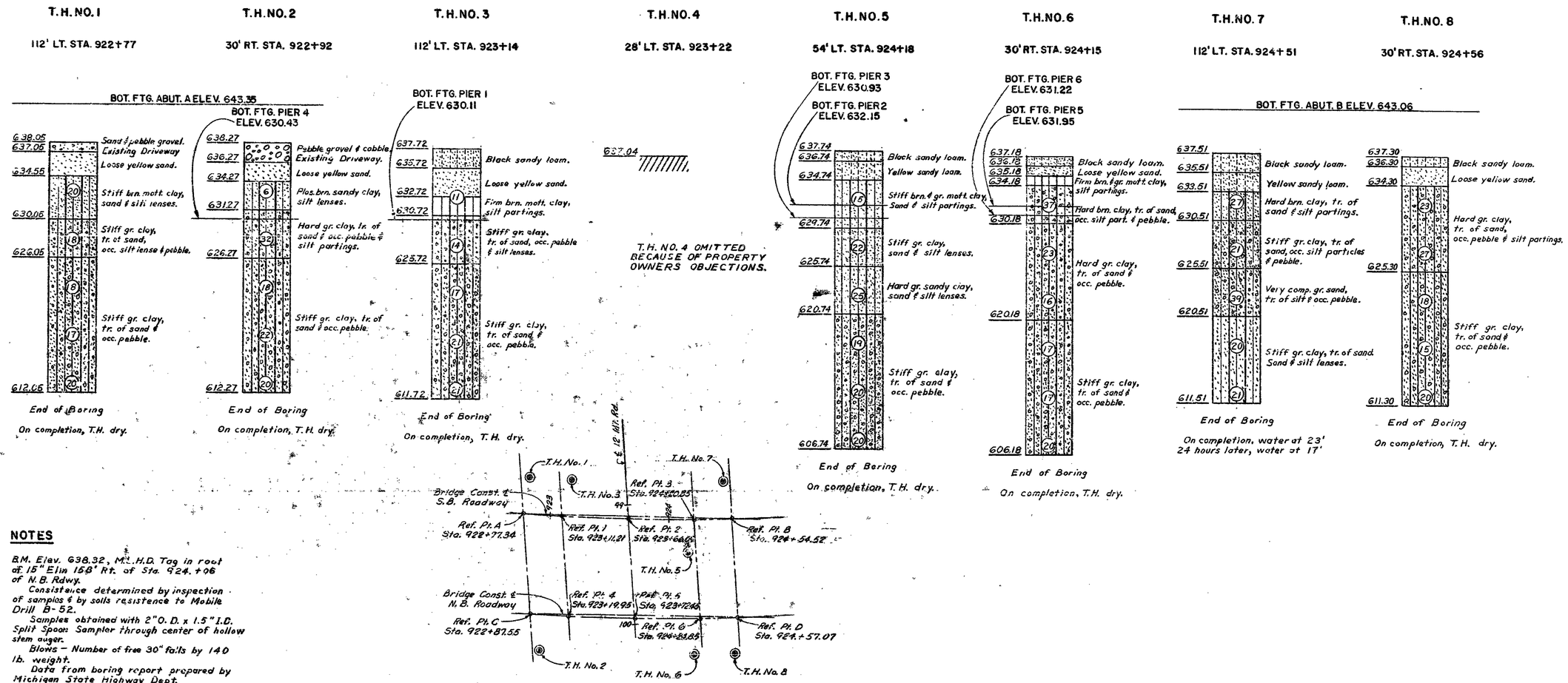
TECON ENGINEERS, INC.

APPROVED J. U. Murray 6-5-62 COORDINATING ENGINEER

APPROVED ENGINEER OF DESIGN — CONSULTANTS

SQUAD BOSS	GTC
DRAWN BY	J.C.
TRACED BY	
CHECKED BY	
SHEET 121 OF 372	

S03 OF 63174 I



NOTES

B.M. Elev. 638.32, M.L.H.D. Tag in root of 15" Elm 158' Rt. of Sta. 924.+06 of N.B. Rdwy.

Consistance determined by inspection of samples & by soils resistence to Mobile Drill B-52.

Samples obtained with 2" O. D. x 1.5" I.D. Split Spoon Sampler through center of hollow stem auger.

Blows — Number of free 30" falls by 140 lb. weight.

Data from boring report prepared by Michigan State Highway Dept. Party Chief Robert W. Green. Report dated November 4, 1960.

CONTROL SECTION 63174 I

MICHIGAN STATE HIGHWAY DEPARTMENT

I 75 OVER 12 MILE ROAD IN THE CITY OF MADISON HEIGHTS

LOG OF BORINGS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY

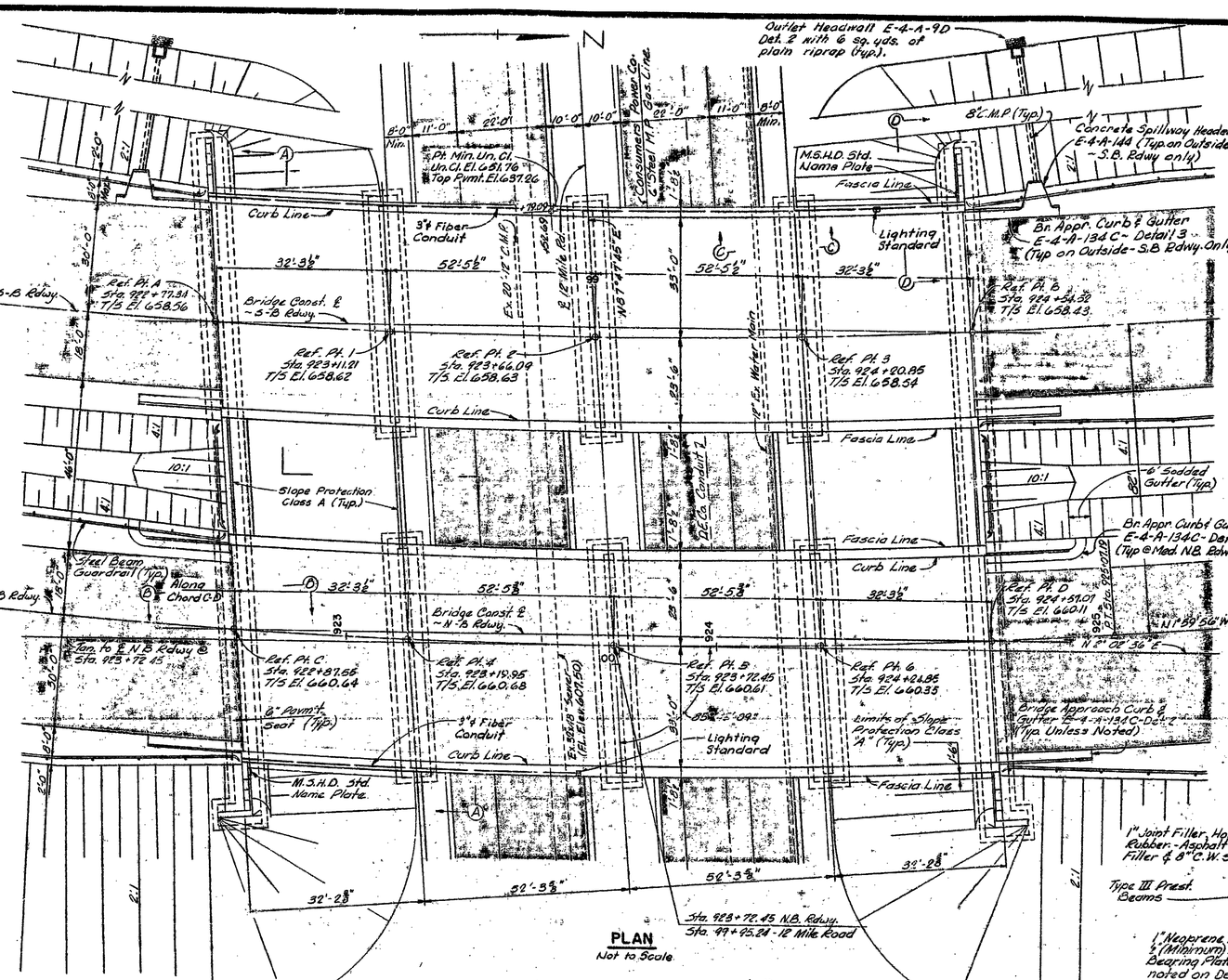
SQUAD BOSS	ATC	12-10-60
DRAWN BY	T A S	12-10-60
TRACED BY		
CHECKED BY	E P	12-15-60

SHEET 152 OF 312

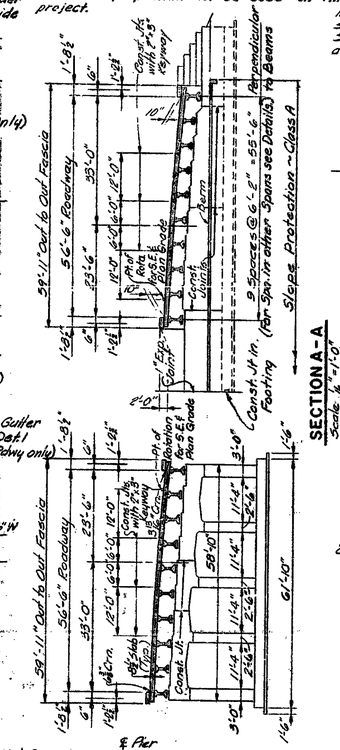
S03 OF 63174 I

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
* Slope Protection Class A	Sq. Yds.	1110
Porous Material Grade A Compacted-In-Place	Cu. Yds.	1036.0

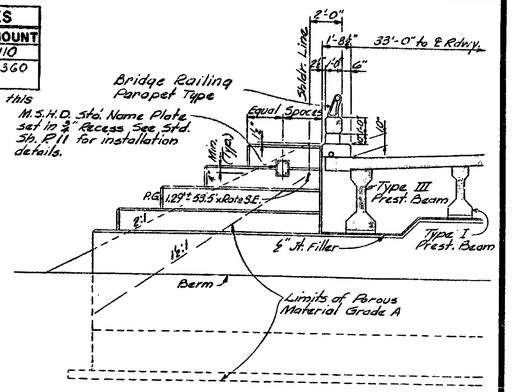
Grouted Riprap shall not be used on this project.



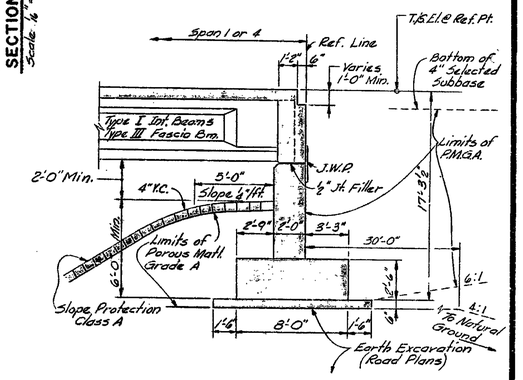
PLAN
Not to Scale



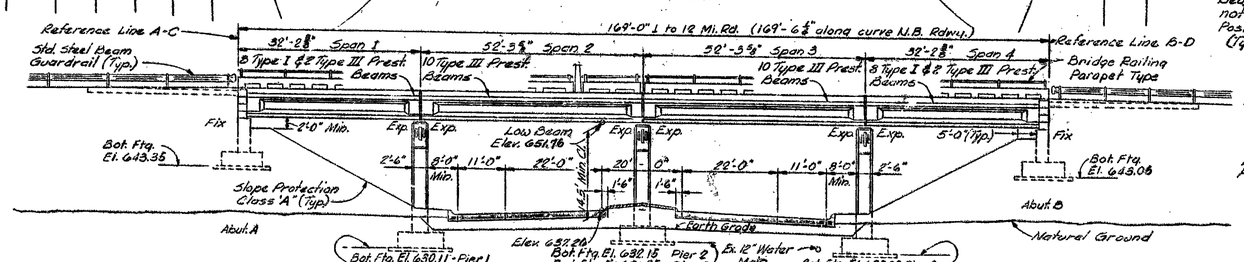
SECTION A-A
Scale 1/4" = 1'-0"



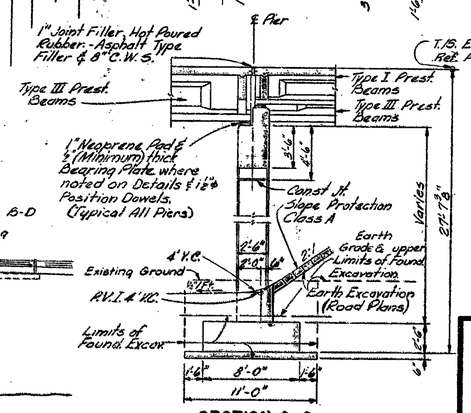
SECTION D-D
Scale 1/4" = 1'-0"



SECTION B-B
Scale 1/4" = 1'-0"



ELEVATION
Not to Scale



SECTION C-C
Scale 3/8" = 1'-0"

NOTES:

Top of roadway slab and tops of curbs are parallel to the vertical curve, except as modified by superelevation transition.

This structure is on a horizontal curve. The fascia lines, curb lines and longitudinal deck construction joints are parallel to the curve.

Proposed pavements, curb and gutter, guard rail, drainage structures, earth fill, and sand sub-base on the expressway and ramp are not a part of this Contract.

The design of this structure is based on M.S.H.D. Standard Specifications for the Design of Highway Bridges-1958 Edition-(H20-S16-44 and alternate military loading).

Live load plus impact deflection = 1/1000 of span length.

CONTROL SECTION 63174 I

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

I 75 OVER 12 MILE ROAD IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC.

APPROVED J. V. Murray 6-5-62
COORDINATING ENGINEER

APPROVED
ENGINEER OF DESIGN — CONSULTANTS

SQUAD BOSS	G.T.C.	
DRAWN BY	R.L.T.	5-1-61
TRACED BY		
CHECKED BY	G.T.C.	5-30-61
SHEET 158 OF 312		

S03 OF 63174 I

ITEM	UNIT	QUANTITY	DATE A	DATE B	DATE C	DATE E	FINAL
BRIDGE 303 at 631741							
Handhole Frame & Cover 10"x10"	Each	2					2
Light Standard Anchor Bolt Assembly	Each	2					2
Unclassified Excavation	Cu. Yds	620		-46 01002			574
Grade A(6A) Concrete - Substructure	Cu. Yds	707					707
Grade A(6AA) Concrete - Substructure	Cu. Yds.	567					567
Grade A (6AA) Concrete - Superstructure	Cu. Yds.	639			+22.7 01005		661.7
Water-Reducing Retarding Admixture		Lump Sum	-20.72% 01001				79.28%
28" Prestressed Concrete I Beams-Erected	Lin. Ft.	1004.2					1004.2
28" Prestressed Concrete I Beams-Furnished	Lin. Ft.	1004.2					1004.2
45" Prestressed Concrete I Beams-Erected	Lin. Ft.	2342.9					2342.9
45" Prestressed Concrete I Beams-Furnished	Lin. Ft.	2342.9					2342.9
Neoprene Bearing Pads	Sq. Ft.	16.5					16.5
Steel Reinforcement	Pounds	241663				+4323 01029	251,986
¼" Joint Filler	Sq. Ft.	8					8
½" Joint Filler	Sq. Ft.	200			-14 01006		186
¾" Joint Filler	Sq. Ft.	66					66
1" Joint Filler	Sq. Ft.	264					264
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	370			-1 01007		369
Joint Waterproofing	Sq. Ft.	860					860
Copper	Pounds	476					476
Bridge Railing-Parapet Type	Lin. Ft.	675.2					675.2
3" Fiber Conduit	Lin. Ft.	240			+3 01008		243
Slope Protection Class A	Sq. Yds	1110		-9 01003			1101
Porous Material Grade A (Compacted in Place)	Cu. Yds	10,360		-2302 01004			7058

BALANCED BY A.F.B. 1-26-66
CHECKED BY R.E. 1-20-66

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL
12-16-64	02001 - Auth. D - State Owned Borrow	Cu. Yds	7641	7641

MICHIGAN STATE HIGHWAY DEPARTMENT

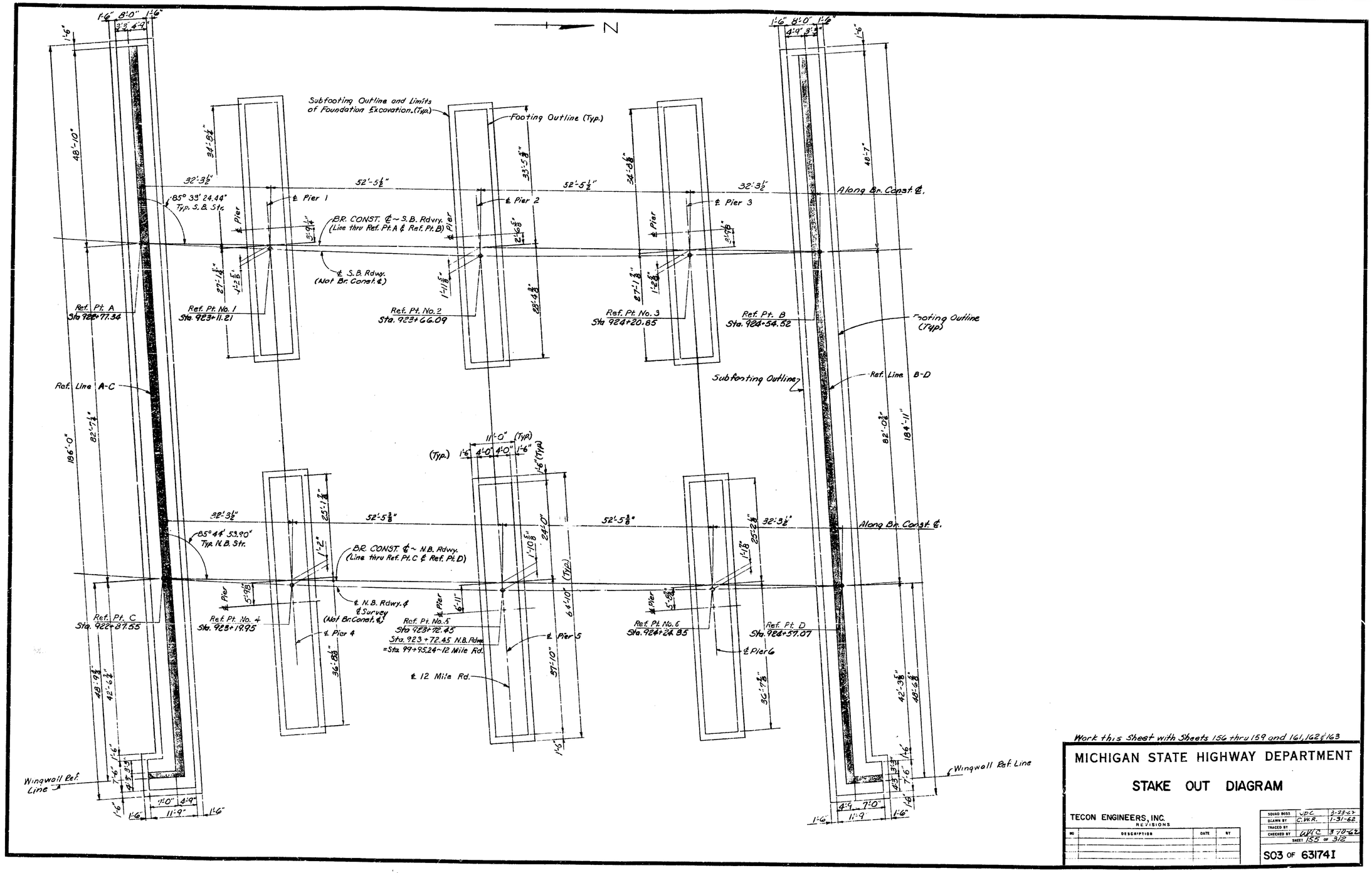
BILL OF MATERIAL

TECON ENGINEERS, INC.

SQUAD BOSS	JDC	3-28-62
DRAWN BY	WHC	3-10-62
TRACED BY		
CHECKED BY	JDC	3-28-62

SHEET 154 OF 312

S03 OF 631741



Work this Sheet with Sheets 156 thru 159 and 161, 162 & 163

MICHIGAN STATE HIGHWAY DEPARTMENT

STAKE OUT DIAGRAM

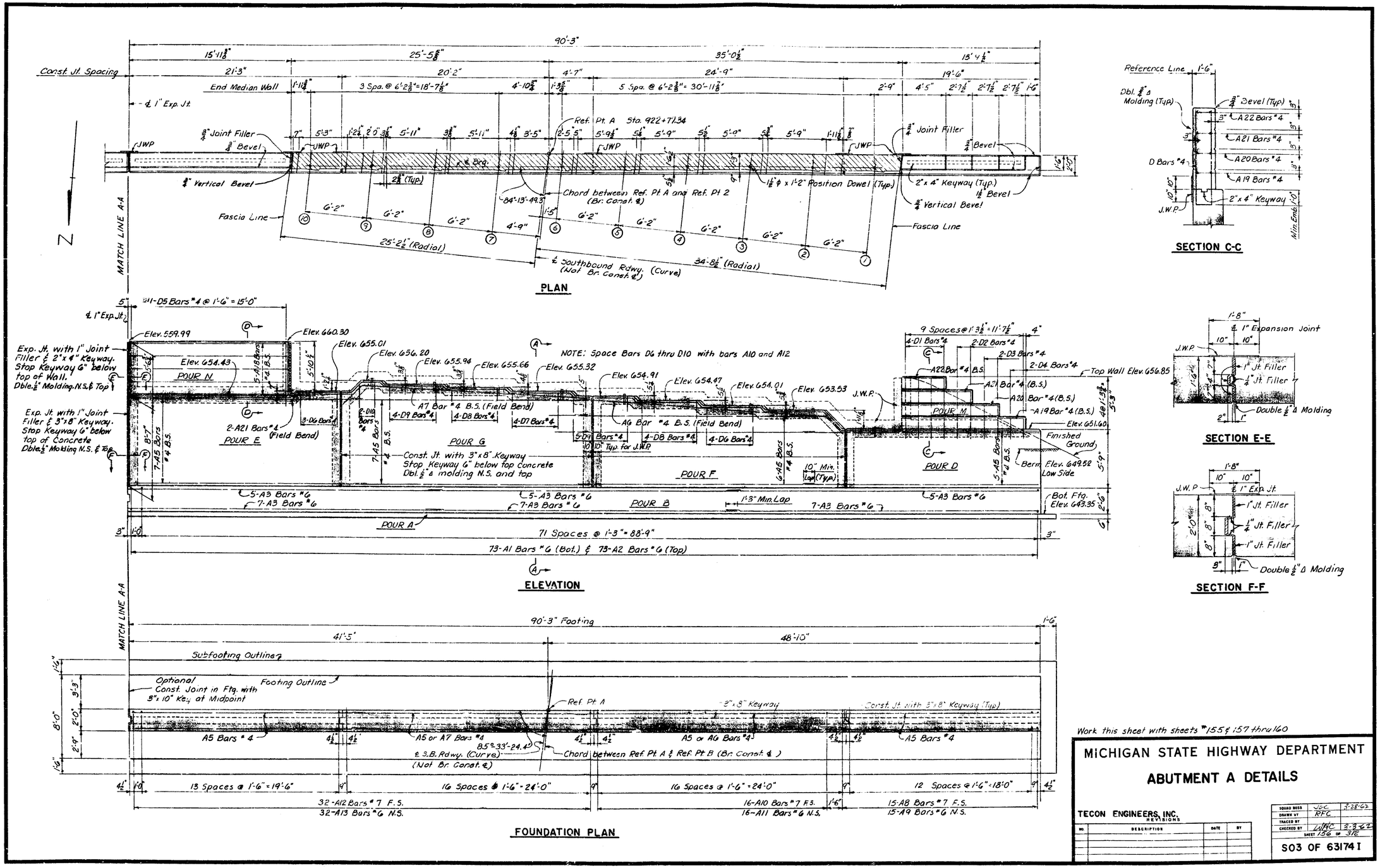
TECON ENGINEERS, INC.

REVISIONS

NO	DESCRIPTION	DATE	BY

SQUAD BOSS	J.D.C.	2-28-62
DRAWN BY	C.W.R.	1-31-62
TRACED BY		
CHECKED BY	W.H.C.	3-10-62
SHEET 155 OF 312		

S03 OF 631741



MICHIGAN STATE HIGHWAY DEPARTMENT

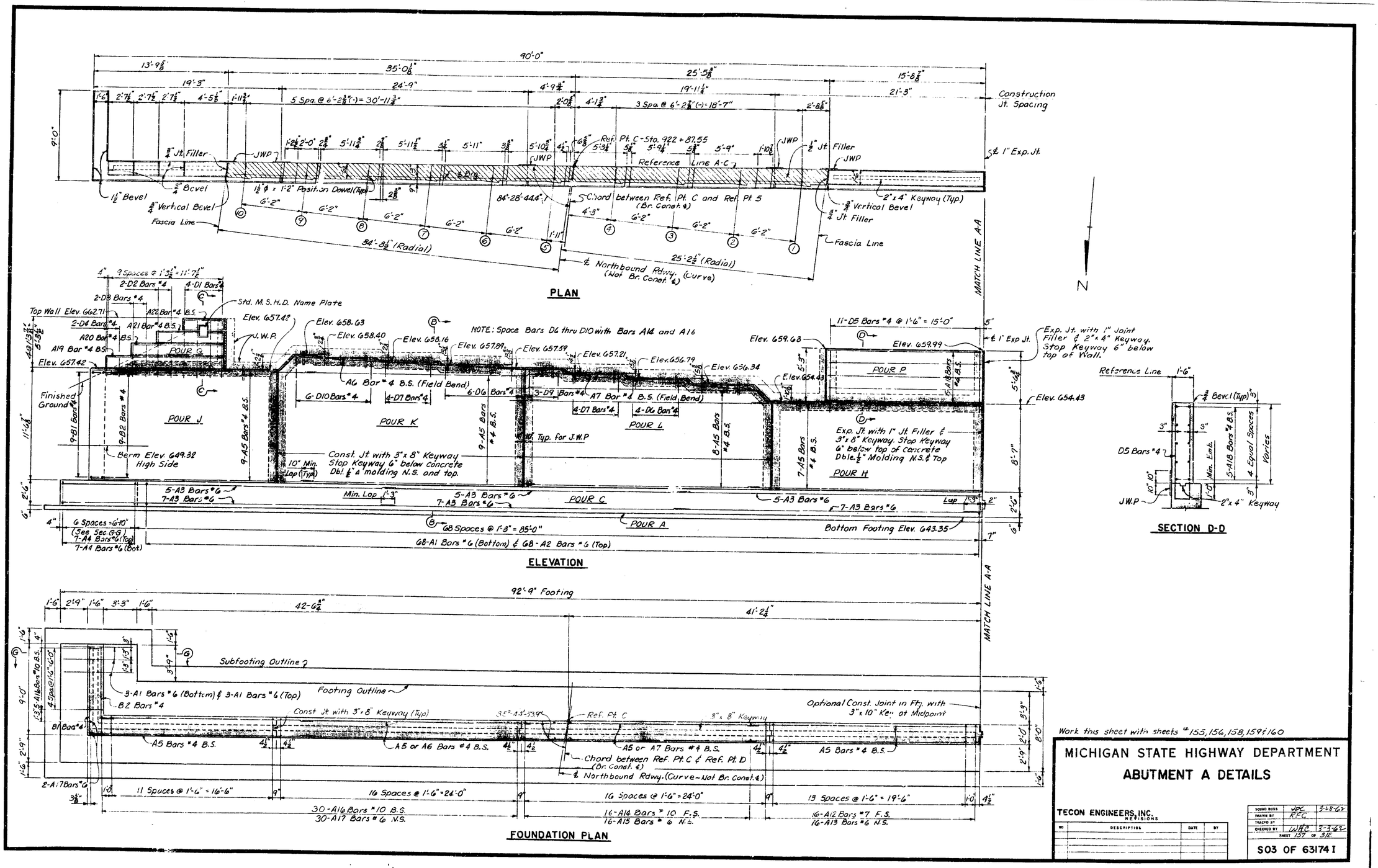
ABUTMENT A DETAILS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	JSC	3-28-62
DRAWN BY	RFC	
TRACED BY		
CHECKED BY	WAC	3-30-62
SHEET 156 OF 312		

S03 OF 63174 I



Work this sheet with sheets #155, 156, 158, 159 & 160

MICHIGAN STATE HIGHWAY DEPARTMENT

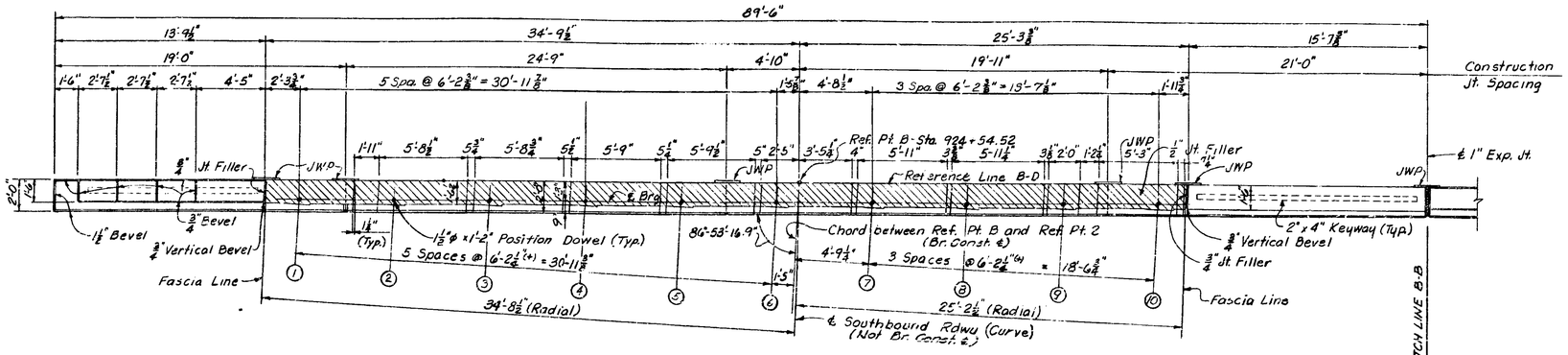
ABUTMENT A DETAILS

TECON ENGINEERS, INC.

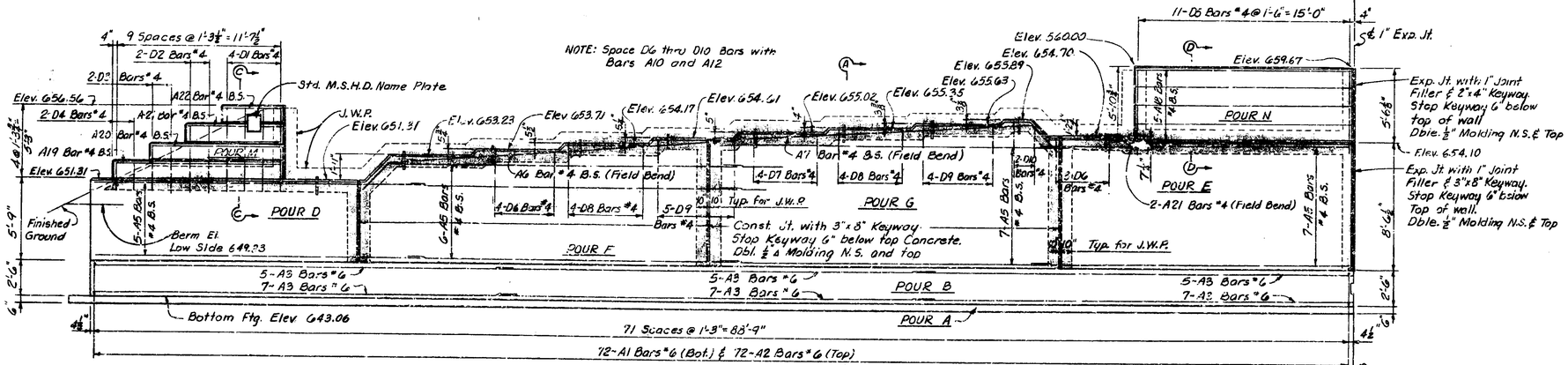
REVISIONS			
NO	DESCRIPTION	DATE	BY

SQUAD BOSS	JPC	3-28-62
DRAWN BY	RFG	
TRACED BY		
CHECKED BY	WHC	3-3-62
SHEET 157 OF 312		

S03 OF 63174 I

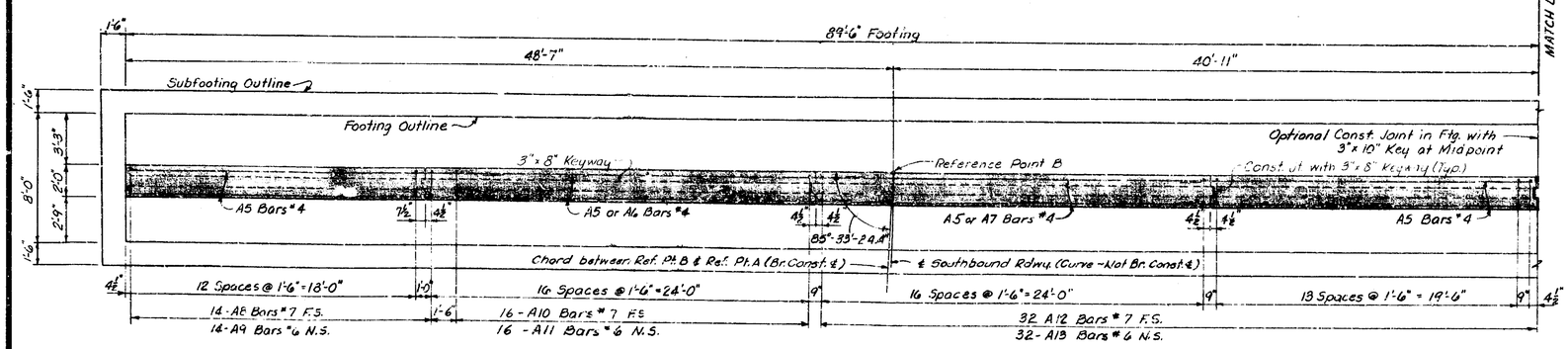


PLAN



NOTE: Space D6 thru D10 Bars with Bars A10 and A12

ELEVATION



FOUNDATION PLAN

Work this sheet with Sheets # 155, 156, 157, 159 & 160

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT B DETAILS

TECON ENGINEERS, INC.

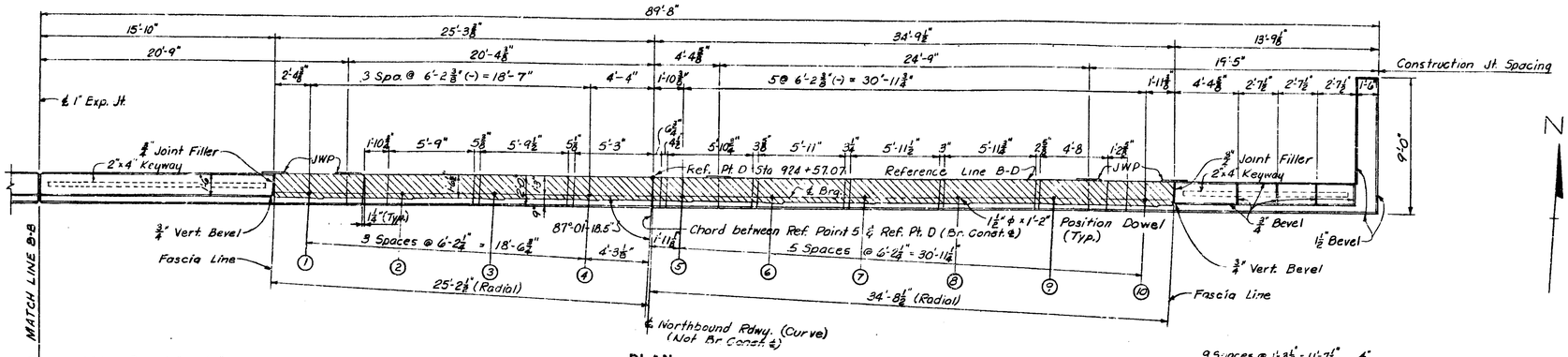
REVISIONS

NO.	DESCRIPTION	DATE	BY

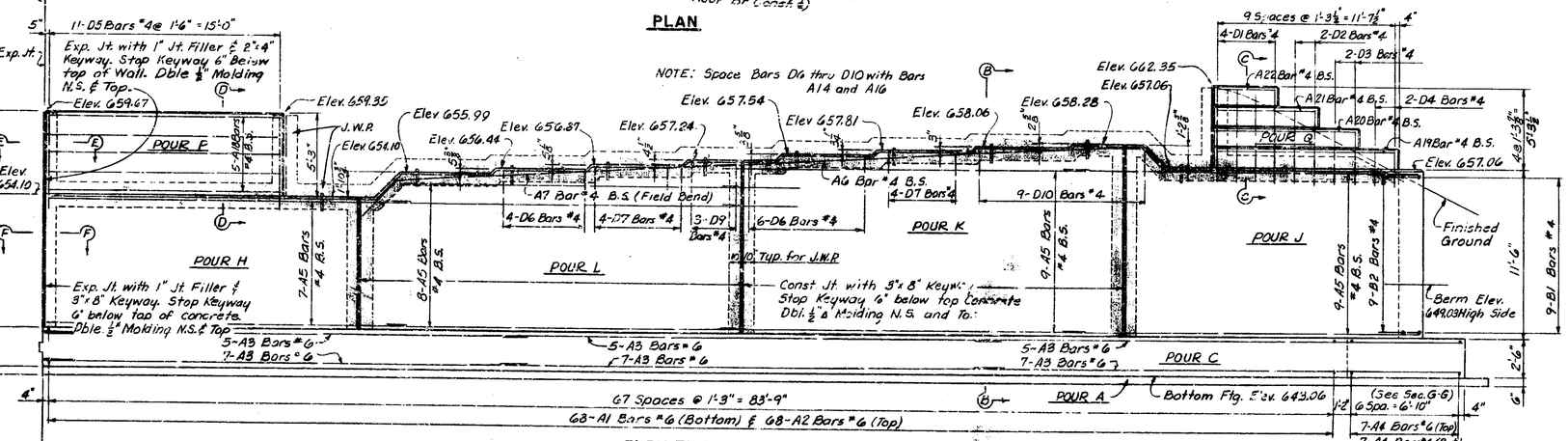
SQUAD BOSS	WDC	3-28-62
DRAWN BY	CFC	
TRACED BY		
CHECKED BY	WHC	3-3-62

SHEET 158 OF 312

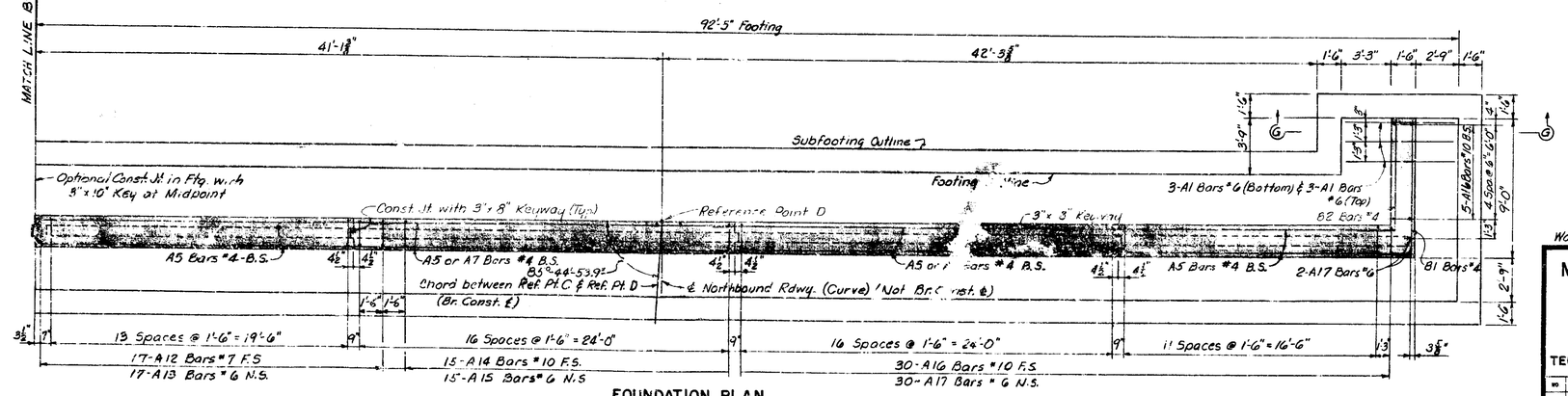
S03 OF 63174 I



PLAN



ELEVATION



FOUNDATION PLAN

Work this sheet with Sheets #155 thru 158 & 160

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT B DETAILS

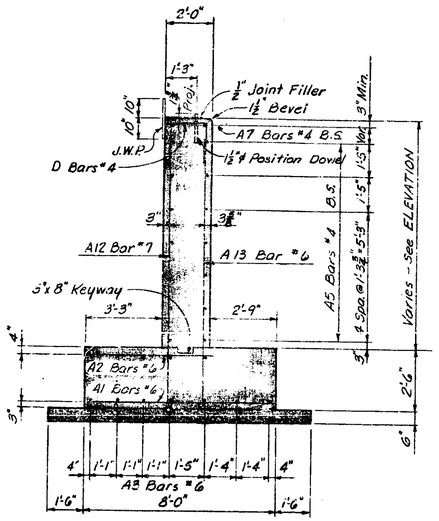
TECON ENGINEERS, INC.

REVISIONS

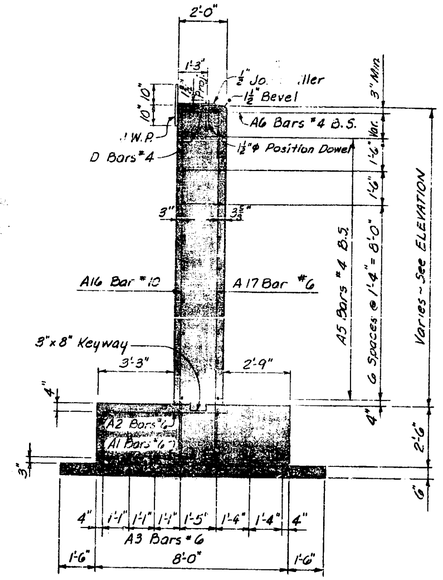
NO	DESCRIPTION	DATE	BY

SOLO BOSS	JDE	5-28-62
DRAWN BY	RFC	
TRACED BY		
CHECKED BY	WRC	3-3-62
SHEET 129 OF 312		

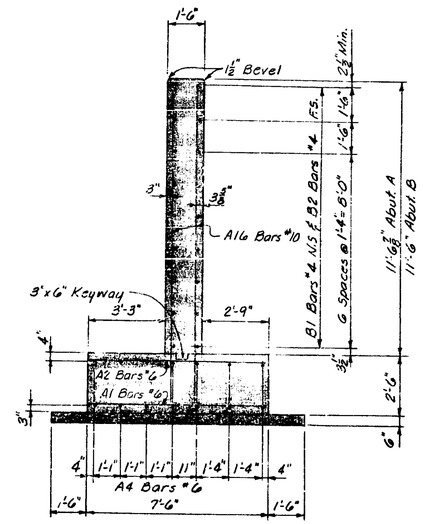
S03 OF 631741



SECTION A-A



SECTION B-B



SECTION G-G

CONCRETE QUATITIES - CU. YDS.				
POUR	ABUTMENT A		ABUTMENT B	
	Grade A-6A	Grade A-6AA	Grade A-6A	Grade A-6AA
A	38.6		38.4	
B	67.0		66.4	
C	71.4		71.2	
D		8.3		8.1
E		15.0		14.9
F		13.7		13.5
G		17.9		17.8
H		13.5		13.1
J		21.1		21.3
K		22.6		22.6
L		19.9		19.7
M		2.4		2.4
N		5.0		5.0
P		4.7		4.7
Q		2.4		2.4
Total	177.0	146.5	176.0	145.5

MISCELLANEOUS QUANTITIES			
Item	Abut. A	Abut. B	Total
Jt. Waterproofing	430	430	860
1" Joint Filler	26	26	52
¾" Joint Filler	33	33	66
½" Joint Filler	100	100	200
¼" Joint Filler	4	4	8

GENERAL NOTES

J.W.P. denotes joint waterproofing.
N.S. denotes near side.
F.S. denotes far side.
B.S. denotes both sides.
For Bevel and molding details see Standard Sheet R11.
For location of name plates see General Plan of Structure; for mounting details see standard sheet R11.
Parapet Walls & Slopewalls are to be cast after superstructure is complete to top of sidewalks.
Position Dowels shall be set accurately to a template.
Furnishing and setting Position Dowels is incidental to substructure concrete.
The Project Engineer shall adjust the spacing of reinforcing steel as required to permit placing of Position Dowels.
The top of abutment shall be finished to a true plane at the elevation shown and shall not vary more than ⅛" under a ten foot straight edge.
This design is based on a maximum foundation pressure of 3810 pounds per square foot and a maximum average foundation pressure of 3360 pounds per square foot.

Work this sheet with sheets #156 thru 159

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT DETAILS

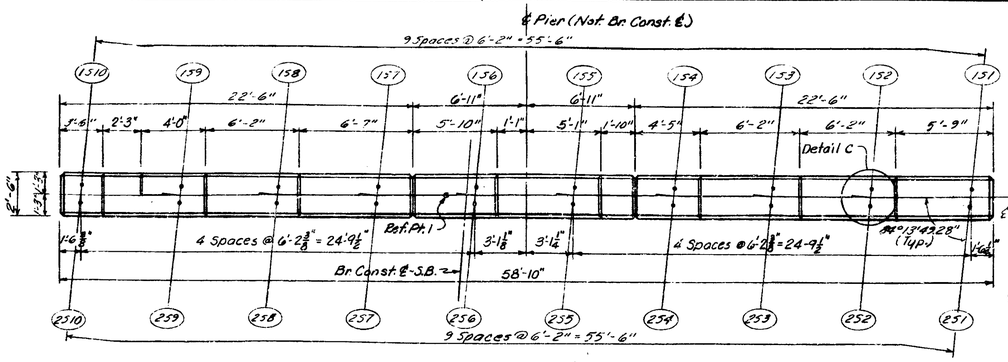
TECON ENGINEERS, INC.

REVISIONS

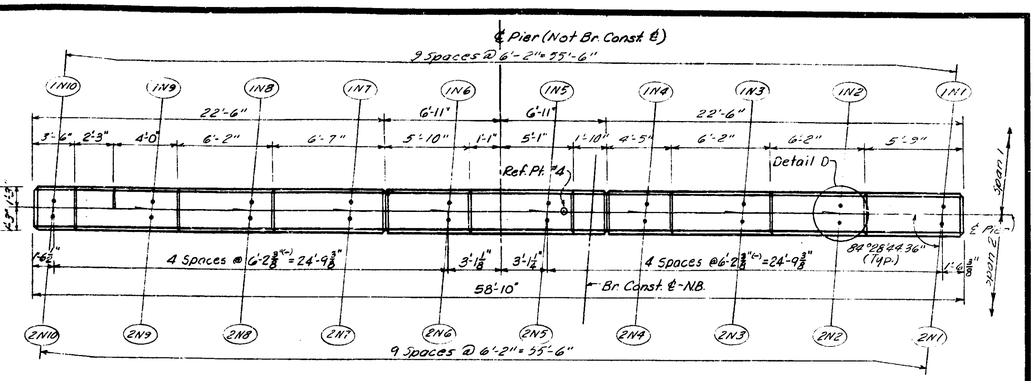
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	JDC	3-28-62
DRAWN BY	RPC	
TRACED BY		
CHECKED BY	WHC	3-3-62
SHEET 160 OF 312		

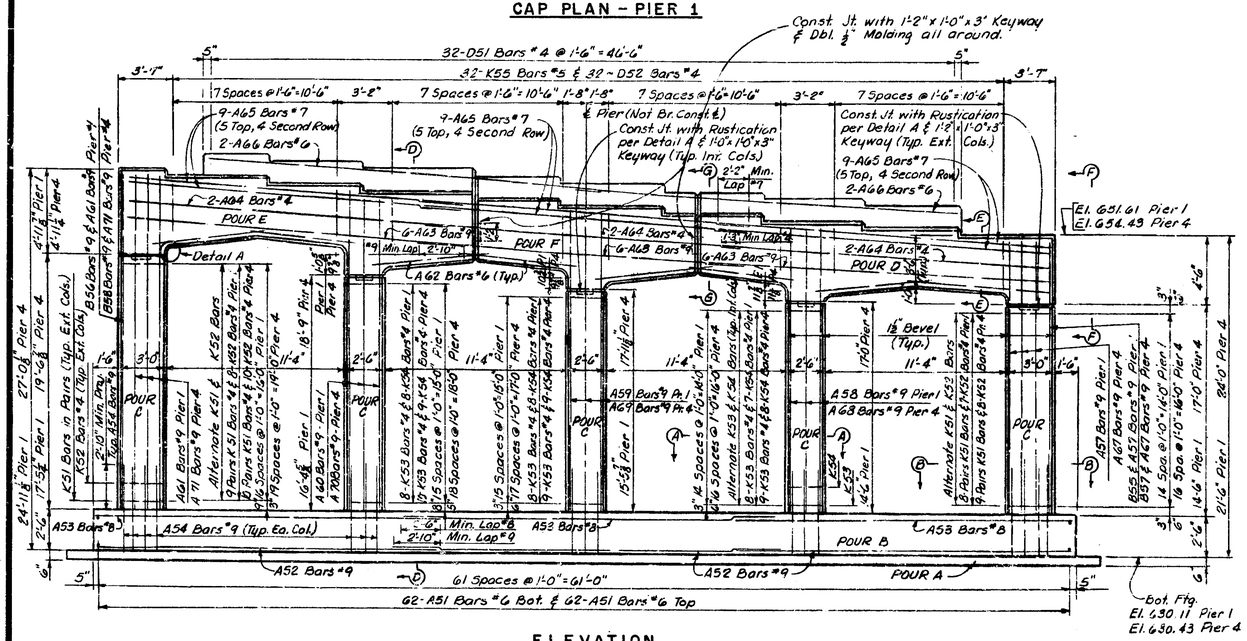
S03 OF 63174 I



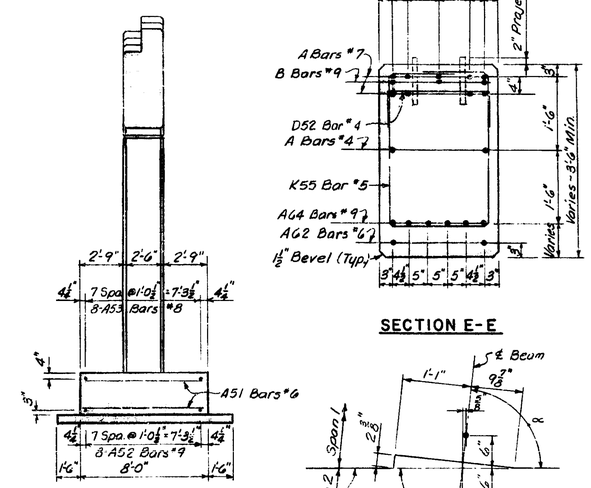
CAP PLAN - PIER 1



CAP PLAN PIER 4

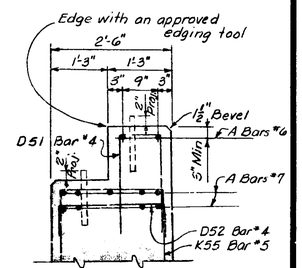


ELEVATION

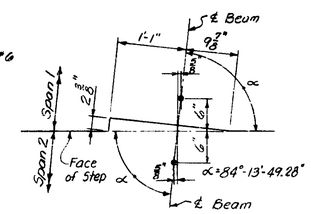


SECTION D-D

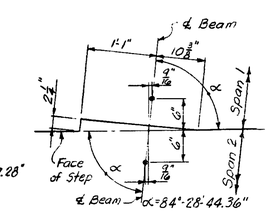
SECTION E-E



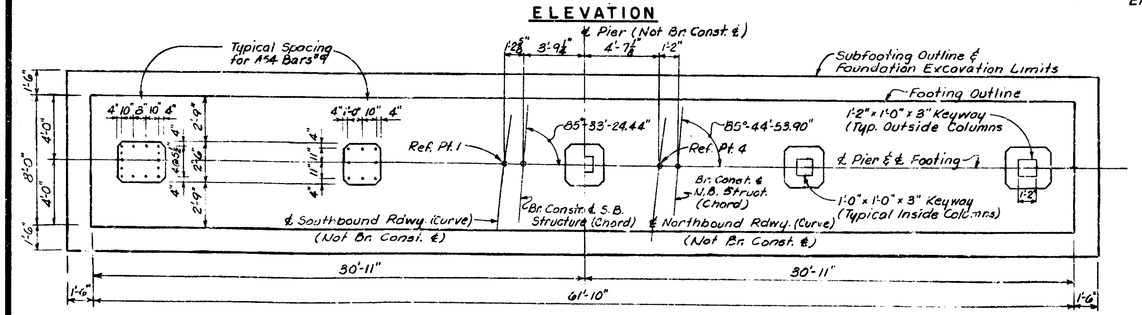
SECTION G-G



DETAIL C



DETAIL D



FOOTING PLAN

TABLE OF ELEVATIONS & RISERS

PIER 1						PIER 4					
Beam	Elev.	Riser	Beam	Elev.	Riser	Beam	Elev.	Riser	Beam	Elev.	Riser
1S1	651.61		2S1	651.61	6 3/8"	1N1	654.49		2N1	654.49	5 3/4"
1S2	653.56	1'-11 1/8"	2S2	652.12	5 1/4"	1N2	654.95	1'-11"	2N2	654.91	5 3/8"
1S3	654.04	5 3/4"	2S3	652.60	5 1/2"	1N3	656.80	5 3/8"	2N3	655.36	5 5/8"
1S4	654.50	5 1/2"	2S4	653.06	5 1/4"	1N4	657.22	5"	2N4	655.79	4 5/8"
1S5	654.74	5 1/4"	2S5	653.50	5"	1N5	657.61	4 5/8"	2N5	656.18	3 5/8"
1S6	655.35	4 3/8"	2S6	653.92	4 1/8"	1N6	657.91	3 1/4"	2N6	656.48	3 1/4"
1S7	655.69	4 1/8"	2S7	654.26	3 1/2"	1N7	658.18	3"	2N7	656.75	3"
1S8	655.98	3 1/2"	2S8	654.55	3 1/8"	1N8	658.43	2 5/8"	2N8	657.00	2 3/4"
1S9	656.24	3 1/8"	2S9	654.81	2 3/4"	1N9	658.65	1'-2 1/2"	2N9	657.23	2 1/2"
1S10	655.04	1'-2 3/8"	2S10	655.04		1N10	657.44		2N10	657.44	

Work this sheet with Sheets #155, 162 & 163

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER DETAILS

NO. 1 & 4

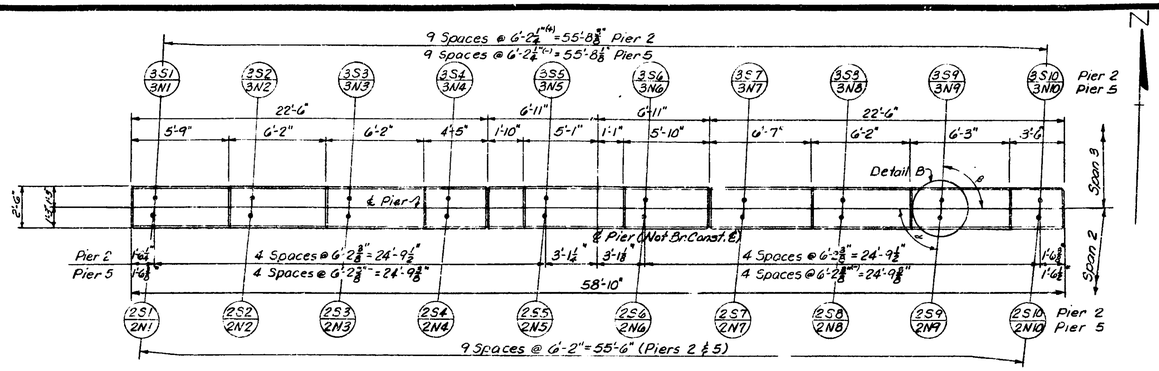
TECON ENGINEERS, INC.

REVISIONS

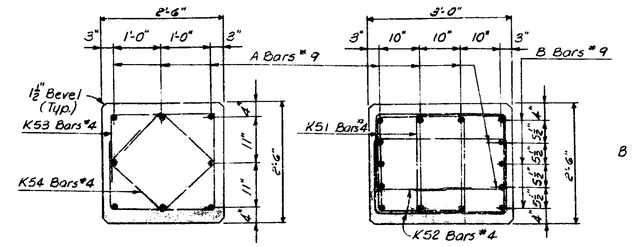
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	JCC	3-28-67
DRAWN BY	RFG	
TRACED BY		
CHECKED BY	WHC	3-6-67
SHEET 161 OF 312		

S03 OF 631741

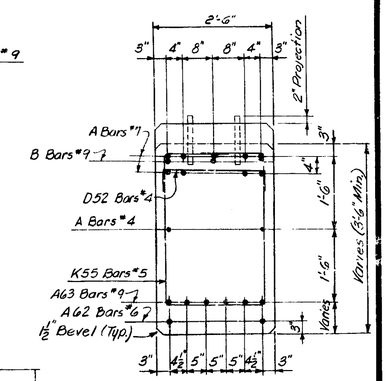


CAP PLAN

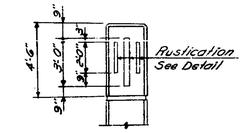


SECTION A-A

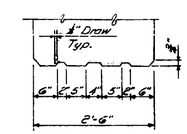
SECTION B-B



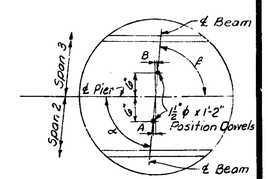
SECTION C-C



ELEVATION F-F

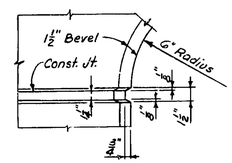


RUSTICATION DETAIL

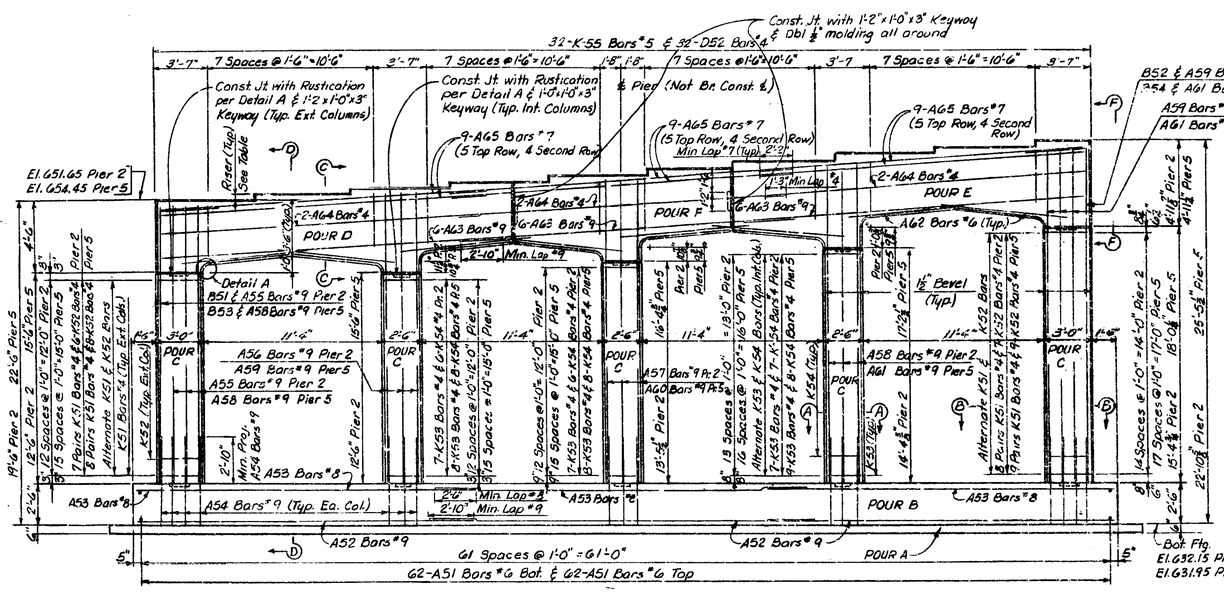


PIER	α	B	A	B
2	84°-18'-49.28"	86°-53'-16.85"	3/8	5/16
5	84°-28'-44.36"	87°-01'-18.55"	1/16	7/16

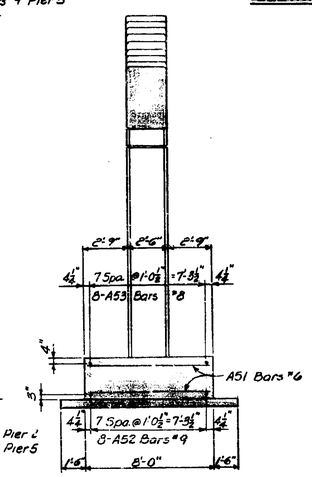
DETAIL B



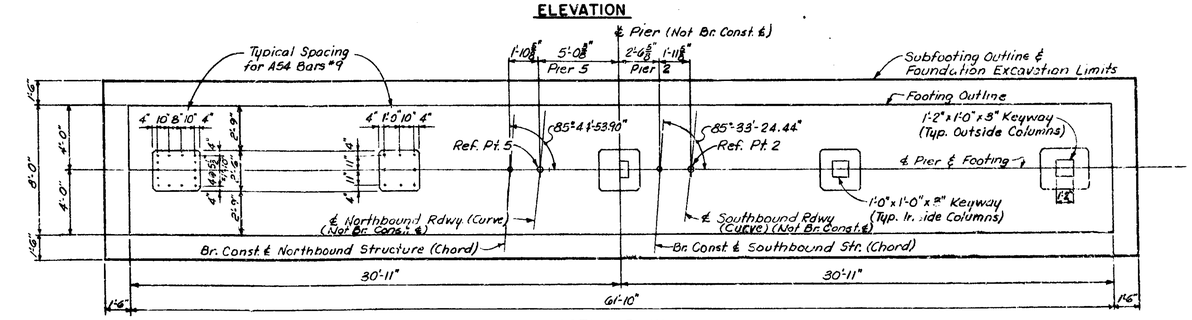
DETAIL A



ELEVATION



SECTION D-D



FOOTING PLAN

TABLE OF ELEVATIONS & RISERS

PIER 2			PIER 5		
@ Beam	Elev.	Riser	@ Beam	Elev.	Riser
2S1	651.65	5 7/8"	2N1	654.45	5 3/8"
2S2	652.14	5 5/8"	2N2	654.90	5 3/8"
2S3	652.61	5 1/2"	2N3	655.35	5 1/8"
2S4	653.07	5 1/2"	2N4	655.78	4 1/2"
2S5	653.51	4 3/8"	2N5	656.16	3 5/8"
2S6	653.92	4 1/8"	2N6	656.46	3 1/4"
2S7	654.26	3 1/2"	2N7	656.73	2 7/8"
2S8	654.55	3"	2N8	656.77	2 3/4"
2S9	654.80	2 7/8"	2N9	657.20	2 1/2"
2S10	655.04		2N10	657.41	

CONCRETE QUANTITIES — CUBIC YARDS																	
POUR	LOCATION	PIER 1		PIER 2		PIER 3		PIER 4		PIER 5		PIER 6	
		GR. A (6A)	GR. A (6AA)	GR. A (6A)	GR. A (6AA)	GR. A (6A)	GR. A (6AA)	GR. A (6A)	GR. A (6AA)	GR. A (6A)	GR. A (6AA)	GR. A (6A)	GR. A (6AA)
A	Subfooting	13.2		13.2		13.2		13.2		13.2		13.2	
B	Footing	45.8		45.8		45.8		45.8		45.8		45.8	
C	Columns		19.5		17.1		18.4		22.6		20.7		21.3
D	Cap		10.2		9.1		10.2		10.2		9.1		10.2
E	Cap		10.2		9.1		10.2		10.0		8.9		10.0
F	Cap		6.7		5.8		6.7		6.6		5.7		6.6
TOTAL		59.0	46.6	59.0	41.1	59.0	45.5	59.0	49.8	59.0	44.4	59.0	48.1

MISCELLANEOUS QUANTITIES							
ITEM	UNITS	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5	PIER 6
Unclass. Excav.	Cu. Yds.	130	78	109	121	32	100

Work this sheet with sheets # 155, 161 & 163

NOTES

For Bevel and Molding Details, see Standard Sheet 211.
Position Dowels shall be set accurately to a template.
Furnishing and setting of position dowels is incidental to substructure concrete.
The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of the position dowels.
The top of pier shall be finished to a true plane at the elevations shown and shall not vary more than 1/8" under a ten foot straight edge.

The design is based on a maximum foundation pressure of 3835 pounds per square foot and a minimum average foundation pressure of 3160 pounds per square foot.

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER DETAILS

NO. 2 & 5

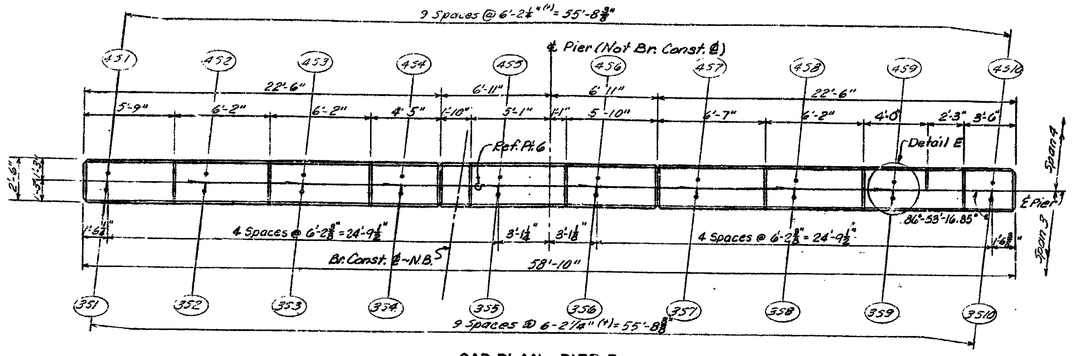
TECON ENGINEERS, INC.

REVISIONS

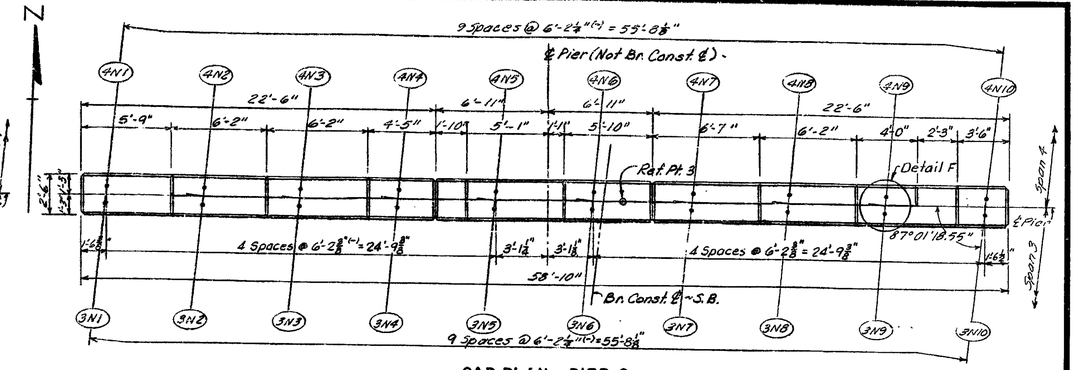
NO	DESCRIPTION	DATE	BY

SQUAD BOSS	JPC	3-28-62
DRAWN BY	EGF, ERFC	
TRACED BY		
CHECKED BY	WHC	3-6-62
SHEET 122 OF 312		

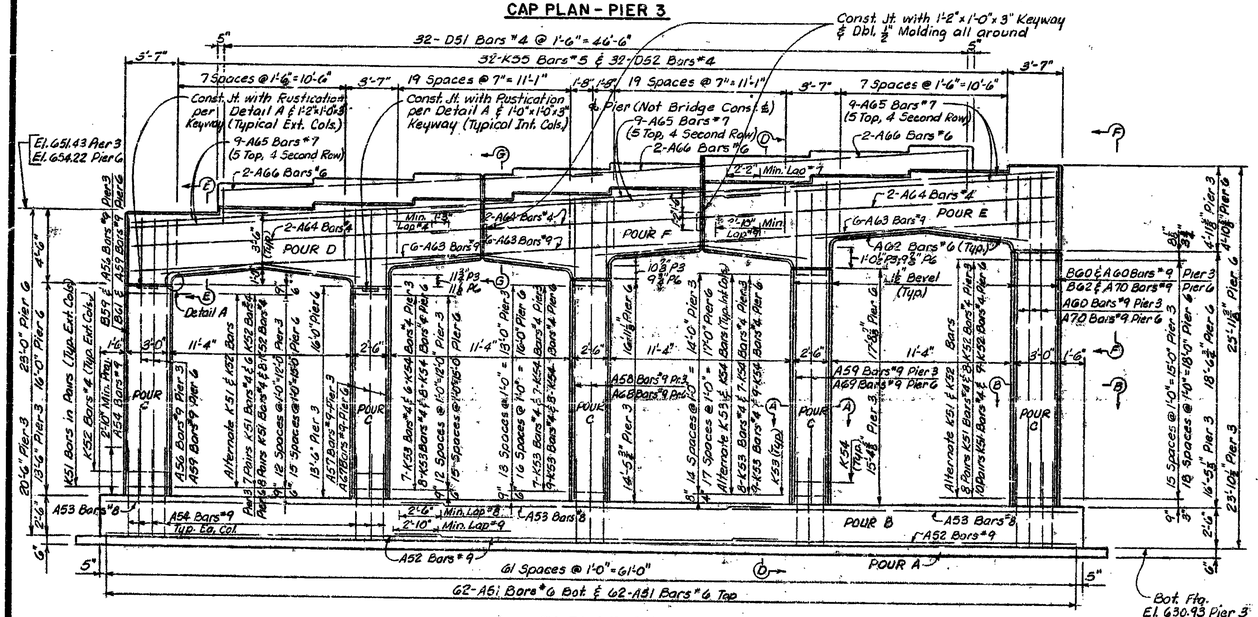
S03 OF 63174 I



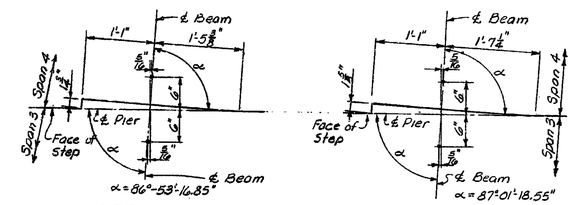
CAP PLAN - PIER 3



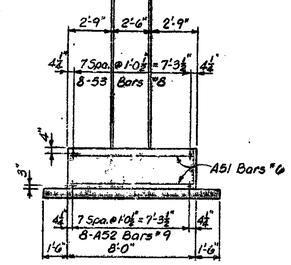
CAP PLAN - PIER 6



ELEVATION



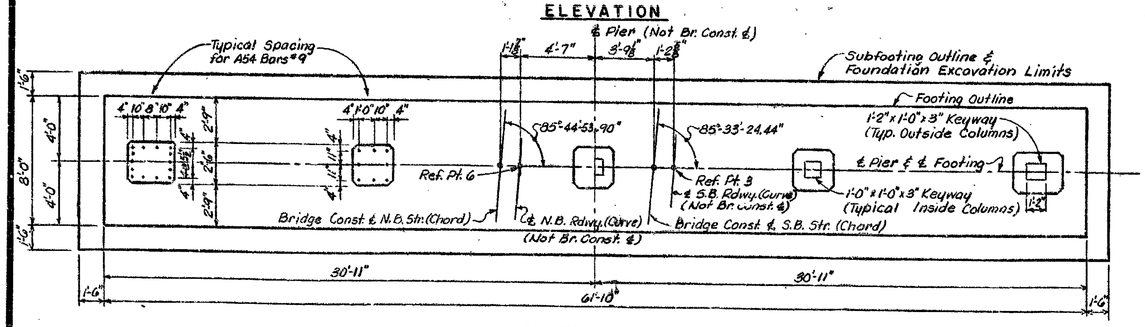
DETAIL E DETAIL F



SECTION D-D

TABLE OF ELEVATIONS & RISERS

PIER 3					PIER 6				
Beam	Elev.	Riser	Beam	Elev.	Riser	Beam	Elev.	Riser	Beam	Elev.	Riser
351	651.43		451	651.43		3N1	654.22		4N1	654.22	
		6"			1'-11⅛"			5¾"			1'-10⅛"
352	651.93		452	653.36		3N2	654.70		4N2	656.13	
		5¾"			5¾"			5⅜"			5⅜"
353	652.41		453	653.84		3N3	655.15		4N3	656.58	
		5½"			5½"			5⅛"			5⅛"
354	652.87		454	654.30		3N4	655.58		4N4	657.01	
		5¼"			5¼"			4½"			4½"
355	653.31		455	654.74		3N5	655.96		4N5	657.39	
		5"			5"			3¾"			3⅝"
356	653.73		456	655.16		3N6	656.27		4N6	657.69	
		4⅞"			4⅞"			3¼"			3¼"
357	654.07		457	655.50		3N7	656.54		4N7	657.96	
		3½"			3⅜"			2⅞"			2⅞"
358	654.36		458	655.78		3N8	656.78		4N8	658.20	
		3⅛"			3⅛"			2¾"			2¾"
359	654.62		459	656.04		3N9	657.01		4N9	658.43	
		2⅞"			1'-2⅞"			1⅞"			1'-3⅛"
3510	654.80		4510	654.80		3N10	657.17		4N10	657.17	



FOOTING PLAN

Work this sheet with sheets #155, 161 & 162

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER DETAILS

NO. 3 & 6

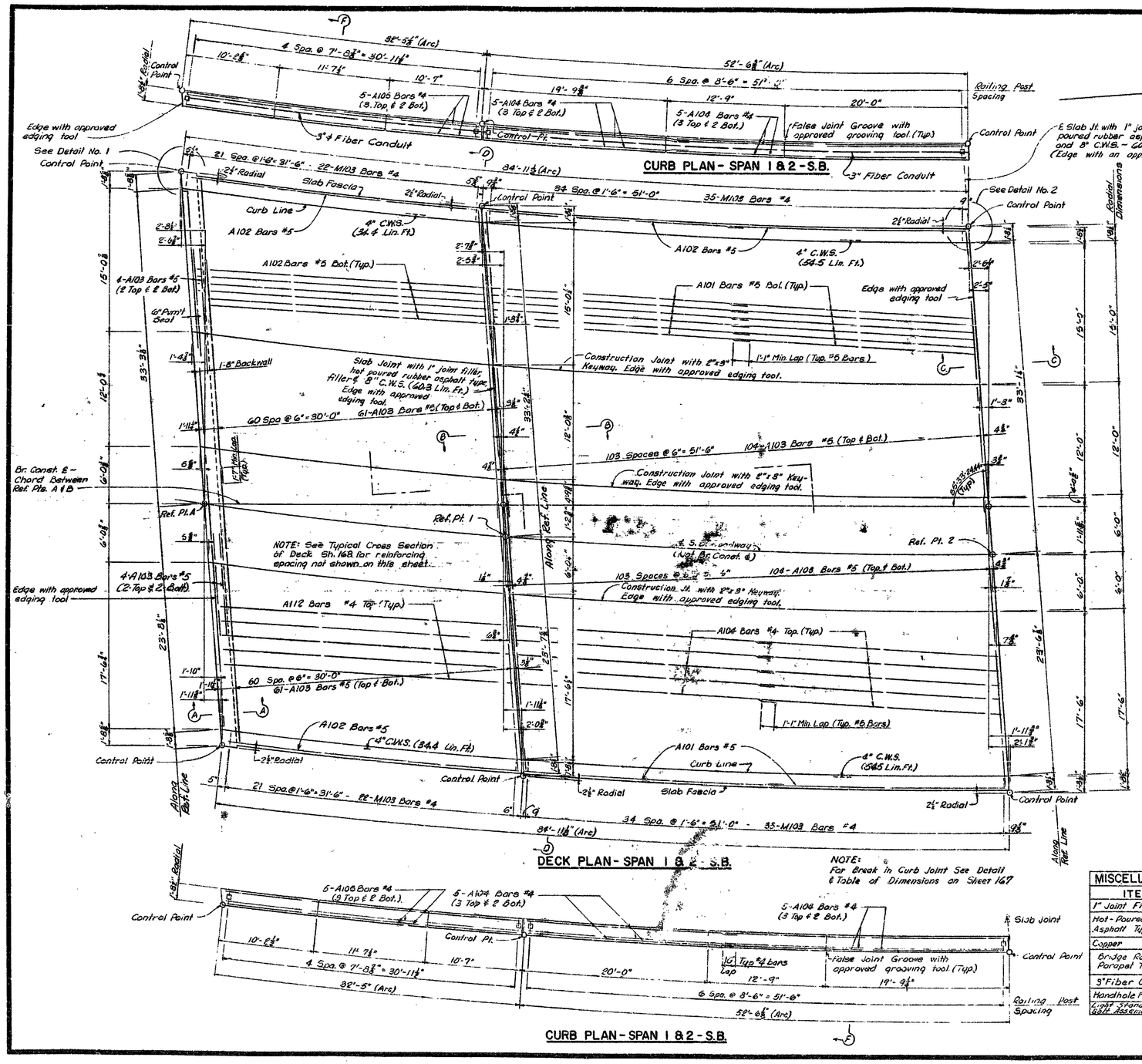
TECON ENGINEERS, INC.

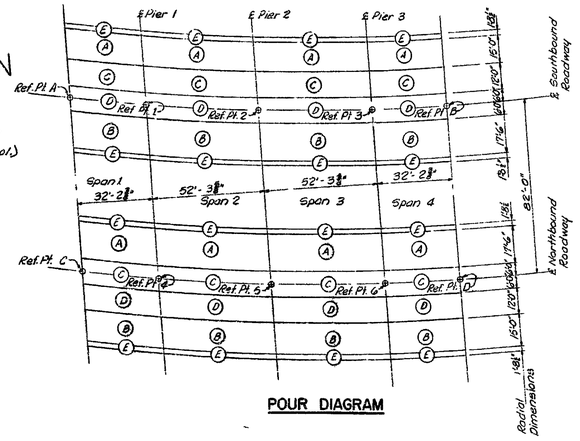
REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	JDC	3-28-62
DRAWN BY	RFC	
TRACED BY		
CHECKED BY	WHC	3-30-62
SHEET	163 of 312	

S03 OF 631741





POUR DIAGRAM

CU. YDS. CONCRETE GRADE A (6AA)								
POUR	S. B. STRUCTURE				N. B. STRUCTURE			
	SPAN 1	SPAN 2	SPAN 3	SPAN 4	SPAN 1	SPAN 2	SPAN 3	SPAN 4
A	14.9	24.7	24.6	14.8	17.1	28.2	28.1	16.9
B	16.6	27.4	27.3	16.4	14.3	23.7	23.6	14.2
C	10.6	17.6	17.6	10.5	10.5	17.4	17.4	10.4
D	10.5	17.4	17.4	10.4	10.4	17.2	17.2	10.3
E	3.4	5.5	5.5	3.4	3.4	5.5	5.5	3.4
Diaph.	4.2	7.7	7.8	4.2	4.2	7.7	7.8	4.2
Total	60.2	100.3	100.2	59.7	59.9	99.7	99.6	59.4
Total Concrete S.B. Structure 320.4 Total Concrete N.B. Structure 318.6								
Total Concrete for both Structures ~ 639.0								

NOTE: Concrete Pours, as located, need not be placed in alphabetical order.

GENERAL NOTES

C.W.S. indicates Copper Waterstop.
J.W.P. indicates Joint Waterproofing.
For Bevel and Molding Details not shown, see M.S.H.D. Std. Dwg. R11.
Edge and Groove denotes edging or grooving with an approved tool.
Sidewalk pours shall not be cast until slab concrete has attained at least 60% of its design strength as determined by the table in Section 5.01.03 of the Standard Specifications.
All dimensions are laid out parallel or perpendicular to Bridge Construction ℄ (chord between Reference Points A and B on Southbound Structure and Reference Points C and D on the Northbound Structure), except as noted or shown. Place transverse slab reinforcing parallel to ℄ Piers and Abutments, and longitudinal slab reinforcing parallel to ℄ Beams except as noted.
For Railing Details See Sheet 171

MISCELLANEOUS QUANTITIES				
ITEM	UNIT	S. B.	N. B.	AMT.
1" Joint Filler	Sq. Ft.	106	106	212
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	185	185	370
Copper	Lbs.	238	238	476
Bridge Railing - Parapet Type	Lin. Ft.	337.8	337.8	675.4
3" Fiber Conduit	L.F.	168	72	240
Handhole Frame & Cover	Each	1	1	2
Light Standard Anchor Bolt Assembly	Each	1	1	2

Work this Sheet with Sheets 165 thru 171

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS
SOUTHBOUND - SPANS 1 & 2

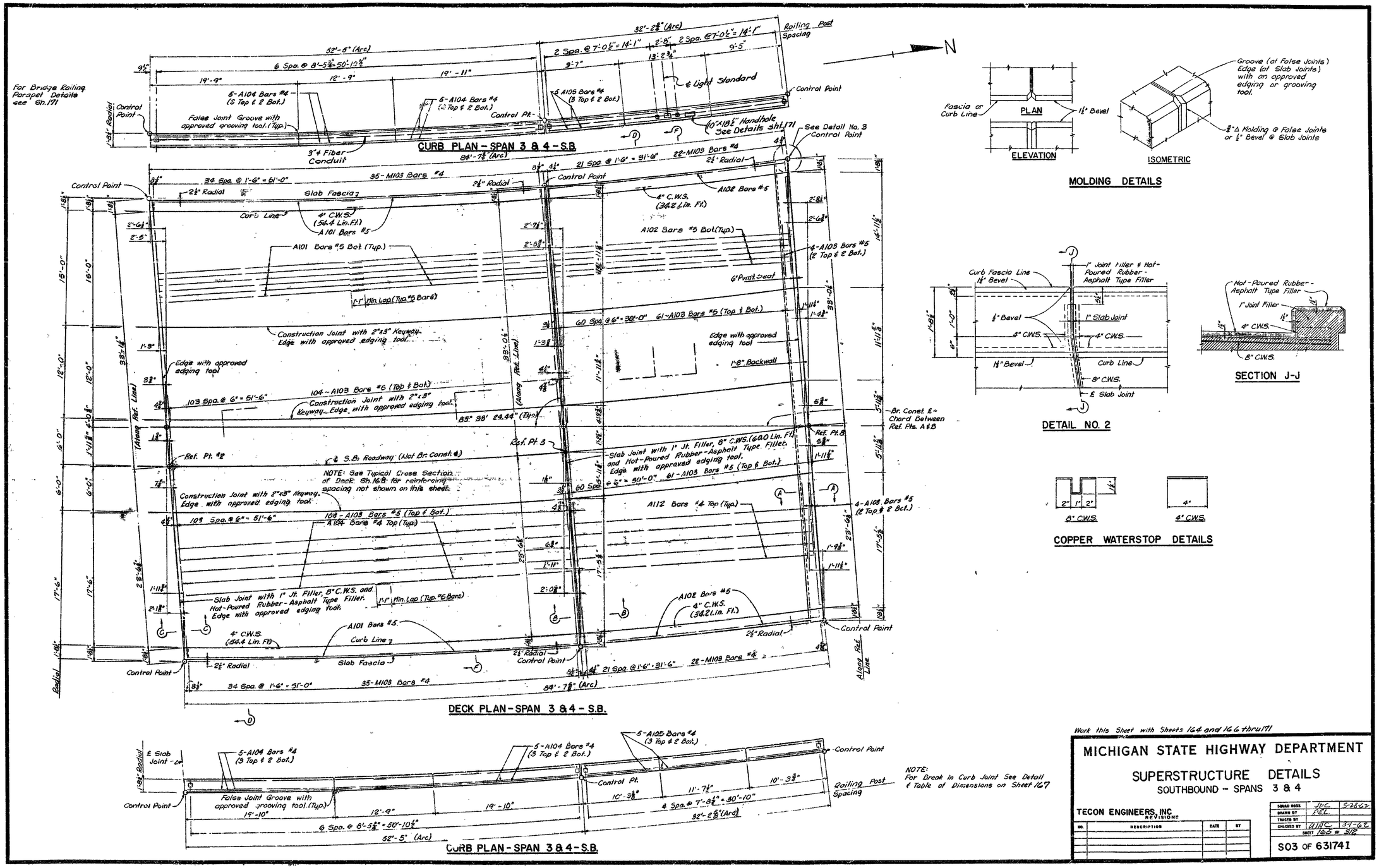
TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	JBC	3-28-62
DRAWN BY	PEL	
TRACED BY		
CHECKED BY	JJHC	3-28-62
SHEET	162 of 312	

S03 OF 631741



Work this Sheet with Sheets 164 and 166 thru 171

MICHIGAN STATE HIGHWAY DEPARTMENT

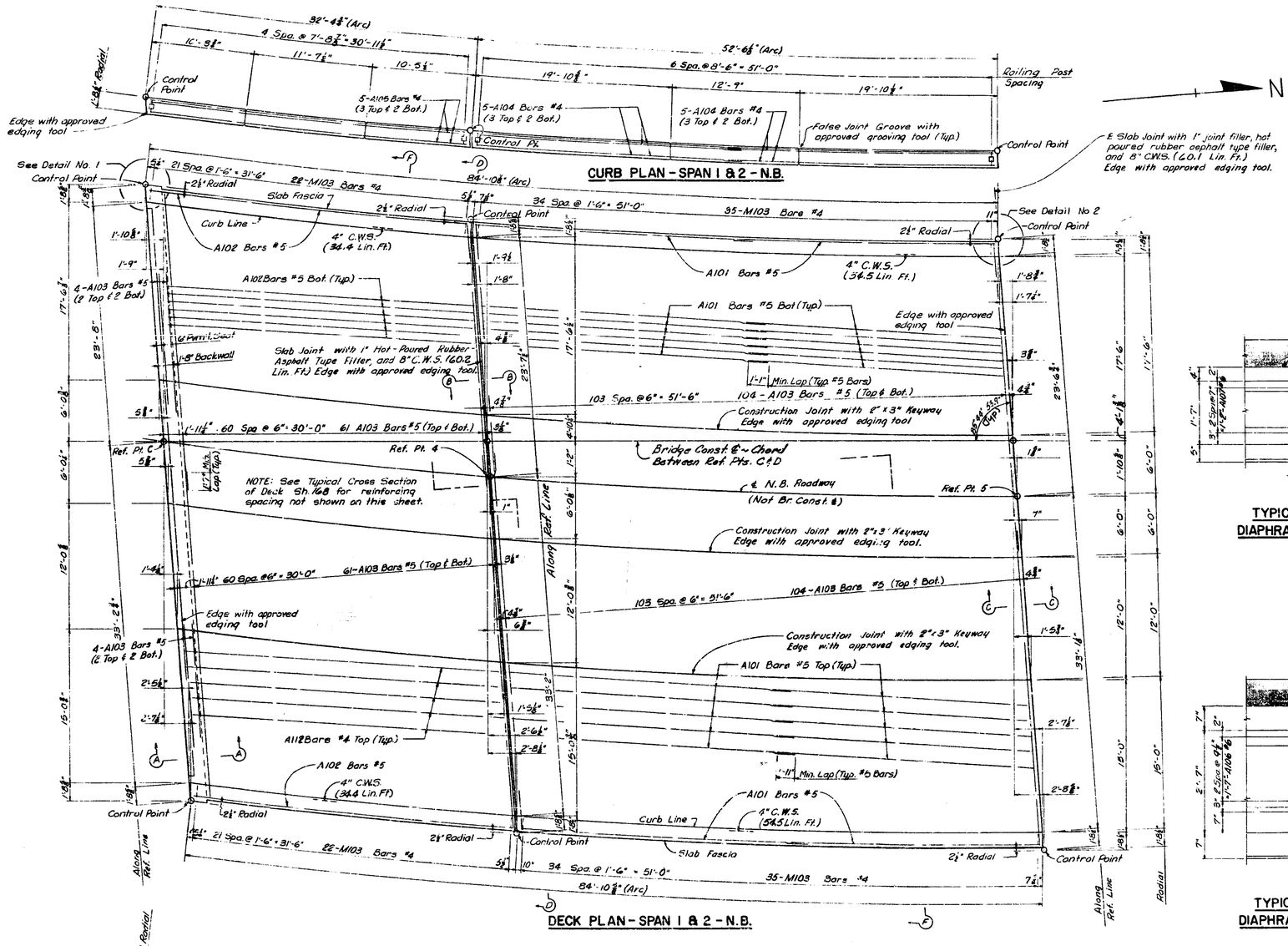
SUPERSTRUCTURE DETAILS
SOUTHBOUND - SPANS 3 & 4

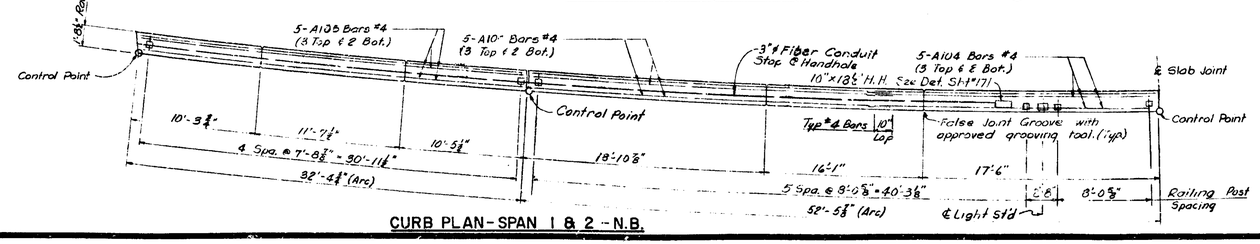
TECON ENGINEERS, INC.

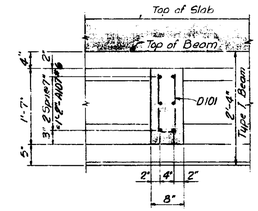
NO.	DESCRIPTION	DATE	BY
	REVISIONS		

SQUAD BOSS	JJC	5-28-62
DRAWN BY	PEL	
TRACED BY		
CHECKED BY	JJC	3-1-62
SHEET	165 OF 372	

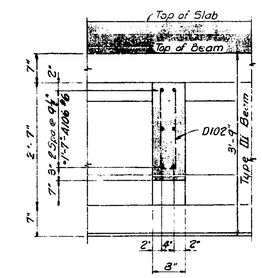
S03 OF 631741



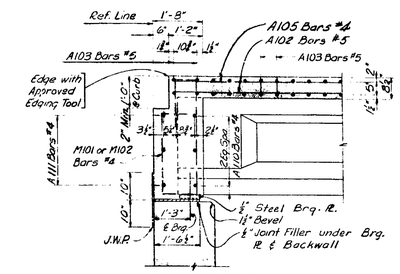




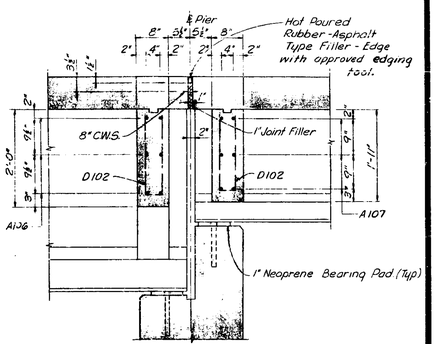
TYPICAL INTERIOR DIAPHRAGMS SPAN 1 & 4



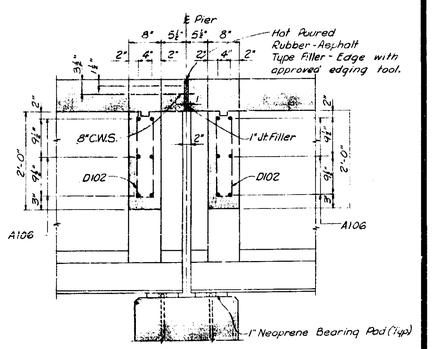
TYPICAL INTERIOR DIAPHRAGMS SPAN 2 & 3



SECTION A-A



SECTION B-B



SECTION C-C

NOTE:
For Break in Curb Joint See Detail & Table of Dimensions on Sheet 167

Work this Sheet with Sheets 164, 165 and 167 thru 171

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

NORTHBOUND - SPANS 1 & 2

TECON ENGINEERS, INC.

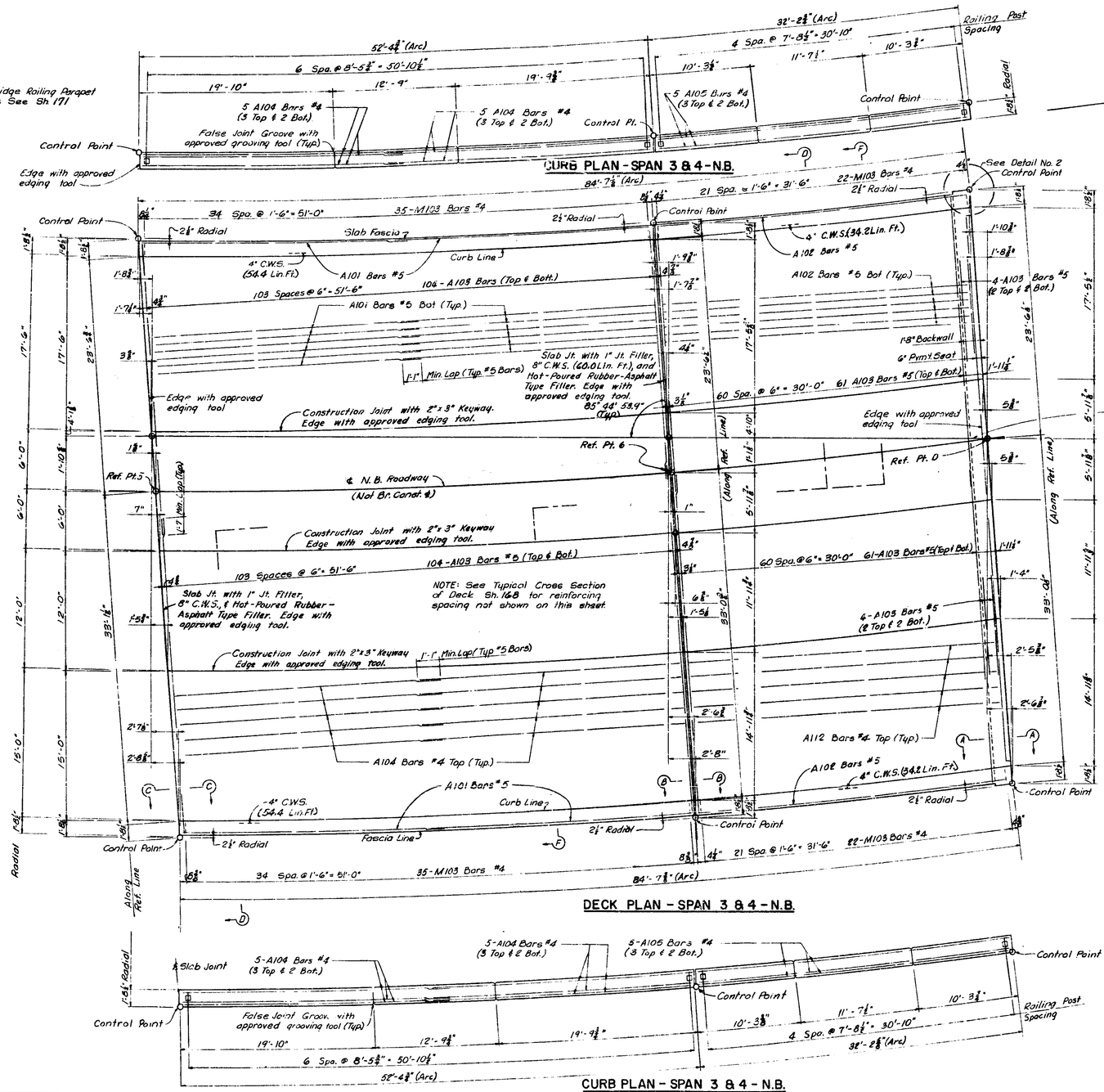
REVISIONS

NO.	DESCRIPTION	DATE	BY

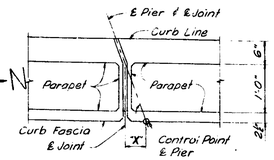
SQUAD BOSS	JDC	3-28-62
DRAWN BY	PEC	
TRACED BY		
CHECKED BY	WNP	3-2-62
SHEET 166 OF 312		

S03 OF 63174 I

NOTE:
For Bridge Railing Parapet Details See Sh. 171



NOTE:
For Break in Curb Joint See Detail & Table of Dimensions on this Sheet.



EXPANSION JOINT DETAILS AT PARAPET

DIMENSION "X"	S.B. STR.	N.B. STR.
Pier 1-4	1⅞"	1⅞"
Pier 2-5	1⅞"	1⅞"
Pier 3-6	⅞"	⅞"

Dimension "X" is measured along the Curb Fascia

Work this Sheet with Sheets 164 thru 166 and 168 thru 171

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS
NORTHBOUND - SPANS 3 & 4

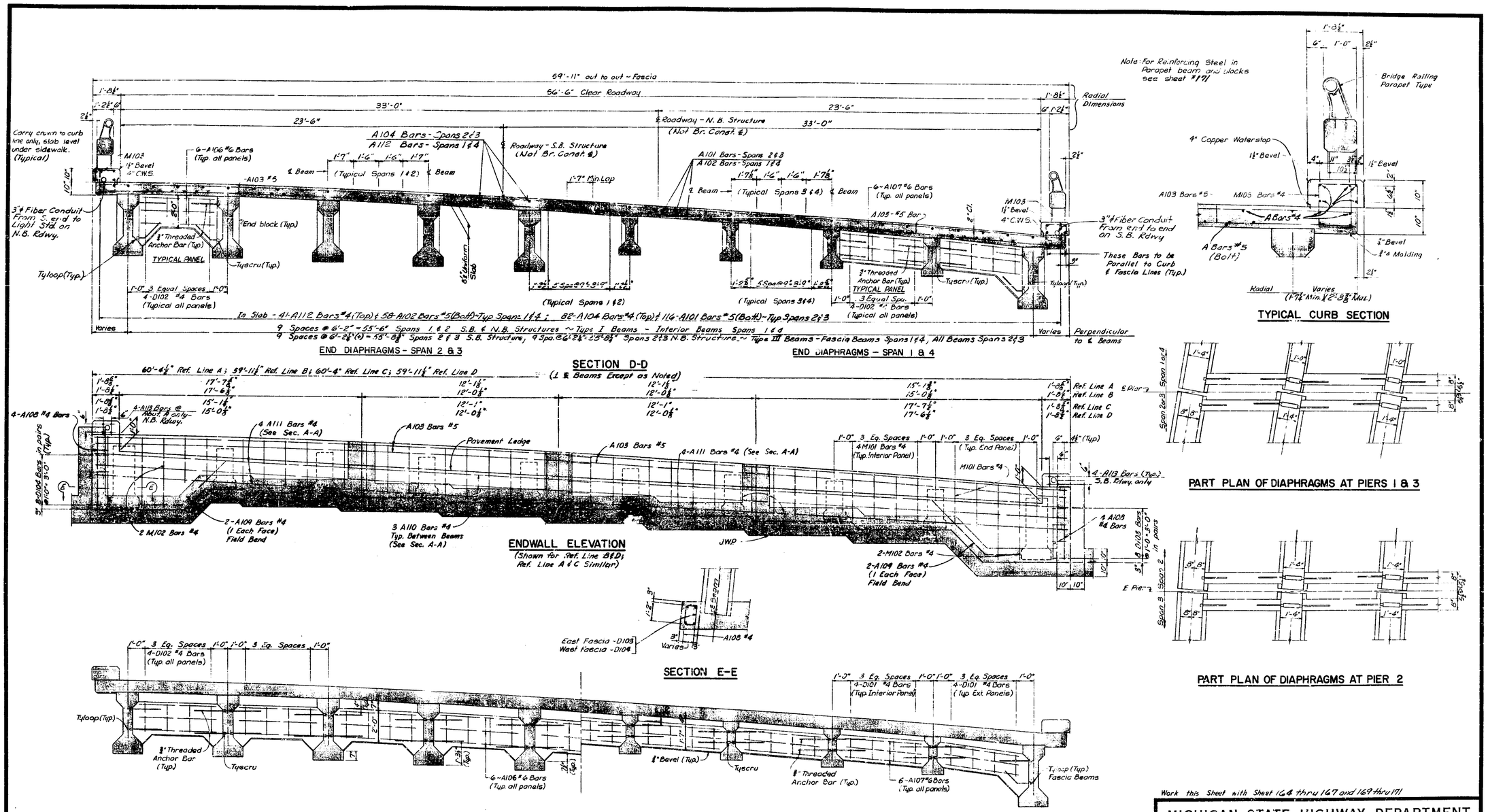
TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	JDC	3-28-62
DRAWN BY	FEL	
TRACED BY		
CHECKED BY	WHR	3-2-62
SHEET 167 OF 312		

S03 OF 63174 I



Work this Sheet with Sheet 164 thru 167 and 169 thru 171

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

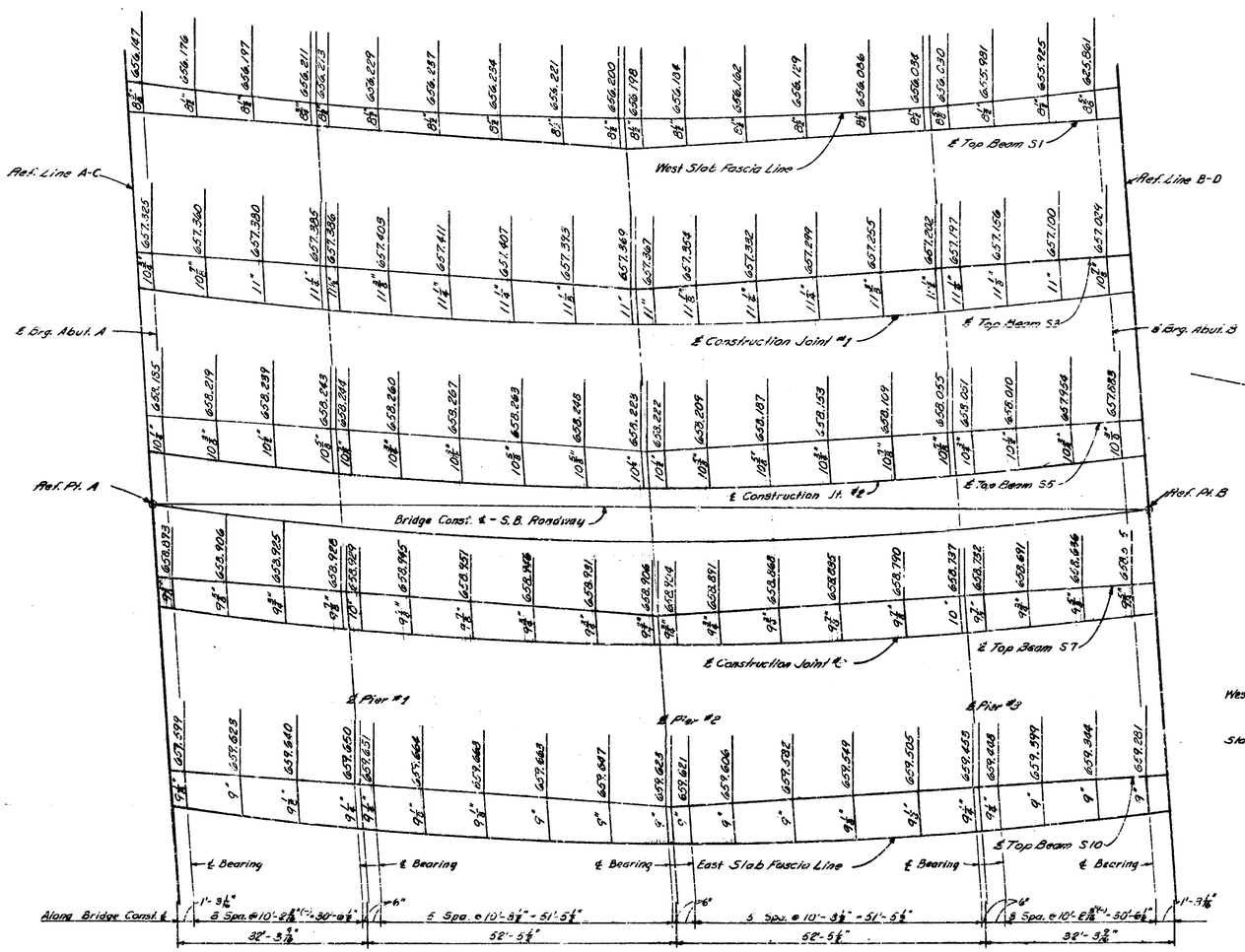
REVISIONS

NO	DESCRIPTION	DATE	BY

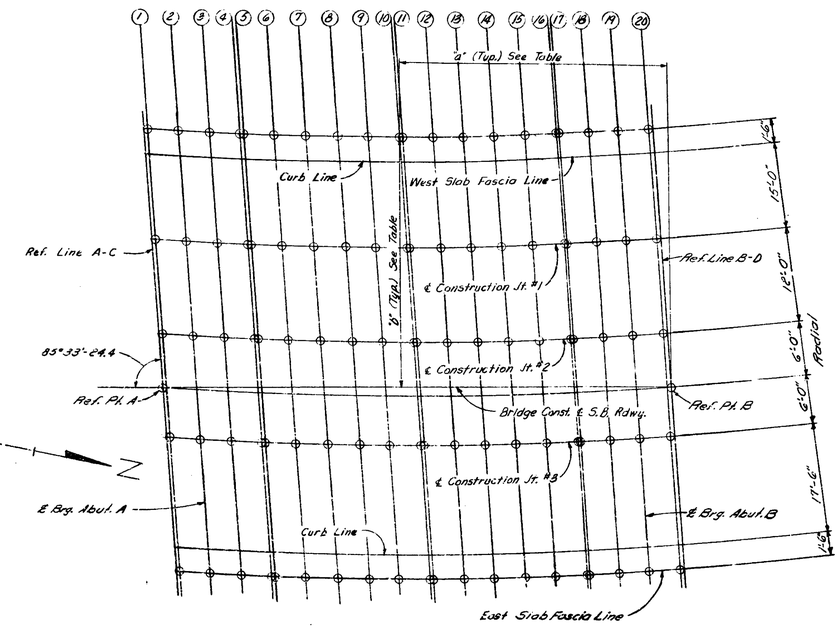
SQUAD BOSS	JDC	5-26-62
DRAWN BY	RBL	
TRACED BY		
CHECKED BY	WHC	2-28-62

SHEET 168 OF 312

S03 OF 63174 I

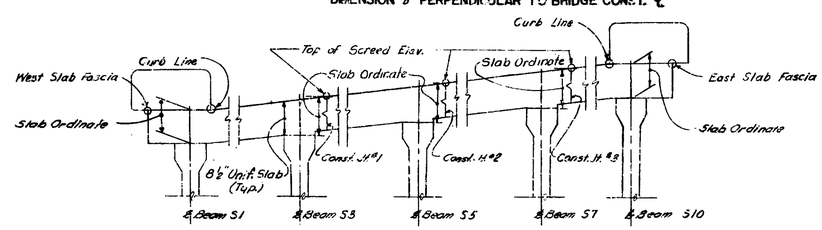


SCREED ELEVATION AND SLAB ORDINATE DIAGRAM



SLAB LAYOUT DIAGRAM

NOTE: DIMENSION "a" PARALLEL TO BRIDGE CONST. ℄
DIMENSION "b" PERPENDICULAR TO BRIDGE CONST. ℄



SHOWING HOW SLAB ORDINATES AND SCREED ELEVATIONS ARE TAKEN

TABLE OF ORDINATES FOR SLAB LAYOUT DIAGRAM

Screed Lines	Line A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Line B
W. Slab Fascia "a"		170'-1 7/16"	160'-0 5/8"	150'-0 5/8"	140'-3 5/8"	139'-3 5/8"	128'-11 7/16"	118'-8 5/8"	108'-4 5/8"	98'-0 5/8"	87'-9 5/8"	86'-9 5/8"	76'-5 5/8"	66'-2 5/8"	55'-11 1/16"	45'-7 5/8"	35'-4 5/8"	34'-4 5/8"	24'-2 5/8"	14'-0 5/8"	3'-11 1/16"	
"b"		34'-7 5/8"	34'-1 3/8"	33'-8 5/8"	33'-4 5/8"	33'-4 5/8"	33'-1"	32'-10 5/8"	32'-8 5/8"	32'-6 5/8"	32'-7"	32'-6 5/8"	32'-6 5/8"	32'-7 5/8"	32'-9 5/8"	32'-11 5/8"	33'-2 5/8"	33'-6 5/8"	33'-11 5/8"	34'-4 5/8"		
℄ Const. Jt. #1 "a"		169'-7 7/8"	159'-5 1/4"	149'-2 5/8"	139'-0 1/8"	138'-0 1/8"	127'-8 1/2"	117'-6 5/8"	107'-1 1/8"	96'-9 7/8"	86'-6"	85'-6"	75'-2 5/8"	64'-11 1/8"	54'-7 3/8"	44'-3 5/8"	34'-1 1/8"	33'-1 1/8"	22'-11 3/8"	12'-9 1/2"	2'-7 3/8"	
"b"		18'-0 5/8"	17'-6 3/8"	17'-2 5/8"	16'-10 5/8"	16'-9 5/8"	16'-6 5/8"	16'-4"	16'-2"	16'-0 5/8"	15'-0 5/8"	16'-0 5/8"	16'-0 5/8"	16'-1 5/8"	16'-3 5/8"	16'-5 5/8"	16'-8 5/8"	16'-9 5/8"	17'-1 5/8"	17'-5 5/8"	17'-10 5/8"	
℄ Const. Jt. #2 "a"		168'-8 5/8"	158'-6"	148'-3 1/8"	138'-1"	137'-1"	126'-9 1/4"	116'-5 5/8"	106'-1 7/8"	95'-10 7/8"	85'-6 5/8"	84'-6 5/8"	74'-3 5/8"	63'-11 7/8"	53'-8 1/8"	43'-5 5/8"	33'-2"	32'-2"	22'-0 5/8"	1'-10 5/8"	1'-8 5/8"	
"b"		5'-11 5/8"	5'-6 5/8"	5'-1 5/8"	4'-9 5/8"	4'-9 5/8"	4'-6 5/8"	4'-3 3/8"	4'-1 1/8"	4'-0 5/8"	4'-0 5/8"	4'-0 5/8"	4'-0 5/8"	4'-1 5/8"	4'-3 5/8"	4'-6"	4'-9 1/8"	4'-9 5/8"	5'-1 5/8"	5'-5 5/8"	5'-11 1/8"	
℄ Const. Jt. #3 "a"		167'-9 3/8"	157'-6 3/8"	147'-3 5/8"	137'-1 5/8"	136'-1 5/8"	125'-10 1/8"	115'-6 3/8"	105'-2 3/4"	94'-11 1/8"	84'-7 5/8"	83'-7 5/8"	73'-4 1/8"	63'-0 5/8"	52'-9 3/8"	42'-6 5/8"	32'-2 5/8"	31'-2 5/8"	21'-1"	10'-11 1/8"	0'-9 3/8"	
"b"		6'-1"	6'-6 1/4"	6'-10 1/8"	7'-2 5/8"	7'-3"	7'-6"	7'-8 1/8"	7'-10 1/4"	7'-11 1/8"	7'-11 5/8"	7'-11 5/8"	7'-11 5/8"	7'-10"	7'-8 1/4"	7'-5 3/8"	7'-2 5/8"	7'-2 1/8"	6'-10 1/8"	6'-5 3/8"	6'-0 1/4"	
E. Slab Fascia "a"		166'-3 3/8"	156'-1"	145'-10 1/8"	135'-8 1/8"	134'-8 1/8"	124'-4 7/8"	114'-2 1/8"	103'-9"	93'-6 3/8"	83'-3 1/8"	82'-1 3/8"	71'-11 1/8"	61'-7"	51'-3 5/8"	41'-0 1/8"	30'-9 7/8"	29'-9 7/8"	19'-7 3/8"	9'-5 1/8"	-0'-8 3/8"	
"b"		25'-2"	25'-7 1/8"	25'-11 7/8"	26'-3 3/8"	26'-3 3/8"	26'-6 1/8"	26'-8 5/8"	26'-10 7/8"	25'-11 7/8"	26'-1 7/8"	26'-1 7/8"	25'-11 7/8"	26'-3 3/8"	26'-6"	26'-5 3/8"	26'-2 5/8"	26'-1 7/8"	25'-9 3/8"	25'-3 1/8"	25'-0"	

Work this Sheet with Sheets 164 thru 168, 170 & 171

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

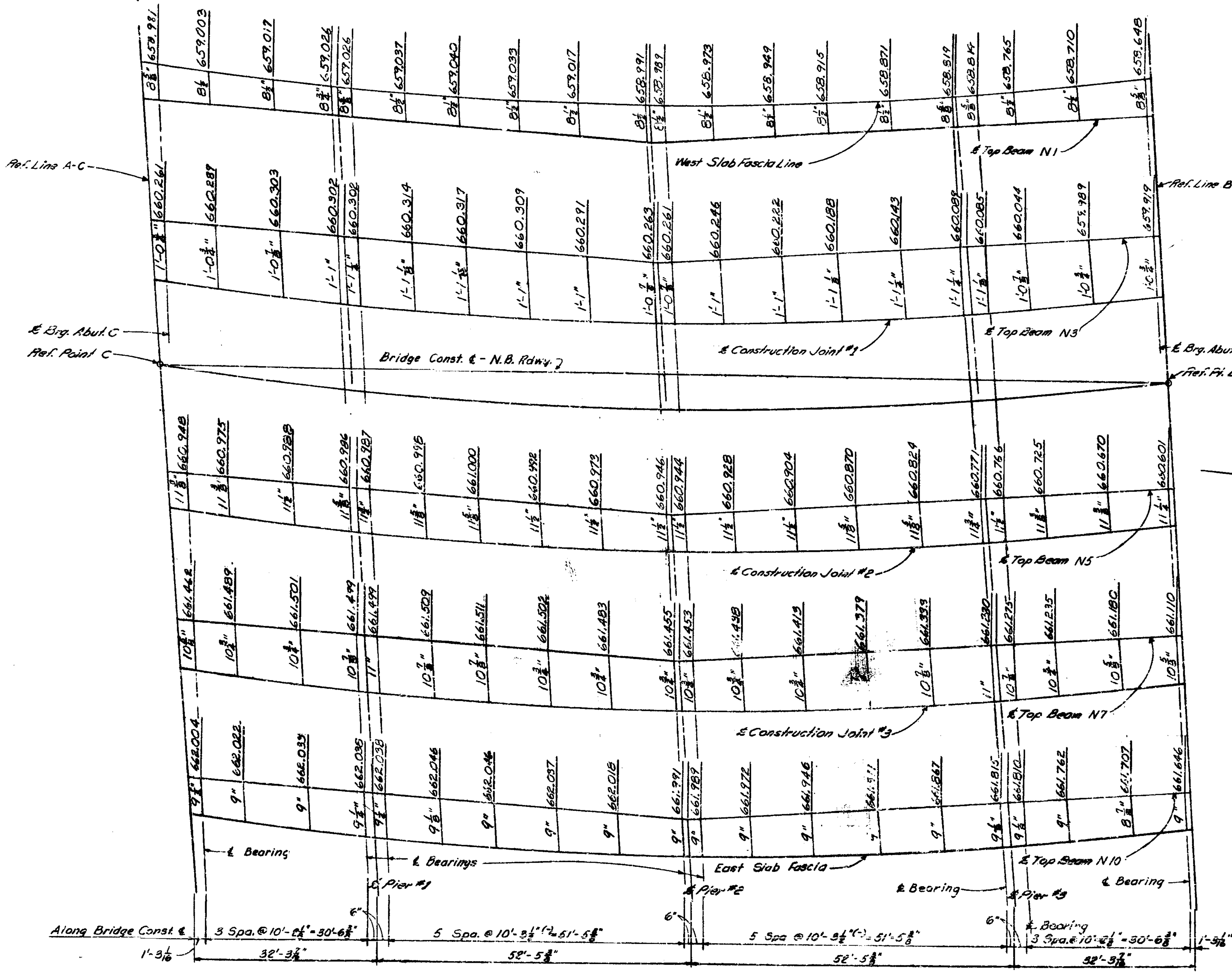
S. B. STRUCTURE

REVISIONS

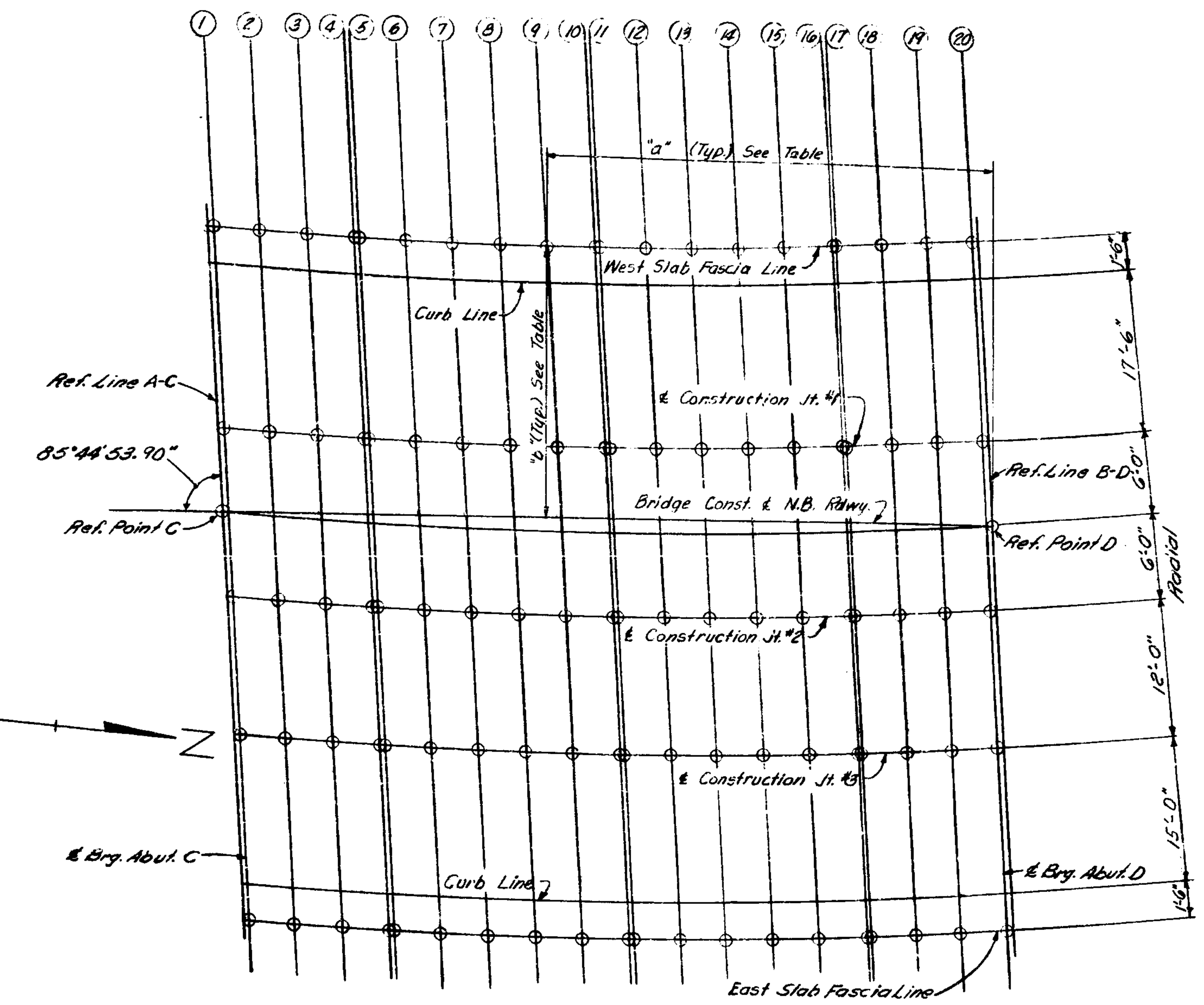
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	JDC	3-28-62
DRAWN BY	E.G.J.	
TRACED BY		
CHECKED BY	RFC	3-10-62
SHEET 169 OF 312		

S03 OF 63174I

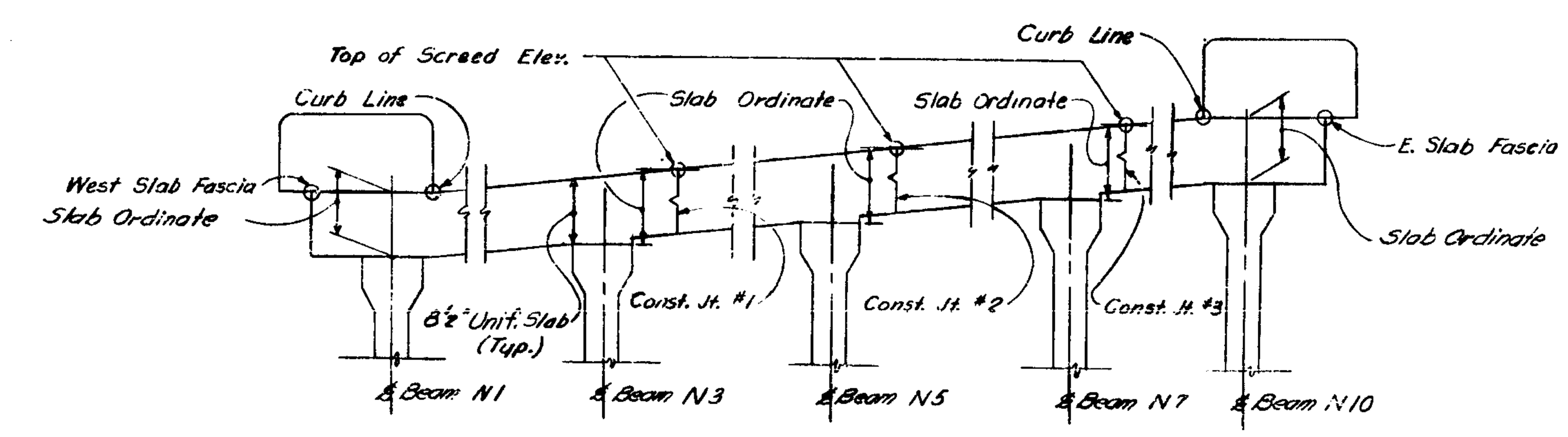


SCREED ELEVATION AND SLAB ORDINATE DIAGRAM



SLAB LAYOUT DIAGRAM

NOTE: DIMENSION "a" PARALLEL TO BRIDGE CONST. ℄.
DIMENSION "b" PERPENDICULAR TO BRIDGE CONST. ℄.



SHOWING HOW SLAB ORDINATES AND SCREED ELEVATIONS ARE TAKEN

TABLE OF ORDINATES FOR SLAB LAYOUT DIAGRAM

Screed Lines	Line C	1	2	3	4	5	6	7	8	9	10
W. Slab Fascia "a"		170'-0 7/8"	159'-10 7/8"	149'-7 7/8"	139'-5 1/2"	138'-5 1/2"	128'-1 3/4"	117'-10 1/8"	107'-6 1/2"	97'-2 7/8"	86'-11 3/8"
"b"		25'-0 5/8"	24'-7 3/8"	24'-2 7/8"	23'-11"	23'-10 5/8"	23'-7 3/8"	23'-4 7/8"	23'-3 1/8"	23'-1 7/8"	23'-1 1/2"
℄ Const. Jt. #1 "a"		168'-7 7/8"	158'-5 5/8"	148'-2 7/8"	138'-0 1/2"	137'-0 1/2"	126'-8 3/4"	116'-5 1/8"	106'-1 1/2"	95'-10"	85'-6 1/2"
"b"		5'-11 5/8"	5'-6 5/8"	5'-2 1/8"	4'-10 3/8"	4'-10"	4'-7"	4'-4 5/8"	4'-2 7/8"	4'-1 7/8"	4'-1 1/2"
℄ Const. Jt. #2 "a"		167'-9 1/8"	157'-6 5/8"	147'-4 1/8"	137'-1 3/4"	136'-1 3/4"	125'-10	115'-6 3/8"	105'-2 3/4"	94'-11 1/8"	84'-7 3/4"
"b"		6'-1"	6'-6"	6'-10 1/4"	7'-2"	7'-2 1/4"	7'-5 1/4"	7'-7 5/8"	7'-9 1/4"	7'-10 1/4"	7'-10 1/2"
℄ Const. Jt. #3 "a"		166'-11 3/8"	156'-7 7/8"	146'-5 3/8"	136'-3"	135'-3"	124'-11 3/8"	114'-7 3/4"	104'-4 1/8"	94'-0 1/2"	83'-9"
"b"		18'-1 1/2"	18'-6 1/2"	18'-10 3/4"	19'-2 1/4"	19'-2 5/8"	19'-5 1/2"	19'-7 3/4"	19'-9 3/8"	19'-10 1/4"	19'-10 1/2"
E. Slab Fascia "a"		165'-7 1/2"	155'-5 1/2"	145'-2 5/8"	135'-0 1/4"	134'-0 1/4"	123'-8 5/8"	113'-5	103'-1 3/8"	92'-9 7/8"	82'-6 3/8"
"b"		34'-8 3/8"	35'-1 1/8"	35'-5 1/4"	35'-8 3/4"	35'-9"	35'-11 7/8"	36'-2"	36'-3 1/2"	36'-4 3/4"	36'-4 1/2"

Screed Lines	11	12	13	14	[illegible]	16	17	18	19	20	Line D
W. Slab Fascia "a"	85'-11 3/8"	75'-8"	65'-4 5/8"	55'-1 1/4"	[illegible] 7/8"	34'-6 5/8"	33'-6 5/8"	23'-3 7/8"	13'-5"	3'-1 1/4"	
"b"	23'-1 1/2"	23'-1 3/4"	23'-2 5/8"	23'-4 1/4"	[illegible]'-6 1/2"	23'-[illegible]	[illegible]'-9 3/4"	24'-1 3/4"	24'-5 1/4"	24'-10 5/8"	
℄ Const. Jt. #1 "a"	84'-6 1/2"	74'-3"	63'-11 5/8"	53'-8[illegible]	[illegible]'-5"	33'-10"	32'-1 3/4"	21'-11 5/8"	11'-10 1/8"	1'-5 5/8"	
"b"	4'-1 1/2"	4'-1 3/4"	4'-2 3/4"	4'-4[illegible]	4'-6 3/4"	4'-9 1/8"	4'-10 1/8"	5'-1 3/8"	5'-6 1/8"	5'-11 1/8"	
℄ Const. Jt. #2 "a"	83'-7 3/4"	73'-4 3/8"	63'-0 7/8"	52'-9 3/8"	42'-6 1/4"	32'-3"	31'-3[illegible]	21'-1 1/4"	10'-11 3/8"	0'-9 5/8"	
"b"	7'-10 1/2"	7'-10 1/8"	7'-9 1/8"	7'-7 3/8"	7'-5"	7'-[illegible] 3/8"	7'-1 3/8"	6'-9 7/8"	6'-5 1/2"	6'-0 1/2"	
℄ Const. Jt. #3 "a"	82'-9"	72'-5 5/8"	62'-2 1/4"	51'-10 7/8"	41'-1 3/8"	31'-4 3/8"	30'-4 5/8"	20'-2 1/2"	10'-0 3/4"	-0'-1"	
"b"	19'-10 1/2"	19'-10 1/8"	19'-9"	19'-7 1/4"	19'-4 3/8"	19'-1 5/8"	19'-1 3/8"	18'-9 5/8"	18'-5 1/4"	18'-0 1/8"	
E. Slab Fascia "a"	81'-6 3/8"	71'-2 7/8"	60'-11 1/2"	50'-8 1/4"	40'-4 7/8"	30'-1 5/8"	29'-1 5/8"	18'-11 7/8"	8'-10"	-1'-3 3/8"	
"b"	36'-4 1/2"	36'-4"	36'-2 3/8"	36'-1"	35'-10 1/2"	35'-7 3/8"	35'-7"	35'-3 1/4"	34'-10 3/8"	34'-5 3/8"	

GENERAL NOTES

Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by the table in Section 5.01.03 of the Standard Specifications.

Elevations shown are for top of screed before pouring any concrete and are based on a minimum slab thickness of 8½". After screeds are set, if check indicates that less than the minimum thickness will be obtained, adjust screeds accordingly.

The slab ordinates shown provide for dead load deflection, vertical curve, crown, beam camber & superelevation, and are to be measured from the top of the beam indicated (on a line parallel to the reference lines) to the top of the screed.

Work this Sheet with Sheets 164 thru 169, and 171

MICHIGAN STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE DETAILS
N. B. STRUCTURE

REVISIONS

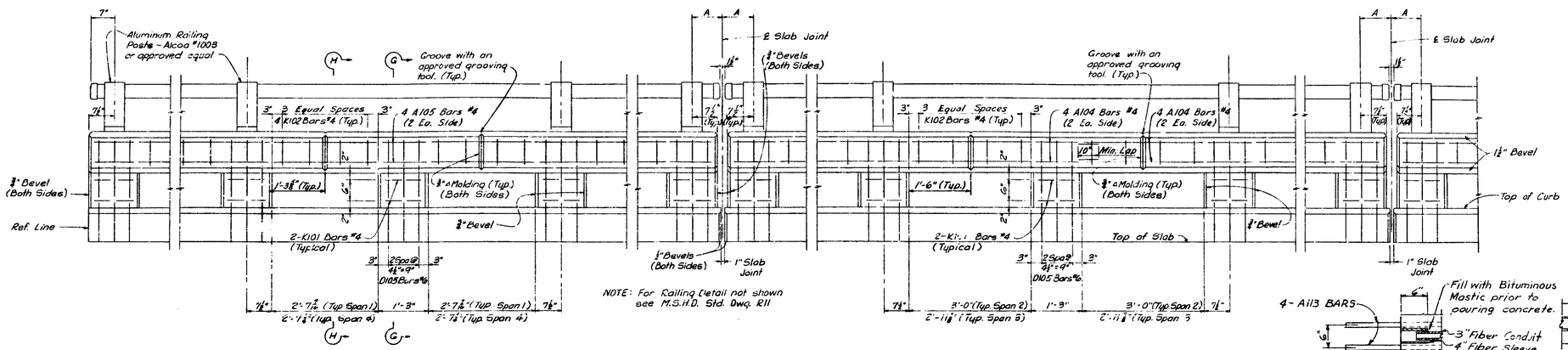
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	JDC	3-28-67
DRAWN BY	E.G.P.	
TRACED BY		
CHECKED BY	RFC	3-10-67

SHEET 170 OF 312

S03 OF 63174 I

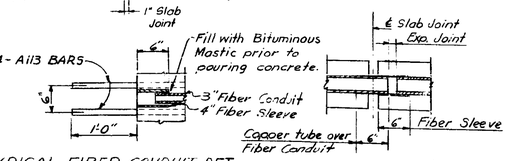
NOTE: Longitudinal bars thru Parapet shown here are typical except as follows.
For Span 4 SB ii the west railing use 4 A114 Bars (2 Ea. Side) in each of the two sections of parapet.
For Span 2 NB in East railing use 8 A115 Bars (4 Ea. Side with 10" lap) for the long section and 4 A116 Bars (2 Ea. Side) for the short section.



REINFORCING STEEL IN PARAPET BEAMS & BLOCKS - SPAN 1 & 4

REINFORCING STEEL IN PARAPET BEAMS & BLOCKS - SPAN 2 & 3

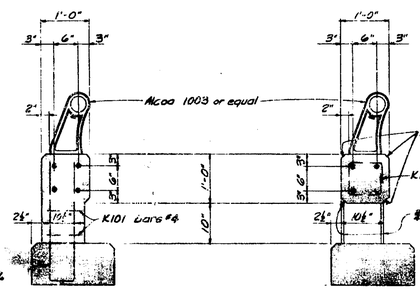
ELEVATION - BRIDGE RAILING - PARAPET TYPE



TYPICAL FIBER CONDUIT DET. AT END OF BRIDGE

Copper tube, fiber sleeve & bituminous mastic incidental to fiber duct.

TYPICAL FIBER DUCT DETAIL AT BRIDGE SLAB JOINT

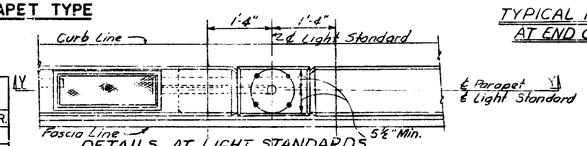


SECTION G-G

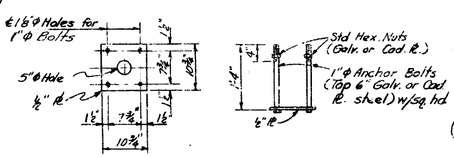
SECTION H-H

"RAILING DIMENSION "A"				
SPAN	SOUTHBOUND STR. WEST CURB	SOUTHBOUND STR. EAST CURB	NORTHBOUND STR. WEST CURB	NORTHBOUND STR. EAST CURB
1	9 1/8"	8 3/8"	9 1/8"	8 3/8"
2	9"	9 3/8"	8 7/8"	9 3/8"
3	9 1/8"	9 3/8"	8 7/8"	9 3/8"
4	8 7/8"	9 1/8"	8 3/8"	9 1/8"

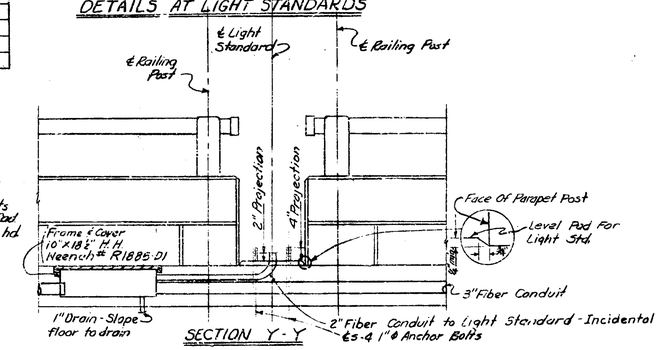
"Along Curb & Fascia Line.



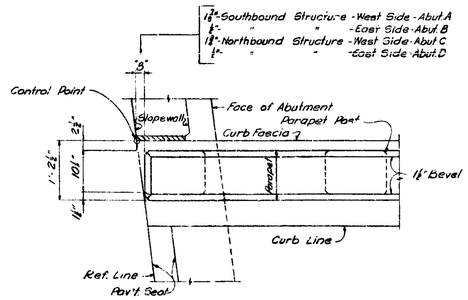
DETAILS AT LIGHT STANDARDS



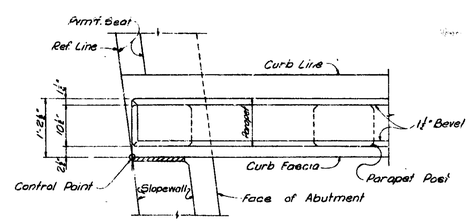
LIGHT STANDARD ANCHOR BOLT ASSEMBLY



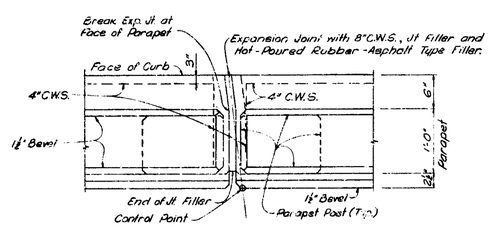
SECTION Y - Y



DETAIL NO. 1



DETAIL NO. 3



DETAIL NO. 2
(Typ. @ Piers)

Work this Sheet with Sheets 164 thru 170

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

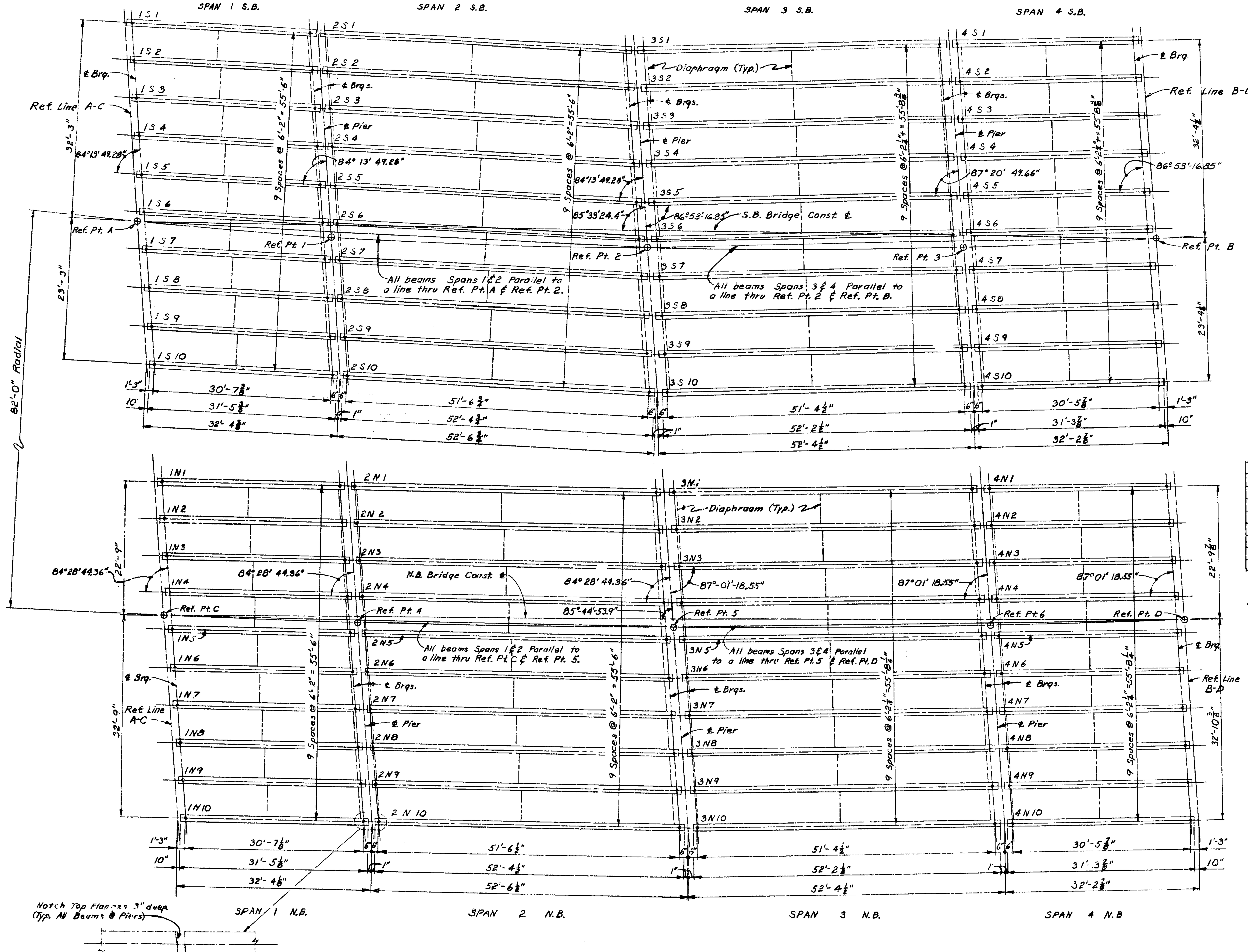
REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	JPC	3-28-62
DRAWN BY	PEL	
TRACED BY		
CHECKED BY	WHC	2-27-62

SHEET 171 OF 312

S03 OF 63174 I



ERECTION DIAGRAM

QUANTITIES		
ITEM	UNIT	AM'T.
28" Prestressed Concrete I Beams - Erect.	Lin Ft.	1004.2
28" Prestressed Concrete I Beams - Furn.	Lin. Ft.	1004.2
45" Prestressed Concrete I Beams - Erect.	Lin. Ft.	2342.9
45" Prestressed Concrete I Beams - Furn.	Lin. Ft.	2342.9
1" Neoprene Brg Pads (8"×1'-4")	Sq. Ft.	57
1" Neoprene Brg Pads (8"×1'-10")	Sq. Ft.	108
Inserts - TL2F (or Equal)	Each	864

NOTES:

The design of this structure is based on the Michigan State Highway Department's Specifications for the Design of Highway Bridges, 1958 Edition and Supplemental Specifications. (H-20-S16-44 Loading and L.L.+Imp. Deflection = $\frac{1}{1000}$ Span.)

For materials, construction, care and handling procedure, see Supplemental Specifications.

Installation of anchor bars is incidental to Superstructure Concrete.

Furnishing and installation of sole plates, bearing plates, lifting devices, and other connected fixtures are incidental to Prestressed Concrete I Beams. (See Supplemental Specifications.)

Minor cracks in the end sections of the beams may be permitted subject to inspection by the Michigan State Highway Department.

Beams with honeycomb of such extent as to affect the strength or resistance to deterioration will not be accepted.

An allowance of .0005 L shall be made for shortening of the beams due to shrinkage and elastic change.

Where called for, inserts shall be Richmond Type TL2F Insert, Superior $\frac{3}{4}$" ϕ Coil Ties, or coil with flared loop, or equal.

Work this Sheet with Sheet #173

MICHIGAN STATE HIGHWAY DEPARTMENT

PRESTRESSED CONCRETE I BEAM DETAILS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	JDC	3-28-62
DRAWN BY	C.W.R.	1-4-62
TRACED BY		
CHECKED BY	WHC	3-23-62

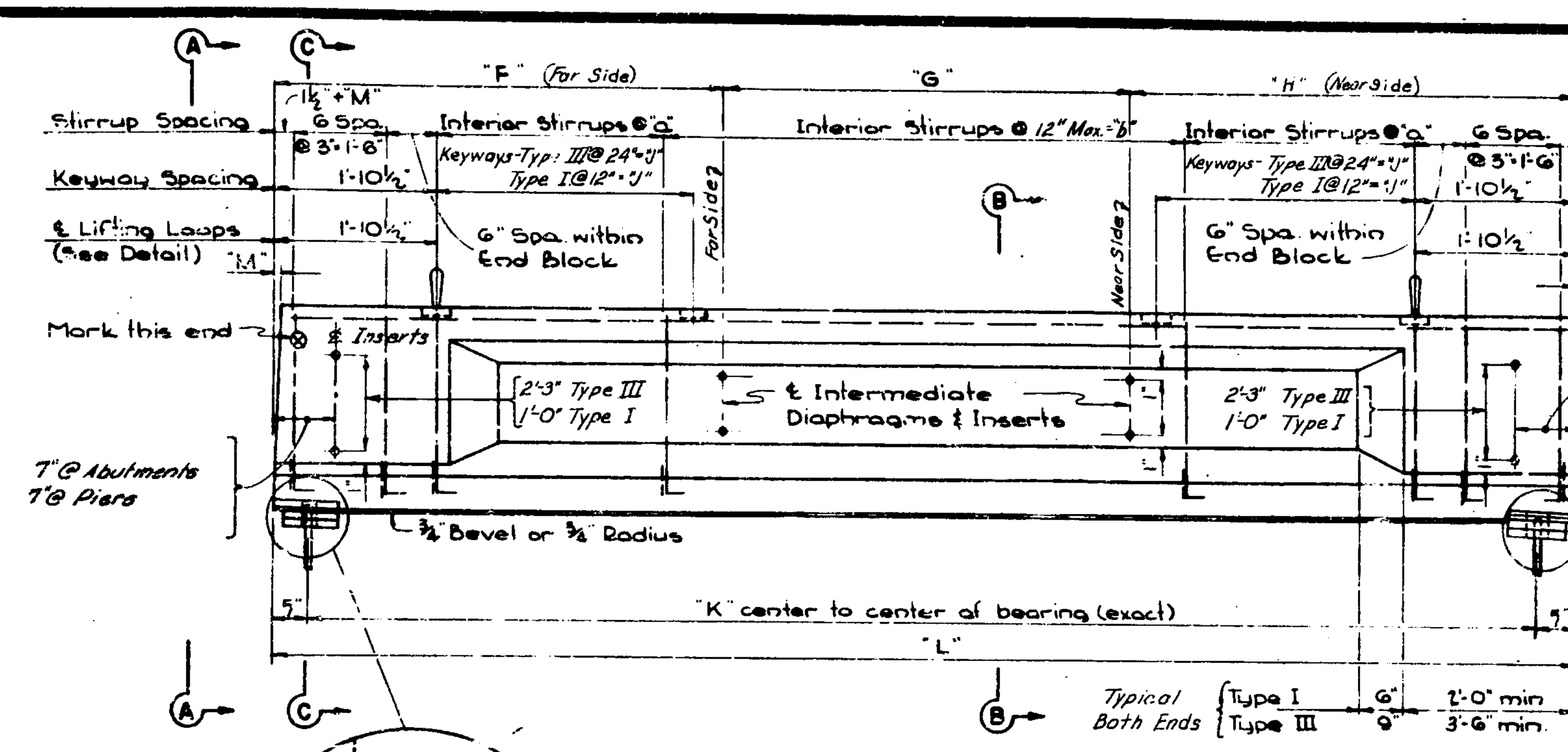
SHEET 172 OF 312

S03 OF 63174 I

BEAM DIMENSIONS

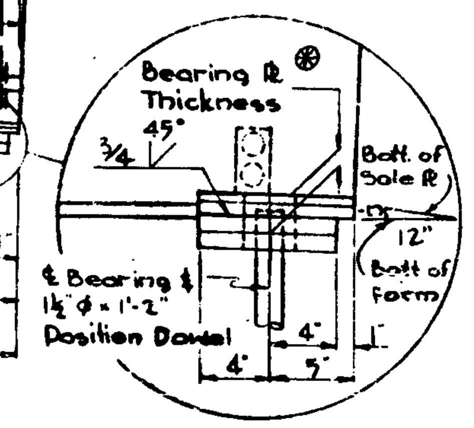
MARK	TYPE	NO. REQ'D	F	G	H	J	K	L	a	b	M	APPROX. WEIGHT EACH
1S1	III	1	*	0	15'-4 7/8"	10'-0"	30'-7 3/8"	31'-5 3/8"	0	25'-2 3/8"	0	20,050
1S10	III	1	15'-5"	0	*	10'-0"	30'-7 3/8"	31'-5 3/8"	0	25'-2 3/8"	0	20,050
1S2 thru 1S9	I	8	15'-5"	7 1/2"	15'-4 7/8"	10'-0"	30'-7 3/8"	31'-5 3/8"	6"	17'-2 3/8"	0	9,450
1N1	III	1	*	0	15'-5"	10'-0"	30'-7 1/8"	31'-5 1/8"	0	25'-2 1/8"	0	20,050
1N10	III	1	15'-5"	0	*	10'-0"	30'-7 1/8"	31'-5 1/8"	0	25'-2 1/8"	0	20,050
1N2 thru 1N9	I	8	15'-5"	7 1/8"	15'-5"	10'-0"	30'-7 1/8"	31'-5 1/8"	6"	17'-2 1/8"	0	9,450
2S1	III	1	*	0	25'-10 5/8"	18'-0"	51'-6 3/4"	52'-4 3/4"	10"	29'-5 3/4"	0	32,250
2S10	III	1	25'-10 5/8"	0	*	18'-0"	51'-6 3/4"	52'-4 3/4"	10"	29'-5 3/4"	0	32,250
2S2 thru 2S9	III	8	25'-10 5/8"	7 1/2"	25'-10 5/8"	18'-0"	51'-6 3/4"	52'-4 3/4"	10"	29'-5 3/4"	0	32,250
2N1	III	1	*	0	25'-10 3/4"	18'-0"	51'-6 1/2"	52'-4 1/2"	10"	29'-5 1/2"	0	32,250
2N10	III	1	25'-10 3/4"	0	*	18'-0"	51'-6 1/2"	52'-4 1/2"	10"	29'-5 1/2"	0	32,250
2N2 thru 2N9	III	8	25'-10 3/4"	7 1/8"	25'-10 3/4"	18'-0"	51'-6 1/2"	52'-4 1/2"	10"	29'-5 1/2"	0	32,250
3S1	III	1	*	0	25'-11 1/2"	18'-0"	51'-4 1/2"	52'-2 1/2"	10"	29'-3 1/2"	0	32,150
3S10	III	1	25'-11 1/2"	0	*	18'-0"	51'-4 1/2"	52'-2 1/2"	10"	29'-3 1/2"	0	32,150
3S2 thru 3S9	III	8	25'-11 1/2"	3 1/2"	25'-11 1/2"	18'-0"	51'-4 1/2"	52'-2 1/2"	10"	29'-3 1/2"	0	32,150
3N1	III	1	*	0	25'-11 1/4"	18'-0"	51'-4 1/2"	52'-2 1/2"	10"	29'-3 1/2"	0	32,150
3N10	III	1	25'-11 3/8"	0	*	18'-0"	51'-4 1/2"	52'-2 1/2"	10"	29'-3 1/2"	0	32,150
3N2 thru 3N9	III	8	25'-11 3/8"	3 7/8"	25'-11 1/4"	18'-0"	51'-4 1/2"	52'-2 1/2"	10"	29'-3 1/2"	0	32,150
4S1	III	1	*	0	15'-6 1/4"	10'-0"	30'-5 7/8"	31'-3 7/8"	0	25'-0 7/8"	0	20,000
4S10	III	1	15'-6 1/4"	0	*	10'-0"	30'-5 7/8"	31'-3 7/8"	0	25'-0 7/8"	0	20,000
4S2 thru 4S9	I	8	15'-6 1/4"	3 1/2"	15'-6 1/8"	10'-0"	30'-5 7/8"	31'-3 7/8"	6"	17'-0 7/8"	0	9,400
4N1	III	1	*	0	15'-6"	10'-0"	30'-5 7/8"	31'-3 7/8"	0	25'-0 7/8"	0	20,000
4N10	III	1	15'-6"	0	*	10'-0"	30'-5 7/8"	31'-3 7/8"	0	25'-0 7/8"	0	20,000
4N2 thru 4N9	I	8	15'-6"	3 7/8"	15'-6"	10'-0"	30'-5 7/8"	31'-3 7/8"	6"	17'-0 7/8"	0	9,400

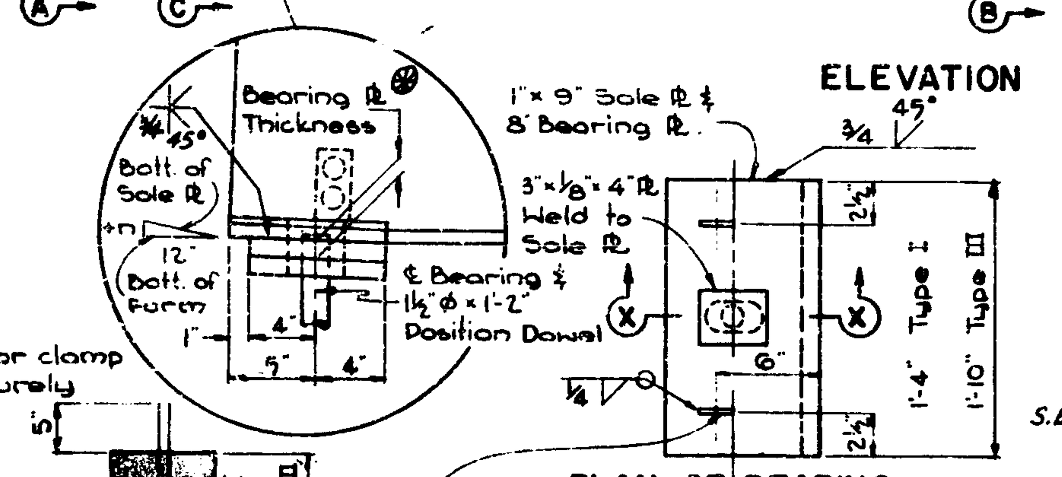
*-No Inserts this side.



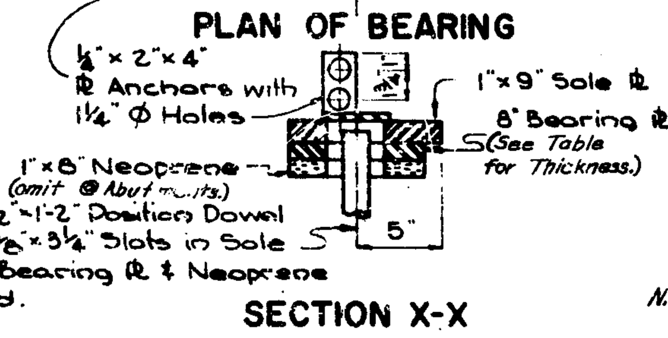
ELEVATION

NOTE: Sole Pls. & Brg. Pls. require no shop paint. Field paint shall consist of one coat of Rustoleum Primer and one coat of gray or aluminum Rustoleum or approved equal. (Incidental to erection of beams)



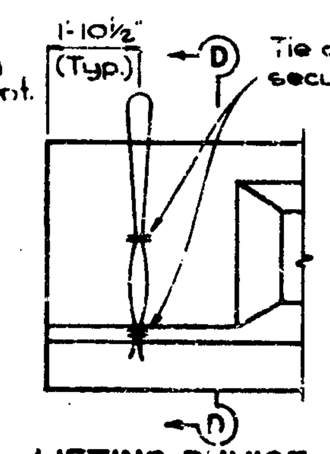


PLAN OF BEARING

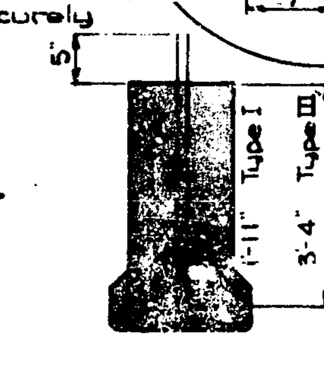


SECTION X-X

Note: Lifting shall be by equal loads to each pair of loops.
Other types of lifting devices may be used subject to approval by the Michigan State Highway Department.



LIFTING DEVICE

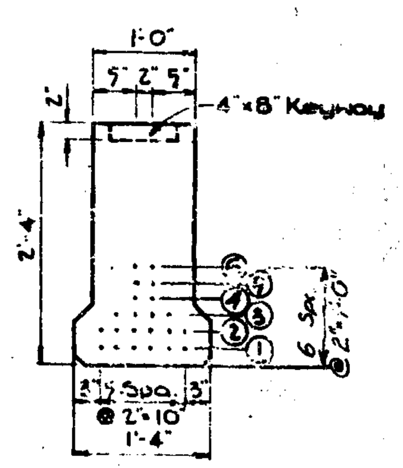


SECTION D-D

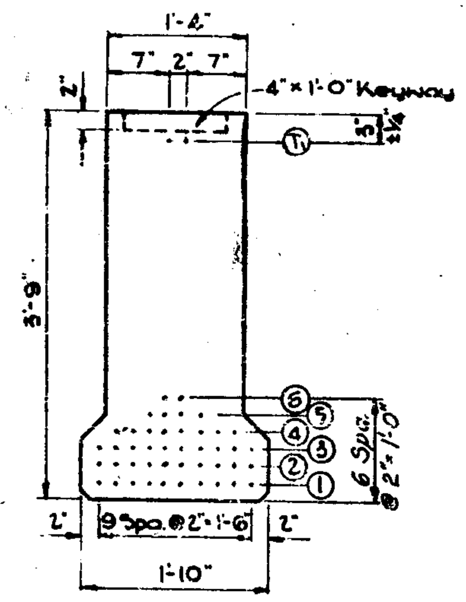
PRESTRESSING STRAND LIFT DEVICE CAPACITY		
STRAND SIZE	NO. OF STRANDS	ALLOWABLE WT. OF BEAM
3/8"	2	20 Tons
7/16"	2	27 Tons
3/8"	3	30 Tons
7/16"	3	40.5 Tons

BEARING PLATE THICKNESS AND SLOPE TABLE

	BEAM LINE	SPAN 1 ABUT. A ℙ Th.	SPAN 1 ABUT. A "n"	SPAN 1 PIER 1 "n"	SPAN 1 PIER 1 ℙ Th.	SPAN 2 PIER 1 ℙ Th.	SPAN 2 PIER 1 "n"	SPAN 2 PIER 2 "n"	SPAN 2 PIER 2 ℙ Th.	SPAN 3 PIER 2 ℙ Th.	SPAN 3 PIER 2 "n"	SPAN 3 PIER 3 "n"	SPAN 3 PIER 3 ℙ Th.	SPAN 4 PIER 3 ℙ Th.	SPAN 4 PIER 3 "n"	SPAN 4 ABUT. B "n"	SPAN 4 ABUT. B ℙ Th.
	S1	1/2"	0	0	1/2"	3/4"	0	0	0	0	0	0	5/8"	1/2"	0	0	1/2"
	S2	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	S3	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	S4	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
S.B.	S5	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	S6	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	S7	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	S8	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	S9	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	S10	1/2"	0	0	0	0	0	0	0	0	0	0	5/8"	1/2"	0	0	1/2"
	N1	1/2"	0	0	1/2"	5/8"	0	0	0	0	0	0	5/8"	1/2"	0	0	1/2"
	N2	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	N3	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	N4	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
N.B.	N5	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	N6	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	N7	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	N8	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	N9	1/2"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1/2"
	N10	1/2"	0	0	0	0	0	0	0	0	0	0	5/8"	1/2"	0	0	1/2"

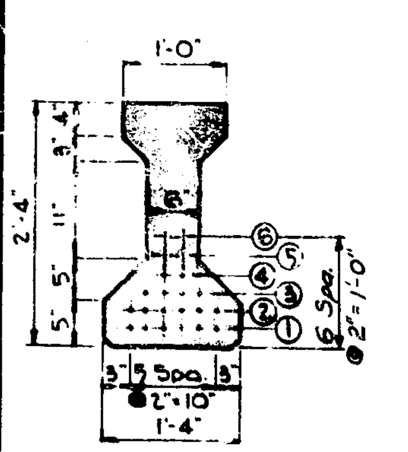


TYPE I
(25" Beam)

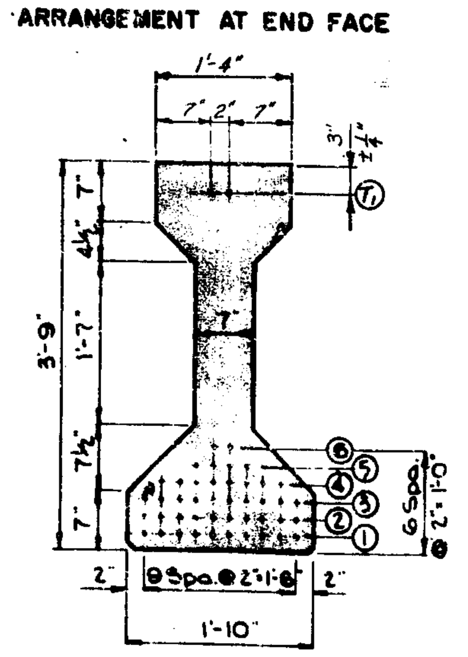


TYPE III
(45" Beam)

VIEW A-A
SHOWING STRAND ARRANGEMENT AT END FACE

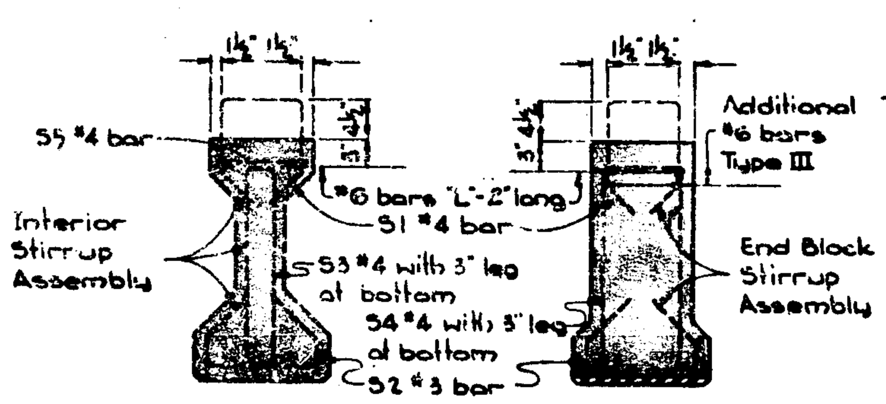


TYPE I
(28" Beam)

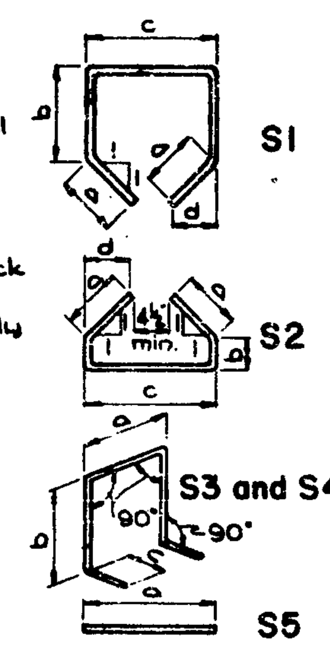


TYPE III
(45" Beam)

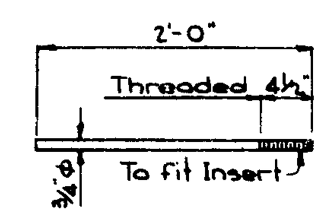
SECTION B-B
SHOWING STRAND ARRANGEMENT AT MIDSPAN



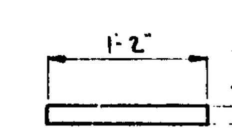
SECTION B-B SECTION C-C
TYPICAL SECTIONS SHOWING MILD STEEL REINFORCEMENT



STIRRUP DIMENSIONS				
BAR	DIM.	BEAM TYPE I	BEAM TYPE II	BEAM TYPE III
S1 #4	a	3½"	3½"	6"
	b	8"	10"	11"
	c	9"	9"	1'-1"
	d	3¼"	3½"	5"
S2 #3	a	4½"	7½"	10½"
	b	3"	3"	5"
	c	11½"	1'-3½"	1'-7½"
	d	3¼"	5½"	7½"
S3 #4	a	3½"	3½"	3½"
	b	1'-11"	2'-7"	3'-4"
	c	3"	3"	3"
S4 #4	a	9"	9"	1'-1"
	b	1'-11"	2'-7"	3'-4"
	c	3"	3"	3"
S5 #4	a	9"	9"	1'-1"



THREADED ANCHOR BAR DETAIL
(864) Required
Incidental to Prestressed Concrete I Beams



POSITION DOWEL DETAIL
(160) Required
Incidental to Substructure Concrete

NUMBER OF 7/16 Ø-7 WIRE STRANDS IN INDICATED ROW

	Type	MIDSPAN (Section B-B) BOTTOM ①	②	③	④	⑤	⑥	TOP Ⓣ	END (View A-A) BOTTOM ①	②	③	④	⑤	⑥	TOP Ⓣ	TOP ①	②	③	④	⑤	⑥	Total No.	Initial Prestress Force/Strand (Lbs.)
1S2 thru 1S9, 1N2 thru 1N9, 4S2 thru 4S1, & 4N2 thru 4N9	I	4	4	4		2	2		4	4	4		2	2								16	19050
1S1, 1S10, 1N1, 1N10, 4S1, 4S10, 4N1, & 4N10	III	8	2						8	2												10	18620
2S1 thru 2S10, 2N1 thru 3N10, 3S1 thru 3S10, & 3N1 thru 3N10	III	6	6	8	4			2	6	6	8	4			2							26	19060

(End top columns crossed out: No Draped Strands Used on this Structure.)

NOTE: Shop plans shall include a diagram of casting bed layout.
Strands shall be placed symmetrically about the centerline of beam.

Work this Sheet with Sheet 172

MICHIGAN STATE HIGHWAY DEPARTMENT

PRESTRESSED CONCRETE I BEAM DETAILS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DESIGNED BY	JDC	3-28-62
DRAWN BY	C.W.R.	1-8-62
TRACED BY		
CHECKED BY	WHC	2-23-62

SHEET 173 OF 312

S03 OF 63174 I

ABUTMENTS

BAR	DIMENSIONS a	b	c	d	e	NO. REQ'D. AT ABUT. A	ABUT. B	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A1	7'-6"					147	148	6	7'-6"	293	3301
A2	5'-0"					141	140	6	5'-0"	281	2110
A3	31'-6"					72	72	6	31'-6"	144	6813
A4	11'-5"					14	14	6	11'-5"	28	480
A5	23'-3"					116	116	4	23'-3"	232	3603
A6	27'-0"					4	4	4	27'-0"	8	144
A7	24'-9"					4	4	4	24'-9"	8	132
A8	8'-1"					15	14	7	8'-1"	29	479
A9	8'-1"					15	14	6	8'-1"	29	352
A10	10'-0"					16	16	7	10'-0"	32	654
A11	10'-0"					16	16	6	10'-0"	32	481
A12	10'-11"					48	49	7	10'-11"	97	2164
A13	10'-11"					48	49	6	10'-11"	97	1590
A14	12'-10"					16	15	10	12'-10"	31	1712
A15	12'-10"					16	15	6	12'-10"	31	598
A16	13'-11"					40	40	10	13'-11"	80	4791
A17	13'-11"					32	32	6	13'-11"	64	1338
A18	15'-4"					20	20	4	15'-4"	40	410
A19	11'-10"					4	4	4	11'-10"	8	63
A20	9'-2"					4	4	4	9'-2"	8	49
A21	6'-7"					6	6	4	6'-7"	12	53
A22	4'-0"					4	4	4	4'-0"	8	21
B1	8'-8"	1'-0"				9	9	4	9'-8"	18	116
B2	7'-1"	1'-0"				9	9	4	8'-1"	18	97
D1	6'-1"	1'-0"				8	8	4	13'-1"	16	140
D2	4'-10"	1'-0"				4	4	4	10'-7"	8	57
D3	3'-6"	1'-0"				4	4	4	7'-11"	8	42
D4	2'-4"	1'-0"				4	4	4	5'-7"	8	30
D5	6'-8"	1'-0"				22	22	4	14'-3"	44	419
D6	1'-5"	1'-6"				17	17	4	4'-3"	34	97
D7	1'-9"	1'-6"				12	12	4	4'-11"	24	79
D8	2'-1"	1'-6"				8	8	4	5'-7"	16	60
D9	2'-4"	1'-6"				12	12	4	6'-1"	24	98
D10	2'-8"	1'-6"				6	11	4	6'-9"	19	86

Total Weight Abutments 32,659#

PIERS

BAR	DIMENSIONS a	b	c	d	NO. REQ'D. AT PIER: 1	2	3	4	5	6	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A51	7'-6"				124	124	124	124	124	124	6	7'-6"	744	838
A52	22'-6"				24	24	24	24	24	24	9	22'-6"	144	11016
A53	22'-3"				24	24	24	24	24	24	8	22'-3"	144	8558
A54	5'-4"				52	52	52	52	52	52	9	5'-4"	312	5658
A55	15'-6"				0	11	0	0	0	0	9	15'-6"	11	580
A56	16'-6"				0	8	11	0	0	0	9	16'-6"	19	1046
A57	17'-6"				11	8	8	0	0	0	9	17'-6"	27	1607
A58	18'-6"				8	8	8	0	11	0	9	18'-6"	35	2202
A59	19'-3"				8	11	8	0	8	11	9	19'-3"	46	3011
A60	20'-9"				8	0	11	0	8	0	9	20'-9"	27	1905
A61	21'-6"				11	0	0	0	8	0	9	21'-6"	19	1399
A62	8'-9"				16	16	16	16	16	16	6	8'-9"	96	1282
A63	21'-6"				18	18	18	18	18	18	9	21'-6"	108	7895
A64	20'-6"				6	6	6	6	6	6	6	20'-6"	36	493
A65	21'-0"				27	27	27	27	27	27	9	21'-0"	162	6954
A66	25'-0"				4	0	4	4	0	4	6	25'-0"	16	6008
A67	20'-0"				0	0	0	11	0	8	9	20'-0"	19	1292
A68	21'-0"				0	0	0	8	0	8	9	21'-0"	16	1142
A69	22'-0"				0	0	0	8	11	8	9	22'-0"	27	2020
A70	23'-0"				0	0	0	8	0	11	9	23'-0"	19	1486
A71	23'-6"				0	0	0	11	0	0	9	23'-6"	11	879
B51	16'-0"	6'-3"			0	3	0	0	0	0	9	22'-3"	3	227
B52	19'-4"	6'-3"			0	3	0	0	0	0	9	26'-0"	3	265
B53	19'-0"	6'-3"			0	0	0	0	3	0	9	25'-3"	3	258
B54	22'-3"	6'-3"			0	0	0	0	3	0	9	28'-6"	3	291
B55	18'-0"	6'-3"			3	0	0	0	0	0	9	24'-3"	3	247
B56	21'-9"	6'-3"			3	0	0	0	0	0	9	28'-0"	3	286
B57	20'-6"	6'-3"			0	0	0	3	0	0	9	26'-9"	3	273
B58	24'-0"	6'-3"			0	0	0	3	0	0	9	30'-3"	3	309
B59	17'-0"	6'-3"			0	0	3	0	0	0	9	23'-3"	3	237
B60	20'-9"	6'-3"			0	0	3	0	0	0	9	27'-0"	3	275
B61	19'-6"	6'-3"			0	0	0	0	3	0	9	25'-9"	3	263
B62	23'-0"	6'-3"			0	0	0	0	0	3	9	29'-3"	3	298
D51	3'-0"	0'-11"			32	0	32	32	0	32	4	6'-10"	128	584
D52	0'-6"	2'-8"			32	32	32	32	32	32	4	3'-1"	192	395
K51	1'-10"	1'-5"	1'-5"	2'-0"	34	30	30	38	34	36	4	7'-7"	202	888
K52	1'-7"	1'-9"	1'-9"	2'-8"	15	13	14	18	17	17	4	7'-3"	94	450
K53	2'-2"	1'-5"	1'-5"	2'-0"	24	21	22	26	25	26	4	6'-11"	144	665
K54	1'-7"	1'-2"	1'-2"	1'-6½"	23	19	20	26	24	25	4	5'-4"	137	488
K55	3'-0½"	2'-0"	2'-0"	2'-6½"	32	32	32	32	32	32	5	9'-4"	192	1869

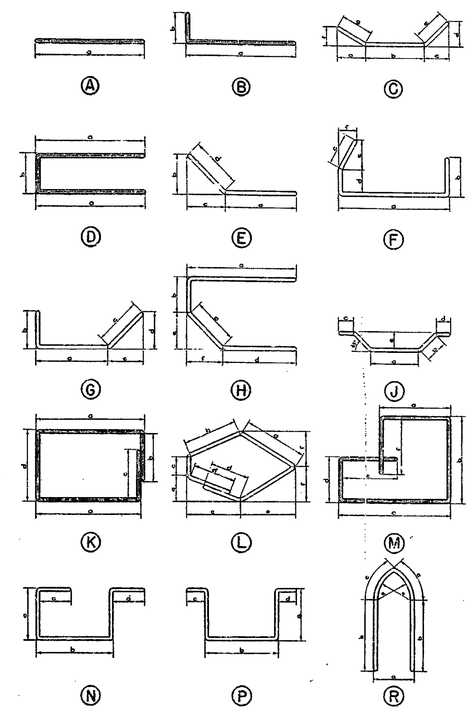
Total Weight Piers 75836#

SUPERSTRUCTURE

BAR	DIMENSIONS a	b	c	d	e	S. B.	N. B.	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A101	26'-9"					232	232	5	26'-9"	464	12946
A102	31'-6"					116	116	5	31'-6"	232	7622
A103	30'-9"					1936	1936	5	30'-9"	2672	85697
A104	26'-9"					236	228	4	26'-9"	464	8291
A105	31'-9"					32	36	4	31'-9"	68	1442
A106	4'-7"					324	324	6	4'-7"	648	4461
A107	4'-8"					216	216	6	4'-8"	432	3028
A108	4'-3"					16	16	4	4'-3"	32	91
A109	6'-6"					8	8	4	6'-6"	16	69
A110	4'-8"					54	54	4	4'-8"	108	337
A111	30'-9"					16	16	4	30'-9"	32	657
A112	31'-5"					82	82	4	31'-5"	164	3442
A113	2'-0"					8	4	4	2'-0"	12	16
A114	1'-10"					8	0	4	1'-10"	8	79
A115	20'-11"					0	8	4	20'-11"	8	112
A116	8'-10"					0	4	4	8'-10"	4	24
D101	1'-4"	0'-4"				72	72	4	2'-11"	144	281
D102	1'-8"	0'-4"				288	288	4	3'-7"	576	1379
D103	0'-10"	1'-3"				16	16	4	2'-10"	32	61
D104	0'-5"	1'-3"				16	16	4	2'-0"	32	43
D105	2'-5⅞"	0'-6⅝"				267	267	6	5'-5"	534	4347
K101	0'-10⅝"	0'-5⅞"	0'-6"	0'-7⅞"		178	178	4	3'-4"	356	792
K102	0'-7⅞"	0'-5⅞"	0'-6"	0'-7⅞"		320	320	4	2'-9"	640	1176
					e f						
M101	3'-0"	1'-4"	4'-8"	0'-10⅝"	1'-6⅝" 0'-11"	64	64	4	11'-9"	128	1005
M102	1'-7"	1'-4"	2'-10"	0'-10⅝"	1'-6" 0'-11"	8	8	4	8'-11"	16	95
M103	1'-0⅝"	1'-3"	1'-4"	0'-8"	0 1'-3"	228	228	4	5'-6"	456	1675

Total Weight Superstructure 139,168#

BAR BENDING DIAGRAM



Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 247,663#

MICHIGAN STATE HIGHWAY DEPARTMENT

STEEL REINFORCEMENT DETAILS

TECON ENGINEERS, INC.

REVISIONS			
No.	DESCRIPTION	DATE	BY

BOARD BOSS	JOC	3-28-62
DRAWN BY	D.H.	
TRACED BY		
CHECKED BY	UHC	3-28-62
SHEET	174 OF 312	

S03 OF 631741

S04 of 63174
(Mm 5BR-9A)

CS: 63174

ID: S04 MM 5BR-9A

STATE OF MICHIGAN

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

CONTROL SECTIONS 50111, 63082, 63101, 63174, 82022, 82023, 82024, 82025, 82112, 82192 AND 82194

STATE PROJECT: MM5BR-9A

COUNTIES: MACOMB, OAKLAND, WAYNE.

CITIES: ST. CLAIRS SHORE, SOUTHFIELD, MADISON HEIGHTS, TROY, HAZEL PARK, DEARBORN AND DETROIT

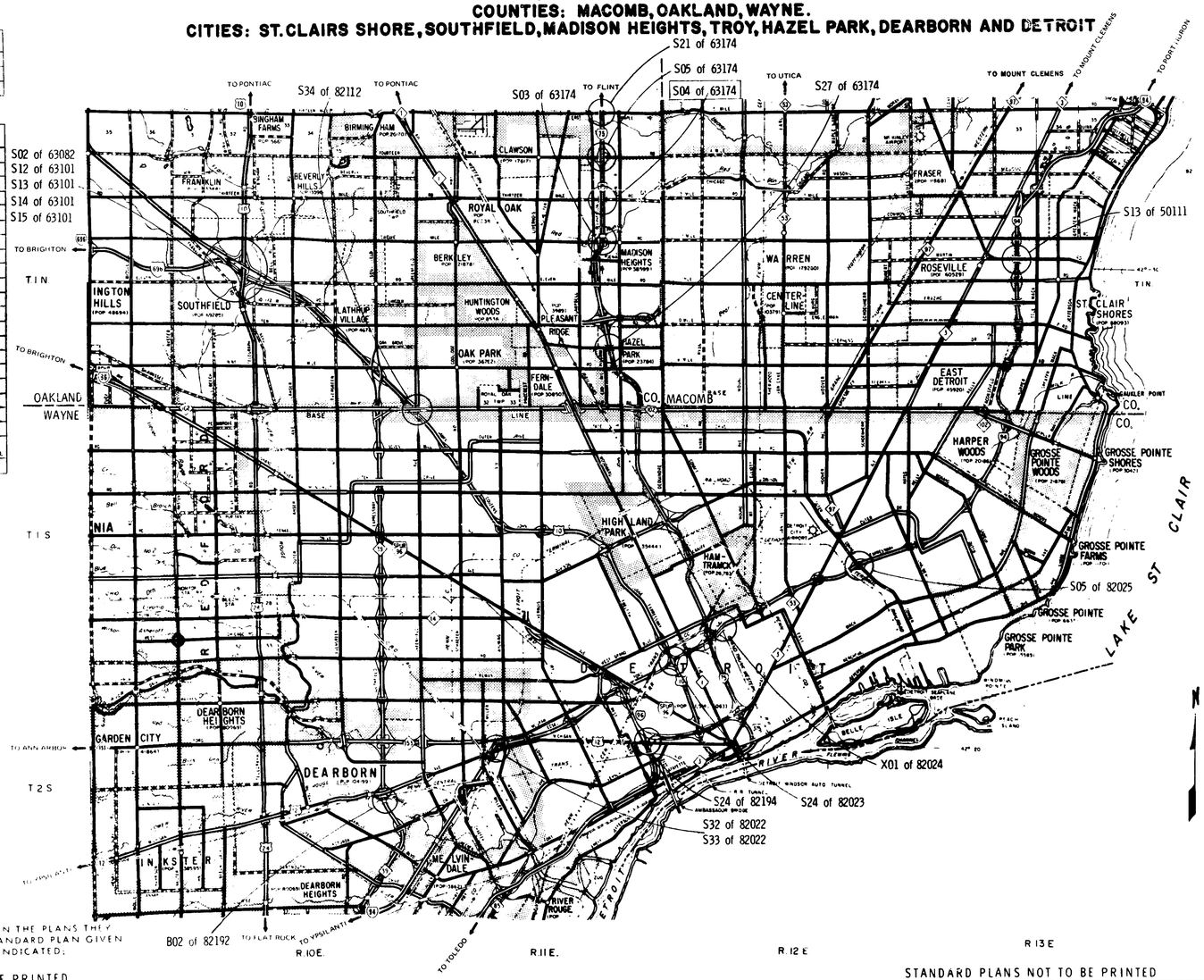
GENERAL NOTES:
EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF STATE HIGHWAY'S STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 1973 EDITION.

PLAN INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
1A THRU 1E	QUANTITY SHEET

PLAN INDEX

STRUCTURE NO.	SHEET NO.	DESCRIPTION
S13 of 50111	2	REPAIR DETAILS ABUTMENT A
S02 of 63082	2	REPAIR DETAILS ABUTMENT A
S12 of 63101	2	REPAIR DETAILS ABUTMENT A & B
S13 of 63101	2	REPAIR DETAILS ABUTMENT B
S14 of 63101	2	REPAIR DETAILS ABUTMENT A & B
S15 of 63101	2	REPAIR DETAILS ABUTMENT A
S03 of 63174	2	REPAIR DETAILS ABUTMENT A
	3	REPAIR DETAILS ABUTMENT B
S04 of 63174	2	REPAIR DETAILS ABUTMENT A
S05 of 63174	2	REPAIR DETAILS ABUTMENT A
S21 of 63174	2	REPAIR DETAILS ABUTMENT A & B
S27 of 63174	2	REPAIR DETAILS ABUTMENT A & B
S32 of 82022	2	REPAIR DETAILS ABUTMENT A
S33 of 82022	2	REPAIR DETAILS ABUTMENT A
	3	REPAIR DETAILS ABUTMENT B
S24 of 82023	2	REPAIR DETAILS ABUTMENT A
X01 of 82024	2	REPAIR DETAILS ABUTMENT A
S05 of 82025	2	REPAIR DETAILS ABUTMENT A
S34 of 82112	2	REPAIR DETAILS ABUTMENT A
B02 of 82192	2	REPAIR DETAILS ABUTMENT A UNDER E SERVICE RD.
S24 of 82194	2	REPAIR DETAILS ABUTMENT A



NOTE:

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED:

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE

ITEM NO.

CONTRACT FOR ABUTMENT REPAIRS

APPROVALS

CHECKED — ENGINEER-BRIDGE DESIGN — 1-9-75 DATE

RECOMMENDED FOR APPROVAL — ENGINEER OF DESIGN — 1-9-75 DATE

RECOMMENDED FOR APPROVAL — for ENGINEER OF TRAFFIC & SAFETY — 1-14-75 DATE

RECOMMENDED FOR APPROVAL — ENGINEER OF CONSTRUCTION — 1/13/75 DATE

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
JOHN P. WOODFORD – DIRECTOR

APPROVED BY: DEPUTY DIRECTOR – HIGHWAYS — 1/15/75 DATE

PLANS PREPARED BY MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
DRAWN WONG

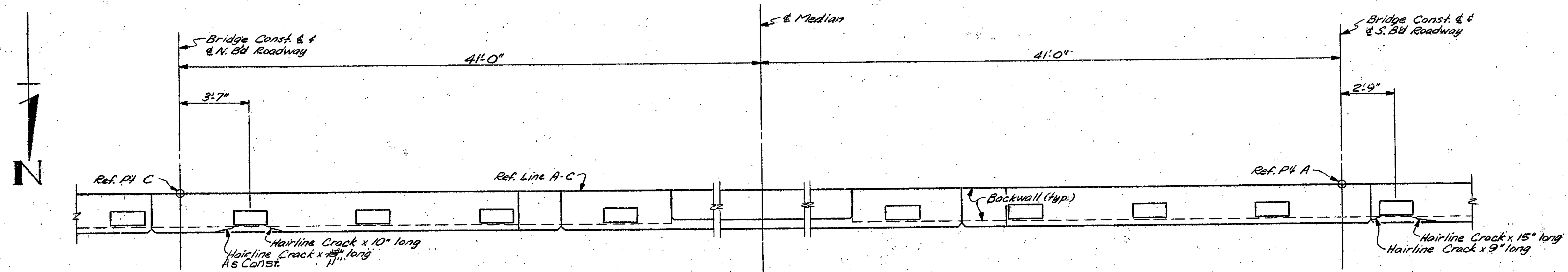
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED [redacted]

~~S13 of 50111, S02 of 63082, S12, S13, S14 & S15 of 63101; S03, S04, S05, S21 & S27 of 63174; S32 & S33 of 82022; S24 of 82023; X01 of 82024; S05 of 82025; S34 of 82112; B02 of 82192; S24 of 82194.~~

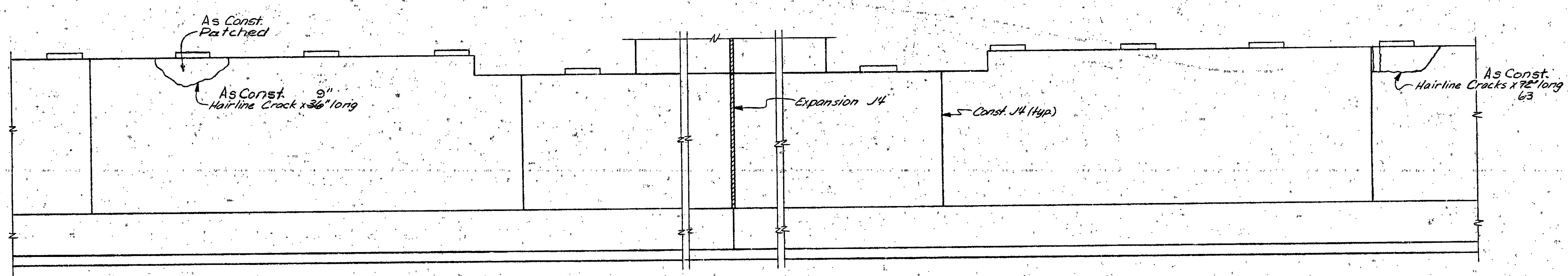
JOB NUMBER	FEDERAL PROJECT	SHEET NO.
		1

CONTROL SECTION — JOB NUMBER

S04 of 63174 (MM 5BR-9A)



PLAN OF ABUTMENT WALL



ELEVATION

GENERAL NOTES:
Inject all cracks with epoxy resin adhesive. Large cracks shall be prepacked with a suitable aggregate - incidental.

As Const.

*MISCELLANEOUS QUANTITIES		
Item	Amount	Unit
Repair of Structural Cracks - Type A	~~13~~ 10.5	Lin. Ft

*Quantities may vary. The extent of work shall be as determined by the Engineer.

As Const

Repair of Structural Concrete	.25	Cu.Ft.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
I-75 OVER 13 MILE RD. IN MADISON HEIGHTS.
REPAIR DETAILS
ABUTMENT A

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	WONG	1-7-75
DRAWN BY	R. Pratt	12-20-74
TRACED BY		
CHECKED BY	GR HALL	JAN. 7, 1975

SHEET 2 OF 2

S04 of 63174

ITEM	UNIT	CONTR. QUANT.	FINAL QUANT.	UNIT PRICE	FINAL COST	S14 of 63101 CONTR. QUANT.	REMARKS (AUTH. NO'S.)	FINAL QUANT.	FINAL COST	S15 of 63101 CONTR. QUANT.	REMARKS (AUTH. NO'S.)	FINAL QUANT.	FINAL COST	S03 of 63174 CONTR. QUANT.	REMARKS (AUTH. NO'S.)	FINAL QUANT.	FINAL COST	S04 of 63174 CONTR. QUANT.	REMARKS (AUTH. NO'S.)	FINAL QUANT.	FINAL COST
REPAIR OF STRUCTURAL CRACKS - TYPE A	LIN. FT.					27	1001	41		24	1001	17.8		25	1001	20.3		13	1001	10.5	
REPAIR OF STRUCTURAL CRACKS - TYPE B	LIN. FT.					12	1001	32.2		14	1001	17.1		4	1001	8					
REPAIR OF STRUCTURAL CONCRETE	CU. FT.					1	1001	1.77		3	1001	1.19		3	1001	1.77		0	1001	.25	
TOTAL																					

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL

CHECKED
STRUCT SECTION
4-2-77

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

QUANTITY SHEET

SQUAD BOSS	WONG	1-7-75
DRAWN BY	G.R. HALL	JAN. 2, 1975
TRACED BY		
CHECKED BY	R.P.	1-7-75
SHEET 10 OF		

STATE PROJECT: MM5BR-9A 5040f

CONTROL SECTIONS: ~~50111, 63002, 63101~~, 63174, ~~82022, 82023, 82024, 82025, 82112, 82192, 82194~~

BM 1 (10-23-74)

S04 of 63174 I

CS: 63174

ID: S04

MICHIGAN

STATE HIGHWAY DEPARTMENT

JOHN C. MACKIE

STATE HIGHWAY COMMISSIONER

MICHIGAN PROJECT I 75-2 (75)62

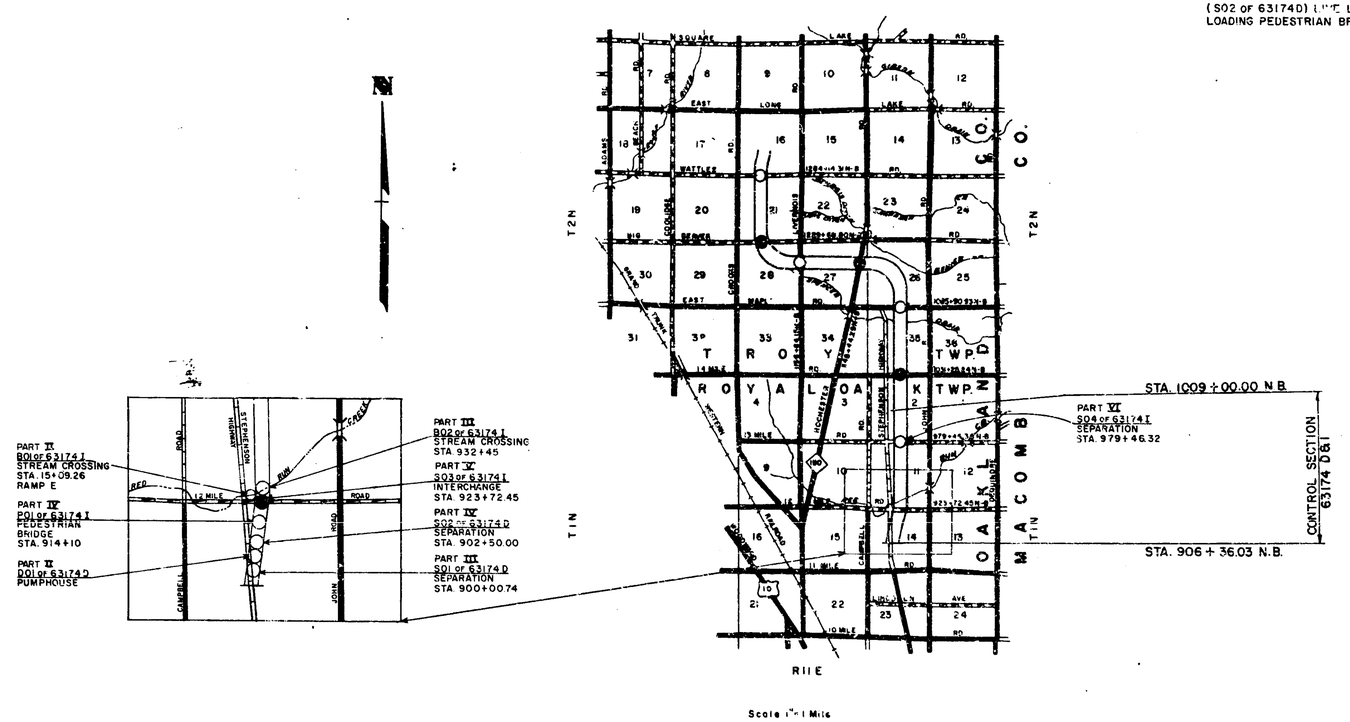
CONTROL SECTION BI 63174 D C14 PARTS II THRU IV / BI 63174 I C5 PARTS II THRU VI

WALTER P. CHRYSLER EXPRESSWAY

OAKLAND COUNTY

TROY - ROYAL OAK TWP.

R11E



NOTES:

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN STATE HIGHWAY DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1960 EDITION.

THE DESIGN OF THESE STRUCTURES IS BASED ON THE MICHIGAN STATE HIGHWAY DEPARTMENT'S SPECIFICATIONS FOR THE DESIGN OF HIGHWAY BRIDGES, 1958 EDITION, H20-S16-44 AND ALTERNATE MILITARY LOADING, LIVE LOAD PLUS IMPACT DEFLECTION = $\frac{1}{1000}$ OF SPAN LENGTH.*

THE CHARACTER OF ALL MATERIALS AND THE EXTENT THEREOF AS SHOWN BY BORINGS HAS BEEN OBTAINED BY METHODS AND FROM SOURCES BELIEVED TO BE RELIABLE. THE EXACTNESS OF THIS INFORMATION IS, HOWEVER, IN NO CASE GUARANTEED. BORING DATA IS AVAILABLE IN THE DESIGN OFFICE AT LANSING.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH ½" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

TRUNK LINE TRAFFIC WILL BE REROUTED BY THE DEPARTMENT DURING CONSTRUCTION.

THE LOCATION OF GAS MAINS SHOWN ON THESE PLANS IS BELIEVED TO BE CORRECT. THE CONTRACTOR SHALL, HOWEVER, CHECK ALL SUCH LOCATIONS WITH THE MICHIGAN CONSOLIDATED GAS CO. BEFORE EXCAVATION IS STARTED.

* H20-44 LOADING FOR 11½ MILE ROAD (S01 of 63174 D) AND NORTHBOUND SERVICE ROAD (S02 of 63174 D) LIVE LOAD PLUS IMPACT DEFLECTION = $\frac{1}{800}$ OF SPAN LENGTH. FOR DESIGN LOADING PEDESTRIAN BRIDGE (P01 of 63174 I) SEE SHEET 139.

CONTROL SECTIONS NO. 63174 D, & I

CONTRACT FOR BRIDGES & PUMPHOUSE

DIVISION APPROVAL

CHECKED — ENGINEER OF DESIGN - CONSULTANTS — DATE

RECOMMENDED FOR APPROVAL — TRAFFIC ENGINEER — DATE

RECOMMENDED FOR APPROVAL — ENGINEER OF BRIDGE AND ROAD DESIGN — DATE

OFFICES OF DESIGN AND CONSTRUCTION

APPROVED — CONSTRUCTION ENGINEER — DATE

APPROVED — CHIEF OF DESIGN — DATE

STATE HIGHWAY DEPARTMENT APPROVAL

APPROVED — JOHN C. MACKIE, STATE HIGHWAY COMMISSIONER

BY — DIRECTOR OF ENGINEERING - CHIEF ENGINEER — DATE

PLANS PREPARED BY

TECON ENGINEERS INC.

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED [redacted]
DIVISION ENGINEER — DATE

CONTROL SECTION 63174 D&I

P01, S03, S04, B01 & B02 of 63174 I — D01, S01, S02 of 63174 D

FILE NO. USE	P01, S03, S04, B01 & B02 of 63174 I	CONTROL SECTION 63174	FEDERAL PROJECT	SHEET NO.
INTENSE	D01, S01, S02 of 63174 D			101

PLAN INDEX

SHEET NO.	DESCRIPTION
101	TITLE SHEET
102	INDEX OF DRAWINGS
	SO1 OF 63174D - 11½ MILE ROAD
103	GENERAL PLAN OF SITE
104	LOG BORINGS
105	GENERAL PLAN OF STRUCTURE
106	BILL OF MATERIAL
107	ABUTMENT A DETAILS
108	ABUTMENT A DETAILS
109	ABUTMENT B DETAILS
110	ABUTMENT B DETAILS
111	ABUTMENT DETAILS
112	PIER DETAILS
113	SUPERSTRUCTURE DETAILS
114	SUPERSTRUCTURE DETAILS
115	SUPERSTRUCTURE DETAILS
116	STRUCTURAL STEEL DETAILS
117	STRUCTURAL STEEL DETAILS
118	STEEL REINFORCEMENT DETAILS
	SO2 OF 63174D - NORTHBOUND SERVICE ROAD
119	GENERAL PLAN OF SITE
120	LOG OF BORINGS
121	GENERAL PLAN OF STRUCTURE
122	BILL OF MATERIAL
123	ABUTMENT A DETAILS
124	ABUTMENT A DETAILS
(B) 125A	ABUTMENT A DETAILS
126	ABUTMENT B DETAILS
127	ABUTMENT B DETAILS
128	ABUTMENT DETAILS
129	PIER DETAILS
130	SUPERSTRUCTURE DETAILS
131	SUPERSTRUCTURE DETAILS
132	SUPERSTRUCTURE DETAILS
133	SUPERSTRUCTURE DETAILS
134	METAL EXPANSION JOINT DETAILS
135	STRUCTURAL STEEL DETAILS
136	STRUCTURAL STEEL DETAILS
(B) 137A	STEEL REINFORCEMENT DETAILS
(B) 137B	STEEL REINFORCEMENT DETAILS
	PO1 OF 63174D - PEDESTRIAN BRIDGE
138	GENERAL PLAN OF SITE
139	GENERAL PLAN OF STRUCTURE
140	BILL OF MATERIAL
141	RAMP APPROACH DETAILS
142	RAMP APPROACH DETAILS
143	RAMP PIER & DECK DETAILS
144	RAMP PIER & DECK DETAILS
145	BRIDGE PIER DETAILS
146	BRIDGE DECK DETAILS
147	STRUCTURAL STEEL DETAILS
148	STRUCTURAL STEEL DETAILS
149	HANDRAIL DETAILS
150	STEEL REINFORCEMENT DETAILS
(B) 125B	ABUTMENT A DETAILS
(B) 125C	ABUTMENT A DETAILS
	SO3 OF 63174 I - 12 MILE ROAD
151	GENERAL PLAN OF SITE
152	LOG OF BORINGS
153	GENERAL PLAN OF STRUCTURE
154	BILL OF MATERIAL
155	STAKE OUT DIAGRAM
156	ABUTMENT A DETAILS
157	ABUTMENT A DETAILS

SHEET NO.	DESCRIPTION
158	ABUTMENT B DETAILS
159	ABUTMENT B DETAILS
160	ABUTMENT DETAILS
161	PIER DETAILS - PIER NO. 1 & 4
162	PIER DETAILS - PIER NO. 2 & 5
163	PIER DETAILS - PIER NO. 3 & 6
164	SUPERSTRUCTURE DETAILS
165	SUPERSTRUCTURE DETAILS
166	SUPERSTRUCTURE DETAILS
167	SUPERSTRUCTURE DETAILS
168	SUPERSTRUCTURE DETAILS
169	SUPERSTRUCTURE DETAILS
170	SUPERSTRUCTURE DETAILS
171	SUPERSTRUCTURE DETAILS
172	PRESTRESSED CONCRETE I BEAM DETAILS
173	PRESTRESSED CONCRETE I BEAM DETAILS
174	STEEL REINFORCEMENT DETAILS
	BO1 OF 63174 I - RAMP E (12 MILE ROAD)
175	GENERAL PLAN OF SITE
176	LOG OF BORINGS
177	GENERAL PLAN OF STRUCTURE
178	BILL OF MATERIAL
179	ABUTMENT DETAILS
180	PIER DETAILS - PIERS NO. 1 & 2
181	SUPERSTRUCTURE DETAILS
182	SUPERSTRUCTURE DETAILS
183	SUPERSTRUCTURE DETAILS
184	SUPERSTRUCTURE DETAILS
185	METAL EXPANSION JOINT DETAILS
186	STRUCTURAL STEEL DETAILS
187	STRUCTURAL STEEL DETAILS
188	STEEL REINFORCEMENT DETAILS
	BO2 OF 63174 I - RED RUN DRAIN
189	GENERAL PLAN OF SITE
190	LOG OF BORINGS
191	GENERAL PLAN OF STRUCTURE
192	GENERAL PLAN OF STRUCTURE
193	CHANNEL CHANGE LAYOUT
194	CHANNEL CROSS SECTIONS
195	CHANNEL CROSS SECTIONS
196	BILL OF MATERIAL
197	ABUTMENT A DETAILS
198	ABUTMENT A DETAILS
199	ABUTMENT B DETAILS
200	ABUTMENT B DETAILS
201	ABUTMENT DETAILS
202	PIER DETAILS - PIER NO. 1 & 2
203	PIER DETAILS - PIER NO. 3 & 4
204	PIER DETAILS
205	SUPERSTRUCTURE DETAILS
206	SUPERSTRUCTURE DETAILS
207	SUPERSTRUCTURE DETAILS
208	SUPERSTRUCTURE DETAILS
209	SUPERSTRUCTURE DETAILS
210	SUPERSTRUCTURE DETAILS
211	SUPERSTRUCTURE DETAILS
212	SUPERSTRUCTURE DETAILS
213	SUPERSTRUCTURE DETAILS
214	SUPERSTRUCTURE DETAILS
215	METAL EXPANSION JOINT DETAILS - NORTHBOUND STR.
216	METAL EXPANSION JOINT DETAILS - SOUTHBOUND STR.
217	STRUCTURAL STEEL DETAILS
218	STRUCTURAL STEEL DETAILS
219	STRUCTURAL STEEL DETAILS
220	STEEL REINFORCEMENT DETAILS
202A	PIERS 1 & 3 CAP DETAILS

SHEET NO.	DESCRIPTION
	SO4 OF 63174 I - 13 MILE ROAD
221	GENERAL PLAN OF SITE
222	LOG OF BORINGS
223	GENERAL PLAN OF STRUCTURE
224	BILL OF MATERIAL
225	ABUTMENT DETAILS
226	ABUTMENT DETAILS
227	PIERS NO. 1, 2, 3 & 4 DETAILS
228	SUPERSTRUCTURE DETAILS
229	SUPERSTRUCTURE DETAILS
230	SUPERSTRUCTURE DETAILS
231	SUPERSTRUCTURE DETAILS
232	BEAM LAYOUT
233	STEEL REINFORCEMENT DETAILS
	SO5 OF 63174 I - 14 MILE ROAD
234	GENERAL PLAN OF SITE
235	LOG OF BORINGS
236	GENERAL PLAN OF STRUCTURE
237	BILL OF MATERIAL
238	ABUTMENT DETAILS
239	ABUTMENT DETAILS
240	PIERS NO. 1, 2, 3, & 4 DETAILS
241	SUPERSTRUCTURE DETAILS
242	SUPERSTRUCTURE DETAILS
243	SUPERSTRUCTURE DETAILS
244	METAL EXPANSION JOINT DETAILS
245	STRUCTURAL STEEL DETAILS
246	STRUCTURAL STEEL DETAILS
247	STRUCTURAL STEEL DETAILS
248	STEEL REINFORCEMENT DETAILS
	S21 OF 63174 J - 15 MILE ROAD
249	GENERAL PLAN OF SITE
250	LOG OF BORINGS
251	GENERAL PLAN OF STRUCTURE
252	BILL OF MATERIAL
253	ABUTMENT DETAILS
254	ABUTMENT DETAILS
255	PIERS NO. 1, 2, 3 & 4 DETAILS
256	SUPERSTRUCTURE DETAILS
257	SUPERSTRUCTURE DETAILS
258	SUPERSTRUCTURE DETAILS
259	SUPERSTRUCTURE DETAILS
260	BEAM LAYOUT
261	STEEL REINFORCEMENT DETAILS
	DO1 OF 63174D - PUMPHOUSE
301	GENERAL PLAN OF SITE
302	GENERAL PLAN OF STRUCTURE
303	BILL OF MATERIAL
304	PUMPHOUSE DETAILS
305	PUMPHOUSE DETAILS
306	PUMPHOUSE DETAILS
307	PUMPHOUSE DETAILS
308	PUMPHOUSE DETAILS
309	PUMPHOUSE DETAILS
310	MISCELLANEOUS DETAILS
311	MECHANICAL & ELECTRICAL DETAILS
312	STEEL REINFORCEMENT DETAILS
R 118	BRIDGE RAILING, DRAIN CASTING, BAR CHAIR, MOLDING & BEVEL DETAILS

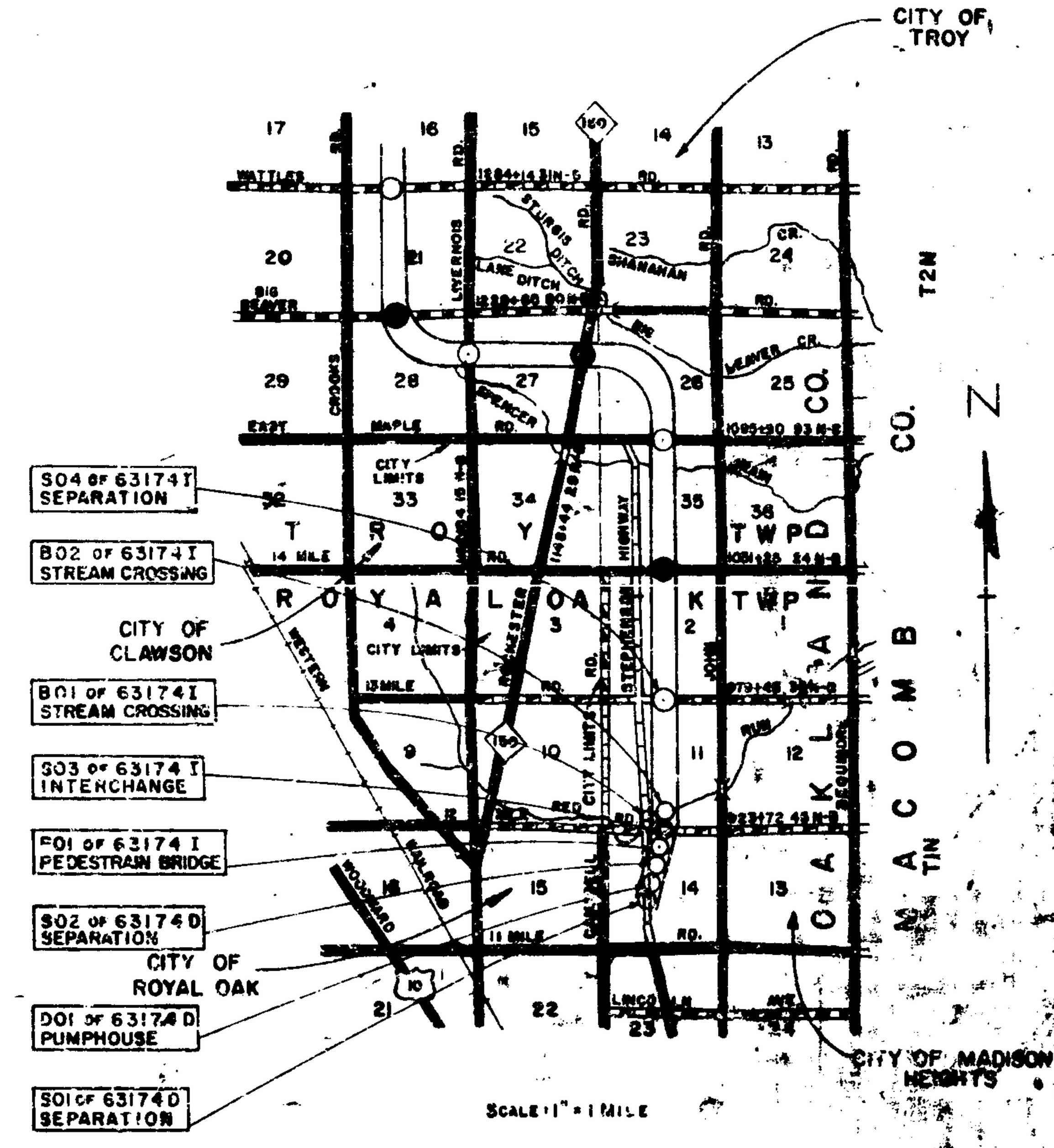


TABLE OF LOADINGS			
STRUCTURE	LOCATION	DESIGN LIVE LOADINGS	LIMITING LIVE LOAD DEFLECTION
SO1 OF 63174D	11½ MILE RD.	H20-44	L/800
SO2 OF 63174D	N-B SERVICE RD.	H20-44	L/800
PO1 OF 63174I	PEDESTRIAN BR.	SEE SH.139	L/1000
SO3 OF 63174I	12 MILE RD	H20-S16-44	L/1000
BO1 OF 63174I	RAMP E (12 MILE RD.)	H20-S16-44	L/1000
BO2 OF 63174I	RED RUN DRAIN	H20-S16-44	L/1000
SO4 OF 63174I	13 MILE RD.	H20-S16-44	L/1000

STANDARD PLANS TO BE PRINTED	
SHEET NO.	DESCRIPTION
SP 2 D	STANDARD SLOPE PAVING DETAILS

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY
B	Added sh. 202A to [illegible]	1-12-45	P.S.
B	Added Shts to SO2 63174	10-4-62	AFB

SQUAD BOSS JDC 3-26-
DRAWN BY CBS
TRACED BY
CHECKED BY JDC
SHEET 102 OF 312

SO1 & SO2 OF 63174D
PO1 OF 63174 I
SO3 OF 63174 I
BO1 & BO2 OF 63174 I
SO4 OF 63174 I
DO1 OF 63174 D

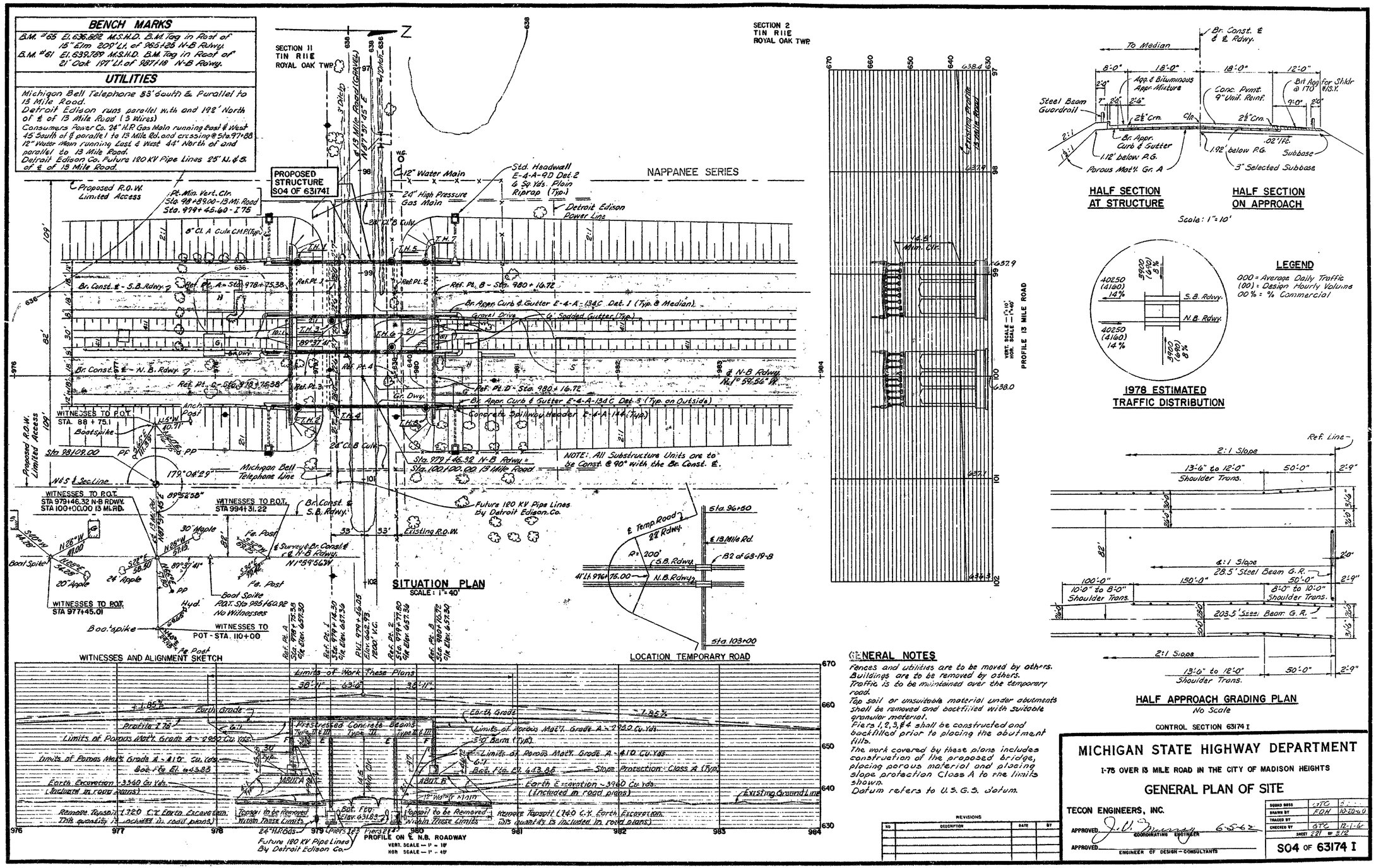
BENCH MARKS

B.M. #65 El. 636.882 M.S.H.D. B.M. Tag in Root of 15" Elm 209' Lt. of 965+25 N-B Rdwy.

B.M. #61 El. 639.789 M.S.H.D. B.M. Tag in Root of 21" Oak 197' Lt. of 987+18 N-B Rdwy.

UTILITIES

Michigan Bell Telephone 83' South & Parallel to 13 Mile Road.
Detroit Edison runs parallel with and 192' North of ℄ of 13 Mile Road (3 Wires)
Consumers Power Co. 24" H.P. Gas Main running East & West 45' South of ℄ parallel to 13 Mile Rd. and crossing @ Sta. 97+88
12" Water Main running East & West 44' North of and parallel to 13 Mile Road.
Detroit Edison Co. Future 120 KV Pipe Lines 25' N. & S. of ℄ of 13 Mile Road.



HALF SECTION AT STRUCTURE **HALF SECTION ON APPROACH**

Scale: 1" = 10'

LEGEND

000 = Average Daily Traffic
(00) = Design Hourly Volume
00% = % Commercial

1978 ESTIMATED TRAFFIC DISTRIBUTION

HALF APPROACH GRADING PLAN

No Scale

CONTROL SECTION 63174 I

GENERAL NOTES

Fences and utilities are to be moved by others.
Buildings are to be removed by others.
Traffic is to be maintained over the temporary road.
Top soil or unsuitable material under abutments shall be removed and backfilled with suitable granular material.
Piers 1, 2, 3, & 4 shall be constructed and backfilled prior to placing the abutment fills.
The work covered by these plans includes construction of the proposed bridge, placing porous material and placing slope protection Class A to the limits shown.
Datum refers to U.S.G.S. datum.

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 OVER 13 MILE ROAD IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF SITE

TECON ENGINEERS, INC.

APPROVED J. U. Murray 6-5-62 COORDINATING ENGINEER

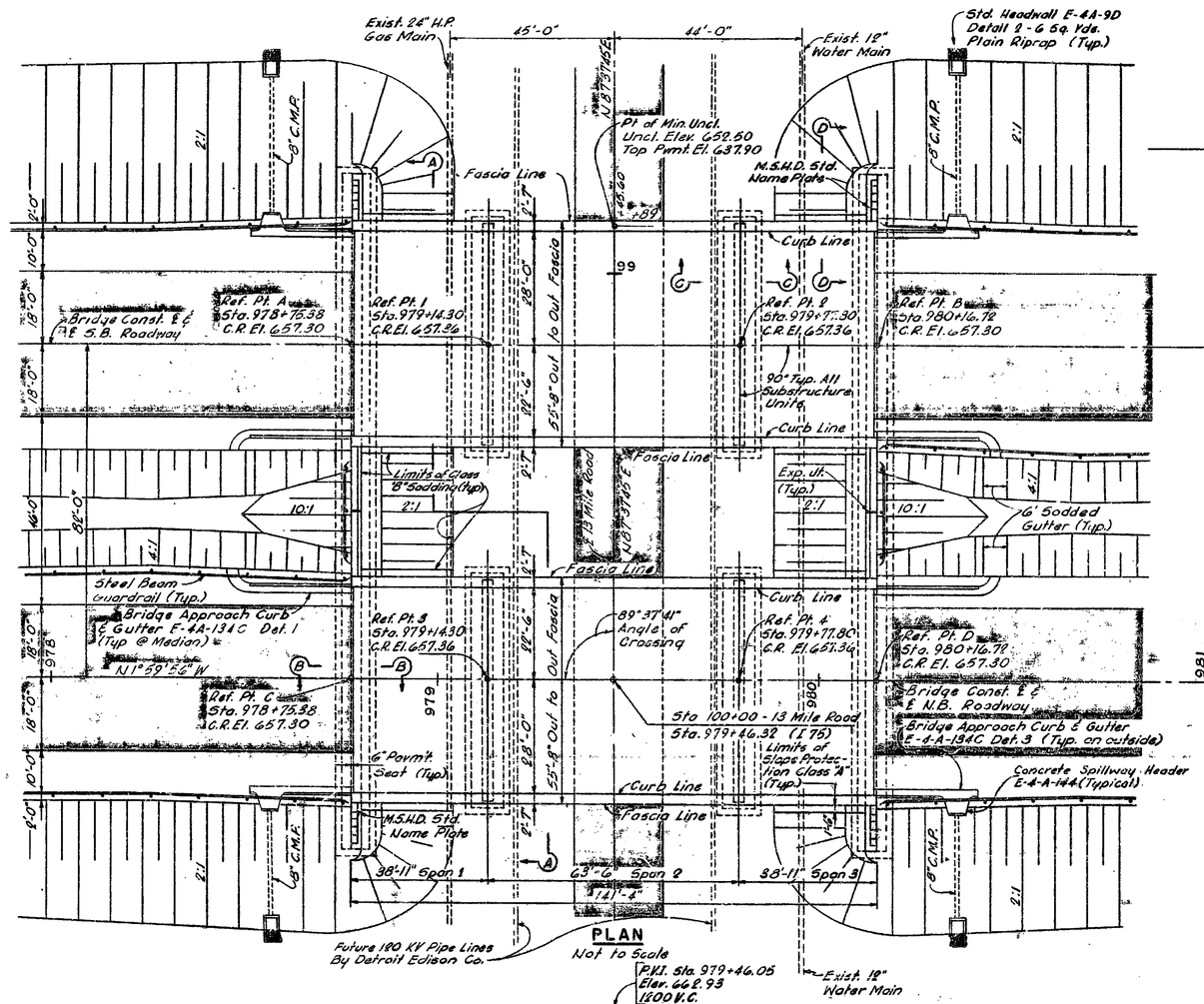
APPROVED ENGINEER OF DESIGN — CONSULTANTS

SQUAD BOSS	GTC	2-[illegible]
DRAWN BY	FDH	10-20-60
TRACED BY	GTC	12-1-61
CHECKED BY		
SHEET 221 OF 212		

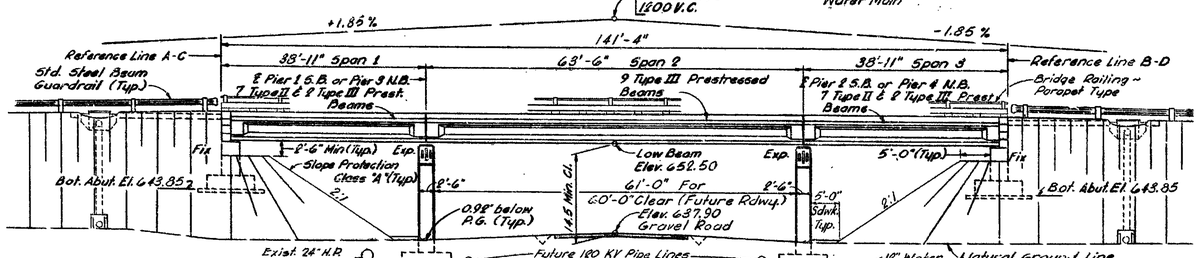
S04 OF 63174 I

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
* Slope Protection Class A	Sq. Yds.	886
Porous Material Grade A (Compacted in Place)	Cu. Yds.	6720

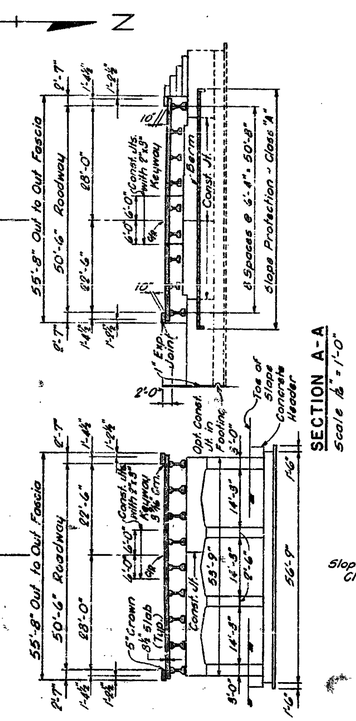
* Grouted Riprap shall not be used on this Project.



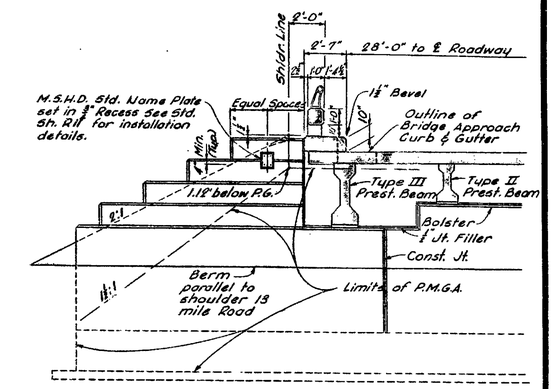
PLAN
Not to Scale



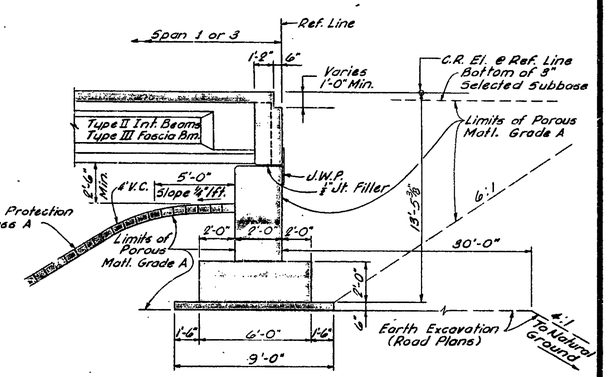
ELEVATION
Not to Scale



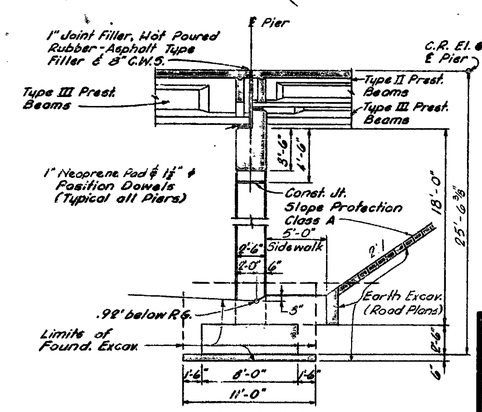
SECTION A-A
Scale 1/8" = 1'-0"



SECTION D-D
Scale 1/8" = 1'-0"



SECTION B-B
Scale 1/8" = 1'-0"



SECTION C-C
Scale 1/8" = 1'-0"

REVISIONS

NO.	DESCRIPTION	DATE	BY

GENERAL NOTES:

Top of roadway slab and tops of curbs are parallel to the vertical curve.
The design of this Structure is based on the Standard Specifications for the Design of Highway Bridges - 1958 Edition. H20-S16-44 and alternate military loading. Live Load plus Impact deflection = 1/1000 of span length.

CONTROL SECTION 63174 I

MICHIGAN STATE HIGHWAY DEPARTMENT

I75 OVER I3 MILE ROAD IN THE CITY OF MADISON HEIGHTS

GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC.

APPROVED J. V. Murray 6-5-62 COORDINATING ENGINEER

APPROVED ENGINEER OF DESIGN — CONSULTANTS

SQUAD BOSS	G.T.C.	12-1-60
DRAWN BY	M.B.A.	12-1-60
TRACED BY		
CHECKED BY	G.T.C.	12-1-60

SHEET 223 OF 312

S04 OF 63174 I

ITEM	UNIT	QUANTITY	DATE A	DATE B	DATE C	FINAL
Unclassified Excavation	Cu. Yds.	560		+20 01002		580
Grade A (C.R.) Concrete-Substructure	Cu. Yds.	427				427
Grade A (C.R.) Concrete-Substructure	Cu. Yds.	350				350
Grade A (C.R.) Concrete-Superstructure	Cu. Yds.	546				546
Water-Reducing Retarding Admixture	—	Lump Sum	-28.72% 01001			71.28%
36 Inch. Prestressed Concrete I Beams-Erected	Lin. Ft.	1064				1064
36 Inch. Prestressed Concrete I Beams-Furnished	Lin. Ft.	1064				1064
45 Inch. Prestressed Concrete I Beams-Erected	Lin. Ft.	1444				1444
45 Inch. Prestressed Concrete I Beams-Furnished	Lin. Ft.	1444				1444
Neoprene Bearing Pads	Sq. Ft.	120				120
Steel Reinforcement	Lbs.	135622				135622
1/2" Joint Filler	Sq. Ft.	10			+2 01005	12
1/2" Joint Filler	Sq. Ft.	344				344
3/4" Joint Filler	Sq. Ft.	62			+4 01006	66
1" Joint Filler	Sq. Ft.	180			-17 01007	163
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	230			-4 01008	226
Joint Waterproofing	Sq. Ft.	772			+36 01009	808
Copper	Lbs.	346			+4 01010	350
Bridge Railing-Parapet Type	Lin. Ft.	565.4				565.4
Slope Protection Class A	Sq. Yds.	866		+10 01003		876
Porous Material Grade A (Comp. in place)	Cu. Yds.	6720		-2037 01004		4683

BALANCED BY A.F.B. 1-26-66
CHECKED BY R.E. 1-26-66

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL
12-21-64	02001- Auth. D- State Owned Borrow	Cu. Yds.	5020	5020

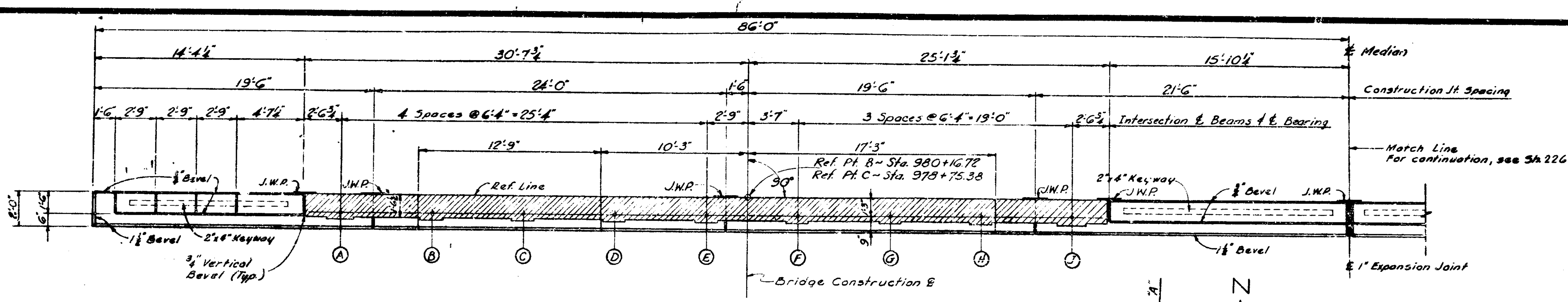
MICHIGAN STATE HIGHWAY DEPARTMENT

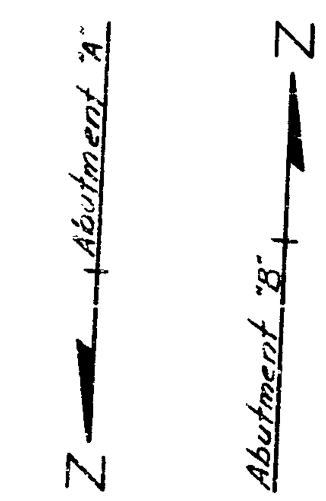
BILL OF MATERIAL

ROAD BOSS	GTC	2-2-61
DRAWN BY	JPC	
TRACED BY		
CHECKED BY	GTC	2/1/61

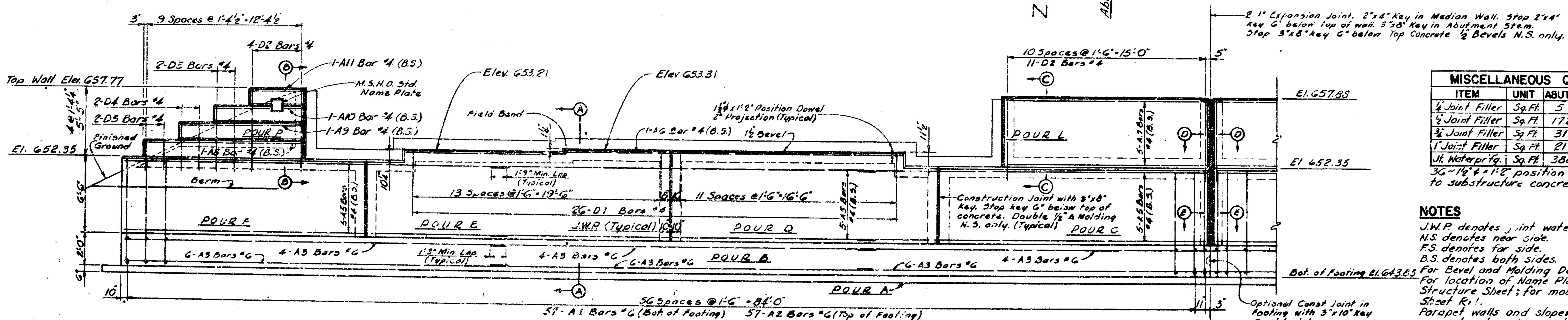
SHEET 226 OF 372

S04 OF 63174 I

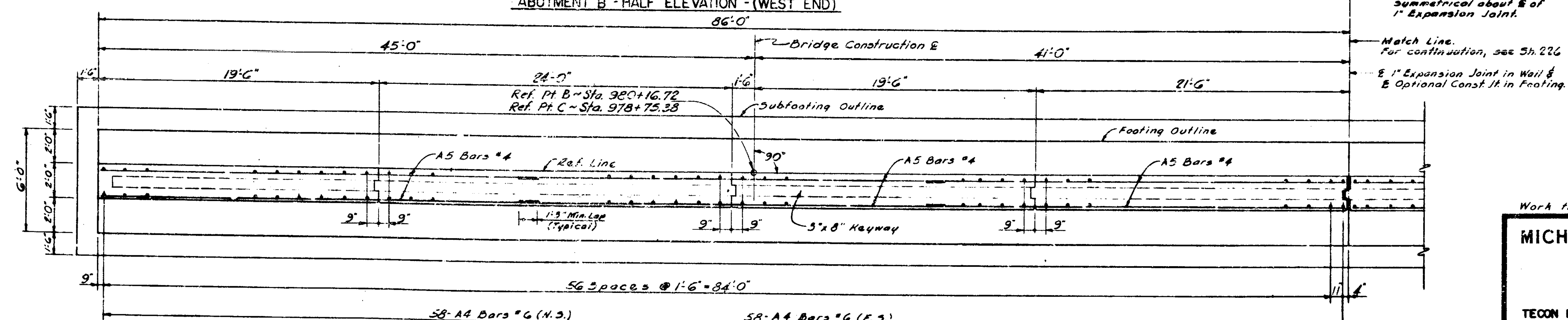




ABUTMENT "A" - HALF PLAN OF TOP (EAST END)
ABUTMENT "B" - HALF PLAN OF TOP (WEST END)



ABUTMENT "A" - HALF ELEVATION - (EAST END)
ABUTMENT "B" - HALF ELEVATION - (WEST END)



ABUTMENT "A" HALF PLAN OF FOOTING (EAST END)
ABUTMENT "B" - HALF PLAN OF FOOTING (WEST END)

CONCRETE QUANTITIES

POUR	ABUT. A		ABUT. B	
	A (6A)	A (6AA)	A (6A)	A (6AA)
A	29.2		29.2	
B	76.3		76.3	
C		10.4		10.4
D		11.4		11.4
E		12.9		12.9
F		9.4		9.4
G		10.4		10.4
H		11.4		11.4
J		12.9		12.9
K		9.4		9.4
L		4.8		4.8
M		4.8		4.8
N		2.6		2.6
P		2.6		2.6
Total	105.5	103.0	105.5	103.0

MISCELLANEOUS QUANTITIES

ITEM	UNIT	ABUT. A	ABUT. B	TOTAL
¼" Joint Filler	Sq. Ft.	5	5	10
½" Joint Filler	Sq. Ft.	172	172	344
¾" Joint Filler	Sq. Ft.	31	31	62
1" Joint Filler	Sq. Ft.	21	21	42
Jt. Waterpr'fg.	Sq. Ft.	386	386	772

36 ~ 1½"φ x 1'-2" position dowels (incidental) to substructure concrete.

NOTES

J.W.P. denotes joint waterproofing.
N.S. denotes near side.
F.S. denotes far side.
B.S. denotes both sides.
For Bevel and Molding Details, see Std. Sheet R11.
For location of Name Plates, see General Plan of Structure Sheet; for mounting details, see Std. Sheet R11.
Parapet walls and slopewalls are to be cast after superstructure is complete to top of curbs.
Position Dowels shall be set accurately to a template.
Furnishing and setting of Position Dowels is incidental to substructure concrete.
The Top Concrete shall be finished to a true plane at the elevation shown and shall not vary more than ⅛" under a ten foot straight edge.
This design is based on a maximum foundation pressure of 3650 pounds per square foot and a maximum average foundation pressure of 2950 pounds per square foot.

Work this sheet with sheet 226

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT DETAILS

TECON ENGINEERS, INC.

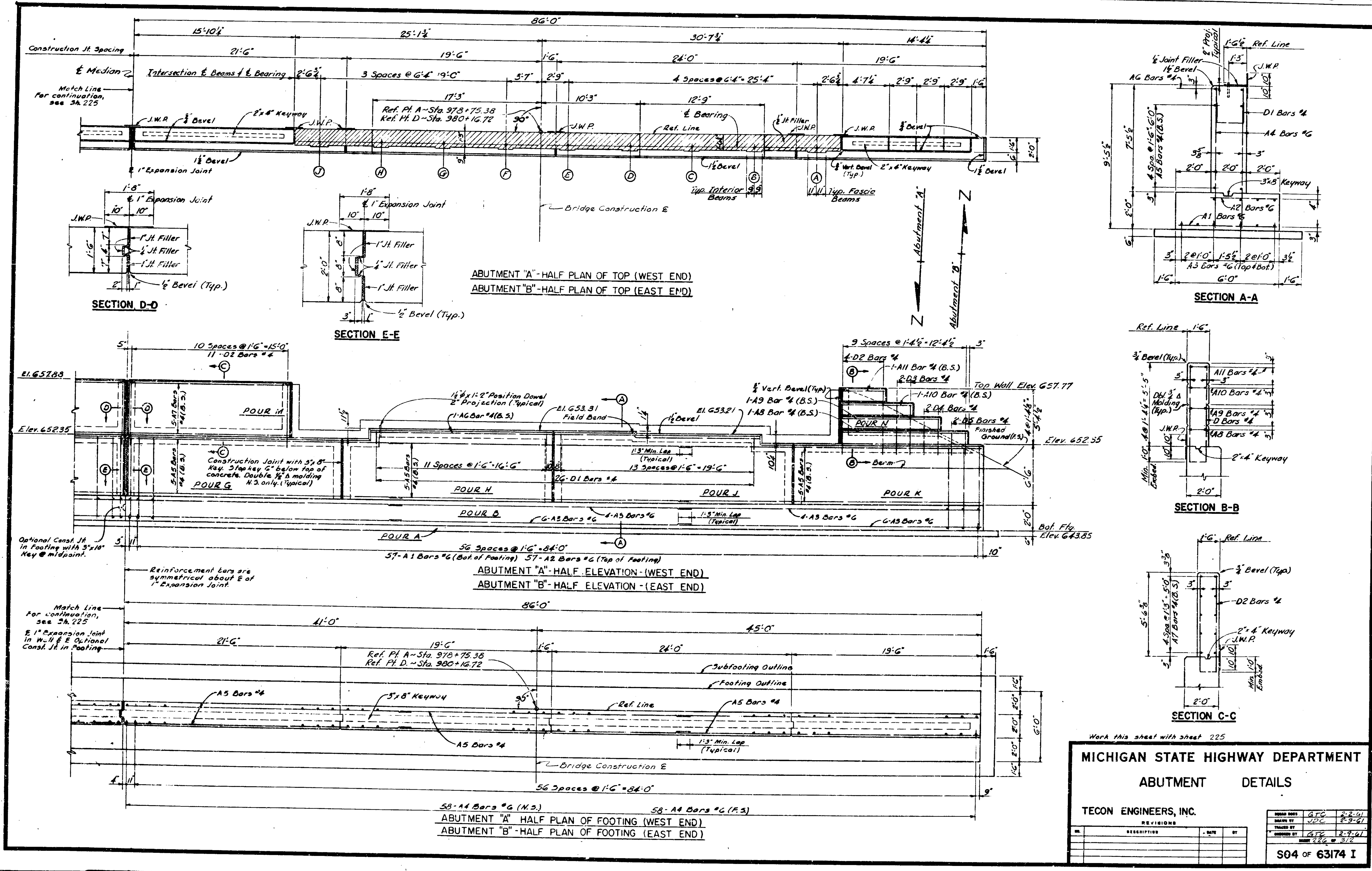
REVISIONS

NO.	DESCRIPTION	DATE	BY

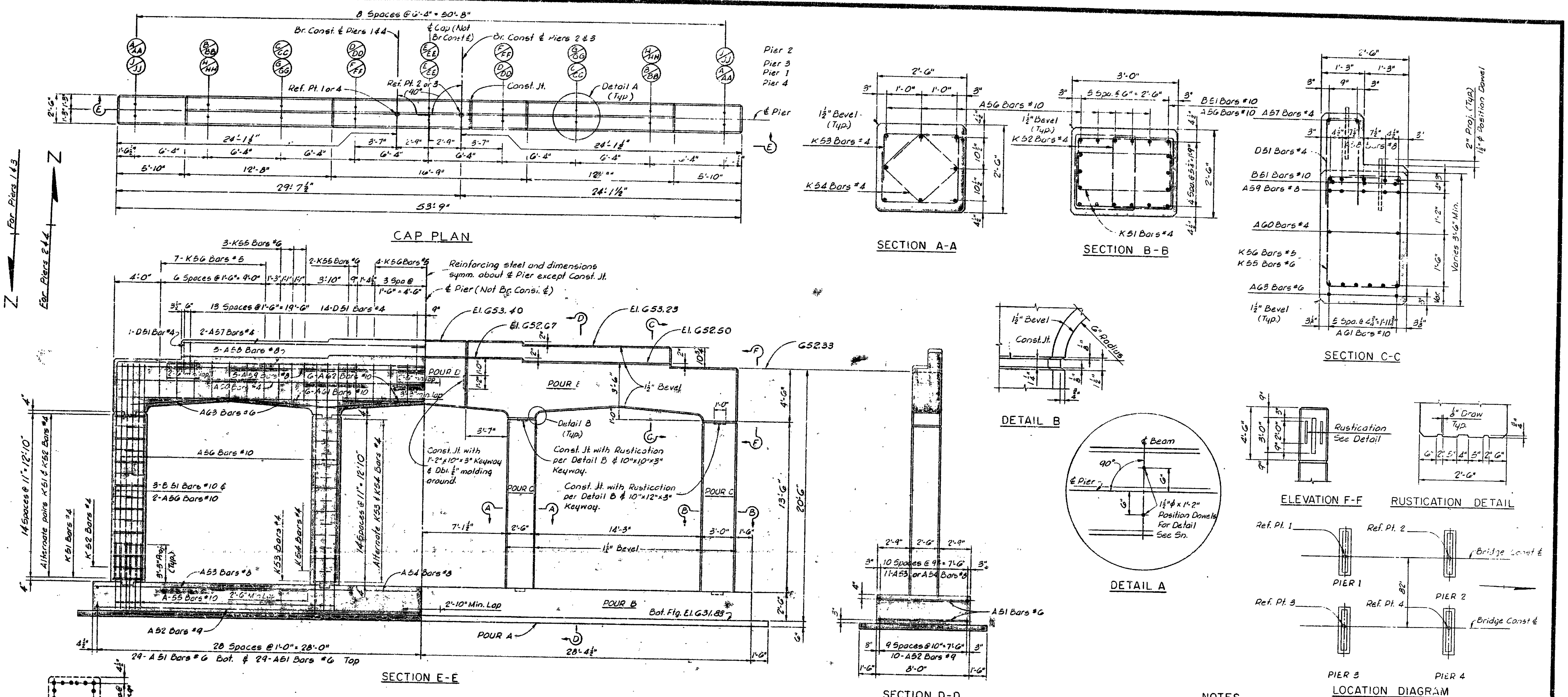
DESIGNED BY	GTC	-4-61
DRAWN BY	JDC	2-9-61
TRACED BY		
CHECKED BY	GTC	2-9-61

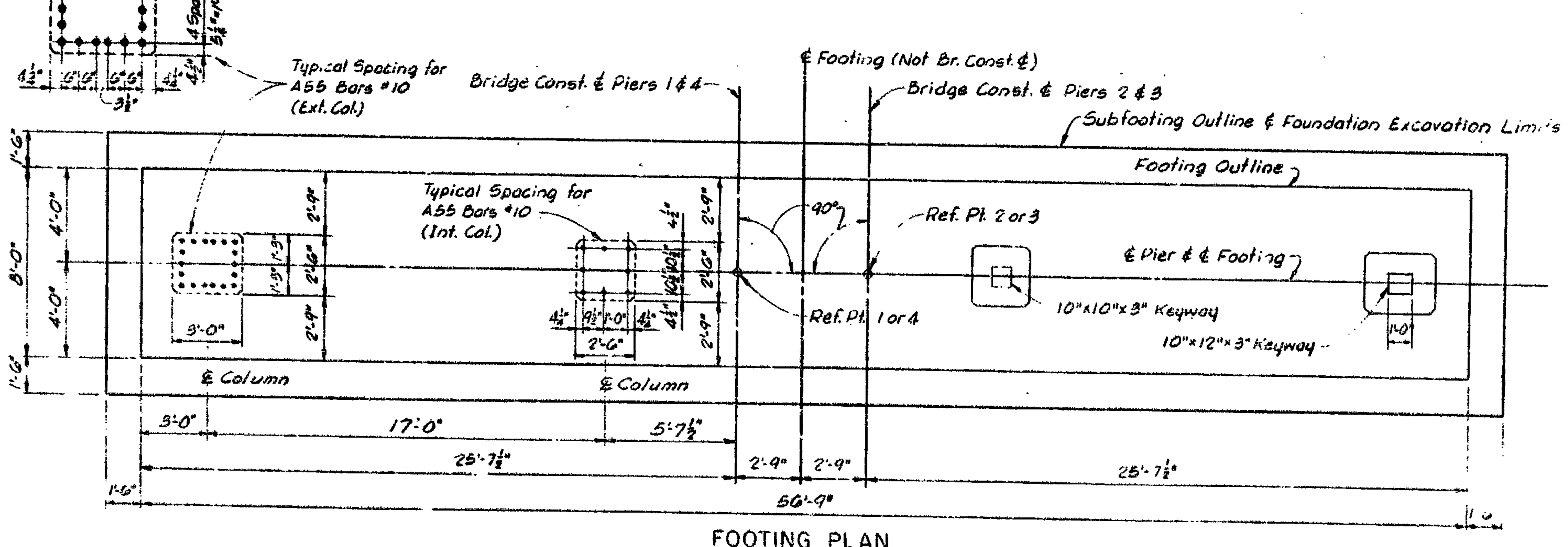
SHEET 225 OF 312

S04 OF 63174 I



ABUTMENT "A"-HALF PLAN OF TOP (WEST END)
ABUTMENT "B"-HALF PLAN OF TOP (EAST END)
SECTION D-D
SECTION E-E
SECTION A-A
SECTION B-B
SECTION C-C
ABUTMENT "A"-HALF ELEVATION-(WEST END)
ABUTMENT "B"-HALF ELEVATION-(EAST END)
ABUTMENT "A" HALF PLAN OF FOOTING (WEST END)
ABUTMENT "B"-HALF PLAN OF FOOTING (EAST END)
Construction Jt. Spacing
℄ Median
Match Line For continuation, see Sh. 225
Intersection ℄ Beams & ℄ Bearing
Ref. Pt. A~Sta. 978+75.38
Ref. Pt. D~Sta. 980+16.72
Bridge Construction ℄
Typ. Interior Beams
Typ. Fascia Beams
Abutment "A"
Abutment "B"
Reinforcement bars are symmetrical about ℄ of 1" Expansion Joint.
Optional Const. Jt. in Footing with 3"x10" Key @ midpoint.
56 Spaces @ 1'-6" = 84'-0"
57-A1 Bars #6 (Bot. of Footing) 57-A2 Bars #6 (Top of Footing)
58-A4 Bars #6 (N.S.)
58-A4 Bars #6 (F.S.)
POUR A
POUR B
POUR G
POUR H
POUR J
POUR K
POUR M
POUR N
Subfooting Outline
Footing Outline
Work this sheet with sheet 225
MICHIGAN STATE HIGHWAY DEPARTMENT
ABUTMENT DETAILS
TECON ENGINEERS, INC.
REVISIONS
S04 OF 63174 I





POUR	LOCATION	PIER 1		PIER 2		PIER 3		PIER 4	
		GR.A(6A)	GR.A(6AA)	GR.A(6A)	GR.A(6AA)	GR.A(6A)	GR.A(6AA)	GR.A(6A)	GR.A(6AA)
A	Subfooting	12.0		12.0		12.0		12.0	
B	Footing	42.0		[illegible]		42.0		[illegible]	
C	Columns		13.9		13.9		13.9		13.9
D	Cap*		12.5		12.5		12.5		12.5
E	Cap*		9.6		9.6		9.6		9.6
TOTALS		54.0	36.0	[illegible]	36.0	54.0	36.0	54.0	36.0

CONCRETE QUANTITIES- CUBIC YARDS

[illegible] QUANTITIES

ITEM	UNIT	PIER 1	PIER 2	PIER 3	PIER 4
Foundation Excavation	Cu. Yds.	140	140	140	140

NOTES

For Bevel and Molding Details, see Standard Sheet R11.
Position Dowels shall be set accurately to a template.
Furnishing and setting of position dowels is incidental to substructure concrete.
The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of the position dowels.
The top of pier shall be finished to a true plane at the elevations shown and shall not vary more than 1/8" under a ten foot straight edge.
This design is based on a maximum foundation pressure of 3950 #/ft.² and a maximum average foundation pressure of 3350 #/ft².

MICHIGAN STATE HIGHWAY DEPARTMENT

PIERS NO. 1,2,3 & 4 DETAILS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	GTC	
DRAWN BY	AEB/JDC	[illegible]
TRACED BY		
CHECKED BY	GTW	3-13-61
SHEET 227		312

S04 OF 63174 I

ABUTMENTS

BAR	DIMENSIONS a	b	c	d	e	ABUT. A	ABUT. B	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A1	5'-6"					116	116	6	5'-6"	232	1917
A2	3'-10"					116	116	6	3'-10"	232	1336
A3	35'-4"					50	50	6	35'-4"	100	5307
A4	8'-3"					232	232	6	8'-3"	464	5750
A5	29'-0"					60	60	4	29'-0"	120	2325
A6	40'-0"					4	4	4	40'-0"	8	214
A7	15'-4"					20	20	4	15'-4"	40	410
A8	12'-4"					4	4	4	12'-4"	8	66
A9	9'-7"					4	4	4	9'-7"	8	51
A10	6'-11"					4	4	4	6'-11"	8	37
A11	4'-2"					4	4	4	4'-2"	8	22
D1	10"	1'-6"				52	52	4	3'-1"	104	214
D2	6'-2"	1'-0 1/2"				30	30	4	13'-4"	60	534
D3	4'-10"	1'-0 1/2"				4	4	4	10'-8"	8	57
D4	3'-6"	1'-0 1/2"				4	4	4	8'-0"	8	43
D5	2'-2"	1'-0 1/2"				4	4	4	5'-4"	8	29
TOTAL WEIGHT ABUTMENTS ~ LBS.											18312

PIERS

BAR	DIMENSIONS a	b	c	d	e	PIER 1	PIER 2	PIER 3	PIER 4	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A51	7'-6"					114	114	114	114	6	7'-6"	456	5137
A52	29'-6"					20	20	20	20	9	29'-6"	80	8024
A53	18'-6"					22	22	22	22	8	18'-6"	88	4347
A54	24'-3"					11	11	11	11	8	24'-3"	44	2849
A55	5'-6"					52	52	52	52	10	5'-6"	208	4923
A56	17'-6"					46	46	46	46	10	17'-6"	184	13856
A57	21'-6"					4	4	4	4	4	21'-6"	16	230
A58	24'-6"					10	10	10	10	8	24'-6"	40	2617
A59	28'-0"					10	10	10	10	8	28'-0"	40	2990
A60	27'-6"					4	4	4	4	4	27'-6"	16	294
A61	22'-9"					12	12	12	12	10	22'-9"	48	4699
A62	14'-3"					6	6	6	6	10	14'-3"	24	1472
A63	10'-0"					12	12	12	12	6	10'-0"	48	721
B51	17'-8"	6'-0"				6	6	6	6	10	23'-8"	24	2444
D51	1'-10"	11"				30	30	30	30	4	4'-6"	120	361
K51	2'-8 1/2"	1'-4"	1'-4 1/2"	1'-6 1/2"		32	32	32	32	4	9'-7"	128	819
K52	2'-0"	1'-5 1/2"	1'-5 1/2"	1'-9"		28	28	28	28	4	8'-7"	112	642
K53	2'-2 1/2"	1'-7"	1'-7"	2'-0"		30	30	30	30	4	9'-6"	64	406
K54	1'-5"	1'-3 1/2"	1'-3 1/2"	1'-5"		30	30	30	30	4	6'-9"	56	253
K55	3'-2"	2'-0"	2'-0"	2'-2"		10	10	10	10	6	12'-5"	40	746
K56	3'-2"	1'-10"	1'-10"	2'-2"		21	21	21	21	5	12'-1"	84	1059
TOTAL WEIGHT PIERS ~ LBS.													58889

SUPERSTRUCTURE

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A101	32'-11"							5	32'-11"	1132	38864
A102	23'-6"							5	23'-6"	1132	27746
A103	38'-0"							4	38'-0"	180	4569
A104	32'-0"							4	32'-0"	252	5387
A105	38'-6"							4	38'-6"	72	1852
A106	4'-6"							4	4'-6"	96	289
A107	3'-9"							4	3'-9"	32	80
A110	38'-0"							5	38'-0"	208	8244
A111	32'-2"							5	32'-2"	208	6978
B101	2'-4"	10 1/2"						4	3'-2"	380	804
D101	5 3/4"	1'-3 1/2"						4	2'-2"	760	1100
D103	2'-5 7/8"	6 3/4"						6	5'-5"	396	3222
K101	1'-3 1/2"	1'-0"	1'-0"	1'-2 1/2"				4	5'-8"	32	121
K102	10 3/4"	5 3/4"	6"	7 3/4"				4	3'-4"	264	588
K103	7 1/2"	5 1/2"	6"	7 1/2"				4	2'-9"	480	882
M101	10"	3'-7"	1'-3 1/2"	2'-0"	1'-0"	1'-10"		4	10'-4"	112	773
M102	10"	4'-4"	1'-3 1/2"	3'-2"	1'-0"	1'-10"		4	12'-3"	16	131
TOTAL SUPERSTRUCTURE											101630

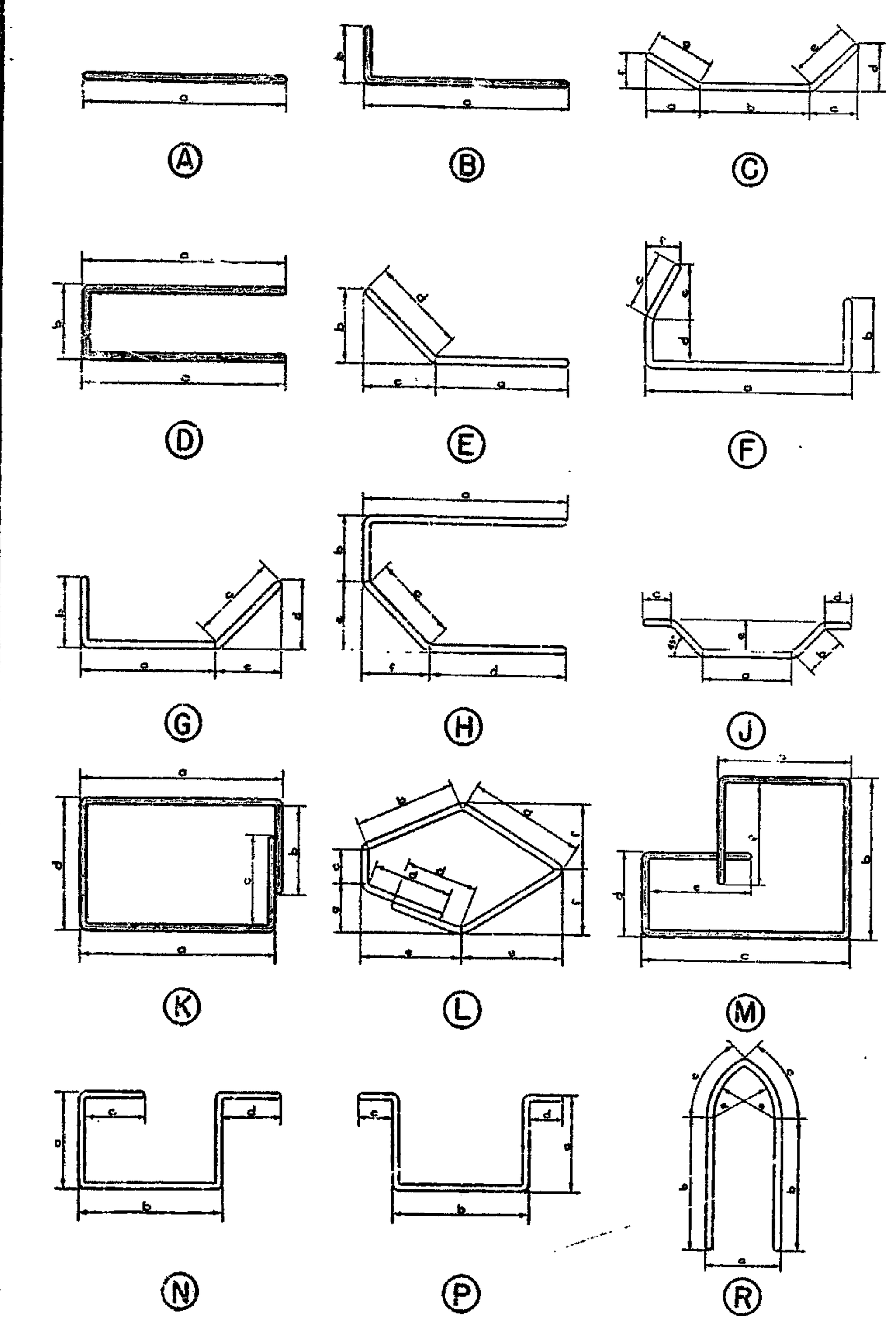
Note: One-half of bars go to each structure

DIAPHRAGMS

BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A108	4'-8"							6	4'-8"	384	2692
A109	4'-10"							6	4'-10"	384	2788
D102	1'-9"	4"						4	3'-10"	512	1311
TOTAL DIAPHRAGMS											6791

Note: One-half of bars go to each structure

BAR BENDING DIAGRAM



Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 185622 *

MICHIGAN STATE HIGHWAY DEPARTMENT

STEEL REINFORCEMENT DETAILS

TECON ENGINEERS, INC.

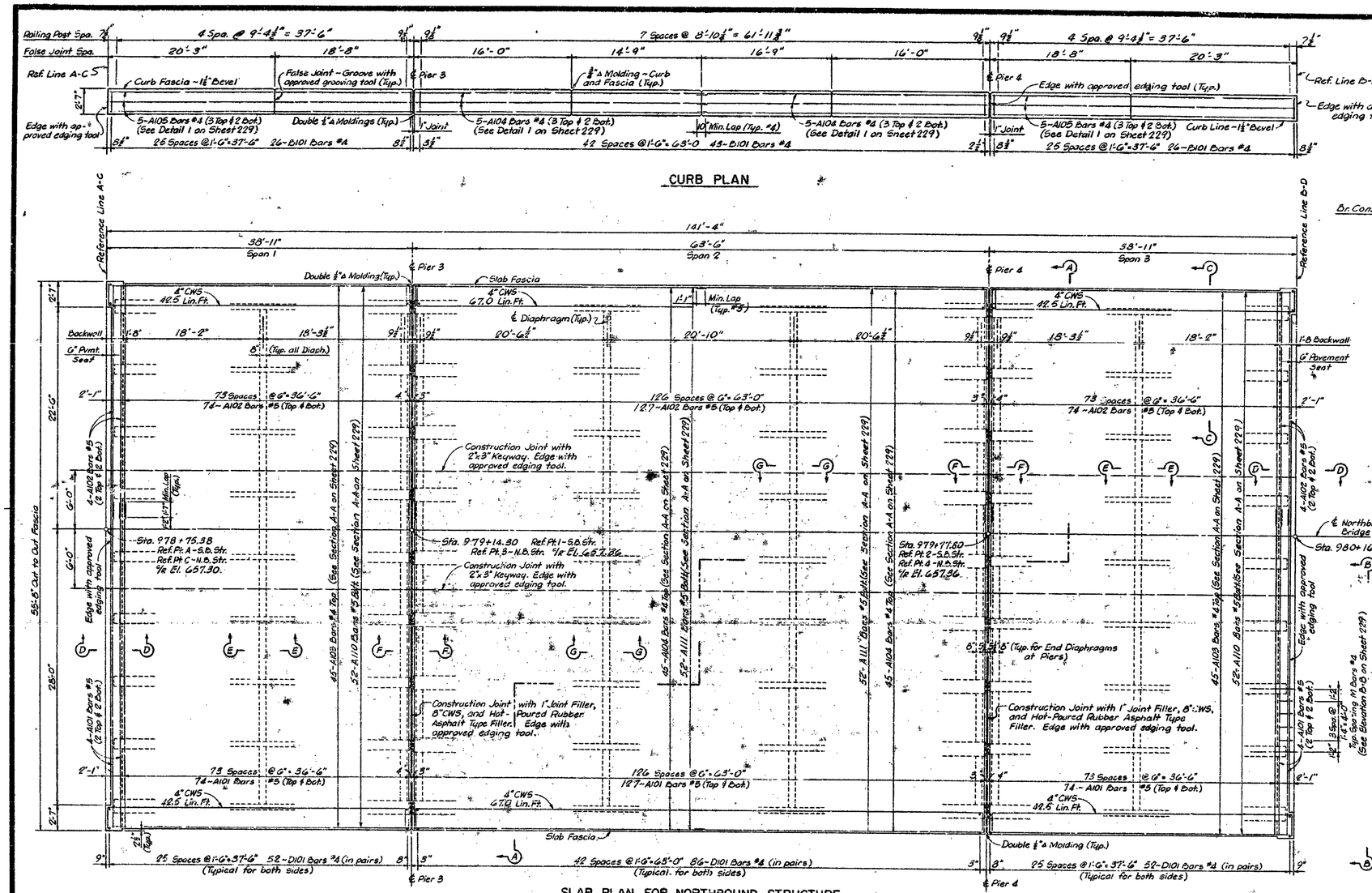
REVISIONS

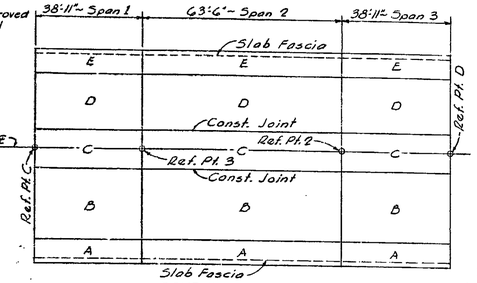
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	GTC	2-2-61
DRAWN BY	JDC	
TRACED BY		
CHECKED BY	GTC / GTW	3-15-61 / 3-14-61

SHEET 233 OF 312

S04 OF 63174 I





POUR DIAGRAM

N.B. Structure shown. S.B. Structure similar by rotation.

CU. YDS. CONCRETE - GR. A(6AA)			
POUR	SPAN 1	SPAN 2	SPAN 3
A	3.1	5.1	3.1
B	29.9	42.5	29.9
C	14.2	20.7	14.2
D	23.4	33.0	23.4
E	3.1	5.1	3.1
Diaph's	4.6	10.0	4.6
Total	78.3	116.4	78.3
Total Concrete - N.B. Structure			273.0
Total Concrete - S.B. Structure			273.0

Concrete pours need not be placed in alphabetical order.

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMT.
1" Joint Filler	Sq. Ft.	138
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	230
Copper	Lbs.	346
Bridge Railing - Parapet Type	Lin. Ft.	565.4

Amounts shown above are the totals for both structures.

GENERAL NOTES

For Railing Details, see Sheet 231.
CWS denotes Copper Waterstop.
JWP denotes Joint Waterproofing.
For Bevel and Molding Details, see Sheet 211.
Edge and Groove denote Edging or Grooving with an approved tool.
Curb pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by the table in Section 5.01.03 of the Standard Specifications.

Work this sheet with sheets 229, 230, 231 & 232

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

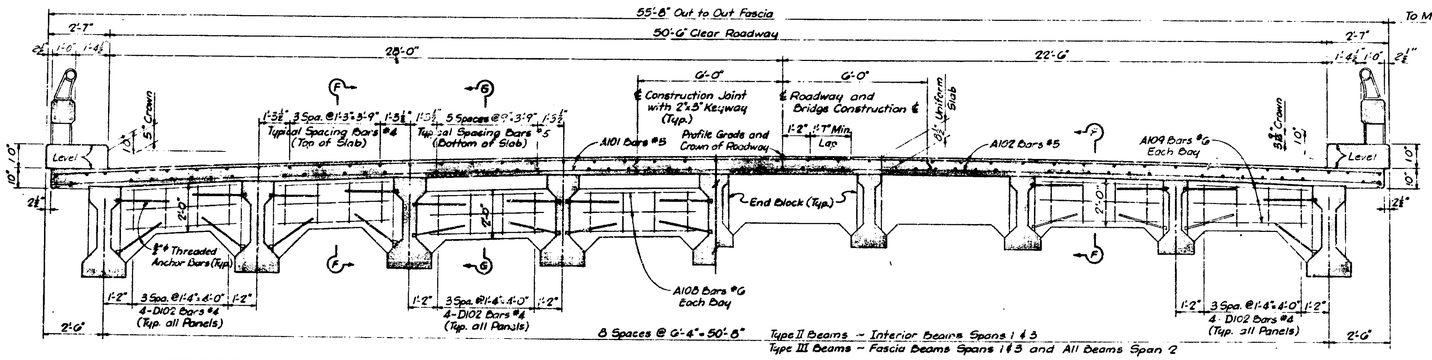
TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY

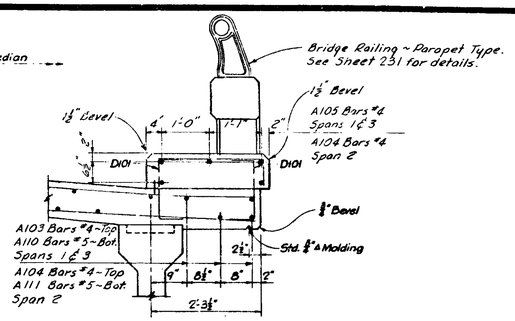
SQUAD BOSS	GTC	
DRAWN BY	JPB	1-6-61
TRACED BY		
CHECKED BY	GTC	2-2-61
SHEET 228 OF 312		

S04 OF 63174 I

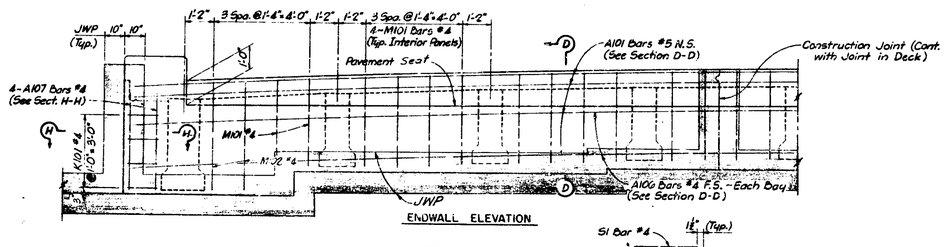


END DIAPHRAGMS IN SPAN 2 — INTERMEDIATE DIAPHRAGMS IN SPAN 2 — END DIAPHRAGMS IN SPANS 1 AND 3

SECTION A-A

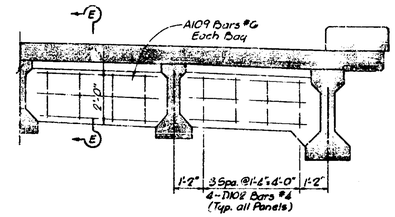


DETAIL 1



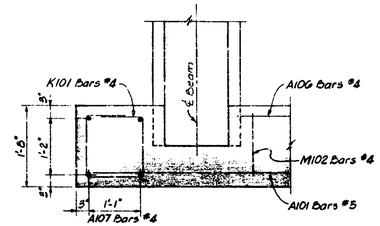
ENDWALL ELEVATION

ELEVATION B-B



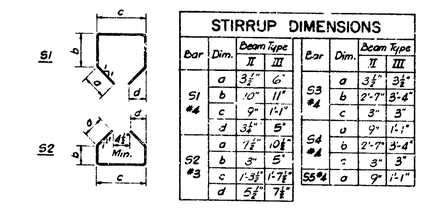
INTERMEDIATE DIAPHRAGMS IN SPANS 1 AND 3

SECTION C-C



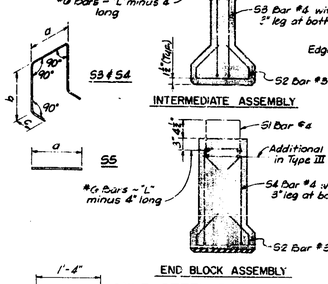
SECTION THRU END OF ENDWALL

SECTION H-H

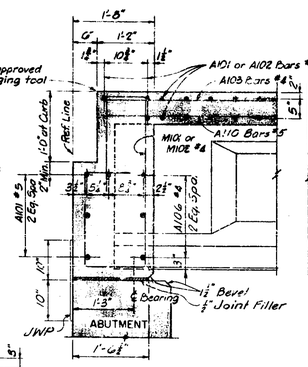


STIRRUP DIMENSIONS

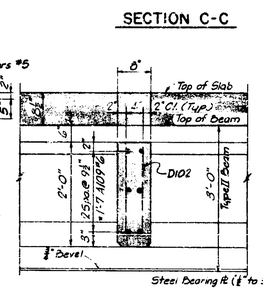
Bar	Dim.	Beam Type II	Beam Type III	Bar	Dim.	Beam Type II	Beam Type III
S1 #4	a	3½"	6"	S3 #4	a	3½"	3½"
	b	10"	11"		b	2'-7"	3'-4"
	c	9"	1'-1"		c	3"	3"
	d	3½"	5"	S4 #4	a	9"	1'-1"
S2 #3	a	7½"	10½"		b	2'-7"	3'-4"
	b	3"	5"		c	3"	3"
	c	1'-3½"	1'-7½"	S5 #4	a	9"	1'-1"
	d	5½"	7½"				



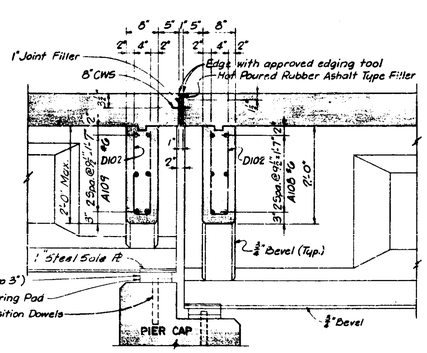
MILD STEEL REINFORCEMENT



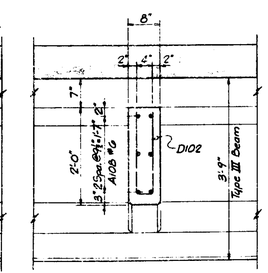
SECTION D-D



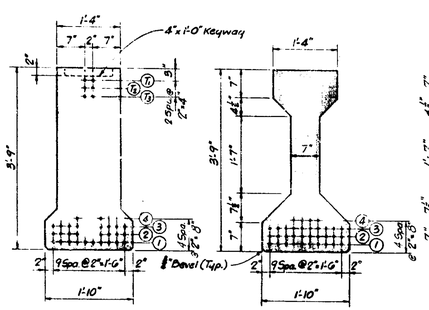
SECTION E-E



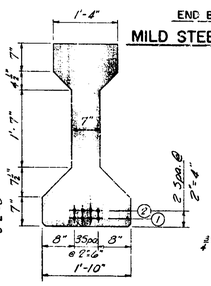
SECTION F-F



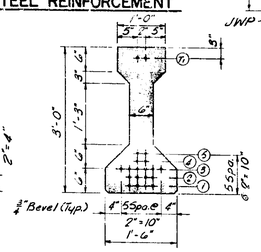
SECTION G-G



TYPE III WITH 34 STRANDS
ALL BEAMS (DRAPED) SPAN 2



TYPE III WITH 8 STRANDS
FASCIA BEAMS SPANS 1 & 3



TYPE II WITH 20 STRANDS
INTERIOR BEAMS SPANS 1 & 3

STRAND TABLE

NUMBER OF 7/16" ϕ - 7 WIRE STRANDS PER ROW

Type Beam	No. of Strands	Row Number 1	2	3	4	5	6	T_1	T_2	T_3	T_4	T_5	T_6
II	20	4	4	6	2	2	-	2	-	-	-	-	-
III	8	4	4	-	-	-	-	-	-	-	-	-	-
III (Draped)	34 Ctr.	10	10	10	4	-	-	-	-	-	-	-	-
	34 End	10	8	8	2	-	-	2	2	2	-	-	-

Work this sheet with sheets 228, 230, 231, & 232

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

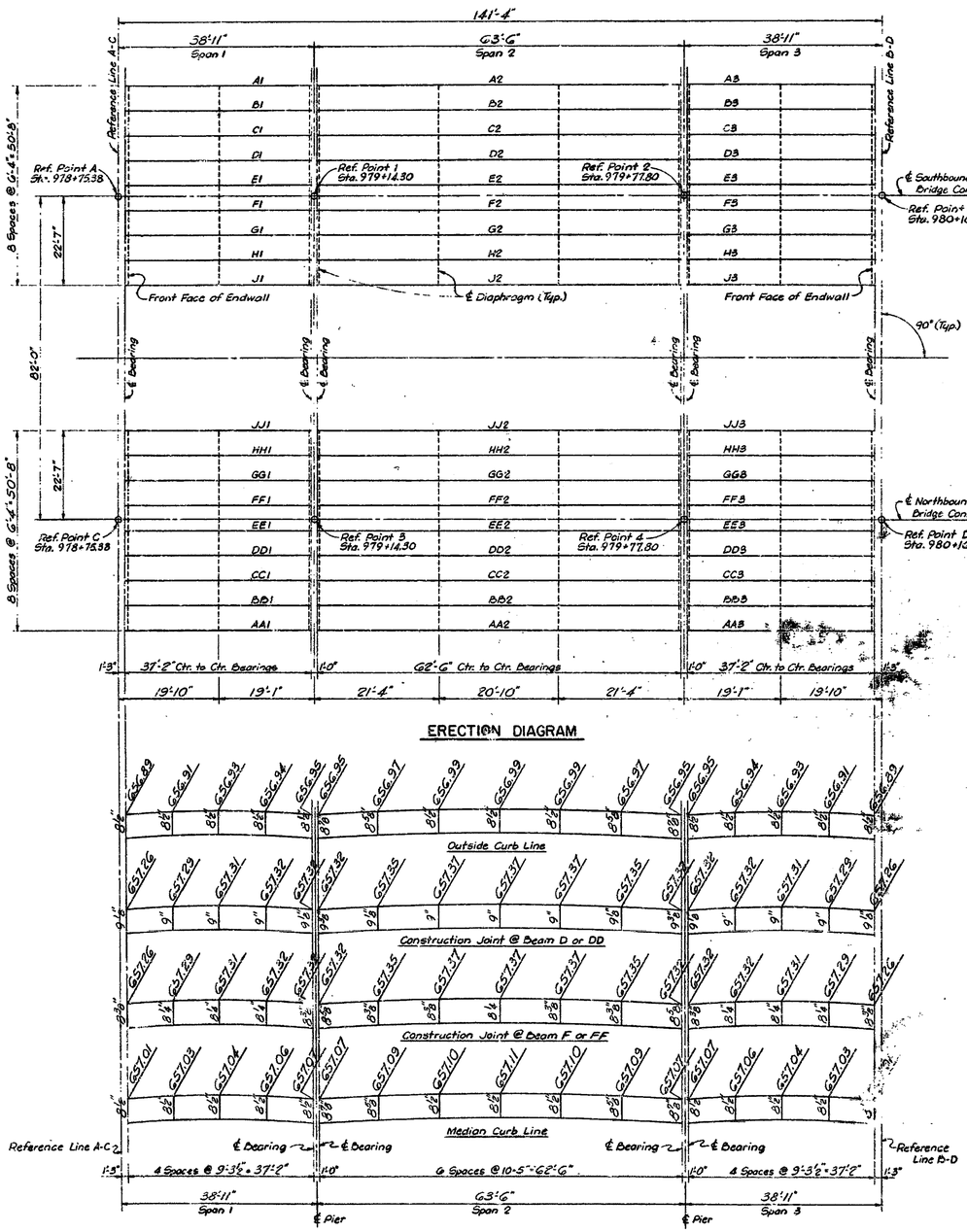
TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY

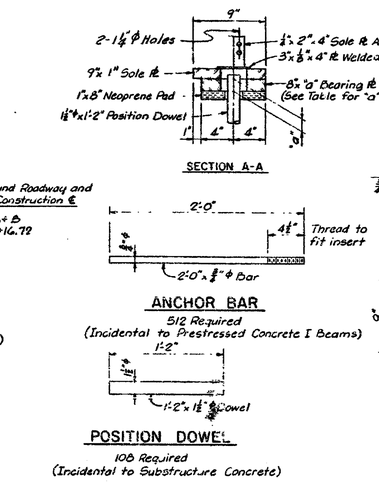
SQUAD BOSS	GTC	
DRAWN BY	JPB	1-10-61
TRACED BY		
CHECKED BY	GTC	2-22-61
SHEET 229 OF 312		

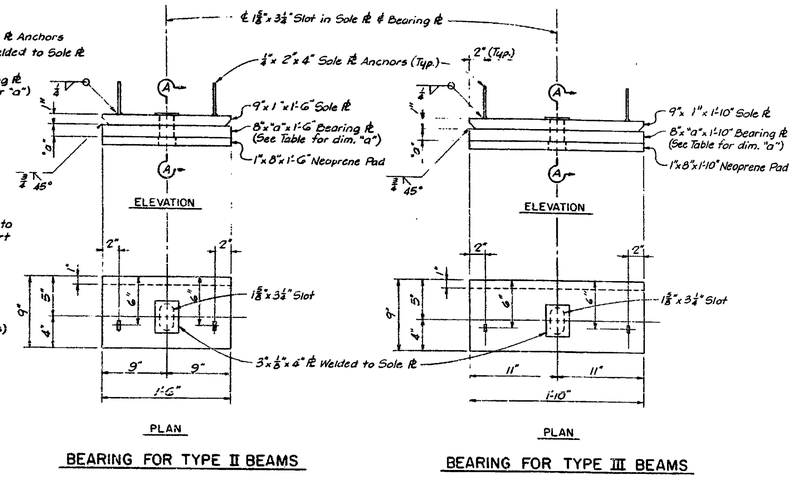
S04 OF 63174 I



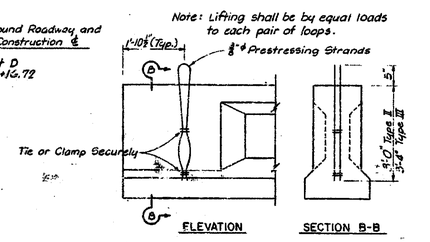
TOP OF SCREED ELEVATIONS AND SLAB ORDINATES

* Screed Elevations and Finished Top of Slab Elevations Same at ℄ Bearing.
Elevations Typical Northbound and Southbound Structures except as noted.





Note: Sole plates and bearing plates require no shop point. Field point shall consist of one coat of Rustoleum Primer and one coat of gray or aluminum Rustoleum or approved equal. (Incidental to erection of beams.)



LIFTING DEVICE DETAIL

BEAM TABLE

Span	Position of Beams	Number of Beams Required	Depth of Beams	Length of Beam End to End	Number of 7/16" ϕ Strands	Initial Prestressing Force per Strand (pounds)	Total Initial Prestressing Force in Beam (pounds)	Approx. Weight of each Beam (pounds)
1	Interior	14	3'-0"	38'-0"	20	19,075	381500	15100
1	Fascia	4	3'-9"	38'-0"	8	*18,500	148000	23900
2	All	18	3'-9"	63'-4"	34	19,075	648550	38600
3	Interior	14	3'-0"	38'-0"	20	19,075	381500	15100
3	Fascia	4	3'-9"	38'-0"	8	*18,500	148000	23900

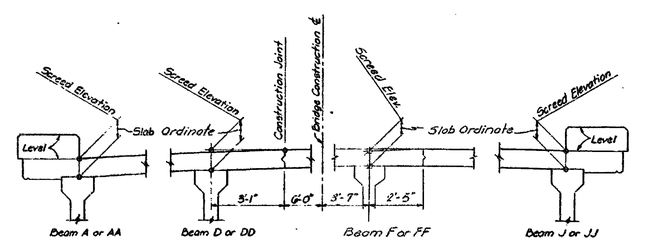
* Reduce Initial Prestressing Force so that stress after losses equals 150000 psi.

BEARING PLATE THICKNESS TABLE ("a")

Beam	Span 1		Span 2		Span 3	
	Abuts. A	Piers 1 & 3	Piers 1 & 3	Piers 2 & 4	Piers 2 & 4	Abuts. B
A or AA	¾"	1"	½"	½"	1"	¾"
B or BB	¾"	½"	0	0	½"	¾"
C or CC	2⅛"	1⅞"	1⅜"	1⅜"	1⅞"	2⅛"
D or DD	2⅛"	1"	½"	½"	1"	2⅛"
E or EE	2⅞"	1¾"	1¼"	1¼"	1¾"	2⅞"
F or FF	2⅞"	1¾"	1¼"	1¼"	1¾"	2⅞"
G or GG	2"	2⅜"	2⅜"	2⅜"	2⅜"	2"
H or HH	¾"	1¾"	1¼"	1¼"	1¾"	¾"
J or JJ	2⅛"	2⅜"	2"	2"	2⅜"	2⅛"

Elevations shown are for top of screed before pouring any concrete and are based on a minimum slab thickness of 8½". After screeds are set, if check indicates that less than the minimum thickness will be obtained, adjust the screeds accordingly.
The slab ordinates shown provide for dead load deflection, vertical curve, and crown, and are to be measured from the top of the beam indicated to the top of the screed (on a line parallel to the reference lines).

Work this sheet with sheets 228, 229, 231, & 232



SECTIONS SHOWING TYPICAL METHOD FOR MEASURING SLAB ORDINATE

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

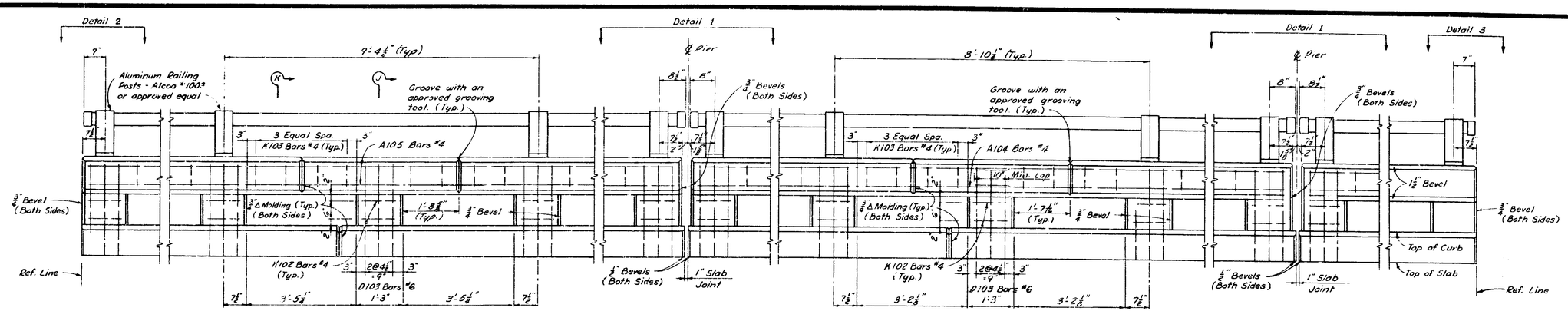
TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD INFGS	GTC	
DRAWN BY	JPB	1-5-61
TRACED BY		
CHECKED BY	GTC	2-2-61
SHEET 230 OF 312		

S04 OF 63174 I

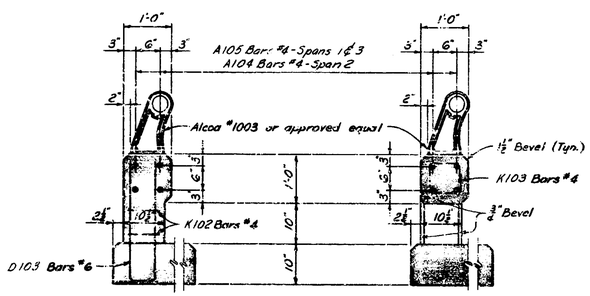


NOTE: For railing details and notes not shown, see M.S.H.D. Std. Dwg. R11.

REINFORCING IN PARAPET BEAMS AND BLOCKS (TYP. SPANS 1 & 3)

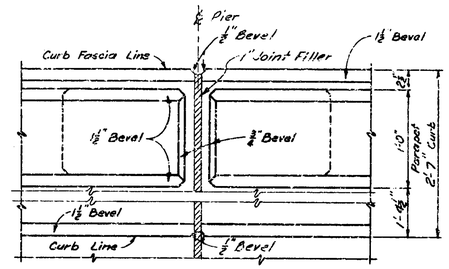
REINFORCING IN PARAPET BEAMS AND BLOCKS (TYP. SPAN 2)

INSIDE ELEVATION - BRIDGE RAILING - PARAPET TYPE

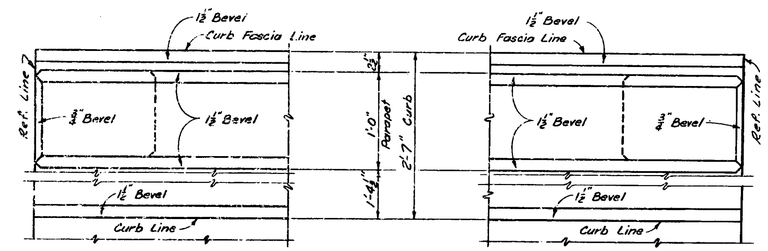


SECTION J-J

SECTION K-K

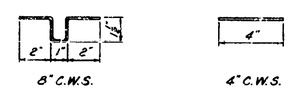


DETAIL 1



DETAIL 2

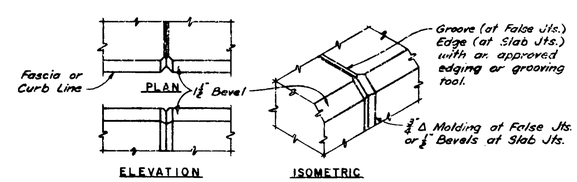
DETAIL 3



8" C.W.S.

4" C.W.S.

COPPER WATERSTOP DETAILS



MOLDING DETAILS

Work this sheet with sheets 228 thru 230, & 232

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

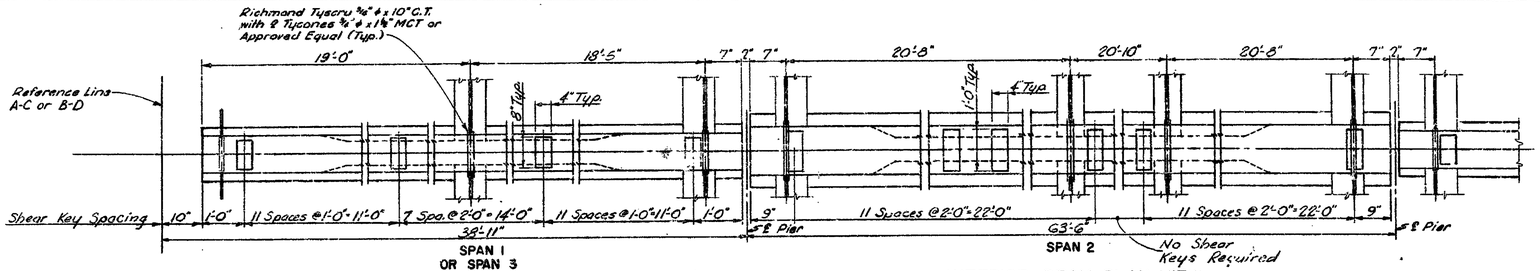
TECON ENGINEERS, INC.

REVISIONS

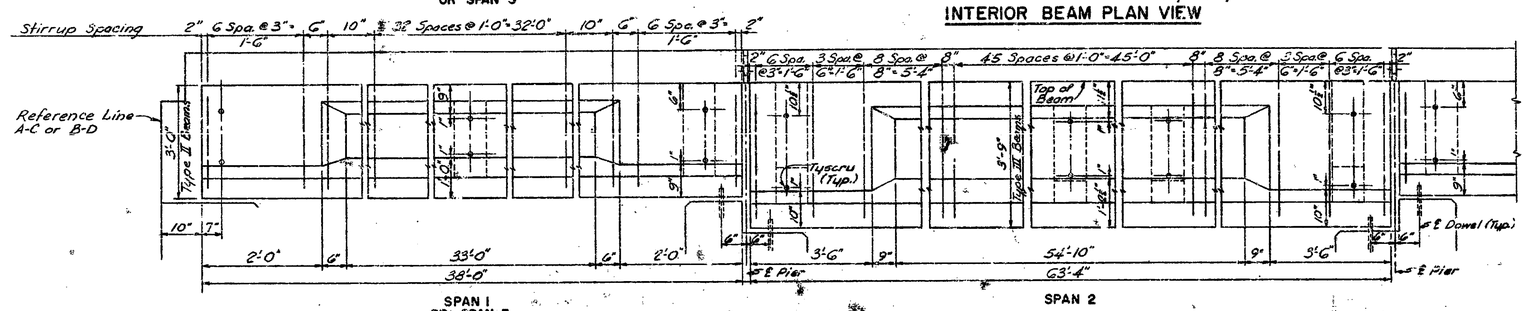
NO.	DESCRIPTION	DATE	BY

SQUAD 3033	JPC	3-26-62
DRAWN BY	E.B., Jr.	3-28-62
TRACED BY		
CHECKED BY	RMW	3-28-62
SHEET 231 OF 312		

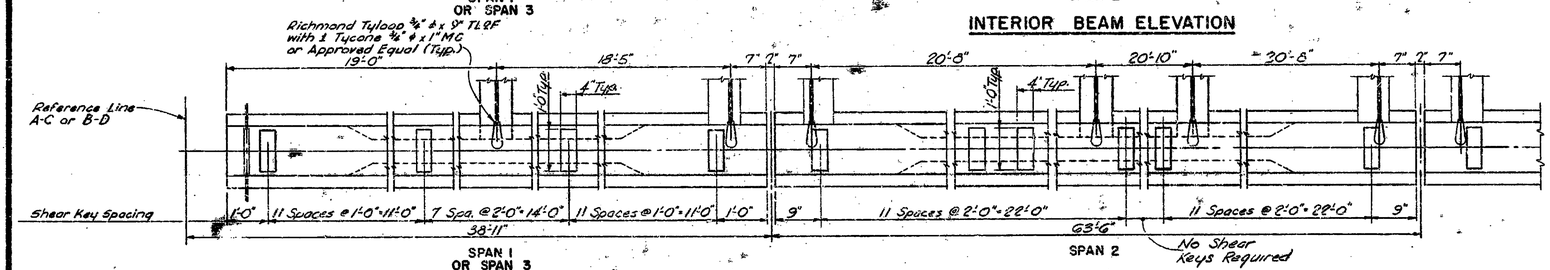
S04 OF 63174 I



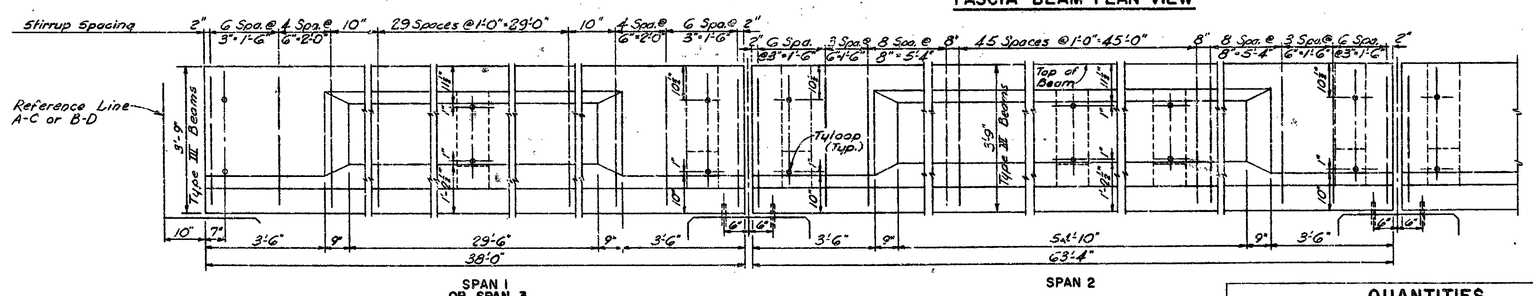
INTERIOR BEAM PLAN VIEW



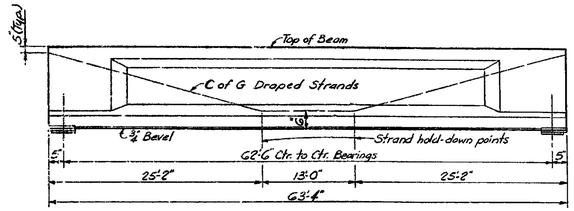
INTERIOR BEAM ELEVATION



FASCIA BEAM PLAN VIEW



FASCIA BEAM ELEVATION



ELEVATION OF SPAN 2 BEAMS WITH DRAPED STRANDS

NOTE: Shop plans shall include a diagram of casting bed layout. Where the "pull-down" method is used, the jacking force for draped strands, together with appropriate computations shall also be submitted by the fabricator. (The value of "E" used in calculating strand elongation shall be as recommended by the strand manufacturer.)
Strands shall be placed symmetrically about the centerline of beam.
An allowance of .0005L shall be made for shortening of the beams due to shrinkage and elastic change.
Where called for, inserts shall be Richmond Type CT Inserts TLRF Insert, Superior ⅝" ϕ Coil Ties or coil with flared loop or equal.

NOTES

Fabrication: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction-1960 Edition.
Design: Michigan State Highway Department's Specifications for Design of Highway Bridges-1958 Edition. H20-S16-44 and alternate military loading.
Furnishing anchor bars is incidental to Prestressed Concrete I Beams-Furnished.
Installation of anchor bars is incidental to Superstructure Concrete.
Furnishing and installation of sole plates, bearing plates, lifting devices and other connected fixtures are incidental to Prestressed Concrete I Beams. (see supplemental specs.)
The estimated beam camber ¼" for Spans 1 & 3, and ⅞" for Span 2. A check should be made of the actual camber when beam is in erected position, and if different than estimated, adjustments to screeds are to be made to provide for required slab thickness.
For materials, construction, care and handling procedure, see supplemental specs.
Lifting devices different than as shown on the plans may be used provided they are approved by the M.S.H.D.
Minor cracks in the end sections of the beams may be permitted subject to inspection by M.S.H.D.
Beams with honeycomb of such extent as to affect the strength or resistance to deterioration will be accepted.
For additional notes see sheet nos. 229 & 230

QUANTITIES

ITEM	UNIT	AMOUNT
36" Prestressed Concrete I Beams-Erected	Lin. Ft.	1064.0
36" Prestressed Concrete I Beams-Furnished	Lin. Ft.	1064.0
45" Prestressed Concrete I Beams-Erected	Lin. Ft.	1444.0
45" Prestressed Concrete I Beams-Furnished	Lin. Ft.	1444.0
1" Neoprene Bearing Pads	Sq. Ft.	120

Work this sheet with sheets 228 thru 231

MICHIGAN STATE HIGHWAY DEPARTMENT

BEAM LAYOUT

TECON ENGINEERS, INC.

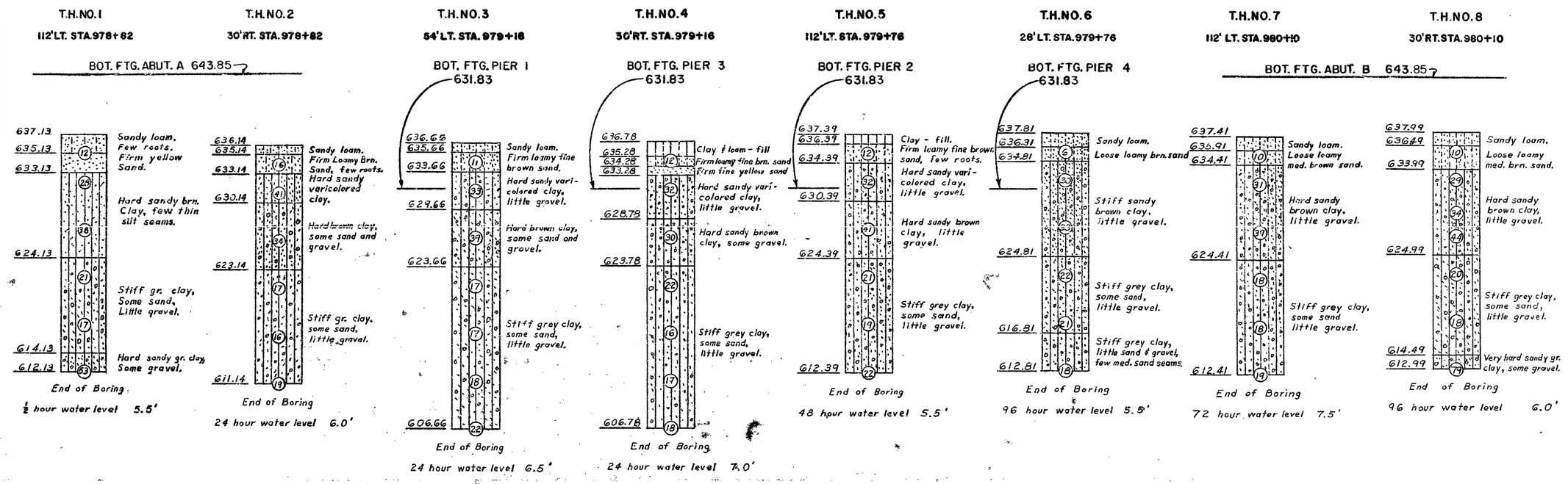
REVISIONS

NO.	DESCRIPTION	DATE	BY

ROUND & DIMS	JDC	3-26-61
DRAWN BY	JDC	2-7-61
TRACED BY		
CHECKED BY	CTC	2-8-61

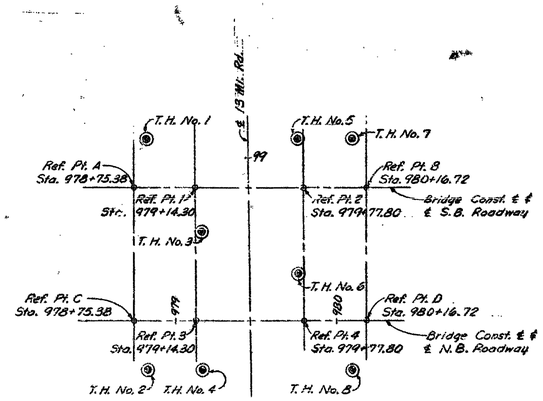
SHEET 232 OF 312

S04 OF 63174 I



NOTES

Classifications made from visual inspection.
Figures in circles indicate number of blows required to drive 2" O.D. sampling pipe one foot, using a 140 lb. weight falling 30 inches.
Water levels shown at the bottom of the borings probably indicate surface and / or wash water trapped in the impervious clay.
Data from boring report prepared by Detroit Office of the Raymond Concrete Pile Company. Report dated November 16, 1960.



BORING LOCATION SKETCH

SCALE: 1" = 40'

CONTROL SECTION 63174 I

MICHIGAN STATE HIGHWAY DEPARTMENT

I75 OVER 13 MILE ROAD IN THE CITY OF MADISON HEIGHTS

LOG OF BORINGS

TECON ENGINEERS, INC.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD DOBS	GTC	
DRAWN BY	T.A.S.	12-8-60
TRACED BY		
CHECKED BY	WFC	12-7-60
SHEET 222 OF 312		

S04 OF 63174 I

S22 of 63174

CS: 63174

ID: S22

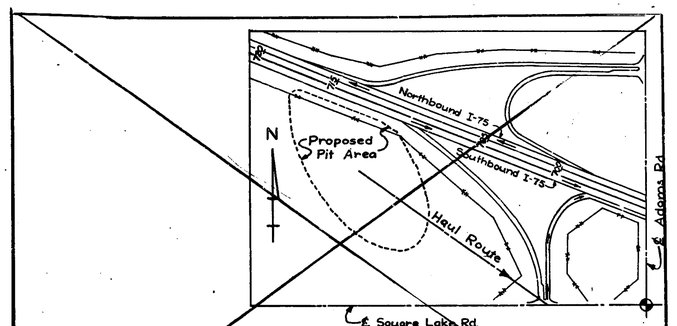
MICHIGAN
STATE HIGHWAY DEPARTMENT

I 63174 A, C 52

PART 1	SERVICE RDS. & UTILITIES	
PART 2	PUMPHOUSE	D02 of 63174A
PART 3	PUMPHOUSE	D03 of 63174A
PART 4	BRIDGE	S22 of 63174 A
PART 5	BRIDGE	S23 of 63174 A
PART 6	BRIDGE	S24 of 63174A
PART 7	BRIDGE	S25 of 63174A
PART 8	BRIDGE	S26 of 63174A
PART 9	BRIDGE	S27 of 63174A
PART 10	PEDESTRIAN BRIDGE	P02 of 63174 A
PART 11	PEDESTRIAN BRIDGE	P03 of 63174 A
PART 12	PEDESTRIAN BRIDGE	P04 of 63174 A
PART 13	PEDESTRIAN BRIDGE	P06 of 63174A

see Index of Drawings on next sheets (1A) & (1B)

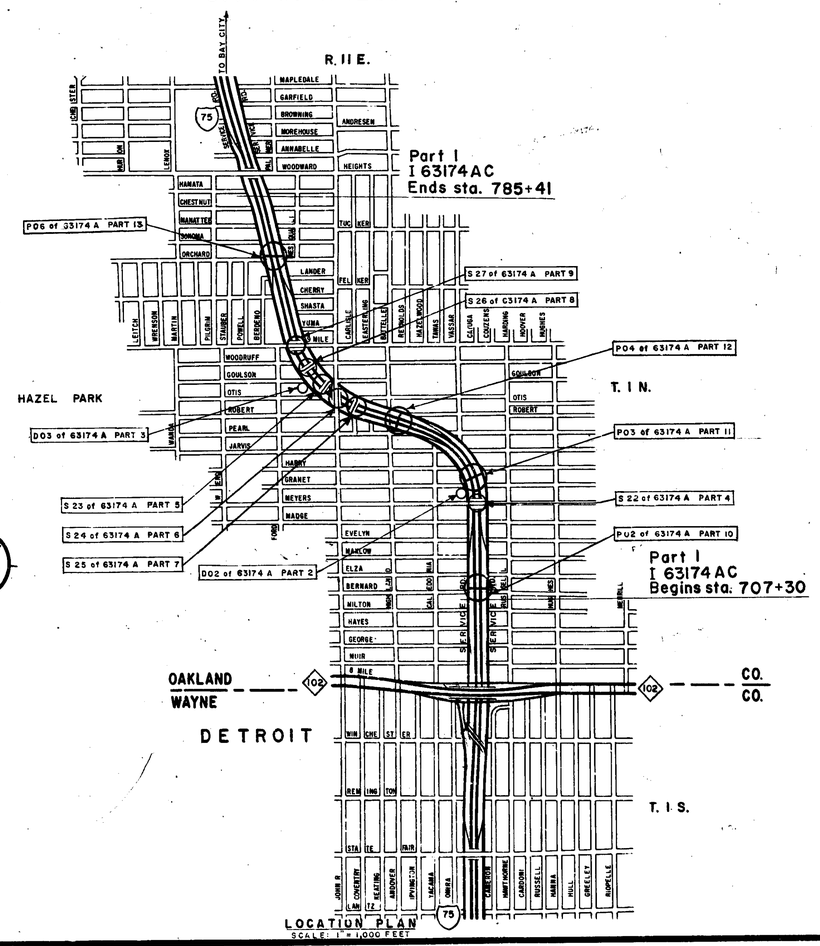
PLANS OF PROPOSED BRIDGES
MICHIGAN PROJECT I-75-2(84)60
STATE PROJECT I 63174A, C-52
DETROIT — BAY CITY ROAD
OAKLAND COUNTY
CITY OF HAZEL PARK



NOTES:
This pit contains sufficient quantities to satisfy all granular borrow requirements.
Other contractors may be using the pit during the life of the contract.
Excavation is to be carried out to lines and grades as directed by the Engineer.

BORROW AREA

Location: That part of the S. ½ of the SE. ¼ of Sec. 1, T2N., R.10E., Bloomfield Township, Oakland County, that lies south of I-75, near the intersection of Adams Road and Square Lake Road.



GENERAL NOTES

Except where otherwise indicated on these Plans or in the Proposal and Supplemental Specifications contained therein, all materials and workmanship shall be in accordance with the Michigan State Highway Department's Standard Specifications for Road and Bridge Construction, 1963 Edition.

The design of these structures is based on the Michigan State Highway Department's Specifications for the design of Highway Bridges, 1958 Edition. Loading and deflections are as indicated in Table below.

The character of all materials and the extent thereof as shown by borings has been obtained by methods and from sources believed to be reliable. The exactness of this information is, however, in no case guaranteed. Boring samples are on file in the Design Office at Lansing and are available for inspection.

All exposed concrete corners shown square on the Plans shall be beveled with 1/2" triangular moldings except as otherwise noted.

The stationing as shown on these Plans for the intersection of the centerline of bridge and roadway is believed to be correct. It shall, however, be checked at the time of starting construction and if the stationing shown on the plans is incorrect it shall be reported to the Design Office at Lansing and the structure shall be staked out using the actual intersection of the centerline of bridge and roadway as the control point.

STRUCTURE	DESIGN LIVE LOADINGS	ALLOW. LIVE LOAD + IMPACT DEFLECTION	
		SIMPLE OR CONT.	CANT. ARM
S 22 OF 63174A	H15-44	L/800	L/300
S 23 OF 63174A	H20-44	L/800	
S 24 OF 63174A	H20-44	L/800	L/300
S 25 OF 63174A	H20-44	L/800	
S 26 OF 63174A	H20-44	L/800	
S 27 OF 63174A	H20-44	L/800	L/300

L denotes span length

CONSTRUCTED AS PER PLANS

CONTRACT FOR _____

DIVISION APPROVAL

CHECKED — ENGINEER OF DESIGN — 12-18-64 DATE
RECOMMENDED FOR APPROVAL — TRAFFIC ENGINEER — 12-18-64 DATE
RECOMMENDED FOR APPROVAL — ENGINEER OF BRIDGE & ROAD DESIGN — 12-30-64 DATE

OFFICES OF DESIGN & CONSTRUCTION

APPROVED — CONSTRUCTION ENGINEER — 1/5/65 DATE
APPROVED — CHIEF OF DESIGN — 1/5/65 DATE

STATE HIGHWAY DEPARTMENT APPROVAL

APPROVED BY — STATE HIGHWAY COMMISSION — DIRECTOR OF ENGINEERING - CHIEF ENGINEER — 1/5/65 DATE

PLANS PREPARED BY: MICHIGAN STATE HIGHWAY DEPARTMENT

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED [redacted]
DIVISION ENGINEER — DATE

CONTROL SECTION	FEDERAL PROJECT	SHEET NO.
		1

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE

NOTE:
Where the following items are called for on the Plans, they are to be constructed according to the Standard Plan given below opposite each item, unless otherwise indicated.

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE
SP2G	STANDARD SLOPE PAVING DETAILS

S22, [redacted] OF 63174 A

S22, [redacted] OF 63174 A

STATE PROJECT NO.

PLAN INDEX

	SHEET NO.	DESCRIPTION
	1	TITLE SHEET
	1A & 1B	INDEX SHEETS
S22 OF 63174A PART 4	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	ABUTMENT A & B DETAILS
	8	PIER 1 & 3 DETAILS
	9	PIER 2 DETAILS
	10	SUPERSTRUCTURE DETAILS-SPANS 1 & 2
	11	SUPERSTRUCTURE DETAILS-SPANS 3 & 4
	12	SUPERSTRUCTURE DETAILS
	13	SUPERSTRUCTURE DETAILS
	14	UTILITY DETAILS
	15	STRUCTURAL STEEL DETAILS
	16	STRUCTURAL STEEL DETAILS
	17	BEARING DETAILS
	18	METAL EXPANSION JOINT DETAILS
	19	STEEL REINFORCEMENT DETAILS

S23 OF 63174A PART 5	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	ABUTMENT A DETAILS
	8	ABUTMENT A DETAILS
	9	ABUTMENT B DETAILS
	10	PIER 1 & 3 DETAILS
	11	PIER 2 DETAILS
	12	SUPERSTRUCTURE DETAILS
	13	SUPERSTRUCTURE DETAILS
	14	SUPERSTRUCTURE DETAILS
	15	SUPERSTRUCTURE DETAILS
	16	UTILITY DETAILS
	17	STRUCTURAL STEEL DETAILS
	18	STRUCTURAL STEEL DETAILS
	19	STRUCTURAL STEEL DETAILS
	20	BEARING DETAILS
	21	SHEAR DEVELOPER DETAILS
	22	METAL EXPANSION JOINT DETAILS
	23	STEEL REINFORCEMENT DETAILS

S24 OF 63174A PART 6	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	ABUTMENT DETAILS
	8	ABUTMENT DETAILS
	9	PIER 1 DETAILS
	10	PIER 3 DETAILS
	11	PIER 1 & 3 DETAILS
	12	PIER 2 DETAILS
	13	PIER 2 DETAILS
	14	SUPERSTRUCTURE DETAILS
	15	SUPERSTRUCTURE DETAILS
	16	SUPERSTRUCTURE DETAILS
	17	SUPERSTRUCTURE DETAILS
	18	SUPERSTRUCTURE DETAILS
	19	UTILITY DETAILS
	20	STRUCTURAL STEEL DETAILS
	21	STRUCTURAL STEEL DETAILS
	22	STRUCTURAL STEEL DETAILS
	23	BEARING DETAILS
	24	SHEAR DEVELOPER DETAILS
	25	METAL EXPANSION JOINT DETAILS
	26	STEEL REINFORCEMENT DETAILS

S25 OF 63174A PART 7	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	BILL OF MATERIAL
	6	ABUTMENT A DETAILS
	7	ABUTMENT B DETAILS
	8	PIERS 1 & 3 DETAILS
	9	PIER 2 DETAILS
	10	SUPERSTRUCTURE DETAILS
	11	SUPERSTRUCTURE DETAILS
	12	SUPERSTRUCTURE DETAILS
	13	UTILITY DETAILS
	14	STRUCTURAL STEEL DETAILS
	15	STRUCTURAL STEEL DETAILS
	16	STRUCTURAL STEEL DETAILS
	17	SHEAR DEVELOPER DETAILS
	18	BEARING DETAILS
	19	METAL EXPANSION JOINT DETAILS
	20	STEEL REINFORCEMENT DETAILS

S26 OF 63174A PART 8	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	BILL OF MATERIAL
	6	ABUTMENT DETAILS
	7	ABUTMENT DETAILS
	8	PIER DETAILS
	9	PIER DETAILS
	10	SUPERSTRUCTURE DETAILS
	11	SUPERSTRUCTURE DETAILS
	12	SUPERSTRUCTURE DETAILS
	13	SUPERSTRUCTURE DETAILS
	14	UTILITY DETAILS
	15	STRUCTURAL STEEL DETAILS
	16	STRUCTURAL STEEL DETAILS
	17	STRUCTURAL STEEL DETAILS
	18	METAL EXPANSION JOINT DETAILS
	19	STEEL REINFORCEMENT DETAILS

S27 OF 63174A PART 9	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	BILL OF MATERIAL
	6	ABUTMENT DETAILS
	7	PIER DETAILS
	8	PIER DETAILS
	9	PIER DETAILS
	10	SUPERSTRUCTURE DETAILS
	11	SUPERSTRUCTURE DETAILS
	12	SUPERSTRUCTURE DETAILS
	13	SUPERSTRUCTURE DETAILS
	14	SUPERSTRUCTURE DETAILS
	15	STRUCTURAL STEEL DETAILS
	16	STRUCTURAL STEEL DETAILS
	17	METAL EXPANSION JOINT DETAILS
	18	STEEL REINFORCEMENT DETAILS
	R11J R12H	BRIDGE RAILING, BAR CHAIR, MOLDING AND BEVEL DETAILS

D02 OF 63174A PART 2	2	GENERAL PLAN OF SITE
	3	GENERAL PLAN OF STRUCTURE
	4	BILL OF MATERIAL
	5	SUMP DETAILS
	6	SUMP DETAILS
	7	RAKE ROOM DETAILS
	8	MACHINE ROOM & SURGE TANK DETAILS
	9	MACHINE ROOM WALLS DETAILS
	10	ROOF DETAILS
	11	BEAMS & MISCELLANEOUS DETAILS
	12	MISCELLANEOUS DETAILS
	13	MECHANICAL & ELECTRICAL DETAILS
	14	STEEL REINFORCEMENT DETAILS

D03 OF 63174A PART 3	2	GENERAL PLAN OF SITE
	3	GENERAL PLAN OF STRUCTURE
	4	BILL OF MATERIAL
	5	PUMPHOUSE DETAILS
	6	PUMPHOUSE DETAILS
	7	PUMPHOUSE DETAILS
	8	PUMPHOUSE DETAILS
	9	PUMPHOUSE DETAILS
	10	PUMPHOUSE DETAILS
	11	MISCELLANEOUS DETAILS
	12	MECHANICAL & ELECTRICAL DETAILS
	13	STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

APPROVED C. D. Benkema 12/18/64
ASS'T. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Tracy 12.18.64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Geo Tech	6-11-64
DRAWN BY	H.L.M.	6-9-64
TRACED BY		
CHECKED BY	AGS	11-13-64

SHEET 1A OF 26

PLAN INDEX

	SHEET NO.	DESCRIPTION
P02 OF 63174A PART 10	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	RAMP A DETAILS
	8	RAMP A DETAILS
	9	RAMP A DETAILS
	10	RAMP A DETAILS
	11	RAMP B DETAILS
	12	RAMP B DETAILS
	13	RAMP B DETAILS
	14	PIERS 1 & 5 DETAILS
	15	PIERS 2, 3, & 4 DETAILS
	16	SUPERSTRUCTURE DETAILS
	17	STRUCTURAL STEEL DETAILS
	18	STRUCTURAL STEEL DETAILS
	19	MISCELLANEOUS DETAILS
	20	RAILING DETAILS-RAMP A
	21	RAILING DETAILS-RAMP B
	22	RAILING DETAILS-SPANS 1, 2, 3 & 4
	23	STEEL REINFORCEMENT DETAILS

P03 OF 63174A PART 11	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	RAMP A DETAILS
	8	RAMP A DETAILS
	9	RAMP A DETAILS
	10	RAMP A DETAILS
	11	RAMP B DETAILS
	12	RAMP B DETAILS
	13	RAMP B DETAILS
	14	RAMP B DETAILS
	15	RAMP B DETAILS
	16	PIERS 1 & 5 DETAILS
	17	PIERS 2, 3 & 4 DETAILS
	18	SUPERSTRUCTURE DETAILS
	19	STRUCTURAL STEEL DETAILS
	20	STRUCTURAL STEEL DETAILS
	21	MISCELLANEOUS DETAILS
	22	RAILING DETAILS-RAMP A
	23	RAILING DETAILS-RAMP B
	24	RAILING DETAILS-SPANS 1, 2, 3 & 4
	25	STEEL REINFORCEMENT DETAILS

P04 OF 63174A PART 12	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	RAMP A DETAILS
	8	RAMP A DETAILS
	9	RAMP A DETAILS
	10	RAMP A DETAILS
	11	RAMP B DETAILS
	12	RAMP B DETAILS
	13	RAMP B DETAILS
	14	RAMP B DETAILS
	15	PIERS 1 & 5 DETAILS
	16	PIERS 2, 3 & 4 DETAILS
	17	SUPERSTRUCTURE DETAILS
	18	STRUCTURAL STEEL DETAILS
	19	STRUCTURAL STEEL DETAILS
	20	MISCELLANEOUS DETAILS
	21	RAILING DETAILS-RAMP A
	22	RAILING DETAILS-RAMP B
	23	RAILING DETAILS-SPANS 1, 2, 3 & 4
	24	STEEL REINFORCEMENT DETAILS
	25	EXISTING PUMPHOUSE DETAILS

P06 OF 63174A PART 13	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	RAMP A DETAILS
	8	RAMP A DETAILS
	9	RAMP A DETAILS
	10	RAMP A DETAILS
	11	RAMP B DETAILS
	12	RAMP B DETAILS
	13	RAMP B DETAILS
	14	RAMP B DETAILS
	15	PIERS 1 & 5 DETAILS
	16	PIERS 2, 3 & 4 DETAILS
	17	SUPERSTRUCTURE DETAILS
	18	STRUCTURAL STEEL DETAILS
	19	STRUCTURAL STEEL DETAILS
	20	MISCELLANEOUS DETAILS
	21	RAILING DETAILS-RAMPS A & B
	22	RAILING DETAILS-SPANS 1, 2, 3 & 4
	23	STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

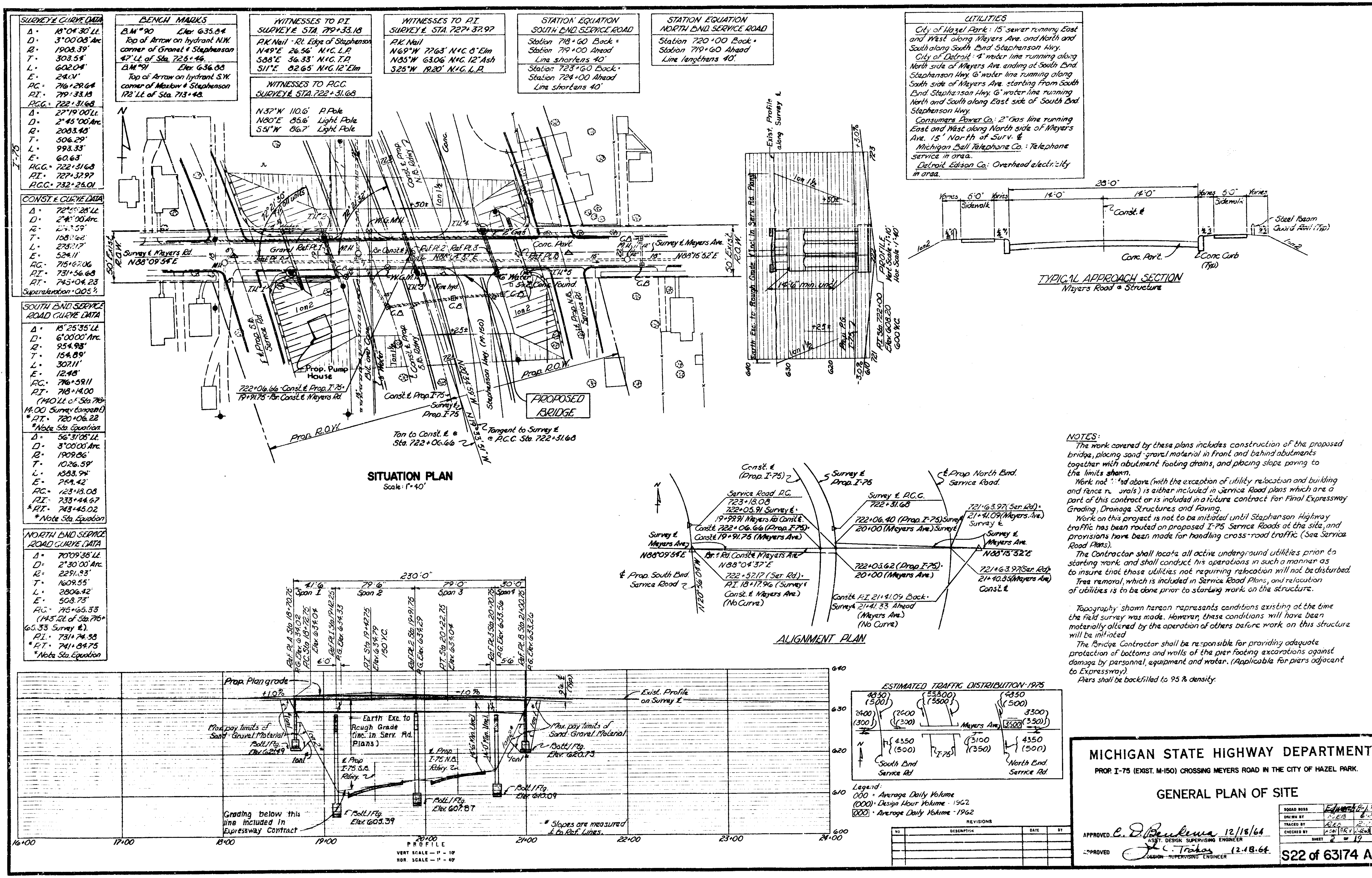
APPROVED C. D. Beukema 12/18/64
ASS'T DESIGN SUPERVISING ENGINEER

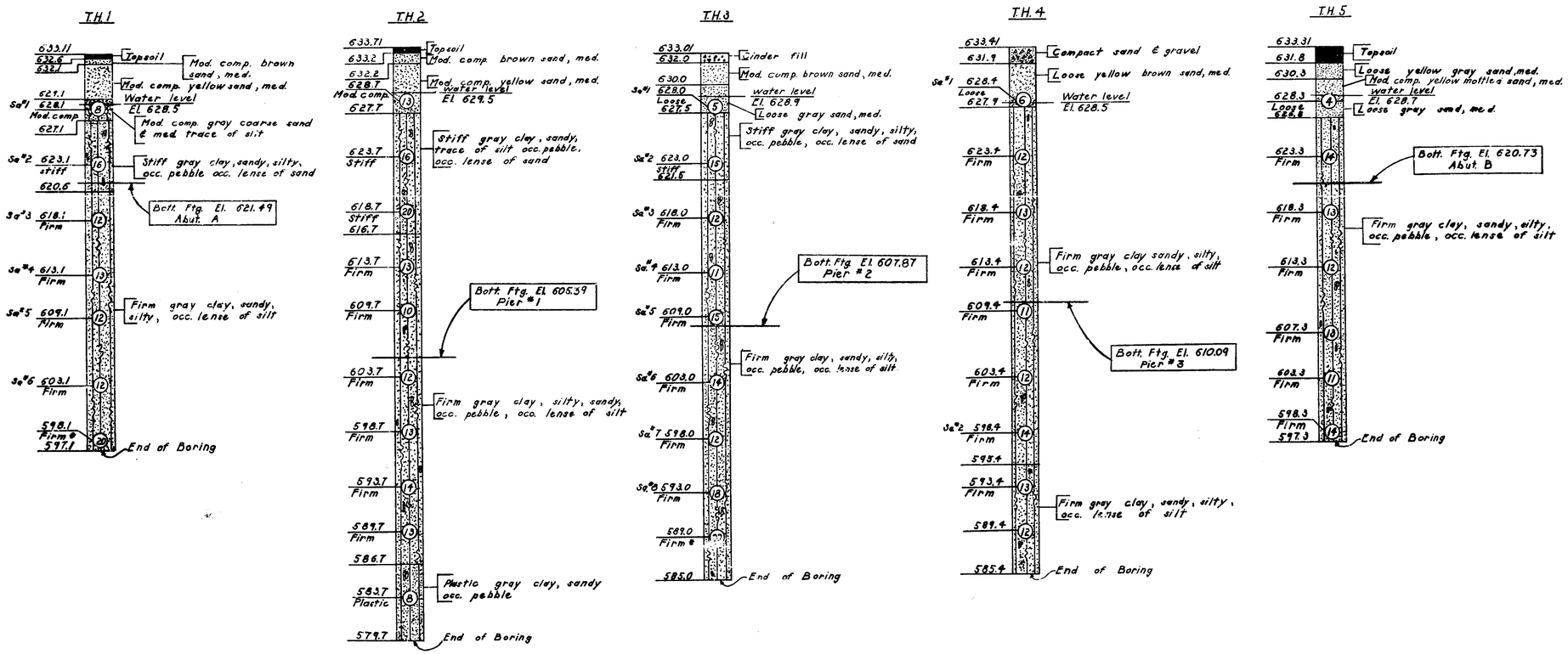
APPROVED J. C. Traber 12.18.64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	H.L.M.	11-2-64
TRACED BY		
CHECKED BY	A.L.S.	11-12-64

SHEET 13 OF 26

[redacted] S22 [redacted] OF 63174 A


SURVEY ℄ CURVE DATA
Δ = 18°04'30" Lt.
D = 3°00'08" Arc
R = 1908.39'
T = 303.54'
L = 602.04'
E = 24.01'
P.C. = 716+29.64
P.I. = 719+33.18
P.C.C. = 722+31.68
Δ = 27°19'00" Lt.
D = 2°45'00" Arc.
R = 2083.48'
T = 506.29'
L = 993.33'
E = 60.63'
P.C.C. = 722+31.68
P.I. = 727+37.97
P.C.C. = 732+26.01
I-75
CONST. ℄ CURVE DATA
Δ = 72°59'28" Lt.
D = 2°40'00" Arc.
T = 1582.62'
E = 524.11'
P.C. = 715+67.06
P.I. = 731+56.68
P.T. = 743+04.28
Superelevation = 0.05'/1'
SOUTH BND. SERVICE ROAD CURVE DATA
Δ = 13°25'35" Lt.
D = 6°00'00" Arc.
R = 954.93'
T = 154.89'
L = 307.11'
E = 12.48'
P.C. = 716+59.11
P.T. = 718+14.00
(140' Lt. of Sta. 718+14.00 Survey tangent)
*P.T. = 720+06.22
*Note Sta. Equation
Δ = 56°31'05" Lt.
D = 3°00'00" Arc.
R = 1909.86'
T = 1026.59'
L = 1883.94'
E = 254.42'
P.C. = 723+18.08
P.I. = 733+44.67
*P.T. = 743+45.02
*Note Sta. Equation
NORTH BND. SERVICE ROAD CURVE DATA
Δ = 70°09'36" Lt.
D = 2°30'00" Arc.
R = 2291.83'
T = 1609.55'
L = 2806.42'
E = 508.73'
P.C. = 715+65.33
(145' Rt. of Sta. 716+65.33 Survey ℄).
P.I. = 731+74.58
*P.T. = 741+84.75
*Note Sta. Equation
BENCH MARKS
B.M. #90 Elev. 635.84
Top of Arrow on hydrant N.W. corner of Granet & Stephenson 47' Lt. of Sta. 725+46.
B.M. #91 Elev. 636.88
Top of Arrow on hydrant S.W. corner of Maxlow & Stephenson 172' Lt. of Sta. 713+48.
WITNESSES TO P.I. SURVEY ℄ STA. 719+33.18
P.K. Nail - Rt. Edge of Stephenson
N49°E 26.56' N.&C. L.P.
S88°E 36.33' N.&C. T.P.
S11°E 82.65' N.&C. 12" Elm
WITNESSES TO P.C.C. SURVEY ℄ STA. 722+31.68
N37°W 110.6' P. Pole
N80°E 85.6' Light Pole
S51°W 86.7' Light Pole
WITNESSES TO P.I. SURVEY ℄ STA. 727+37.97
P.K. Nail
N69°W 77.63' N.&C. 8" Elm
N85°W 63.06' N.&C. 12" Ash
S25°W 19.20' N.&C. L.P.
STATION EQUATION SOUTH BND. SERVICE ROAD
Station 718+60 Back = Station 719+00 Ahead
Line shortens 40'
Station 723+60 Back = Station 724+00 Ahead
Line shortens 40'
STATION EQUATION NORTH BND. SERVICE ROAD
Station 720+00 Back = Station 719+60 Ahead
Line lengthens 40'.
UTILITIES
City of Hazel Park: 15" sewer running East and West along Meyers Ave. and North and South along South Bnd. Stephenson Hwy.
City of Detroit: 4" water line running along North side of Meyers Ave. ending at South Bnd. Stephenson Hwy. 6" water line running along South side of Meyers Ave. starting from South Bnd. Stephenson Hwy. 6" water line running North and South along East side of South Bnd. Stephenson Hwy.
Consumers Power Co.: 2" Gas line running East and West along North side of Meyers Ave. 15' North of Surv. ℄
Michigan Bell Telephone Co.: Telephone service in area.
Detroit Edison Co.: Overhead electricity in area.
N
Survey ℄ Meyers Rd. N88°09'54"E
Survey ℄ Meyers Ave. N88°15'52"E
Conc. Pavt.
50' Exist. R.O.W.
Prop. Pump House
722+06.66 Const. ℄ Prop. I-75 = 19+91.75 Br. Const. ℄ Meyers Rd.
Const. ℄ Prop. I-75
Survey ℄ Prop. I-75
Stephenson Hwy. (M-150)
Prop. R.O.W.
PROPOSED BRIDGE
Tan to Const. ℄ @ Sta. 722+06.66
Tangent to Survey ℄ @ P.C.C. Sta. 722+31.68
SITUATION PLAN
Scale: 1" = 40'
Exist. Profile along Survey ℄
PROFILE Vert. Scale 1" = 10' Hor. Scale 1" = 40'
P.T. Sta. 722+00 Elev. 608.20 600 V.C.
TYPICAL APPROACH SECTION
Meyers Road @ Structure
28'-0"
Varies 5'-0" Varies 14'-0" 14'-0" Varies 5'-0" Varies
Sidewalk
Const. ℄
Steel Beam Guard Rail (Typ.)
Conc. Pavt.
Conc. Curb (Typ.)
ALIGNMENT PLAN
Service Road P.C. 723+18.08
722+05.91 Survey ℄ = 19+99.91 Meyers Ave. Const. ℄
Const. ℄ 722+06.66 (Prop. I-75) = Const. ℄ 19+91.75 (Meyers Ave.)
Survey ℄ P.C.C. 722+31.68
722+06.40 (Prop. I-75) = 20+00 (Meyers Ave.)
721+63.97 (Ser. Rd.) = 21+41.09 (Meyers Ave.)
Br. ℄ Rd. Const. ℄ Meyers Ave. N88°04'37"E
722+57.17 (Ser. Rd.) = P.I. 18+17.96 (Survey & Const. ℄ Meyers Ave.) (No Curve)
722+05.62 (Prop. I-75) = 20+00 (Meyers Ave.)
721+63.97 (Ser. Rd.) = 21+40.85 (Meyers Ave.)
Const. P.I. 21+41.09 Back = Survey 21+41.33 Ahead (Meyers Ave.) (No Curve)
℄ Prop. South Bnd. Service Road
℄ Prop. North Bnd. Service Road
230'-0"
41'-6" Span 1
79'-6" Span 2
79'-0" Span 3
30'-0" Span 4
Prop. Plan grade
Exist. Profile on Survey ℄
Earth Exc. to Rough Grade (inc. in Serv. Rd. Plans)
Max. pay limits of Sand-Gravel Material
Bott. Ftg. Elev. 620.49
Bott. Ftg. Elev. 620.73
Bott. Ftg. Elev. 605.39
Bott. Ftg. Elev. 607.87
Bott. Ftg. Elev. 610.09
℄ Prop. I-75 S.B. Rdwy.
℄ Prop. I-75 N.B. Rdwy.
Grading below this line included in Expressway Contract
* Slopes are measured ⊥ to Ref. Lines.
16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00
ESTIMATED TRAFFIC DISTRIBUTION - 1975
Meyers Ave.
South Bnd. Service Rd.
North Bnd. Service Rd.
I-75
Legend:
000 = Average Daily Volume
(000) = Design Hour Volume - 1962
[000] = Average Daily Volume - 1962
NOTES:
The work covered by these plans includes construction of the proposed bridge, placing sand-gravel material in front and behind abutments together with abutment footing drains, and placing slope paving to the limits shown.
Work not listed above (with the exception of utility relocation and building and fence removals) is either included in Service Road plans which are a part of this contract or is included in a future contract for Final Expressway Grading, Drainage Structures and Paving.
Work on this project is not to be initiated until Stephenson Highway traffic has been routed on proposed I-75 Service Roads at the site, and provisions have been made for handling cross-road traffic (See Service Road Plans).
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.
Tree removal, which is included in Service Road Plans, and relocation of utilities is to be done prior to starting work on the structure.
Topography shown hereon represents conditions existing at the time the field survey was made. However, these conditions will have been materially altered by the operation of others before work on this structure will be initiated.
The Bridge Contractor shall be responsible for providing adequate protection of bottoms and walls of the pier footing excavations against damage by personnel, equipment and water. (Applicable for piers adjacent to Expressway).
Piers shall be backfilled to 95% density.
REVISIONS
NO. DESCRIPTION DATE BY
MICHIGAN STATE HIGHWAY DEPARTMENT
PROP. I-75 (EXIST. M-150) CROSSING MEYERS ROAD IN THE CITY OF HAZEL PARK.
GENERAL PLAN OF SITE
APPROVED C. D. Beukema 12/18/64
ASS'T. DESIGN SUPERVISING ENGINEER
APPROVED L. C. Trahos 12-18-64
DESIGN SUPERVISING ENGINEER
SQUAD BOSS
DRAWN BY
TRACED BY
CHECKED BY
SHEET 2 OF 19
S22 of 63174 A



(20) Number in circle denotes number of blows required to drive a 1⅜" O.D. by 1⅛" I.D. split spoon sampler 12", using a 140 lb. hammer falling 30".

* Denotes high blow count due to pebble in sampler.

MICHIGAN STATE HIGHWAY DEPARTMENT

PROJ. I-75 (EXM-150) CROSSING MEYERS AVE. IN THE CITY OF HAZEL PARK.

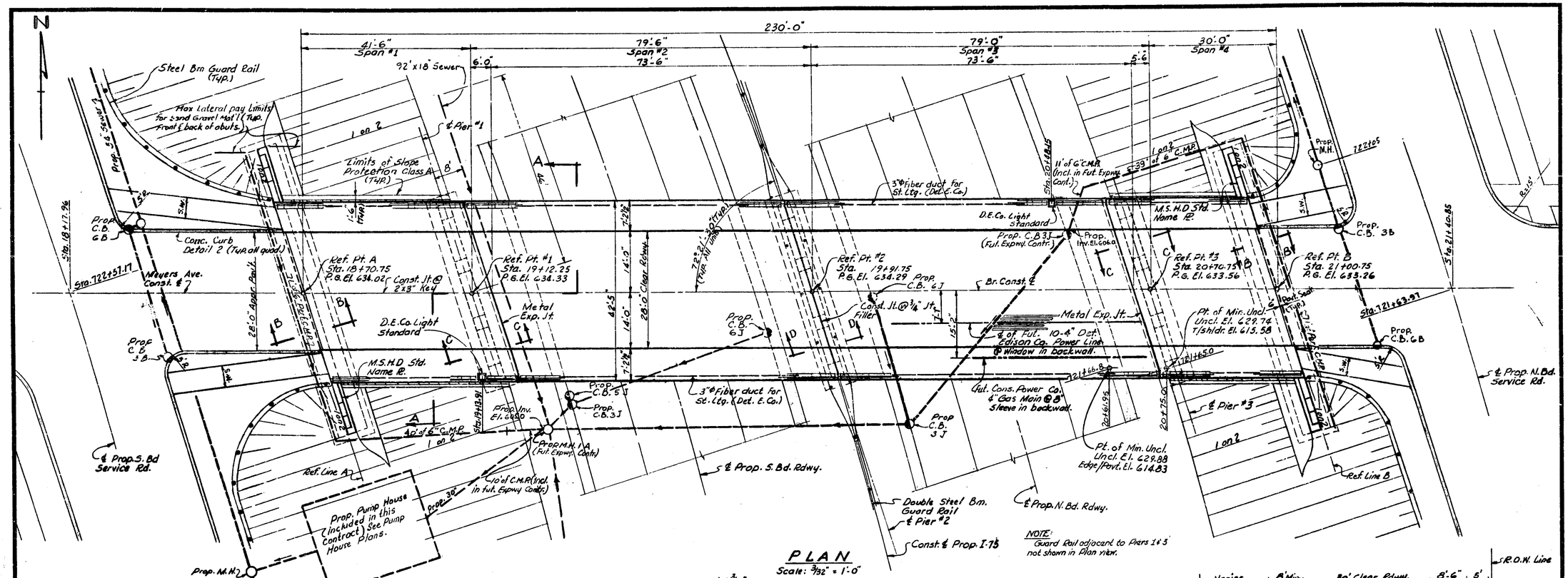
LOG of BORINGS

REVISIONS

NO.	DESCRIPTION	DATE	BY

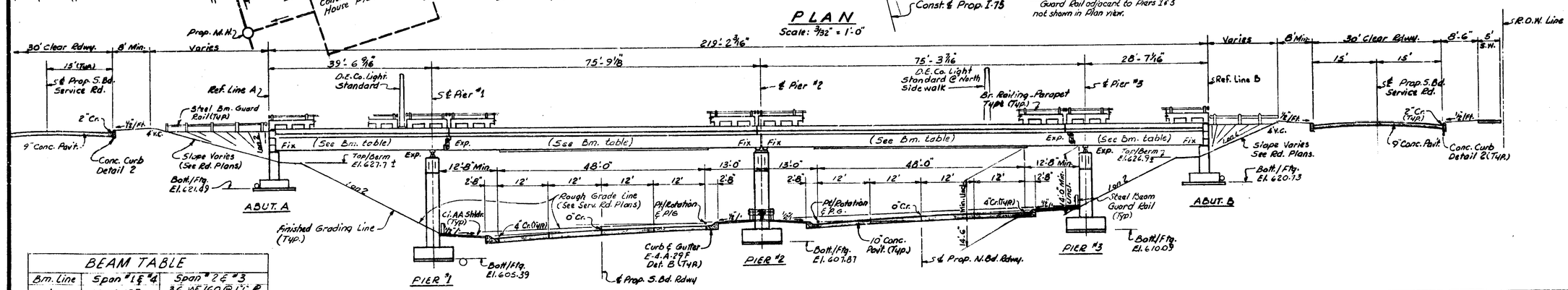
SQUAD BOSS	[illegible]	1-10-64
DRAWN BY	GWC	6-21-63
TRACED BY		
CHECKED BY	REV	7-22-63
SHEET 3 OF 19		

S22 of 63174A



PLAN

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



ELEVATION

Normal to Ref. Lines
Scale 3/32" = 1'-0"

BEAM TABLE

Bm. Line	Span #1 & #4	Span #2 & #3
A	36 WF 135	36 WF 160 @ 1" C.R. & Shear Devel.
B	do	36 WF 170 @ 1" C.R. & Shear Devel.
C	do	36 WF 170 @ 1" C.R. & Shear Devel.
D	do	36 WF 160 @ 1" C.R. & Shear Devel.
E	do	36 WF 160 @ 1" C.R. & Shear devel.
F	36 WF 135	36 WF 160 @ 1" C.R. & Shear devel.

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

PROP. I-75 (EXIST. M-150) CROSSING MEYERS AVE. IN THE CITY OF HAZEL PARK.

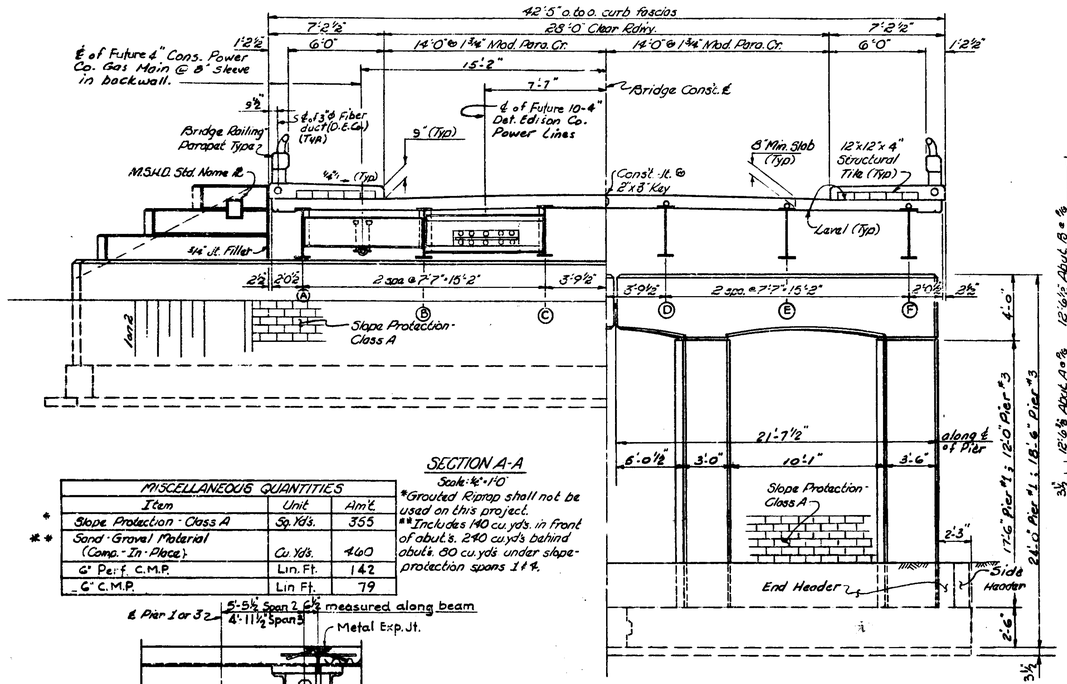
GENERAL PLAN OF STRUCTURE

APPROVED C. D. Peterson 12/18/64
ASST. DESIGN SUPERVISING ENGINEER

APPROVED C. Trahan 12.18.64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Edwards	8-2-63
DRAWN BY	Kalla	7-17-63
TRACED BY		
CHECKED BY	Ulrich	7-24-63
SHEET 4 OF 19		

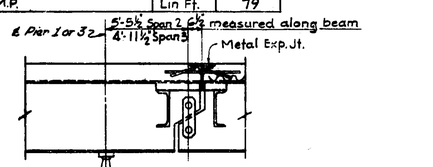
S22 of 63174 A

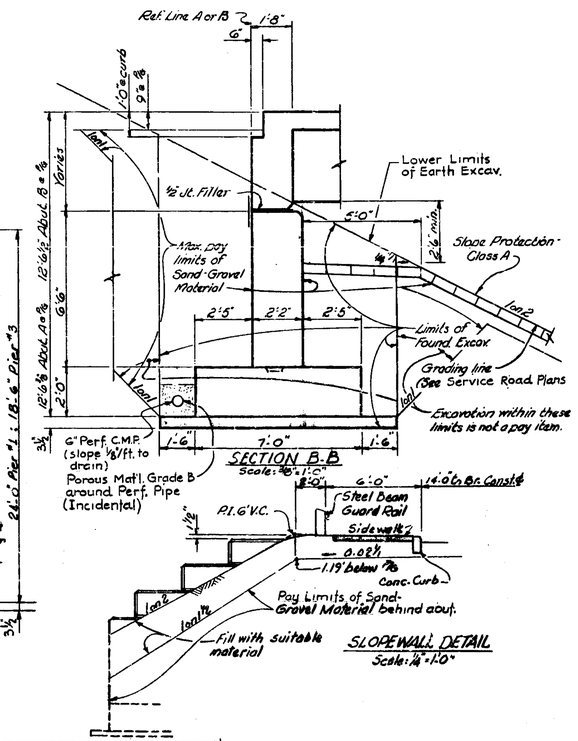


SECTION A-A
Scale: ¼" = 1'-0"

MISCELLANEOUS QUANTITIES		
Item	Unit	Am't.
* Slope Protection - Class A	Sq. Yds.	355
** Sand - Gravel Material (Comp. - In - Place)	Cu. Yds.	460
6" Perf. C.M.P.	Lin. Ft.	142
6" C.M.P.	Lin Ft.	79

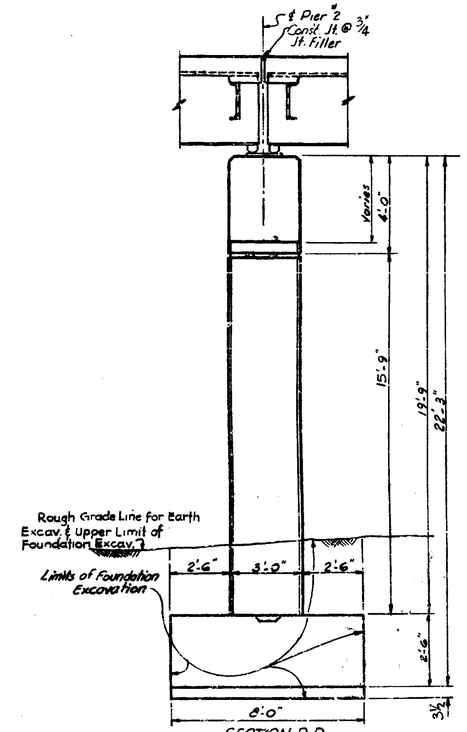
*Grouted Riprap shall not be used on this project.
**Includes 140 cu. yds. in front of abut's. 240 cu. yds behind abut's. 80 cu. yds under slope-protection spans 1 & 4.





SECTION B-B
Scale: ⅜" = 1'-0"

SLOPEWALL DETAIL
Scale: ¼" = 1'-0"

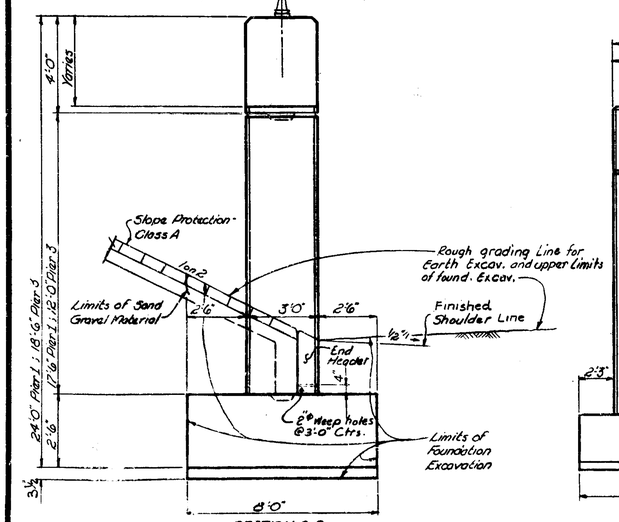


SECTION D-D
Scale: 3/8" = 1'-0"

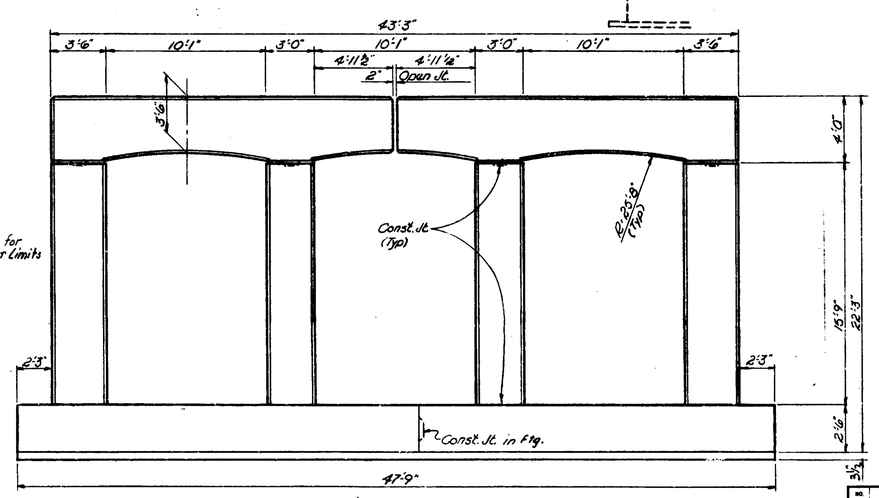
NOTES:

Top of roadway slab and tops of sidewalks are parallel to the vertical curve and tangents.

The design of this structure is based on the M.S.H.D. Standard Specifications for the Design of Highway Bridges - 1958 Edition - H15 loading. Live load plus impact deflection = 1/800 of simple spans and 1/300 of cantilever spans.



SECTION C-C
Scale: 3/8" = 1'-0"



PIER #2 ELEVATION
Scale: ¼" = 1'-0"

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

PROP. I-75 (EXIST. M-150) CROSSING MEYERS AVE. IN THE CITY OF HAZEL PARK.

GENERAL PLAN OF STRUCTURE

APPROVED C. D. Berkema 12/18/64
ASST. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Tuckey 12.18.64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Edwards	10-18-64
DRAWN BY	R.C.B.	7-1-63
TRACED BY		
CHECKED BY	A.R.V.	7-22-64
SHEET 5 OF 19		

S22 of 63174 A

ITEM	UNIT	QUANTITY	DATE	AS CONST.		AUTH.
Unclassified Excavation	Cu. Yds.	880.	3-18-68	785	✓	SF
Grade A (6A) Concrete - Substructure	Cu. Yds.	206.3		206.3	✓	
Grade A (6AA) Concrete - Substructure	Cu. Yds.	199.9		199.9	✓	
Protective Sealant Coating for Concrete	Sq. Ft.	130	3-18-68	118	✓	SF
Grade A (6AA) Concrete Superstructure	Cu. Yds.	359.6		359.6	✓	
Water Reducing Retarding Admixture	Gallons	41.	3-18-68	0	✓	SF
Steel Reinforcement	Lbs.	117,320		117,383	✓	
Structural Steel Furnishing and Fabricating	Lbs.	281,600	1-30-67	276,054	✓	1002
Structural Steel - Erection	Lbs.	281,600	1-30-67	276,054	✓	1002
Shear Developers	Lump Sum	Lump Sum		L.S.	✓	
Structural Tile 4"x12"x12"	Each	2200		2200	✓	
1/2" Joint Filler	Sq. Ft.	128	3-18-68	138	✓	SF
3/4" Joint Filler	Sq. Ft.	72	3-18-68	75	✓	SF
Hot-Poured Rubber Asphalt Type Filler	Lin. Ft.	140	3-18-68	136	✓	SF
Joint waterproofing	Sq. Ft.	299	3-18-68	238.4	✓	SF
Copper	Lbs.	230	3-18-68	210.5	✓	SF
Field Painting	Lump Sum	Lump Sum		L.S.	✓	
Bridge Railing - Parapet Type	Lin. Ft.	459.2	3-18-68	456.5	✓	SF
Slope Protection - Class A	Sq. Yds.	355	3-18-63	380.8		SF
Sand Gravel Material (Compacted - In Place)	Cu. Yds.	460	3-18-68	667	✓	SF
8" Pipe Sleeves - Placed	Each	2		2	✓	
6" Perforated Corrugated Metal Pipe	Lin. Ft.	142	3-18-69	133.7	✓	SF
6" Corrugated Metal Pipe	Lin. Ft.	79	3-18-68	111.1	✓	SF

DATE

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL

CHECKED
CONTRACT SECTION
DATE 6/14/68

MICHIGAN STATE HIGHWAY DEPARTMENT

BILL OF MATERIAL

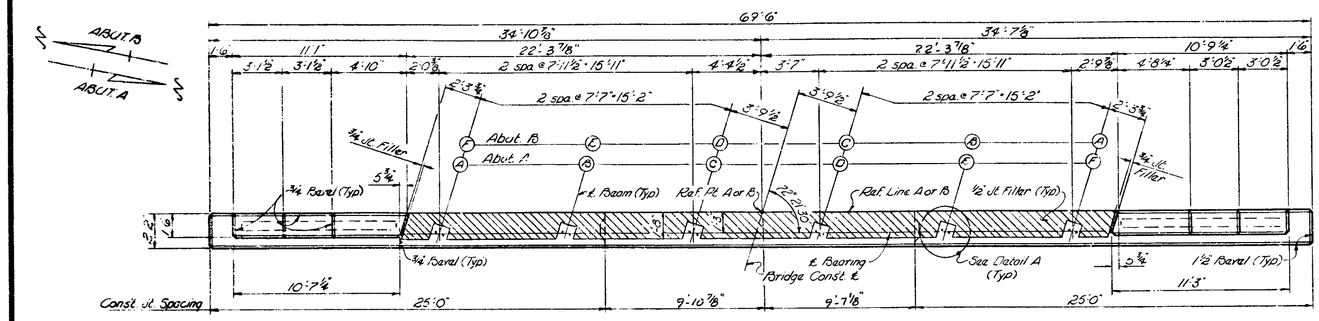
SQUAD BOSS	Edwards	8-11-64
DRAWN BY	Kallen	1-3-64
TRACED BY		
CHECKED BY	ADM	1-7-64

SHEET 6 OF 19

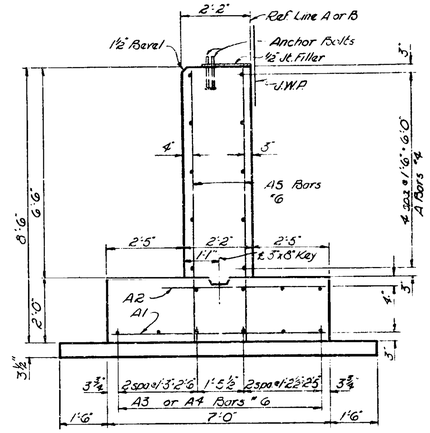
PF 4

S22 of 63174A

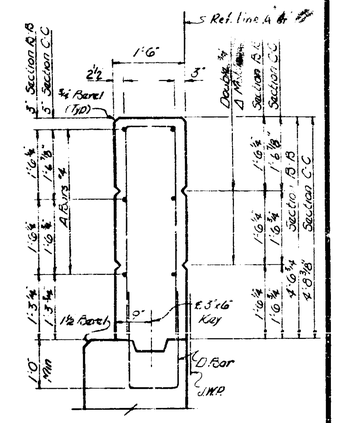
52



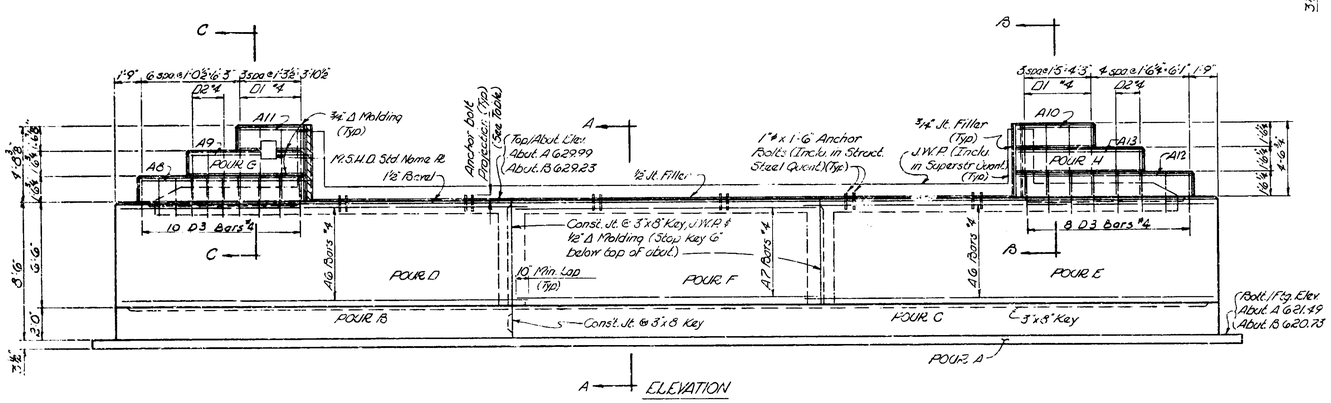
PLAN



SECTION A-A



SECTION B-B & SECTION C-C



ELEVATION

CONCRETE QUANTITIES - SUBSTRUCTURE				
	Grade A	(6A)	Grade A	(6AA)
Pour	Abut. A	Abut. B	Abut. A	Abut. B
A	7.8	7.8		
B	13.0	13.0		
C	23.1	23.1		
D			13.1	13.1
E			13.1	13.1
F			10.2	10.2
G			2.0	2.0
H			2.0	2.0
Sub-Tot.	43.9	43.9	40.4	40.4
Total	87.8 Cu. Yd's		80.8 Cu. Yd's	

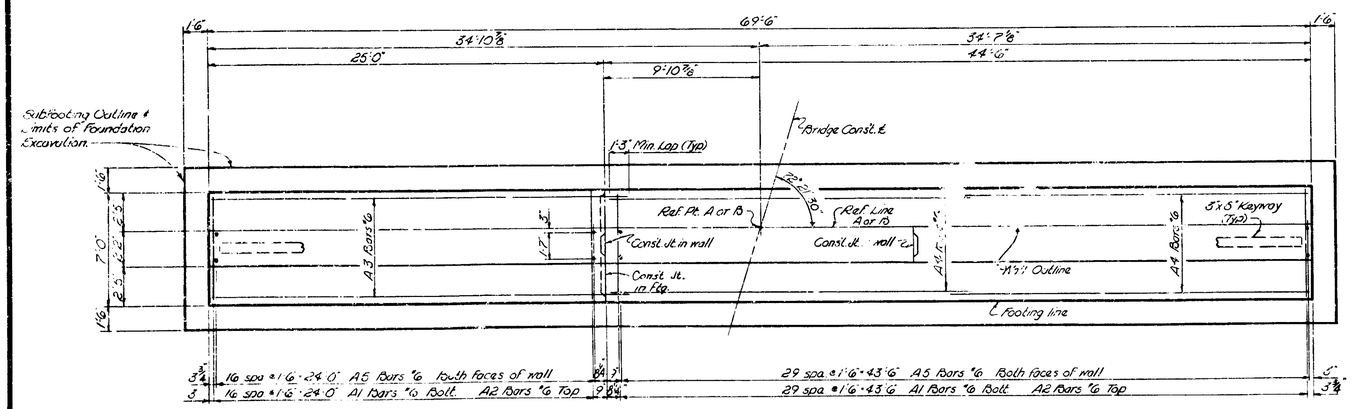
MISCELLANEOUS QUANTITIES				
Item	Unit	Abut. A	Abut. B	Total
Unclassified Excavation	Cu. Yds.	180	370	550
½" Joint Filler	Sq. Ft.	64	64	128
¾" Joint Filler	Sq. Ft.	15	15	30
Joint Waterproofing	Sq. Ft.	22	22	44

NOTES:

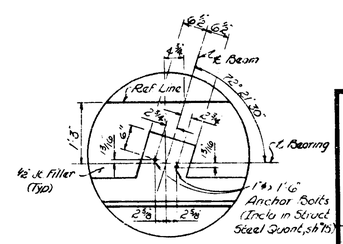
Abutments are similar by rotation of 180°.
J.W.P. denotes joint waterproofing.
B.S. denotes both sides.
For barrel and molding details, see std. sh. # R11 or R12.
For location of Name Plates, see General Plan of Structure sheet, for mounting details see std. sh. # R11 or R12.
Slopewalls are to be cast after superstructure is complete to top of sidewalks.
Anchor bolts are to be set accurately to a template.
The top of abuts. shall be finished to a true plane at the elevation shown and shall not vary more than ⅛" under a ten foot straight edge nor more than 1/16" under any bearing.

Maximum Average Foundation Pressure D.L. only 1,560 #/□'
Maximum Foundation Pressure D.L.+L.L. 2,230 #/□'

ANCHOR BOLT PROJECTION TABLE		
Beam	Abut. A	Abut. B
A	6½"	5"
B	6¼"	5¼"
C	7¼"	7"
D	7"	7¼"
E	5¼"	6¼"
F	5"	6½"



PLAN OF FOOTING



DETAIL A

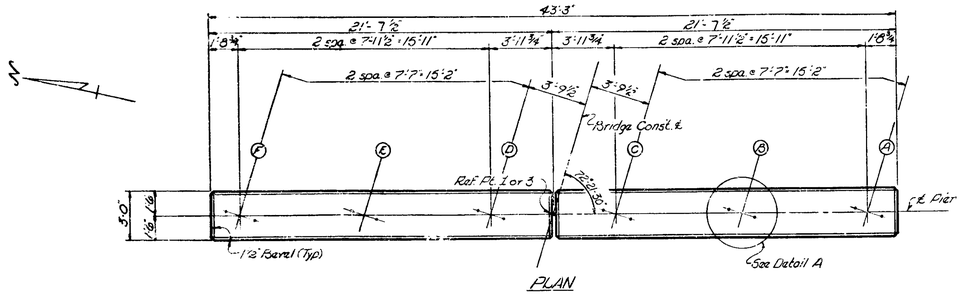
MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT A & B DETAILS

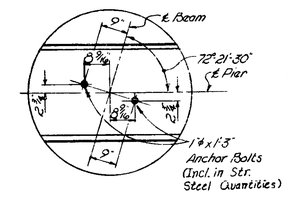
REVISIONS			
NO	DESCRIPTION	DATE	BY

SQUAD BOSS Edwards 8-14-63
DRAWN BY R.C.B. 10-11-63
TRACED BY
CHECKED BY Kelly 12-6-63
SHEET 7 OF 15

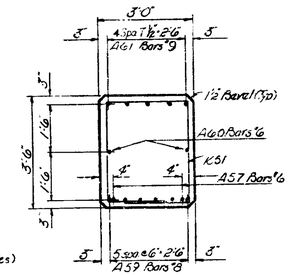
S22 of 63174 A



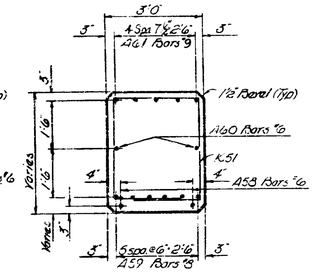
PLAN



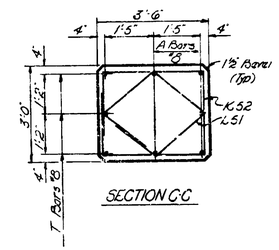
DETAIL A



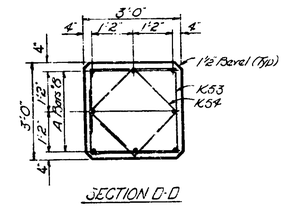
SECTION A-A



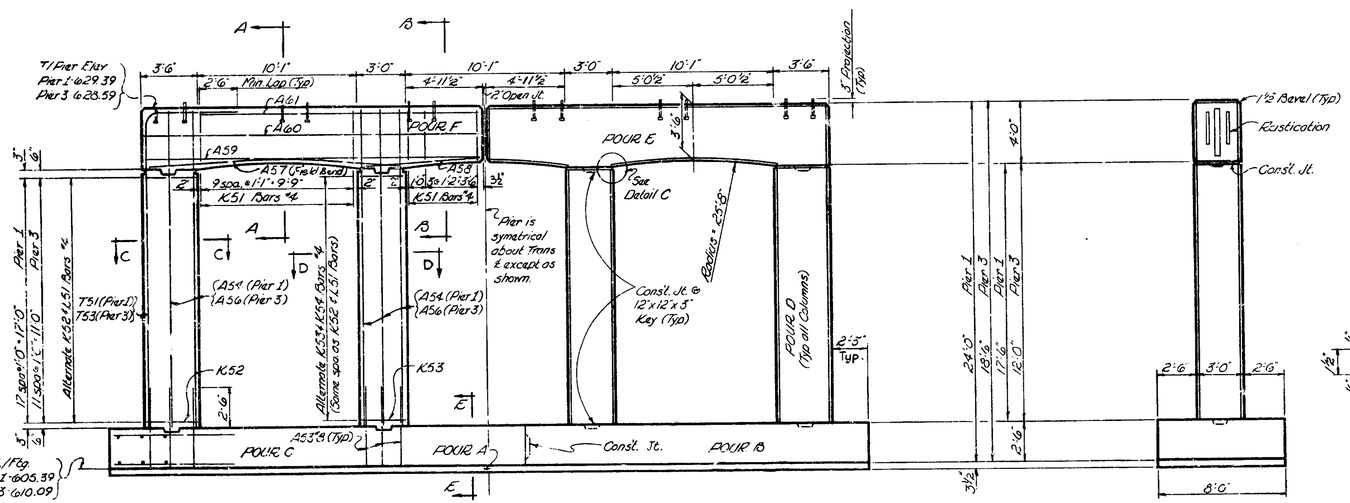
SECTION B-B



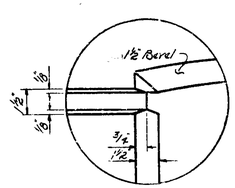
SECTION C-C



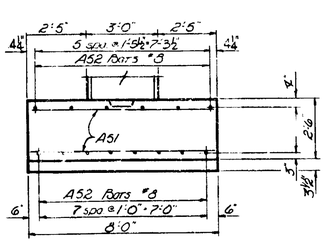
SECTION D-D



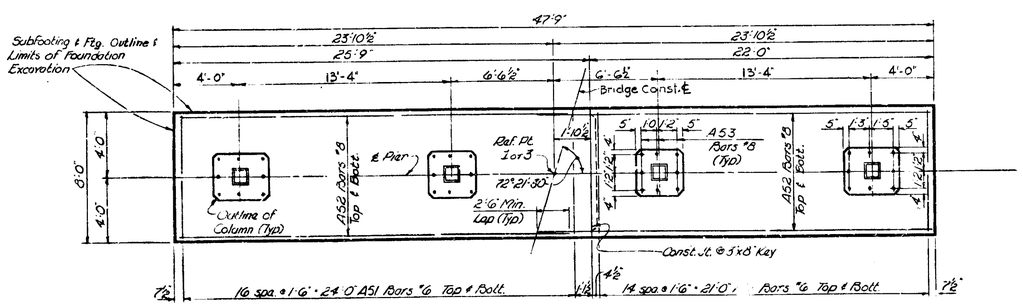
ELEVATION



DETAIL C



SECTION E-E



PLAN OF FOOTING

NOTES:

Piers are similar except as noted.

For Bevel and Molding Details, see sh. #R11 or R12.

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 anchor bolts.

The tops of piers shall be finished to true planes at the elevations shown and shall not vary more than ⅛" under a ten foot straight edge nor more than 1/16 under any bearing.

No additional allowance in concrete or excavation quantities will be made due to any excavation outside of plan footing and subfooting line.

The top of pier #2 shall be given an application of "Protective Sealant Coating" prior to placing masonry plates.

Maximum Average Foundation Pressure	D.L. only	2,600 #/sq. ft.
Maximum Foundation Pressure	D.L. + L.L.	3,300 #/sq. ft.

For quantities, see sh. #9.

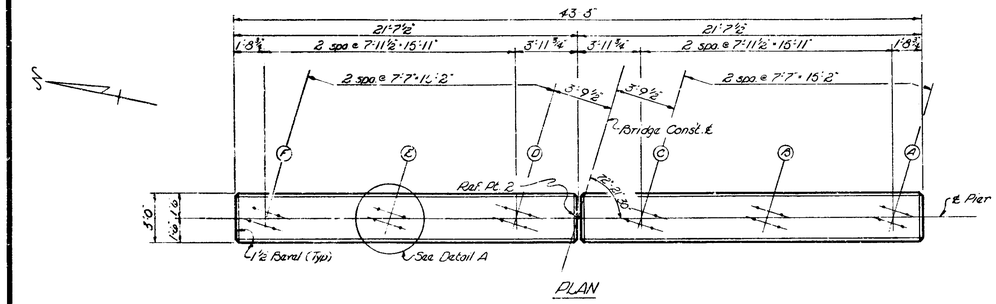
MICHIGAN STATE HIGHWAY DEPARTMENT

PIER 1 & 3 DETAILS

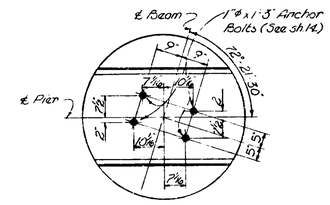
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Edwards	3-10-64
DRAWN BY	RCA	10-15-63
TRACED BY		
CHECKED BY	ADM	12-31-63
SHEET 8 OF 19		

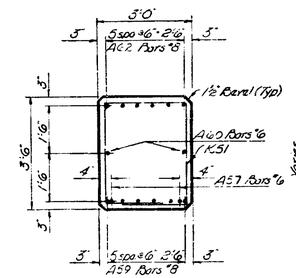
S22 of 63174 A



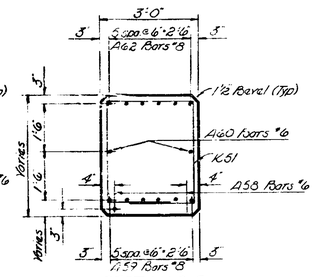
PLAN



DETAIL A
(Pier 2 only)



SECTION A-A



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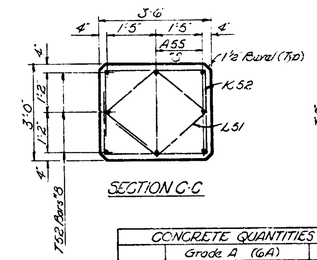
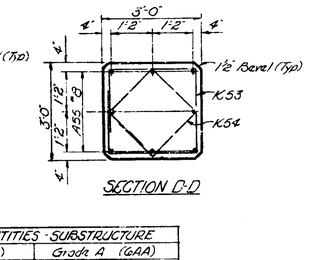
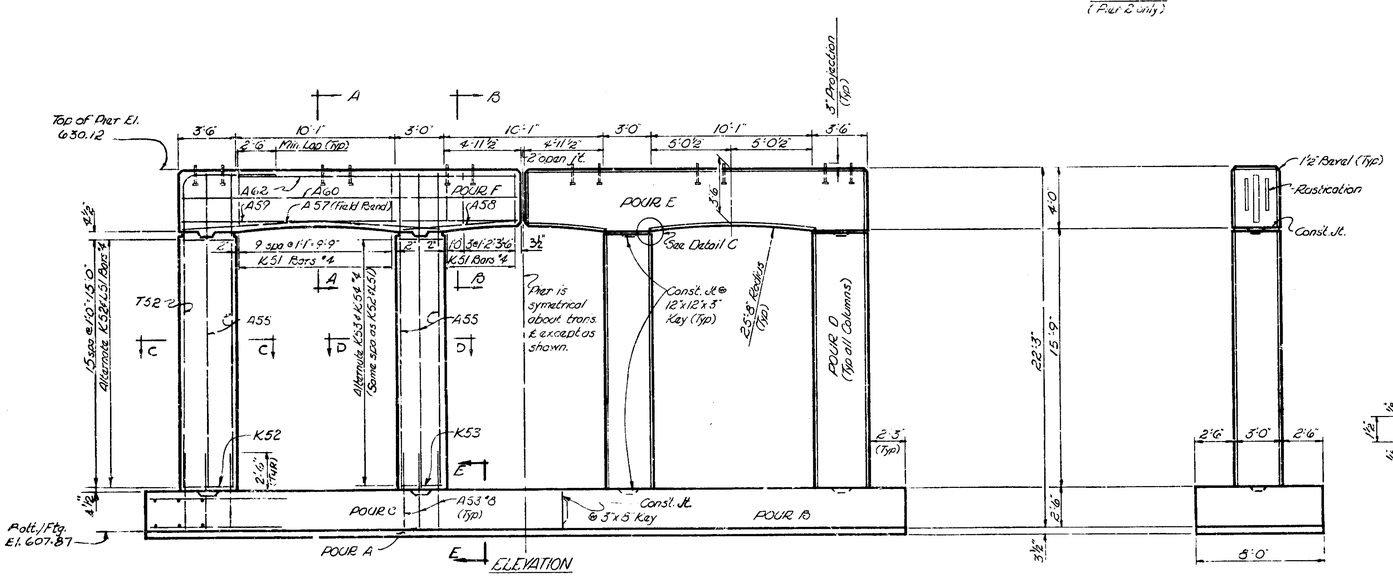


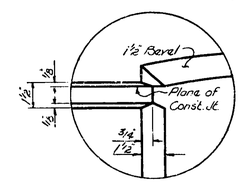
SECTION C-C



SECTION D-D



ELEVATION

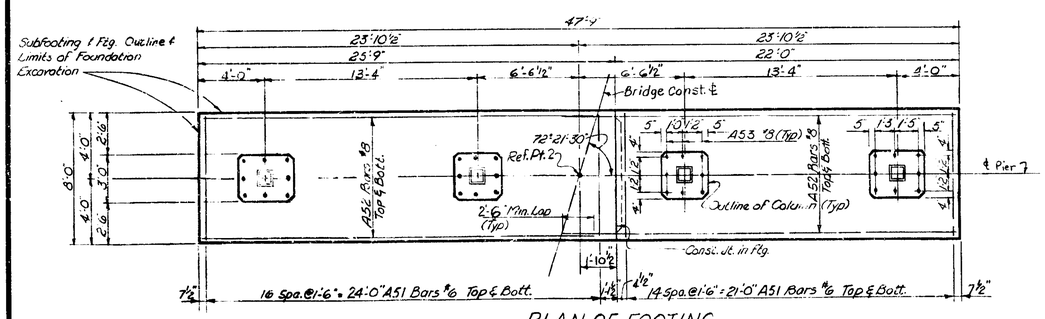


DETAIL C

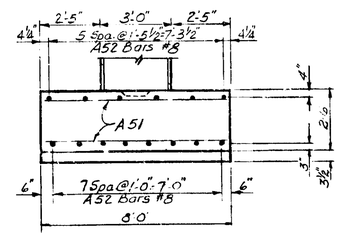
END VIEW

CONCRETE QUANTITIES - SUBSTRUCTURE						
	Grade A (GA)			Grade A (GAA)		
Pour	Pier 1	Pier 2	Pier 3	Pier 1	Pier 2	Pier 3
A	4.1	4.1	4.1			
B	16.3	16.3	16.3			
C	19.1	19.1	19.1			
D				35.2	22.6	17.3
E				9.0	9.0	9.0
F				9.0	9.0	9.0
Sub-Tot	39.5	39.5	39.5	43.2	40.6	35.3
Total	118.5 Cu. Yds.			119.1 Cu. Yds.		

MISCELLANEOUS QUANTITIES					
Item	Unit	Pier 1	Pier 2	Pier 3	Total
Unclassified Excavation	Cu. Yds.	90	90	150	330
Protective Sealant Coating for Concrete	Sq. Ft.	-	130	-	130



PLAN OF FOOTING



SECTION E-E

For notes see sh. #8

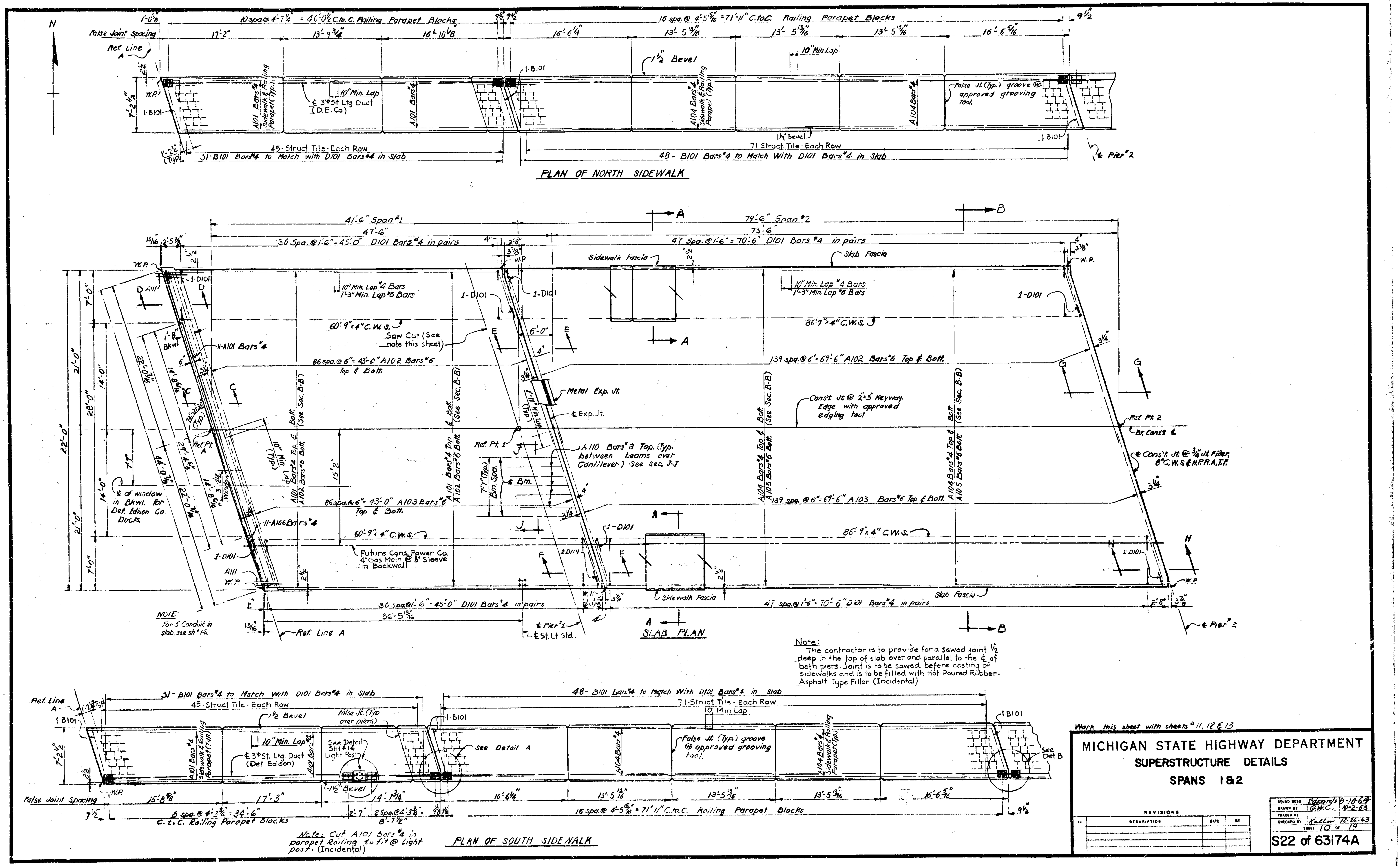
MICHIGAN STATE HIGHWAY DEPARTMENT

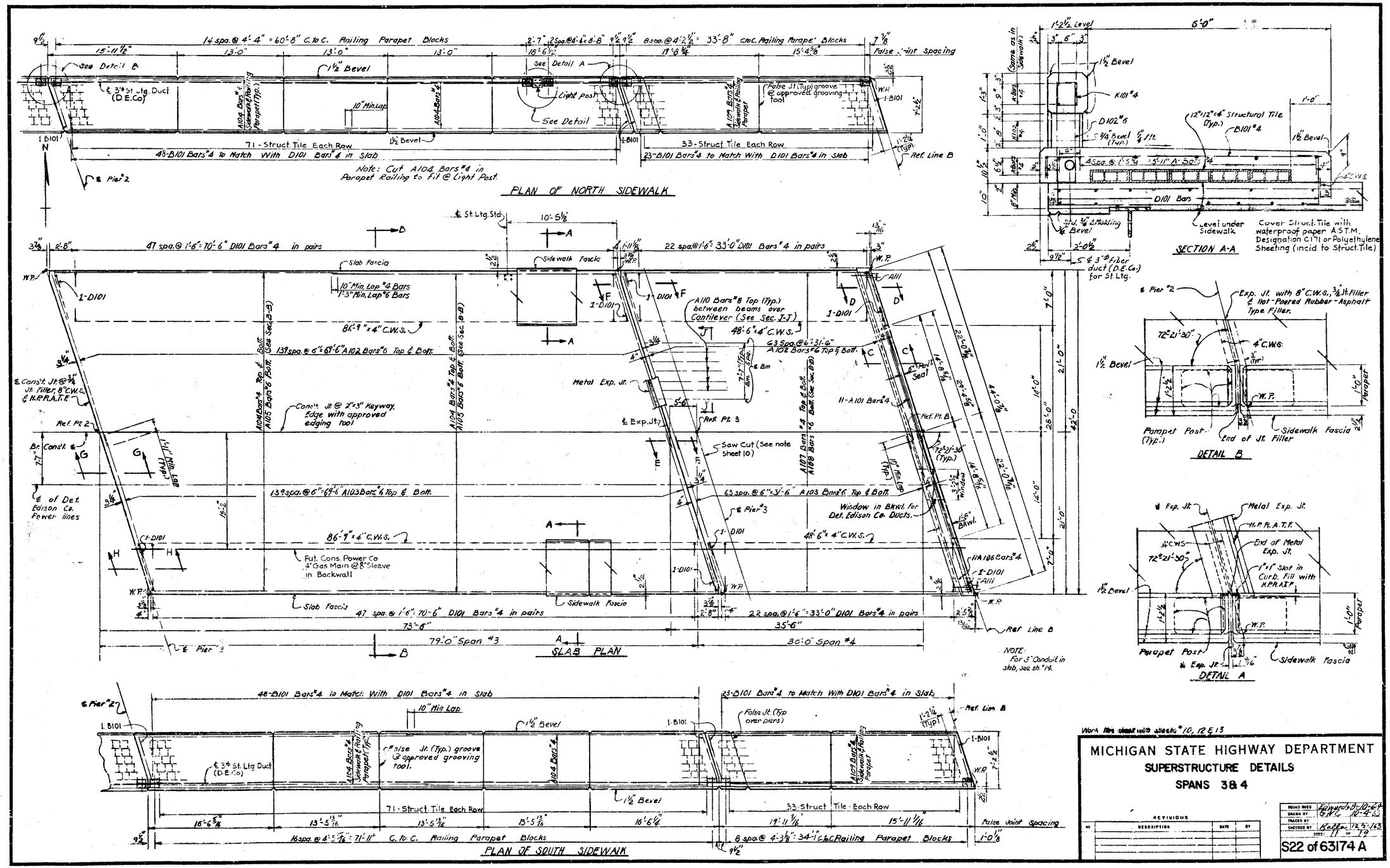
PIER 2 DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Edwards 8-10-64
DRAWN BY	EEG 11-7-63
TRACED BY	
CHECKED BY	ADM 12-31-63
SHEET 9 OF 19	

S22 of 63174 A


PLAN OF NORTH SIDEWALK
10 spa.@ 4'-7¼" = 46'-0½" C. to C. Railing Parapet Blocks
16 spa.@ 4'-5 15/16" = 71'-11" C. to C. Railing Parapet Blocks
False Joint Spacing
Ref. Line A
1½" Bevel
10" Min. Lap
¢ 3" St. Ltg. Duct (D.E. Co)
A101 Bars #4 Sidewalk & Railing Parapet (Typ.)
A104 Bars #4 Sidewalk & Railing Parapet (Typ.)
False Jt. (Typ.) groove @ approved grooving tool.
45-Struct. Tile-Each Row
71 Struct. Tile-Each Row
31-B101 Bars #4 to Match with D101 Bars #4 in Slab
48-B101 Bars #4 to Match With D101 Bars #4 in Slab
¢ Pier #2
SLAB PLAN
41'-6" Span #1
79'-6" Span #2
30 Spa.@ 1'-6" = 45'-0" D101 Bars #4 in pairs
47 Spa.@ 1'-6" = 70'-6" D101 Bars #4 in pairs
Sidewalk Fascia
Slab Fascia
86 spa.@ 6" = 43'-0" A102 Bars #6 Top & Bott.
139 spa.@ 6" = 69'-6" A102 Bars #6 Top & Bott.
86 spa.@ 6" = 43'-0" A103 Bars #6 Top & Bott.
139 spa.@ 6" = 69'-6" A103 Bars #6 Top & Bott.
60'-9" x 4" C.W.S.
86'-9" x 4" C.W.S.
Saw Cut (See note this sheet)
Metal Exp. Jt.
¢ Exp. Jt.
A110 Bars #8 Top. (Typ. between beams over Cantilever) See Sec. J-J
Cons't Jt. @ 2" x 3" Keyway. Edge with approved edging tool
¢ Cons't. Jt. @ ¾" Jt. Filler, 8" C.W.S. & M.P.R.A.T.F.
Ref. Pt. 1
Ref. Pt. 2
Br. Cons't ¢
11-A101 Bars #4
11-A106 Bars #4
¢ of window in Bkwl. for Det. Edison Co. Ducts
Future Cons. Power Co. 4" Gas Main @ 8" Sleeve in Backwall
NOTE: For 5" Conduit in slab, see sh. #14.
Ref. Line A
¢ Pier #1
¢ St. Lt. Std.
Note: The contractor is to provide for a sawed joint ½ deep in the top of slab over and parallel to the ¢ of both piers. Joint is to be sawed before casting of sidewalks and is to be filled with Hot-Poured Rubber-Asphalt Type Filler (Incidental)
PLAN OF SOUTH SIDEWALK
31-B101 Bars #4 to Match With D101 Bars #4 in Slab
48-B101 Bars #4 to Match With D101 Bars #4 in Slab
45-Struct. Tile-Each Row
71-Struct. Tile-Each Row
False Jt. (Typ over piers)
See Detail Sht #14 Light Post
See Detail A
See Det. B
¢ 3" St. Ltg. Duct (Det Edison)
8 spa.@ 4'-3¾" = 34'-6" C. to C. Railing Parapet Blocks
16 spa.@ 4'-5 15/16" = 71'-11" C. to C. Railing Parapet Blocks
Note: Cut A101 Bars #4 in parapet Railing to fit @ Light post. (Incidental)
Work this sheet with sheets #11, 12 & 13
MICHIGAN STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE DETAILS
SPANS 1 & 2
REVISIONS
DESCRIPTION
DATE
BY
SHEET 10 OF 17
S22 of 63174A



Work this sheet with sheets #10, 12 & 13

MICHIGAN STATE HIGHWAY DEPARTMENT

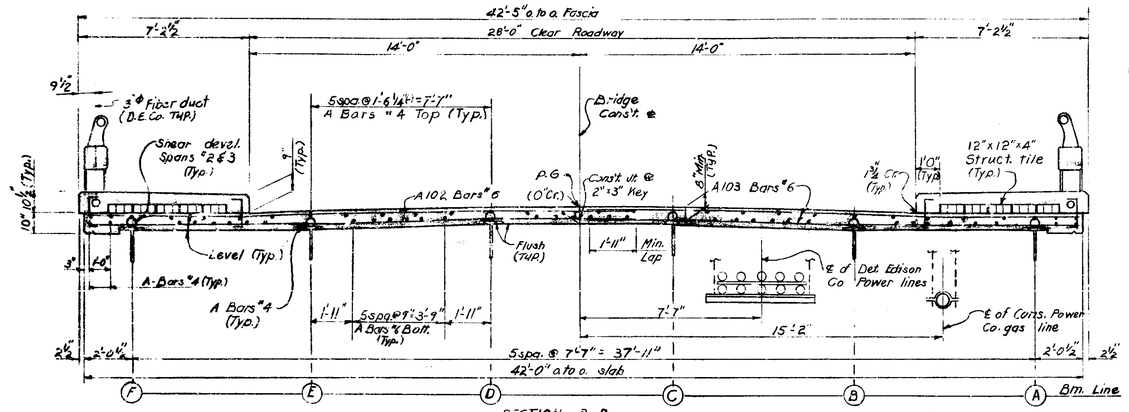
SUPERSTRUCTURE DETAILS

SPANS 3 & 4

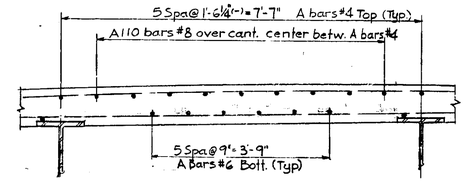
REVISIONS			
NO	DESCRIPTION	DATE	BY

SQUAD NOES	Edwards 8-10-62
DRAWN BY	GHC 12-4-62
TRACED BY	
CHECKED BY	Kaiser 12-5-63
SHEET	11 OF 19

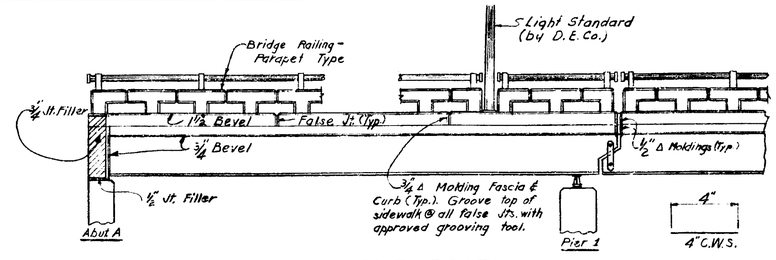
S22 of 63174 A



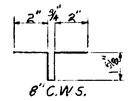
SECTION B-B
(Sidewalk Reinforcement not Shown)



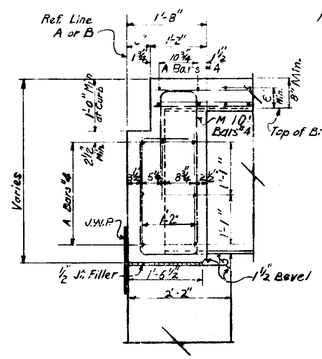
SECTION J-J



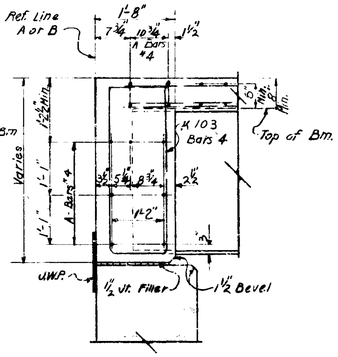
PART ELEVATION



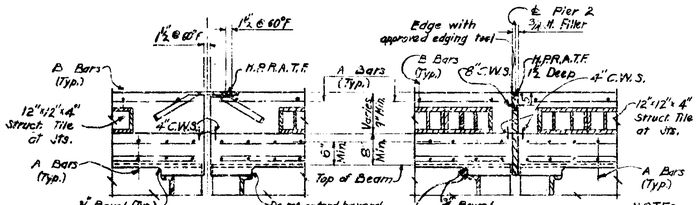
C.W.S. DETAILS



SECTION C-C



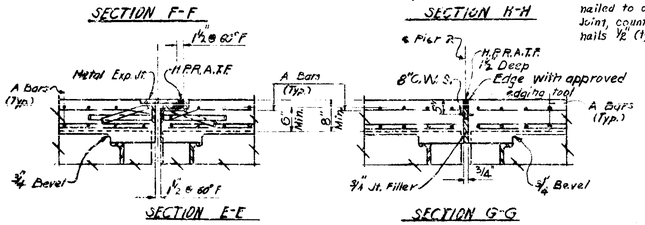
SECTION D-D



SECTION F-F

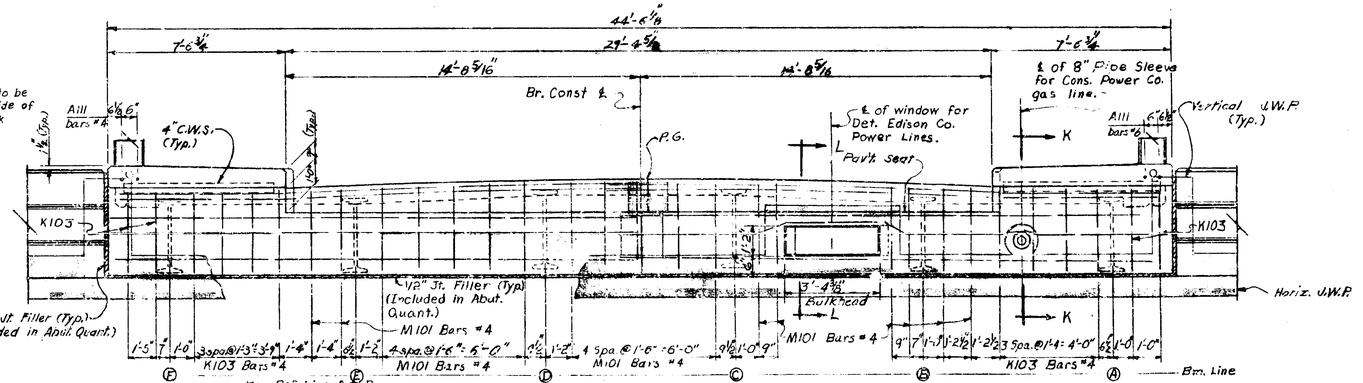
SECTION H-H

NOTE:
Joint Filler to be nailed to one side of joint, countersink nails ½" (Typ.)



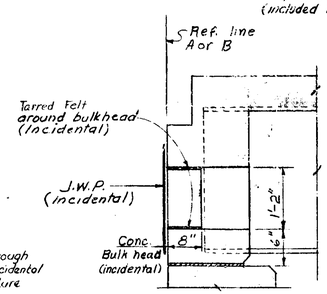
SECTION E-E

SECTION G-G



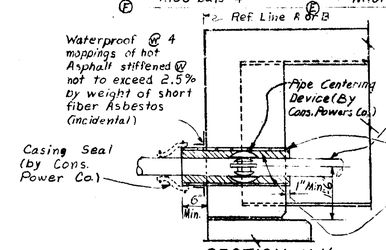
BACKWALL ELEVATION ABUT. A
(Abut. B is similar)

NOTE: Field bend Backwall Reinforcement to avoid utility windows and sleeves.



SECTION L-L

NOTE:
Windows through backwall are incidental to superstructure concrete.



SECTION K-K

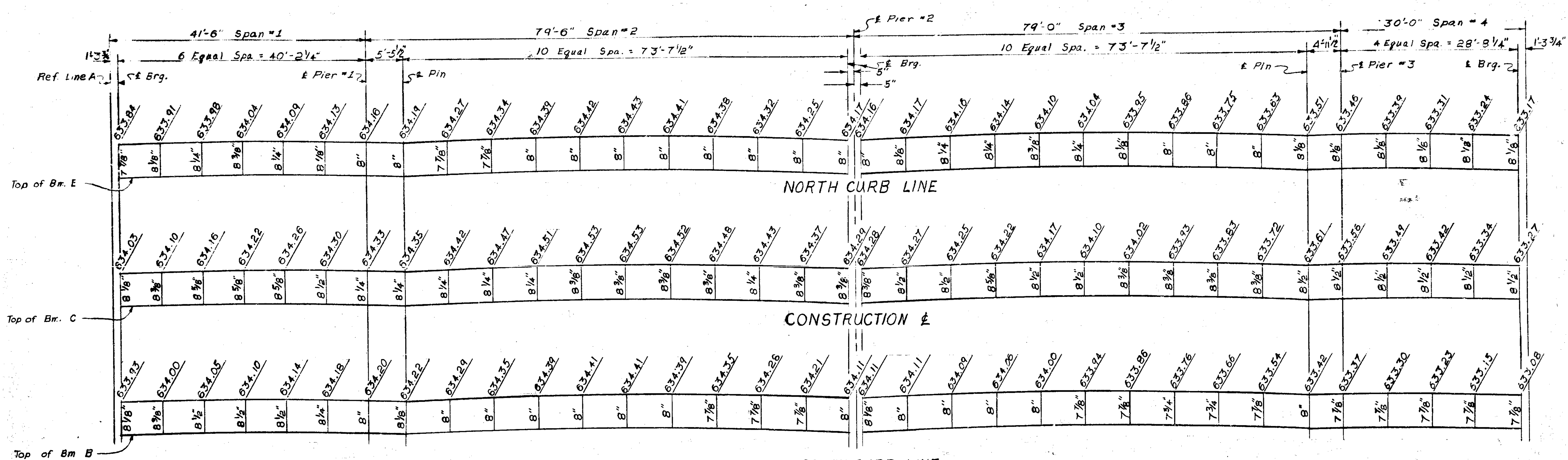
Work this sheet with sheets No 10, 11 & 13

MICHIGAN STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE DETAILS

REVISIONS			
NO	DESCRIPTION	DATE	BY

SQUAD PISS	Edmonds	8-10-64
DRAWN BY	GMC	11-10-63
TRACED BY	KK	1-2-64
CHECKED BY	Kaiser	1-3-64
SHEET 12 OF 19		

S22 of 63174A

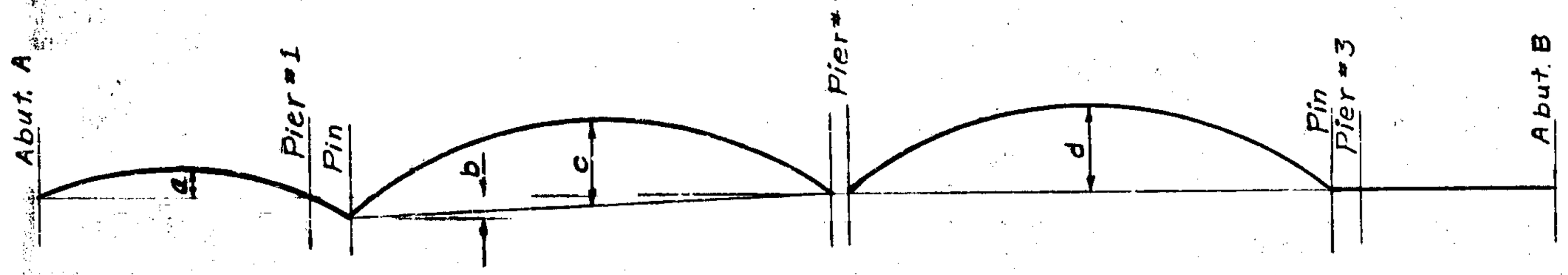


SLAB ORDINATE DIAGRAM

Elevations shown are for top of screed before pouring any superstructure concrete, with formwork, reinforcement, diaphragms and shear developers in place, and are based on a minimum slab thickness of 8". After screeds are set, if check indicates that less than the minimum thickness will be obtained, adjust screeds and metal exp. joints accordingly.

The slab ordinates shown provide for dead load deflection, vertical curve, crown and beam camber and are to be measured from the top of the beam indicated in a vertical plane parallel to the reference lines to the top of screed.

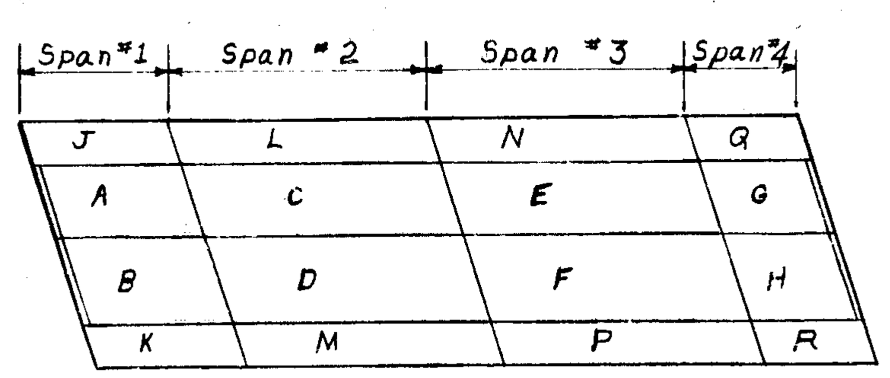
Screeds affected by loads in other spans are to be set to the elevations shown and checked for minimum slab thickness before pouring any superstructure concrete. All slab concrete in suspended spans 2 & 3 is to be poured before the concrete in the respective anchor spans.



CAMBER INFORMATION

STRUCTURAL STEEL ERECTED (all spans complete)					SHEAR CONNECTORS WELDED, FORMS & REINFORCEMENT IN PLACE (all spans complete)					ROADWAY CONCRETE COMPLETE IN SPANS 2 & 3 (only)				
Bm. Line	a	b	c	d	Bm. Line	a	b	c	d	Bm. Line	a	b	c	d
A&F	0"	0"	3 5/8"	2 7/8"	A&F	0"	0"	3"	2 1/4"	A&F	1/8"	1/8"	1 7/8"	1 1/8"
B	0"	0"	3 5/8"	2 7/8"	B	0"	0"	3"	2 1/4"	B	1/8"	1/8"	1 5/8"	7/8
C	0"	0"	3 1/8"	2 3/8"	C	0"	0"	2 1/2"	1 3/4"	C	1/8"	1/8"	1 1/8"	3/8"
D	0"	0"	3 1/8"	2 1/2	D	0"	0"	2 1/2"	1 7/8"	D	1/8"	1/8"	1"	3/8"
E	0"	0"	3 5/8"	2 7/8"	E	0"	0"	3"	2 1/4"	E	1/8"	1/8"	1 1/2"	3/4"

ROADWAY CONCRETE COMPLETE IN ALL SPANS					BRIDGE COMPLETED (Including sidewalk)				
Bm. Line	a	b	c	d	Bm. Line	a	b	c	d
A&F	0"	0"	1 7/8"	1 1/8"	A&F	-1/8"	0"	1 1/4"	1/2"
B	0"	0"	1 5/8"	7/8"	B	-1/8"	0"	1 1/8"	3/8"
C	0"	0"	1 1/8"	3/8"	C	0"	0"	1 1/8"	3/8"
D	0"	0"	1"	3/8"	D	0"	0"	1"	3/8"
E	0"	0"	1 1/2"	3/4"	E	-1/8"	0"	1"	3/8"



POUR DIAGRAM

Alphabetical sequence of pours is not to be construed as a pour sequence.

MISCELLANEOUS QUANTITIES - SUPERSTRUCTURE		
ITEM	UNIT	AMOUNT
3/4" Joint Filler	Sq. Ft.	42
Joint Waterproofing	Sq. Ft.	255
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	140
Bridge Railing-Parapet Type	Lin. Ft.	459.2
Copper	Lbs.	230.0
Structural Tile 4"x12"x12"	Each	2120
Water Reducing Retarding Admixture	Gal.	41
* 8" Pipe Sleeve - placed	Each	2

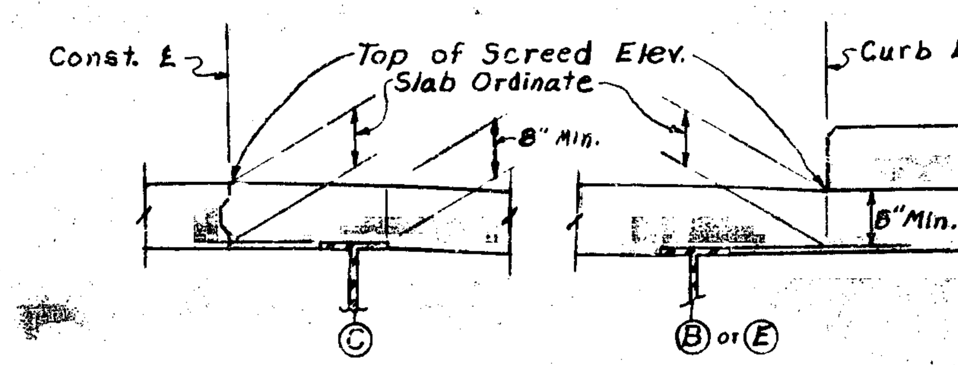
*Chargable to Cons. Power Co.

ITEMS CHARGABLE TO:		
Consumers Power Co.	8" Pipe Sleeve-Placed	2 Each
Detroit Edison Co.	** Steel Reinforcement	24 Lbs.

For other items chargeable to above Companies see sh.# 15

SUPERSTRUCTURE CONCRETE QUANTITIES			
	Span	Pour	Grade A(6AA)
Slab	1	A	31.3
		B	31.1
	2	C	43.3
		D	43.3
	3	E	43.3
		F	43.3
	4	G	24.3
		H	24.1
Sidewalk	1	J	7.9
		K	7.9
	2	L	12.0
		M	12.0
	3	N	12.0
		P	12.0
	4	Q	5.9
		R	5.9
Total Grade A(6AA) Cu. Yds.			359.6

** Included in reinforcing steel quant. sh.#19 but chargable to Det. Edison Co.



METHOD OF MEASURING SCREEDS

NOTES:
H.P.R.A.T.F. denotes hot-poured rubber-asphalt type filler
C.W.S. denotes copper waterstop.
J.W.P. denotes joint waterprooing.
For Railing, Bevel and Molding details see Std. R11 or R12
Sidewalk pours shall not be cast until the entire slab concrete has obtained at least 50% of its design strength as determined by the table in Section 5.01.03 of the Standard Specifications.

Work this sheet with Sheets No. 10, 11 & 12

MICHIGAN STATE HIGHWAY DEPARTMENT

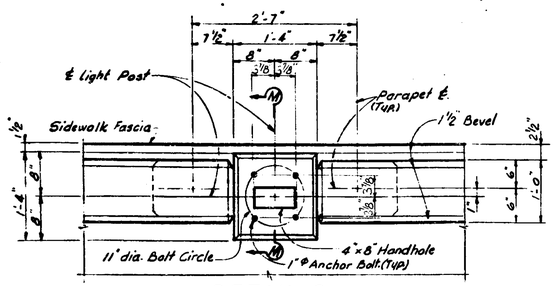
SUPERSTRUCTURE DETAILS

REVISIONS

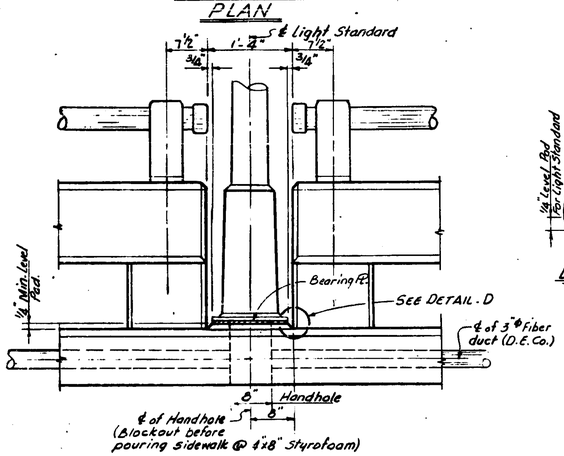
NO	DESCRIPTION	DATE	BY

SQUAD BOSS	Edwards	8-10-64
DRAWN BY	K. K.	12/30/63
TRACED BY		
CHECKED BY	Kalla	12/31/63
SHEET 13 OF 19		

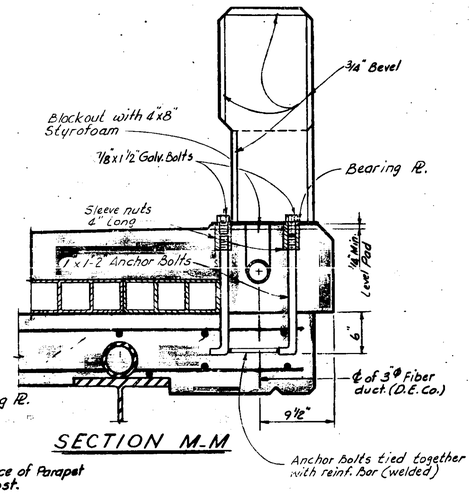
S22 of 63174 A



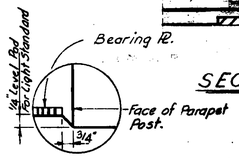
DETAIL C
PLAN



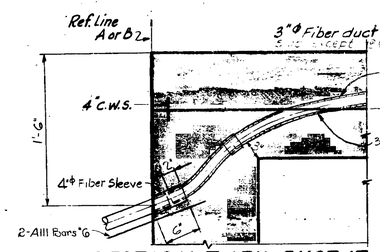
INSIDE ELEVATION



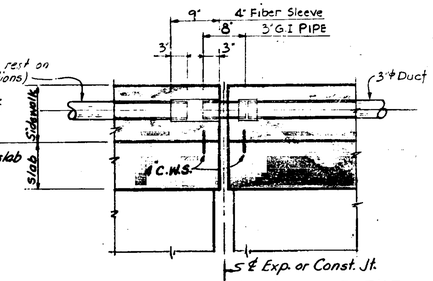
SECTION M-M



DETAIL-D



SECTION THRU. DUCT AT REFERENCE LINES



SECTION THRU. DUCT AT EXP. OR CONST. JOINTS

NOTES:

Light standard anchor bolt assembly is to be furnished by Detroit Edison Co. and installed by Bridge Contractor. (Installation is incidental work)

Furnishing and installing of Light Standard and 3"Φ Fiber Duct as well as duct sleeves, styrofoam blocking is by Det. Edison Co.

Where ducts are to be installed in sidewalks, the District Utility Engineer is to be notified five days in advance of the time of installation.

MICHIGAN STATE HIGHWAY DEPARTMENT

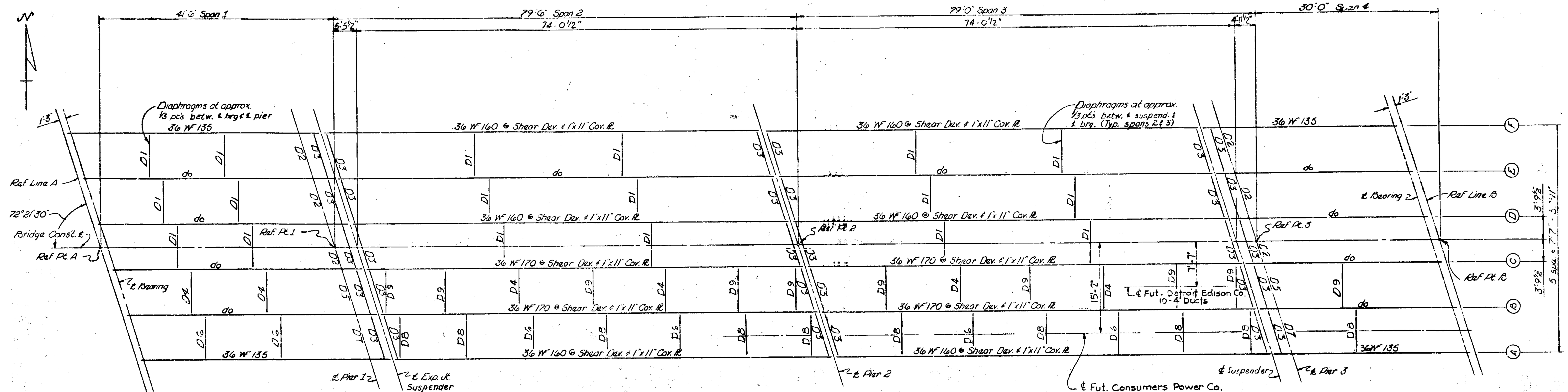
UTILITY DETAILS
(STREET LIGHTING)

REVISIONS

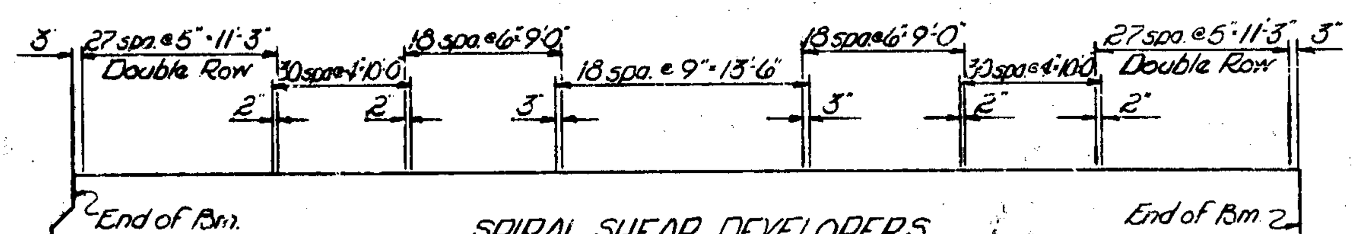
NO.	DESCRIPTION	DATE	BY

DESIGN BASIS	Edwards	8-10-64
DRAWN BY	Keller	4-27-64
TRACED BY		
CHECKED BY	RS	4-29-64
SHEET 12 OF 12		

S22 of 63174A

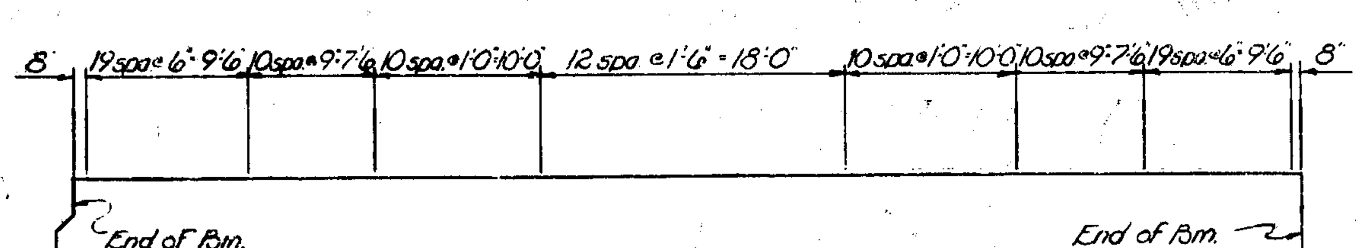


ERECTION DIAGRAM



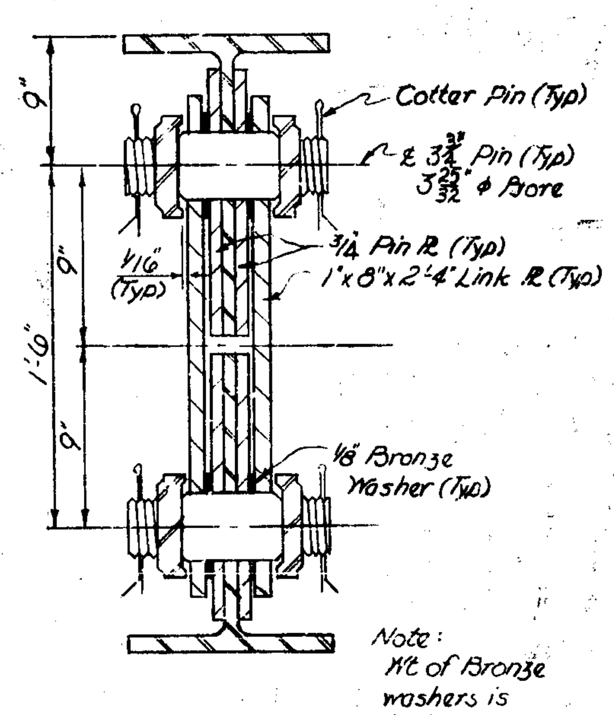
SPIRAL SHEAR DEVELOPERS

(Spans 2 & 3 only)



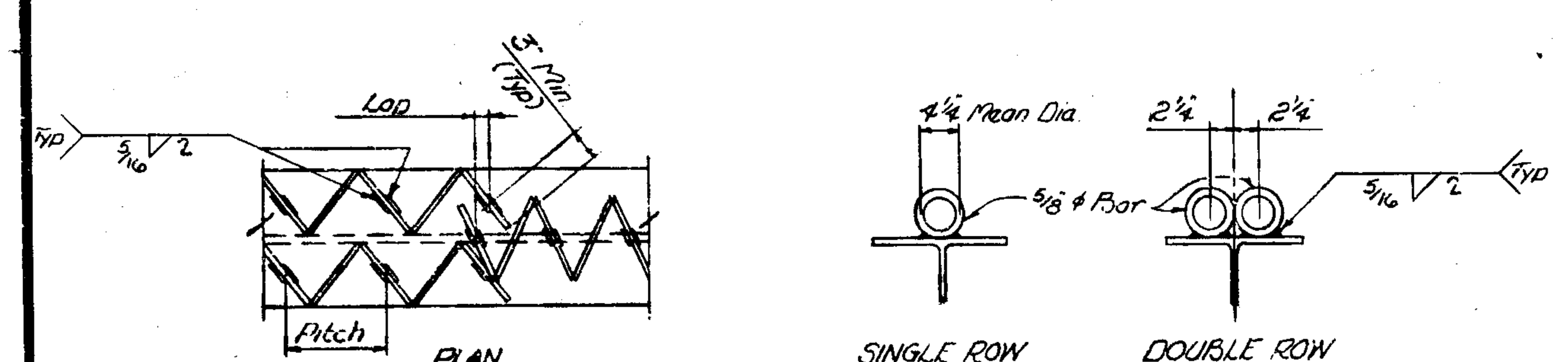
STUD SHEAR DEVELOPERS

(Spans 2 & 3 only)

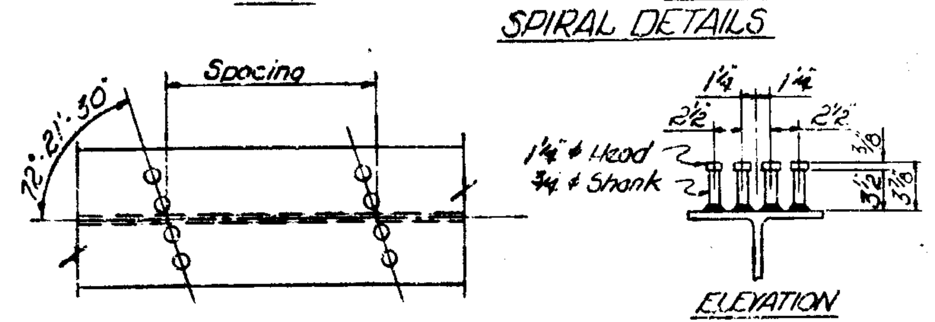


SECTION C-C

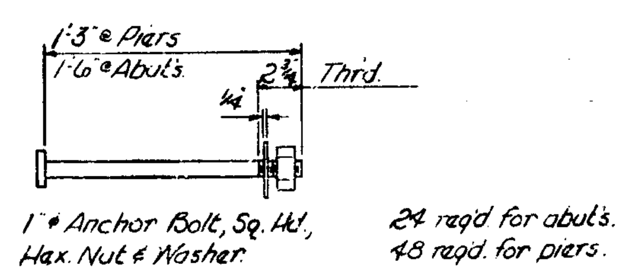
(Typical)



SPIRAL DETAILS



STUD DETAILS



ANCHOR BOLT

ITEMS CHARGEABLE TO		
	Structural Steel	
Company	Furnish & Fab.	Erection
Detroit Edison Co.	4440 Lb's	4440 Lb's
Consumers Power Co.	1385 Lbs.	1385 Lb's

Above quantities are included in "Structural Steel" totals.
For other items chargeable to above companies See Sh. #13.

STRUCTURAL STEEL NOTES

FABRICATION: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction - 1963 Edition.

DESIGN: Michigan State Highway Department's Specifications for Design of Highway Bridges - 1958 Edition (H15-44 Loading).

SHOP CONNECTIONS: All shop connections shall be welded.

FIELD CONNECTIONS: Field connections, unless otherwise noted, shall bolted with high-strength bolts.

HIGH-STRENGTH BOLTS: ¾" ɸ.

OPEN HOLES: Open holes for high-strength bolts shall be 13/16 unless otherwise noted.

SHOP PAINT: In addition to the shop paint provisions of the standard specifications the top surfaces of masonry plates shall be coated in accordance with the requirements for machine finished surfaces.

SOLE PLATES: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ¼" and welded, with a continuous weld, for the full perimeter. Welds shall be ground flush with the faces of plate.

ALL STEEL shall be A.S.T.M. A36.

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

A36 Steel	= 281,460#
Bronze	= 36
Lead	= 104
Total "Structural Steel - Furnishing and Fabricating"	= 281,600#
Total "Structural Steel - Erection"	= 281,600#
Field Painting	= Lump Sum
Shear Developers	= Lump Sum

SHEAR DEVELOPERS: are to be either spirals or studs at the contractor's option.

CAMBER: Beams shall be cambered as noted in the table.

Beam Row	Spans 1 & 4	Span 2	Span 3
A, B, E & F	0	4"	3¼"
C	0	3½"	2¾"
D	0	3½"	2⅞"

This camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ±¼". Heating is to be used if necessary to assure camber permanency within the above limitations. Dead load deflection of the beams alone is calculated to be 0" in spans 1 & 4 and ⅞ in spans 2 & 3.

Work this sh. @ sh. #16

MICHIGAN STATE HIGHWAY DEPARTMENT

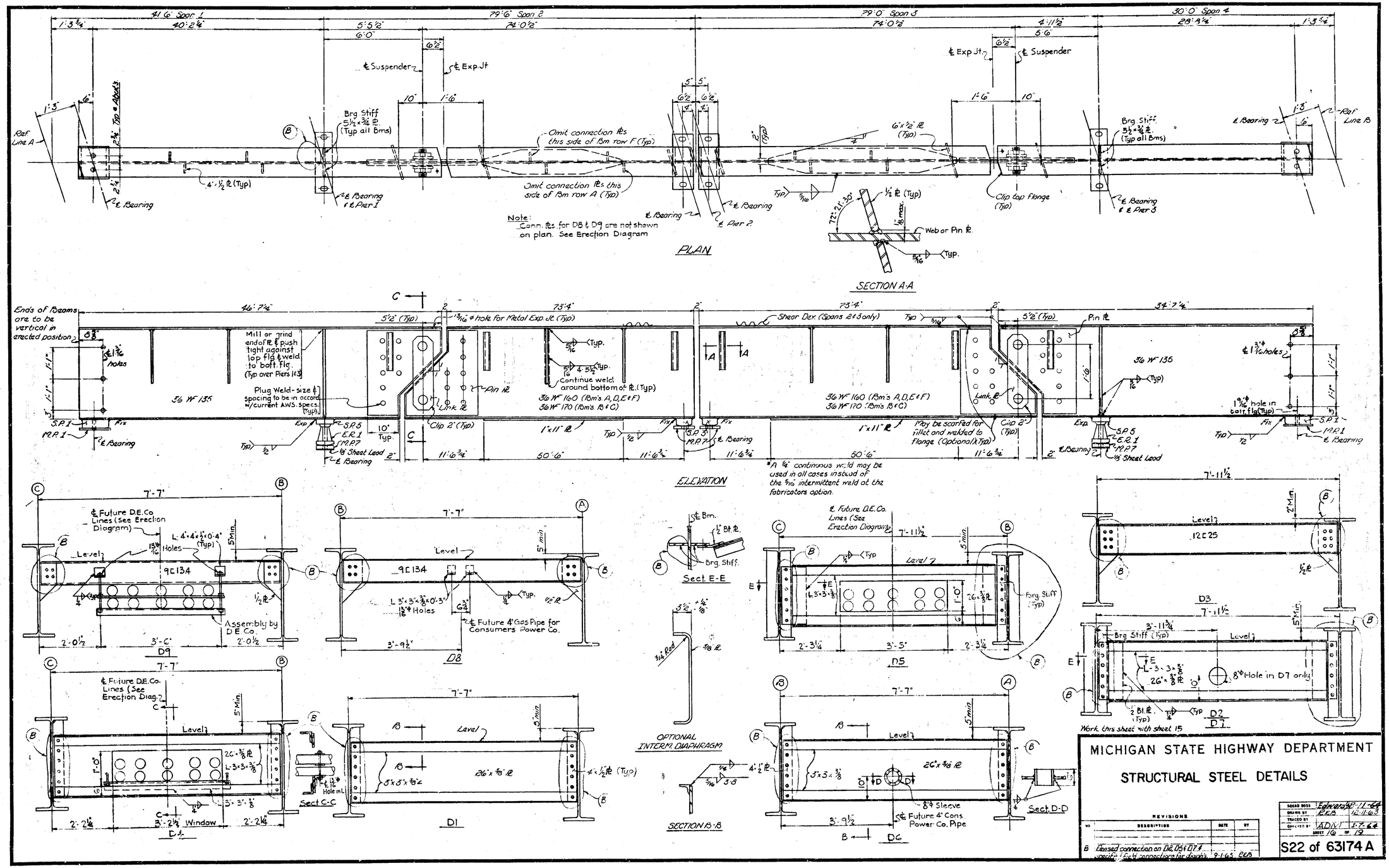
STRUCTURAL STEEL DETAILS

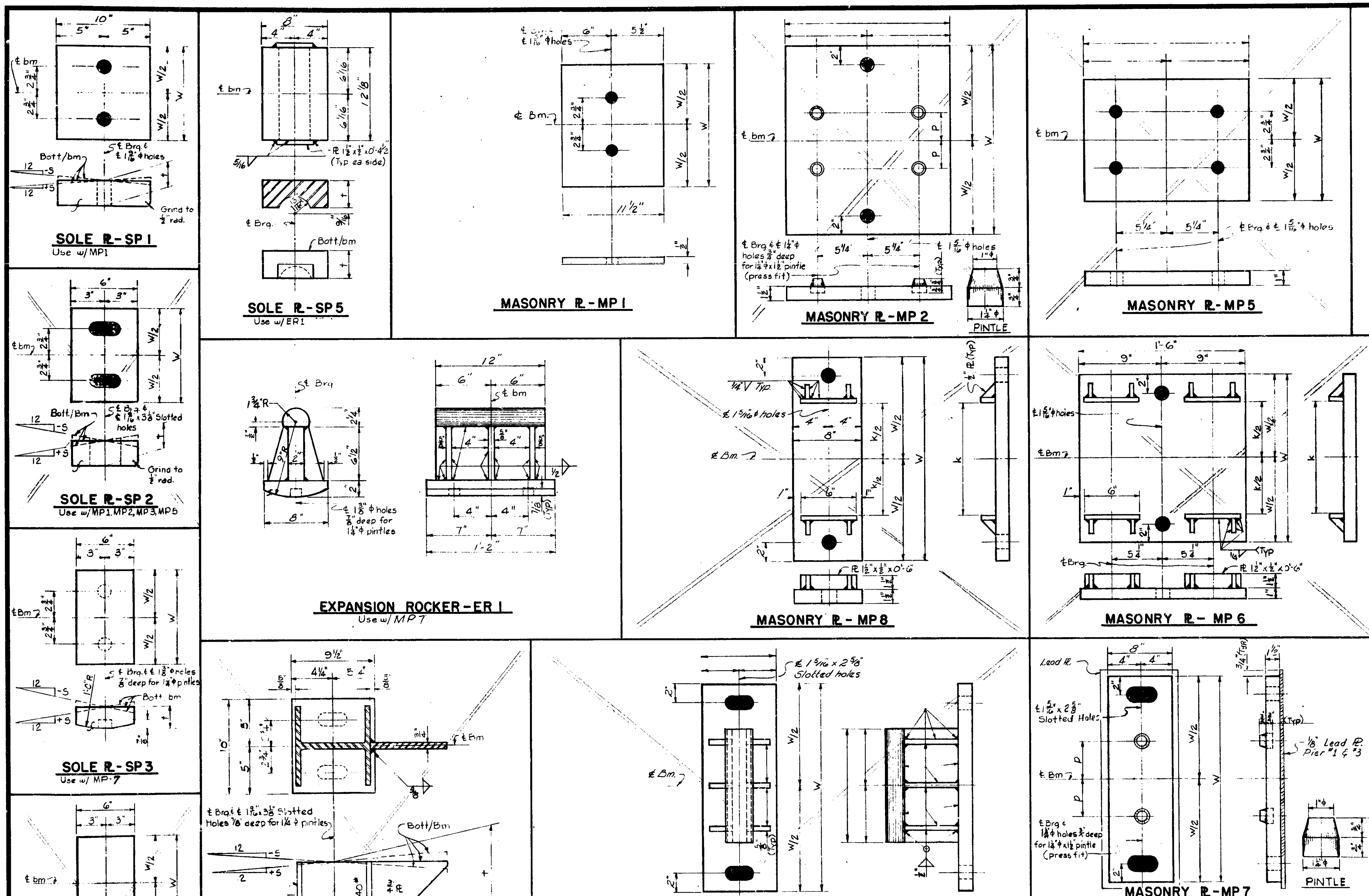
REVISIONS

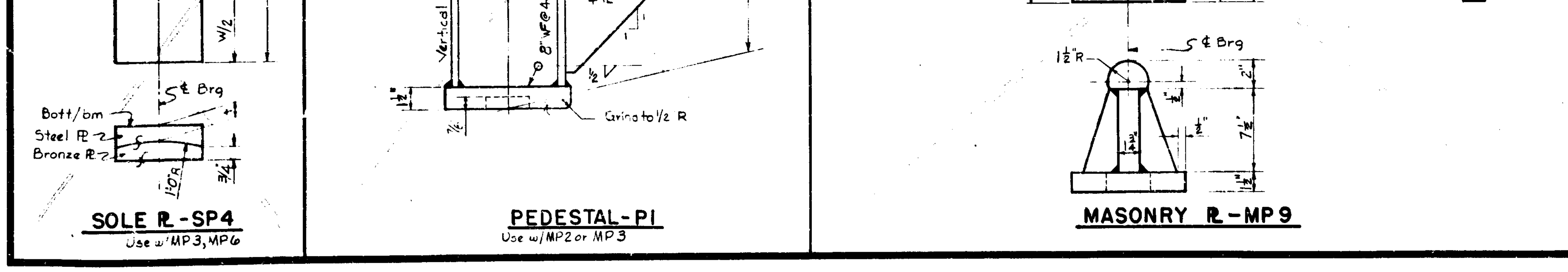
NO	DESCRIPTION	DATE	BY

SQUAD BOSS	Edwards	8-11-64
DRAWN BY	EER	12-12-63
TRACED BY		
CHECKED BY	ADM	1-7-64
SHEET 15 OF 19		

S22 of 63174A


41'-6" Span 1
79'-6" Span 2
79'-0" Span 3
30'-0" Span 4
PLAN
SECTION A-A
ELEVATION
Note: Conn. Pls. for D8 & D9 are not shown on plan. See Erection Diagram
Omit connection Pls this side of Bm row F (Typ)
Omit connection Pls this side of Bm row A (Typ)
Brg Stiff 5½x¾ Pl. (Typ all Bms)
Ends of Beams are to be vertical in erected position
Mill or grind end of Pl & push tight against top flg & weld to bott. flg. (Typ over Piers 1&3)
Plug Weld - size & spacing to be in accord w/current AWS. Specs. (Typ)
Continue weld around bottom of Pl. (Typ)
36 WF 135
36 WF 160 (Bm's A,D,E & F)
36 WF 170 (Bm's B & C)
Shear Dev. (Spans 2 & 3 only)
May be scarfed for fillet and welded to Flange (Optional) (Typ)
*A ¼" continuous weld may be used in all cases instead of the 5/16 intermittent weld at the fabricators option.
Sect. E-E
OPTIONAL INTERM. DIAPHRAGM
SECTION B-B
Sect. C-C
Sect. D-D
D9
D8
D5
D1
D6
D3
D2
D7
Work this sheet with sheet 15
MICHIGAN STATE HIGHWAY DEPARTMENT
STRUCTURAL STEEL DETAILS
REVISIONS
S22 of 63174 A





BEAM	TYPE	VARIABLE DIMENSIONS L	W	t	p	k	s
ABUTMENT A							
All Beams	MP1	—	1'-1"	—	—	—	—
A	SP1	—	1'-0"	3½"	—	—	0
B	"	—	"	3¼"	—	—	0
C	"	—	"	4¼"	—	—	0
D	"	—	"	4"	—	—	0
E	"	—	"	2¼"	—	—	0
F	SP1	—	1'-0"	2"	—	—	0
PIER #1							
All Beams	MP7	—	1'-10"	—	4"	—	—
All Beams	ER1	—	—	—	—	—	—
A	SP5	—	—	3¼"	—	—	—
B	"	—	—	3"	—	—	—
C&D	"	—	—	4¼"	—	—	—
E	"	—	—	2¾"	—	—	—
F	SP5	—	—	2½"	—	—	—
PIER #2 SPAN #2							
All Beams	MP7	—	1'-10"	—	2¾"	—	—
A	SP3	—	1'-0	2"	—	—	0
B	"	—	"	2¼"	—	—	0
C	"	—	"	4"	—	—	0
D	"	—	"	4¼"	—	—	0
E&F	SP3	—	1'-0"	3"	—	—	0
PIER #2 SPAN #3							
All Beams	MP7	—	1'-10"	—	2¾"	—	—
A&B	SP3	—	1'-0"	2"	—	—	0
C	"	—	"	4"	—	—	0
D	"	—	"	4¼"	—	—	0
E&F	SP3	—	1'-0"	3"	—	—	0
PIER #3							
All Beams	MP7	—	1'-10"	—	4"	—	—
All Beams	ER1	—	—	—	—	—	—
A	SP5	—	—	2½"	—	—	—
B	"	—	—	2¾"	—	—	—
C	"	—	—	4½"	—	—	—
D	"	—	—	4¾"	—	—	—
E	"	—	—	3¾"	—	—	—
F	SP5	—	—	4"	—	—	—
ABUTMENT B							
All Beams	MP1	—	1'-1"	—	—	—	—
A	SP1	—	1'-0"	2"	—	—	0
B	"	—	"	2¼"	—	—	0
C	"	—	"	4"	—	—	0
D	"	—	"	4¼"	—	—	0
E	"	—	"	3¼"	—	—	0
F	SP1	—	1'-0"	3½"	—	—	0

NOTES: Work this sheet with sheets #14 & 15

MICHIGAN STATE HIGHWAY DEPARTMENT

BEARING DETAILS

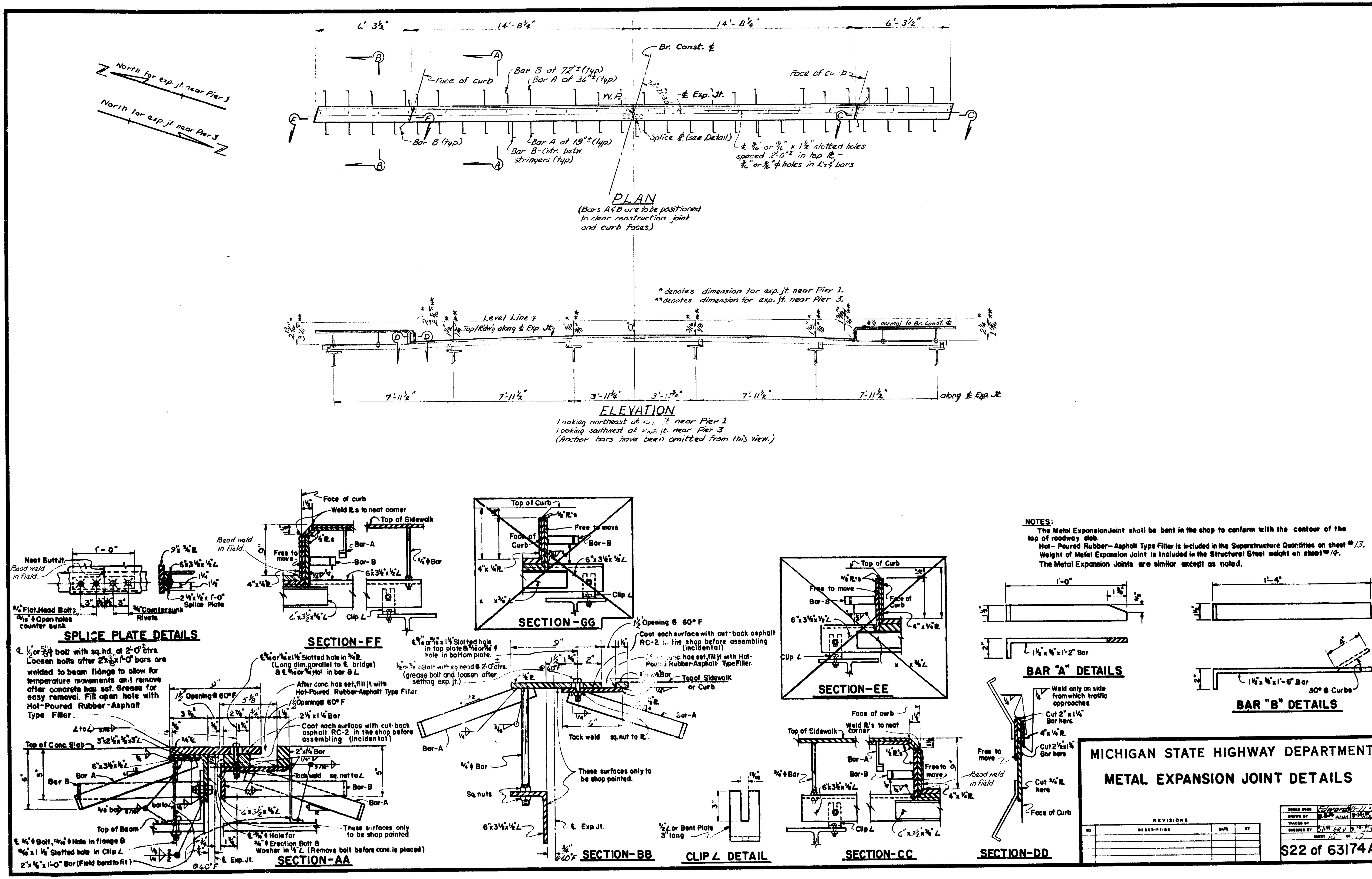
REVISIONS

NO	DESCRIPTION	DATE	BY

SQUAD BOSS	Edwards	8-11-64		
DRAWN BY	D.E.M.	3-15-60	Kalln	1-2-64
TRACED BY				
CHECKED BY	FDR	10-5-60	ADM	4-3-64

SHEET 17 OF 19

S22 of 63174 A


PLAN
(Bars A & B are to be positioned to clear construction joint and curb faces)
ELEVATION
Looking northeast at exp. jt. near Pier 1
Looking southwest at exp. jt. near Pier 3
(Anchor bars have been omitted from this view.)
* denotes dimension for exp. jt. near Pier 1.
** denotes dimension for exp. jt. near Pier 3.
North for exp. jt. near Pier 1
North for exp. jt. near Pier 3
Br. Const. ℄
SPLICE PLATE DETAILS
SECTION-FF
SECTION-GG
SECTION-EE
SECTION-AA
SECTION-BB
CLIP ∠ DETAIL
SECTION-CC
SECTION-DD
BAR "A" DETAILS
BAR "B" DETAILS
NOTES:
The Metal Expansion Joint shall be bent in the shop to conform with the contour of the top of roadway slab.
Hot-Poured Rubber-Asphalt Type Filler is included in the Superstructure Quantities on sheet # 13.
Weight of Metal Expansion Joint is included in the Structural Steel weight on sheet # 14.
The Metal Expansion Joints are similar except as noted.
MICHIGAN STATE HIGHWAY DEPARTMENT
METAL EXPANSION JOINT DETAILS
REVISIONS
NO
DESCRIPTION
DATE
BY
SQUAD BOSS
DRAWN BY
TRACED BY
CHECKED BY
SHEET 16 OF 17
S22 of 63174A

ABUTMENTS

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A1	6'-6"							#6	6'-6"	92	917
A2	5'-0"							#6	5'-0"	94	706
A3	26'-3"							#6	26'-3"	20	189
A4	22'-9"							#6	22'-9"	40	1367
A5	8'-3"							#6	8'-3"	188	2329
A6	26'-0"							#4	26'-0"	40	695
A7	18'-9"							#4	18'-9"	20	251
A8	10'-4"							#4	10'-4"	4	28
A9	7'-3"							#4	7'-3"	4	19
A10	4'-5"							#4	4'-5"	4	12
A11	4'-1"							#4	4'-1"	4	11
A12	10'-6"							#4	10'-6"	4	28
A13	7'-6"							#4	7'-6"	4	20
D1	4'-4½"	1'-0½"						#4	9'-8"	16	103
D2	2'-9¼"	1'-0½"						#4	6'-6"	10	43
D3	2'-4¾"	1'-0½"						#4	5'-9"	36	138
								Total Wt. Abutments			7456

PIERS

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A51	7'-6"							#6	7'-6"	192	2164
A52	25'-0"							#8	25'-0"	84	5607
A53	5'-0"							#8	5'-0"	96	1282
A54	21'-3"							#8	21'-3"	26	1475
A55	19'-6"							#8	19'-6"	26	1354
A56	15'-9"							#8	15'-9"	26	1093
A57	15'-6"							#6	15'-6"	12	279
A58	7'-3"							#6	7'-3"	12	131
A59	21'-5"							#8	21'-3"	36	2043
A60	21'-3"							#6	21'-3"	12	383
A61	18'-0"							#9	18'-0"	20	1224
A62	18'-0"							#8	18'-0"	12	577
K51	3'-2"	1'-9½"	1'-9½"	2'-8"				#4	12'-6"	90	752
K52	3'-0"	1'-8"	1'-8"	2'-6"				#4	11'-9"	46	361
K53	2'-6"	1'-8"	1'-8"	2'-6"				#4	10'-9"	46	330
K54	1'-9¾"	1'-4"	1'-3¾"	1'-9¾"				#4	8'-0"	46	246
L51	1'-11"	1'-11"	0	1'-4½"	1'-6"	1'-3"	1'-3"	#4	8'-6"	46	261
T51	20'-5"	1'-3"	5'-9"		R= 9"			#8	27'-5"	6	439
T52	18'-8"	1'-3"	5'-9"		R= 9"			#8	25'-8"	6	411
T53	14'-11"	1'-3"	5'-9"		R= 9"			#8	21'-11"	6	351
					Total Weight Piers						20,763

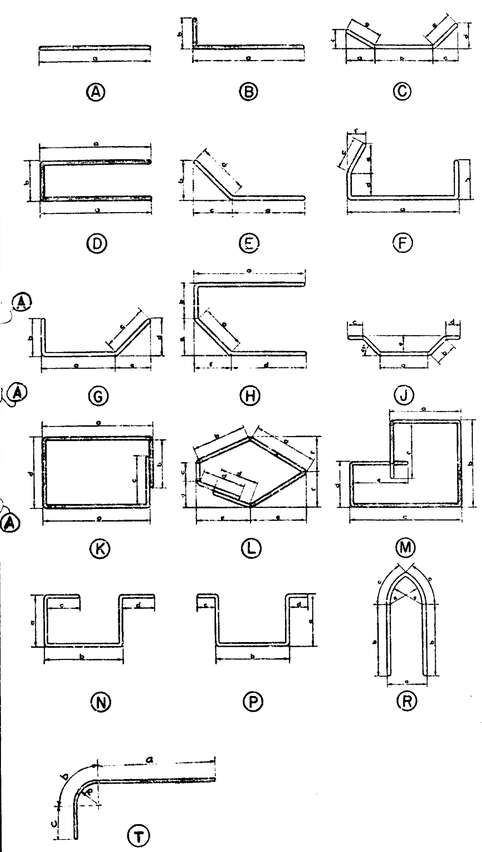
SUPERSTRUCTURE

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A101	24'-0"							#4	24'-0"	150	2405
A102	24'-3"							#6	24'-3"	922	33579
A103	21'-6"							#6	21'-6"	862	27834
A104	37'-0"							#4	37'-0"	256	6328
A105	37'-3"							#6	37'-3"	120	6714
A106	20'-6"							#4	20'-6"	22	301
A107	34'-6"							#4	34'-6"	40	922
A108	34'-6"							#6	34'-6"	30	1555
A109	35'-0"							#4	35'-0"	24	561
A110	11'-9"							#8	11'-9"	50	1569
A111	2'-0"							#6	2'-0"	8	24
B101	6'-10"	0'-7½"						#4	7'-5"	316	1567
D101	0'-6"	1'-3"						#4	2'-2"	616	893
D102	2'-11⅛"	0'-6¾"						#6	6'-4"	330	3139
K101	0'-10½"	0'-5½"	0'-6"	0'-7½"				#4	3'-3"	400	868
K102	0'-10⅛"	0'-5⅜"	0'-6"	0'-7⅜"				#4	3'-4"	220	490
K103	3'-5"	1'-1¼"	1'-1¼"	1'-3½"				#4	10'-3"	24	164
M101	0'-10⅛"	3'-5"	1'-3½"	2'-4"	1'-0¼"	1'-7½"		#4	10'-5"	36	251
					Total wt. Superstructure						89164

Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 117,383 #

BAR BENDING DIAGRAM



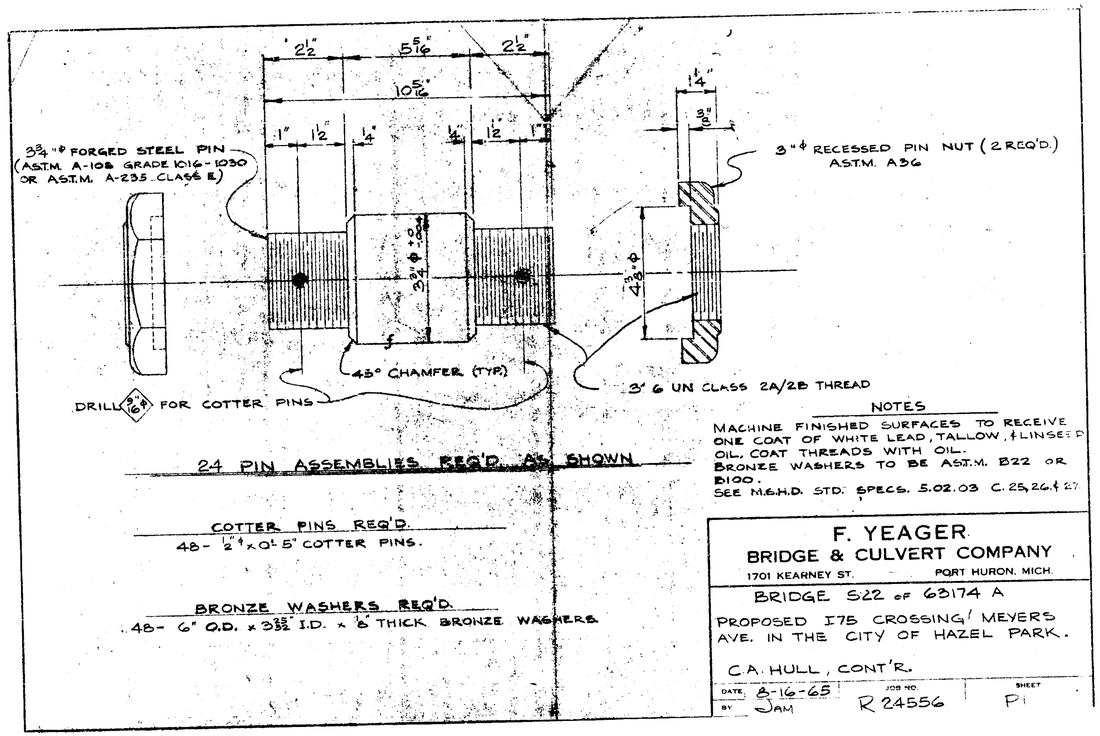
MICHIGAN STATE HIGHWAY DEPARTMENT

STEEL REINFORCEMENT DETAILS

REVISIONS			
BY	DESCRIPTION	DATE	BY
A	Corrected D102 & K102	3-31-65	K.K.

SQUAD BOSS: Edwards 8-10-64
DRAWN BY: Kallen 1-2-64
TRACED BY:
CHECKED BY: K.K. 1-7-64
SHEET 12 OF 15

S22 of 63174 A



24 PIN ASSEMBLIES REQ'D. AS SHOWN

COTTER PINS REQ'D.

48- ½" ϕ x 0'-5" COTTER PINS.

BRONZE WASHERS REQ'D.

48- 6" O.D. x 3 25/32" I.D. x ⅛" THICK BRONZE WASHERS

NOTES

MACHINE FINISHED SURFACES TO RECEIVE ONE COAT OF WHITE LEAD, TALLOW, & LINSEED OIL. COAT THREADS WITH OIL.
BRONZE WASHERS TO BE A.S.T.M. B22 OR B100.
SEE M.S.H.D. STD. SPECS. 5.02.03 C. 25, 26, & 27.

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. PORT HURON, MICH.

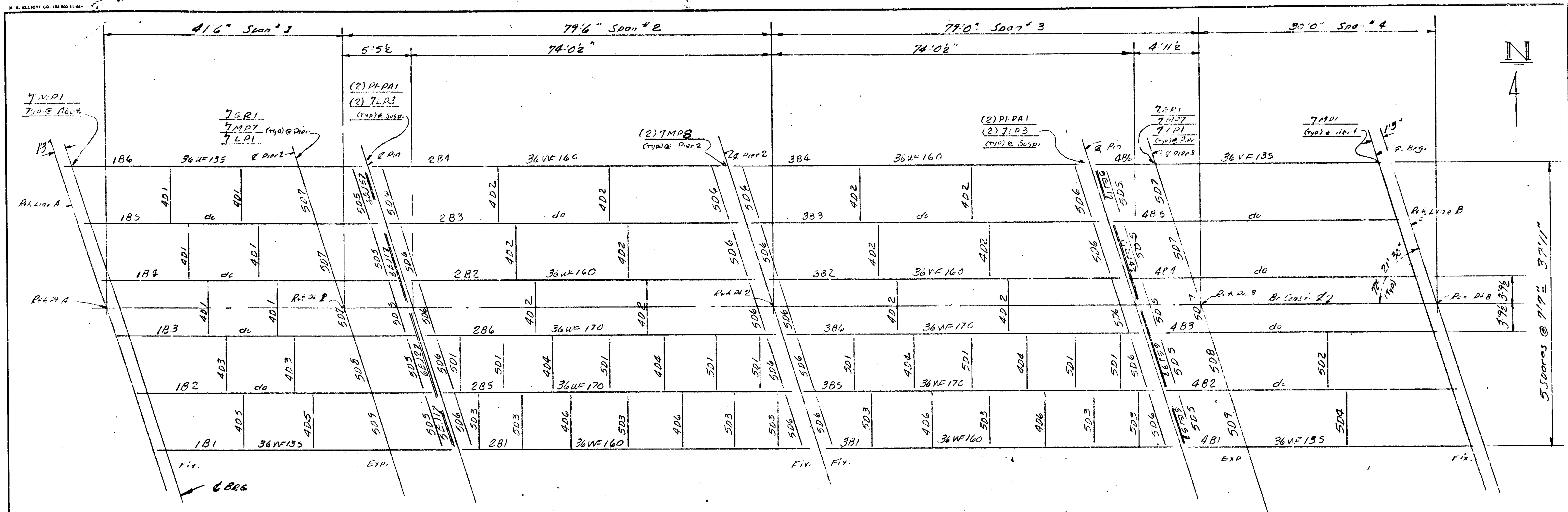
BRIDGE S22 OF 63174 A

PROPOSED I75 CROSSING/ MEYERS AVE. IN THE CITY OF HAZEL PARK.

C.A. HULL, CONT'R.

DATE	JOB NO.	SHEET
8-16-65	R 24556	P1

BY JAM



ERECTION DIAGRAM

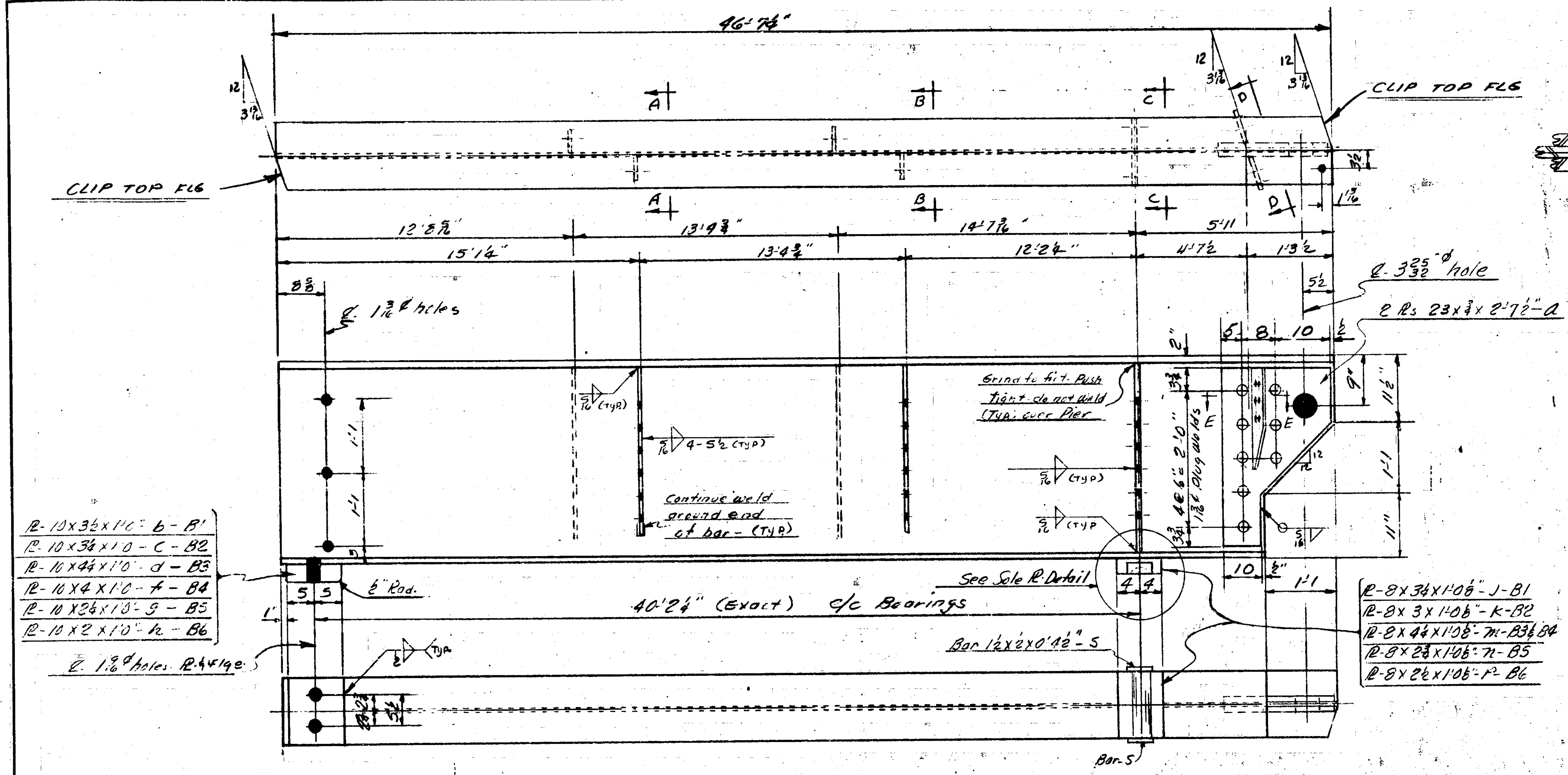
REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

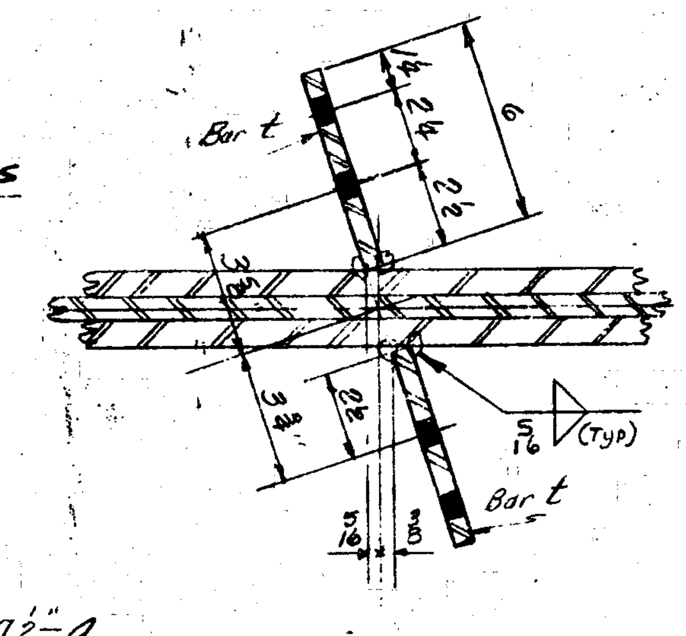
Prop. I-75 (Exist M-150) Crossing Meyers Road in The City of Hazel Park
C.A. Hull contr.
S22 of 63174A

DATE	JOB NO.	SHEET
9-3-65	R24556	E1

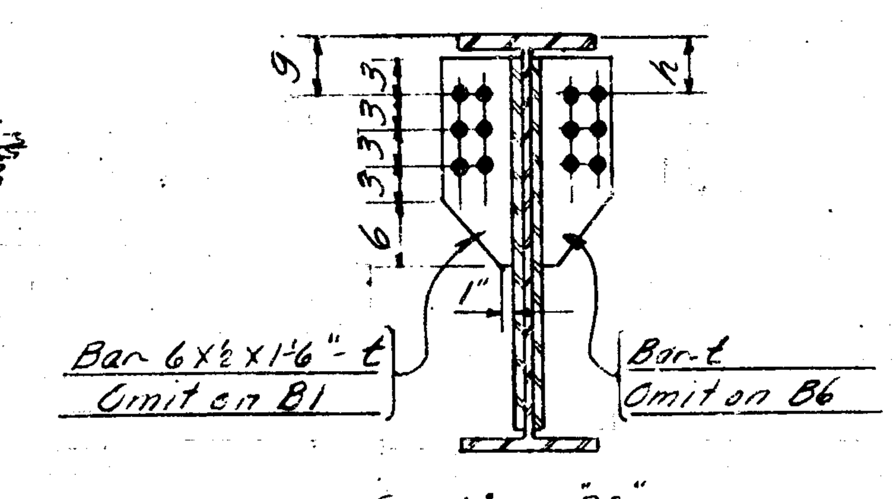
BY AWB



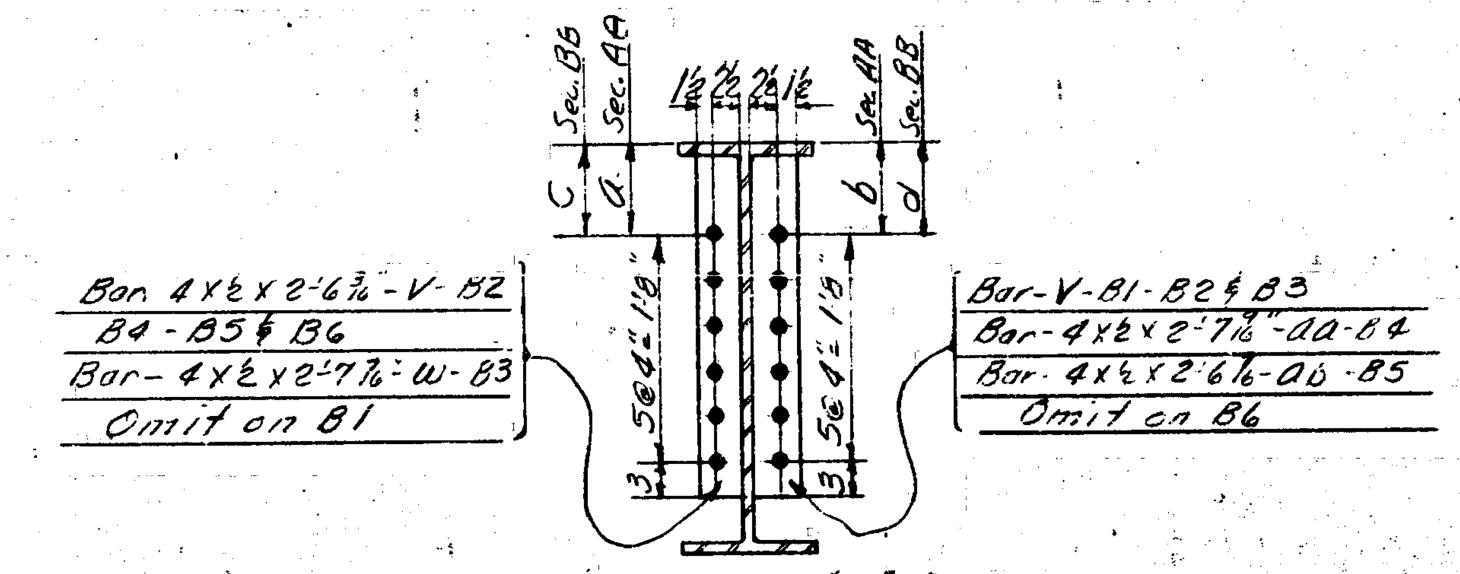
6 Beams Req'd - (36WF135# x 46'-7¼") Mark 1B1 - 1B6 incl.



Section "EE"



Section "DD"



Sections "AA & BB"

Shop Notes

Paint shop coat M.S.H.D.# 1A(3) Red Lead except as follows. The top surface of the top flange of beams in spans 2 & 3 shall be given one coat Boiled Linseed Oil-only. There shall be no paint on field connection contact surfaces.

The Metal Expansion Joint shall be painted where noted.

The top surface of Masonry Plates - The bottom surface of Sole Plates and the curved surfaces of Rockers shall be given one coat M.S.H.D. 5.02.03. Tallow Mixture only.

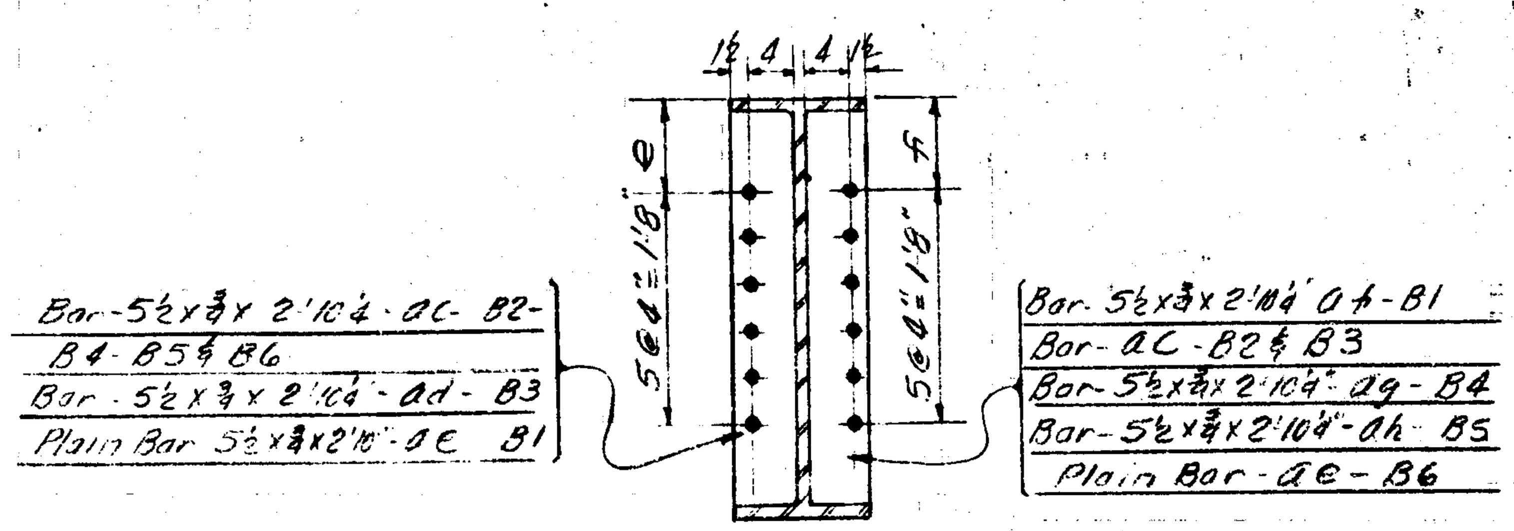
Open Holes - $\frac{13}{16}$"ϕ unless otherwise noted. Steel - A-36.

Camber. The beams in Spans 2 & 3 are to be cambered as shown on the details. This camber is to be measured with the beam lying on its side. Allowable camber tolerance is (±)¼".

All sharp longitudinal edges of main steel members that will be exposed in the finished structure shall be rounded to a radius of $\frac{3}{16}$" (±)$\frac{1}{16}$ before cleaning & painting. This shall include the bottom edges of the top flange of all beams.

Magnetic Particle inspection is required.

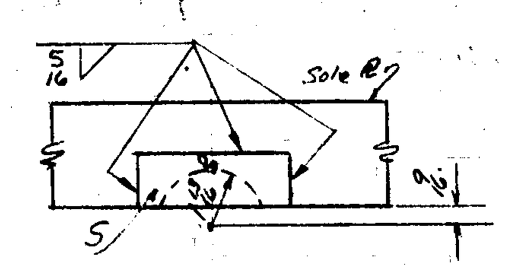
For Pin Details See Sheet P1



Section "CC"

Table of Dimensions

Beam	a	b	c	d	e	f	g	h
B1	X	8	X	8	X	8¼	X	5⅛
B2	8	8	8	8	8	8	5	5
B3	9¼	8	9¼	8	9¼	8	6¼	5
B4	8	9⅜	8	9⅜	8	9⅜	5	6⅜
B5	8	8¼	8	8¼	8	8¼	5	5⅜
B6	8	X	8	X	8	X	5	X



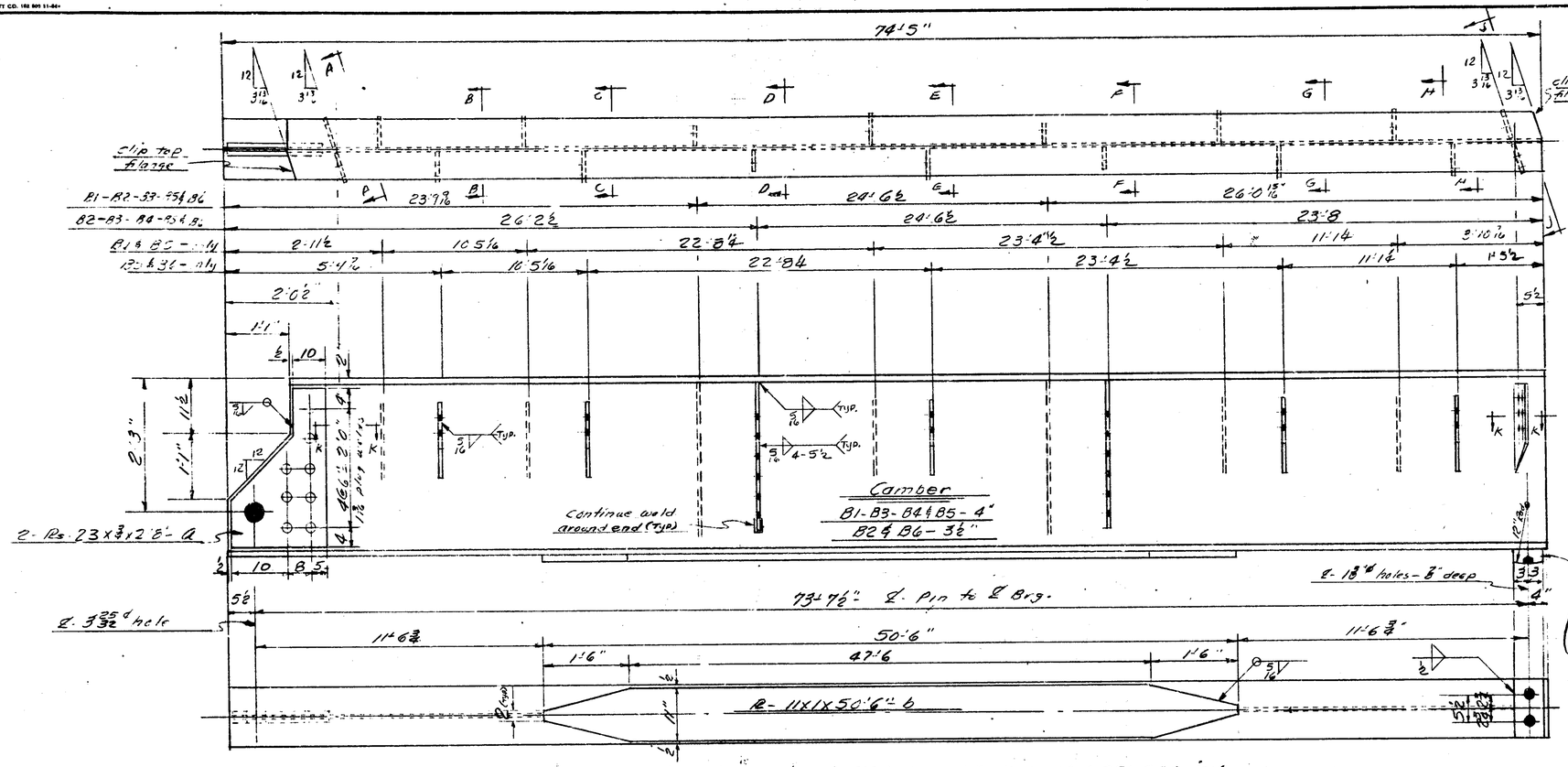
Sole Plate Detail

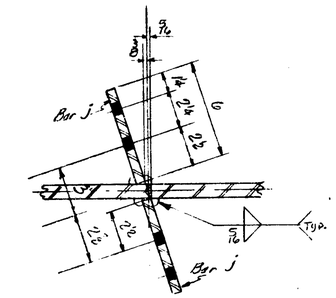
REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

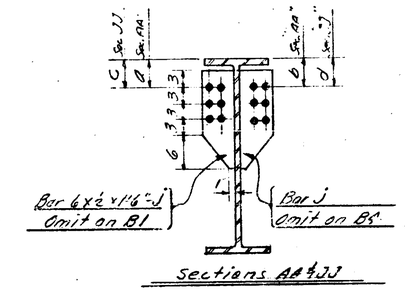
Prop. I-75 (Exist. M-150) Crossing Meyers Road in The City of Hazel Park
C.A. Hull - Contr.
S22 of 63174 - A

DATE 8-27-65 BY A.W.B. JOB NO. R 24556 SHEET 1 of 7 & P1



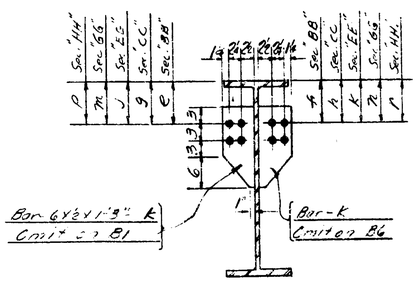


Section "KK"

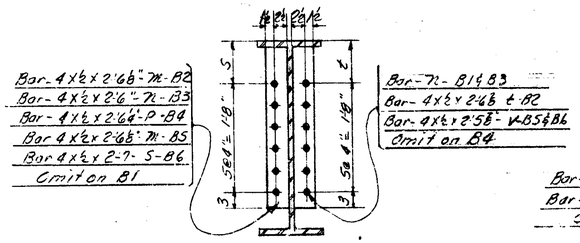


Sections AA & JJ

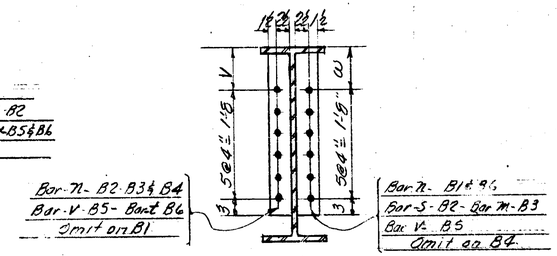
4-Beams Req'd. (36 WF 160 x 74'-5") as shown & noted - Mark 2B1-2B4 - incl.
2-Beams Req'd. (36 WF 170 x 74'-5") do do Mark 2B5 & 2B6



For - B1 - B5 & B6 only
Sections BB - CC - EE - GG & HH



Section "DD"



Section "FF"

Table of Dimensions

Beam	a	b	c	d	e	f	g	h	j	k	m	n	p	r	s	t	v	w
B1		5⅛		5⅜		8⅛		8		8		8¼		8⅜		8		8
B2	5	6¼	5	6¼											8⅜	8⅜	8	9⅛
B3	5	5⅜	5	5											8	8	8	8¼
B4	5		5												8¼		8	
B5	5	5	5	5	8	8	8¼	8	8	8	8	8	8	8	8¼	8	8	8
B6	5⅛	5	6⅜	5	9¼		9		9		9⅛		9¼		9⅛	8	9	8⅛

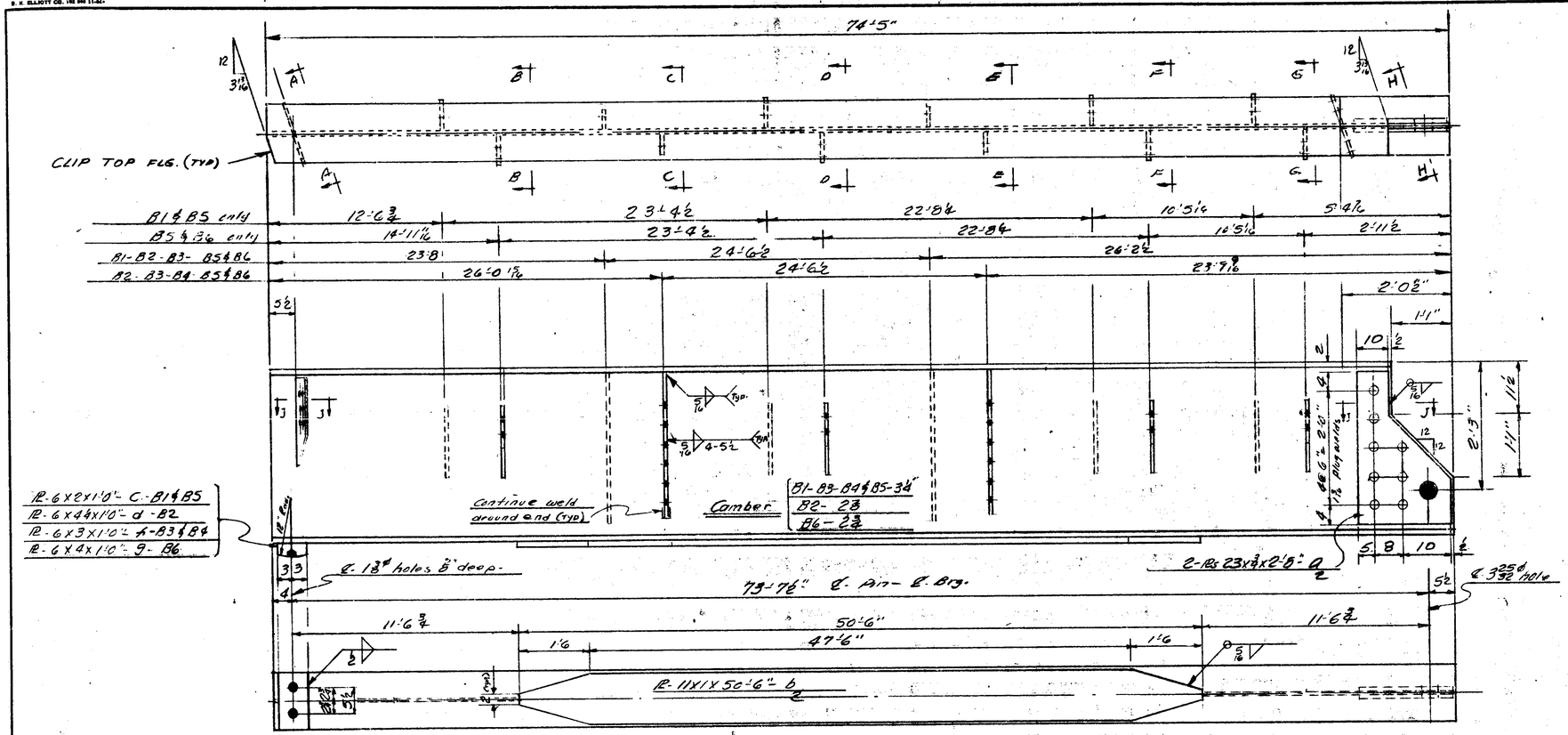
See Shop Notes on Sheet #9

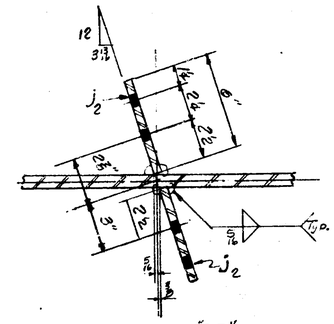
REVISION			
NO.	DESCRIPTION	DATE	BY

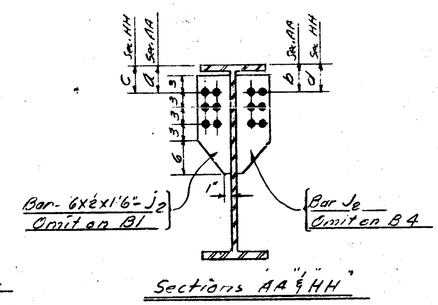
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

Prop. I-75 (Exist. M-150) Crossing Meyers Road in The City of Hazel Park
C.A. Hull Contr.
S 22 of 63174 A

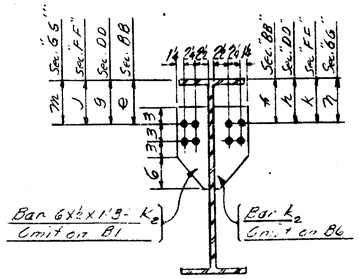
DATE 8-30-65 BY AWB | JOB NO. R24556 | SHEET 2 of 7 & P1



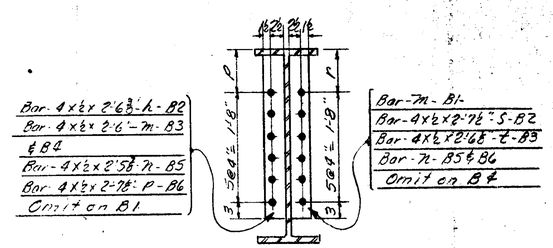




4- Beams Req'd- (36 WF 160 X 74'-5") as shown & noted - Mark-3B1-3B4-incl.
2- Beams Req'd- (36 WF 170 X 74'-5") " do do - Mark-3B5 & 3B6



For B1-B5 & B6 only
Sections-BB-DD-FF & GG



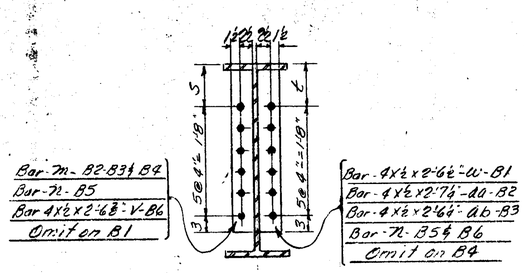


Table of Dimensions

Beam	a	b	c	d	e	f	g	h	j	k	m	n	p	r	s	t
B1		5		5		8		8 1/16		8 1/4		8 5/8		8		8 1/2
B2	5	6 1/4	5 1/4	6								8 3/8	9 1/2	8	9 1/4
B3	5	5	5	5								8	8 3/8	8	8 1/4
B4	5		5 1/4									8		8	
B5	5 3/8	5	5 1/4	5	8 1/4	8	8	8	8	8	8	8	8	8	8	8
B6	6 3/8	5	6 1/2	5	9 5/16		8 3/8		9 1/2		8 3/8		9 1/4	8	9	8

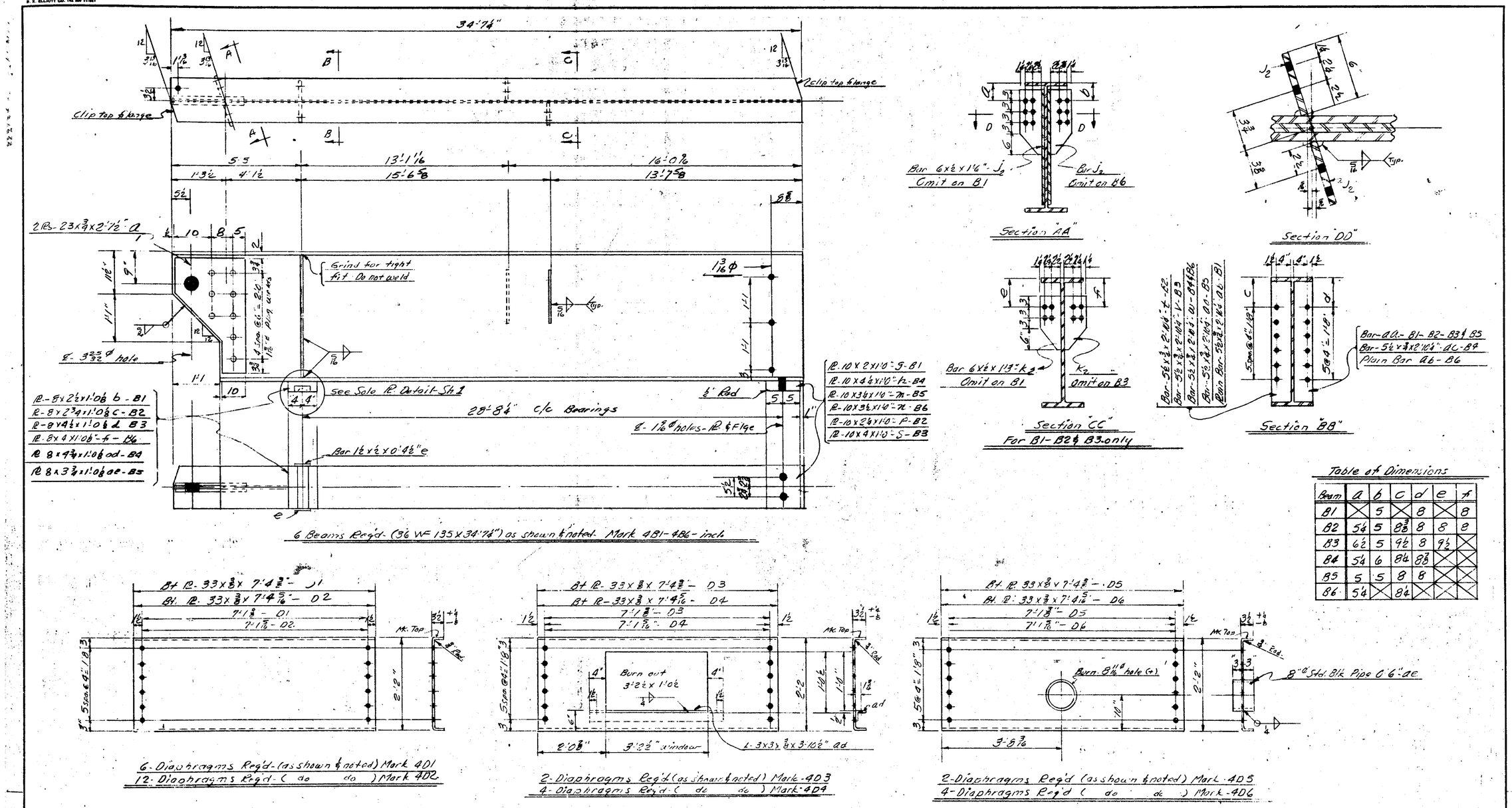
See Shop Notes on Sheet #2

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

Prop. I-75-(Exist M-150) Crossing Meyers Road in The City of Hazel Park
C.A. Hull - Contr.
S22 of 63174-A

DATE 8-31-65	JOB NO. R24556	SHEET 3 of 7 & P1
BY A.W.B.		



6 Beams Req'd-(36 WF 135x34'-7¼") as shown & noted- Mark 4B1-4B6-inch

Table of Dimensions

Beam	a	b	c	d	e	f
B1	X	5	X	8	X	8
B2	5¼	5	8⅝	8	8	8
B3	6½	5	9½	8	9½	X
B4	5¼	6	8¼	8⅞	X	X
B5	5	5	8	8	X	X
B6	5¼	X	8¼	X	X	X

6-Diaphragms Req'd-(as shown & noted) Mark 4D1
12-Diaphragms Req'd-(do do) Mark 4D2

2-Diaphragms Req'd (as shown & noted) Mark-4D3
4-Diaphragms Req'd-(do do) Mark-4D4

2-Diaphragms Req'd (as shown & noted) Mark-4D5
4-Diaphragms Req'd (do do) Mark-4D6

See Shop Notes on Sheet #1

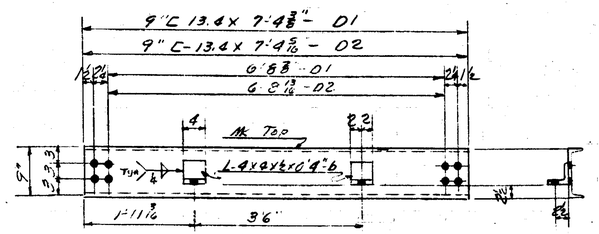
REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

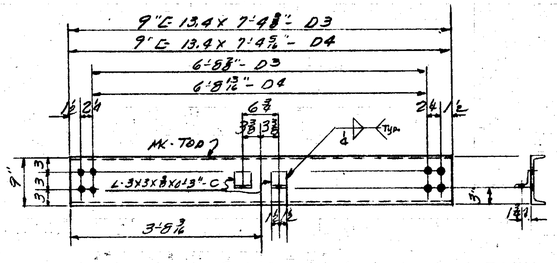
Prop. I-75 (Exist. M-150) Crossing Meyers Road
in The City of Hazel Park
C.A. Hull Center
S22 of 63174-A

DATE 9-1-65	JOB NO. R 24556	SHEET 4 of 7 & D1
BY AWB.		

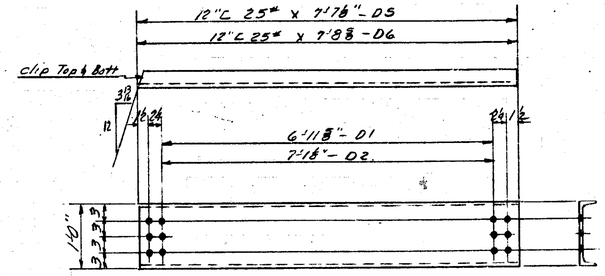
S. K. ELLIOTT CO. 102 800 11-64



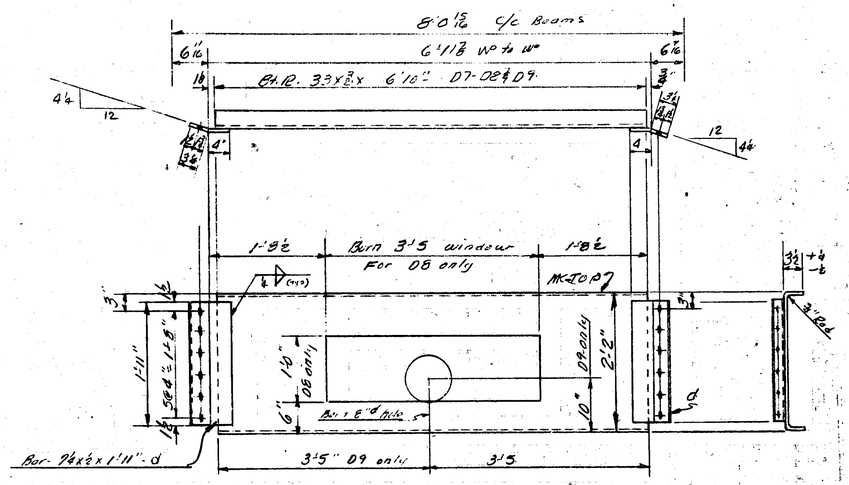
9-Diaphragms Req'd-(as shown & noted)-Mark-5D1
One Diaphragm Req'd-(do do)-Mark-5D2



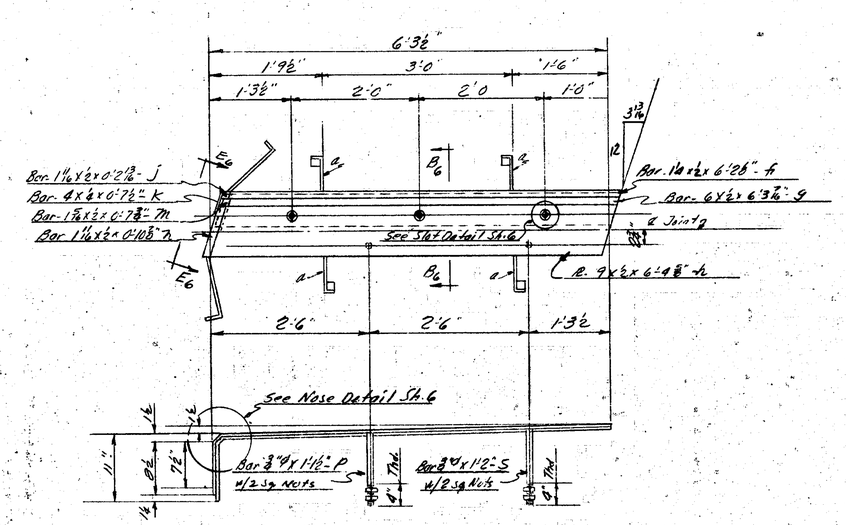
9-Diaphragms Req'd (as shown & noted) Mark-5D3
One Diaphragm Req'd (do do) Mark-5D4



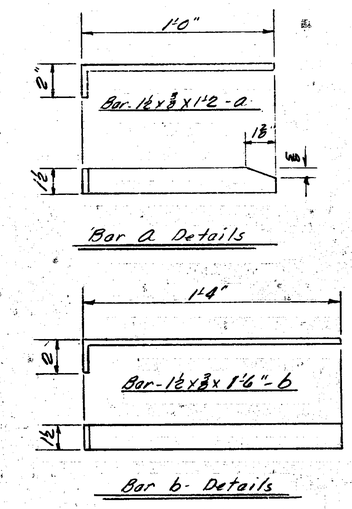
10-Diaphragms Req'd (as shown & noted) Mark 5D5
20-Diaphragms Req'd (do do) Mark 5D6



6-Diaphragms Req'd (as shown & noted) Mark-5D7
2-Diaphragms Req'd (do do) Mark-5D8
2-Diaphragms Req'd. (do do) Mark-5D9



2-Curb Expansions Req'd- Mark 5EJ1



Plain Material- No Paint

20- Bar 2 x 3/8 x 1'-0" - Field Bend To Fit & Weld

High Strength Field Bolts

Ship	Count	
546	520	3/4" ø X 2" Hi Strength Bolts - Hy Hex H. & N.
126	120	3/4" ø X 2 1/2" do do do
672	640	3/4" ø Hard Washers

Anchor Bolts

24- Bolt. 1" ø X 1'-6" Sq. H. Hex Nut & 3 x 1/4 x 0'-3 Washer
48- do - 1" ø X 1'-9" - do do do

12- 3/4" ø X 2 1/2" Bolt- Sq H. & Nut
4- 3/4" ø X 2 1/2" F.H. Bolt- Sq. Nut

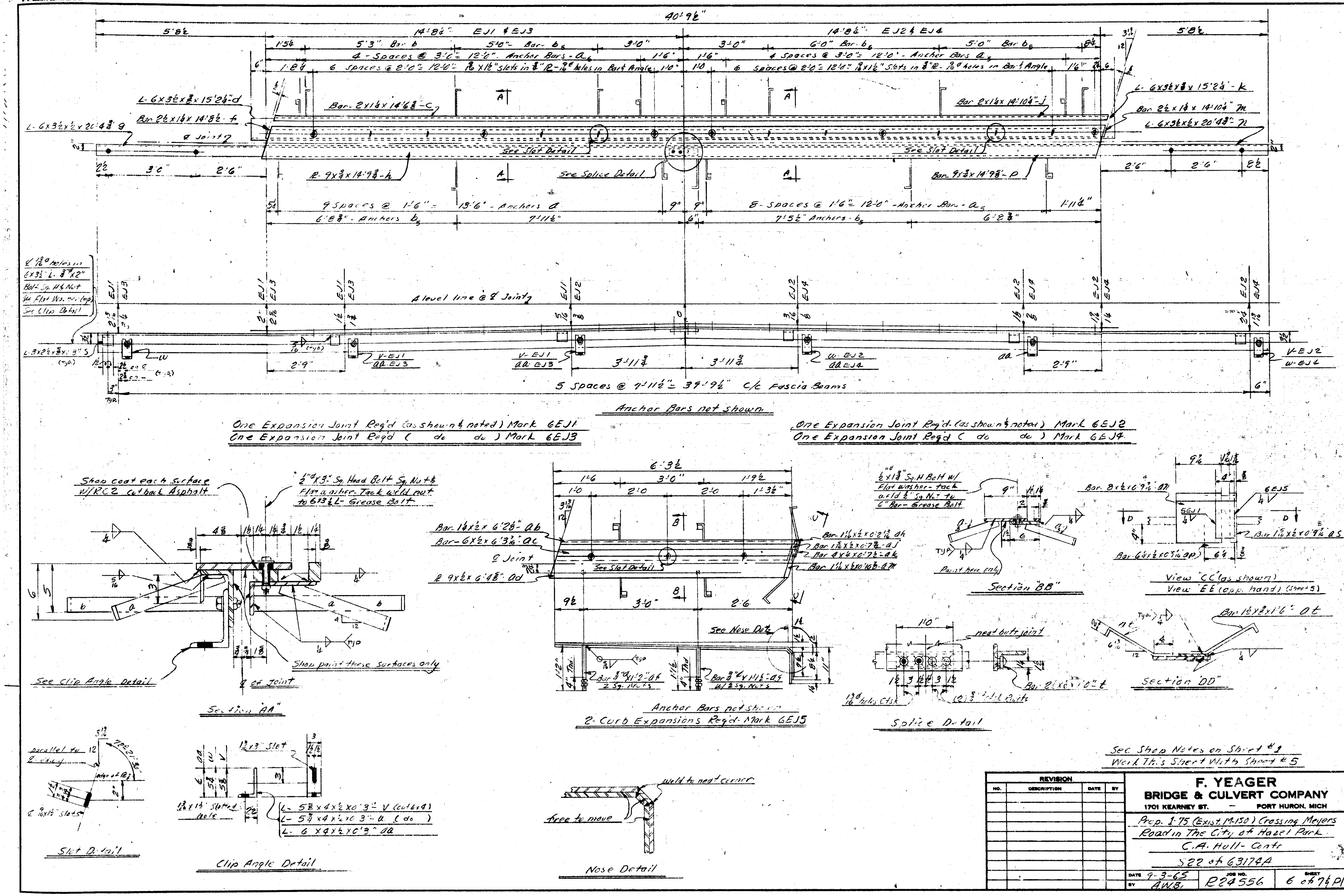
See Shop Notes on Sheet #9
Work This Sheet With Sheet #6

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

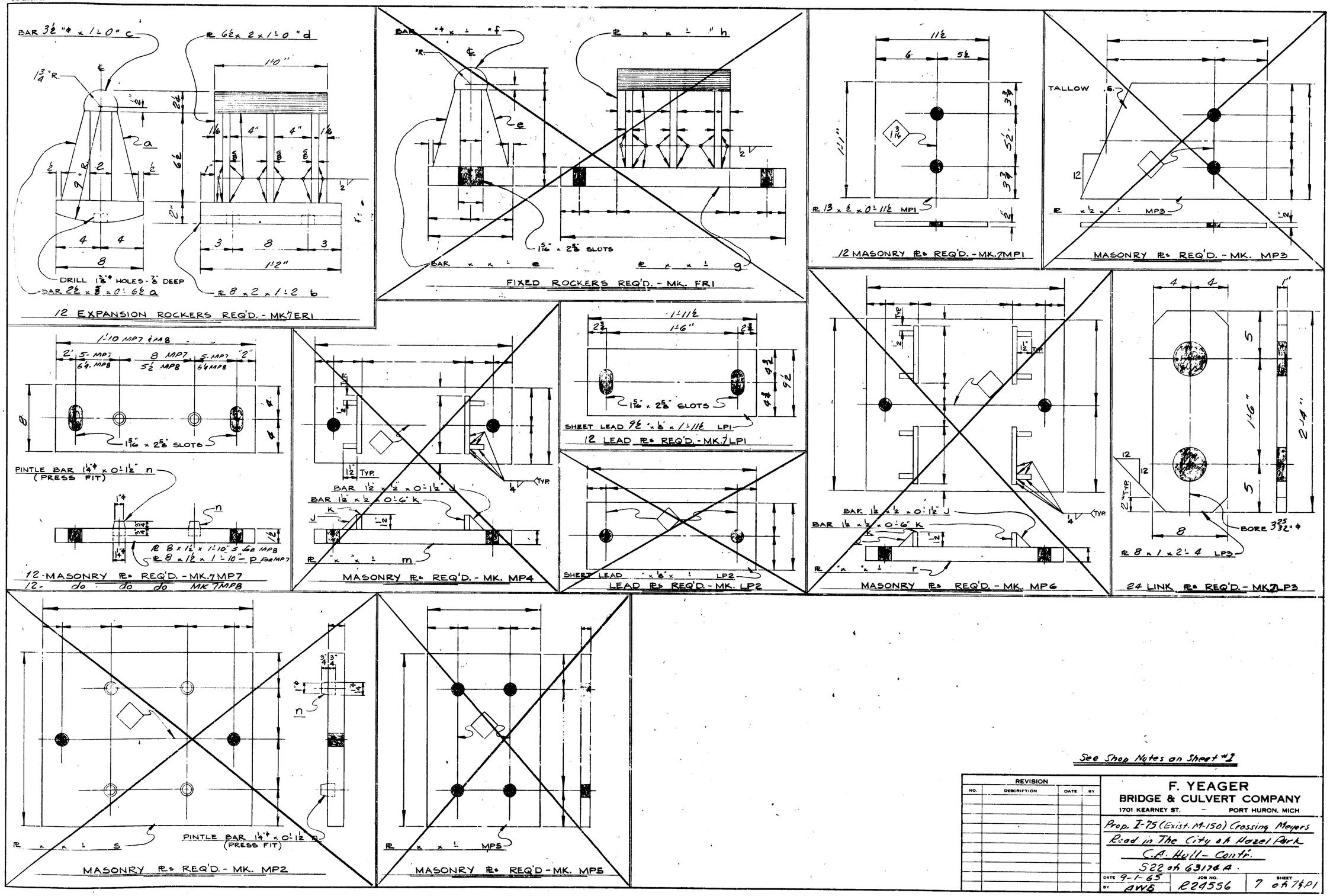
Prop. I-75 (Exist. M-150 - Crossing Meyers Road in The City of Hazel Park
C.A. Holt Contr.
S22 of 63174-A

DATE 9-1-65	JOB NO.	SHEET
BY A.W.B.	R24556	5 of 7 & P1



40'-9½"
14'-8½" EJ1 & EJ3
14'-8½" EJ2 & EJ4
L-6x3½x⅜x15'2⅝"-d
Bar-2x1¼x14'6⅝"-c
Bar 2½x1¼x14'8½"-f
L-6x3½x½x20'4⅜"-g
See Slot Detail
See Splice Detail
L-6x3½x⅜x15'2⅝"-k
Bar 2x1¼x14'10¾"-j
Bar 2½x1¼x14'10½"-m
L-6x3½x½x20'4⅜"-n
9 Spaces @ 1'-6" = 13'-6" - Anchers a
8-Spaces @ 1'-6" = 12'-0" - Anchor Bars - a5
A level line @ ℄ Joint
5 Spaces @ 7'-11½" = 39'-9½" C/c Fascia Beams
Anchor Bars not shown.
One Expansion Joint Req'd (as shown & noted) Mark 6EJ1
One Expansion Joint Req'd (do do) Mark 6EJ3
One Expansion Joint Req'd (as shown & noted) Mark 6EJ2
One Expansion Joint Req'd (do do) Mark 6EJ4
Shop coat each surface w/RC2 cutback Asphalt
Shop paint these surfaces only
See Clip Angle Detail
Section "AA"
Anchor Bars not shown
2-Curb Expansions Req'd-Mark 6EJ5
See Nose Det.
Section "BB"
View "CC" (as shown)
View "EE" (opp. hand) (Sheet 5)
Section "DD"
Splice Detail
Slot Detail
Clip Angle Detail
Nose Detail
weld to near corner
free to move
See Shop Notes on Sheet #1
Work This Sheet With Sheet #5
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH
Prop. I-75 (Exist. M-150) Crossing Meyers Road in The City of Hazel Park
C.A. Hull - Contr.
S22 of 63174A
DATE 9-3-65
BY AWB
JOB NO. R24556
SHEET 6 of 7 & P1

D. K. ELLIOTT CO. 301 250 10-64



See Shop Notes on Sheet #2

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. – PORT HURON, MICH

Prop. I-75 (Exist. M-150) Crossing Meyers Road in The City of Hazel Park
C.A. Hull - Contr.
S22 of 63174 A.

DATE 9-1-65	JOB NO.	SHEET
BY AWB	R24556	7 of 74 P1

S23 of 63174

CS: 63174

ID: S23

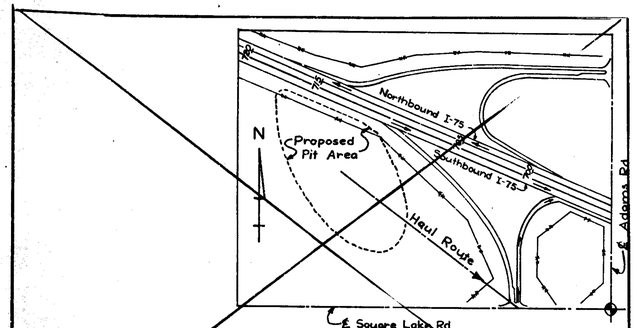
I 63174A, C 52

PART 1	SERVICE RDS. & UTILITIES	
PART 2	PUMPHOUSE	DO2 of 63174A
PART 3	PUMPHOUSE	DO3 of 63174A
PART 4	BRIDGE	S22 of 63174A
PART 5	BRIDGE	S23 of 63174A
PART 6	BRIDGE	S24 of 63174A
PART 7	BRIDGE	S25 of 63174A
PART 8	BRIDGE	S26 of 63174A
PART 9	BRIDGE	S27 of 63174A
PART 10	PEDESTRIAN BRIDGE	PO2 of 63174A
PART 11	PEDESTRIAN BRIDGE	PO3 of 63174A
PART 12	PEDESTRIAN BRIDGE	PO4 of 63174A
PART 13	PEDESTRIAN BRIDGE	PO6 of 63174A

see Index of Drawings on next sheets (1A) & (1B)

MICHIGAN
STATE HIGHWAY DEPARTMENT

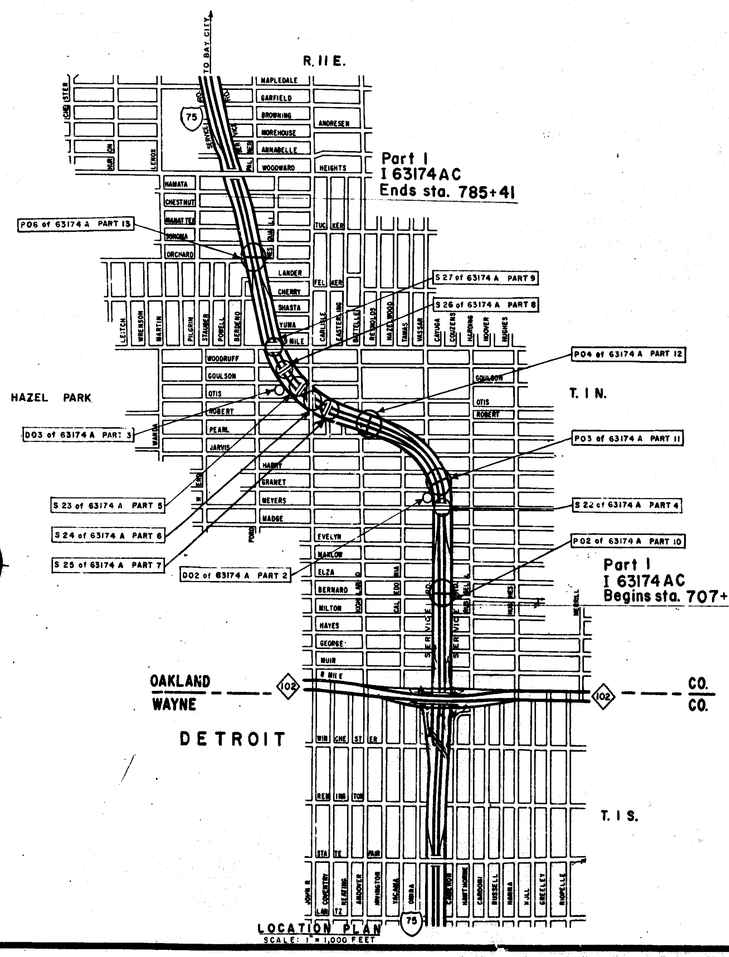
PLANS OF PROPOSED BRIDGES
MICHIGAN PROJECT I-75-2(84)60
STATE PROJECT I 63174A, C-52
DETROIT — BAY CITY ROAD
OAKLAND COUNTY
CITY OF HAZEL PARK



NOTES:
This pit contains sufficient quantities to satisfy all granular borrow requirements.
Other contractors may be using the pit during the life of the contract.
Excavation is to be carried out to lines and grades as directed by the Engineer.

BORROW AREA

Location: That part of the S. ½ of the SE. ¼ of Sec. 1, T2N., R.10E., Bloomfield Township, Oakland County, that lies south of I-75, near the intersection of Adams Road and Square Lake Road.



LOCATION PLAN
SCALE: 1" = 1,000 FEET

GENERAL NOTES

Except where otherwise indicated on these Plans or in the Proposal and Supplemental Specifications contained therein, all materials and workmanship shall be in accordance with the Michigan State Highway Department's Standard Specifications for Road and Bridge Construction, 1963 Edition.

The design of these structures is based on the Michigan State Highway Department's Specifications for the design of Highway Bridges, 1958 Edition. Loading and deflections are as indicated in Table below.

The character of all materials and the extent thereof as shown by borings has been obtained by methods and from sources believed to be reliable. The exactness of this information is, however, in no case guaranteed. Boring samples are on file in the Design Office at Lansing and are available for inspection.

All exposed concrete corners shown square on the Plans shall be beveled with 1/2" triangular moldings except as otherwise noted.

The stationing as shown on these Plans for the intersection of the centerline of bridge and roadway is believed to be correct. It shall, however, be checked at the time of starting construction and if the stationing shown on the plans is incorrect it shall be reported to the Design Office at Lansing and the structure shall be staked out using the actual intersection of the centerline of bridge and roadway as the control point.

STRUCTURE	DESIGN LIVE LOADINGS	ALLOW. LIVE LOAD + IMPACT DEFLECTION	
		SIMPLE OR CONT.	CANT. ARM
S 22 OF 63174A	H15-44	L/800	L/300
S 23 OF 63174A	H20-44	L/800	
S 24 OF 63174A	H20-44	L/800	L/300
S 25 OF 63174A	H20-44	L/800	
S 26 OF 63174A	H20-44	L/800	
S 27 OF 63174A	H20-44	L/800	L/300

L denotes span length

AS CONSTRUCTED
ACCORDING TO MARKED PLANS
PREPARED BY PROJECT ENGINEER

CONTRACT FOR

DIVISION APPROVAL

CHECKED — ENGINEER OF DESIGN — DATE 12-18-64
RECOMMENDED FOR APPROVAL — TRAFFIC ENGINEER — DATE 12-18-64
RECOMMENDED FOR APPROVAL — ENGINEER OF BRIDGE & ROAD DESIGN — DATE 12-30-64

OFFICES OF DESIGN & CONSTRUCTION

APPROVED — CONSTRUCTION ENGINEER — DATE
APPROVED — CHIEF OF DESIGN — DATE 1/15/65

STATE HIGHWAY DEPARTMENT APPROVAL

APPROVED BY — STATE HIGHWAY COMMISSION
DIRECTOR OF ENGINEERING - CHIEF ENGINEER — DATE 1/5/65

PLANS PREPARED BY
MICHIGAN STATE HIGHWAY DEPARTMENT

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED [redacted]
DIVISION ENGINEER — DATE

CONTROL SECTION	FEDERAL PROJECT	SHEET NO.

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE

NOTE:
Where the following items are called for on the Plans, they are to be constructed according to the Standard Plan given below opposite each item, unless otherwise indicated.

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE
SP20	STANDARD SLOPE PAVING DETAILS

STATE PROJECT NO. ~~PO2, PO3, PO4, PO6, DO2, DO3, S22, S23, S24, S25, S26 & S27~~ OF 63174A

~~PO2, PO3, PO4, PO6, DO2, DO3, S22,~~ S23, ~~S24, S25, S26 & S27~~ OF 63174A

PLAN INDEX

	SHEET NO.	DESCRIPTION
	1	TITLE SHEET
	1A & 1B	INDEX SHEETS
S22 OF 63174A PART 4	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	ABUTMENT A & B DETAILS
	8	PIER 1 & 3 DETAILS
	9	PIER 2 DETAILS
	10	SUPERSTRUCTURE DETAILS-SPANS 1 & 2
	11	SUPERSTRUCTURE DETAILS-SPANS 3 & 4
	12	SUPERSTRUCTURE DETAILS
	13	SUPERSTRUCTURE DETAILS
	14	UTILITY DETAILS
	15	STRUCTURAL STEEL DETAILS
	16	STRUCTURAL STEEL DETAILS
	17	BEARING DETAILS
	18	METAL EXPANSION JOINT DETAILS
	19	STEEL REINFORCEMENT DETAILS

S23 OF 63174A PART 5	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	ABUTMENT A DETAILS
	8	ABUTMENT A DETAILS
	9	ABUTMENT B DETAILS
	10	PIER 1 & 3 DETAILS
	11	PIER 2 DETAILS
	12	SUPERSTRUCTURE DETAILS
	13	SUPERSTRUCTURE DETAILS
	14	SUPERSTRUCTURE DETAILS
	15	SUPERSTRUCTURE DETAILS
	16	UTILITY DETAILS
	17	STRUCTURAL STEEL DETAILS
	18	STRUCTURAL STEEL DETAILS
	19	STRUCTURAL STEEL DETAILS
	20	BEARING DETAILS
	21	SHEAR DEVELOPER DETAILS
	22	METAL EXPANSION JOINT DETAILS
	23	STEEL REINFORCEMENT DETAILS

S24 OF 63174A PART 6	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	ABUTMENT DETAILS
	8	ABUTMENT DETAILS
	9	PIER 1 DETAILS
	10	PIER 3 DETAILS
	11	PIER 1 & 3 DETAILS
	12	PIER 2 DETAILS
	13	PIER 2 DETAILS
	14	SUPERSTRUCTURE DETAILS
	15	SUPERSTRUCTURE DETAILS
	16	SUPERSTRUCTURE DETAILS
	17	SUPERSTRUCTURE DETAILS
	18	SUPERSTRUCTURE DETAILS
	19	UTILITY DETAILS
	20	STRUCTURAL STEEL DETAILS
	21	STRUCTURAL STEEL DETAILS
	22	STRUCTURAL STEEL DETAILS
	23	BEARING DETAILS
	24	SHEAR DEVELOPER DETAILS
	25	METAL EXPANSION JOINT DETAILS
	26	STEEL REINFORCEMENT DETAILS

S25 OF 63174A PART 7	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	BILL OF MATERIAL
	6	ABUTMENT A DETAILS
	7	ABUTMENT B DETAILS
	8	PIERS 1 & 3 DETAILS
	9	PIER 2 DETAILS
	10	SUPERSTRUCTURE DETAILS
	11	SUPERSTRUCTURE DETAILS
	12	SUPERSTRUCTURE DETAILS
	13	UTILITY DETAILS
	14	STRUCTURAL STEEL DETAILS
	15	STRUCTURAL STEEL DETAILS
	16	STRUCTURAL STEEL DETAILS
	17	SHEAR DEVELOPER DETAILS
	18	BEARING DETAILS
	19	METAL EXPANSION JOINT DETAILS
	20	STEEL REINFORCEMENT DETAILS

S26 OF 63174A PART 8	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	BILL OF MATERIAL
	6	ABUTMENT DETAILS
	7	ABUTMENT DETAILS
	8	PIER DETAILS
	9	PIER DETAILS
	10	SUPERSTRUCTURE DETAILS
	11	SUPERSTRUCTURE DETAILS
	12	SUPERSTRUCTURE DETAILS
	13	SUPERSTRUCTURE DETAILS
	14	UTILITY DETAILS
	15	STRUCTURAL STEEL DETAILS
	16	STRUCTURAL STEEL DETAILS
	17	STRUCTURAL STEEL DETAILS
	18	METAL EXPANSION JOINT DETAILS
	19	STEEL REINFORCEMENT DETAILS

S27 OF 63174A PART 9	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	BILL OF MATERIAL
	6	ABUTMENT DETAILS
	7	PIER DETAILS
	8	PIER DETAILS
	9	PIER DETAILS
	10	SUPERSTRUCTURE DETAILS
	11	SUPERSTRUCTURE DETAILS
	12	SUPERSTRUCTURE DETAILS
	13	SUPERSTRUCTURE DETAILS
	14	SUPERSTRUCTURE DETAILS
	15	STRUCTURAL STEEL DETAILS
	16	STRUCTURAL STEEL DETAILS
	17	METAL EXPANSION JOINT DETAILS
	18	STEEL REINFORCEMENT DETAILS
	R11J R12H	BRIDGE RAILING, BAR CHAIR, MOLDING AND BEVEL DETAILS

D02 OF 63174A PART 2	2	GENERAL PLAN OF SITE
	3	GENERAL PLAN OF STRUCTURE
	4	BILL OF MATERIAL
	5	SUMP DETAILS
	6	SUMP DETAILS
	7	RAKE ROOM DETAILS
	8	MACHINE ROOM & SURGE TANK DETAILS
	9	MACHINE ROOM WALLS DETAILS
	10	ROOF DETAILS
	11	BEAMS & MISCELLANEOUS DETAILS
	12	MISCELLANEOUS DETAILS
	13	MECHANICAL & ELECTRICAL DETAILS
	14	STEEL REINFORCEMENT DETAILS

D03 OF 63174A PART 3	2	GENERAL PLAN OF SITE
	3	GENERAL PLAN OF STRUCTURE
	4	BILL OF MATERIAL
	5	PUMPHOUSE DETAILS
	6	PUMPHOUSE DETAILS
	7	PUMPHOUSE DETAILS
	8	PUMPHOUSE DETAILS
	9	PUMPHOUSE DETAILS
	10	PUMPHOUSE DETAILS
	11	MISCELLANEOUS DETAILS
	12	MECHANICAL & ELECTRICAL DETAILS
	13	STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

APPROVED C. D. Beukema 12/18/64
ASS'T. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Trahan 12.18.64
DESIGN SUPERVISING ENGINEER

DESIGNED	Gustafson	6-11-64
DRAWN BY	H.L.M.	6-9-64
TRACED BY		
CHECKED BY	AQS	11-13-64
SHEET 1A OF 26		

P02, P03, P04, P06, D02, D03, S22, S23, S24, S25, S26 & S27 OF 63174A

PLAN INDEX

P02 OF 63174A PART 10

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	PIERS 1 & 5 DETAILS
15	PIERS 2, 3, & 4 DETAILS
16	SUPERSTRUCTURE DETAILS
17	STRUCTURAL STEEL DETAILS
18	STRUCTURAL STEEL DETAILS
19	MISCELLANEOUS DETAILS
20	RAILING DETAILS-RAMP A
21	RAILING DETAILS-RAMP B
22	RAILING DETAILS-SPANS 1, 2, 3 & 4
23	STEEL REINFORCEMENT DETAILS

P03 OF 63174A PART 11

2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	RAMP B DETAILS
16	PIERS 1 & 5 DETAILS
17	PIERS 2, 3 & 4 DETAILS
18	SUPERSTRUCTURE DETAILS
19	STRUCTURAL STEEL DETAILS
20	STRUCTURAL STEEL DETAILS
21	MISCELLANEOUS DETAILS
22	RAILING DETAILS-RAMP A
23	RAILING DETAILS-RAMP B
24	RAILING DETAILS-SPANS 1, 2, 3 & 4
25	STEEL REINFORCEMENT DETAILS

P04 OF 63174A PART 12

2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	PIERS 1 & 5 DETAILS
16	PIERS 2, 3 & 4 DETAILS
17	SUPERSTRUCTURE DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	MISCELLANEOUS DETAILS
21	RAILING DETAILS-RAMP A
22	RAILING DETAILS-RAMP B
23	RAILING DETAILS-SPANS 1, 2, 3 & 4
24	STEEL REINFORCEMENT DETAILS
25	EXISTING PUMPHOUSE DETAILS

P06 OF 63174A PART 13

2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	PIERS 1 & 5 DETAILS
16	PIERS 2, 3 & 4 DETAILS
17	SUPERSTRUCTURE DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	MISCELLANEOUS DETAILS
21	RAILING DETAILS-RAMPS A & B
22	RAILING DETAILS-SPANS 1, 2, 3 & 4
23	STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

APPROVED C. D. Beukema 12/18/64
ASST. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Taylor 12.18.64
DESIGN SUPERVISING ENGINEER

DESIGNED BY	Gretsch	6-11-64
DRAWN BY	H.L.M.	11-2-64
TRACED BY		
CHECKED BY	A.L.S.	11-18-64

SHEET 18 OF 26

P02, P03, P04, P06, D02, D03, S22, S23, S24, S25, S26 & S27 OF 63174A

BENCH MARKS

B.M #87 El. 636.66
Arrow on hydrant N.E. corner of 9 Mile and Stephenson 6.0' Rt. of sta. 761+48

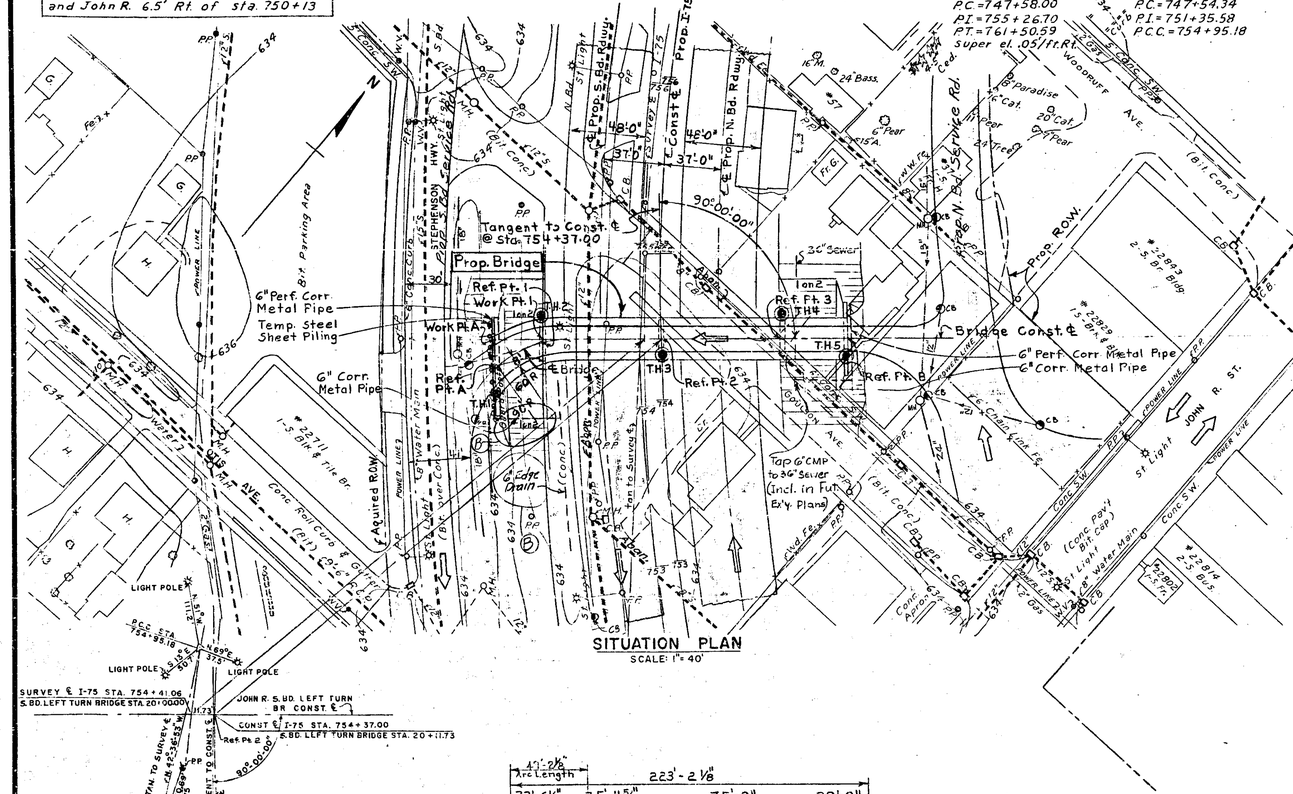
B.M. #88 El. 635.94
Arrow on hydrant S.E. corner of Otis and John R. 6.5' Rt. of sta. 750+13

UTILITIES

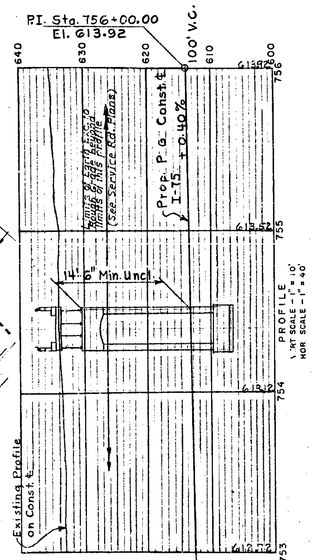
Power – Detroit Edison Co, 2000 2nd St., Detroit, Michigan.
Telephone – Michigan Bell Telephone Co., 1365 Cass, Detroit, Michigan.
Gas & Oil – Consumers Power Co., Jackson, Michigan.
Water – City of Hazel Park, Michigan.

Curve Data (Const. ℄)
Δ = 60°-20'-44" Rt.
D = 4°-20' (Arc Def.)
R = 1,322.11'
T = 768.70'
L = 1,392.59'
E = 207.22'
P.C. = 747+58.00
P.I. = 755+26.70
P.T. = 761+50.59
Super el. .05/ft. Rt.

Curve Data (Survey ℄)
Δ = 33°-20'-16" Rt.
D = 4°-30' (Arc Def.)
R = 1,273.24'
T = 381.24'
L = 740.84'
E = 55.84'
P.C. = 747+54.34
P.I. = 751+35.58
P.C.C. = 754+95.18



SITUATION PLAN
SCALE: 1" = 40'



NOTES:

The work covered by these plans includes construction of the proposed bridge, placing sand-gravel material in front and behind abutments together with abutment footing drains, and placing slope paving to the limits shown.

Work not listed above (with the exception of utility relocations and building and fence removals) is either included in Service Road Plans which are a part of this contract or is included in a future contract for Final Expressway Grading, Drainage Structures and Paving.

Work on this contract is not to be initiated until Stephenson Highway traffic has been routed on proposed I-75 Service Roads at the site, and provisions have been made for handling cross-road traffic (see service Road Plans).

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.

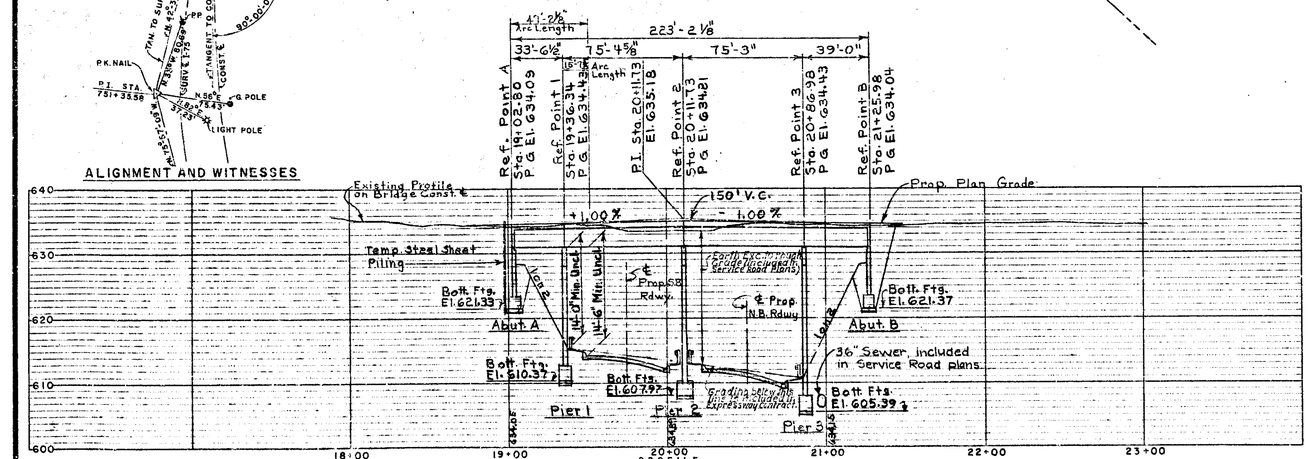
Tree removal, which is included in Service Road Plans, and relocation of utilities is to be done prior to starting work on the structure.

Topography shown hereon represents conditions existing at the time the field survey was made. However, these conditions will have been materially altered by the operation of others before work on this structure will be initiated.

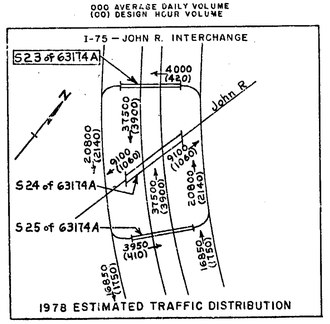
Any removal of basement walls lying within the limits of Foundation Excavation for abutments is included with Foundation Excavation.

Piers shall be backfilled to 95% density

The Bridge Contractor shall be responsible for providing adequate protection of bottoms and walls of the pier footing excavations against damage by personnel, equipment and water. (Applicable for piers adjacent to Expressway.)



LEGEND
000 AVERAGE DAILY VOLUME
(00) DESIGN HOUR VOLUME



1978 ESTIMATED TRAFFIC DISTRIBUTION

REVISIONS			
No.	DESCRIPTION	DATE	BY
B	As Built	1-9-67	HWG

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 CROSSING SOUTHBOUND JOHN R LEFT TURN
IN THE CITY OF HAZEL PARK

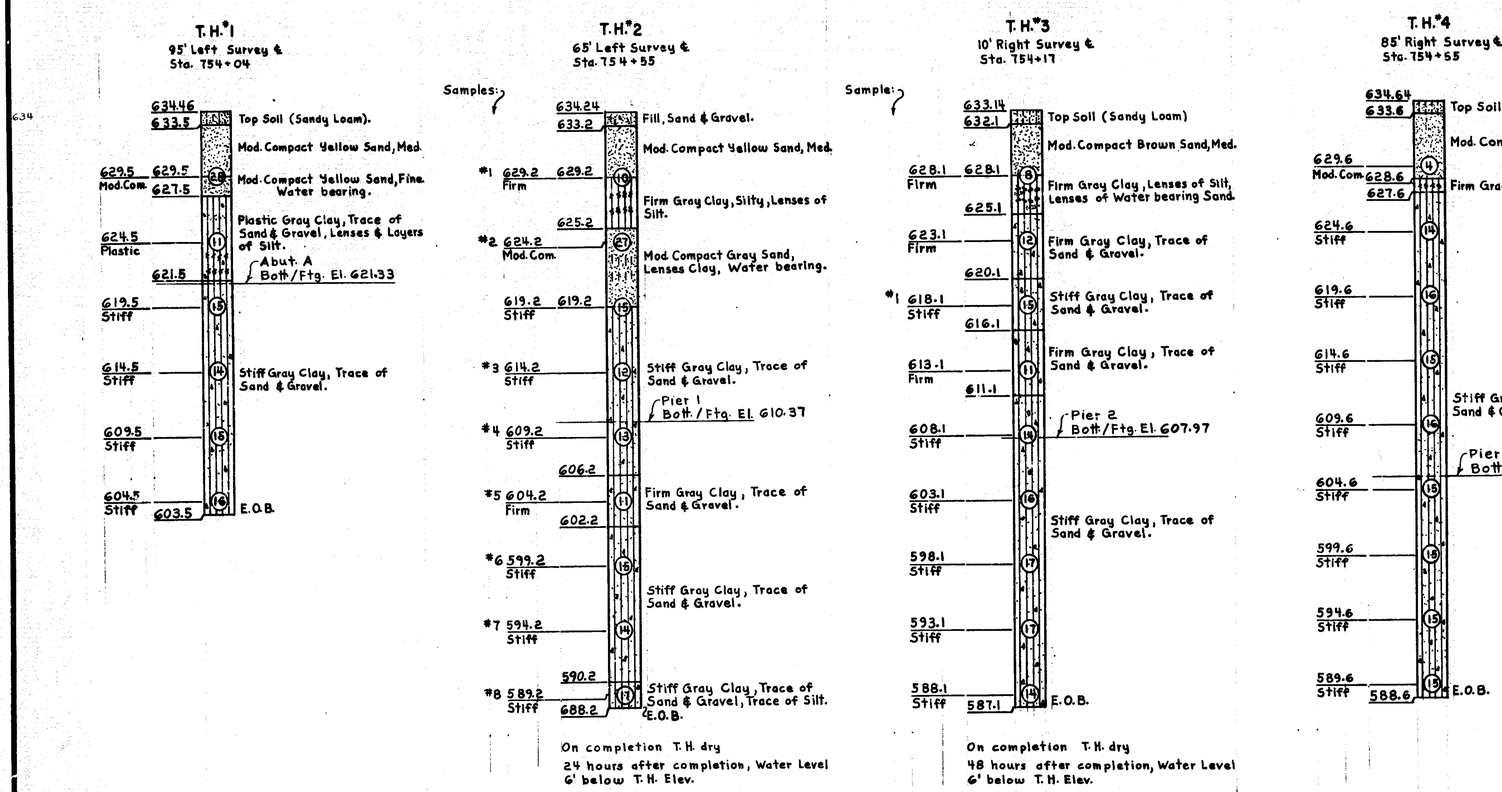
GENERAL PLAN OF SITE

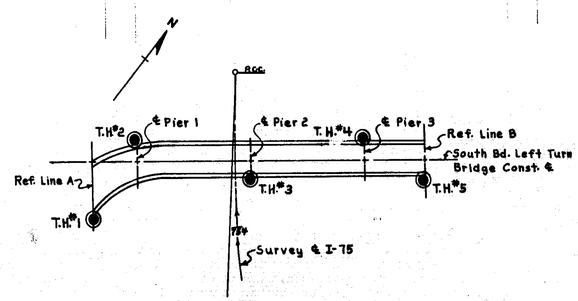
SQUAD BOSS	Gonsalves	11-23-64
DRAWN BY	M. Jones	10-10-63
TRACED BY	H.L.M.	5-1-67
CHECKED BY		
SHEET 3 OF 25		

APPROVED C. D. Bankema 12/18/64
ASST. DESIGN SUPERVISING ENGINEER
APPROVED J. C. Traher 12.18.64
DESIGN-SUPERVISING ENGINEER

S23 OF 63174A

LOG OF BORINGS





BORING LOCATIONS

NOTES:

Samples were taken with a split spoon sampler, O.D. 2.0" x I.D. 1.5".

(00) denotes the number of blows required to drive the sampler 12" with a 140# hammer free falling 30".

Consistence determined by inspection of samples and substantiated by soils resistance to B-52 Mobile Drill.

MICHIGAN STATE HIGHWAY DEPARTMENT

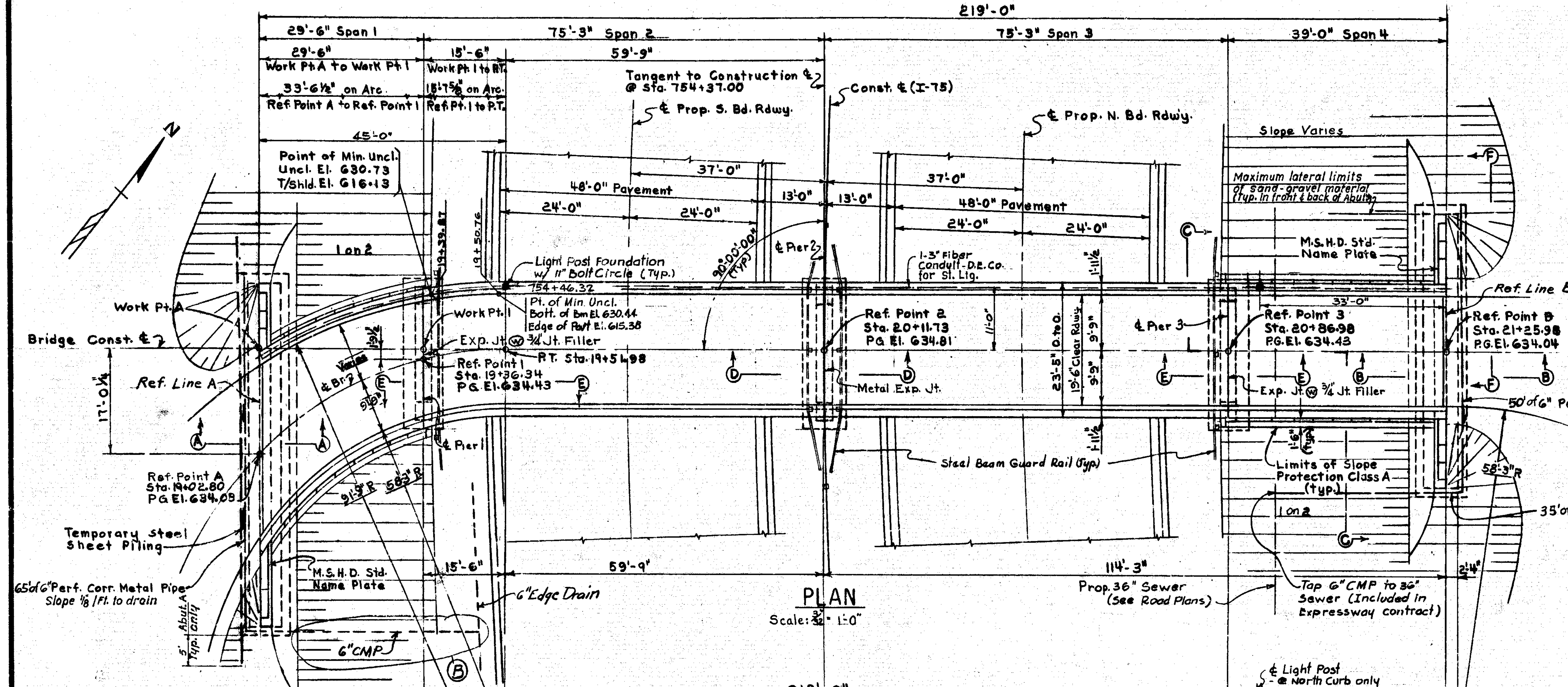
I-75 CROSSING SOUTHBOUND JOHN R LEFT TURN IN THE CITY OF HAZEL PARK

LOG OF BORINGS

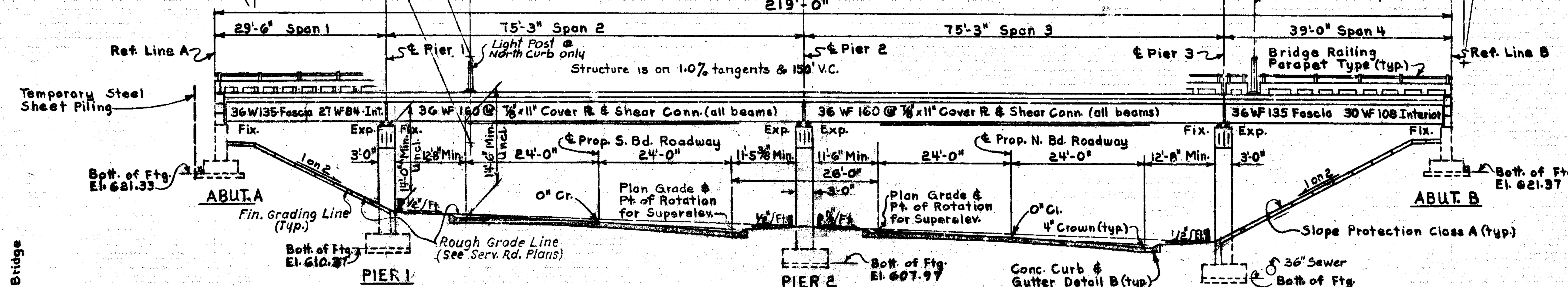
REVISIONS			
NO.	DESCRIPTION	DATE	BY

TRACING DATE	Geotech	11-23-64
DRAWN BY	W. Jones	8-15-63
TRACED BY		
CHECKED BY		8-16-63
SHEET 3 OF 23		

S23 OF 63174 A



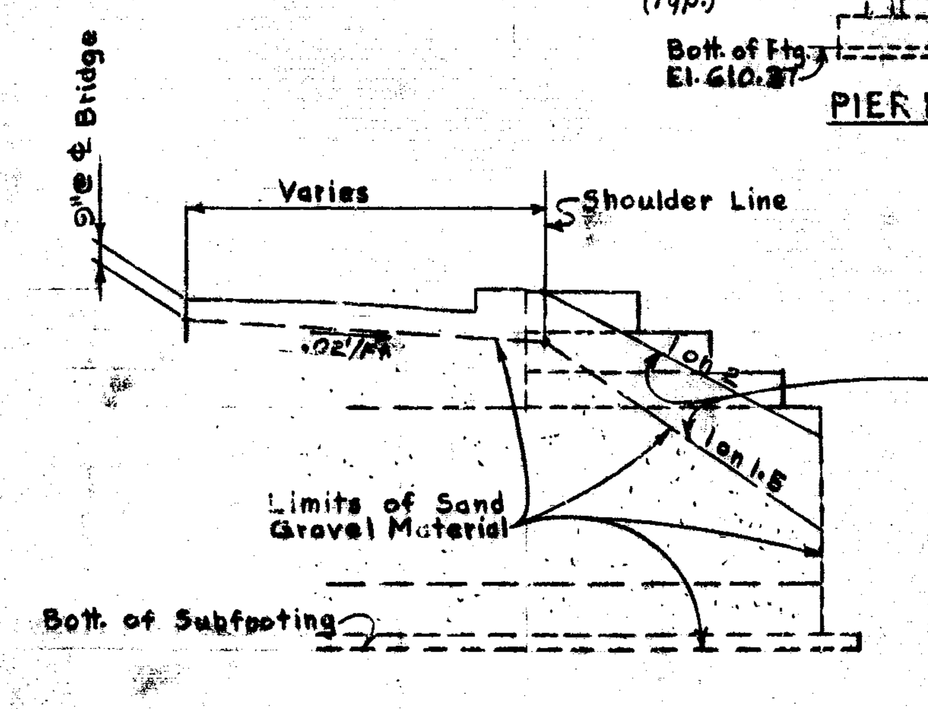
PLAN



ELEVATION

Scale 3/32" = 1'-0"

Taken at Right Angle to Const. ℄ Tangent



SECTION F-F

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

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Sand-Gravel Material (Comp-in-Place)	Cu.Yds.	430
Slope Protection Class A	Sq.Yds.	230
6" Perforated Corr. Metal Pipe	Lin. Ft.	115
6" Corr. Metal Pipe	Lin. Ft.	170
Temp. Steel Sheet Piling	Sq Ft	1100

Sand Gravel Material includes –
80 Cu. Yds. behind Abutment A
80 Cu. Yds. in front of Abutment A
175 Cu. Yds. behind Abutment B
65 Cu. Yds. in front of Abutment B
15 Cu. Yds. under Slope Protection ~ Span 1
15 Cu. Yds. under Slope Protection ~ Span 4

Grouted riprap shall not be used on the project.

NOTES:

Top of roadway slab and tops of sidewalks are parallel to the vertical curve and tangents.

The design of this structure is based on the M.S.H.D. Standard Specifications for the design of Highway Bridges - 1958 Edition (H20-44 Loading). Live load plus impact deflection equals 1/800 of span length.
The subfooting and footing for Pier 3 are to be constructed prior to placement of adjacent 36" sewer.

REVISIONS			
NO.	DESCRIPTION	DATE	BY
B	As built	1-9-67	HWG

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 CROSSING SOUTHBOUND JOHN R LEFT TURN
IN THE CITY OF HAZEL PARK

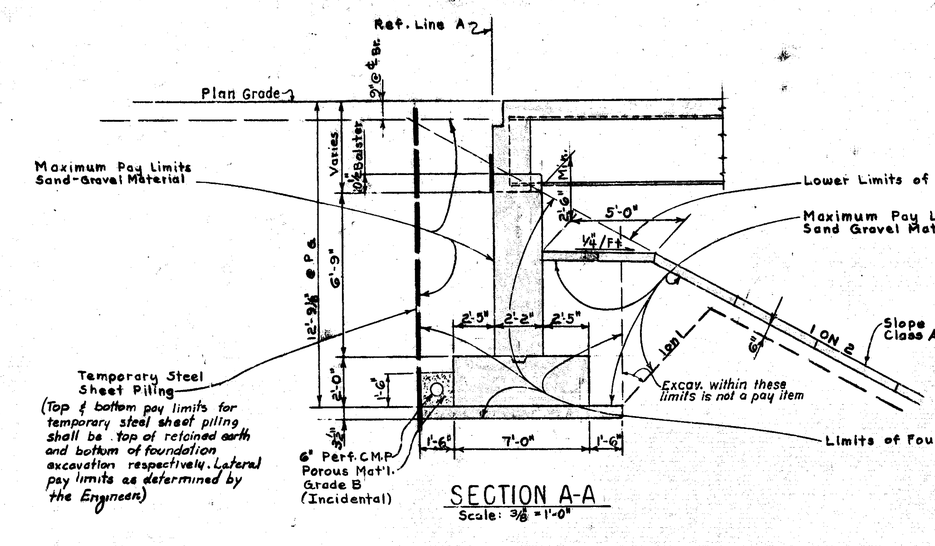
GENERAL PLAN OF STRUCTURE

APPROVED C. D. Beukema 12/16/64 ASS'T. DESIGN SUPERVISING ENGINEER

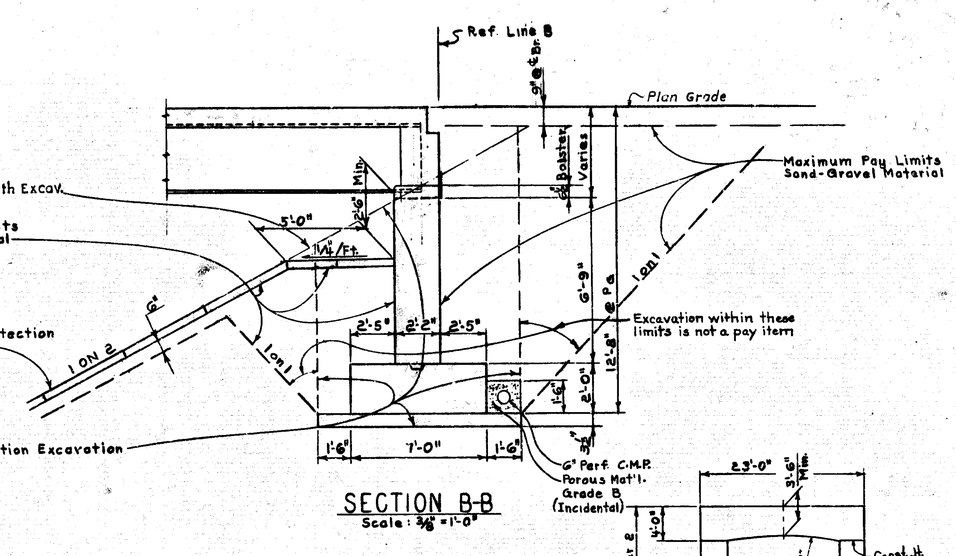
APPROVED J. C. Trahan 12.18.64 DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Goetsch	11-23-64
DRAWN BY	M. Jones	9-16-63
TRACED BY		
CHECKED BY	CAF	10-30-63
SHEET 4 OF 23		

S23 OF 63174A



SECTION A-A
Scale: 3/8" = 1'-0"



SECTION B-B
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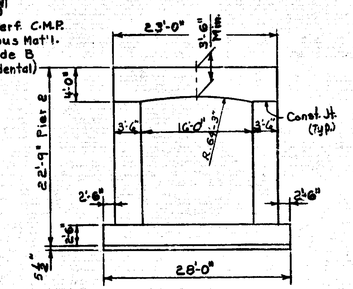
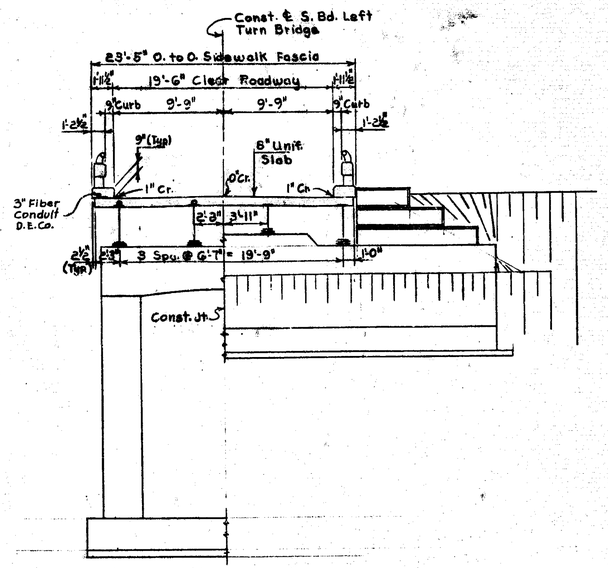


PIER 2 ELEVATION
Scale 1/8" = 1'-0"



SECTION C-C
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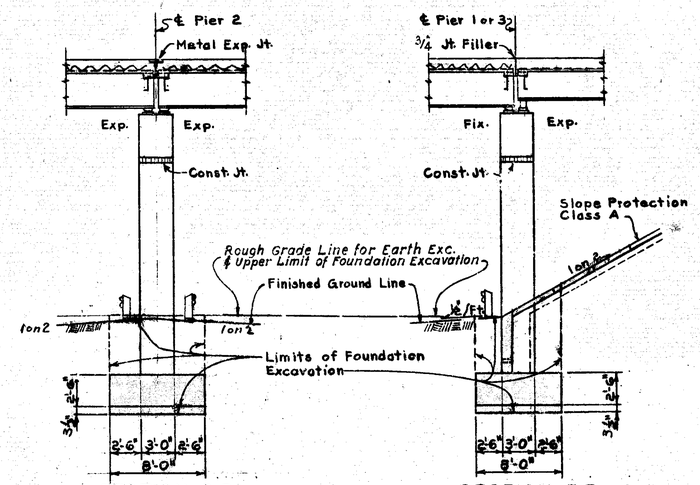
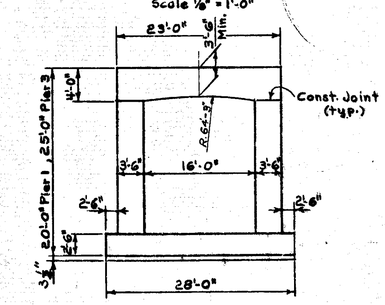


SECTION D-D
Scale: 3/8" = 1'-0"

SECTION E-E
Scale: 3/8" = 1'-0"



PIER 1 & PIER 3 ELEVATION
Scale: 1/8" = 1'-0"

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 CROSSING SOUTHBOUND JOHN R LEFT TURN IN THE CITY OF HAZEL PARK

GENERAL PLAN OF STRUCTURE

APPROVED C. E. Bunkema 12/18/68 ASST. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Traber 12-18-68 DESIGN SUPERVISING ENGINEER

SQUAD BOSS	G. Gustach	11-22-67
DRAWN BY	M. Jones	10-9-63
TRACED BY		
DIRECTED BY	C.A.F.	10-30-63

SHEET 5 OF 23

S23 OF 63174A

ITEM	UNIT	QUANTITY	AS CONST	AUTH NO.	NET CHANGE
Unclassified Excavation	Cu. Yds.	655	601 ✓	1001	- 54
Temporary Steel Sheet Piling	Sq. Ft	1100	891 ✓	1001	- 209
Grade A (6A) Concrete - Substructure	Cu. Yds.	140.6	140.6 ✓		
Grade A (6AA) Concrete - Substructure	Cu. Yds.	139.0	139.0 ✓		
Protective Sealant Coating for Concrete	Sq. Ft.	207	207 ✓		
Grade A (6AA) Concrete - Superstructure	Cu. Yds.	173.6	173.6 ✓		
Water Reducing Retarding Admixture	Gals.	25	0 ✓	1001	- 25
Steel Reinforcement	Lbs.	68,310	68,344 ✓	1001	+ 34
Structural Steel - Furnishing & Fabricating	Lbs	161,700	160,433 ✓	1001	- 1267
Structural Steel - Erection	Lbs.	161,700	160,433 ✓	1001	- 1267
Shear Developers	L.S.	Lump Sum	1 ✓		
½ Joint Filler	Sq. Ft.	80	[illegible] ✓	1001	+ 8
¾ Joint Filler	Sq. Ft.	69	69 ✓		
Hot-Poured Rubber - Asphalt Type Filler	Lin. Ft.	65	67 ✓	1001	+ 2
Joint Waterproofing	Sq. Ft.	164	207 ✓	1001	+ 43
Copper	Lbs.	188	188 ✓		
Field Painting	L.S.	Lump Sum	1 ✓		
Bridge Railing - Parapet Type	Lin. Ft.	446	444 ✓	1001	- 2
6" Corr. Metal Pipe	Lin. Ft.	170	60 ✓	1001	- 110
6" Perforated Corr. Metal Pipe	Lin. Ft.	115	114 ✓	1001	- 1
Slope Protection - Class A	Sq. Yds.	230	234 ✓	1001	+ 4
Sand Gravel Material (Comp.-in-Place)	Cu. Yds.	430	353 ✓	1001	- 77

DATE

PLAN EXTRAS - NONE

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL

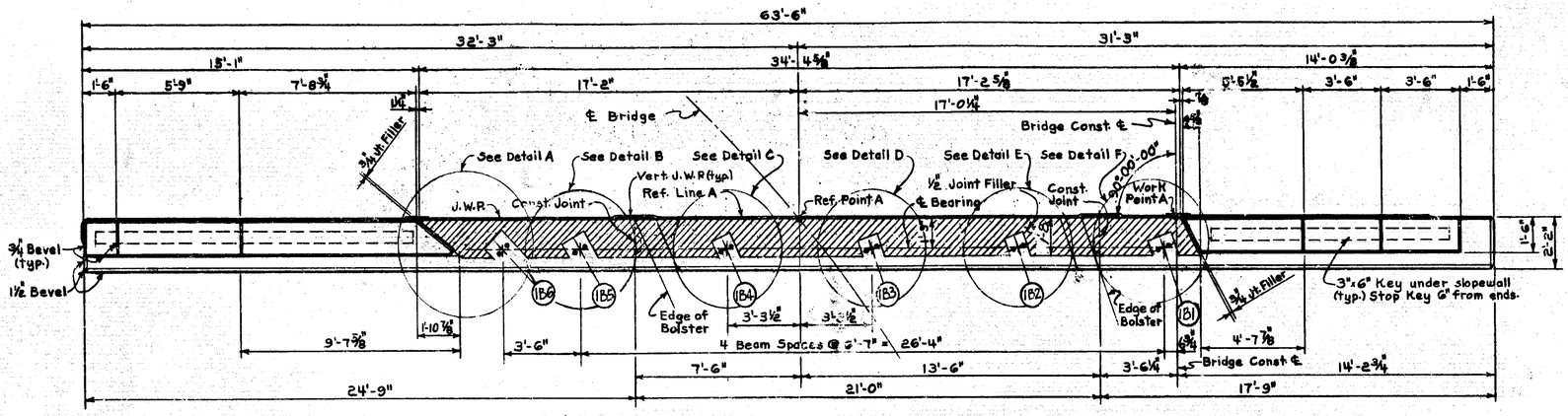
CHECKED
CONTRACT SECTION
DATE 6/12/68

MICHIGAN STATE HIGHWAY DEPARTMENT

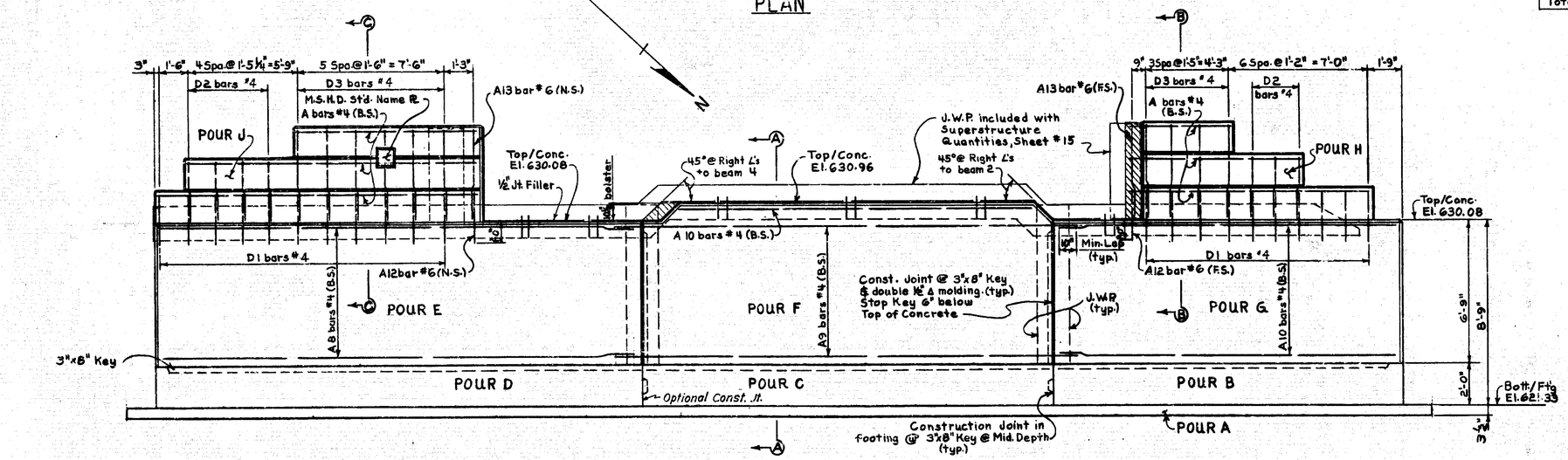
BILL OF MATERIAL

SQUAD BOSS	Goetsch	11-23-64
DRAWN BY	M. Jones	5-8-64
TRACED BY		
CHECKED	HWB	6-2-64
SHEET	6 of 23	

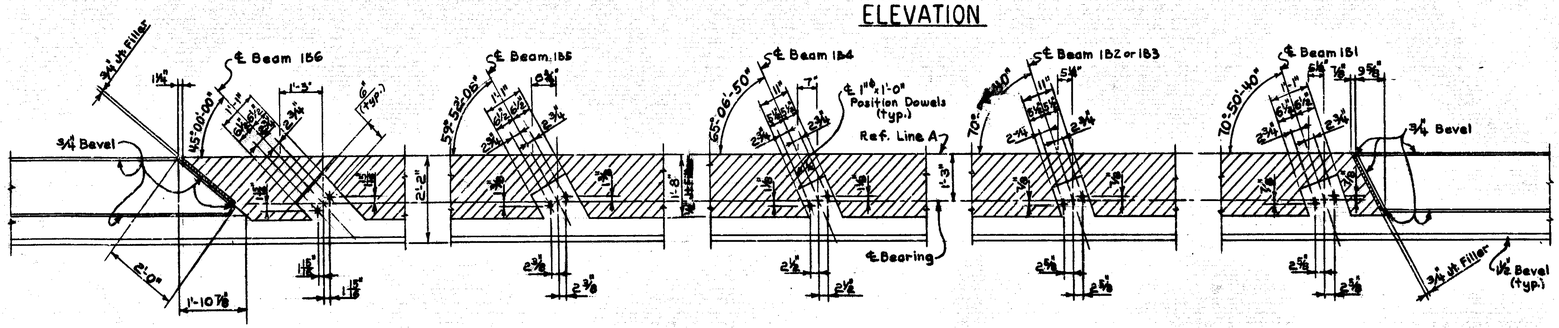
I75-2(84) S23 OF 63174A
Pt 5



PLAN



ELEVATION



DETAIL A DETAIL B DETAIL C DETAIL D or E DETAIL F

MISCELLANEOUS QUANTITIES

Item	Unit	Amount
Unclassified Excavation	Cu. Yds.	235
1/2" Joint Filler	Sq. Ft.	47
3/4" Joint Filler	Sq. Ft.	16
Joint Waterproofing	Sq. Ft.	23

CONCRETE QUANTITIES - SUBSTRUCTURE

POUR	GRADE A (GA) Abut. A	GRADE A (GAA) Abut. A
A	7.2	
B	9.2	
C	10.9	
D	12.9	
E		13.4
F		12.7
G		9.7
H		2.2
J		3.2
Totals	40.2 Cu. Yds.	41.2 Cu. Yds.

NOTES:

For notes See Abutment B Details Sheet #9

Work this sheet with Sheets 8 & 9

MICHIGAN STATE HIGHWAY DEPARTMENT

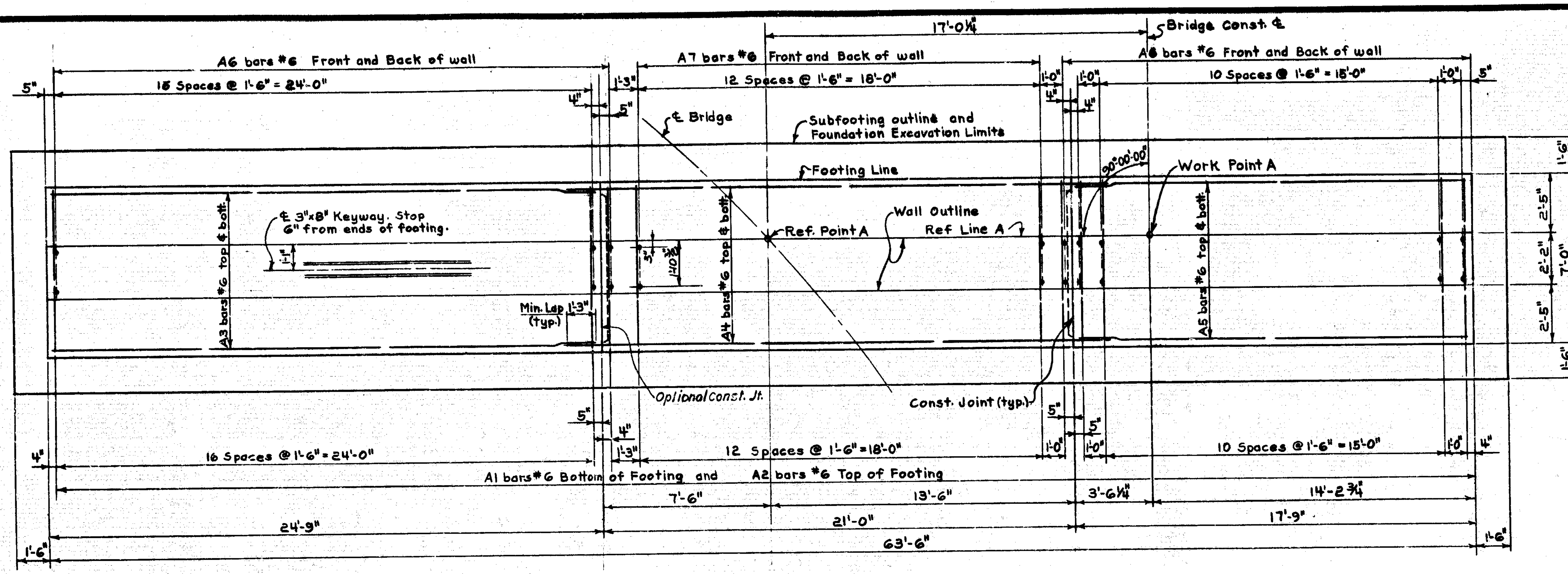
ABUTMENT A DETAILS

ROAD BOXES	Goetsch	11-23-64
DRAWN BY	Mr. Moran	2-5-64
TRACED BY		
CHECKED BY	CAP / EHE	10-5-64
SHEET 7 OF 8		

REVISIONS

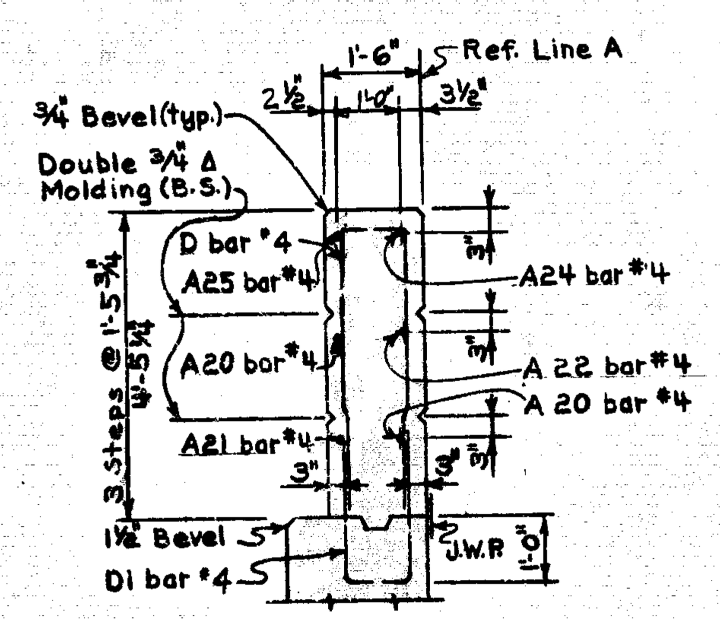
NO.	DESCRIPTION	DATE	BY

S23 OF 63174 A

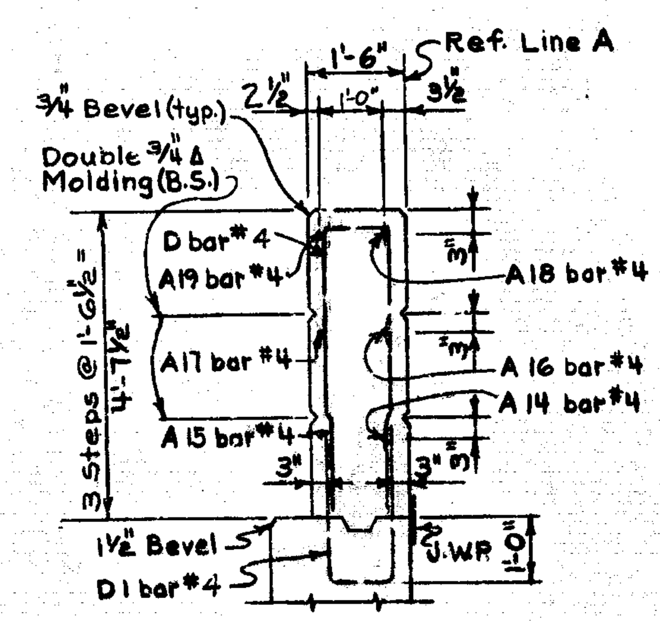


PLAN OF FOOTING

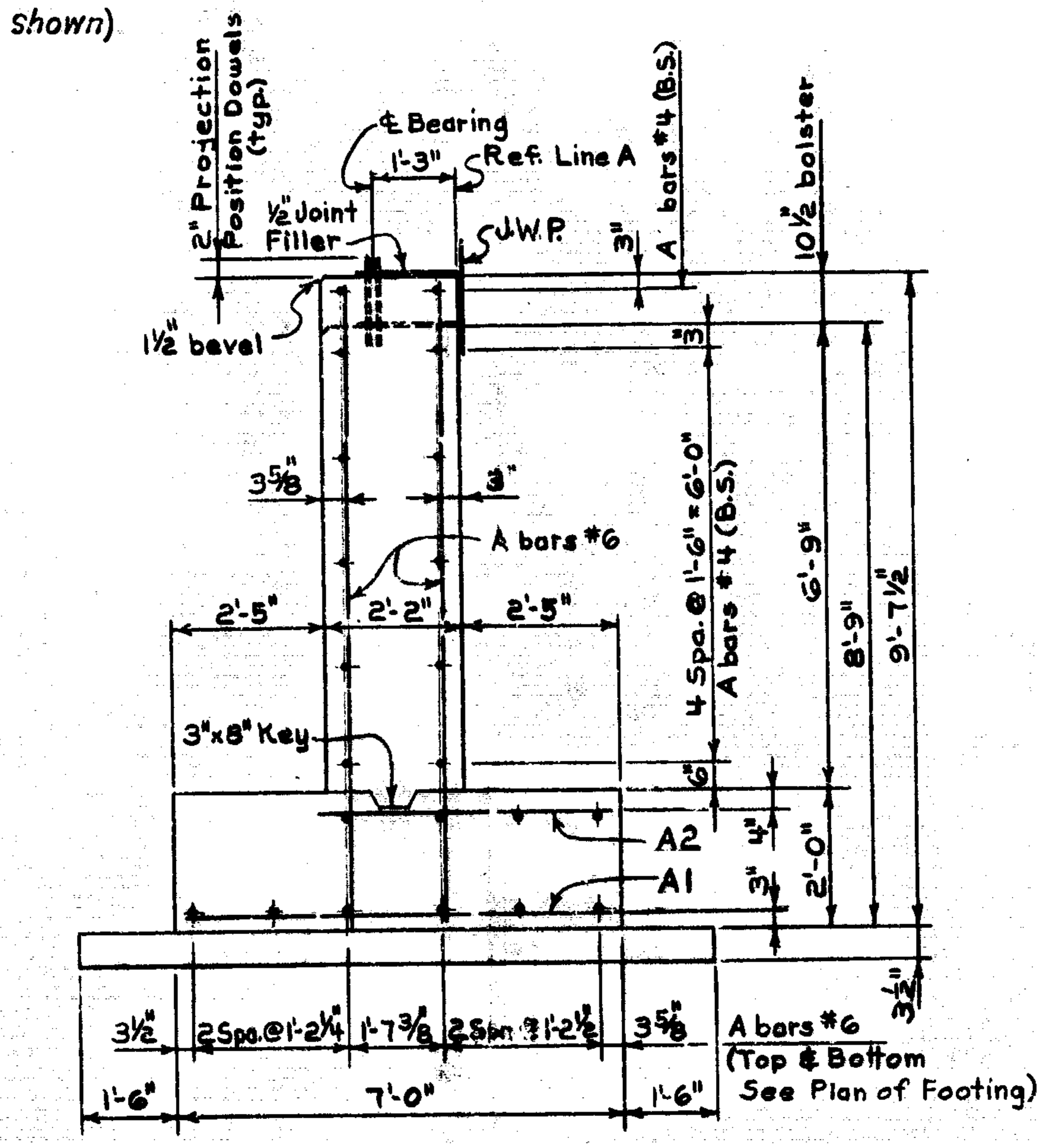
(Temp. Steel Sheet Piling behind Sub Footing not Shown)



SECTION C-C



SECTION B-B



SECTION A-A

NOTE:
Temp. Steel Sheet Piling is not shown on this sheet. For location & quantity, see sh's. #4 & #5.

Work this sheet with sheets 7 & 9

MICHIGAN STATE HIGHWAY DEPARTMENT

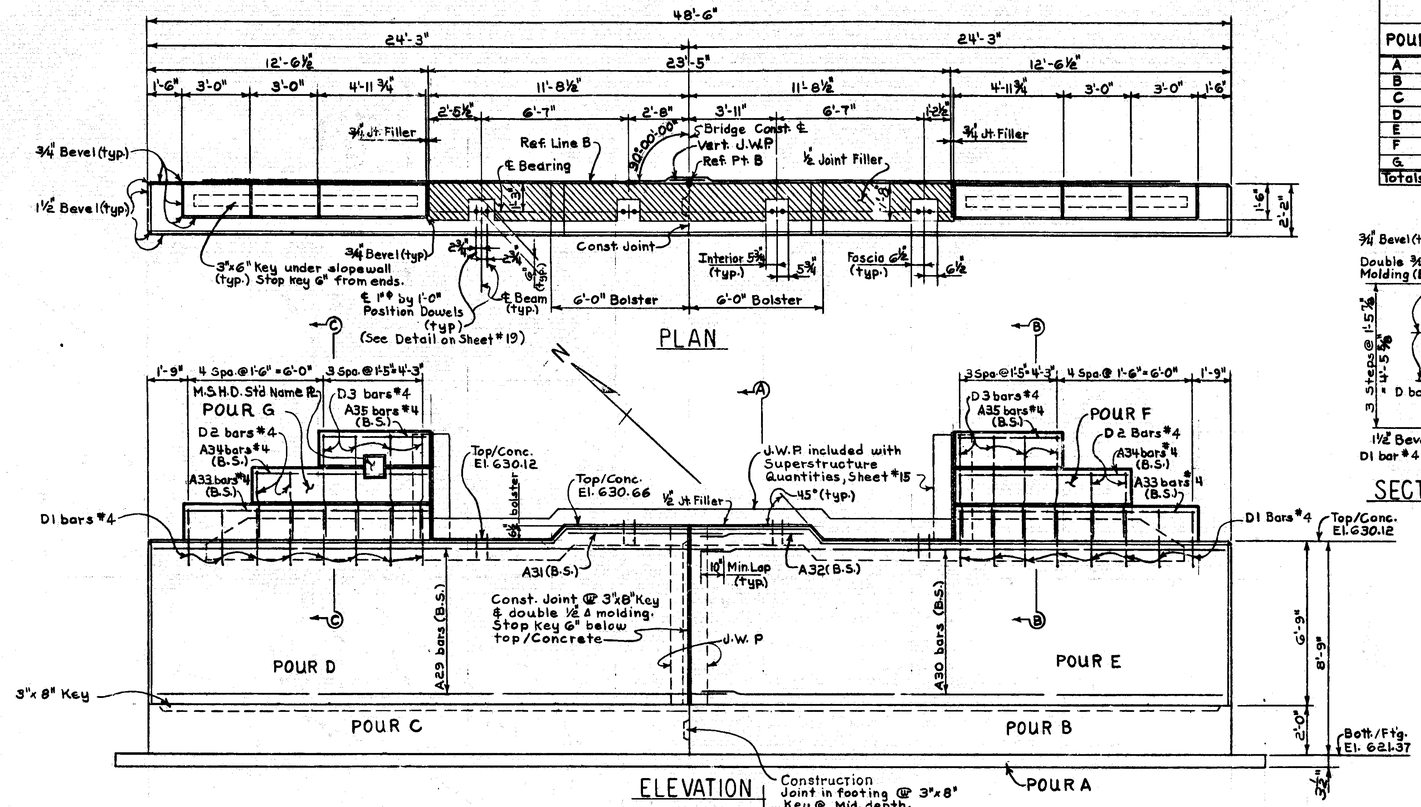
ABUTMENT A DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

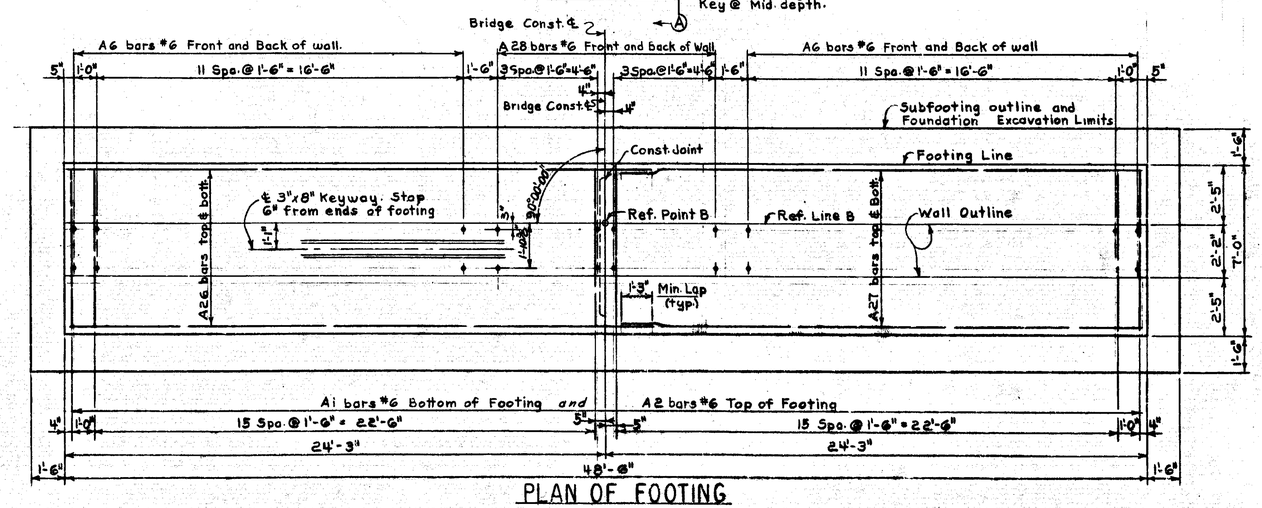
Designed by: Goetsch 11-23-64
Drawn by: McJones 2-6-64
Checked by: CAP | INZ

S23 OF 63174A



PLAN

ELEVATION



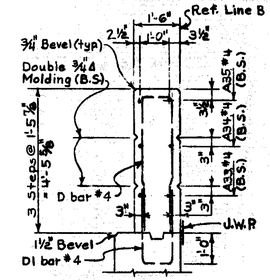
PLAN OF FOOTING

CONCRETE QUANTITIES SUBSTRUCTURE

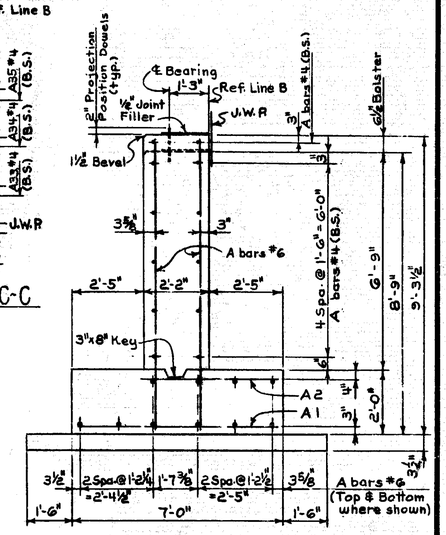
POUR	GRADE A (6A) Abut. B	GRADE A (6AA) Abut. B
A	5.6	
B	12.6	
C	12.6	
D		13.4
E		13.4
F		2.0
G		2.0
Totals	30.8 Cu. Yds.	30.8 Cu. Yds.

MISCELLANEOUS QUANTITIES

ITEM (Abut. B)	UNIT	AMOUNT
Unclassified Excavation	Cu. Yds.	180
½" Joint Filler	Sq. Ft.	33
¾" Joint Filler	Sq. Ft.	13
Joint Waterproofing	Sq. Ft.	11



SECTION B-B or C-C



SECTION A-A

NOTES:

J.W.P denotes joint waterproofing., B.S. denotes bothsides.

For Bevel and Molding Details, See (Standard) Sheet #R11.

For location of Name Plates, see General Plan of Structure Sheet and R11; for mounting details, see Standard Sheet R11.

Slope walls are to be cast after superstructure is complete to tops of curbs.

Position dowels shall be set accurately to a template.

The top of abutment shall be finished to a true plane at the elevation shown and shall not vary more than 1/8 under a ten foot straight edge nor more than 1/16 under any bearing.

Maximum Average Foundation Pressure--D.L. only 1,460 #/sq. ft.
Maximum Foundation Pressure------D.L.+L.L. 2,650 #/sq. Ft.

Position dowels are included in Structural Steel Quantities Sheet #17.

Work this sheet with sheet 7 & 8

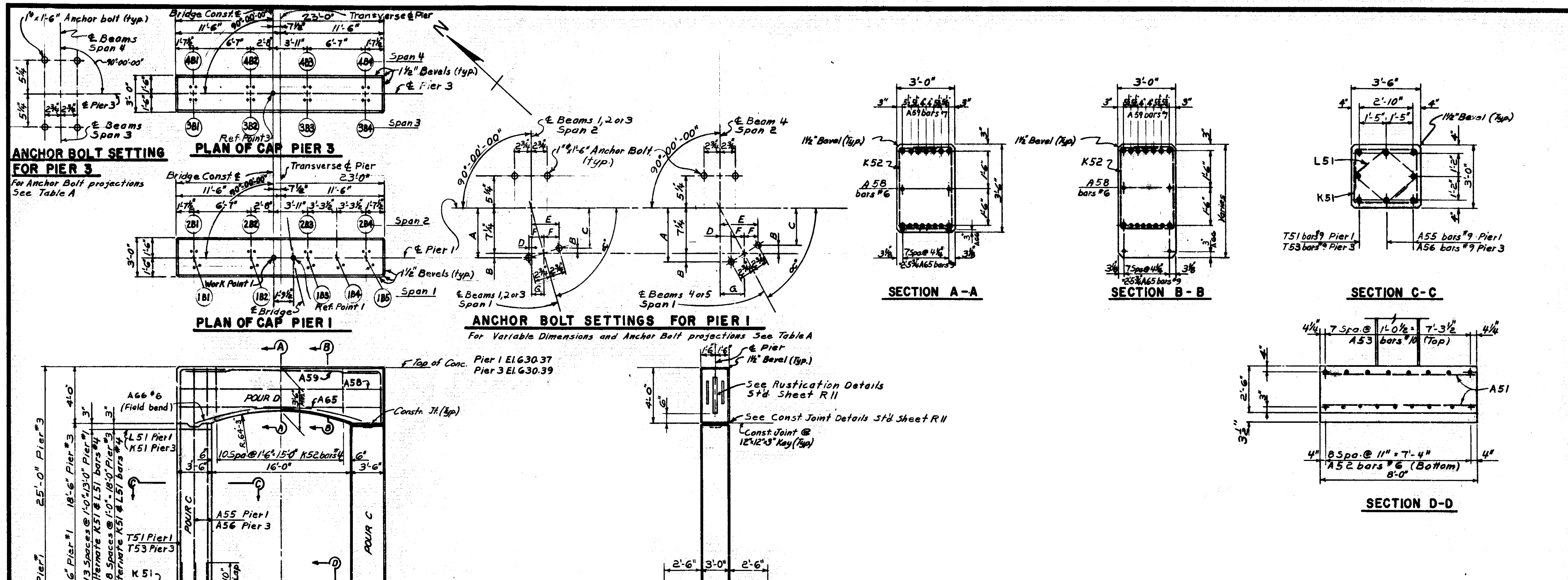
MICHIGAN STATE HIGHWAY DEPARTMENT

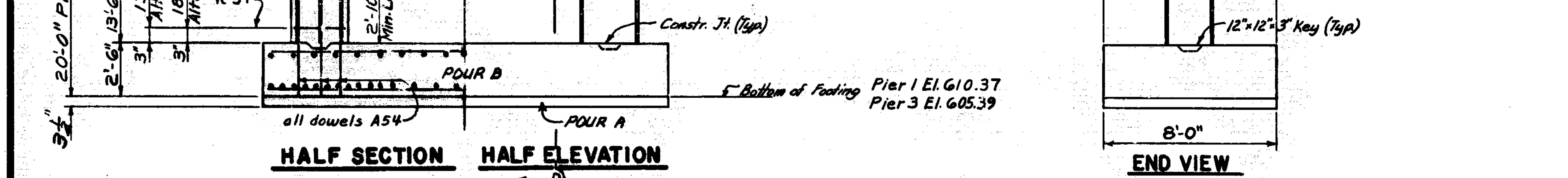
ABUTMENT B DETAILS

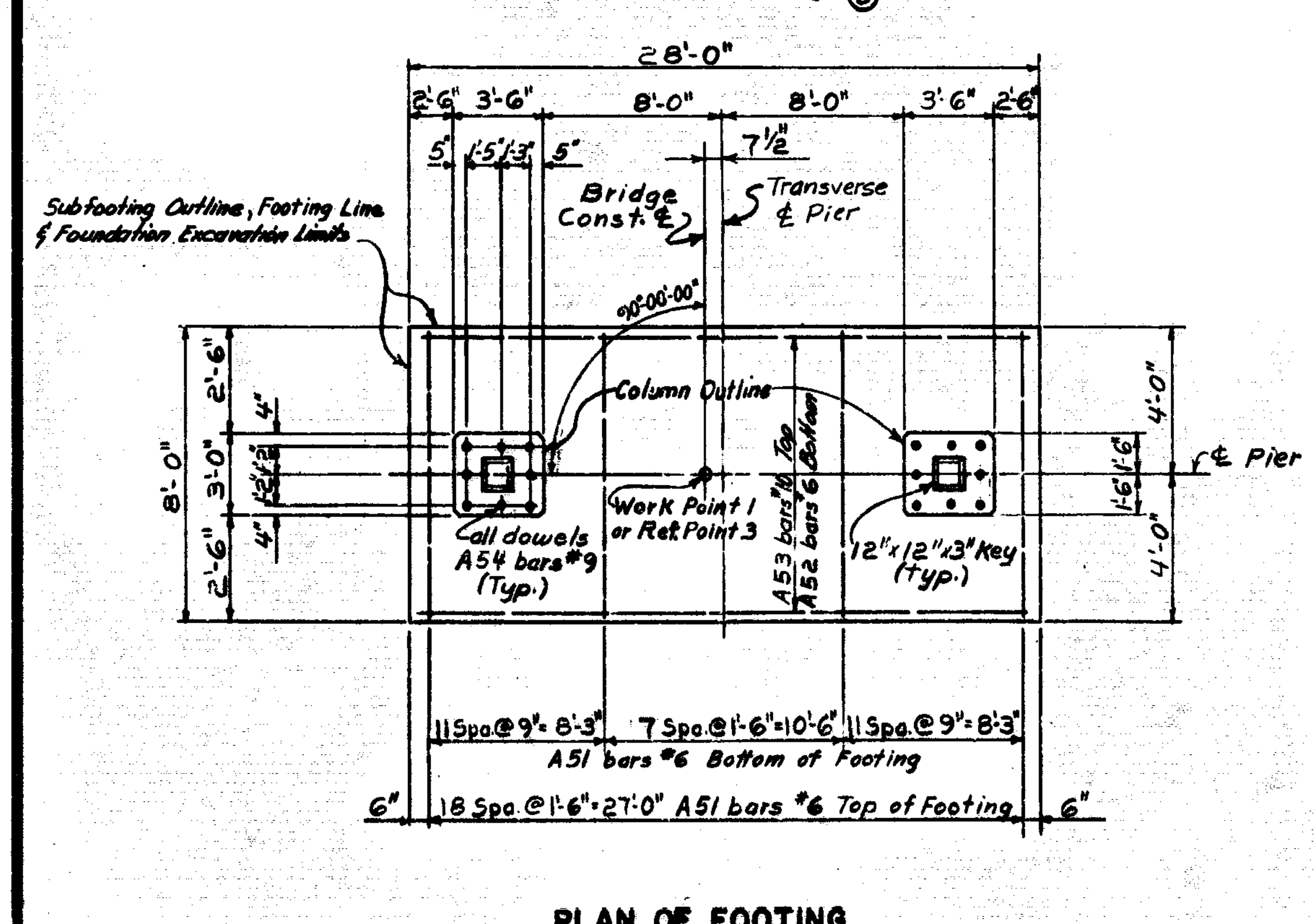
REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD DES.	Gaertsch 11-23-64
DRAFT BY	M. Jones 2-6-64
TRACED BY	
CHECKED BY	CAR / INT 12-2-64
SHEET 9 OF 22	

S23 OF 63174 A







MISCELLANEOUS QUANTITIES					
ITEM	UNIT	PIER 1		PIER 3	TOTAL
Unclassified Excavation	Cu. Yds.	60		50	110
Protective Sealant Coating for Concrete	Sq. Ft.	69		69	138

CONCRETE QUANTITIES-SUBSTRUCT.							
POUR	LOCATION	PIER 1 Grade A (6A)	PIER 1 Grade A (6AA)			PIER 3 Grade A (6A)	PIER 3 Grade A (6AA)
A	Subfooting	2.4				2.4	
B	Footing	20.8				20.8	
C	Columns		10.5				14.4
D	Girder		9.8				9.8
Subtotal		23.2	20.3			23.2	24.2
TOTAL-(6A)		46.4 Cubic Yds.					
TOTAL-(6AA)		44.5 Cubic Yds.					

TABLE A

PIER	SPAN	BEAM	*Projection	α°	A	B	C	D	E	F	G
1	1	1B1	7"	70°-50'-40"	8 1/8"	7/8"	6 3/8"	1/8"	5 1/8"	2 5/8"	2 1/2"
1	1	1B2	4 1/4"	70°-50'-40"	8 1/8"	7/8"	6 3/8"	1/8"	5 1/8"	2 5/8"	2 1/2"
1	1	1B3	4 1/4"	70°-50'-40"	8 1/8"	7/8"	6 3/8"	1/8"	5 1/8"	2 5/8"	2 1/2"
1	1	1B4	4 1/4"	65°-06'-50"	8 3/8"	1 1/2"	6 1/8"	7/8"	5 7/8"	2 1/2"	3 3/8"
1	1	1B5	6 1/2"	59°-52'-08"	8 5/8"	1 3/8"	5 7/8"	1 7/8"	6 5/8"	2 3/8"	4 1/4"
1	2	2B1	6 1/2								
1	2	2B2	7 1/4								
1	2	2B3	7 1/4"								
1	2	2B4	6 1/4"								
3	3	3B1	6 1/4"								
3	3	3B2	7"								
3	3	3B3	7"								
3	3	3B4	6 1/4"								
3	4	4B1	6 1/2"								
3	4	4B2	4 1/4"								
3	4	4B3	4 1/4"								
3	4	4B4	6 1/2"								

*Anchor bolt projection above Top/Conc.

NOTES:

Piers are similar except as noted.

For Bevel and Molding Details See Standard Sheet R11.

Anchor bolts are detailed on Structural Steel Sheet #19 and included in Structural Steel weight Sheet #17.

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 anchor bolts.

The tops of Piers shall be finished to true planes at the elevations shown and shall not vary more than 1/8" under a ten foot straight edge nor more than 1/16" under any bearing.

The tops of piers shall be given an application of "Protective Sealant Coating" prior to placing masonry plates.

Maximum Average Foundation Pressure (D.L. only) = 2,340 p.s.f.
Maximum Foundation Pressure (D.L. + L.L.) = 2,850 p.s.f.

Footing and Subfooting concrete quantities are computed to the footing neat lines. No allowance will be made for overrun due to excavating outside of neat lines.

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER 1 AND 3 DETAILS

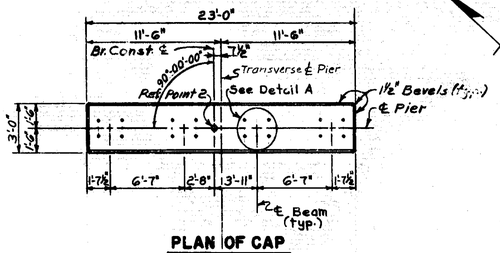
REVISIONS

NO.	DESCRIPTION	DATE	BY

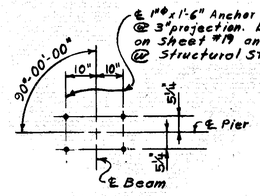
SQUAD BOSS	Goetsch	11-23-64
DRAWN BY	M. Jones	2-12-64
TRACED BY		
CHECKED BY	CAP INI	5-21-64

SHEET 10 OF 23

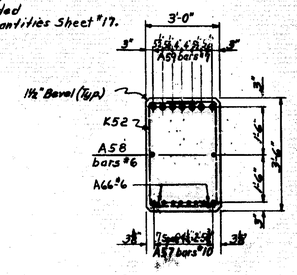
S23 OF 63174A



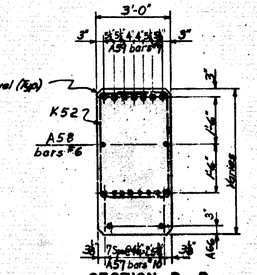
PLAN OF CAP



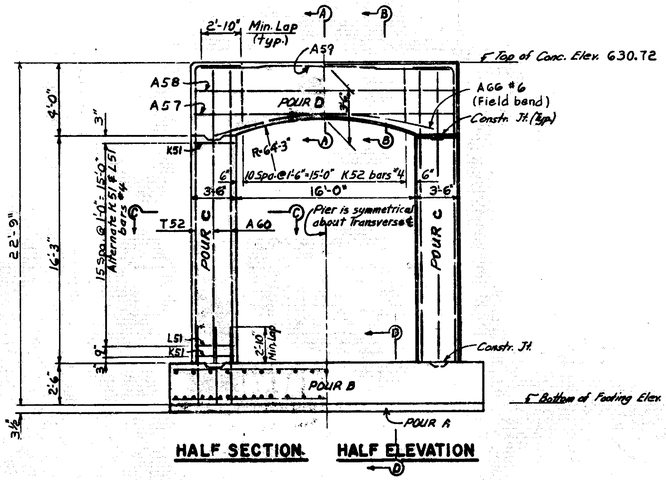
DETAIL A
(Typical Anchor bolt setting for Pier 2)



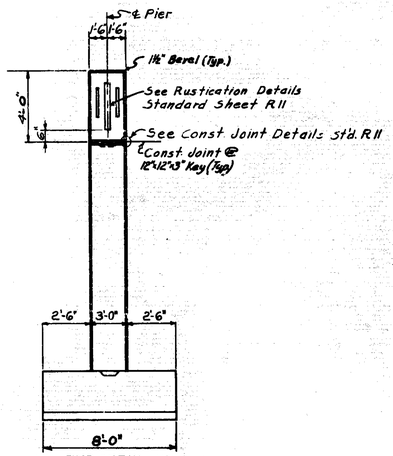
SECTION A-A



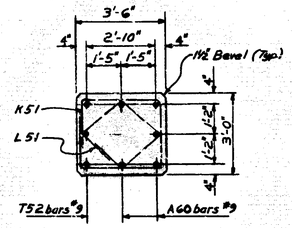
SECTION B-B



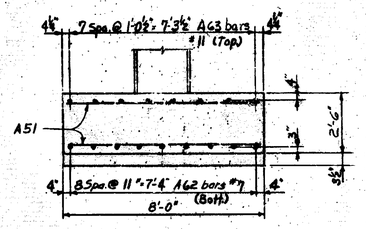
HALF SECTION HALF ELEVATION



END VIEW



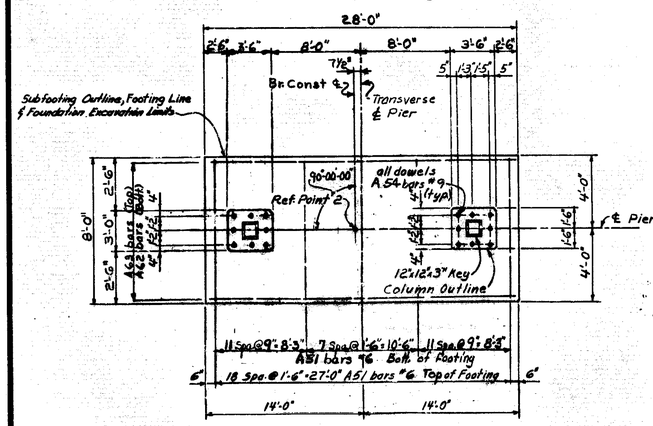
SECTION C-C



SECTION D-D

NOTES:

For notes See Pier 1 and 3 Details Sheet #10



PLAN OF FOOTING

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
Unclassified Excavation	Cu. Yds.	50
Protective Sealant Coating for Concrete	Sq. Ft.	69

CONCRETE QUANTITIES-SUBSTR.			
POUR	Location	Grade A(6A)	Grade A(6AA)
A	Subfooting	2.4	
B	Footing	20.8	
C	Columns		12.7
D	Girder		9.8
TOTALS		23.2 Cu. Yds.	22.5 Cu. Yds.

MICHIGAN STATE HIGHWAY DEPARTMENT

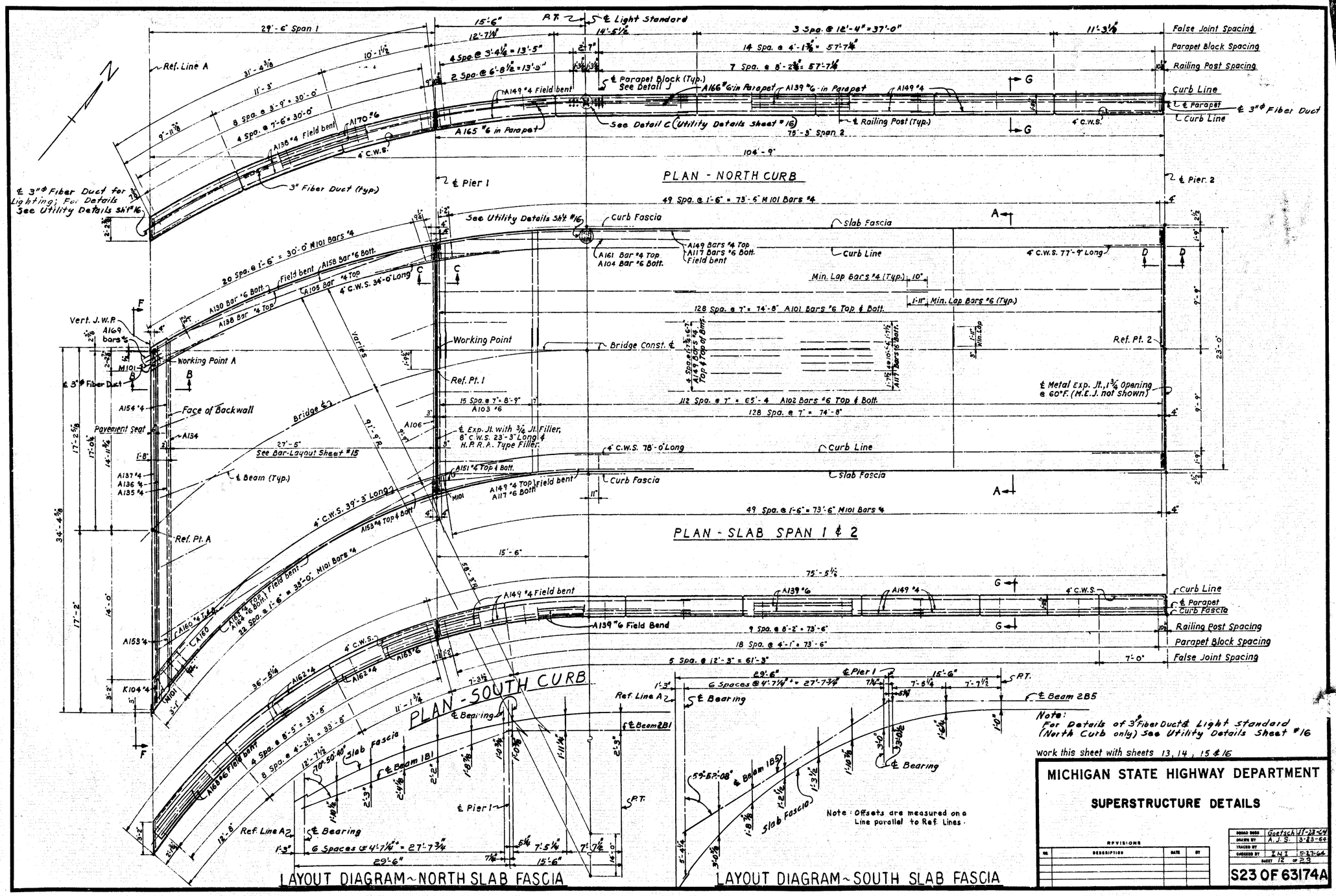
PIER 2 DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN BASIS	Goetsch	11-23-64
DRAWN BY	Br. Jones	2-10-64
TRACED BY		
CHECKED BY	CAF INI	5-2-64
SHEET 11 OF 23		

S23 OF 63174A

MILNE



MICHIGAN STATE HIGHWAY DEPARTMENT

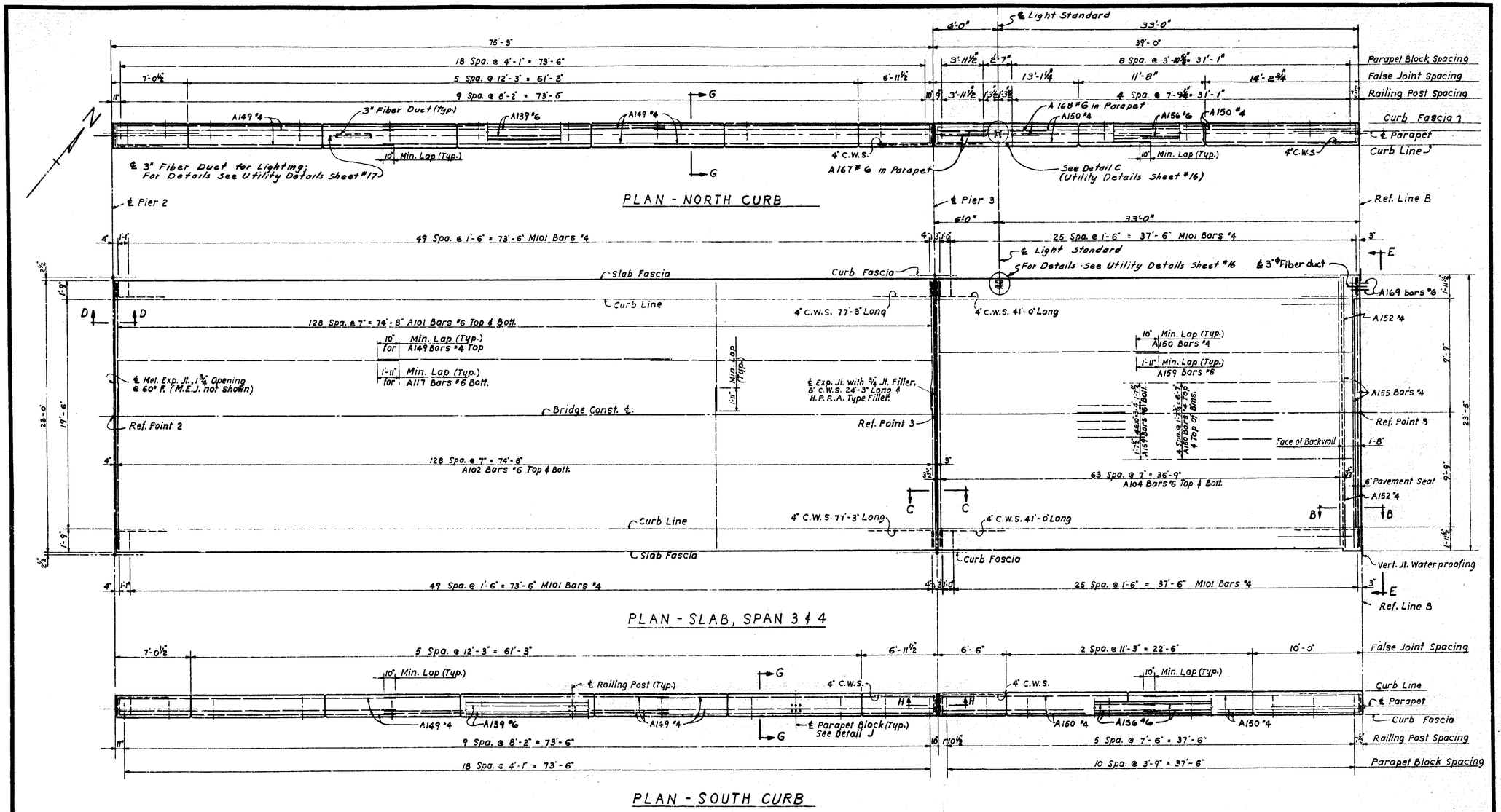
SUPERSTRUCTURE DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

ROAD BOSS	Goetsch	11-23-64
DRAWN BY	A. J. S.	3-23-64
TRACED BY		
CHECKED BY	I. N. I.	5-27-64
SHEET 12 OF 23		

S23 OF 63174A



Work this sheet with sheets 12, 14, 15 & 16

MICHIGAN STATE HIGHWAY DEPARTMENT

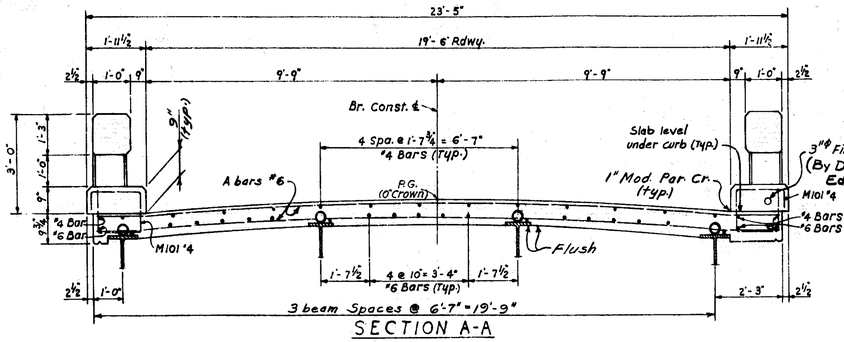
SUPERSTRUCTURE DETAILS

REVISIONS

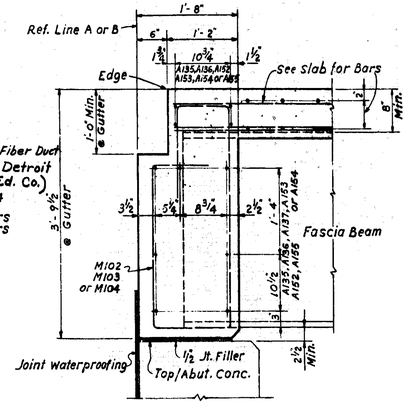
NO.	DESCRIPTION	DATE	BY

DESIGN BASIS	Goetsch	11-23-64
DRAWN BY	A.J.S.	3-23-64
TRACED BY		
CHECKED BY	JNJ	5-27-64
SHEET 13 OF 23		

S23 OF 63174A



SECTION A-A



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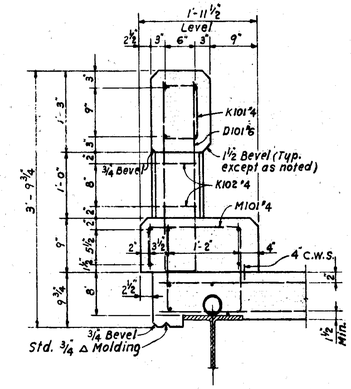
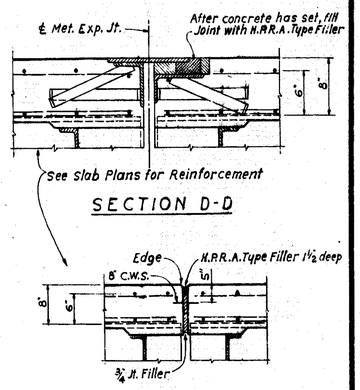


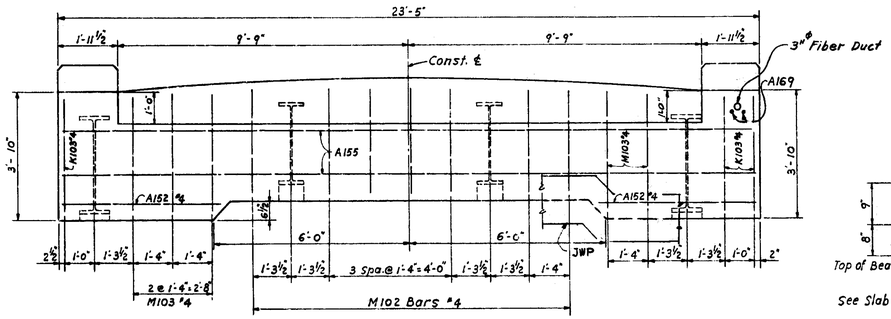
SECTION G-G



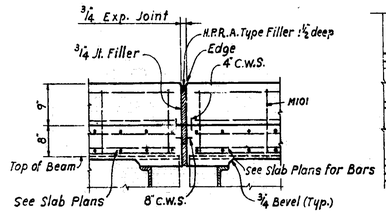
SECTION D-D

SECTION C-C

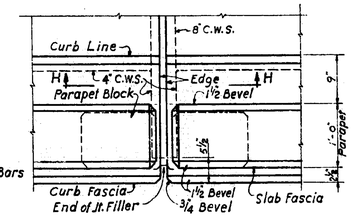
Note: Jt. Filler under C.W.S. to be nailed to one side of Jt. - Countersink nails ½".



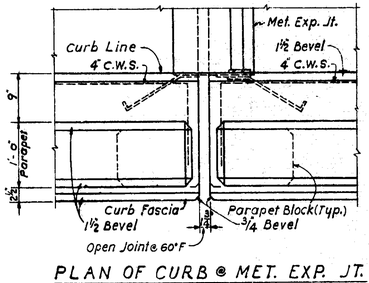
ELEVATION E-E



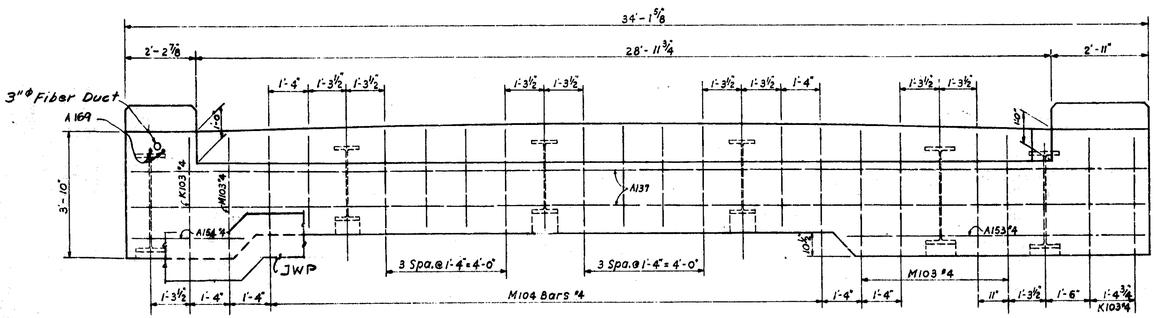
SECTION H-H



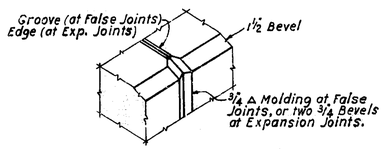
PLAN OF CURB @ ¾ EXP. JT.



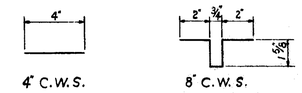
PLAN OF CURB @ MET. EXP. JT.



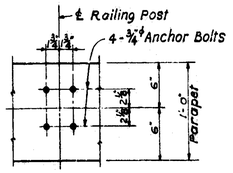
ELEVATION F-F



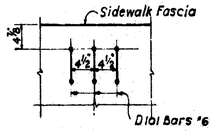
SIDEWALK MOLDING DETAILS



COPPER WATERSTOP DETAILS



ANCHOR BOLTS SETTING PLAN



DETAIL J

Work this sheet with sheets 12, 13, 15 & 16

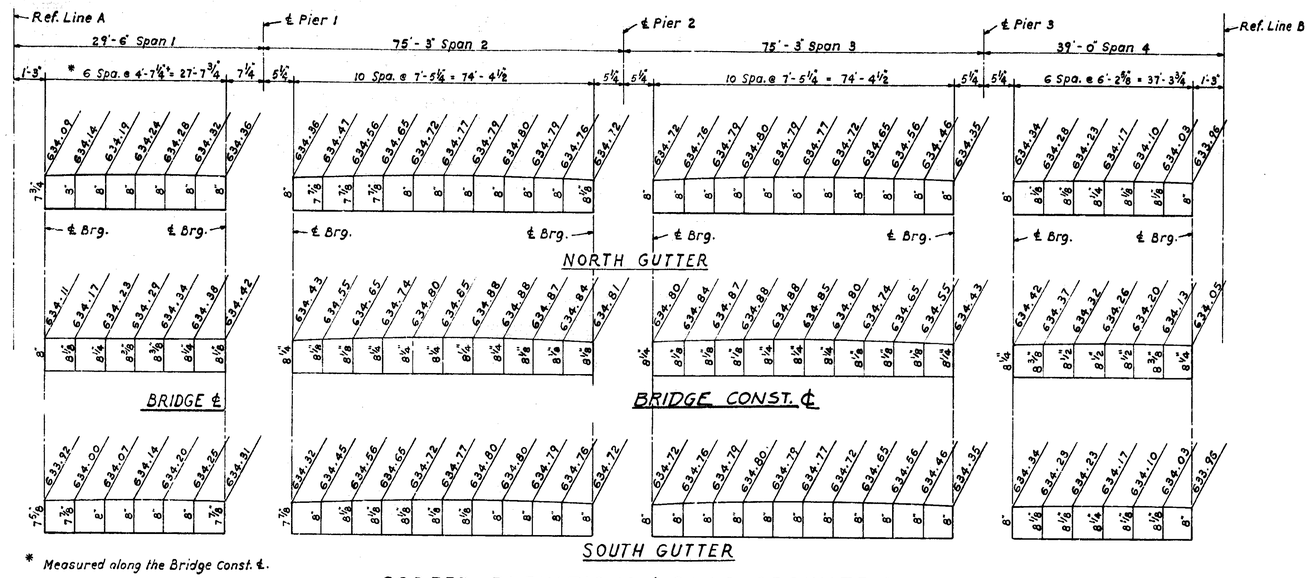
MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

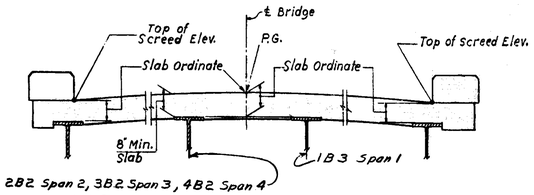
BRIDGE BOSS	Goelsch 11-23-64
DRAWN BY	A.J.S. 3-23-64
TRACED BY	
CHECKED BY	INI 8-17-64
SHEET	14 OF 23

S23 OF 63174A



* Measured along the Bridge Const. ℄.

SCREED ELEVATIONS & SLAB ORDINATE DIAGRAM



METHOD OF MEASURING SCREEDS

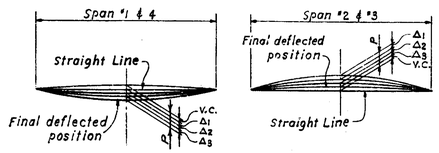


DIAGRAM 1 DIAGRAM 2

BEAM DEFLECTION

SPAN	DIAGRAM	BEAM	P	Δ1	Δ2	Δ3	V.C.
#1	1	Fascia	1/8"	0"	0"	1/8"	0"
		Interior	1/8"	0"	0"	1/8"	0"
#2	2	All	3 1/2"	3/8"	3/8"	1 5/8"	1/8"
#3	2	All	3 1/2"	3/8"	3/8"	1 5/8"	1/8"
#4	1	Fascia	1/4"	0"	0"	1/4"	0"
		Interior	1/4"	0"	0"	1/4"	0"

LEGEND

P = Total deflection plus Vertical Curve.

Δ1 = Computed deflection due to Structural Steel weight.

Δ2 = Computed deflection due to formwork and steel reinforcing, and also welding of shear developers if any.

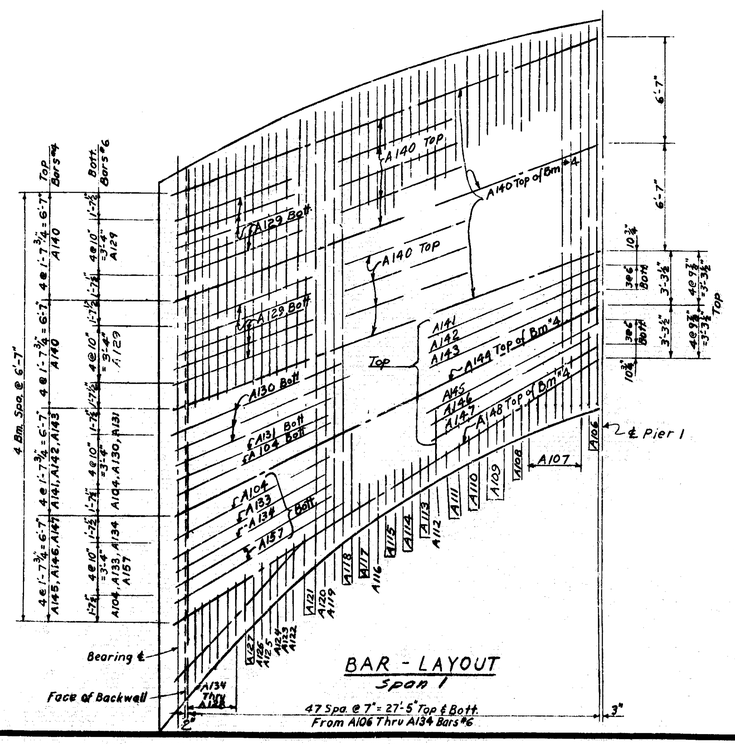
Δ3 = Computed deflection due to weight of slab and distributed curb and railing weight.

V.C. = Computed midspan ordinate of vertical curve.

For specified camber see Sheet #17

MISCELLANEOUS QUANTITIES

ITEM	UNIT	AMOUNT
Water-Reducing Retarding Admixture	Gal.	25
¾ Joint Filler	Sq.Ft.	40
Hot-Poured Rubber-Asphalt Type Filler	L.Ft.	65
Copper	Lbs.	188
Joint Waterproofing	Sq.Ft.	130
Bridge Railing - Parapet Type	L.Ft.	446.0



BAR - LAYOUT
Span 1

CONCRETE QUANTITIES-SUPERSTRUC.
CUBIC yards of Grade A (AA)

LOCATION	NORTH CURB	SOUTH CURB	SLAB
Span 1	2.	2	29
Span 2	4.1.	4.1	46
Span 3	4.1.	4.1.	46
Span 4	2.1.	2.1	28
		TOTAL:	173.6.

Note: Curb Pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by the table in Section 5.01.03 of the Standard Specifications.

NOTES:

Elevations shown are for top of screed before pouring any concrete with formwork and steel reinforcement in place and Spirals welded to the beams, and are based on a minimum slab thickness of 8".

After screeds are set, if check indicates that less than the minimum thickness will be obtaind, adjust screeds and metal expansion Joints accordingly.

The slab ordinate shown provide for dead load deflection, vertical curve, crown and beam camber and are to be measured from the top of the beam indicated in a vertical plane parallel to the reference lines to the top of screed.

C.W.S. indicates copper waterstop.
J.W.P. indicates joint waterproofing.
H.P.R.A.-T.F. indicates Hot Poured Asphalt-Type Filler.
Edge and Groove denote Edging or Grooving with an approved tool.
For Bevel, Molding and Railing Details, see Sheet #R11 & R12

Work this sheet with sheets 12, 13, 14 & 16

MICHIGAN STATE HIGHWAY DEPARTMENT

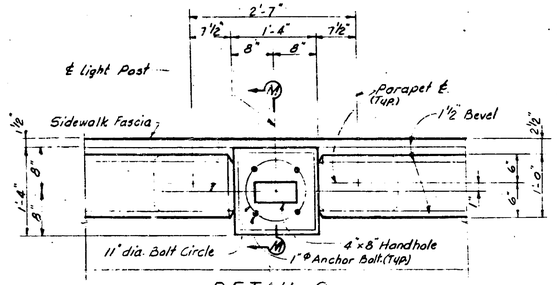
SUPERSTRUCTURE DETAILS

REVISIONS

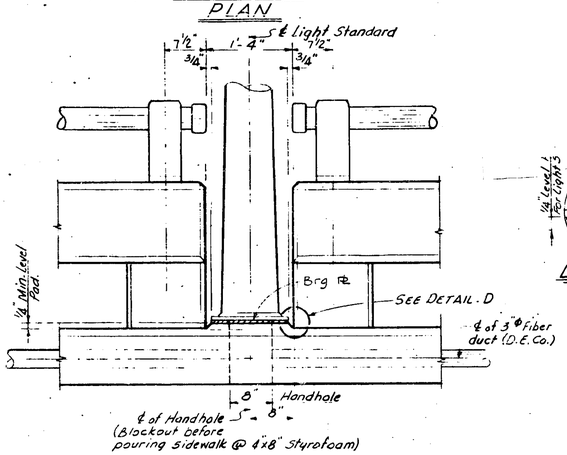
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsche	11-23-63
DRAWN BY	A. J. S.	3-23-64
TRACED BY		
CHECKED BY	J. N. T.	5-27-64
SHEET	15 OF 23	

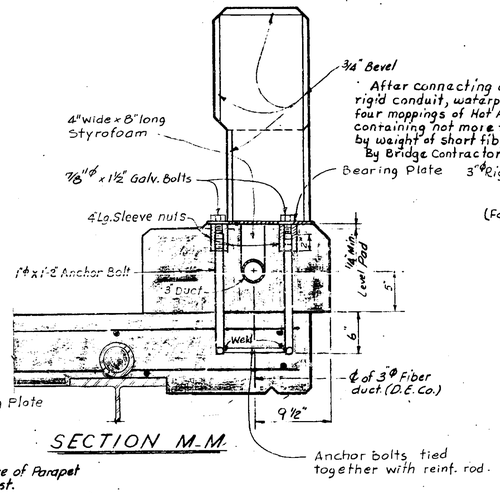
S23 OF 63174A



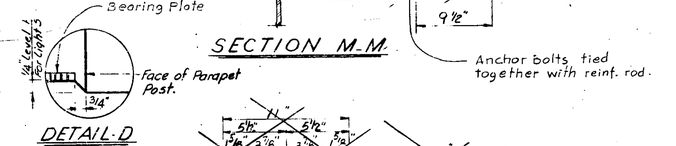
DETAIL C
PLAN



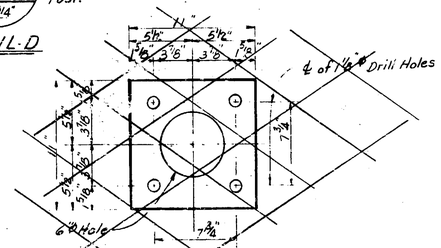
INSIDE ELEVATION



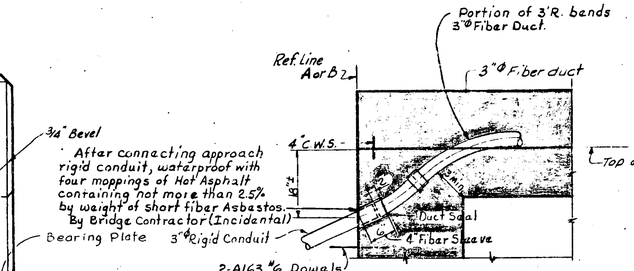
SECTION M-M



DETAIL D

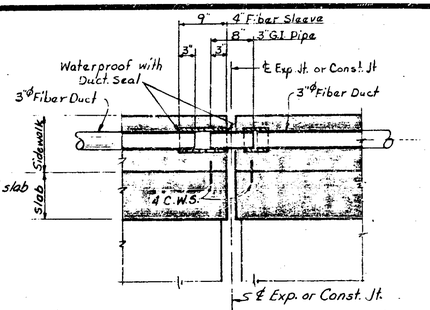


½" PLATE DETAIL



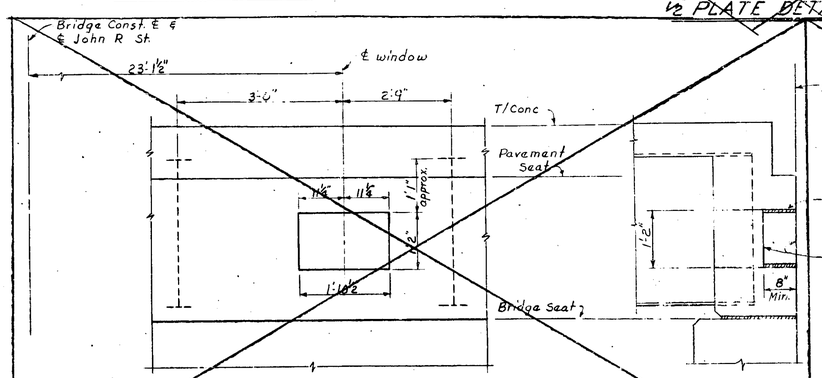
SECTION THRU. DUCT AT REFERENCE LINES

Note: For future rigid conduit installations, 4" Fiber Sleeve should be plugged with 4" Duct Plug.

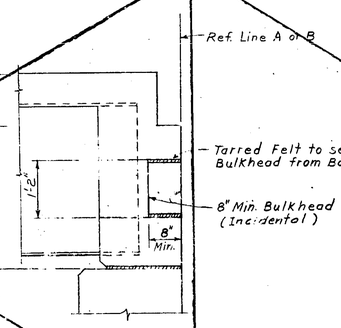


SECTION THRU. DUCT AT EXP. OR CONST. JOINTS

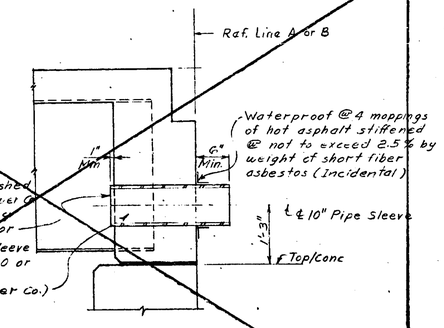
Note: Conduit to be raised to clear 4" C.W.S. at Joints.



VIEW AT ABUTMENT A



SECTION THRU BACKWALL



WINDOW THRU BACKWALL FOR DETROIT EDISON CO.
for 6-4"Φ Rigid Conduits (Incidental)

SECTION THRU BACKWALL SHOWING
10" PIPE SLEEVE FOR CONSUMERS POWER CO.

NOTES:

1"Φ Anchor bolt are to be furnished by Detroit Edison Co. and installed by Bridge Contractor. (Installation is incidental work)

Furnishing and installing of Light Standard and 3"Φ Fiber Duct as well as duct sleeves, styrofoam blocking is by Detroit Edison Co.

Where ducts are to be installed in the sidewalk, the District Utility Engineer is to be notified five days in advance of the time of installation.

MICHIGAN STATE HIGHWAY DEPARTMENT

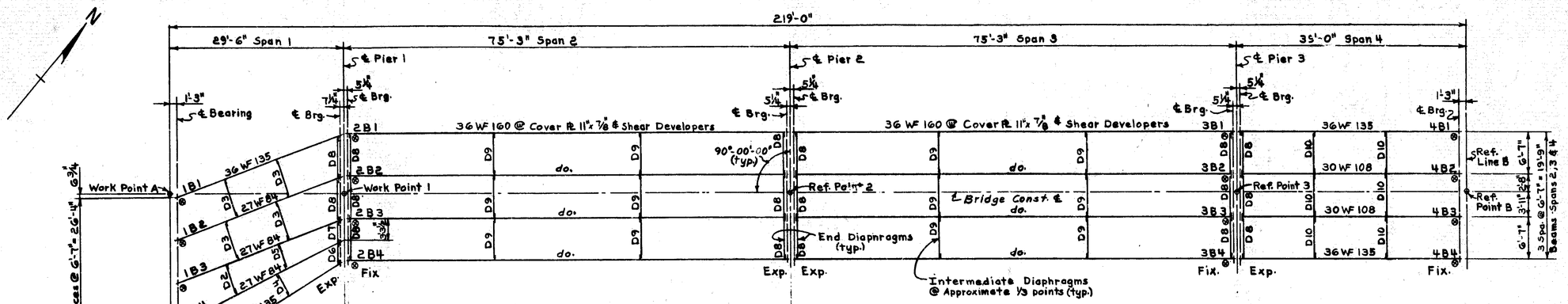
UTILITY DETAILS
(STREET LIGHTING)

REVISIONS

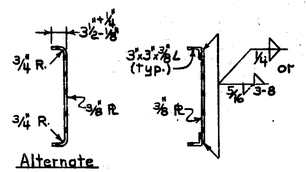
NO.	DESCRIPTION	DATE	BY

ROAD BASS	Goetsch	6-11-64
DRAWN BY	Kallo	4-27-64
TRACED BY		
CHECKED BY	INI	6-10-64
SHEET	16 OF 23	

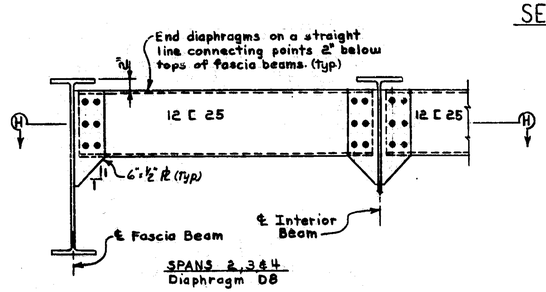
S23 OF 63174A



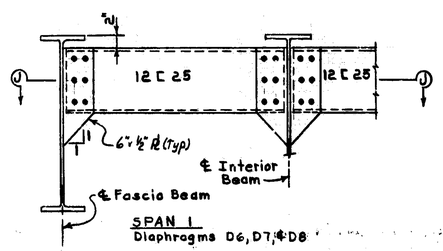
ERECTION DIAGRAM



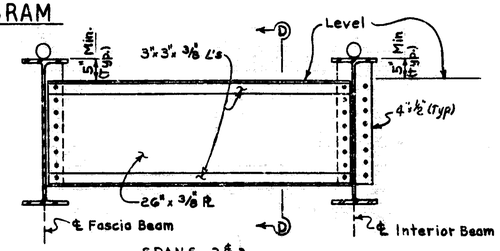
SECTION D-D or E-E or F-F



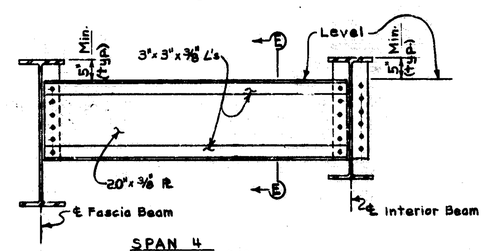
SPANS 2, 3 & 4
Diaphragm D8



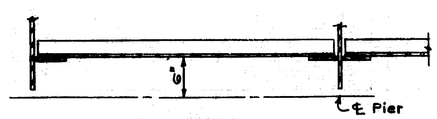
SPAN 1
Diaphragms D6, D7 & D8



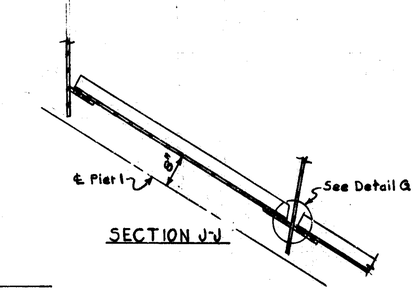
SPANS 2 & 3
Diaphragm D9



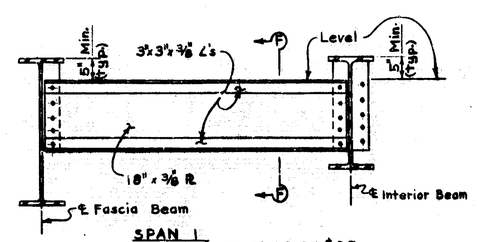
SPAN 4
Diaphragm D10



SECTION H-H

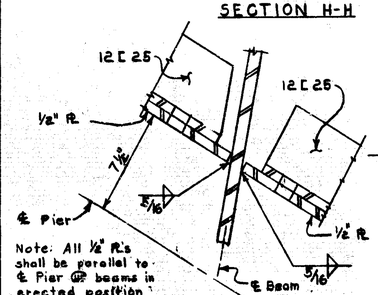


SECTION J-J



SPAN 1
Diaphragms D1, D2, D3, D4 & D5

INTERMEDIATE DIAPHRAGMS



Note: All 1/2" Pl.'s shall be parallel to ℄ Pier or beams in erected position

DETAIL G

END DIAPHRAGMS

QUANTITIES

Item	Unit	Amount
* Structural Steel-Furnishing & Fabricating	lbs.	161,700
* Structural Steel-Erection	lbs.	161,700
Field Painting	Lump Sum	Lump Sum

*Includes 182 lbs. bronze.

NOTES:-

All steel included in structural steel shall be A36 steel.

Fabrication: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction - 1963 Edition.

Design: Michigan State Highway Department's Specifications for Design of Highway Bridges - 1958 Edition. (H20-44 Loading)

Shop Connections: All shop connections shall be welded as shown on the plans except as noted.

Field Connections: Field connections shall be bolted with high strength bolts.

High Strength Bolts: 3/4"Φ

Open Holes: Open holes for high strength bolts shall be 13/16"Φ.

Shop Paint: In addition to the shop paint provisions of the Standard Specifications, the top surfaces of masonry plates shall be coated in accordance with the requirements for machine finished surfaces.
Metal floor joints shall not be painted in shop except as noted on the plans.

Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1 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 plate.

Camber: The beams in spans 1 and 4 are to have a camber of 0", the beams in spans 2 and 3 are to have a camber of 3 1/4" (Max. ordinate). This camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ± 1/4". Heating is to be used if necessary, to assure camber permanency within the above limitations. Dead load deflection of the beams alone is calculated to be 0" Spans 1 and 4 ; 3/8" Spans 2 & 3.

work this sheet with sheets # 18 & 19

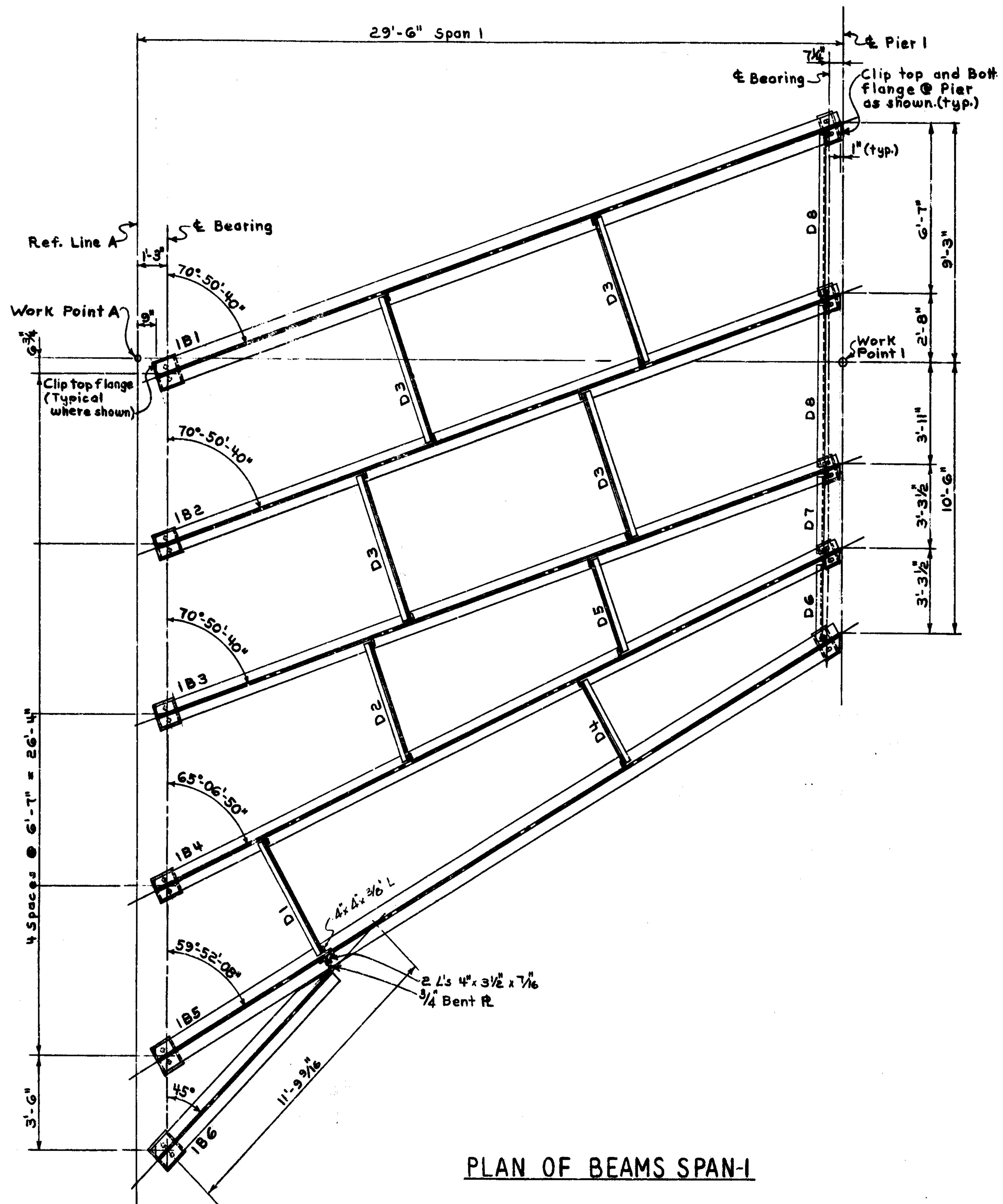
MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

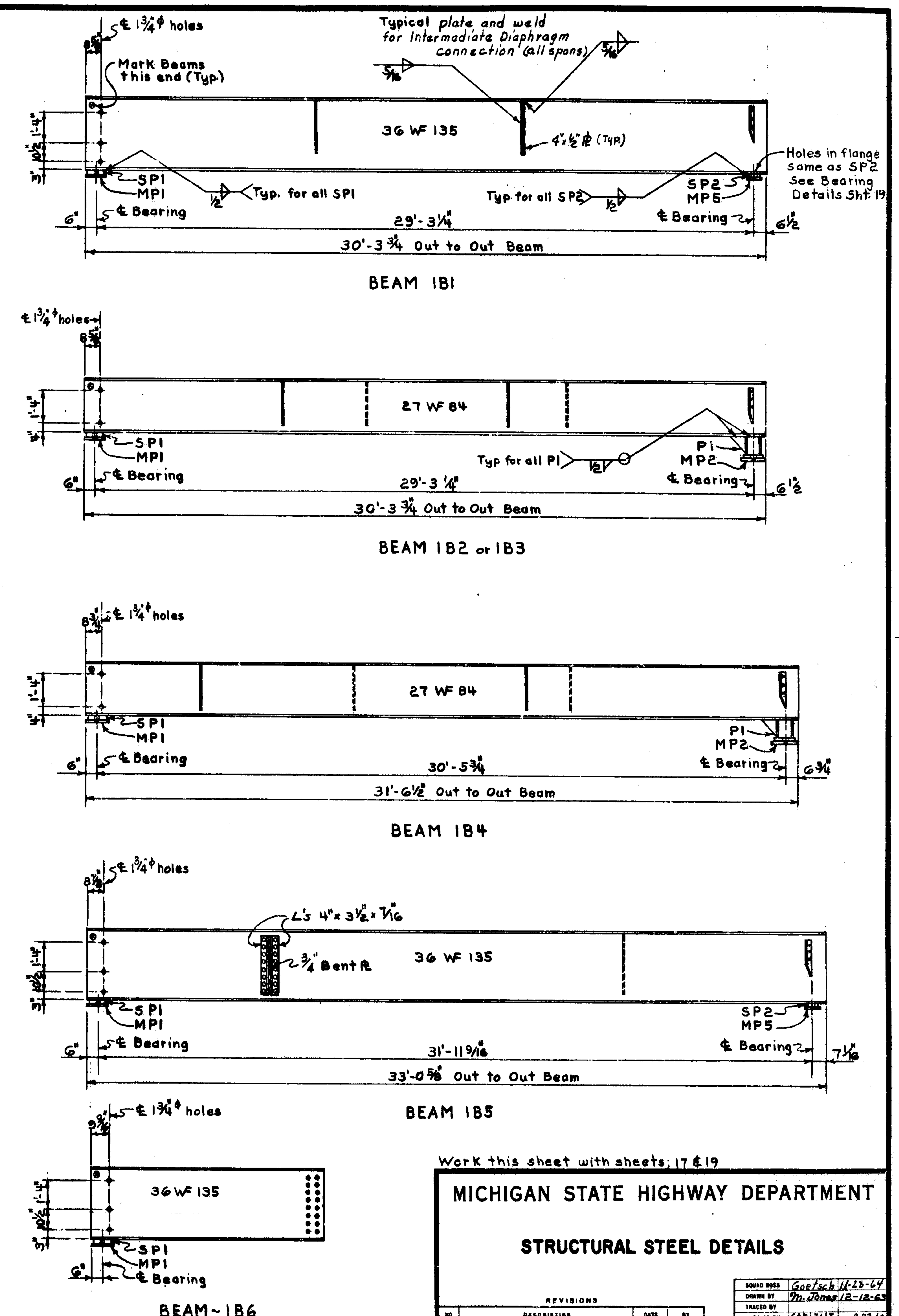
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BASED	Goetsch 11-23-64
DRAWN BY	Gustafson 1-18-65
TRACED BY	
CHECKED BY	CAF 1-21 5-27-65
SHEET	17 OF 23

S23 OF 63174A



PLAN OF BEAMS SPAN-1



ELEVATION OF BEAMS SPAN-1

Work this sheet with sheets; 17 & 19

MICHIGAN STATE HIGHWAY DEPARTMENT

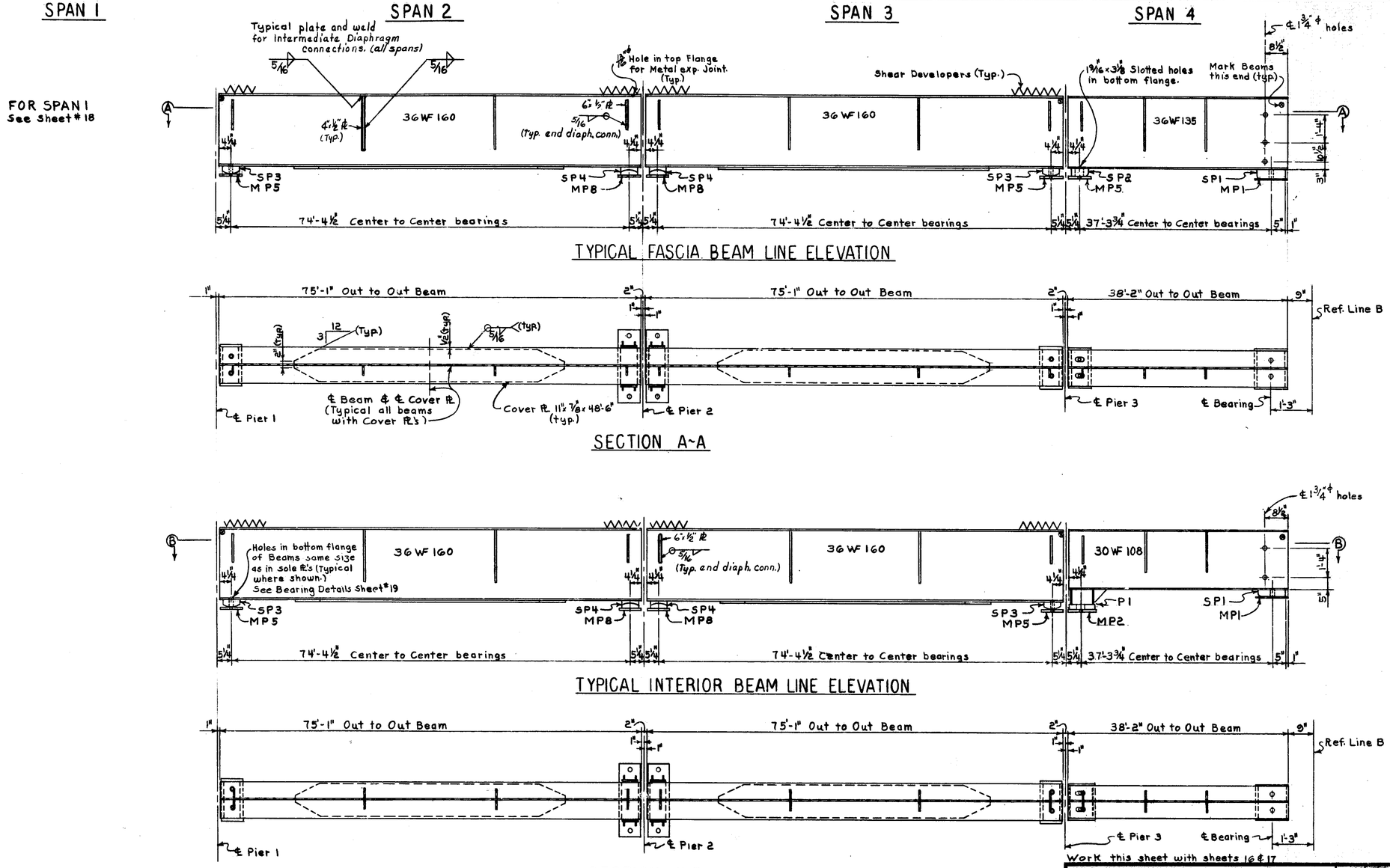
STRUCTURAL STEEL DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch 11-23-64
DRAWN BY	M. Jones 12-12-63
TRACED BY	
CHECKED BY	CAP INJ 2-27-64
SHEET	18 OF 23

S23 OF 63174A



Work this sheet with sheets 16 & 17

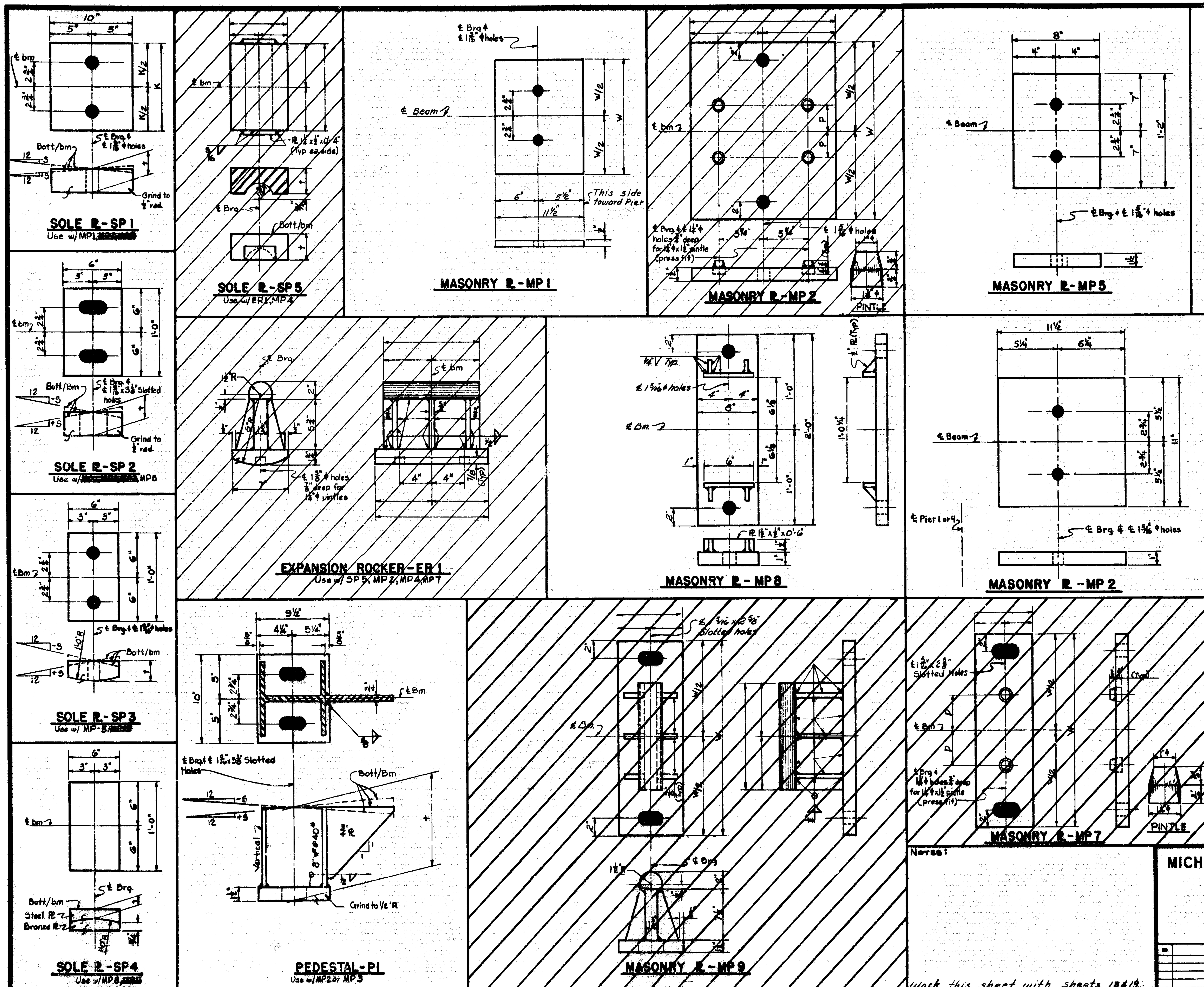
MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	Goetsch	11-23-64
DRAWN BY	M. Jones	1-9-64
TRACED BY		
CHECKED BY	CAPITNI	5-21-64
SHEET 19 OF 23		

S 23 OF 63174 A



BEAM @		TYPE	L Mas. PL	W Mas. PL	T Sole PL	D Mas. PL	K Sole PL	S Sole PL
1B1	Abut. A	MP1		1'-1"				
1B2		MP1		11"				
1B3		MP1		11"				
1B4		MP1		11"				
1B5		MP1		1'-1"				
1B6	Abut. A	MP1		1'-1"				
1B1	Abut. A	SP1			4¼"		1'-0"	0"
1B2		SP1			2½"		10"	
1B3		SP1			2¾"		10"	
1B4		SP1			2"		10"	
1B5		SP1			2½"		1'-0"	
1B6	Abut. A	SP1			2"		1'-0"	0"
1B1	Pier 1	MP5						
1B2		MP2						
1B3		MP2						
1B4		MP2						
1B5	Pier 1	MP5						
1B1	Pier 1	SP2			2¾"			0"
1B2		P1			1'-0¾"			
1B3		P1			1'-0¾"			
1B4		P1			1'-0¼"			
1B5	Pier 1	SP2			2¼"			0"
		Mas. PL Sole PL						
2B1	Pier 1	MP5 SP3			2¼"			0"
2B2		MP5 SP3			3"			
2B3		MP5 SP3			3"			
2B4	Pier 1	MP5 SP3			2"			0"
2B1	Pier 2	MP8 SP4			1¾"			0"
2B2		MP8 SP4			2¾"			
2B3		MP8 SP4			2½"			
2B4	Pier 2	MP8 SP4			1¾"			0"
3B1	Pier 2	MP8 SP4			1¾"			0"
3B2		MP8 SP4			2¾"			
3B3		MP8 SP4			2½"			
3B4	Pier 2	MP8 SP4			1¾"			0"
3B1	Pier 3	MP5 SP3			2"			0"
3B2		MP5 SP3			2¾"			
3B3		MP5 SP3			2¾"			
3B4	Pier 3	MP5 SP3			2"			0"
4B1	Pier 3	MP5 SP2			2¼"			0"
4B2		MP2 P1			9¼"			
4B3		MP2 P1			9¼"			
4B4	Pier 3	MP5 SP2			2¼"			0"
4B1	Abut. B	MP1 SP1		1'-1"	2"		1'-0"	0"
4B2		MP1 SP1		11½"	2"		10½"	
4B3		MP1 SP1		11½"	2"		10½"	
4B4	Abut. B	MP1 SP1		1'-1"	2"		1'-0"	0"

MICHIGAN STATE HIGHWAY DEPARTMENT

BEARING DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

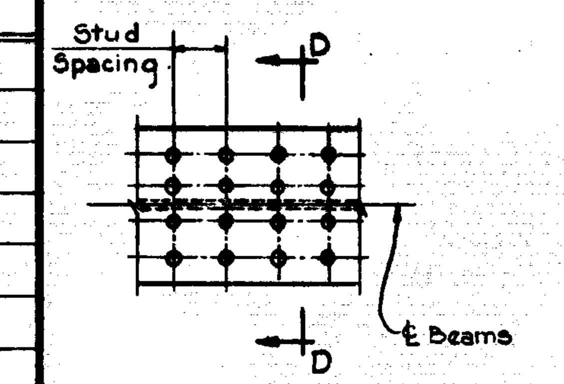
Design: Goetsch 11-23-64
Drawn by: 2-7-64
Sheet 20 of 23

S23 OF 63174 A

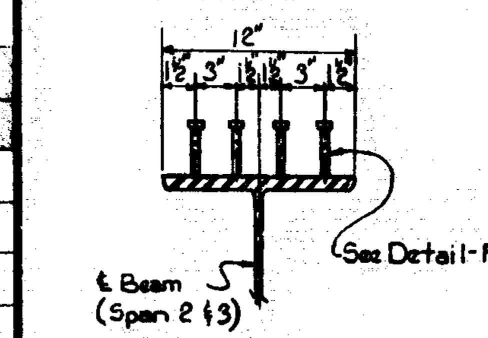
SHEAR DEVELOPER SPACING TABLE

BEAM NO.	A	B	C	D		E	F				G	H	J
2B1 thru 2B4	* 18@6"= 9'-0"	33@4"= 11'-0"	22@6"= 11'-0"	18@9"= 13'-6"		4½"	4½"	SPIRAL SHEAR DEVELOPERS			2"	2"	3"
3B1 thru 3B4	* 18@6"= 9'-0"	33@4"= 11'-0"	22@6"= 11'-0"	18@9"= 13'-6"		4½"	4½"				2"	2"	3"
2B1 thru 2B4	20@6"= 10'-0"	12@10"= 10'-0"	9@14"= 10'-6"	8@20"= 13'-4"		4½"	4½"	STUD SHEAR CONNECTORS					
3B1 thru 3B4	20@6"= 10'-0"	12@10"= 10'-0"	9@14"= 10'-6"	8@20"= 13'-4"		4½"	4½"						

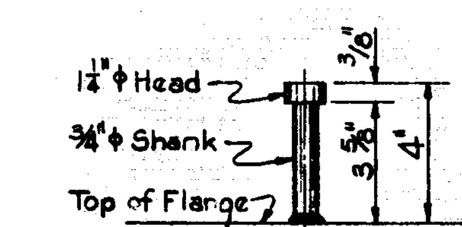
* Denotes Double Row of Spirals



PLAN of STUDS

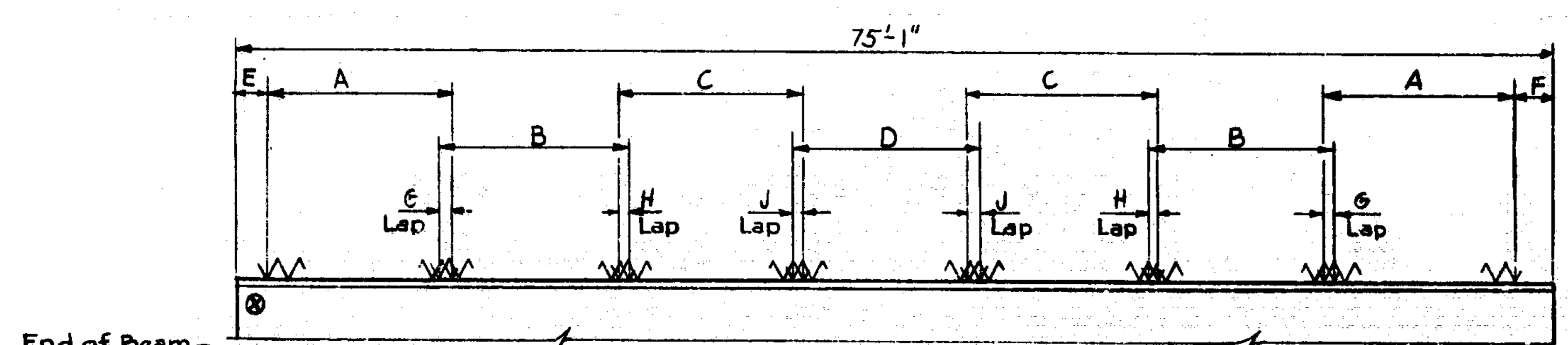


SECTION-DD

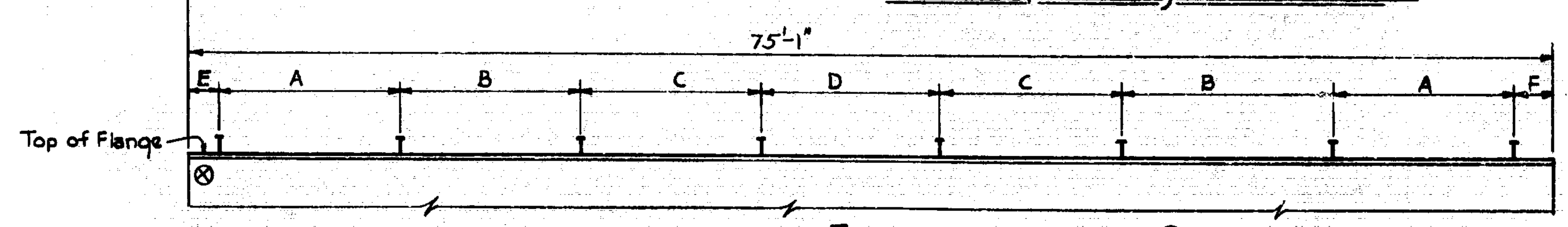


DETAIL-F

STUD SHEAR CONNECTOR DETAILS

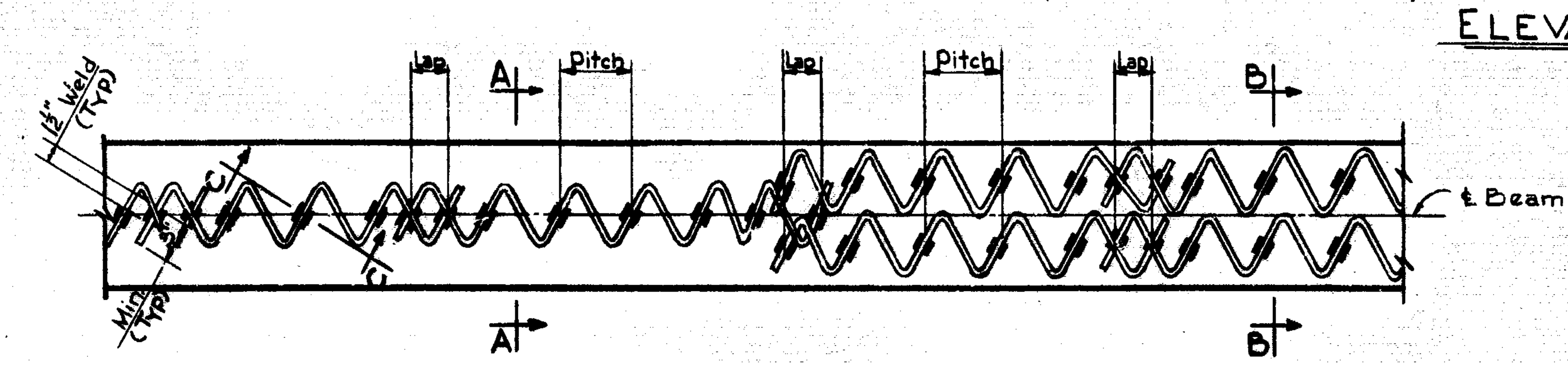


ELEVATION of SPIRALS



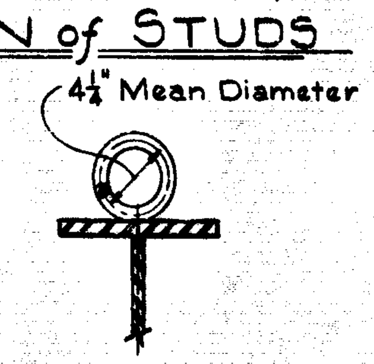
ELEVATION of STUDS

Shear Developers – Lump Sum

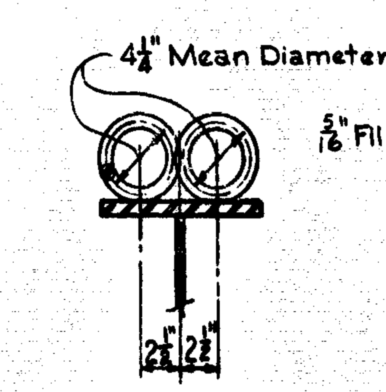


SINGLE ROW DETAILS DOUBLE ROW DETAILS

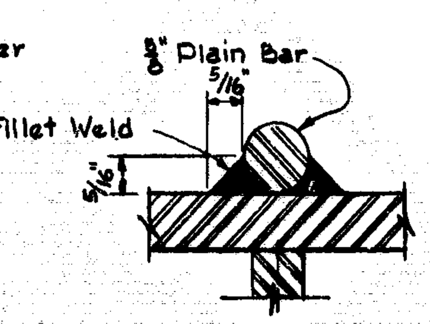
PLAN of TOP FLANGE



SECTION-AA



SECTION-BB



SECTION-CC

SPIRAL SHEAR DEVELOPER DETAILS

NOTES:
Either Spiral Shear Developers or Stud Shear Connectors may be used at the option of the contractor.
Welding of Spirals or Studs to Girder flanges is incidental to Shear Developers.
Weight of Spirals or Studs is not included in Structural Steel Weights.

Work this sheet with sheets No. 17 & 19

MICHIGAN STATE HIGHWAY DEPARTMENT

SHEAR DEVELOPER DETAILS

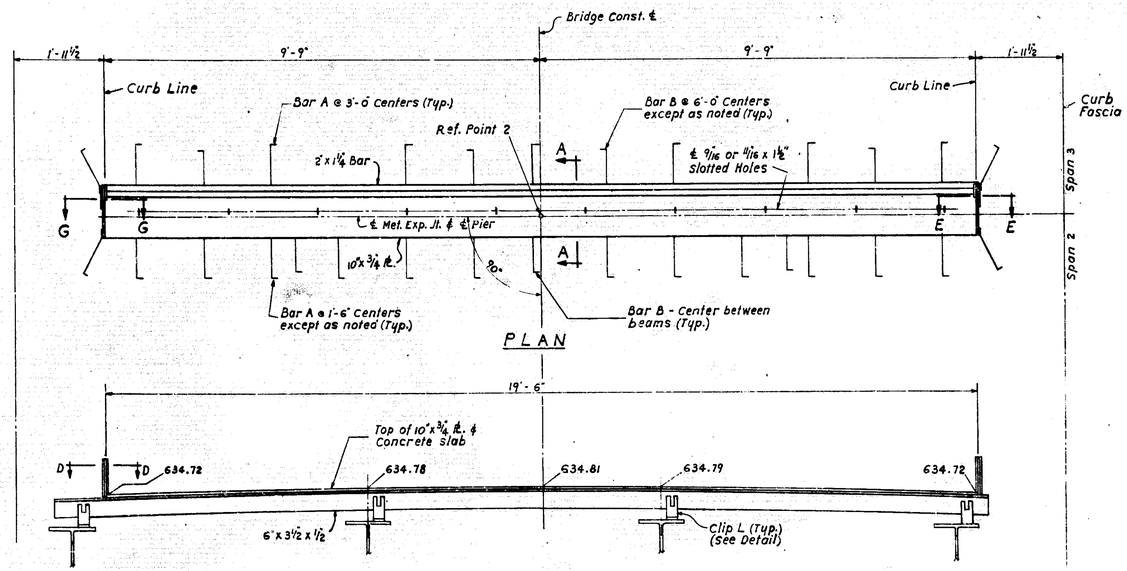
REVISIONS

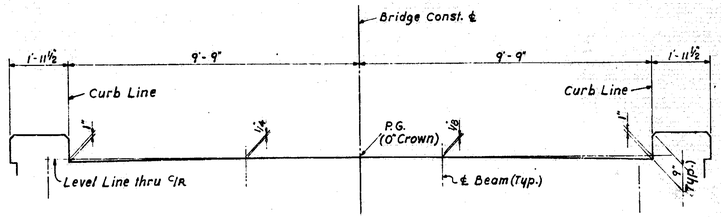
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch	11-23-64
DRAWN BY	DEM 12-4-62	WLW 2-5-64
TRACED BY		
CHECKED BY	CAF INT	5-27-64

SHEET 21 OF 23

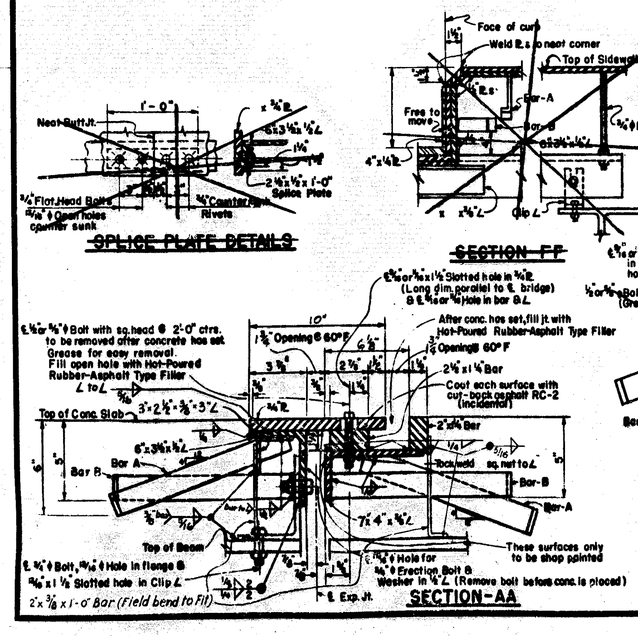
S23 OF 63174 A





ROADWAY SECTION
Normal to Bridge Const. ℄.

NOTES:
The Metal Expansion Joint shall be bent in the shop to conform with the contour of the top of roadway slab.
Hot-Poured Rubber-Asphalt Type Filler is included in the Superstructure Quantities on sheet # 15
Weight of Metal Expansion Joint is included in the Structural Steel weight on sheet # 16



MICHIGAN STATE HIGHWAY DEPARTMENT

METAL EXPANSION JOINT DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	Gaertsch 11-23-64
DRAWN BY	
TRACED BY	
CHECKED BY	
SHEET	22 of 23

S23 OF 63174A

ABUTMENTS

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A1	6'-6"							#6	6'-6"	79	771
A2	4'-6"							6	4'-6"	79	534
A3	24'-3"							6	24'-3"	10	364
A4	24'-0"							6	24'-0"	10	361
A5	17'-3"							6	17'-3"	10	259
A6	8'-6"							6	8'-6"	116	1,481
A7	9'-3"							6	9'-3"	26	361
A8	24'-3"							4	24'-3"	10	162
A9	23'-6"							4	23'-6"	10	157
A10	17'-3"							4	17'-3"	12	138
A11	Not	used									
A12	2'-6"							6	2'-6"	2	8
A13	4'-3"							6	4'-3"	2	13
A14	11'-9"							4	11'-9"	1	8
A15	11'-0"							4	11'-0"	1	7
A16	8'-3"							4	8'-3"	1	6
A17	7'-6"							4	7'-6"	1	5
A18	4'-9"							4	4'-9"	1	3
A19	4'-0"							4	4'-0"	1	2
A20	14'-6"							4	14'-6	2	19
A21	16'-0"							4	16'-0"	1	11
A22	13'-0"							4	13'-0"	1	9
A23	Not	used									
A24	7'-6"							4	7'-6"	1	5
A25	8'-9"							4	8'-9"	1	6
A26	25'-6"							6	25'-6"	10	383
A27	23'-9"							6	23'-9"	10	357
A28	9'-0"							6	9'-0"	16	216
A29	25'-3"							4	25'-3"	10	169
A30	23'-9"							4	23'-9"	10	157
A31	7'-0"							4	7'-0"	2	9
A32	5'-3"							4	5'-3"	2	7
A33	10'-6"							4	10'-6"	4	28
A34	7'-6"							4	7'-6"	4	20
A35	4'-6"							4	4'-6"	4	12
D1	2'-3½"	1'-0½"						4	5'-6"	37	136
D2	2'-8"	1'-0½"						4	6'-8"	11	46
D3	4'-2"	1'-0½"						4	9'-3	18	111
									Total for Abutments		6,343

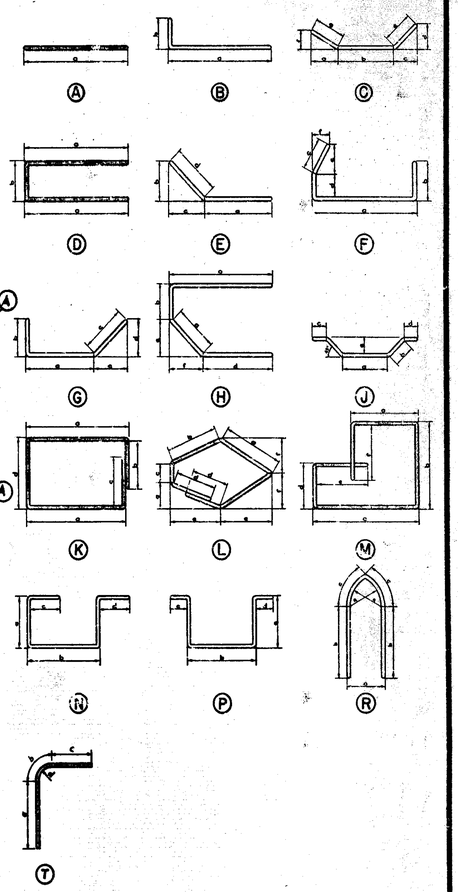
PIERS

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A51	7'-6"							#6	7'-6"	147	1657
A52	27'-6"							6	27'-6"	16	744
A53	27'-6"							10	27'-6"	16	1893
A54	5'-6"							9	5'-6"	48	670
A55	17'-3"							9	17'-3"	10	587
A56	22'-3"							9	22'-3"	10	757
A57	22'-6"							10	22'-6"	8	775
A58	22'-6"							6	22'-6"	6	203
A59	21'-0"							7	21'-0"	21	901
A60	20'-0"							9	20'-0"	10	680
A61	Not	Used									
A62	27'-6"							9	27'-6"	9	506
A63	27'-6"							11	27'-6"	8	1169
A65	22'-6"							9	22'-6"	16	1224
A66	19'-0"							6	19'-0	6	171
K51	3'-0"	1'-8"	1'-8"	2'-6"				4	11'-9"	52	408
K52	3'-2"	1'-9½"	1'-9½"	2'-8				4	12'-6"	33	276
L51	1'-11½"	1'-11½"	0"	1'-6¾"	1'-6¾"	1'-3¼"	1'-3¼"	4	9'-0"	48	288
T51	16'-6"	1'-3¾"	2'-8¼"	9"				9	20'-6"	6	418
T52	19'-3"	1'-3¾"	2'-8¼"	9"				9	23'-3"	6	474
T53	21'-6"	1'-3¾"	2'-8¼"	9"				9	25'-6"	6	520
									Total for Piers		14,549

SUPERSTRUCTURE

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A101	11'-0"							#6	11'-0"	516	8,524
A102	13'-6"							6	13'-6"	484	9,816
A103	14'-3"							6	14'-3"	32	685
A104	22'-6"							6	22'-6"	131	4,428
A105	22'-9"							4	22'-9"	4	61
A106	23'-6"							6	23'-6"	4	141
A107	23'-9"							6	23'-9"	14	499
A108	24'-3"							6	24'-3"	4	146
A109	24'-6"							6	24'-6"	6	221
A110	24'-9"							6	24'-9"	4	149
A111	25'-0"							6	25'-0"	4	150
A112	25'-3"							6	25'-3"	2	76
A113	25'-6"							6	25'-6"	4	155
A114	25'-9"							6	25'-9"	4	155
A115	26'-0"							6	26'-0"	4	156
A116	26'-3"							6	26'-3	2	79
A117	26'-6"							6	26'-6"	111	4,418
A118	26'-9"							6	26'-9"	4	161
A119	27'-3"							6	27'-3"	2	82
A120	27'-6"							6	27'-6"	2	83
A121	27'-9"							#6	27'-9"	4	167
A122	28'-0"							6	28'-0"	2	84
A123	28'-5"							6	28'-5"	2	85
A124	28'-6"							6	28'-6"	2	86
A125	28'-9"							6	28'-9"	2	86
A126	29'-0"							6	29'-0	2	87
A127	29'-6"							6	29'-6"	4	177
A128	30'-0"							6	30'-0"	2	90
A129	30'-3"							6	30'-3"	10	454
A130	30'-6"							6	30'-6"	6	275
A131	30'-9"							6	30'-9"	3	139
A132	31'-3"							6	31'-3"	2	94
A133	32'-0"							6	32'-0"	3	144
A134	32'-3"							6	32'-3"	3	145
A135	32'-9"							4	32'-9"	5	109
A136	33'-0"							4	33'-0"	3	66
A137	33'-6"							4	33'-6"	3	67
A138	29'-9"							4	29'-9"	6	119
A139	25'-9"							6	25'-9"	44	1702 (A)
A140	30'-0"							4	30'-0"	14	281
A141	30'-3"							4	30'-3"	1	20
A142	30'-6"							4	30'-6"	1	20
A143	30'-9"							4	30'-9"	1	21
A144	31'-0"							4	31'-0"	1	21
A145	31'-6"							4	31'-6"	1	21
A146	32'-0"							4	32'-0"	1	21
A147	32'-3"							4	32'-3"	1	22
A148	32'-9"							4	32'-9"	1	22
A149	25'-9"							4	25'-9"	179	3079
A150	19'-6"							4	19'-6"	60	782 (A)
A151	8'-3"							4	8'-3"	4	22
A152	5'-0"							4	5'-0"	4	13
A153	9'-0"							4	9'-0"	4	24
A154	3'-6"							4	3'-6"	2	5
A155	23'-0"							4	23'-0"	9	138
A156	19'-6"							6	19'-6"	16	469
A157	32'-3"							6	32'-3"	2	97
A158	22'-6"							6	22'-6"	1	34
A159	20'-6"							6	20'-6"	36	1,108
A160	12'-0"							4	12'-0"	3	24
A161	23'-0"							4	23'-0"	1	18
A162	18'-3"							4	18'-3"	12	146
A163	17'-9"							6	17'-9"	8	213
A164	19'-3"							6	19'-3"	2	58
A165	14'-3"							6	14'-3"	4	86
A166	9'-9"							6	9'-9"	4	59
A167	4'-9"							6	4'-9"	4	29
A168	13'-0"							6	13'-0"	4	78
A169	2'-0"							6	2'-0"	4	12
A170	29'-9"							6	29'-9"	4	179
D101	2'-9⅜"	6⅝"						6	6'-1"	348	3,180
K101	7½"	7"	7½"	10½"				4	3'-3"	432	937
K102	10¾"	5¾"	6"	7¾"				4	3'-4"	232	517
K103	1'-3½"	1'-10¼"	1'-10¼"	3'-2½"				4	9'-3"	6	37
K104	2'-6"	0'-9"	0'-9"	1'-0"				4	7'-6"	1	5
M101	1'-3½"	1'-1"	1'-7½"	7"		1'-1"		4	5'-6"	305	1,119
M102	10¼"	2'-6"	1'-3½"	1'-6"	11¼"	1'-3½"		4	8'-3"	7	39
M103	10¼"	3'-0"	1'-3½"	2'-0"	1'-0"	1'-6"		4	9'-6"	10	64
M104	10¼"	2'-10¼"	1'-3½"	1'-10½"	1'-1"	1'-4¾"		4	9'-3"	12	74
							Total for Superstructure				47,452 (A)

BAR BENDING DIAGRAM



Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 68,344 # (A)

MICHIGAN STATE HIGHWAY DEPARTMENT

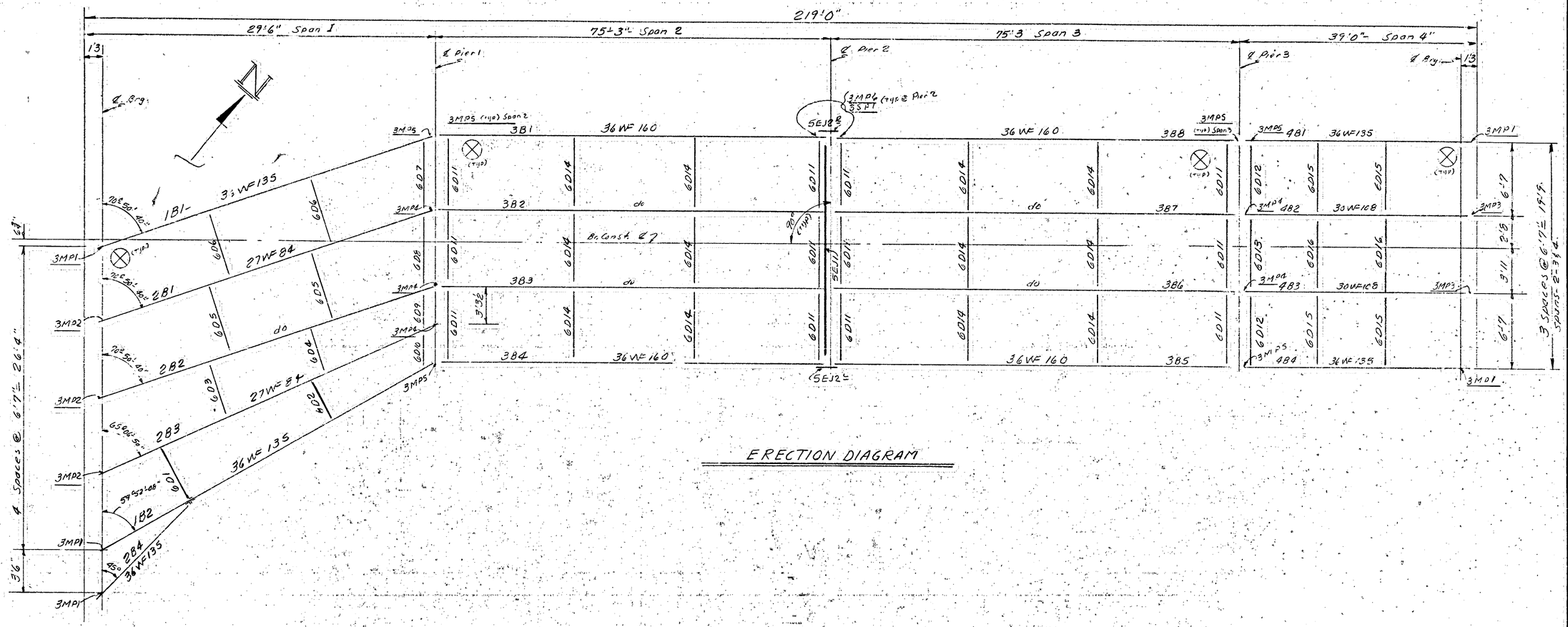
STEEL REINFORCEMENT DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY
(A)	Corrected reinforcing steel	6-16-65	INI

DESIGN BOSS	Goetsch	11-13-67
DRAWN BY	A.J.S.	4-3-64
TRACED BY		
CHECKED BY	INI	5-27-64
SHEET	23 OF 23	

S23 OF 63174A

B. K. ELLIOTT CO. 102 500 11-64



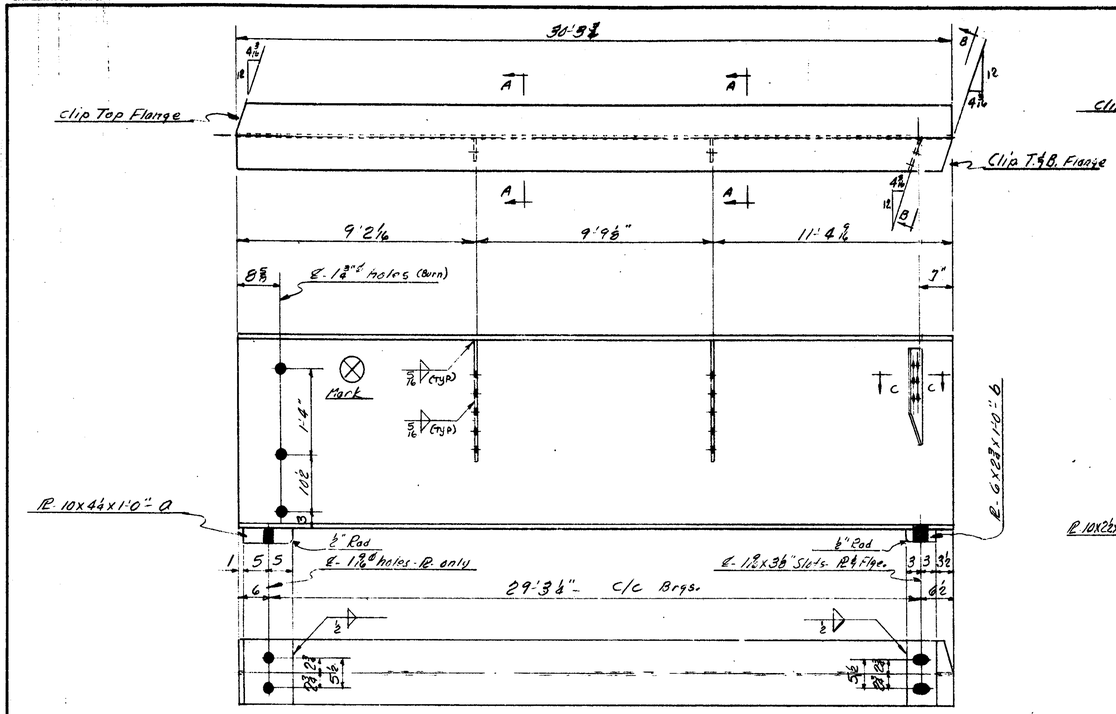
ERECTION DIAGRAM

REVISION			
NO.	DESCRIPTION	DATE	BY

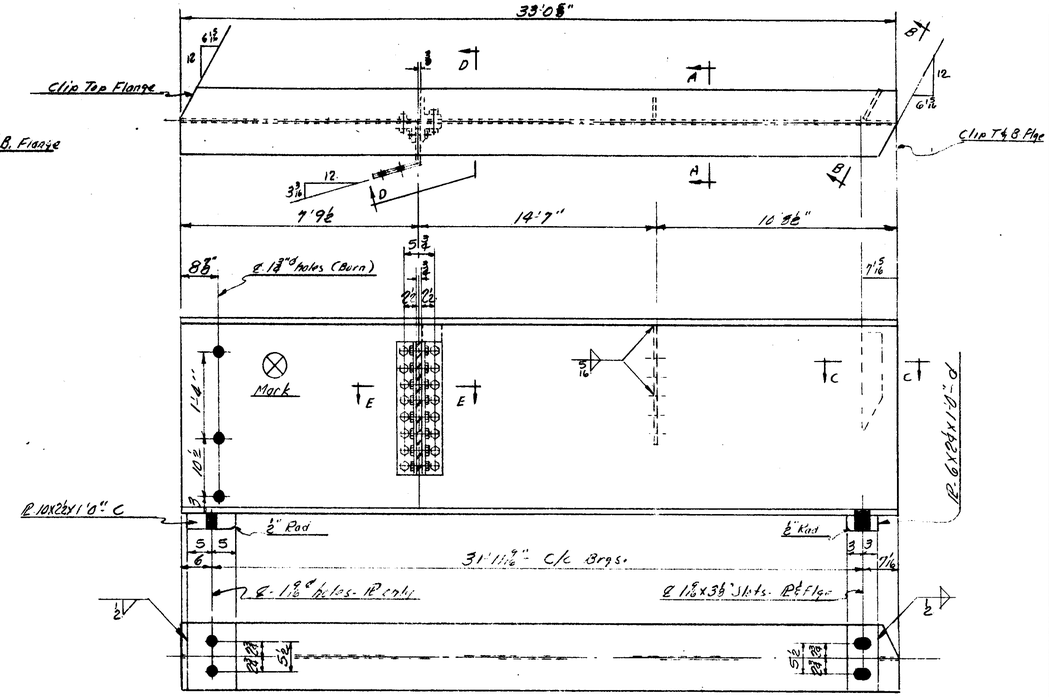
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

I-75 Crossing Southbound John R-Left Turn in The City of Hazel Park
C.A. Hull - Contr.
523 of 63174A

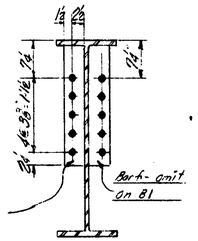
DATE 11-9-65	JOB NO. R24557	SHEET E 1 of E1
BY AWB		



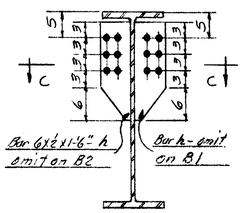
One Beam Req'd- (36WF135 x 30'-3 7/8") Mark 1B1



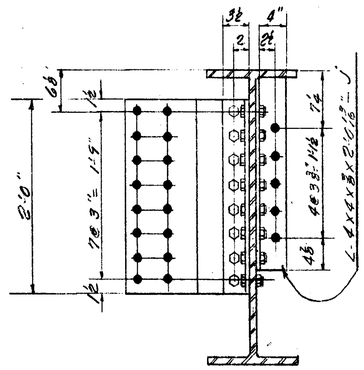
One Beam Req'd (36WF135 x 33'-0 5/8") Mark 1B2



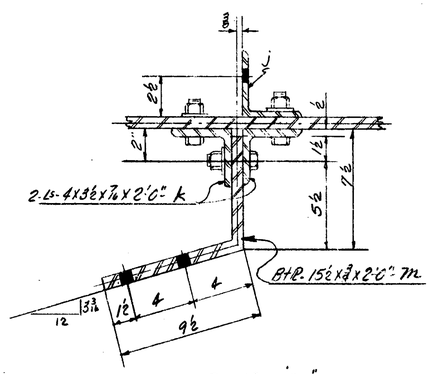
Section "AA"



Section "BB"



Section "DD"



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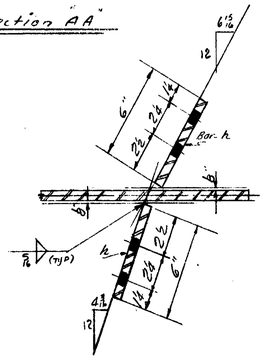

Section "CC"

Shop Bolts

11- 3/4 x 2 1/2" H.S. Bolt - Hy. Hex Head		
5- 3/4 x 2 3/4" -	do	do
8- 3/4 x 3" -	do	do
24- 3/4" Hy. Hex Nuts		
24- 3/4" Hard Washers		

Anchor Bolts & Dowels

50- 1" ø x 1'-6" Bolt. Sq. H. H. Nut w/ 2 3/4" Thread.
50- 1" ø PL. Washers (Bar 3x4x0'-3") 1 1/16" hole.
20- Plain Bar 1" ø x 1'-0"

Shop Notes

Paint Shop Coat- M.S.H.D. #1A(1) Red Lead, except as follows. The top surface of the top flange of Beams in spans 2 & 3 shall be given one coat Boiled Linseed Oil only.

The top surface of Masonry Plates and the bottom surface of Sole Plates- shall be given one coat M.S.H.D.- 5.02.03- Tallow Mixture only. There shall be no paint on field connection contact surfaces.

The Metal Expansion Joint is to be painted only as noted.

Open holes 1 1/16" ø unless noted. High Strength Bolts 3/4" ø- Steel- A.36.

Camber- The Beams in spans 1 & 4 are to have a camber of 0". The Beams in spans 2 & 3 are to have a camber of 3/4" (Max ord.) measured with Beam lying on side. Allowable tolerance is ± 1/4".

All sharp longitudinal edges of main steel members that will be exposed in the finished structure are to be rounded to a radius of 3/8" ± 1/8". This shall include the bottom edges of top flange of all Beams.

Magnetic Particle inspection is required.

REVISION			
NO.	DESCRIPTION	DATE	BY

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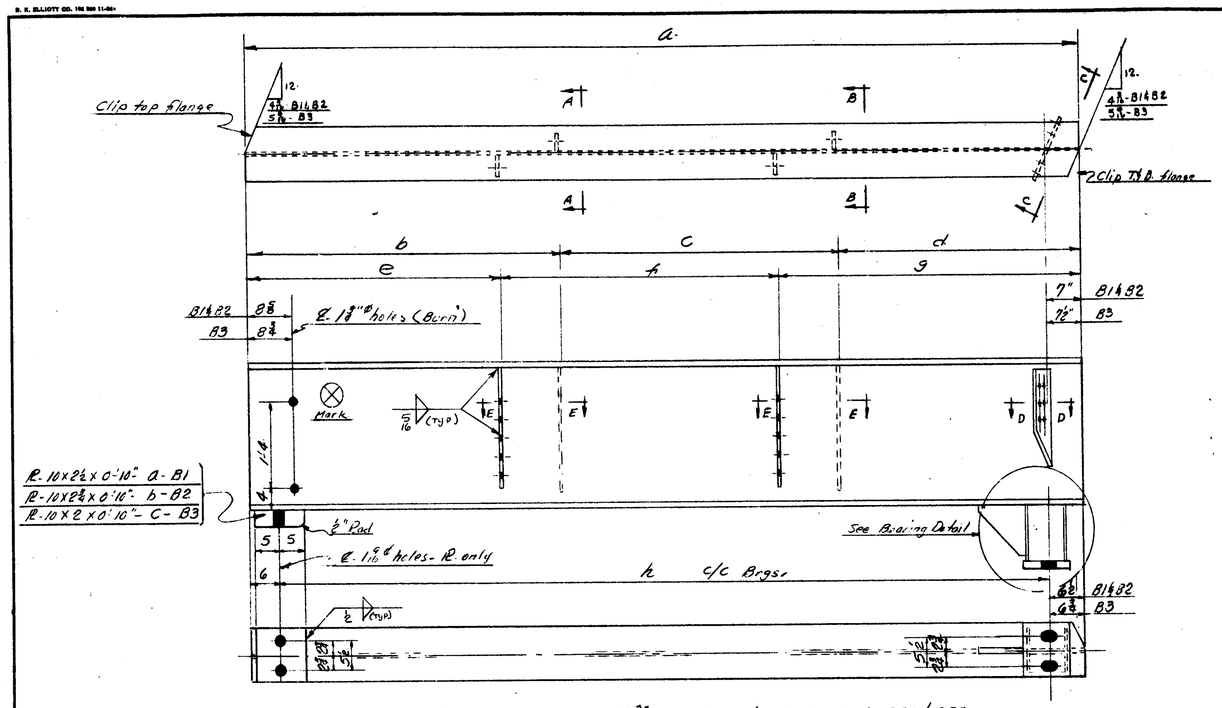
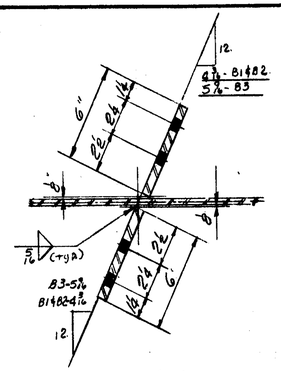
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

I-75 Crossing Southbound John R. Left Turn in The City of Hazel Park
C.A. HULL - Contr.
S23 of 63174-A

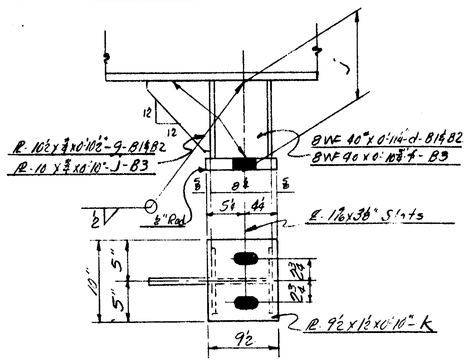
DATE	JOB NO.	SHEET
11-3-65	B24557	1 of 6
BY A.W.B.		



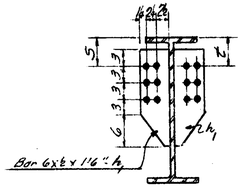
2 Beams Req'd (27WF84x30'-3¾") as shown & noted - Mark-2B1 & 2B2.
One Beam Req'd. (27WF84x31'-6½") as shown & noted - Mark-2B3



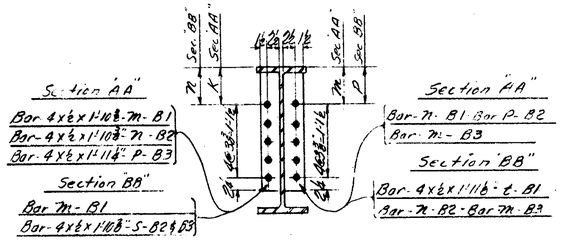
Section "DD"



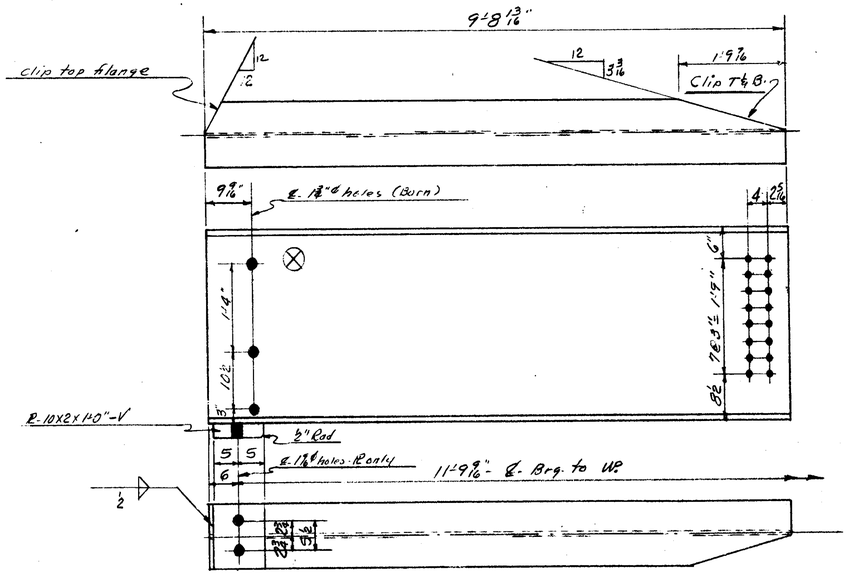
Bearing Detail



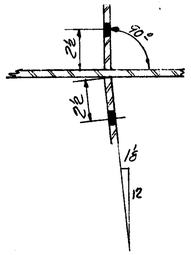
Section "CC"



Sections "AA" & "BB"



One Beam (36WF135x9'-8 13/16") as shown & noted - Mark-2B4.



For B3 only

Section "EE"

Table of Dimensions

Beam	a	b	c	d	e	f	g	h	J	k	m	n	p	s	t
B1	30'3¼	11'4 1/16	9'9⅛	9'2 9/16	9'2 1/16	9'9⅛	11'4 9/16	29'3¼	1'0⅜	7¼	7¾	7¼	8	5⅜	5⅜
B2	30'3¼	11'4 1/16	9'9⅛	9'2 9/16	9'2¼	9'9⅛	11'4 9/16	29'3¼	1'0⅜	7⅞	7⅞	7¾	7⅞	6	6
B3	31'6½	12'5 7/16	9'9¾	9'3 5/16	4'4	14'7¾	12'6¾	30'5¾	1'0¼	8⅛	7¼	7¾	7¼	5⅜	5⅜

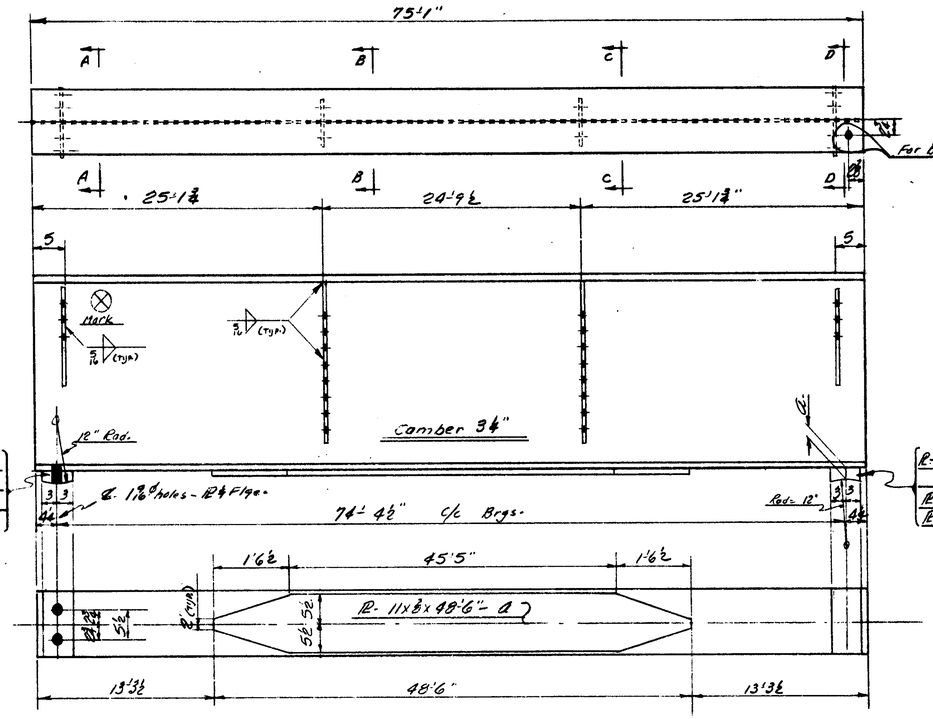
See Shop Notes on Sheet #2

REVISION			
NO.	DESCRIPTION	DATE	BY

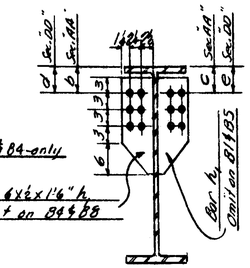
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

I-75 Crossing Southbound John R
Left Turn in The City of Hazel Park.
C.A. HULL - Cont'r.
S23 of 63174A

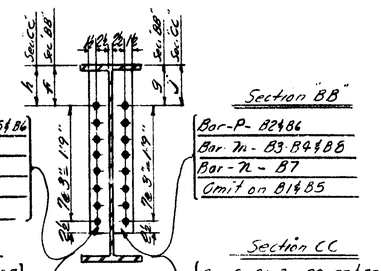
DATE 11-4-65	JOB NO. R24557	SHEET 2 of 6
BY AWB		



8- Beams Req'd- (36WF160X75'-1") as shown & noted- Mark 3B1-3B8-incl.



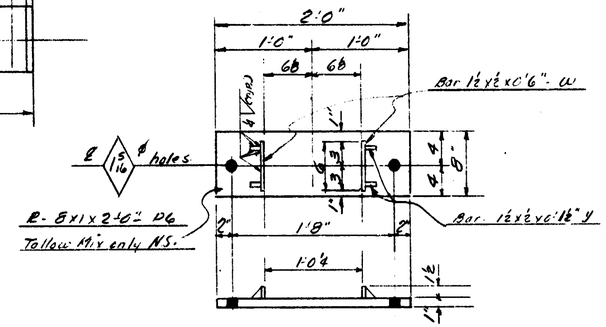
Sections "AA" & "DD"



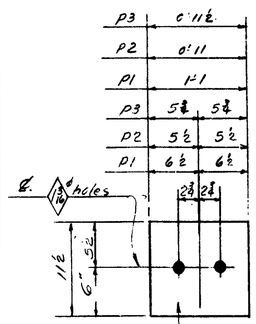
Sections "BB" & "CC"

Table of Dimensions

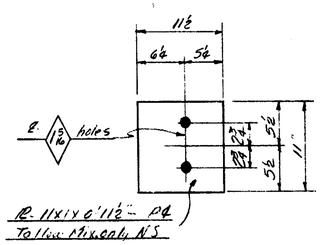
Beam	a	b	c	d	e	f	g	h	j
B1	1¾	5		5		7½		7½	
B2	2¾	5½	5½	6	6	7⅞	8¼	7¾	8⅜
B3	2½	6	6	5¾	5¾	8¼	7½	8½	7½
B4	1¾		5		5		7½		7½
B5	1¾	5		5		7½		7½	
B6	2½	5½	5¾	5¾	5¾	7½	8¼	7½	8¼
B7	2¾	5¾	5¾	6	6	8⅜	7⅞	8½	7¾
B8	1¾		5		5		7½		7½



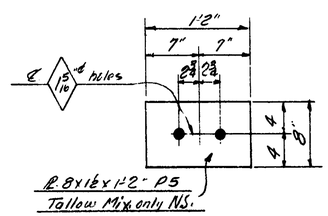
8- Masonry Plates Mark 3MP6



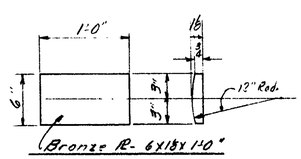
5-Masonry PLs (as shown & noted) MK. 3MP1
3- do do (do do) MK. 3MP2
2- do do (do do) MK. 3MP3



5 Masonry Plates MK. 3MP4



12-Masonry Plates MK. 3MP5



8-Bronze PLs Req'd MK 3SP1

See Shop Notes on Sheet #2

REVISION			
NO.	DESCRIPTION	DATE	BY

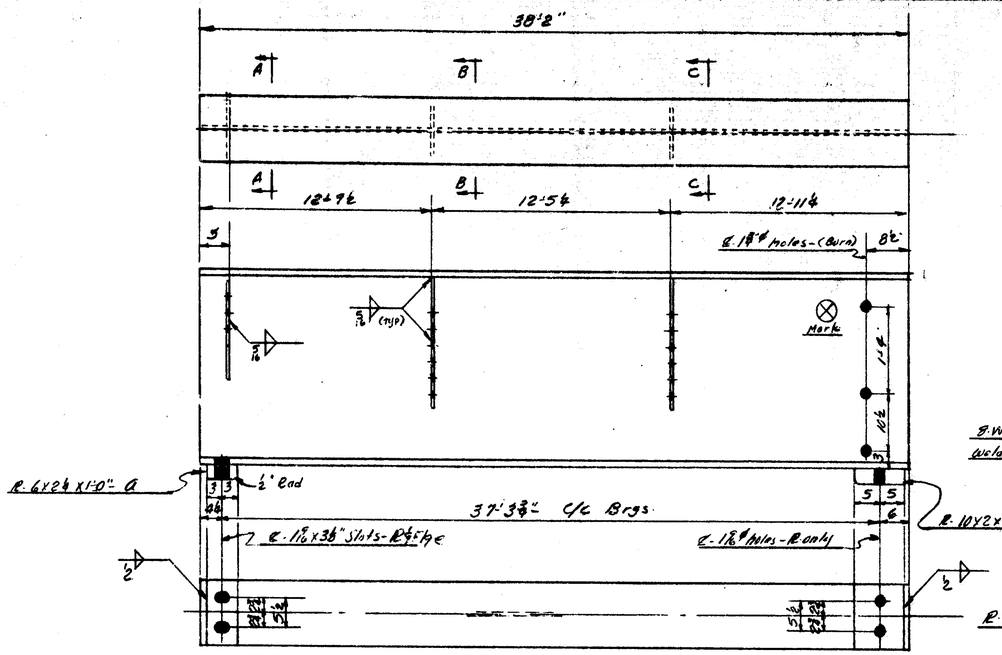
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

I-75 Crossing Southbound John R- Left Turn in The City of Hazel Park

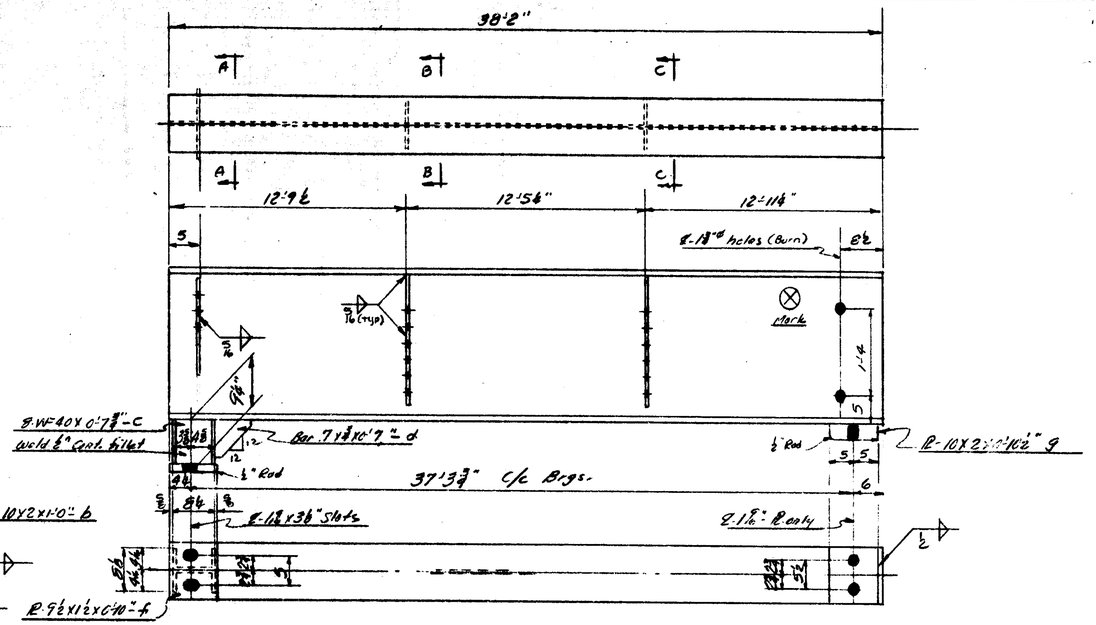
C.A. HULL- Contr

523 of 63174-A

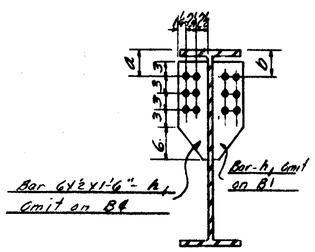
DATE 11-5-65 BY A.W.B. JOB NO. R24557 SHEET 3 of 6



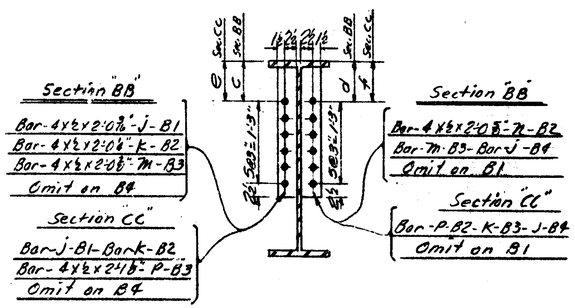
2-Beams Req'd-(36WF135X38'-2) Mark 481 & 484



2-Beams Req'd. (30WF108X38'-2") Mark 482 & 483



Section "AA"



Sections "BB" & "CC"

Table of Dimensions

Beam	a	b	c	d	e	f
B1	5	X	7½	X	7½	X
B2	5¾	5¾	7½	8⅛	7½	8⅜
B3	5¾	5¾	8⅛	7½	8⅜	7½
B4	X	5	X	7½	X	7½

See Shop Notes on Sheet #1

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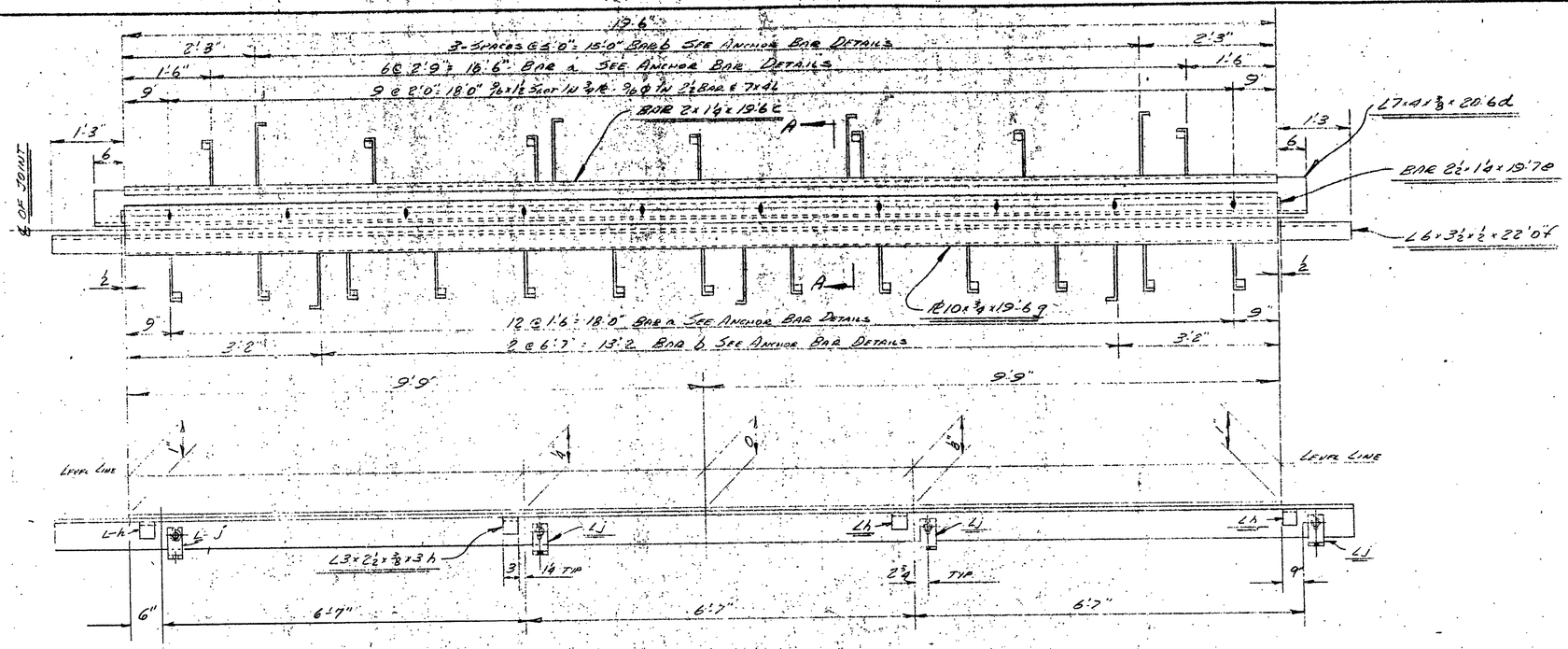
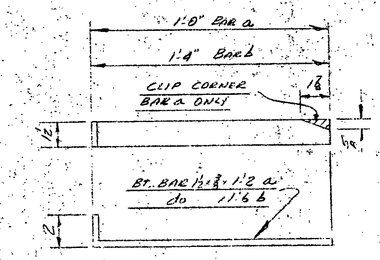
I-75 Crossing Southbound John R-Left Turn in The City of Hazel Park
C.A. HULL- Cont'r.
S23 of 63174 A

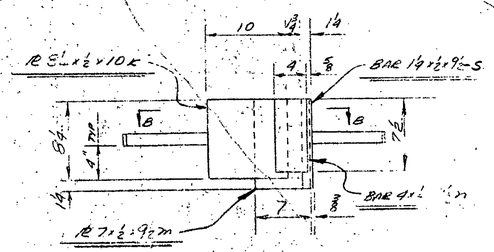
DATE 11-5-65	JOB NO.	SHEET
BY A.W.B.	R24557	4 of 6



ONE-EXP. JOINT REQ'D. AS SHOWN & NOTED MK SE7 1



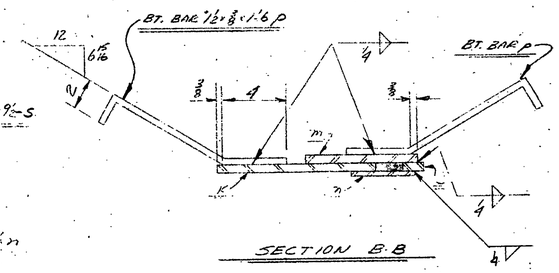
ANCHOR BAR DETAILS



ONE-EXP. JOINT REQ'D. AS SHOWN & NOTED MK SE12 R

ONE do do OPP. HAND MK SE12 L

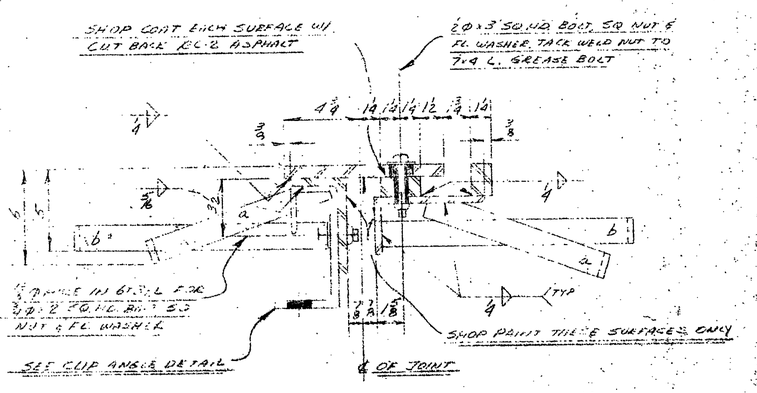
(BUNDLE TO SHIP)



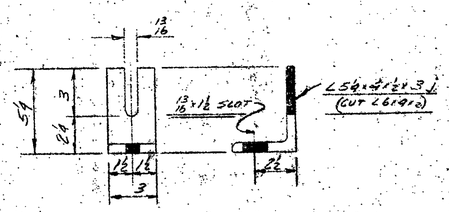
SECTION B-B

PLAIN MATERIAL

8-Bar 2 x 3/8 x 1'0" SFBI



SECTION A-A



CLIP ANGLE DETAIL

SEE SHEET # 1 FOR SHOP NOTES

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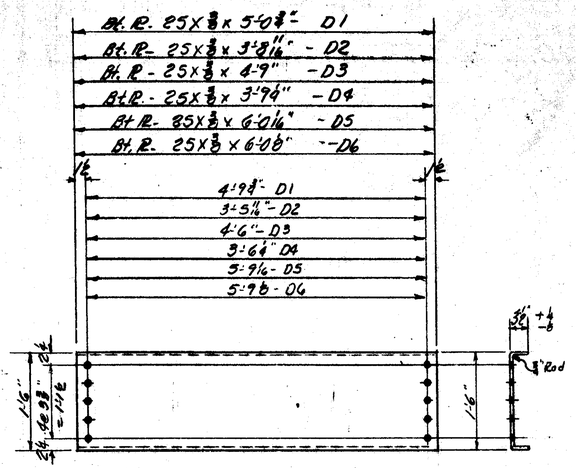
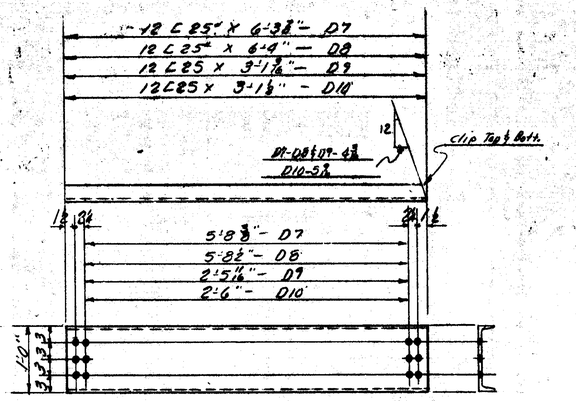
I-75 Crossing Southbound John R Left Turn in The City of Hazel Park
C.A. HULL - Contr
5 of 23 of 63174-A

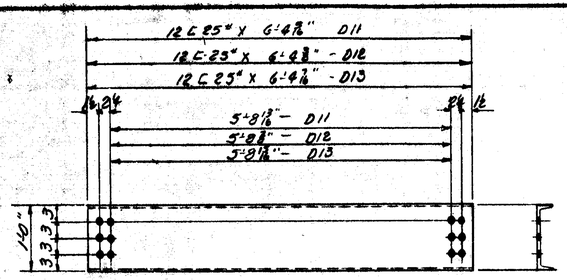
DATE	JOB NO.	SHEET
11-9-65	B24557	5 of 6
BY AWB		



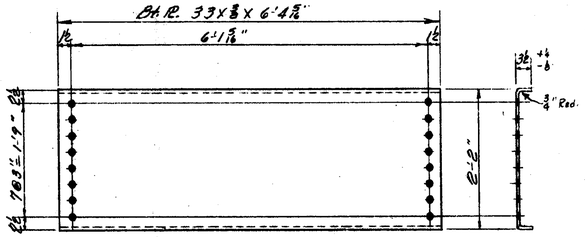
One Diaphragm Req'd (as shown & noted) Mark-6D1
One do do (do do) Mark-6D2
One do do (do do) Mark-6D3
One do do (do do) Mark-6D4
2- Diaphragms Req'd (do do) Mark-6D5
2- do do (do do) Mark-6D6



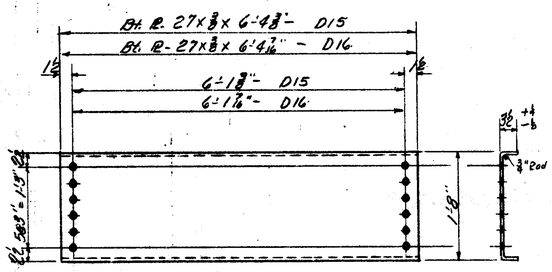
One - Diaphragm (as shown & noted) Mark-6D7
One - do do do) Mark-6D8
One - do do do) Mark-6D9
One - do do do) Mark-6D10



12 - Diaphragms (as shown & noted) Mark-6D11
2- do (do do) Mark-6D12
One - do (do do) Mark-6D13



12 - Diaphragms Req'd - Mark 6D14



4 - Diaphragms (as shown & noted) Mark 6D15
2 do (do do) Mark 6D16

High Strength Field Bolts.

Ship	Count	
245	234	7/8"Ø X 2" High Strength Bolt. Hy Hex Head & Nut
355	338	7/8"Ø X 2 1/4" do do do
600	572	7/8"Ø Hard Washers

Structural Field Bolts

4- 7/8"Ø X 2 1/4" Bolt- Sq. Head & Nut

Anchor Bolts

50- 1"Ø X 1'-6" Bolt- Sq Head Hex Nut & R. Washer

Dowels.

20 - Bar 1"Ø X 1'-0

See Shop Notes on Sheet #1

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I-75- Crossing Southbound John R.-
Left Turn in The City of Hazel Park
C.A. HULL - Contr.
S23 of 63174 A

DATE 11-9-65	JOB NO. R24557	SHEET 6 of 6
BY AWB		

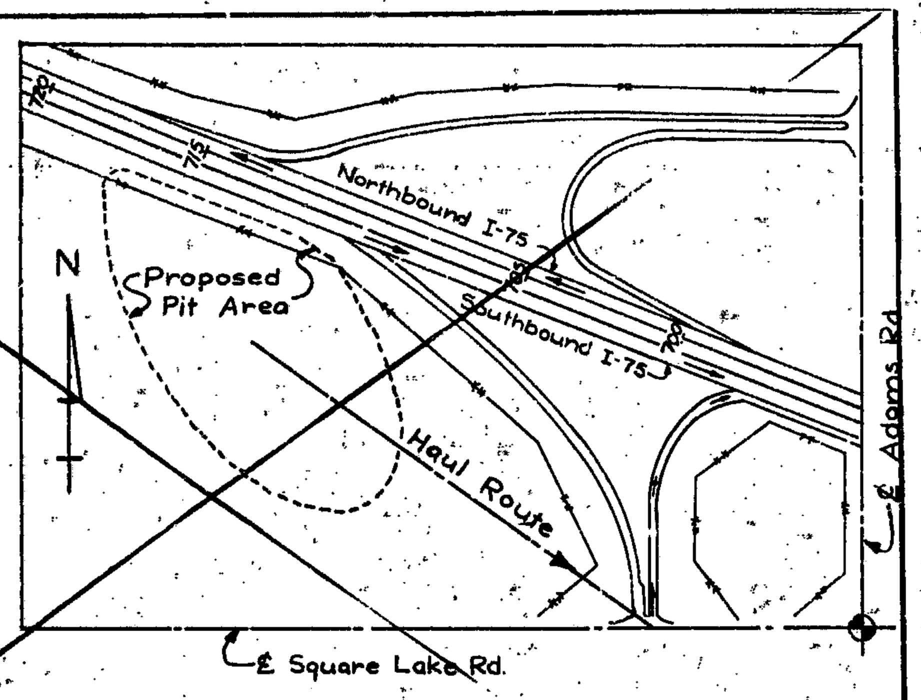
S24 of 63174

CS: 63174

ID: S24

I 63174A , C 52

PART 1	SERVICE RDS. & UTILITIES		
PART 2	PUMPHOUSE	D02 of 63174A	see Index of Drawings on next sheets (1A) & (1B)
PART 3	PUMPHOUSE	D03 of 63174A	
PART 4	BRIDGE	S22 of 63174A	
PART 5	BRIDGE	S23 of 63174A	
PART 6	BRIDGE	S24 of 63174A	
PART 7	BRIDGE	S25 of 63174A	
PART 8	BRIDGE	S26 of 63174A	
PART 9	BRIDGE	S27 of 63174A	
PART 10	PEDESTRIAN BRIDGE	P02 of 63174A	
PART 11	PEDESTRIAN BRIDGE	P03 of 63174A	
PART 12	PEDESTRIAN BRIDGE	P04 of 63174A	
PART 13	PEDESTRIAN BRIDGE	P06 of 63174A	



NOTES:
This pit contains sufficient quantities to satisfy all granular borrow requirements.
Other contractors may be using the pit during the life of the contract.
Excavation is to be carried out to lines and grades as directed by the Engineer.

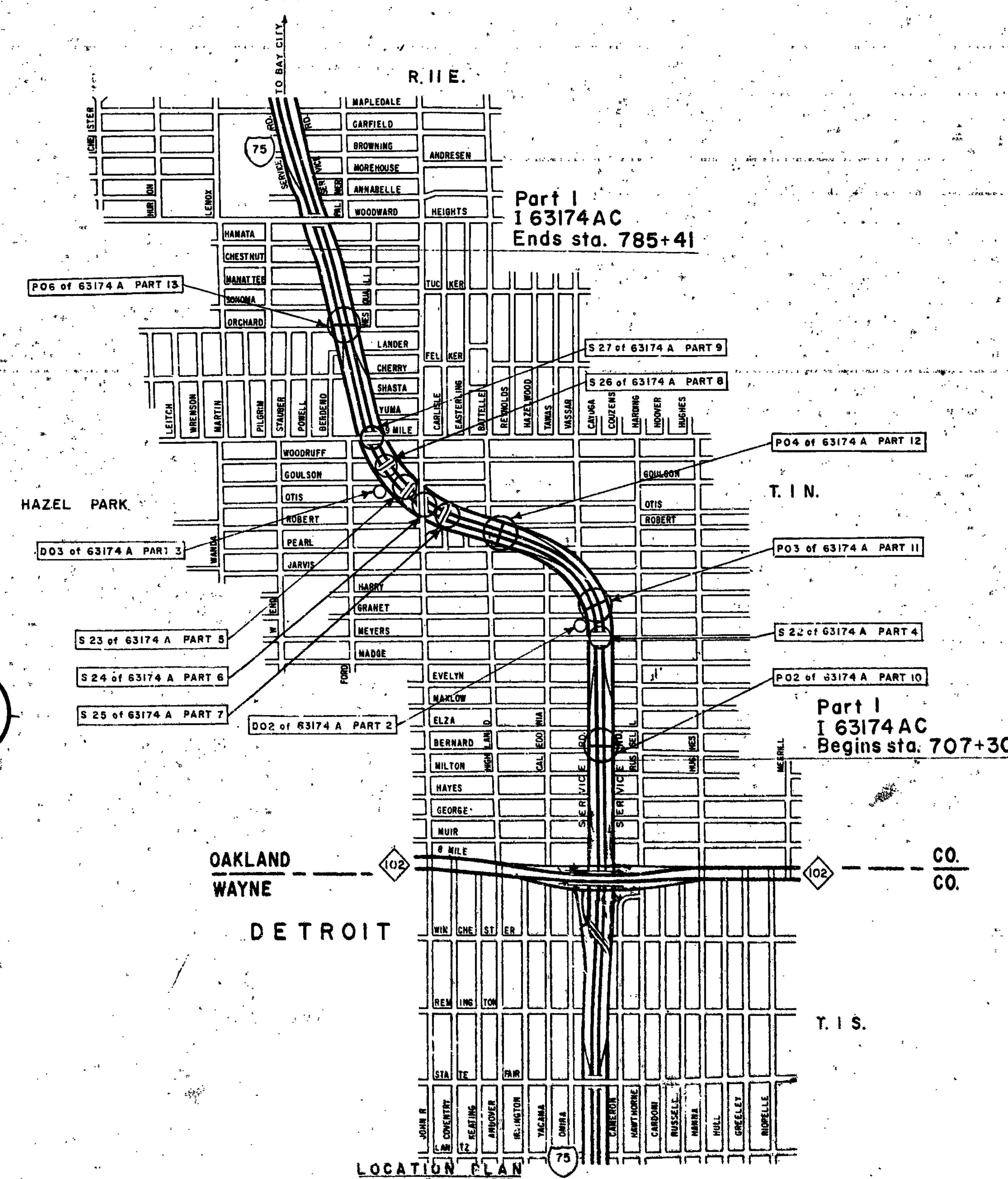
BORROW AREA

Location: That part of the S. ½ of the SE. ¼ of Sec. 1, T2N, R.10E., Bloomfield Township, Oakland County, that lies south of I-75, near the intersection of Adams Road and Square Lake Road.

MICHIGAN
STATE HIGHWAY DEPARTMENT

PLANS OF PROPOSED BRIDGES

MICHIGAN PROJECT I-75-2(84)60
STATE PROJECT I 63174A, C-52
DETROIT — BAY CITY ROAD
OAKLAND COUNTY
CITY OF HAZEL PARK



GENERAL NOTES

Except where otherwise indicated on these Plans or in the Proposal and Supplemental Specifications contained therein, all materials and workmanship shall be in accordance with the Michigan State Highway Department's Standard Specifications for Road and Bridge Construction, 1963 Edition.

The design of these structures is based on the Michigan State Highway Department's Specifications for the design of Highway Bridges, 1958 Edition. Loading and deflections are as indicated in Table below.

The character of all materials and the extent thereof as shown by borings has been obtained by methods and from sources believed to be reliable. The exactness of this information is, however, in no case guaranteed. Boring samples are on file in the Design Office at Lansing and are available for inspection.

All exposed concrete corners shown square on the Plans shall be beveled with 1/2" triangular moldings except as otherwise noted.

The stationing as shown on these Plans for the intersection of the centerline of bridge and roadway is believed to be correct. It shall, however, be checked at the time of starting construction and if the stationing shown on the plans is incorrect it shall be reported to the Design Office at Lansing and the structure shall be staked out using the actual intersection of the centerline of bridge and roadway as the control point.

STRUCTURE	DESIGN LIVE LOADINGS	ALLOW. LIVE LOAD + IMPACT DEFLECTION	
		SIMPLE OR CONT.	CANT. ARM
S 22 OF 63174A	H15-44	L/800	L/300
S 23 OF 63174A	H20-44	L/800	
S 24 OF 63174A	H20-44	L/800	L/300
S 25 OF 63174A	H20-44	L/800	
S 26 OF 63174A	H20-44	L/800	
S 27 OF 63174A	H20-44	L/800	L/300

L denotes span length

CONSTRUCTED AS PER PLANS

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE

NOTE:
Where the following items are called for on the Plans, they are to be constructed according to the Standard Plan given below opposite each item, unless otherwise indicated

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE
SP26	STANDARD SLOPE PAVING DETAILS

CONTRACT FOR

DIVISION APPROVAL

CHECKED — ENGINEER OF DESIGN — 12-18-64 DATE

RECOMMENDED FOR APPROVAL — TRAFFIC ENGINEER — 12-18-64 DATE

RECOMMENDED FOR APPROVAL — ENGINEER OF BRIDGE & ROAD DESIGN — 12-30-64 DATE

OFFICES OF DESIGN & CONSTRUCTION

APPROVED — CONSTRUCTION ENGINEER — 1/4/65 DATE

APPROVED — CHIEF OF DESIGN — 1/5/65 DATE

STATE HIGHWAY DEPARTMENT APPROVAL

APPROVED BY — STATE HIGHWAY COMMISSION — DIRECTOR OF ENGINEERING - CHIEF ENGINEER — 1/5/65 DATE

PLANS PREPARED BY MICHIGAN STATE HIGHWAY DEPARTMENT

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED [redacted]
DIVISION ENGINEER DATE

CONTROL SECTION	FEDERAL PROJECT	SHEET NO.
		1

STATE PROJECT NO. [redacted] S24 OF 63174A

[redacted] S24, [redacted] OF 63174 A

PLAN INDEX

	SHEET NO.	DESCRIPTION
	1	TITLE SHEET
	1A & 1B	INDEX SHEETS
S22 OF 63174A PART 4	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	ABUTMENT A & B DETAILS
	8	PIER 1 & 3 DETAILS
	9	PIER 2 DETAILS
	10	SUPERSTRUCTURE DETAILS-SPANS 1 & 2
	11	SUPERSTRUCTURE DETAILS-SPANS 3 & 4
	12	SUPERSTRUCTURE DETAILS
	13	SUPERSTRUCTURE DETAILS
	14	UTILITY DETAILS
	15	STRUCTURAL STEEL DETAILS
	16	STRUCTURAL STEEL DETAILS
	17	BEARING DETAILS
	18	METAL EXPANSION JOINT DETAILS
	19	STEEL REINFORCEMENT DETAILS

	SHEET NO.	DESCRIPTION
S23 OF 63174A PART 5	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	ABUTMENT A DETAILS
	8	ABUTMENT A DETAILS
	9	ABUTMENT B DETAILS
	10	PIER 1 & 3 DETAILS
	11	PIER 2 DETAILS
	12	SUPERSTRUCTURE DETAILS
	13	SUPERSTRUCTURE DETAILS
	14	SUPERSTRUCTURE DETAILS
	15	SUPERSTRUCTURE DETAILS
	16	UTILITY DETAILS
	17	STRUCTURAL STEEL DETAILS
	18	STRUCTURAL STEEL DETAILS
	19	STRUCTURAL STEEL DETAILS
	20	BEARING DETAILS
	21	SHEAR DEVELOPER DETAILS
	22	METAL EXPANSION JOINT DETAILS
	23	STEEL REINFORCEMENT DETAILS

	SHEET NO.	DESCRIPTION
S24 OF 63174A PART 6	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	GENERAL PLAN OF STRUCTURE
	6	BILL OF MATERIAL
	7	ABUTMENT DETAILS
	8	ABUTMENT DETAILS
	9	PIER 1 DETAILS
	10	PIER 3 DETAILS
	11	PIER 1 & 3 DETAILS
	12	PIER 2 DETAILS
	13	PIER 2 DETAILS
	14	SUPERSTRUCTURE DETAILS
	15	SUPERSTRUCTURE DETAILS
	16	SUPERSTRUCTURE DETAILS
	17	SUPERSTRUCTURE DETAILS
	18	SUPERSTRUCTURE DETAILS
	19	UTILITY DETAILS
	20	STRUCTURAL STEEL DETAILS
	21	STRUCTURAL STEEL DETAILS
	22	STRUCTURAL STEEL DETAILS
	23	BEARING DETAILS
	24	SHEAR DEVELOPER DETAILS
	25	METAL EXPANSION JOINT DETAILS
	26	STEEL REINFORCEMENT DETAILS

	SHEET NO.	DESCRIPTION
S25 OF 63174A PART 7	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	BILL OF MATERIAL
	6	ABUTMENT A DETAILS
	7	ABUTMENT B DETAILS
	8	PIERS 1 & 3 DETAILS
	9	PIER 2 DETAILS
	10	SUPERSTRUCTURE DETAILS
	11	SUPERSTRUCTURE DETAILS
	12	SUPERSTRUCTURE DETAILS
	13	UTILITY DETAILS
	14	STRUCTURAL STEEL DETAILS
	15	STRUCTURAL STEEL DETAILS
	16	STRUCTURAL STEEL DETAILS
	17	SHEAR DEVELOPER DETAILS
	18	BEARING DETAILS
	19	METAL EXPANSION JOINT DETAILS
	20	STEEL REINFORCEMENT DETAILS

	SHEET NO.	DESCRIPTION
S26 OF 63174A PART 8	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	BILL OF MATERIAL
	6	ABUTMENT DETAILS
	7	ABUTMENT DETAILS
	8	PIER DETAILS
	9	PIER DETAILS
	10	SUPERSTRUCTURE DETAILS
	11	SUPERSTRUCTURE DETAILS
	12	SUPERSTRUCTURE DETAILS
	13	SUPERSTRUCTURE DETAILS
	14	UTILITY DETAILS
	15	STRUCTURAL STEEL DETAILS
	16	STRUCTURAL STEEL DETAILS
	17	STRUCTURAL STEEL DETAILS
	18	METAL EXPANSION JOINT DETAILS
	19	STEEL REINFORCEMENT DETAILS

	SHEET NO.	DESCRIPTION
S27 OF 63174A PART 9	2	GENERAL PLAN OF SITE
	3	LOG OF BORINGS
	4	GENERAL PLAN OF STRUCTURE
	5	BILL OF MATERIAL
	6	ABUTMENT DETAILS
	7	PIER DETAILS
	8	PIER DETAILS
	9	PIER DETAILS
	10	SUPERSTRUCTURE DETAILS
	11	SUPERSTRUCTURE DETAILS
	12	SUPERSTRUCTURE DETAILS
	13	SUPERSTRUCTURE DETAILS
	14	SUPERSTRUCTURE DETAILS
	15	STRUCTURAL STEEL DETAILS
	16	STRUCTURAL STEEL DETAILS
	17	METAL EXPANSION JOINT DETAILS
	18	STEEL REINFORCEMENT DETAILS
	R11J R12H	BRIDGE RAILING, BAR CHAIR, MOLDING AND BEVEL DETAILS

	SHEET NO.	DESCRIPTION
D02 OF 63174A PART 2	2	GENERAL PLAN OF SITE
	3	GENERAL PLAN OF STRUCTURE
	4	BILL OF MATERIAL
	5	SUMP DETAILS
	6	SUMP DETAILS
	7	RAKE ROOM DETAILS
	8	MACHINE ROOM & SURGE TANK DETAILS
	9	MACHINE ROOM WALLS DETAILS
	10	ROOF DETAILS
	11	BEAMS & MISCELLANEOUS DETAILS
	12	MISCELLANEOUS DETAILS
	13	MECHANICAL & ELECTRICAL DETAILS
	14	STEEL REINFORCEMENT DETAILS

	SHEET NO.	DESCRIPTION
D03 OF 63174A PART 3	2	GENERAL PLAN OF SITE
	3	GENERAL PLAN OF STRUCTURE
	4	BILL OF MATERIAL
	5	PUMPHOUSE DETAILS
	6	PUMPHOUSE DETAILS
	7	PUMPHOUSE DETAILS
	8	PUMPHOUSE DETAILS
	9	PUMPHOUSE DETAILS
	10	PUMPHOUSE DETAILS
	11	MISCELLANEOUS DETAILS
	12	MECHANICAL & ELECTRICAL DETAILS
	13	STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

APPROVED C. D. Beukema 12/18/64
ASS'T. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Trahey 12.18.64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	H.L.M.	6-9-64
TRACED BY		
CHECKED BY	AQS	[illegible]
SHEET 1A OF 26		

PLAN INDEX

SHEET NO.	DESCRIPTION
P02 OF 63174A PART 10	
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	PIERS 1 & 5 DETAILS
15	PIERS 2, 3 & 4 DETAILS
16	SUPERSTRUCTURE DETAILS
17	STRUCTURAL STEEL DETAILS
18	STRUCTURAL STEEL DETAILS
19	MISCELLANEOUS DETAILS
20	RAILING DETAILS-RAMP A
21	RAILING DETAILS-RAMP B
22	RAILING DETAILS-SPANS 1, 2, 3 & 4
23	STEEL REINFORCEMENT DETAILS
P03 OF 63174A PART 11	
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	RAMP B DETAILS
16	PIERS 1 & 5 DETAILS
17	PIERS 2, 3 & 4 DETAILS
18	SUPERSTRUCTURE DETAILS
19	STRUCTURAL STEEL DETAILS
20	STRUCTURAL STEEL DETAILS
21	MISCELLANEOUS DETAILS
22	RAILING DETAILS-RAMP A
23	RAILING DETAILS-RAMP B
24	RAILING DETAILS-SPANS 1, 2, 3 & 4
25	STEEL REINFORCEMENT DETAILS

P04 OF 63174A PART 12	
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	PIERS 1 & 5 DETAILS
16	PIERS 2, 3 & 4 DETAILS
17	SUPERSTRUCTURE DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	MISCELLANEOUS DETAILS
21	RAILING DETAILS-RAMP A
22	RAILING DETAILS-RAMP B
23	RAILING DETAILS-SPANS 1, 2, 3 & 4
24	STEEL REINFORCEMENT DETAILS
25	EXISTING PUMPHOUSE DETAILS
P06 OF 63174A PART 13	
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	PIERS 1 & 5 DETAILS
16	PIERS 2, 3 & 4 DETAILS
17	SUPERSTRUCTURE DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	MISCELLANEOUS DETAILS
21	RAILING DETAILS-RAMPS A & B
22	RAILING DETAILS-SPANS 1, 2, 3 & 4
23	STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

APPROVED C.D. Beukema 12/18/64
ASS'T DESIGN SUPERVISING ENGINEER

APPROVED J. C. Tralor 12.18.64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Goelsoh	6-11-64
DRAWN BY	H.L.M.	11-2-64
TRACED BY		
CHECKED BY	A.L.S.	11-12-64
SHEET 18 OF 26		

[redacted] (S24) [redacted] OF 63174 A

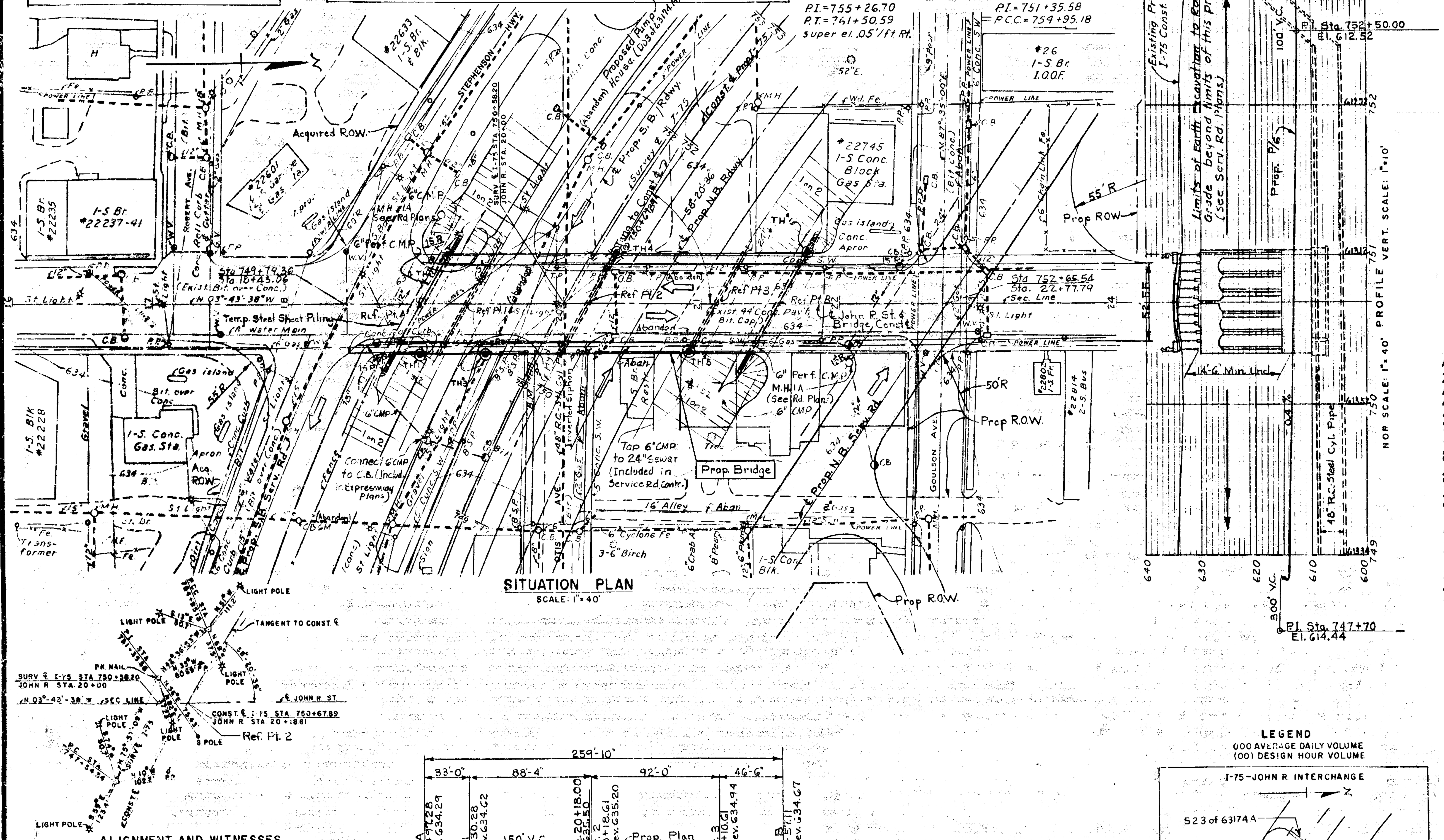
BENCH MARKS	
B.M.#87	El. 636.66
Arrow on hydrant N.E. corner of 9 Mile and Stephenson 6.0' Rt. of sta. 761+48	
B.M.#88	El. 635.94
Arrow on hydrant S.E. corner of Otis and John R 6.5' Rt. of sta. 750+:3	

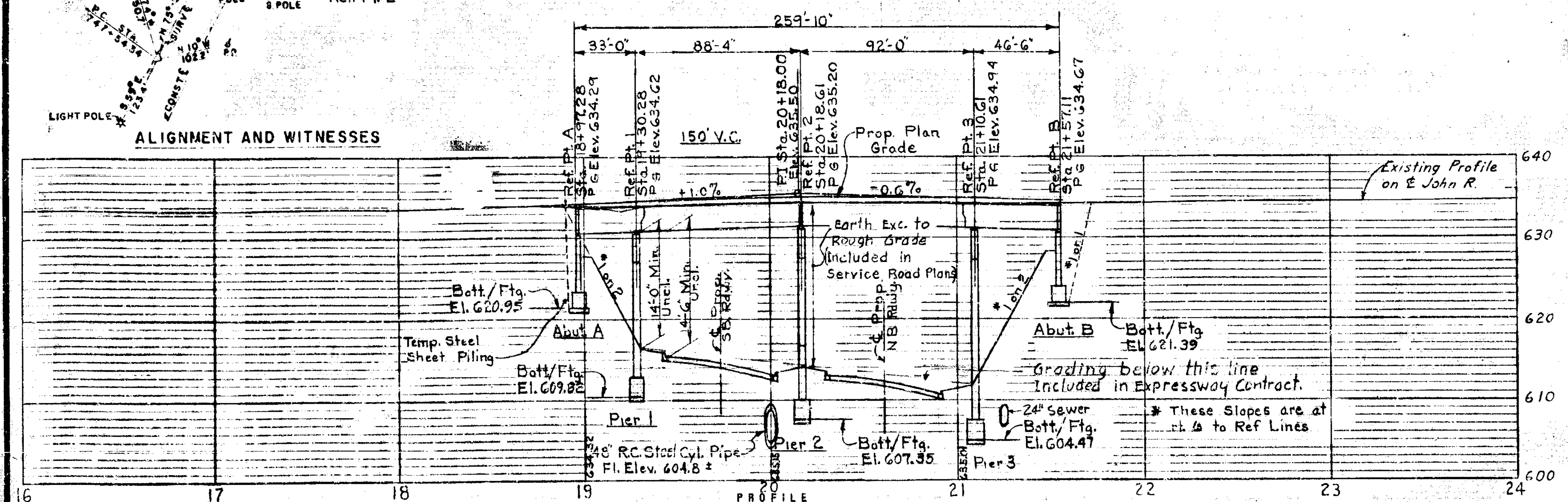
UTILITIES

Power – Detroit Edison Co., 2000 2nd St., Detroit, at the bridge site.
Telephone – Michigan Bell Telephone Co., 1365 Cass, Detroit, at the bridge site.
Gas & Oil – Consumers Power Co., Jackson, (gas and oil lines), along the east side of John R.
Water – City of Hazel Park has a water main along the east side of John R.

Curve Data (Const. ℄)
Δ = 60°-20'-44" Rt.
D = 4°-20' (Arc Def.)
R = 1,322.21'
T = 768.70'
L = 1,392.59'
E = 207.22'
P.C. = 747+58.00
P.I. = 755+26.70
P.T. = 761+50.59
super el. .05'/ft. Rt.

Curve Data (Survey ℄)
Δ = 33°-20'-16" Rt.
D = 4°-30' (Arc Def.)
R = 1,273.24'
T = 381.24'
L = 740.84'
E = 55.84
P.C. = 747+54.34
P.I. = 751+35.58
P.C.C. = 759+95.18





NOTES:

The work covered by these plans includes construction of the proposed bridge, placing sand-gravel material in front and behind abutments together with abutment footing drains, and placing slope paving to the limits shown.

Work not listed above (with the exception of utility relocations and building and fence removals) is either included in Service Road plans which are a part of this contract or is included in a future contract for final Expressway Grading, Drainage Structures and paving.

Work on this contract is not to be initiated until Stephenson Highway traffic has been routed on proposed I-75 Service Roads at the site, and provisions have been made for handling cross-road traffic (See Service Road Plans).

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.

Tree removal, which is included in Service Road Contract, and relocation of utilities is to be done prior to starting work on the structure.

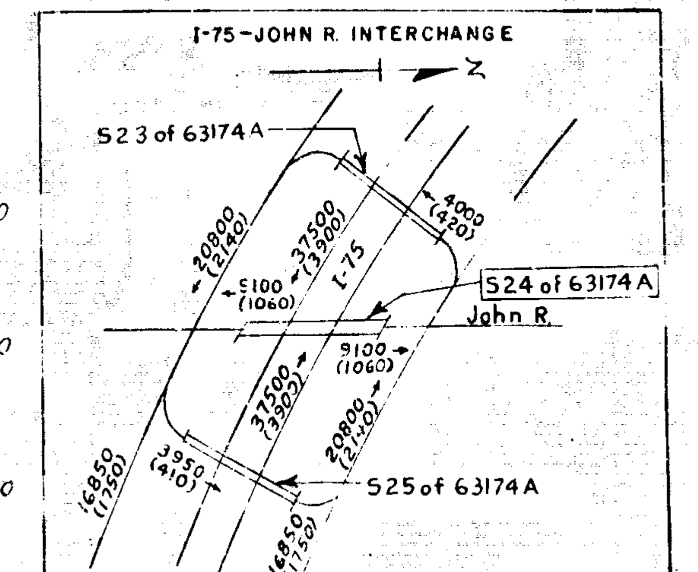
Topography shown hereon represents conditions existing at the time the field survey was made. However, these conditions will have been materially altered by the operation of others before work on this structure will be initiated.

Where substructure units are located in areas presently occupied by basements, loose or unsuitable material shall be removed and replaced with granular backfill up to the bottom of proposed sub-footing and compacted to 100% maximum weight. The pay limit for sand-gravel material as well as foundation excavation in these areas is as shown on the section - foundation in cut in basement areas. Any removal of basement walls required to conform to the section shown will be considered as included with foundation excavation.

The Bridge Contractor shall be responsible for providing adequate protection of bottoms and walls of the pier footing excavations against damage by personnel, equipment and water. (Applicable for piers adjacent to expressway.

Piers shall be backfilled to 95% density.

LEGEND
000 AVERAGE DAILY VOLUME
(00) DESIGN HOUR VOLUME



1978 ESTIMATED TRAFFIC DISTRIBUTION

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 CROSSING JOHN R. IN THE CITY OF HAZEL PARK

GENERAL PLAN OF SITE

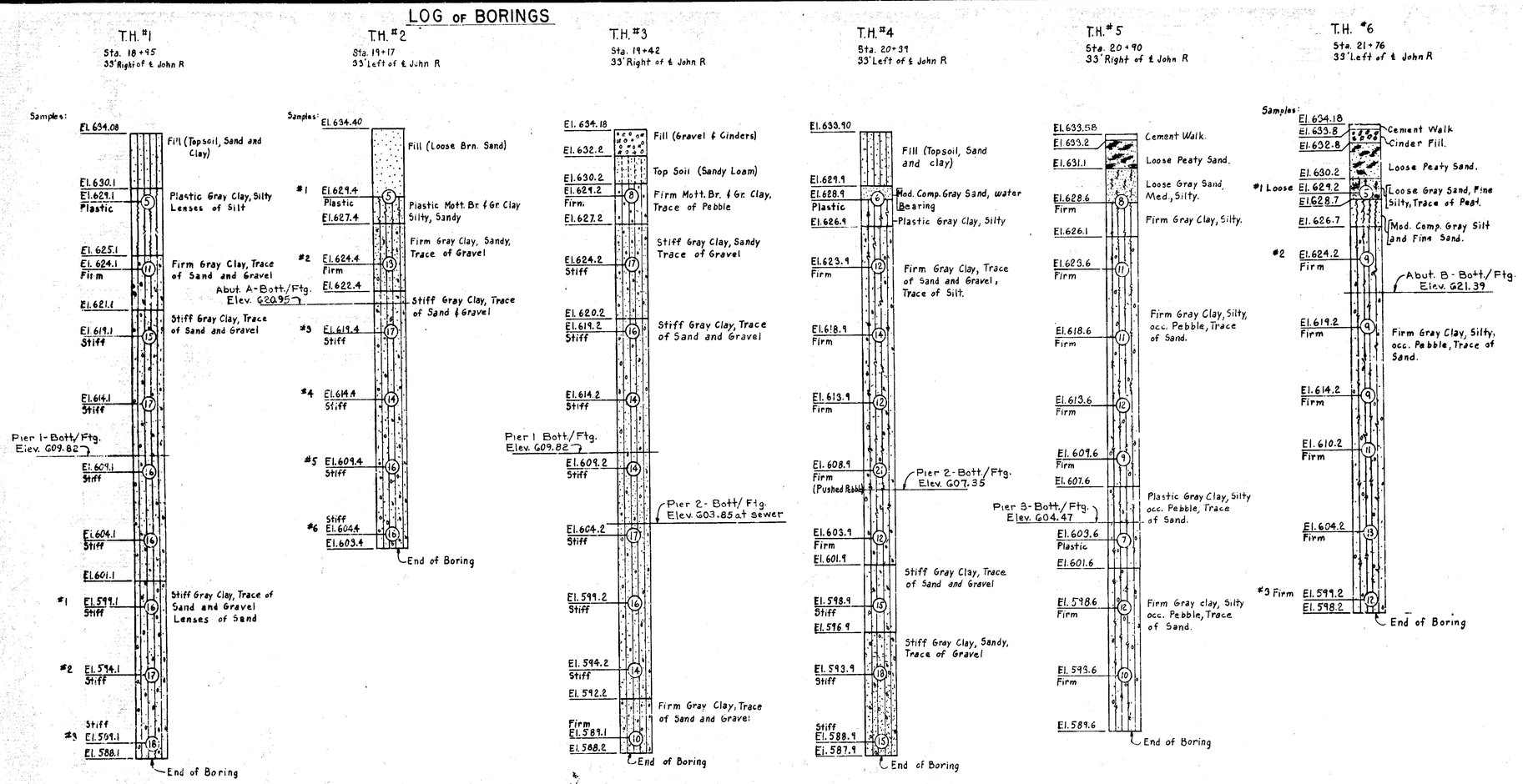
APPROVED C. D. Beukema 12/18/64 ASS'T DESIGN SUPERVISING ENGINEER

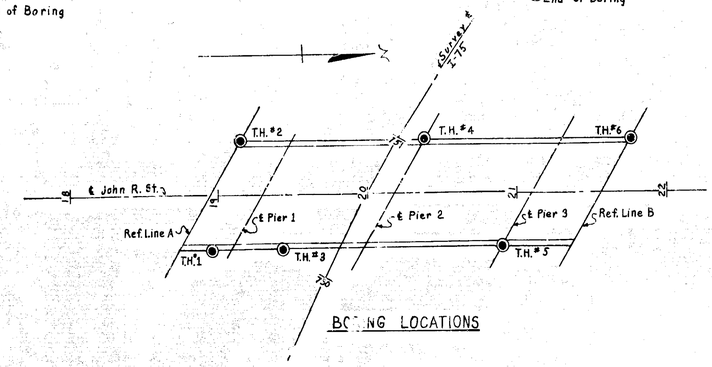
APPROVED J. C. Trahey 12.18.64 DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	CAF	[illegible]
TRACED BY	H.L.M.	4-18-63
CHECKED BY	AO [illegible]	11-18-63
SHEET 2 OF		

S24 OF 63174A

LOG OF BORINGS





BORING LOCATIONS

NOTES:

Test Holes 1,2,3,&4

(00) Number of blows to penetrate 12" with 30" free fall of 140# hammer using split spoon sampler 2" O.D. & 1⅜" I.D.

Consistency determined by inspection of samples and substantiated by soils resistance to B-52 Mobile Drill.

Test Holes 5 & 6

(00) Number of blows required for the 140# weight falling 30" to drive sampler 12".

Consistency determined by inspection of samples and substantiated by soils resistance to casing and jet rod.

Samples obtained with 1.75" O.D. by 1.375" I.D. Split Spoon Sampler.

MICHIGAN STATE HIGHWAY DEPARTMENT

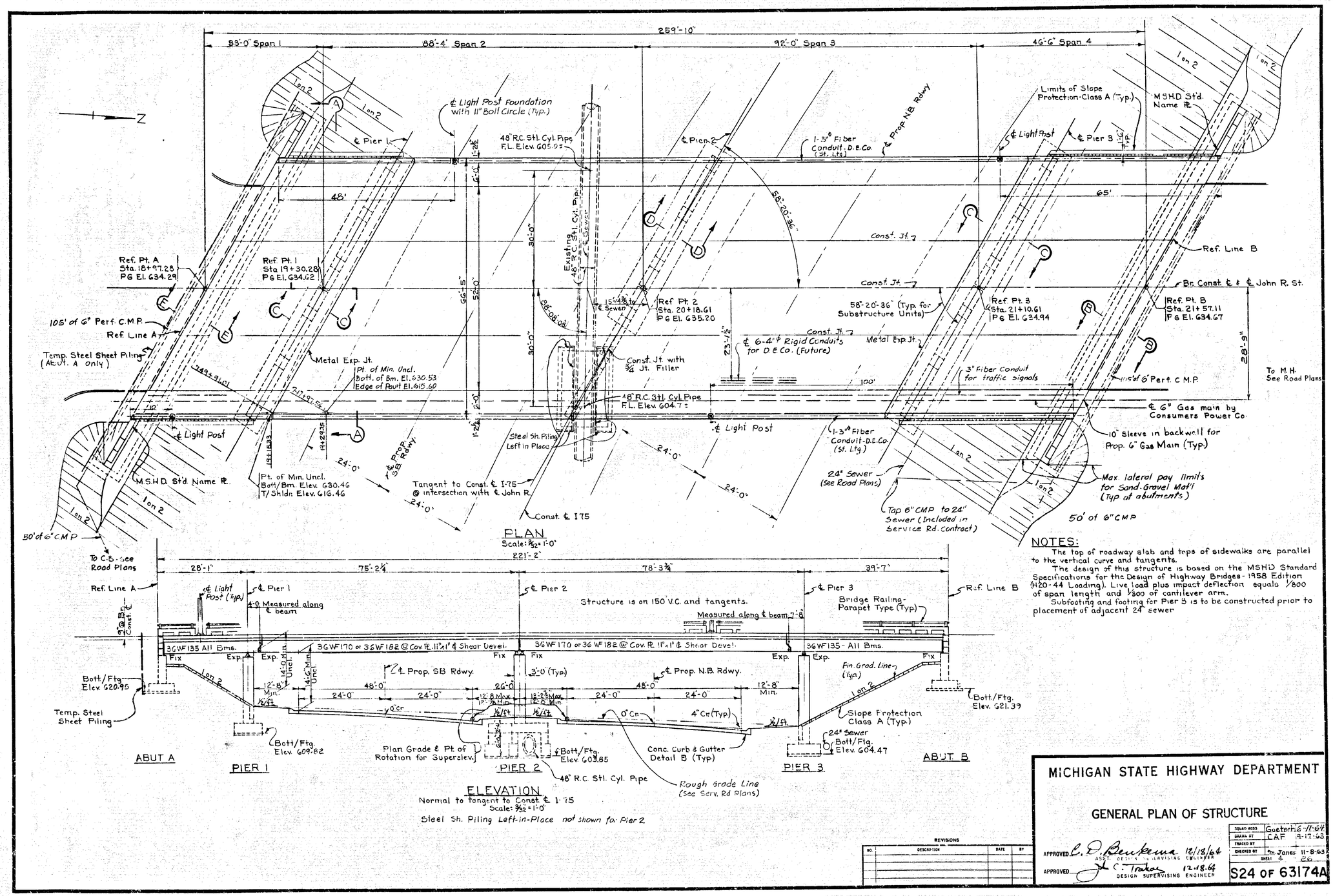
I-75 CROSSING JOHN R IN THE CITY OF HAZEL PARK

LOG OF BORINGS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch 2-11-64
DRAWN BY	W.L.W. 8-16-63
TRACED BY	
CHECKED BY	M. Jones 11-8-63
SHEET	3 OF 26

S24 OF 63174A



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

ELEVATION
Normal to Tangent to Const. ℄ I-75
Scale: 3/32" = 1'-0"

Steel Sh. Piling Left-in-Place not shown for Pier 2

NOTES:

The top of roadway slab and tops of sidewalks are parallel to the vertical curve and tangents.

The design of this structure is based on the MSHD Standard Specifications for the Design of Highway Bridges - 1958 Edition (H20-44 Loading). Live load plus impact deflection equals 1/800 of span length and 1/300 of cantilever arm.

Subfooting and footing for Pier 3 is to be constructed prior to placement of adjacent 24" sewer

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

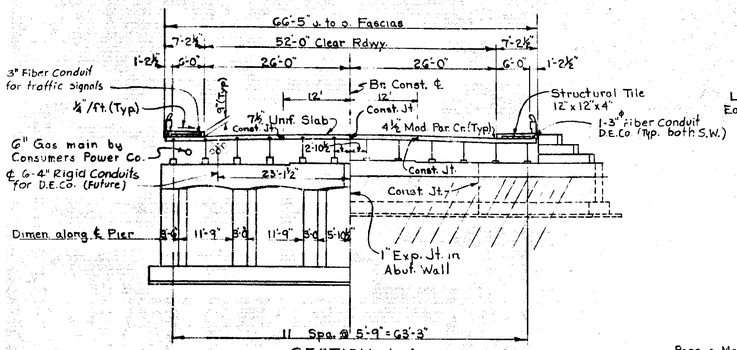
GENERAL PLAN OF STRUCTURE

APPROVED C. D. Benkema 12/18/64
ASST. DESIGN SUPERVISING ENGINEER

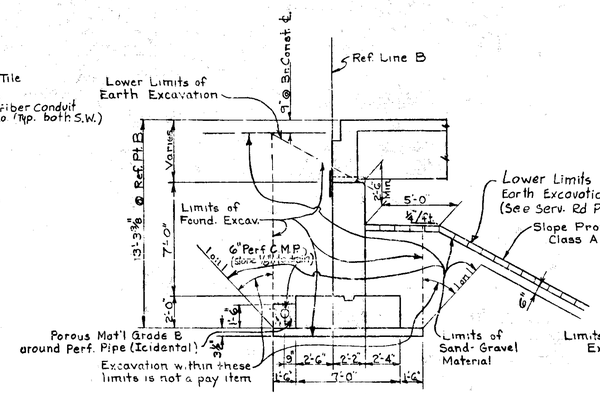
APPROVED J. C. Trahan 12.18.64
DESIGN SUPERVISING ENGINEER

SQUAD HOSS	Guetech 6-11-64
DRAWN BY	CAF 9-17-63
TRACED BY	
CHECKED BY	Jm Jones 11-8-63
SHEET	4 26

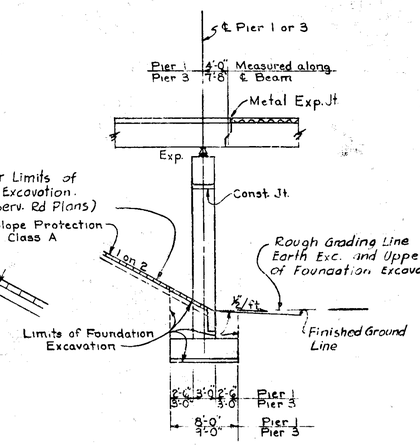
S24 OF 63174A



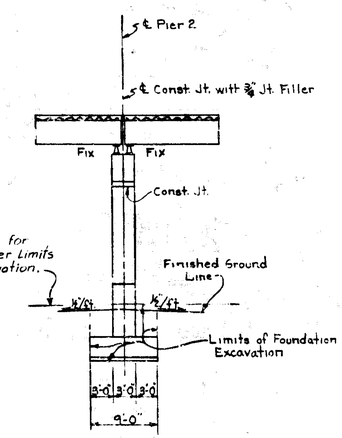
SECTION A-A
Scale: 3/32" = 1'-0"



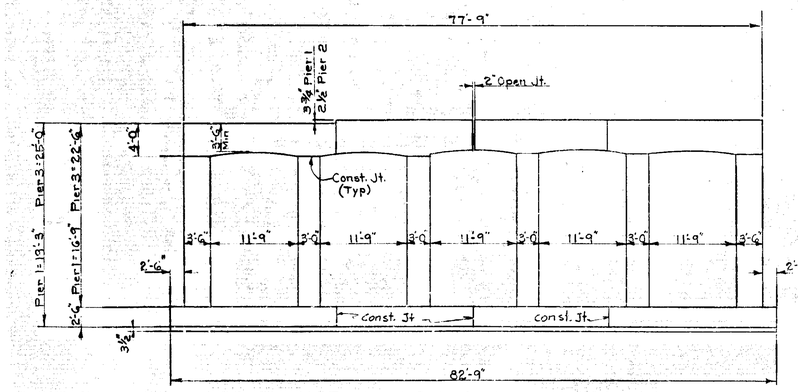
SECTION B-B
Scale: ¼" = 1'-0"



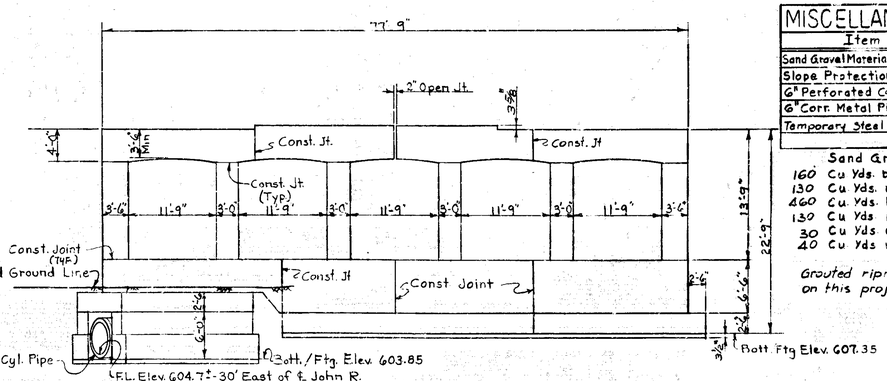
SECTION C-C
Scale: ⅛" = 1'-0"



SECTION D-D
Scale: ⅛" = 1'-0"



PIER 1 & 3 ELEVATION
Scale: ⅛" = 1'-0"

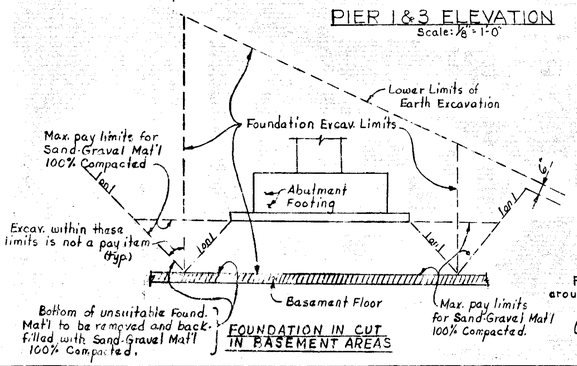


PIER 2 ELEVATION
LOOKING SOUTH
Scale: ⅛" = 1'-0"
Steel Sh. Piling Left-in-Place not shown.

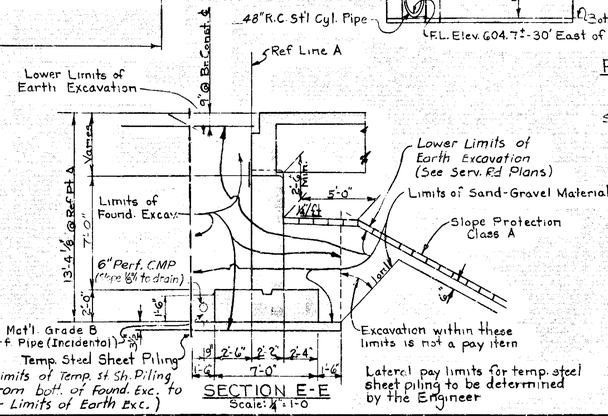
MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Sand Gravel Material (Comp.-in-Place)	Cu. Yds.	950
Slope Protection Class A	Sq. Yds.	662
6" Perforated Corr. Metal Pipe	Lin. Ft.	210
6" Corr. Metal Pipe	Lin. Ft.	120
Temporary Steel Sheet Piling	Sq. Ft.	1750

Sand Gravel Material includes
160 Cu. Yds. behind Abutment A
130 Cu. Yds. in front of Abutment A
460 Cu. Yds. behind Abutment B
130 Cu. Yds. in front of Abutment B
30 Cu. Yds. under Slope Protection-Span-1
40 Cu. Yds. under Slope Protection-Span-4

Grouted riprap shall not be used on this project.



FOUNDATION IN CUT IN BASEMENT AREAS



SECTION E-E
Scale: ¼" = 1'-0"

REVISIONS			
NO	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

GENERAL PLAN OF STRUCTURE

APPROVED C. D. Benkema 12/18/64
ASST. DESIGN SUPERVISING ENGINEER
APPROVED J. C. Tobias 12.18.64
DESIGN SUPERVISING ENGINEER

SQUARED BY	Gaetach	6-11-64
DRAWN BY	C.A.F.	4-17-63
TRACED BY		
CHECKED BY	M. Jones	11-8-63
SHEET	5 - 20	

S24 OF 63174A

ITEM	UNIT	QUANTITY	DATE	AS CONST.	AUTH.
Unclassified Excavation	Cu. Yds	1,460	3-20-68	1471	BF
Steel Sheet Piling Left in Place	Sq. Ft.	600	3-20-68	630	BF
Temporary Steel Sheet Piling	Sq. Ft.	1,750	3-20-68	1501	BF
Grade A (6A) Concrete - Substructure	Cu Yds.	395.1		393.	
Grade A (6AA) Concrete - Substructure	Cu. Yds	368.7		368.7	
Protective Sealant Coating for Concrete	Sq. Ft.	233	3-20-68	214	1001 & 1002 & BF
Grade A (6A?) Concrete Superstructure	Cu. Yds.	547.6		547.6	
Water Reducing Retarding Admixture	Gals.	67	3-20-68	0	BF
Steel Reinforcement	Lbs.	202,379	3-20-68	202,017	BF
Structural Steel - Furnishing & Fabricating	Lbs.	635,000	3-20-68	633,357	BF
Structural Steel - Erection	Lbs.	635,000	3-20-68	633,357	BF
Shear Developers	Lump Sum	Lump Sum		L.S.	
Structural Tile 12"x12"x4"	Each	2490		2490	
1/4 Joint Filler	Sq Ft.	8		8	
1/2 Joint Filler	Sq Ft.	218	3-20-68	235	BF
3/4 Joint Filler	Sq. Ft	97	3-20-68	93	BF
1" Joint Filler	Sq. Ft.	30	3-20-68	28	BF
Hot-Poured Rubber - Asphalt Type Filler	Lin. Ft.	233		233	
Joint Waterproofing	Sq Ft.	430	3-20-68	439	BF
Copper	Lbs.	267	3-20-68	239	BF
Field Painting	Lump Sum	Lump Sum		L.S.	
Bridge Railing - Parapet Type	Lin. Ft.	319.6	3-20-68	313.3	BF
3" Fiber Conduit	Lin. Ft.	260	3-20-68	261	BF
6" Corrugated Metal Pipe	Lin. Ft.	100	3-20-68	88.3	BF
6" Perforated Corrugated Metal Pipe	Lin. Ft.	210	3-20-68	212.8	BF
Slope Protection - Class A	Sq. Yds.	662	3-20-68	662.4	BF
Sand Gravel Material (Comp.-in-Place)	Cu. Yds.	950	3-20-68	944.3	BF
10" Pipe Sleeves - Placed	Each	2		2	

PLAN EXTRAS

DATE	DESCRIPTION	AUTH.	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL
2-9-66	SPEC. SUPERSTRUCTURE CONC. PROT.	2001	F.A.	900.00	900.00
4-21-66	SPECIAL CONC. PROTECTION	2002	CU. YD.	3983.05	3983.05
4-21-66	ERECT TEMP. ALUM. RAIL	2003	L.FT.	181.86	181.86
7-15-66	SPEC. SUPERSTRUCTURE CONC. PROT.	2004	F.A.	206.65	206.65

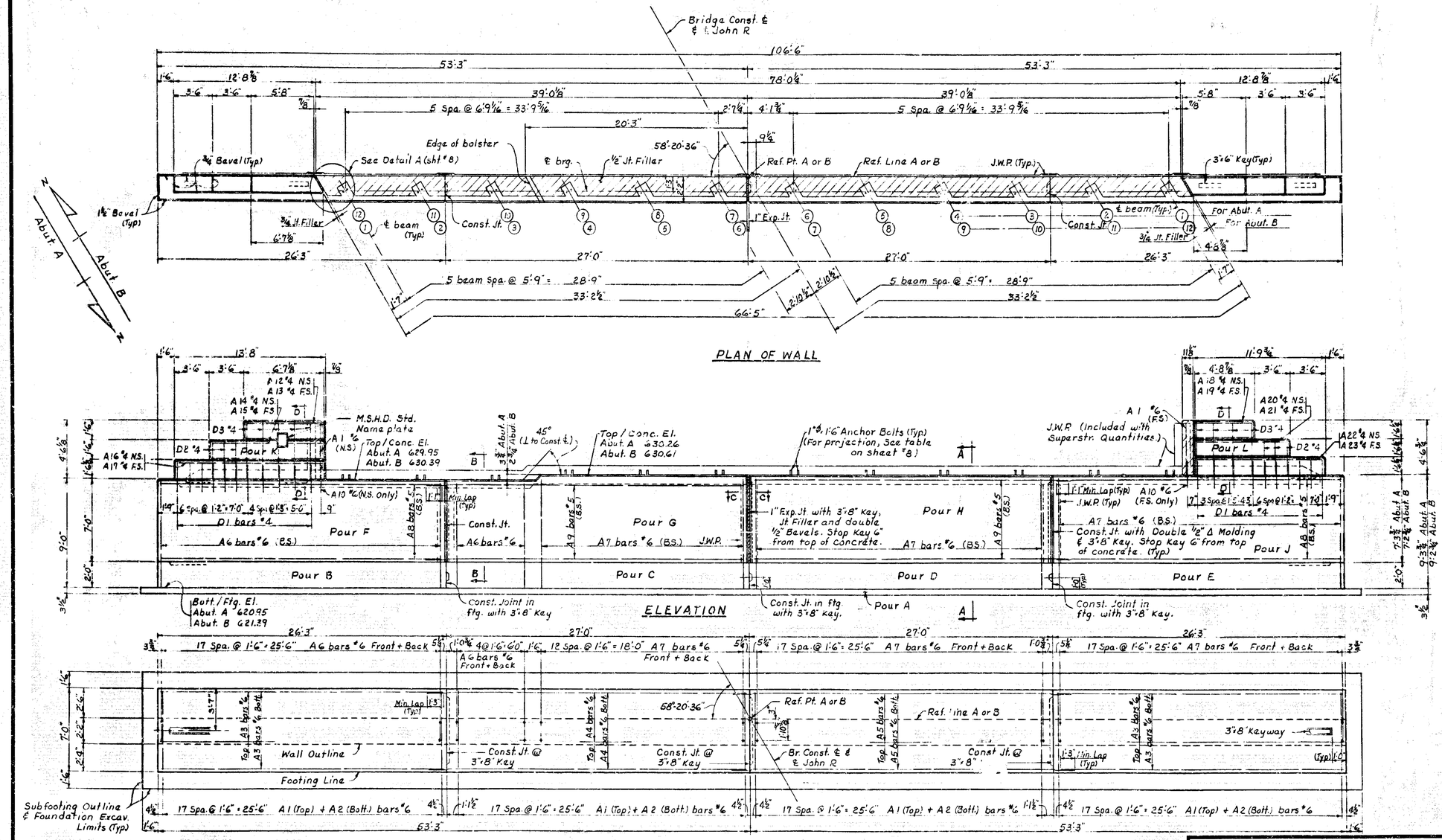
CHECKED
CONTRACT SECTION
DATE 6/14/68

MICHIGAN STATE HIGHWAY DEPARTMENT

BILL OF MATERIAL

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY		
TRACED BY	H.L.M.	6-10-64
CHECKED BY	I.N.I.	6-11-64
SHEET 6 OF 26		

I 75-2 (84) S24 OF 63174 A



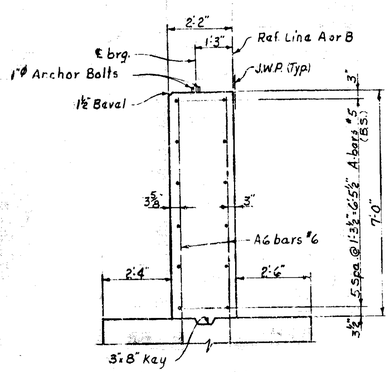
MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT DETAILS

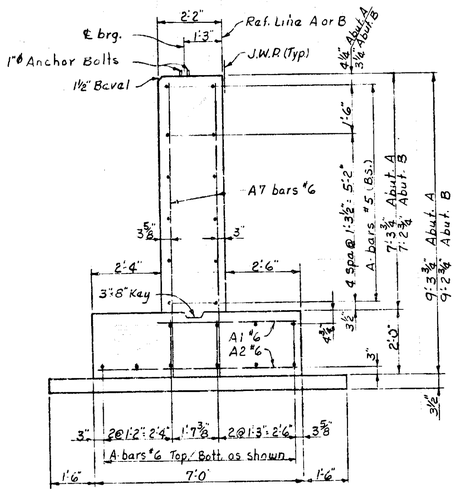
REVISIONS		
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch 6-11-64
DRAWN BY	HQS 4-20-64
TRACED BY	
CHECKED BY	W. Jones 6-11-64
SHEET	7 of 26

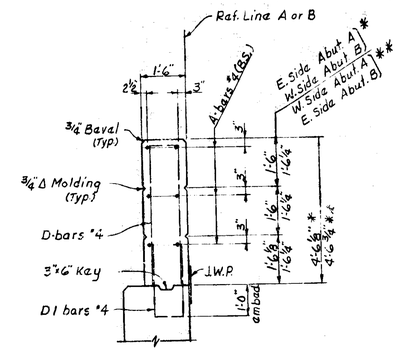
S24 OF 63174A



SECTION B-B

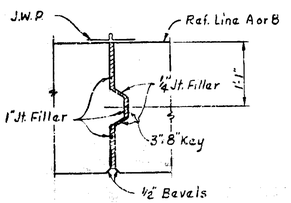


SECTION A-A

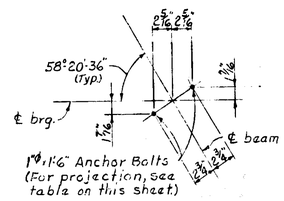


SECTION D-D

ANCHOR BOLT PROJECTION TABLE			
Bm.	Abut. A	Abut. B	BM
12	5½"	5¼"	1
11	5½"	5¼"	2
10	7½"	7"	3
9	5½"	6"	4
8	6½"	7"	5
7	8"	8¼"	6
6	8"	8¼"	7
5	8"	8¼"	8
4	7½"	7"	9
3	6½"	6"	10
2	5½"	5¼"	11
1	6½"	5¼"	12

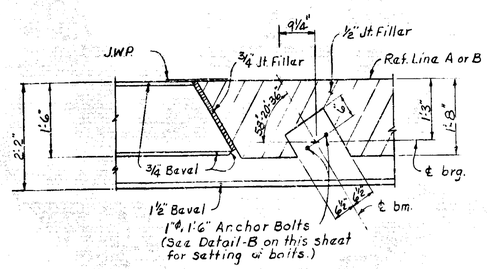


SECTION C-C



DETAIL-B

MISCELLANEOUS QUANTITIES				
Item	Unit	Abut. A	Abut. B	Totals
Unclassified Excavation	Cu. Yds.	410	410	820
½" Joint Filler	Sq. Ft.	4	4	8
½" Joint Filler	Sq. Ft.	109	109	218
¾" Joint Filler	Sq. Ft.	16	16	32
1" Joint Filler	Sq. Ft.	15	15	30
Joint Waterproofing	Sq. Ft.	30	30	60



DETAIL-A

CONCRETE QUANTITIES - SUBSTRUCTURE				
	Grade A (6A) Cu. Yds		Grade A (6AA) Cu. Yds	
Pour	Abut. A	Abut. B	Abut. A	Abut. B
A	11.8	11.8		
B	13.6	13.6		
C	14.0	14.0		
D	14.0	14.0		
E	13.6	13.6		
F			14.8	14.8
G			15.7	15.5
H			15.9	15.7
J			15.4	15.2
K			2.5	2.5
L			2.3	2.3
Subtal	67.0	67.0	66.6	66.0
Total	134.0 Cu. Yd.		132.6 Cu. Yd.	

NOTES:

Abutments A and B are similar.
J.W.P. denotes Joint Waterproofing
N.S., F.S. and B.S. denotes Near Side, Far Side and Both Sides of wall respectively.
For Beval and Molding details, see Std. sheet R 11
For Nameplate mounting details, see Std. sheet R 11
Slopewalls are to be cast after superstructure is complete to top of sidewalks.
Anchor Bolts are to be set accurately to a template.
Anchor Bolts are included with Struct. Steel Quant. (Sht. #21)
The tops of abutment shall be finished to true planes at the elevations shown and shall not vary more than ⅛" under a 10 foot straight edge nor more than 1/16 under any bearing.

Maximum Average Foundation Pressure (D.L. only) 1730 #/sq.ft.

Maximum Foundation Pressure (D.L. + L.L.) 2500 #/sq.ft.

Temp. steel sh. piling for Abut. A is not shown this sheet. For location & quantity, see shs. #4 & 5.

Work this sheet with sheet #7

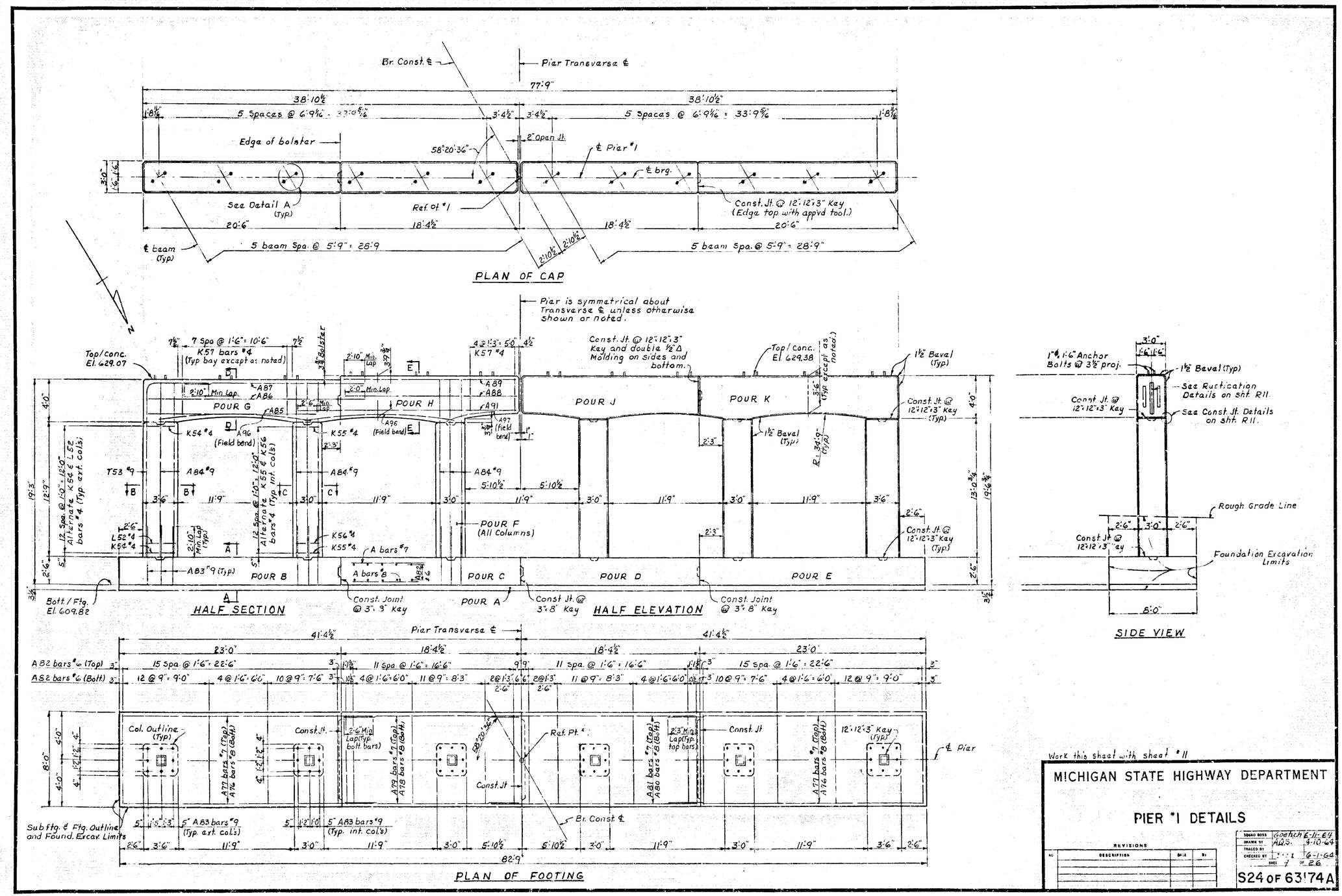
MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	A.Q.S.	3-26-64
TRACED BY		
CHECKED BY	B.M. Jones	6-11-64
SHEET 8 OF 26		

S24 OF 63174A



Work this sheet with sheet #11

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER #1 DETAILS

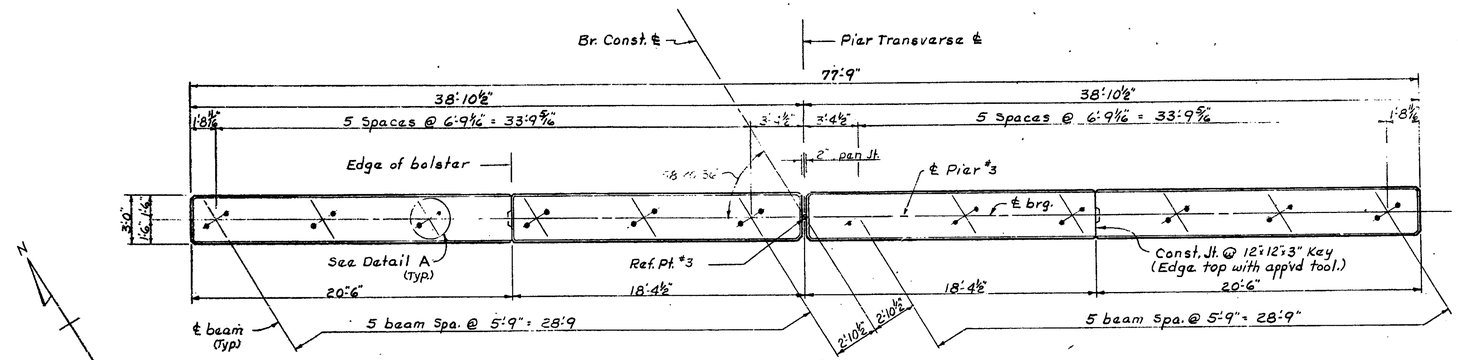
REVISIONS

NO	DESCRIPTION	DATE	BY

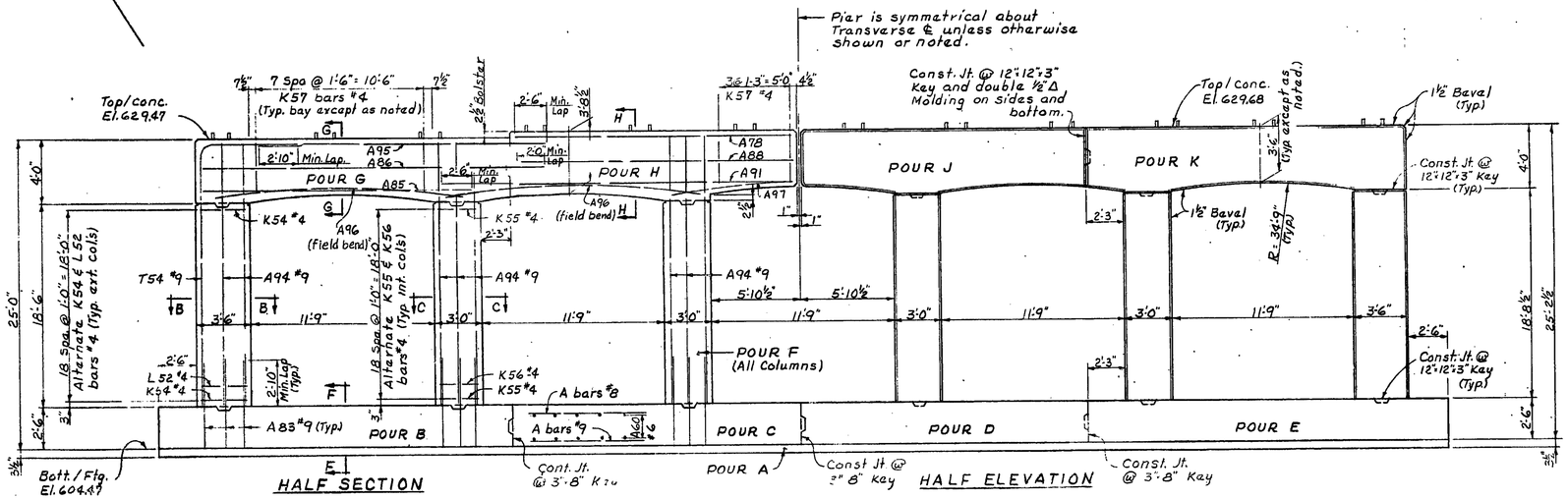
SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	ADS	4-10-64
TRACED BY		
CHECKED BY		6-1-64

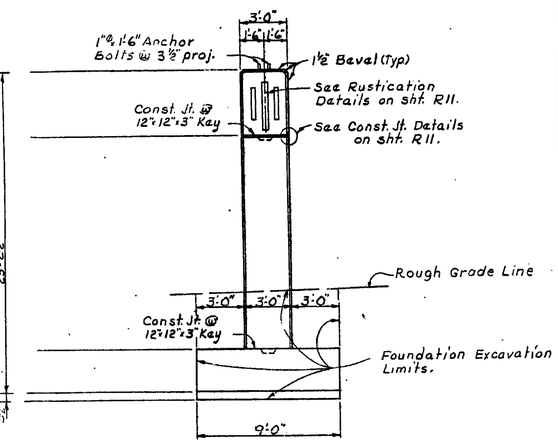
SHEET 7 OF 26

S24 OF 63174A

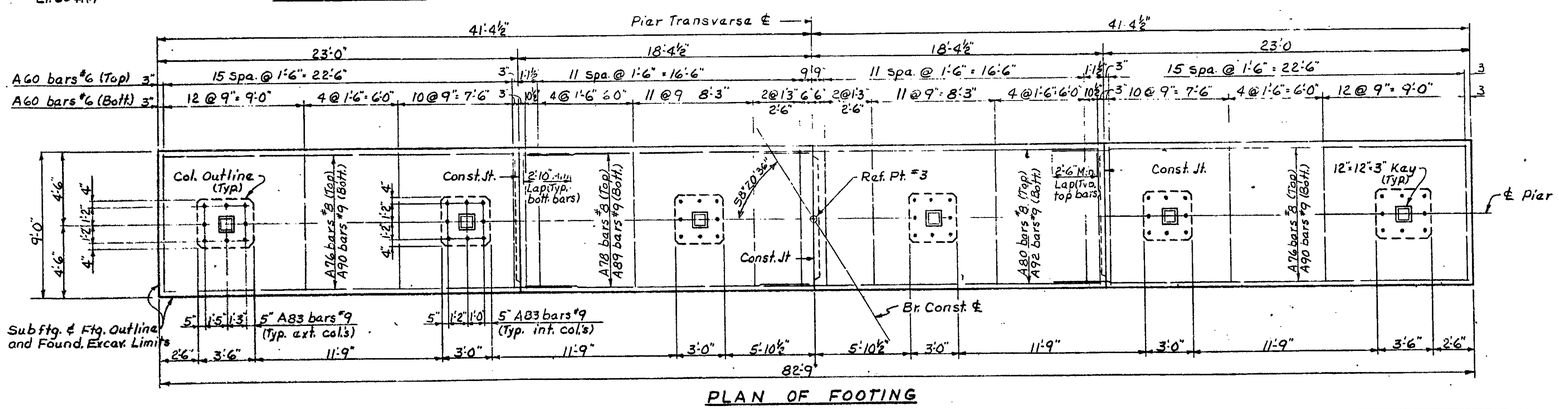


PLAN OF CAP





SIDE VIEW



PLAN OF FOOTING

Work this sheet with sheet #11

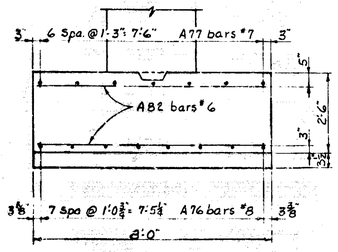
MICHIGAN STATE HIGHWAY DEPARTMENT

PIER #3 DETAILS

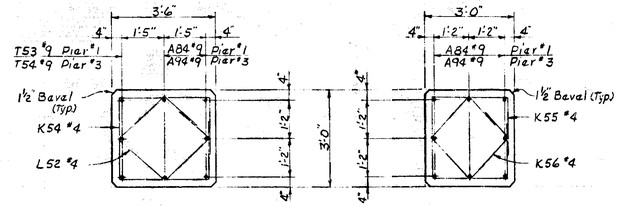
REVISIONS			
NO.	DESCRIPTION	DATE	BY

✓ ROAD BOSS	Goetsch	6-11-64
DRAWN BY	A.O.S.	4-10-64
TRACED BY		
CHECKED BY	INI	6-1-64
SHEET 10 OF 26		

S24 OF 63174A

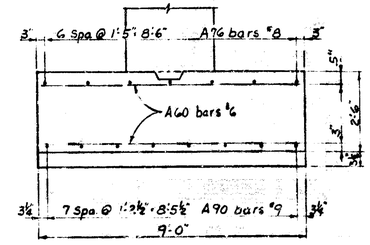


SECTION A-A

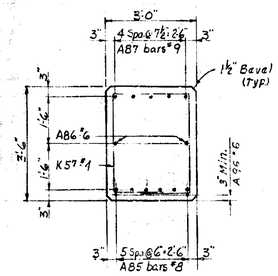


SECTION B-B

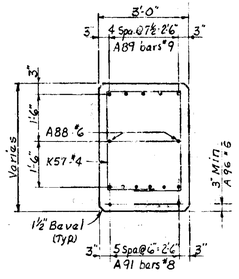
SECTION C-C



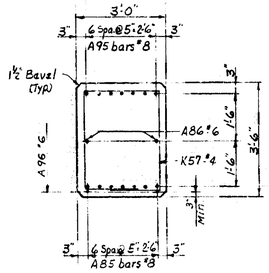
SECTION F-F



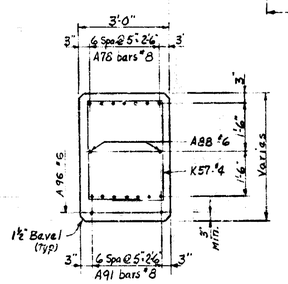
SECTION D-D



SECTION E-E



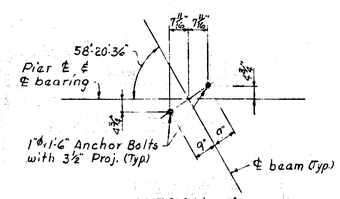
SECTION G-G



SECTION H-H

MISCELLANEOUS QUANTITIES				
Item	Unit	Pier #1	Pier #3	Total
Unclassified Excavation	Cu. Yd.	195	195	390

CONCRETE QUANTITIES – Cu. Yds.				
POURS	PIER #1 (6A)	PIER #1 (6AA)	PIER #3 (6A)	PIER #3 (6AA)
A	6.9		8.1	
B	17.0		19.2	
C	13.6		15.3	
D	13.6		15.3	
E	17.0		19.2	
F		26.9		39.0
G		8.7		8.7
H		8.1		8.0
J		7.7		7.7
K		8.7		8.7
Subtot.	68.1	60.1	77.1	72.1
Total Grade A (6A)			145.2 Cu. Yds.	
Total Grade A (6AA)			132.2 Cu. Yds.	



DETAIL - A

Notes:

Piers #1 & #3 are similar except as noted.

For Bevel and Molding Details, see sheet #R11.

Anchor Bolts shall be set accurately to a template. The Project Engineer shall adjust the spacing of reinforcing steel as required to permit placing of Anchor Bolts.

The tops of piers shall be finished to true planes at the elevations shown and shall not vary more than ⅛" under a ten foot straight edge nor more than 1/16" under any bearing.

Maximum Average Foundation Pressure (D.L. only) 2100 #/sq. ft.

Maximum Foundation Pressure (D.L. + L.L.) 2550 #/sq. ft.

Anchor bolts are included with struct. steel quant. sh. #21

No additional allowance in concrete or excavation quantities will be made due to any excavation outside of plan footing & sub-footing outline.

Work this sheet with sheets #9 & #10

MICHIGAN STATE HIGHWAY DEPARTMENT

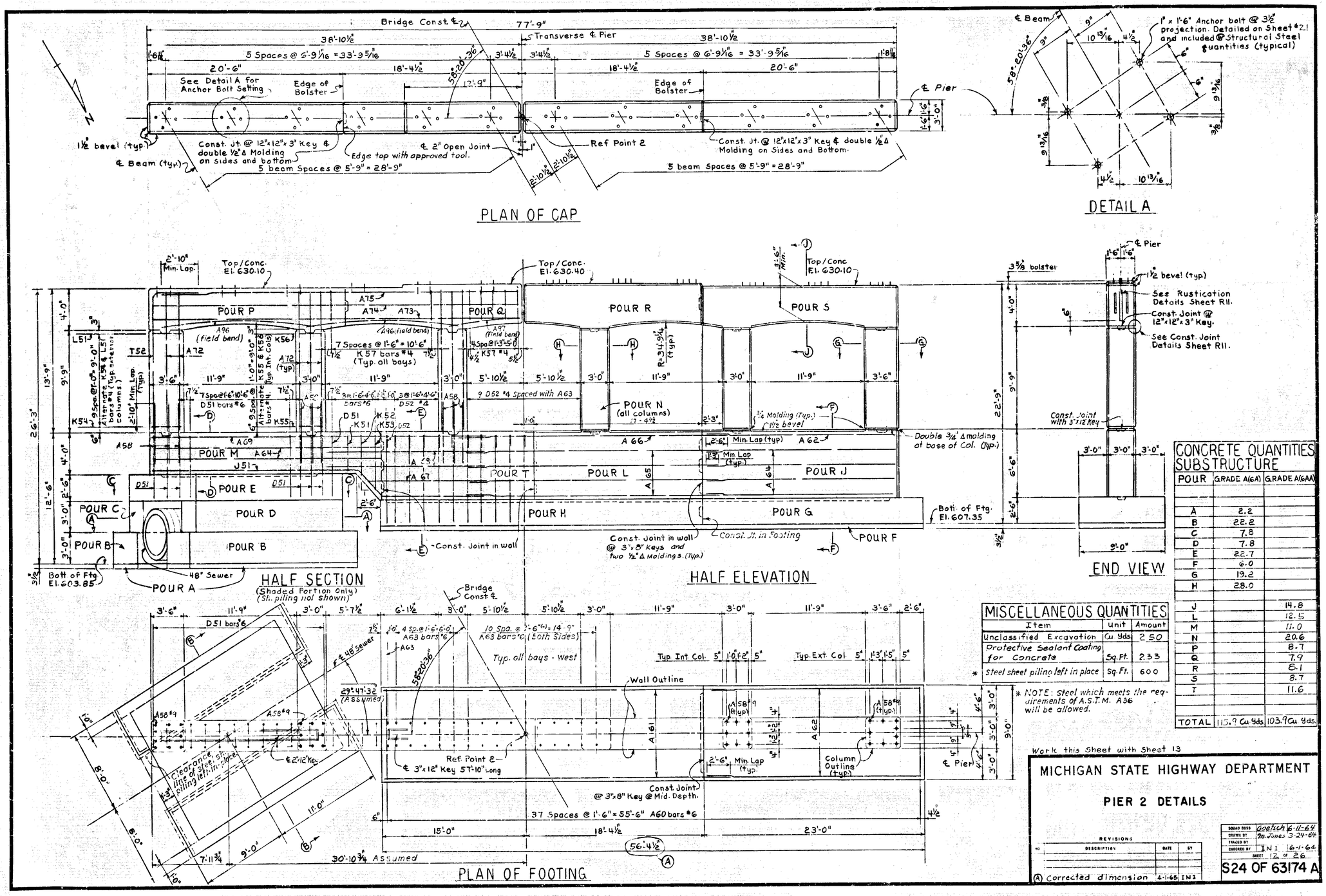
PIER 1 AND 3 DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD BASE	Goetsch	6-11-64
DRAWN BY	F.A.S.	4-20-64
TRACED BY	INI	6-1-64
CHECKED BY		

SHEET 11 OF 26

S24 OF 63174A



CONCRETE QUANTITIES SUBSTRUCTURE

POUR	GRADE A(6A)	GRADE A(6AA)
A	2.2	
B	22.2	
C	7.8	
D	7.8	
E	22.7	
F	6.0	
G	19.2	
H	28.0	
J		14.8
L		12.5
M		11.0
N		20.6
P		8.7
Q		7.9
R		8.1
S		8.7
T		11.6
TOTAL	115.9 Cu Yds.	103.9 Cu Yds.

MISCELLANEOUS QUANTITIES

Item	Unit	Amount
Unclassified Excavation	Cu Yds	2.50
Protective Sealant Coating for Concrete	Sq. Ft.	233
* Steel sheet piling left in place	Sq. Ft.	600

* NOTE: Steel which meets the requirements of A.S.T.M. A36 will be allowed.

Work this Sheet with Sheet 13

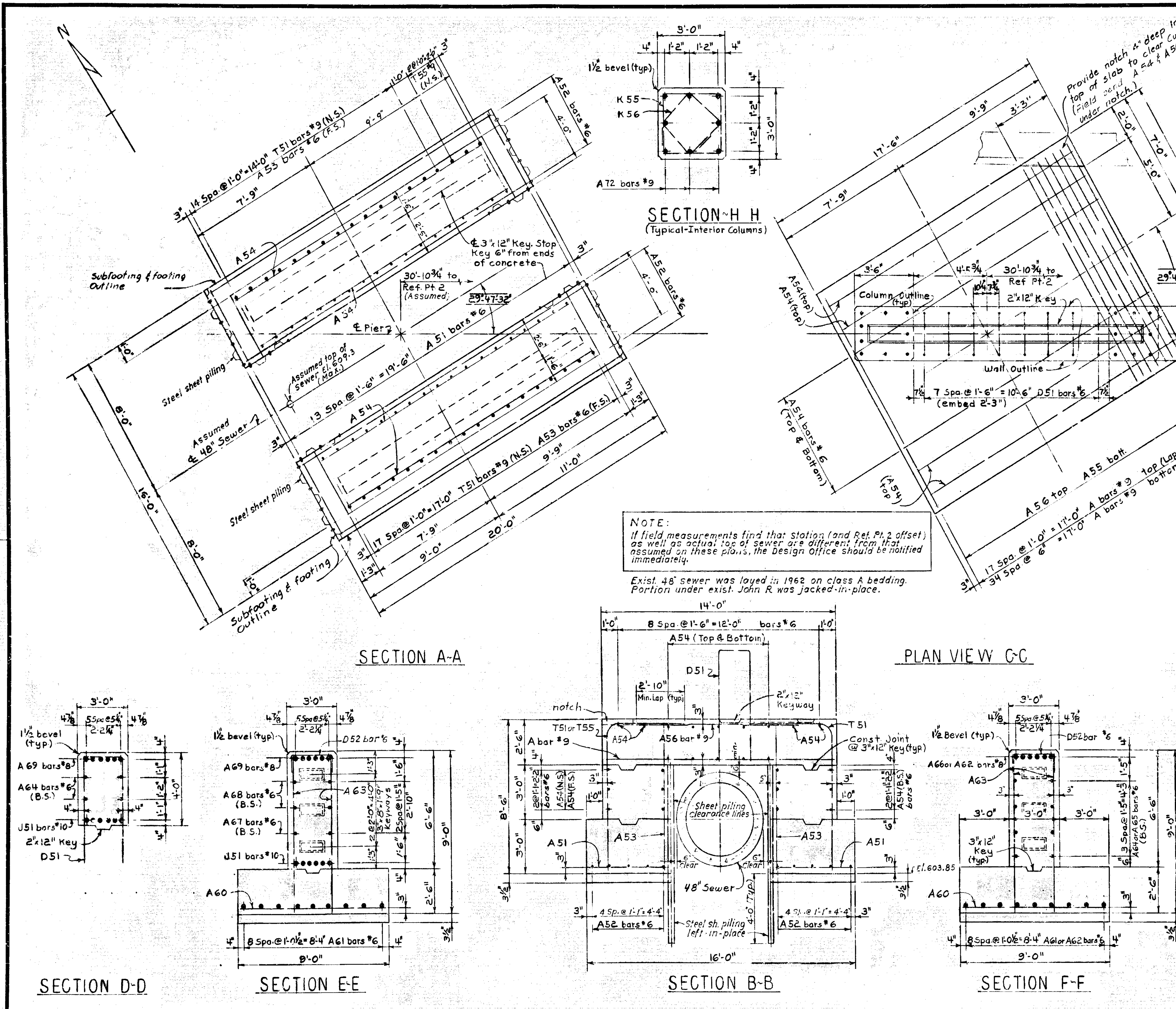
MICHIGAN STATE HIGHWAY DEPARTMENT

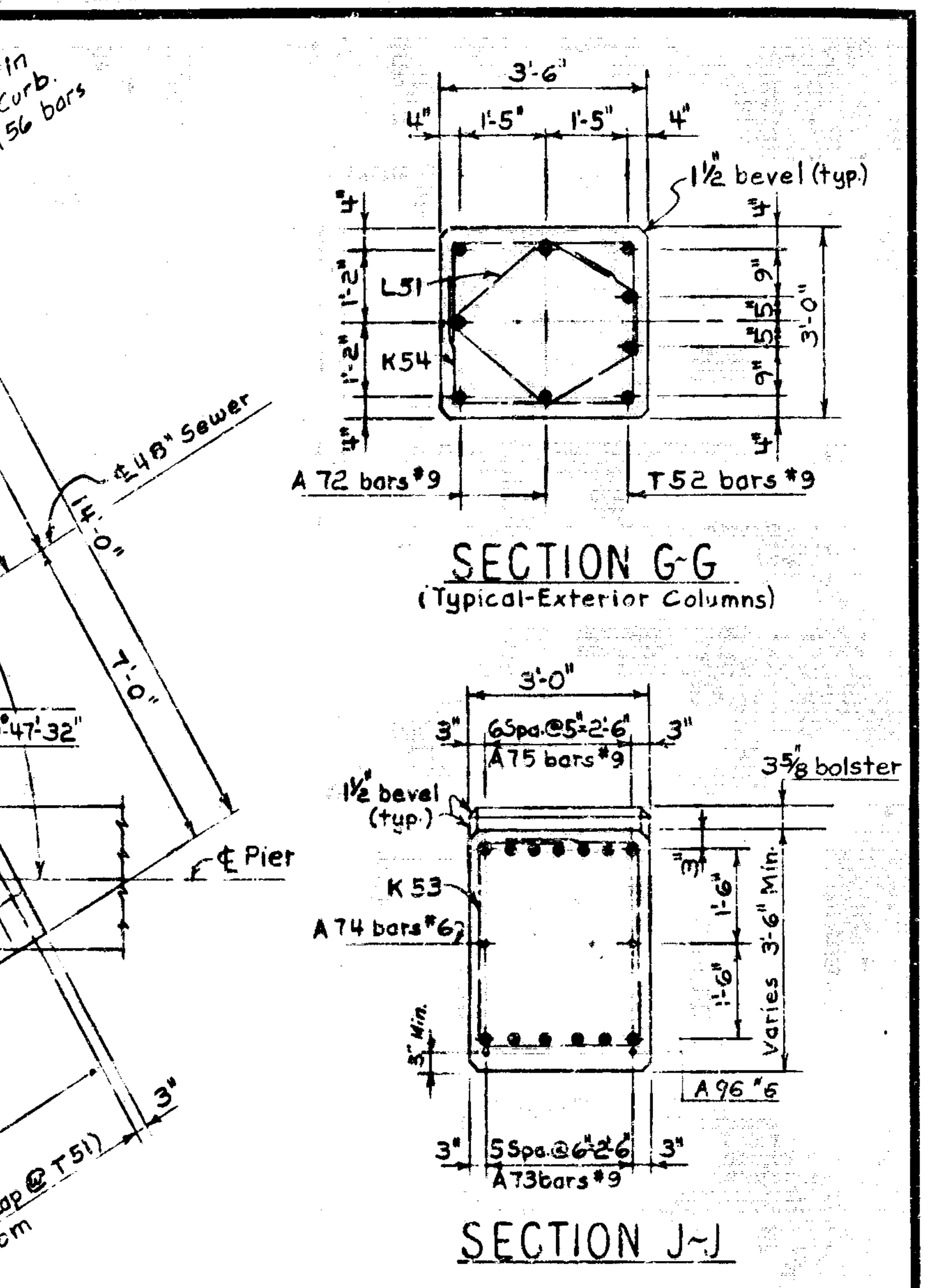
PIER 2 DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY
(A)	Corrected dimension	4-1-65	INI

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	M. Jones	3-24-64
TRACED BY	INI	6-1-64
CHECKED BY	INI	6-1-64
SHEET	12 of 26	

S24 OF 63174 A





NOTES:-

N.S. denotes nearside, F.S. denotes farside, B.S. denotes bothsides.

For bevel and Molding details, See Standard Sheet R11.

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 anchor bolts.

The top of pier shall be finished to a true plane at the elevation shown and shall not vary more than ⅛" under a ten foot straight edge nor more than 1/16" under any bearing.

Footing and Subfooting concrete quantities are computed to the footing neat lines. No allowance will be made for overrun due to excavating outside of neat lines.

Where conc. is poured against steel sheet piling left-in-place, footing & subfooting concrete quantities, and foundation excavation quantities are computed on the basis of an outline 3¼ inside sheet piling clearance line.

Steel sh. piling left-in place shall be of the continuous interlock type, either new or used in good condition weighing not less than 22# per sq. ft. of wall, and shall be furnished with suitable connecting pieces.

The top of pier 2 shall be given an application of "protective sealant coating" prior to placing masonry plates.

Pier 2

Maximum Average Foundation Pressure --	D.L. only	2,430 #/sq. ft.
Maximum Foundation Pressure	D.L. + L.L.	4,600 #/sq. ft.
Portion under east end.		
Maximum Average Foundation Pressure	D.L. only	3,200 #/sq. ft.
Maximum Foundation Pressure	D.L. + L.L.	4,800 #/sq. ft.

Work this Sheet with Sheet 12

MICHIGAN STATE HIGHWAY DEPARTMENT

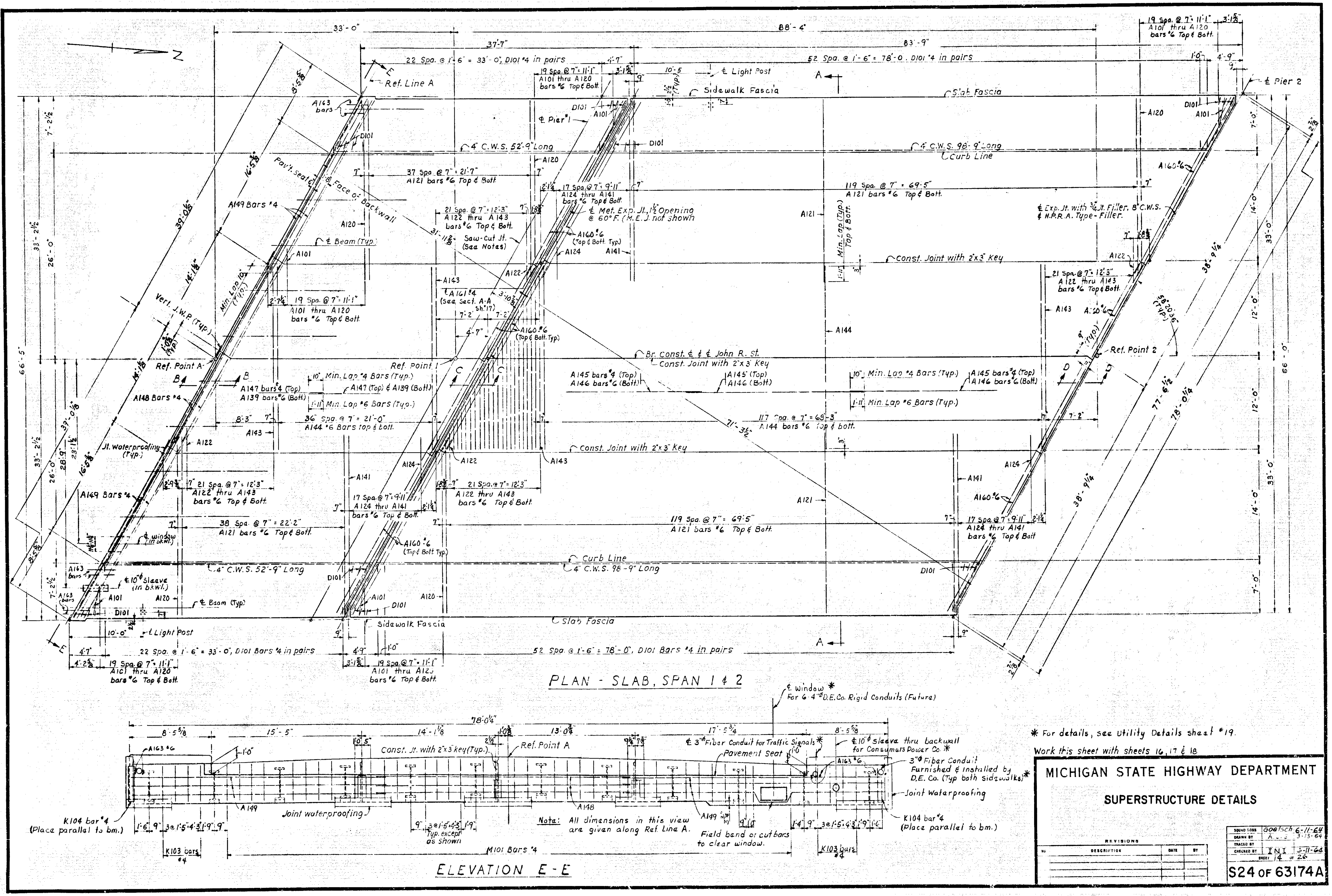
PIER 2 DETAILS

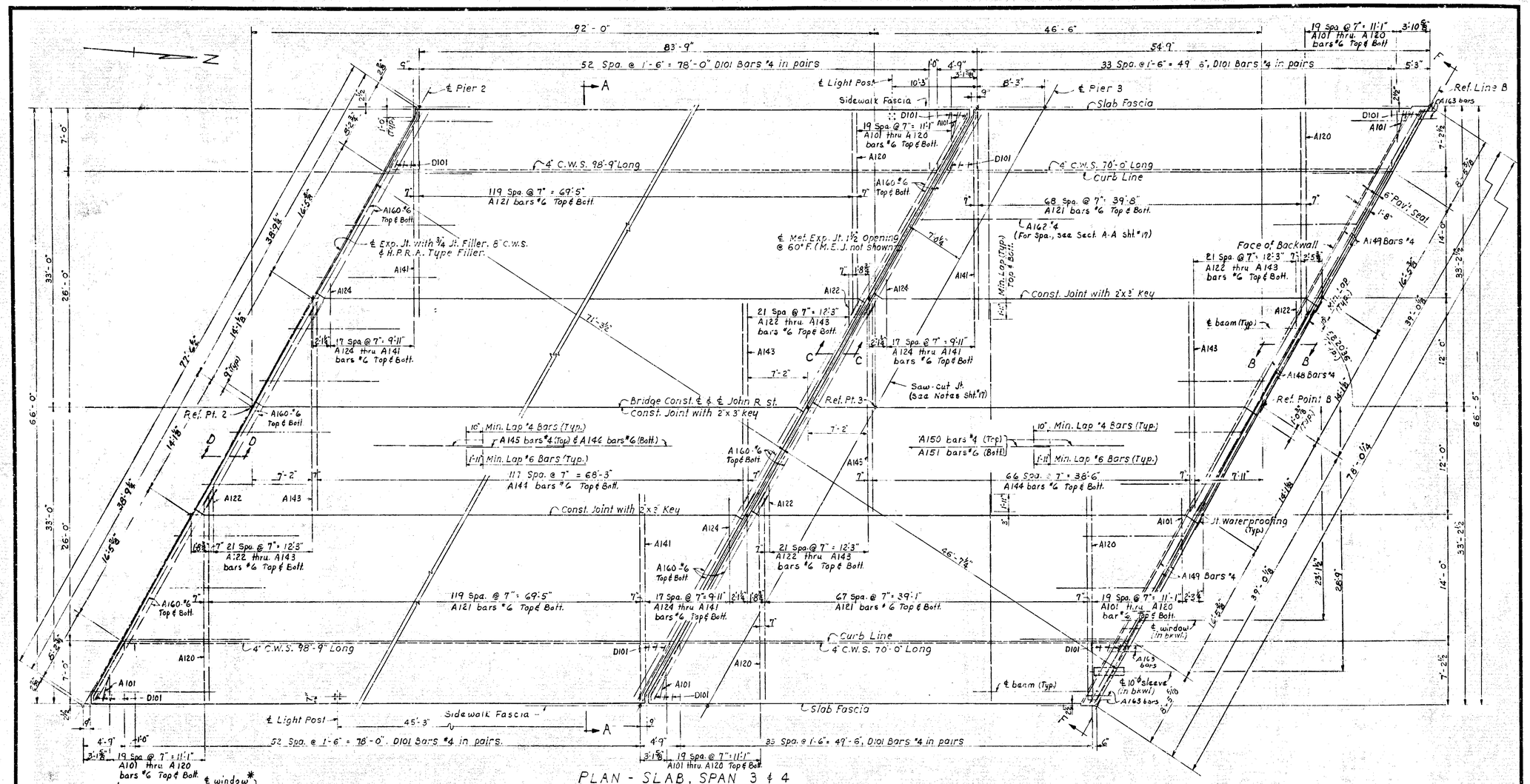
REVISIONS

NO	DESCRIPTION	DATE	BY

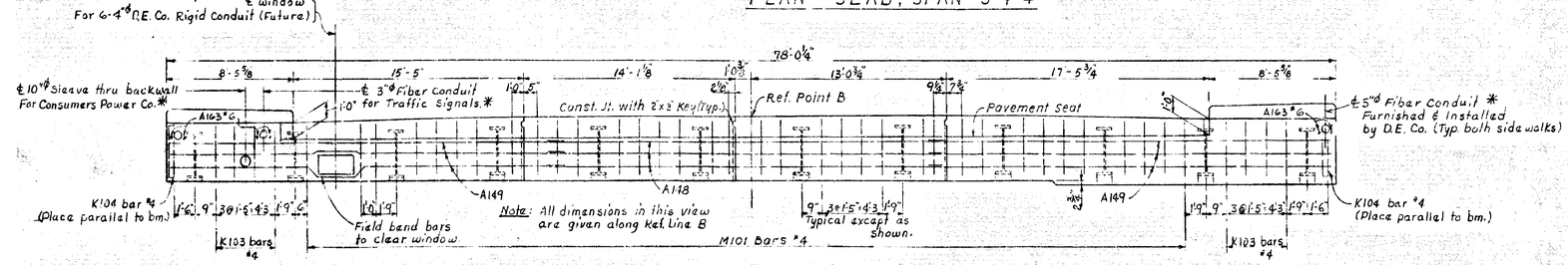
SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	M. Jones	3-24-64
TRACED BY		
CHECKED BY	INI	6-1-64
SHEET 13 OF 26		

S24 OF 63174A


PLAN - SLAB, SPAN 1 & 2
ELEVATION E-E
Ref. Line A
℄ Pier 1
℄ Pier 2
Sidewalk Fascia
Slab Fascia
Curb Line
4" C.W.S. 52'-9" Long
4" C.W.S. 98'-9" Long
Const. Joint with 2"x3" Key
Br. Const. ℄ & ℄ John R. St.
Ref. Point A
Ref. Point 1
Ref. Point 2
22 Spa. @ 1'-6" = 33'-0", D101 #4 in pairs
52 Spa. @ 1'-6" = 78'-0", D101 #4 in pairs
119 Spa. @ 7" = 69'-5" A121 bars #6 Top & Bott.
117 Spa. @ 7" = 68'-3" A144 bars #6 Top & Bott.
Note: All dimensions in this view are given along Ref. Line A.
Field bend or cut bars to clear window.
K104 bar #4 (Place parallel to bm.)
M101 Bars #4
* For details, see Utility Details sheet #19.
Work this sheet with sheets 16, 17 & 18
MICHIGAN STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE DETAILS
REVISIONS
DESCRIPTION
DATE
BY
Goetsch 6-11-64
3-15-64
INI 3-11-64
14 of 26
S24 OF 63174A



PLAN - SLAB, SPAN 3 & 4



ELEVATION F - F

See Elevation E-E for Jt. Waterpr.

* For details, see Utility Details sheet #19

Work this sheet with sheets 16, 17 & 18

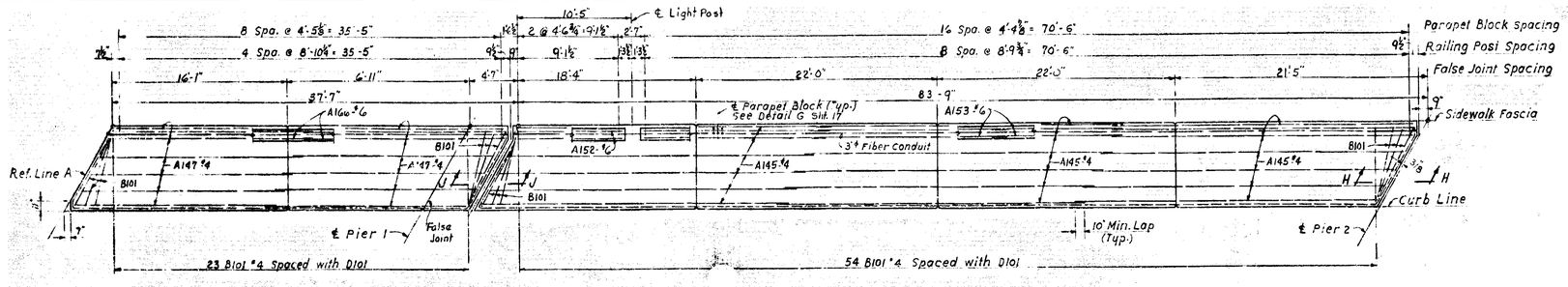
MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

REVISIONS			
NO	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	A.J.S.	3-17-64
TRACED BY		
CHECKED BY	JNI	6-11-64
SHEET 15 OF 26		

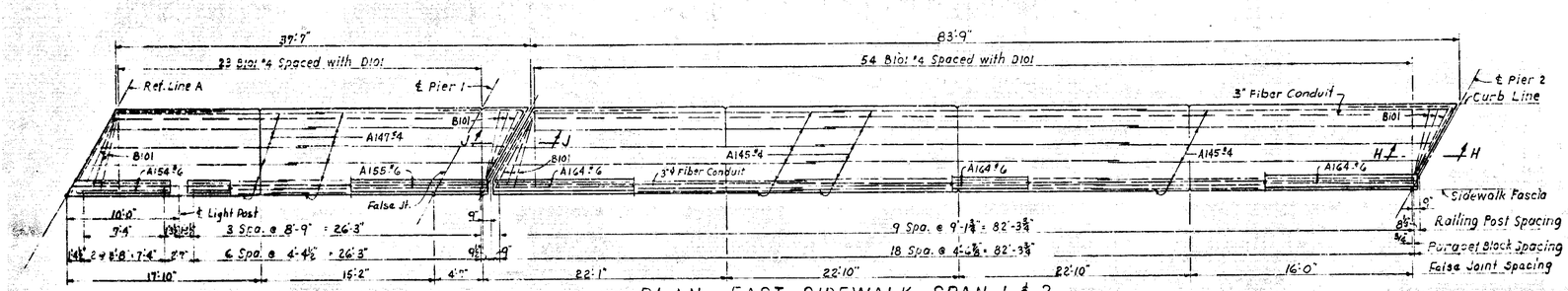
S24 OF 63174A



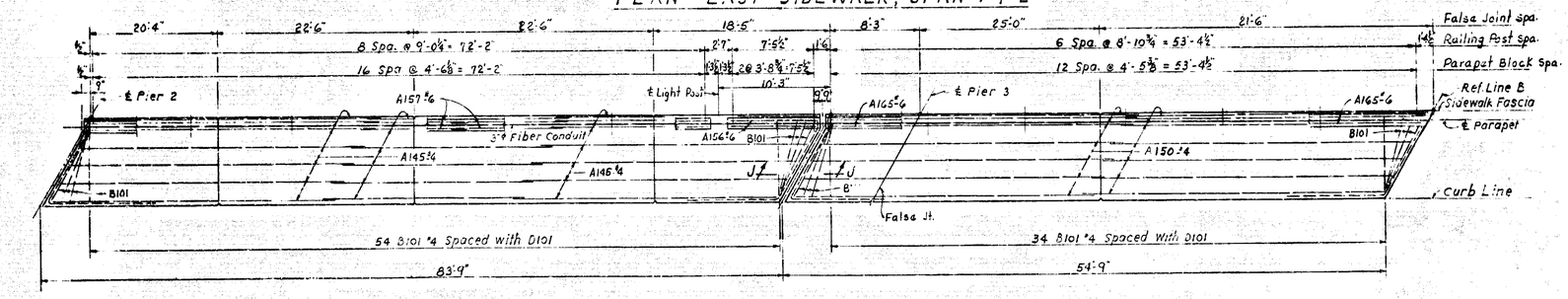
PLAN - WEST SIDEWALK, SPAN 1 & 2

QUANTITIES CHARGEABLE TO DETROIT EDISON CO.		
ITEM	UNIT	AMOUNT
Steel reinforcement	Lbs.	24

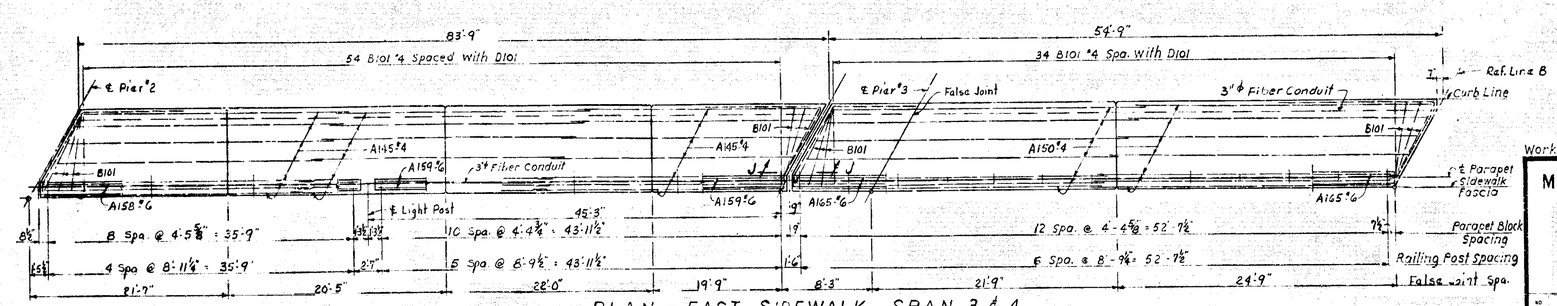
Note: For additional items chargeable to above company see sh. #21.



PLAN - EAST SIDEWALK, SPAN 1 & 2



PLAN - WEST SIDEWALK, SPAN 3 & 4



PLAN - EAST SIDEWALK, SPAN 3 & 4

Work this sheet with sheets 14, 15, 17 & 18

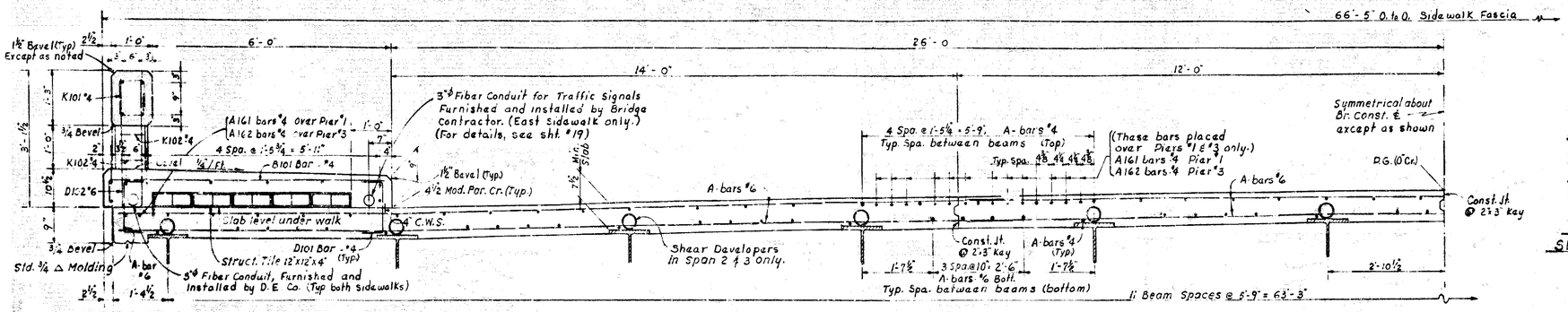
MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

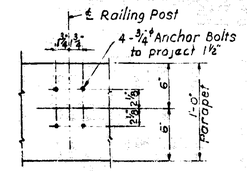
REVISIONS		
NO. DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch 6-11-64
DRAWN BY	A. S. 5-64
TRACED BY	
CHECKED BY	INI 6-11-64
SHEET 16 OF 26	

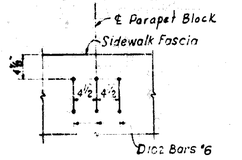
S24 OF 63174A



SECTION A-A

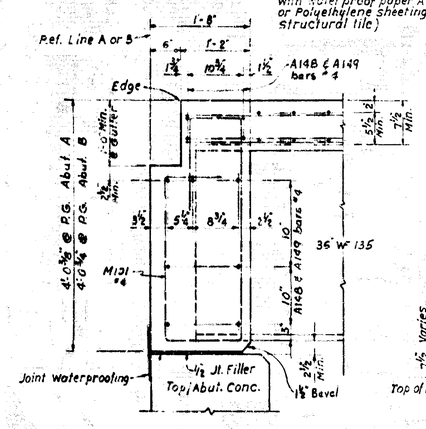


ANCHOR BOLT SETTING FOR RAILING

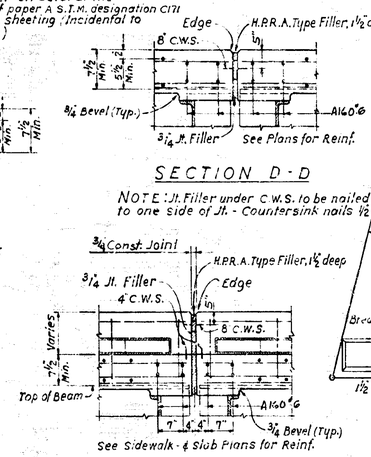


DETAIL G

NOTE: Cover structural tile with waterproof paper A.S.T.M. designation C171 or Polyethylene sheeting (Incidental to structural tile)



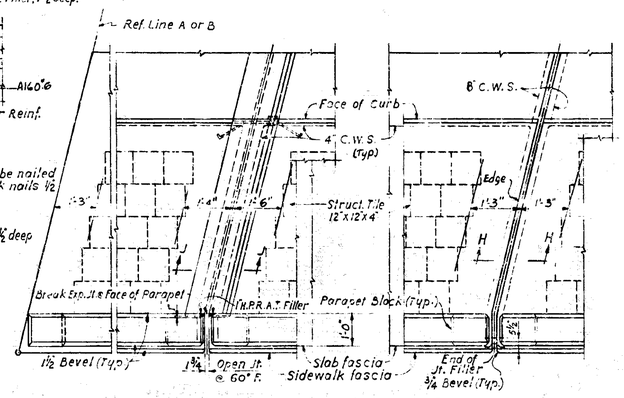
SECTION B-B



SECTION D-D

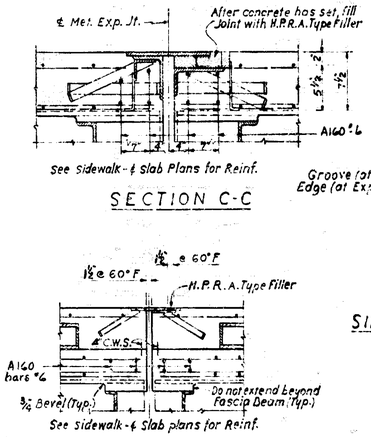
NOTE: Jt. Filler under C.W.S. to be nailed to one side of Jt. - Countersink nails ½"

SECTION H-H



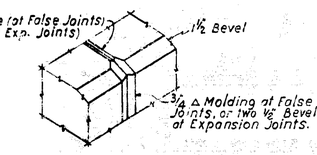
PLAN OF SIDEWALK AT MET. EXP. JT.

PLAN OF SIDEWALK AT ¾ EXP. JT.

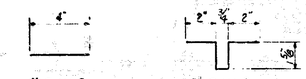


SECTION C-C

SECTION J-J



SIDEWALK MOLDING DETAILS



COPPER WATERSTOP DETAILS

NOTES:

C.W.S. denotes Copper water stop.

H.P.R.A. Type Filler denotes Hot-Poured Rubber - Asphalt Type Filler.

Edge or groove denote edging or grooving with an approved tool.

Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by the table in section 5.01.03 of the Standard Specifications.

For Bridge railing details & Bevel and Molding details see Sheet R.11 of 12

The Contractor is to provide for a sawed Joint ½" deep over and parallel to the ℄ Piers #1 & #3. Joint is to be sawed before casting of sidewalks and is to be filled with H.P.R.A.T. Filler (Incidental)

Work this sheet with sheets 14, 15, 16 & 18

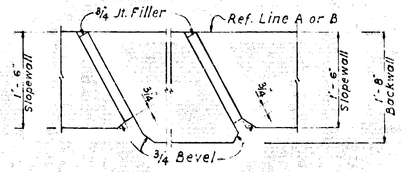
MISCELLANEOUS QUANTITIES

	ITEM	UNIT	AMOUNT
	¾" Joint Filler	Sq. Ft.	65
	Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	233
	Copper	Lbs.	267
	Joint Waterproofing	Sq. Ft.	370
	Bridge Railing - Parapet Type	Lin. Ft.	519.6
	Structural Tile 12"x12"x4"	Each	2,490
	Water Reducing Retarding Admixture	Gal.	67
*	10" Pipe Sleeves - Placed	Each	2
	5" Fiber Conduit	Lin. Ft.	260

* This item chargeable to Consumers Power Co

CONCRETE QUANTITIES - SUPERSTRUCT.
CUBIC YARDS OF GRADE A (6 AA)

LOCATION	SLAB W. OUTS.	SLAB W. INS.	SLAB E. INS.	SLAB E. OUTS.	SIDEWALK WEST	SIDEWALK EAST
SPAN 1	24.7	14.1	14.1	24.7	5.9	5.9
SPAN 2	44.9	25.7	25.7	44.9	13.2	13.2
SPAN 3	44.9	25.7	25.7	44.9	13.2	13.2
SPAN 4	33.7	19.2	19.2	33.7	8.6	8.6
				TOTAL:	547.6 Cu. Yds	



DETAIL AT BACK- & SLOPEWALLS

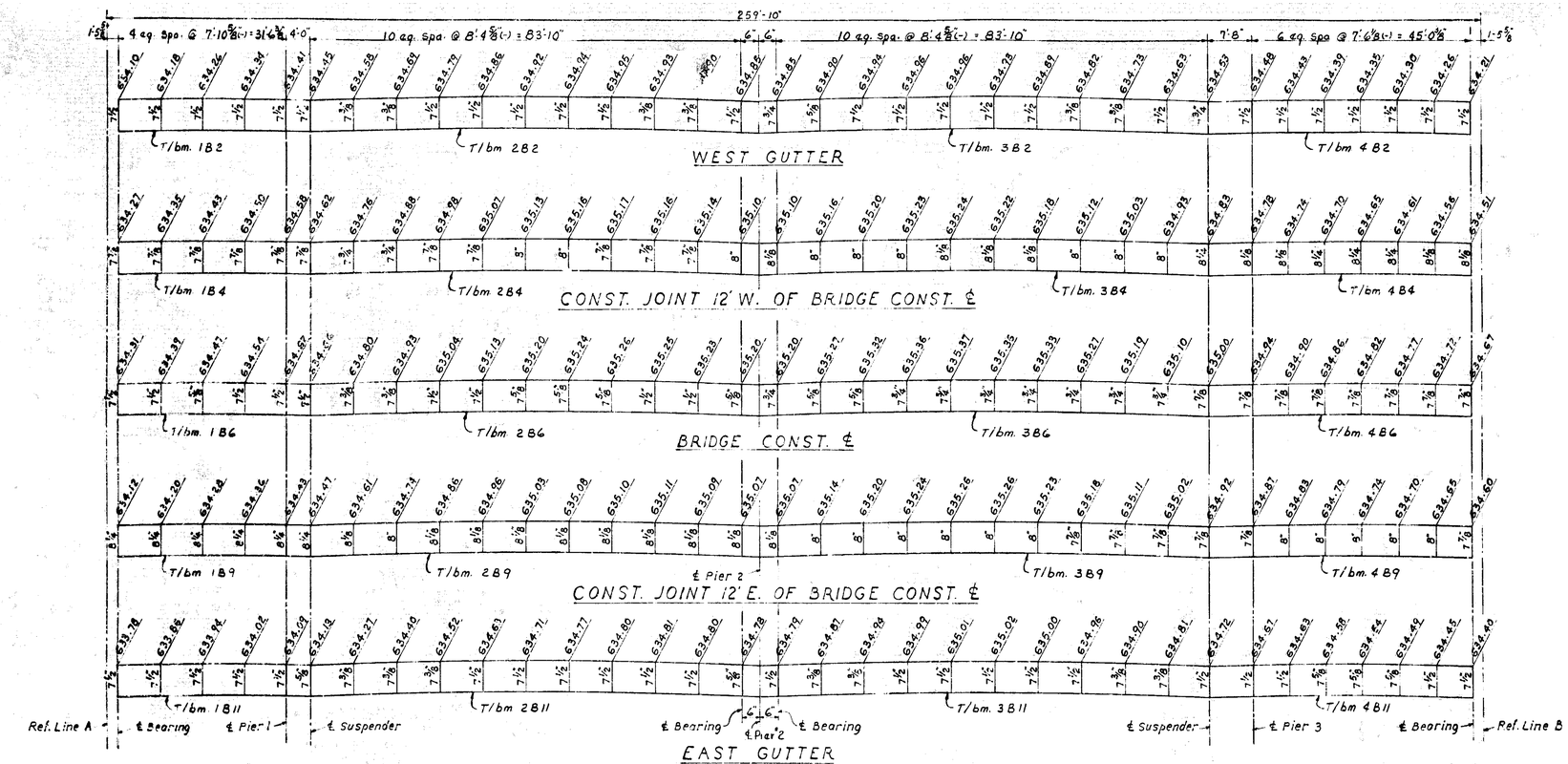
MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

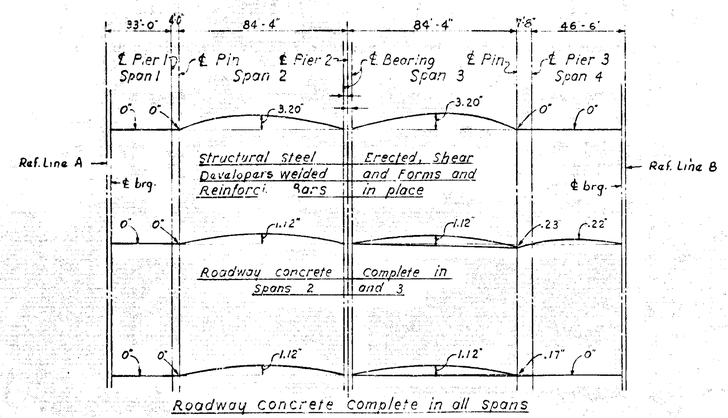
REVISIONS			
NO.	DESCRIPTION	DATE	BY

BRIDGE ROSS	Goetsch	6-11-64
DRAWN BY	A. J. S.	5-17-64
TRACED BY		
CHECKED BY	JNI	6-11-64
SHEET	17 of 26	

S24 OF 63174A



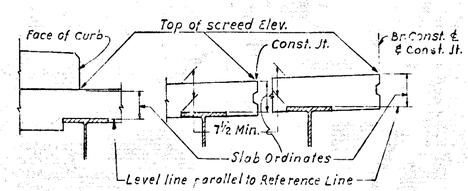
SCREED ELEVATIONS & SLAB ORDINATE DIAGRAM



Roadway concrete Complete in all spans

CAMBER INFORMATION

Placing of sidewalk concrete to be done after placing of road slab concrete for entire superstructure has been completed.



SLAB ORDINATE MEASUREMENT

NOTES:

Elevations shown are for top of screed before pouring any concrete with formwork and steel reinforcement in place & Shr Developers welded to the beams, and based on a minimum slab thickness of 7 1/2".

After screeds are set, if check indicates that less than the minimum thickness will be obtained, adjust screeds and metal expansion joints accordingly.

The slab ordinates shown provide for dead load deflection, vertical curve, crown & beam camber, and are to be measured from the top of the beam indicated in a vertical plane parallel to the reference lines to the top of screed.

Screeds affected by loads in other spans are to be set to the elevations shown and checked for minimum slab thickness before pouring any concrete. Concrete in the suspended spans is to be poured before the concrete in their respective anchor spans.

Work this sheet with sheets 14, 15, 16 & 17

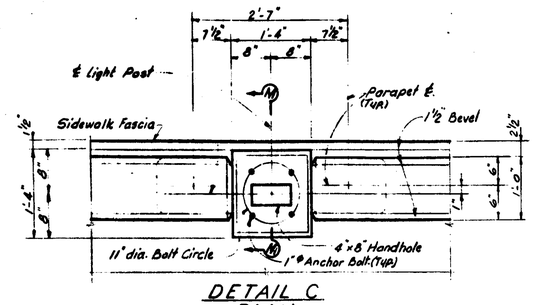
MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

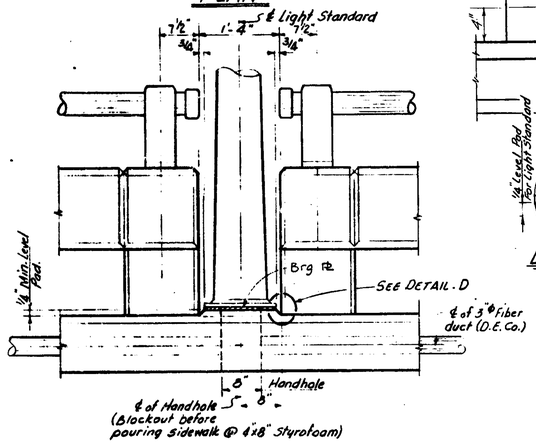
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	Goetsch	6-11-64
DRAWN BY	A. J. S.	3-12-64
TRACED BY		
CHECKED BY	INI	6-11-64
SHEET 18 OF 26		

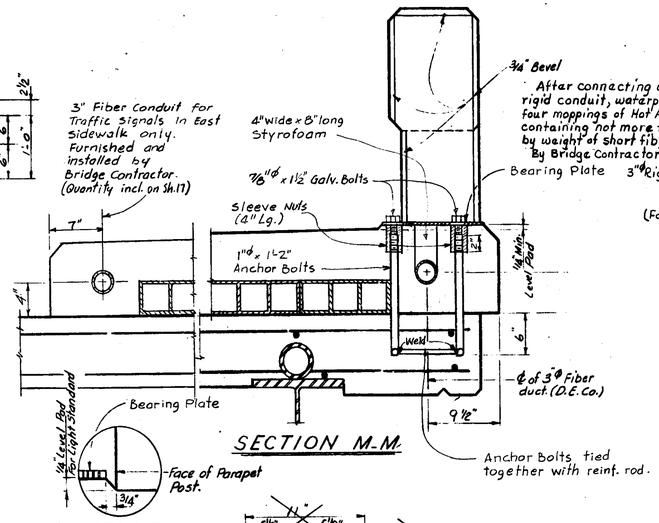
S24 OF 63174A



DETAIL C
PLAN

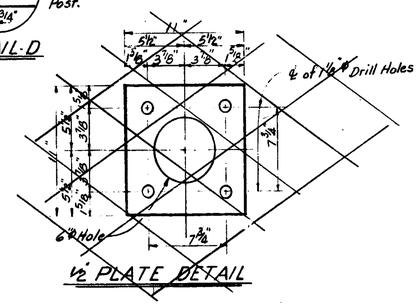


INSIDE ELEVATION

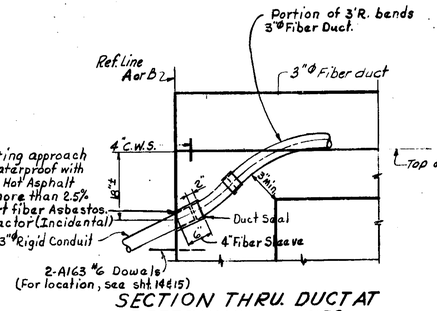


SECTION M-M

DETAIL-D

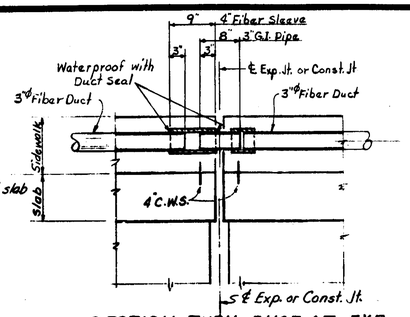


½" PLATE DETAIL



SECTION THRU. DUCT AT REFERENCE LINES

Note: For future rigid conduit installations, 4" Fiber Sleeve should be plugged with 4" Duct Plug.



SECTION THRU. DUCT AT EXP. OR CONST. JOINTS

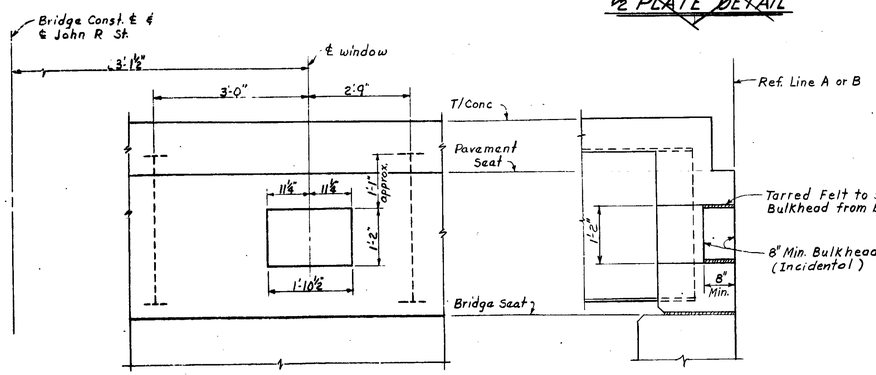
Note: Conduit to be raised to clear 4" C.W.S. at Joints.

NOTES:

1"ϕ Anchor bolt are to be furnished by Detroit Edison Co. and installed by Bridge Contractor. (Installation is incidental work)

Furnishing and installing of Light Standard and 3"ϕ Fiber Duct as well as duct sleeves, styrofoam blocking is by Detroit Edison Co. (For Street Lighting only)

Where ducts are to be installed in the sidewalk, the District Utility Engineer is to be notified five days in advance of the time of installation.

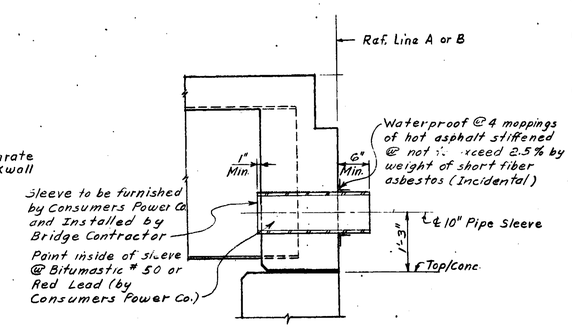


VIEW AT ABUTMENT A

SECTION THRU BACKWALL

WINDOW THRU BACKWALL FOR DETROIT EDISON CO.

for 6-4"ϕ Rigid Conduits (Incidental)



SECTION THRU BACKWALL SHOWING 10" PIPE SLEEVE FOR CONSUMERS POWER CO.

MICHIGAN STATE HIGHWAY DEPARTMENT

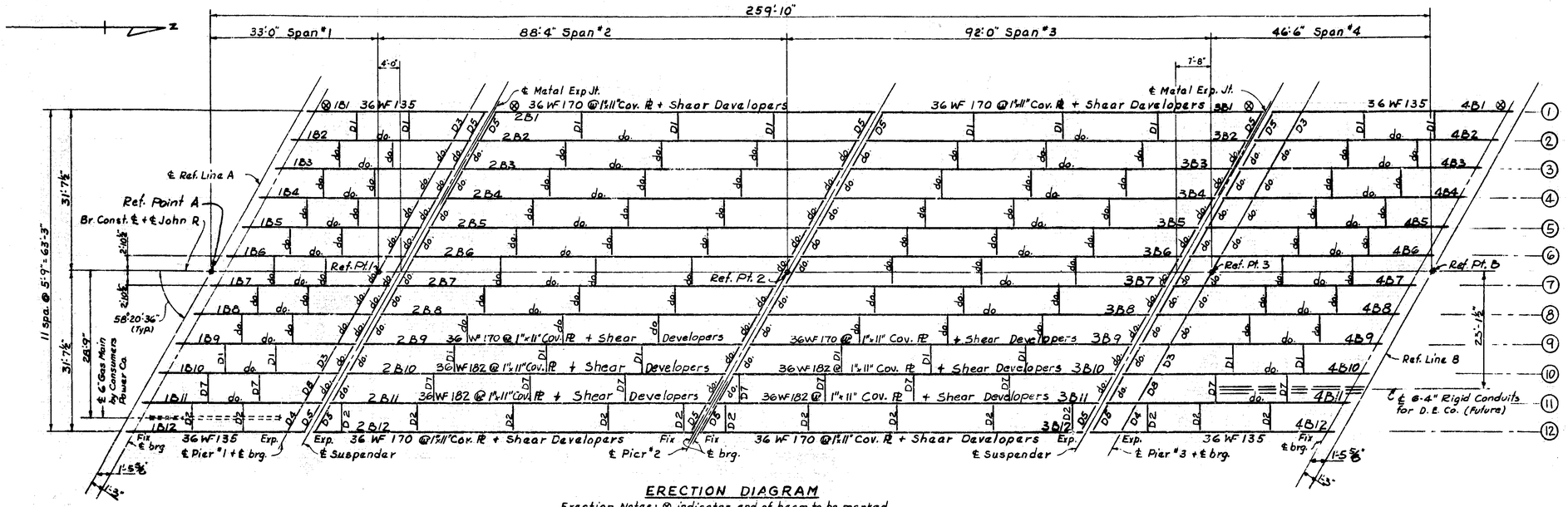
UTILITY DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

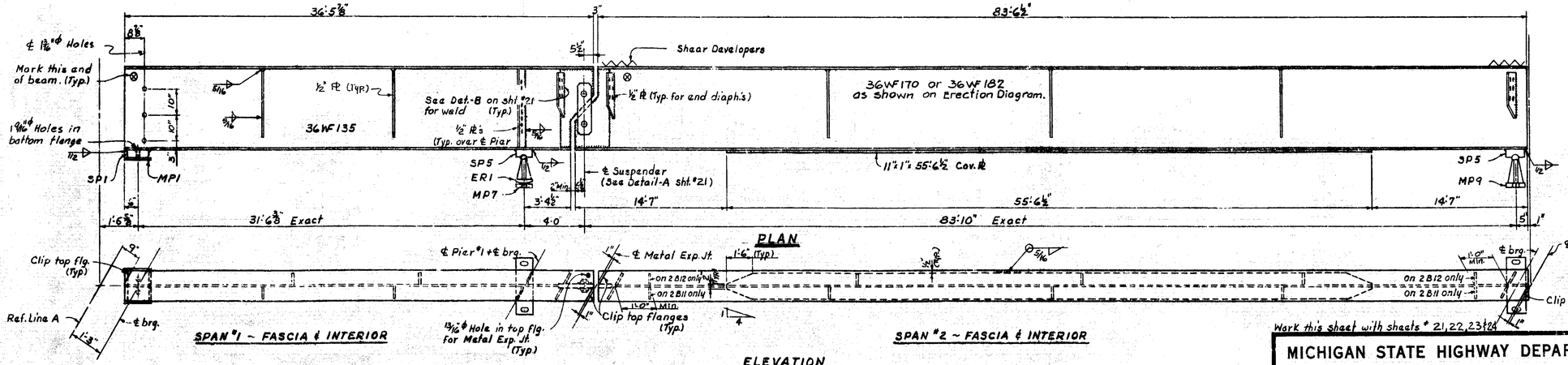
DESIGN BASIS	Gotsch	2-11-64
DRAWN BY	Kuller	4-27-64
TRACED BY		
CHECKED BY	INJ	6-10-64
SHEET 19 OF 26		

S24 OF 63174A



ERECTION DIAGRAM

Erection Notes: ⊗ indicates end of beam to be marked.
Intermediate Diaphragms are placed at approximate 1/3 points between ℄ brg. & ℄ Pier (Typ. Spans #1 & #4); and approximate 1/4 points between ℄ suspender & ℄ brg. (Typ. Spans #2 & #3).



ELEVATION

Note: Omit diaphragm connection plates on exterior side of fascia beams. (Typ.)
For details of Sole PL's, masonry PL's and rockers, see Sheet #23

MICHIGAN STATE HIGHWAY DEPARTMENT

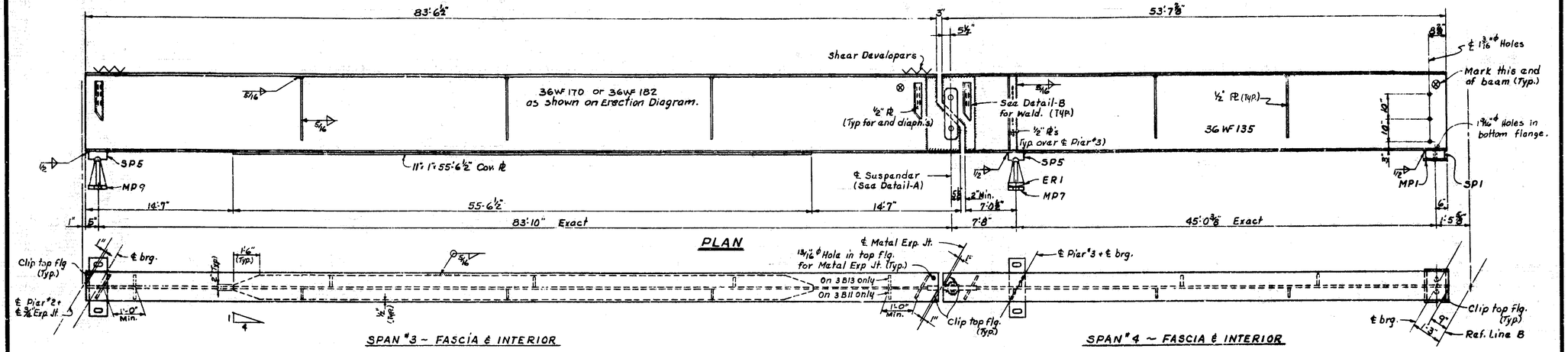
STRUCTURAL STEEL DETAILS

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	A.G.S.	9-11-64
TRACED BY		
CHECKED BY	M. Jones	6-11-64
SHEET 20 of 26		

REVISIONS

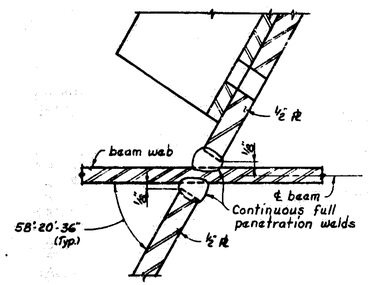
NO.	DESCRIPTION	DATE	BY

S24 OF 63174A

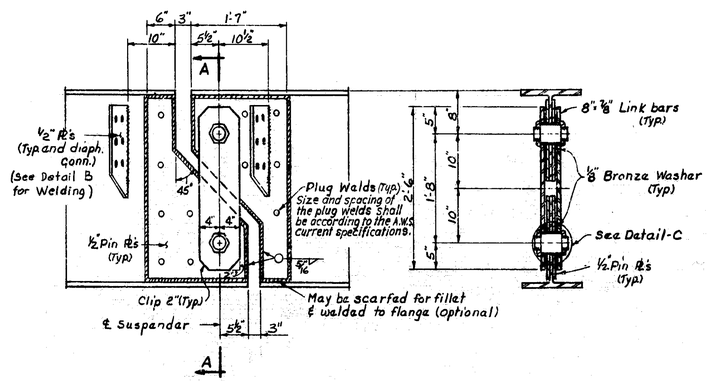


ELEVATION

Note: Omit diaphragm connection plates on exterior side of fascia beams. (Typ)
For details of Sole Pl's, masonry Pl's and rockers, see sheet #23

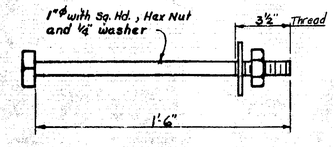


DETAIL-B



DETAIL-A

SECTION A-A

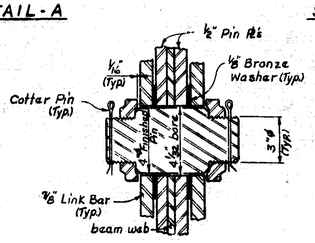


ANCHOR BOLT DETAIL

144 REQ'D

QUANTITIES CHARGEABLE TO DETROIT EDISON CO.		
ITEM	UNIT	AMOUNT
STRUCTURAL STEEL - FURNISHING & FABRICATING	Lbs.	4,330
STRUCTURAL STEEL - ERECTION	Lbs.	4,330

For additional items chargeable to above company see Sh. 16



DETAIL-C

NOTE:

* Structural Steel - Furnishing + Fabricating	635,000 Lbs.
Structural Steel - Erection	635,000 Lbs.
Field Painting	Lump Sum

* Includes:

A 36 Steel	634,300 Lbs.
Bronze	100 Lbs.
Lead	600 Lbs.
Total	635,000 Lbs.

NOTES:

Camber: The beams are to have a camber of 4⅛" in spans #2 + #3 and 0" camber in spans #1 + #4; (Maximum ordinate). This camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ± ½". Heating is to be used if necessary, to assure camber permanency within the above limitations. Dead load deflection of the beams alone is calculated to be ⅝" (spans #2 + #3); 0" (spans #1 + #4).

Fabrication: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction - 1963 Edition.

Design: Michigan State Highway Department's Specification for Design of Highway Bridges - 1958 Edition. (H20-44 Loading)

Shop Connections: All shop connections shall be welded as shown on the plans.

Field Connections: Field connections, unless otherwise noted, shall be bolted with high-strength bolts.

Structural Steel: All structural steel shall be A36 steel.

Open Holes: Open holes for high-strength bolts shall be 13/16" ϕ unless otherwise noted.

Shop Paint: In addition to the shop paint provisions of the Standard Specifications, the top surfaces of masonry plates shall be coated in accordance with the requirements for machine finished surfaces. Metal Exp. Joint shall not be painted in shop except as noted on the plans.

Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ¼" and welded, with a continuous weld, for the full perimeter. Welds shall be ground flush with faces of plate.

High-Strength Bolts: ¾" ϕ.

Work this sheet with sheets # 20, 22, 23 & 24

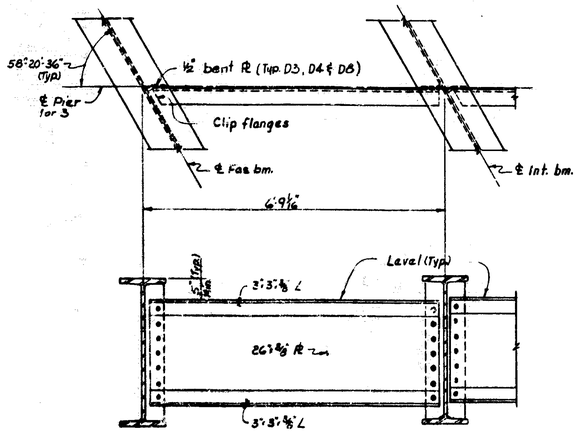
MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

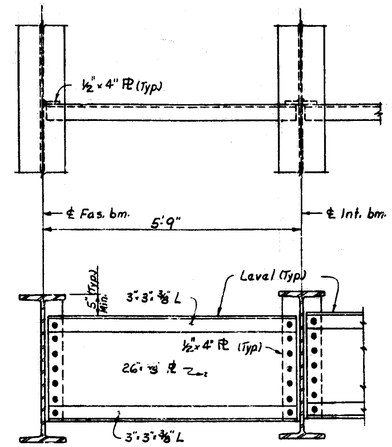
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	A.D.S.	8-27-64
TRACED BY		
CHECKED BY	Jones	6-11-64
SHEET 21 OF 26		

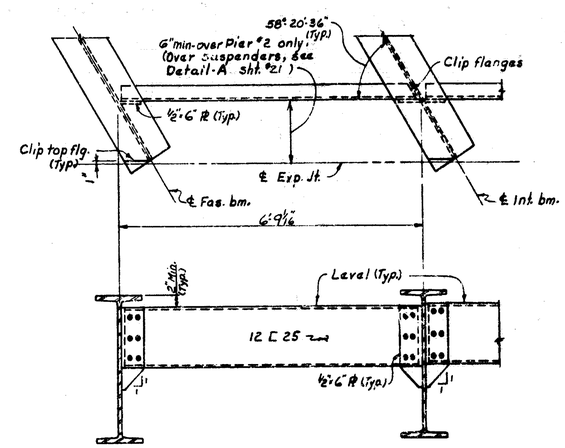
S24 OF 63174 A



DIAPHRAGM D3

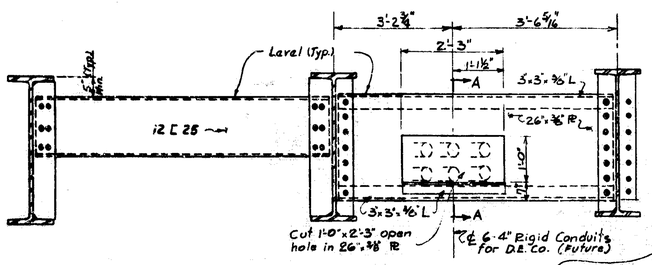


DIAPHRAGM D1

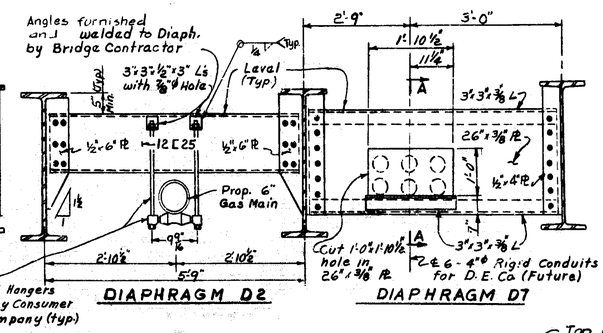


DIAPHRAGM D5

Note: Connecting wing plates over piers 1 & 3 are used as stiffener plates. Fit plates tight to tension (top) flange and weld to web, then to compression flange.



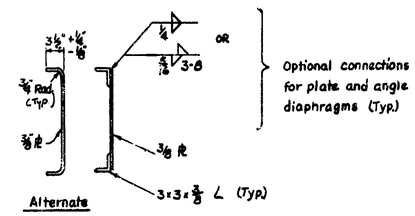
DIAPHRAGM D4



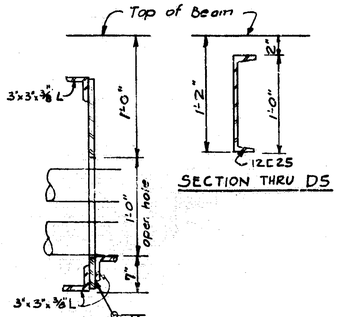
DIAPHRAGM D8

DIAPHRAGM D2

DIAPHRAGM D7



TYPICAL INTERMEDIATE DIAPHRAGM



SECTION A-A

SECTION THRU D5

Work this sheet with sheet# 20, 21, 23 & 24

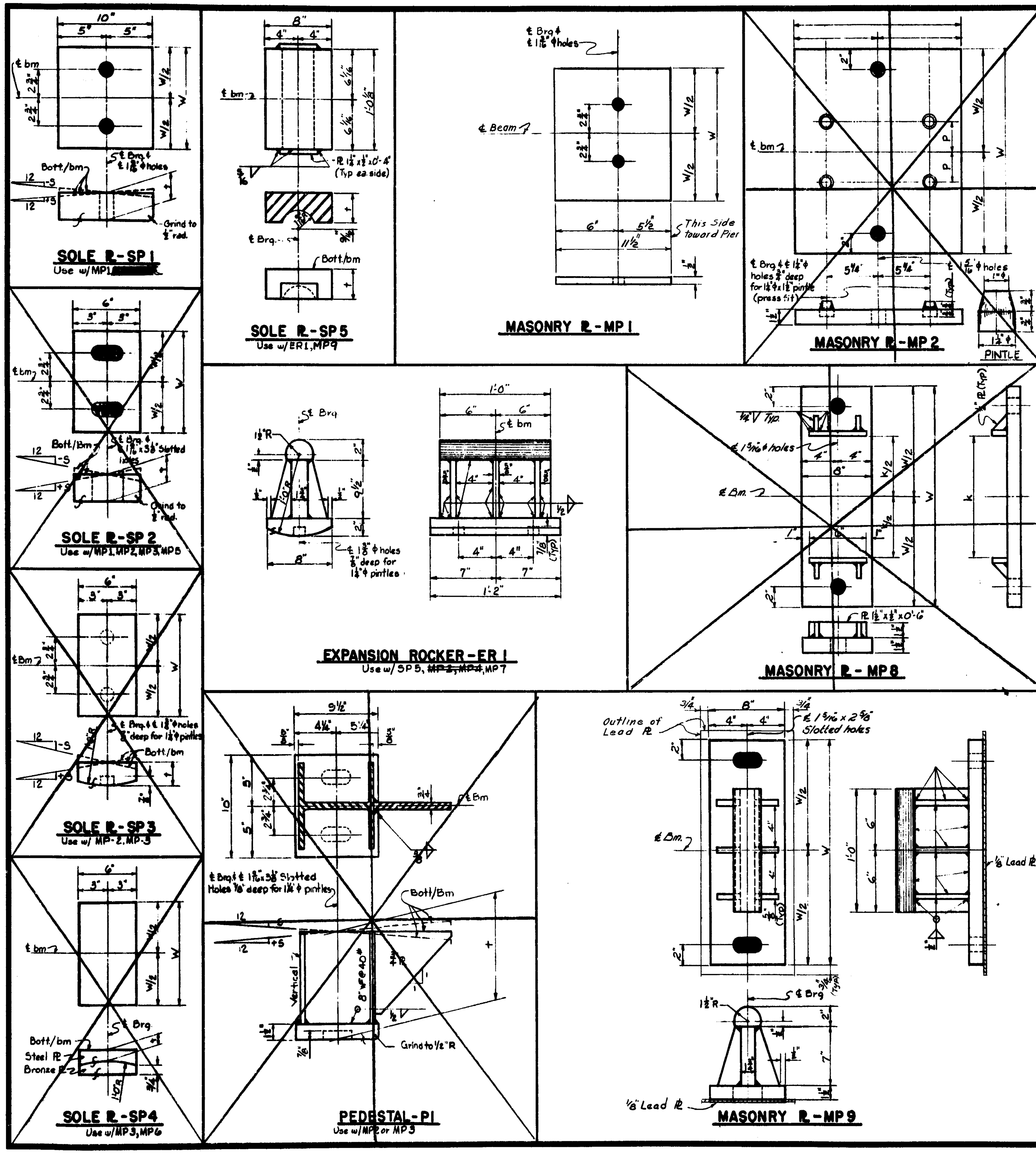
MICHIGAN STATE HIGHWAY DEPARTMENT

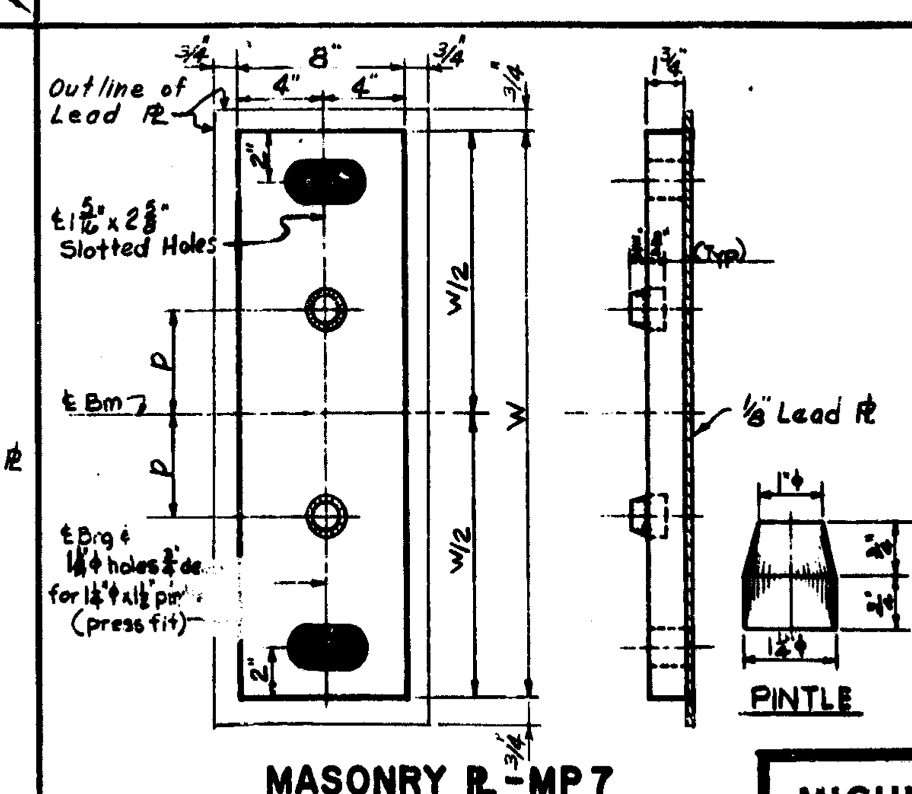
STRUCTURAL STEEL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BOARD BOOK	Gpatsch 6-11-64
DRAWN BY	A.Q.S. 2-27-64
TRACED BY	
CHECKED BY	Jm Jones 6-11-64
SHEET	22 OF 26

S24 OF 63174 A





	BEAM	TYPE	VARIABLE DIMENSIONS L	W	t	P	K	S
Pier #2	3B1 thru.3B12	MP9		1'-10"				
	3B1	SP5			3½"			
	3B2	↑			3½"			
	3B3				4¾"			
	3B4				2½"			
	3B5				3½"			
	3B6				4¼"			
	3B7				4"			
	3B8				3¼"			
	3B9				5¾"			
	3B10				4¼"			
	3B11	↓			2¾"			
	3B12	SP5			2¾"			
Pier #3	4B1 thru.4B12	MP7		1'-10"		4"		
	4B1 thru.4B12	ER1						
	4B1	SP5			2½"			
	4B2	↑			2¾"			
	4B3				4¼"			
	4B4				3¼"			
	4B5				4½"			
	4B6				5½"			
	4B7				5¾"			
	4B8				5¼"			
	4B9				4½"			
	4B10				3½"			
	4B11	↓			2½"			
	4B12	SP5			2¾"			
Abutment B	4B1 thru.4B12	MP1		1'-1"				
	4B1	SP1		1'-0"	2"			0"
	4B2	↑		↑	2¼"			↑
	4B3				3¾"			
	4B4				2¾"			
	4B5				4"			
	4B6				5"			
	4B7				5¼"			
	4B8				4¾"			
	4B9				4"			
	4B10				3"			
	4B11	↓		↓	2"			↓
	4B12	SP1		1'-0"	2¼"			0"

	BEAM	TYPE	VARIABLE DIMENSIONS L	W	t	p	k	s
Abutment A	1B1 thru.1B12	MP1		1'-1"				
	1B1	SP1		1'-0"	2"			0"
	1B2	↑		↑	2½"			↑
	1B3				3½"			
	1B4				[illegible]			
	1B5				4¾"			
	1B6				5"			
	1B7				4¾"			
	1B8				3½"			
	1B9				7			
	1B10				4¼"			
	1B11	↓		↓	2¼"			↓
	1B12	SP1		1'-0"	2"			0"
Pier #1	1B1 thru.1B12	MP7		1'-10"		4"		
	1B1 thru.1B12	ER1						
	1B1	SP5			3½"			
	1B2	↑			3"			
	1B3				4"			
	1B4				4¾"			
	1B5				5¼"			
	1B6				5½"			
	1B7				5"			
	1B8				4"			
	1B9				2½"			
	1B10				4½			
	1B11	↓			3"			
	1B12	SP5			2½"			
Pier #2	2B1 thru.2B12	MP9		1'-10"				
	2B1	SP5			3¾"			
	2B2	↑			3¾"			
	2B3				5"			
	2B4				2½"			
	2B5				3½"			
	2B6				4¼"			
	2B7				4"			
	2B8				3¼"			
	2B9				5¾"			
	2B10				4"			
	2B11	↓			2½"			
	2B12	SP5			2½"			

NOTES:

Work this sheet with sheets 20 & 21

MICHIGAN STATE HIGHWAY DEPARTMENT

BEARING DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

Goetsch 6-11-64

S24 OF 63174A

SS5 (2-20-63)
Original

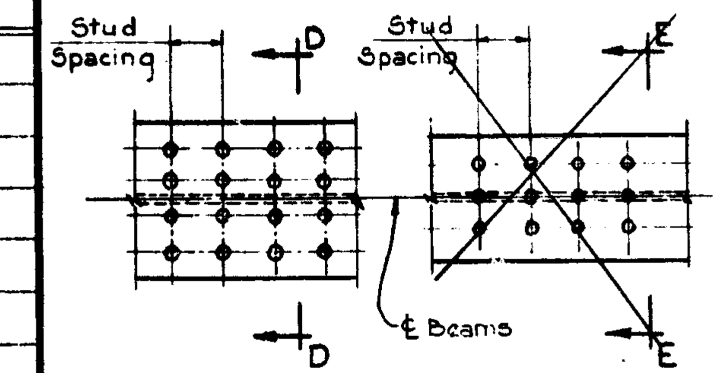
SHEAR DEVELOPER SPACING TABLE

SPIRALS

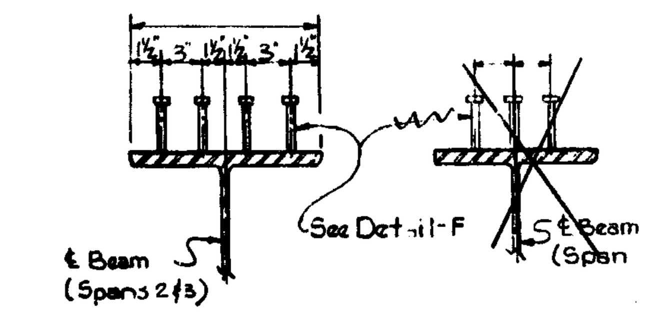
BEAM NO.	a	b	c	d	e	f	L
2B1 thru. 2B12	5¼"	*28 @ 6" = 14'-0"	31 @ 4" = 10'-4"	21 @ 6" = 10'-6"	17 @ 10" = 14'-2"		83'-6½"
3B1 thru. 3B12	5¼"	*28 @ 6" = 14'-0"	31 @ 4" = 10'-4"	21 @ 6" = 10'-6"	17 @ 10" = 14'-2"		83'-6½"

STUDS

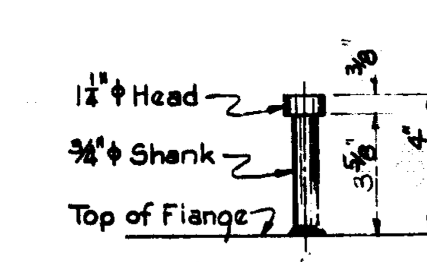
BEAM NO.	a	b	c	d	e	f	L
2B1 thru. 2B12	5¼"	18 @ 8" = 12'-0"	13 @ 11" = 11'-11"	8 @ 16" = 10'-8"	7 @ 22" = 12'-10"	19 @ 8" = 12'-8"	83'-6½"
3B1 thru. 3B12	5¼"	18 @ 8" = 12'-0"	13 @ 11" = 11'-11"	8 @ 16" = 10'-8"	7 @ 22" = 12'-10"	19 @ 8" = 12'-8"	83'-6½"



PLAN of STUDS



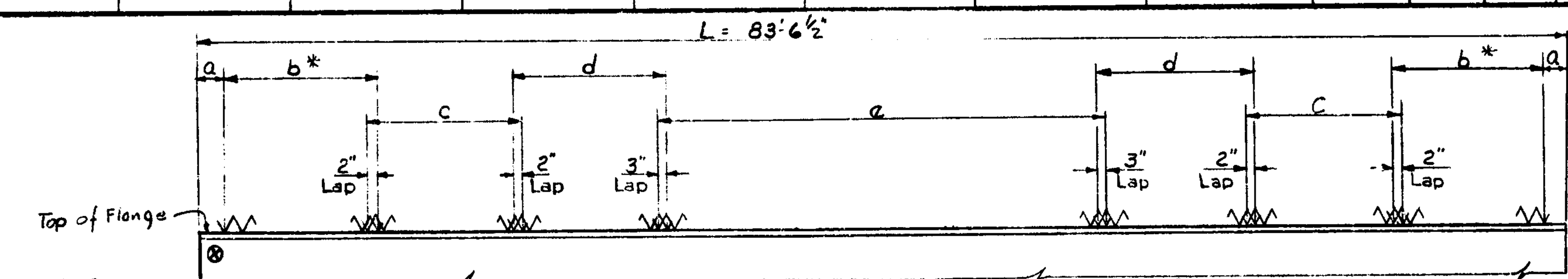
SECTION-DD ~~SECTION-EE~~



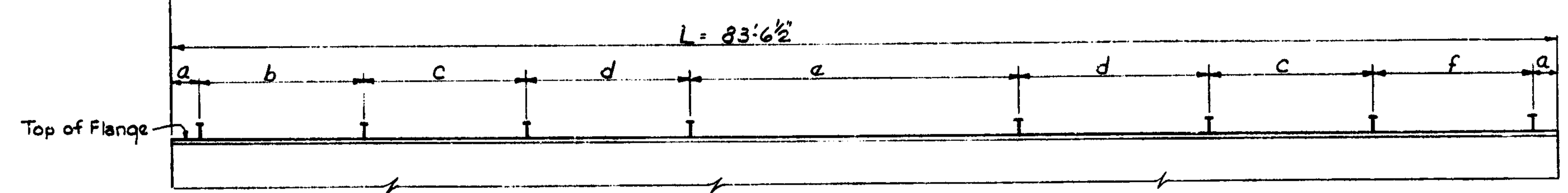
DETAIL-F

STUD SHEAR CONNECTOR DETAILS

NOTE:
* denotes a double row of Spirals

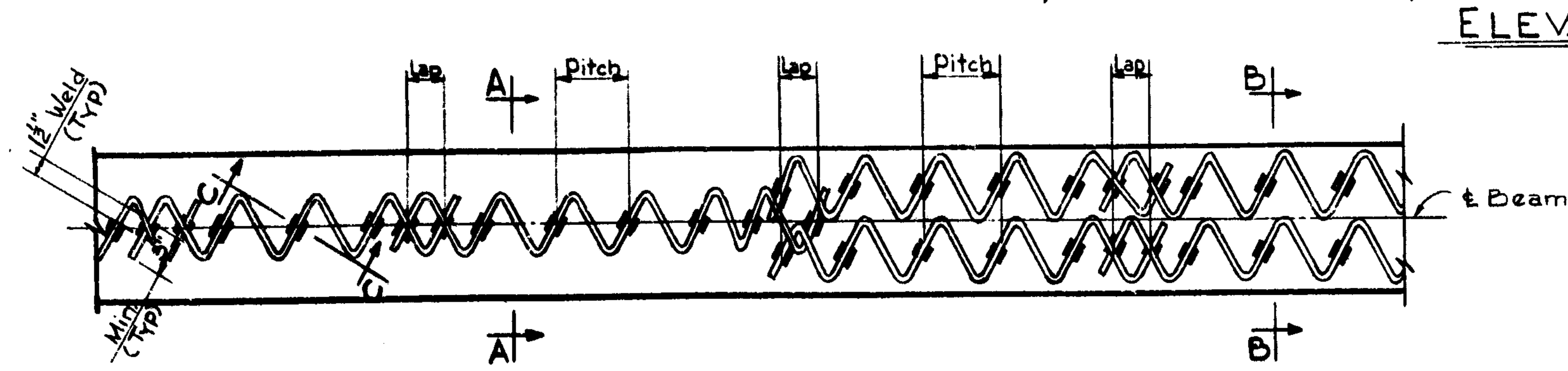


ELEVATION of SPIRALS



ELEVATION of STUDS

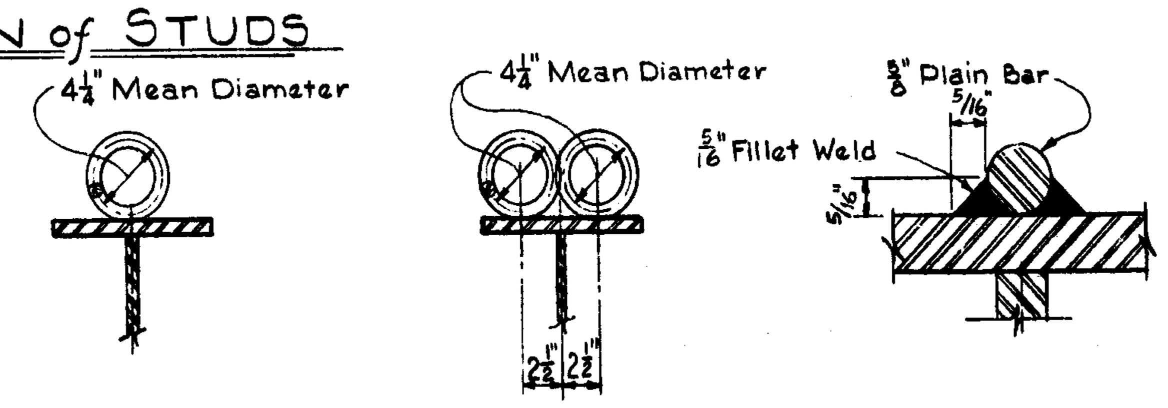
Shear Developers ------ Lump Sum



SINGLE ROW DETAILS

DOUBLE ROW DETAILS

PLAN of TOP FLANGE



SECTION-AA SECTION-BB SECTION-CC

SPIRAL SHEAR DEVELOPER DETAILS

NOTES:
Either Spiral Shear Developers or Stud Shear Connectors may be used at the option of the contractor.
Welding of Spirals or Studs to Girder flanges is incidental to Shear Developers.
Weight of Spirals or Studs is not included in Structural Steel Weights.

Work this sheet with sheets No. 20, 21 & 22

MICHIGAN STATE HIGHWAY DEPARTMENT

SHEAR DEVELOPER DETAILS

REVISIONS

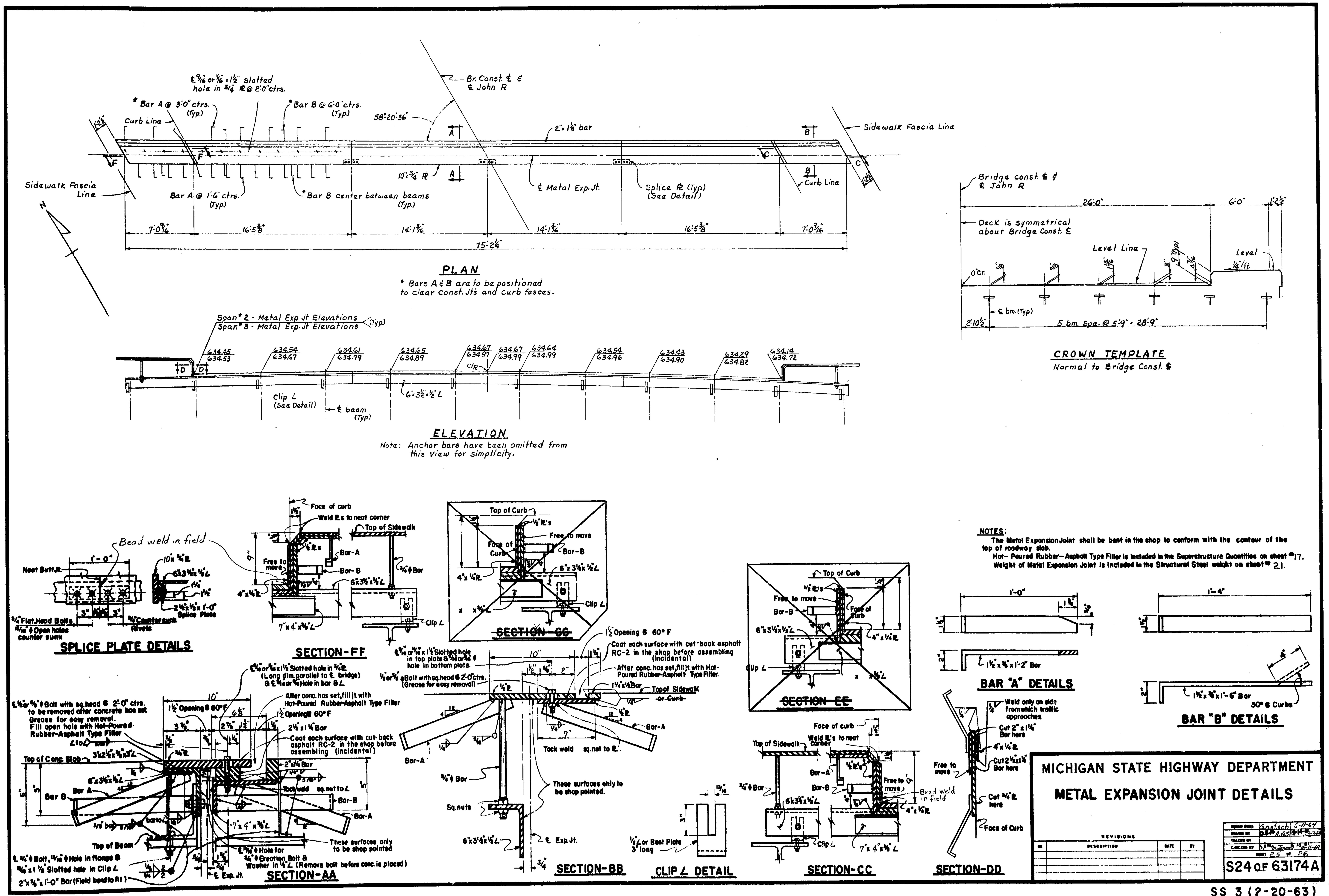
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	DEM 11-4-62	A.G.S. 3-2-64
TRACED BY		
CHECKED BY	M. Jones	6-11-64

SHEET 24 OF 26

S24 OF 63174 A

SD 1 (3-11-63)


PLAN
* Bars A & B are to be positioned to clear const. Jts and curb fasces.
Sidewalk Fascia Line
Curb Line
Br. Const. ℄ & ℄ John R
58°20'36"
2" x 1⅛" bar
Metal Exp. Jt.
Splice ℞ (Typ) (See Detail)
75'-2¼"
ELEVATION
Note: Anchor bars have been omitted from this view for simplicity.
Span #2 - Metal Exp Jt Elevations
Span #3 - Metal Exp Jt Elevations
Clip ∠ (See Detail)
℄ beam (Typ)
CROWN TEMPLATE
Normal to Bridge Const. ℄
Deck is symmetrical about Bridge Const. ℄
Level Line
5 bm. Spa. @ 5'-9" = 28'-9"
NOTES:
The Metal Expansion Joint shall be bent in the shop to conform with the contour of the top of roadway slab.
Hot-Poured Rubber-Asphalt Type Filler is included in the Superstructure Quantities on sheet #17.
Weight of Metal Expansion Joint is included in the Structural Steel weight on sheet # 21.
SPLICE PLATE DETAILS
Bead weld in field
SECTION-FF
SECTION-GG
SECTION-EE
BAR "A" DETAILS
BAR "B" DETAILS
SECTION-AA
SECTION-BB
CLIP ∠ DETAIL
SECTION-CC
SECTION-DD
These surfaces only to be shop pointed.
MICHIGAN STATE HIGHWAY DEPARTMENT
METAL EXPANSION JOINT DETAILS
REVISIONS
S24 OF 63174A
SS 3 (7-20-63)

ABUTMENTS

BAR	DIMENSIONS							SIZE	LENGTH	NO. REQ'D	TOTAL WT.
	a	b	c	d	e	f	g				
A1	4'-3"							#6	4'-3"	148	944
A2	6'-6"							#6	6'-6"	144	1,405
A3	25'-9"							#6	25'-9"	40	1,547
A4	28'-3"							#6	28'-3"	20	849
A5	30'-3"							#6	30'-3"	20	909
A6	8'-9"							#6	8'-9"	92	1,209
A7	9'-0"							#6	9'-0"	196	2,650
A8	25'-9"							#5	25'-9"	48	1,289
A9	28'-3"							#5	28'-3"	48	1,414
A10	2'-3"							#6	2'-3"	4	14
A11	NOT	USED									
A12	6'-0"							#4	6'-0"	2	8
A13	5'-5"							#4	5'-5"	2	7
A14	9'-6"							#4	9'-6"	2	13
A15	8'-11"							#4	8'-11"	2	12
A16	13'-0"							#4	13'-0"	2	17
A17	12'-5"							#4	12'-5"	2	17
A18	4'-6"							#4	4'-6"	2	6
A19	5'-0"							#4	5'-0"	2	7
A20	8'-0"							#4	8'-0"	2	11
A21	8'-6"							#4	8'-6"	2	11
A22	11'-6"							#4	11'-6"	2	15
A23	12'-0"							#4	12'-0"	2	16
D1	2'-3½"	1'-0½"						#4	5'-6"	42	154
D2	2'-9½"	1'-0½"						#4	6'-6"	12	52
D3	4'-3½"	1'-0½"						#4	9'-6"	18	114
			TOTAL	for	ABUTMENTS						12,690#

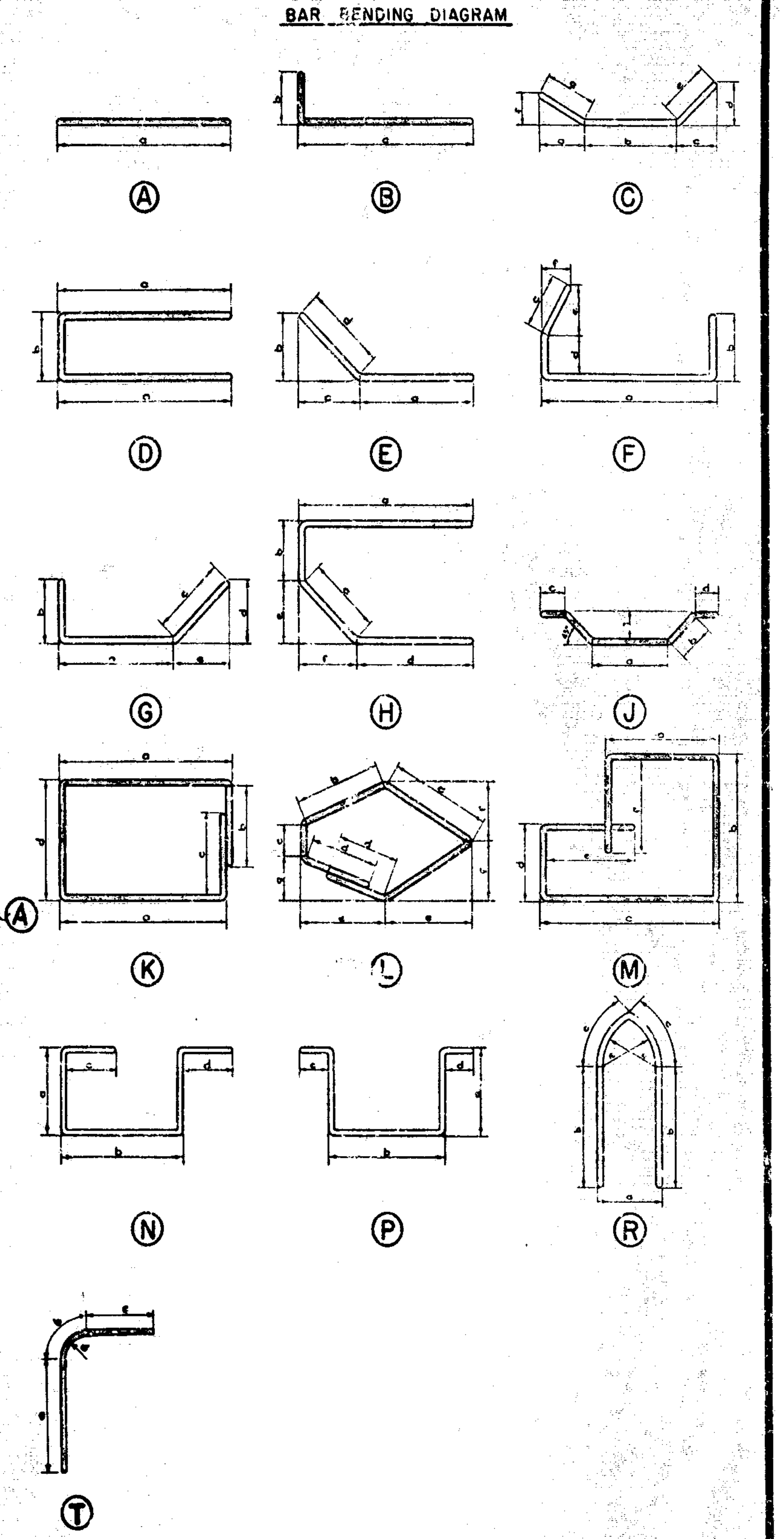
PIERS

BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A51	4'-6"							#6	4'-6"	28	189
A52	19'-6"							#6	19'-6"	10	293
A53	8'-3"							#6	8'-3"	36	446
A54	17'-0"							#6	17'-0"	26	664
A55	13'-6"							#9	13'-6"	35 (A)	1607 (A)
A56	11'-9"							#9	11'-9"	18	719
A57		Not	used								
A58	5'-9"							#9	5'-9"	50	977
A59		Not	used								
A60	8'-6"							#6	8'-6"	186	2,375
A61	36'-0"							#8	36'-0"	9	865
A62	22'-6"							#8	22'-6"	15	901
A63	8'-9"							#6	8'-9"	74	973
A64	22'-6							#6	22'-6"	12	406
A65	25'-3"							#6	25'-3"	8	303
A66	27'-9"							#8	27'-9"	6	445
A67	12'-0"							#6	12'-0"	2	36
A68	16'-6"							#6	16'-6"	4	99
A69	34'-6"							#8	34'-6"	6	553
A70		Not	used								
A71		Not	used								
A72	13'-6"							#9	13'-6"	42	1,928
A73	38'-3"							#9	38'-3"	12	1,561
A74	38'-3"							#6	38'-3"	4	230
A75	37'-0"							#9	37'-0"	14	1,761
A76	25'-6"							#8	25'-6"	30	2,043
A77	25'-3"							#7	25'-3"	14	723
A78	18'-0"							#8	18'-0"	29	1,394
A79	18'-0"							#7	18'-0"	7	258
A80	21'-0"							#8	21'-0"	15	841
A81	20'-9"							#7	20'-9"	7	297
A82	7'-6"							#6	7'-6"	148	1,668
A83	5'-9"							#9	5'-9"	96	1,877
A84	16'-6"							#9	16'-6"	42	2,356
A85	17'-9"							#8	17'-9"	26	1,232
A86	22'-6"							#6	22'-6"	8	270
A87	19'-6"							#9	19'-6"	10	663
A88	18'-0"							#6	18'-0"	8	216
A89	18'-0"							#9	18'-0"	18	1,102
A90	25'-9"							#9	25'-9"	16	1,401
A91	23'-0"							#8	23'-0"	26	1,597
A92	21'-3"							#9	21'-3"	8	578
A93	NOT	USED									
A94	22'-3"							#9	22'-3"	42	3,177
A95	19'-3"							#8	19'-3"	14 (A)	720 (A)
A96	16'-0"							#6	16'-0"	24	577
A97	7'-6"							#6	7'-6"	12	135
D51	6'-1¼"	2'-5"						#6	14'-6"	15	327
D52	1'-6"	2'-5"						#4	5'-3"	32	112
J51	21'-3"	3'-6"	10'-6"	0"	2'-6"			#10	35'-6"	6	917
K51	3'-6¾"	2'-0½"	2'-0½"	2'-5"				#6	13'-6"	1	20
K52	3'-11½"	2'-1¾"	2'-1¾"	2'-5"				#6	14'-6"	1	22
K53	5'-5½"	2'-1¾"	2'-1¾"	2'-5"				#6	17'-6"	1	26
K54	3'-0"	1'-8"	1'-8"	2'-6"				#4	11'-9"	44	345
K55	2'-6"	1'-8"	1'-8"	2'-6"				#4	10'-9"	88 (A)	632 (A)
K56	1'-10"	1'-3½"	1'-3½"	1'-10"				#4	8'-0"	80 (A)	427 (A)
K57	3'-2"	1'-9½"	1'-9½"	2'-8"				#4	12'-6"	126	1,052
L51	1'-11¼"	1'-8"	10"	1'-3¾"	1'-6"	1'-3"	10"	#4	9'-0"	10	60
L52	1'-11¼"	1'-11¼"	0"	1'-4¼"	1'-6"	1'-3"	1'-3"	#4	8'-6"	30	170
T51	7'-6"	1'-3¾"	4'-2¼"	9"				#9	13'-0"	33	1459
T52	12'-7"	1'-3¾"	3'-10¼"	9"				#9	17'-9"	8	483
T53	15'-9"	1'-3¾"	5'-11"	9"				#9	23'-0"	6	469
T54	21'-6"	1'-3¾"	5'-11"	9"				#9	28'-9"	6	586
T55	7'-0"	1'-3¾"	4'-2¼"	9"				#9	12'-6"	3	128
				TOTAL	for	PIERS					47,691# (A)

SUPERSTRUCTURE

BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A101	4'-3"							#6	4'-3"	36	230
A102	5'-0"							#6	5'-0"	20	150
A103	6'-0"							#6	6'-0"	20	180
A104	7'-0"							#6	7'-0"	20	210
A105	8'-0"							#6	8'-0"	20	240
A106	8'-9"							#6	8'-9"	20	263
A107	9'-9"							#6	9'-9"	20	293
A108	10'-9"							#6	10'-9"	20	323
A109	11'-9"							#6	11'-9"	20	353
A110	12'-9"							#6	12'-9"	20	383
A111	13'-6"							#6	13'-6"	20	406
A112	14'-6"							#6	14'-6"	20	436
A113	15'-6"							#6	15'-6"	20	466
A114	16'-6"							#6	16'-6"	20	496
A115	17'-3"							#6	17'-3"	20	518
A116	18'-3"							#6	18'-3"	20	548
A117	19-3"							#6	19'-3"	20	578
A118	20'-3"							#6	20'-3"	20	608
A119	21'-3"							#6	21'-3"	20	638
A120	22'-0"							#6	22'-0"	20	661
A121	23'-0"							#6	23'-0"	1,388	47,955
A122	3'-0"							#6	3'-0"	16	72
A123	4'-0"							#6	4'-0"	16	96
A124	4'-9"							#6	4'-9"	28	200
A125	5'-9"							#6	5'-9"	28	242
A126	6'-9"							#6	6'-9"	28	284
A127	7'-9"							#6	7'-9"	28	326
A128	8'-9"							#6	8'-9"	28	368
A129	9'-6"							#6	9'-6"	28	400
A130	10'-6"							#6	10'-6"	28	442
A131	11'-6"							#6	11'-6"	28	484
A132	12'-6"							#6	12'-6"	28	526
A133	13'-3"							#6	13'-3"	28	557
A134	14'-3"							#6	14'-3"	28	599
A135	15'-3"							#6	15'-3"	28	641
A136	16'-3"							#6	16'-3"	28	683
A137	17'-3"							#6	17'-3"	28	725
A138	18'-0"							#6	18'-0"	28	757
A139	19'-0"							#6	19'-0"	120	3,425
A140	20'-0"							#6	20'-0"	28	841
A141	21'-0"							#6	21'-0"	28	883
A142	21'-9"							#6	21'-9"	16	522
A143	22'-9"							#6	22'-9"	16	547
A144	23'-6"							#6	23'-6"	680	24004
A145	28'-3"							#4	28'-3"	462	8,718
A146	29'-0"							#6	29'-0"	276	12,023
A147	18'-9"							#4	18'-9"	154	1,930
A148	25'-9"							#4	25'-9"	22	378
A149	26'-9"							#4	26'-9"	44	786
A150	27'-6"							#4	27'-6"	154	2,829
A151	28'-0"							#6	28'-0"	52	3,870 (A)
A152	10'-0"							#6	10'-0"	4	60
A153	36'-0"							#6	36'-0"	8	433
A154	8'-0"							#6	8'-0"	4	48
A155	27'-0"							#6	27'-0"	4	162
A156	8'-3"							#6	8'-3"	4	50
A157	37'-0"							#6	37'-0"	8	445
A158	36'-6"							#6	36'-6"	4	219
A159	22'-9"							#6	22'-9"	8	273
A160	27'-3"							#6	27'-3"	72	2,947
A161	13'-0"							#4	13'-0"	136	1,182
A162	20'-0"							#4	20'-0"	136	1,817
A163	2'-0"							#6	2'-0"	12	36
A164	28'-3							#6	28'-3	12	509
A165	27'-6'							#6	27'-6	16	661
A166	18'-9'							#6	18'-9	8	225
B101	7"	6'-10½						#4	7'-5	378	1,871
D101	6"	1'-2"						#4	2'-1"	708	984
D102	2'-10⅞"	6¾"						#6	6'-3"	372	3,493
K101	10½"	5½"	6"	7½"				#4	3'-3"	448	972
K102	10¾"	5¾"	6"	7¾"				#4	3'-4"	248	553
K103	3'-4"	1'-0½"	1'-1"	1'-3½"				#4	10'-0"	16	107
K104	3'-4"	1'-1¾"	1'-2"	1'-6¼"				#4	10'-5"	4	28
M101	10¼"	3'-4"	1'-3½"	2'-1"	11"	1'-7¾"		#4	10'-0"	70	468
		TOTAL	for	SUPERSTRUCTURE							141,636 (A)

BAR BENDING DIAGRAM



Note:–
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 202,017 # (A)

MICHIGAN STATE HIGHWAY DEPARTMENT

STEEL REINFORCEMENT DETAILS

REVISIONS

NO	DESCRIPTION	DATE	BY
(A)	Corrected reinforcing steel	4-1-65	INI

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	H.L.M.	5-28-64
TRACED BY		
CHECKED BY	INI	6-10-64

SHEET 26 OF 26

S24 OF 63174A

S25-63174-29796A

CS: 63174

ID: S25 29796A

IM 63174 29796A IM 75-2(393)59

COATING EXISTING STRUCTURAL STEEL ON JOHN R
NORTHBOUND TURNING RAMP OVER I-75, CITY OF
HAZEL PARK, OAKLAND CO.
100% DBE
ITEM 9203029

CON. SEC. S25 of 63174 JOB NO. 29796A SH. NO. -

PLAN INDEX	
SH.NO.	DESCRIPTION
1	TITLE SHEET
1A	QUANTITY SHEET
2	GENERAL PLAN OF SITE
3	GENERAL PLAN OF STRUCTURE
4-6	FOR INFORMATION ONLY EXISTING DETAILS

MICHIGAN DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED BRIDGE PAINTING

MICHIGAN PROJECT IM 75-2(393) 59

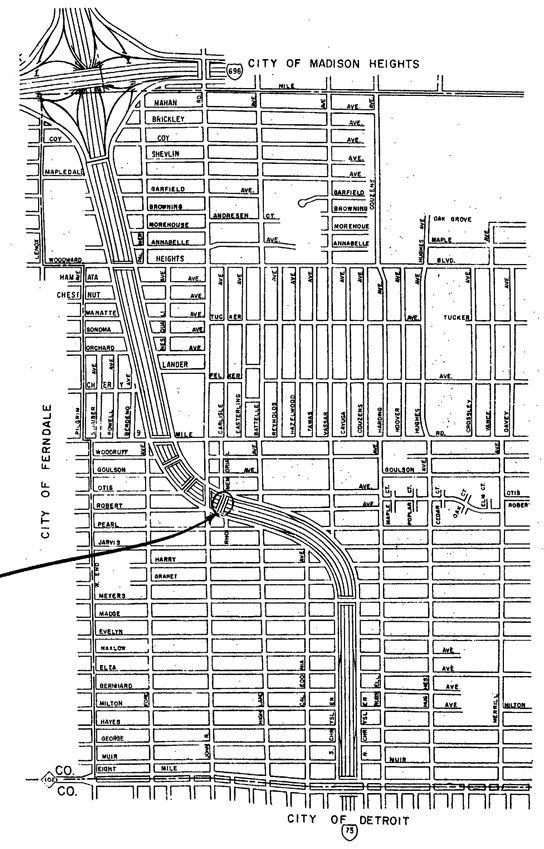
CONTROL SECTION IM 63174

JOB NUMBER 29796A

I-75

OAKLAND CO.

CITY OF HAZEL PARK



N

SEE PROPOSAL FOR AS CONSTRUCTED QUANTITIES

I-95

CORRECTED AS PER PLANS

GENERAL NOTES

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, 1990 EDITION.

THE STATIONING AS SHOWN ON THESE PLANS FOR THE INTERSECTION OF THE CENTERLINE OF BRIDGE AND ROADWAY (AND THE RAILROAD) CENTERLINE IS BELIEVED TO BE CORRECT. IT SHALL, HOWEVER, BE CHECKED AT THE TIME OF STARTING CONSTRUCTION AND IF THE STATIONING SHOWN ON THE PLANS IS INCORRECT, IT SHALL BE REPORTED TO THE DESIGN OFFICE AT LANSING AND THE STRUCTURE SHALL BE STAKED OUT USING THE ACTUAL INTERSECTION OF THE CENTERLINE OF BRIDGE AND ROADWAY (AND THE RAILROAD) CENTERLINE AS THE CONTROL POINT.

NOTE:

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

STANDARD PLANS TO BE PRINTED

SHEET NO	TITLE

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE
VI-125G	LIGHTED ARROWS AND BARRICADES

CONTRACT FOR PAINTING

APPROVALS

RECOMMENDED FOR APPROVAL — S.K. Kulkarni, ENGINEER BRIDGE DESIGN — DATE 1-11-91

RECOMMENDED FOR APPROVAL — ENGINEER OF DESIGN — DATE 1-11-91

RECOMMENDED FOR APPROVAL — Calvin Roberts, ENGINEER OF TRAFFIC & SAFETY — DATE 1-18-91

RECOMMENDED FOR APPROVAL — ENGINEER OF CONSTRUCTION — DATE 10-21-91

MICHIGAN DEPARTMENT OF TRANSPORTATION

G. ROBERT ADAMS - INTERIM DIRECTOR

APPROVED BY — DEPUTY DIRECTOR HIGHWAYS — DATE 1-7-92

PLANS PREPARED BY — BEKMANIS, DESIGN UNIT

U. S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

APPROVED — DIVISION ADMINISTRATOR — DATE

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	ITEM	SHEET NO.
S25 of 63174	29796A	IM 75-2(393)59	NP1171	1

S25 of 63174--29796A

CONTROL SECTION — JOB NUMBER

OCT-89

029796A BRIDGE TOTAL

SUMMARY OF QUANTITIES

ITEM DESCRIPTION	ITEM CODE	UNIT	PROJECT TOTAL		JOB SUBTOTAL	S25 OF 63174
CLEANING EXISTING STEEL STRUCTURE (TYPE 4)	5040045	LSUM	1	JOB NUMBER 29796A	1	1
COATING EXISTING STEEL STRUCTURE (TYPE 4)	5040046	LSUM	1		1	1
PENETRATING WATER REPELLENT TREATMENT	5030052	SYD	23		23	23
MOBILIZATION	6230001	LSUM	1		1	1
VEHICLE MOUNTED ATTENUATOR, FURNISHED	6267000	EACH	2		2	2
VEHICLE MOUNTED ATTENUATOR, OPERATED	6267002	EACH	2		2	2
LIGHTED ARROW, TYPE A, FURNISHED	6310011	EACH	2		2	2
LIGHTED ARROW, TYPE A, OPERATED	6310012	EACH	2		2	2
BARRICADE, TYPE II, LIGHTED, FURNISHED	6310026	EACH	300		300	300
BARRICADE, TYPE II, LIGHTED, OPERATED	6310027	EACH	150		150	150
BARRICADE, TYPE III, LIGHTED, FURNISHED	6310036	EACH	4		4	4
BARRICADE, TYPE III, LIGHTED, OPERATED	6310037	EACH	2		2	2
MINOR TRAFFIC DEVICES	6310054	LSUM	1	CONTROL SECTION	1	1
SIGN, TYPE B TEMPORARY	6310057	SFT	262		262	262

QUANTITY SHEET

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
1/08/91	S25 OF 63174	29796A	BEKMANIS	1A

CONTROL SECTION S25 OF 63174 | JOB NO. 29796A | SH. NO. 1A

S25 of 63174 - 29796A - SHT. 2

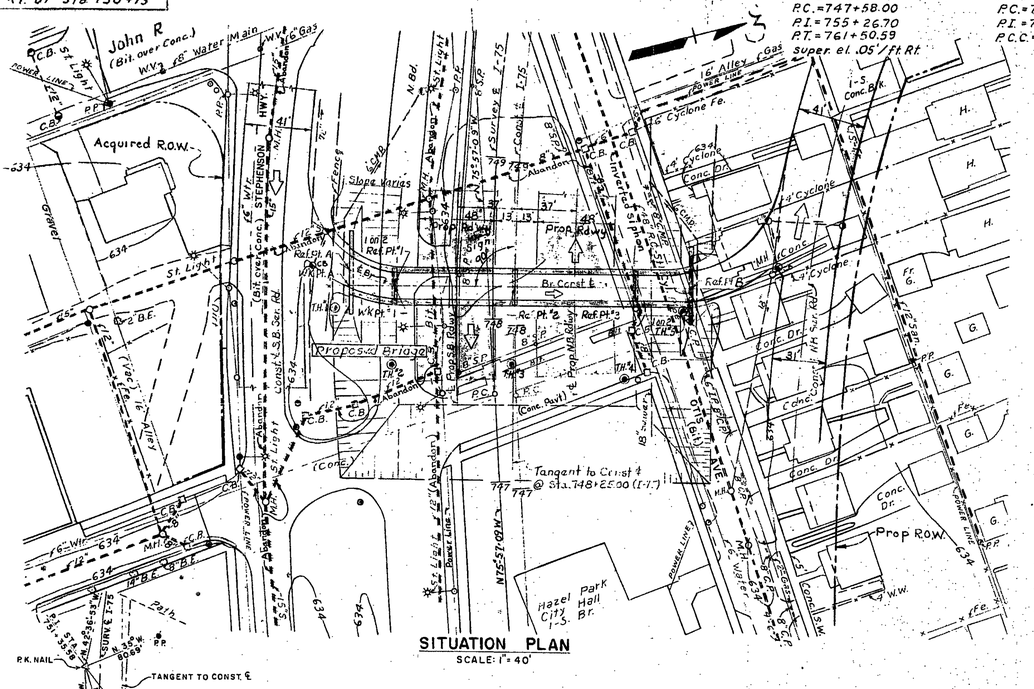
BENCH MARKS	
B.M. #87	El. 636.66
Arrow on hydrant N.E. corner of 9 Mile and Stephenson 6.0' Rt. of Sta. 761+48	
B.M. #88	El. 635.94
Arrow on hydrant S.E. corner of Otis and John R. 6.5' Rt. of Sta 750+13	

UTILITIES

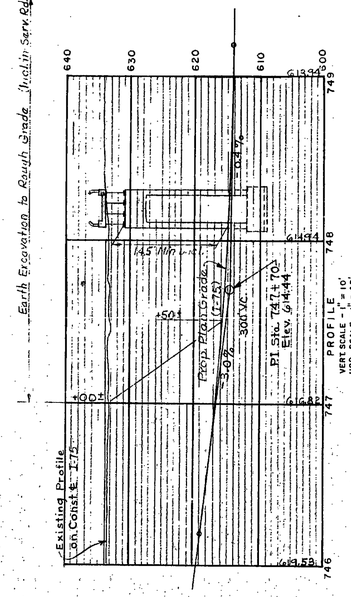
Power – Detroit Edison Co., 2000 2nd St, Detroit, Michigan.
Telephone – Michigan Bell Telephone Co., 1365 Cass, Detroit, Michigan.
Gas & Oil – Consumers Power Co., Jackson, Michigan.
Water – City of Hazel Park, Michigan.

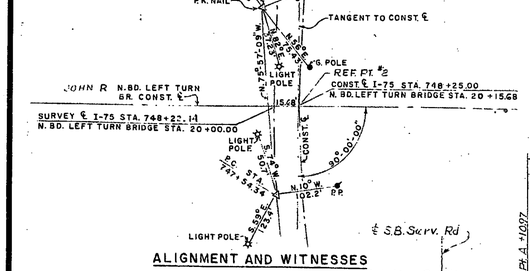
Curve Data (Const. ℄)
Δ = 60°-20'-44" Rt.
D = 4°-20' (Arc Def.)
R = 1,322.21'
T = 768.70'
L = 1,392.59'
E = 207.22'
P.C. = 747+58.00
P.I. = 755+26.70
P.T. = 761+50.59
Super. el. .05' Ft Rt.

Curve Data (Survey ℄)
Δ = 33°-20'-16" Rt.
D = 4°-30' (Arc Def.)
R = 1,273.24'
T = 381.24'
L = 740.84'
E = 55.84'
P.C. = 747+54.34
P.I. = 751+35.58
P.C.C. = 754+95.18

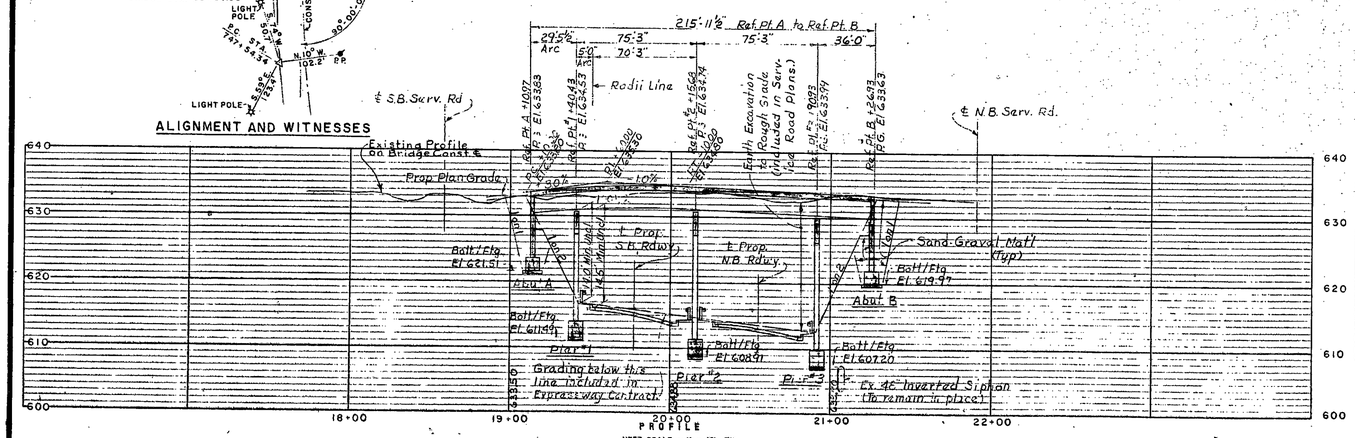


SITUATION PLAN
SCALE: 1" = 40'

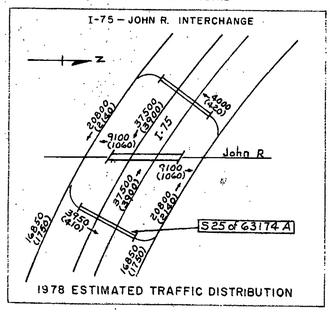




ALIGNMENT AND WITNESSES



LEGEND
000 AVERAGE DAILY VOLUME
(00) DESIGN HOUR VOLUME



1978 ESTIMATED TRAFFIC DISTRIBUTION

*NOTES:

The work covered by these plans includes construction of the proposed bridge, placing sand-gravel material in front and behind abutments together with abutment footing drains, and placing slope paving to the limits shown.

Work not listed above (with the exception of utility relocations and building and fence removals) is either included in Service Road Plans which are a part of this contract or is included in a future contract for Final Expressway Grading, Drainage Structures and paving.

Work on this contract is not to be initiated until Stephenson Highway traffic has been routed on proposed I-75 Service Roads on the site, and provisions have been made for handling cross-road traffic (See Service Road Plans).

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.

Tree removal, which is included in Service Road Plans, and relocation of utilities is to be done prior to starting work on the structure.

Topography shown hereon represents conditions existing at the time the field survey was made. However, these conditions will have been materially altered by the operation of others before work on this structure will be initiated.

Piers shall be backfilled to 95% density.

The Subdue Contractor shall be responsible for providing adequate protection of bottoms and walls of the pier footing excavations against damage by personnel, equipment and water. (Applicable for piers adjacent to expressway.)

FOR INFORMATION ONLY

MICHIGAN STATE HIGHWAY DEPARTMENT
I-75 CROSSING NORTHBOUND JOHN R LEFT TURN
IN THE CITY OF HAZEL PARK
GENERAL PLAN OF SITE

MICROFILMED

SQUAD BOSS	[illegible]	12-3-90
DRAWN BY	[illegible]	[illegible]
TRACED BY	[illegible]	8-23-65
CHECKED BY	[illegible]	[illegible]
SHEET	[illegible]	[illegible]

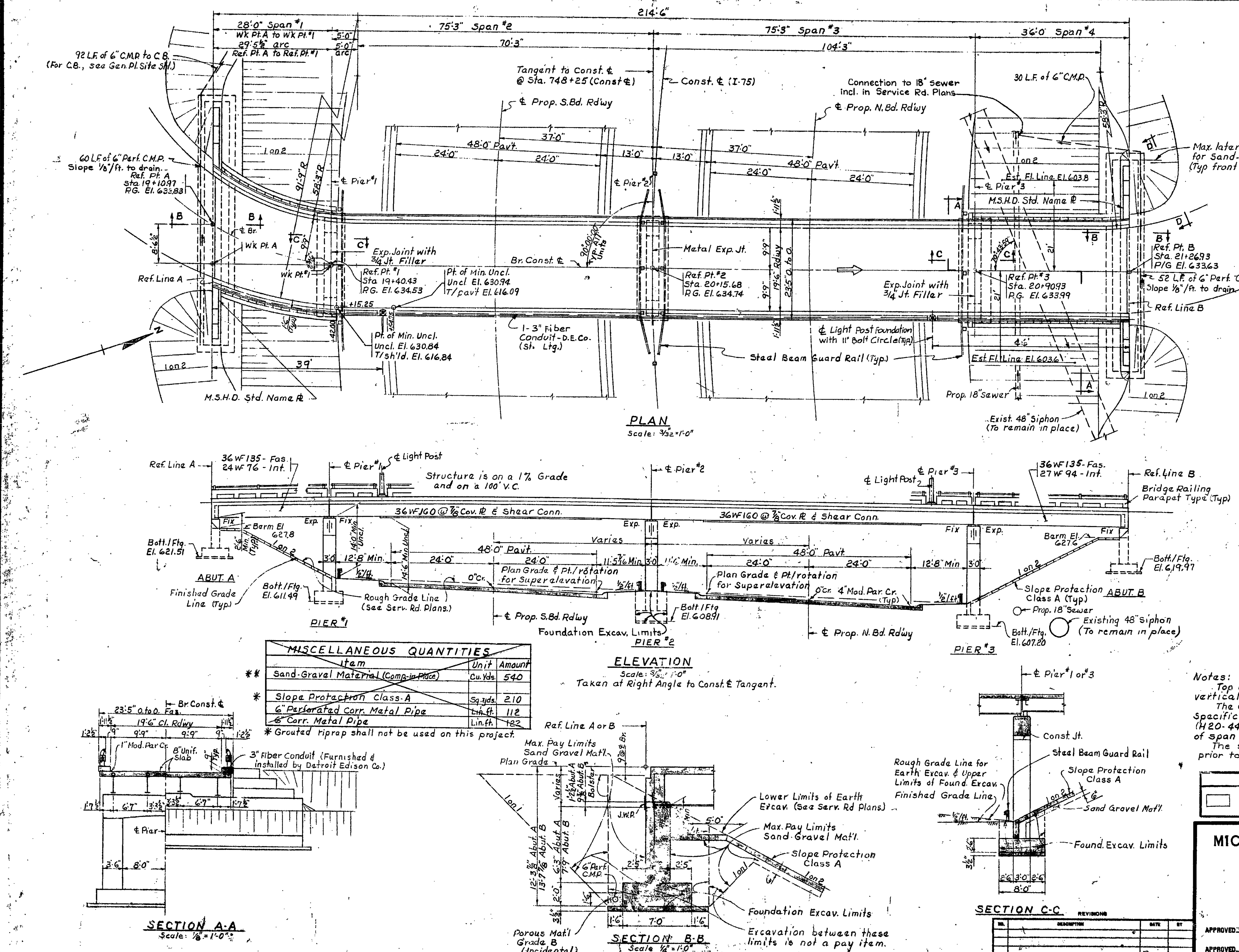
APPROVED C. D. Berkema 12/18/64
ASS'T. DESIGN SUPERVISING ENGINEER
APPROVED _____
DESIGN SUPERVISING ENGINEER

S25 OF 63174

REVISIONS

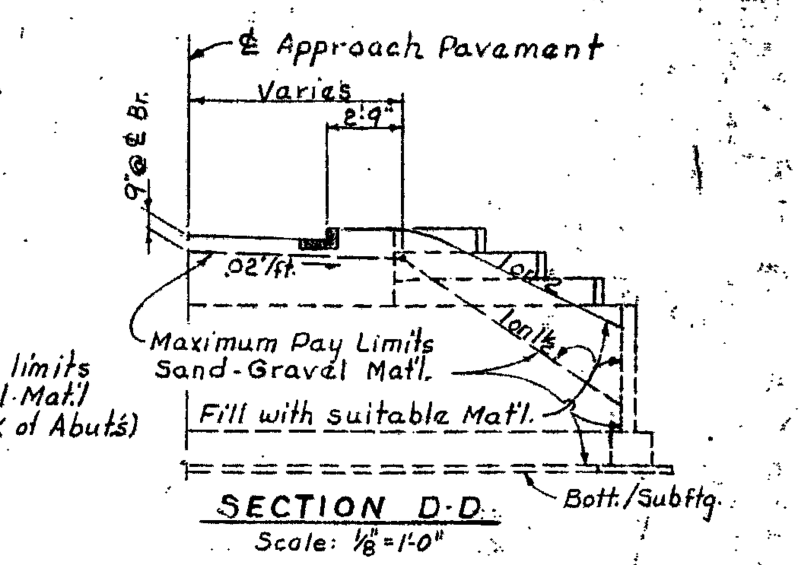
NO.	DESCRIPTION	DATE	BY

29796A



MISCELLANEOUS QUANTITIES Item	Unit	Amount
** Sand-Gravel Material (Comp-in-Place)	Cu. Yds.	540
* Slope Protection Class A	Sq. Yds.	210
6" Perforated Corr. Metal Pipe	Lin. ft.	112
6" Corr. Metal Pipe	Lin. ft.	182

* Grouted riprap shall not be used on this project.



JOB NO. 29796A

THIS BRIDGE IS COATED WITH LEAD-BASED PAINT.

SEE SPECIAL PROVISION FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

THE TOP OF PIERS SHALL BE GIVEN AN APPLICATION OF PENETRATING WATER REPELLENT TREATMENT.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE ENGINEER, STRUCTURES AND ROAD MAINTENANCE DIVISION IN LANSING.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE PAINTED IS 8,700 SQUARE FEET.

THE WORK COVERED BY THESE PLANS INCLUDES CLEANING AND COATING STRUCTURAL STEEL, BLAST CLEANING PIER CAP TOP SURFACES AND COATING WITH PENETRATING WATER REPELLENT TREATMENT, AND MAINTAINING TRAFFIC.

JOB NO. 29796A

MISCELLANEOUS QUANTITES

ITEM	UNIT	AMOUNT
* CLEANING EXISTING STEEL STRUCTURE TYPE 4	LSUM	LSUM
COATING EXISTING STEEL STRUCTURE TYPE 4	LSUM	LSUM
PENETRATING WATER REPELLENT TREATMENT	SYD	23

* INCLUDES BLAST CLEANING OF ALL PIER CAP TOP SURFACES.

CLEANING & COATING OF SIGN BRACKET IS INCLUDED IN THE PAYMENT FOR BID ITEMS "CLEANING EXISTING STEEL STRUCTURE TYPE 4" AND "COATING EXISTING STEEL STRUCTURE TYPE 4".

Notes:

Top of roadway slab and tops of curbs are parallel to vertical curve or tangents.

The design of this structure is based on the M.S.H.D. Standard Specifications for the Design of Highway Bridges - 1958 edition (H20-44 Loading). Live load plus impact deflection = 1/800 of span length.

The subfooting and footing for Pier #3 are to be constructed prior to placement of adjacent 18" sewer.

JOB NO. 29796A

☐ DENOTES WORK IN THIS CONTRACT

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 CROSSING NORTHBOUND JOHN R LEFT TURN
IN THE CITY OF HAZEL PARK

GENERAL PLAN OF STRUCTURE

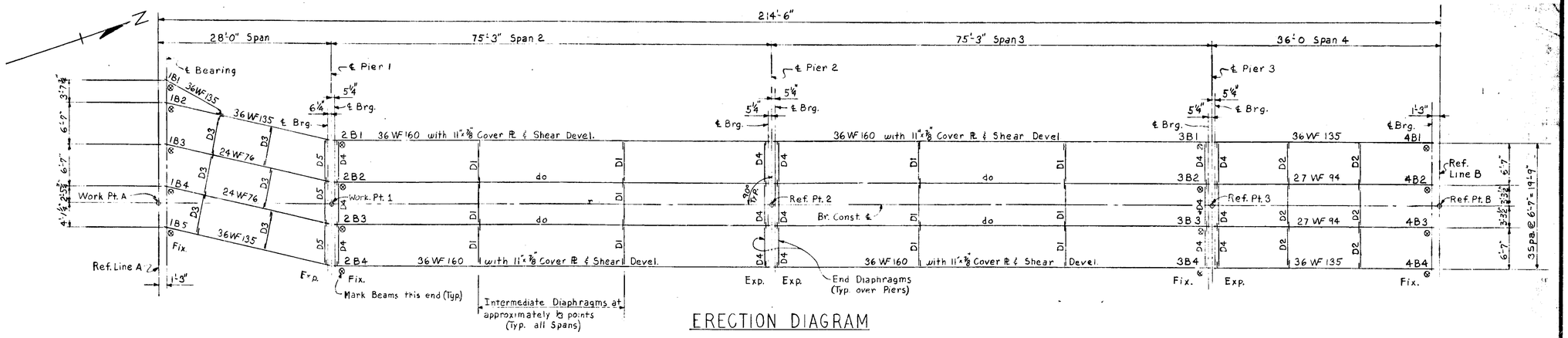
APPROVED C. D. Beukema 12/12/64 ASST. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Irvine 12/18/64 DESIGN SUPERVISING ENGINEER

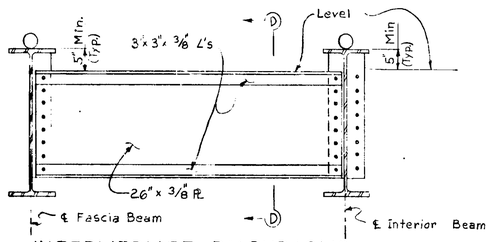
REVISIONS		DATE	BY

S25 OF 63174

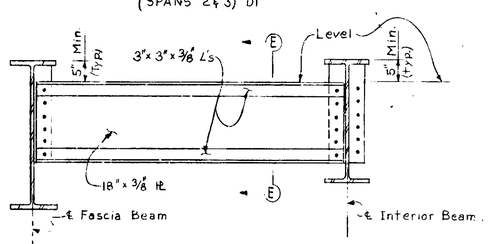
29796A



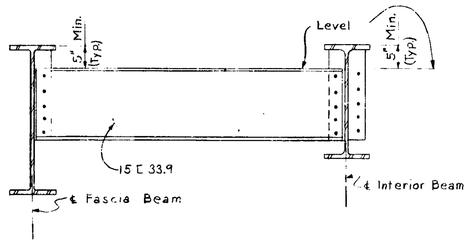
ERECTION DIAGRAM



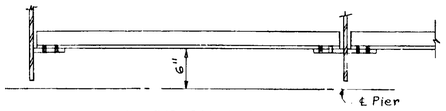
INTERMEDIATE DIAPHRAGMS
(SPANS 2 & 3) D1



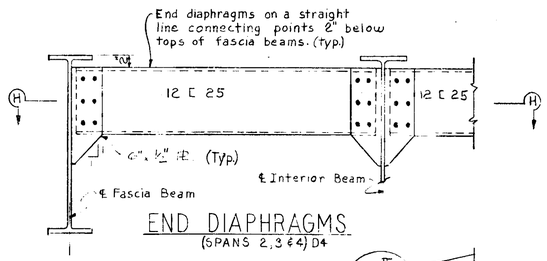
INTERMEDIATE DIAPHRAGMS
(SPAN 4) D2



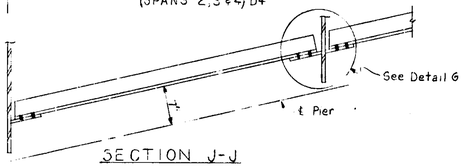
INTERMEDIATE DIAPHRAGMS
(SPAN 1) D3



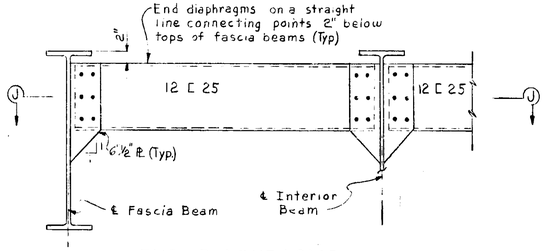
SECTION H-H



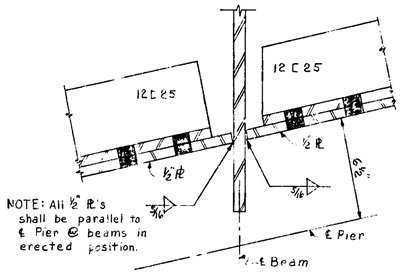
END DIAPHRAGMS
(SPANS 2, 3 & 4) D4



SECTION J-J

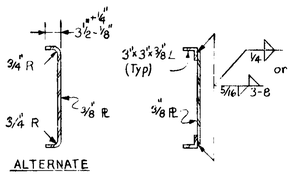


END DIAPHRAGMS
(SPAN 1) D5

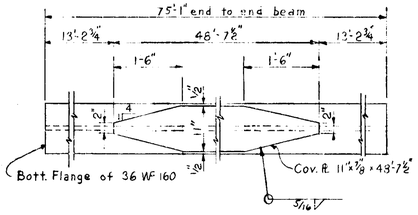


NOTE: All ½" Pl.'s shall be parallel to ℄ Pier @ beams in erected position.

DETAIL G



ALTERNATE
SECTION D-D or E-E



COVER PLATE DETAIL
(Spans 2 and 3 Beams)

NOTES:

Fabrication: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction -1963 Edition.

Design: Michigan State Highway Department's Specifications for Design of Highway Bridges-1958 Edition. (H20-44 Loading)

Shop Connections: All shop connections shall be welded as shown on the plans, except as noted.

Field Connections: Field connections shall be bolted with high strength bolts.

High Strength Bolts: ¾"ϕ

Open Holes: Open holes for high strength bolts shall be 13/16"ϕ

Shop Paint: In addition to the shop paint provisions of the Standard Specifications, the top surfaces of masonry plates shall be coated in accordance with the requirements for machine finished surfaces. Metal floor joints shall not be painted in shop except as noted on the plans.

Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates, not less than 1½" in thickness. Edges must be beveled ¼ and welded, with a continuous weld, for the full perimeter. Welds shall be ground flush with faces of plate.

Camber: The beams in span 2 are to have a camber of 5⅜", the beams in span 3 are to have a camber of 2". (Max. ordinate) This camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ±¼". Heating is to be used if necessary, to assure camber permanency within the above limitations. Dead load deflection of the beams alone is calculated to be; ⅜" in spans 2 & 3; 0" in spans 1 & 4.

All steel included in Structural Steel Quantity shall be A-36.

FOR INFORMATION ONLY

Work this sheet with sheets 15, 16, & 18

MICHIGAN STATE HIGHWAY DEPARTMENT

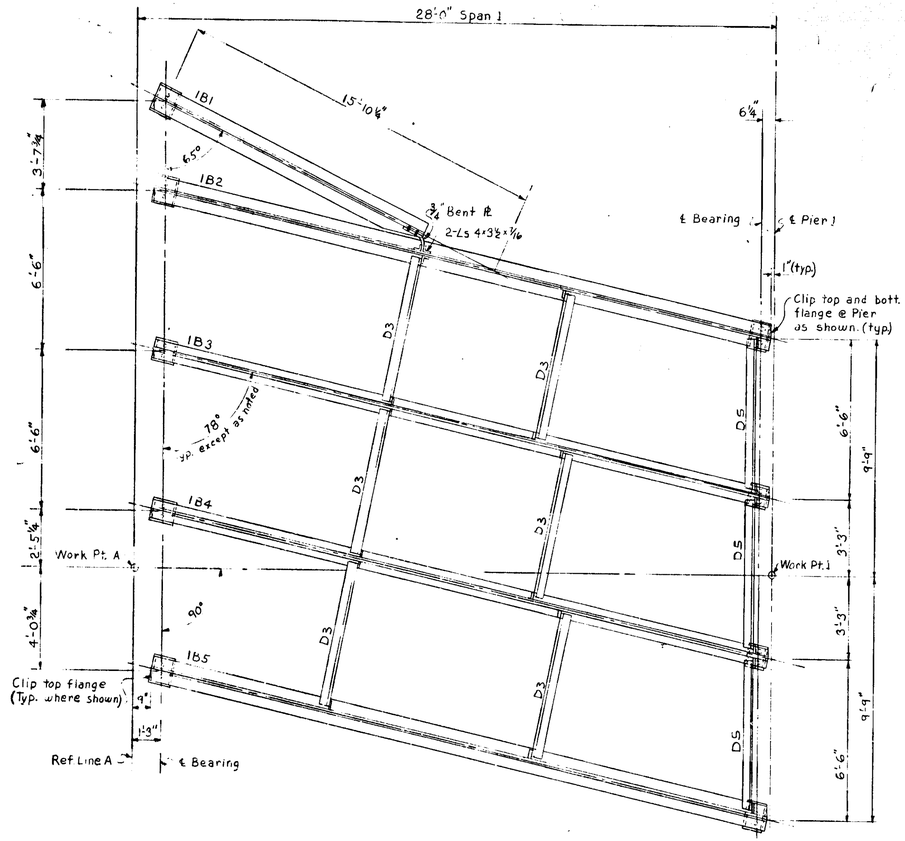
STRUCTURAL STEEL DETAILS

REVISIONS			
NO	DESCRIPTION	DATE	BY

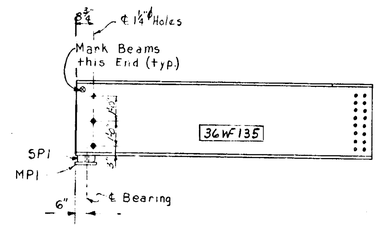
SQUAD BOSS	
DRAWN BY	W.E.W. 2-4-64
TRACED BY	
CHECKED BY	
SHEET 4 OF 20	

S25 OF 63174

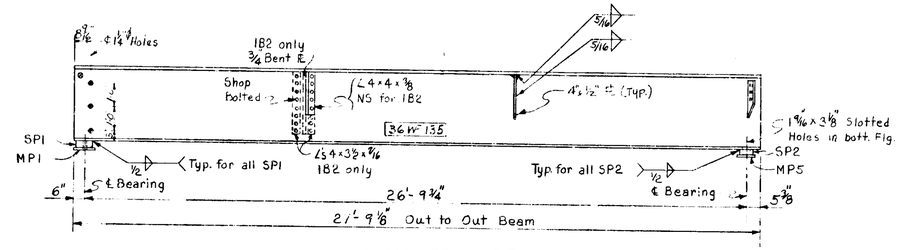
29796 A



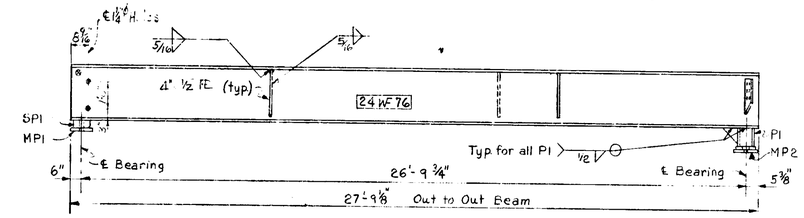
PLAN OF BEAMS SPAN-1



BEAM 1B1



BEAM 1B2 or 1B5



BEAM 1B3 or 1B4

FOR INFORMATION ONLY

Work this sheet with Sheets 14, 16 & 18

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

REVISIONS

NO	DESCRIPTION	DATE	BY

SQUARED BY	[illegible]	[illegible]
DRAWN BY	W.E.W.	[illegible]
TRACED BY		
CHECKED BY	CAF	[illegible]
SHEET 5 OF 29		

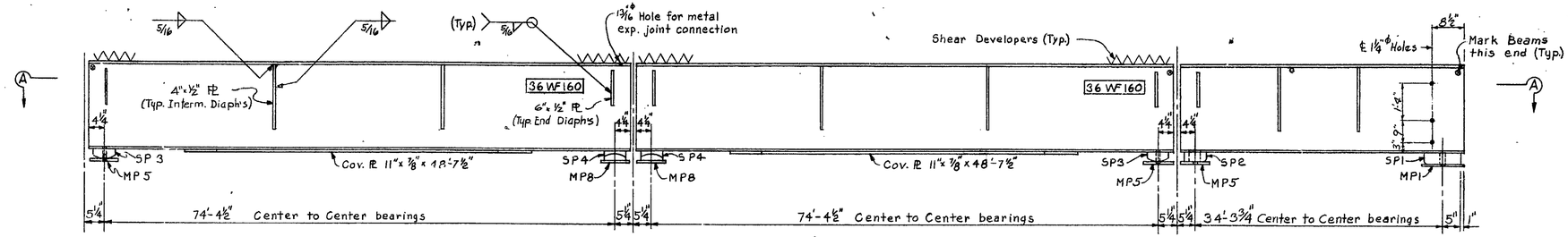
S25 OF 63174

29796 A

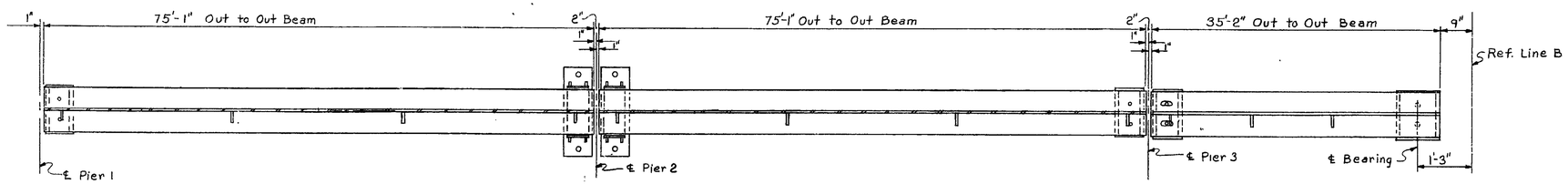
S25 OF 63174-29796A SHT. 6

SPAN 1 | SPAN 2 | SPAN 3 | SPAN 4

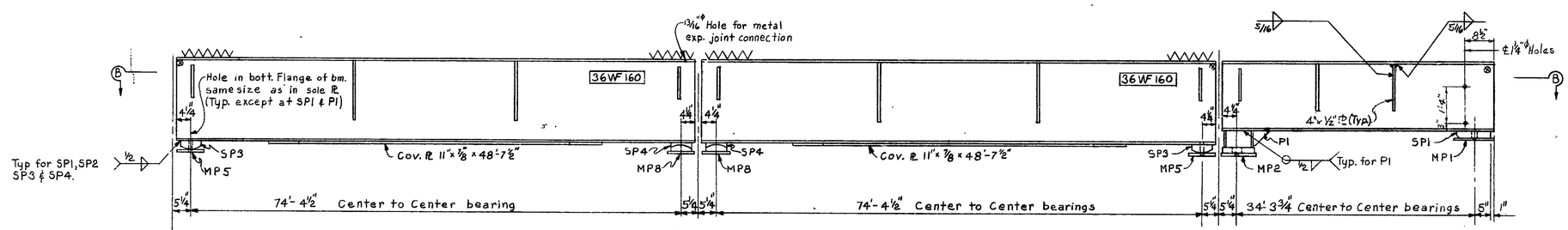
For Span 1
See Sheet # 15



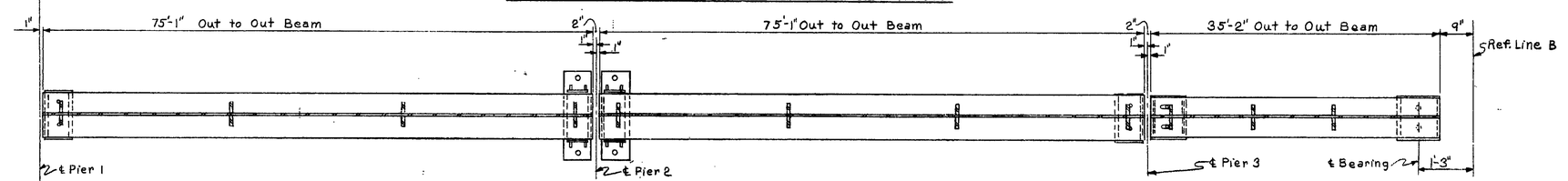
TYPICAL FASCIA BEAM LINE ELEVATION



SECTION A-A



TYPICAL INTERIOR BEAM LINE ELEVATION



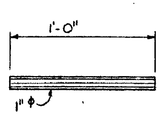
SECTION B-B

Work this sheet with sheets 14, 15 & 18

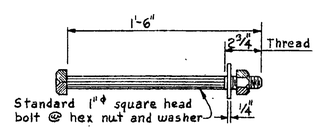
QUANTITIES		
Item	Unit	Amount
* Structural Steel-Furnishing & Fabricating	lbs.	154,500
* Structural Steel-Erection	lbs.	154,500
Field Painting	Lump	Sum

*Includes 180 lbs bronze

FOR INFORMATION ONLY



POSITION DOWEL
(18 Required)



ANCHOR BOLT
(48 Required)

MICHIGAN STATE HIGHWAY DEPARTMENT

MICROFILMED

STRUCTURAL STEEL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD BASE	Bridge	12-13-59
DRAWN BY	W.L.W.	2-4-59
TRACED BY		
CHECKED BY		
SHEET 6 OF 20		

S25 OF 63174

29796A

S25 of 63174

CS: 63174

ID: S25

I 63174 A, C 52

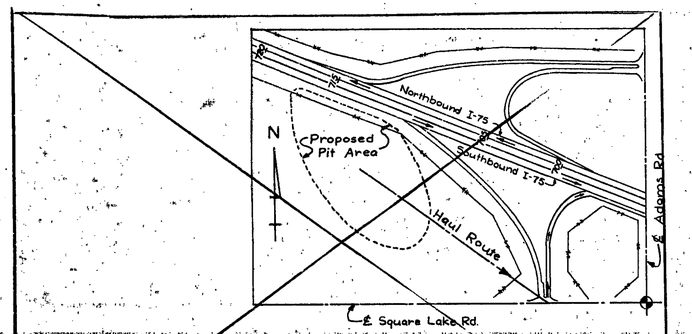
PART 1	SERVICE RDS. & UTILITIES	
PART 2	PUMPHOUSE	D02 of 63174A
PART 3	PUMPHOUSE	D03 of 63174A
PART 4	BRIDGE	S22 of 63174 A
PART 5	BRIDGE	S23 of 63174 A
PART 6	BRIDGE	S24 of 63174A
PART 7	BRIDGE	S25 of 63174A
PART 8	BRIDGE	S26 of 63174A
PART 9	BRIDGE	S27 of 63174A
PART 10	PEDESTRIAN BRIDGE	P02 of 63174 A
PART 11	PEDESTRIAN BRIDGE	P03 of 63174 A
PART 12	PEDESTRIAN BRIDGE	P04 of 63174 A
PART 13	PEDESTRIAN BRIDGE	P06 of 63174A

see Index of Drawings on next sheets (1A) & (1B)

MICHIGAN
STATE HIGHWAY DEPARTMENT

PLANS OF PROPOSED BRIDGES

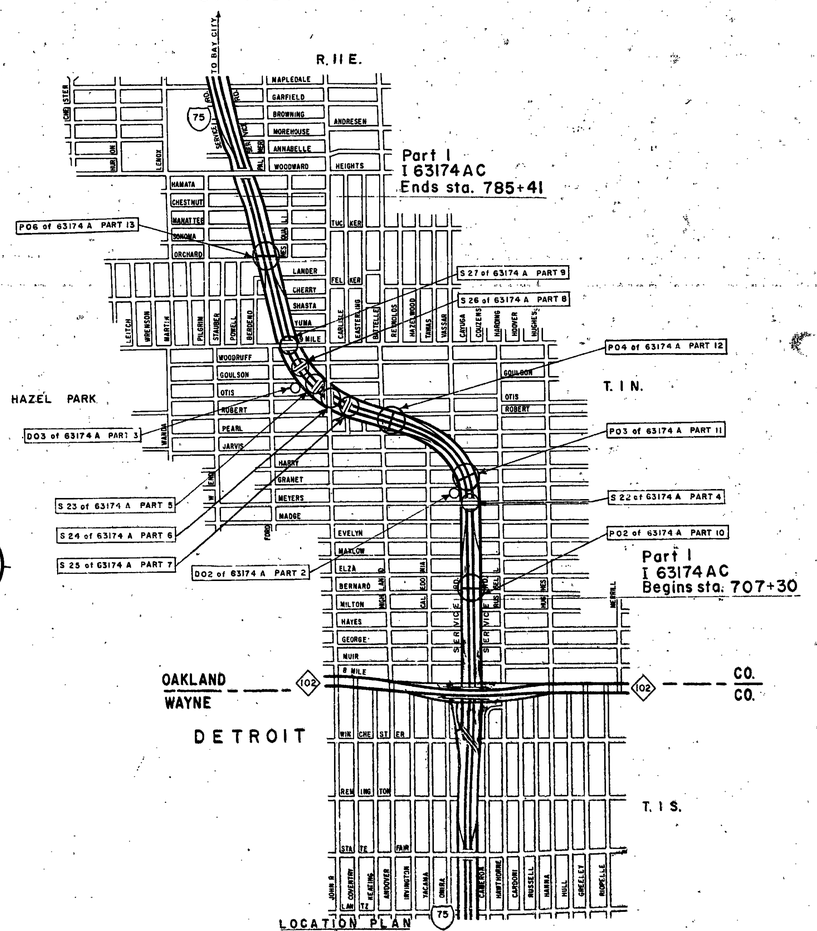
MICHIGAN PROJECT I-75-2(84)60
STATE PROJECT I 63174A, C-52
DETROIT — BAY CITY ROAD
OAKLAND COUNTY
CITY OF HAZEL PARK



NOTES:
This pit contains sufficient quantities to satisfy all granular borrow requirements.
Other contractors may be using the pit during the life of the contract.
Excavation is to be carried out to lines and grades as directed by the Engineer.

BORROW AREA

Location: That part of the S. ½ of the SE. ¼ of Sec. 1, T2N, R10E, Bloomfield Township, Oakland County, that lies south of I-75, near the intersection of Adams Road and Square Lake Road.



LOCATION PLAN
SCALE: 1" = 1,000 FEET

GENERAL NOTES

Except where otherwise indicated on these Plans or in the Proposal and Supplemental Specifications contained therein, all materials and workmanship shall be in accordance with the Michigan State Highway Department's Standard Specifications for Road and Bridge Construction, 1963 Edition.

The design of these structures is based on the Michigan State Highway Department's Specifications for the design of Highway Bridges, 1958 Edition. Loading and deflections are as indicated in Table below.

The character of all materials and the extent thereof as shown by borings has been obtained by methods and from sources believed to be reliable. The exactness of this information is, however, in no case guaranteed. Boring samples are on file in the Design Office at Lansing and are available for inspection.

All exposed concrete corners shown square on the Plans shall be beveled with 1/2" triangular moldings except as otherwise noted.

The stationing as shown on these Plans for the intersection of the centerline of bridge and roadway is believed to be correct. It shall, however, be checked at the time of starting construction and if the stationing shown on the plans is incorrect it shall be reported to the Design Office at Lansing and the structure shall be staked out using the actual intersection of the centerline of bridge and roadway as the control point.

STRUCTURE	DESIGN LIVE LOADINGS	ALLOW. LIVE LOAD + IMPACT DEFLECTION	
		SIMPLE or CONT.	CANT. ARM
S 22 OF 63174A	H15-44	L/800	L/300
S 23 OF 63174A	H20-44	L/800	X
S 24 OF 63174A	H20-44	L/800	L/300
S 25 OF 63174A	H20-44	L/800	X
S 26 OF 63174A	H20-44	L/800	X
S 27 OF 63174A	H20-44	L/800	L/300

L denotes span length

CONSTRUCTED
AS PER PLANS

CONTRACT FOR

DIVISION APPROVAL

CHECKED — ENGINEER OF DESIGN — DATE 12-18-64
RECOMMENDED FOR APPROVAL — TRAFFIC ENGINEER — DATE 12-19-64
RECOMMENDED FOR APPROVAL — ENGINEER OF BRIDGE & ROAD DESIGN — DATE 12-30-64

OFFICES OF DESIGN & CONSTRUCTION

APPROVED — CONSTRUCTION ENGINEER — DATE
APPROVED — CHIEF OF DESIGN — DATE 1/5/65

STATE HIGHWAY DEPARTMENT APPROVAL

APPROVED BY — STATE HIGHWAY COMMISSION
DIRECTOR OF ENGINEERING, CHIEF ENGINEER — DATE 1/5/65

PLANS PREPARED BY
MICHIGAN STATE HIGHWAY DEPARTMENT

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED
DIVISION ENGINEER — DATE

CONTROL SECTION	FEDERAL PROJECT	SHEET NO.
		1

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE

NOTE:
Where the following items are called for on the Plans, they are to be constructed according to the Standard Plan given below opposite each item, unless otherwise indicated

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE
SP2G	STANDARD SLOPE PAVING DETAILS

[redacted], S25, [redacted] OF 63174 A

S25 [redacted] OF 63174 A

STATE PROJECT NO.

PLAN INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
1A & 1B	INDEX SHEETS

S22 OF 63174A PART 4

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	ABUTMENT A & B DETAILS
8	PIER 1 & 3 DETAILS
9	PIER 2 DETAILS
10	SUPERSTRUCTURE DETAILS-SPANS 1 & 2
11	SUPERSTRUCTURE DETAILS-SPANS 3 & 4
12	SUPERSTRUCTURE DETAILS
13	SUPERSTRUCTURE DETAILS
14	UTILITY DETAILS
15	STRUCTURAL STEEL DETAILS
16	STRUCTURAL STEEL DETAILS
17	BEARING DETAILS
18	METAL EXPANSION JOINT DETAILS
19	STEEL REINFORCEMENT DETAILS

S23 OF 63174A PART 5

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	ABUTMENT A DETAILS
8	ABUTMENT A DETAILS
9	ABUTMENT B DETAILS
10	PIER 1 & 3 DETAILS
11	PIER 2 DETAILS
12	SUPERSTRUCTURE DETAILS
13	SUPERSTRUCTURE DETAILS
14	SUPERSTRUCTURE DETAILS
15	SUPERSTRUCTURE DETAILS
16	UTILITY DETAILS
17	STRUCTURAL STEEL DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	BEARING DETAILS
21	SHEAR DEVELOPER DETAILS
22	METAL EXPANSION JOINT DETAILS
23	STEEL REINFORCEMENT DETAILS

S24 OF 63174A PART 6

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	ABUTMENT DETAILS
8	ABUTMENT DETAILS
9	PIER 1 DETAILS
10	PIER 3 DETAILS
11	PIER 1 & 3 DETAILS
12	PIER 2 DETAILS
13	PIER 2 DETAILS
14	SUPERSTRUCTURE DETAILS
15	SUPERSTRUCTURE DETAILS
16	SUPERSTRUCTURE DETAILS
17	SUPERSTRUCTURE DETAILS
18	SUPERSTRUCTURE DETAILS
19	UTILITY DETAILS
20	STRUCTURAL STEEL DETAILS
21	STRUCTURAL STEEL DETAILS
22	STRUCTURAL STEEL DETAILS
23	BEARING DETAILS
24	SHEAR DEVELOPER DETAILS
25	METAL EXPANSION JOINT DETAILS
26	STEEL REINFORCEMENT DETAILS

S25 OF 63174A PART 7

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	BILL OF MATERIAL
6	ABUTMENT A DETAILS
7	ABUTMENT B DETAILS
8	PIERS 1 & 3 DETAILS
9	PIER 2 DETAILS
10	SUPERSTRUCTURE DETAILS
11	SUPERSTRUCTURE DETAILS
12	SUPERSTRUCTURE DETAILS
13	UTILITY DETAILS
14	STRUCTURAL STEEL DETAILS
15	STRUCTURAL STEEL DETAILS
16	STRUCTURAL STEEL DETAILS
17	SHEAR DEVELOPER DETAILS
18	BEARING DETAILS
19	METAL EXPANSION JOINT DETAILS
20	STEEL REINFORCEMENT DETAILS—Missing From Files- 6-19-69

S26 OF 63174A PART 8

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	BILL OF MATERIAL
6	ABUTMENT DETAILS
7	ABUTMENT DETAILS
8	PIER DETAILS
9	PIER DETAILS
10	SUPERSTRUCTURE DETAILS
11	SUPERSTRUCTURE DETAILS
12	SUPERSTRUCTURE DETAILS
13	SUPERSTRUCTURE DETAILS
14	UTILITY DETAILS
15	STRUCTURAL STEEL DETAILS
16	STRUCTURAL STEEL DETAILS
17	STRUCTURAL STEEL DETAILS
18	METAL EXPANSION JOINT DETAILS
19	STEEL REINFORCEMENT DETAILS

S27 OF 63174A PART 9

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	BILL OF MATERIAL
6	ABUTMENT DETAILS
7	PIER DETAILS
8	PIER DETAILS
9	PIER DETAILS
10	SUPERSTRUCTURE DETAILS
11	SUPERSTRUCTURE DETAILS
12	SUPERSTRUCTURE DETAILS
13	SUPERSTRUCTURE DETAILS
14	SUPERSTRUCTURE DETAILS
15	STRUCTURAL STEEL DETAILS
16	STRUCTURAL STEEL DETAILS
17	METAL EXPANSION JOINT DETAILS
18	STEEL REINFORCEMENT DETAILS
R11J R12H	BRIDGE RAILING, BAR CHAIR, MOLDING AND BEVEL DETAILS

D02 OF 63174A PART 2

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	GENERAL PLAN OF STRUCTURE
4	BILL OF MATERIAL
5	SUMP DETAILS
6	SUMP DETAILS
7	RAKE ROOM DETAILS
8	MACHINE ROOM & SURGE TANK DETAILS
9	MACHINE ROOM WALLS DETAILS
10	ROOF DETAILS
11	BEAMS & MISCELLANEOUS DETAILS
12	MISCELLANEOUS DETAILS
13	MECHANICAL & ELECTRICAL DETAILS
14	STEEL REINFORCEMENT DETAILS

D03 OF 63174A PART 3

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	GENERAL PLAN OF STRUCTURE
4	BILL OF MATERIAL
5	PUMPHOUSE DETAILS
6	PUMPHOUSE DETAILS
7	PUMPHOUSE DETAILS
8	PUMPHOUSE DETAILS
9	PUMPHOUSE DETAILS
10	PUMPHOUSE DETAILS
11	MISCELLANEOUS DETAILS
12	MECHANICAL & ELECTRICAL DETAILS
13	STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

APPROVED C. D. Beukema 12/18/64
ASST. DESIGN SUPERVISING ENGINEER

APPROVED L. C. Trakas 12.13.64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Geotech	6-11-64
DRAWN BY	H.L.M.	6-9-64
TRACED BY		
CHECKED BY	AQS	11-13-64
SHEET 1A OF 2		

[redacted], S25, [redacted] OF 63174 A

PLAN INDEX

P02 OF 63174A PART 10

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	PIERS 1 & 5 DETAILS
15	PIERS 2, 3, & 4 DETAILS
16	SUPERSTRUCTURE DETAILS
17	STRUCTURAL STEEL DETAILS
18	STRUCTURAL STEEL DETAILS
19	MISCELLANEOUS DETAILS
20	RAILING DETAILS - RAMP A
21	RAILING DETAILS - RAMP B
22	RAILING DETAILS - SPANS 1, 2, 3 & 4
23	STEEL REINFORCEMENT DETAILS

P03 OF 63174A PART 11

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	RAMP B DETAILS
16	PIERS 1 & 5 DETAILS
17	PIERS 2, 3 & 4 DETAILS
18	SUPERSTRUCTURE DETAILS
19	STRUCTURAL STEEL DETAILS
20	STRUCTURAL STEEL DETAILS
21	MISCELLANEOUS DETAILS
22	RAILING DETAILS - RAMP A
23	RAILING DETAILS - RAMP B
24	RAILING DETAILS - SPANS 1, 2, 3 & 4
25	STEEL REINFORCEMENT DETAILS

P04 OF 63174A PART 12

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	PIERS 1 & 5 DETAILS
16	PIERS 2, 3 & 4 DETAILS
17	SUPERSTRUCTURE DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	MISCELLANEOUS DETAILS
21	RAILING DETAILS - RAMP A
22	RAILING DETAILS - RAMP B
23	RAILING DETAILS - SPANS 1, 2, 3 & 4
24	STEEL REINFORCEMENT DETAILS
25	EXISTING PUMPHOUSE DETAILS

P06 OF 63174A PART 13

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	PIERS 1 & 5 DETAILS
16	PIERS 2, 3 & 4 DETAILS
17	SUPERSTRUCTURE DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	MISCELLANEOUS DETAILS
21	RAILING DETAILS - RAMPS A & B
22	RAILING DETAILS - SPANS 1, 2, 3 & 4
23	STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

APPROVED C. D. Beukema 12/18/64
ASS'T. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Trafos 12.18.64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Gerlach	6-11-64
DRAWN BY	H.L.M.	11-2-64
TRACED BY		
CHECKED BY	A.L.S.	11-18-64
SHEET 12 OF 34		

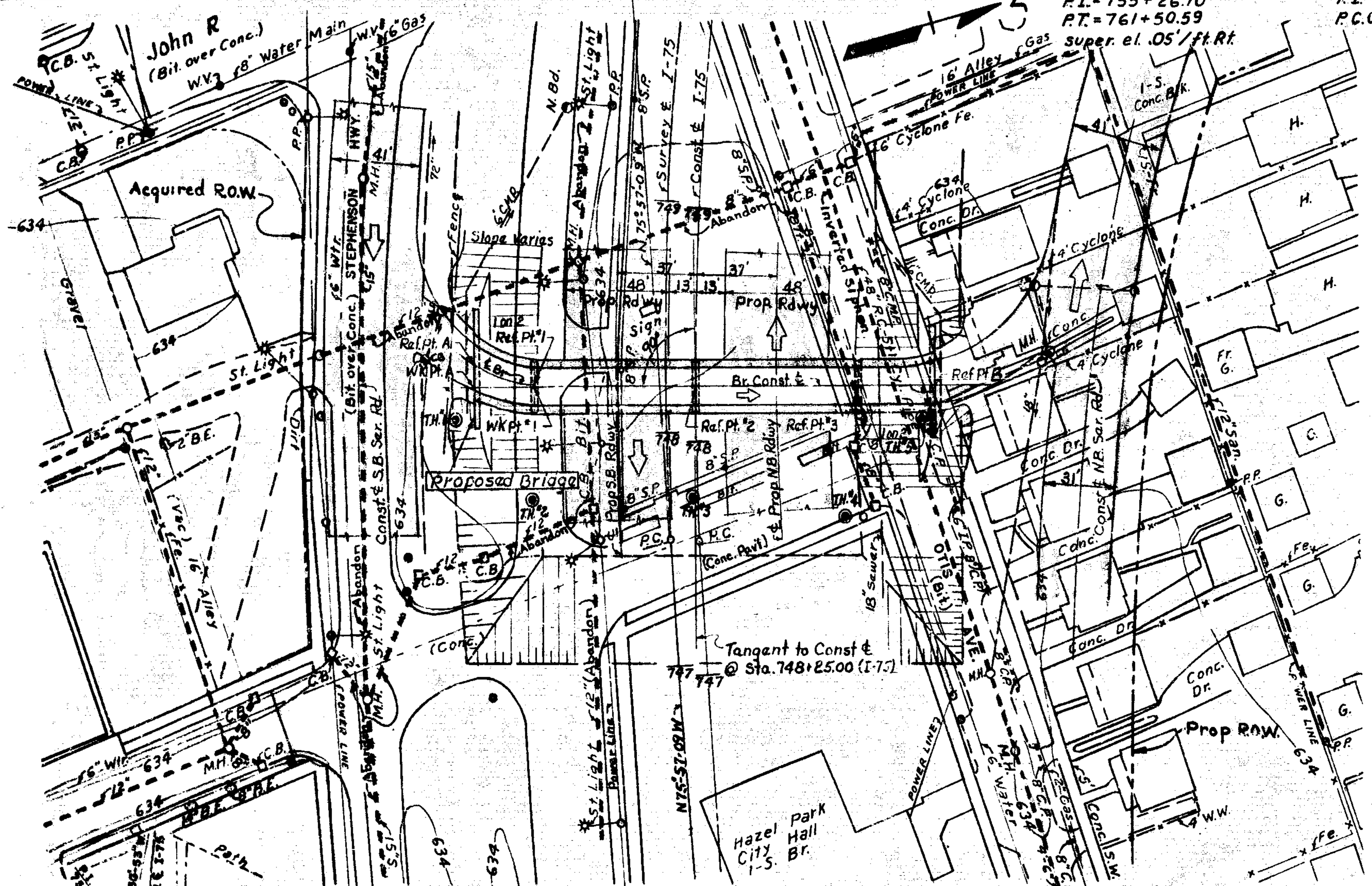
[redacted], (S25), [redacted] OF 63174 A

BENCH MARKS	
B.M.#87	El. 636.66
Arrow on hydrant N.E. corner of 9 Mile and Stephenson 6.0' Rt. of Sta. 761+48	
B.M.#88	El. 635.94
Arrow on hydrant S.E. corner of Otis and John R. 6.5' Rt. of Sta. 750+13	

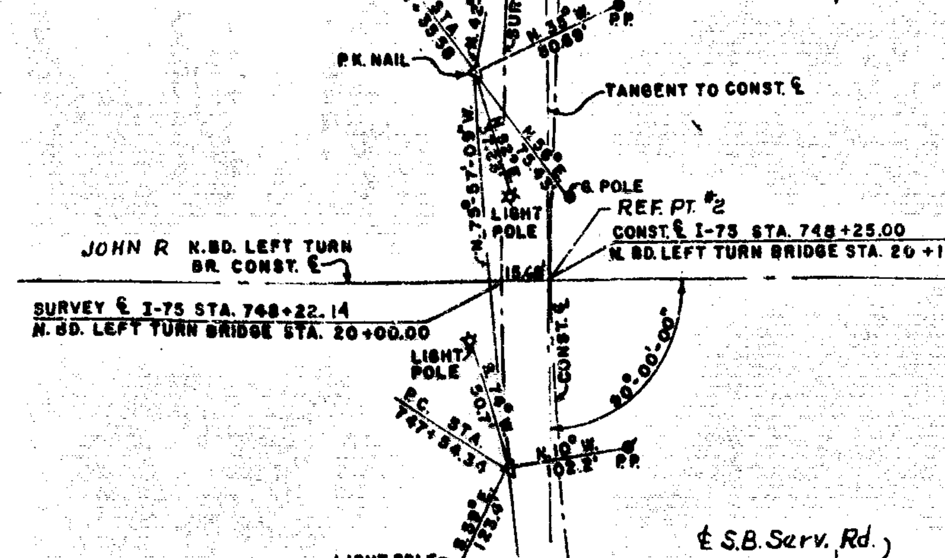
UTILITIES
Power - Detroit Edison Co., 2000 2nd St, Detroit, Michigan.
Telephone - Michigan Bell Telephone Co., 1365 Cass, Detroit, Michigan.
Gas & Oil - Consumers Power Co., Jackson, Michigan.
Water - City of Hazel Park, Michigan.

Curve Data (Const. ℄)
Δ = 60° 20'-44" Rt.
D = 4°-20' (Arc Def.)
R = 1,322.21'
T = 768.70'
L = 1,392.59'
E = 207.22'
P.C. = 747+58.00
P.I. = 755+26.70
P.T. = 761+50.59
Super. el. .05'/Ft. Rt.

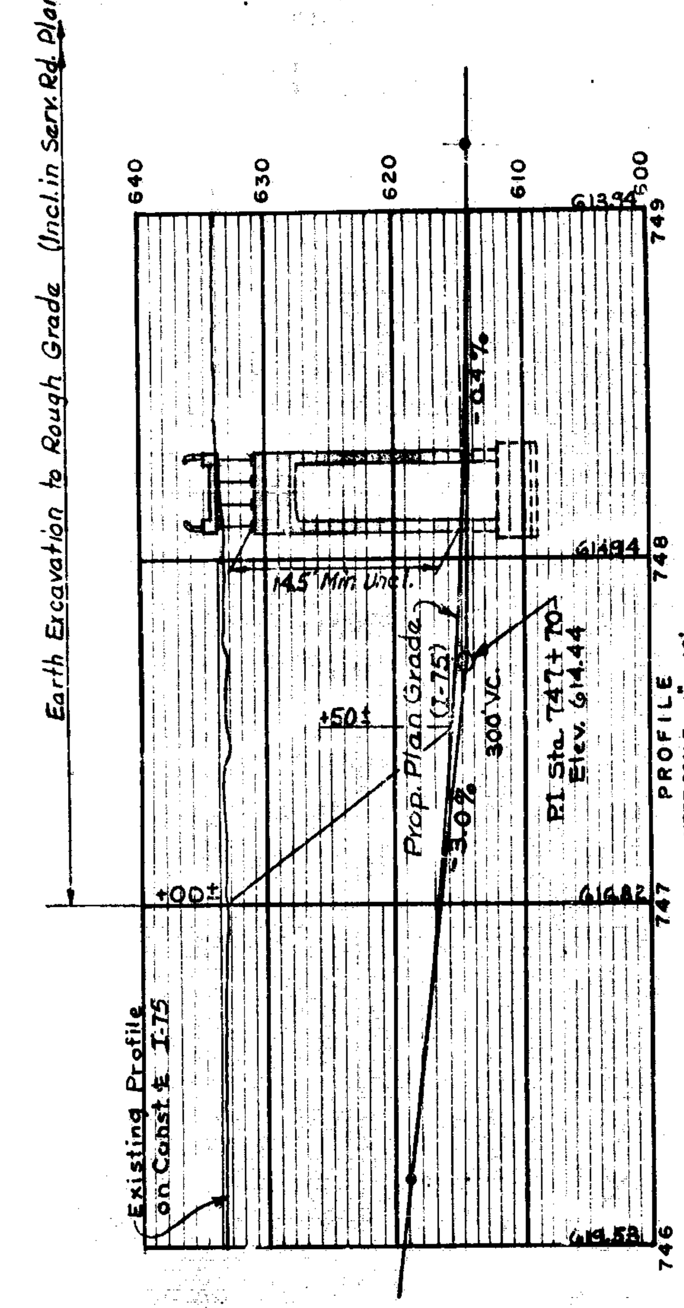
Curve Data (Survey ℄)
Δ = 33°-20'-16" Rt.
D = 4°-30' (Arc Def.)
R = 1,273.24'
T = 381.24'
L = 740.84'
E = 55.84'
P.C. = 747+54.34
P.I. = 751+35.58
P.C.C. = 754+95.18

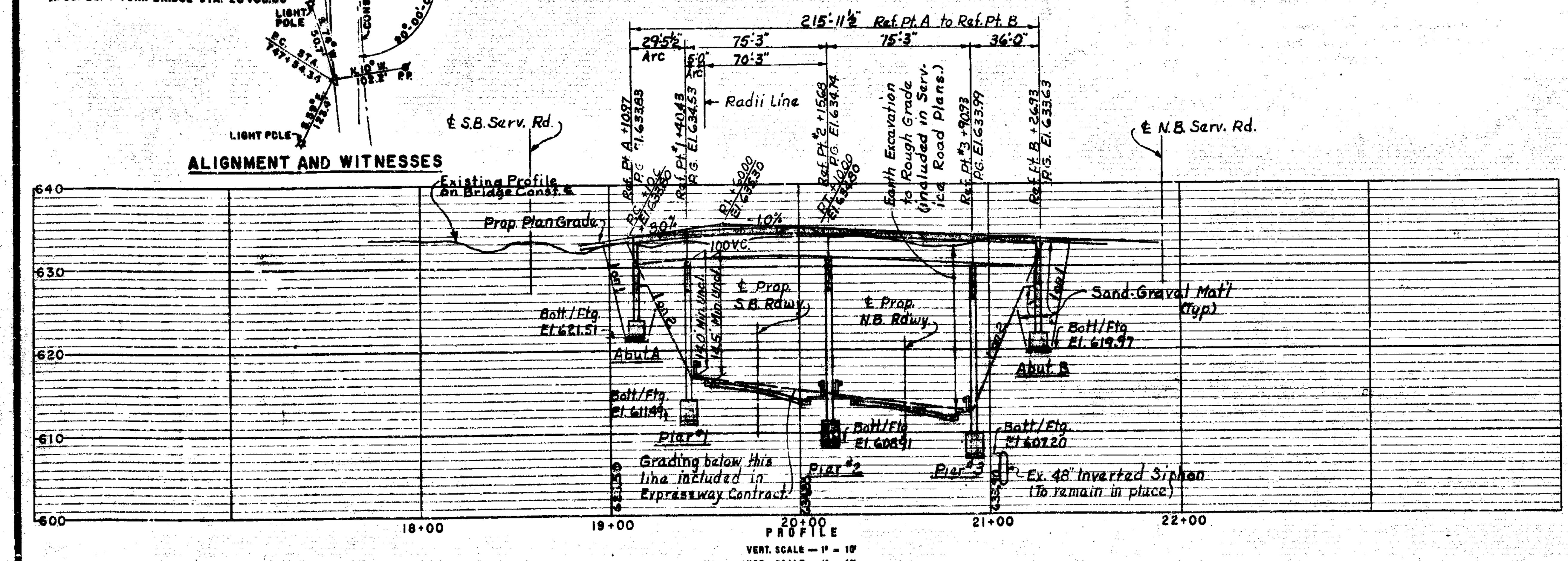


SITUATION PLAN
SCALE: 1" = 40'



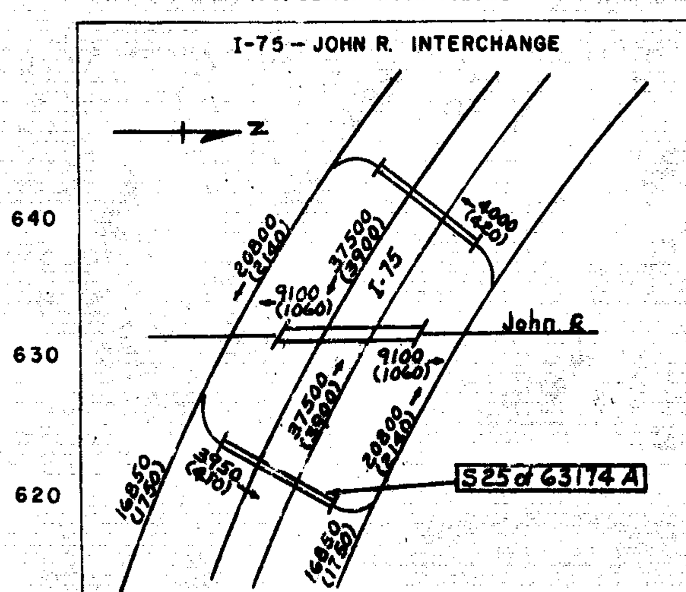
ALIGNMENT AND WITNESSES





LEGEND
000 AVERAGE DAILY VOLUME
(00) DESIGN HOUR VOLUME

I-75 - JOHN R. INTERCHANGE



1978 ESTIMATED TRAFFIC DISTRIBUTION

NOTES:

The work covered by these plans includes construction of the proposed bridge, placing sand-gravel material in front and behind abutments together with abutment footing drains, and placing slope paving to the limits shown.

Work not listed above (with the exception of utility relocations and building and fence removals) is either included in Service Road Plans which are a part of this contract or is included in a future contract for Final Expressway Grading, Drainage Structures and paving.

Work on this contract is not to be initiated until Stephenson Highway traffic has been routed on proposed I-75 Service Roads at the site, and provisions have been made for handling cross-road traffic (See Service Road Plans).

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.

Tree removal, which is included in Service Road Plans, and relocation of utilities is to be done prior to starting work on the structure.

Topography shown hereon represents conditions existing at the time the field survey was made. However, these conditions will have been materialy altered by the operation of others before work on this structure will be initiated.

Piers shall be backfilled to 95% density.

The Bridge Contractor shall be responsible for providing adequate protection of bottoms and wells of the pier footing excavations against damage by personnel, equipment and water. (Applicable for piers adjacent to expressway.)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 CROSSING NORTHBOUND JOHN R LEFT TURN
IN THE CITY OF HAZEL PARK

GENERAL PLAN OF SITE

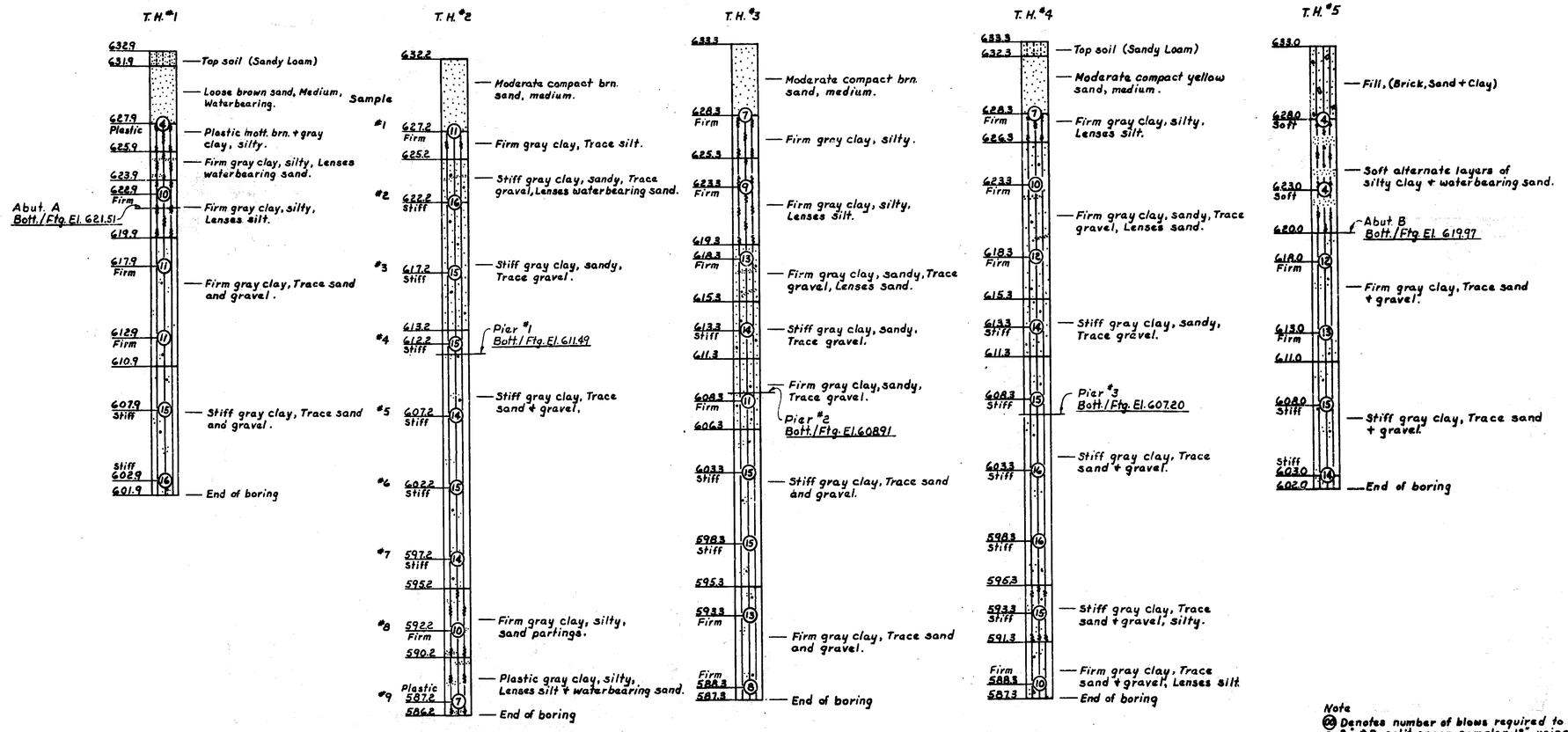
APPROVED C. D. Beukema 12/18/64
ASS'T. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Traber 12-18-64
DESIGN SUPERVISING ENGINEER

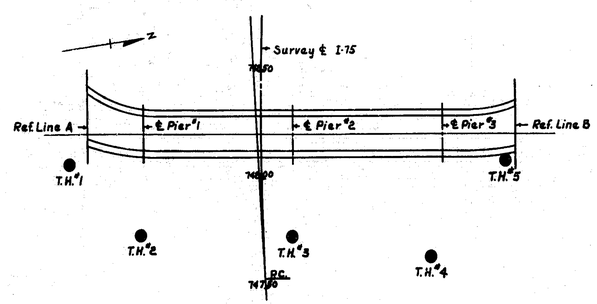
SQUAD BOSS	Goetschel	6-12-64
DRAWN BY	ADS	
TRACED BY	H.L.M.	5-23-63
CHECKED BY	AGS CAE	
SHEET 2 OF 25		

S25 OF 63174A

LOG OF BORINGS



Note
(#) Denotes number of blows required to drive a 2" O.D. split spoon sampler 12", using a 140# hammer falling 30".



BORING LOCATIONS

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 CROSSING NORTHBOUND JOHN R LEFT TURN

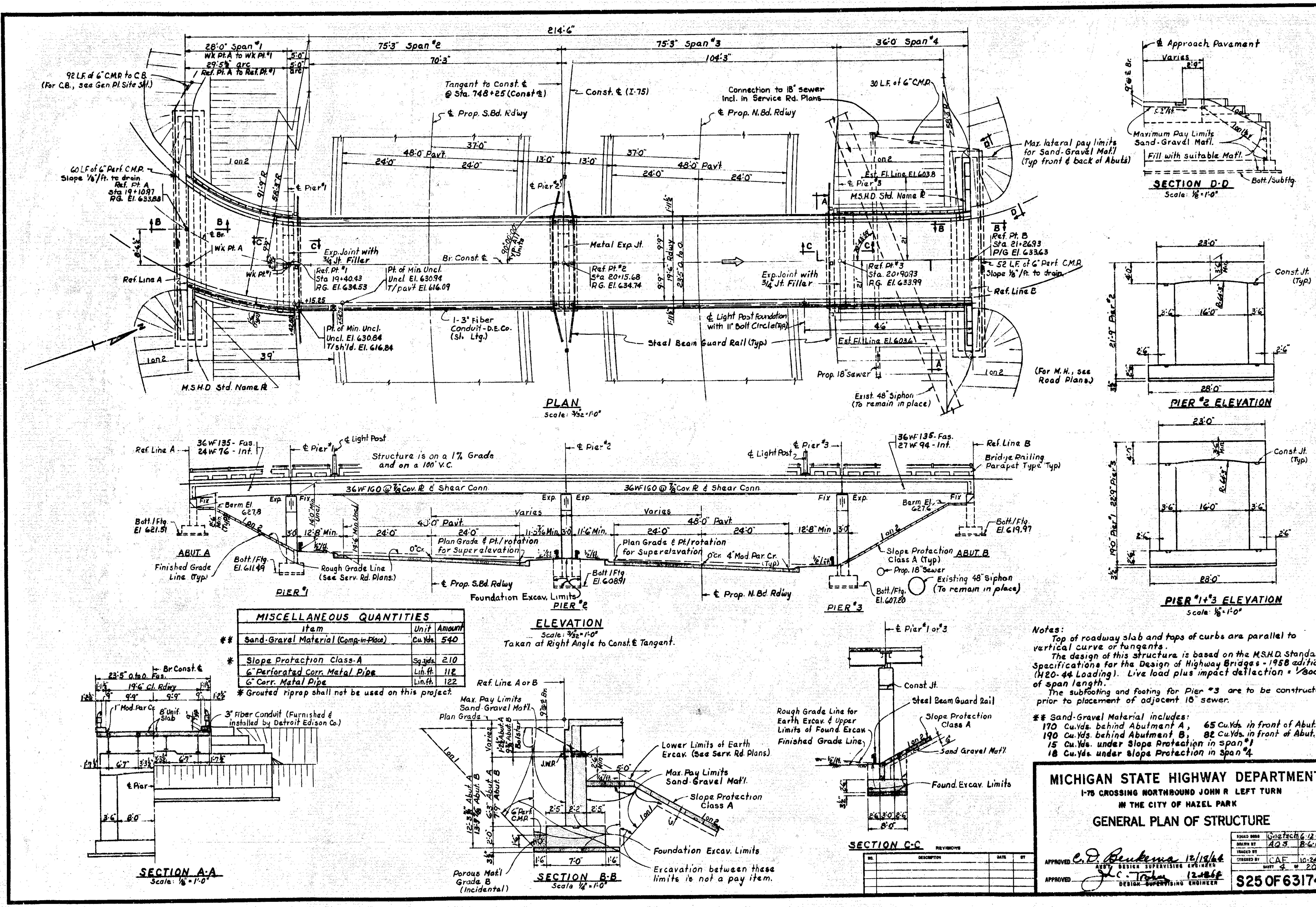
IN THE CITY OF HAZEL PARK

LOG OF BORINGS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Geotech	6-12-63
DRAWN BY	AQS	7-5-63
TRACED BY		
CHECKED BY	CAF	10-25-63
SHEET 3 OF 20		

S25 OF 63174A



MISCELLANEOUS QUANTITIES			
	Item	Unit	Amount
**	Sand-Gravel Material (Comp-in-Place)	Cu. Yds.	540
*	Slope Protection Class-A	Sq. yds.	210
	6" Perforated Corr. Metal Pipe	Lin. ft.	112
	6" Corr. Metal Pipe	Lin. ft.	122

* Grouted riprap shall not be used on this project.

Notes:

Top of roadway slab and tops of curbs are parallel to vertical curve or tangents.

The design of this structure is based on the M.S.H.D. Standard Specifications for the Design of Highway Bridges - 1958 edition (H20-44 Loading). Live load plus impact deflection = 1/800 of span length.

The subfooting and footing for Pier #3 are to be constructed prior to placement of adjacent 18" sewer.

** Sand-Gravel Material includes:
170 Cu. Yds. behind Abutment A, 65 Cu. Yds. in front of Abut. A
190 Cu. Yds. behind Abutment B, 82 Cu. Yds. in front of Abut. B
15 Cu. Yds. under Slope Protection in span #1
18 Cu. Yds. under Slope Protection in Span #4

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 CROSSING NORTHBOUND JOHN R LEFT TURN

IN THE CITY OF HAZEL PARK

GENERAL PLAN OF STRUCTURE

APPROVED C. D. Beukema 12/18/64
ASS'T. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Tobin 12-18-64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Gaetech	6-12-64
DRAWN BY	AOS	8-6-63
TRACED BY		
CHECKED BY	CAF	10-24-63
SHEET 4 OF 20		

S25 OF 63174A

ITEM	UNIT	QUANTITY	DATE	AL CONST	AUTH	
Unclassified Excavation	Cu. Yds.	630	5-20-68	623	✓	IF
Grade A (6A) Concrete - Substructure	Cu. Yds.	136.9		136.9	✓	
Grade A (6AA) Concrete - Substructure	Cu. Yds.	133.6		133.6	✓	
Protective Sealant Coating for Concrete	Sq. Ft.	201	5-20-68	188	✓	IF
Grade A (6AA) Concrete Superstructure	Cu. Yds.	166.2		166.2	✓	
Water Reducing Retarding Admixture	Gals.	20	5-20-68	0	✓	IF
Steel Reinforcement	Lbs.	64,716		64,716	✓	
Structural Steel - Furnishing & Fabricating	Lbs.	154,500	5-20-68	153,918	✓	IF
Structural Steel - Erection	Lbs.	154,500	5-20-68	153,918	✓	IF
Shear Developers	L.S.	Lump Sum		L.S.	✓	
Joint Filler	Sq. Ft.	72	5-20-68	61	✓	IF
8" Joint Filler	Sq. Ft.	67		67	✓	
Hot-Poured Rubber - Asphalt Type Filler	Lin. Ft.	70	5-20-68	71	✓	IF
Joint Waterproofing	Sq. Ft.	215	5-20-68	193	✓	IF
Copper	Lbs.	181	5-20-68	179	✓	IF
Field Painting	L.S.	Lump Sum		L.S.	✓	
Bridge Railing - "Europa" Type	Lin. Ft.	431.1	5-20-68	429.3	✓	IF
6" Corr. Metal Pipe	Lin. Ft.	122	5-20-68	76.3	✓	IF
6" Perforated Corr. Metal Pipe	Lin. Ft.	118	5-20-68	116.1	✓	IF
Slope Protection - Class A	Sq. Yds.	210	5-20-68	209.1	✓	IF
Sand Gravel Material (Comp. in place)	Cu. Yds.	340	5-20-68	337.3	✓	IF

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL

CHECKED
CONTRACT SECTION
DATE 6/20/68

MICHIGAN STATE HIGHWAY DEPARTMENT

BILL OF MATERIAL

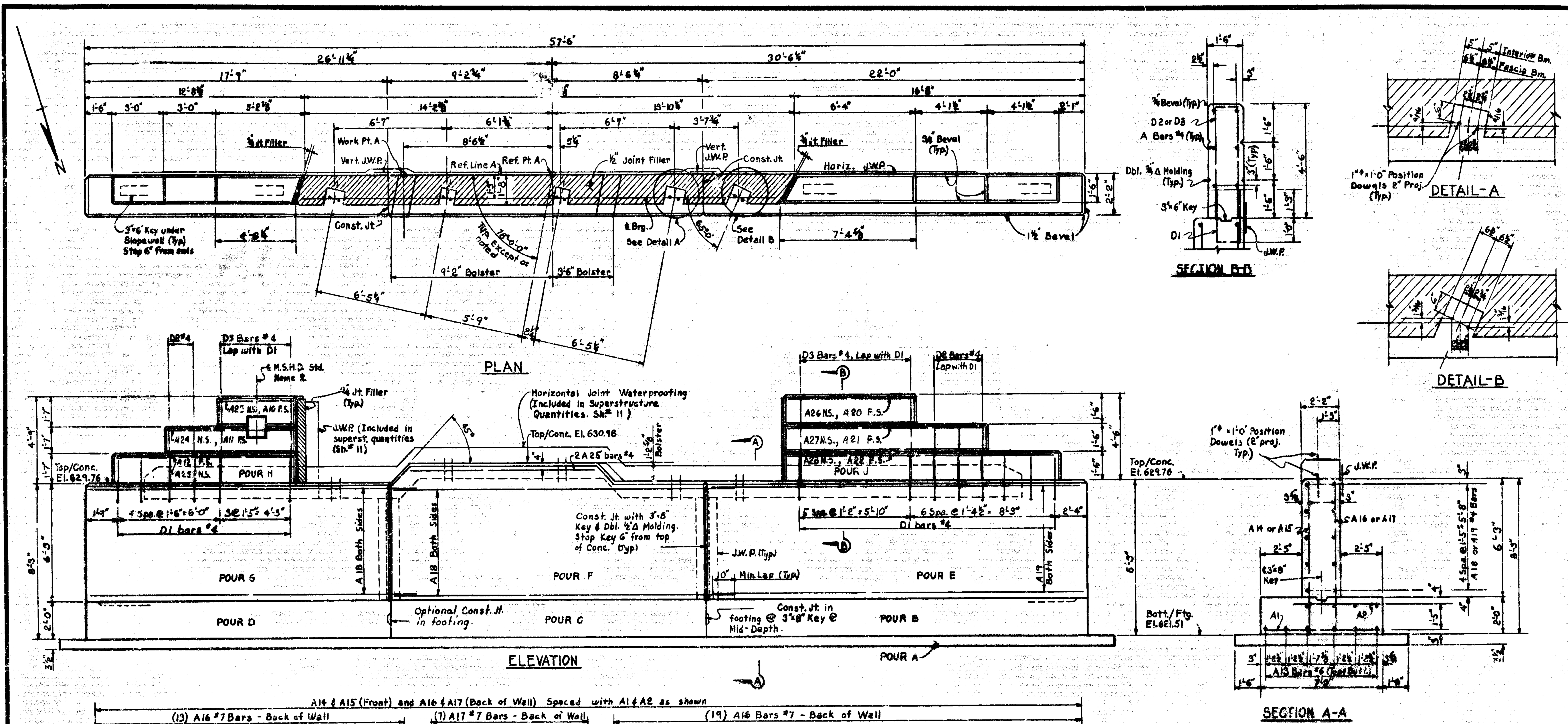
ROAD BOSS	Gotsch	6-12-64
DRAWN BY	A. J. S.	4-1-64
TRACED BY		
CHECKED BY	M. Jones	6-11-64
SHEET 5 OF 20		

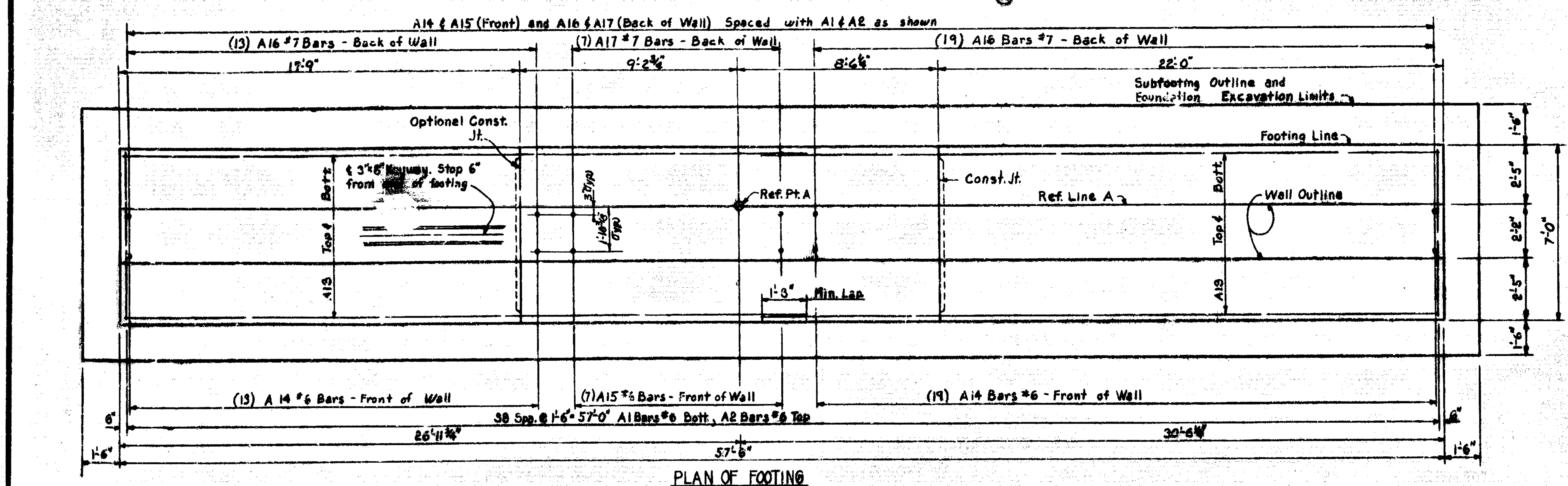
I 75-2(84)

S25 OF 63174A

P47 C52

S25 OF 63174A





MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Unclassified Excavation	Cu.Yds.	215
½" Joint Filler	Sq.Ft.	39
¾" Joint Filler	Sq.Ft.	14
Joint Waterproofing	Sq.Ft.	21

CONCRETE QUANTITIES-SUBSTR.			
Pour	Location	Grade A(6A)	Grade A(6AA)
A	Subfooting	6.5	
B	footing	11.4	
C	footing	9.2	
D	footing	9.2	
E	Wall		11.1
F	Wall		9.9
G	Wall		8.9
H	Slopewall		2.1
J	Slopewall		2.7
Totals		36.3 Cu.Yd.	34.7 Cu.Yd.

For Notes see Sh. #7

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT A DETAILS

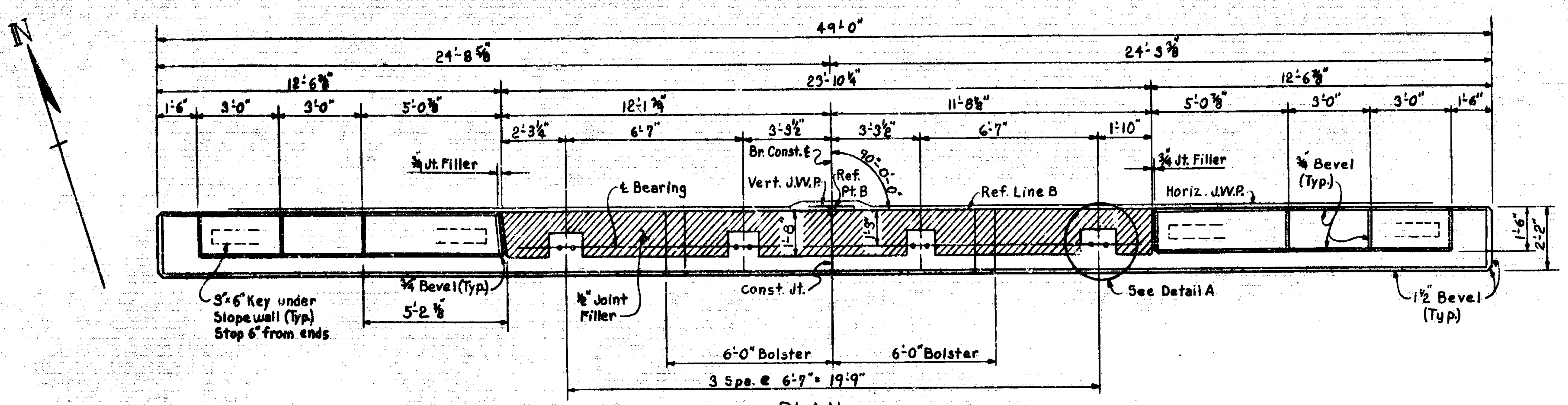
REVISIONS

NO.	DESCRIPTION	DATE	BY

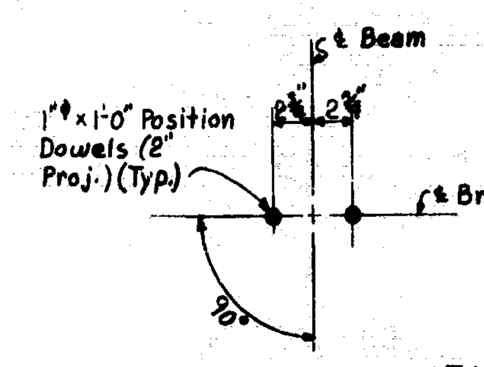
SQUAD BOSS	Goetsch	6-12-64
DRAWN BY	Wells	1-23-64
TRACED BY		
CHECKED BY	CAF / INE	2-7-64 / 2-27-64

SHEET 6 OF 20

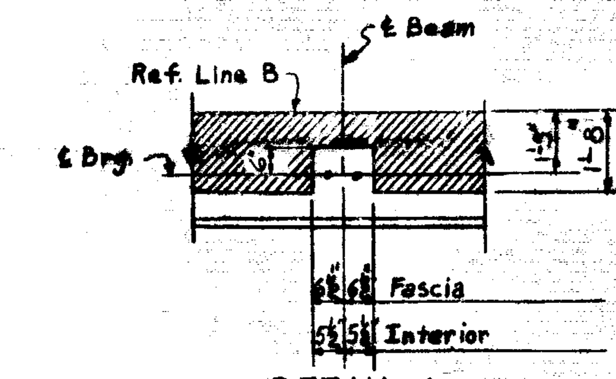
S25 OF 63174A



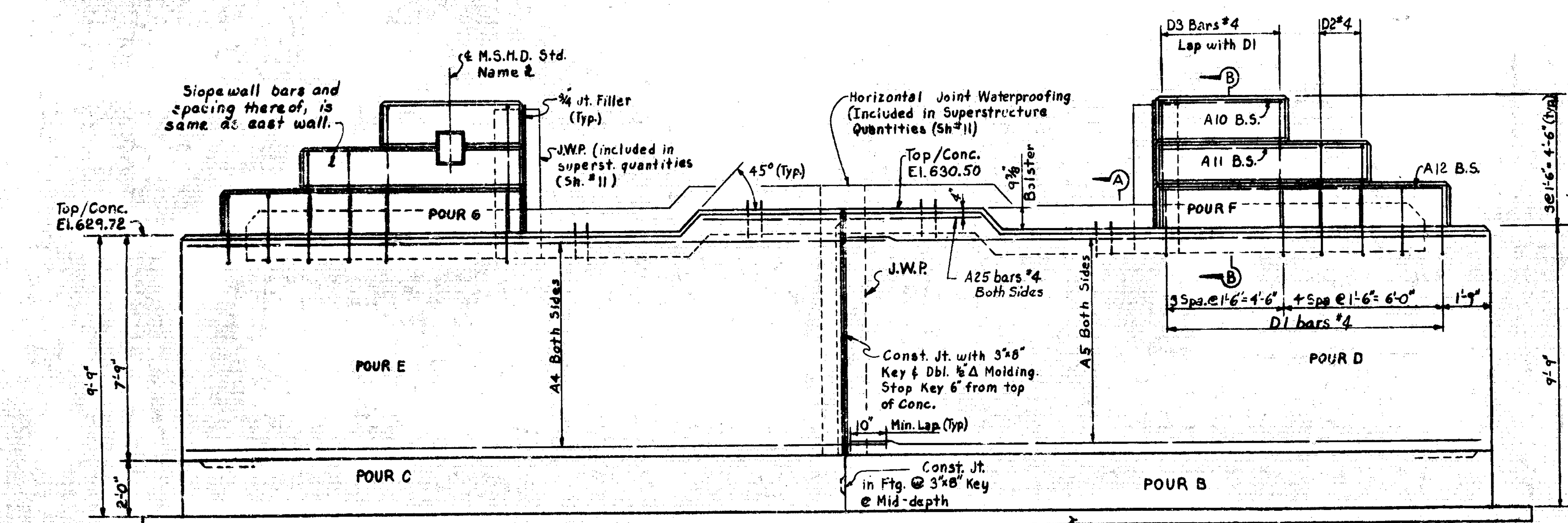
PLAN



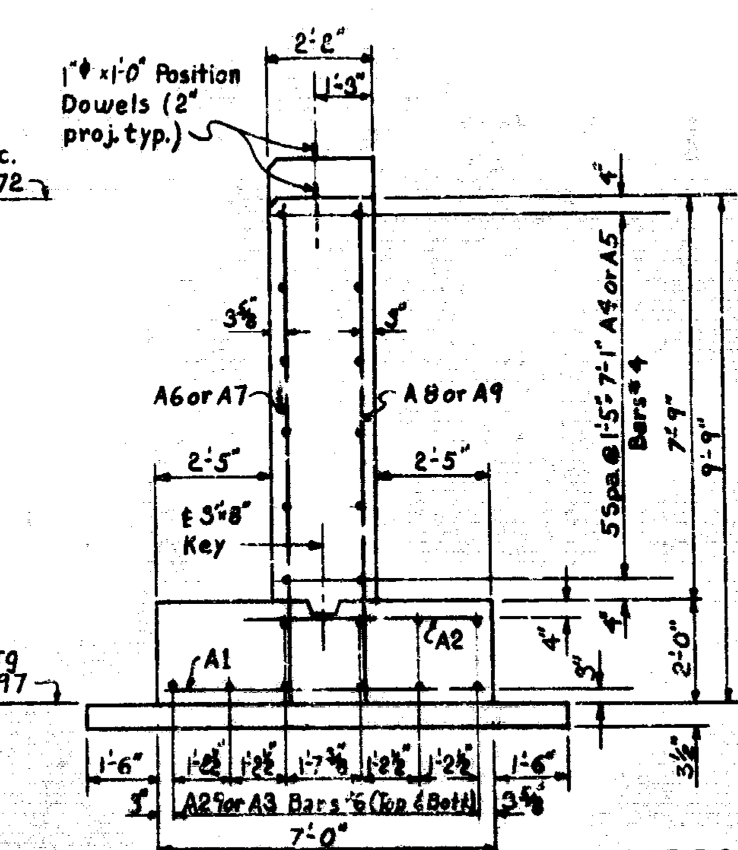
POSITION DOWEL DIAGRAM



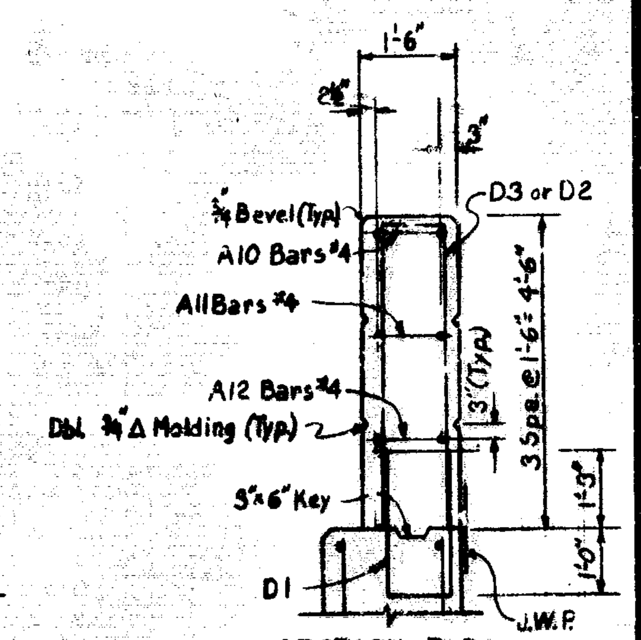
DETAIL A



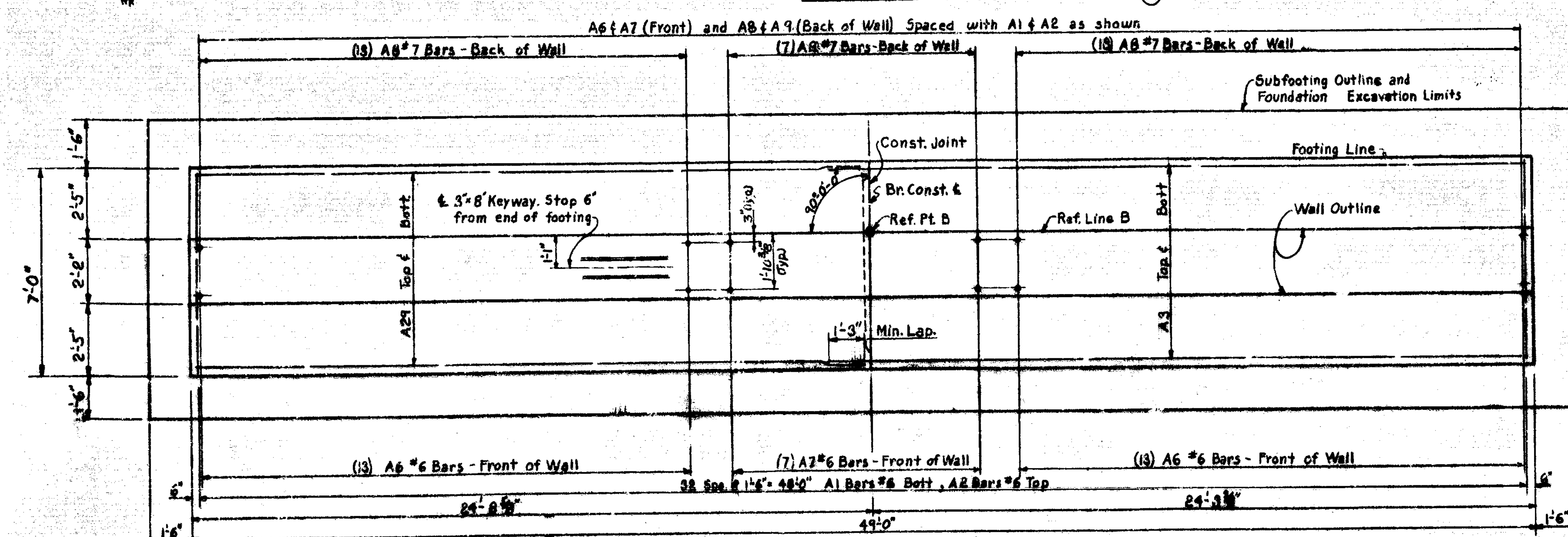
ELEVATION



SECTION A-A



SECTION B-B



PLAN OF FOOTING

NOTES

J.W.P. denotes joint waterproofing.
For Bevel and Molding Details, see standard sheet R11.
See standard sheet R11 for Name Plate location and mounting details.
Position Dowels shall be set accurately to a template.
The top of Abut. shall be finished to a true plane at the elevation shown & shall not vary more than 1/8" under a ten foot straight edge nor more than 1/16" under any bearing.
Slopewalls shall be cast after superstructure is complete to tops of curb.
Maximum Average Foundation Pressure (D.L. only) 1,510 psf.
Maximum Foundation Pressure (D.L.+L.L.) 3120 psf.

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Unclassified Excavation	Cu.Yds	240
1/2" Joint Filler	Sq.Ft.	33
3/4" Joint Filler	Sq.Ft.	14
Joint Waterproofing	Sq.Ft.	14

CONCRETE QUANTITIES - SUBSTR.			
Pour	Location	Grade A (6A)	Grade A (6AA)
A	Subfooting	5.6	
B	Footing	12.6	
C	Footing	12.8	
D	Wall		15.5
E	Wall		15.8
F	Slope Wall		2.0
G	Slope Wall		2.0
Totals		31.0 Cu.Yd.	35.3 Cu.Yd.

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT B DETAILS

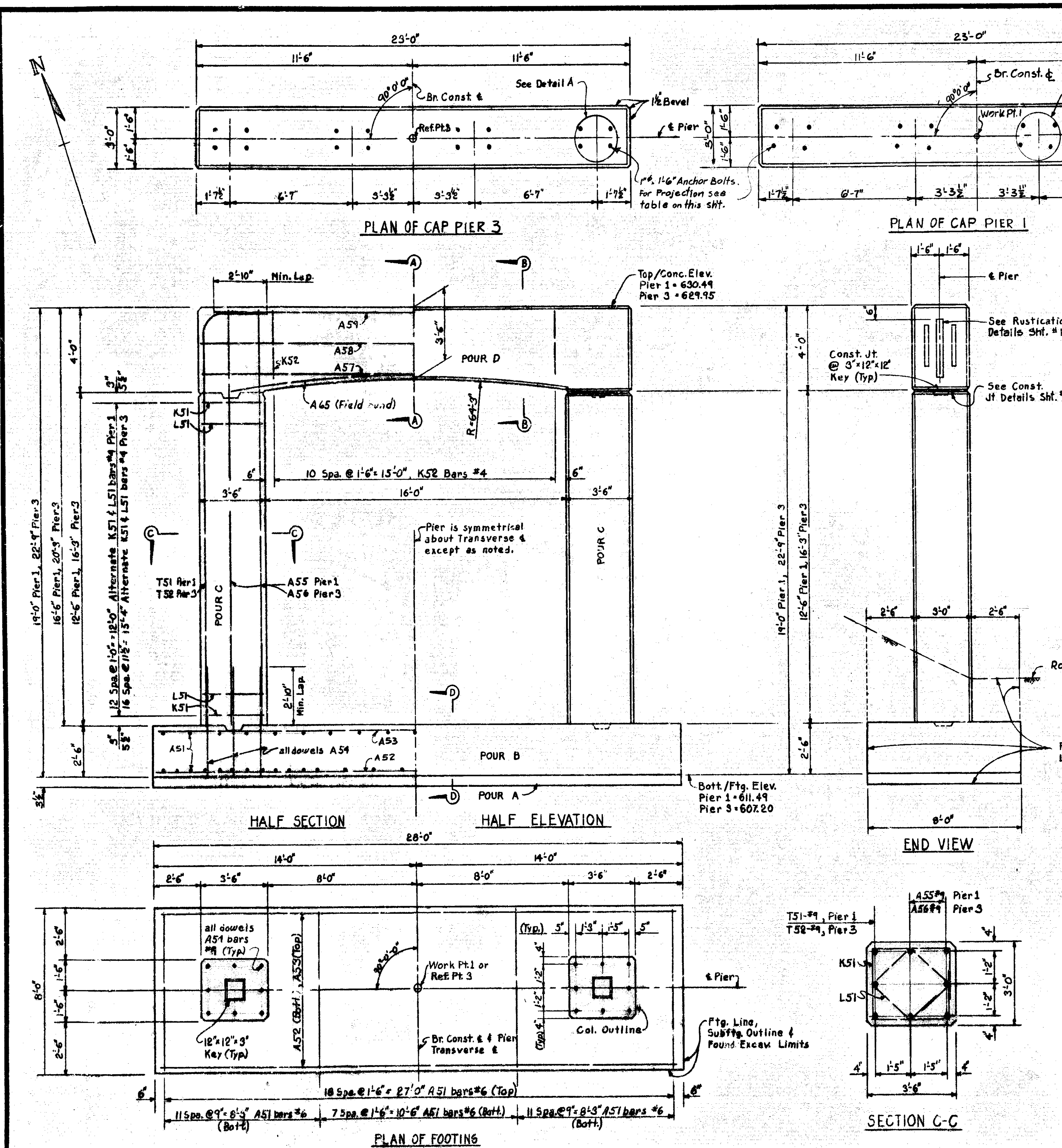
REVISIONS

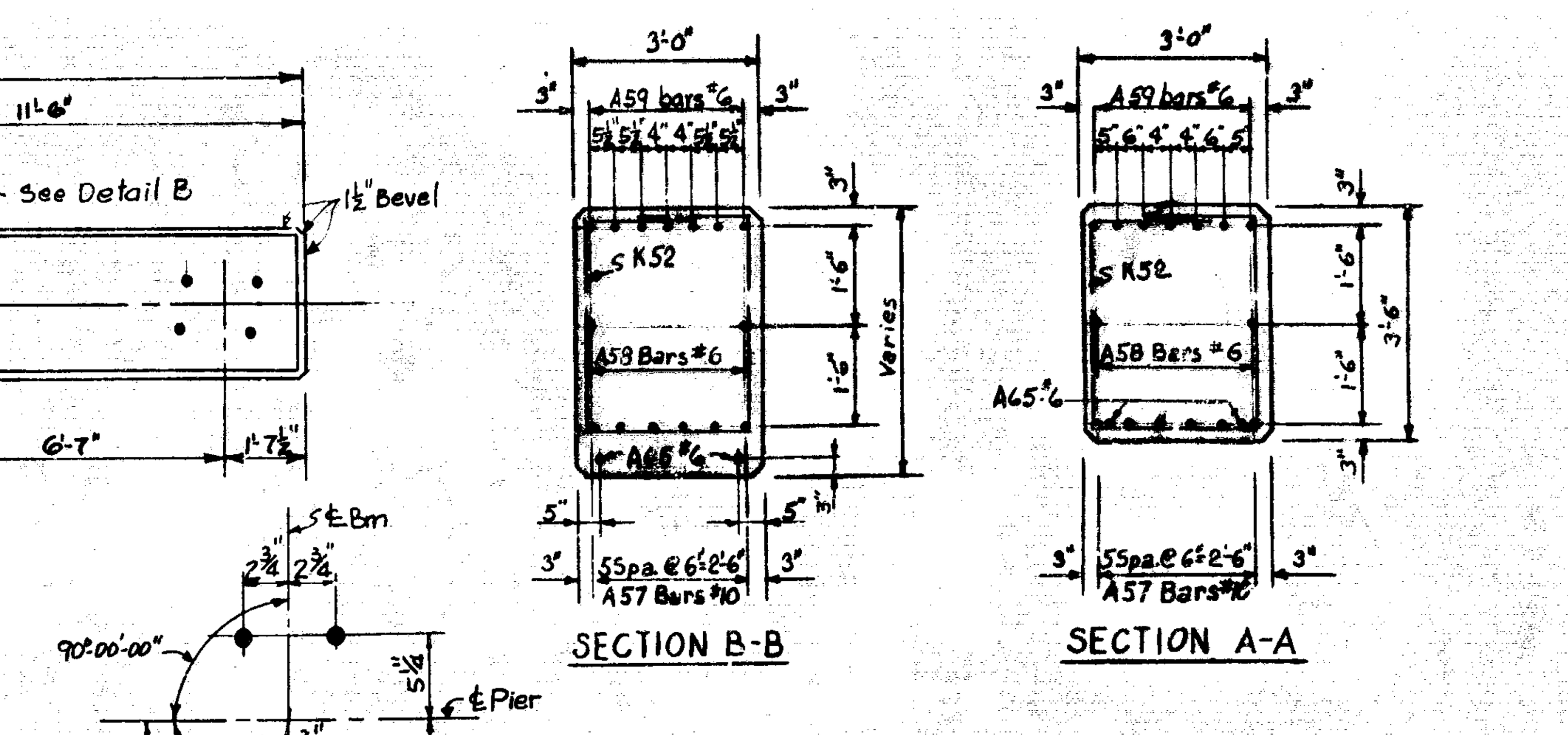
NO.	DESCRIPTION	DATE	BY

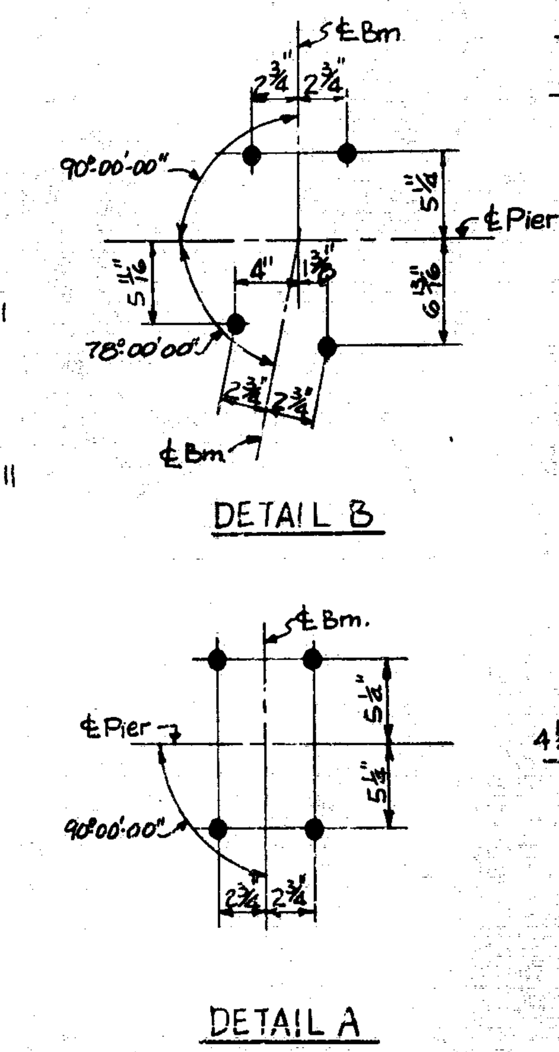
SQUAD BOSS	Goetsch	6-12-64
DRAWN BY	Wells	1-23-64
TRACED BY		
CHECKED BY	CAF / JMI	2-5-64 / 2-7-64

SHEET 7 OF 20

S25 OF 63174A

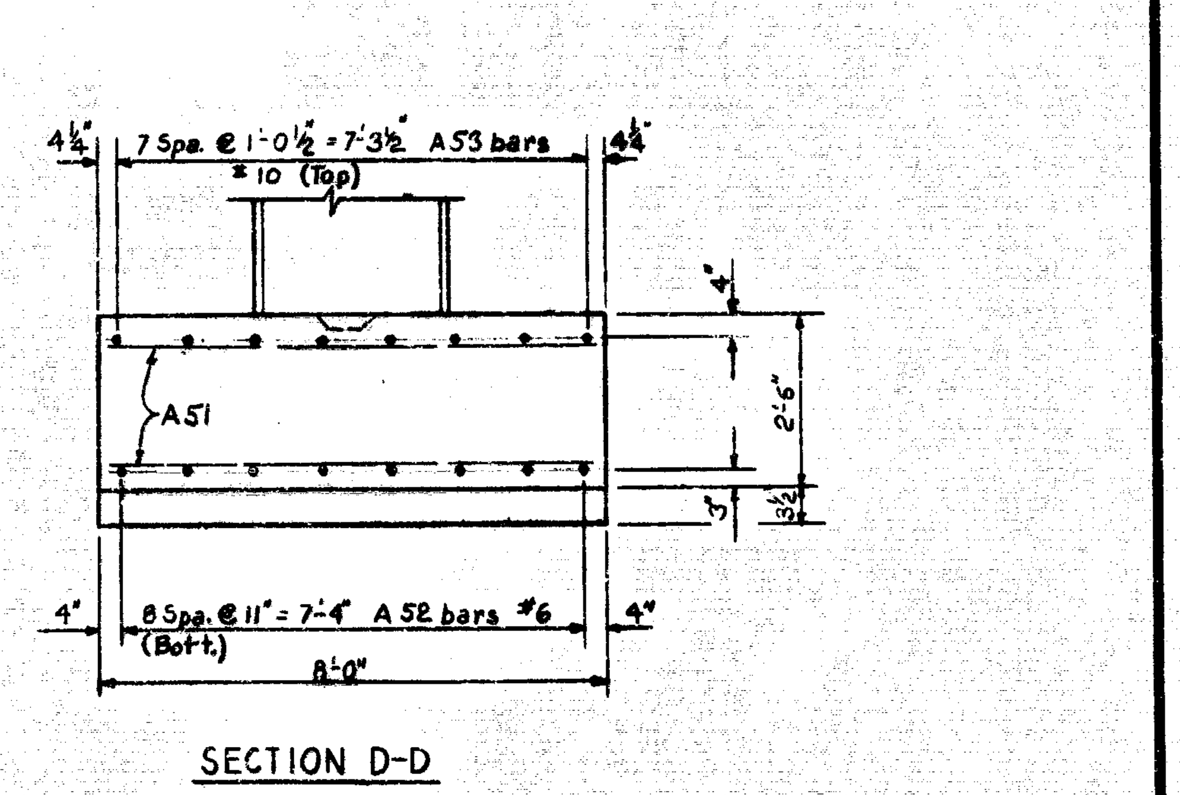






ANCHOR BOLT PROJECTION				
Beam	Pier 1		Pier 3	
	Span 1	Span 2	Span 3	Span 4
Fascia	5 3/8"	5 1/8"	5 1/8"	6 1/8"
Interior	3 7/8"	6 5/8"	6 5/8"	3 1/8"

For Anchor bolt detail (see Sh. 16)



NOTES

Piers are similar except as noted.

For Bevel and Molding Details, see Standard Sheet #R11.

Anchor bolts shall be set accurately to a template.

The top of piers shall be finished to a true plane at the elevation shown and shall not vary more than 1/8" under a ten foot straight edge nor more than 1/16" under any bearing.

Maximum Average Foundation Pressure (D.L. only) = 2,340 p.s.f.

Maximum Foundation Pressure (D.L. + L.L.) = 2,850 p.s.f.

The tops of piers shall be given an application of "Protective Sealant Coating" prior to placing masonry plates.

Anchor Bolts are included in the "Structural Steel" quantity - sh #15.

The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of anchor bolts.

Footing and subfooting concrete quantities are computed to the footing neat lines. No allowance will be made on overrun due to excavation outside of neat lines.

MISCELLANEOUS QUANTITIES			
Item	Unit	Pier 1	Pier 3
Unclassified Excavation	Cu.Yds.	55	65
Protective Sealant Coating for Concrete	Sq.ft.	69	69

CONCRETE QUANTITIES ~ SUBSTR.					
Pour	Location	Grade A (6A)		Grade A (6AA)	
		Pier 1	Pier 3	Pier 1	Pier 3
A	Subfooting	2.4	2.4		
B	footing	20.8	20.8		
C	Columns			9.7	12.6
D	Girder			9.8	9.8
Subtotal		23.2	23.2	19.5	22.4
Total 6A		46.4 Cu.Yds			
Total 6AA				41.9 Cu.Yds	

MICHIGAN STATE HIGHWAY DEPARTMENT

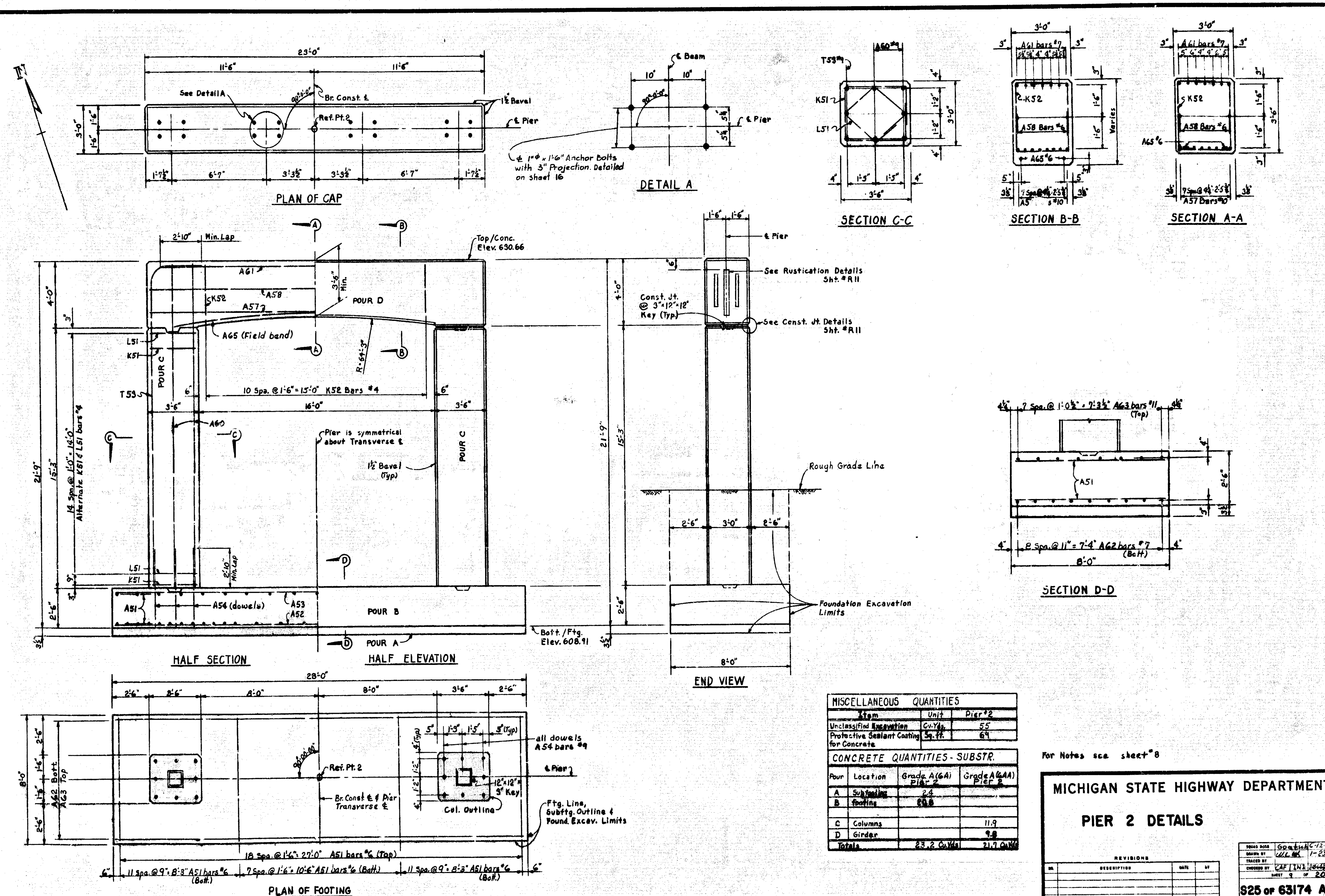
PIERS 1 AND 3 DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch	6-12-64
DRAWN BY	W.L.W.	1-22-64
TRACED BY		
CHECKED BY	CAF / INI	

SHEET 8 OF 20

S25 OF 63174 A



MISCELLANEOUS QUANTITIES		
Item	Unit	Pier #2
Unclassified Excavation	Cu. Yds.	55
Protective Sealant Coating for Concrete	Sq. ft.	69

CONCRETE QUANTITIES - SUBSTR.			
Pour	Location	Grade A(6A) Pier 2	Grade A(6AA) Pier 2
A	Subfooting	2.4	
B	footing	20.8	
C	Columns		11.9
D	Girder		9.8
Totals		23.2 Cu. Yds.	21.7 Cu. Yds.

For Notes see sheet #8

MICHIGAN STATE HIGHWAY DEPARTMENT

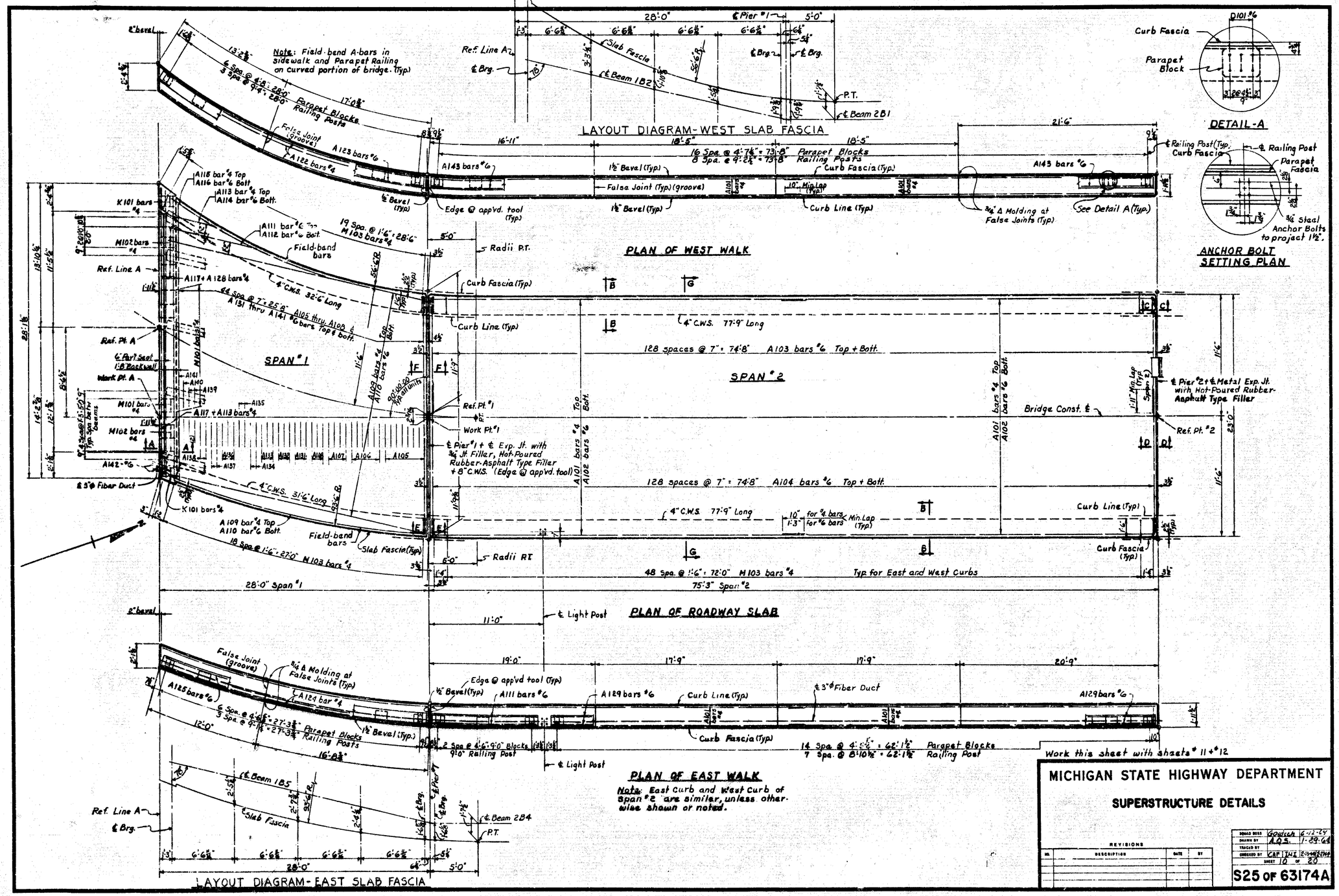
PIER 2 DETAILS

REVISIONS

No.	Description	Date	By

Squad Boss	Goetsch	6-12-64
Drawn by	W.L.W.	1-23-64
Traced by		
Checked by	CAF / INI	[illegible]
Sheet 9 of 20		

S25 of 63174 A



MICHIGAN STATE HIGHWAY DEPARTMENT

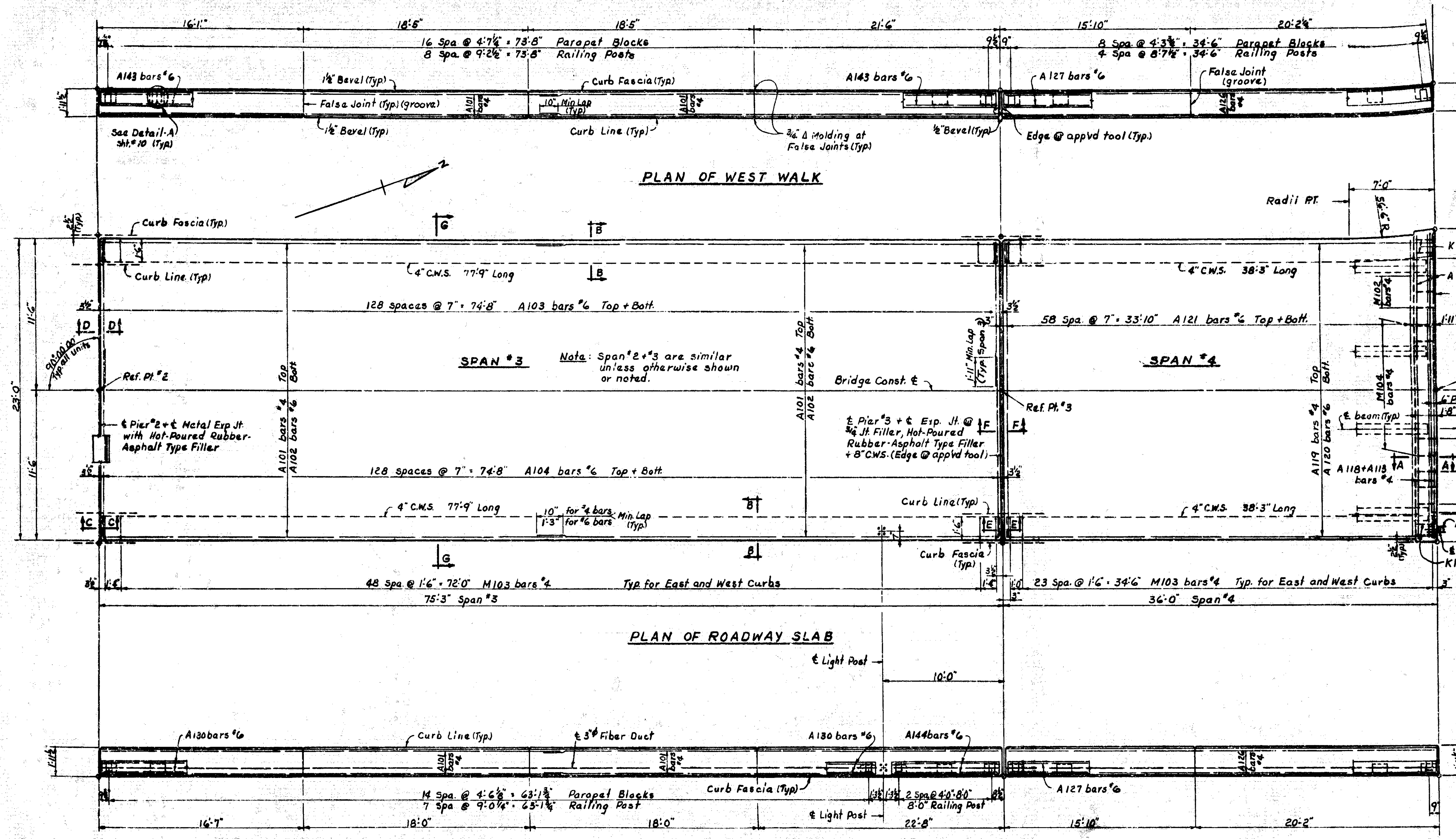
SUPERSTRUCTURE DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

ROAD MASS	Gotsch	6-12-64
DRAWN BY	A.Q.S.	1-29-64
TRACED BY		
DESIGNED BY	CAF / TMZ	2-14-64 / 2-7-64
SHEET	10 OF 20	

S25 OF 63174A



PLAN OF EAST WALK

Note: East Curb is similar to West Curb in Spans #3 + #4 respectively, unless otherwise shown or noted.

CONCRETE QUANTITIES - SUPERSTRUCTURE -			
Location of Pour		Grade A (6AA) Cu. Yds.	
Slab	Span #1	22.7	
	Span #2	46.9	
	Span #3	46.9	
	Span #4	25.9	
		East Side	West Side
Curb	Span #1	1.6	1.6
	Span #2	4.1	4.1
	Span #3	4.1	4.1
	Span #4	2.0	2.0
Grand Total		166.2	

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Water-Reducing Retarding Admixture	Gals	20
3/4" Joint Filler	Sq.Ft.	39
Hot-Poured Rubber-Asphalt Type Filler	Lin.Ft.	70
Joint Waterproofing	Sq.Ft.	180
Copper	Lbs.	181
Bridge Railing - Parapet Type	Lin.Ft.	431.1

Work this sheet with sheets #10 + #12

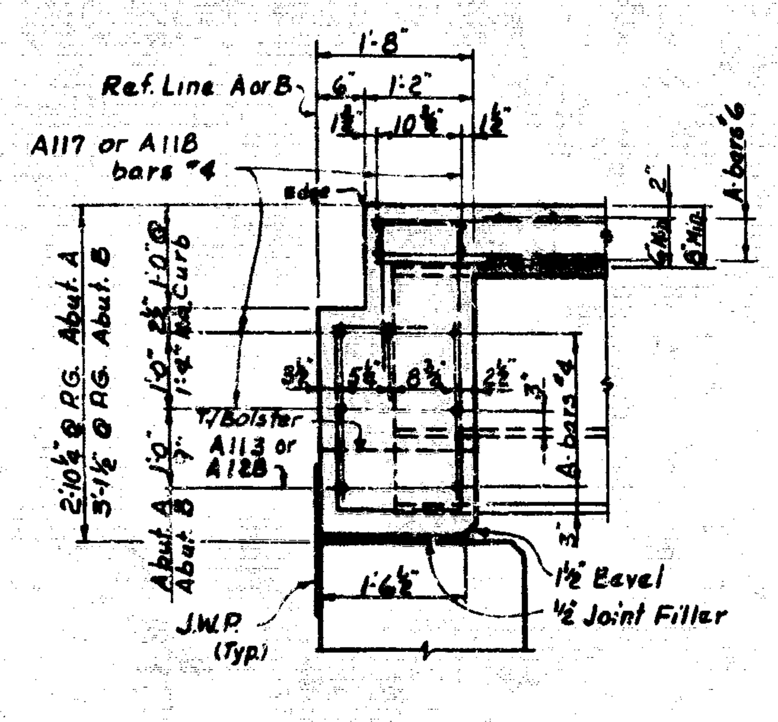
MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

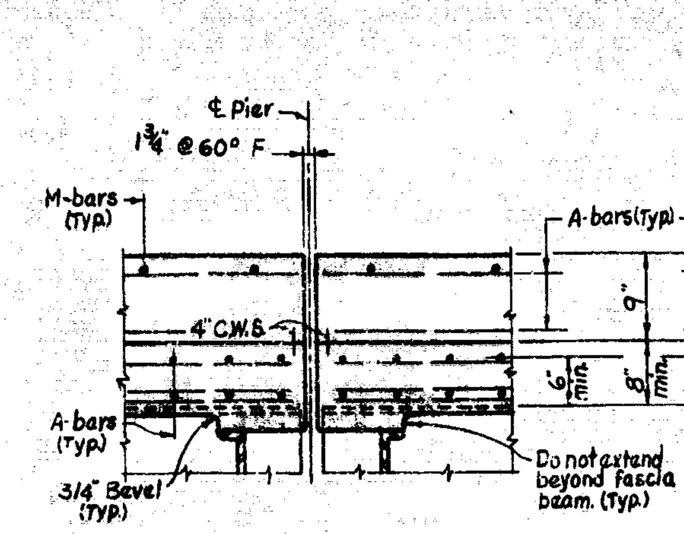
REVISIONS			
No.	Description	Date	By

Squad Boss	Goetsch	6-12-64
Drawn by	A.O.S.	1-29-64
Traced by		
Checked by	CAF / INI	2-11-64 / 12-27-64
Sheet 11 of 20		

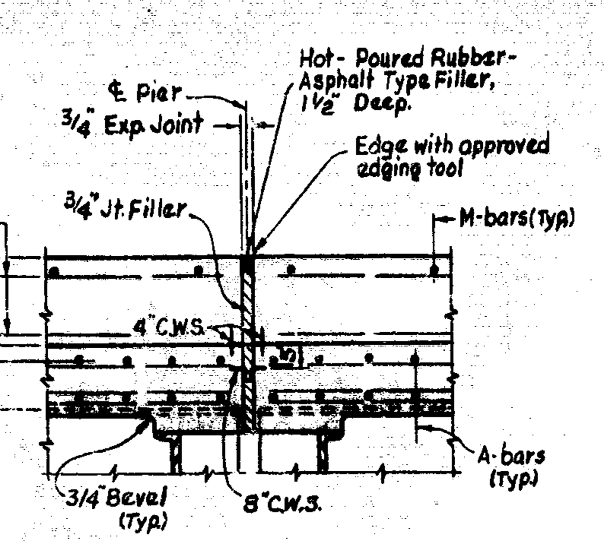
S25 OF 63174A



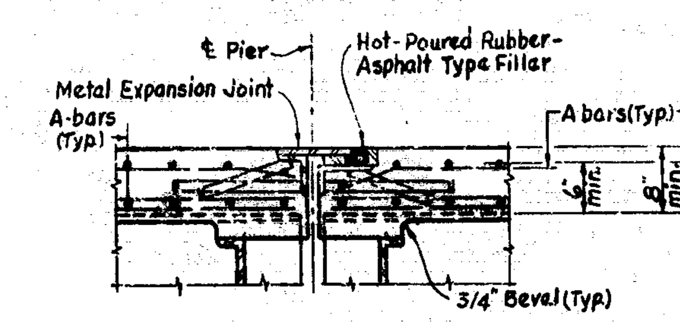
SECTION A-A



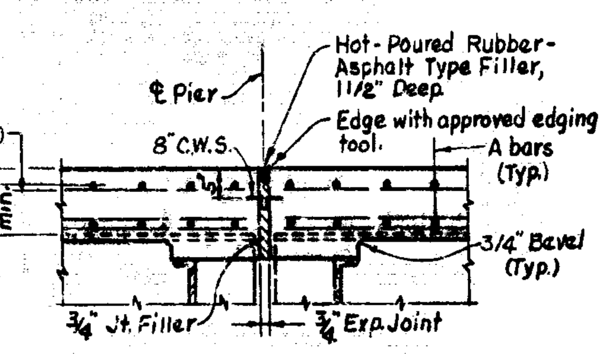
SECTION C-C



SECTION E-E

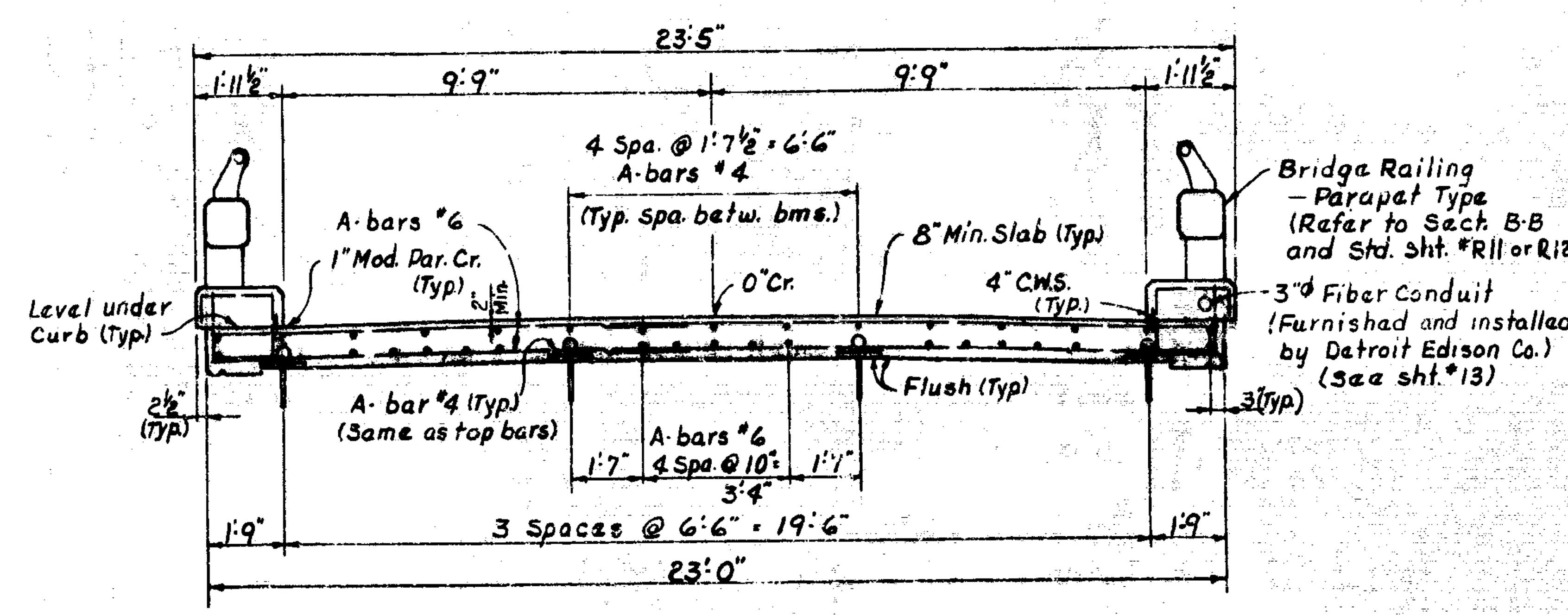


SECTION D-D



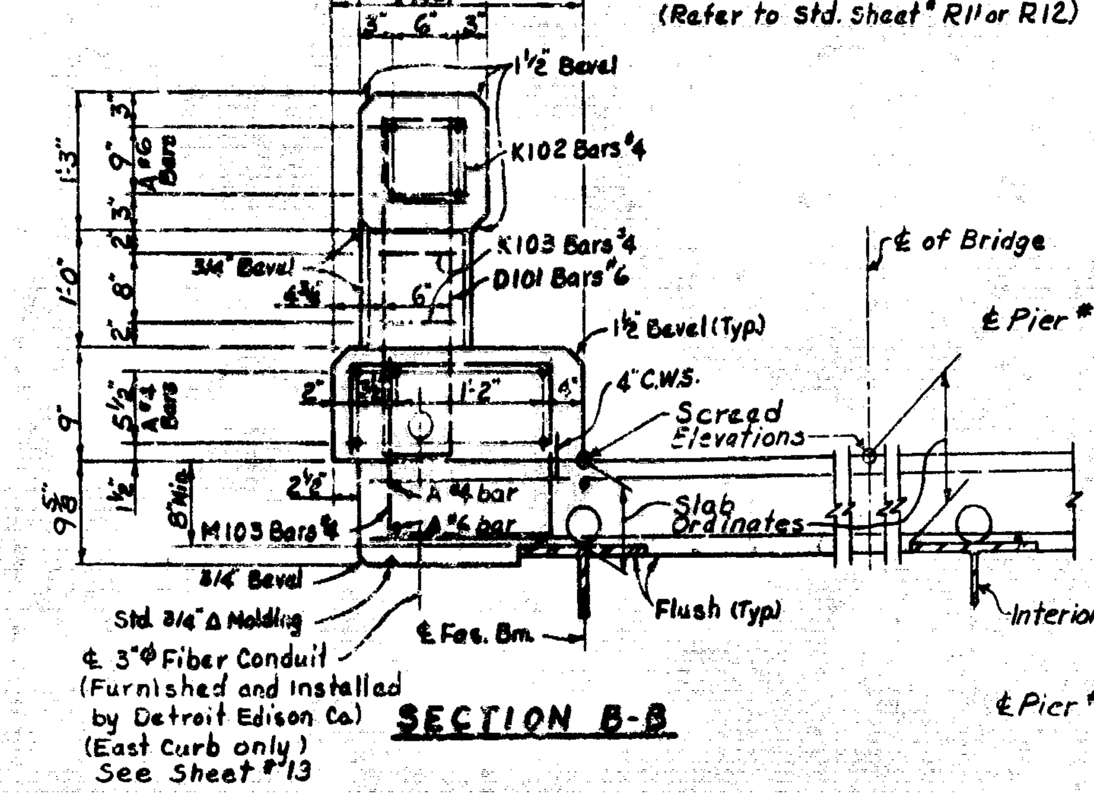
SECTION F-F

Note: Joint Filler to be nailed below C.W.S. to one side of Joint. Countersink nails 1/4". (Typ)



SECTION G-G

Note: Railing Post is not shown on this view. (Refer to Std. Sheet # R11 or R12)



SECTION B-B

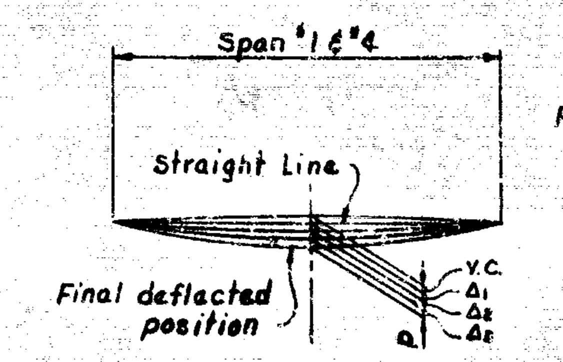


DIAGRAM I

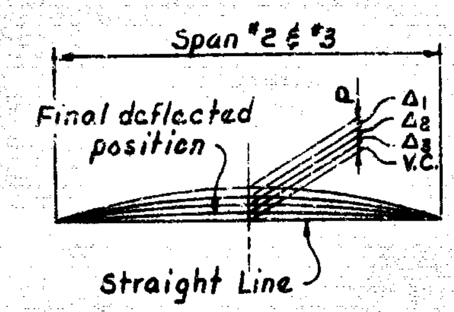


DIAGRAM 2

BEAM DEFLECTION

Span	Diagram	Beam	P	Δ1	Δ2	Δ3	V.C.
#1	I	Fascia	5/8"	0"	0"	1/8"	1/2"
		Interior	3/4"	0"	0"	1/4"	1/2"
#2	2	All	5 5/8"	3/8"	3/8"	1 1/2"	3 3/8"
#3	2	All	2 1/4"	3/8"	3/8"	1 1/2"	0"
#4	I	Fascia	1/8"	0"	0"	1/8"	0"
		Interior	3/8"	0"	0"	3/8"	0"

LEGEND

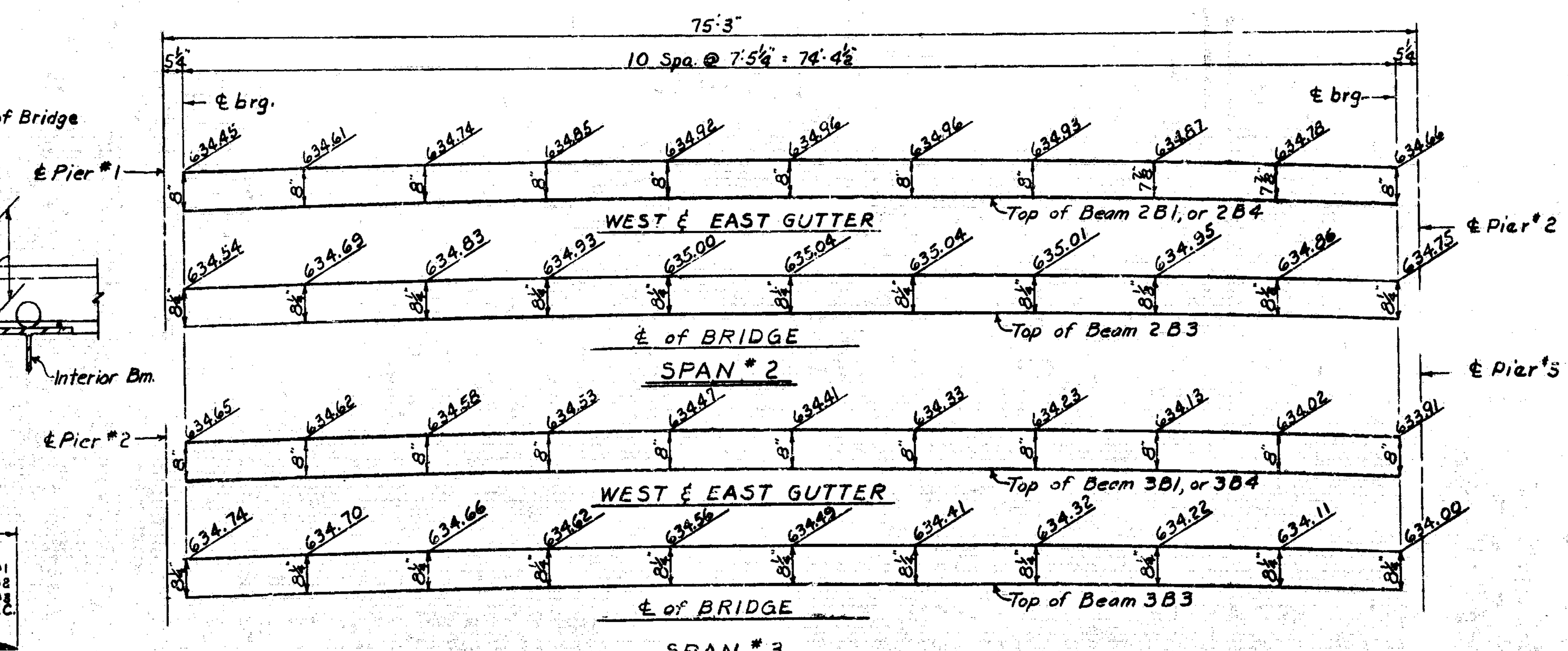
P = Total Deflection plus Vertical Curve, (For specified camber see Sht. #14)

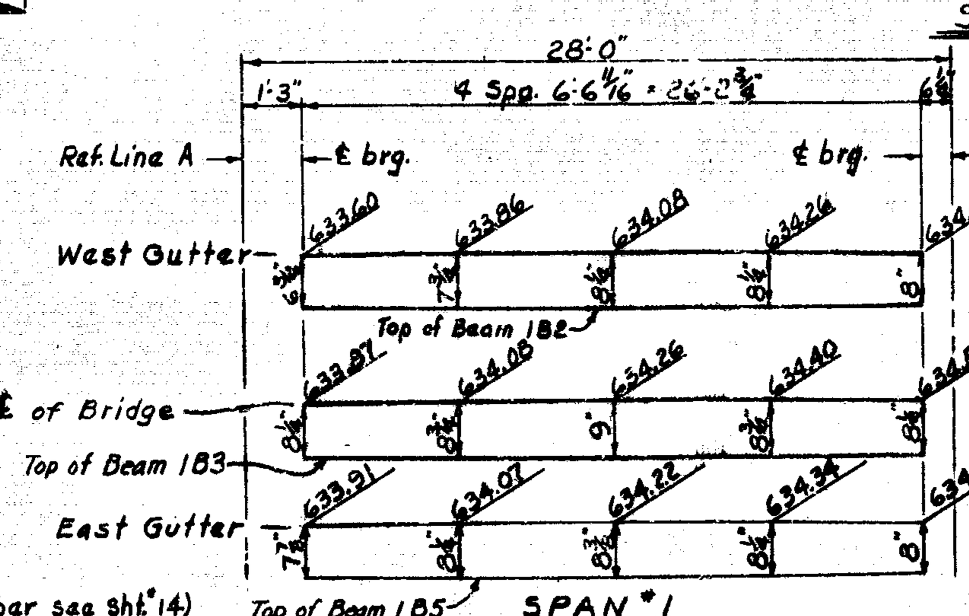
Δ1 = Computed deflection due to Structural Steel weight.

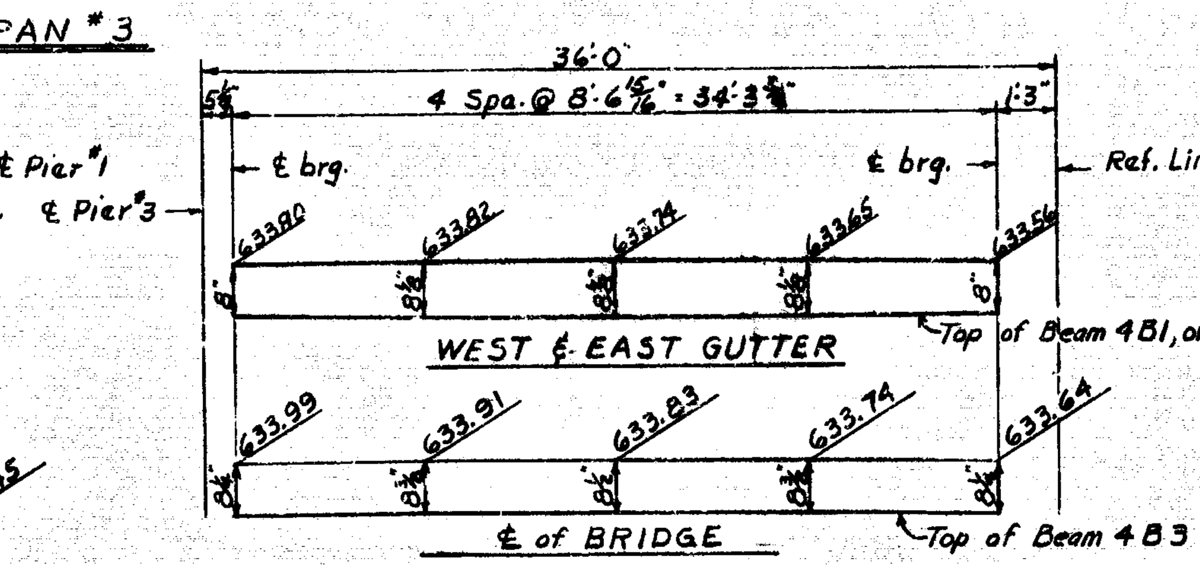
Δ2 = Computed deflection due to formwork and steel reinforcing, and also welding of Shear Developers if any.

Δ3 = Computed deflection due to weight of slab and distributed curb and railing weight.

V.C. = Computed midspan ordinate of vertical curve.







SCREED ELEVATIONS & SLAB THICKNESSES

Note: Section B-B on this sheet shows how screeds are measured.

NOTES:

Curb pours shall not be cast until slab concrete has attained at least 50% of it's design strength as determined by the table in Section 5.01.03 of the Standard Specifications.

Elevations shown are for top of screed before pouring any concrete, (with formwork, steel reinforcing and shear developers in place ;) — and are based on a minimum slab thickness of 8". After screeds are set, if check indicates that less than the minimum thickness will be obtained, adjust screeds and Metal Expansion Dam accordingly.

The slab ordinates shown provide for deadload deflection, vertical curve and beam camber; and are to be measured from the top of the beam indicated to the top of screed on a plane parallel to the reference lines.

For Railing Details, see sheet #R11 or R12

For Bevel and Molding Details, see sheet #R11 or R12

C.W.S. indicates copper waterstop.

J.W.P. indicates Joint waterproofing.

"Edge" and "Groove" denotes edge or groove with an approved tool.

4" C.W.S.

8" C.W.S.

C.W.S. DETAILS

Work this sheet with sheets #10, #11 & #13

MICHIGAN STATE HIGHWAY DEPARTMENT

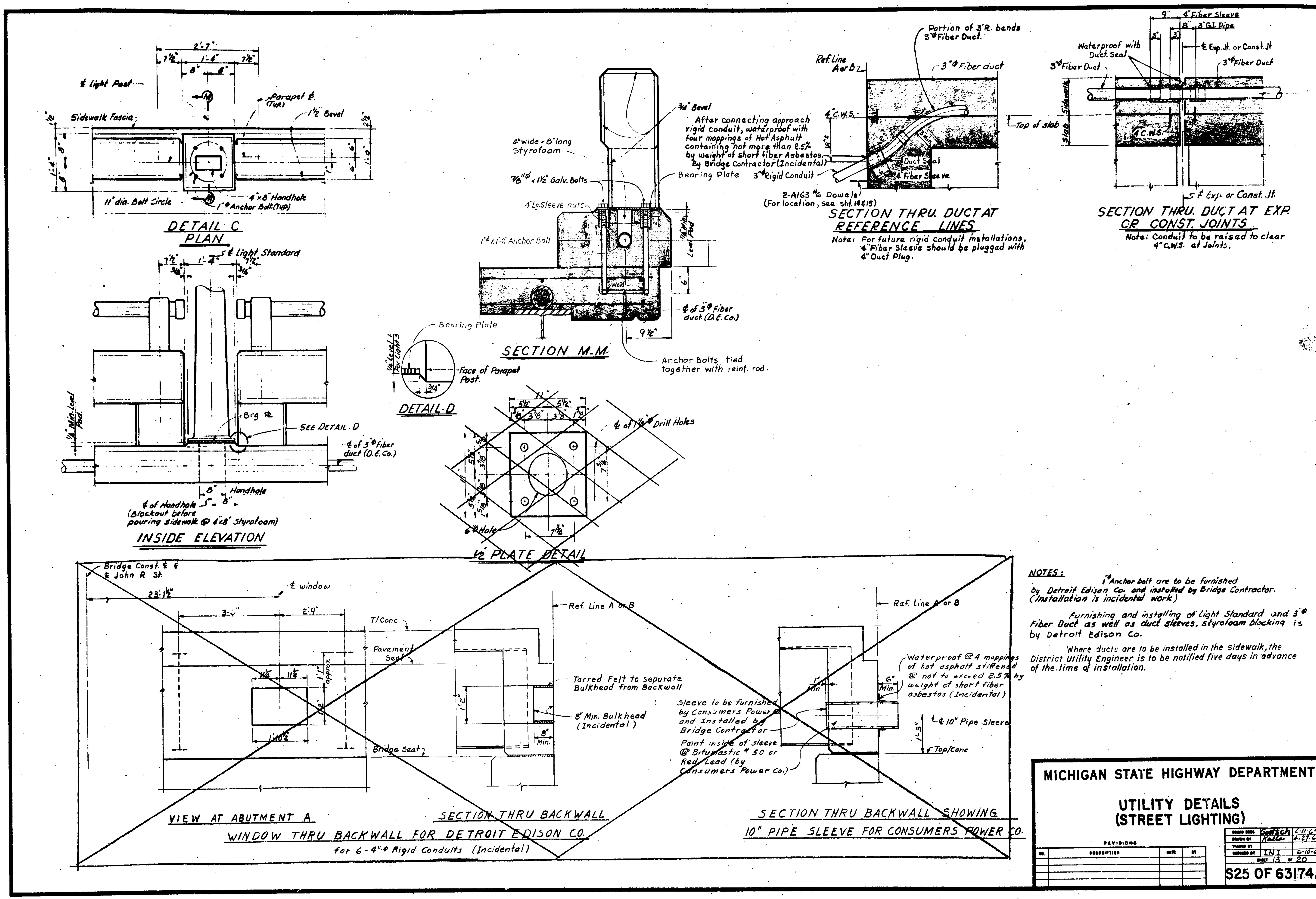
SUPERSTRUCTURE DETAILS

REVISIONS

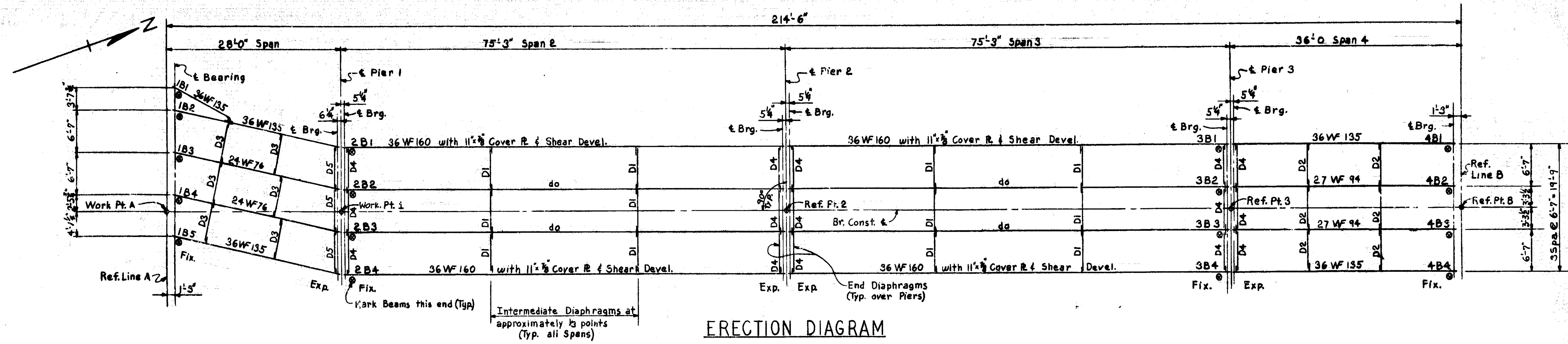
NO.	DESCRIPTION	DATE	BY

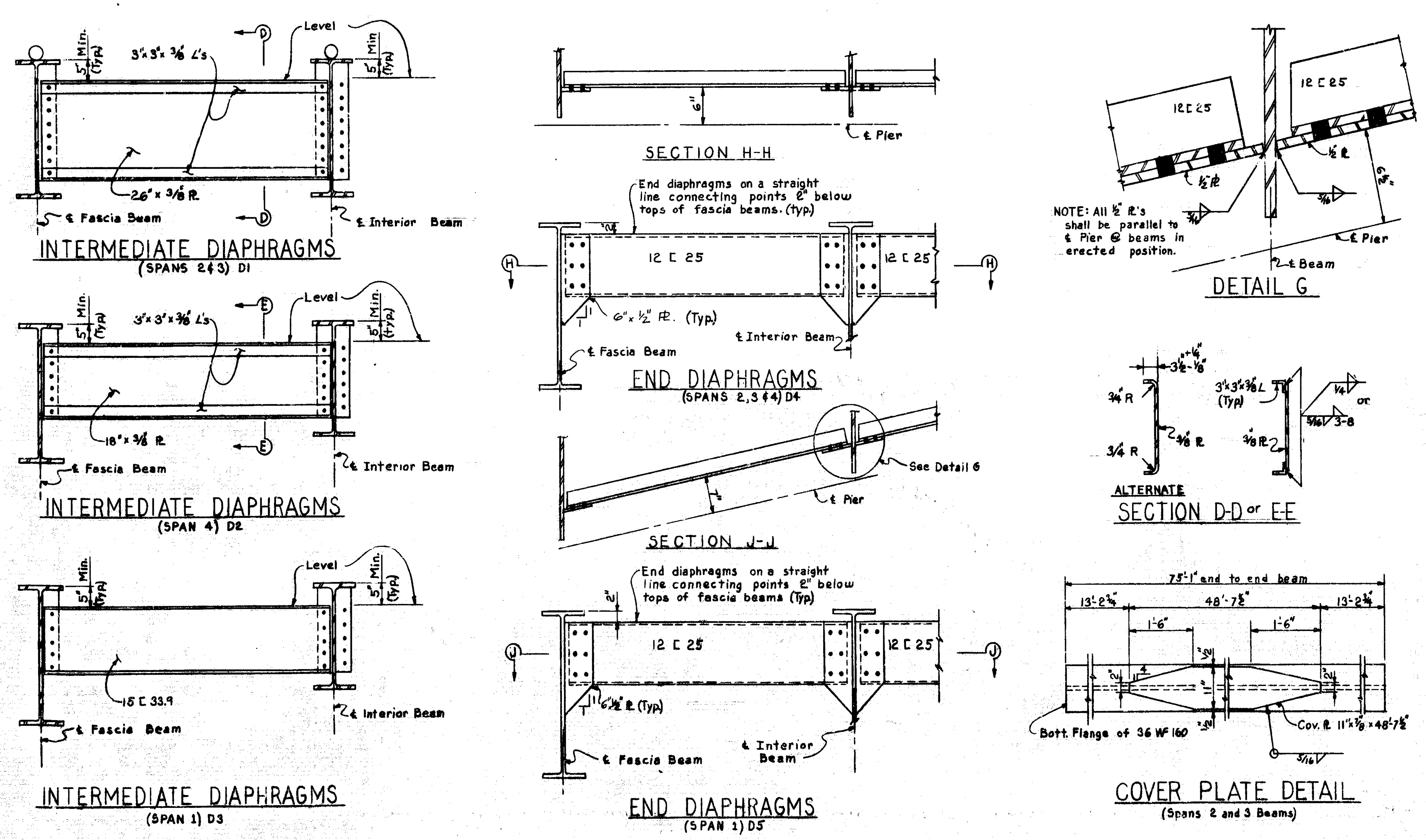
SQUAD BOSS	Goetsch	6-12-64
DRAWN BY	A.Q.S.	1-2?-64
TRACED BY		
CHECKED BY	CAP LNI	2-13-64 / 2-27-64
SHEET 12 OF 20		

S25 OF 63174A



DETAIL C
PLAN
℄ Light Post
Sidewalk Fascia
Parapet ℄ (Typ)
1½" Bevel
11" dia. Bolt Circle
4"x8" Handhole
1"φ Anchor Bolt (Typ)
INSIDE ELEVATION
℄ Light Standard
Brg PL
SEE DETAIL D
℄ of 3"φ Fiber duct (D.E.Co.)
Handhole
℄ of Handhole (Blockout before pouring sidewalk @ 4"x8" Styrofoam)
DETAIL D
Bearing Plate
Face of Parapet Post.
SECTION M-M
¾" Bevel
After connecting approach rigid conduit, waterproof with four moppings of Hot Asphalt containing not more than 25% by weight of short fiber Asbestos. By Bridge Contractor (Incidental)
4" wide x 8" long Styrofoam
⅞"φ x 1½ Galv. Bolts
Bearing Plate
4" Lg. Sleeve nuts
1"φ x 1'-2" Anchor Bolt
Level Pad
Weld
℄ of 3"φ Fiber duct (D.E.Co.)
Anchor Bolts tied together with reinf. rod.
½" PLATE DETAIL
℄ of 1¼"φ Drill Holes
6"φ Hole
Portion of 3'R. bends 3"φ Fiber Duct
Ref. Line A or B
3"φ Fiber duct
4" C.W.S.
Top of slab
Duct Seal
4" Fiber Sleeve
3"φ Rigid Conduit
2-A163 #6 Dowels (For location, see sht. 14&15)
SECTION THRU DUCT AT REFERENCE LINES
Note: For future rigid conduit installations, 4" Fiber Sleeve should be plugged with 4" Duct Plug.
4" Fiber Sleeve
3" G.I. Pipe
Waterproof with Duct Seal
3"φ Fiber Duct
℄ Exp. Jt. or Const. Jt.
Sidewalk
SECTION THRU DUCT AT EXP. OR CONST. JOINTS
Note: Conduit to be raised to clear 4" C.W.S. at Joints.
Bridge Const. ℄ & ℄ John R St.
℄ window
T/Conc
Pavement Seat
Bridge Seat
Ref. Line A or B
Tarred Felt to separate Bulkhead from Backwall
8" Min. Bulkhead (Incidental)
VIEW AT ABUTMENT A
SECTION THRU BACKWALL
WINDOW THRU BACKWALL FOR DETROIT EDISON CO.
for 6-4"φ Rigid Conduits (Incidental)
Waterproof @ 4 moppings of hot asphalt stiffened @ not to exceed 25% by weight of short fiber asbestos (Incidental)
Sleeve to be furnished by Consumers Power Co. and Installed by Bridge Contractor
Paint inside of sleeve @ Bitumastic # 50 or Red Lead (by Consumers Power Co.)
℄ 10" Pipe Sleeve
Top/Conc.
SECTION THRU BACKWALL SHOWING 10" PIPE SLEEVE FOR CONSUMERS POWER CO.
NOTES:
1"φ Anchor bolt are to be furnished by Detroit Edison Co. and installed by Bridge Contractor. (Installation is incidental work)
Furnishing and installing of Light Standard and 3"φ Fiber Duct as well as duct sleeves, styrofoam blocking is by Detroit Edison Co.
Where ducts are to be installed in the sidewalk, the District Utility Engineer is to be notified five days in advance of the time of installation.
MICHIGAN STATE HIGHWAY DEPARTMENT
UTILITY DETAILS
(STREET LIGHTING)
REVISIONS
NO. DESCRIPTION DATE BY
SHEET 13 OF 20
S25 OF 63174A





NOTES:

Fabrication: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction -1963 Edition.

Design: Michigan State Highway Department's Specifications for Design of Highway Bridges-1958 Edition. (H20-44 Loading)

Shop Connections: All shop connections shall be welded as shown on the plans, except as noted.

Field Connections: Field connections shall be bolted with high strength bolts.

High Strength Bolts: ¾"ϕ

Open Holes: Open holes for high strength bolts shall be 13/16"ϕ

Shop Paint: In addition to the shop paint provisions of the Standard Specifications, the top surfaces of masonry plates shall be coated in accordance with the requirements for machine finished surfaces. Metal floor joints shall not be painted in shop except as noted on the plans.

Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates, not less than 1½" in thickness. Edges must be beveled ¼ and welded, with a continuous weld, for the full perimeter. Welds shall be ground flush with faces of plate.

Camber: The beams in span 2 are to have a camber of 5⅜", the beams in span 3 are to have a camber of 2". (Max. ordinate) This camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ± ¼". Heating is to be used if necessary, to assure camber permanency within the above limitations. Dead load deflection of the beams alone is calculated to be; ⅜ in spans 2 & 3; 0" in spans 1 & 4.

All steel included in Structural Steel Quantity shall be A-36.

Work this sheet with sheets 15, 16, & 18

MICHIGAN STATE HIGHWAY DEPARTMENT

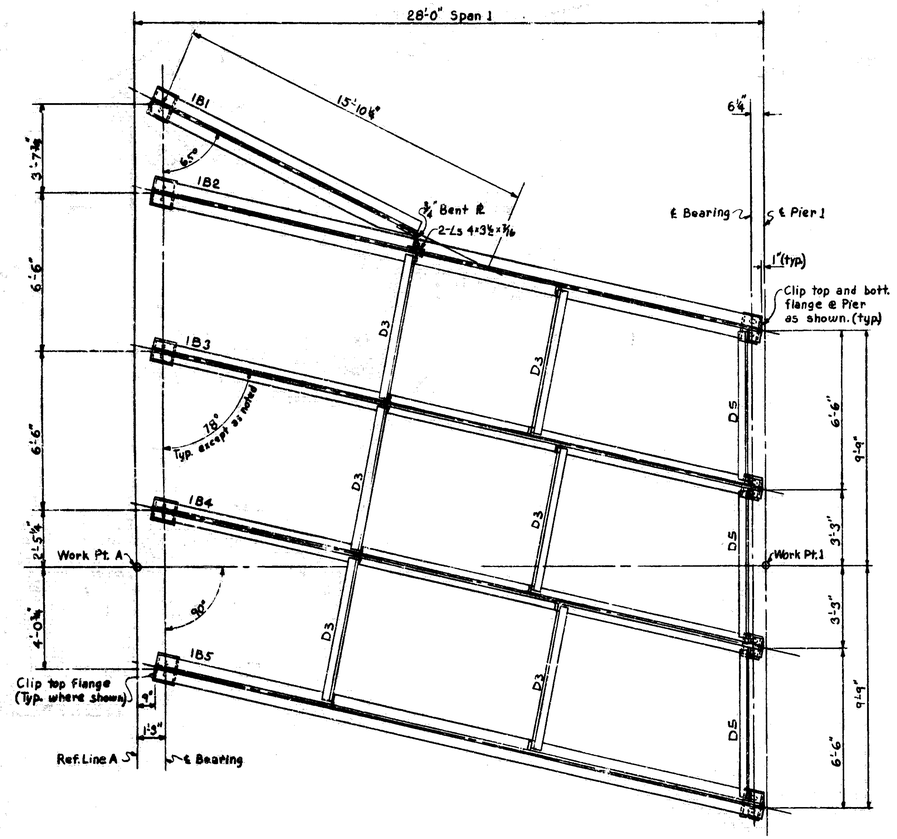
STRUCTURAL STEEL DETAILS

REVISIONS

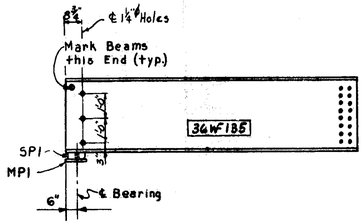
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch	6-12-64
DRAWN BY	W.L.W.	2-4-64
TRACED BY		
CHECKED BY	CAF INI	12-27-6[illegible]
SHEET 14 OF 20		

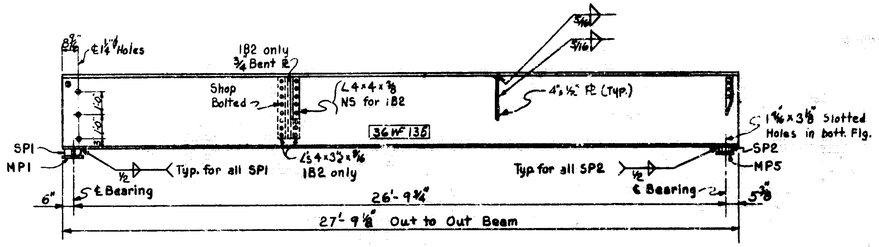
S25 OF 63174 A



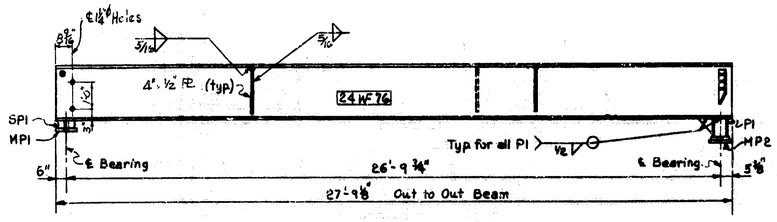
PLAN OF BEAMS SPAN-1



BEAM 1B1



BEAM 1B2 or 1B5



BEAM 1B3 or 1B4

Work this sheet with Sheets 14, 16 & 18

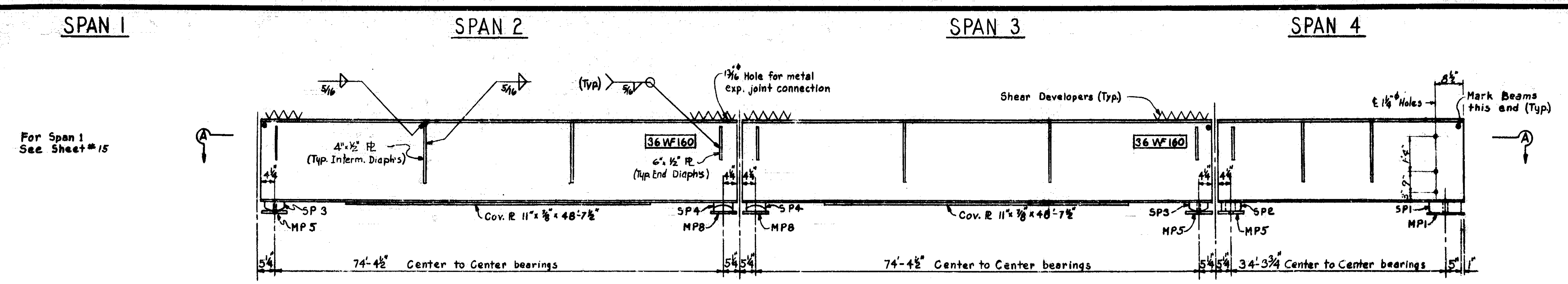
MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

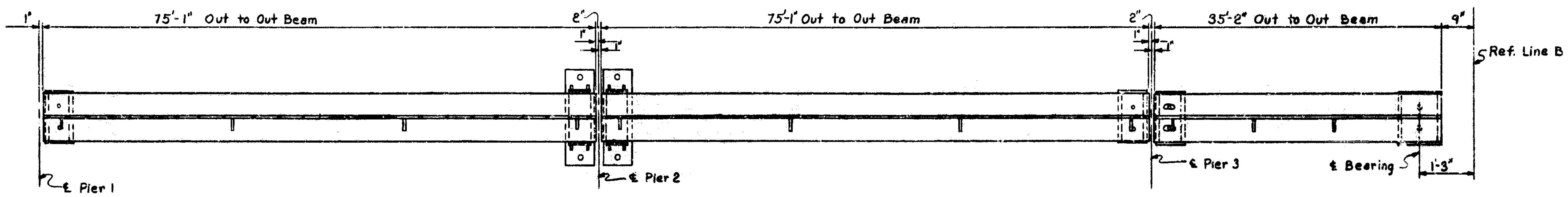
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch	6-12-57
DRAWN BY	W.L.W.C.	2-4-65
TRACED BY		
CHECKED BY	CAP/INT	
SHEET 18 OF 20		

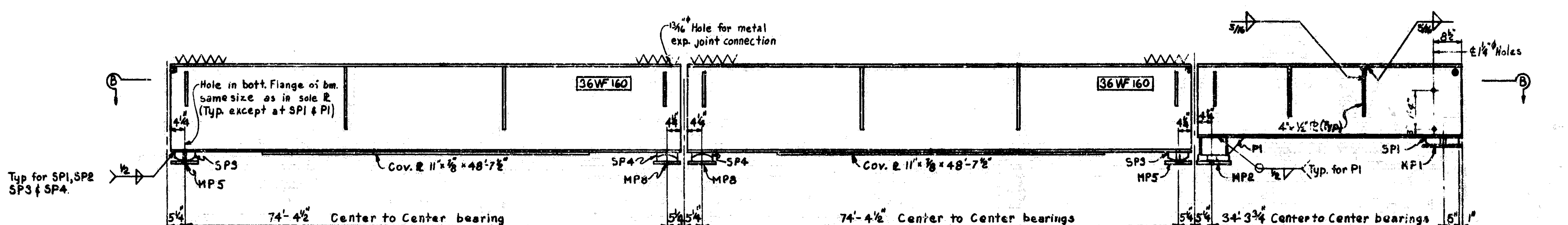
S25 OF 63174 A



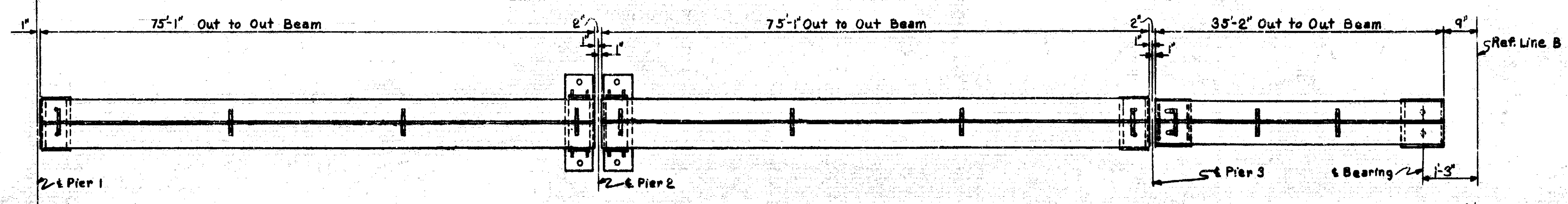
TYPICAL FASCIA BEAM LINE ELEVATION



SECTION A-A

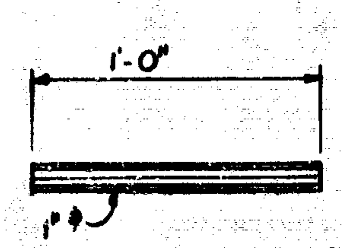


TYPICAL INTERIOR BEAM LINE ELEVATION

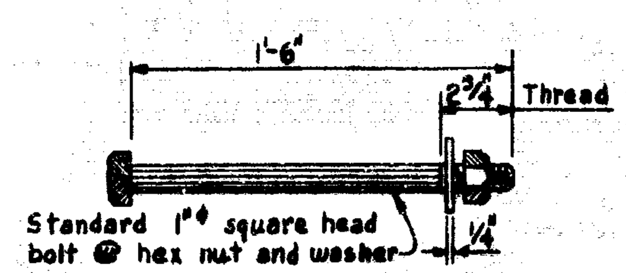


SECTION B-B

Work this sheet with sheets 14, 15 & 18



POSITION DOWEL
(18 Required)



ANCHOR BOLT
(48 Required)

QUANTITIES		
Item	Unit	Amount
* Structural Steel-Furnishing & Fabricating	lbs.	154,500
* Structural Steel-Erection	lbs.	154,500
Field Painting	Lump	Sum

* Includes 180 lbs bronze

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

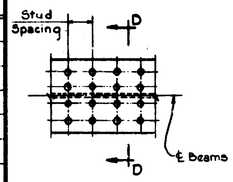
SQUAD BOSS	Goetsch	6-12-64
DRAWN BY	W.L.W.	2-4-64
TRACED BY		
CHECKED BY	CAF / IHI	2-10-64 / 2-21-64
SHEET	16 of 20	

S25 OF 63174 A

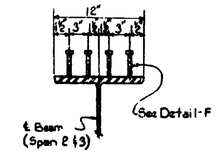
SHEAR DEVELOPER SPACING TABLE

BEAM NO	A	B	C	D	E	F	G	H	J
SPIRAL SHEAR DEVELOPERS									
2B1 thru 2B4	* 18@ 6"= 9'-0"	33@ 4"= 11'-0"	22@ 6"= 11'-0"	18@ 9"= 13'-6"	4½"	4½"	2"	2"	3"
3B1 thru 3B4	* 18@ 6"= 9'-0"	33@ 4"= 11'-0"	22@ 6"= 11'-0"	18@ 9"= 13'-6"	4½"	4½"	2"	2"	3"
STUD SHEAR CONNECTORS									
2B1 thru 2B4	20@ 6"= 10'-0"	12@ 10"= 10'-0"	9@ 14"= 10'-6"	8@ 20"= 13'-4"	4½"	4½"			
3B1 thru 3B4	20@ 6"= 10'-0"	12@ 10"= 10'-0"	9@ 14"= 10'-6"	8@ 20"= 13'-4"	4½"	4½"			

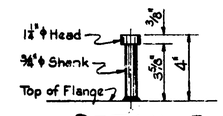
* Denotes Double Row of Spirals



PLAN of STUDS

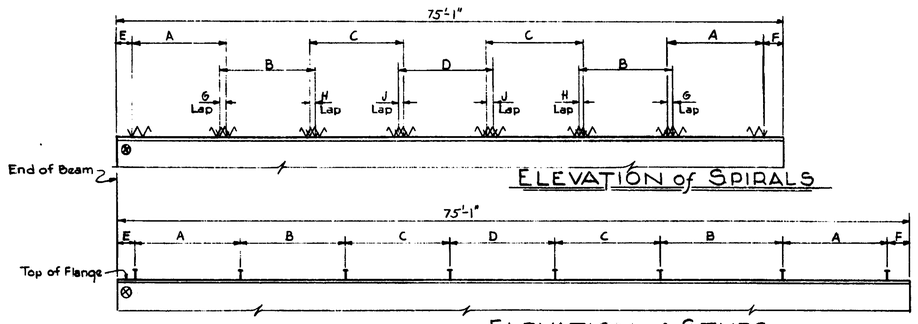


SECTION-DD



DETAIL-F

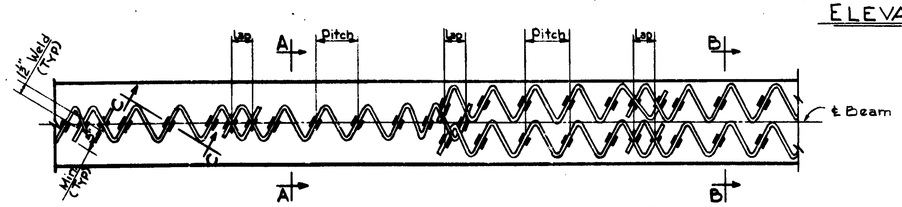
STUD SHEAR CONNECTOR DETAILS



ELEVATION of SPIRALS

ELEVATION of STUDS

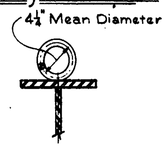
Shear Developers - Lump Sum



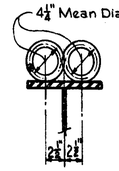
SINGLE ROW DETAILS

DOUBLE ROW DETAILS

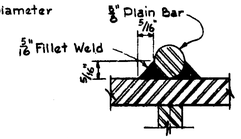
PLAN of TOP FLANGE



SECTION-AA



SECTION-BB



SECTION-CC

SPIRAL SHEAR DEVELOPER DETAILS

NOTES:

Either Spiral Shear Developers or Stud Shear Connectors may be used at the option of the contractor.

Welding of Spirals or Studs to Girder flanges is incidental to Shear Developers.

Weight of Spirals or Studs is not included in Structural Steel Weights.

Work this sheet with sheets No. 14 & 16

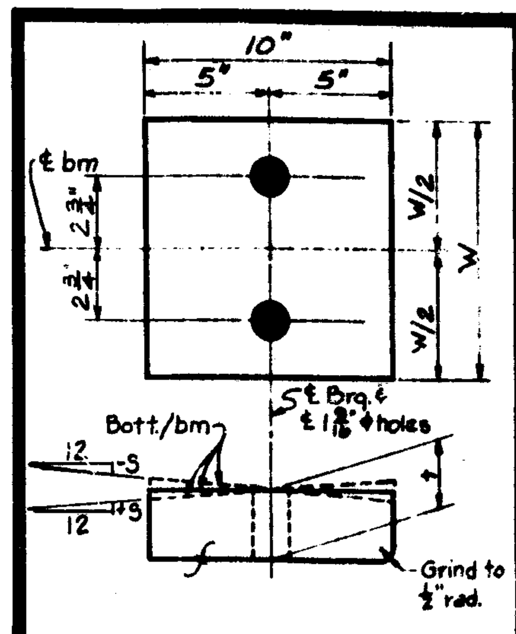
MICHIGAN STATE HIGHWAY DEPARTMENT

SHEAR DEVELOPER DETAILS

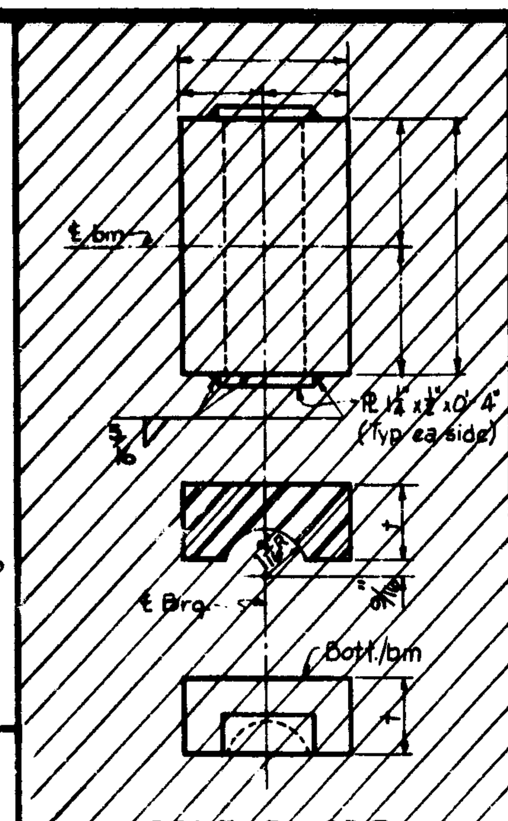
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN BASIS	Goetsch 6-12-64
DRAWN BY	DEM 11-4-64 W.L.M. 2-5-69
TRACED BY	
CHECKED BY	CAF/JNJ 2-13-69
SHEET 17 OF 20	

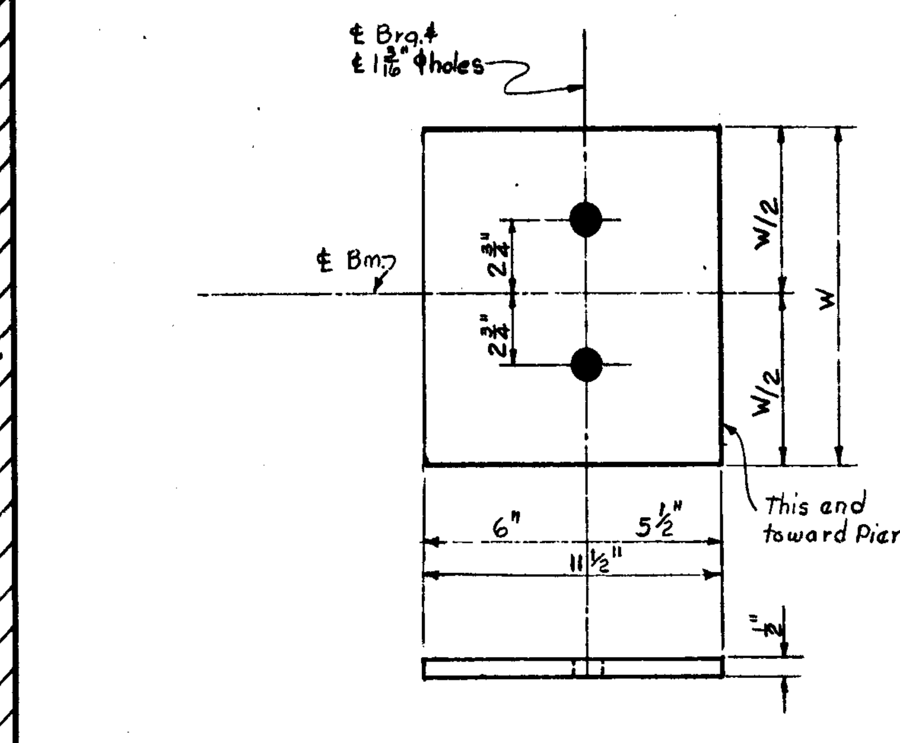
S25 OF 63174 A



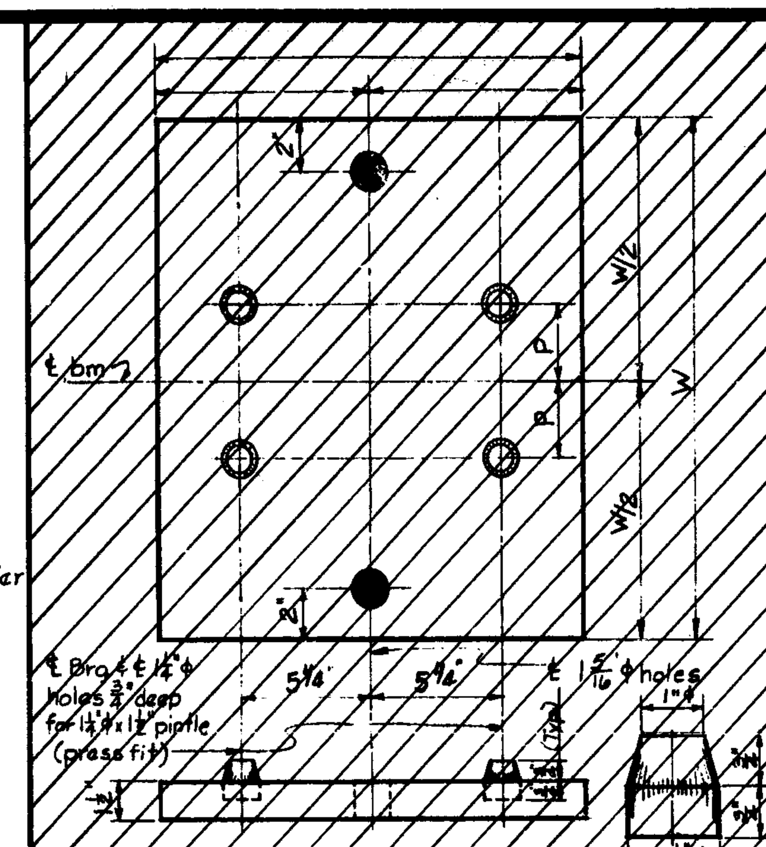
SOLE PL-SP1
Use w/MP1



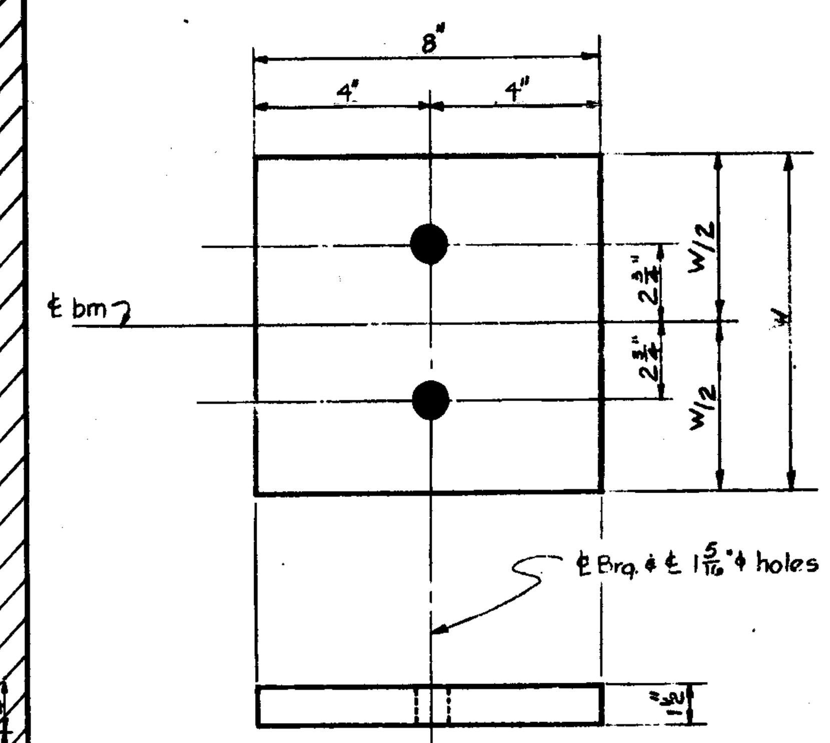
SOLE PL-SP5
Use w/ER1, MP4



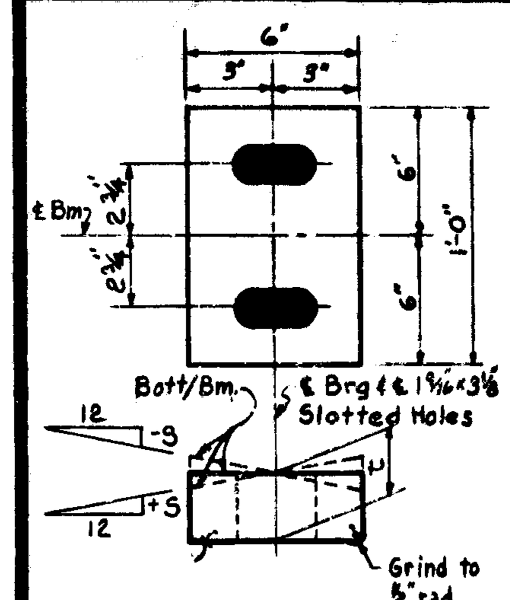
MASONRY PL-MP1



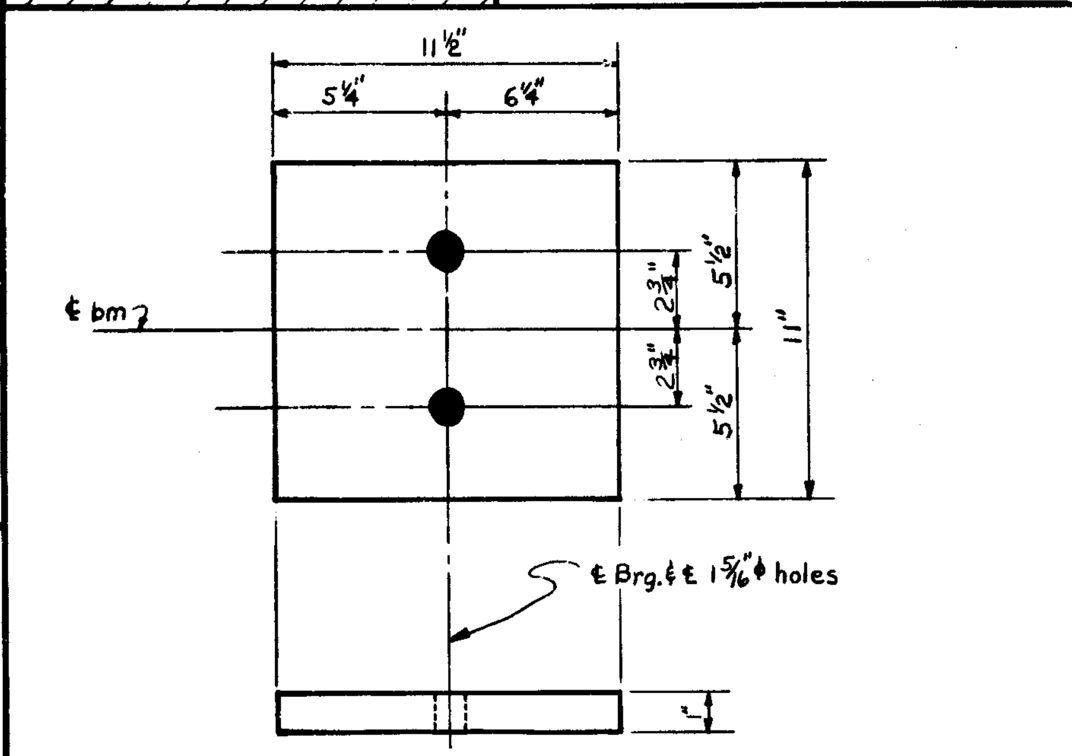
MASONRY PL-MP2



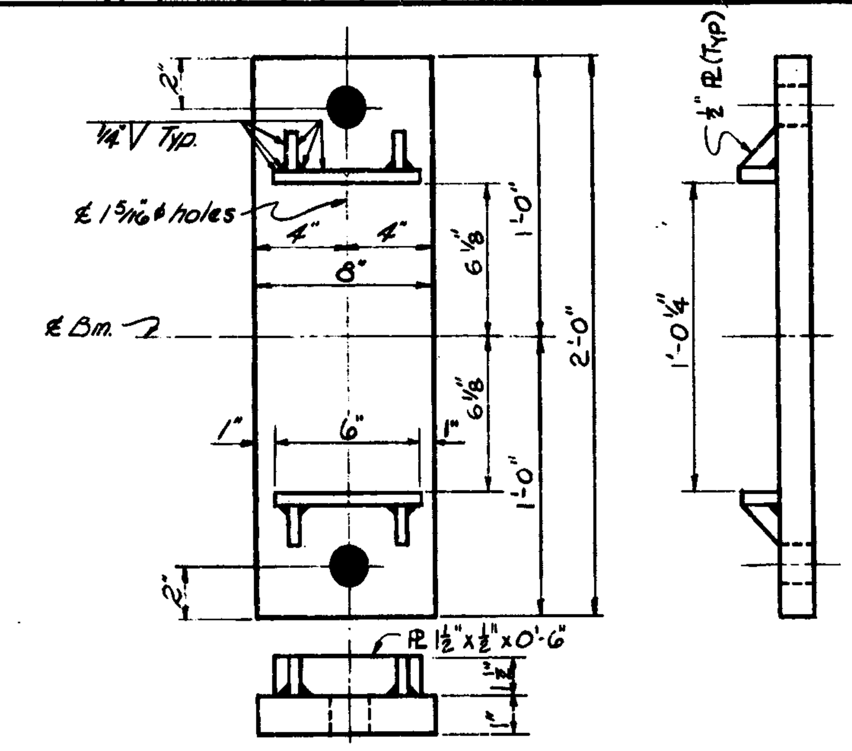
MASONRY PL-MP5



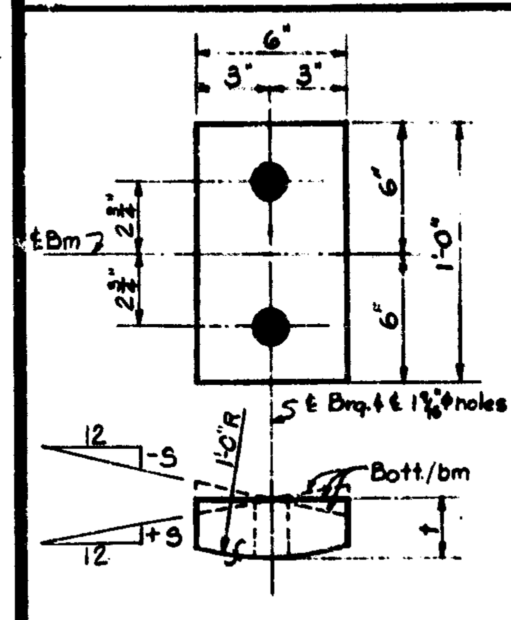
SOLE PL-SP2
Use w/MP5



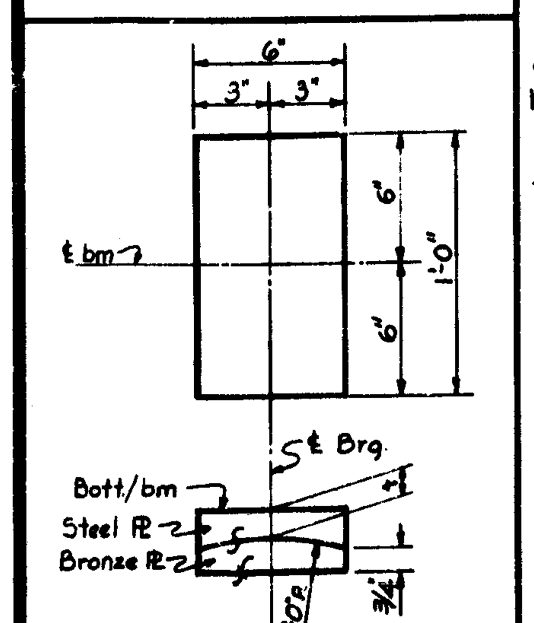
MASONRY PL-MP2



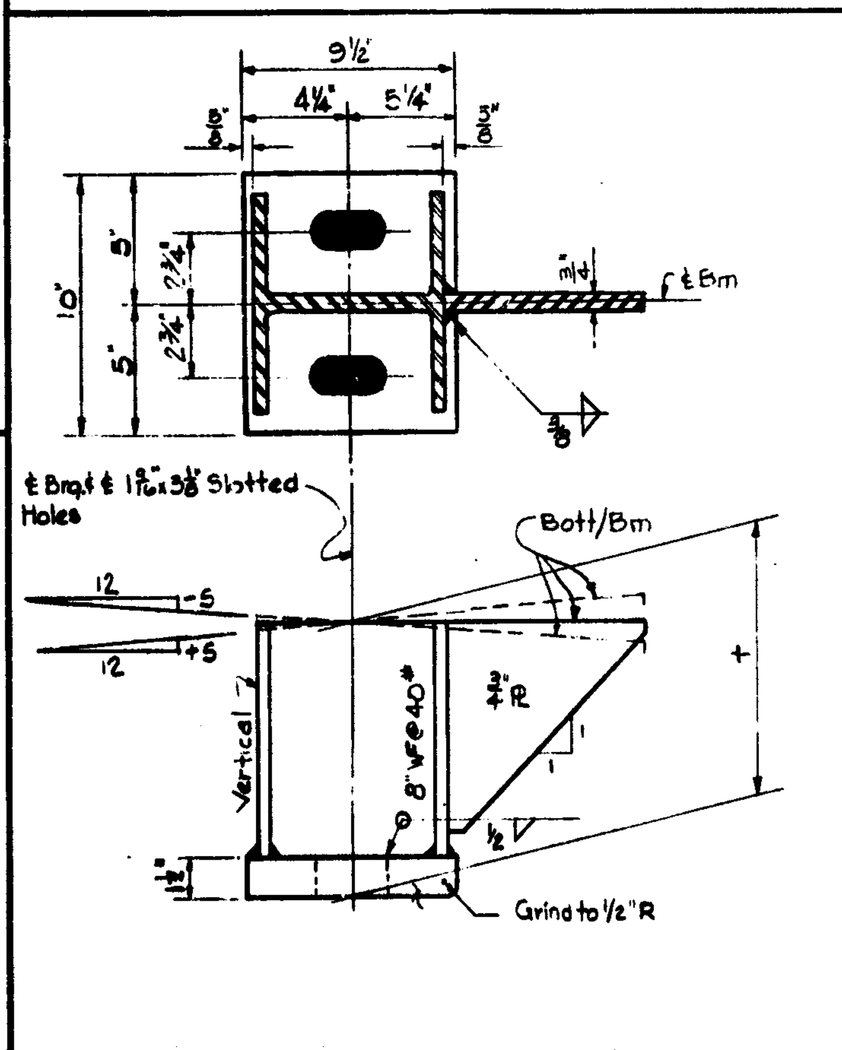
MASONRY PL-MP8



SOLE PL-SP3
Use w/ MP-5



SOLE PL-SP4
Use w/MP8



PEDESTAL-P1
Use w/MP2

	BEAM	TYPE	VARIABLE DIMENSIONS					
				W	t	p		s
Abut. A	1B1	MP1		1'-1"				
	1B2 & 1B5	MP1		1'-1"				
	1B3 & 1B4	MP1		10"				
	1B1	SP1		1'-0"	2"			+1/4
	1B2	SP1		1'-0"	3 1/4"			+1/4
	1B3	SP1		9"	2"			+1/4
	1B4	SP1		9"	2 3/4"			+1/4
	1B5	SP1		1'-0"	6"			+1/4
Pier 1	1B2 & 1B5	MP5		1'-2"				
	1B3 & 1B4	MP2						
	1B2	SP2			2"			-5/16
	1B3	P1			1'-3 1/4"			-5/16
	1B4	P1			1'-3 1/4"			-5/16
	1B5	SP2			2 1/2"			-1/4
	2B1-2B4	MP5		1'-2"				
	2B1	SP3			2"			+1/4
	2B2	SP3			2 3/4"			+1/4
	2B3	SP3			2 3/4"			+1/4
	2B4	SP3			2"			+1/4
Pier 2	2B1-2B4	MP8						
	2B1	SP4			1 3/4"			
	2B2	SP4			2 3/4"			
	2B3	SP4			2 3/4"			
	2B4	SP4			1 3/4"			
	3B1-3B4	MP8						
	3B1	SP4			1 3/4"			
	3B2	SP[illegible]			2 1/2"			
	3B3	SP4			2 1/2"			
	3B4	SP4			1 3/4"			
Pier 3	3B1-3B4	MP5		1'-2"				
	3B1	SP3			2"			0
	3B2	SP3			2 3/4"			0
	3B3	SP3			2 3/4"			0
	3B4	SP3			2"			0
	4B1 & 4B4	MP5		1'-2"				
	4B2 & 4B3	MP2						
	4B1	SP2			2 1/2"			0
	4B2	P1			1'-0 1/4"			0
	4B3	P1			1'-0 1/4"			0
	4B4	SP2			2 1/2"			0
Abut. B	4B1 & 4B4	MP1		1'-1"				
	4B2 & 4B3	MP1		11"				
	4B1	SP1		1'-0"	2"			0
	4B2	SP1		10"	2"			0
	4B3	SP1		10"	2"			0
	4B4	SP1		1'-0"	2"			0

Work this sheet with sheets 14, 15 & 16

MICHIGAN STATE HIGHWAY DEPARTMENT

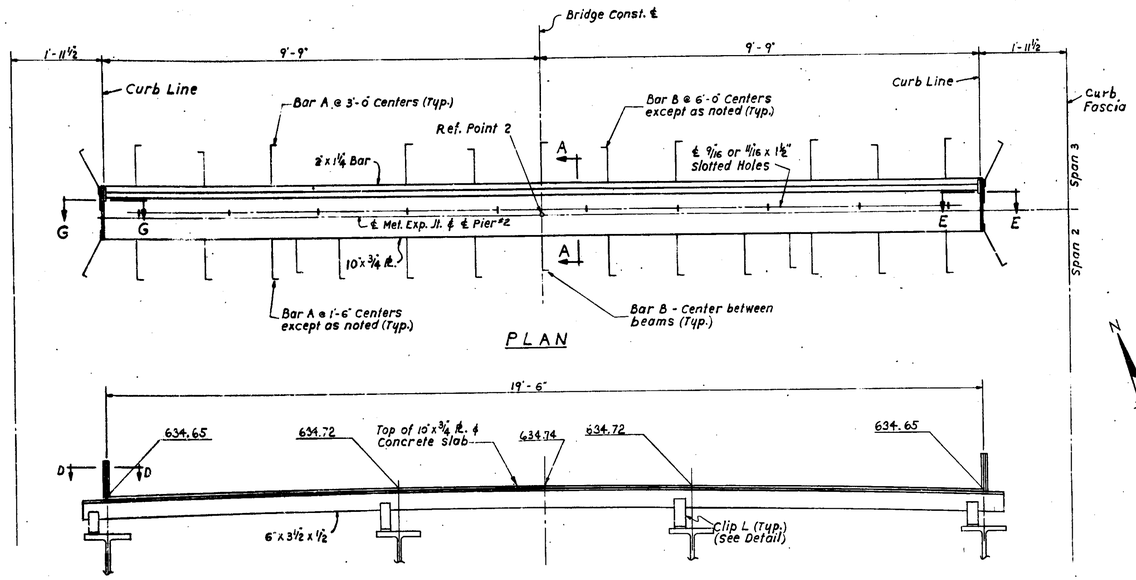
BEARING DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Oetsch	6-12-64		
DRAWN BY	D.E.M.	9-15-64	WKW	2-7-64
TRACED BY	HLM	6-5-64		
CHECKED BY	FDR	10-5-60	INI	2-21-64
SHEET 18 OF 20				

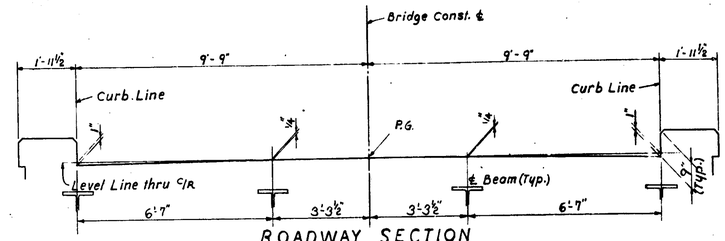
S25 OF 63174 A



PLAN

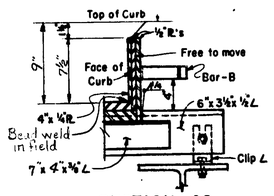
ELEVATION

Some bars & ℄s have been omitted from this view for simplicity.

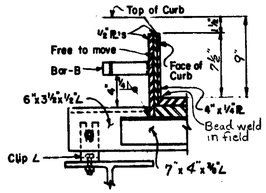


ROADWAY SECTION

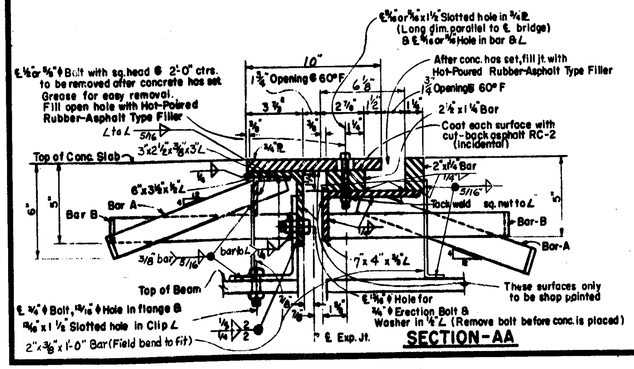
Normal to Bridge Const. ℄.



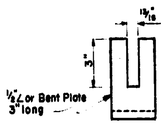
SECTION-GG



SECTION-EE



SECTION-AA



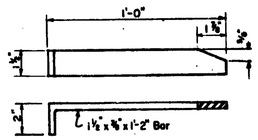
CLIP L DETAIL

NOTES:

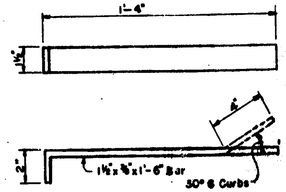
The Metal Expansion Joint shall be bent in the shop to conform with the contour of the top of roadway slab.

Hot-Poured Rubber-Asphalt Type Filler is included in the Superstructure Quantities on sheet #11

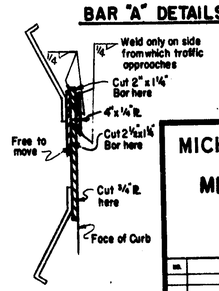
Weight of Metal Expansion Joint is included in the Structural Steel weight on sheet # 16



BAR "A" DETAILS



BAR "B" DETAILS



SECTION-DD

MICHIGAN STATE HIGHWAY DEPARTMENT

METAL EXPANSION JOINT DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	Goetsch	2-12-64
DRAWN BY	A.A.S.	2-18-64
TRACED BY		
CHECKED BY	CAF / JHL	2/18-24/1964
SHEET	19 OF 20	

S25 OF 63174A

ABUTMENTS

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A1	6'-6"							#6	6'-6"	72	703
A2	4'-6"							6	4'-6"	72	487
A3	25'-6"							6	25'-6"	10	383
A4	25'-6"							4	25'-6"	12	204
A5	23'-9"							4	23'-9"	12	190
A6	9'-6"							6	9'-6"	26	371
A7	10'-3"							6	10'-3"	7	108
A8	9'-6"							7	9'-6"	26	505
A9	10'-3"							7	10'-3"	7	147
A10	4'-6"							4	4'-6"	5	15
A11	7'-6"							4	7'-6"	5	25
A12	10'-6"							4	10'-6"	5	35
A13	29'-3"							6	29'-3"	20	879
A14	8'-0"							6	8'-0"	32	385
A15	9'-3"							6	9'-3"	7	97
A16	8'-0"							7	8'-0"	32	523
A17	9'-3"							7	9'-3"	7	132
A18	18'-9"							4	18'-9"	20	251
A19	21'-6"							4	21'-6"	10	144
A20	[illegible]'-0"							4	6'-0"	1	4
A21	10'-0"							4	10'-0"	1	7
A22	14'-3"							4	14'-3"	1	10
A23	4'-3"							4	4'-3"	1	3
A24	7'-3"							4	7'-3"	1	5
A25	10'-3"							4	10'-3"	5	34
A26	6'-9"							4	6'-9"	1	5
A27	10'-9"							4	10'-9"	1	7
A28	15'-0"							4	15'-0"	1	10
A29	24'-3"							6	24'-3"	10	364
D1	2'-3"	1'-1"						4	5'-6"	36	132
D2	2'-9"	1'-1"						4	6'-6"	9	39
D3	4'-3"	1'-1"						4	9'-6"	18	114
							Total for Abutments				6,318

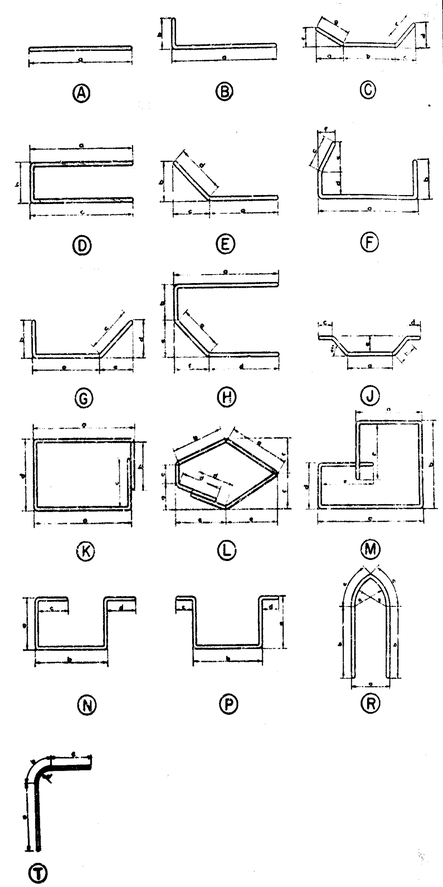
PIERS

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A51	7'-6"							#6	7'-6"	147	1657
A52	27'-6"							6	27'-6"	18	744
A53	27'-6"							10	27'-6"	16	1893
A54	5'-6"							9	5'-6"	48	898
A55	16'-9"							9	16'-3"	10	553
A56	20'-0"							9	20'-0"	10	680
A57	22'-6"							10	22'-6"	20	1936
A58	22'-6"							6	22'-6"	6	203
A59	21'-0"							6	21'-0"	14	442
A60	19'-0"							9	19'-0"	10	646
A61	21'-0"							9	21'-0"	7	300
A62	27'-6"							7	27'-6"	9	506
A63	27'-6"							11	27'-6"	8	1169
A65	19'-3"							6	19'-3"	6	173
K51	3'-0	1'-8"	1'-8"	2'-6"				4	11'-9"	48	377
K52	3'-2"	1'-9½"	1'-9½"	2'-8"				4	12'-6"	33	276
L51	1'-11½"	1'-11½"	0	1'-6¾"	1'-6¾"	1'-3¾"	1'-3¾"	4	9'-0"	44	264
T51	15'-6"	1'-3¾"	2'-8¾"	9"				9	19'-6"	6	398
T52	19'-3"	1'-3¾"	2'-8¾"	9"				9	23'-3"	6	474
T53	18'-3"	1'-3¾"	2'-8¾"	9"				9	22'-3"	6	454
							Total for Piers				14,043

SUPERSTRUCTURE

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A101	37'-9"							#4	37'-9"	116	2976
A102	38'-0"							6	38'-0"	68	3,881
A103	11'-1"							6	11'-1"	516	8590
A104	13'-6"							6	13'-6"	516	10463
A105	22'-9"							6	22'-9"	16	547
A106	23'-0"							6	23'-0"	12	415
A107	23'-3"							6	23'-3"	8	279
A108	23'-6"							6	23'-6"	6	212
A109	27'-6"							4	27'-6"	20	367
A110	27'-6"							6	27'-6"	18	743
A111	9'-9"							6	9'-9"	5	73
A112	9'-9"							6	9'-9"	1	15
A113	5'-3"							4	5'-3"	7	25
A114	5'-3"							6	5'-3"	1	8
A115	19'-0"							4	19'-0"	1	13
A116	19'-0"							6	19'-0"	1	29
A117	27'-0							4	27'-0"	9	162
A118	23'-3"							4	23'-3"	9	140
A119	35'-1"							4	35'-1"	19	445
A120	35'-1"							6	35'-1"	17	896
A121	22'-7"							6	22'-7"	118	4003
A122	29'-6"							4	29'-6"	5	99
A123	28'-9"							6	28'-9"	4	173
A124	28'-2"							4	28'-2"	5	94
A125	28'-0"							6	28'-0"	4	168
A126	35'-6"							4	35'-6"	10	237
A127	35'-3"							6	35'-3"	8	424
A128	8'-9"							4	8'-9"	2	12
A129	32'-0"							6	32'-0"	8	384
A130	32'-6"							6	32'-6"	8	391
A131	23'-9"							6	23'-9"	6	214
A132	24'-0"							6	24'-0"	6	216
A133	24'-3"							6	24'-3"	6	219
A134	24'-6"							6	24'-6"	4	147
A135	24'-9"							6	24'-9"	4	149
A136	25'-0"							6	25'-0"	6	225
A137	25'-6"							6	25'-6"	4	153
A138	25'-9"							6	25'-9"	4	155
A139	26'-0"							6	26'-0"	4	156
A140	26'-3"							6	26'-3"	2	79
A141	26'-6"							6	26'-6"	2	80
A142	2'-0"							6	2'-0"	4	12
A143	37'-9"							6	37'-9"	16	907
A144	8'-9"							6	8'-9"	4	53
D101	2'-9⅜"	6¾"						6	6'-1"	306	2796
K101	3'-5½"	1'-0"	1'-0"	1'-3½"				4	10'-2"	8	54
K102	10½"	5½"	6"	7½"				4	3'-3"	368	799
K103	10⅜"	5⅜"	6"	7⅜"				4	3'-4"	204	454
M101	10"	2'-5½"	1'-3½"	1'-5"	1'-0"	1'-7½"		4	8'-6"	10	57
M102	10"	3'-5½"	1'-3½"	2'-5"	1'-0"	1'-7½"		4	10'-6"	14	98
M103	1'-3½"	1'-1"	1'-7½"	6"	0	1'-1"		4	5'-5"	294	1064
M104	10"	2'-8½"	1'-3½"	1'-8"	1'-0"	1'-7½"		4	9'-0"	9	54
							Total for Superstructure				44,355

BAR BENDING DIAGRAM



Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 64,716 #

MICHIGAN STATE HIGHWAY DEPARTMENT

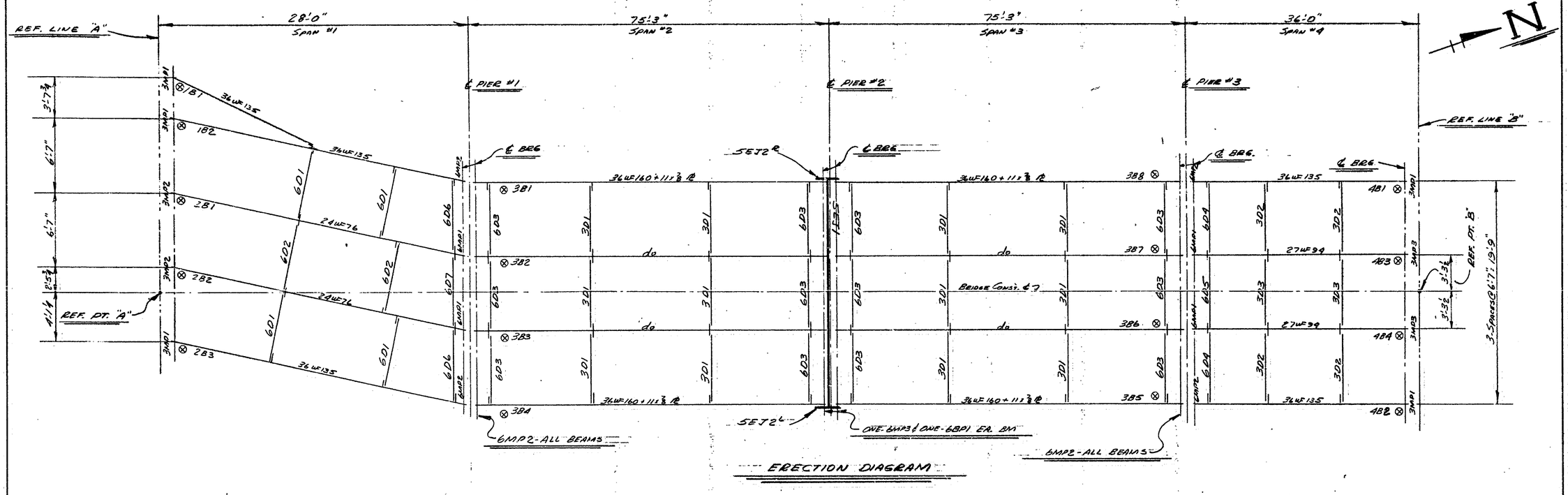
STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Goetsch	2-14-64
DRAWN BY	W.C.W.	2-17-64
TRACED BY		
CHECKED BY	INI	2-27-64
SHEET	20	

S25 OF 63174A

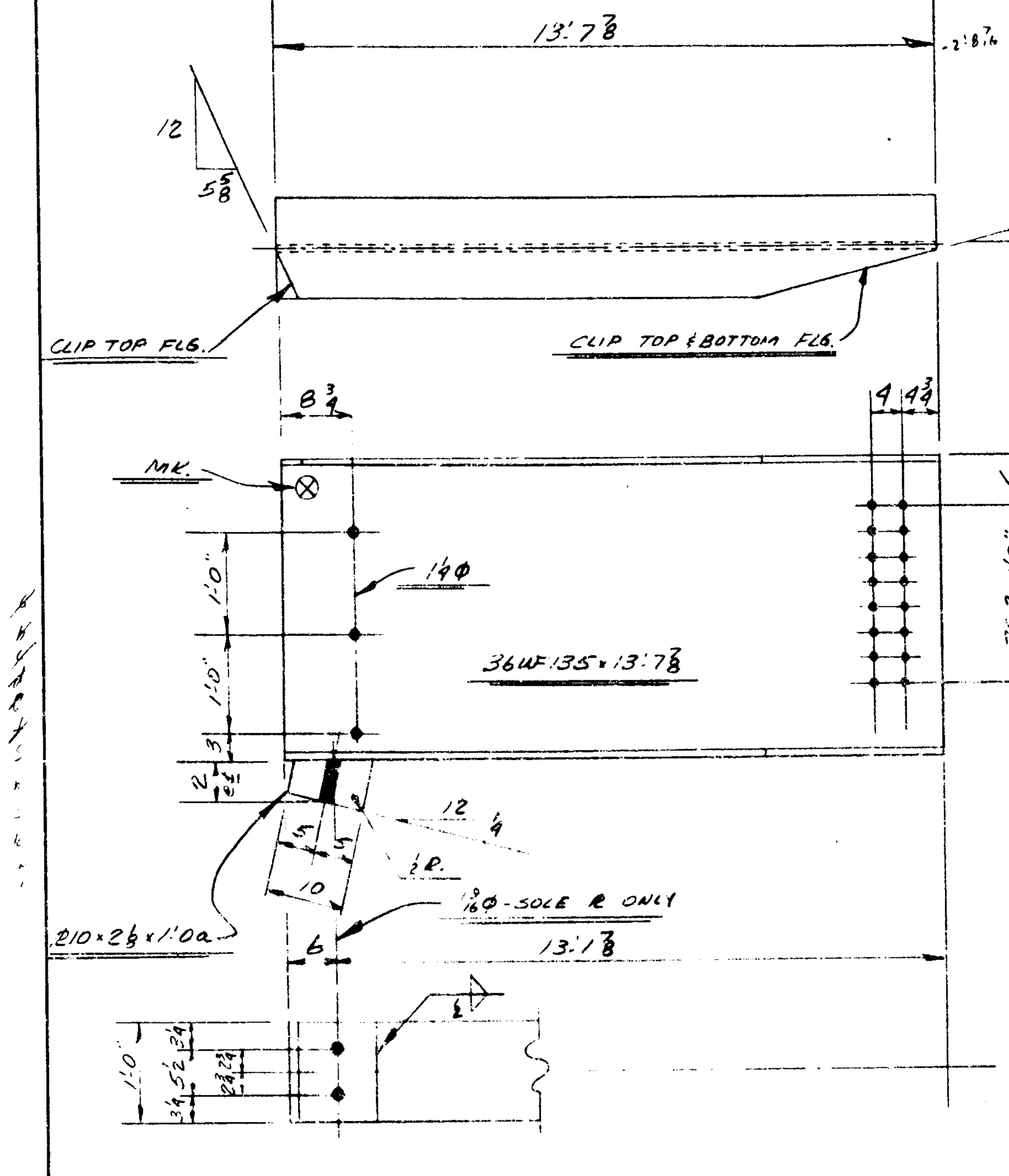


REVISION			
NO.	DESCRIPTION	DATE	BY

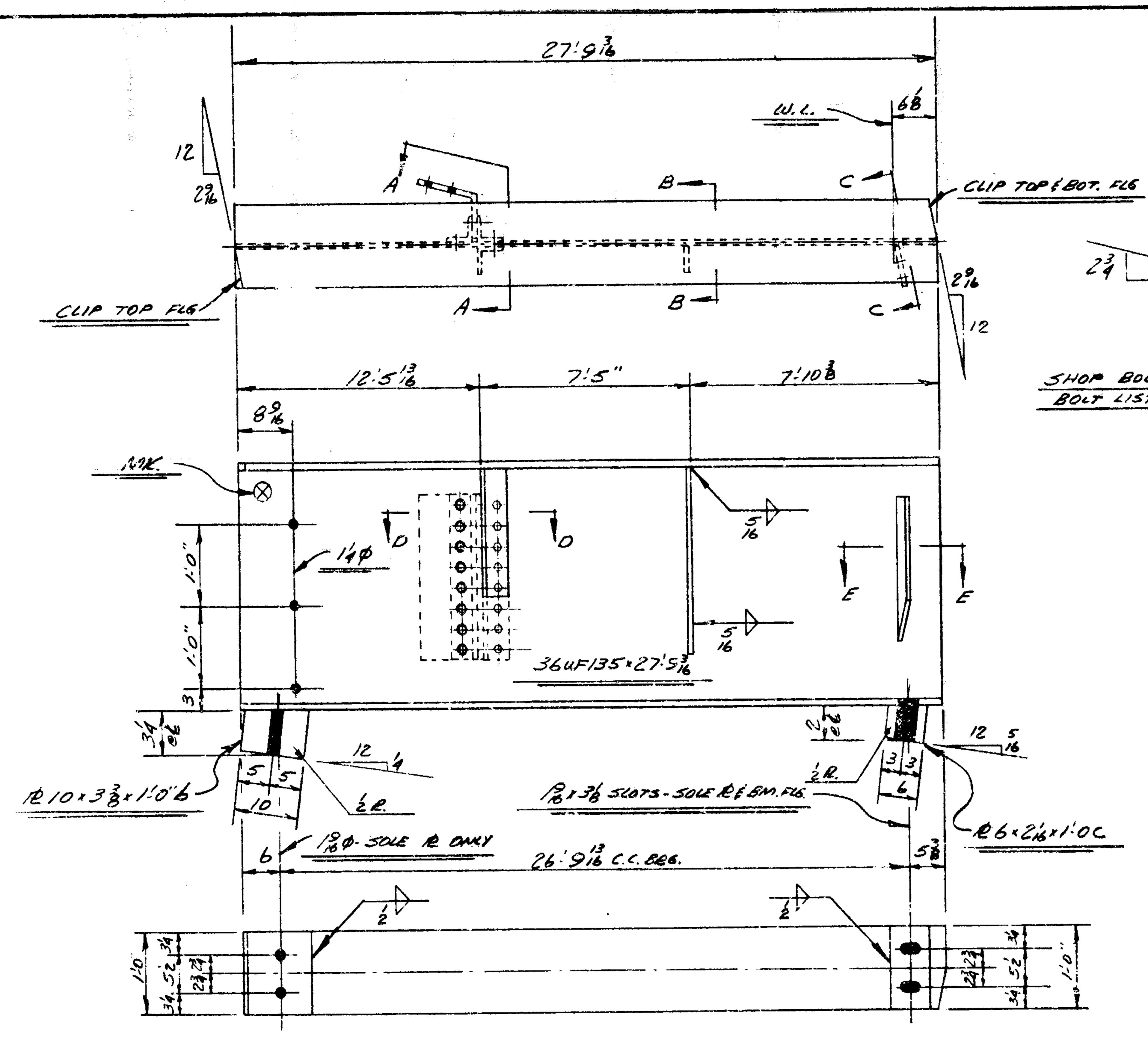
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

BRIDGE 525 of 63174A
I-75 CROSSING NORTHBOUND JOHN R
LEFT TURN IN THE CITY OF HAZEL PARK
C.A. HULL CO. CONT'R.

DATE 11-1-65	JOB NO. 82255B	SHEET E1
BY DWM		



ONE BEAM REQ'D. AS SHOWN & NOTED MK 181



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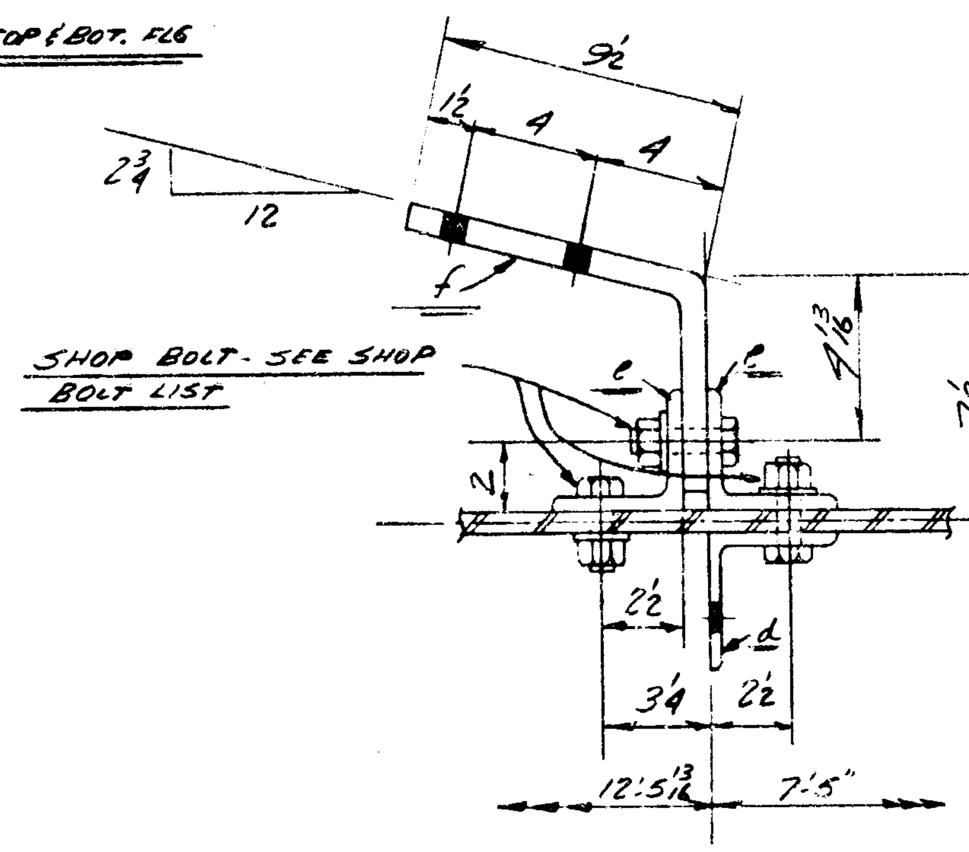
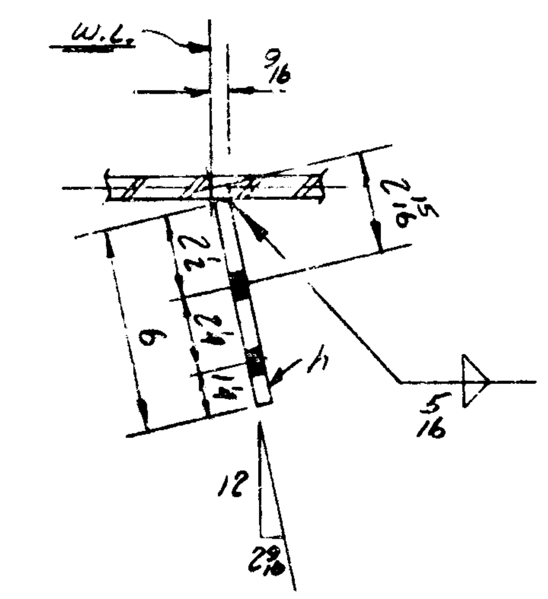


SECTION D-D



SECTION E-E

SHOP NOTES

PAINT SHOP COAT OF M.S.H.D. 1A(1) RED LEAD EXCEPT AS FOLLOWS: THE TOP SURFACE OF THE TOP FLG. OF ALL 36WF160 BM'S SHALL RECEIVE ONE COAT OF BOILED LINSEED OIL ONLY. THE TOP SURFACE OF MAS. ℘S, BOTTOM SURFACE OF SOLE ℘S & BOTH SURFACES OF BRONZE ℘S SHALL RECEIVE ONE COAT OF M.S.H.D. 5.02.03 TALLOW MIXTURE ONLY. NO PAINT ON FIELD CONTACT SURFACES. PAINT EXP. JOINT ONLY AS NOTED.

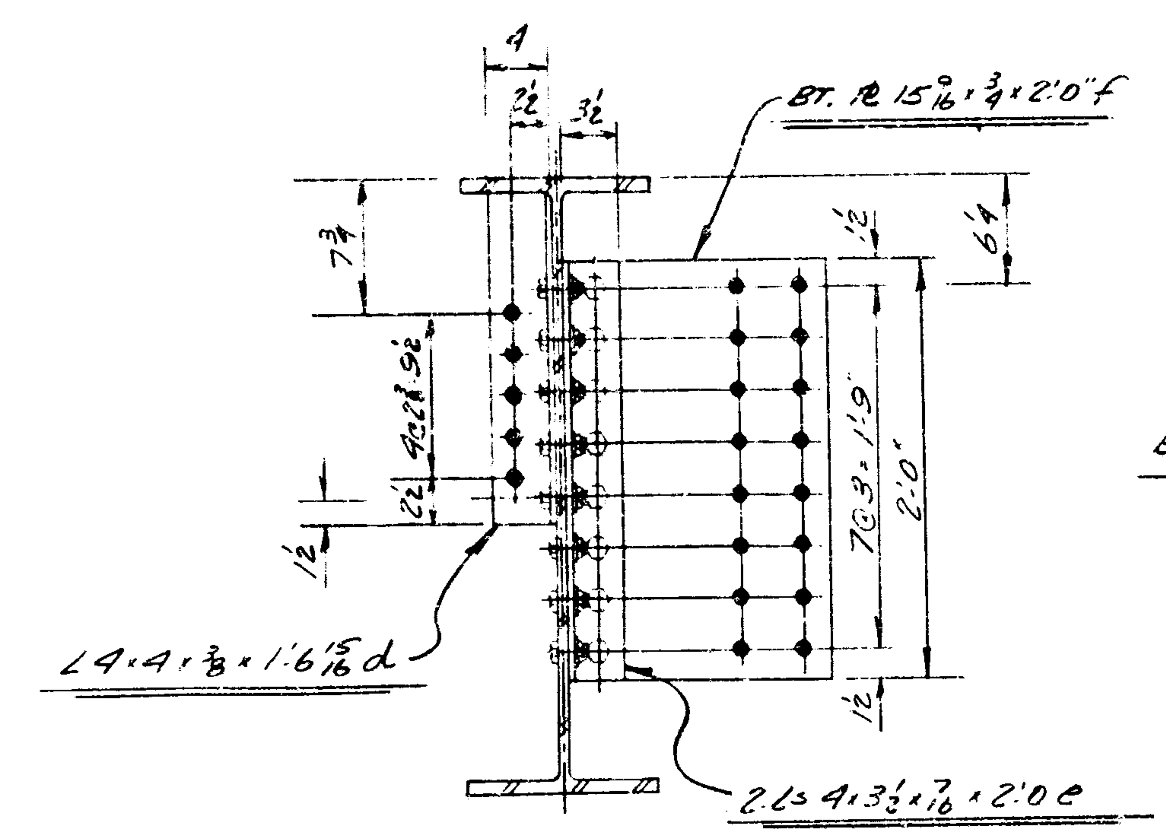
ALL MATERIAL TO BE A36 STEEL U.N.

OPEN HOLES & HOLES FOR SHOP BOLTS TO BE 13/16 φ U.N.

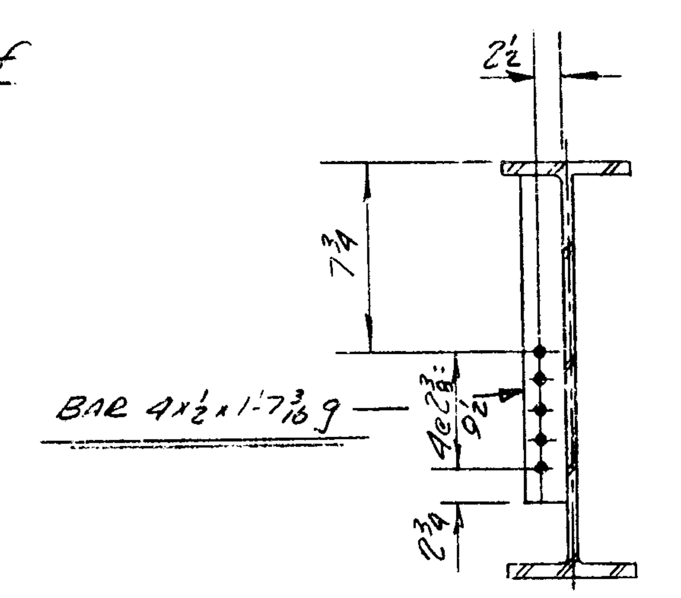
THE BEAMS IN SPANS 2 & 3 SHALL BE CAMBERED AS NOTED. THE BEAMS IN SPANS 1 & 4 SHALL HAVE A CAMB. OF 0". CAMBER TOLERANCE IS ± 1/4"

ALL SHARP LONGITUDINAL EDGES OF MAIN STEEL MEMBERS THAT WILL BE EXPOSED IN THE FINISHED STRUCTURE SHALL BE ROUNDED TO A RADIUS OF 3/16 ± 1/16 BEFORE SHOP CLEANING & PAINTING. THIS SHALL INCLUDE THE BOTTOM EDGE OF THE TOP FLG. OF ALL BEAMS.

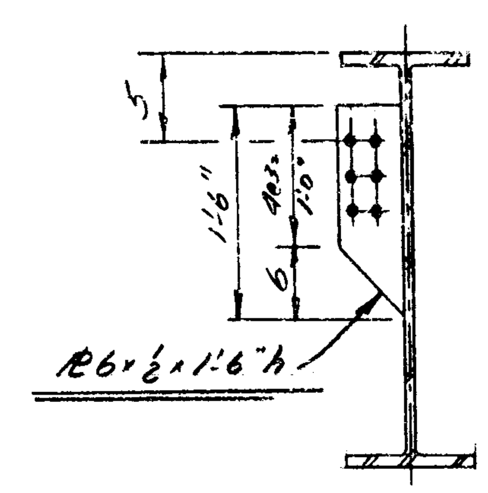
MAGNETIC PARTICLE INSPECTION OF WELDS IS REQUIRED.



SECTION A-A



SECTION B-B



SECTION C-C

ANCHOR BOLTS & POSITION DOWELS

48 - 1"φ × 1'-6 SQ HD. BOLT (2 3/4 THD.)
48 - 1"φ ℘ WA. (BAR 3 × 1/4 × 3)
48 - 1"φ HEX NUT
12 - BAR 1"φ × 1'-0" (PLAIN)

SHOP BOLT LIST

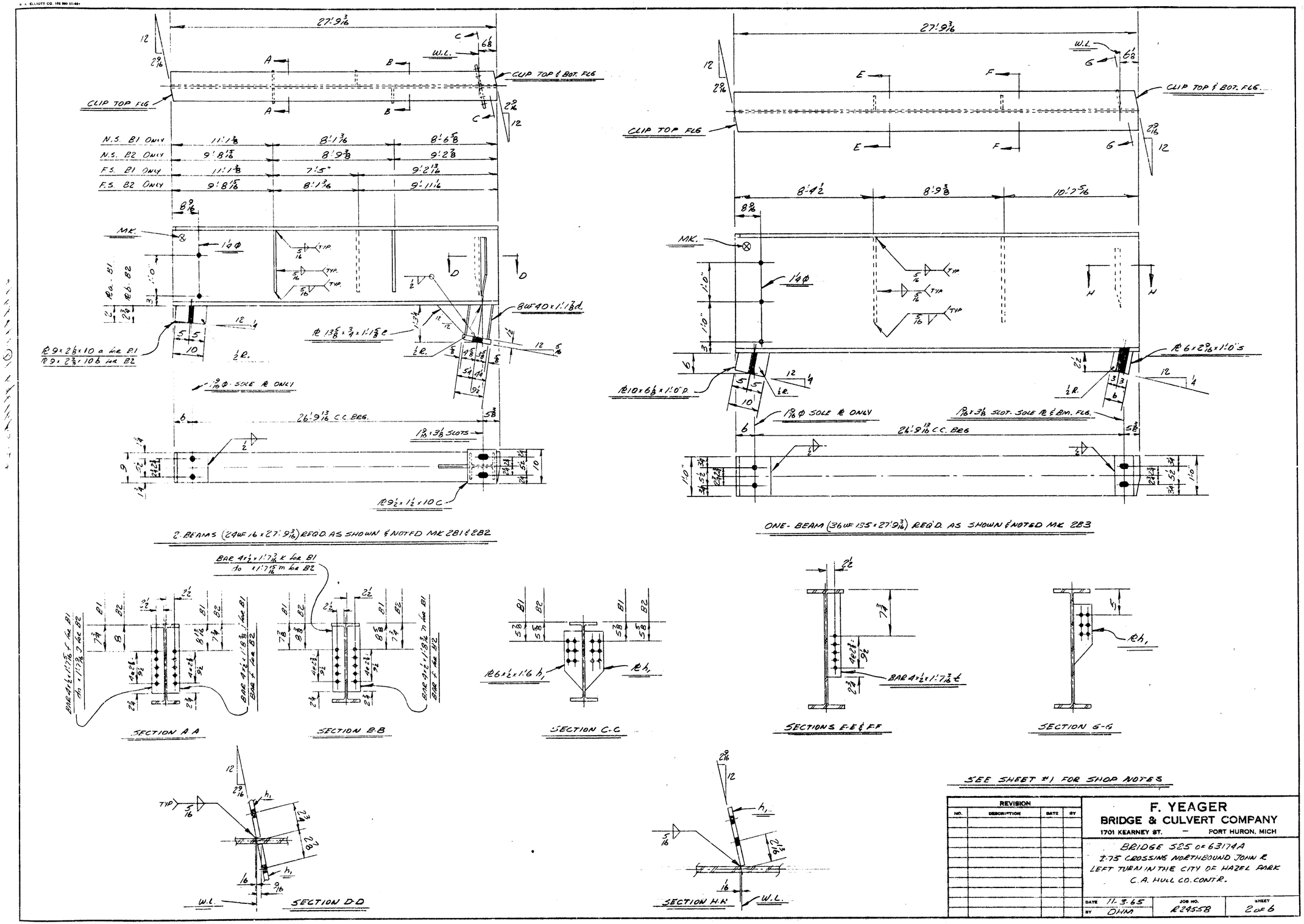
11 - 3/4φ × 2 1/4 H. HEX HD. H.S. BOLT
5 - 3/4φ × 2 3/4 do do
8 - 3/4φ × 3 do do
24 - 3/4φ H. HEX NUTS
24 - 3/4φ H. FLAT WASHERS

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

BRIDGE S25 OF 63174A
I-75 CROSSING NORTHBOUND JOHN R.
LEFT TURN IN THE CITY OF HAZEL PARK
C.A. HULL CO. CONT'R.

DATE 11-2-65	JOB NO.	SHEET
BY DHM	R24558	1 OF 6



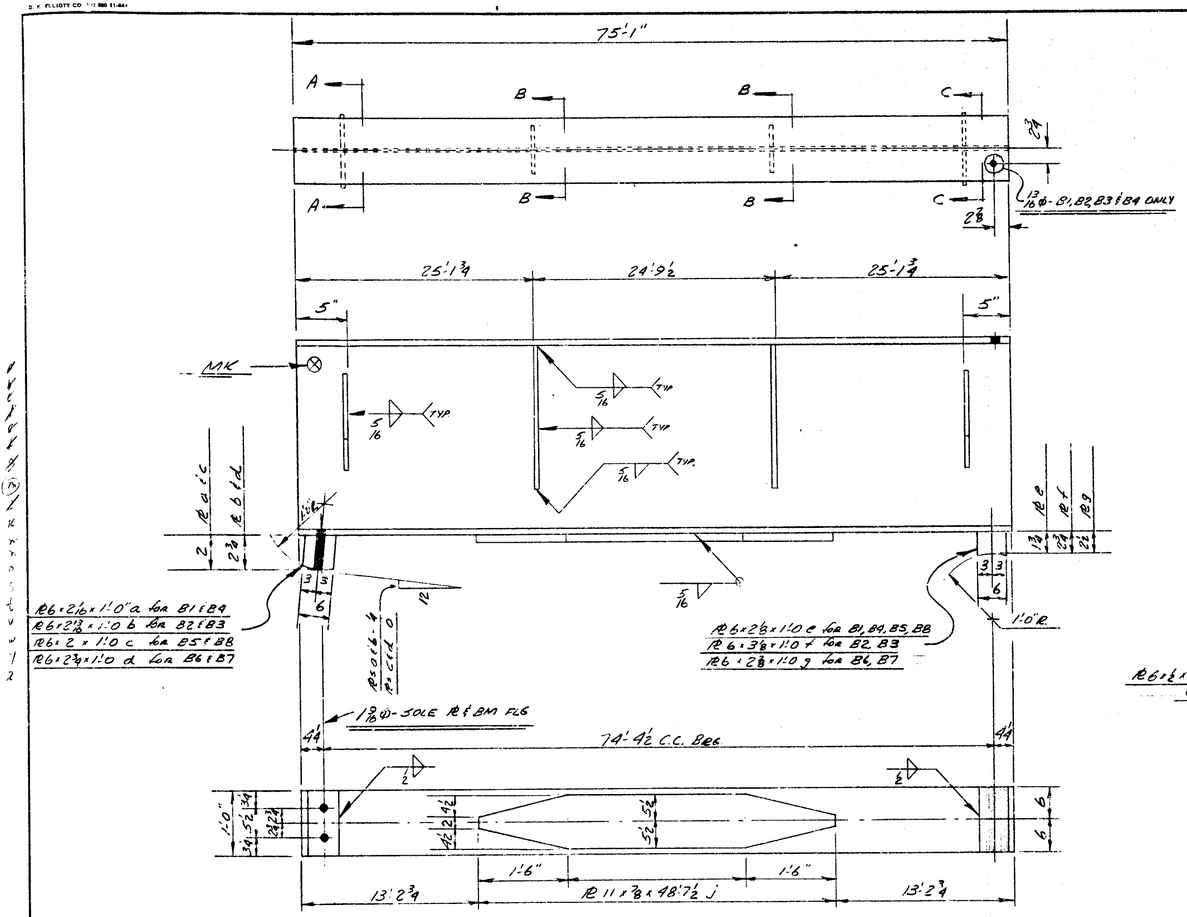
SEE SHEET #1 FOR SHOP NOTES

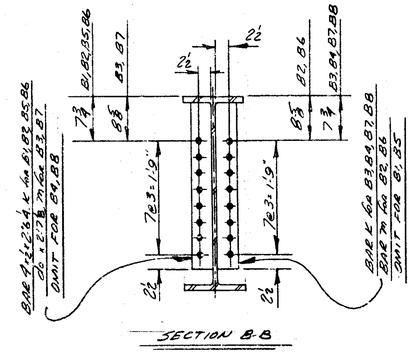
REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

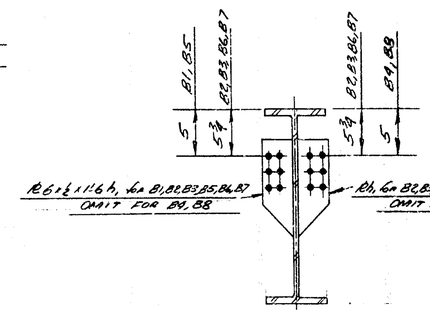
BRIDGE S25 OF 63174A
I-75 CROSSING NORTHBOUND JOHN R
LEFT TURN IN THE CITY OF HAZEL PARK
C.A. HULL CO. CONTR.

DATE	JOB NO.	SHEET
11-3-65	R2455B	2 OF 6
BY OHM		

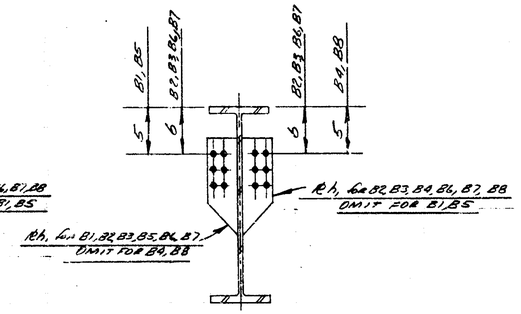




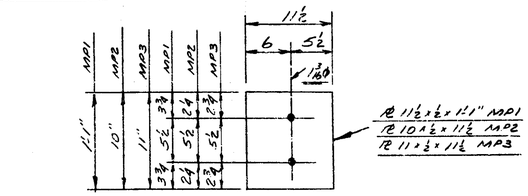
SECTION B-B



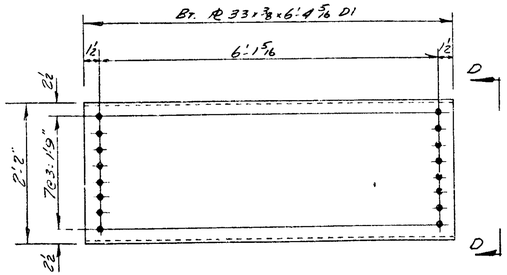
SECTION A-A



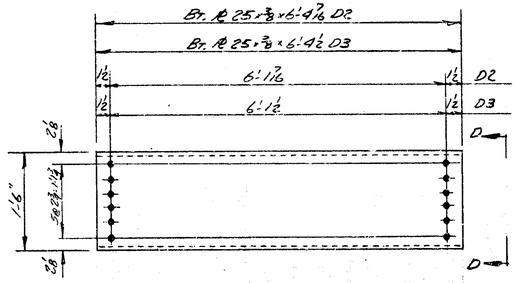
SECTION C-C



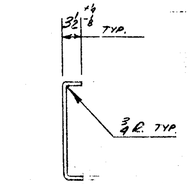
5 - MAS. PLS REQ'D. AS SHOWN & NOTED MK 3MP1
2 - do do do do MK 3MP2
2 - do do do do MK 3MP3



12 - DIAP. REQ'D. AS SHOWN & NOTED MK 3D1



4 - DIAP. REQ'D. AS SHOWN & NOTED MK 3D2
2 - do do do do MK 3D3



VIEW D-D

4 - BEAMS (36 WF 160 75'-1" CAMBER 5⅜) REQ'D AS SHOWN & NOTED MK 3B1 to 3B4
4 - do (36 WF 160 75'-1" CAMBER 2) do do do MK 3B5 to 3B8

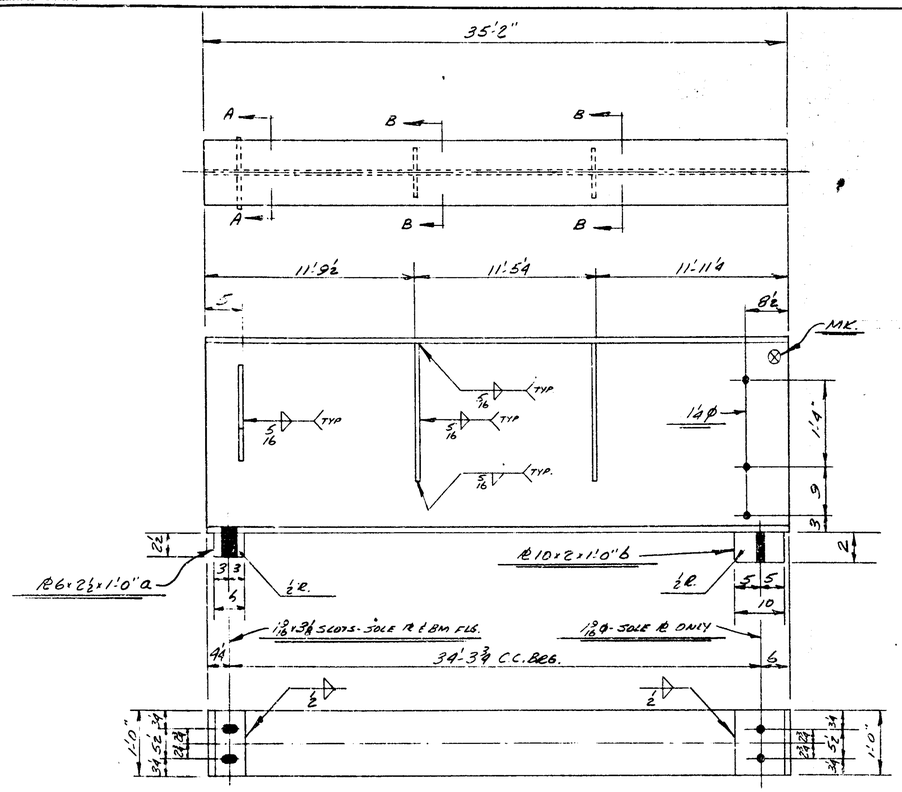
SEE SHEET #1 FOR SHOP NOTES

REVISION			
NO.	DESCRIPTION	DATE	BY

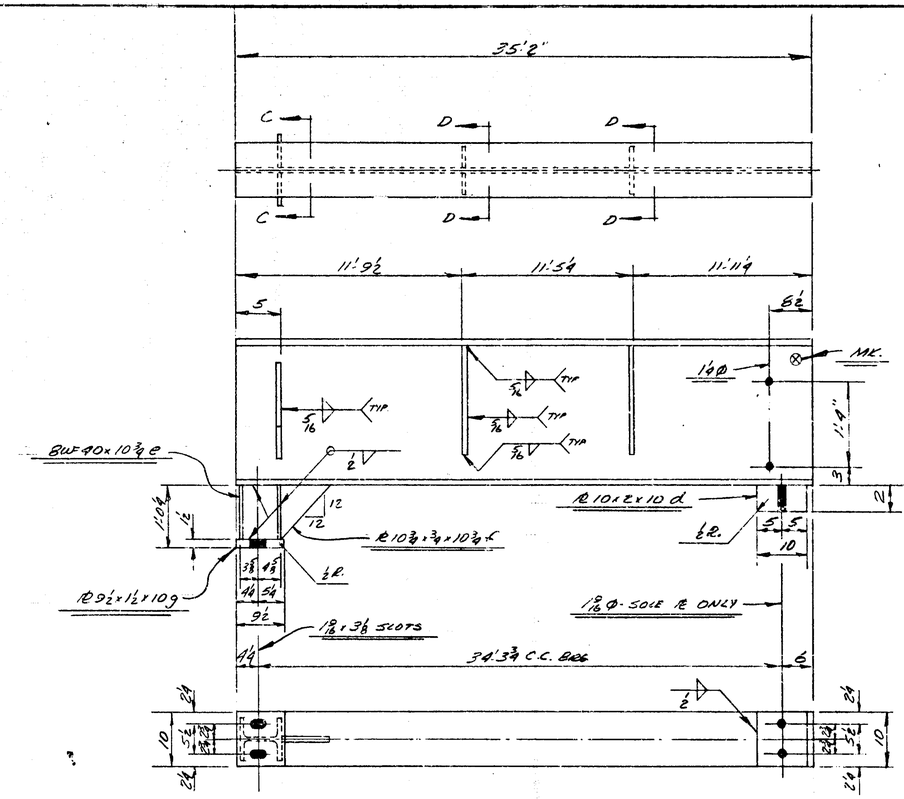
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

BRIDGE 525 OF 63174A
I-75 CROSSING NORTHBOUND JOHN R.
LEFT TURN IN THE CITY OF HAZEL PARK
C.A. HULL CO. CONT'R.

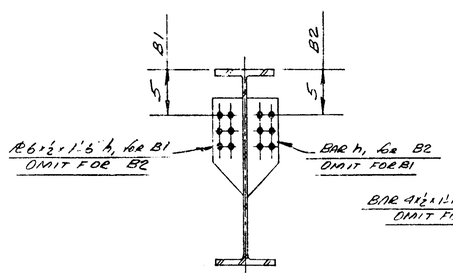
DATE 11-4-65	JOB NO. R24558	SHEET 3 of 6
BY DHM		



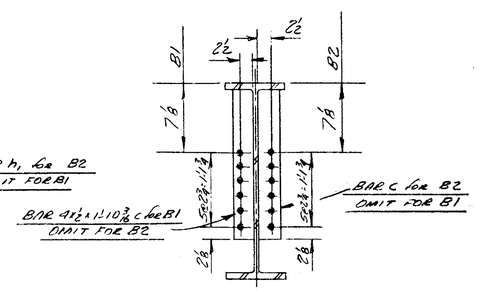
2-BEAMS (36WF135 x 35'-2") REQ'D. AS SHOWN & NOTED MK 4B1 & 4B2



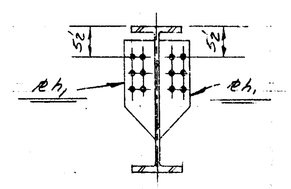
2-BEAMS (27WF94 x 35'-2") REQ'D. AS SHOWN & NOTED MK 4B3 & 4B4



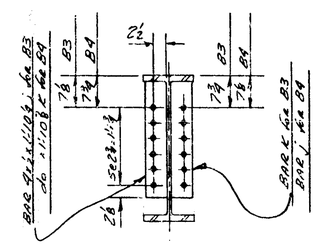
SECTION A-A



SECTIONS B-B



SECTION C-C



SECTION D-D

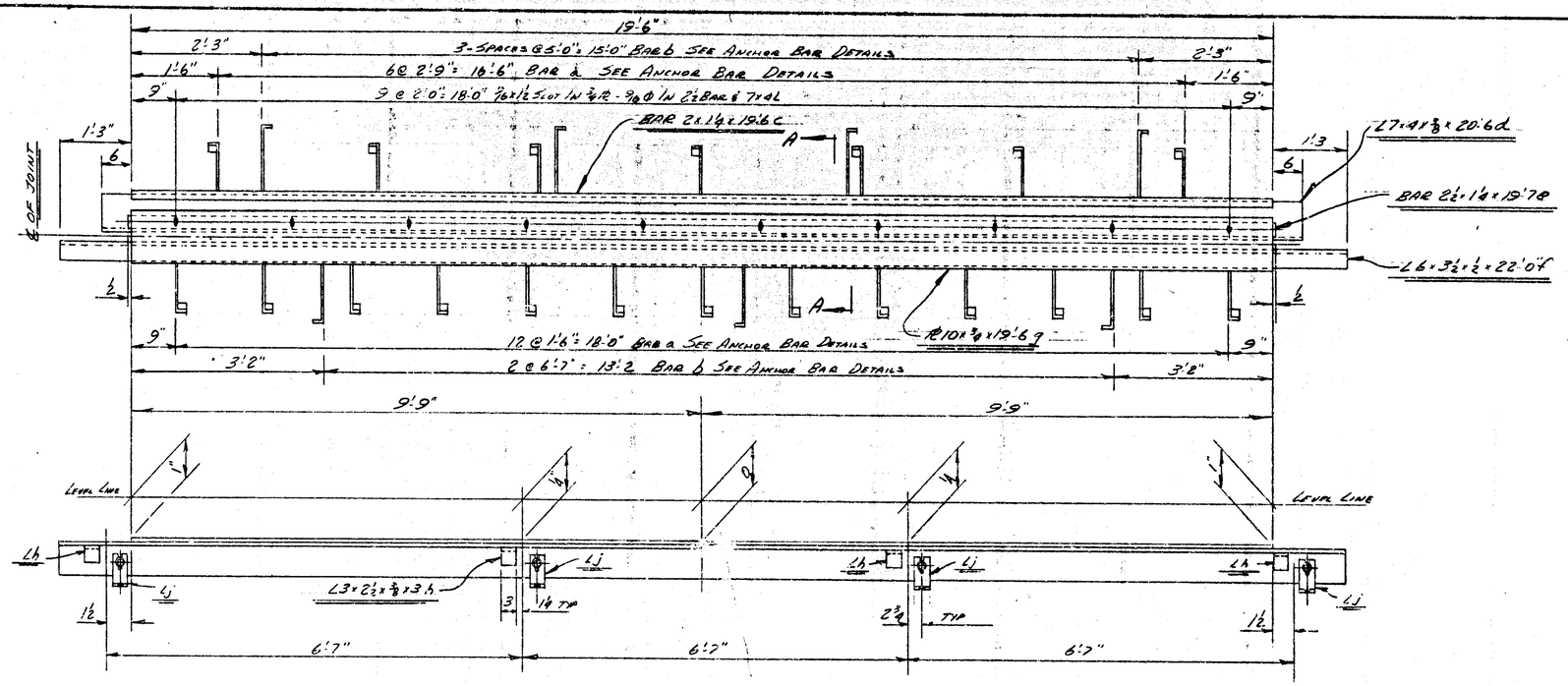
SEE SHEET #1 FOR SHOP NOTES

REVISION			
NO.	DESCRIPTION	DATE	BY

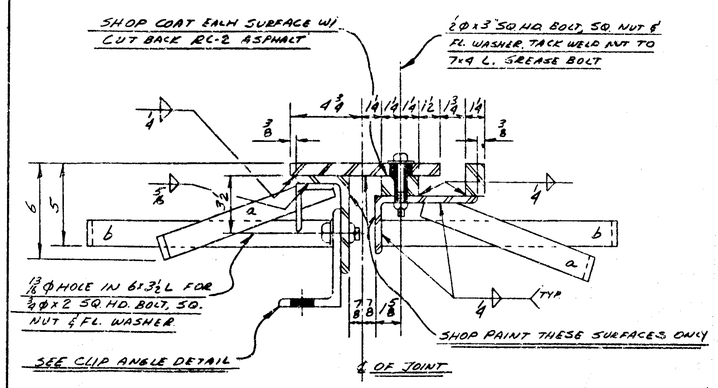
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

BRIDGE 525 OF 63174A
I-75 CROSSING NORTHBOUND JOHN R
LEFT TURN IN THE CITY OF HAZEL PARK
C.A. HULL CO. CONT'R.

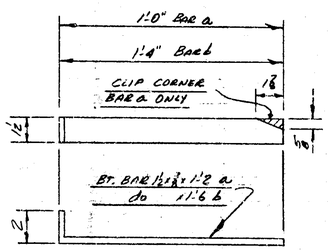
DATE 11-5-65	JOB NO. R2455B	SHEET 4 of 6
BY DHM		



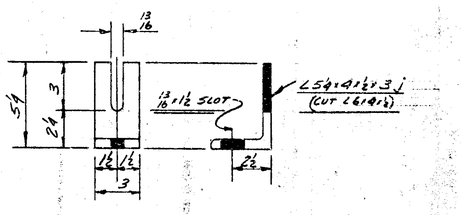
ONE-EXP. JOINT REQ'D. AS SHOWN & NOTED MK 5EJ1



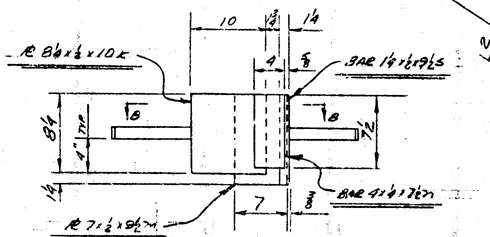
SECTION A-A



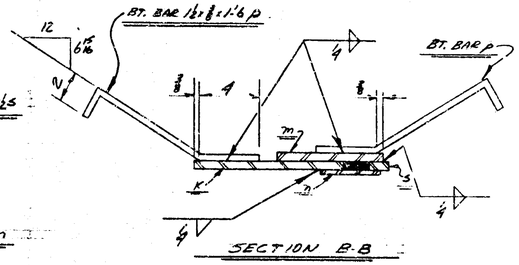
ANCHOR BAR DETAILS



CLIP ANGLE DETAIL



ONE-EXP. JOINT REQ'D. AS SHOWN & NOTED MK 5EJ2R
ONE do do OPP. HAND MK 5EJ2L
(BUNDLE TO SHIP)



SECTION B-B

PLAIN MATERIAL

8-BAR 2 x 3/8 x 1'-0" SFB1

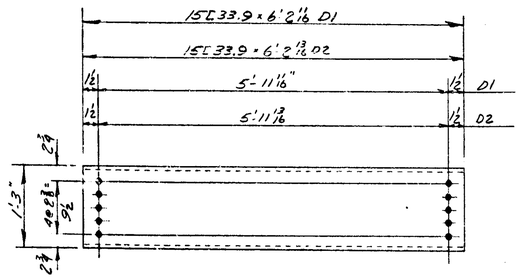
SEE SHEET # 1 FOR SHOP NOTES

REVISION			
NO.	DESCRIPTION	DATE	BY

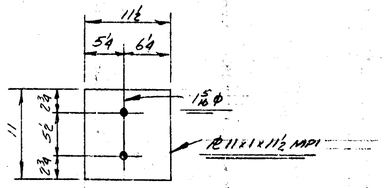
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

BRIDGE 525 OF 63174.A
I-75 CROSSING NORTHBOUND JOHN R.
LEFT TURN IN THE CITY OF HAZEL PARK
, C.A. HULL CO. CONT'R.

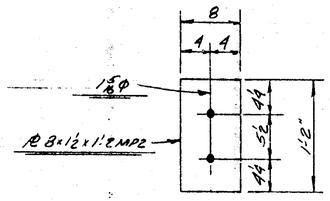
DATE 11-5-68	JOB NO.	SHEET
BY DHM	R24556	5 OF 6



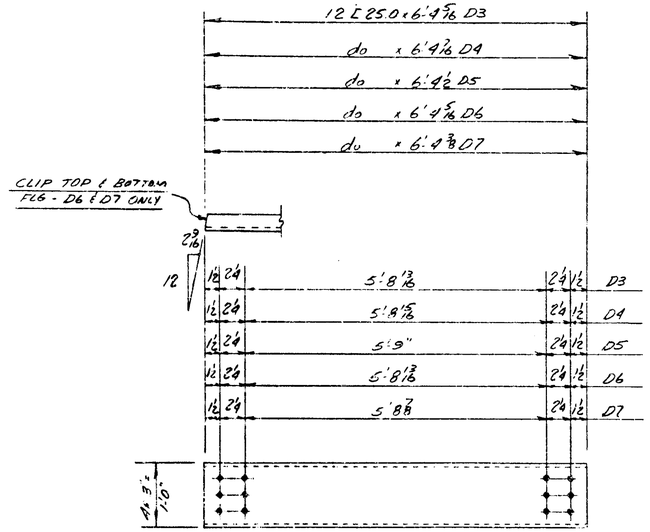
4- DIAP. REQ'D AS SHOWN & NOTED MK 6D1
2- do do do do MK 6D2



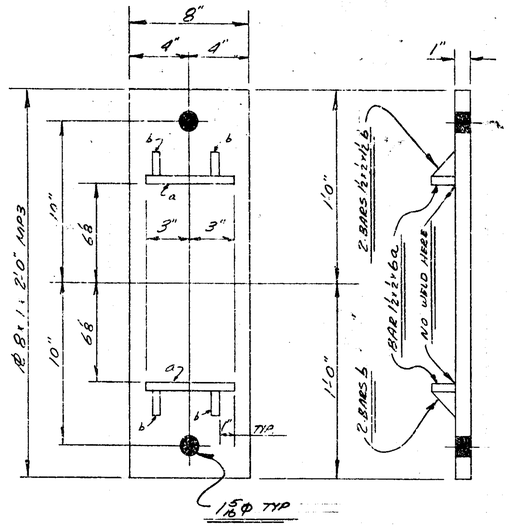
4-MAS. PLs REQ'D. AS SHOWN & NOTED MK 6MP1



12-MAS. PLs REQ'D. AS SHOWN & NOTED MK 6MP2

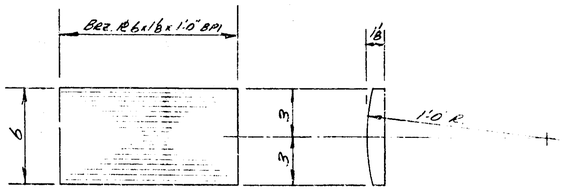


12- DIAP. REQ'D. AS SHOWN & NOTED MK 6D3
2- do do do do MK 6D4
ONE- do do do do MK 6D5
2- do do do do MK 6D6
ONE- do do do do MK 6D7



WELD ALL JOINTS 1/4" CONT. U.N.

8-MAS. PLs REQ'D. AS SHOWN & NOTED MK 6MP3



8-BRONZE PLs REQ'D. AS SHOWN & NOTED MK 6BP1

CT.	SHIP	FIELD BOLTS
540	567	3/4 Φ x 2 1/4 H. Hex Hd. H.S. Bolts
16	17	3/4 Φ x 2 3/4 do do
556	584	3/4 Φ H. Hex Nuts
556	584	3/4 Φ H. Flat Washers
4	4	3/4 Φ x 2 3/4 Sq. Hd. M. Bolts
4	4	3/4 Φ Reg. H. Nuts
4	4	3/4 Φ Std. Flat Washers

SEE SHEET #1 FOR SHOP NOTES

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

BRIDGE 325 OF 63174A
I-75 CROSSING NORTHBOUND JOHN R.
LEFT TURN IN THE CITY OF HAZEL PARK
C.A. HULL CO. CONTR.

DATE 11-8-65	JOB NO. L24558	SHEET 6 OF 6
BY DHM		

S26 of 63174

CS: 63174

ID: S26

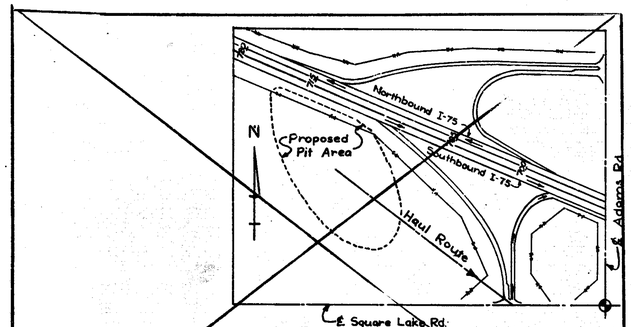
I 63174A, C 52

PART 1	SERVICE RDS. & UTILITIES	
PART 2	PUMPHOUSE	D02 of 63174A
PART 3	PUMPHOUSE	D03 of 63174A
PART 4	BRIDGE	S22 of 63174A
PART 5	BRIDGE	S23 of 63174A
PART 6	BRIDGE	S24 of 63174A
PART 7	BRIDGE	S25 of 63174A
PART 8	BRIDGE	S26 of 63174A
PART 9	BRIDGE	S27 of 63174A
PART 10	PEDESTRIAN BRIDGE	P02 of 63174A
PART 11	PEDESTRIAN BRIDGE	P03 of 63174A
PART 12	PEDESTRIAN BRIDGE	P04 of 63174A
PART 13	PEDESTRIAN BRIDGE	P06 of 63174A

see Index of Drawings on next sheets (1A) & (1B)

MICHIGAN
STATE HIGHWAY DEPARTMENT

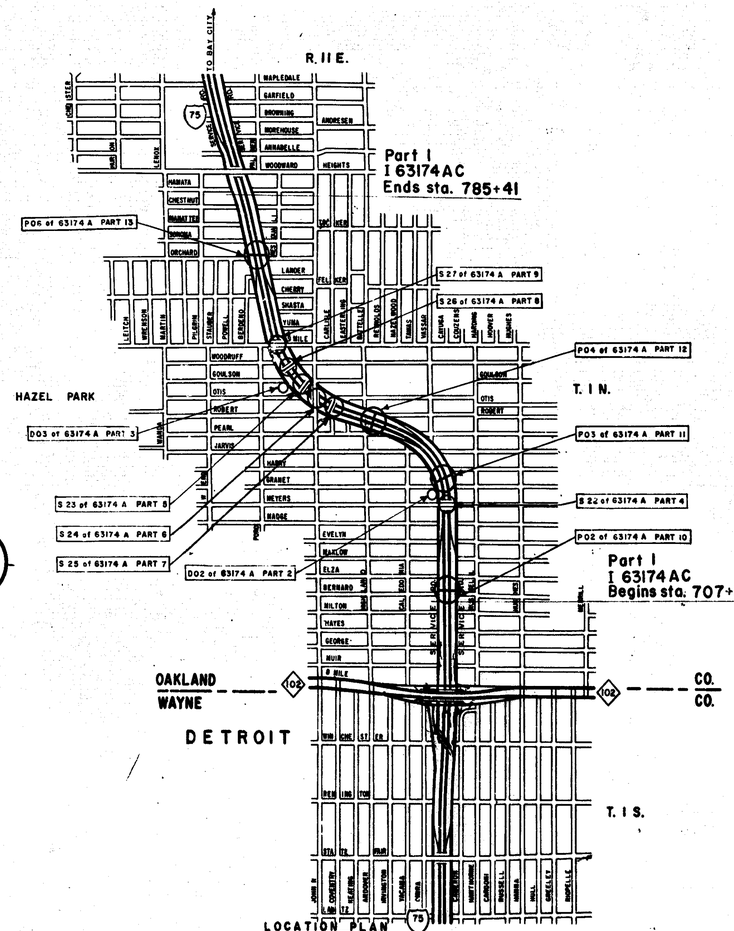
PLANS OF PROPOSED BRIDGES
MICHIGAN PROJECT I-75-2(84)60
STATE PROJECT I 63174A, C-52
DETROIT — BAY CITY ROAD
OAKLAND COUNTY
CITY OF HAZEL PARK



NOTES:
This pit contains sufficient quantities to satisfy all granular borrow requirements.
Other contractors may be using the pit during the life of the contract.
Excavation is to be carried out to lines and grades as directed by the Engineer.

BORROW AREA

Location: That part of the S. ½ of the SE. ¼ of Sec. 1, T2N., R10E., Bloomfield Township, Oakland County, that lies south of I-75, near the intersection of Adams Road and Square Lake Road.



LOCATION PLAN
SCALE: 1" = 1,000 FEET

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE

NOTE:
Where the following items are called for on the Plans, they are to be constructed according to the Standard Plan given below opposite each item, unless otherwise indicated.

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE
SP2G	STANDARD SLOPE PAVING DETAILS

GENERAL NOTES

Except where otherwise indicated on these Plans or in the Proposal and Supplemental Specifications contained therein, all materials and workmanship shall be in accordance with the Michigan State Highway Department's Standard Specifications for Road and Bridge Construction, 1963 Edition.

The design of these structures is based on the Michigan State Highway Department's Specifications for the design of Highway Bridges, 1958 Edition. Loading and deflections are as indicated in Table below.

The character of all materials and the extent thereof as shown by borings has been obtained by methods and from sources believed to be reliable. The exactness of this information is, however, in no case guaranteed. Boring samples are on file in the Design Office at Lansing and are available for inspection.

All exposed concrete corners shown square on the Plans shall be beveled with 1/2" triangular moldings except as otherwise noted.

The stationing as shown on these Plans for the intersection of the centerline of bridge and roadway is believed to be correct. It shall, however, be checked at the time of starting construction and if the stationing shown on the plans is incorrect it shall be reported to the Design Office at Lansing and the structure shall be staked out using the actual intersection of the centerline of bridge and roadway as the control point.

STRUCTURE	DESIGN LIVE LOADINGS	ALLOW. LIVE LOAD + IMPACT DEFLECTION	
		SIMPLE OR CONT.	CANT. ARM
S 22 OF 63174A	H15-44	L/800	L/300
S 23 OF 63174A	H20-44	L/800	
S 24 OF 63174A	H20-44	L/800	L/300
S 25 OF 63174A	H20-44	L/800	
S 26 OF 63174A	H20-44	L/800	
S 27 OF 63174A	H20-44	L/800	L/300

L denotes span length

CONSTRUCTED AS PER PLANS

CONTRACT FOR _____

DIVISION APPROVAL

CHECKED — ENGINEER OF DESIGN — DATE 12-18-64
RECOMMENDED FOR APPROVAL — TRAFFIC ENGINEER — DATE 12-18-64
RECOMMENDED FOR APPROVAL — ENGINEER OF BRIDGE & ROAD DESIGN — DATE 12-30-64

OFFICES OF DESIGN & CONSTRUCTION

APPROVED — CONSTRUCTION ENGINEER — DATE 1/5/65
APPROVED — CHIEF OF DESIGN — DATE 1/5/65

STATE HIGHWAY DEPARTMENT APPROVAL

APPROVED BY STATE HIGHWAY COMMISSION
DIRECTOR OF ENGINEERING - CHIEF ENGINEER — DATE 1/5/65

PLANS PREPARED BY
MICHIGAN STATE HIGHWAY DEPARTMENT

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED [redacted]
DIVISION ENGINEER — DATE

CONTROL SECTION	FEDERAL PROJECT	SHEET NO.
		1

STATE PROJECT NO. ~~P02, P03, P04, P06, D02, D03, S22, S23, S24, S25,~~ S26 ~~& S27 OF 63174A~~

P02, P03, P04, P06, D02, D03, S22, S23, S24, S25, S26 & S27 OF 63174A

PLAN INDEX

P02 OF 63174A PART 10

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	PIERS 1 & 5 DETAILS
15	PIERS 2, 3, & 4 DETAILS
16	SUPERSTRUCTURE DETAILS
17	STRUCTURAL STEEL DETAILS
18	STRUCTURAL STEEL DETAILS
19	MISCELLANEOUS DETAILS
20	RAILING DETAILS-RAMP A
21	RAILING DETAILS-RAMP B
22	RAILING DETAILS-SPANS 1, 2, 3 & 4
23	STEEL REINFORCEMENT DETAILS

P03 OF 63174A PART 11

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	RAMP B DETAILS
16	PIERS 1 & 5 DETAILS
17	PIERS 2, 3 & 4 DETAILS
18	SUPERSTRUCTURE DETAILS
19	STRUCTURAL STEEL DETAILS
20	STRUCTURAL STEEL DETAILS
21	MISCELLANEOUS DETAILS
22	RAILING DETAILS-RAMP A
23	RAILING DETAILS-RAMP B
24	RAILING DETAILS-SPANS 1, 2, 3 & 4
25	STEEL REINFORCEMENT DETAILS

P04 OF 63174A PART 12

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	PIERS 1 & 5 DETAILS
16	PIERS 2, 3 & 4 DETAILS
17	SUPERSTRUCTURE DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	MISCELLANEOUS DETAILS
21	RAILING DETAILS-RAMP A
22	RAILING DETAILS-RAMP B
23	RAILING DETAILS-SPANS 1, 2, 3 & 4
24	STEEL REINFORCEMENT DETAILS
25	EXISTING PUMPHOUSE DETAILS

P06 OF 63174A PART 13

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	PIERS 1 & 5 DETAILS
16	PIERS 2, 3 & 4 DETAILS
17	SUPERSTRUCTURE DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	MISCELLANEOUS DETAILS
21	RAILING DETAILS-RAMPS A & B
22	RAILING DETAILS-SPANS 1, 2, 3 & 4
23	STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

APPROVED C. D. Benkema 12/18/64
ASST. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Tobin 12.18.64
DESIGN SUPERVISING ENGINEER

DESIGNED BY	Goetsch	6-11-64
CHECKED BY	H.L.M.	11-2-64
TRACED BY		
CHECKED BY	A.L.S.	11-12-64

SHEET 18 OF 24

P02, P03, P04, P06, D02, D03, S22, S23, S24, S25, S26 & S27 OF 63174A

PLAN INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
IA & IB	INDEX SHEETS

S22 OF 63174A PART 4

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	ABUTMENT A & B DETAILS
8	PIER I & 3 DETAILS
9	PIER 2 DETAILS
10	SUPERSTRUCTURE DETAILS-SPANS I & 2
11	SUPERSTRUCTURE DETAILS-SPANS 3 & 4
12	SUPERSTRUCTURE DETAILS
13	SUPERSTRUCTURE DETAILS
14	UTILITY DETAILS
15	STRUCTURAL STEEL DETAILS
16	STRUCTURAL STEEL DETAILS
17	BEARING DETAILS
18	METAL EXPANSION JOINT DETAILS
19	STEEL REINFORCEMENT DETAILS

S23 OF 63174A PART 5

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	ABUTMENT A DETAILS
8	ABUTMENT A DETAILS
9	ABUTMENT B DETAILS
10	PIER I & 3 DETAILS
11	PIER 2 DETAILS
12	SUPERSTRUCTURE DETAILS
13	SUPERSTRUCTURE DETAILS
14	SUPERSTRUCTURE DETAILS
15	SUPERSTRUCTURE DETAILS
16	UTILITY DETAILS
17	STRUCTURAL STEEL DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	BEARING DETAILS
21	SHEAR DEVELOPER DETAILS
22	METAL EXPANSION JOINT DETAILS
23	STEEL REINFORCEMENT DETAILS

S24 OF 63174A PART 6

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	ABUTMENT DETAILS
8	ABUTMENT DETAILS
9	PIER I DETAILS
10	PIER 3 DETAILS
11	PIER I & 3 DETAILS
12	PIER 2 DETAILS
13	PIER 2 DETAILS
14	SUPERSTRUCTURE DETAILS
15	SUPERSTRUCTURE DETAILS
16	SUPERSTRUCTURE DETAILS
17	SUPERSTRUCTURE DETAILS
18	SUPERSTRUCTURE DETAILS
19	UTILITY DETAILS
20	STRUCTURAL STEEL DETAILS
21	STRUCTURAL STEEL DETAILS
22	STRUCTURAL STEEL DETAILS
23	BEARING DETAILS
24	SHEAR DEVELOPER DETAILS
25	METAL EXPANSION JOINT DETAILS
26	STEEL REINFORCEMENT DETAILS

S25 OF 63174A PART 7

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	BILL OF MATERIAL
6	ABUTMENT A DETAILS
7	ABUTMENT B DETAILS
8	PIERS I & 3 DETAILS
9	PIER 2 DETAILS
10	SUPERSTRUCTURE DETAILS
11	SUPERSTRUCTURE DETAILS
12	SUPERSTRUCTURE DETAILS
13	UTILITY DETAILS
14	STRUCTURAL STEEL DETAILS
15	STRUCTURAL STEEL DETAILS
16	STRUCTURAL STEEL DETAILS
17	SHEAR DEVELOPER DETAILS
18	BEARING DETAILS
19	METAL EXPANSION JOINT DETAILS
20	STEEL REINFORCEMENT DETAILS

S26 OF 63174A PART 8

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	BILL OF MATERIAL
6	ABUTMENT DETAILS
7	ABUTMENT DETAILS
8	PIER DETAILS
9	PIER DETAILS
10	SUPERSTRUCTURE DETAILS
11	SUPERSTRUCTURE DETAILS
12	SUPERSTRUCTURE DETAILS
13	SUPERSTRUCTURE DETAILS
14	UTILITY DETAILS
15	STRUCTURAL STEEL DETAILS
16	STRUCTURAL STEEL DETAILS
17	STRUCTURAL STEEL DETAILS
18	METAL EXPANSION JOINT DETAILS
19	STEEL REINFORCEMENT DETAILS

S27 OF 63174A PART 9

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	BILL OF MATERIAL
6	ABUTMENT DETAILS
7	PIER DETAILS
8	PIER DETAILS
9	PIER DETAILS
10	SUPERSTRUCTURE DETAILS
11	SUPERSTRUCTURE DETAILS
12	SUPERSTRUCTURE DETAILS
13	SUPERSTRUCTURE DETAILS
14	SUPERSTRUCTURE DETAILS
15	STRUCTURAL STEEL DETAILS
16	STRUCTURAL STEEL DETAILS
17	METAL EXPANSION JOINT DETAILS
18	STEEL REINFORCEMENT DETAILS

SHEET NO.	DESCRIPTION
R11J R12H	BRIDGE RAILING, BAR CHAIR, MOLDING AND BEVEL DETAILS

D02 OF 63174A PART 2

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	GENERAL PLAN OF STRUCTURE
4	BILL OF MATERIAL
5	SUMP DETAILS
6	SUMP DETAILS
7	RAKE ROOM DETAILS
8	MACHINE ROOM & SURGE TANK DETAILS
9	MACHINE ROOM WALLS DETAILS
10	ROOF DETAILS
11	BEAMS & MISCELLANEOUS DETAILS
12	MISCELLANEOUS DETAILS
13	MECHANICAL & ELECTRICAL DETAILS
14	STEEL REINFORCEMENT DETAILS

D03 OF 63174A PART 3

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	GENERAL PLAN OF STRUCTURE
4	BILL OF MATERIAL
5	PUMPHOUSE DETAILS
6	PUMPHOUSE DETAILS
7	PUMPHOUSE DETAILS
8	PUMPHOUSE DETAILS
9	PUMPHOUSE DETAILS
10	PUMPHOUSE DETAILS
11	MISCELLANEOUS DETAILS
12	MECHANICAL & ELECTRICAL DETAILS.
13	STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

APPROVED C. D. Beukema 12/18/64
ASS'T. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Tratas 12.18.64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Goetzell	6-11-64
DRAWN BY	H.L.M.	6-9-64
TRACED BY		
CHECKED BY	AOS	11-13-64
SHEET	1A OF 26	

P02, P03, P04, P06, D02, D03, S22, S23, S24, S25, S26 & S27 OF 63174 A

BENCH MARKS	
#87	El. 636.66
6' Rt. Sta. 761+48. Top of arrow on fire hydrant 9 Mile Road and Stephenson	
#88	El. 635.94
6.5' Rt. Sta. 750+13. Top of arrow on fire hydrant S.E. cor. Otis and John R.	

UTILITIES
Detroit Edison Co. - Power
Consumers Power Co. - Gas
Michigan Bell Telephone Co.
City of Hazel Park - Water & Sewers

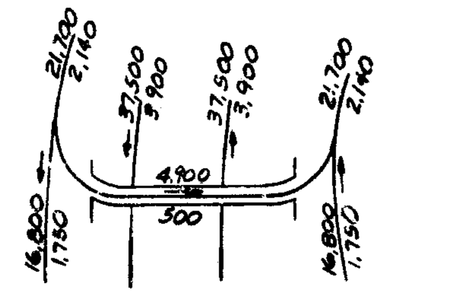
SURVEY ℄ CURVE DATA

Δ = 27°27'40" Rt.
D = 4°15'
T = 329.40'
L = 646.15'
E = 39.68'
P.C.C. = 754+95.18
P.I. = 758+24.58
P.T. = 761+41.33
R = 1348.14'

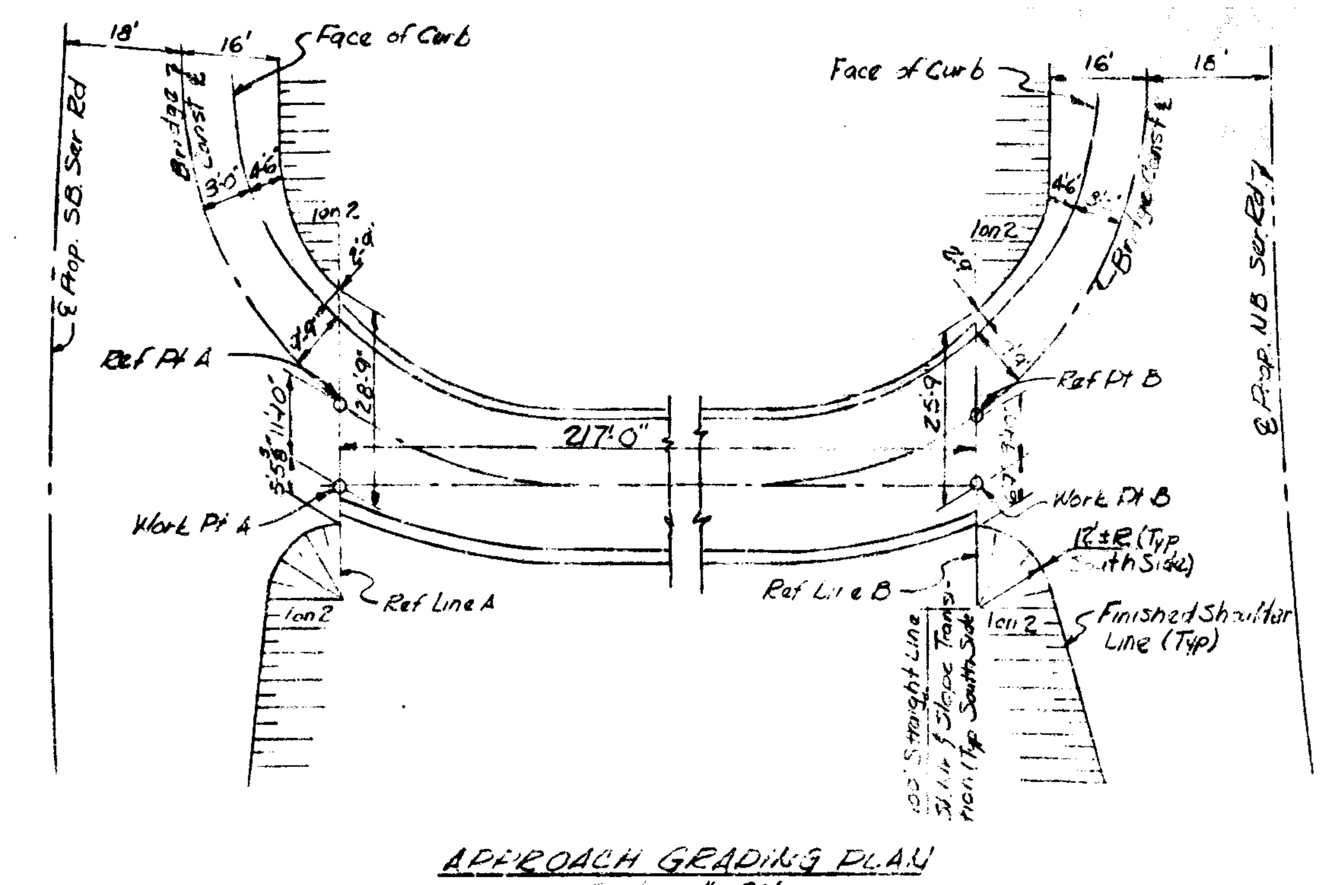
CONST. ℄ CURVE DATA

Δ = 60°20'44'
D = 4°20'
R = 1322.21'
T = 768.70'
L = 1392.59'
E = 207.22'
P.C. = 747+58.00
P.I. = 755+26.70
P.T. = 761+50.59 Back
= 761+57.64 Ahead
Super. = 0.05'/ft. Rotated about median edge of pavement

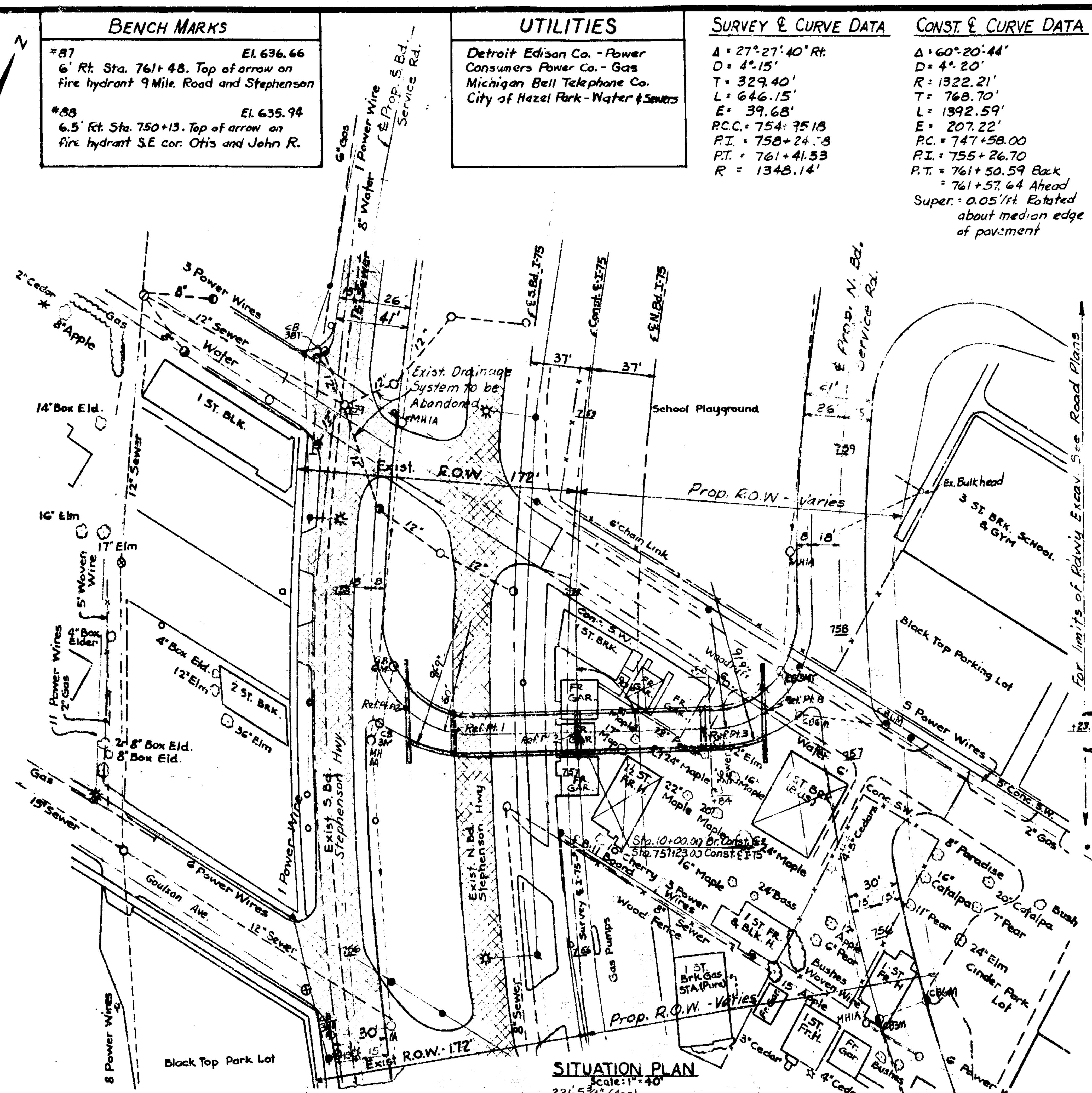
WITNESSES		
P.C.C. Sta. 754+95.18		
N 51° W	111.2'	Light Pole
N 69° E	37.5'	Light Pole
S 13° E	50.7'	Light Pole
P.I. Sta. 758+24.58		P.K. Nail
N 07° E	35.91'	N.&C. Power Pole
S 78° E	41.91'	NW Cor. Bldg. #22846
S 60° E	58.58'	SW Cor. Bldg. #22846
P.T. Sta. 761+41.33		
N 53° W	62.5'	Light Pole
S 09° E	50.7'	Power Pole
S 71° E	126.0'	Light Pole



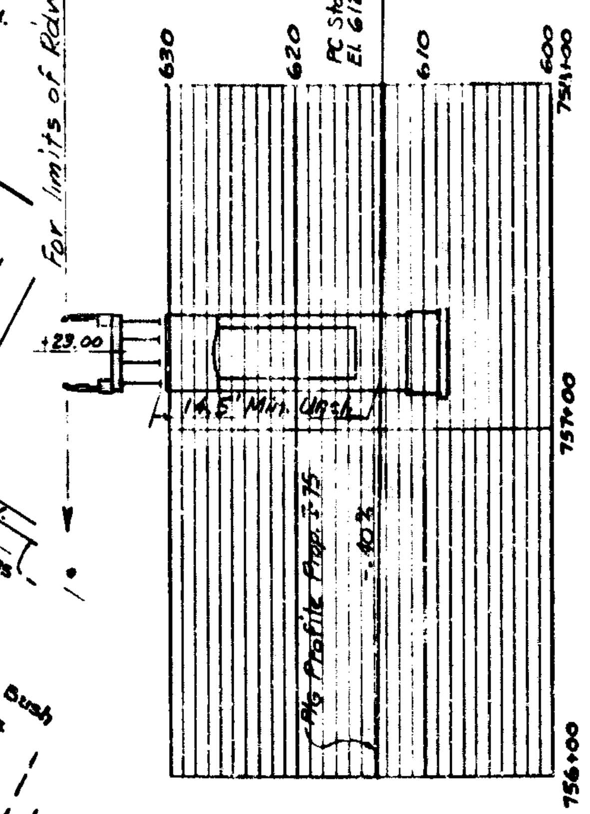
ESTIMATED 1983 TRAFFIC
00,000 = Average Daily Volume
0,000 = Design Hourly Volume

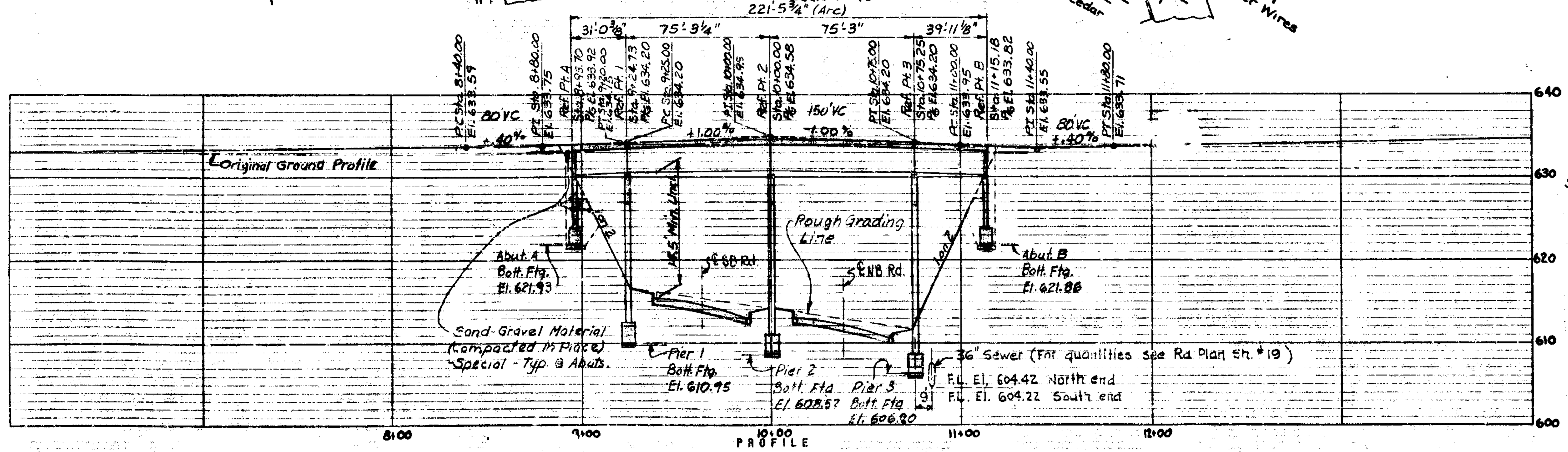


APPROACH GRADING PLAN
Scale: 1" = 20'

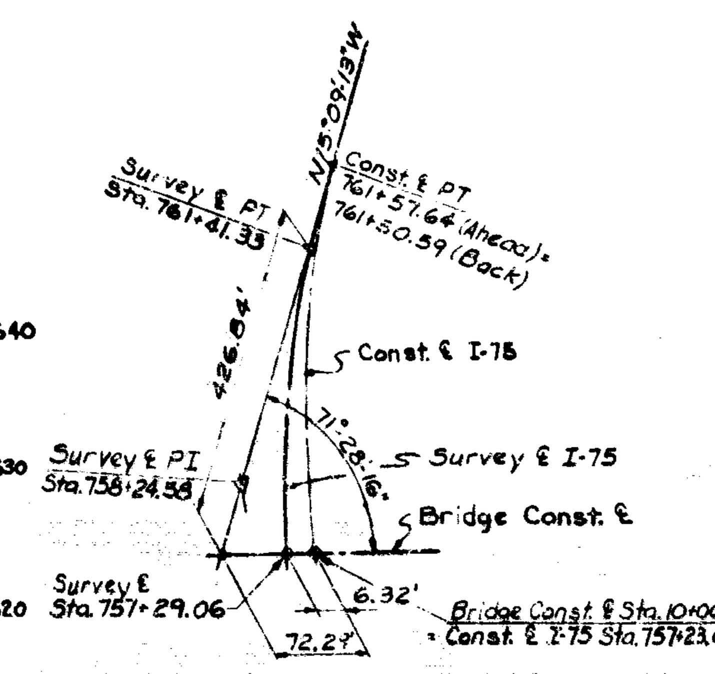


SITUATION PLAN
Scale: 1" = 40'





PROFILE
VERT. SCALE — 1" = 10'
HOR. SCALE — 1" = 40'



ALIGNMENT SKETCH

NOTES:

The work covered by these plans includes construction of the proposed bridge, placing sand-gravel material in front and behind abutments together with abutment footing drains, and placing slope paving to the limits shown.

Work not listed above (with the exception of utility relocations and building and fence removals) is either included in Service Road Plans which are a part of this contract or is included in a future contract for Final Expressway Grading, Drainage Structures and Paving.

Work on this Bridge is not to be initiated until Stephenson Highway traffic has been routed on proposed I-75 Service Roads except that work on substructure units may be started provided it does not interfere with the traffic flow as prescribed in the Maintaining Traffic Supplemental.

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.

Tree removal, which is included in Service Road Contract, and relocation of utilities is to be done prior to starting work on the structure.

Utilities requiring moving are to be moved by their respective owners.

Topography shown hereon represents conditions existing at the time the field survey was made. However, these conditions will have been materially altered by the operation of others before work on this structure will be initiated.

There substructure units are located in areas presently occupied by basements loose or unsuitable material shall be removed and replaced with granular backfill up to the bottom of proposed subfooting ~~and compacted to 100% maximum weight~~. Any basement walls occupying area of proposed footing or within 5' of proposed footing shall be removed and replaced with granular fill as above (Incidental).

The Bridge Contractor shall be responsible for providing adequate protection of bottoms and walls of the pier footing excavations against damage by personnel, equipment and water. (Applicable for piers adjacent to Expressway)

Any removal of basement walls lying within the limits of Foundation Excavation for abutments is included with Foundation Excavation.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

LEFT TURN RAMP AT 9 MILE ROAD OVER I-75 IN HAZEL PARK

GENERAL PLAN OF SITE

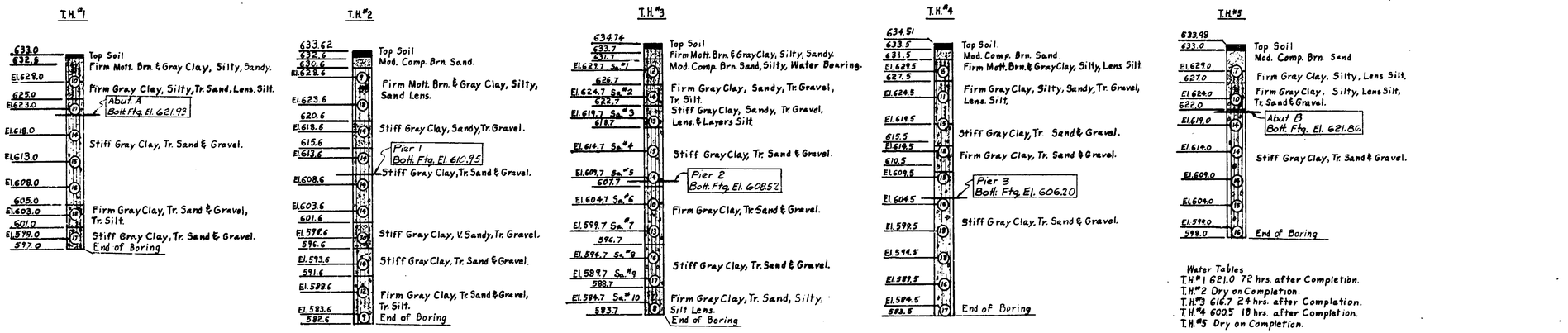
APPROVED [signature] 12-8-64
ASS'T DESIGN SUPERVISING ENGINEER

APPROVED J.C. Trakas 12.18.64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Decess	12-8-64
DRAWN BY	Benson	1/27/63
TRACED BY		
CHECKED BY	[illegible]	[illegible]
SHEET		OF 17

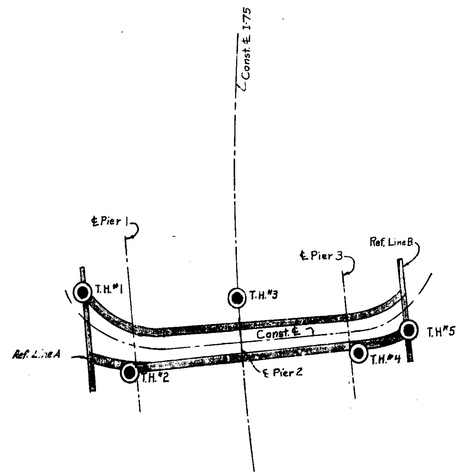
S26 of 63174 A

LOG OF BORINGS



Water Tables
T.H.#1 621.0 72 hrs. after Completion.
T.H.#2 Dry on Completion.
T.H.#3 616.7 24 hrs. after Completion.
T.H.#4 600.5 18 hrs. after Completion.
T.H.#5 Dry on Completion.

NOTES:
Consistency determined by inspection of samples and substantiated by soils resistance to B-52 Mobile Drill.
(00) Number of blows required for the 140# Wgt. falling 30" to drive sampler 12".
Samples obtained with 2.0"x1.5" Split Spoon Sampler.



MICHIGAN STATE HIGHWAY DEPARTMENT

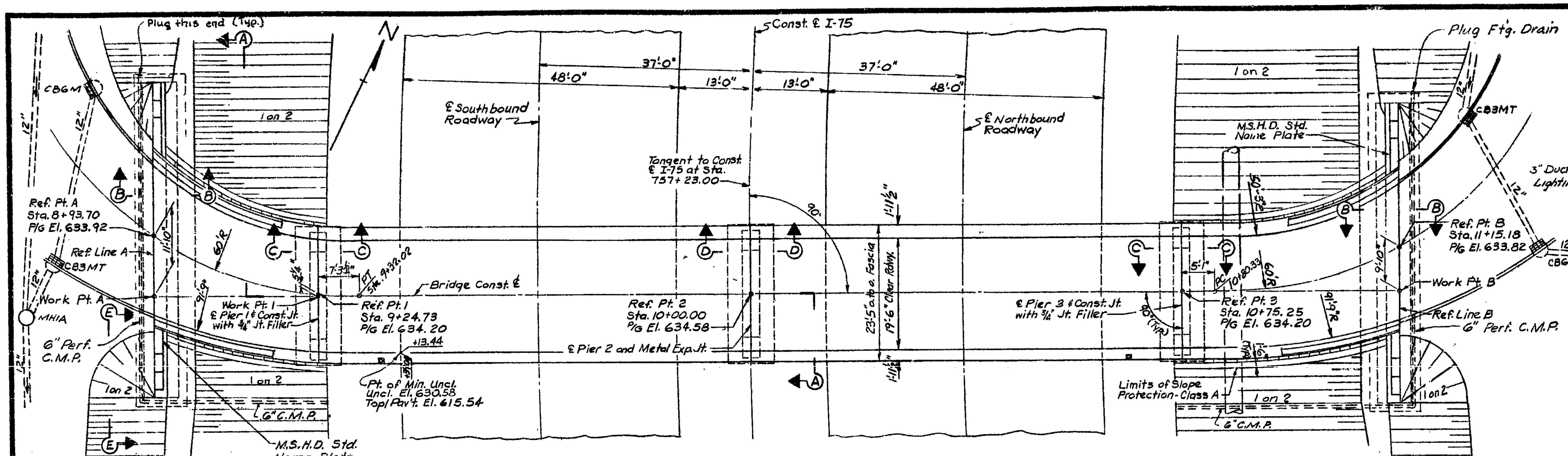
LOG OF BORINGS

REVISIONS

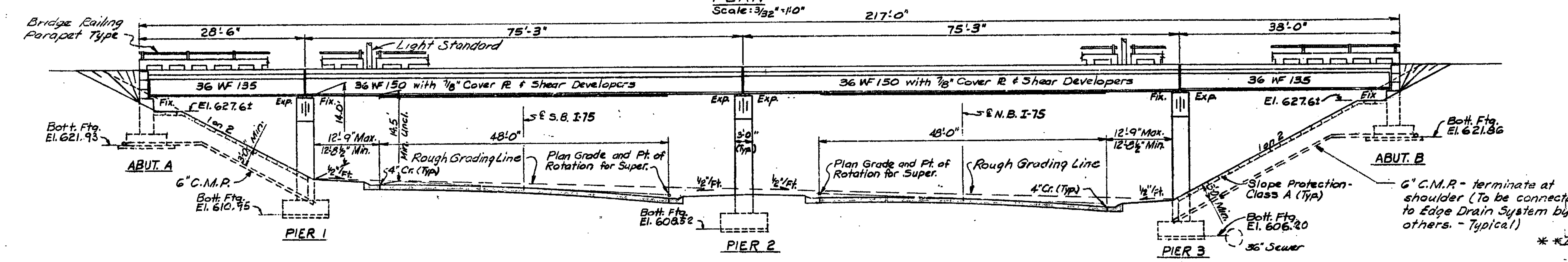
NO	DESCRIPTION	DATE	BY

SQUAD NOSS	Decess	12-8-63
DRAWN BY	Holbon	8-8-63
TRACED BY		
CHECKED BY	Jacobel	8-27-63
SHEET 3 OF 14		

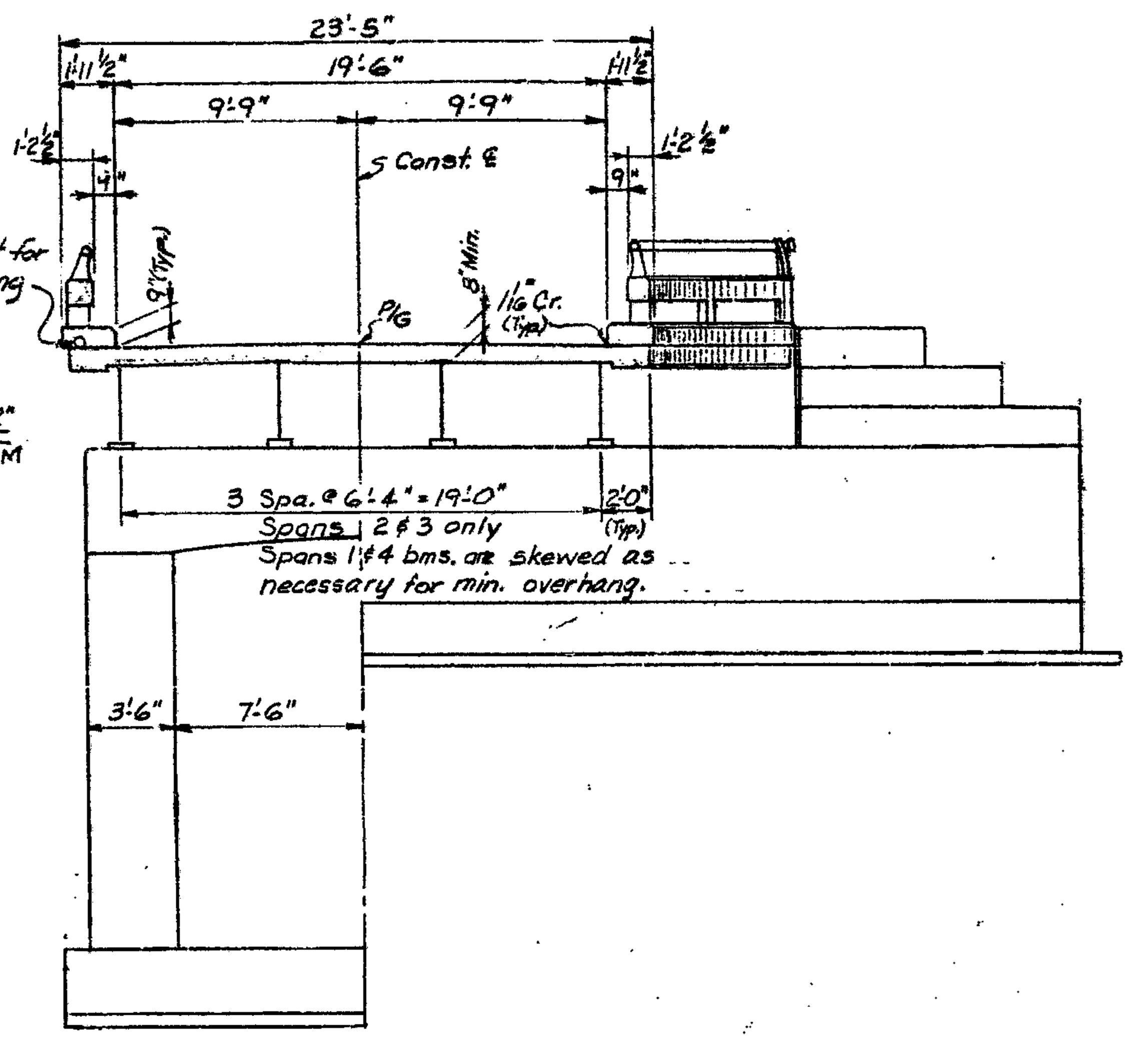
S26 of 63174A



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



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



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

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
** Sand-Gravel Material (C.I.P.)	Cu. yds.	255
* Slope Protection - Class A	Sq. yds.	237
Temp. Steel Sheet Piling	Sq. Ft.	1550
6" Perf. C.M.P.	Lin. Ft.	115
6" C.M.P.	Lin. Ft.	80

** Includes:
99 cy Behind Abutments
182 cy in front of abutments
34 cy under slope paving

* Grouted Rip Rap shall not be used on this project

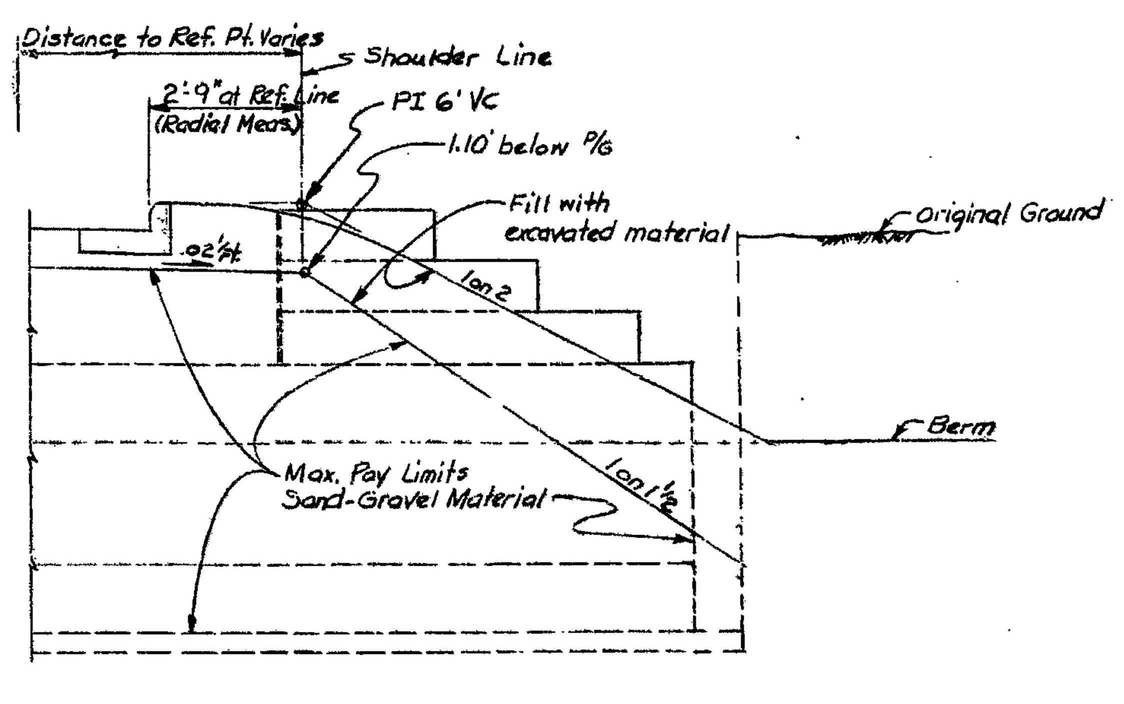
NOTES

The top of roadway slab and tops of curbs are parallel to the vertical curves and tangents.

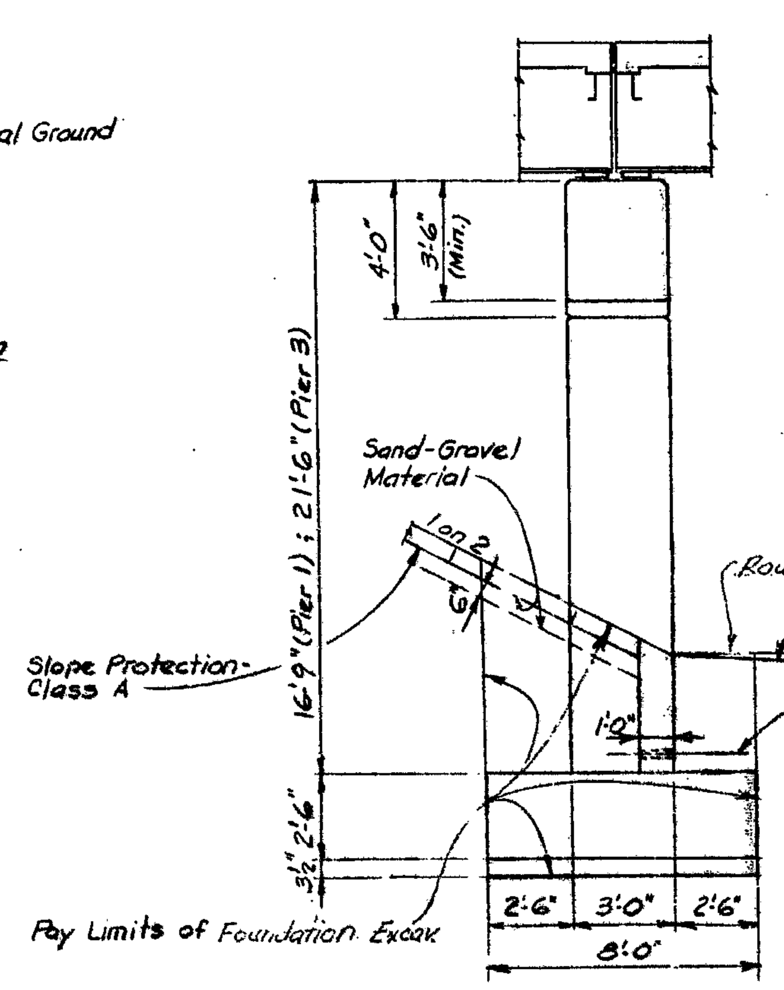
The design of this structure is based on the MSHD Standard Specifications for the Design of Highway Bridges - 1958 edition (H20-44 loading). Live load + Impact deflection = 1/800 of span length.

Horizontal pay limits of temporary Steel Sheet Piling are as required and determined by the engineer.

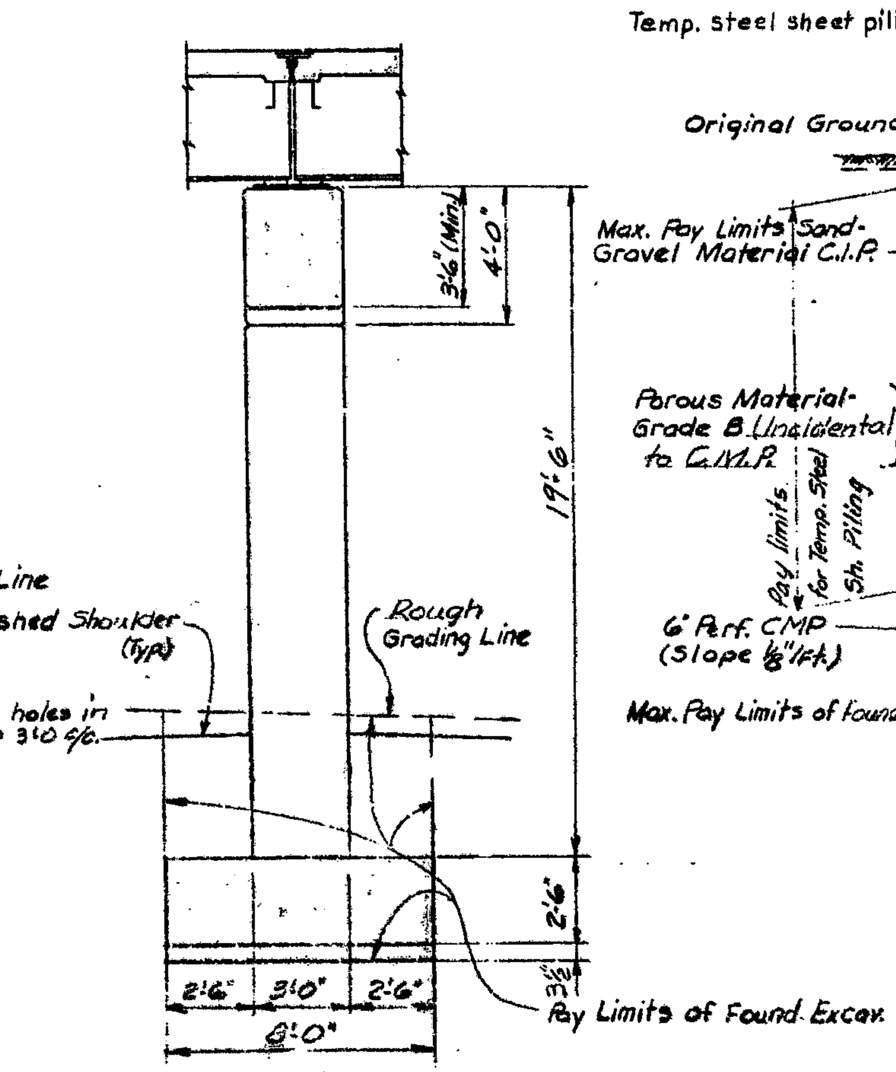
Backfill Material around substructure units to be compacted to 95% density.



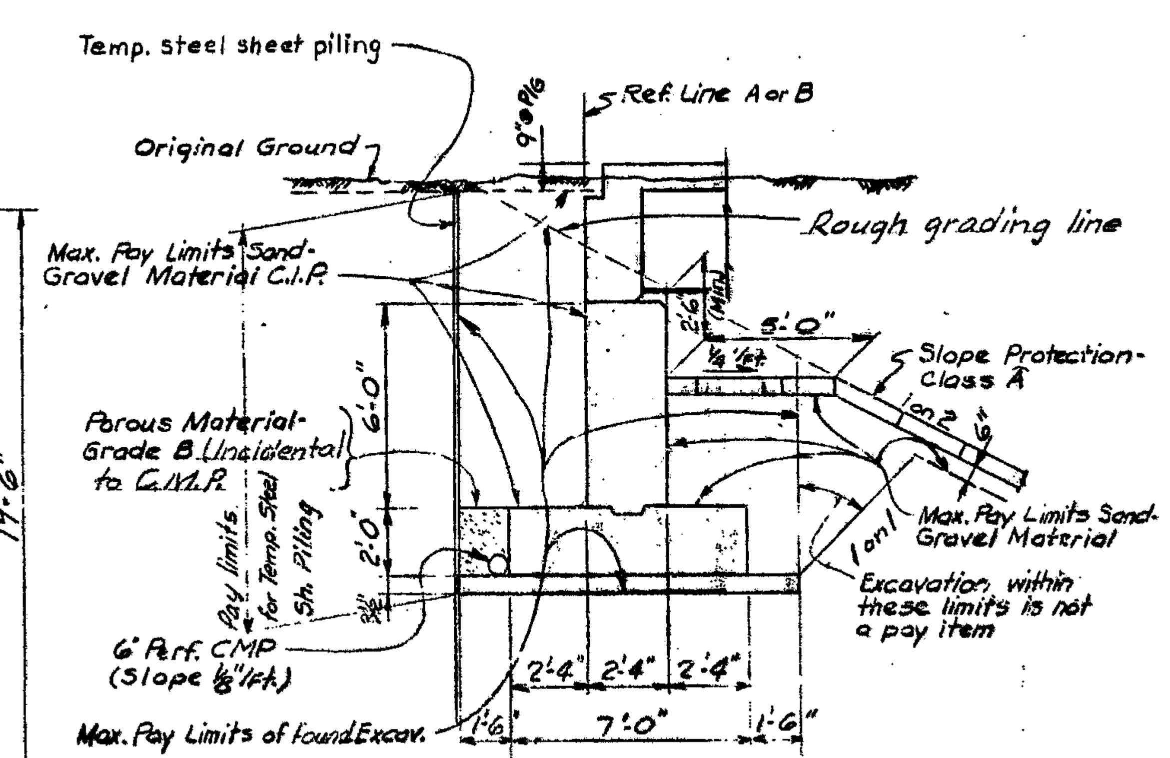
SECTION E-E
Scale: ½" = 1'-0"



SECTION C-C
Scale: ¼" = 1'-0"



SECTION D-D
Scale: ¼" = 1'-0"



SECTION B-B
Scale: ¼" = 1'-0"

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

LEFT TURN RAMP AT 9 MILE ROAD OVER I-75
IN HAZEL PARK

GENERAL PLAN OF STRUCTURE

APPROVED [signature] 12-8-64
ASS'T DESIGN SUPERVISING ENGINEER

APPROVED [signature] 12-18-64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Decess	12-8-64
DRAWN BY	Benson	11/27/63
TRACED BY		
CHECKED BY	R. Woods	1/9/64
SHEET 4 OF 19		

S26 of 63174A

ITEM	UNIT	QUANTITY	AS CONST		AUTH. No.	NET CHANGE
Unclassified Excavation	Cu Yds.	520	522	✓	1001	+ 2
Temporary Steel Sheet Piling	Sq. Ft.	1550	1,406	✓	1001	− 144
Grade A(6A) Concrete - Substructure	Cu. Yds.	128.4	128.4	✓		
Grade A(6AA) Concrete - Substructure	Cu. Yds.	127.5	127.5	✓		
Protective Sealant Coating for Concrete	Sq. Ft.	198	198	✓		
Grade A(6AA) Concrete - Superstructure	Cu. Yds.	178.5	178.5	✓		
Water Reducing Retarding Admixture	Gals.	20	11	✓	1001	− 9
Steel Reinforcement	Lbs.	61,430	61,430	✓		
Structural Steel - Furnishing & Fabricating	Lbs.	160,800	159,949	✓	1001	− 851
Structural Steel - Erection	Lbs.	160,800	159,949	✓	1001	− 851
Shear Developers	Lump Sum	L.S.	1	✓		
1/2" Joint Filler	Sq. Ft.	87	92	✓	1001	+ 5
3/4" Joint Filler	Sq. Ft.	73	73	✓		
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	66	66	✓		
Joint Waterproofing	Sq. Ft.	211	188	✓	1001	− 23
Copper	Lbs.	190	185	✓	1001	− 5
Field Painting	Lump Sum	L.S.	1	✓		
Bridge Railing - Parapet Type	Lin. Ft.	440	440	✓		
6" Corrugated Metal Pipe	Lin. Ft.	80	90	✓	1001	+ 10
6" Perforated Corrugated Metal Pipe	Lin. Ft.	115	109	✓	1001	− 6
Slope Protection - Class A	Sq. Yds.	237	235	✓	1001	− 2
Sand-Gravel Material (Comp. in place)	Cu. Yds.	255	214	✓	1001	− 41

DATE

PLAN EXTRAS - NONE

DATE / AUTH No.	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL

CHECKED
CONTRACT SECTION
DATE 6/14/68

MICHIGAN STATE HIGHWAY DEPARTMENT

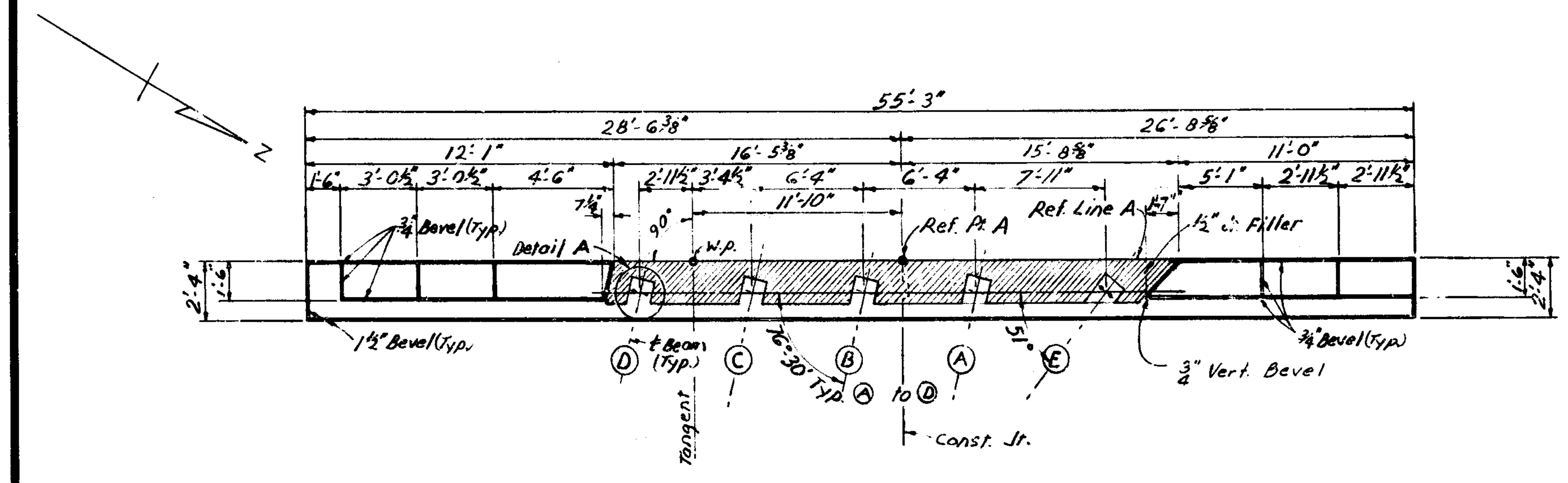
BILL OF MATERIAL

SQUAD BOSS	Decess	12-2-64
DRAWN BY	Schafer	6-30-64
TRACED BY		
CHECKED BY	D. L. K.	6-30-64
SHEET 5 OF 19		

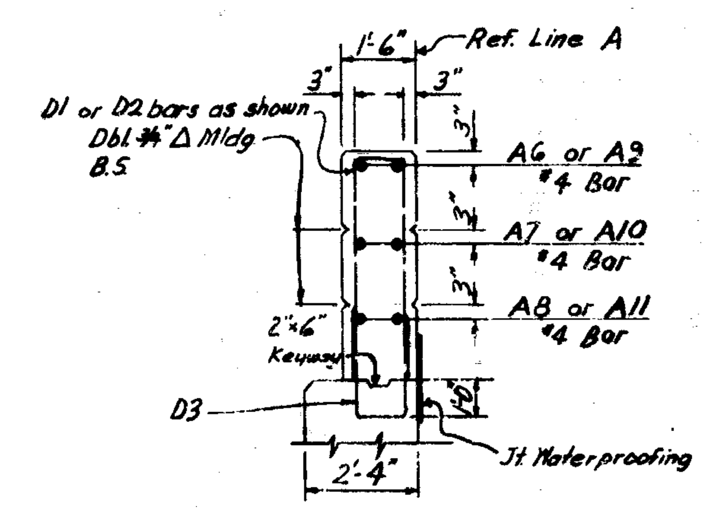
I 75-2/84

S26 of 63174 A
D+8

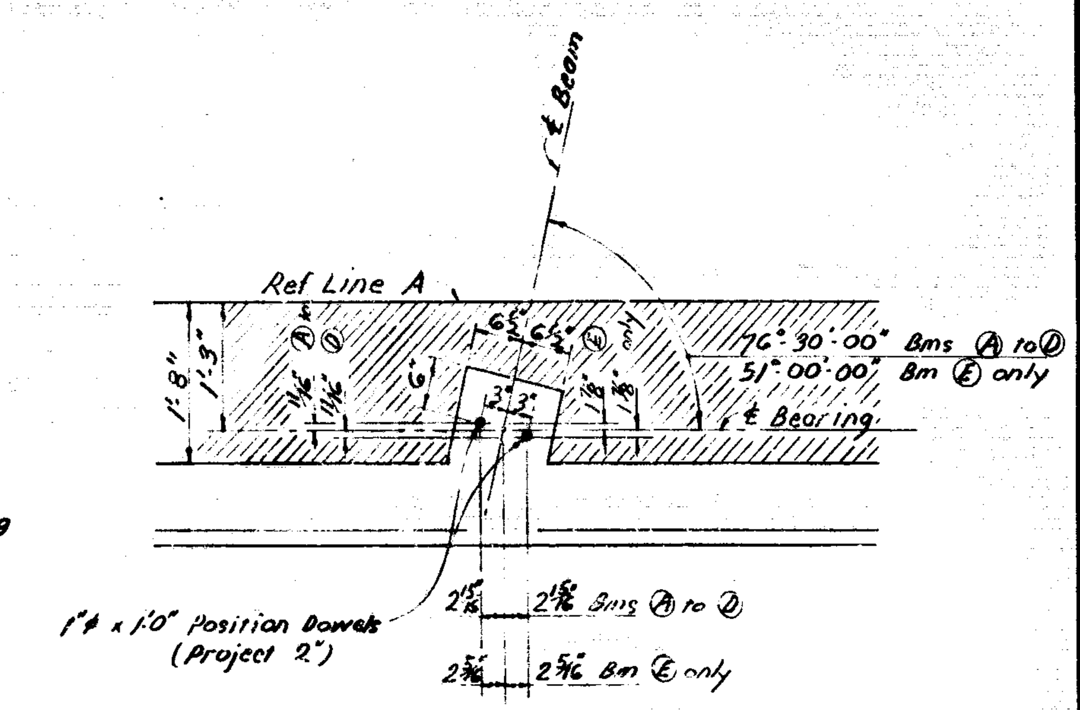
C52



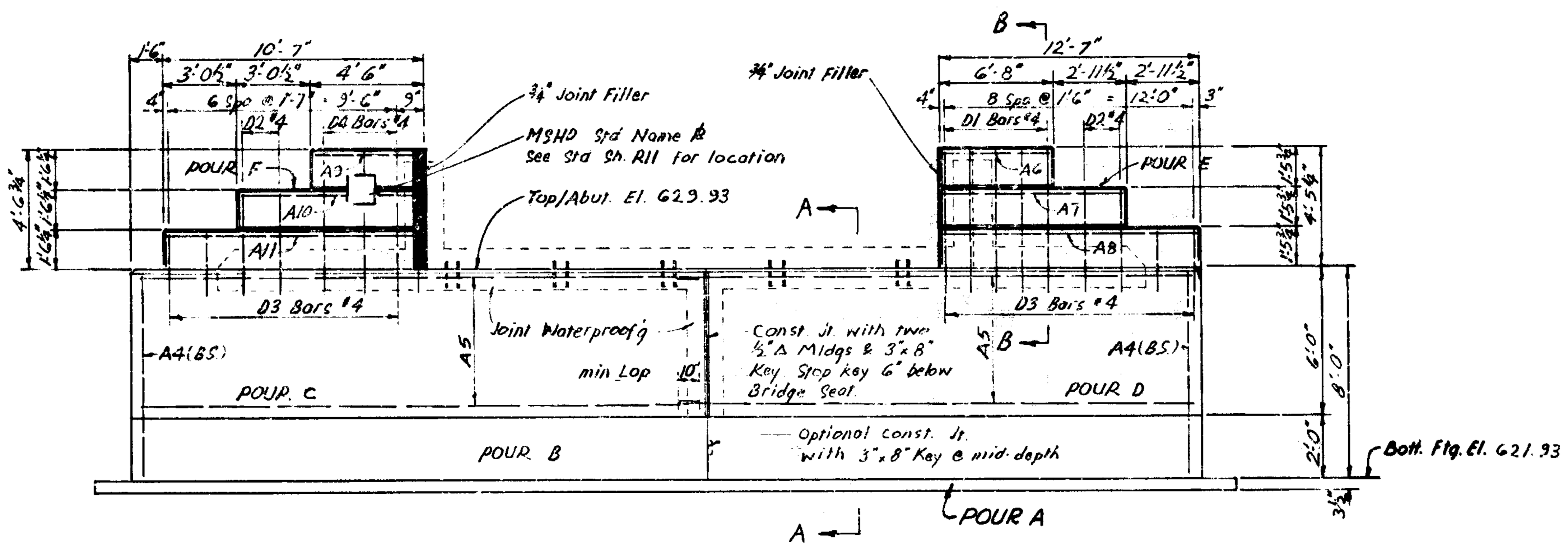
PLAN



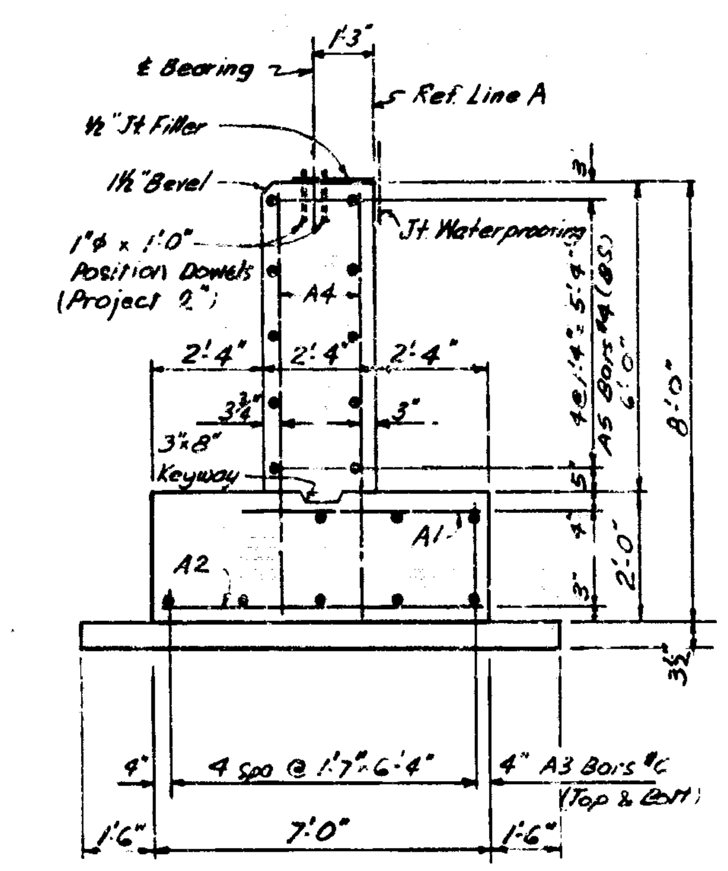
SECTION B-B



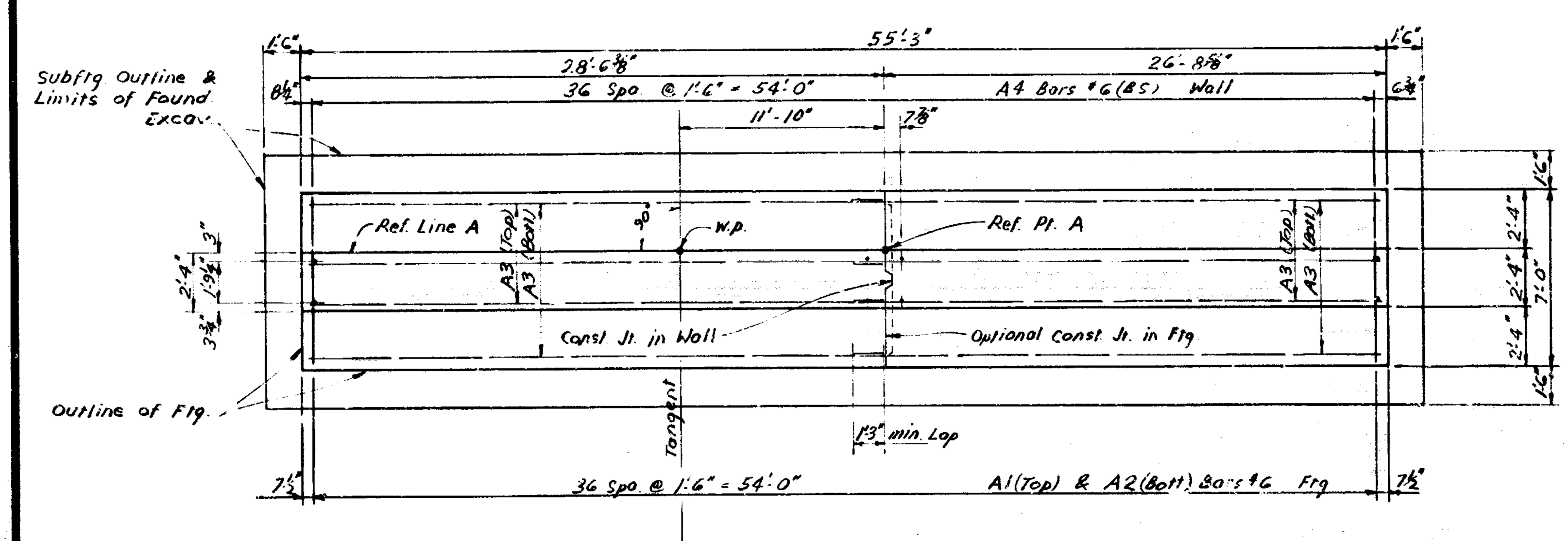
DETAIL A



ELEVATION



SECTION A-A



PLAN OF FOOTING

CONCRETE QUANTITIES		
Pour	Grade A(6A)	Grade A(6AA)
A	6.3	
B	28.6	
C		14.8
D		13.8
E		2.2
F		1.9
Tot.	34.9	32.7

MISCELLANEOUS QUANTITIES		
Item	Unit	Abut. A
1/2" Joint Filler	Sq Ft	45
3/4" Joint Filler	Sq Ft	16
Joint Waterproofing	Sq Ft	107
Foundation Excavation	Cu Yds	196

NOTES:

For bevel and molding details see Std. Sheet R11.

Slopewalls are to be cast after superstructure is complete to tops of curbs.

Position Dowels shall be set accurately to a template.

The bridge seat shall be finished to a true plane at the elevation shown and shall not vary more than 1/8" under a ten foot straight edge nor more than 1/16" under any bearing.

B.S. denotes both sides.

This design is based on a maximum foundation pressure of 2420 pounds per square foot based on D.L. + L.L. and a maximum average foundation pressure of 1530 pounds per square foot based on D.L. only.

Work this Sheet with Sheet 7.

MICHIGAN STATE HIGHWAY DEPARTMENT

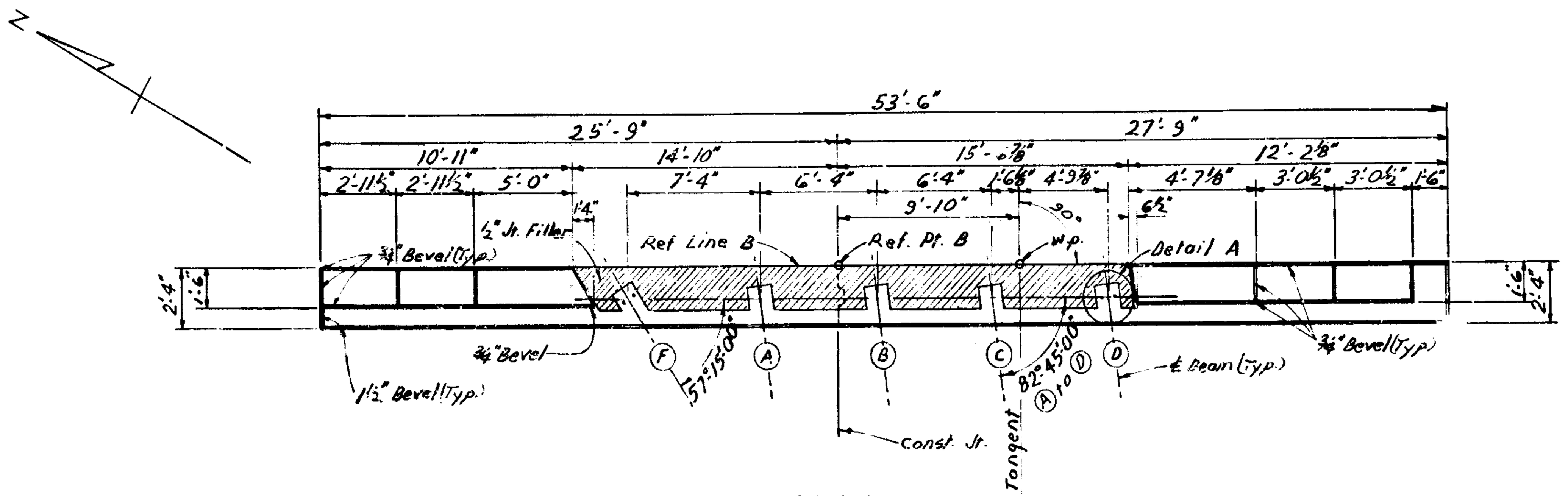
ABUTMENT A DETAILS

REVISIONS			
No.	Description	Date	By

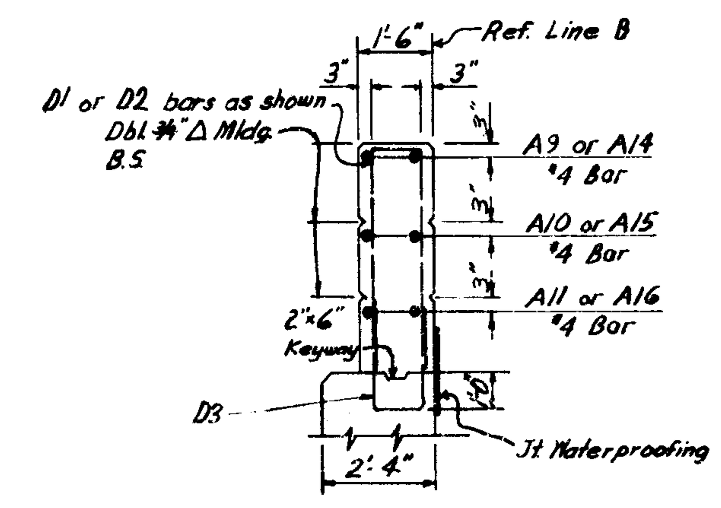
Squad Boss	Decess	12-8-64
Drawn By	Accibol	4-10-64
Traced By		
Checked By	R. [illegible]	[illegible]
Sheet 6 of 19		

S26 of 63174 A

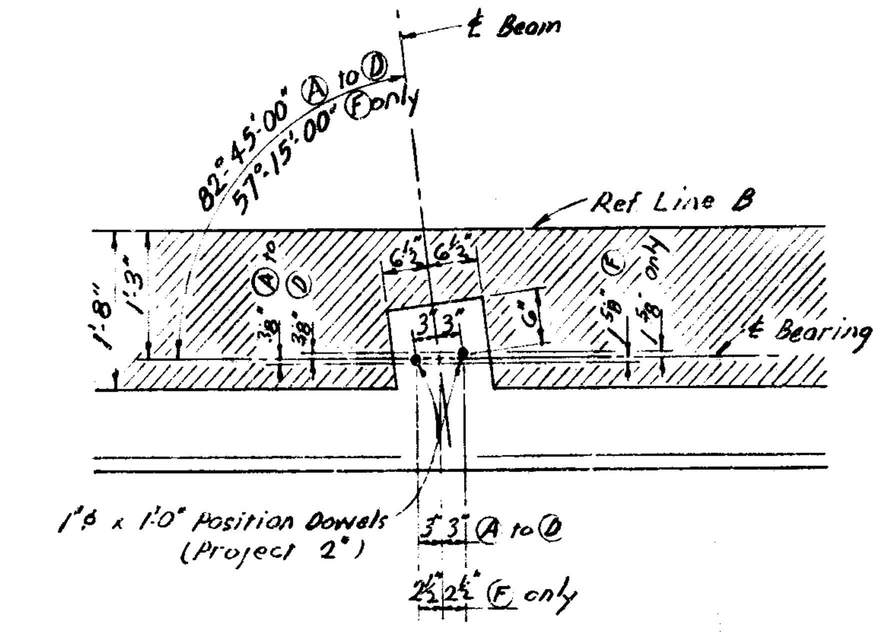
MILNE



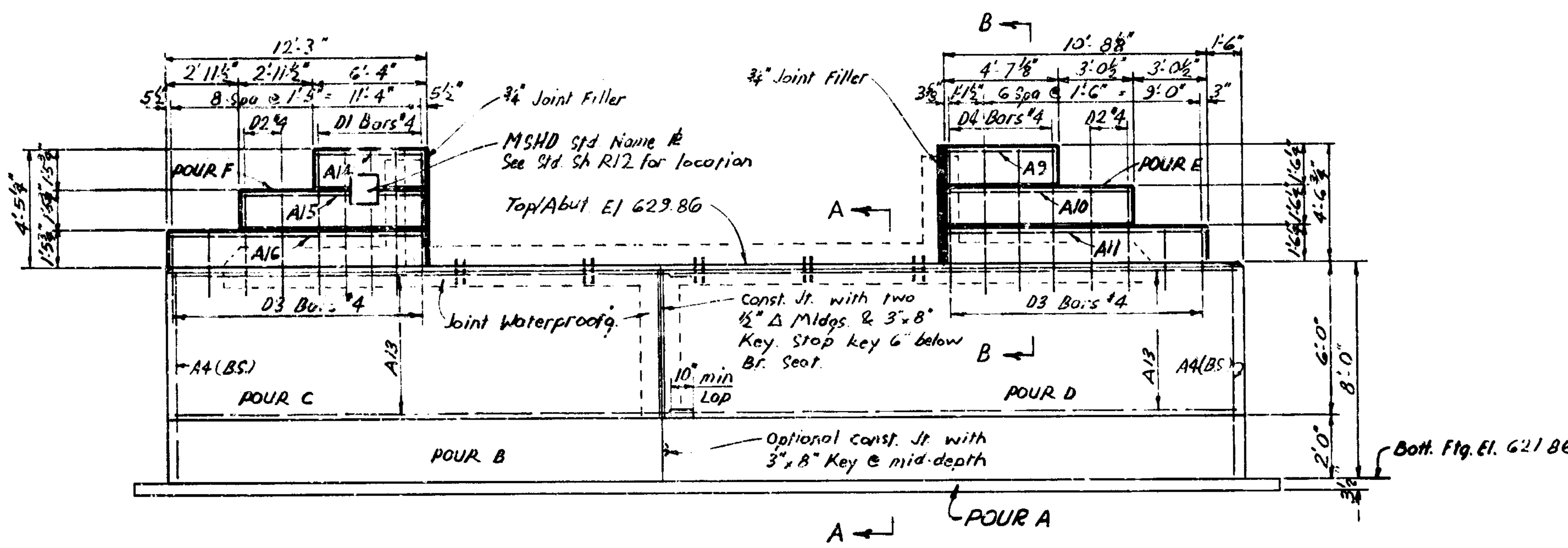
PLAN



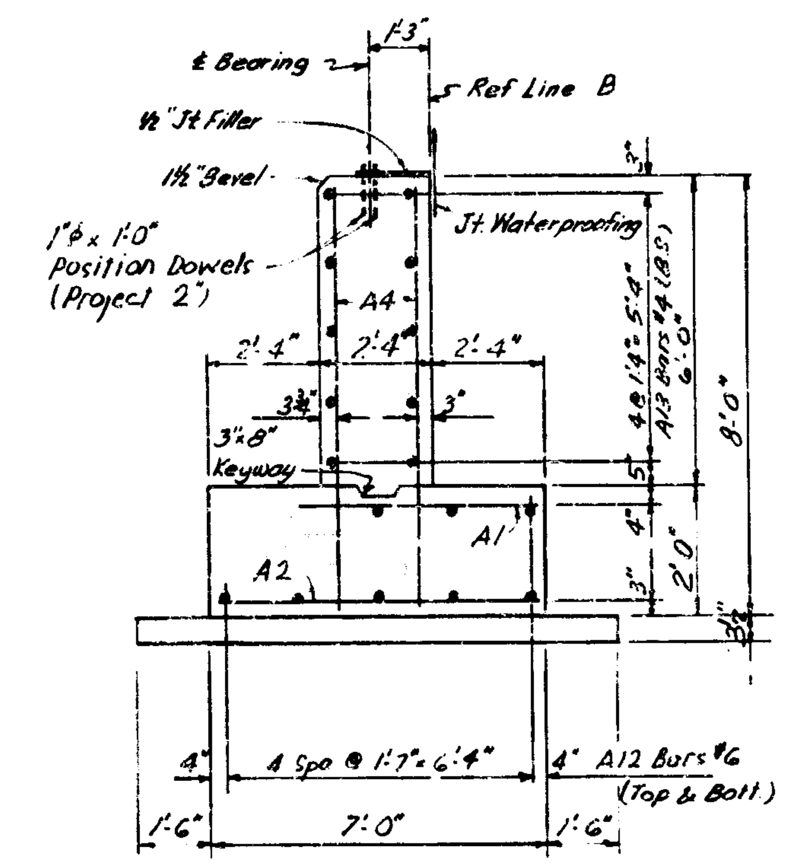
SECTION B-B



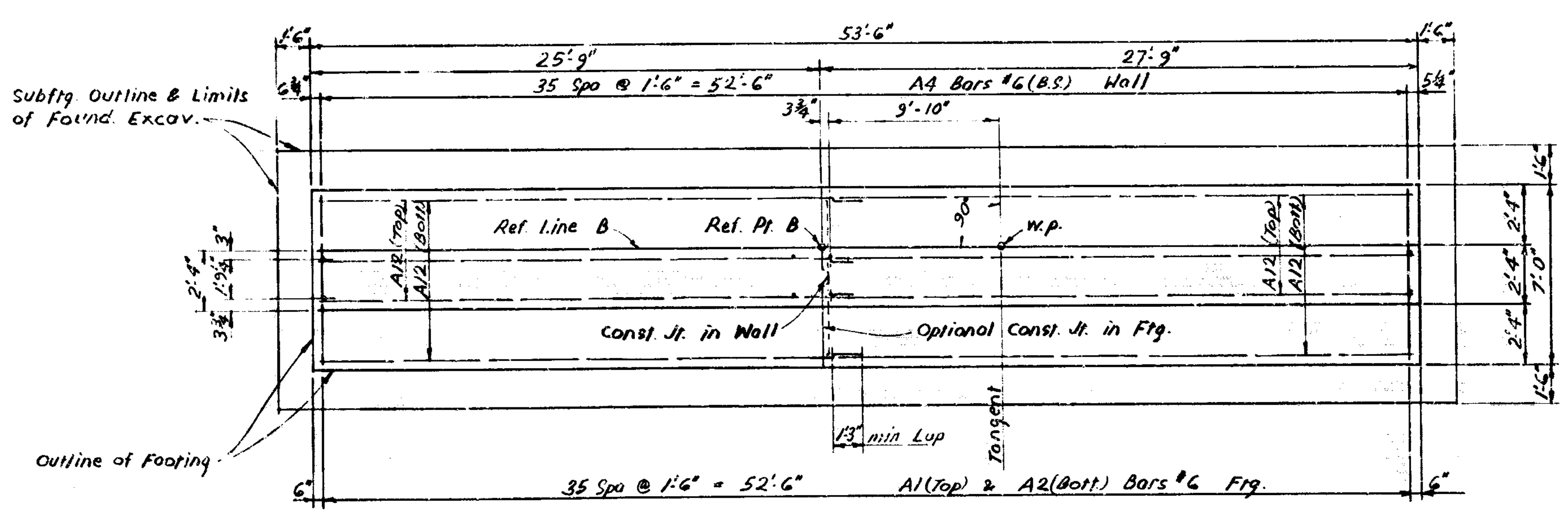
DETAIL A



ELEVATION



SECTION A-A



PLAN OF FOOTING

CONCRETE QUANTITIES		
Pour	Grade A(6A)	Grade A(6AA)
A	6.1	
B	27.7	
C		13.3
D		14.3
E		1.9
F		2.1
Tot.	33.8	31.6

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
½" Joint Filler	Sq Ft	42
¾" Joint Filler	Sq Ft	16
Joint Waterproofing	Sq Ft	104
Foundation Excavation	Cu Yds	191

See Sheet 6 for Notes

Work this sheet with sheet 6.

MICHIGAN STATE HIGHWAY DEPARTMENT

ABUTMENT B DETAILS

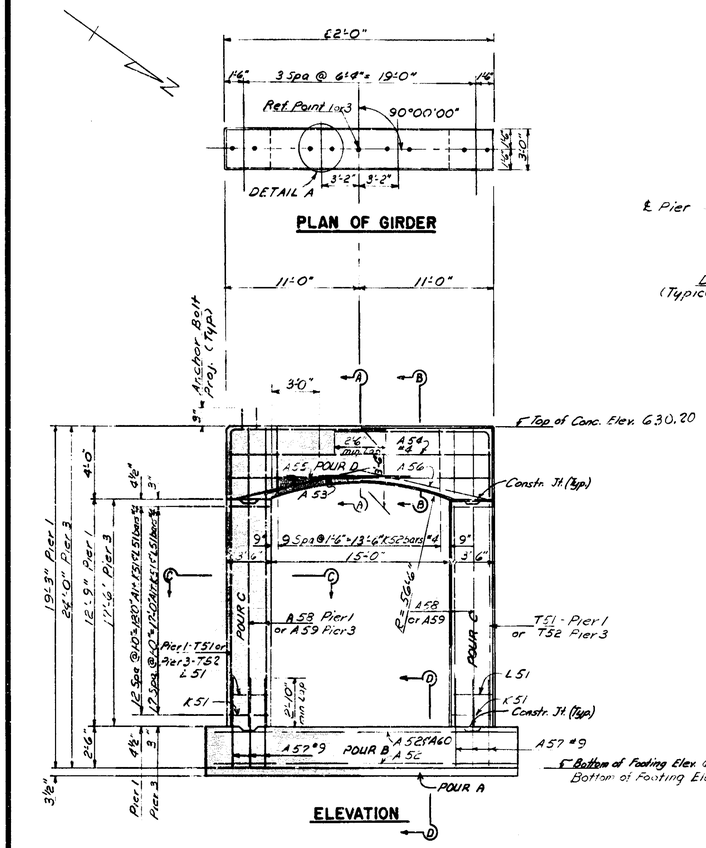
REVISIONS

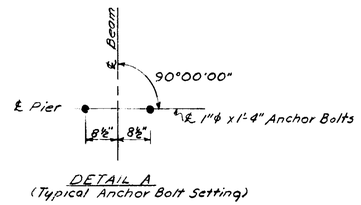
NO.	DESCRIPTION	DATE	BY

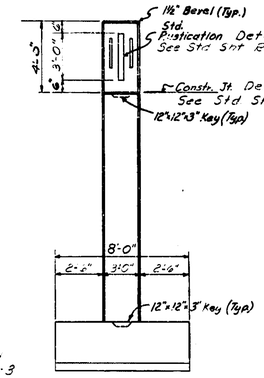
SQUAD BOSS	Decess	12-8-64
DRAWN BY	Accibol	4-10-64
TRACED BY		
CHECKED BY	R. Woods	6/5/64
SHEET 7 OF 19		

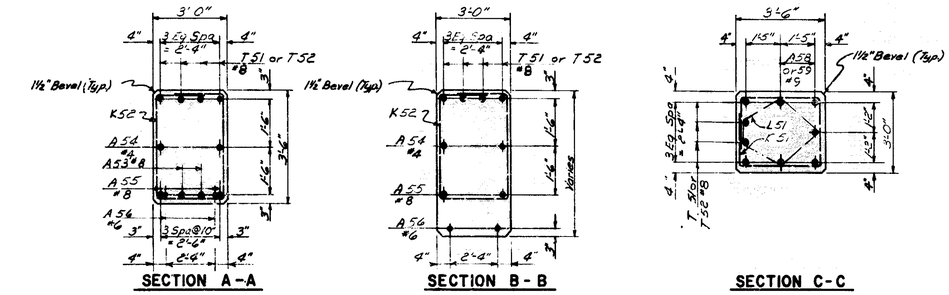
S26 of 63174 A

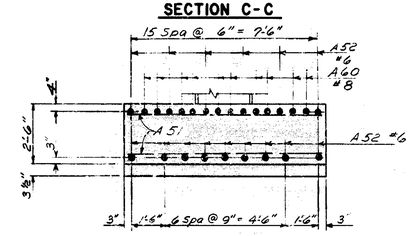
MILNE

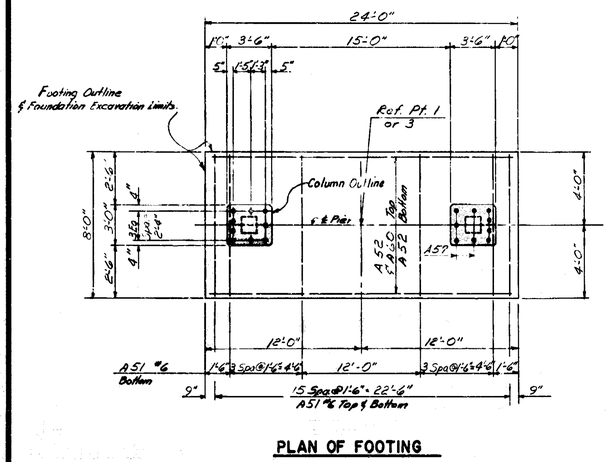












MISCELLANEOUS QUANTITIES				
ITEM	UNIT	PIER 1	PIER 3	Total
Foundation Excavation	Cu. Yds.	47	46	93
Protective Sealant Coating	Sq. Ft.	66	66	132

GRADE A CONCRETE QUANTITIES					
POUR	LOCATION	PIER 1 (GA)	PIER 1 (GAA)	PIER 3 (GA)	PIER 3 (GAA)
A	Subfooting	2.1		2.1	
B	Footing	17.8		17.8	
C	Columns		9.9		13.6
D	Girder		9.2		9.2
Subtotal		19.9	19.1	19.9	22.8
TOTAL - (GA)		39.8 Cu. Yds.			
TOTAL - (GAA)		41.9 Cu. Yds.			

NOTES:

Piers are similar except as noted.

For Bevel and Molding Details, see Standard Sheet #R11 or R12

Anchor Bolts shall be set accurately to a template.

Maximum Average Foundation Pressure (DL only) = 2140 p.s.f.

Maximum Foundation Pressure - DL + LL = 3650 p.s.f.

The top of Pier shall be finished to a true plane at the elevation shown and shall not vary more than 1/8" under a ten foot straight edge nor more than 1/16" under any bearing.

The tops of piers shall be given an application of "Protective Sealant Coating" prior to placing masonry plates.

Foundation Excavation, footing & subfooting concrete quantities are computed to the footing neat lines. No allowances will be made in the quantities for overruns due to excavating outside of the neat lines.

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER 1 & 3 DETAILS

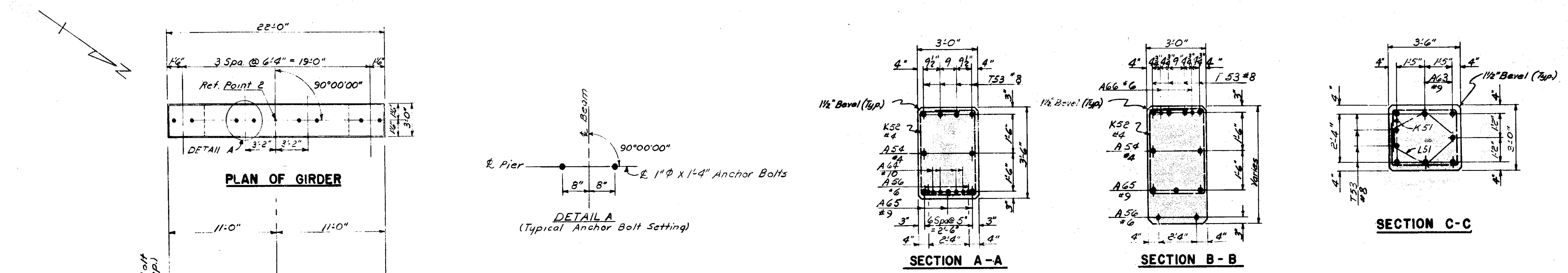
REVISIONS			
NO.	DESCRIPTION	DATE	BY

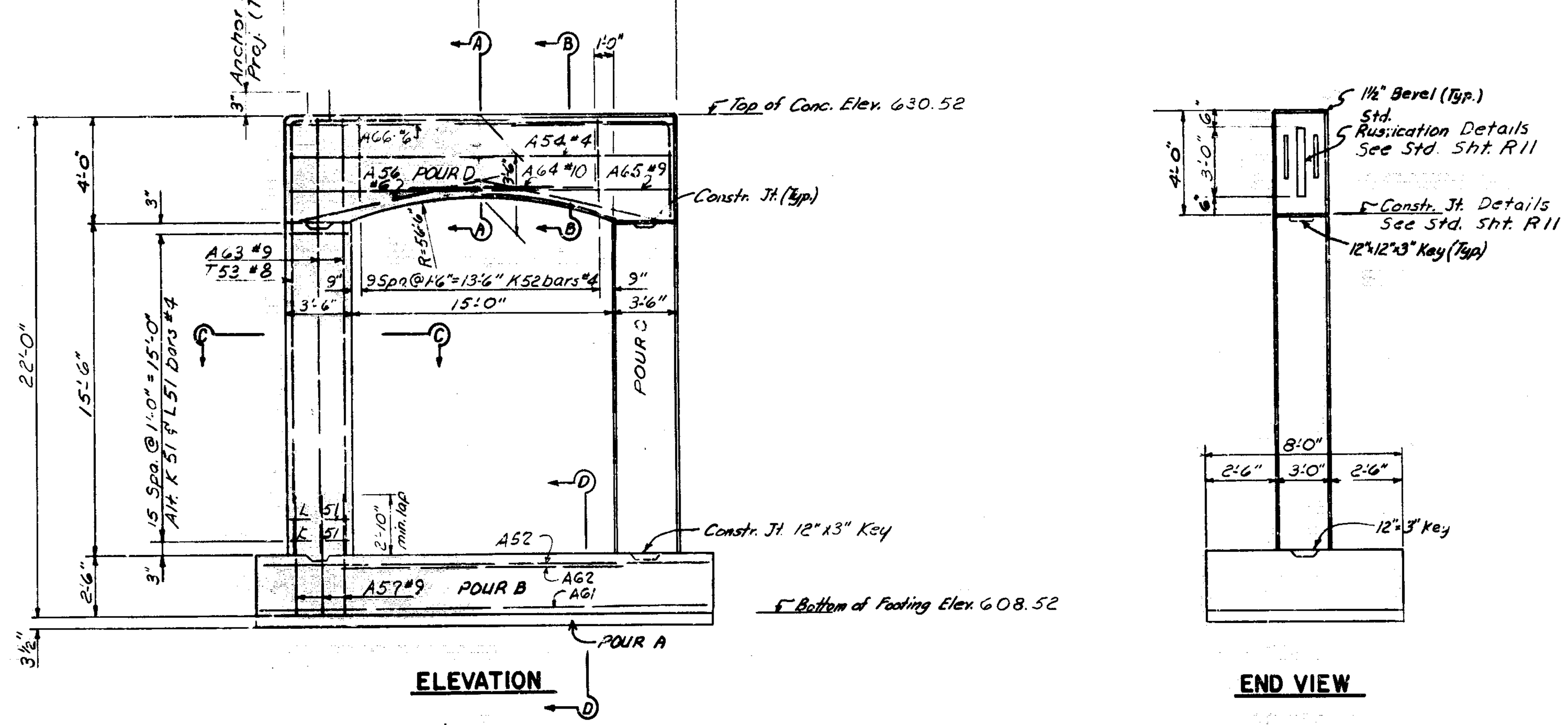
ROAD LOSS	Decoss	12-9-64
DRAWN BY	Schafer	4-7-64
TRACED BY		
CHECKED BY	R. Wurtz	5/27/68
SHEET 2 OF 19		

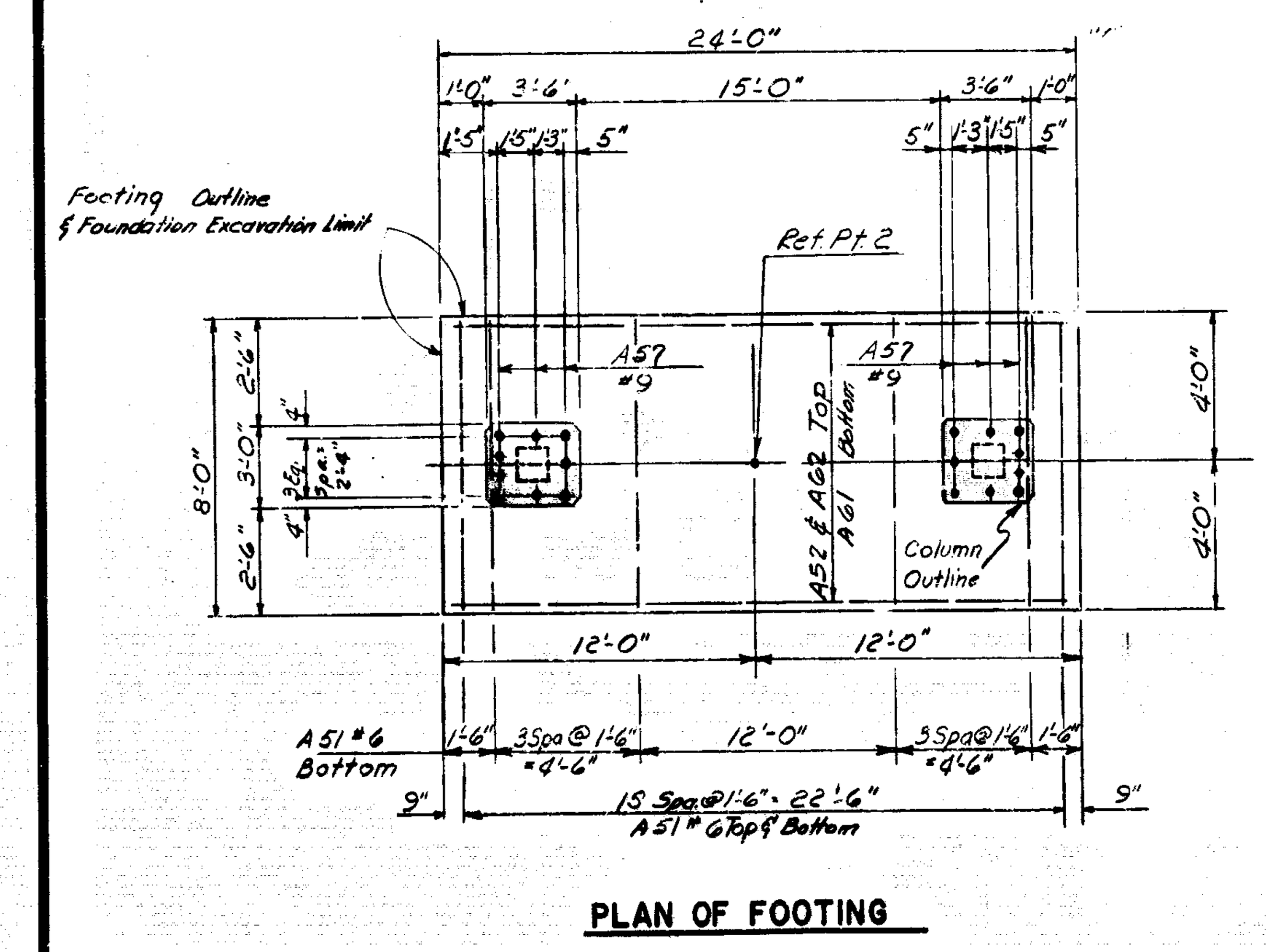
S26 of 63174A

P6 (3-29-63)

MILNE

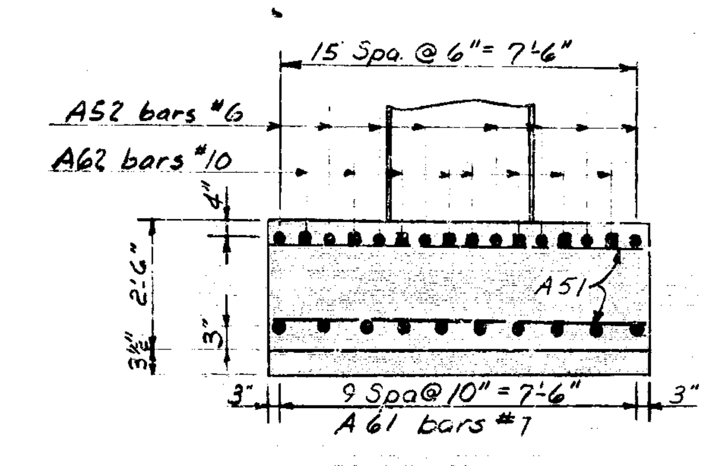






MISC. QUANTITIES		
ITEM	UNIT	PIER 2
Foundation Excavation	Cu. Yds.	40
Protective Sealant Coating	Sq. Ft.	66

CONCRETF QUANTITIES			
POUR	LOCATION	GRADE A (6A)	GRADE A (6AA)
A	Subfooting	2.1	
B	Footing	17.8	
C	Columns		12.1
D	Girder		9 2
Total (Cu. Yds)		19.9	21.3



NOTES:

For Bevel and Molding Details, see Standard Sheet # R11 or R12
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 Anchor Bolts.

The top of Pier shall be finished to a true plane at the elevation shown and shall not vary more than 1/8" under a ten foot straight edge nor more than 1/16" under any bearing.

Maximum Average Foundation Pressure D.L. only = 2780#/Ft²

Maximum Foundation Pressure D.L.+L.L. = 3450#/Ft²

The top of the pier shall be given an application of protective sealant coating prior to placing masonry plates.

Foundation excavation, footing & subfooting concrete quantities are computed to the footing neat lines. No allowances will be made in the quantities for overruns due to excavating outside of neat lines.

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER 2 DETAILS

REVISIONS

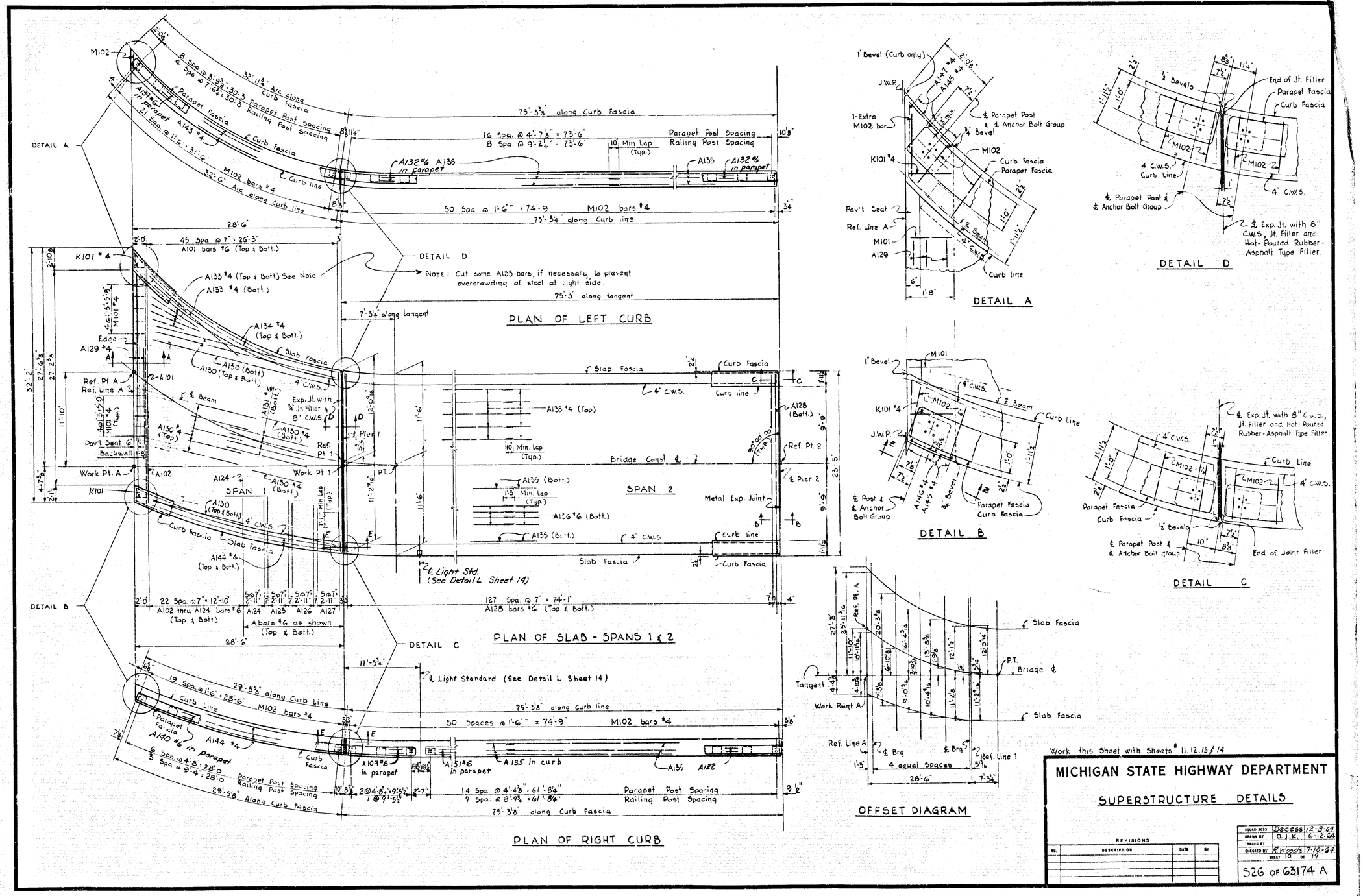
NO.	DESCRIPTION	DATE	BY

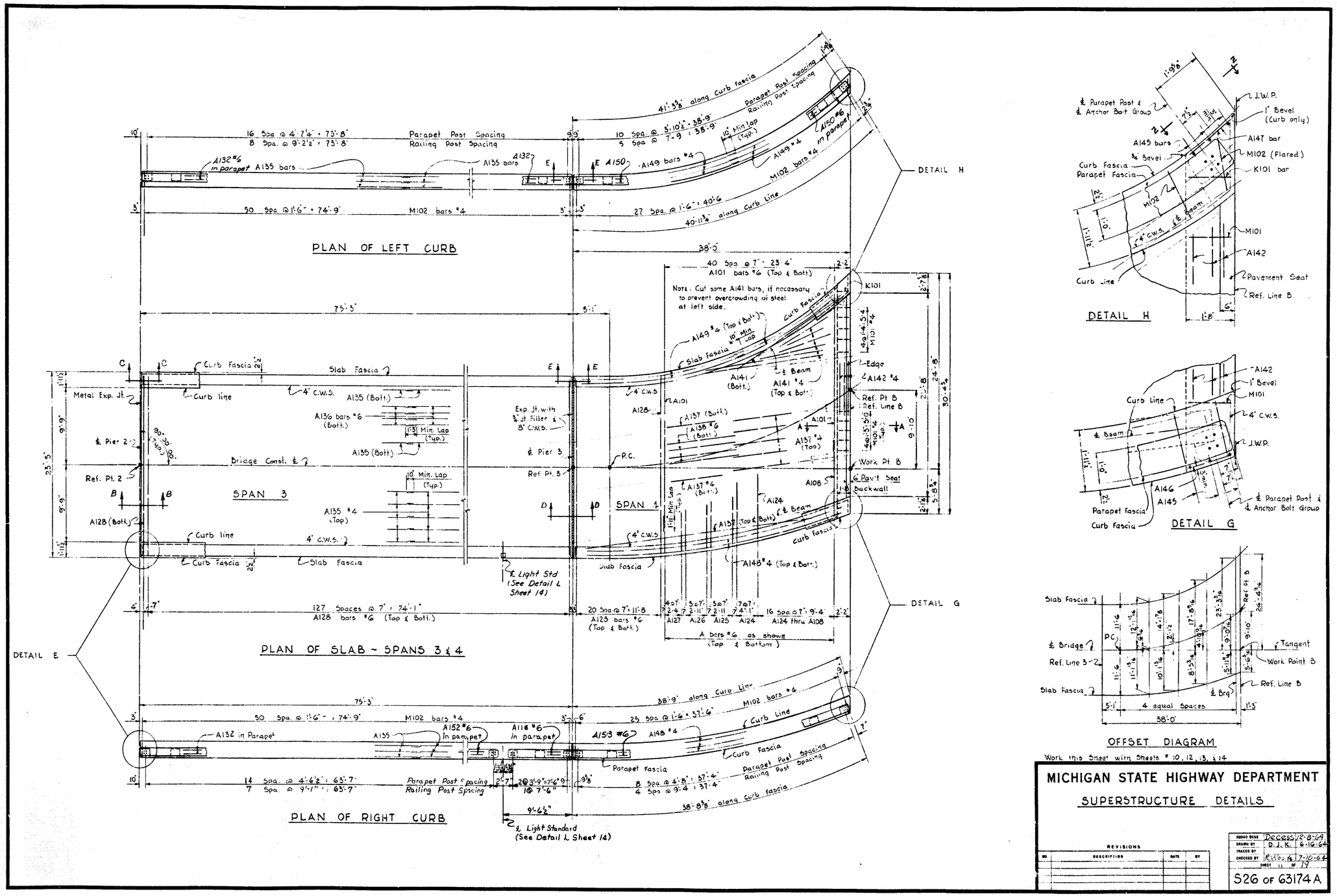
SQUAD BOSS	Decess	12-3-64
DRAWN BY	Schafer	4-2-64
TRACED BY		
CHECKED BY	R. Wjxls.	5/27/64
SHEET 9 OF 19		

S26 of 63174A

P6 (3-29-63)

MILNE


PLAN OF LEFT CURB
PLAN OF SLAB - SPANS 1 & 2
PLAN OF RIGHT CURB
DETAIL A
DETAIL B
DETAIL C
DETAIL D
OFFSET DIAGRAM
SPAN 1
SPAN 2
Bridge Const. ℄
Metal Exp. Joint
Slab Fascia
Curb Fascia
Parapet Fascia
Curb line
Curb Line
Backwall
Pav't Seat
Ref. Pt. A
Ref. Line A
Work Pt. A
Work Pt 1
Ref. Pt 1
Ref. Pt. 2
℄ Pier 1
℄ Pier 2
P.T.
Tangent
Bridge ℄
Ref. Line 1
℄ Brg
4 equal Spaces
28'-6"
75'-3⅜" along Curb Fascia
75'-3¾" along Curb line
75'-3" along tangent
7'-3¼" along tangent
50 Spa. @ 1'-6" = 74'-9"
M102 bars #4
127 Spa. @ 7" = 74'-1"
A128 bars #6 (Top & Bott.)
22 Spa. @ 7" = 12'-10"
A102 thru A124 bars #6 (Top & Bott.)
A bars #6 as shown (Top & Bott.)
45 Spa. @ 7" = 26'-3"
A101 bars #6 (Top & Bott.)
19 Spa. @ 1'-6" = 28'-6"
29'-5⅜" along Curb Line
℄ Light Std. (See Detail L Sheet 14)
NOTE: Cut some A133 bars, if necessary, to prevent overcrowding of steel at right side.
Work this Sheet with Sheets # 11, 12, 13 & 14
MICHIGAN STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE DETAILS
REVISIONS
NO. DESCRIPTION DATE BY
SQUAD BOSS Decess 12-9-64
DRAWN BY D.J.K. 6-12-64
TRACED BY
CHECKED BY R.Woods 7-19-64
SHEET 10 OF 19
526 OF 63174 A



Work this Sheet with Sheets # 10, 12, 13, & 14

MICHIGAN STATE HIGHWAY DEPARTMENT

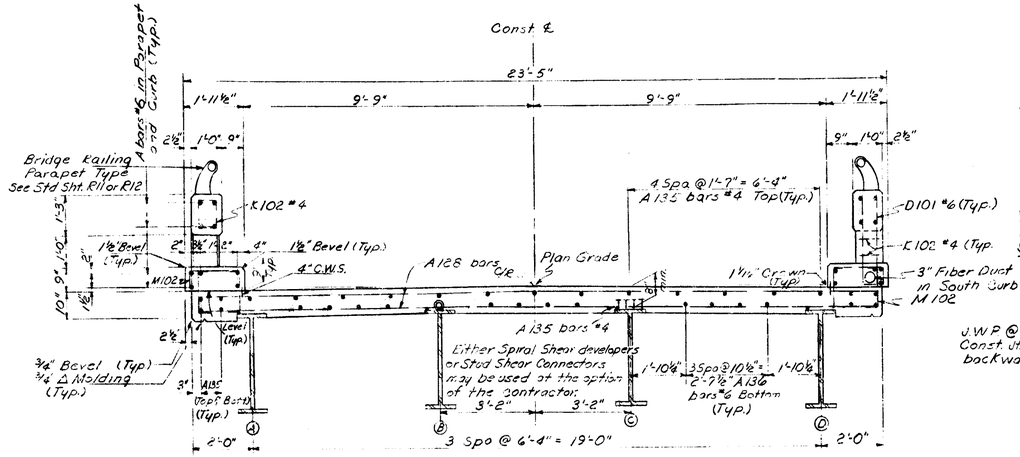
SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

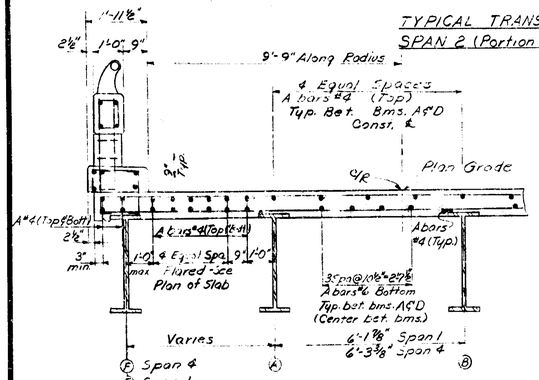
SQUAD BOSS	Decess	12-8-64
DRAWN BY	D. J. K.	6-16-64
TRACED BY		
CHECKED BY	R. W. B.	7-10-64

SHEET 11 OF 19

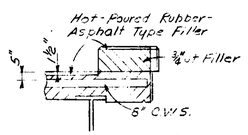
S26 OF 63174 A



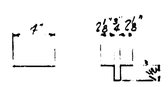
TYPICAL TRANSVERSE SECTION
SPAN 2 (Portion on Tangent) & SPAN 3



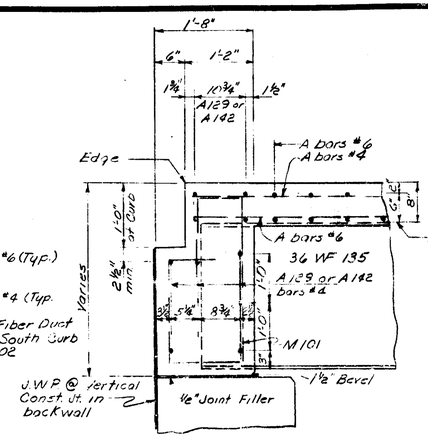
TRANSVERSE SECTION NORMAL TO BEAMS A-D
LEFT SIDE - SPANS 1 & 4



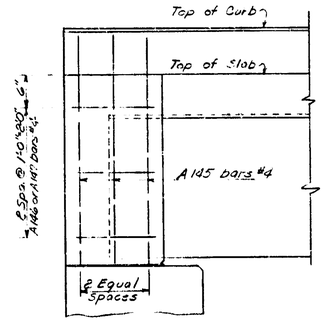
SECTION AT CONST. JOINT



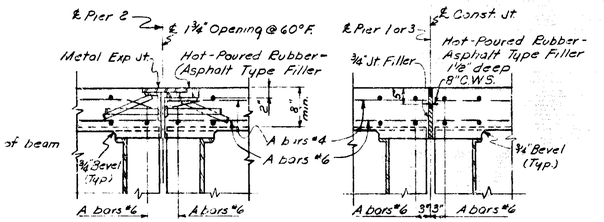
COPPER WATERSTOP DETAILS



SECTION A-A

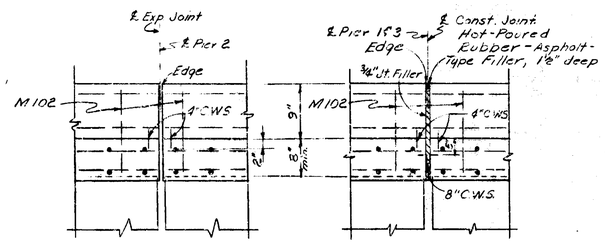


VIEW Z-Z
(Typ. for all quadrants)



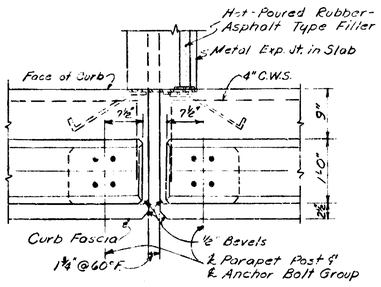
SECTION B-B

SECTION D-D



SECTION C-C

SECTION E-E



DETAIL E

Work this sheet with sheets 10, 11, 13 & 14.

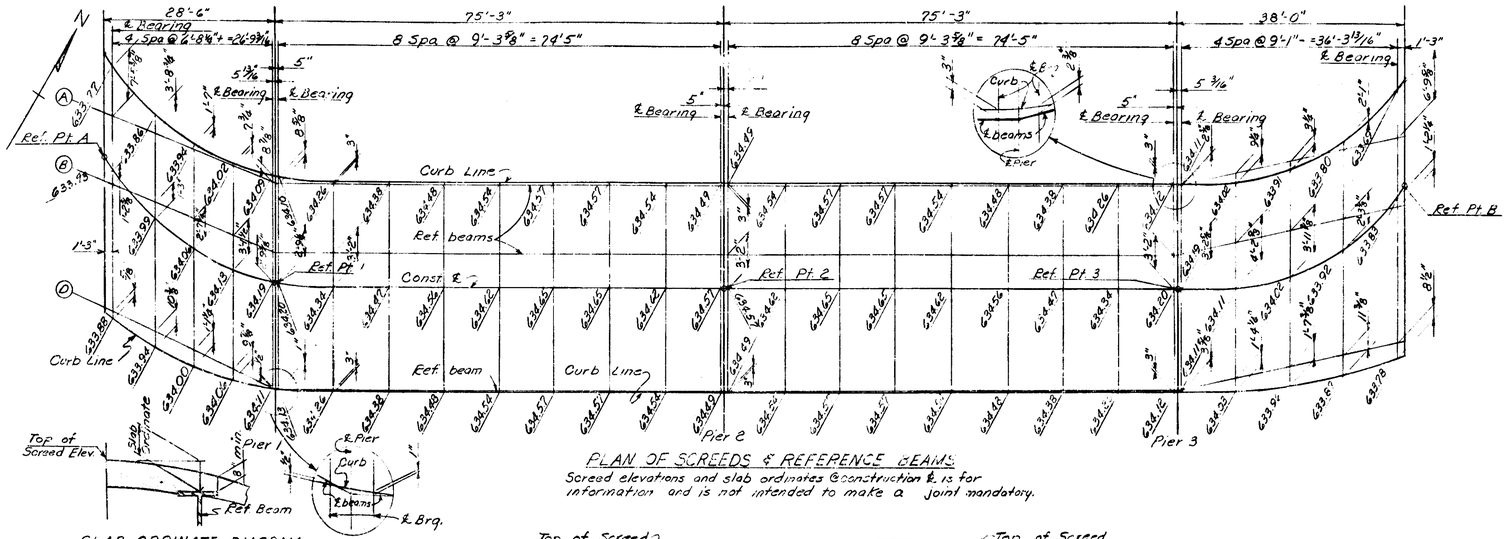
MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Decass	12-8-64
DRAWN BY	Schafer	6-10-64
TRACED BY		
CHECKED BY	B.L.K.	2-29-64
SHEET 12 OF 19		

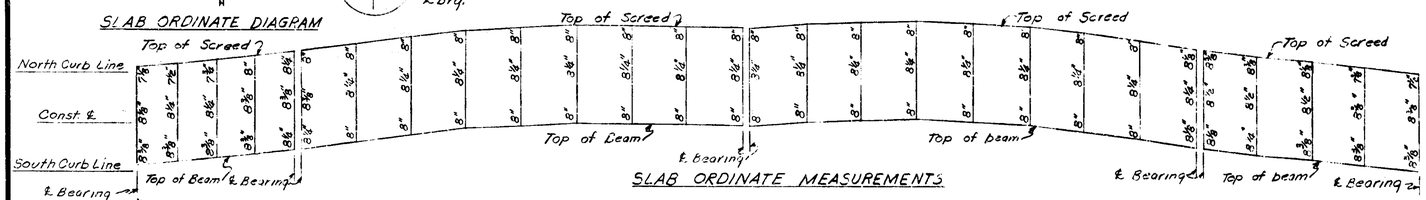
S26 of 63174A



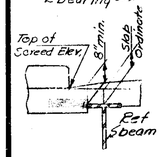
PLAN OF SCREEDS & REFERENCE BEAMS

Screed elevations and slab ordinates @ construction ℄ is for information and is not intended to make a joint mandatory.

SLAB ORDINATE DIAGRAM



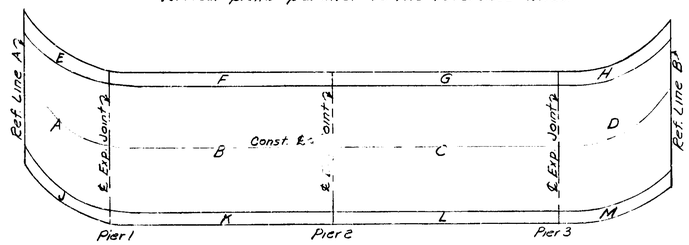
SLAB ORDINATE MEASUREMENTS



SLAB ORDINATE DIAGRAM

Note: Elevations shown are for top of screed before pouring any concrete with formwork and steel reinforcement in place and shear connectors welded to the beams and are based on a minimum slab thickness of 8 inches. After screeds are set, if check indicates that less than the minimum thickness will be obtained, adjust screeds and expansion joint accordingly.

The slab ordinates shown provide for dead load deflection, vertical curve, crown, beam camber and are to be measured from the top of the beam indicated to the top of screed in a vertical plane parallel to the reference lines.



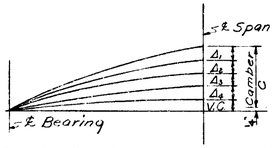
POUR DIAGRAM

Alphabetical designation of pours is not intended to regulate pouring sequence.

CONCRETE QUANTITIES GRADE A(AA)-SUPERSTRUCTURE		
	POUR	CU. YDS.
Slab	A	26.4
	B	48.3
	C	48.3
	D	31.4
Curbs	E	1.8
	F	4.1
	G	4.1
	H	2.2
	J	1.6
	K	4.1
	L	4.1
	M	2.1
TOTAL		178.5 Cu. Yds.

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMT.
Hot-Poured Rubber Asphalt Type Filler	Lin. Ft.	66
⅝" Joint Filler	Sq. Ft.	41
Copper	Lbs.	190
Water-Reducing Retarding Admixture	Gals.	20
Bridge Railing-Parapet Type	Ft.	440

Note: Joint Waterproofing is included in quantities on Sheet #69?.



LEGEND: C = Specified camber as called for on Sht #15.
Δ_1 = Computed deflection due to struct. steel weight.
Δ_2 = Computed deflection due to weight of formwork, steel reinforcement & welding of shear developers.
Δ_3 = Computed deflection due to weight of slab.
Δ_4 = Computed deflection due to distributed weight of curb & railing
V.C. = Computed midspan ordinate of vertical curve.

CAMBER DIAGRAM (SPANS 2 & 3 ONLY)

Note: Beams in Spans 1 & 4 are not cambered. Total deflection due to struct. steel weight, formwork, reinforcing steel and weight of slab & curb is 1⅛" ±.

CAMBER TABLE		
	SPAN 2	SPAN 3
Δ_1	⅜"	⅜"
Δ_2	½"	½"
Δ_3	1⅜"	1⅜"
Δ_4	⅜"	⅜"
V.C.	1⅛"	1⅛"

Note: Camber as called for on Struct. Steel Sht. #15 is ¼" less than summation of Δ's + V.C., due to desirability of undercambered rather than overcambered beams.

Notes:
For Parapet wall, Railing, Bar Chairs, Bevel & Molding details not shown, see Standard Sheet R11 or R12.
C.W.S. indicates copper waterstop.
J.W.P. indicates joint waterproofing.
Edge & Groove denote Edging or Grooving with an approved tool.
Curb pours in Spans 2 or 3 shall not be cast until slab concrete has attained at least 50% of its design strength as determined by the table in Section 5.01.03 of the Standard Specifications.
False joints in curbs shall be placed midway between parapet posts at approximately every third panel. For details of false joints, see std. Sht. R11.

Work this sheet with Shts. 10, 11, 12, & 14.

MICHIGAN STATE HIGHWAY DEPARTMENT

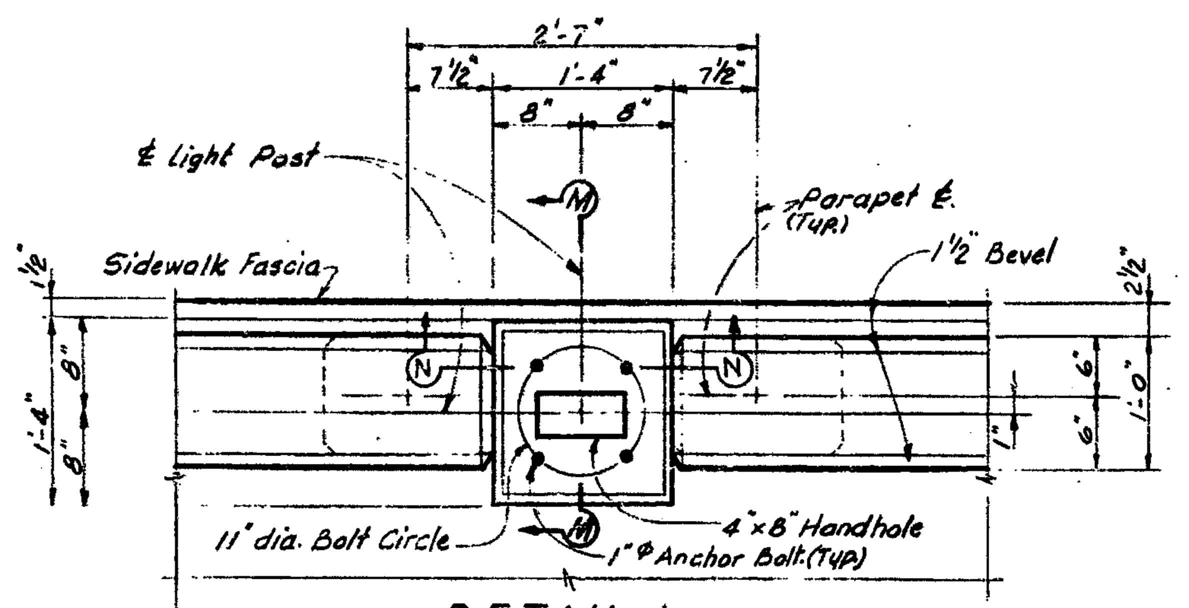
SUPERSTRUCTURE DETAILS

REVISIONS			
NO	DESCRIPTION	DATE	BY

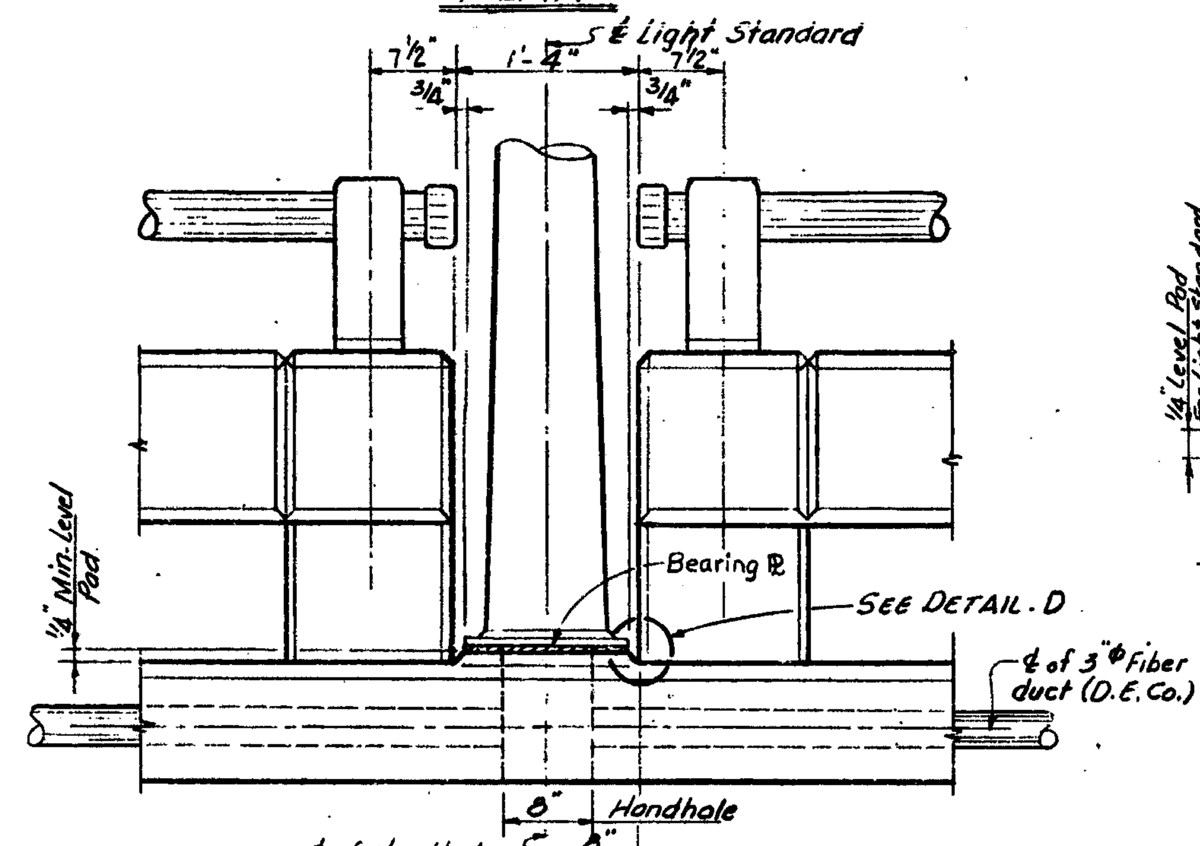
SQUAD BOSS	DeCess	12-3-64
DRAWN BY	Schafer	6-10-64
TRACED BY		
CHECKED BY	D.L.K.	6-29-64

SHEET 13 OF 19

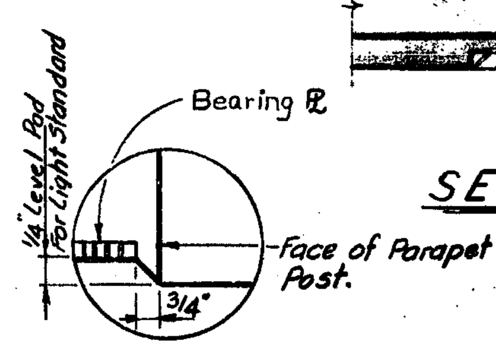
S26 of 63174A



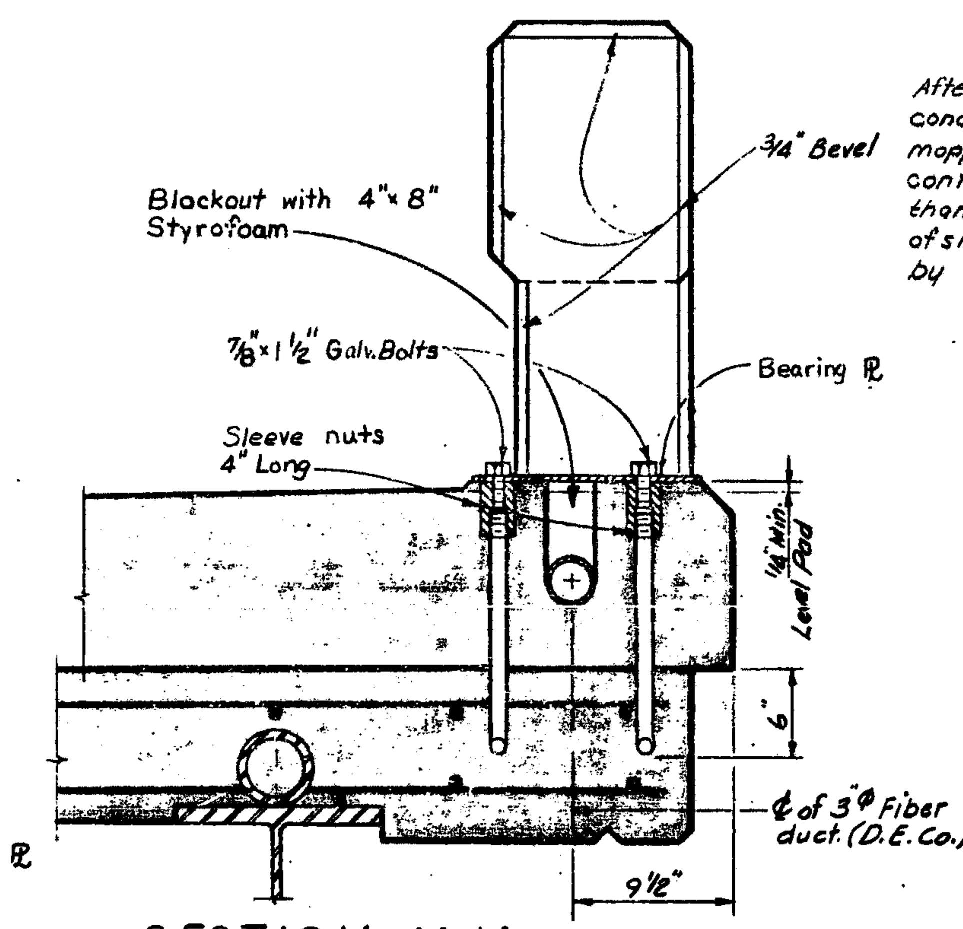
DETAIL L
PLAN



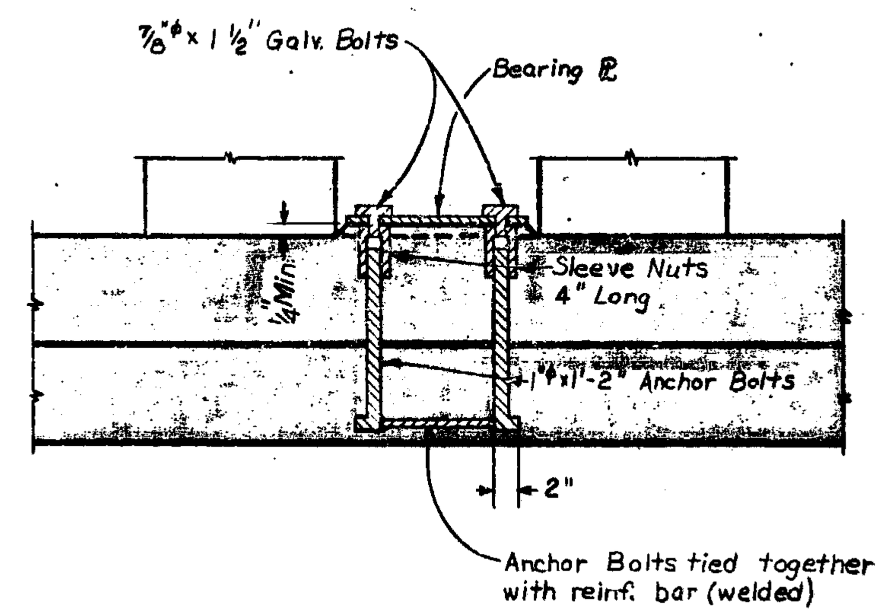
INSIDE ELEVATION



DETAIL-D

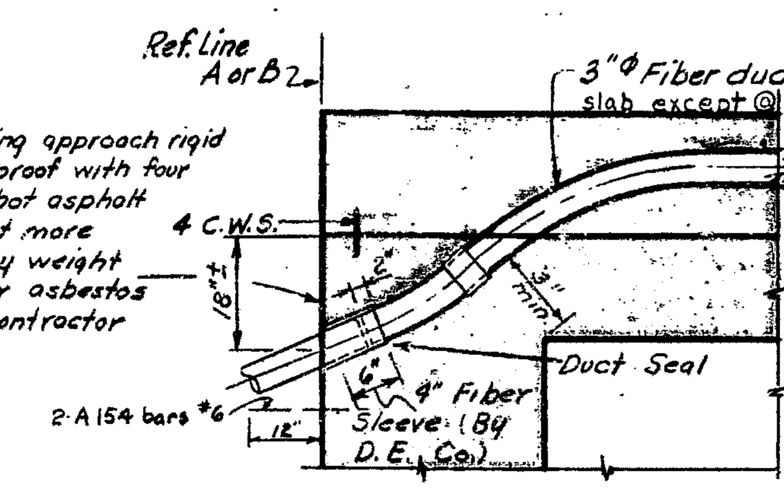


SECTION M-M

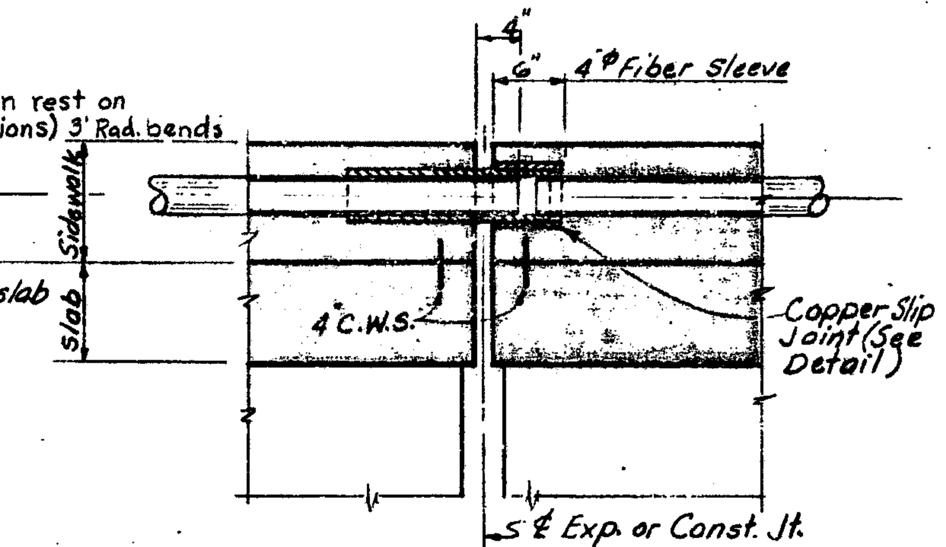


SECTION N-N

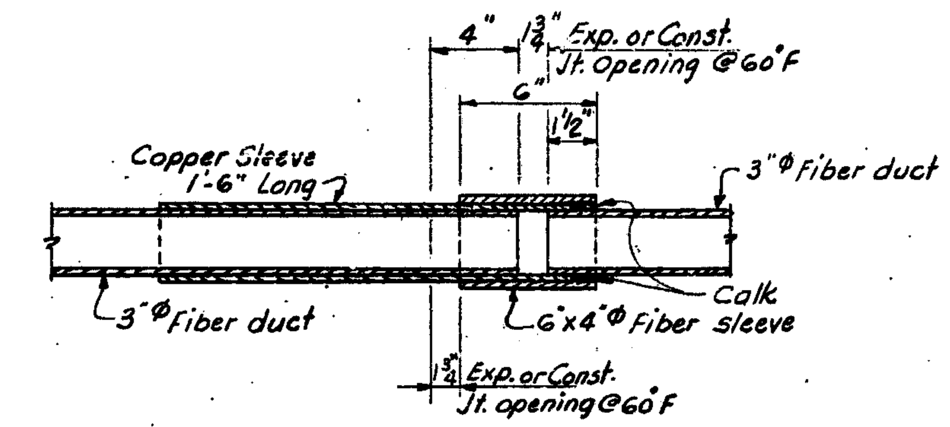
After connecting approach rigid conduit, waterproof with four moppings of hot asphalt containing not more than 2.5% by weight of short fiber asbestos by bridge contractor



SECTION THRU. DUCT AT REFERENCE LINES



SECTION THRU. DUCT AT EXP. OR CONST. JOINTS



COPPER SLIP JOINT DETAILS

NOTES:

1"φ Anchor bolt are to be furnished by Detroit Edison Co. and installed by Bridge Contractor. (Installation is incidental work)

Furnishing and installing of Light Standard and 3"φ Fiber Duct as well as duct sleeves, styrofoam blocking is by Det. Edison Co.

Where ducts are to be installed in sidewalks, the District Utility Engineer is to be notified five days in advance of the time of installation.

MICHIGAN STATE HIGHWAY DEPARTMENT

UTILITY DETAILS

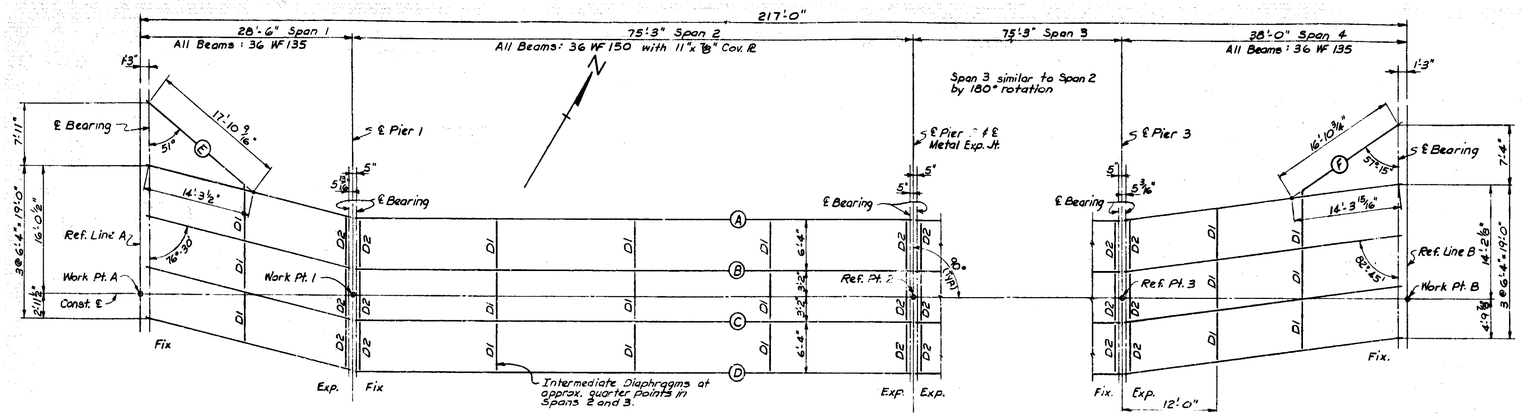
REVISIONS

NO.	DESCRIPTION	DATE	BY

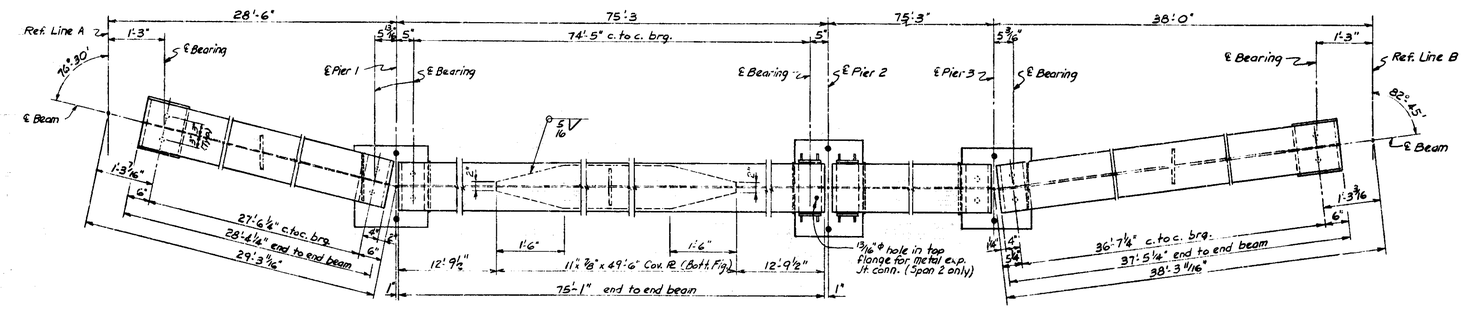
DESIGNED BY	Decoss	12-8-64
DRAWN BY	KMR	7-16-64
TRACED BY		
CHECKED BY	R. Woods	7/27/64
SHEET	14 of 19	

S26 OF 63174 A

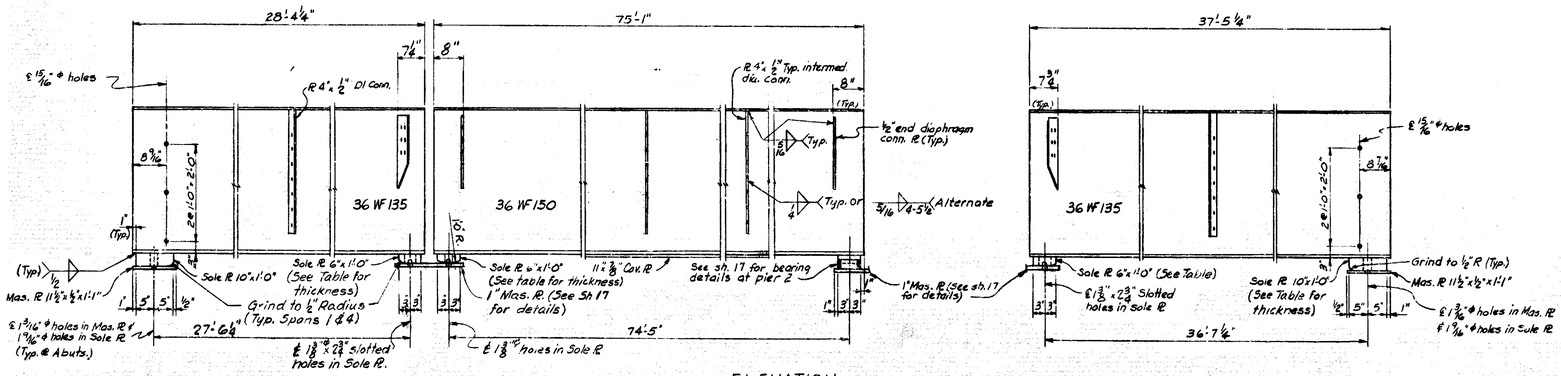
S26 of 63174



ERECTION DIAGRAM



PLAN



ELEVATION
Normal to Beams

NOTES

Fabrication: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction - 1963 ed.

Design: Michigan State Highway Department's Specifications for Design of Highway Bridges - 1958 ed. (H20-44 Loading).

All shop connections shall be welded as shown on the plans.

Field connections shall be bolted with high strength bolts.

High strength bolts shall be ¾"ϕ

Holes for high strength bolts shall be 13/16"ϕ - Others as noted.

In addition to the shop paint provisions of the standard specifications the top surfaces of masonry plates shall be coated in accordance with the requirements for machine finished surfaces. The metal expansion joint shall not be painted in the shop except as noted on the plans.

Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ¼" and welded continuously for the full perimeter. Welds shall be ground flush with the faces of the plates.

The beams in spans 2 and 3 are to have a camber of 3½" (maximum ordinate). Beams in Spans 1 & 4 are to have 0" camber. The camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ±¼". Heating is to be used if necessary to assure camber permanency within the above limitations. Dead load deflection of beams alone is ⅜" in Spans 2 & 3 and 0" in Spans 1 & 4.

All Structural Steel shall be A36

The quantity "Structural Steel - Furnishing and Fabricating" includes

159 # Bronze
160641 A-36 Steel
160800 # Total

QUANTITIES		
Item	Unit	Amount
Structural Steel - Furnishing and Fabricating	Lbs.	160800
Structural Steel - Erection	Lbs.	160800
Shear Developers	Lump Sum	Lump Sum
Field Painting	Lump Sum	Lump Sum

SOLE PLATE THICKNESSES TABLE								
Beam Line	Abut. A	Pier 1		Pier 2		Pier 3		Abut. B
	Span 1	Span 1	Span 2	Span 2	Span 3	Span 3	Span 4	Span 4
A	3"	2"	2"	1¾"	1¾"	2¼"	2"	2½"
B	3¾"	3"	2¾"	2½"	2¼"	2¾"	3"	3¼"
C	3¾"	3¼"	2¾"	2½"	2¼"	2¾"	3¼"	3¼"
D	3"	2¼"	2"	1¾"	1¾"	2"	2¼"	2¾"
E	2"							
F								2"

Work this sheet with sheets 16, 17 & 18

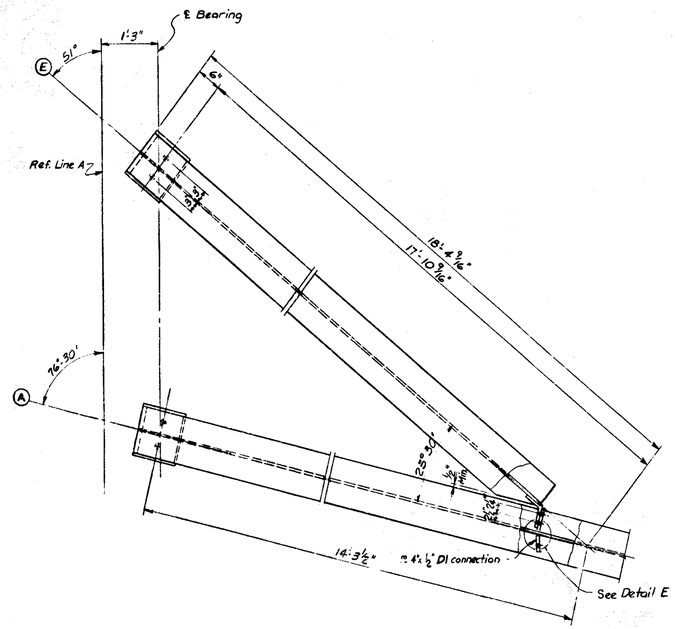
MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

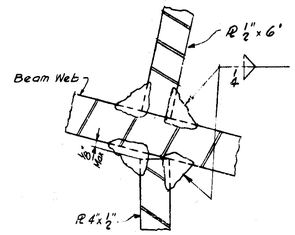
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	D. Ecass	12-8-64
DRAWN BY	Benson	2-6-66
TRACED BY		
CHECKED BY	R. Woods	2/8/66
SHEET 15 OF 19		

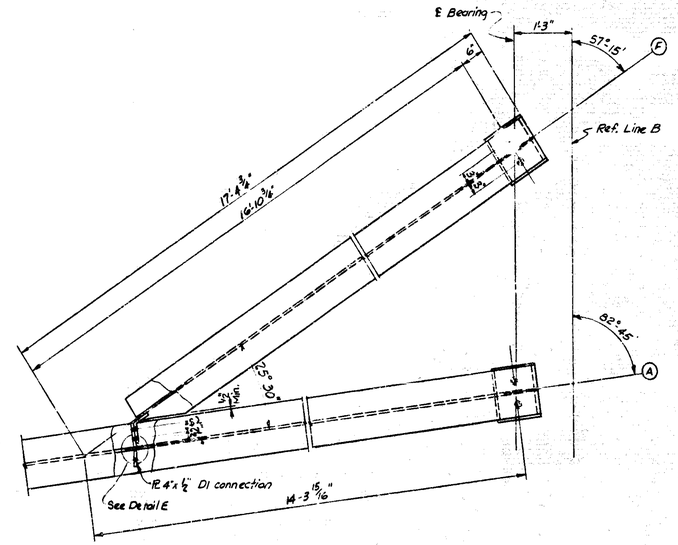
S26 of 63174A



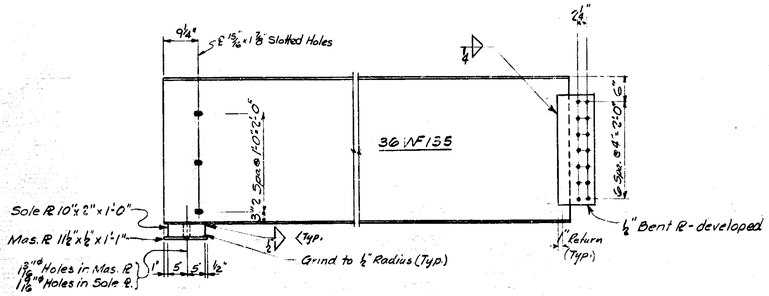
PLAN - BEAM (E)



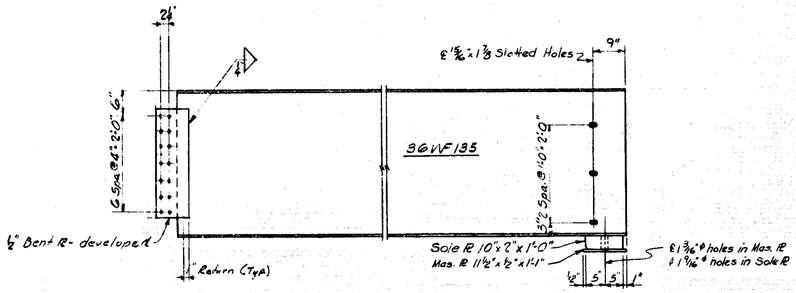
DETAIL E



PLAN - BEAM (F)



ELEVATION - BEAM (E)



ELEVATION - BEAM (F)

Work this sheet with sheet 15

MICHIGAN STATE HIGHWAY DEPARTMENT

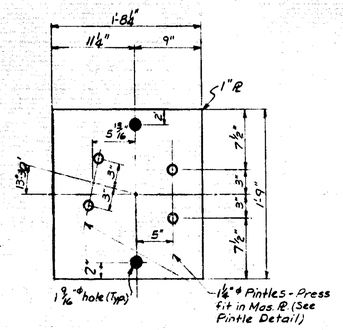
STRUCTURAL STEEL DETAILS

REVISIONS

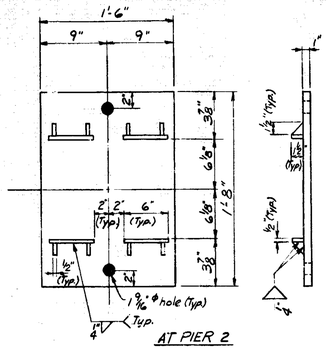
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Dacoss	12-8-64
DRAWN BY	Benson	2-13-64
TRACED BY		
CHECKED BY	K. Woods	6/8/64
SHEET	16 of 19	

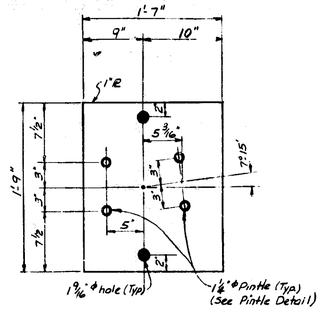
S26 of 63174A



AT PIER 1

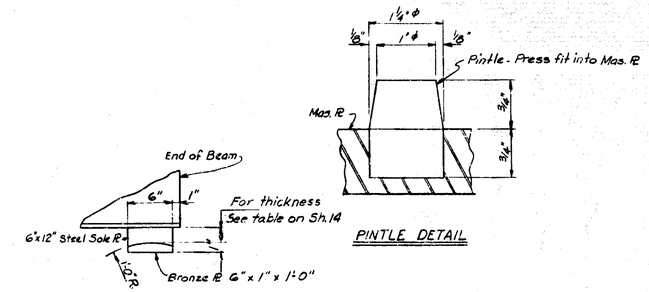


AT PIER 2



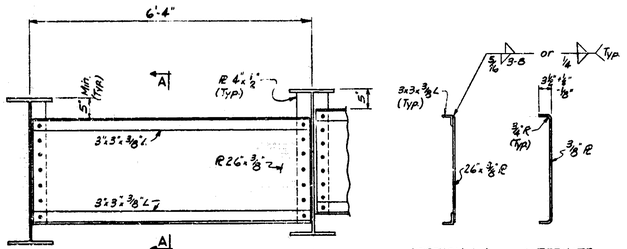
AT PIER 3

MASONRY PLATE DETAILS



BEARING DETAIL AT PIER 2

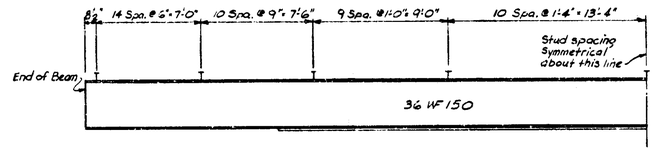
PINTLE DETAIL



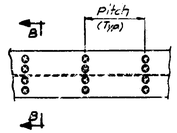
D1 DETAILS

SECTION A-A

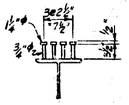
ALTERNATE



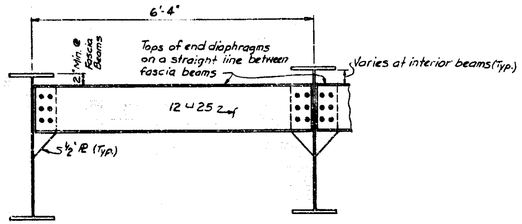
HALF SPAN 2 # 3 STUD SPACING



PLAN OF STUDS



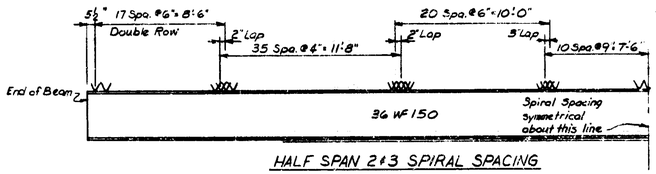
SECTION B-B



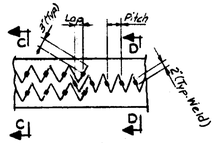
D2 DETAILS

ANCHOR BOLTS
24 Req'd. - 1" ϕ x 1'-4" - Hex Nut, Sq. Hd,
1 Std. Washer, ∠ 4" Thread

DOWELS
20 Req'd. - 1" ϕ x 1'-0" - Plain bar



HALF SPAN 2 # 3 SPIRAL SPACING



PLAN OF SPIRALS

SECTION C-C

SECTION D-D

TYPICAL SPIRAL WELD

SHEAR DEVELOPER DETAILS

Note: Either spiral or stud shear developers may be used at the contractors option.

Work this sheet with sheet 15

MICHIGAN STATE HIGHWAY DEPARTMENT

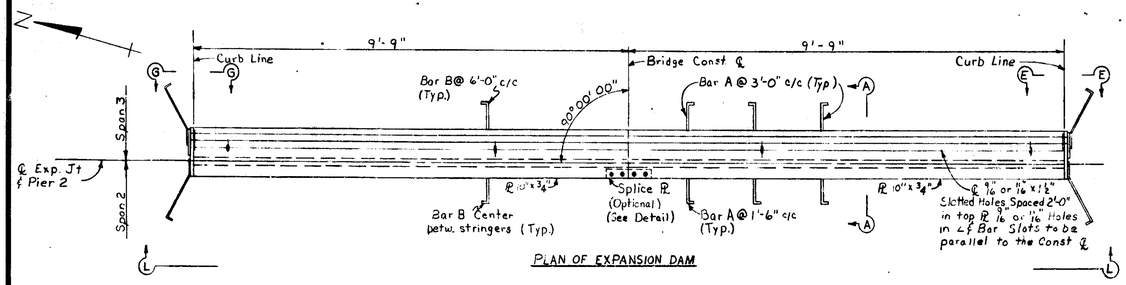
STRUCTURAL STEEL DETAILS

REVISIONS

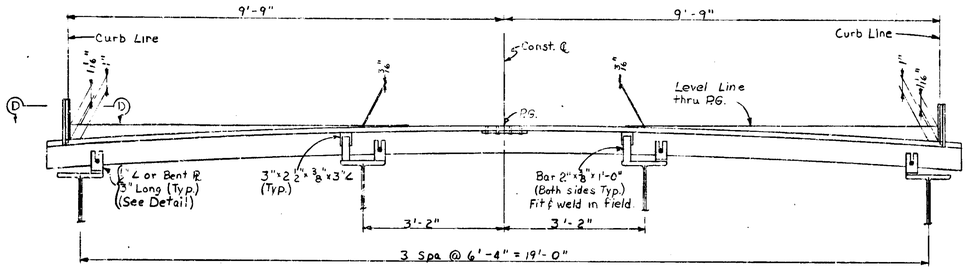
NO	DESCRIPTION	DATE	BY

BRIDGE DES.	Dacess	12-8-64
DRAWN BY	Benson	2.10.64
TRACED BY		
CHECKED BY	R. Wagner	6/4/64
SHEET	17 OF 19	

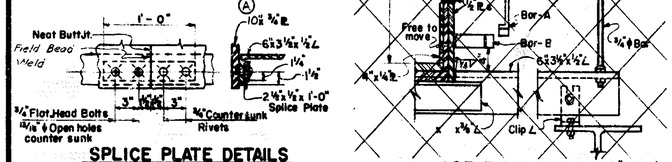
S26 of 63174A



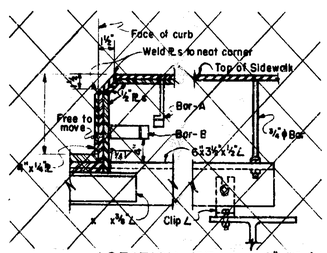
PLAN OF EXPANSION DAM



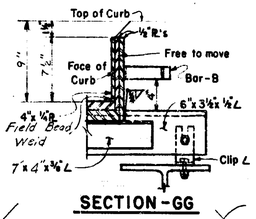
VIEW L-L



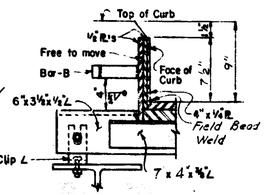
SPLICE PLATE DETAILS



SECTION-FF



SECTION-GG



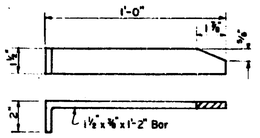
SECTION-EE

NOTES:

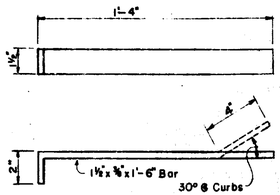
The Metal Expansion Joint shall be bent in the shop to conform with the contour of the top of roadway slab.

Hot- Poured Rubber- Asphalt Type Filler is included in the Superstructure Quantities on sheet #13.

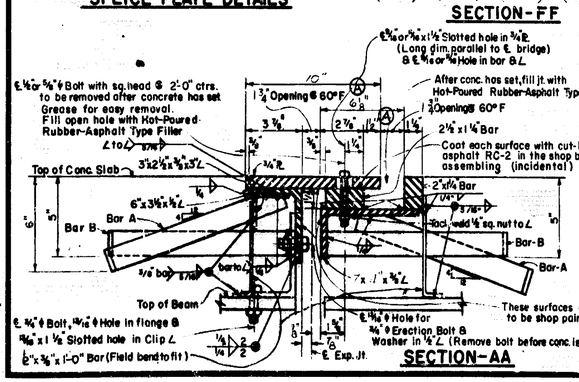
Weight of Metal Expansion Joint is included in the Structural Steel weight on sheet #15.



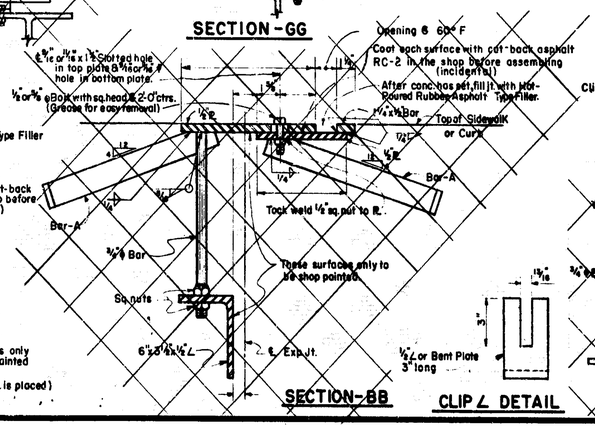
BAR "A" DETAILS



BAR "B" DETAILS

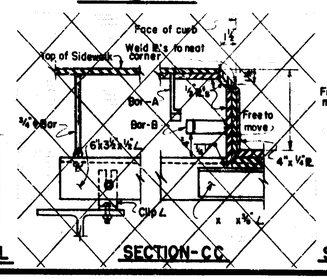


SECTION-AA

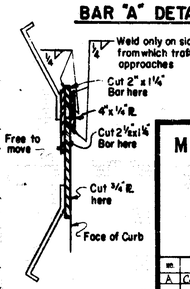


SECTION-BB

CLIP ∠ DETAIL



SECTION-CC



SECTION-DD

Work this sheet with sheet 15

MICHIGAN STATE HIGHWAY DEPARTMENT

METAL EXPANSION JOINT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY
A	Correct Exp. Jt. dimensions	12-2-65	KMR

DESIGN BASIS	Dwgs 63	12-8-64
DRAWN BY	D.E.M. KMR	9-14-64
TRACED BY		
CHECKED BY	R. Wiegerts	6-16-64
SHEET 18 OF 19		

S26 OF 63174 A

SS 3 (2-20-63)

ABUTMENTS A1 & A2

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A1	4'-3"							#6	4'-3"	73	466
A2	6'-6"							#6	6'-6"	73	712
A3	28'-3"							#6	28'-3"	16	679
A4	7'-9"							#6	7'-9"	146	1699
A5	28'-0"							#4	28'-0"	20	374
A6	6'-0"							#4	6'-0"	2	8
A7	9'-0"							#4	9'-0"	2	12
A8	12'-0"							#4	12'-0"	2	16
A9	4'-3"							#4	4'-3"	4	11
A10	7'-3"							#4	7'-3"	4	19
A11	10'-3"							#4	10'-3"	4	27
A12	27'-3"							#6	27'-3"	16	655
A13	27'-0"							#4	27'-0"	20	361
A14	5'-9"							#4	5'-9"	2	8
A15	8'-9"							#4	8'-9"	2	12
A16	11'-9"							#4	11'-9"	2	16
D1	4'-3½"	1'-0"						#4	9'-6"	10	64
D2	2'-9½"	1'-0"						#4	6'-6"	8	35
D3	2'-3 5/8"	1'-0"						#4	5'-6"	33	121
D4	4'-5"	1'-0"						#4	9'-9"	7	46
									Total for two Abutments		5341

PIERS 1, 2, & 3

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A51	7'-6"							#6	7'-6"	120	1352
A52	23'-6"							#6	23'-6"	38	1341
A53	9'-0"							#8	9'-0"	4	96
A54	21'-6"							#4	21'-6"	6	86
A55	21'-6"							#8	21'-6"	4	230
A56	12'-9"							#6	12'-9"	12	230
A57	5'-6"							#9	5'-6"	52	972
A58	16'-6"							#9	16'-6"	10	561
A59	21'-3"							#9	21'-3"	10	723
A60	23'-6"							#8	23'-6"	20	1255
A61	23'-6"							#7	23'-6"	10	480
A62	15'-6"							#10	15'-6"	8	534
A63	19'-3"							#9	19'-3"	10	655
A64	13'-0"							#10	13'-0"	4	224
A65	21'-6"							#9	21'-6"	3	219
A66	7'-6							#6	7'-6	4	45
T51	15'-9"	1'-2"	11'-4"	9"				#8	28'-3"	8	603
T52	20'-6"	1'-2"	11'-4"	9"				#8	33'-0"	8	705
T53	18'-6"	1'-2"	11'-4"	9"				#8	31'-0"	8	662
K51	3'-1"	1'-8 3/8"	1'-8 3/8"	2'-6 4/4"				#4	12'-0"	48	385
K52	3'-2"	1'-9½"	1'-9½"	2'-8"				#4	12'-6"	30	251
L51	2'-1"	1'-8½"	11"	1'-4¼"	1'-6½"	1'-3½"	10"	#4	9'-6"	46	292
									Total for three piers		11,901

SUPERSTRUCTURE

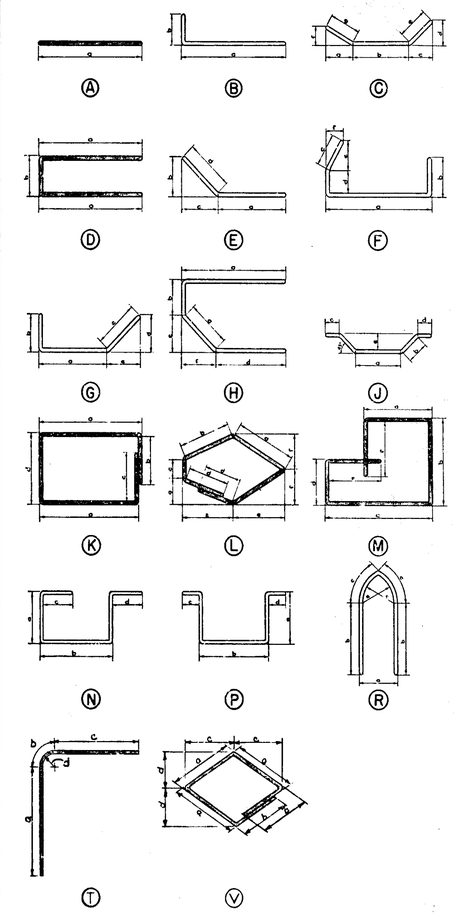
BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A101	20'-0"							#6	20'-0"	174	5227
A102	12'-0"							#6	12'-0"	2	36
A103	11'-9"							#6	11'-9"	2	35
A104	11'-6"							#6	11'-6"	2	35
A105	11'-3"							#6	11'-3"	2	34
A106	11'-0"							#6	11'-0"	2	33
A107	10'-9"							#6	10'-9"	2	32
A108	10'-6"							#6	10'-6"	4	63
A109	10'-3"							#6	10'-3"	8	123
A110	9'-9"							#6	9'-9"	4	59
A111	9'-6"							#6	9'-6"	4	57
A112	9'-3"							#6	9'-3"	4	56
A113	9'-0"							#6	9'-0"	4	54
A114	8'-9"							#6	8'-9"	4	53
A115	8'-6"							#6	8'-6"	4	51
A116	8'3							#6	8'-3"	8	99
A117	8'-0"							#6	8'-0"	4	48
A118	7'-10"							#6	7'-10"	4	47
A119	7'-8"							#6	7'-8"	4	46
A120	7'-6"							#6	7'-6"	4	45
A121	7'-4"							#6	7'-4"	4	44
A122	7'-2"							#6	7'-2"	4	43
A123	7'-0"							#6	7'-0"	4	42
A124	6'-9"							#6	6'-9"	28	284
A125	5'-9"							#6	5'-9"	24	207
A126	5'-6"							#6	5'-6"	24	198
A127	5'-3"							#6	5'-3"	22	174
A128	22'-6"							#6	22'-6"	556	18,799
A129	31'-3"							#4	31'-3"	10	209
A130	28'-3"							#4	28'-3"	23	434
A131	28'-3"							#6	28'-3"	12	509
A132	38'-0							#6	38'-0"	24	1370
A133	14'-6"							#4	14'-6"	9	87
A134	24'-0"							#4	24'-0"	4	64
A135	37'-9"							#4	37'-9"	140	3531
A136	38'-0"							#6	38'-0"	48	2,740
A137	37'-3"							#4	37'-3"	19	473
A138	37'-3"							#6	37'-3"	12	671
A139	32'-3"							#6	32'-3"	4	194
A140	29'-0"							#6	29'-0"	4	174
A141	16'-9"							#4	16'-9"	13	145
A142	29'-3"							#4	29'-3"	10	195
A143	32'-3"							#4	32'-3"	5	108
A144	29'-0"							#4	29'-0"	9	174
A145	4'-6"							#4	4'-6"	12	36
A146	1'-3"							#4	1'-3"	6	5
A147	1'-9"							#4	1'-9"	6	7
A148	38'-3"							#4	38'-3"	9	230
A149	20'-9"							#4	20'-9"	18	249
A150	20'-6"							#6	20'-6"	8	246
A151	25'-6"							#6	25'-6"	4	155
A152	27'-6"							#6	27'-6"	4	167
A153	38'-3"							#6	38'-3"	4	230
A154	2'-0"							#6	2'-0"	4	12
D101	2'-10 3/8"	6 3/4"						#6	6'-3"	318	2986
K101	4'-1"	1'-0 3/4"	1'-0 3/4"	1'-3½"				#4	11'-6"	3	23
K102	10 3/4"	5 3/4"	6"	7 3/4"				#4	3'-4"	596	1329
M101	10¼"	3'-3½"	1'-3½"	2'-5"	11¼"	1'-5"		#4	10'-1"	40	270
M102	7"	1'-7½"	1'-2"	1'-3½"	1'-1½"	0"		#4	5'-8"	301	1,141
									Total for Superstructure		44,188

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.

Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 61,430 #

BAR BENDING DIAGRAM



MICHIGAN STATE HIGHWAY DEPARTMENT

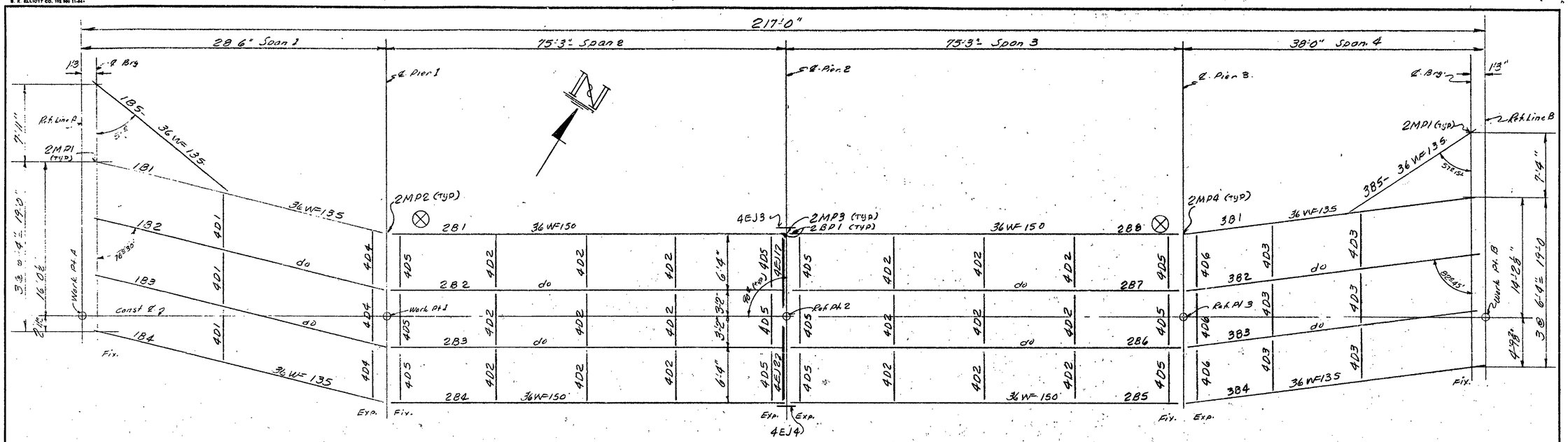
STEEL REINFORCEMENT DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Decoss 12-8-4
DRAWN BY	KMR. 6-26-64
TRACED BY	
CHECKED BY	D.J.K. 6-29-64
SHEET	19 OF 19

S26 OF 63174A

B. K. ELLIOTT CO. 192 900 11-64



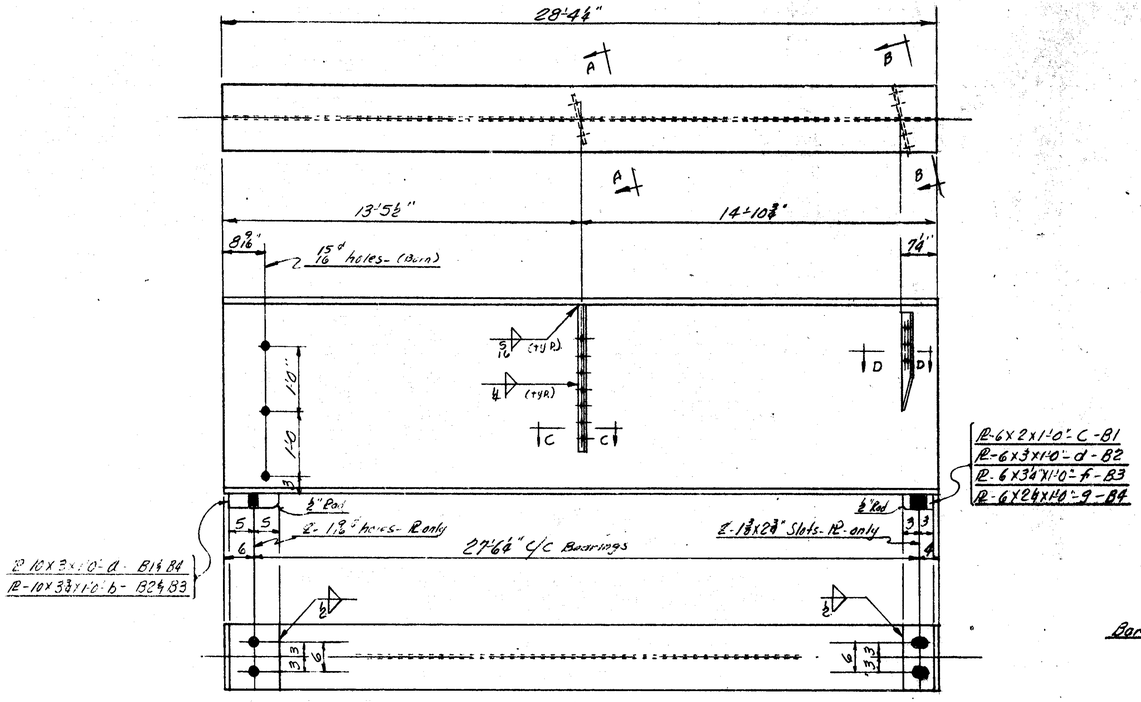
Erection Diagram.

REVISION			
NO.	DESCRIPTION	DATE	BY

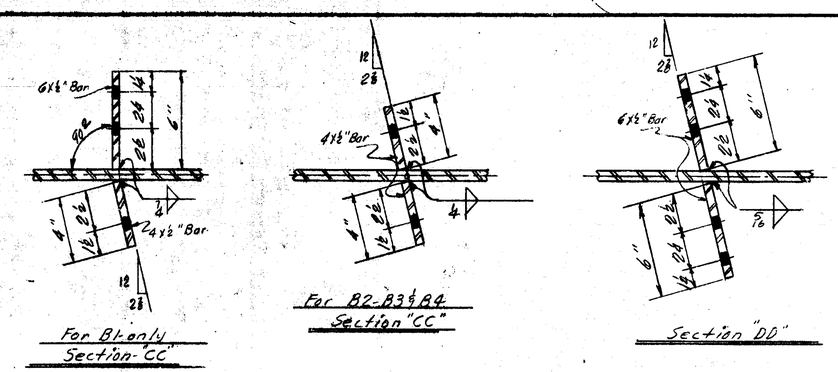
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

Left Turn Ramp at 9-Mile Road
Over I-75 in Hazel Park
C.A. HULL - Contr.
S26 of 63174-A

DATE 12-3-65	JOB NO. R24559	SHEET E1 of E1
BY R.W.B.		



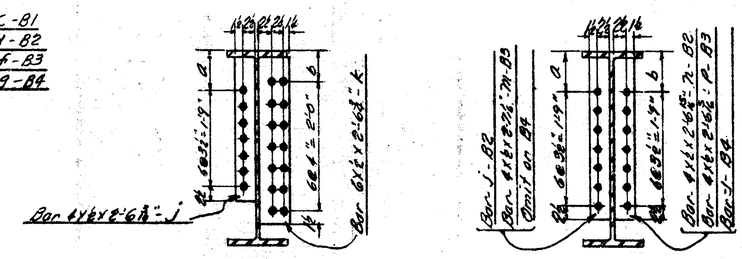
4-Beams Req'd (36WF135 x 28'-4¼") as shown & noted - Mark 181-184 incl.



For B1 only Section "CC"

For B2-B3 & B4 Section "CC"

Section "DD"

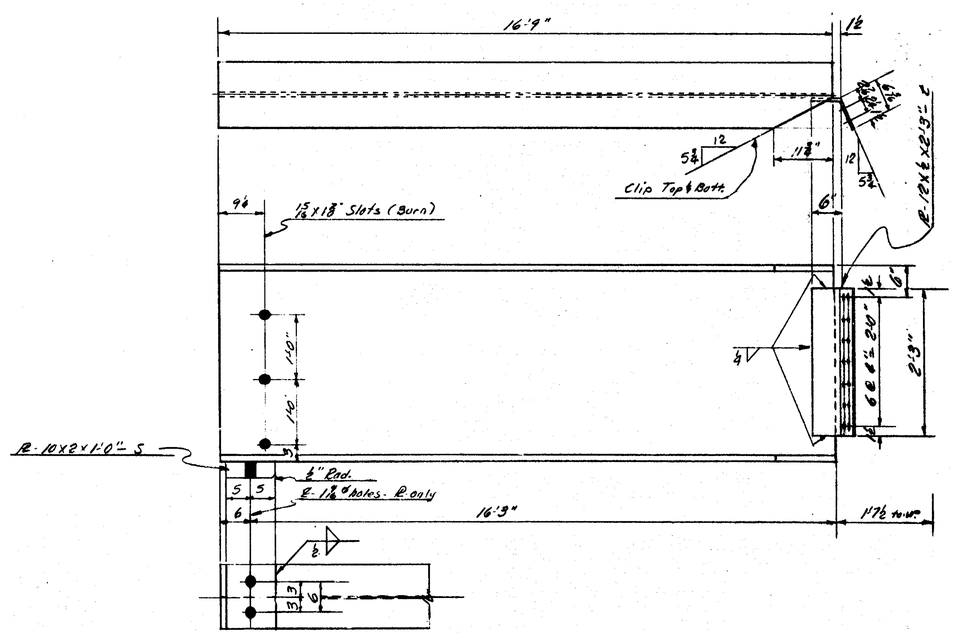


For B1 only Section "AA"

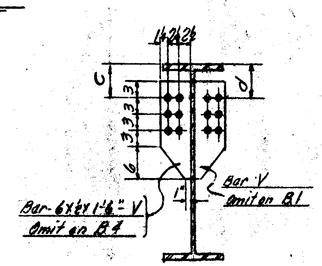
For B2-B3 & B4 Section "AA"

Table of Dimensions

Beam	a	b	c	d
B1	7½	6	5	X
B2	7½	8¼	6	6
B3	8⅜	7⅝	6¼	6¼
B4	X	7½	X	5¼



One Beam Req'd - (36WF135 x 16'-9") - as shown & noted - Mark 185



Section "BB"

Shop Notes

Paint shop coat MSHD #3A(1) Red Lead - except as follows - The top surface of the top flange of beams in Spans 2 & 3 shall be given one coat of Boiled Linseed Oil only. The top surface of masonry plates & the bottom surface of sole plates shall be given one coat of MSHD - 5.02.03 Tallow Mixture only. There shall be no paint on field connection contact surfaces. The metal expansion joint is to be painted only where noted.

Camber - The beams in spans 1 & 4 are to have a camber of 0". The beams in spans 2 & 3 are to be given a camber of 3½" (Max. Ord.) The allowable camber tollerance is ± ¼". Camber is to be measured with beam lying on side. Dead Load deflection for beams alone is ⅝" - Spans 2 & 3 & 0" Spans 1 & 4.

All sharp longitudinal edges that will be exposed in the finished structure are to be rounded to a radius of 3/16" ± ⅛" before shop cleaning & painting. This is to include the bottom edges of the top flange of all beams.

Magnetic Particle inspection is required.

Structural steel - A-36 - Open holes 13/16" UN.

REVISION			
NO.	DESCRIPTION	DATE	BY

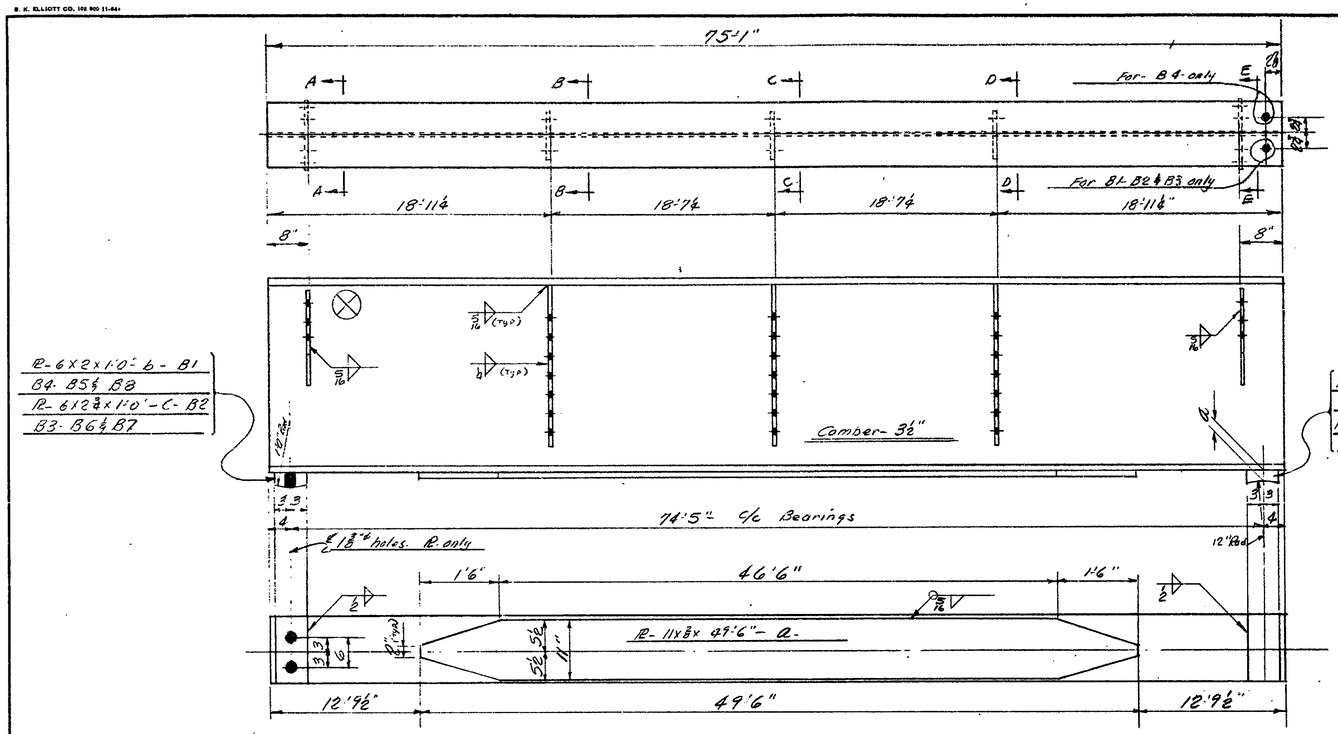
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

Left Turn Ramp at 9 Mile Road
Over I-75 IN Hazel Park.
C.A. Hull - Cont'r.
526 of 63174-A

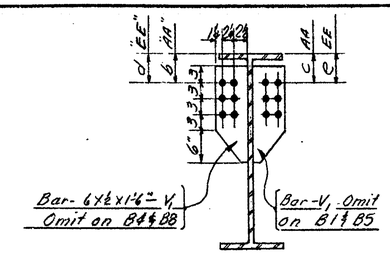
DATE	JOB NO.	SHEET
11-22-65	R24559	1 of 4

BY AWB.

B. K. ELLIOTT CO. 102 900 11-64



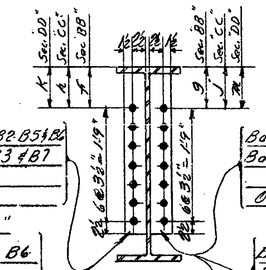
8-Beams Req'd (36 WF 150 x 75'-1") as shown & noted- Mark 281-288- incl.



Sections "AA" & "EE"

Table of Dimensions

Beam	a	B	c	d	e	f	g	h	J	k	m
B1	1¾	5"	X	5	X	7½	X	7½	X	7½	X
B2	2½	5¾	5¾	5¾	5¾	7½	8¼	7½	8¼	7½	8¼
B3	2½	5¾	5¾	5¾	5¾	8¼	7½	8¼	7½	8¼	7½
B4	1¾	X	5	X	5	X	7½	X	7½	X	7½
B5	1¾	5	X	5	X	7½	X	7½	X	7½	X
B6	2½	5½	5½	5¾	5¾	7½	8¼	7½	8¼	7½	8¼
B7	2½	5½	5½	5¾	5¾	8¼	7½	8¼	7½	8¼	7½
B8	1¾	X	5	X	5	X	7½	X	7½	X	7½



Section BB
Bar- 4x½x 2'-6 1/16"- g- B1-B2-B5 & B6
Bar- 4x½x 2'-6 13/16"- h- B3 & B7
Omit on B4 & B8

Section "CC"
Bar- g- B1-B2-B5 & B6
Bar- h- B3 & 7
Omit on B4 & B8

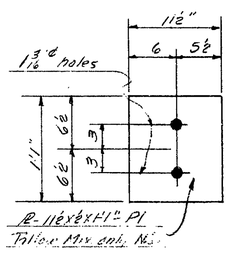
Section "DD"
Bar- g- B1-B2-B5 & B6
Bar- h- B3 & B7
Omit on B4 & B8

Section "BB"
Bar- h- B2 & B6
Bar- g B3-B4-B7 & B8
Omit on B1 & B5

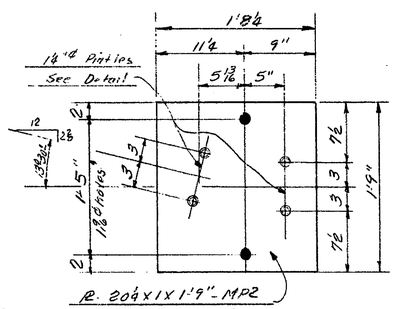
Section "CC"
Bar- h- B2 & B6
Bar- g- B3-B4-B7 & B8
Omit on B1 & B5

Section "DD"
Bar- h- B2 & B6
Bar- g- B3-B4-B7 & B8
Omit on B1 & B5

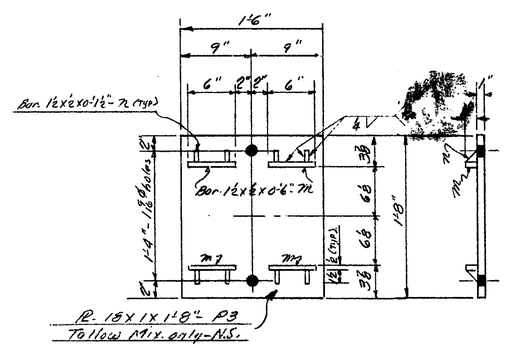
Sections "BB"-"CC" & "DD"



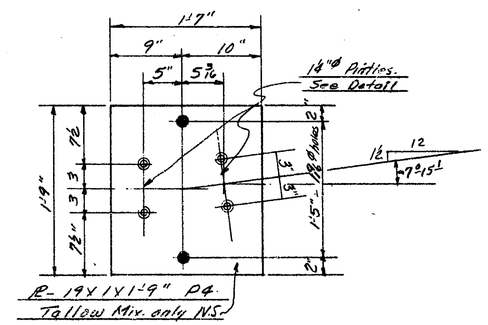
10-Mas. Plates Mk 2MP1



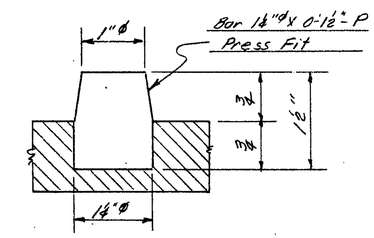
4-Masonry Plates Mark-2MP2



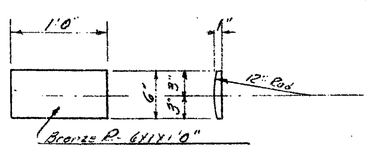
4-Masonry Plates 2MP3



4-Masonry Plates Mark 2MP4



Pintle Detail



8 Bronze Pintles Req'd- Mark-2BP1

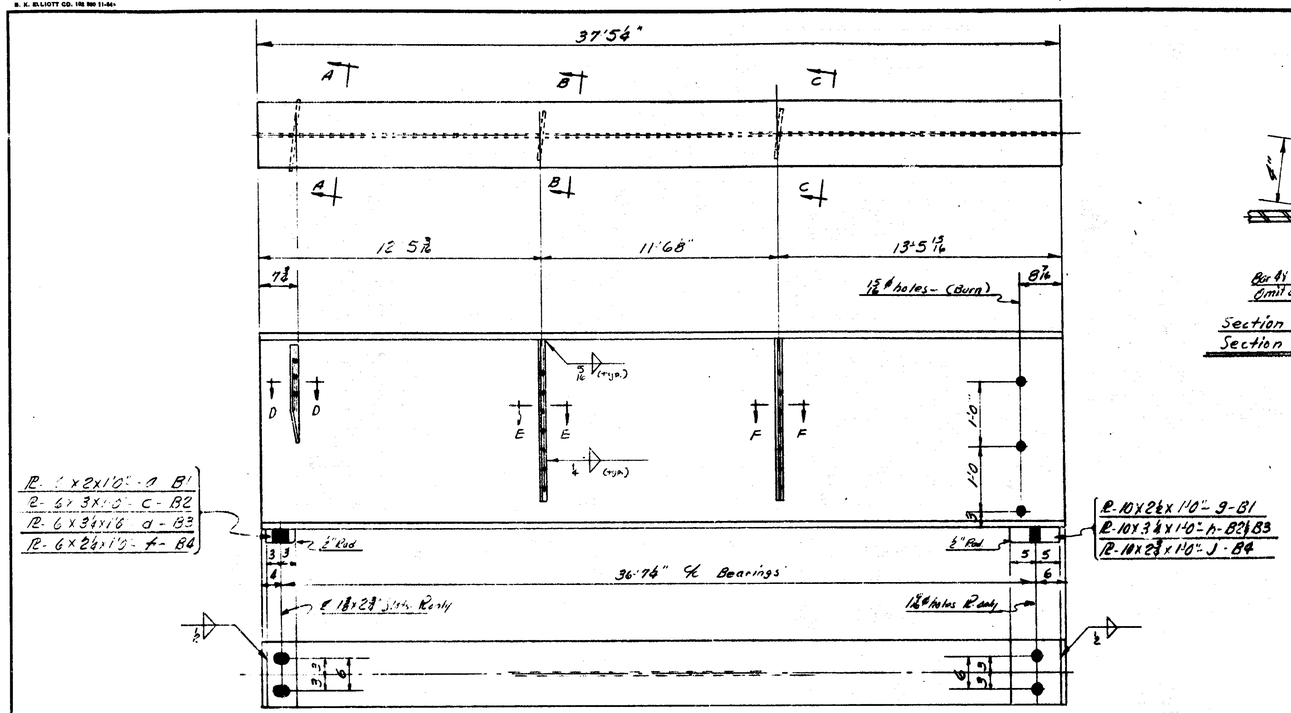
See Shop Notes on Sheet 1

REVISION			
NO.	DESCRIPTION	DATE	BY

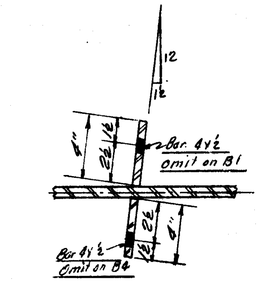
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

Left Turn Ramp- at 9 Mile Road
Over I-75- in Hazel Park
C.A. HULL- Cont'r
526 of 63174-A

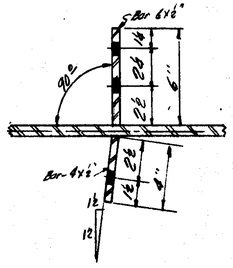
DATE 11-30-65 BY A.W.B. JOB NO. R24559 SHEET 2 of 4



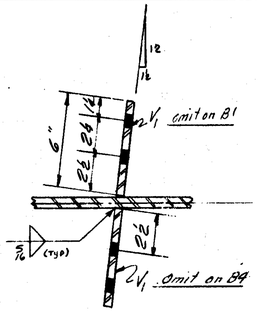
4 - Beams Req'd. (36WF135 x 37'5¼") as shown & noted - Mark 3B1-3B4-incl.



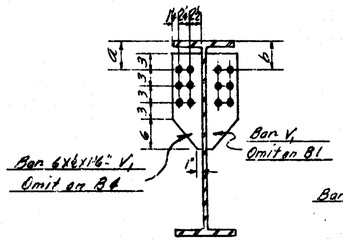
Section "EE" - B1 - B4 incl.
Section "FF" B2-B4-incl



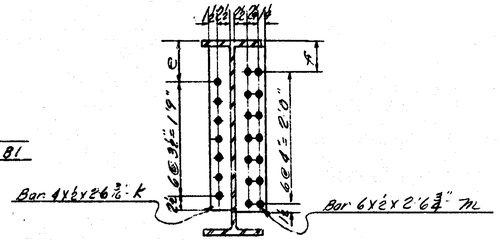
For B1 only
Section "FF"



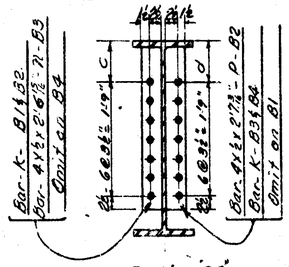
Section "DD"



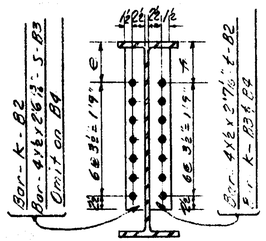
Section "AA"



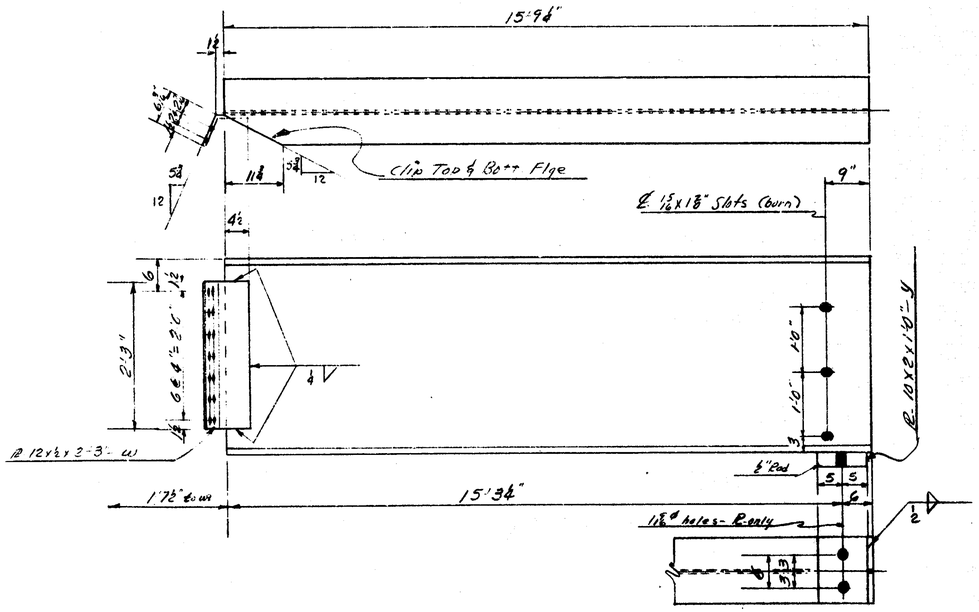
For B1 only
Section "CC"



Section "BB"



For B2-B3 & B4
Section "CC"



One Beam Req'd. (36WF135 x 15'9¼") as shown & noted - Mark 3B3

Table of Dimensions

Beam	a	b	c	d	e	f
B1	5	X	7½	X	7½	6
B2	6	6	7½	8½	7½	8¾
B3	6¼	6¼	8¼	7½	8¼	7½
B4	X	5¼	X	7½	X	7½

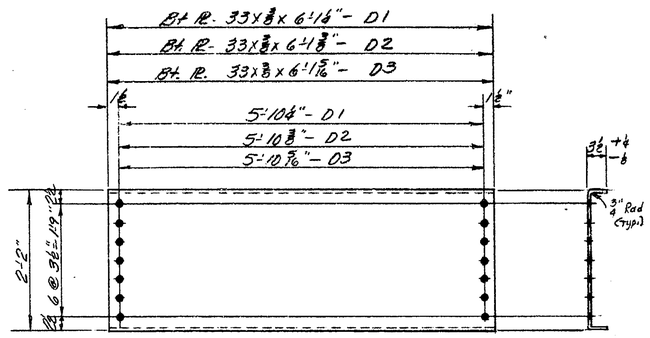
See Shop Notes on Sheet #1

REVISION			
NO.	DESCRIPTION	DATE	BY

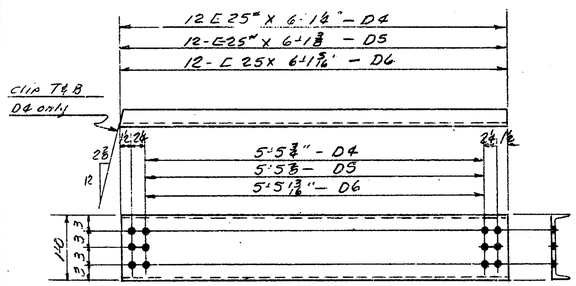
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

Left Turn Ramp at 9 Mile Road.
Over I-75 in Hazel Park
C.A. HULL - Conti
S26 of 63174-A

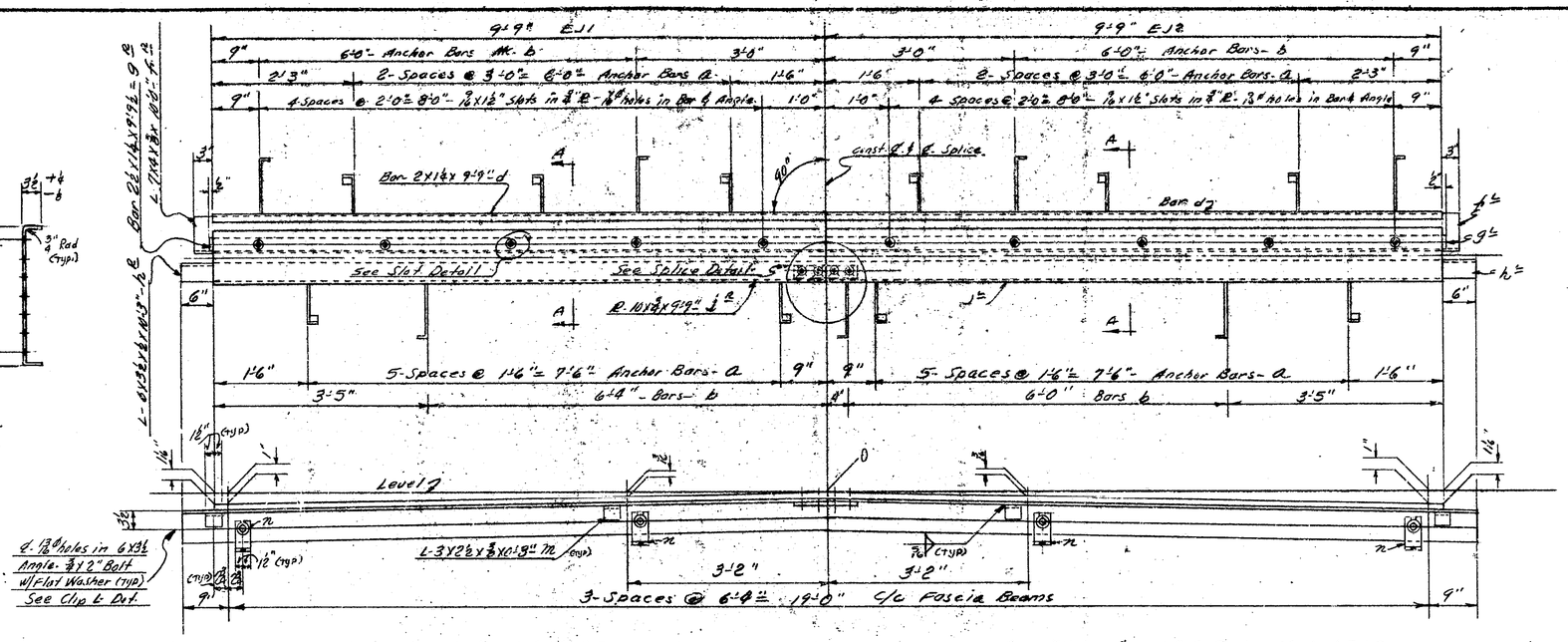
DATE
BY
JOB NO. R24559
SHEET 3 of 4



3- Diaphragms (as shown & noted) Mark-4D1
18- Diaphragms (do do) Mark-4D2
6- Diaphragms (do do) Mark-4D3

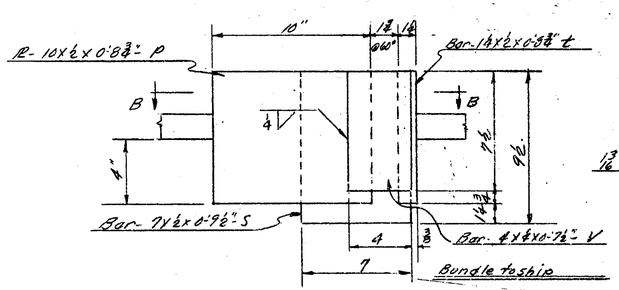


3-Diaphragms (as shown & noted) - Mark-4D4
12-Diaphragms (do do) - Mark-4D5
3-Diaphragms (do do) - Mark-4D6

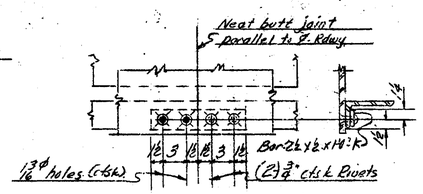


One Expansion Joint Req'd Mark 4EJ1

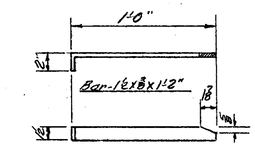
One Expansion Joint Req'd - Mark 4EJ2



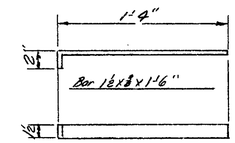
One Curb Expansion (as shown) Mark 4EJ3
One Curb Expansion (opp. hand) Mark 4EJ4



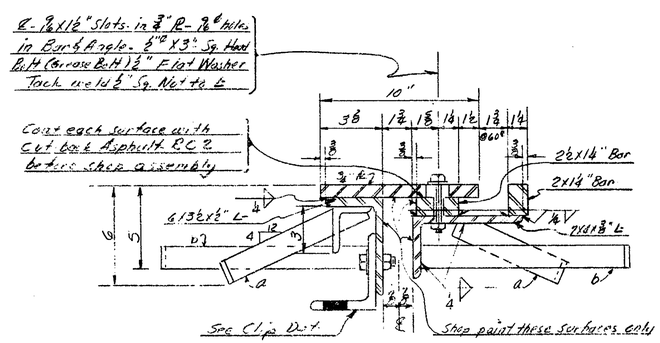
Splice Detail



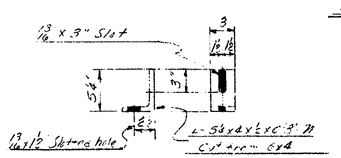
Bar "a" Details



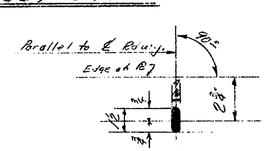
Bar "b" Details



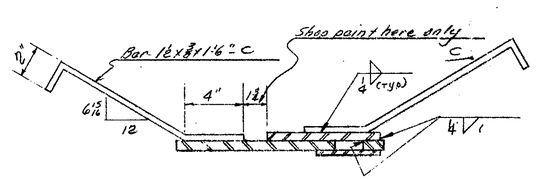
Section "AA"



Clip Angle Detail



Slot Detail



Section "BB"

Plain Material - (No Paint)

6- Bar - 2x3/8x 1'-0" (Field bend & weld)

Field Bolts

Ship	Count	
653	622	3/4"ø X 2 1/4" Hi. Strength Bolts - Hy. Hex Head & Nut
653	622	3/4"ø Hard Flat Washers

Anchor Bolts

24- 1"ø X 1'-4" Bolt - Sq. Head - Hex Nut & Std. Flat Washer

Dowels

20 - 1"ø X 1'-0" Plain Bar

4- 3/4"ø X 2 1/4" - Bolt - Square Head & Nut
2- 3/4"ø X 2 1/2" - Flat Head Bolt - Square Nut

See Shop Notes on Sheet #1

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

Left Turn Ramp At 9 Mile Road
Over I-75 in Hazel Park
C.A. HULL - Contr.
S26 of 63174 A

DATE	JOB NO.	SHEET
12-3-65	R24559	4 of 4

BY RNB

S27 of 63174
(MM 5BR-9A)

CS: 63174

ID: S27 MM 5BR-9A

STATE OF MICHIGAN

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

CONTROL SECTIONS 50111, 63082, 63101, 63174, 82022, 82023, 82024, 82025, 82112, 82192 AND 82194

STATE PROJECT: MM5BR-9A

COUNTIES: MACOMB, OAKLAND, WAYNE.

CITIES: ST. CLAIRS SHORE, SOUTHFIELD, MADISON HEIGHTS, TROY, HAZEL PARK, DEARBORN AND DETROIT

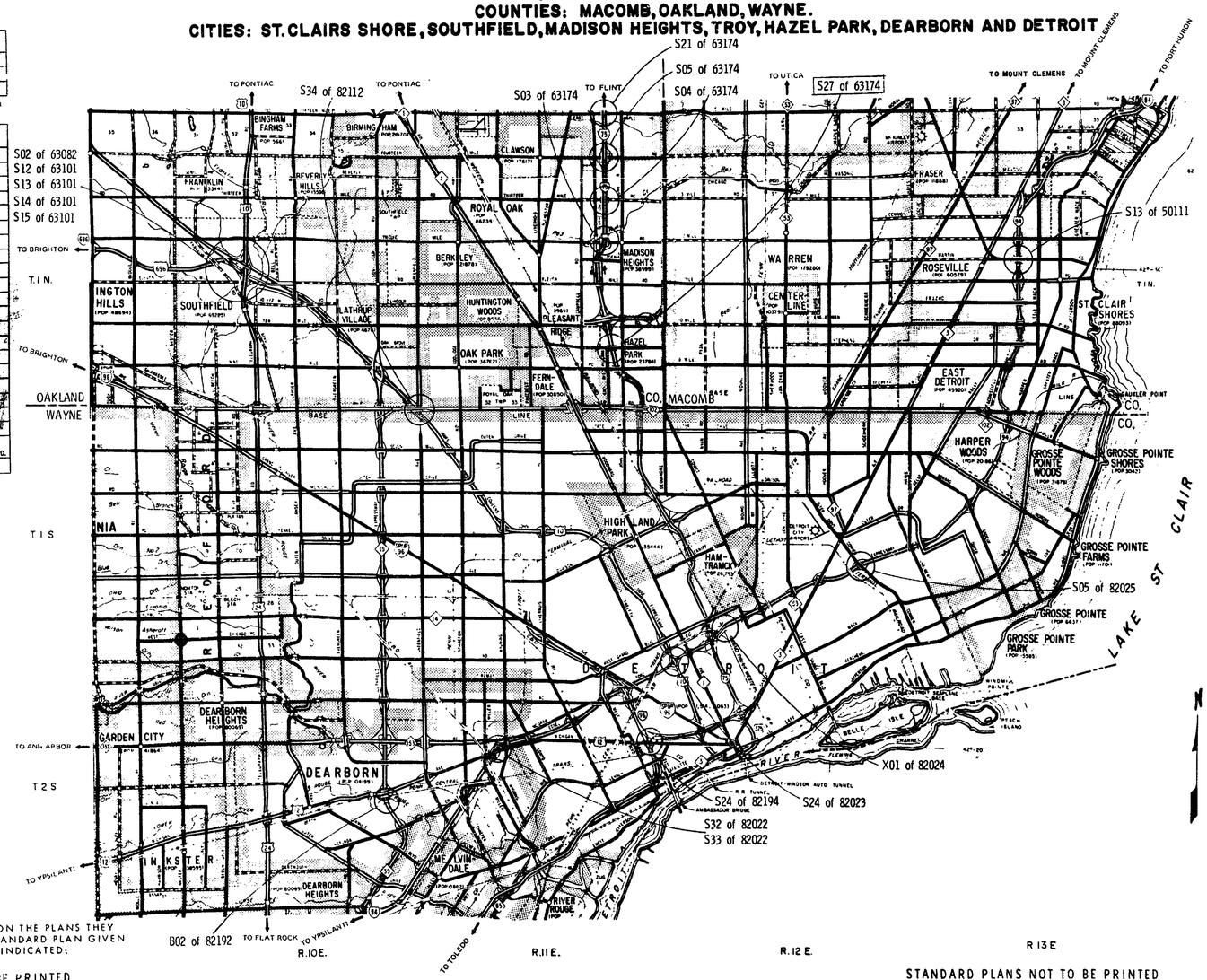
GENERAL NOTES:
EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF STATE HIGHWAY'S STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 1973 EDITION.

PLAN INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
1A THRU 1E	QUANTITY SHEET

PLAN INDEX

STRUCTURE NO.	SHEET NO.	DESCRIPTION
S13 of 50111	2	REPAIR DETAILS ABUTMENT B
S02 of 63082	2	REPAIR DETAILS ABUTMENT A
S12 of 63101	2	REPAIR DETAILS ABUTMENT A&B
S13 of 63101	2	REPAIR DETAILS ABUTMENT B
S14 of 63101	2	REPAIR DETAILS ABUTMENT A&B
S15 of 63101	2	REPAIR DETAILS ABUTMENT A
S03 of 63174	2	REPAIR DETAILS ABUTMENT A
	3	REPAIR DETAILS ABUTMENT B
S04 of 63174	2	REPAIR DETAILS ABUTMENT A
S05 of 63174	2	REPAIR DETAILS ABUTMENT B
S21 of 63174	2	REPAIR DETAILS ABUTMENT A&B
S27 of 63174	2	REPAIR DETAILS ABUTMENT A&B
S32 of 82022	2	REPAIR DETAILS ABUTMENT A
S33 of 82022	2	REPAIR DETAILS ABUTMENT A
	3	REPAIR DETAILS ABUTMENT B
S24 of 82023	2	REPAIR DETAILS ABUTMENT A
X01 of 82024	2	REPAIR DETAILS ABUTMENT A
S05 of 82025	2	REPAIR DETAILS ABUTMENT A
S34 of 82112	2	REPAIR DETAILS ABUTMENT A
B02 of 82192	2	REPAIR DETAILS ABUTMENT A UNDER E. SERVICE RD.
S24 of 82194	2	REPAIR DETAILS ABUTMENT A



NOTE:
WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED:

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE

AS CONSTRUCTED
ACCORDING TO MARKED PLANS
PREPARED BY PROJECT ENGINEER
6-77

ITEM NO.

CONTRACT FOR ABUTMENT REPAIRS

APPROVALS

CHECKED	ENGINEER-BRIDGE DESIGN	1-9-75 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF DESIGN	1-9-75 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF TRAFFIC & SAFETY	1-14-75 DATE
RECOMMENDED FOR APPROVAL	ENGINEER OF CONSTRUCTION	1/13/75 DATE

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
JOHN P. WOODFORD – DIRECTOR

APPROVED BY: DEPUTY DIRECTOR – HIGHWAYS 1/15/75 DATE

PLANS PREPARED BY MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION
SQUAD WONG

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED [redacted]

~~S13 of 50111; B02 of 63082; S12, S13, S14 & S15 of 63101; S03; S04; S05; S21 & S27 of 63174; S32 & S33 of 82022; S24 of 82023; X01 of 82024; S05 of 82025; S34 of 82112; B02 of 82192; S24 of 82194.~~

JOB NUMBER	FEDERAL PROJECT	SHEET NO.
		1

CONTROL SECTION – JOB NUMBER

~~50111, 63082, 63101, 63174, 82022, 82023, 82024, 82025, 82112, 82192, 82194.~~

S27 of 63174

S27 of 63174

ITEM	UNIT	CONTR. QUANT.	FINAL QUANT.	UNIT PRICE	FINAL COST
REPAIR OF STRUCTURAL CRACKS - TYPE A	LIN.FT.				
REPAIR OF STRUCTURAL CRACKS - TYPE B	LIN.FT.				
REPAIR OF STRUCTURAL CONCRETE	CU.FT.				
TOTAL					

ITEM	S05 of 63174 CONTR. QUANT.	REMARKS (AUTH. NO'S.)	FINAL QUANT.	FINAL COST	S21 of 63174 CONTR. QUANT.	REMARKS (AUTH. NO'S.)	FINAL QUANT.	FINAL COST
REPAIR OF STRUCTURAL CRACKS - TYPE A	14	1001	9.5		16	1001	20.5	
REPAIR OF STRUCTURAL CRACKS - TYPE B	13	1001	7.1		0	1001	.9	
REPAIR OF STRUCTURAL CONCRETE	1	1001	1.02		0	1001	.26	

ITEM	S27 of 63174 CONTR. QUANT.	REMARKS (AUTH. NO'S.)	FINAL QUANT.	FINAL COST	S32 of 82022 CONTR. QUANT.	REMARKS (AUTH. NO'S.)	FINAL QUANT.	FINAL COST
REPAIR OF STRUCTURAL CRACKS - TYPE A	43	1001	39.8		74	1001	45.9	
REPAIR OF STRUCTURAL CRACKS - TYPE B	1	1001	4.2		24	1001	4.7	
REPAIR OF STRUCTURAL CONCRETE	0	1001	.47		2	1001	5.33	

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL

CHECKED

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

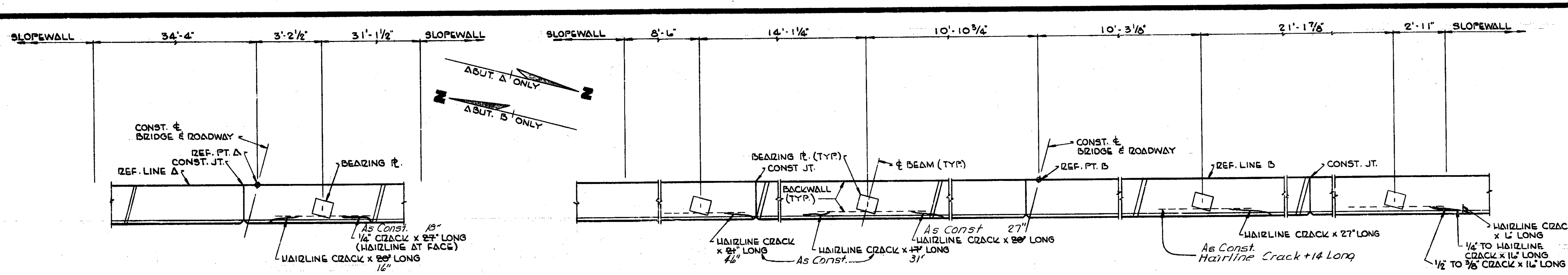
QUANTITY SHEET

SQUAD BOSS	WONG	1-7-75
DRAWN BY	GR HALL	JAN. 2, 1975
TRACED BY		
CHECKED BY	CB	1-2-75
SHEET	LC	

STATE PROJECT: MM58R-9A S27 of

CONTROL SECTIONS: ~~50111, 63082, 63101~~, 63174, ~~82022, 82023, 82024, 82025, 82112, 82192, 82194~~

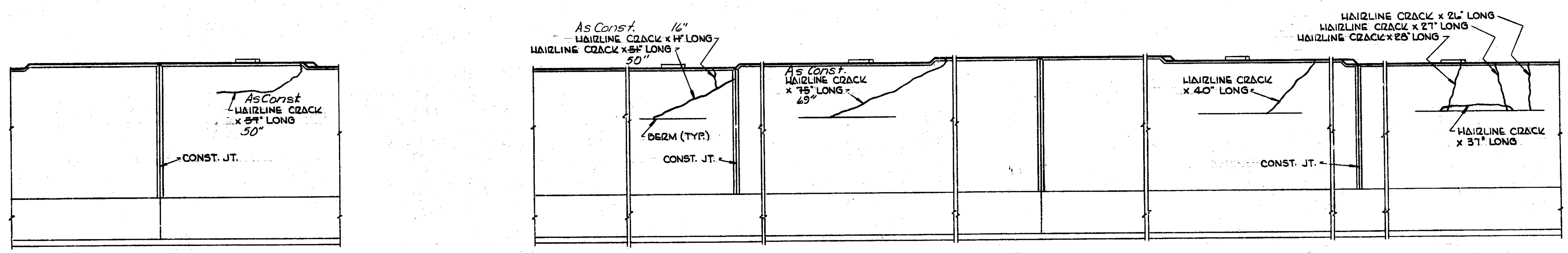
BM 1 (10-23-74)



ABUTMENT A

ABUTMENT B

PLAN OF ABUTMENT WALLS



ABUTMENT A

ABUTMENT B

ELEVATION

As Const.

*MISCELLANEOUS QUANTITIES					
ITEM	UNIT	ABUT. A	ABUT. B	TOTAL	
REPAIR OF STRUCTURAL CRACKS - TYPE A	LIN. FT.	~~9~~ 5.5	~~34~~ 29.3	~~43~~	34.8
REPAIR OF STRUCTURAL CRACKS - TYPE B	LIN. FT.	~~1.5~~	*2.7	*	4.2
Repair of Structrual Concrete	Cu. Ft.	0.34	0.13	0.47	

* QUANTITIES MAY VARY. THE EXTENT OF WORK SHALL BE AS DETERMINED BY THE ENGINEER.

GENERAL NOTES:

INJECT ALL CRACKS WITH EPOXY RESIN ADHESIVE. LARGE CRACKS SHALL BE PREPACKED WITH A SUITABLE AGGREGATE - INCIDENTAL.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
I-75 UNDER NINE MILE RD. IN HAZEL PARK.
REPAIR DETAILS
ABUTMENTS A & B

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	WONG	1-7-75
DRAWN BY	GR HALL	AUG. 7, 1974
TRACED BY		
CHECKED BY	R.P.	1-7-75
SHEET 2 OF 2		

S27 of 63174

S27 of 63174

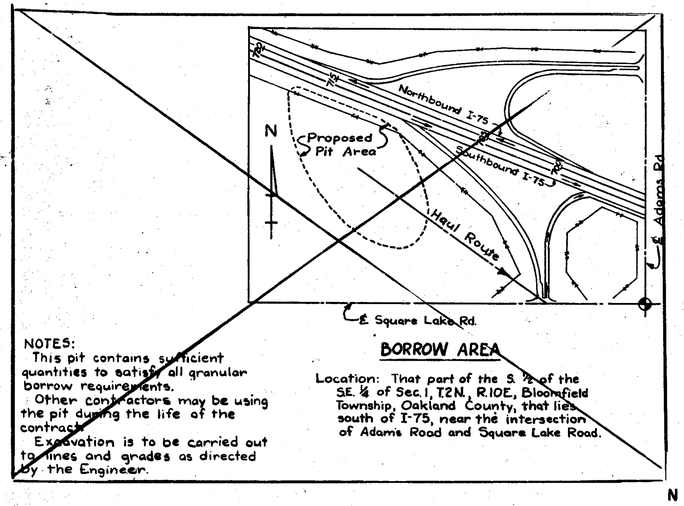
CS: 63174

ID: S27

I 63174 A, C 52

PART 1	SERVICE RDS. & UTILITIES	
PART 2	PUMPHOUSE	D02 of 63174A
PART 3	PUMPHOUSE	D03 of 63174A
PART 4	BRIDGE	S22 of 63174 A
PART 5	BRIDGE	S23 of 63174 A
PART 6	BRIDGE	S24 of 63174A
PART 7	BRIDGE	S25 of 63174A
PART 8	BRIDGE	S26 of 63174A
PART 9	BRIDGE	S27 of 63174A
PART 10	PEDESTRIAN BRIDGE	P02 of 63174 A
PART 11	PEDESTRIAN BRIDGE	P03 of 63174 A
PART 12	PEDESTRIAN BRIDGE	P04 of 63174 A
PART 13	PEDESTRIAN BRIDGE	P06 of 63174A

see Index of Drawings on next sheets (1A) & (1B)



NOTES:
This pit contains sufficient quantities to satisfy all granular borrow requirements.
Other contractors may be using the pit during the life of the contract.
Excavation is to be carried out to lines and grades as directed by the Engineer.

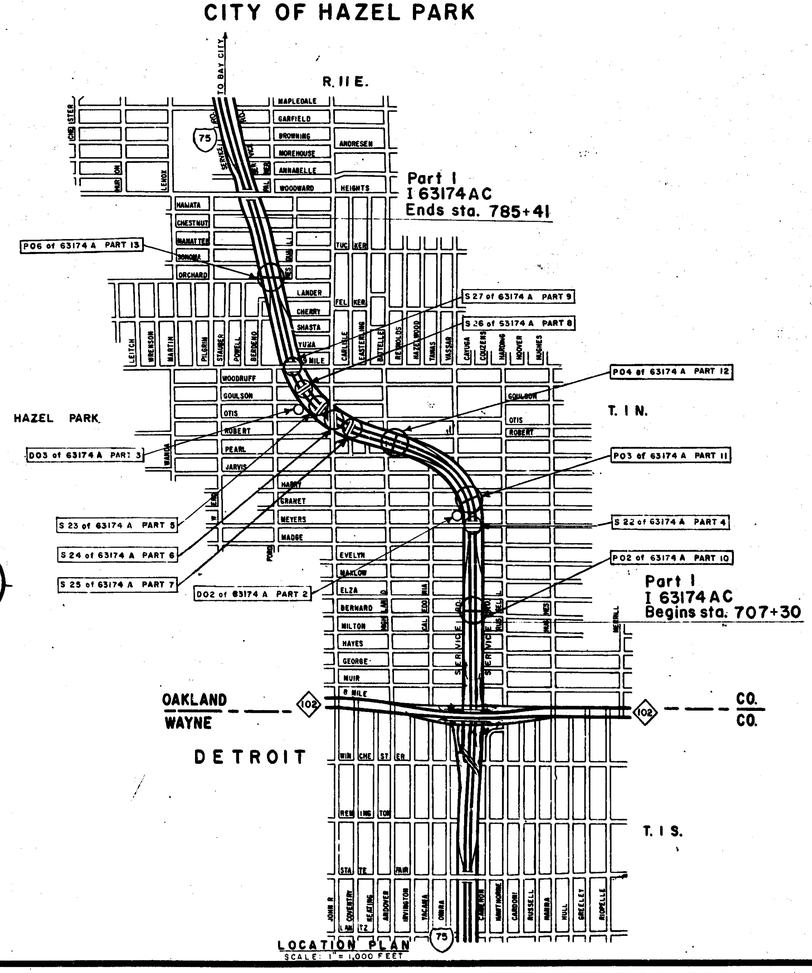
BORROW AREA

Location: That part of the S. ½ of the SE. ¼ of Sec. 1, T2N, R.10E, Bloomfield Township, Oakland County, that lies south of I-75, near the intersection of Adams Road and Square Lake Road.

MICHIGAN
STATE HIGHWAY DEPARTMENT

PLANS OF PROPOSED BRIDGES

MICHIGAN PROJECT I-75-2(84)60
STATE PROJECT I 63174A, C-52
DETROIT — BAY CITY ROAD
OAKLAND COUNTY
CITY OF HAZEL PARK



GENERAL NOTES

Except where otherwise indicated on these Plans or in the Proposal and Supplemental Specifications contained therein, all materials and workmanship shall be in accordance with the Michigan State Highway Department's Standard Specifications for Road and Bridge Construction, 1963 Edition.

The design of these structures is based on the Michigan State Highway Department's Specifications for the design of Highway Bridges, 1958 Edition. Loading and deflections are as indicated in Table below.

The character of all materials and the extent thereof as shown by borings has been obtained by methods and from sources believed to be reliable. The exactness of this information is, however, in no case guaranteed. Boring samples are on file in the Design Office at Lansing and are available for inspection.

All exposed concrete corners shown square on the Plans shall be beveled with 1/2" triangular moldings except as otherwise noted.

The stationing as shown on these Plans for the intersection of the centerline of bridge and roadway is believed to be correct. It shall, however, be checked at the time of starting construction and if the stationing shown on the plans is incorrect it shall be reported to the Design Office at Lansing and the structure shall be staked out using the actual intersection of the centerline of bridge and roadway as the control point.

STRUCTURE	DESIGN LIVE LOADINGS	ALLOW. LIVE LOAD + IMPACT DEFLECTION	
		SIMPLE OR CONT.	CANT. ARM
S 22 OF 63174A	H15-44	L/800	L/300
S 23 OF 63174A	H20-44	L/800	X
S 24 OF 63174A	H20-44	L/800	L/300
S 25 OF 63174A	H20-44	L/800	X
S 26 OF 63174A	H20-44	L/800	X
S 27 OF 63174A	H20-44	L/800	L/300

L denotes span length

CONSTRUCTED AS PER PLANS

CONTRACT FOR _____

DIVISION APPROVAL

CHECKED — ENGINEER OF DESIGN — 12-18-64 DATE
RECOMMENDED FOR APPROVAL — TRAFFIC ENGINEER — 12-18-64 DATE
RECOMMENDED FOR APPROVAL — ENGINEER OF BRIDGE & ROAD DESIGN — 12-30-64 DATE

OFFICES OF DESIGN & CONSTRUCTION

APPROVED — CONSTRUCTION ENGINEER — 1/15/65 DATE
APPROVED — CHIEF OF DESIGN — 1/15/65 DATE

STATE HIGHWAY DEPARTMENT APPROVAL

APPROVED BY STATE HIGHWAY COMMISSION
DIRECTOR OF ENGINEERING - CHIEF ENGINEER — 1/15/65 DATE

PLANS PREPARED BY MICHIGAN STATE HIGHWAY DEPARTMENT

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED [redacted]
DIVISION ENGINEER — DATE

CONTROL SECTION	FEDERAL PROJECT	SHEET NO.
		1

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE

NOTE:
Where the following items are called for on the Plans, they are to be constructed according to the Standard Plan given below opposite each item, unless otherwise indicated.

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE
SP2G	STANDARD SLOPE PAVING DETAILS

STATE PROJECT NO. P02, P03, P04, P06, D02, D03, S22, S23, S24, S25, S26 & S27 OF 63174 A

P02, P03, P04, P06, D02, D03, S22, S23, S24, S25, S26 & S27 OF 63174 A

PLAN INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
1A & 1B	INDEX SHEETS

S22 OF 63174A PART 4

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	ABUTMENT A & B DETAILS
8	PIER 1 & 3 DETAILS
9	PIER 2 DETAILS
10	SUPERSTRUCTURE DETAILS-SPANS 1 & 2
11	SUPERSTRUCTURE DETAILS-SPANS 3 & 4
12	SUPERSTRUCTURE DETAILS
13	SUPERSTRUCTURE DETAILS
14	UTILITY DETAILS
15	STRUCTURAL STEEL DETAILS
16	STRUCTURAL STEEL DETAILS
17	BEARING DETAILS
18	METAL EXPANSION JOINT DETAILS
19	STEEL REINFORCEMENT DETAILS

S23 OF 63174A PART 5

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	ABUTMENT A DETAILS
8	ABUTMENT A DETAILS
9	ABUTMENT B DETAILS
10	PIER 1 & 3 DETAILS
11	PIER 2 DETAILS
12	SUPERSTRUCTURE DETAILS
13	SUPERSTRUCTURE DETAILS
14	SUPERSTRUCTURE DETAILS
15	SUPERSTRUCTURE DETAILS
16	UTILITY DETAILS
17	STRUCTURAL STEEL DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	BEARING DETAILS
21	SHEAR DEVELOPER DETAILS
22	METAL EXPANSION JOINT DETAILS
23	STEEL REINFORCEMENT DETAILS

S24 OF 63174A PART 6

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	ABUTMENT DETAILS
8	ABUTMENT DETAILS
9	PIER 1 DETAILS
10	PIER 3 DETAILS
11	PIER 1 & 3 DETAILS
12	PIER 2 DETAILS
13	PIER 2 DETAILS
14	SUPERSTRUCTURE DETAILS
15	SUPERSTRUCTURE DETAILS
16	SUPERSTRUCTURE DETAILS
17	SUPERSTRUCTURE DETAILS
18	SUPERSTRUCTURE DETAILS
19	UTILITY DETAILS
20	STRUCTURAL STEEL DETAILS
21	STRUCTURAL STEEL DETAILS
22	STRUCTURAL STEEL DETAILS
23	BEARING DETAILS
24	SHEAR DEVELOPER DETAILS
25	METAL EXPANSION JOINT DETAILS
26	STEEL REINFORCEMENT DETAILS

S25 OF 63174A PART 7

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	BILL OF MATERIAL
6	ABUTMENT A DETAILS
7	ABUTMENT B DETAILS
8	PIERS 1 & 3 DETAILS
9	PIER 2 DETAILS
10	SUPERSTRUCTURE DETAILS
11	SUPERSTRUCTURE DETAILS
12	SUPERSTRUCTURE DETAILS
13	UTILITY DETAILS
14	STRUCTURAL STEEL DETAILS
15	STRUCTURAL STEEL DETAILS
16	STRUCTURAL STEEL DETAILS
17	SHEAR DEVELOPER DETAILS
18	BEARING DETAILS
19	METAL EXPANSION JOINT DETAILS
20	STEEL REINFORCEMENT DETAILS

S26 OF 63174A PART 8

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	BILL OF MATERIAL
6	ABUTMENT DETAILS
7	ABUTMENT DETAILS
8	PIER DETAILS
9	PIER DETAILS
10	SUPERSTRUCTURE DETAILS
11	SUPERSTRUCTURE DETAILS
12	SUPERSTRUCTURE DETAILS
13	SUPERSTRUCTURE DETAILS
14	UTILITY DETAILS
15	STRUCTURAL STEEL DETAILS
16	STRUCTURAL STEEL DETAILS
17	STRUCTURAL STEEL DETAILS
18	METAL EXPANSION JOINT DETAILS
19	STEEL REINFORCEMENT DETAILS

S27 OF 63174A PART 9

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	BILL OF MATERIAL
6	ABUTMENT DETAILS
7	PIER DETAILS
8	PIER DETAILS
9	PIER DETAILS
10	SUPERSTRUCTURE DETAILS
11	SUPERSTRUCTURE DETAILS
12	SUPERSTRUCTURE DETAILS
13	SUPERSTRUCTURE DETAILS
14	SUPERSTRUCTURE DETAILS
15	STRUCTURAL STEEL DETAILS
16	STRUCTURAL STEEL DETAILS
17	METAL EXPANSION JOINT DETAILS
18	STEEL REINFORCEMENT DETAILS
R11J R12H	BRIDGE RAILING, BAR CHAIR, MOLDING AND BEVEL DETAILS

D02 OF 63174A PART 2

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	GENERAL PLAN OF STRUCTURE
4	BILL OF MATERIAL
5	SUMP DETAILS
6	SUMP DETAILS
7	RAKE ROOM DETAILS
8	MACHINE ROOM & SURGE TANK DETAILS
9	MACHINE ROOM WALLS DETAILS
10	ROOF DETAILS
11	BEAMS & MISCELLANEOUS DETAILS
12	MISCELLANEOUS DETAILS
13	MECHANICAL & ELECTRICAL DETAILS
14	STEEL REINFORCEMENT DETAILS

D03 OF 63174A PART 3

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	GENERAL PLAN OF STRUCTURE
4	BILL OF MATERIAL
5	PUMPHOUSE DETAILS
6	PUMPHOUSE DETAILS
7	PUMPHOUSE DETAILS
8	PUMPHOUSE DETAILS
9	PUMPHOUSE DETAILS
10	PUMPHOUSE DETAILS
11	MISCELLANEOUS DETAILS
12	MECHANICAL & ELECTRICAL DETAILS
13	STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

APPROVED C. D. Beukema 12/18/64
ASST. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Trahey 12.18.64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	H.L.M.	6-9-64
TRACED BY		
CHECKED BY	AOS	11-13-64
SHEET 1A OF 2[illegible]		

P02, P03, P04, P06, D02, D03, S22, S23, S24, S25, S26 & S27 OF 63174 A

PLAN INDEX

P02 OF 63174A PART 10

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	PIERS 1 & 5 DETAILS
15	PIERS 2, 3, & 4 DETAILS
16	SUPERSTRUCTURE DETAILS
17	STRUCTURAL STEEL DETAILS
18	STRUCTURAL STEEL DETAILS
19	MISCELLANEOUS DETAILS
20	RAILING DETAILS-RAMP A
21	RAILING DETAILS-RAMP B
22	RAILING DETAILS-SPANS 1, 2, 3 & 4
23	STEEL REINFORCEMENT DETAILS

P03 OF 63174A PART 11

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	RAMP B DETAILS
16	PIERS 1 & 5 DETAILS
17	PIERS 2, 3 & 4 DETAILS
18	SUPERSTRUCTURE DETAILS
19	STRUCTURAL STEEL DETAILS
20	STRUCTURAL STEEL DETAILS
21	MISCELLANEOUS DETAILS
22	RAILING DETAILS-RAMP A
23	RAILING DETAILS-RAMP B
24	RAILING DETAILS-SPANS 1, 2, 3 & 4
25	STEEL REINFORCEMENT DETAILS

P04 OF 63174A PART 12

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	PIERS 1 & 5 DETAILS
16	PIERS 2, 3 & 4 DETAILS
17	SUPERSTRUCTURE DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	MISCELLANEOUS DETAILS
21	RAILING DETAILS-RAMP A
22	RAILING DETAILS-RAMP B
23	RAILING DETAILS-SPANS 1, 2, 3 & 4
24	STEEL REINFORCEMENT DETAILS
25	EXISTING PUMPHOUSE DETAILS

P06 OF 63174A PART 13

SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	GENERAL PLAN OF STRUCTURE
6	BILL OF MATERIAL
7	RAMP A DETAILS
8	RAMP A DETAILS
9	RAMP A DETAILS
10	RAMP A DETAILS
11	RAMP B DETAILS
12	RAMP B DETAILS
13	RAMP B DETAILS
14	RAMP B DETAILS
15	PIERS 1 & 5 DETAILS
16	PIERS 2, 3 & 4 DETAILS
17	SUPERSTRUCTURE DETAILS
18	STRUCTURAL STEEL DETAILS
19	STRUCTURAL STEEL DETAILS
20	MISCELLANEOUS DETAILS
21	RAILING DETAILS-RAMPS A & B
22	RAILING DETAILS-SPANS 1, 2, 3 & 4
23	STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

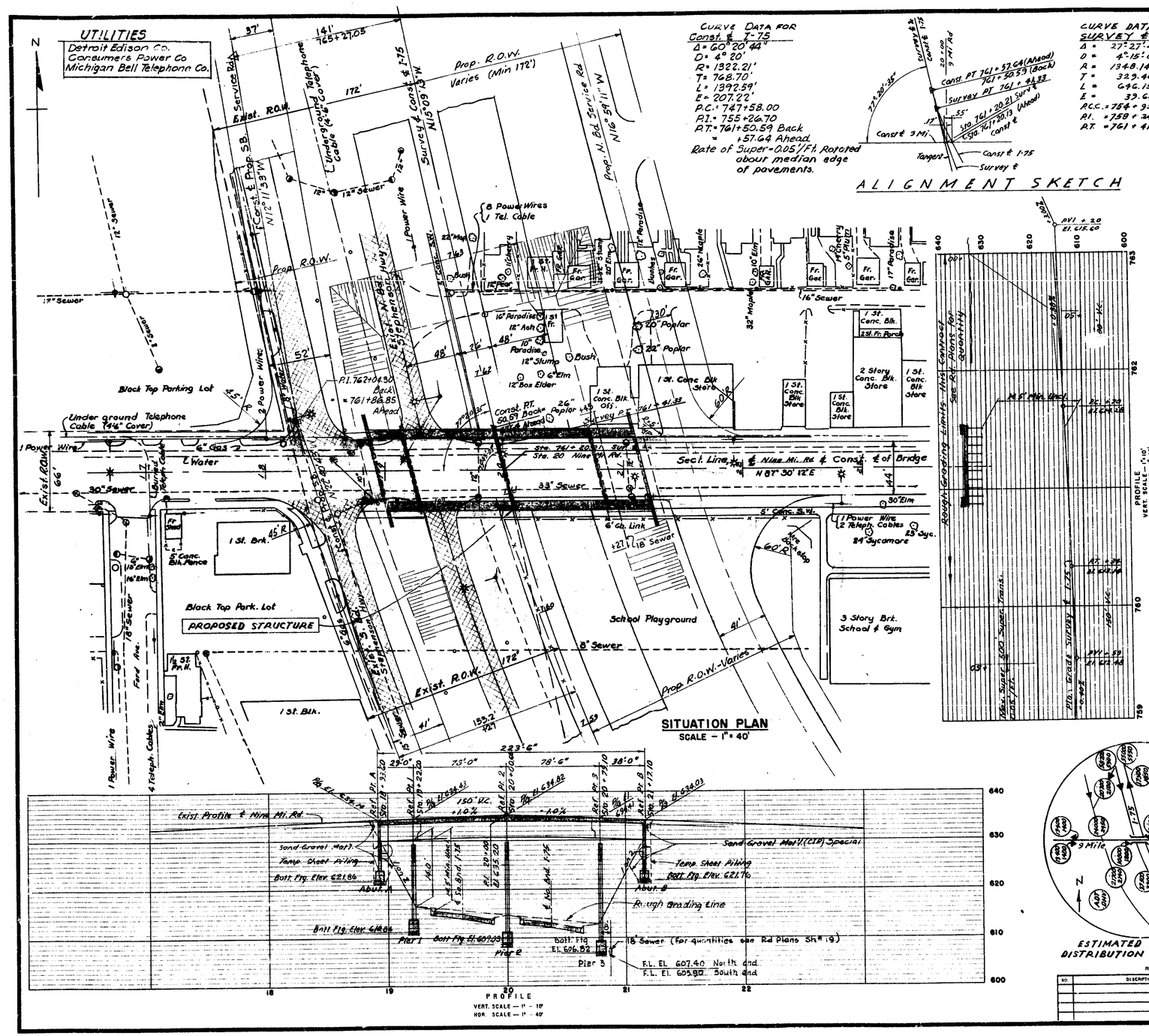
INDEX OF DRAWINGS

APPROVED C. D. Beukema 12/18/64
ASS'T. DESIGN SUPERVISING ENGINEER

APPROVED J. C. Trahor 12.18.64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Goetsch	6-11-64
DRAWN BY	H.L.M.	11-2-64
TRACED BY		
CHECKED BY	A.L.S.	11-12-64
SHEET [illegible] OF 26		

P02, P03, P04, P06, D02, D03, S22, S23, S24, S25, S26 & S27 OF 63174A

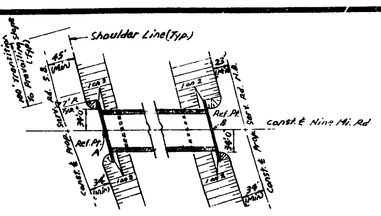


SITUATION PLAN
SCALE — 1" = 40'

CURVE DATA FOR
Const. ℄ I-75
Δ = 60° 20' 44"
D = 4° 20'
R = 1322.21'
T = 768.70'
L = 1392.59'
E = 207.22'
P.C. = 747+58.00
P.I. = 755+26.70
P.T. = 761+50.59 Back
= +57.64 Ahead
Rate of Super = 0.05'/Ft. Rotated about median edge of pavements.

ALIGNMENT SKETCH

CURVE DATA FOR
SURVEY ℄ I-75
Δ = 27° 27' 40" Rt.
D = 4° 15' 00"
R = 1348.14'
T = 323.40'
L = 646.15'
E = 33.68
P.C.C. = 754+95.18
P.I. = 759+34.58
P.T. = 761+41.33



APPROACH GRADING PLAN

NOTE

The work covered by these plans includes construction of the proposed bridge, placing sand-gravel material in front and behind abutments together with abutment footing drains, and placing slope paving to the limits shown.

Any removal of basement walls lying within limits of foundation excavation for abutments are included with foundation excavation.

Work not listed above (with the exception of utility relocations and building and fence removals) is either included in Service Roads Plans which are a part of this contract or is included in a future contract for Final Expressway Grading, Drainage Structures and Paving.

Work on this Bridge is not to be initiated until Stephenson Highway traffic has been routed on proposed I-75 Service Roads at the site, and provisions have been made for handling cross-road traffic (See Service Roads Plans).

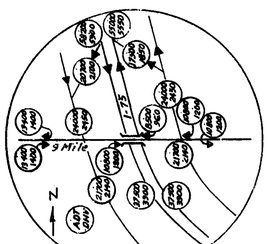
The Contractor shall locate all active underground utilities prior to starting work and shall conduct his operations in such a manner as to insure that those utilities not requiring relocation will not be disturbed.

Tree removal, which is included in Service Road Contract, and relocation of utilities is to be done prior to starting work on the structure.

Topography shown hereon represents conditions existing at the time the field survey was made. However, these conditions will have been materially altered by the operation of others before work on this structure will be initiated.

Where substructure units are located in areas presently occupied by basements, loose or unsuitable material shall be removed and replaced with granular backfill up to the bottom of proposed sub-footing and compacted 100% maximum weight. Any basement walls occupying area of proposed footing or within 5' of proposed footing shall be removed and replaced with granular fill as above (Incidental).

The Bridge Contractor shall be responsible for providing adequate protection of bottoms and walls of the pier footing excavations against damage by personnel, equipment and water. (Applicable for piers adjacent to Expressway)



ESTIMATED TRAFFIC DISTRIBUTION FOR 1983

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

I-75 (CHRYSLER X-WAY) CROSSING UNDER 9 MILE ROAD IN HAZEL PARK

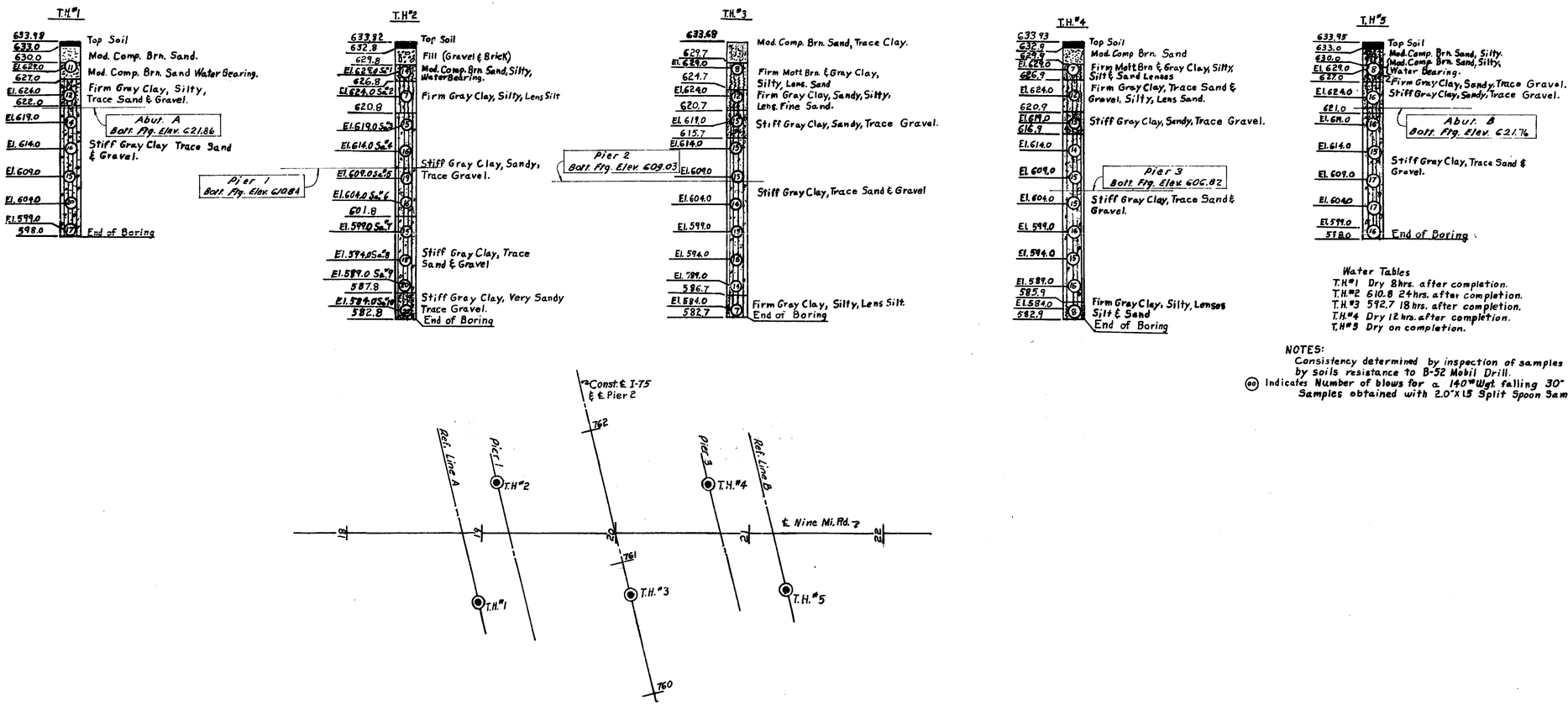
GENERAL PLAN OF SITE

APPROVED: [signature] 12-3-64
ASST. DESIGN SUPERVISING ENGINEER

APPROVED: [signature] 12-18-64
DESIGN SUPERVISING ENGINEER

SQUAD BOSS	Deegan	6-22-64
DRAWN BY	Acc.	9-25-63
TRACED BY		
CHECKED BY		
SHEET	2 of 13	

S27 of 63174 A



Water Tables

T.H.#1 Dry 8hrs. after completion.
T.H.#2 610.8 24hrs. after completion.
T.H.#3 592.7 18hrs. after completion.
T.H.#4 Dry 12 hrs. after completion.
T.H.#5 Dry on completion.

NOTES:

Consistency determined by inspection of samples and substantiated by soils resistance to B-52 Mobil Drill.

(00) Indicates Number of blows for a 140# Wgt. falling 30" to drive sampler 12". Samples obtained with 2.0"x1.5 Split Spoon Sampler.

MICHIGAN STATE HIGHWAY DEPARTMENT

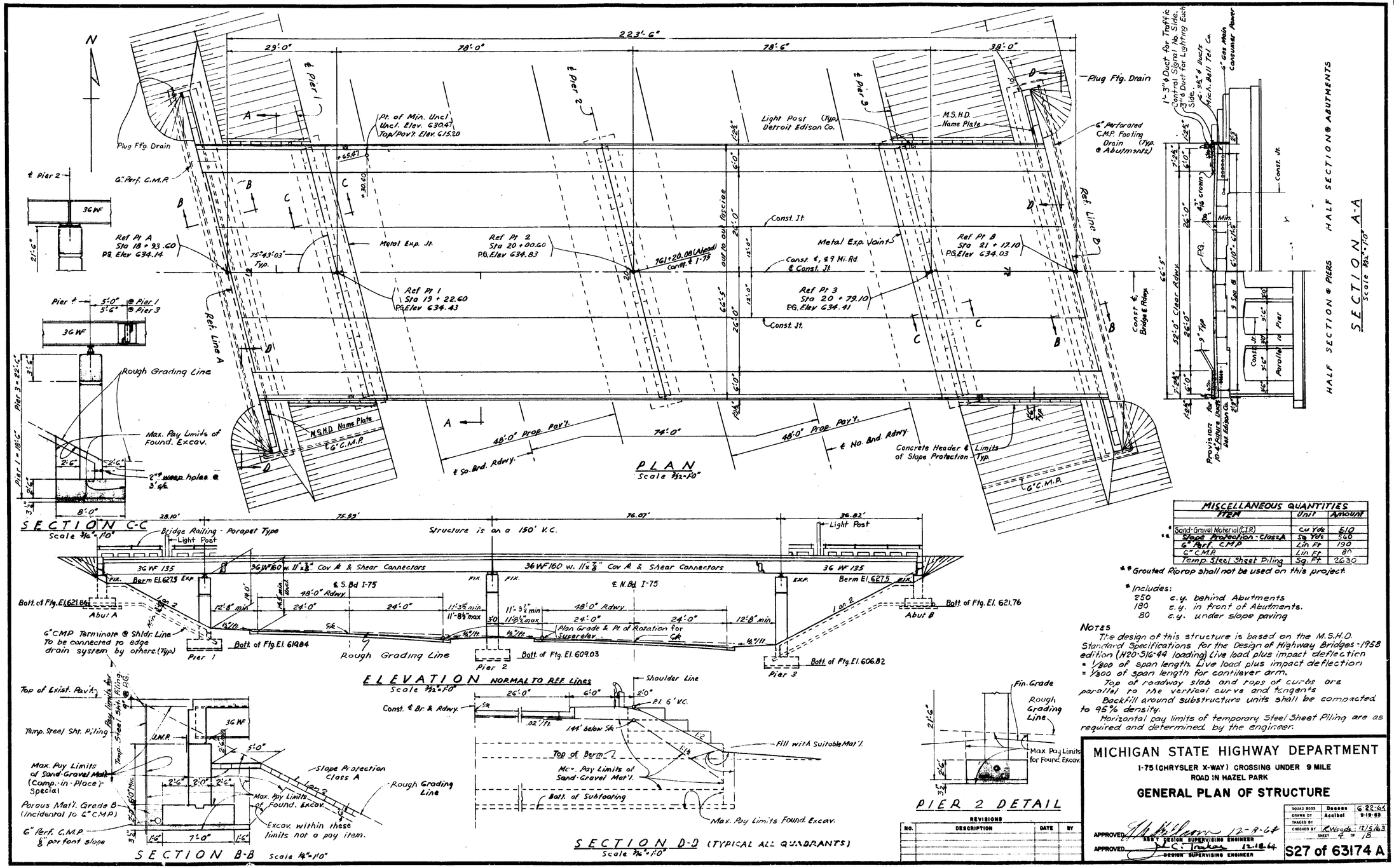
LOG OF BORINGS

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Decass	6-22-64
DRAWN BY	G. Holben	
TRACED BY	G.H.	
CHECKED BY	R. Woods	8/27/63
SHEET	3 OF 18	

S27 of 63174A



MISCELLANEOUS QUANTITIES		
ITEM	Unit	Amount
* Sand-Gravel Material (C.I.P.)	Cu Yds	610
** Slope Protection - Class A	Sq Yds	560
6" Perf. CMP	Lin Ft	190
6" C.M.P.	Lin Ft	80
Temp. Steel Sheet Piling	Sq. Ft.	2630

** Grouted Riprap shall not be used on this project.

* Includes:
250 c.y. behind Abutments
180 c.y. in front of Abutments.
80 c.y. under slope paving

NOTES

The design of this structure is based on the M.S.H.D. Standard Specifications for the Design of Highway Bridges - 1958 edition (H20-S16-44 loading) Live load plus impact deflection = 1/800 of span length. Live load plus impact deflection = 1/300 of span length for cantilever arm.

Top of roadway slab and tops of curbs are parallel to the vertical curve and tangents.

Backfill around substructure units shall be compacted to 95% density.

Horizontal pay limits of temporary Steel Sheet Piling are as required and determined by the engineer.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

1-75 (CHRYSLER X-WAY) CROSSING UNDER 9 MILE ROAD IN HAZEL PARK

GENERAL PLAN OF STRUCTURE

SQUAD BOSS	Deegan	6-22-64
DRAWN BY	Aeslbol	9-19-63
TRACED BY		
CHECKED BY	R. Woods	12/5/63
SHEET 4 OF 18		

APPROVED: ASST. DESIGN SUPERVISING ENGINEER 12-9-64

APPROVED: DESIGN SUPERVISING ENGINEER 12-18-64

S27 of 63174 A

MICHIGAN STATE HIGHWAY DEPARTMENT

BILL OF MATERIAL

ITEM	UNIT	QUANTITY	AS CONST.		AUTH. NO.	NET CHANGE
Unclassified Excavation	Cu Yds.	1040	1,047.3	✓	1004	+ 7.3
Temporary Steel Sheet Piling	Sq. Ft.	2630	2,875	✓	1006	- 245
Grade A(6A) Concrete Substructure	Cu. yds.	288.3	288.3	✓		
Grade A(6AA) Concrete Substructure	Cu. yds.	295.7	267.9	✓	1005	- 27.8
Protective Sealant Coating for Concrete	Sq. ft.	200	200	✓		
Grade A(6AA) Concrete Superstructure	Cu. yds.	497.8	497.8	✓		
Water Reducing Retarding Admixture	Gals.	58	0	✓	1006	- 58
5/8" Concrete Inserts	Each	92	92	✓		
Steel Reinforcement	Lbs.	153,710	153,710	✓		
Structural Steel - Furnishing & Fabricating	Lbs.	427,500	426,109	✓	1006	- 1391
Structural Steel - Erection	Lbs.	427,500	426,109	✓	1006	- 1391
Shear Developers	Lump Sum	L.S.	1	✓		
Structural Tile 12 x 12 x 6	Each	2170	2,140	✓	1006	- 30
1/2" Joint Filler	Sq. Ft.	194	209	✓	1006	+ 15
3/4" Joint Filler	Sq. Ft.	85	88	✓	1006	+ 3
Hot-Poured Rubber - Asphalt Type Filler	Lin. Ft.	204	204	✓		
Joint Waterproofing	Sq. ft.	388	388	✓		
Copper	Lbs.	225	225	✓		
Field Painting	Lump Sum	L.S.	1	✓		
Bridge Railing - Parapet Type	Lin. Ft.	439	442	✓	1007	+ 3
3" Fiber Conduit	Lin. Ft.	224	224	✓		
6" Corrugated Metal Pipe	Lin. Ft.	80	98	✓	1007	+ 18
6" Perforated Corrugated Metal Pipe	Lin Ft.	190	196	✓	1006	+ 6
Slope Protection - Class A	Sq yds	560	547	✓	1007	- 13
Sand Gravel Material (C.I.P.)	Cu. Yds	510	512.7	✓	1006	+ 2.7
10" Pipe Sleeves - Placed	Each	2	2	✓		

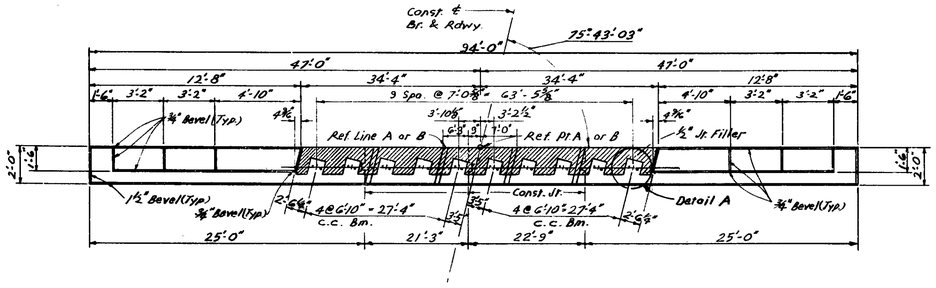
PLAN EXTRAS

~~DATE~~ AUTH. NO.	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL
2001	CONCRETE FILL - BUDGET	CYDS.		14.0 ✓
2002	SPECIAL CONCRETE PROTECTION	CYDS.		530.2 ✓
2003	LINSEED OIL - WHITE GAS DECK	GAL.		17.0 ✓
2004	CONCRETE FILL - BALANCE	CYDS.		1.1 ✓
2005	ERECT TEMPORARY HAND RAILING	LFT.		439.0 ✓

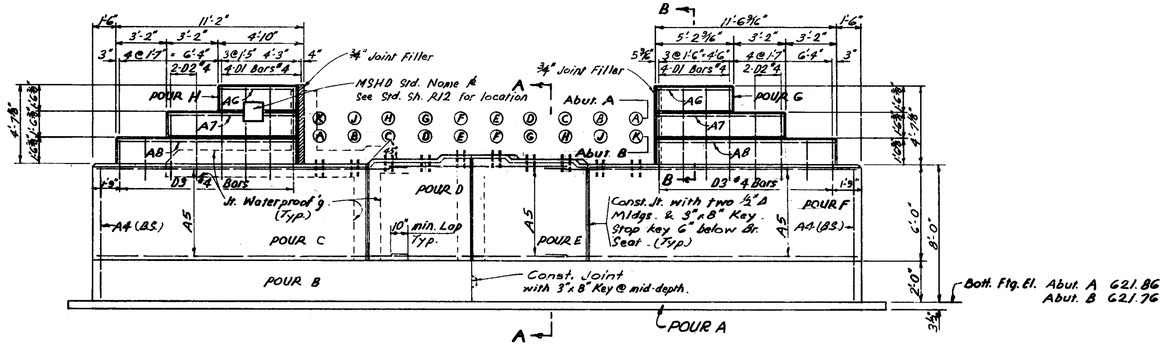
CHECKED CONTRACT SECTION DATE 6/12/68

SQUAD BOSS	Decess	6-22-64
DRAWN BY	K.M.R.	5-12-64
TRACED BY		
CHECKED BY	R. Woods	6/18/64
SHEET 5 OF 18		

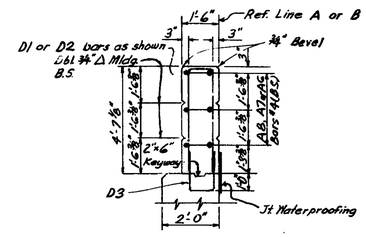
I-75-2(84) S27 OF 63174A B49 C52



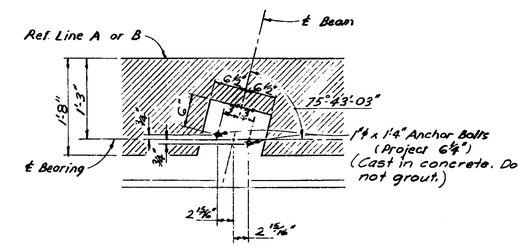
PLAN



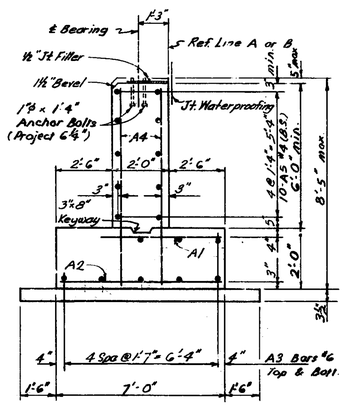
ELEVATION



SECTION B-B



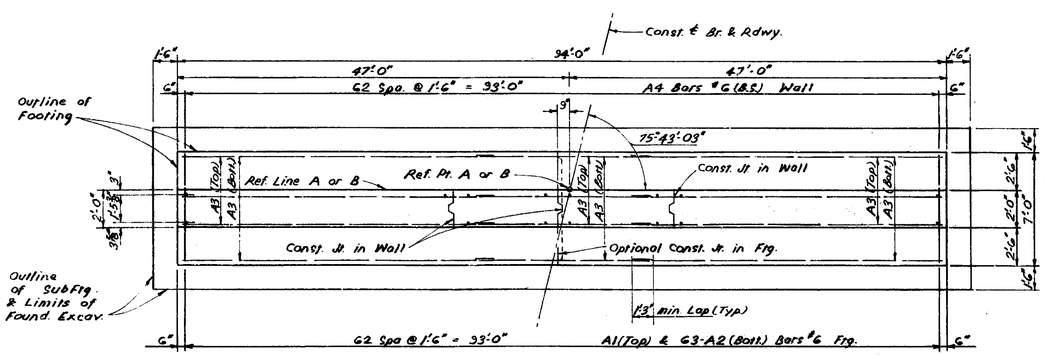
DETAIL A



SECTION A-A

BOLSTER ELEVATION

Abut. A	(K) and (J)	(H) and (G)	(F) and (E)	(D) and (C)	(B) and (A)
Elev.	630.01	630.15	630.28	630.06	629.86
Abut. B	(A) and (B)	(C) and (D)	(E) and (F)	(G) and (H)	(J) and (K)
Elev.	629.90	630.05	630.18	629.96	629.76



PLAN OF FOOTING

CONCRETE QUANTITIES				
	Abutment A		Abutment B	
Pour	Grade A(GA)	Grade A(GAA)	Grade A(GA)	Grade A(GAA)
A	10.4		10.4	
B	48.7		48.7	
C		15.1		15.1
D		13.1		13.1
E		14.0		14.0
F		14.8		14.8
G		2.0		2.0
H		2.0		2.0
Tot.	59.1	61.0	59.1	61.0
Total Grade A(GA) Concrete			118.2	Cu. Yds.
Total Grade A(GAA) Concrete			122.0	Cu. Yds.

MISCELLANEOUS QUANTITIES				
Item	Unit	Abut. A	Abut. B	Total
1/2" Joint Filler	Sq. Ft.	97	97	194
3/4" Joint Filler	Sq. Ft.	12	12	24
Joint Waterproofing	Sq. Ft.	194	194	388
Foundation Excavation	Cu. Yd.	314	346	660

NOTES

For bevel and molding details see Std. Sheet R11 or R12

Slopewalls are to be cast after superstructure is complete to tops of sidewalks.

Anchor Bolts are to be set accurately to a template.

The bridge seat shall be finished to a true plane at the elevation shown and shall not vary more than 1/8" under a ten foot straight edge nor more than 1/16" under any bearing.

B.S. = Both Sides

This design is based on a maximum foundation pressure of 2160 pounds per square foot based on dead load and live load and a maximum average foundation pressure of 1400 pounds per square foot based on dead load only.

Abutments A and B are similar except as shown.

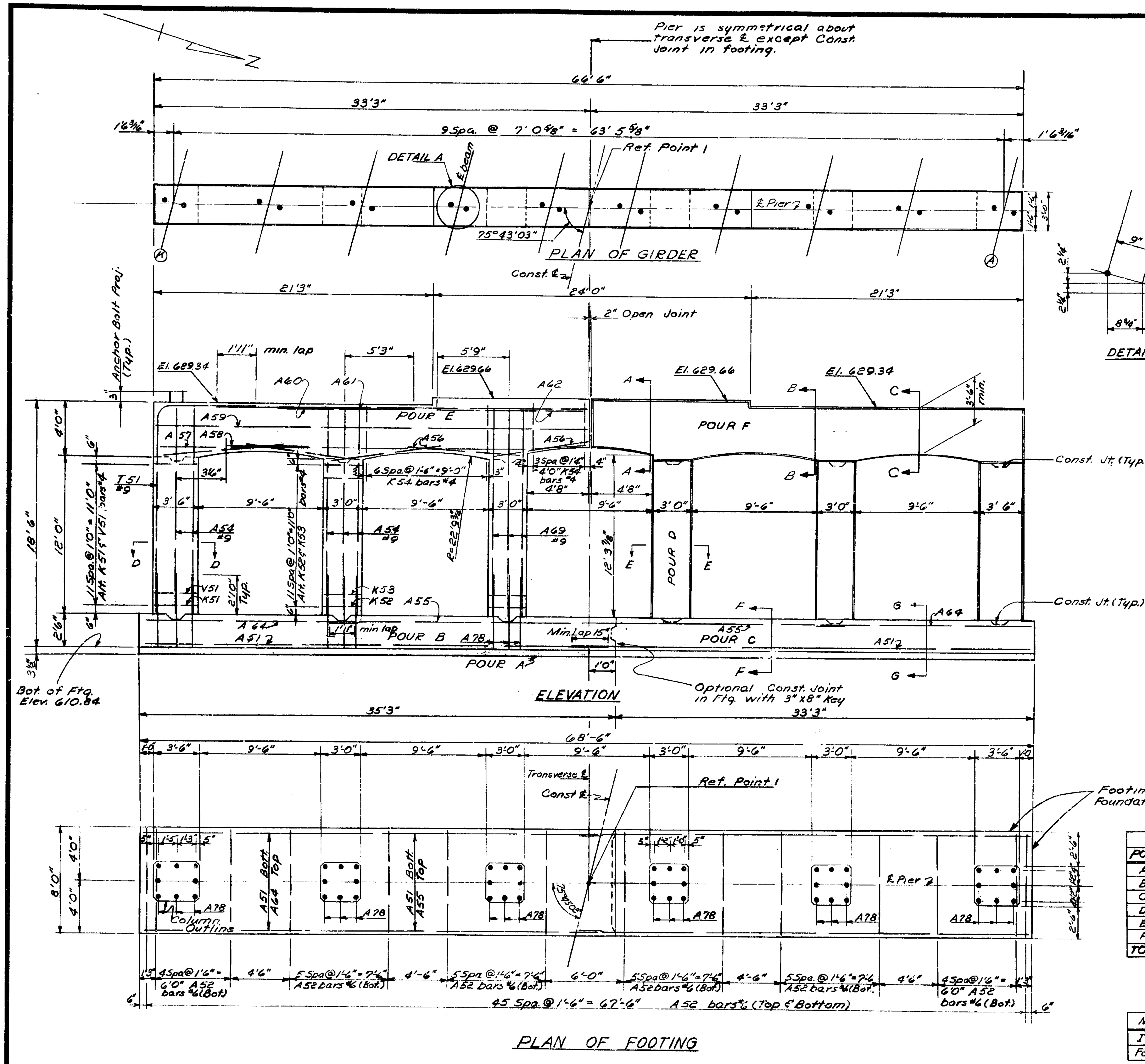
MICHIGAN STATE HIGHWAY DEPARTMENT

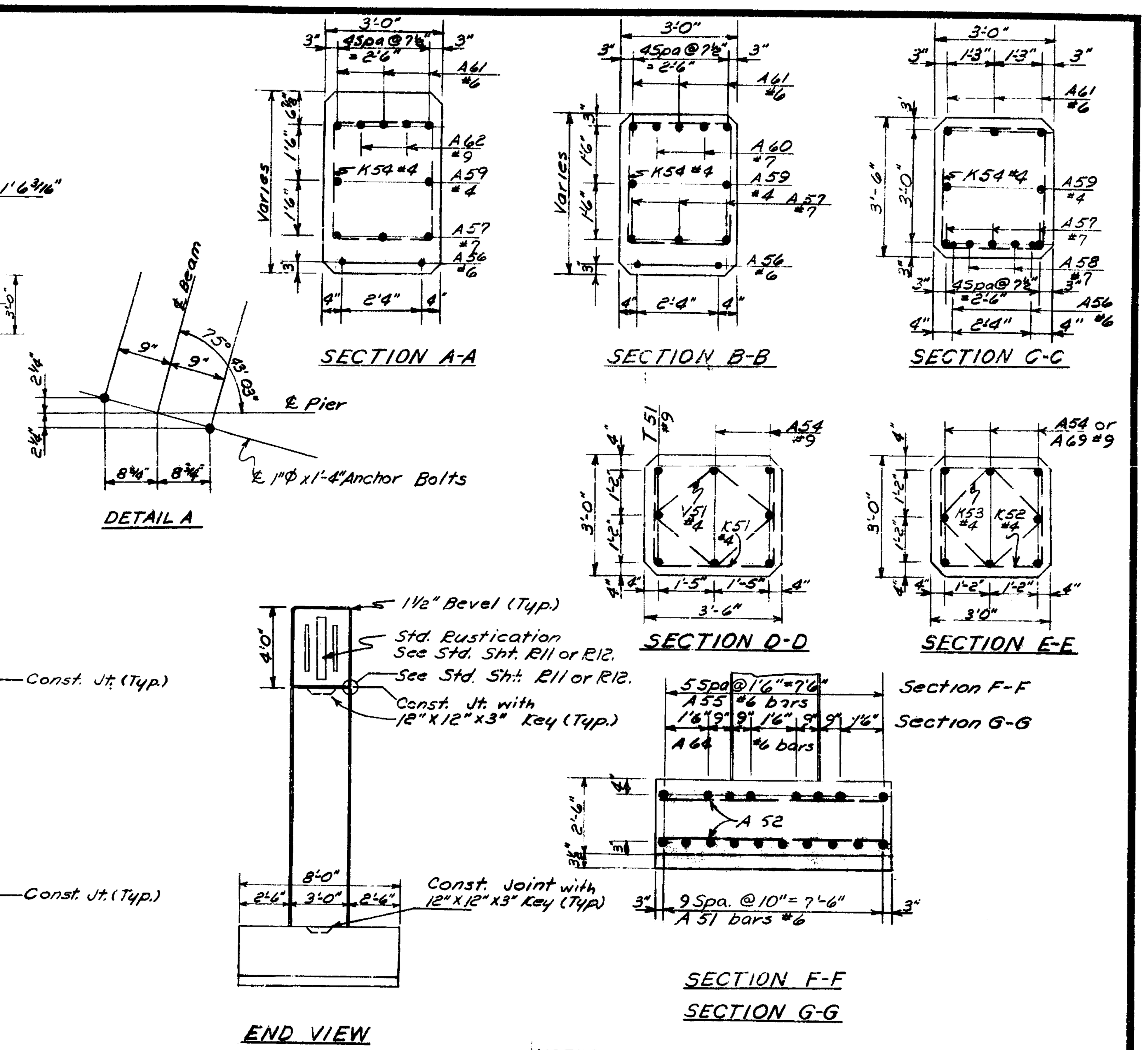
ABUTMENT DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Decess	6-22-64
DRAWN BY	Accibal	3/13/64
TRACED BY		
CHECKED BY	PHD	4-7-64
SHEET 6 OF 18		

S27 of 63174 A





CONCRETE QUANTITIES		
POUR	GRADE A (6A)	GRADE A (6AA)
A	5.9	
B	26.2	
C	24.6	
D		25.3
E		13.8
F		13.8
TOT.	56.7 Cu. Yds.	52.9 Cu. Yds.

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
Foundation Excavation	Cu. Yds.	130

NOTES
For Bevel & Molding Details, See Std. Sht. R11 or R12.
Anchor Bolts shall be set accurately to a template.
The Project Engineer shall adjust the spacing of stirrups as required to permit placing of anchor bolts.
Top of Pier shall be finished to a true plane at the elevations shown & shall not vary more than 1/8" under a ten foot straight edge nor more than 1/16" under any bearing.
Maximum Average Foundation Pressure D.L. only 2200 psf
Maximum Foundation Pressure D.L.+L.L. 2760 p.s.f.
Foundation Excavation, Footing & Subfooting concrete quantities are computed to the footing neat lines. No allowances will be made in the quantities for overruns due to excavating outside of neat lines.

MICHIGAN STATE HIGHWAY DEPARTMENT

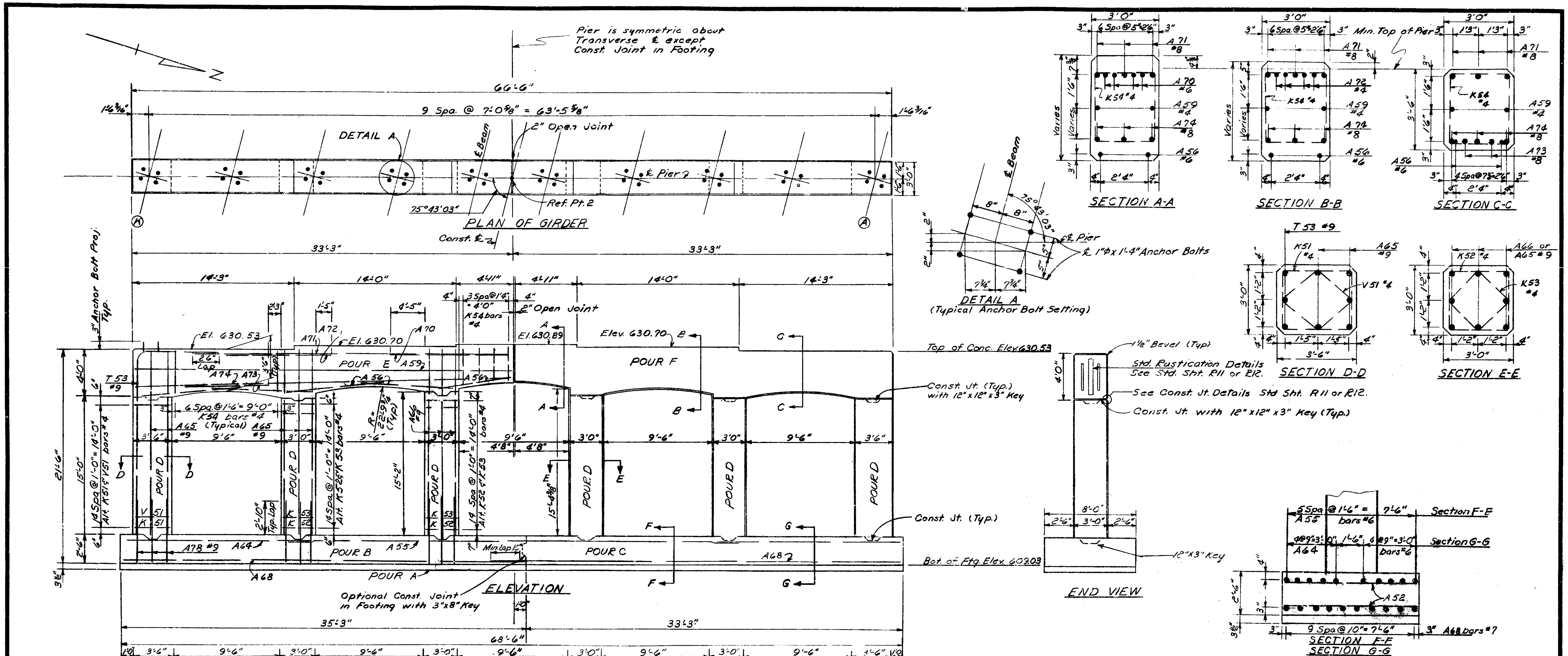
PIER I DETAILS

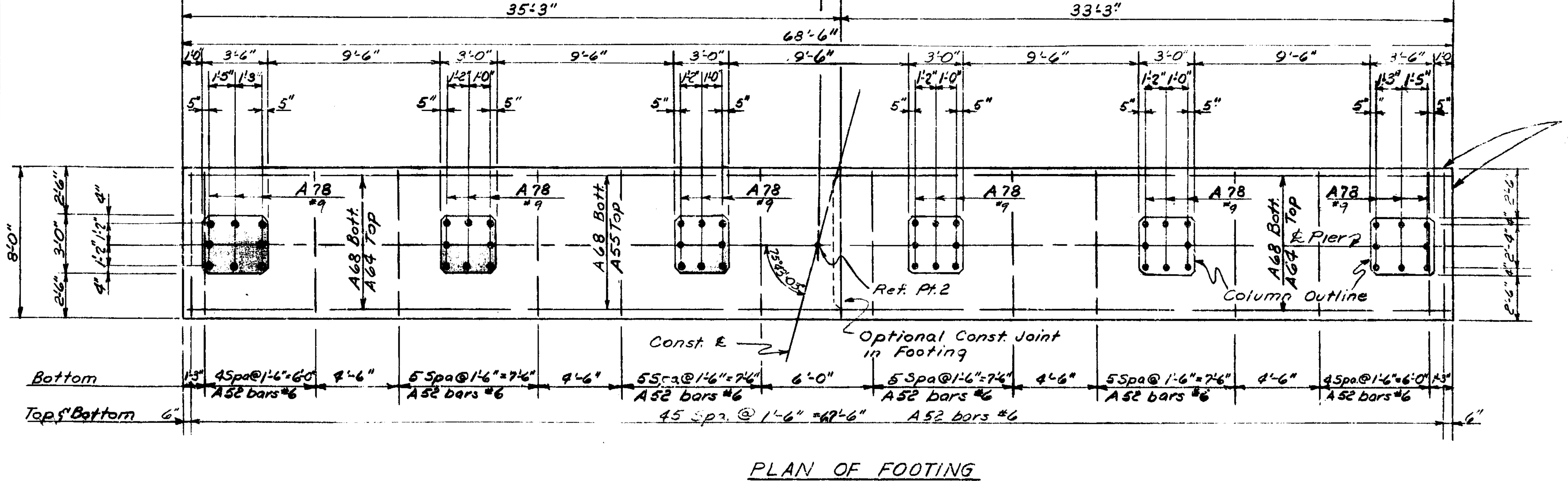
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Decess	6-22-64
DRAWN BY	Schafer	3-8-64
TRACED BY		
CHECKED BY	[illegible]	4/6/64

SHEET 7 OF 18

S27 of 63174A





CONCRETE QUANTITIES		
POUR	GRADE A (6A)	GRADE A (6AA)
A	5.9	
B	26.2	
C	24.6	
D		31.8
E		13.8
F		13.8
TOTAL	56.7 Cu. Yds.	59.4 Cu. Yds.

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
Foundation Excavation	Cu. Yds.	110
Protective Sealant Coating	Sq. ft.	200

Notes: Foundation Excavation, footing & subfooting concrete quantities are computed to the footing neat lines. No allowances will be made in the quantities for overruns due to excavating outside of neat lines.
The Project Engineer shall adjust the spacing of stirrups as required to permit placing of anchor bolts.
Top of Pier shall be finished to a true plane at the elevations shown & shall not vary more than 1/8" under a ten foot straight edge nor more than 1/16" under any bearing.
Maximum Average Foundation Pressure D.L. only 2680 psf.
Maximum Foundation Pressure D.L. + L.L. 3310 p.s.f.
The top of pier shall be given an application of protective sealant coating prior to placing masonry plates.
For Bevel & Molding Details See Std. Sht. R11 or R12.
Anchor Bolts shall be set accurately to a template.

MICHIGAN STATE HIGHWAY DEPARTMENT

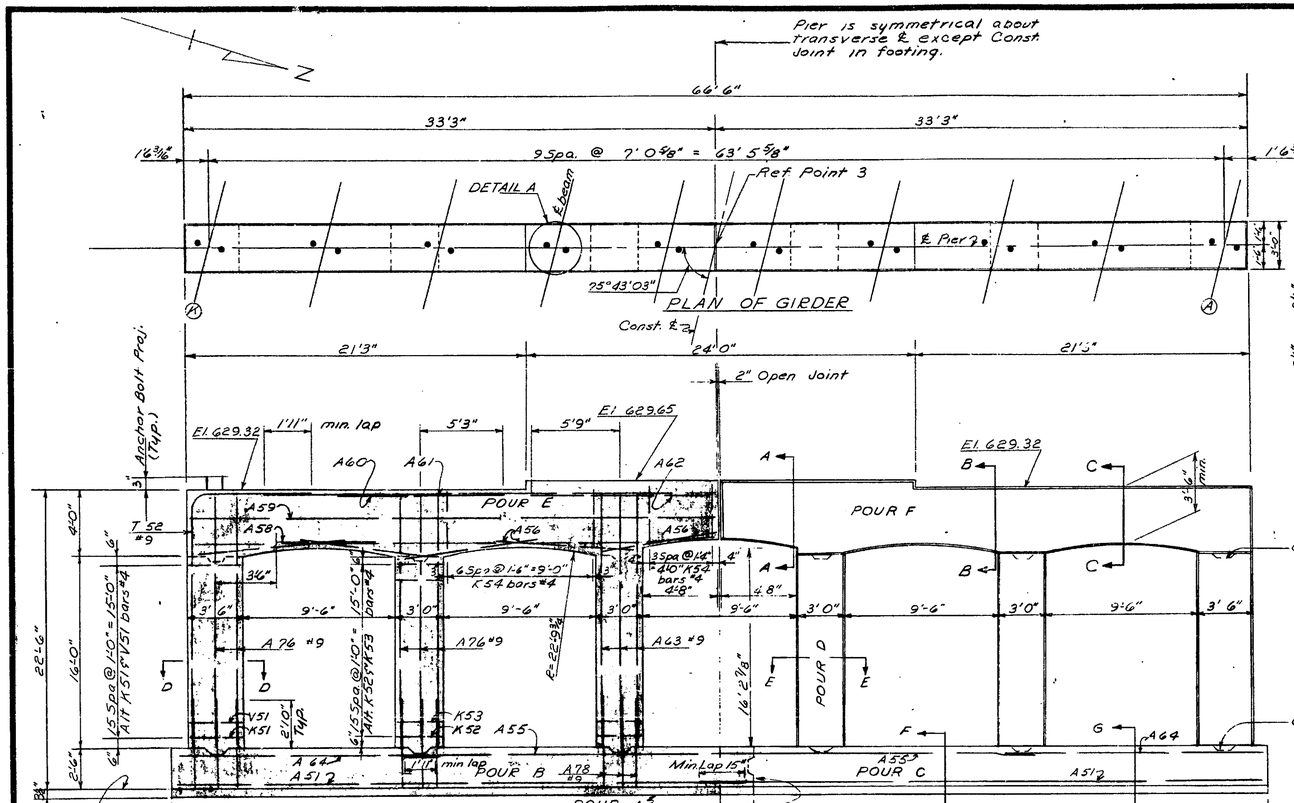
PIER 2 DETAILS

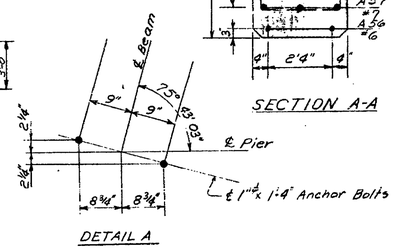
REVISIONS

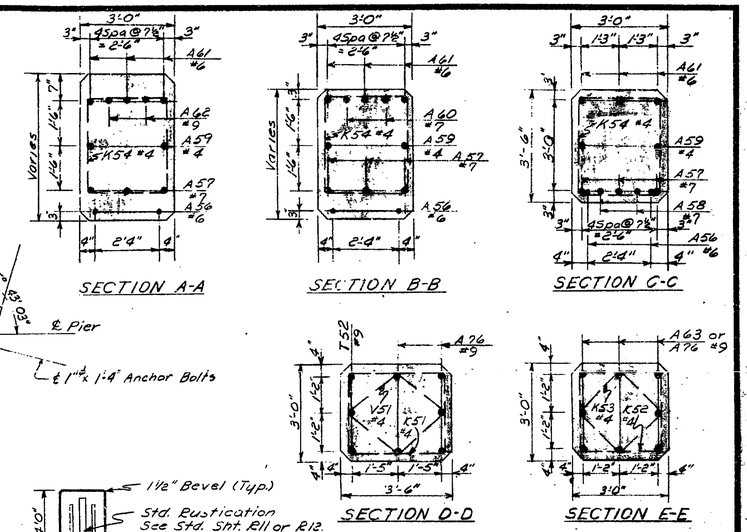
NO.	DESCRIPTION	DATE	BY

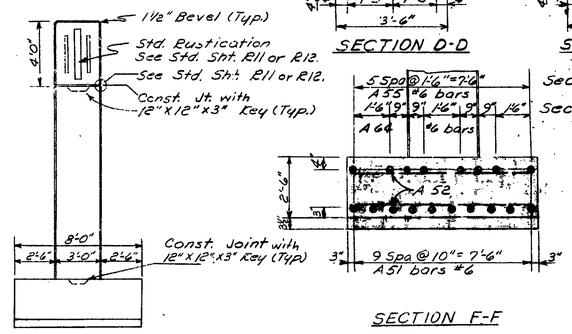
SQUAD BOSS	Decess	6-22-64
DRAWN BY	Schafer	3-20-64
TRACED BY		
CHECKED BY	R. Woods	5/25/64
SHEET	8 OF 18	

S27 of 63174A









NOTES

For Bevel & Molding Details, See Std. Sht. R11 or R12.

Anchor Bolts shall be set accurately to a template.

The Project Engineer shall adjust the spacing of stirrups as required to permit placing of anchor bolts.

Top of Pier shall be finished to a true plane at the elevations shown & shall not vary more than 1/8" under a ten foot straight edge nor more than 1/16" under any bearing.

Maximum Average Foundation Pressure D.L. only 2200 psf

Maximum Foundation Pressure D.L. + L.L. 2760 p.s.f.

Foundation Excavation, Footing & Subfooting concrete quantities are computed to the footing neat lines. No allowances will be made in the quantities for overruns due to excavating outside of neat lines.

CONCRETE QUANTITIES		
POUR	GRADE A (6A)	GRADE A (6AA)
A	5.9	
B	26.2	
C	24.6	
D		33.8
E		13.8
F		13.8
Tot.	56.7 Cu. Yds.	61.4 Cu. Yds.

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
Foundation Excavation	Cu. Yds	140

MICHIGAN STATE HIGHWAY DEPARTMENT

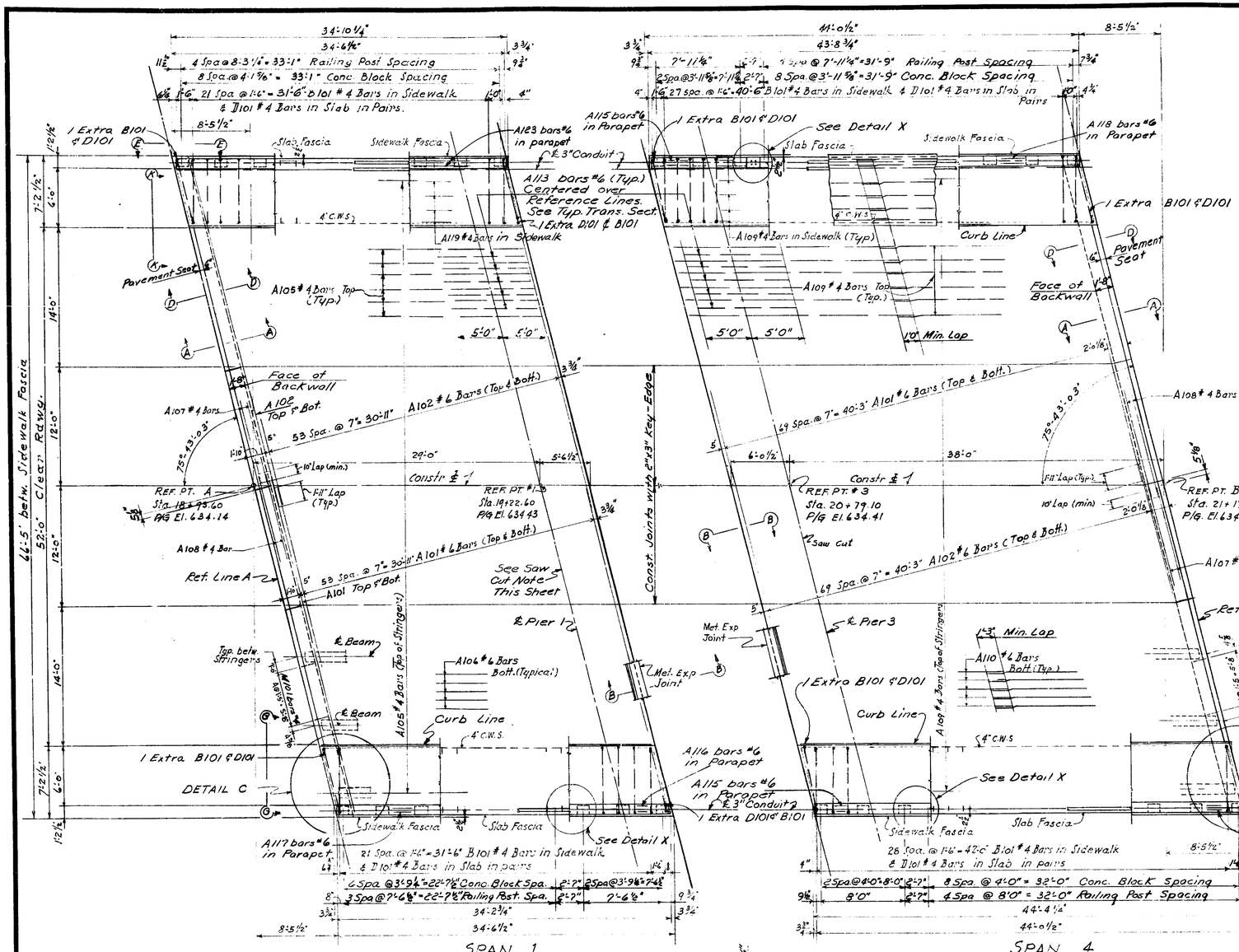
PIER 3 DETAILS

REVISIONS

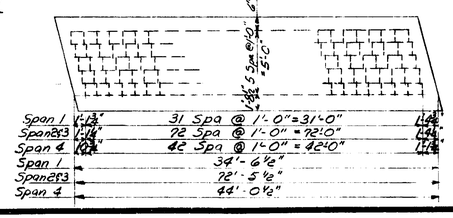
NO.	DESCRIPTION	DATE	BY

ROAD DES.	Necess	6-22-64
DRAWN BY	Schafer	3-26-64
TRACED BY		
CHECKED BY	R. Nagel	4/6/64
SHEET	9 OF	13

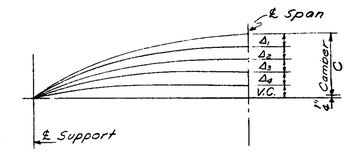
S27 of 63174A



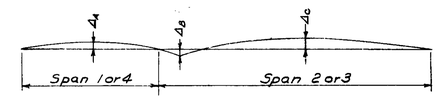
Note: The contractor is to provide for a sawed joint 1/2" deep in the top of slab over and parallel to the ℄ of Piers 1 & 3. Joint is to be sawed before casting of sidewalks and is to be filled with Hot-Poured Rubber Asphalt-Type Filler (Incidental.



PLAN OF SIDEWALK SHOWING LOCATION OF STRUCTURAL TILE
SOUTH WALK SHOWN - NORTH WALK SIMILAR



LEGEND: C = Specified Precamber as called for on Struct. Steel Sheet #
Δ_1 = Computed deflection due to struct. steel weight.
Δ_2 = Computed deflection due to weight of formwork, steel reinforcement & welding of shear developers.
Δ_3 = Computed deflection due to weight of slab.
Δ_4 = Computed deflection due to distributed weight of sidewalk & railing.
V.C = Computed midspan ordinate of vertical curve.



Note:
Camber as called for on Struct. Steel Sh. #15 is 1/4" less than summation of Δ_s + V.C. due to desirability of undercambered rather than overcambered beams.

	Ref. Beam	Deflection	C	Δ_1	Δ_2	Δ_3	Δ_4	V.C.
SPAN 1	B & J	Δ_A	0	0	0	0	0	0
	G & D	Δ_A	0	0	0	0	0	0
	F	Δ_A	0	0	0	0	0	0
SPANS 2 & 3	B & J	Δ_B	0	0	0	0	0	0
		Δ_C	3 3/8"	3/8"	1/2"	1 5/16"	3/8"	1 1/16"
	G & D	Δ_B	0	0	0	0	0	0
		Δ_C	3 3/8"	3/8"	1/2"	1 5/16"	1/8"	1 1/16"
	F	Δ_B	0	0	0	0	0	0
		Δ_C	3 3/8"	3/8"	1/2"	1 5/16"	1/16"	1 1/16"
SPAN 4	B & J	Δ_A	0	0	0	1/16	0	0
	G & D	Δ_A	0	0	0	1/16	0	0
	F	Δ_A	0	0	0	1/16	0	0

Notes:
For Parapet Wall, Railing, Bar Chairs, Bevel & Molding details not shown, see Std. Sht. R11 or R12.
C.W.S. indicates copper waterstop.
J.W.P. indicates joint waterproofing.
Edge & Groove denote edging & grooving with an approved tool.
Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by the table in Section 5.01.03 of the Standard Specifications.
False joints in curbs shall be placed midway between parapet posts, at approximately every third panel. For details of false joints, see Std. Sheet R11.

Work this sheet with sheets 11, 12, 13 & 14.

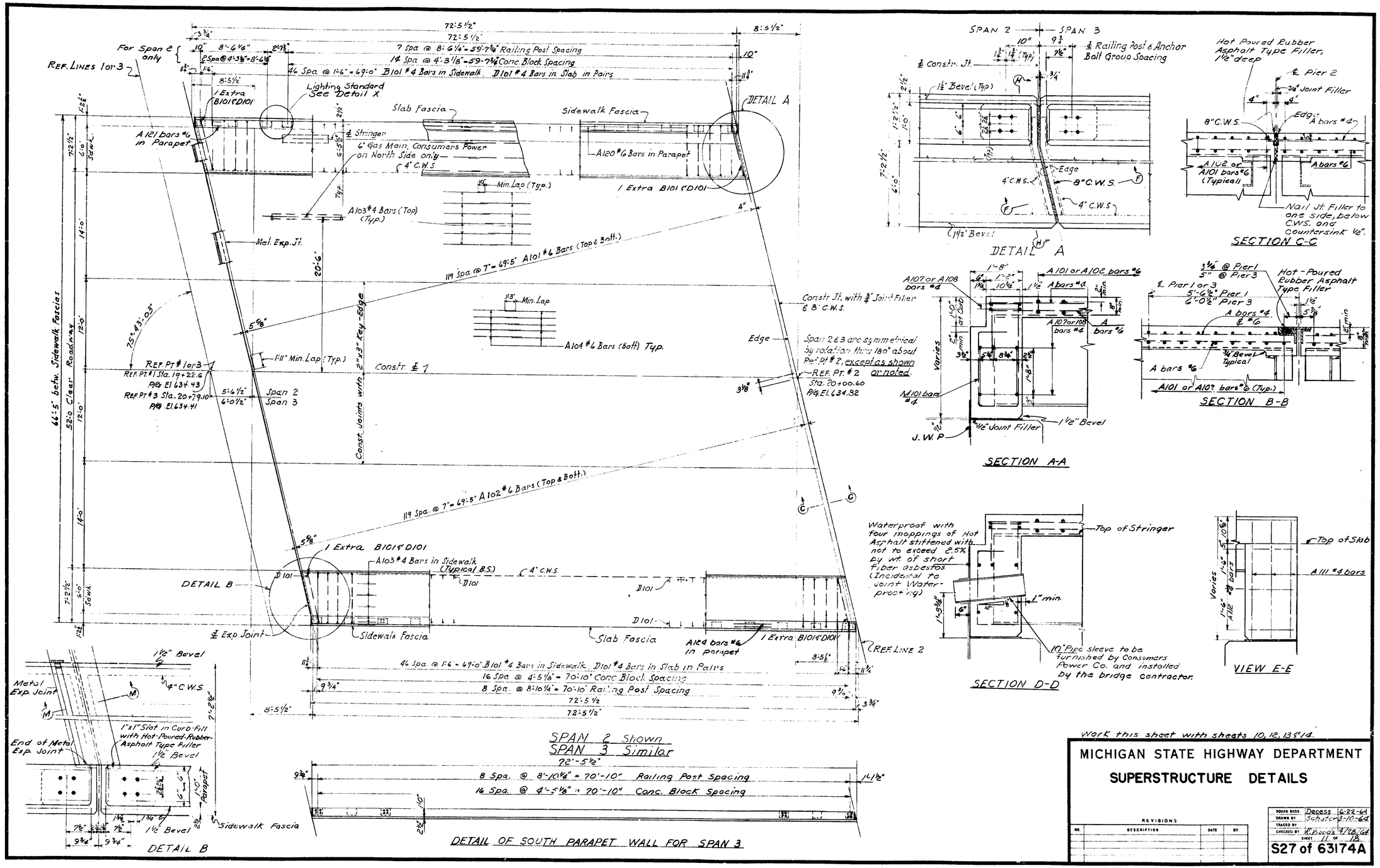
MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD LEADER	Decess 6-22-64
DRAWN BY	5-16-64
TRACED BY	
CHECKED BY	R. Woods 4/28/64
SHEET 10 OF 18	

S27 of 63174A



Work this sheet with sheets 10, 12, 13 & 14.

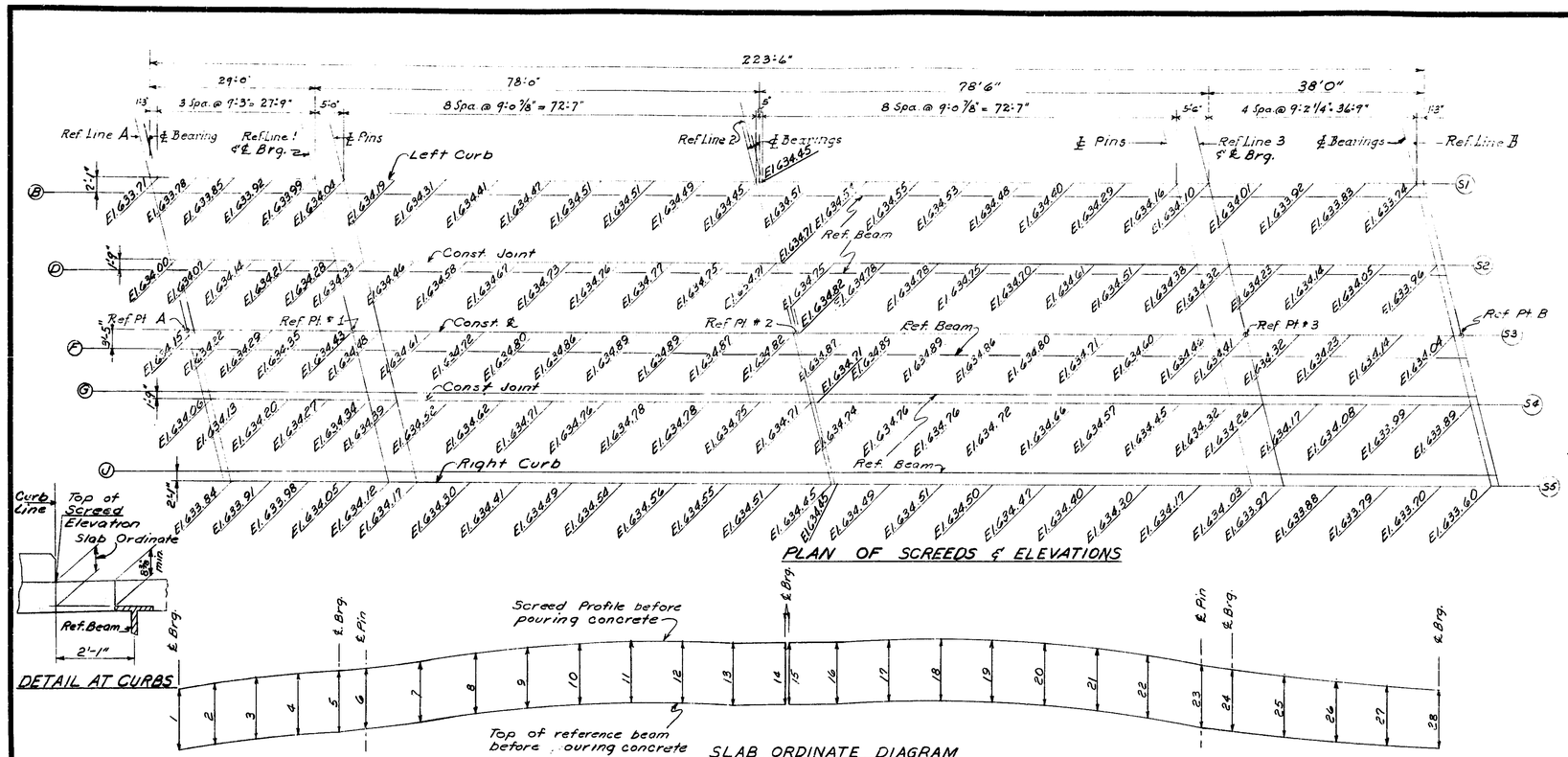
MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Decess	6-22-64
DRAWN BY	Schuter	9-10-64
TRACED BY		
CHECKED BY	R. Woods	9/28/64
SHEET 11 OF 18		

S27 of 63174A



PLAN OF SCREEDS & ELEVATIONS

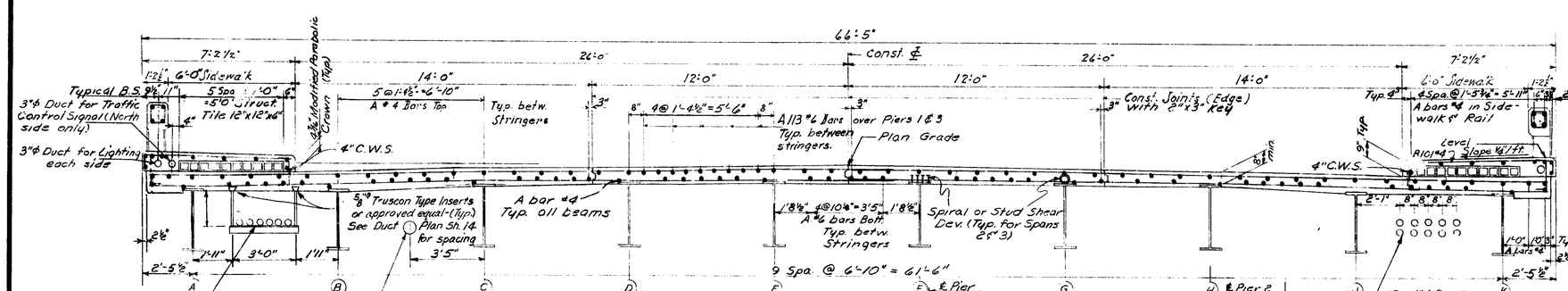
	S1	S2	S3	S4	S5		S1	S2	S3	S4	S5
1	7⅝"	7¾"	8⅛"	8"	8"	15	7⅞"	7¾"	8⅛"	7⅞"	7⅞"
2	7⅝"	7¾"	8⅛"	8"	8"	16	7⅞"	7¾"	8⅛"	7¾"	7⅞"
3	7⅝"	7¾"	8⅛"	7⅞"	8"	17	7⅞"	7⅞"	8⅛"	7¾"	7⅞"
4	7⅝"	7¾"	8¼"	7⅞"	8"	18	8"	7¾"	8⅛"	7⅞"	7⅞"
5	7⅞"	7¾"	8¼"	7⅞"	8"	19	8"	7¾"	8⅛"	7⅞"	7⅞"
6	8"	7¾"	8¼"	7⅞"	8"	20	8"	7⅞"	8¼"	7⅞"	7⅞"
7	7⅞"	7⅞"	8¼"	7¾"	8"	21	8"	7⅞"	8¼"	7¾"	7⅞"
8	7⅞"	7¾"	8¼"	7¾"	8"	22	8"	7⅞"	8¼"	7¾"	7⅞"
9	7⅞"	7¾"	8¼"	7⅞"	8"	23	8"	8"	8½"	7¾"	7⅞"
10	7⅞"	7¾"	8¼"	7¾"	8"	24	8"	8"	8½"	7¾"	7⅞"
11	7⅞"	7¾"	8¼"	7¾"	8"	25	8⅛"	8"	8½"	7¾"	7⅞"
12	7⅞"	7¾"	8⅛"	7⅞"	7⅞"	26	8⅛"	7⅞"	8½"	7¾"	7⅞"
13	7⅞"	7¾"	8½"	7¾"	7⅞"	27	8⅛"	7⅞"	8½"	7¾"	7⅞"
14	8"	7¾"	8½"	7¾"	7⅞"	28	8"	7¾"	9½"	7¾"	7⅞"

TABLE OF SLAB ORDINATES

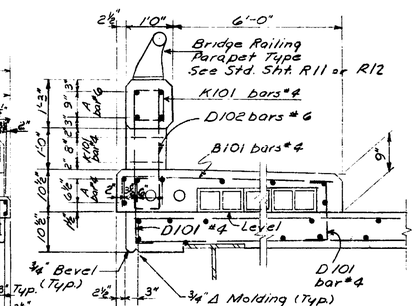
Screed Note: Elevations shown are for the top of screed before pouring concrete with formwork and steel reinforcement in place, and shear developers welded to the girders where required, and are based on a minimum slab thickness of 8". After screeds are set, if check indicates that less than the minimum thickness will be obtained, adjust screed and expansion joint accordingly. Screeds affected by loads in other spans are to be set to the elevations shown and checked for minimum slab thickness before pouring any concrete. Concrete in the suspended spans is to be poured before concrete in the anchor spans.
The slab ordinates shown provide for dead load deflection, vertical curve, beam camber and transverse crown and are to be measured from the top of the beam indicated to the top of the screed in a vertical plane parallel to the reference line. See Sketch "Y" and Details.

DETAIL AT CURBS

SLAB ORDINATE DIAGRAM

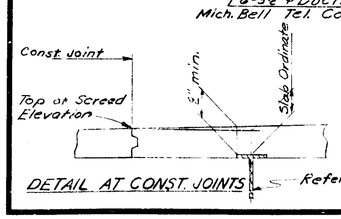


TYPICAL TRANSVERSE SECTION

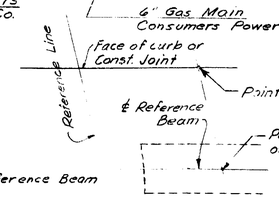


TYPICAL RAILING SECTION

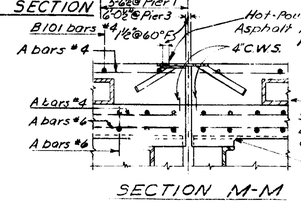
Work this sheet with sheets 10, 11, 13 & 14.



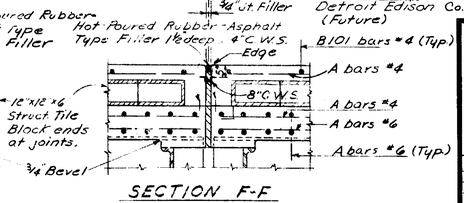
DETAIL AT CONST. JOINTS



SKETCH "Y"



SECTION M-M



SECTION F-F

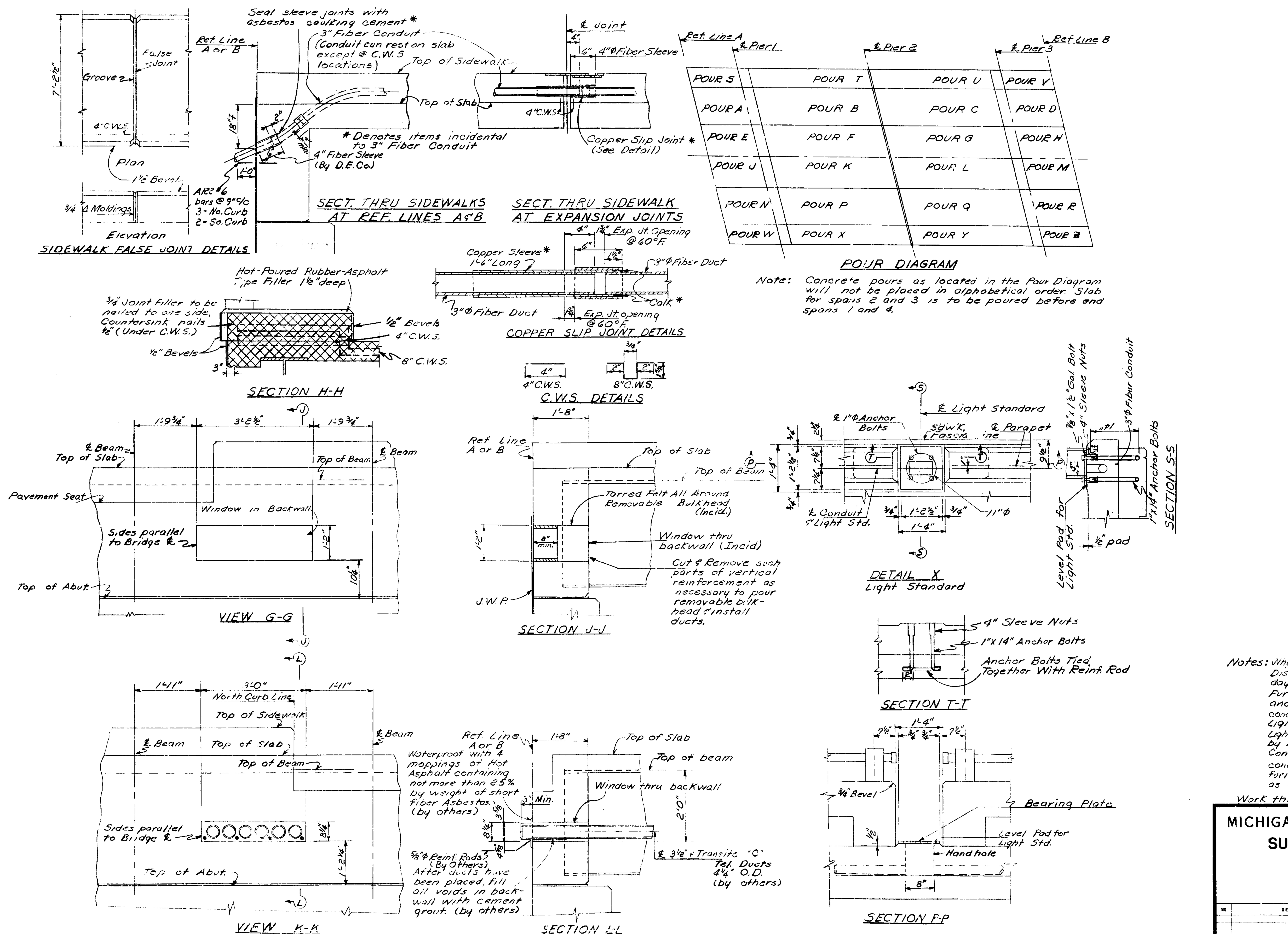
MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Decess	6-22-64
DRAWN BY	Schuster	3-12-64
TRACED BY		
CHECKED BY	R. Wiggs	4/28/66
SHEET 12 OF 18		

S27 of 63174A



CONCRETE QUANTITIES GRADE A(6AA)-SUPERSTR. IN CU. YDS.		
LOCATION	POUR	QUANT.
SLAB	A	23.8
	B	42.4
	C	42.4
	D	29.2
	E	13.6
	F	24.2
	G	24.2
	H	16.6
	J	13.5
	K	24.2
	L	24.2
	M	16.6
	N	23.7
	P	42.4
	Q	42.4
	R	29.4
SIDEWALK	S	5.2
	T	10.4
	U	10.4
	V	6.5
	W	5.2
	X	10.4
	Y	10.4
	Z	6.5
TOTAL		497.8

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	QUANT.
Water Reducing Retarding Admixture	Gal.	58
3/4" Joint Filler	Sq.Ft	61
Hot-Poured Rubber Asphalt Type Filler	Lin.Ft.	204
Copper	Lbs.	225
Bridge Railing-Parapet Type	Lin.Ft.	439
Structural Tile 12"x12"x6"	Each	2170
3" Fiber Conduit	Lin.Ft.	224
*10" Pipe Sleeves (Placed)	Each	2

*Chargeable to Consumers Power Co.

Notes: Where ducts are to be installed in sidewalks, the District Utility Engineer is to be notified five days in advance of the time of installation.
Furnishing and installing of light standard and 3"Φ fiber conduit for light Standard as well as conduit sleeves, styrofoam blocking & brg. plate under Light Standard is by Detroit Edison Co.
Light Post Anchoring Assembly is to be furnished by Detroit Edison Co. & installed by Bridge Contractor. (Installation is incidental work) 3"Φ Fiber conduit, including sleeves, for Traffic Signal Control furnished & installed by contractor. Sleeve details as shown above incidental to 3"Φ Fiber Conduit.

Work this sheet with sheets 10, 11, 12 & 14.

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS
UTILITIES & QUANTITIES

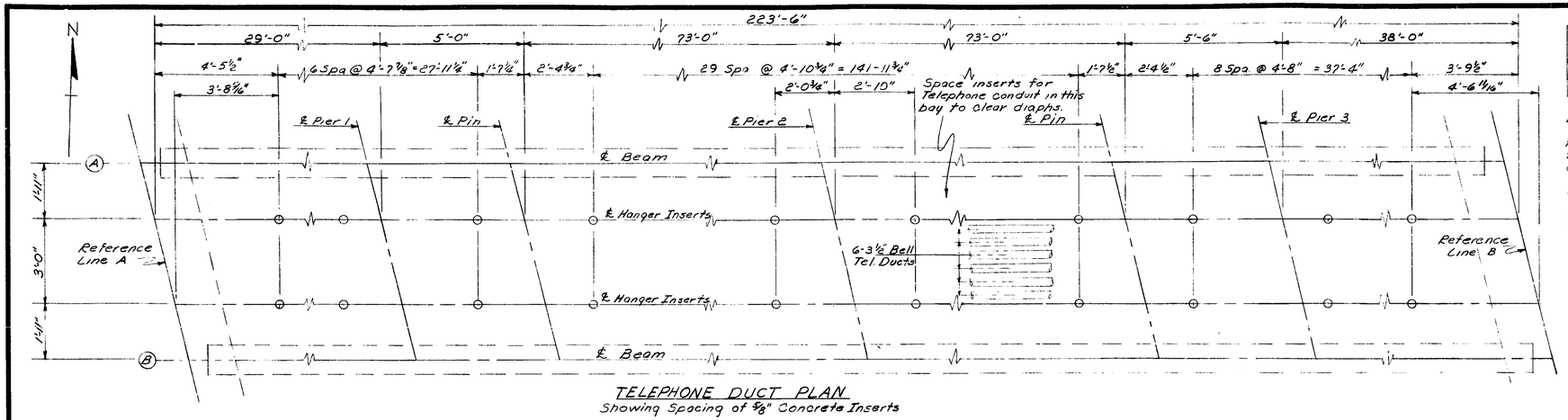
REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Decess	6-22-64
DRAWN BY	[illegible]ufer	3-10-64
TRACED BY		
CHECKED BY	R. Woods	5/4/64

SHEET 13 OF 18

S27 of 63174A



TELEPHONE DUCT PLAN

Showing Spacing of ⅝" Concrete Inserts

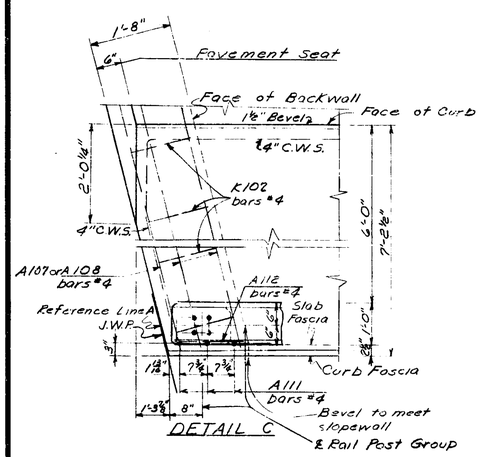
MISCELLANEOUS QUANTITIES		
ITEM	UNIT	QUANT.
*⅝" Concrete Inserts	Each	92

*Chargeable to Mich. Bell Tel. Company.

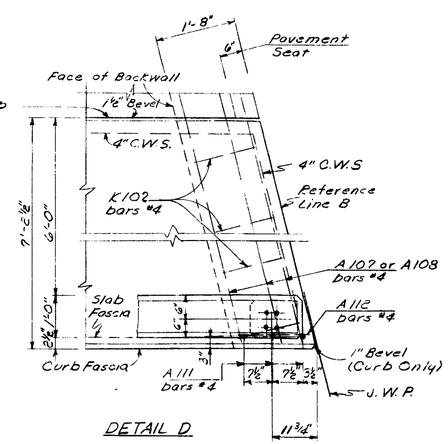
Notes:

Installation of inserts and forming of windows through backwalls and diaphrams is included in this contract. All other work shown is not part of this contract.

Furnishing and installing telephone conduits, including all incidental work necessary for installation is not part of this contract. Installation of ducts shall be in accordance with the manufacturer's and Telephone Company's recommendations.



DETAIL C



DETAIL D

Work this sheet with sheets 10, 11, 12 & 13.

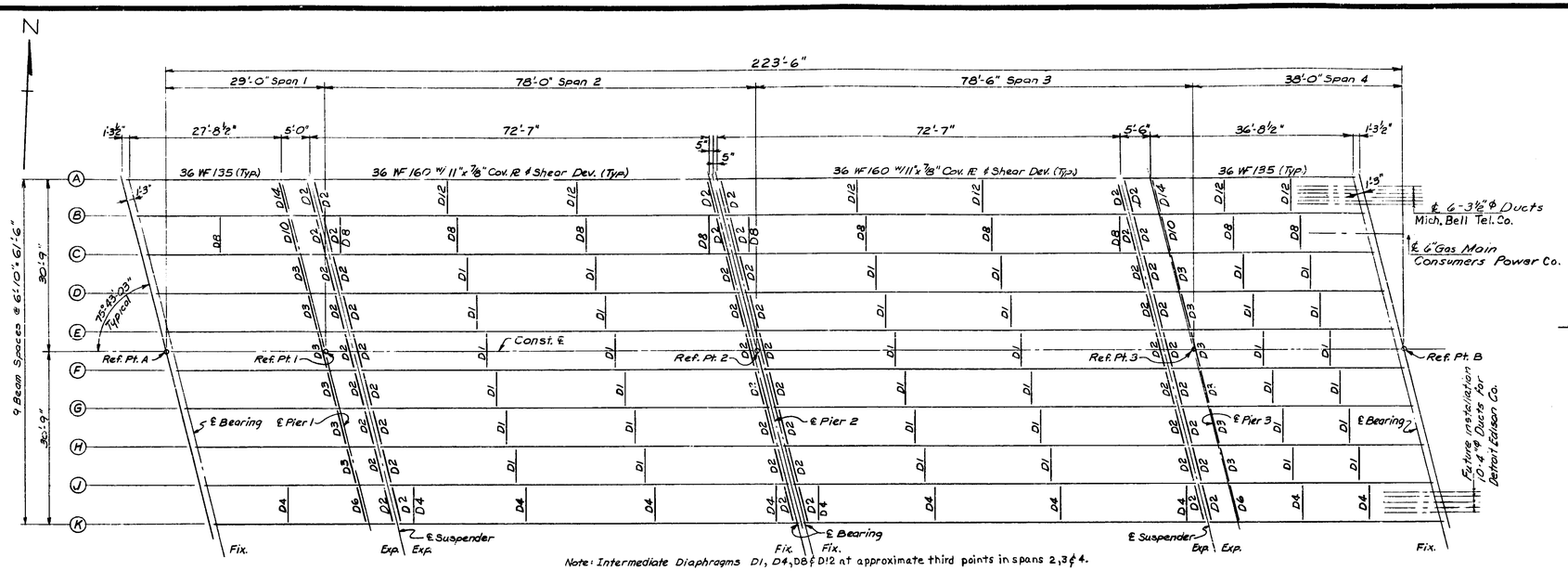
MICHIGAN STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE DETAILS
UTILITIES & QUANTITIES

REVISIONS

NO.	DESCRIPTION	DATE	BY

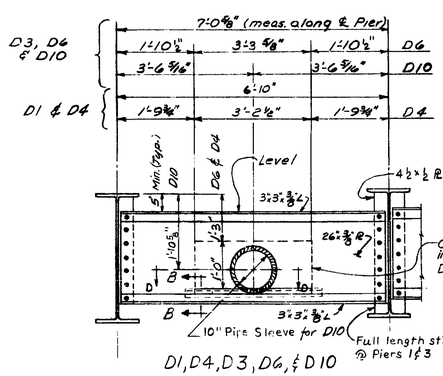
SQUAD BOSS	Decess	6-25-64
DRAWN BY	Schafer	4/27/64
TRACED BY		
CHECKED BY	R. Woods	5/4/64
SHEET 14 OF 18		

S27 of 63174A

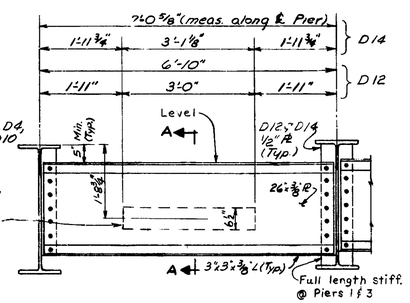


Note: Intermediate Diaphragms D1, D4, D8 & D12 at approximate third points in spans 2, 3 & 4.

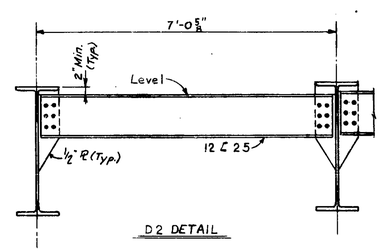
ERECTION DIAGRAM



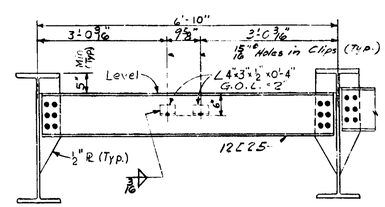
D1, D4, D3, D6, & D10 DETAILS



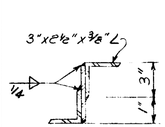
D12 & D14 DETAILS



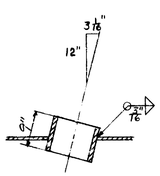
D2 DETAIL



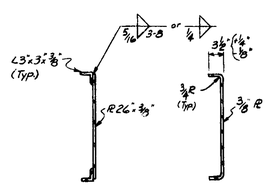
D8 DETAIL



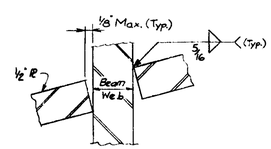
SECT. B-B FOR D4 & D6



SECT. D-D FOR D10



SECTION A-A



DETAIL C

NOTES

Fabrication: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction – 1963 ed.

Design: Michigan State Highway Department's Specifications for Design of Highway Bridges - 1958 ed. (H20-44 Loading).

All shop connections shall be welded as shown on the plans.

Field connections shall be bolted with high strength bolts.

High strength bolts shall be ⅞"φ

Open holes 13/16"φ Unless Noted.

In addition to the shop paint provisions of the standard specifications the top surfaces of masonry plates shall be coated in accordance with the requirements for machine finished surfaces. The metal expansion joint shall not be painted in the shop except as noted on the plans.

Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ¼" and welded continuously for the full perimeter. Welds shall be ground flush with the faces of the plates.

All steel shall be A.S.T.M. designation A36

Beams A, B, J & K in spans 2 & 3 are to have a camber of 3⅜" (maximum ordinate). All others in spans 2 & 3 are to have a camber of 3⅛". This camber is to be measured with the beam lying on its side. Bms. in spans 1 & 4 shall have 0" of camber. Allowable camber tolerance is ±¼". Heating is to be used if necessary to assure camber permanency within the above limitations. Dead load deflection of the beams alone is calculated to be ⅜". (Span 2 & 3)

The quantity "Structural Steel-Furnishing & Fabricating" includes
125 Lbs. Bronze
205 Lbs. Lead
427,170 Lbs. A36 Steel *
427,500 Lbs. Total
* Includes 1958 Lbs. chargeable to Detroit Edison Co. & 1194 Lbs chargeable to Consumers Power Co.

QUANTITIES

Item	Unit	Amount
Structural Steel-Furnishing and Fabricating	Lbs.	427,500
Structural Steel-Erection	Lbs.	427,500
Field Painting	Lump Sum	Lump Sum
Shear Developers	Lump Sum	Lump Sum

Work this sheet with sheets 16 & 17

MICHIGAN STATE HIGHWAY DEPARTMENT

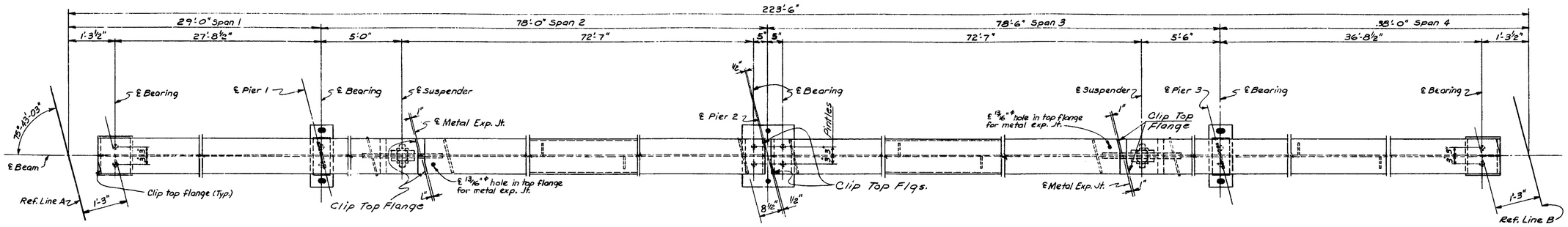
STRUCTURAL STEEL DETAILS

REVISIONS

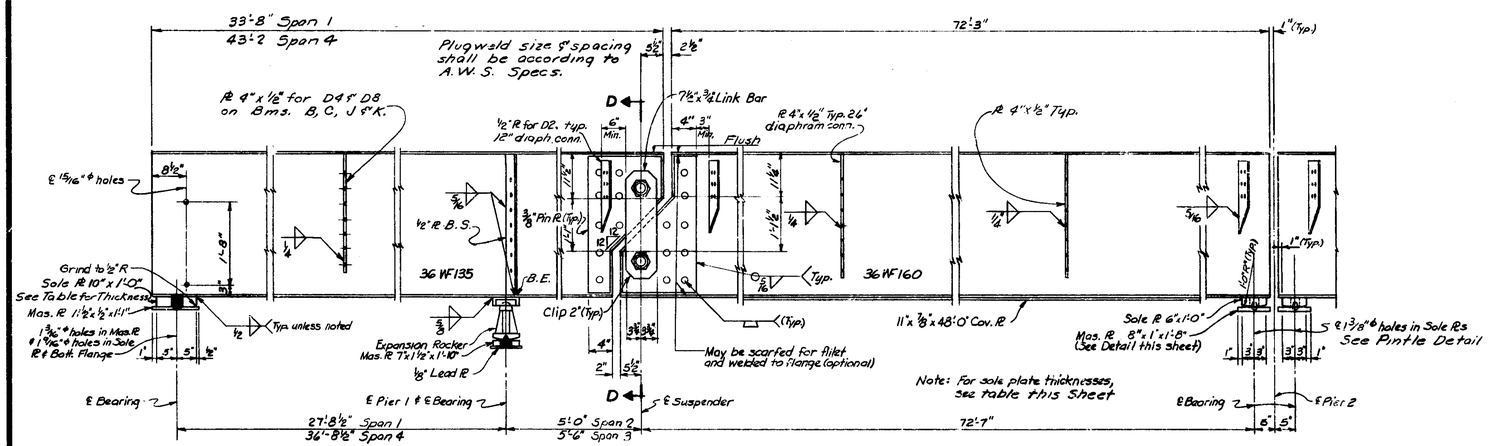
NO	DESCRIPTION	DATE	BY

SQUAD BOSS Decess 6-22-64
DRAWN BY Benson 2/17/64
TRACED BY
CHECKED BY
SHEET 15 OF 18

S27 of 63174A

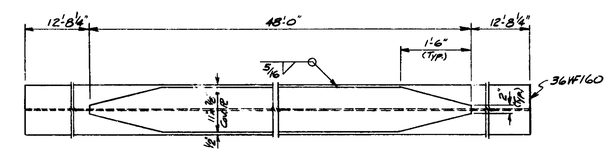


PLAN

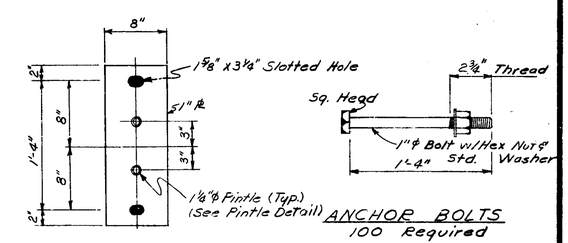


ELEVATION

Spans 1 & 2 shown. Spans 3 & 4 similar by 180° rotation except as noted in Plan.



COVER PLATE DETAIL



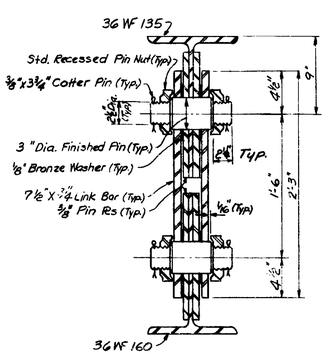
MASONRY PL DETAIL

FOR PIER 2

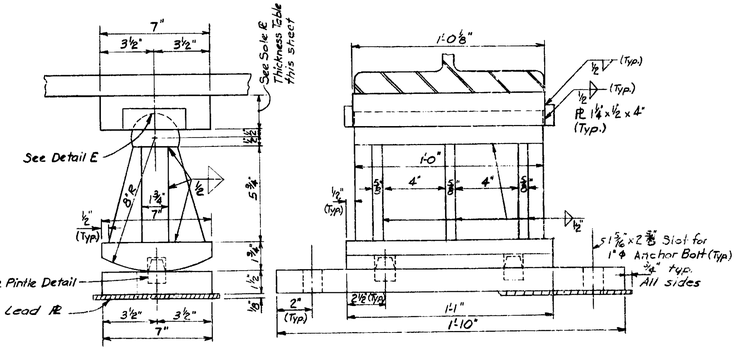
ANCHOR BOLTS

100 Required

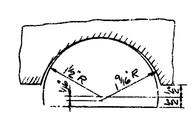
Note: B.E. denotes bearing end. Grind to Fit.



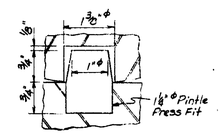
SECTION D-D



ROCKER DETAILS



DETAIL E



PINTLE DETAIL

SOLE PLATE THICKNESS

BEAM NO.	ABUT. A	PIER 1	PIER 2 SPAN 2	PIER 2 SPAN 3	PIER 3	ABUT. B
A	2"	2"	2"	2"	3¾"	2¼"
B	2¼"	2¼"	2"	2"	3¾"	2"
C	2"	4¼"	2"	2"	5⅛"	2"
D	3½"	2"	3¼"	3¼"	2½"	3"
E	2"	3¼"	2"	2"	3¼"	2¼"
F	2¼"	3¼"	2"	2"	3"	2"
G	3"	2¾"	3¼"	3¼"	2"	3½"
H	2"	5⅛"	2"	2"	4½"	2"
J	2"	3¾"	2"	2"	2¼"	2¼"
K	2"	3¾"	2"	2"	2"	2"

Work this sheet with sheets 15 & 17

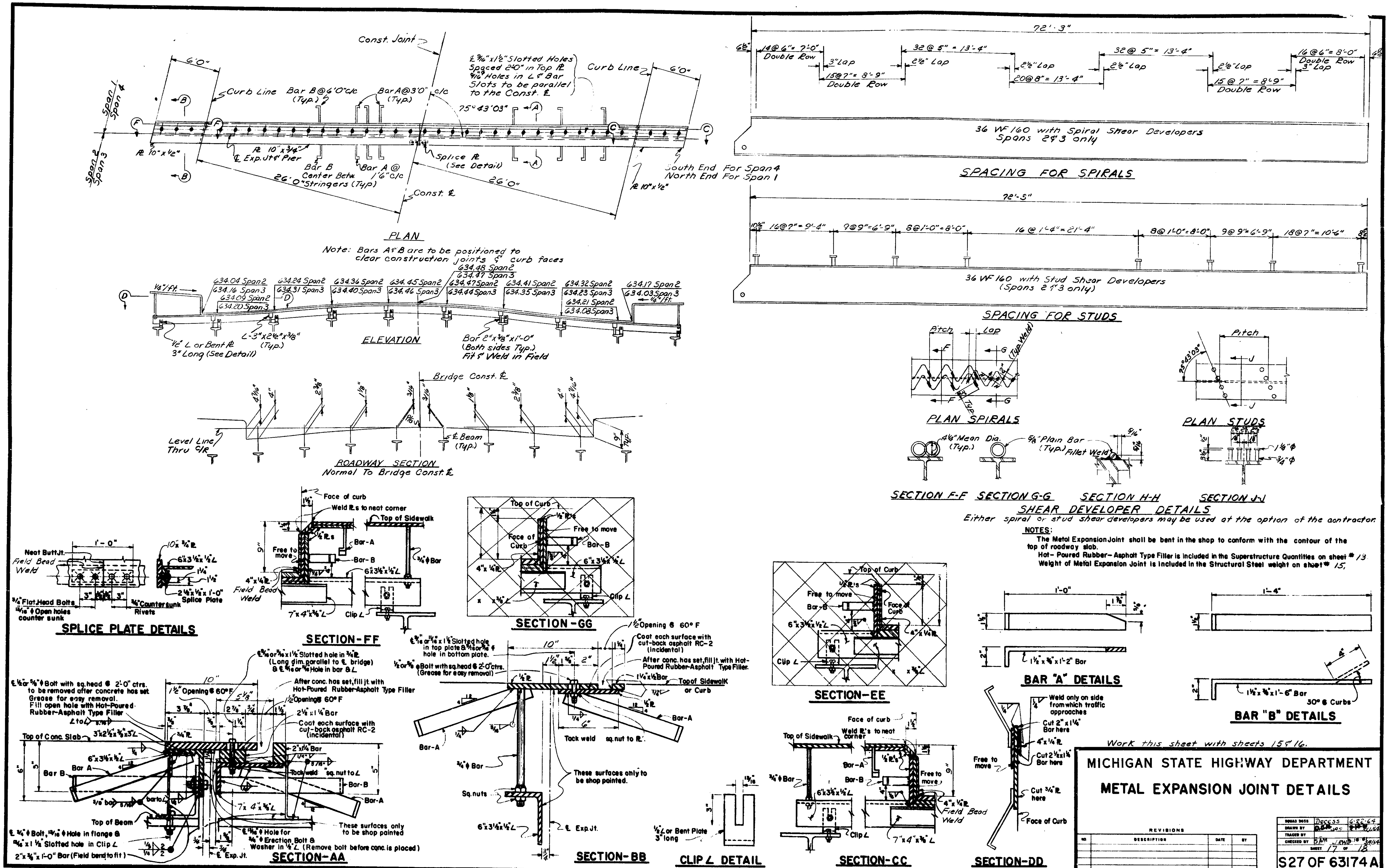
MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Decess	6-22-64
DRAWN BY	Benson	2/19/64
TRACED BY		
CHECKED BY	R. Woods	5/12/64
SHEET	16 of 18	

S27 of 63174A



PLAN
Note: Bars A & B are to be positioned to clear construction joints & curb faces
ELEVATION
ROADWAY SECTION
Normal To Bridge Const. ℄
SPACING FOR SPIRALS
36 WF 160 with Spiral Shear Developers Spans 2 & 3 only
SPACING FOR STUDS
36 WF 160 with Stud Shear Developers (Spans 2 & 3 only)
PLAN SPIRALS
PLAN STUDS
SECTION F-F
SECTION G-G
SECTION H-H
SECTION J-J
SHEAR DEVELOPER DETAILS
Either spiral or stud shear developers may be used at the option of the contractor.
NOTES:
The Metal Expansion Joint shall be bent in the shop to conform with the contour of the top of roadway slab.
Hot-Poured Rubber-Asphalt Type Filler is included in the Superstructure Quantities on sheet # 13.
Weight of Metal Expansion Joint is included in the Structural Steel weight on sheet # 15.
SPLICE PLATE DETAILS
SECTION-FF
SECTION-GG
SECTION-EE
BAR "A" DETAILS
BAR "B" DETAILS
SECTION-AA
SECTION-BB
CLIP ∠ DETAIL
SECTION-CC
SECTION-DD
Work this sheet with sheets 15 & 16.
MICHIGAN STATE HIGHWAY DEPARTMENT
METAL EXPANSION JOINT DETAILS
REVISIONS
S27 OF 63174A

ABUTMENTS

BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A1	4'-6"							#6	4'-6"	126	852
A2	6'-6"							#6	6'-6"	126	1230
A3	32'-0"							#6	32'-0"	48	2307
A4	7'-9"							#6	7'-9"	252	2933
A5	31'-9"							#4	31'-9"	60	1273
A6	4'-6"							#4	4'-6"	8	24
A7	7'-9"							#4	7'-9"	8	41
A8	11'-0"							#4	11'-0"	8	59
D1	4'-0½"	1'-0"						#4	9'-0"	16	96
D2	2'-6½"	1'-0"						#4	6'-0"	8	32
D3	2'-3½"	1'-0"						#4	5'-6"	32	117
						Total for	Two	Abutments			8,964

PIERS

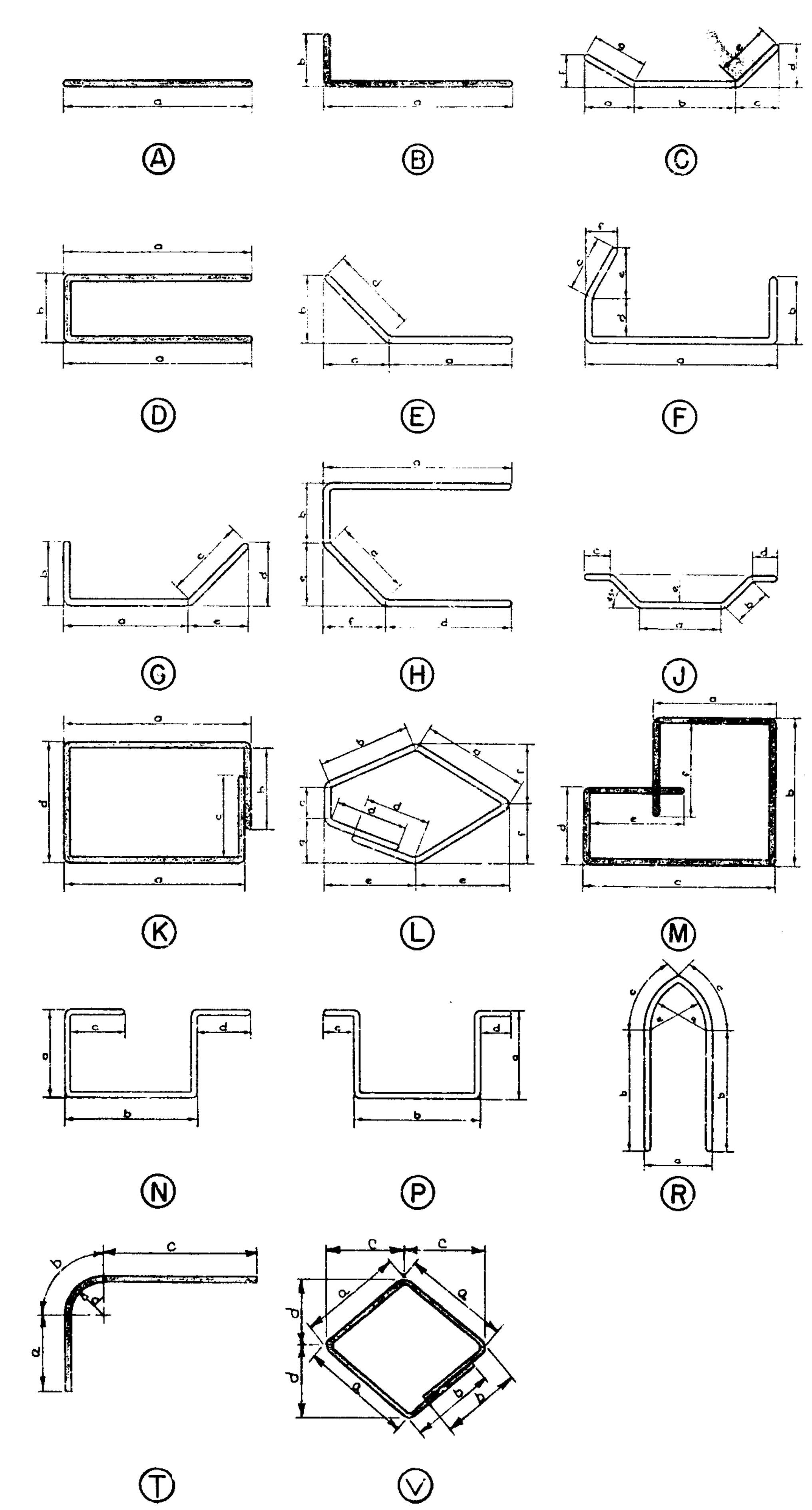
BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A51	34'-9"							#6	34'-9"	40	2088
A52	7'-6"							#6	7'-6"	378	4260
A54	15'-9"							#9	15'-9"	26	1392
A55	39'-6"							#6	39'-6"	18	1068
A56	7'-9"							#6	7'-9"	60	698
A57	32'-9"							#7	32'-9"	12	803
A58	5'-9"							#7	5'-9"	8	94
A59	32'-9"							#4	32'-9"	12	263
A60	10'-6"							#7	10'-6"	8	172
A61	28'-3"							#6	28'-3"	12	509
A62	11'-0"							#9	11'-0"	8	299
A63	20'-0"							#9	20'-0"	16	1088
A64	16'-3"							#6	16'-3"	52	1269
A65	18'-9"							#9	18'-9"	26	1658
A66	19'-0"							#9	19'-0"	16	1034
A68	34'-9"							#7	34'-9"	20	1421
A69	16'-0"							#9	16'-0"	16	870
A70	13'-6"							#6	13'-6"	8	162
A71	28'-3"							#8	28'-3"	6	453
A72	10'-3"							#4	10'-3"	8	55
A73	7'-0"							#8	7'-0"	4	85
A74	32'-9"							#8	32'-9"	6	525
A76	19'-9"							#9	19'-9"	26	1746
A78	5'-4"							#9	5'-4"	144	2609
T51	6'-7"	1'-2"	15'-0"	0'-9"				#9	22'-9"	6	464
T52	6'-7"	1'-2"	19'-0"	0'-9"				#9	26'-9"	6	546
T53	7'-1"	1'-2"	18'-0"	0'-9"				#9	26'-3"	6	536
K51	3'-1"	1'-8⅜"	1'-8⅜"	2'-6¼"				#4	12'-0"	44	353
K52	2'-6¼"	1'-9⅛"	1'-9⅛"	2'-6¼"				#4	11'-0"	88	647
K53	1'-11"	1'-5"	1'-5"	1'-11"				#4	8'-6"	84	477
K54	3'-2"	1'-9½"	1'-9½"	2'-8"				#4	12'-6"	108	902
V51	2'-1"	1'-6½"	1'-6½"	1'-3½"				#4	9'-3"	42	260
						Total	for Three	Piers			28,806

SUPERSTRUCTURE

BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A101	33'-6"							#6	33'-6"	730	36734
A102	36'-3"							#6	36'-3"	730	39750
A103	36'-3"							#4	36'-3"	320	7751
A104	36'-6"							#6	36'-6"	180	9868
A105	33'-6"							#4	33'-6"	62	1388
A106	33'-6"							#6	33'-6"	45	2264
A107	33'-9"							#4	33'-9"	18	406
A108	35'-3"							#4	35'-3"	18	424
A109	22'-0"							#4	22'-0"	160	2352
A110	22'-3"							#6	22'-3"	90	3008
A111	4'-6"							#4	4'-6"	12	36
A112	1'-4"							#4	1'-4"	12	11
A113	10'-0"							#6	10'-0"	90	1352
A114	32'-9"							#6	32'-9"	4	198
A115	8'-9"							#6	8'-9"	8	105
A116	7'-3"							#6	7'-3"	4	44
A117	23'-6"							#6	23'-6"	4	141
A118	32'-6"							#6	32'-6"	4	195
A119	34'-0"							#4	34'-0"	18	409
A120	30'-6"							#6	30'-6"	8	366
A121	9'-6"							#6	9'-6"	4	57
A122	2'-0"							#6	2'-0"	10	30
A123	34'-0"							#6	34'-0"	4	204
A124	36'-6"							#6	36'-6"	24	1316
B101	7"	6'-10½"						#4	7'-5"	307	1520
D101	6"	1'-2"						#4	2'-1"	598	831
D102	2'-10⅞"	6¾"						#6	6'-3"	336	3155
K101	10¾"	5¾"	6"	7¾"				#4	3'-4"	624	1385
K102	3'-5"	10"	9½"	1'-3½"				#4	9'-8"	18	116
M101	10¼"	3'-5"	1'-3½"	2'-1"	11¾"	1'-10"		#4	10'-4"	76	524
						Total	for Superstructure				115,940

BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.

BAR BENDING DIAGRAM



Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 153,710 #

MICHIGAN STATE HIGHWAY DEPARTMENT

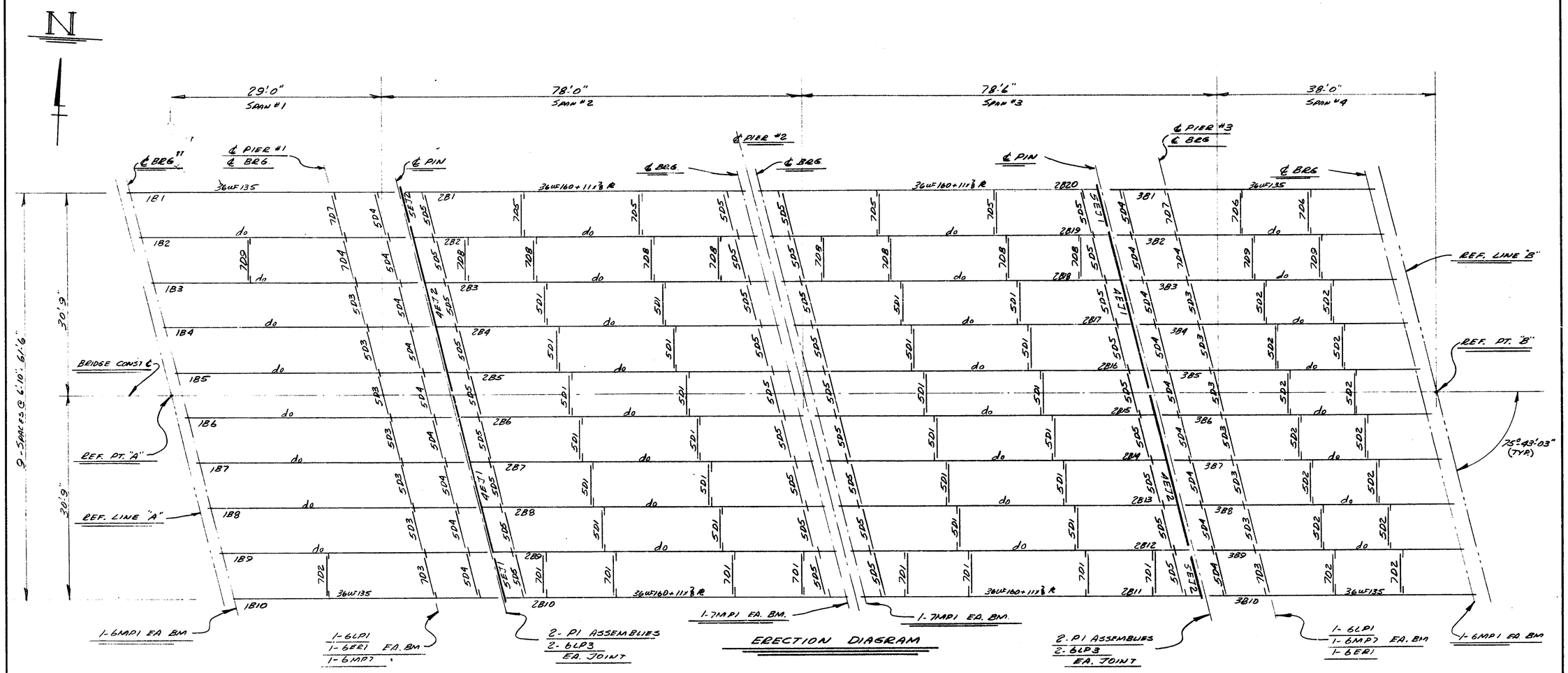
STEEL REINFORCEMENT DETAILS

REVISIONS			
NO	DESCRIPTION	DATE	BY

SQUAD BOSS Decess 6-22-64
DRAWN BY KMR 5-6-64
TRACED BY
CHECKED BY R. Woods 6/17/64
SHEET 18 OF 18

S27 OF 63174 A

B. K. ELLIOTT CO. 108 800 11-66



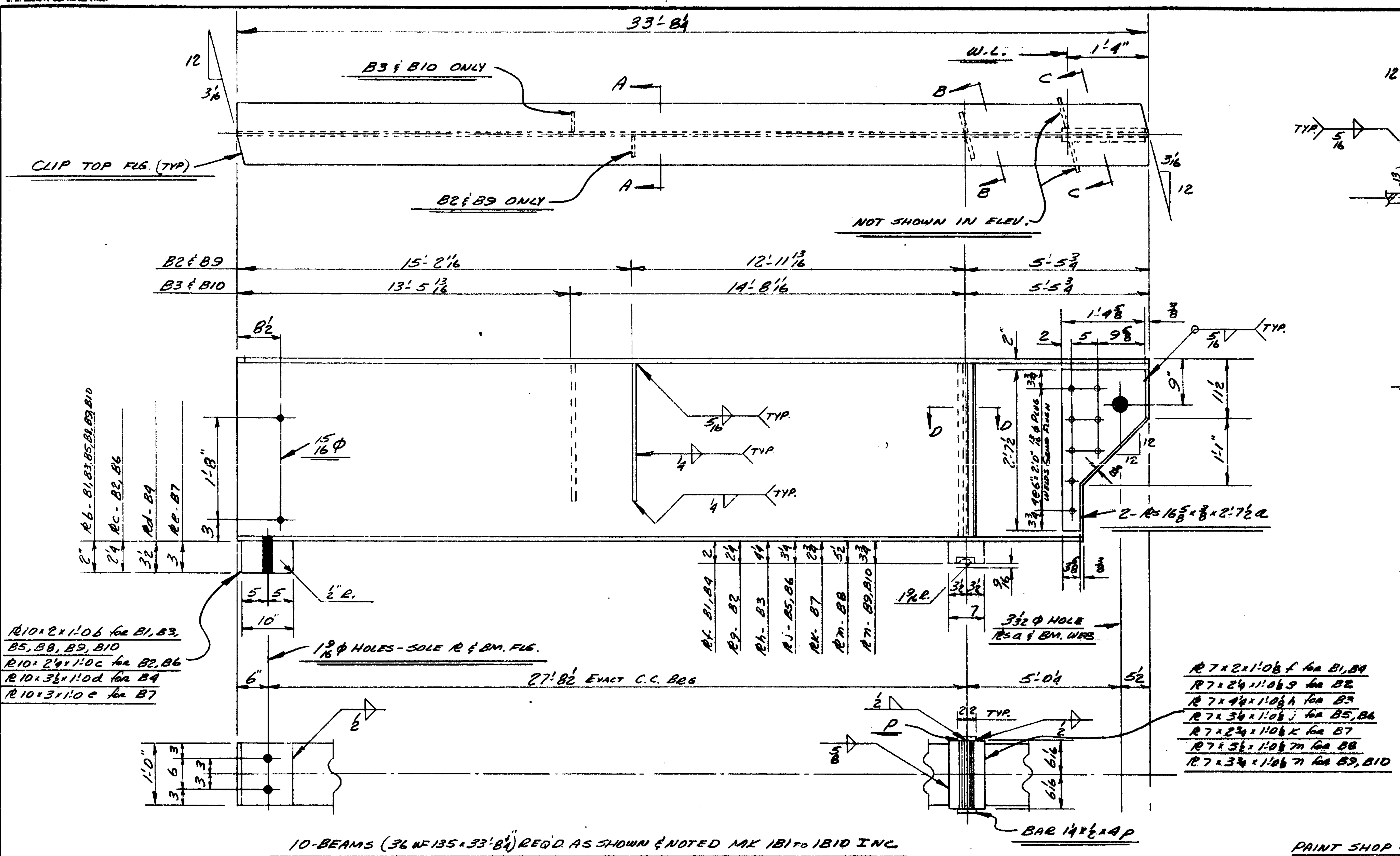
ERECTION DIAGRAM

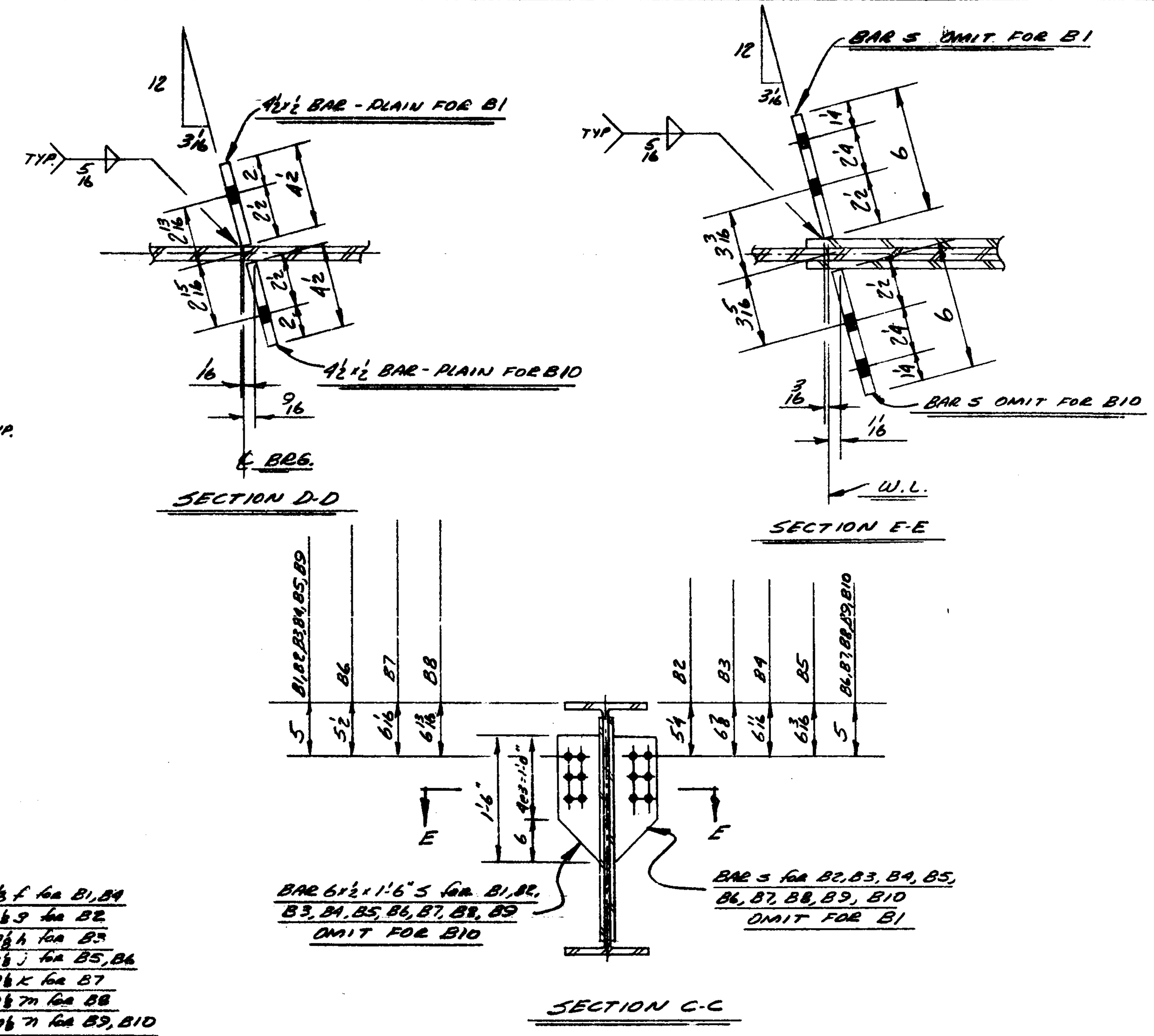
REVISION			
NO.	DESCRIPTION	DATE	BY

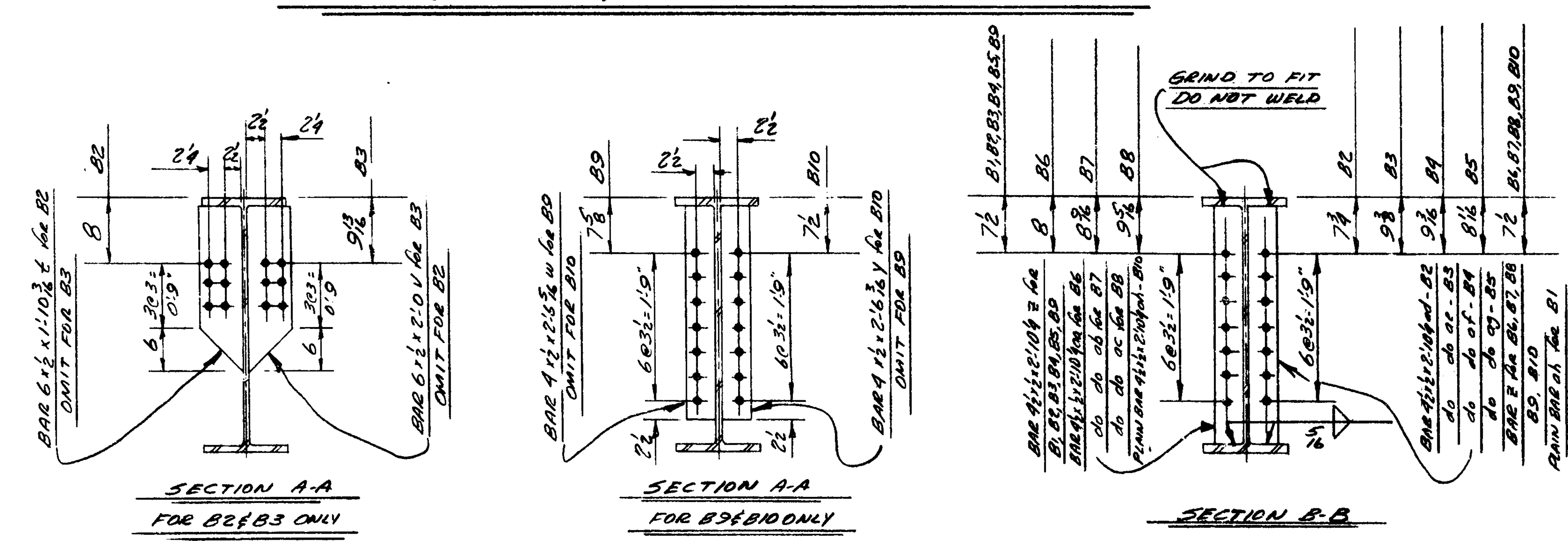
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

BRIDGE S27 OF 63174 A
I-75 (CHRYSLER X-WAY) CROSSING UNDER
9 MILE RD. IN HAZEL PARK
C.A. HULL CO. CONT'R.

DATE 8-25-65	JOB NO. R24560	SHEET E1
BY DHM		







SHOP NOTES

PAINT SHOP COAT OF M.S.H.D. 1A(1) RED LEAD EXCEPT AS FOLLOWS: THE TOP SURFACE OF THE TOP FLG. OF ALL 36WF160 BEAMS SHALL RECEIVE ONE COAT OF BOILED LINSEED OIL ONLY. THE TOP SURFACE OF MAS. PLS., BOTTOM SURFACE OF SOLE PLS & CURVED SURFACES OF ROCKERS SHALL RECEIVE ONE COAT OF M.S.H.D. 5.02.03 TALLOW MIXTURE ONLY. NO PAINT ON FIELD CONTACT SURFACES. PAINT EXP. JOINTS ONLY AS NOTED.

36WF135 BEAMS SHALL HAVE A CAMBER OF 0" ± ¼". 36WF160 BEAMS SHALL BE CAMBERED AS NOTED. TOLERANCE IS ± ¼". MEASURE CAMBER WITH THE BEAM LYING ON ITS SIDE.

ALL MATERIAL TO BE A36 STEEL U.N.

OPEN HOLES TO BE 13/16 Φ U.N.

ALL SHARP LONGITUDINAL EDGES OF MAIN STEEL MEMBERS THAT WILL BE EXPOSED IN THE FINISHED STRUCTURE SHALL BE ROUNDED TO A RADIUS OF 3/16" ± 1/16" BEFORE SHOP CLEANING AND PAINTING. THIS SHALL INCLUDE THE BOTTOM EDGE OF THE TOP FLG. OF ALL BEAMS.

MAGNETIC PARTICLE INSPECTION OF WELDS IS REQ'D.

ANCHOR BOLTS

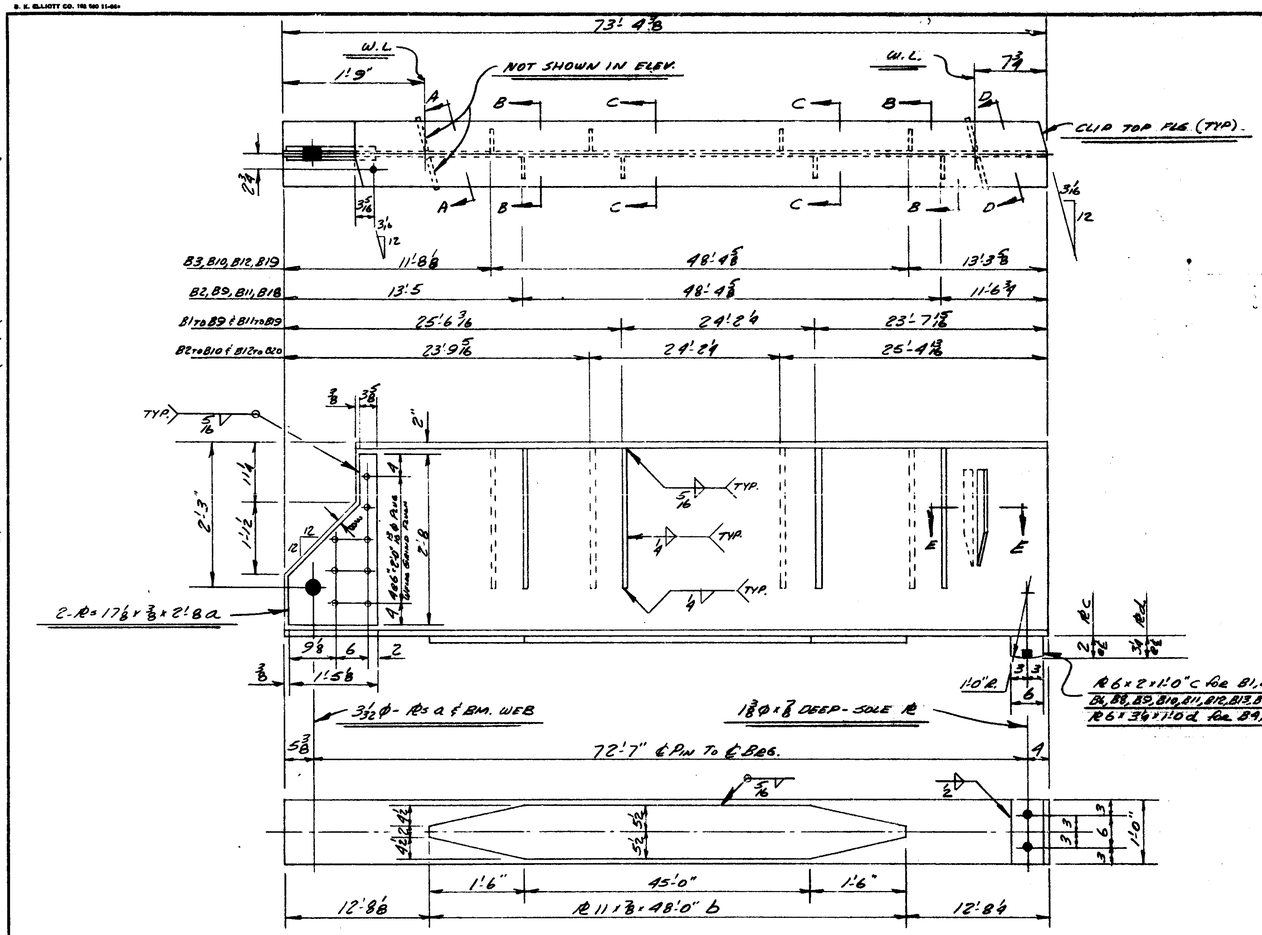
120 - 1"Φ x 1'-4" SQ HD. BOLTS (& 4 THD)
120 - 1"Φ REG. HEX NUTS
120 - 1"Φ ST. FLAT WASHERS

REVISION			
NO.	DESCRIPTION	DATE	BY

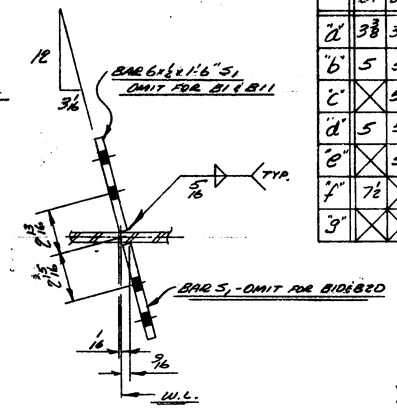
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

BRIDGE S27 OF 63174A
I-75 (CHRYSLER X-WAY) CROSSING UNDER
9-MILE ROAD IN HAZEL PARK
C.A. HULL CO. CONT'R.

DATE	8-26-65	JOB NO.	SHEET
BY	DHM	R24560	1 OF 7



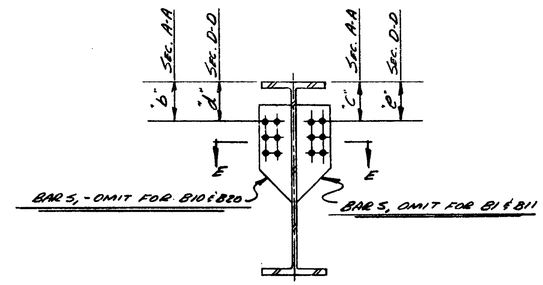
20-BEAMS (36WF160 x 73'-4 3/8 CAMB. "a") REQ'D. AS SHOWN & NOTED MK. 2B1 to 2B20



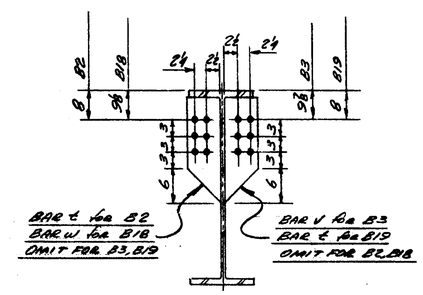
SECTION E-E

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20
"a"	3 3/8	3 3/8	3 1/8	3 1/8	3 1/8	3 1/8	3 1/8	3 1/8	3 3/8	3 3/8	3 3/8	3 3/8	3 1/8	3 1/8	3 1/8	3 1/8	3 1/8	3 1/8	3 3/8	3 3/8
"b"	5	5	5	5	5	5 1/2	6 1/16	6 13/16	5	X	5	5	5	5	5	5 3/4	6 5/16	6 7/16	5	X
"c"	X	5 1/4	6 7/8	6 11/16	6 5/16	5	5	5	5	5	X	5 1/4	7 1/4	6 7/16	6	5 1/4	5	5	5	5
"d"	5	5	5	5	5	6 1/16	6 3/16	7	5	X	5	5	5	5	5	6 1/16	6 3/16	7	5	X
"e"	X	5	7	6 3/16	6 1/16	5	5	5	5	5	X	5	7	6 3/16	6 1/16	5	5	5	5	5
"f"	7 1/2	X	X	7 1/2	7 1/2	8 3/8	8 11/16	9 1/2	7 5/8	X	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	8 7/16	8 13/16	X	X	X
"g"	X	X	X	8 13/16	8 9/16	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	X	7 1/2	9 1/2	8 3/4	8 7/16	7 1/2	7 1/2	X	X	7 1/2

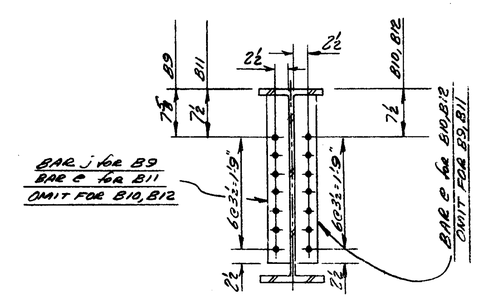
TABLE OF DIMENSIONS



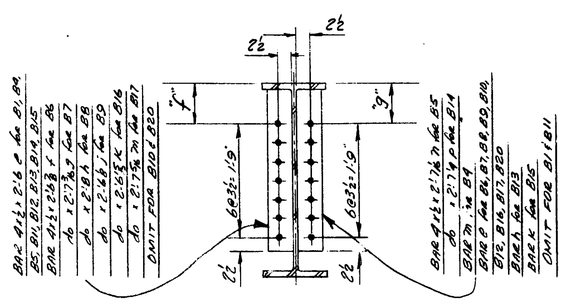
SECTIONS A-A & D-D



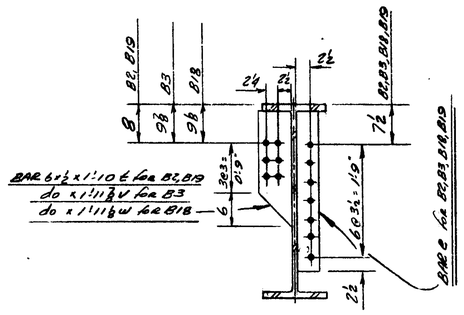
SECTIONS B-B
FOR B2, B3, B18 & B19



SECTIONS B-B
FOR B9, B10, B11 & B12



SECTIONS C-C FOR
ALL EXCEPT B2, B3, B18, B19



SECTIONS C-C AS SHOWN FOR B2, B18
SECTIONS C-C OPP. HAND & NOTED FOR B3 & B19

SEE SHEET #1 FOR SHOP NOTES

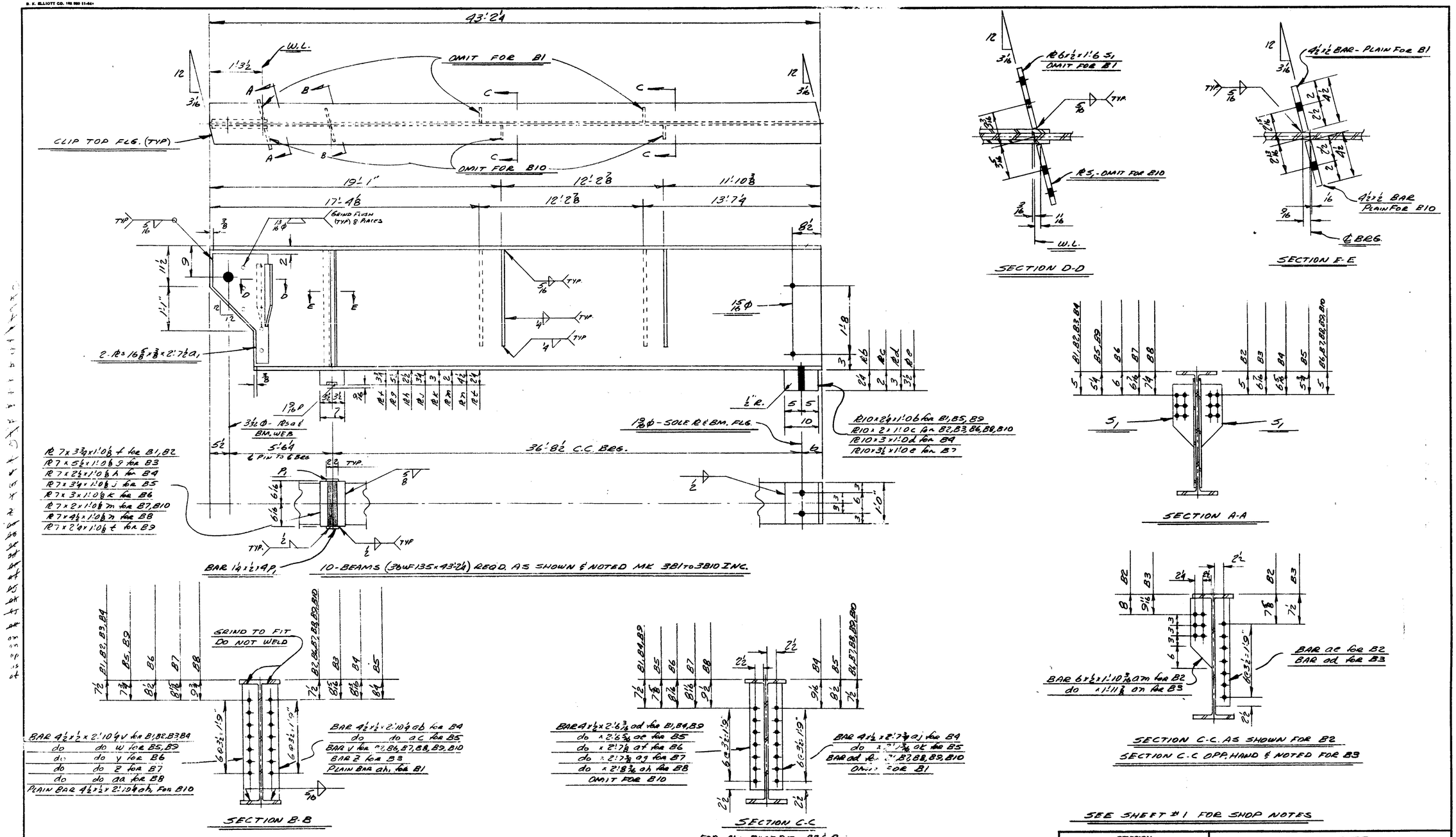
REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

BRIDGE 527 OF 63174A
I-75 (CHRYSLER X-WAY) CROSSING UNDER
9-MILE ROAD IN HAZEL PARK
C.A. HULL CO. CONT'R.

DATE 8-27-65	JOB NO. R24560	SHEET 2 OF 7
BY DAHA		

B. K. ELLIOTT CO. 102 800 11-64



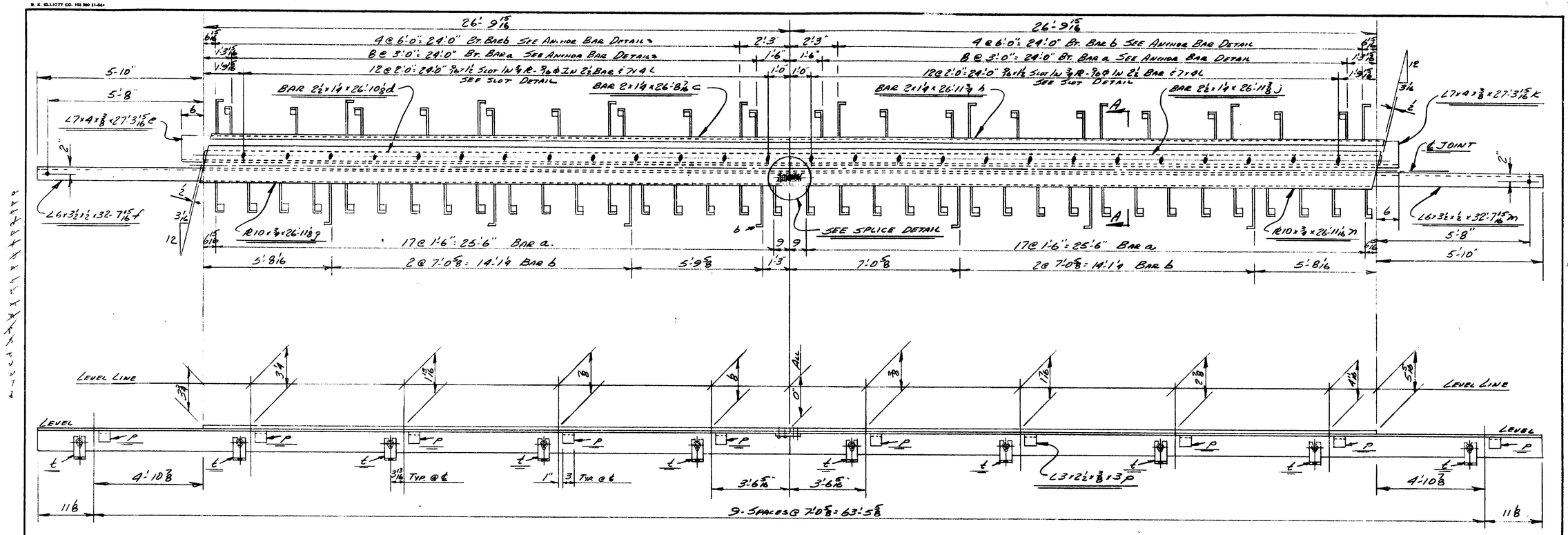
REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

BRIDGE 5270 OF 63174A
I-75 (CHRYSLER X-WAY) CROSSING UNDER
9-MILE ROAD IN HAZEL PARK
C.A. HULL CO. CONTR.

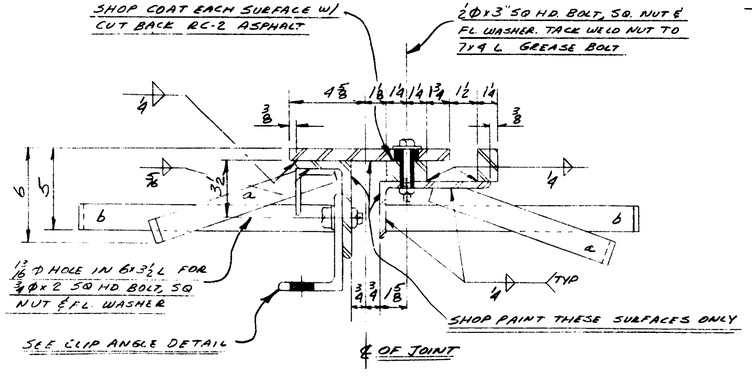
DATE 8-30-65	JOB NO. R24560	SHEET 3 OF 7
BY DHM		

B. K. ELLIOTT CO. 102 980 11-64

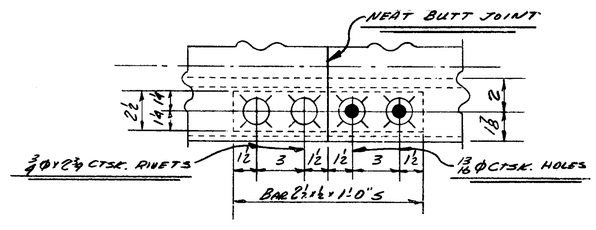


2-EXP. JOINTS REQ'D. AS SHOWN & NOTED MK 4EJ1

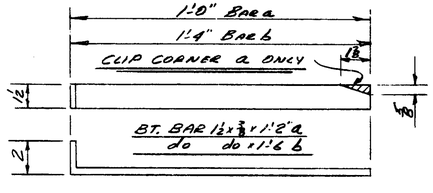
2-EXP. JOINTS REQ'D. AS SHOWN & NOTED MK 4EJ2



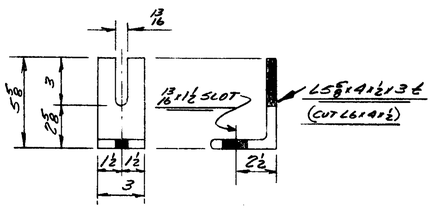
SECTION A-A



SPUCE DETAIL



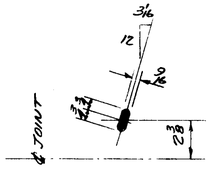
ANCHOR BAR DETAILS



CLIP ANGLE DETAIL

PLAIN MATERIAL

36 - BAR 2 x 3/8 x 1'-0"



SLOT DETAIL

SEE SHEET #2 FOR SHOP NOTES

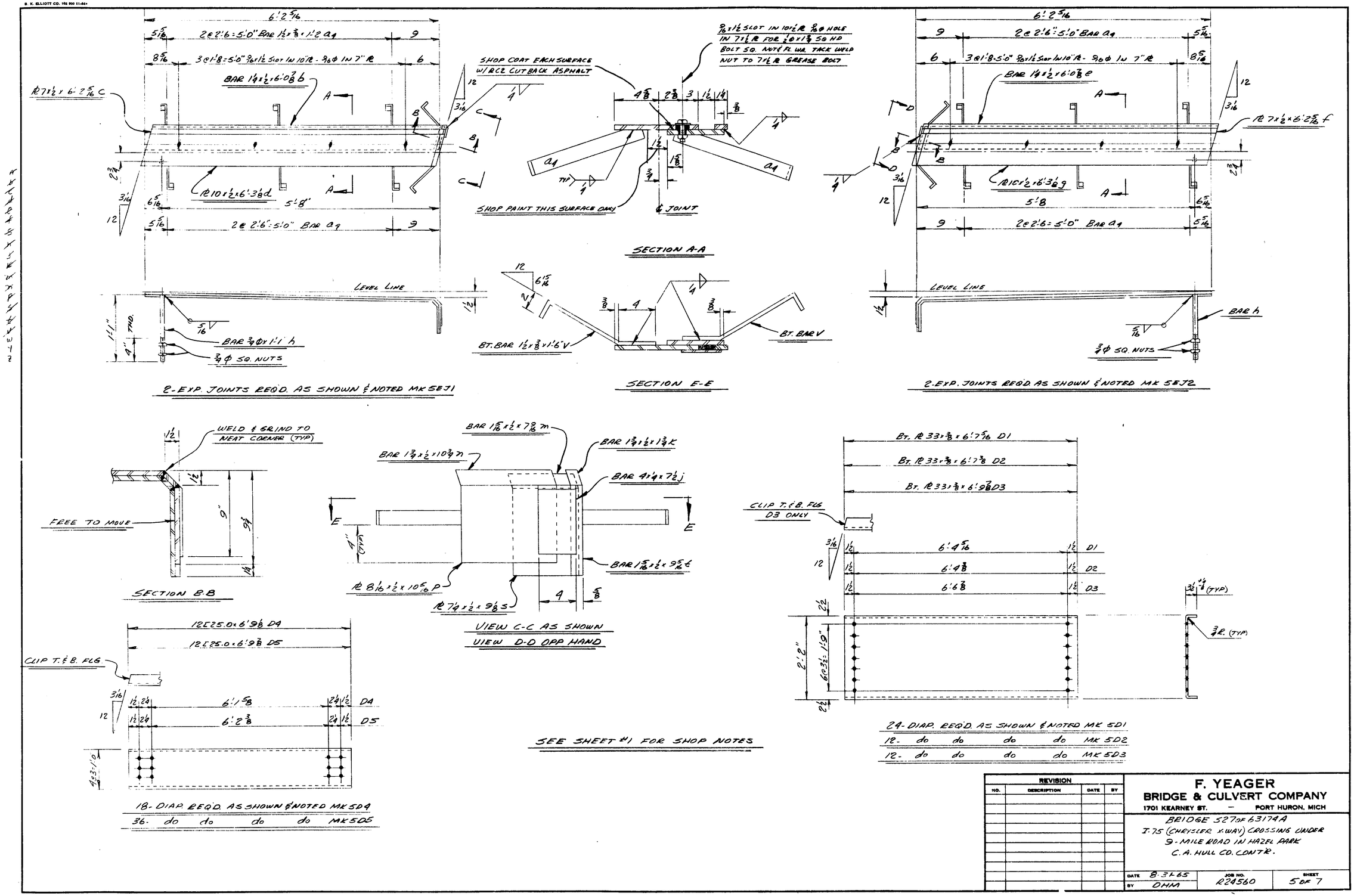
REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

BRIDGE S27 OF 63174 A
I-75 (CHRYSLER X-WAY) CROSSING UNDER
9-MILE ROAD IN HAZEL PARK
C. A. HULL CO. CONT'R.

DATE 8-31-65	JOB NO. R29560	SHEET 4 of 7
BY DHM		

B. K. ELLIOTT CO. 192 800 11-64



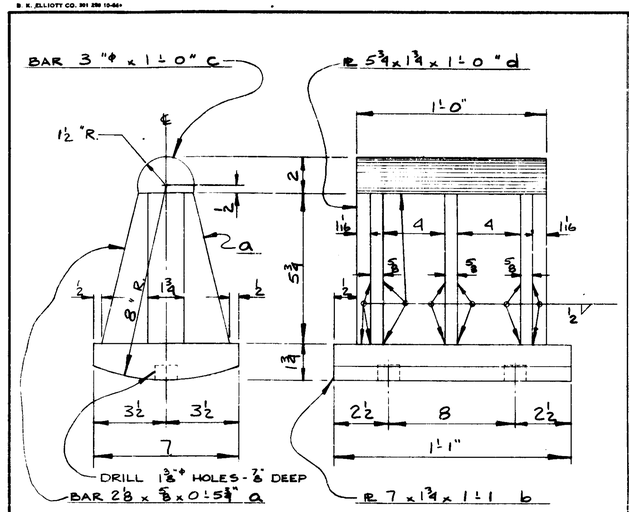
REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

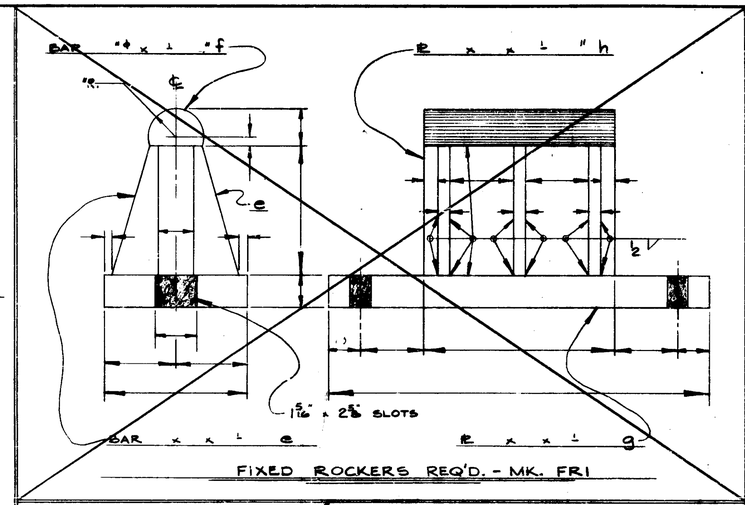
BRIDGE 527 OF 63174A
I-75 (CHRYSLER X-WAY) CROSSING UNDER
9-MILE ROAD IN HAZEL PARK
C.A. HULL CO. CONT'R.

DATE 8-31-65	JOB NO. R24560	SHEET 5 OF 7
BY DHM		

B. K. ELLIOTT CO. NO. 250 10-64



20-EXPANSION ROCKERS REQ'D. - MK6ER1



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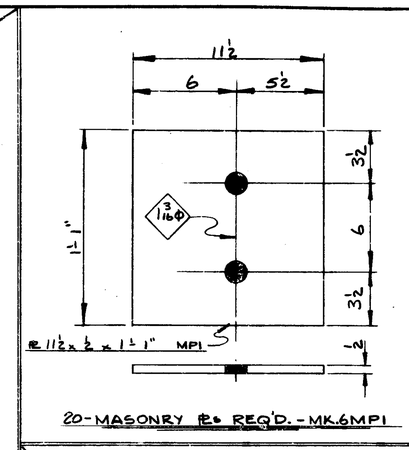
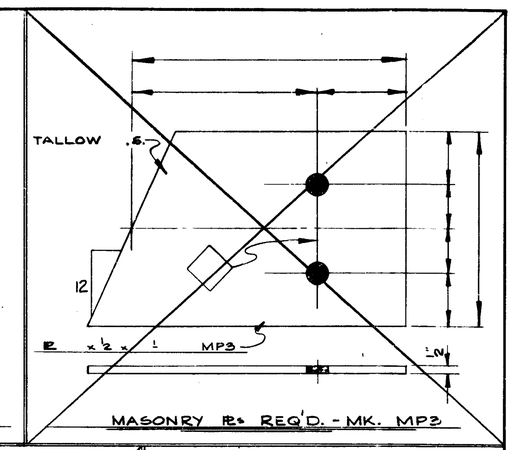
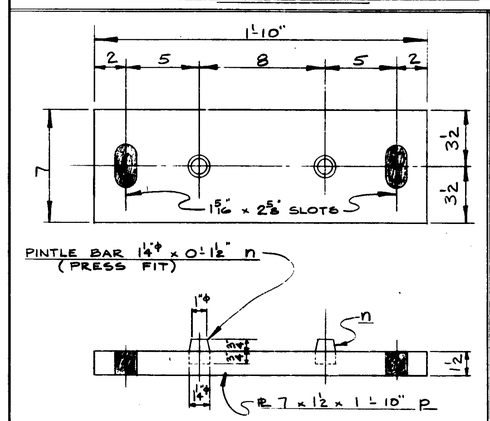


20-MASONRY PLs REQ'D. - MK.6MP1



MASONRY PLs REQ'D. - MK. MP3



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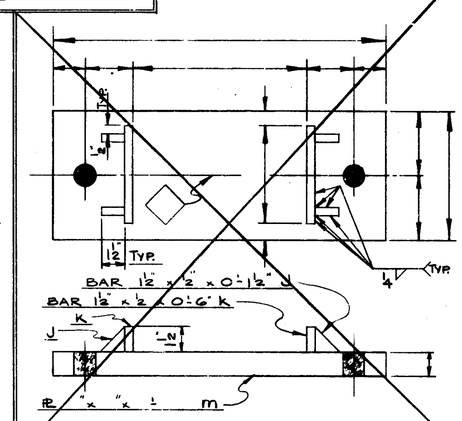

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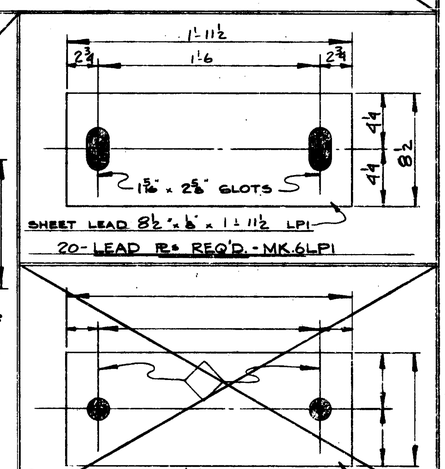
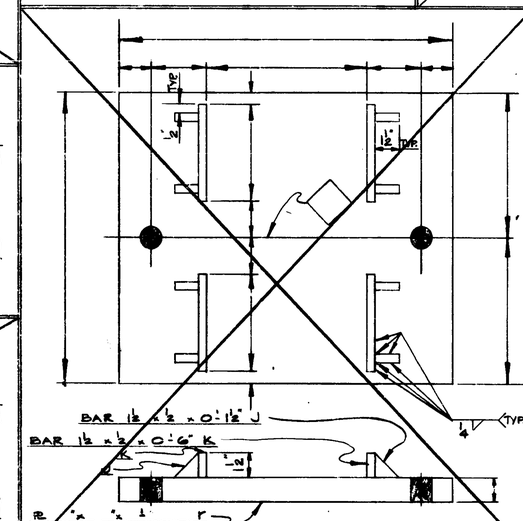
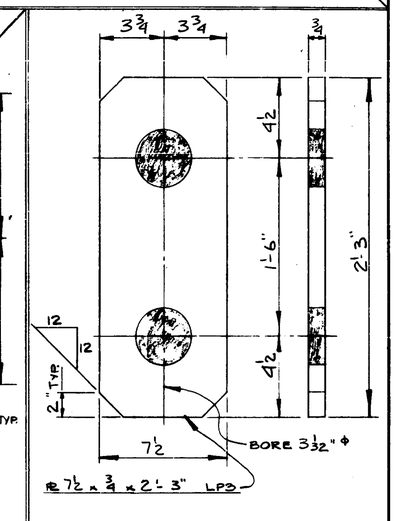


20-LEAD PLs REQ'D. - MK.6LP1

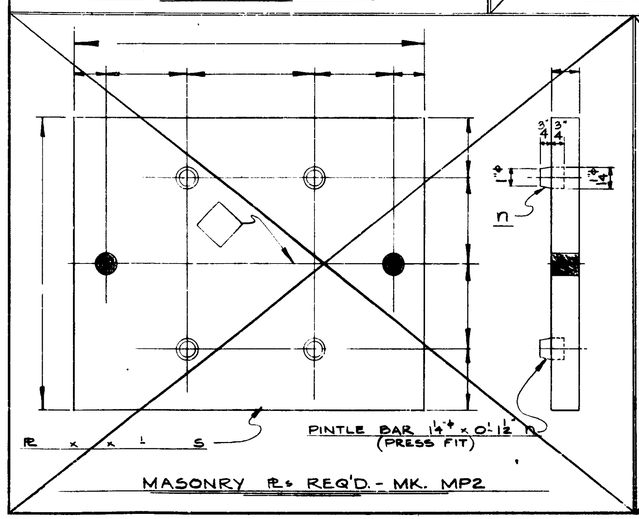
LEAD PLs REQ'D. - MK. LP2



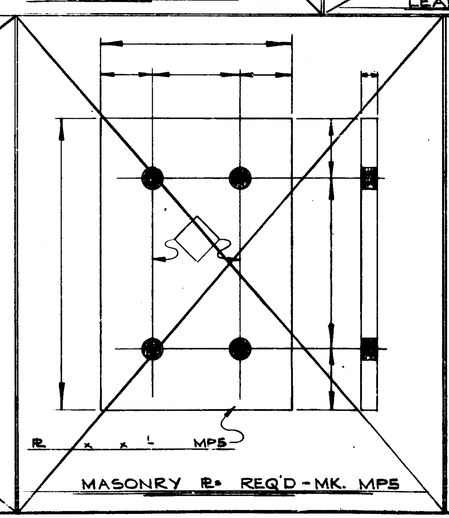
MASONRY PLs REQ'D. - MK. MP6



40-LINK PLs REQ'D. - MK6LP3



MASONRY PLs REQ'D. - MK. MP2



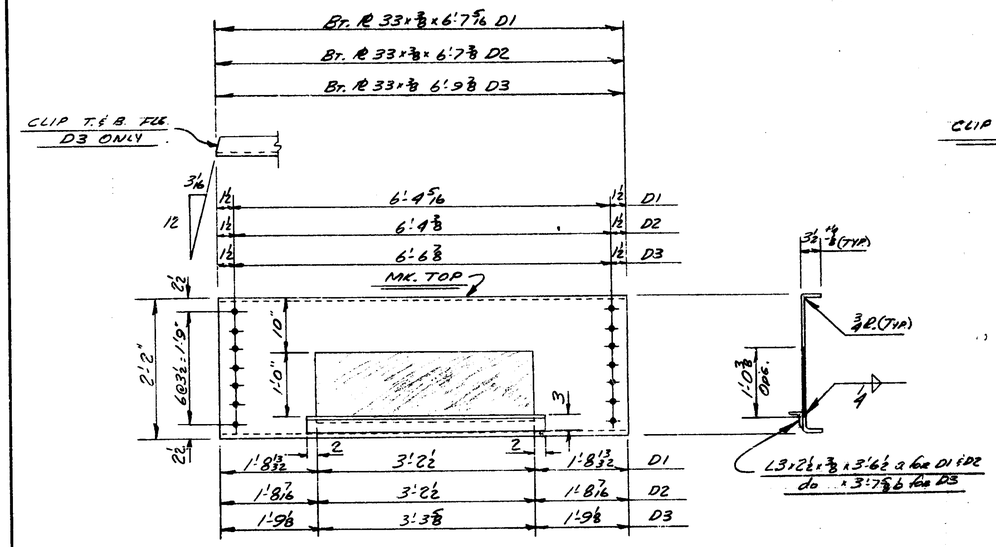
MASONRY PLs REQ'D - MK. MP5

REVISION			
NO.	DESCRIPTION	DATE	BY

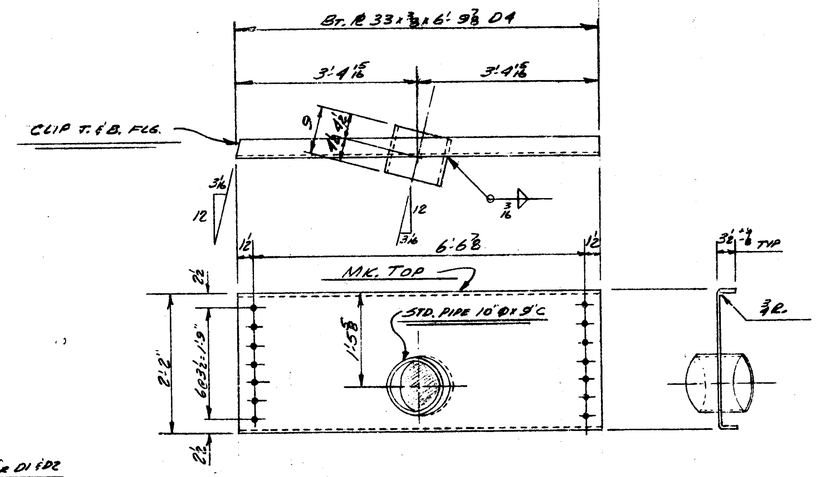
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. – PORT HURON, MICH

BRIDGE 527 OF 63174A
I-75 (CHRYSLER X-WAY) CROSSING UNDER
9-MILE ROAD IN HAZEL PARK
C. A. HULL CO. CONT'R.

DATE 8-31-65	JOB NO. R20560	SHEET 6 OF 7
BY DHM		



8-DIAP. REQ'D. AS SHOWN & NOTED MK 7D1
3- do do do do MK 7D2
2- do do do do MK 7D3



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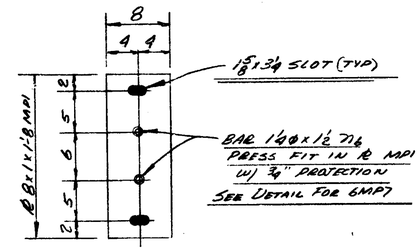
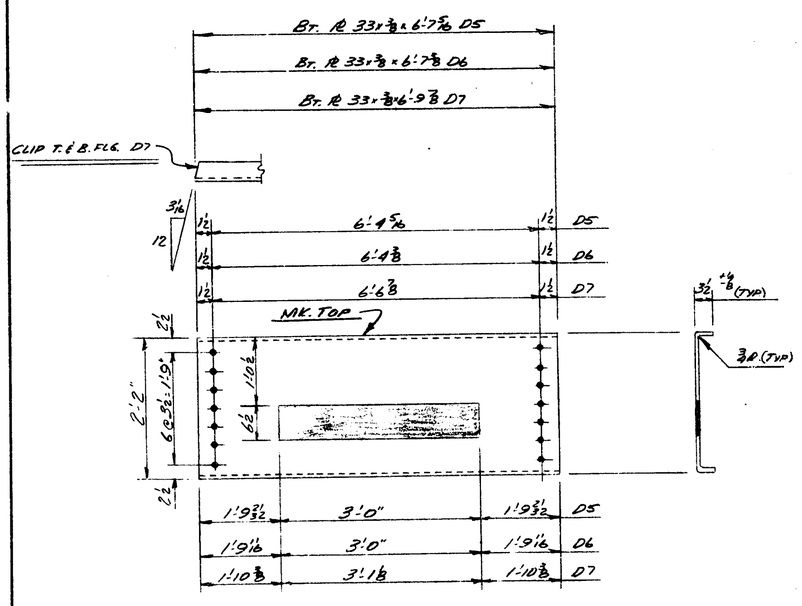
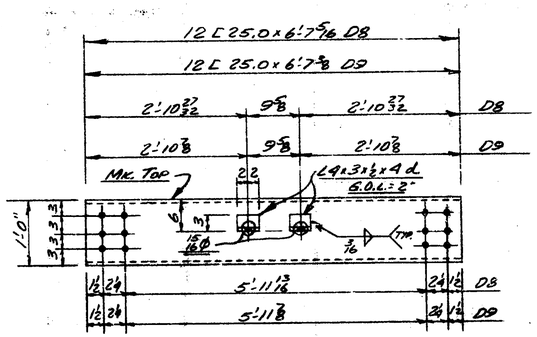


20-MAS. ℞S REQ'D. AS SHOWN & NOTED MK 7MP1



4-DIAP. REQ'D. AS SHOWN & NOTED MK 7D5
2- do do do do MK 7D6
2- do do do do MK 7D7



8-DIAP. REQ'D. AS SHOWN & NOTED MK 7D8
3- do do do do MK 7D9

CT.	SHIP	FIELD BOLTS
1774	1863	3/4Φ x 2 1/4 H. HEX HD. H.S. BOLTS
1774	1863	3/4Φ H. HEX NUTS
1774	1863	3/4Φ H. FLAT WASHERS
4	4	3/4Φ x 2 3/4 FL. HD. M. BOLTS
20	20	3/4Φ 1 2/2 SQ. HD. M. BOLTS
24	24	3/4Φ REG HEX NUTS
20	20	3/4Φ STD. FLAT WASHERS

SEE SHEET #1 FOR SHOP NOTES
SEE SHEET P1 FOR PIN DETAIL

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

BRIDGE 527 OF 63174A
I-75 (CHRYSLER X-WAY) CROSSING UNDER
9-MILE RD. IN HAZEL PARK
C.A. HULL CO. CONT'R.

DATE 5-1-65	JOB NO. R24560	SHEET 7 OF 7
BY DHM		

S28 of 63174

CS: 63174

ID: S28

Lot Aug 4 1969.

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS

PLANS OF PROPOSED BRIDGES

MICHIGAN PROJECT I-696-8(24)224
STATE PROJECT I63103, 012, PART 2

DETROIT NORTH BELT ROAD
CITY OF FERNDALE, HAZEL PARK, ROYAL OAK & MADISON HEIGHTS
OAKLAND COUNTY

GENERAL NOTES

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1967 EDITION.

THE DESIGN OF THESE STRUCTURES IS BASED ON THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS SPECIFICATIONS FOR THE DESIGN OF HIGHWAY BRIDGES, 1958 EDITION AND CURRENT AASHO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES HS 20-44 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION EQUALS $^1/_{1000}$ OF SPAN LENGTH AND $^1/_{350}$ OF CANTILEVER ARM.

THE CHARACTER OF ALL MATERIALS AND THE EXTENT THEREOF AS SHOWN BY BORINGS HAS BEEN OBTAINED BY METHODS AND FROM SOURCES BELIEVED TO BE RELIABLE. THE EXACTNESS OF THIS INFORMATION IS, HOWEVER, IN NO CASE GUARANTEED.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH 1/2" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

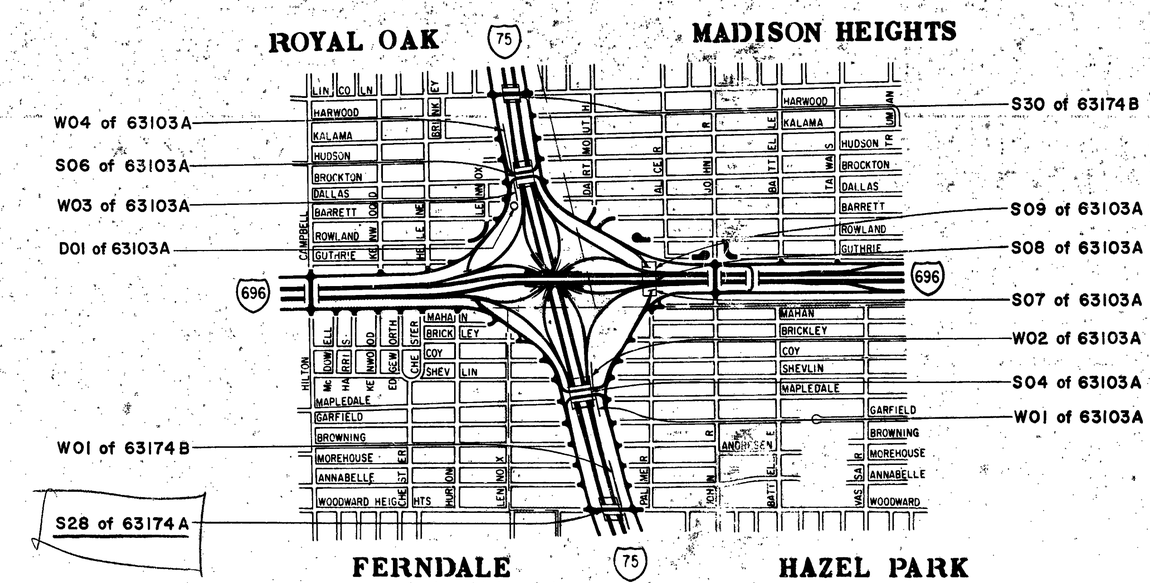
THE STATIONING AS SHOWN ON THESE PLANS FOR THE INTERSECTION OF THE CENTERLINE OF BRIDGES AND SURVEY CENTERLINES ARE BELIEVED TO BE CORRECT. IT SHALL, HOWEVER, BE CHECKED AT THE TIME OF STARTING CONSTRUCTION AND IF THE STATIONING SHOWN ON THE PLANS IS INCORRECT, IT SHALL BE REPORTED TO THE DESIGN OFFICE AT LANSING AND THE STRUCTURE SHALL BE STAKED OUT USING THE ACTUAL INTERSECTION OF THE CENTERLINE OF BRIDGE AND CENTERLINE AS THE CONTROL POINT.

THE GRADES AND STRESSES OF THE STRUCTURAL MATERIALS USED IN THIS STRUCTURE ARE AS FOLLOWS:

CONCRETE: GRADE A ..... $f_c' = 3{,}000$ psi

STEEL REINFORCEMENT: ..... $f_s = 20{,}000$ psi

STRUCTURAL STEEL: A588 ..... $f_s = 27{,}000$ psi



NOTE

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE
R11S & R12P	BRIDGE RAILING, BAR CHAIR, MOLDING AND BEVEL DETAILS
SP2J	STANDARD SLOPE PAVING DETAILS

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE
E-4-A-27R-4	MANHOLES, CATCH BASINS & INLETS.

AS CONSTRUCTED

ITEM NO. 1181

CONTRACT FOR STRUCTURES, WALLS & PUMPHOUSE

APPROVALS

CHECKED — ENGINEER - DESIGN SECTION II — DATE 6-5-69

RECOMMENDED FOR APPROVAL — Asst ENGINEER OF DESIGN — DATE 6-20-69

RECOMMENDED FOR APPROVAL — TRAFFIC DIVISION — DATE 6-30-69

RECOMMENDED FOR APPROVAL — CONSTRUCTION DIVISION — DATE 6/27/69

RECOMMENDED FOR APPROVAL — CHIEF - BUREAU OF ENGINEERING — DATE 6/26/69

DEPARTMENT OF STATE HIGHWAYS
HENRIK E. STAFSETH - STATE HIGHWAY DIRECTOR

APPROVED BY — DEPUTY STATE HIGHWAY DIRECTOR — DATE 6/30/69

PLANS PREPARED BY MICHIGAN DEPARTMENT OF STATE HIGHWAYS
AJLUNI
FISHER
SQUAD

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED BUREAU OF PUBLIC ROADS
[redacted]
FOR THE DIVISION ENGINEER

~~S04,06,07,08,09, & W01, 02,03,04 OF 63103A~~ S28 ~~& W01~~ OF 63174 A ~~S30 OF 63174 B~~ ~~D01 OF 63103A~~	STATE PROJECT NO.	FEDERAL PROJECT	SHEET NO.
	I-63103A ~~I-63174A&B~~	I-696-8	1

STATE PROJECT NO. ~~S04, 06, 07, 08, 09, & W01, 02, 03, 04 OF 63103A, D01 OF 63103A~~ ~~S28 & W01 OF 63174 A~~ ~~S30 OF 63174 B~~

INDEX OF PLANS	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
1A	INDEX SHEET
1B,C,D,E	QUANTITY SHEET

RETAINING WALL PLANS

S04 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5,6,7	ABUTMENT DETAILS
8,9,10	WINGWALL DETAILS
11	PIER DETAILS
12,13,14	STRUCTURAL STEEL DETAILS
15	METAL EXPANSION JOINT DETAILS
16	SHEAR DEVELOPER DETAILS
17,18,19,20	SUPERSTRUCTURE DETAILS
21,22	STEEL REINFORCEMENT DETAILS

S07 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
2A	ALIGNMENT SHEET
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5,6	ABUTMENT A DETAILS
7,8	ABUTMENT B DETAILS
9,10	STRUCTURAL STEEL DETAILS
11	NEOPRENE EXPANSION JOINT DETAILS
12,13	SUPERSTRUCTURE DETAILS
14	SCREED DETAILS
15	STEEL REINFORCEMENT DETAILS

S09 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
2A	ALIGNMENT SHEET
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	ABUTMENT A DETAILS
6,7	ABUTMENT B DETAILS
8,9	STRUCTURAL STEEL DETAILS
10	NEOPRENE EXPANSION JOINT DETAILS
11,12,13	SUPERSTRUCTURE DETAILS
14	STEEL REINFORCEMENT DETAILS

S30 OF 63174 B	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	ABUTMENT DETAILS
6,7,8	WINGWALL DETAILS
9	PIER DETAILS
10,11	STRUCTURAL STEEL DETAILS
12	METAL EXPANSION JOINT DETAILS
13	SHEAR DEVELOPER DETAILS
14,15,16,17	SUPERSTRUCTURE DETAILS
18	LIGHTING DETAILS
19	UTILITIES DETAILS
20	STEEL REINFORCEMENT DETAILS

W01 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS AND STAKING DIAGRAM
4	GENERAL PLAN OF STRUCTURE
5 THRU 13	RETAINING WALL DETAILS
14,15	STEEL REINFORCEMENT DETAILS

W02 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS AND STAKING DIAGRAM
4	GENERAL PLAN OF STRUCTURE
5,6,7	RETAINING WALL DETAILS
8	STEEL REINFORCEMENT DETAILS

W03 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS AND STAKING DIAGRAM
4	GENERAL PLAN OF STRUCTURE
5 THRU 8	RETAINING WALL DETAILS
9	STEEL REINFORCEMENT DETAILS

S06 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4,5	GENERAL PLAN OF STRUCTURE
5A	SHEET PILING AND BRACING DETAILS
6,7	ABUTMENT DETAILS
8,9,10	WINGWALL DETAILS
11	PIER DETAILS
12,13,14	STRUCTURAL STEEL DETAILS
15	METAL EXPANSION JOINT DETAILS
16	SHEAR DEVELOPER DETAILS
17,18,19,20	SUPERSTRUCTURE DETAILS
21	STEEL REINFORCEMENT DETAILS

S08 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
2A	ALIGNMENT SHEET
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5,6,7,8	ABUTMENT A DETAILS
9,10,11,12	ABUTMENT B DETAILS
13,14	STRUCTURAL STEEL DETAILS
15	NEOPRENE EXPANSION JOINT DETAILS
16,17,18,19,20	SUPERSTRUCTURE DETAILS
21,22	STEEL REINFORCEMENT DETAILS

S28 OF 63174 A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	EXIST. UTILITIES & PROP. ALTERATIONS
6	ABUTMENT DETAILS
7,8,9,10	WINGWALL DETAILS
11	PIER DETAILS
12,13	STRUCTURAL STEEL DETAILS
14	METAL EXPANSION JOINT DETAILS
15	SHEAR DEVELOPER DETAILS
16,17,18,19	SUPERSTRUCTURE DETAILS
20	UTILITIES DETAILS
20A	LIGHTING DETAILS
21	STEEL REINFORCEMENT DETAILS

D01 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	GENERAL PLAN OF STRUCTURE
4 - 7	PUMPHOUSE DETAILS
8 & 9	MISCELLANEOUS DETAILS
10	MECHANICAL & ELECTRICAL DETAILS
11	STEEL REINFORCEMENT DETAILS

RETAINING WALL PLANS

W01 OF 63174A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4,5	GENERAL PLAN OF STRUCTURE
6 THRU 14	RETAINING WALL DETAILS
15	STEEL REINFORCEMENT DETAILS

W04 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	CONSTRUCTION SCHEME
5	GENERAL PLAN OF STRUCTURE
6 THRU 10	RETAINING WALL DETAILS
11	SIGN BASE AND LIGHT STANDARD ANCHORAGE DETAILS
12	STEEL REINFORCEMENT DETAILS

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

INDEX SHEET

REVISIONS

NO.	DESCRIPTION	DATE	BY

DESIGN BASIS	AJLUNI	5-21-69
DRAWN BY	KRAVE	5-21-69
TRACED BY		
CHECKED BY	R BECKON	6-4-69

SHEET 1A OF ~~63103A~~ 528 of 63174 A & B

Code No. and Unit Price are blank in every row. The overall Contr. Quant., Final Quant. and Final Cost columns hold only a hand-drawn arrow marked "See Sheet 1-B".

ITEM	UNIT	W04 of 63103 A Contr. Quant.	Remarks (Auth. No's.)	Final Quant.	Final Cost	S28 of 63174 A Contr. Quant.	Remarks (Auth. No's.)	Final Quant.	Final Cost
Unclassified Excavation	Cu.Yds	2115	1163	2,157	16,177.50	1990	1163	2,101	15,757.50
Steel Sheet Piling Left in Place	Sq.Ft.	6150	1062 1149	5,832	43,740.00			—	
Temp Steel Sheet Piling	Sq.Ft.			—		2440	1169	2,322	16,254.00
Concrete Subfooting	Cu.Yds			—				—	
Grade A(6A) Concrete - Substructure	Cu.Yds.	274	1158	283.0	21,508.00	549.3	1158	546.9	41,564.40
Grade A(6AA) Concrete - Substructure	Cu.Yds.	300	1154	301.1	25,593.50	556.8	1154	556.9	47,336.50
Protect. Sealant Coat for Concrete	Sq.Ft.			—				—	
Clear Protective Coat for Sub. Conc.	Sq.Yds.			—		532	1136	546.1	2,020.57
Grade A(6AA) Conc. - Superstructure	Cu.Yds.			—		369.8		369.8	36,240.40
Grade - X - Concrete	Cu.Yds			—		35	1162	31.8	2,385.00
Water Reducing Retarding Admixture	Gals.			—		46	1160	14	98.00
Elastomeric Bearing Pads	Sq.Ft.			—		18		18.0	270.00
5/8" Concrete Inserts	Each			—				—	
Low Temp. Protection Substructure Conc.	Cu.Yds.	574	1161	0.0	0.00			—	
Protective Treatment for Bridge Decks	Sq.Ft.			—		11,457	1157	5,729	859.35
Steel Reinforcement	Lbs.	32331	1033 1164	31,452	5975.88	154,741	1164	154,542	29,362.98
Shear Developers	Lump Sum			—		L.S.		L.S.	2,500.00
Structural Steel - Furnishing & Fabricating	Lbs.			—		297,700	1045	295,593	50,842.00
Structural Steel - Erection	Lbs.			—		297,700	1045	295,593	8867.79
Structural Steel - Furnishing & Fabricating	Lbs.			—				—	
Structural Steel - Erection	Lbs.			—				—	
Structural Tile 6"x12"x12"	Each			—		1520	1136	1,503	1,503.00
1/4" Joint Filler	Sq.Ft.	20	1136	16	32.00	44	1136	36	72.00
1/2" Joint Filler	Sq.Ft.			—		224	1136	212	424.00
1" Joint Filler	Sq.Ft.	75	1136	80	160.00	248	1136	237	474.00
3 in. Preformed Neoprene Joint Seal	Lin.Ft.			—				—	
Hot Poured Rubber-Asphalt Type Filler	Lin.Ft.			—		67	1136	67.8	237.30
Joint Waterproofing	Sq.Ft.	330		330	495.00	500	1147	504	756.00
Expansion Joint Drain	Each	2	1142	3	450.00	4		4	600.00
Bridge Railing Parapet Type C.D.	Lin.Ft.			—		365.3	1136	363.5	7,270.00
Bridge Guard Rail Type	Lin.Ft.			—				—	
Slope Protection Class A	Sq.Yds.			—		136	1159	111	1,332.00
Slope Protection Headers	Lin.Ft.			—		175	1159	173	2,076.00
Foundation Drain	Lin.Ft.	224	1156	221	994.50	344	1156	315	1417.50
Light Standard Anchorage Assembly	Each	1		1	100.00			—	
8" Pipe Sleeve - Placed	Each			—				—	
10" Pipe Sleeve - Placed	Each			—				—	
12" Pipe Sleeve - Placed	Each			—		2		2	120.00
12" Cast Iron Pipe	Lin.Ft.	6		6	150.00			—	
3" Galvanized Iron Pipe Conduit	Lin.Ft.	16	1136	14.5	97.00			—	
Special Inlet	Each			—		2		2	800.00
8" Foundation Sewer	Lin.Ft.			—		8	1136	10	200.00
2" Elastomeric Bearing Pads	Sq.Ft.			—				—	
3" Φ Fiber Conduit	Lin.Ft.			—		173	1136	172	448.92
TOTAL					115,473.38 Plus Extras				272,089.21 Plus Extras

ITEM	UNIT	W01 of 63174 A Contr. Quant.	Remarks (Auth. No's.)	Final Quant.	Final Cost	S30 of 63174 B Contr. Quant.	Remarks (Auth. No's.)	Final Quant.	Final Cost
Unclassified Excavation	Cu.Yds	5900	1163	5,749	43,117.50	2575	1163	2,412	18,090.00
Steel Sheet Piling Left in Place	Sq.Ft.			—				—	
Temp Steel Sheet Piling	Sq.Ft.	1000	1169	898	6,286.00			—	
Concrete Subfooting	Cu.Yds			—				—	
Grade A(6A) Concrete - Substructure	Cu.Yds.	678.0		678.0	51,528.00	542.9		542.9	41,260.40
Grade A(6AA) Concrete - Substructure	Cu.Yds.	806.8		806.8	68,578.00	628.2	1154	629.3	53,490.50
Protect. Sealant Coat for Concrete	Sq.Ft.			—				—	
Clear Protective Coat for Sub. Conc.	Sq.Yds.			—		565	1136	445.0	1,646.50
Grade A(6AA) Conc. - Superstructure	Cu.Yds.			—		369.8	1141	377.1	36,955.80
Grade - X - Concrete	Cu.Yds			—				—	
Water Reducing Retarding Admixture	Gals.			—		42	1160	45	315.00
Elastomeric Bearing Pads	Sq.Ft.			—		20	1136	18.0	270.00
5/8" Concrete Inserts	Each			—		210		210	630.00
Low Temp. Protection Substructure Conc.	Cu.Yds.	1484.8	1161	1,109.8	11.10			—	
Protective Treatment for Bridge Decks	Sq.Ft.			—		11,300		11,300	1,695.00
Steel Reinforcement	Lbs.	91,712	1164	91,680	17419.20	160,186		160,186	30,435.34
Shear Developers	Lump Sum			—		L.S.		L.S.	2500.00
Structural Steel - Furnishing & Fabricating	Lbs.			—		295,500	1045	291,608	50,156.58
Structural Steel - Erection	Lbs.			—		295,500	1045	291,608	8748.24
Structural Steel - Furnishing & Fabricating	Lbs.			—				—	
Structural Steel - Erection	Lbs.			—				—	
Structural Tile 6"x12"x12"	Each			—		1510	1136	1,478	1,478.00
1/4" Joint Filler	Sq.Ft.	70	1136	55	110.00	46	1136	41	82.00
1/2" Joint Filler	Sq.Ft.			—		220	1136	219	438.00
1" Joint Filler	Sq.Ft.	280	1136	253	506.00	270	1136	237	474.00
3 in. Preformed Neoprene Joint Seal	Lin.Ft.			—				—	
Hot Poured Rubber-Asphalt Type Filler	Lin.Ft.			—		66	1136	67.4	235.90
Joint Waterproofing	Sq.Ft.	1055	1147	645	967.50	582	1147	615	922.50
Expansion Joint Drain	Each	8		8	1,200.00	4		4	600.00
Bridge Railing Parapet Type C.D.	Lin.Ft.	648.0	1136	647.3	12946.00	342.1	1136	339.6	6,792.00
Bridge Guard Rail Type	Lin.Ft.			—				—	
Slope Protection Class A	Sq.Yds.			—		134	1159	110	1,320.00
Slope Protection Headers	Lin.Ft.			—		174	1159	173	2,076.00
Foundation Drain	Lin.Ft.	648	1156	725	3262.50	364	1156	367	1,651.50
Light Standard Anchorage Assembly	Each			—				—	
8" Pipe Sleeve - Placed	Each			—		2		2	80.00
10" Pipe Sleeve - Placed	Each			—				—	
12" Pipe Sleeve - Placed	Each			—				—	
12" Cast Iron Pipe	Lin.Ft.			—				—	
3" Galvanized Iron Pipe Conduit	Lin.Ft.			—				—	
Special Inlet	Each			—		2		2	800.00
8" Foundation Sewer	Lin.Ft.			—		8	1136	9	180.00
2" Elastomeric Bearing Pads	Sq.Ft.			—				—	
3" Φ Fiber Conduit	Lin.Ft.			—		172	1136	174	454.14
TOTAL					205,931.80				263,777.40

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL

CHECKED [illegible] SECTION DATE 9/1/71

ITEM 1181

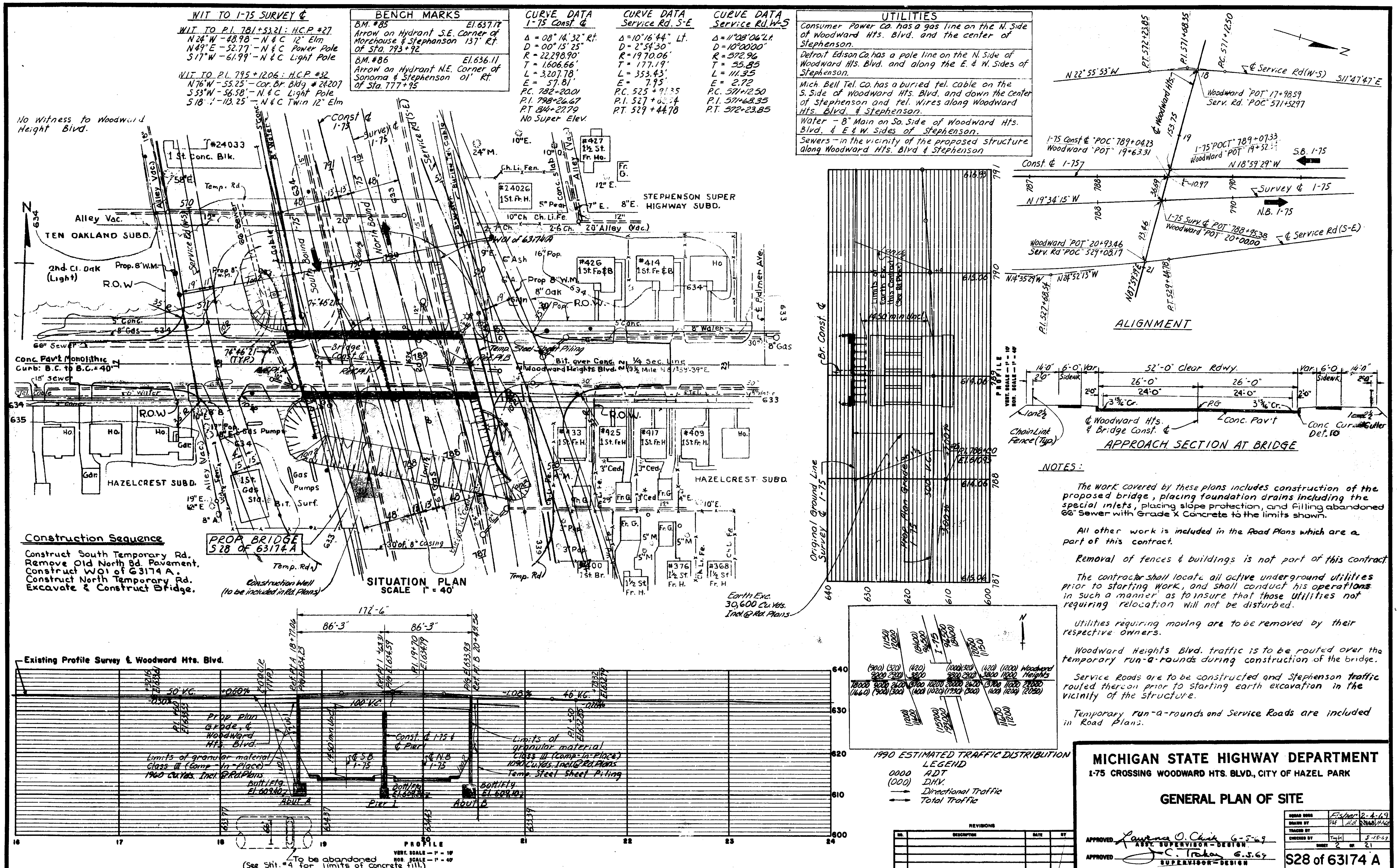
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

QUANTITY SHEET

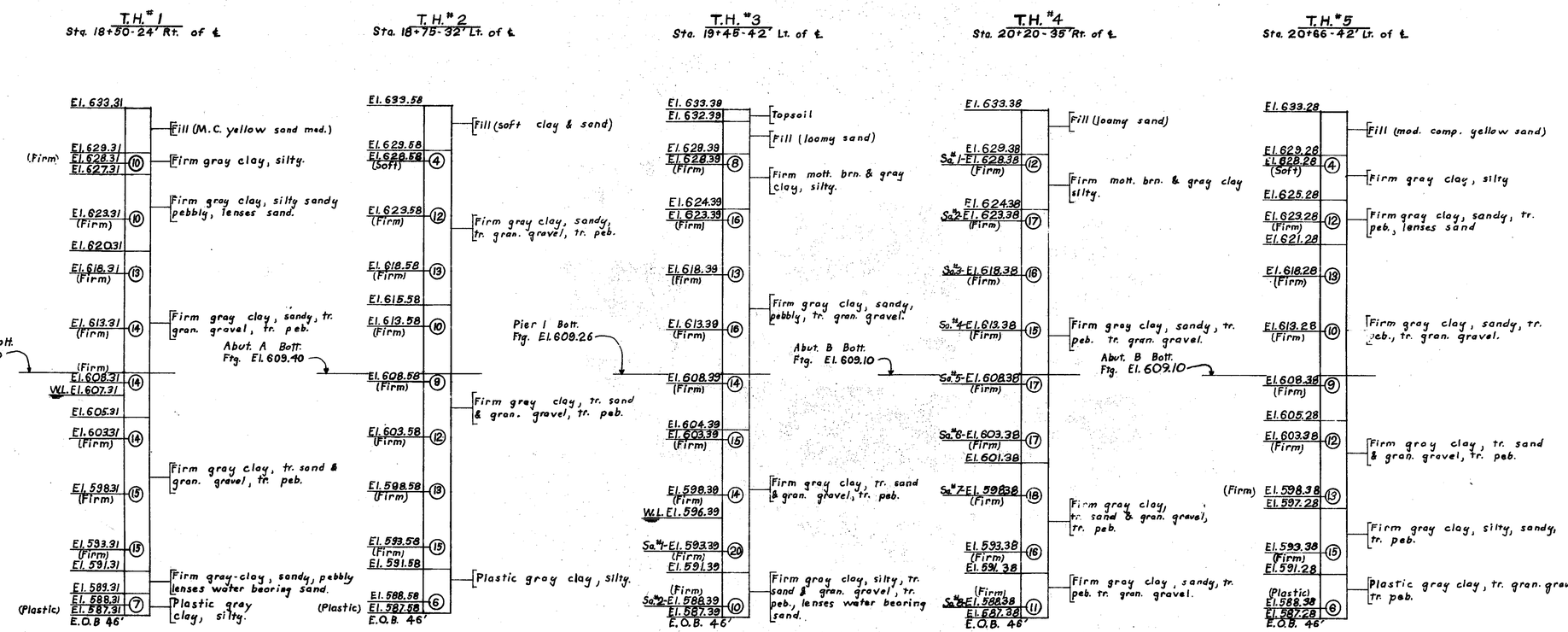
I 696-8 (24) 224

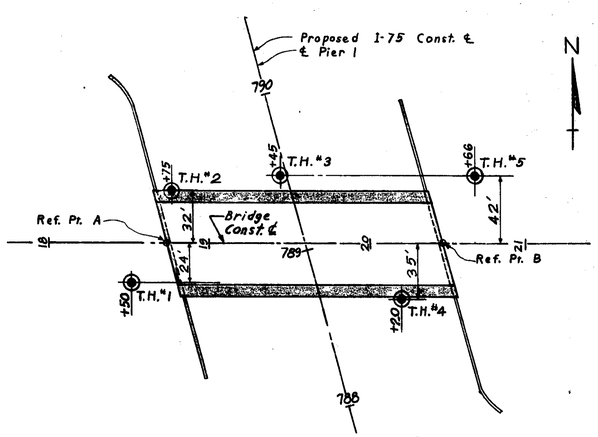
SQUAD BOSS	Fisher	6-4-69
DRAWN BY	R. Marsh	5/26/69
TRACED BY		
CHECKED BY		
SHEET 1B OF		

PROJECT ~~I-63103A~~ I-63174A&B ~~S04,06,07,08,09, & W01,02,03,04 of 63103A~~, S28 ~~& W01~~ of 63174A, ~~S30 of 63174B~~



WIT TO I-75 SURVEY ℄
WIT TO P.I. 781+53.21 : H.C.P. #27
N 24°W - 48.98 - N & C 12" Elm
N 49°E - 52.77 - N & C Power Pole
S 17°W - 61.99 - N & C Light Pole
WIT TO P.I. 795+12.06 : H.C.P. #32
N 76°W - 55.25 - Cor. Br. Bldg #24207
S 53°W - 56.58 - N & C Light Pole
S 18°W - 113.25 - N & C Twin 12" Elm
BENCH MARKS
B.M. #85 El. 637.17
Arrow on Hydrant S.E. Corner of Morehouse & Stephenson 137' Rt. of Sta. 793+92
B.M. #86 El. 636.11
Arrow on Hydrant N.E. Corner of Sonoma & Stephenson 01' Rt. of Sta. 777+95
CURVE DATA I-75 Const ℄
Δ = 08° 14' 32" Rt.
D = 00° 15' 25"
R = 22,298.90'
T = 1,606.66'
L = 3,207.78'
E = 57.81'
P.C. 782+20.01
P.I. 798+26.67
P.T. 814+27.79
No Super Elev.
CURVE DATA Service Rd. S-E
Δ = 10° 16' 44" Lt.
D = 2° 54' 30"
R = 1970.06'
T = 177.19'
L = 353.43'
E = 7.95'
P.C. 525+91.35
P.I. 527+68.54
P.T. 529+44.78
CURVE DATA Service Rd. W-S
Δ = 11° 08' 06" Lt.
D = 10° 00' 00"
R = 572.96
T = 55.85
L = 111.35
E = 2.72
P.C. 571+12.50
P.I. 571+68.35
P.T. 572+23.85
UTILITIES
Consumer Power Co. has a gas line on the N. Side of Woodward Hts. Blvd. and the center of Stephenson.
Detroit Edison Co. has a pole line on the N. Side of Woodward Hts. Blvd. and along the E. & W. Sides of Stephenson.
Mich Bell Tel. Co. has a buried tel. cable on the S. Side of Woodward Hts. Blvd. and down the center of Stephenson and tel. wires along Woodward Hts. Blvd. & Stephenson.
Water - 8" Main on So. Side of Woodward Hts. Blvd. & E & W. Sides of Stephenson.
Sewers - in the vicinity of the proposed structure along Woodward Hts. Blvd & Stephenson
No Witness to Woodward Height Blvd.
TEN OAKLAND SUBD.
STEPHENSON SUPER HIGHWAY SUBD.
HAZELCREST SUBD.
Woodward Heights Blvd.
Construction Sequence
Construct South Temporary Rd.
Remove Old North Bd. Pavement.
Construct W01 of 63174 A.
Construct North Temporary Rd.
Excavate & Construct Bridge.
PROP. BRIDGE S28 OF 63174 A
SITUATION PLAN
SCALE 1" = 40'
Construction Well (to be included in Rd. Plans)
Earth Exc. 30,600 Cu.Yds. Incl. @ Rd. Plans
ALIGNMENT
Const ℄ I-75
Survey ℄ I-75
S.B. I-75
N.B. I-75
℄ Service Rd (W-S)
℄ Service Rd (S-E)
52'-0" Clear Rdwy.
26'-0"
24'-0"
Sidewk
℄ Woodward Hts. & Bridge Const. ℄
Conc. Pav't
Chain Link Fence (Typ)
Conc. Curb & Gutter Det. 10
APPROACH SECTION AT BRIDGE
NOTES:
The work covered by these plans includes construction of the proposed bridge, placing foundation drains including the special inlets, placing slope protection, and filling abandoned 66" Sewer with Grade X Concrete to the limits shown.
All other work is included in the Road Plans which are a part of this contract.
Removal of fences & buildings is not 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.
Utilities requiring moving are to be removed by their respective owners.
Woodward Heights Blvd. traffic is to be routed over the temporary run-a-rounds during construction of the bridge.
Service Roads are to be constructed and Stephenson traffic routed thereon prior to starting earth excavation in the vicinity of the structure.
Temporary run-a-rounds and Service Roads are included in Road Plans.
Existing Profile Survey ℄ Woodward Hts. Blvd.
172'-6"
86'-3"
86'-3"
Prop. Plan Grade, ℄ Woodward Hts. Blvd.
Limits of granular material Class III (Comp-in-Place) 1960 Cu.Yds. Incl. @ Rd. Plans
Limits of granular material Class III (Comp-in-Place) 1090 Cu.Yds. Incl. @ Rd. Plans
Temp. Steel Sheet Piling
Abut A
Pier 1
Abut B
PROFILE
VERT. SCALE — 1" = 10'
HOR. SCALE — 1" = 40'
To be abandoned (See Sht. #4 for limits of concrete fill.)
1990 ESTIMATED TRAFFIC DISTRIBUTION
LEGEND
0000 ADT
(000) DHV
Directional Traffic
Total Traffic
MICHIGAN STATE HIGHWAY DEPARTMENT
I-75 CROSSING WOODWARD HTS. BLVD., CITY OF HAZEL PARK
GENERAL PLAN OF SITE
APPROVED Lawrence O. Chik 6-5-69 ASST. SUPERVISOR—DESIGN
APPROVED C. Trahan 6.5.69 SUPERVISOR—DESIGN
REVISIONS
SHEET 2 OF 21
S28 of 63174 A





BORING LOCATION SKETCH
Scale: 1"=40'

NOTES:

Consistency determined by inspection of samples & substantiated by soils resistance to Mobile Drill B52.

(00) Number in circle denotes number of blows required to drive 2" O.D. x 1 3/8" I.D. split spoon sampler 12"; using a 140# hammer falling 30".

Soil is dry except test holes No. 1 & 3.

W.L.= Water Level 24 hours after completion of borings.

Borings taken 4-9-63

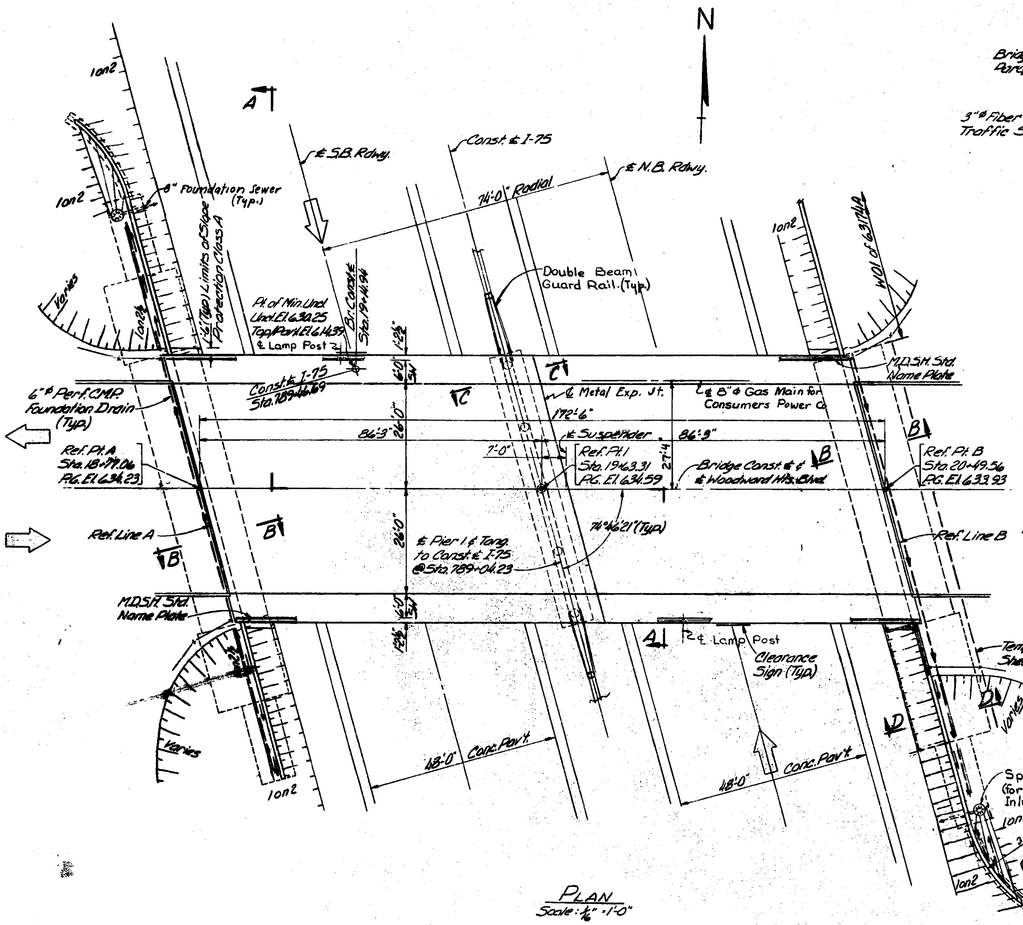
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

LOG OF BORINGS

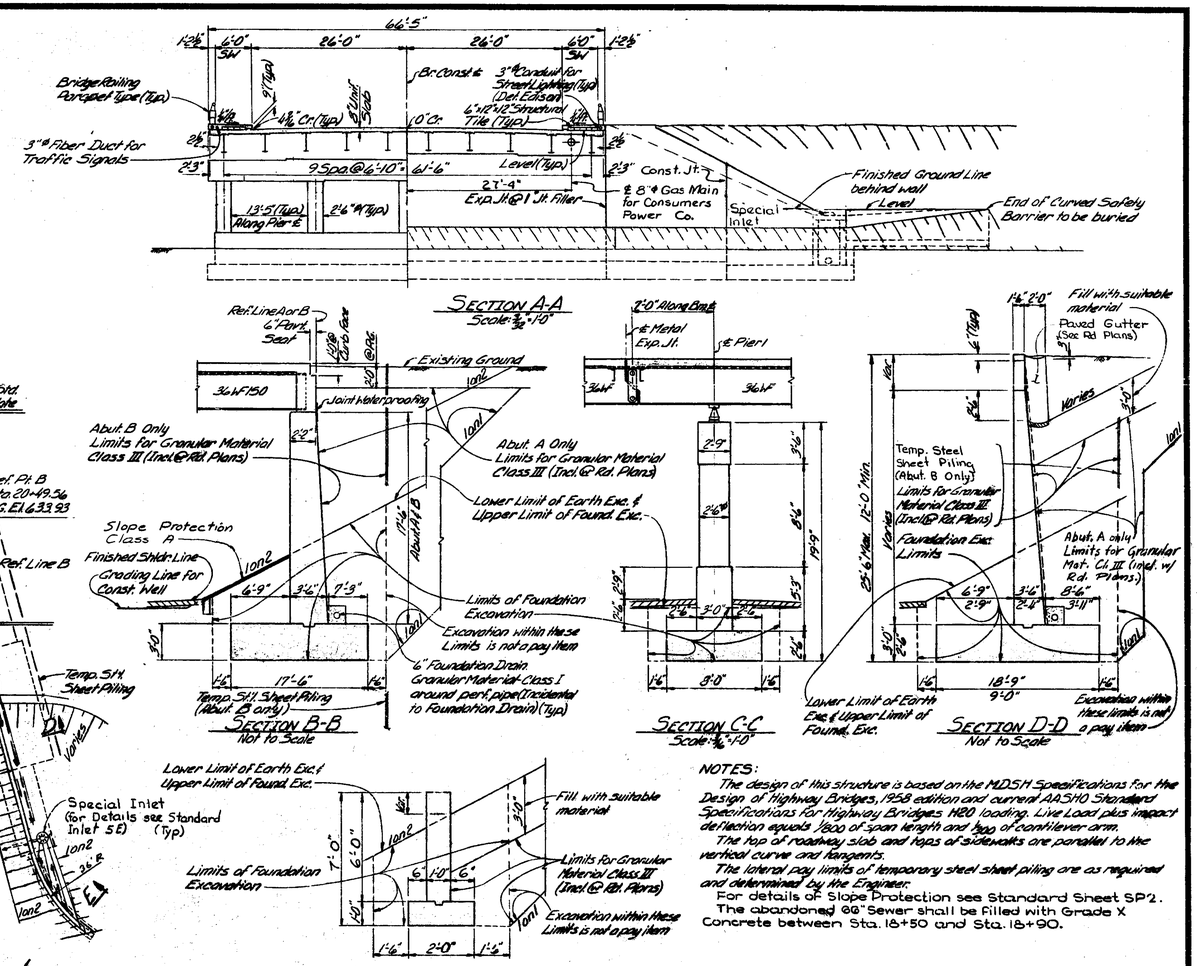
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Fisher	2-4-69
DRAWN BY	Norman	7-24-68
TRACED BY		
CHECKED BY	Taylor	12-31-68
SHEET 3 OF 21		

S28 of 63174A



PLAN
Scale: 1/16" = 1'-0"



SECTION A-A
Scale: 3/32" = 1'-0"

SECTION B-B
Not to Scale

SECTION C-C
Scale: 3/32" = 1'-0"

SECTION D-D
Not to Scale

SECTION E-E
Scale: 3/32" = 1'-0"

NOTES:

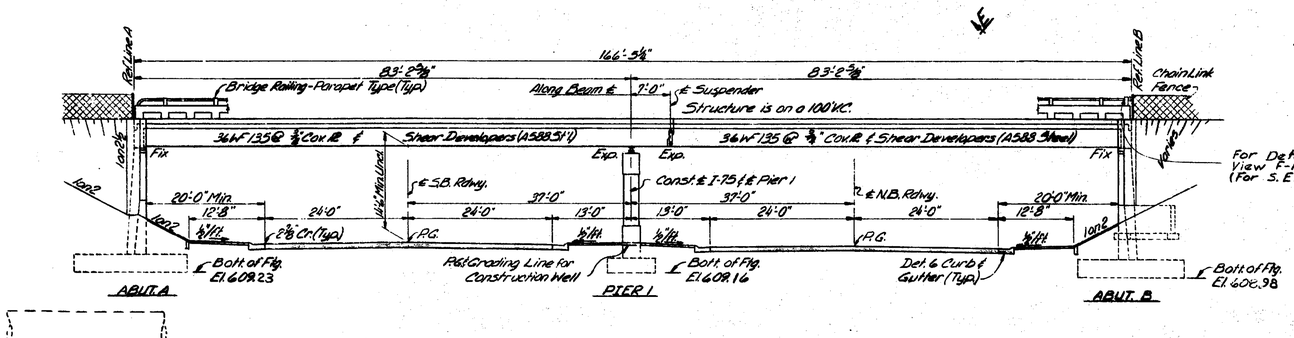
The design of this structure is based on the M.D.S.H. Specifications for the Design of Highway Bridges, 1958 edition and current A.A.S.H.O. Standard Specifications for Highway Bridges H20 loading. Live Load plus impact deflection equals 1/800 of span length and 1/300 of cantilever arm.

The top of roadway slab and tops of sidewalks are parallel to the vertical curve and tangents.

The lateral pay limits of temporary steel sheet piling are as required and determined by the Engineer.

For details of Slope Protection see Standard Sheet SP2.

The abandoned 60" Sewer shall be filled with Grade X Concrete between Sta. 18+50 and Sta. 18+90.



ELEVATION
1 to Rdx. Lines
Scale: 3/32" = 1'-0"

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Grade X Concrete	Cu. Yds.	35.0
Foundation Drain	Lin. Ft.	344.
Special Inlet	Each	2.
Temp. Stl. Sheet Piling	Sq. Ft.	2440.
Slope Protection Class A	Sq. Yds.	136.
Slope Protection-Headers	Lin. Ft.	175.

REVISIONS

NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

WOODWARD HTS. BLVD. OVER I-75, CITY OF HAZEL PARK

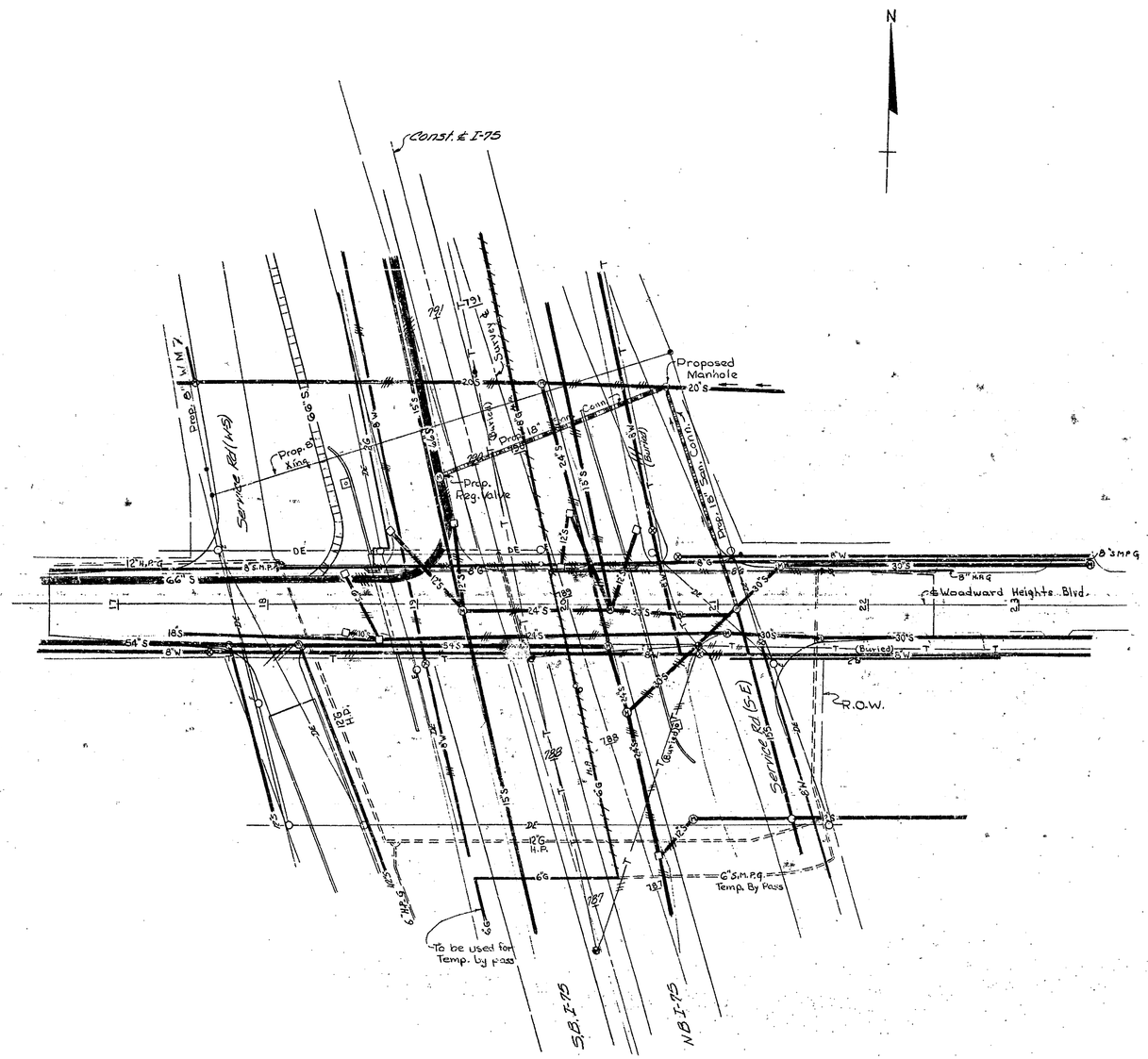
GENERAL PLAN OF STRUCTURE

APPROVED Lawrence O. Clark 6-5-69
ASST. SUPERVISOR-DESIGN

APPROVED J. C. Tobey 6-5-69
SUPERVISOR-DESIGN

SQUAD BOSS	Fisher	2-4-69
DRAWN BY	Bohlmann	11-1-68
TRACED BY		
CHECKED BY	Taylor	5-15-69
SHEET 4 OF 21		

S28 of 63174A



PLAN
SCALE : 1" = 40'

LEGEND

Detroit Edison Co.
- DE — Existing
- DE — Abandon or Remove
- DE — New Work by Bridge Contr.
- DE — New Work by Others

City of Hazel Park Sewers
- S — Existing
- S — Abandon or Remove
- S — New Work by Bridge Contr.
- S — New or Prop. Work by Others

Water
- W — Existing
- W — Abandon or Remove
- W — New Work by Bridge Contr.
- W — New Work by Others

Consumers Power Co. Gas
- G — Existing
- G — Abandon or Remove
- G — New Work by Bridge Contr.
- G — New Work by Others

Mich. Bell Telephone Co.
- T — Existing
- T — Abandon or Remove
- T — New Work by Bridge Contr.

Edge Drain
- ED — Proposed by Others

- Existing Catch Basin
- Exist. Catch Basin to be Retained — Ret.
- Proposed Catch Basin
- Manhole
- Gate Valve
- Detroit Edison Pole — E
- Mich. Bell Man Hole
- Street Light
- Gas Valve
- Tel. Pole

MICHIGAN STATE HIGHWAY DEPARTMENT

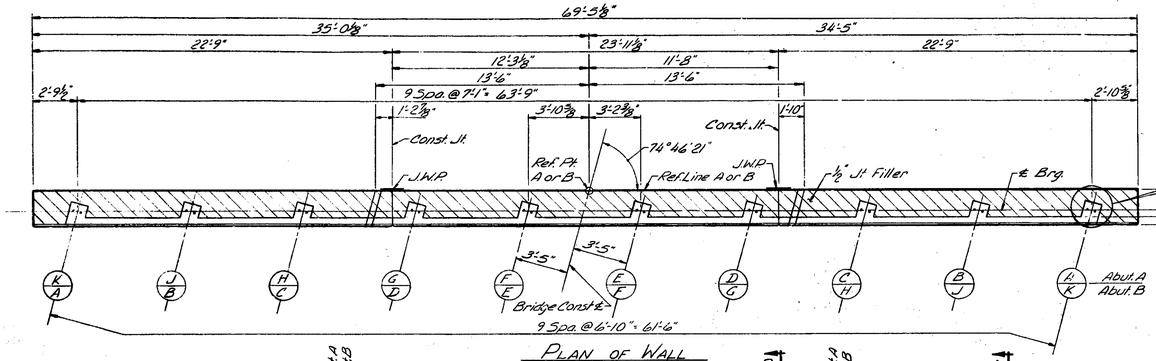
EXISTING UTILITIES & PROP. ALTERATIONS

REVISIONS

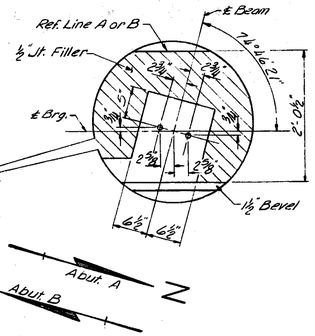
NO	DESCRIPTION	DATE	BY

SQUAD BOSS Fisher 2-4-69
DRAWN BY W.L. 7-16-63
TRACED BY
CHECKED BY
SHEET 5 OF 21

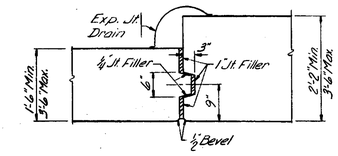
S28 of 63174 A



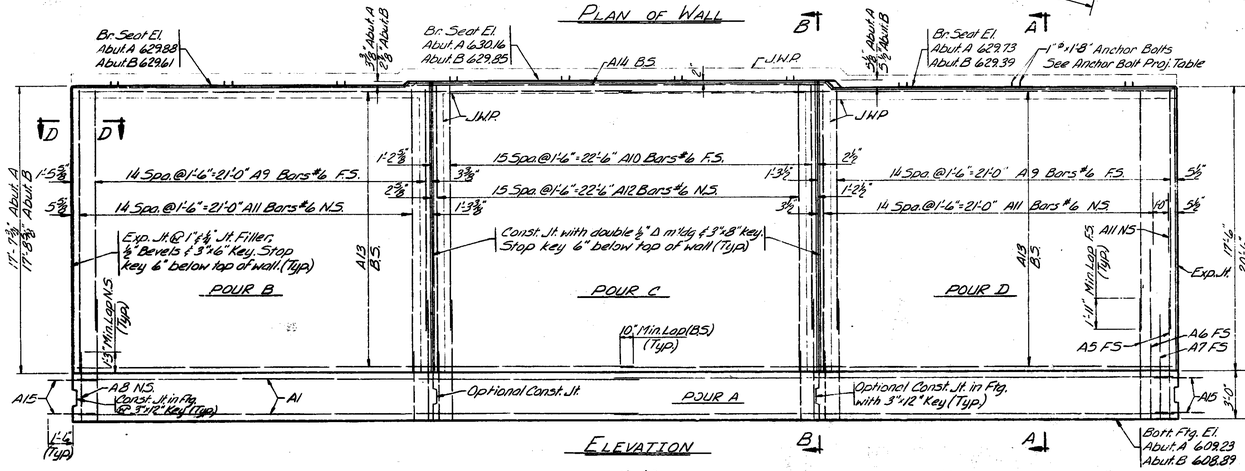
PLAN OF WALL



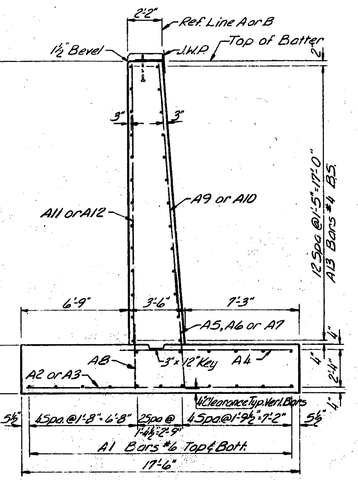
ANCHOR BOLT PROJECTIONS		
Beam	Abut. A	Abut. B
A	5"	5"
B	7"	6½"
C	8⅝"	7¾"
D	5"	5⅝"
E	6"	6½"
F	6¾"	6¾"
G	5⅝"	5"
H	7¾"	9"
J	6½"	7"
K	5"	5"



SECTION D-D

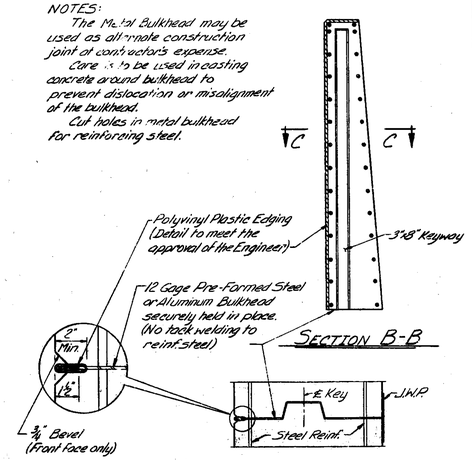


ELEVATION



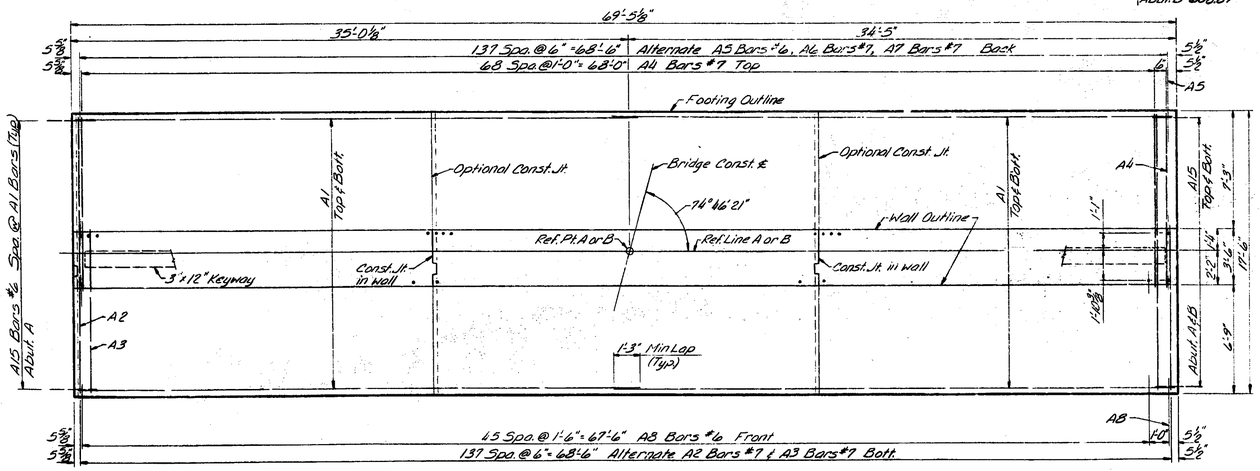
SECTION A-A

NOTES:
The 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.
Cut holes in metal bulkhead for reinforcing steel.



SECTION B-B

SECTION C-C



PLAN OF FOOTING

CONCRETE QUANTITIES - SUBSTRUCTURE				
	Grade A(6A) Cu. Yds.		Grade A(6AA) Cu. Yds.	
Pour	Abut. A	Abut. B	Abut. A	Abut. B
A	135.0	135.0		
B			42.1	42.2
C			44.7	44.8
D			42.3	42.3
Sub. Tot.	135.0	135.0	129.1	129.3
Total	270.0 Cu. Yds.		258.4 Cu. Yds.	

MISCELLANEOUS QUANTITIES				
Item	Unit	Abut. A	Abut. B	Total
Joint Waterproofing	Sq. Ft.	156	156	312
¼" Joint Filler	Sq. Ft.	22	22	44
½" Joint Filler	Sq. Ft.	112	112	224
1" Joint Filler	Sq. Ft.	118	118	236
Expansion Joint Drain	Each	2	2	4
Clear-Protective Coating for Substructure Concrete	Sq. Yds.	141	141	282
Unclassified Excavation	Cu. Yds.	475	475	950

NOTES:
JWP denotes Joint Waterproofing
N.S. denotes Near Side
F.S. denotes Far Side
B.S. denotes Both Sides
For bevel and molding details, see standard sheet R11 or R12
Anchor bolts shall be accurately set to a template
Temporary steel sheet piling shall be of the 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. Ladle analysis and mill reports are not required for steel used in Sheet Piling.
Maximum average foundation pressure D.L. only = 2500 #/sq. ft.
Maximum foundation pressure D.L. and L.L. = 3050 #/sq. ft.
For Expansion Joint Drain Details, see sheet #7
The top and front face of the abutment above top of footing shall be given an application of Clear Protective Coating for Substructure Concrete (See Supplemental Specifications)

Work this sheet with sheets No. 7, 8 & 9

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENT DETAILS ABUT. A & B

REVISIONS

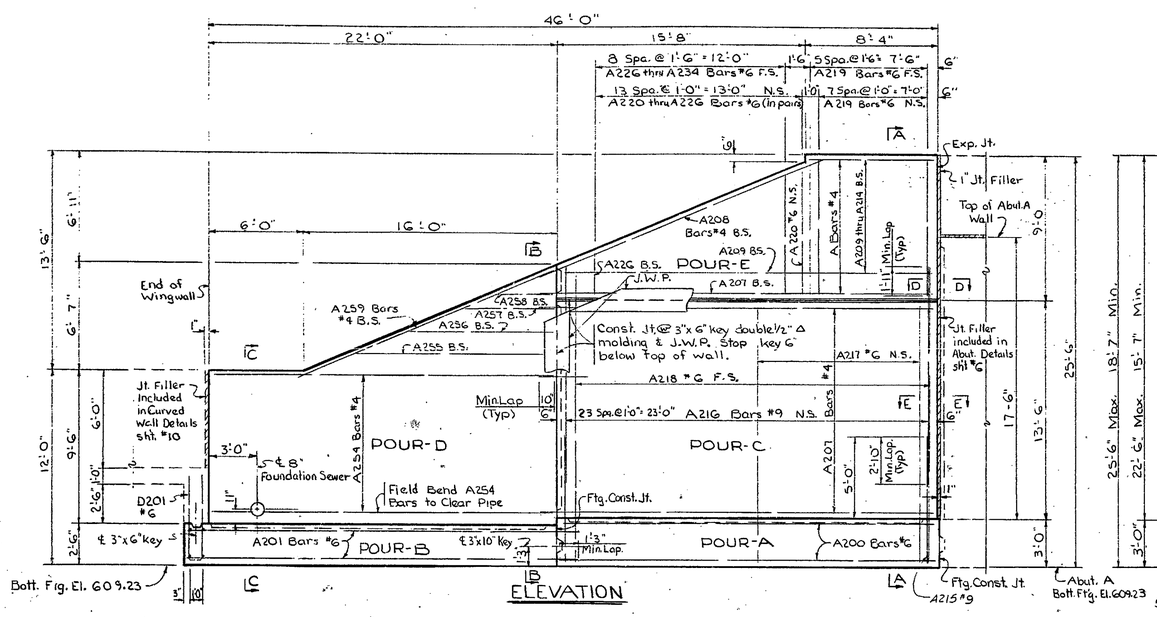
NO.	DESCRIPTION	DATE	BY

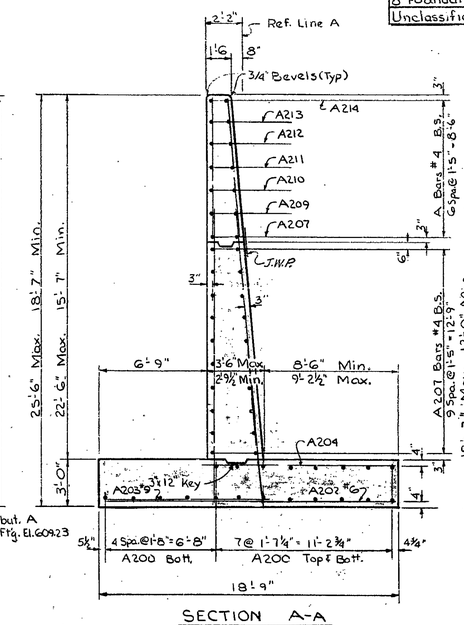
SQUAD BOSS	Fisher	6-3-69
DRAWN BY	Clemons	3-14-69
TRACED BY		
CHECKED BY	C.S. Ivans	4-11-69
SHEET 6 OF 21		

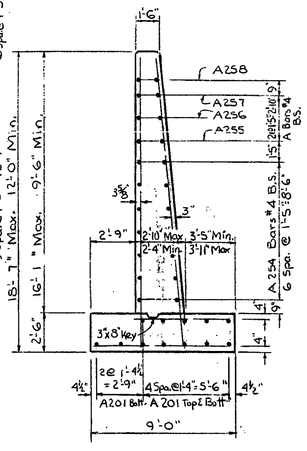
S28 of 63174A

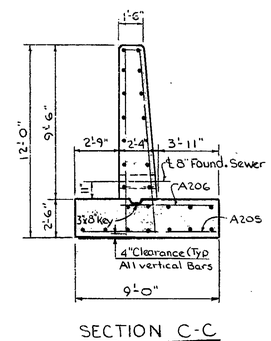
MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Joint Waterproofing	Sq. Ft.	53
8" Foundation Sewer	Lin. Ft.	4
Unclassified Excavation	Cu. Yds	270

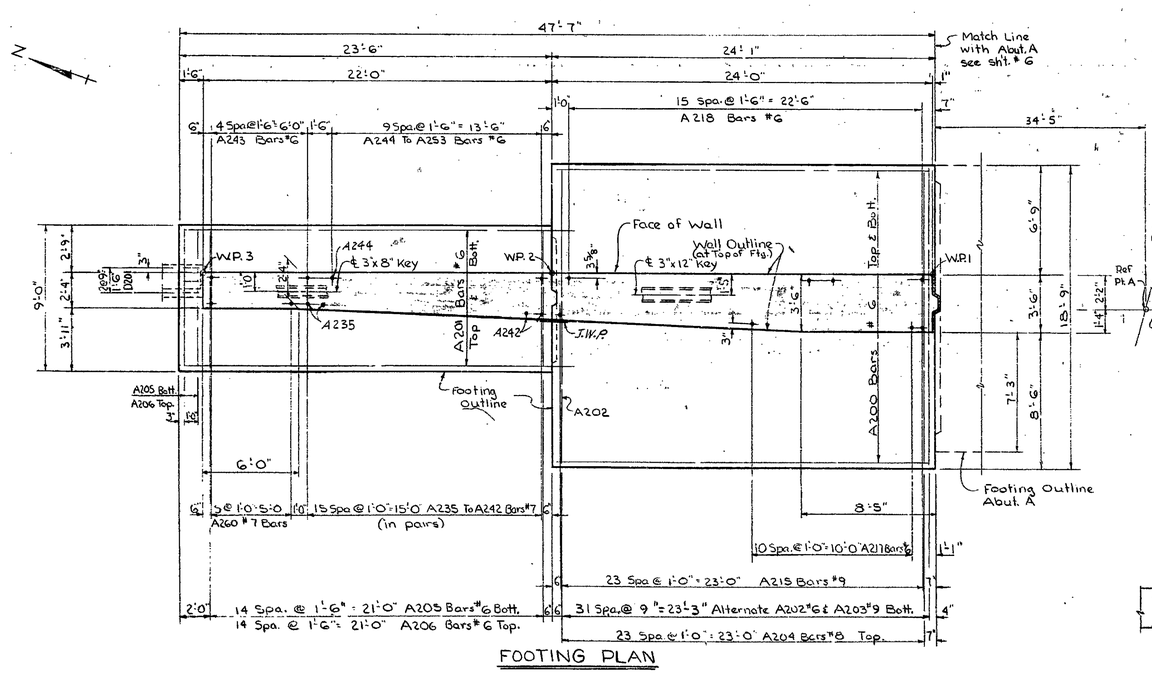
CONCRETE QUANTITIES		
Pour	Gr. A (6A)	Gr. A (6AA)
A	50.2	
B	19.6	
C		32.1
D		19.6
E		10.6
Total	69.8 Cu. Yds.	62.3 Cu. Yds.

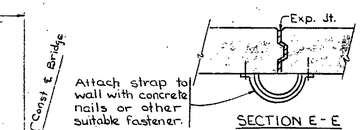


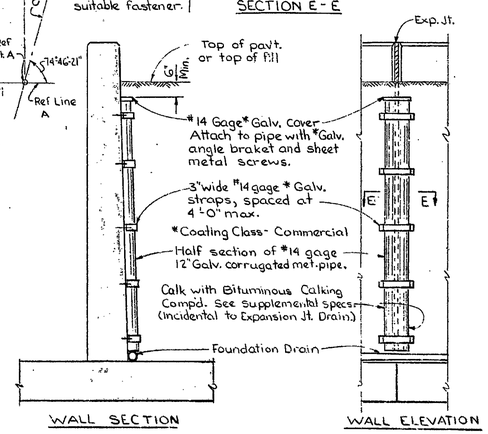












NOTES:

The metal bulkhead may be used as alternate construction joint at contractors expense, for details see sheet. #6.

Max. average foundation pressure D.L. only = 2300 #/sq. ft.

W.P. denotes Working Point.

B.S. denotes Both Sides.

N.S. denotes Near Side.

F.S. denotes Far Side.

J.W.P. denotes Joint Waterproofing.

For bevel and molding details, see standard sheet R11 or R12.

For Expansion Joint details see Abutment Detail Sht. #6

Wingwall shall not be poured until superstructure is completed to tops of sidewalks.

Work this sheet with sheet No. 6, 8 & 10.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENT A – WINGWALL DETAILS

REVISIONS

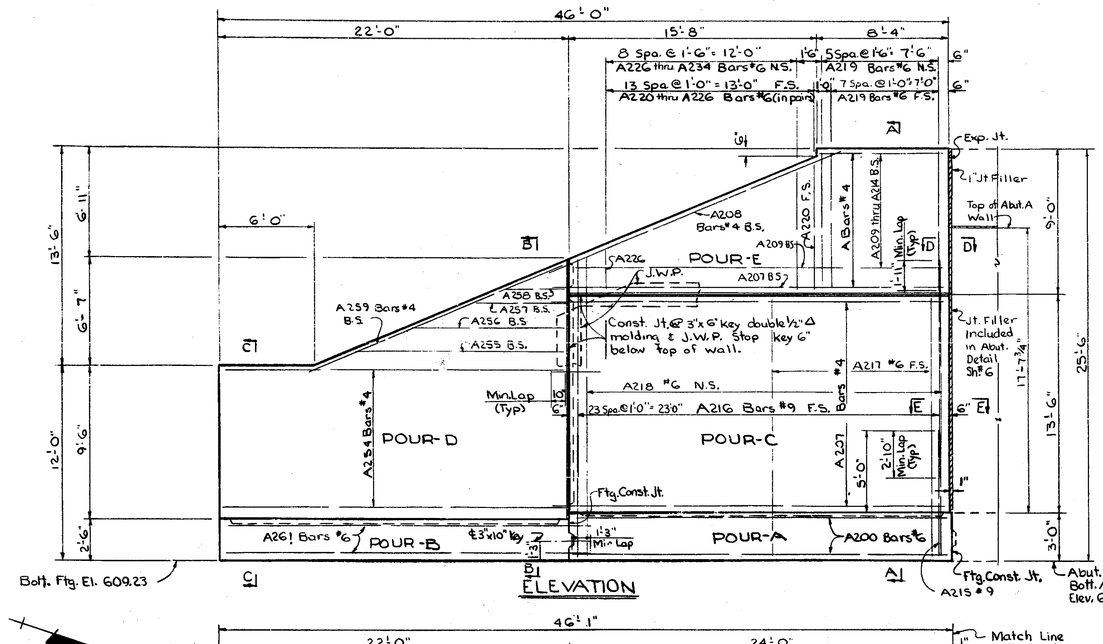
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Fisher	6-8-69
DRAWN BY	R. Warsh	3/28/69
TRACED BY		
CHECKED BY	C.Y. Wang	4-2-69
SHEET 7 OF 21		

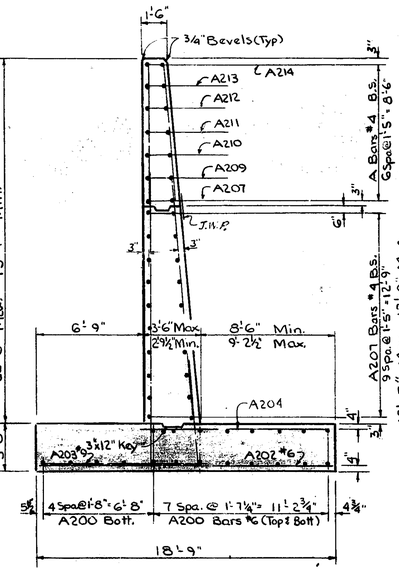
S28 of 63174 A

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Joint Waterproofing	Sq. Ft.	53
Unclassified Excavation	Cu. Yds.	260

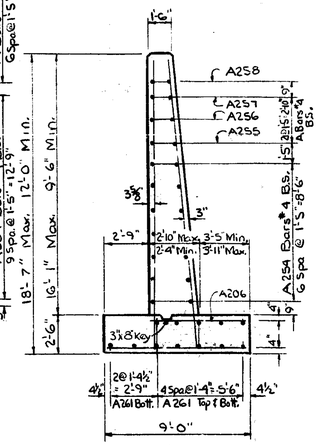
CONCRETE QUANTITIES		
Pour	Gr. A(6A)	Gr. A(6AA)
A	50.2	
B	18.4	
C		32.1
D		19.6
E		10.6
Total	68.6 Cu. Yds.	62.3 Cu. Yds.



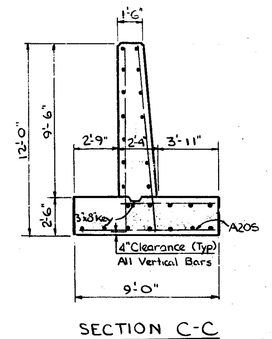
ELEVATION



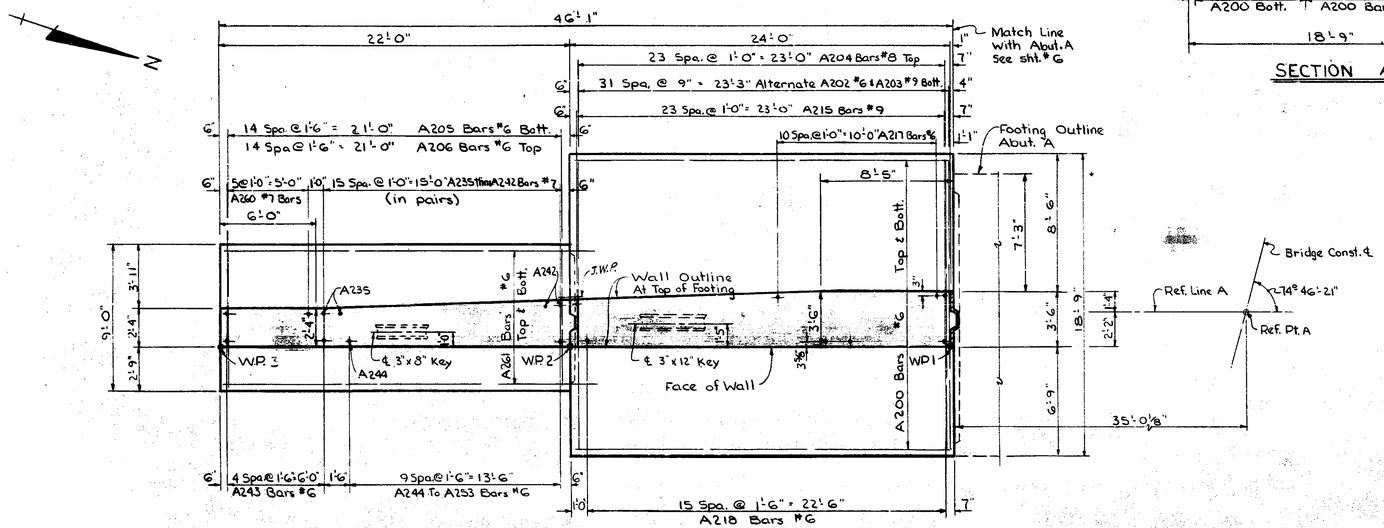
SECTION A-A



SECTION B-B



SECTION C-C



FOOTING PLAN

Note:
For notes see sheet No. 7
For Sections D-D & E-E see sheet No. 7

Work this sheet with sheet. No. 6 & 7

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENT A - WINGWALL DETAILS

REVISIONS

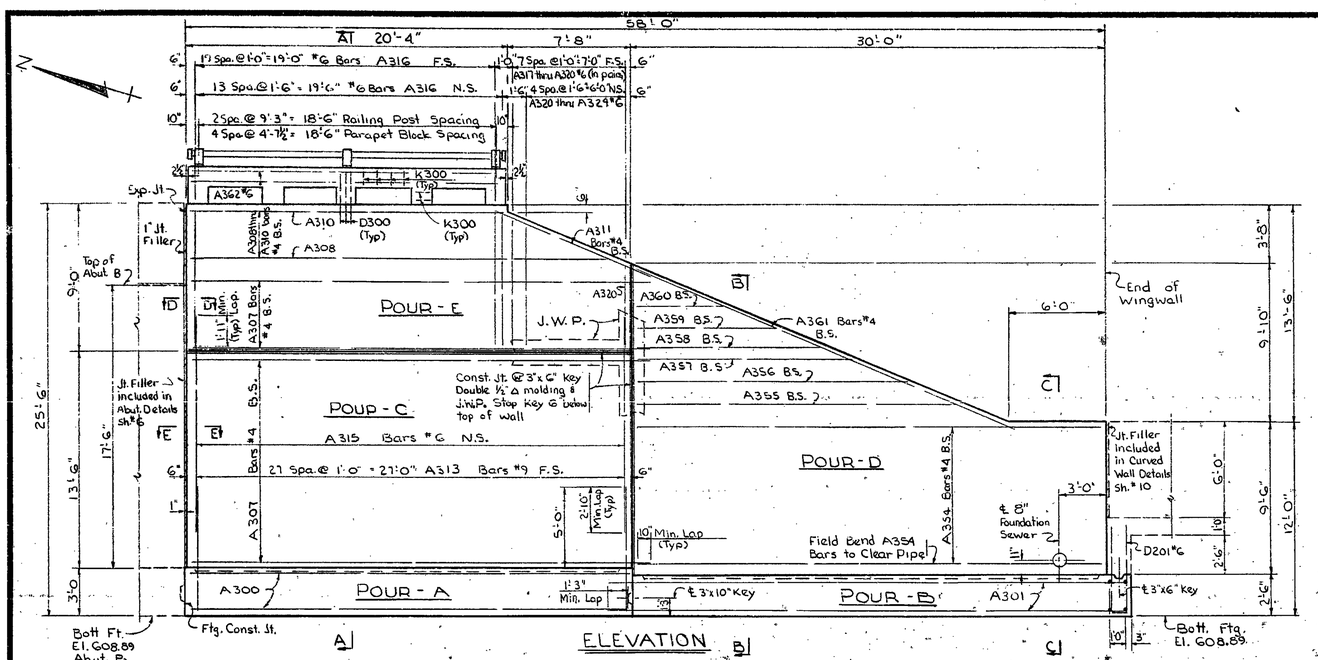
NO.	DESCRIPTION	DATE	BY

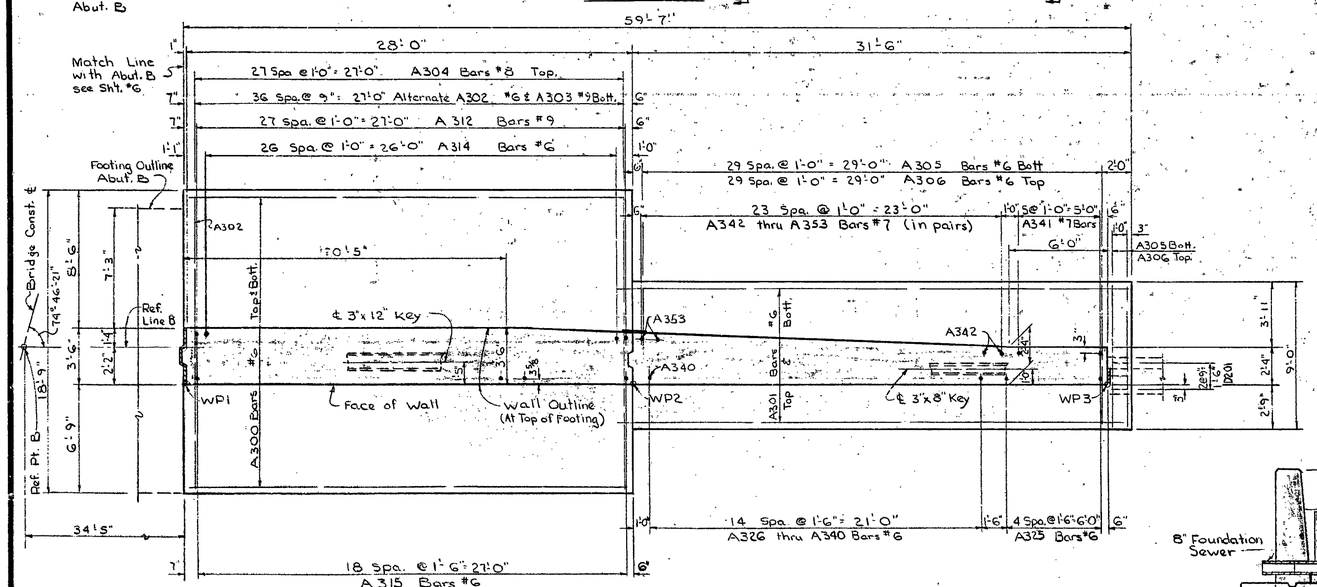
SQUAD BOSS	Fisher	6-3-69
DRAWN BY	R. Marsh	3/25/69
TRACED BY		
CHECKED BY	C.Y. Wang	4-2-69
SHEET 8 OF 21		

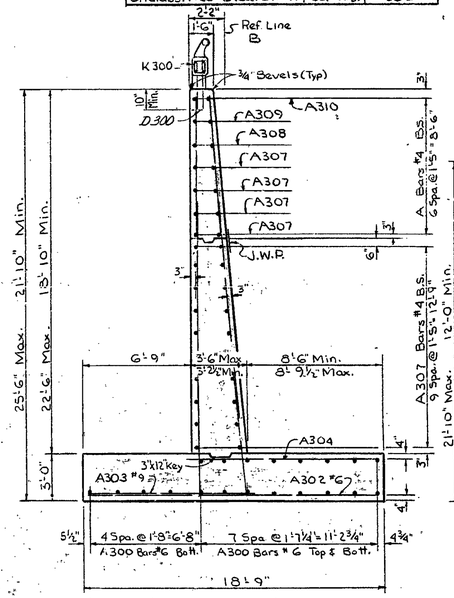
S28 of 63174A

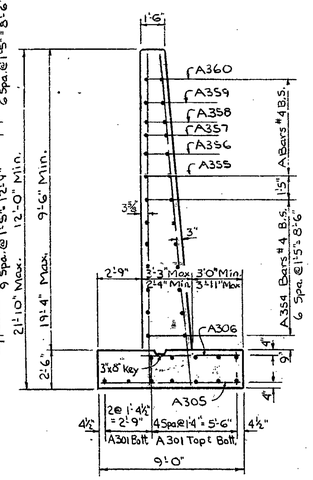
MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Joint Waterproofing	Sq. Ft.	66
Bridge Railing Parapet Type	Lin. Ft.	20.3
8" Foundation Sewer	Lin. Ft.	4
Unclassified Excavation	Cu. Yds.	330

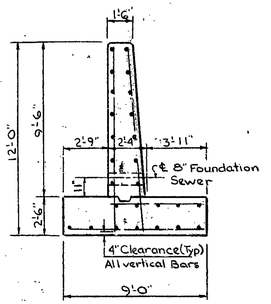
CONCRETE QUANTITIES		
Pour	Gr. A (GA)	Gr. A (GAA)
A	58.5	
B	26.1	
C		40.2
D		31.6
E		16.5
Total	84.6 Cu.Yds.	88.3 Cu.Yds.

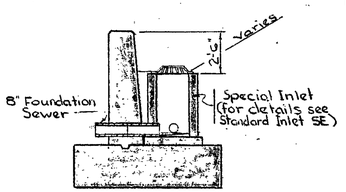












Note:

For notes see sheet No 7

For Sections D-D & E-E see sheet No. 7

Bridge railing is to be either aluminum or Steel Tubular railing on concrete parapet. See Railing Standard R11 or R12.

Work this sheet with sheets No 6, 7 & 10

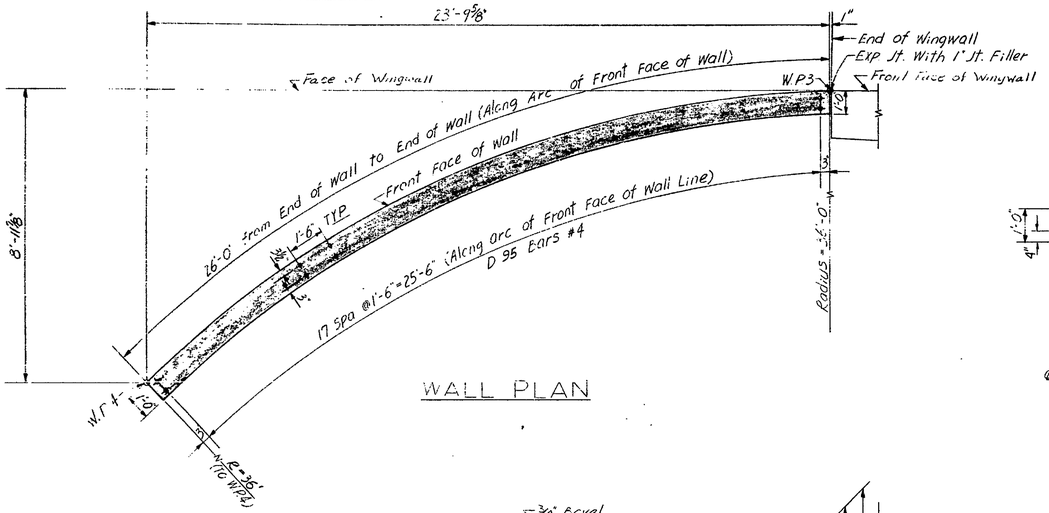
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENT B - WINGWALL DETAILS

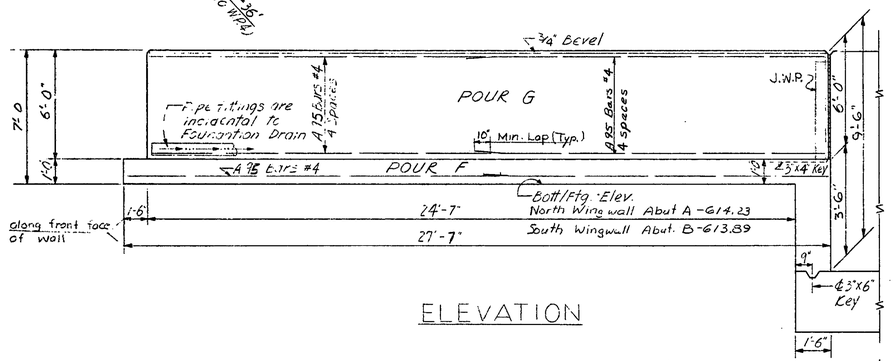
REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD BOSS	Fisher	6-3-69
DRAWN BY	R MARSH	4-9-69
TRACED BY		
CHECKED BY	C.Y. Wang	6-17-69
SHEET 9 OF 21		

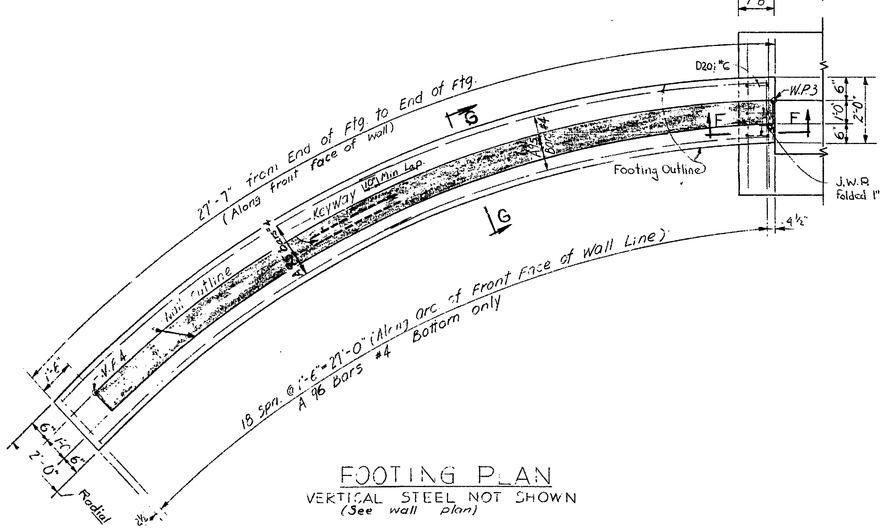
S28 of 63174A



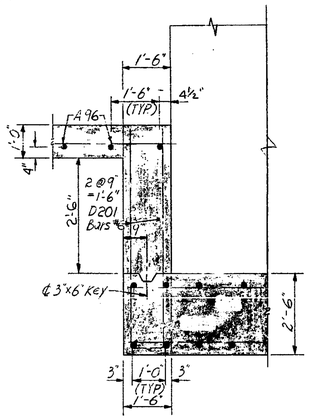
WALL PLAN



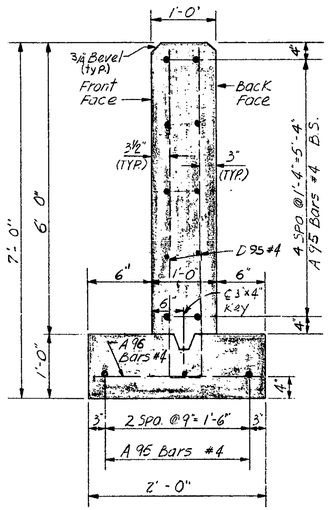
ELEVATION



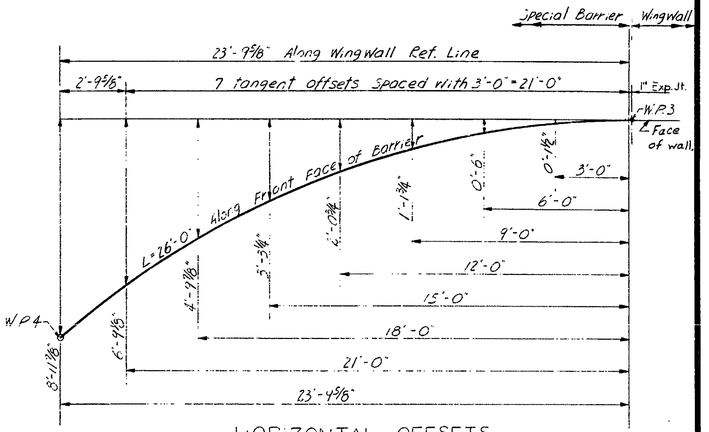
FOOTING PLAN
VERTICAL STEEL NOT SHOWN
(See wall plan)



SECTION F-F



SECTION G-G



HORIZONTAL OFFSETS

MISCELLANEOUS QUANTITIES				
Item	Unit	North W.W Abut. A	South W.W. Abut. B	Total
Joint Waterproofing	Sq. Ft.	8	8	16
1" Joint Filler	Sq. Ft.	6	6	12
Unclassified Excavation	Cu. Yds	20	20	40

CONCRETE QUANTITIES				
Pour	North Wingwall Abut. A		South Wingwall Abut. B	
	Grade A (GA)	Grade A (GAA)	Grade A (GA)	Grade A (GAA)
F	2.4		2.4	
G		5.7		5.7
Total Grade A (GA) Concrete — 4.8 Cu. Yds.				
Total Grade A (GAA) Concrete — 11.4 Cu. Yds.				

NOTE

B.S. denotes Both Sides.

W.P. denotes Working Point

For bevel & molding. See Std Sheet R11 & R12.

Work this sheet with sheets # 7 & 9

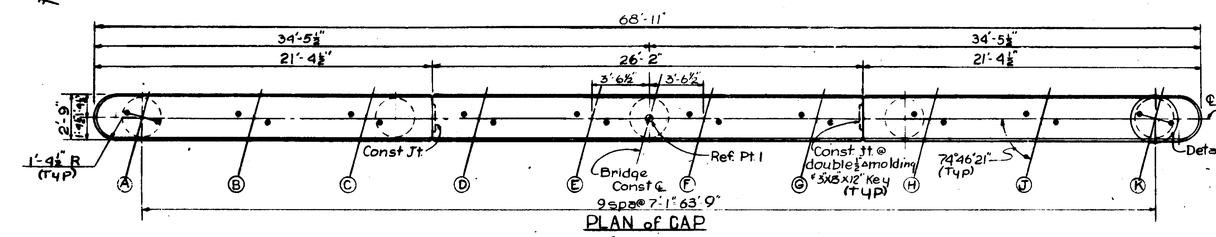
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENT A & B — WALL ENDING DETAILS

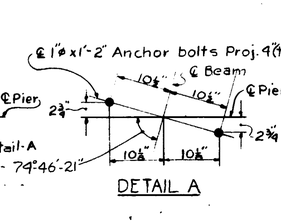
REVISIONS			
NO	DESCRIPTION	DATE	BY

SQUAD BOSS	Fisher	6-2-69
DRAWN BY	C. Dubose	3-13-69
TRACED BY	[illegible]	[illegible]
CHECKED BY	[illegible]	[illegible]
SHEET 10 OF 21		

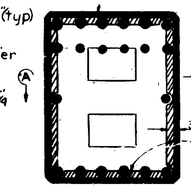
S28 of 63174 A



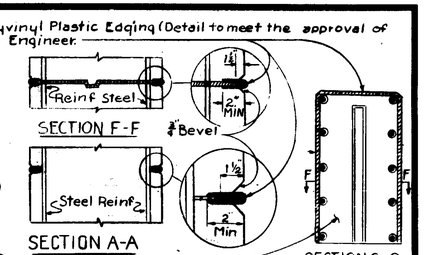
PLAN of CAP



DETAIL A

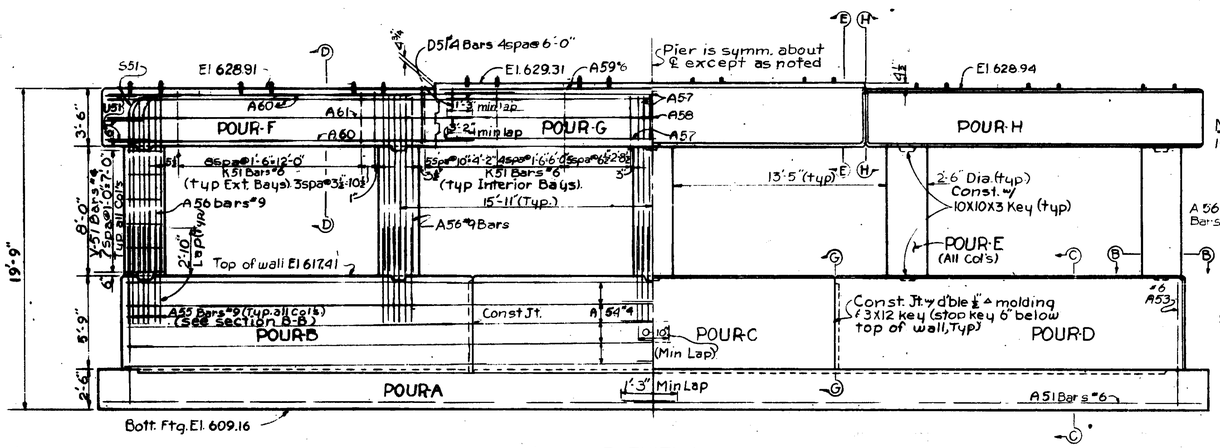


SECTION H-H



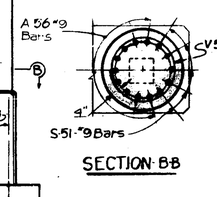
Steel or aluminum strip (16 gage to 10 gage) securely held in place (no tack welding to reinf. steel.)
12 gage preformed aluminum or steel bulkhead securely held in place (no tack welding to reinf. steel.)

Note: Partial metal bulkhead may be used as alternate const. jt. in cap at contractor's expense. Notch metal strip around reinf. steel.
The preformed metal bulkhead in base wall may be used as alternate const. jt. at contractor's expense. Cut holes in metal bulkhead for reinf. steel.
Care is to be used in casting concrete around bulkhead to prevent misalignment or dislocation of the bulkhead.

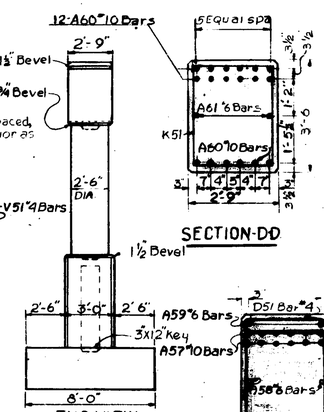


ELEVATION

Note: 14 A56 #9 Bars equally spaced, Interior col's. Exterior as per section B-B

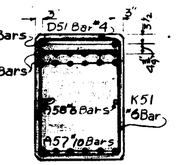


SECTION B-B



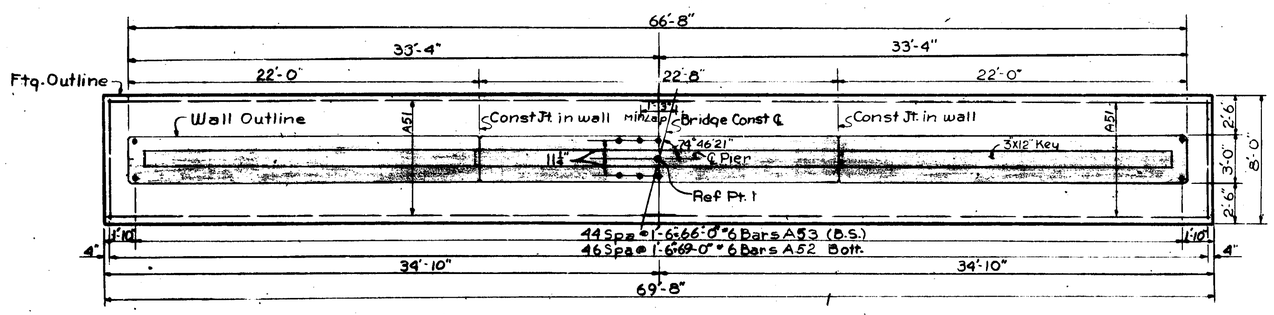
END VIEW

SECTION D-D

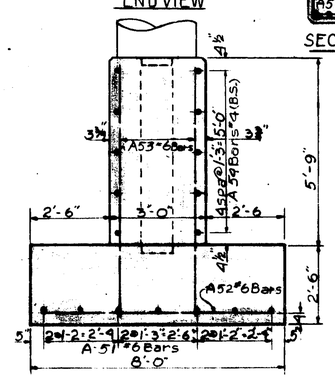


SECTION E-E

CONCRETE QUANTITIES		
Pour	Grade A (6A)	Grade A (6AA)
A	51.5	
B		14.0
C		14.5
D		14.0
E		7.3
F		7.5
G		9.3
H		7.5
Total	51.5	74.1 cu yd



PLAN of FOOTING



SECTION C-C

NOTES:

For bevel & molding details, see standard sheet R11 or R12.

Anchor bolts shall be accurately set to a template.

Adjust the spacing of the reinforcing steel as required to permit placing of anchor bolts.

Maximum average foundation pressure D.L. only = 3100 #/sq ft. Maximum foundation Pressure D.L. & L.L. = 4600 #/sq. ft.

B.S. denotes Both Sides.

All exposed surfaces above the top of ftg of pier shall be given an application of Clear Protective Coating for Substructure Concrete. (See supplemental specifications)

Anchorage for guard rail is to be provided in pier basewall. For details see Rd. Plans.

MISCELLANEOUS QUANTITIES		
ITEM	Units	Amount
Unclassified Excavation	Cu. Yds	190.0
Clear Protective Coating for substructure Concrete	Sq. Yds	250.0

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

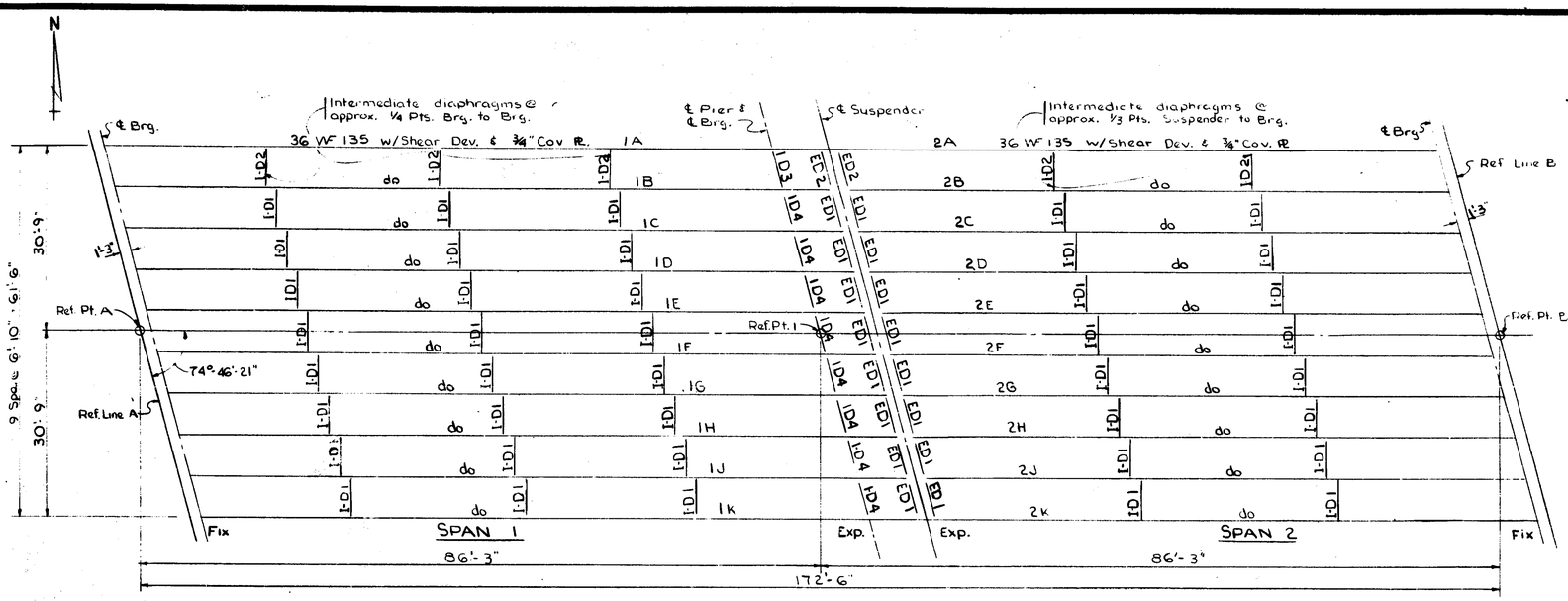
PIER DETAILS

REVISIONS

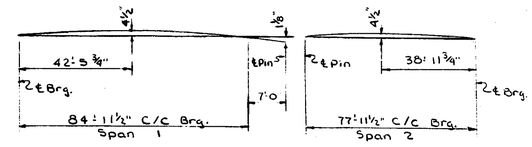
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	FISHER	6-3-69
DRAWN BY	Hartman	2/19/69
TRACED BY		
CHECKED BY	Connelly	3/17/69
SHEET	1 of 2	

S28of63174A



ERECTION DIAGRAM



CAMBER DIAGRAM

MISCELLANEOUS QUANTITIES		
Item	Unit	Total
Structural Steel-Furn. & Fabric.	lbs.	297,700
Structural Steel-Erection	lbs.	297,700
Elastomeric Bearing Pads	Sq. Ft.	18

NOTES:

Design: Michigan Department of State Highways Specifications for Design of Highway Bridges - 1958 edition and current AASHO Standard Specifications for Highway Bridges. (H 20 Loading).

Fabrication: Michigan Department of State Highways Standard Specifications for Road and Bridge Construction 1967 edition.

Shop connections shall be welded as shown on the plans.

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

The beams are to be cambered as shown in the camber diagram. This camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ±1/4". Heating is to be used if necessary, to assure camber permanency within the above tolerance. The dead load deflection of the beams alone is calculated to be 1/2" in spans 1 & 2.

Sole plates 3" or more in thickness may be built up by welding together plates not less than 1 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 plate.

Magnetic particle inspection of welds is required and shall consist of 100% inspection of not less than one fabricated section selected at random for each ten sections or fabrications thereof.

Anchor Bolts (including nuts and washers) shall be galvanized in accordance with ASTM Designation A 153.

All steel material used for bearings, with exception of portion welded to beams, shall be galvanized in accordance with ASTM Designation A123. Galvanizing shall be applied after fabrication of bearing. Mill scale and foreign material shall be removed prior to galvanizing.

Bronze for washers shall be ASTM B100, Alloy No. 510 or No. 635.

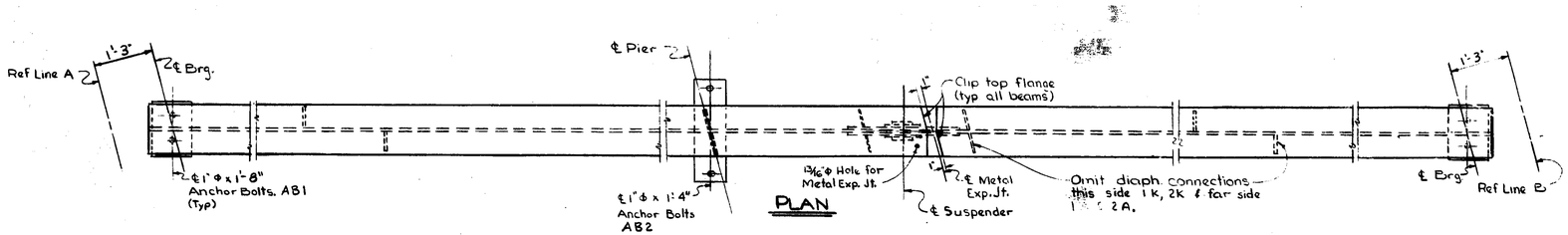
The quantity Structural Steel includes:

A588 Steel	297,544 #
Bronze	32 #
Lead	124 #
Total	297,700 #

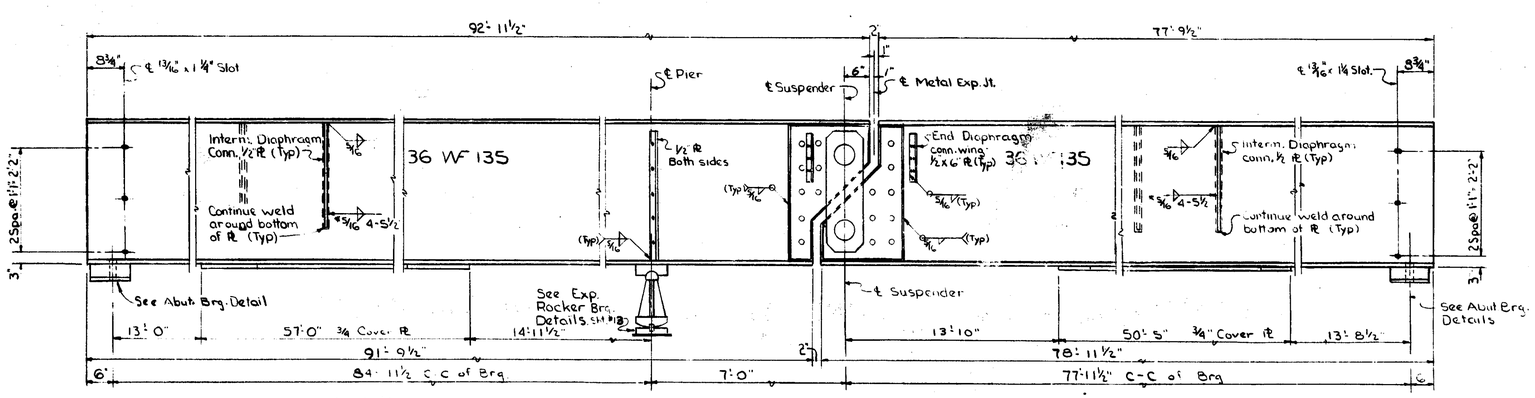
Steel for pins may be ASTM A-108 or ASTM A-235 (Class E).

All steel shall be unpainted A.S.T.M. A588 except as noted.

For Details see sheet No. 13
Work this sheet with sheet No. 12



PLAN



* Note: A 1/4 continous weld may be used in all cases instead of the 5/16 intermittent weld at the fabricator's option.

ELEVATION

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

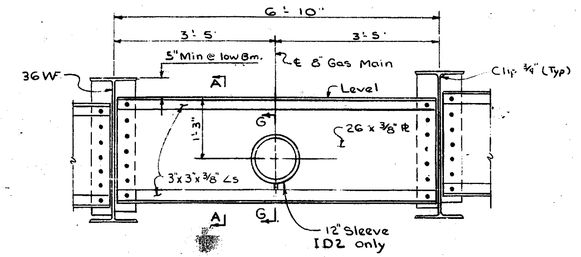
STRUCTURAL STEEL DETAILS

REVISIONS

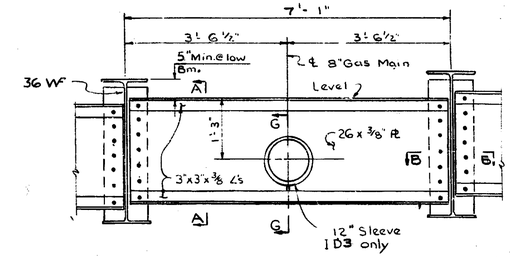
NO.	DESCRIPTION	DATE	BY

ROAD DESIGN	Fisher	2-3-69
DRAWN BY	R. MARSH	3/10/69
TRACED BY		
CHECKED BY	C.Y. Wang	4-2-69
SHEET 12 OF 21		

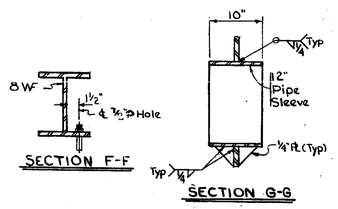
S28 of 63174A



INTERMEDIATE DIAPHRAGM ID1 & ID2

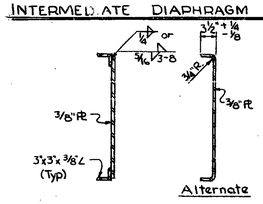


INTERMEDIATE DIAPHRAGM ID3 & ID4

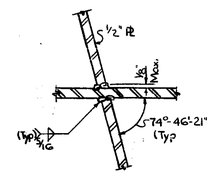


SECTION F-F

SECTION G-G

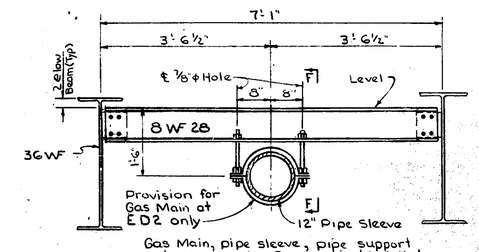


SECTION A-A

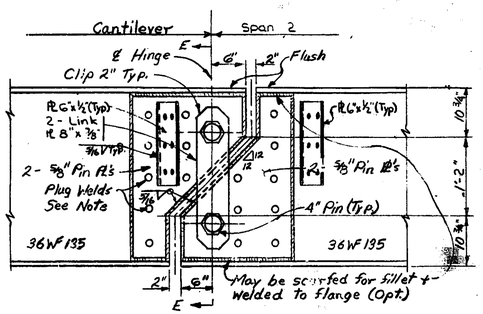


SECTION B-B

SOLE PLATE THICKNESS TABLE			
Beam	Abut. A	Pier	Abut. B
A	1 1/2"	2 3/4"	1 1/2"
B	3 1/2"	4 1/2"	3"
C	5"	6"	4 1/4"
D	1 1/2"	2 3/4"	2 1/4"
E	2 1/2"	3 3/4"	3"
F	2 3/4"	3 3/4"	2 3/4"
G	2"	2 3/4"	1 1/2"
H	4 1/4"	6"	5 1/2"
J	3"	4 1/2"	3 1/2"
K	1 1/2"	2 3/4"	1 1/2"

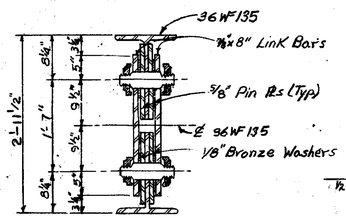


END DIAPHRAGM ED2

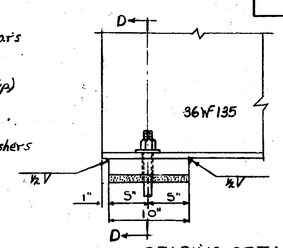


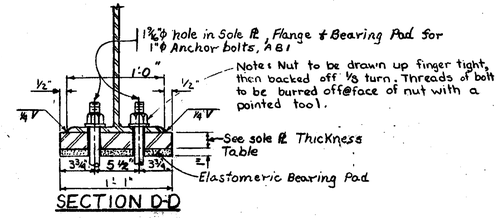
Note:
Size and spacing of the plug welds shall be according to the A.W.S. Current specifications.

SUSPENDER DETAILS



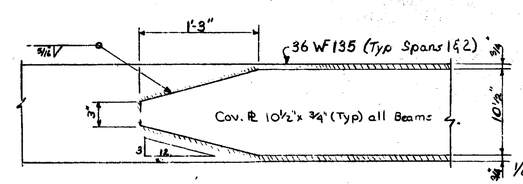
SECTION E-E



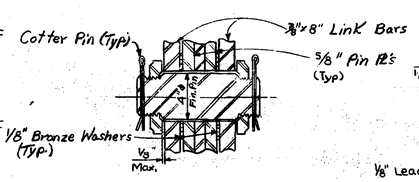


SECTION D-D

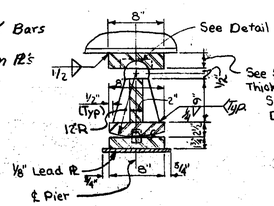
BEARING DETAILS ABUT. A+B



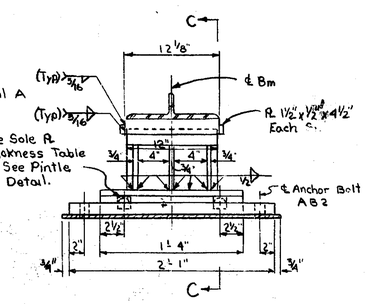
COVER PLATE DETAIL

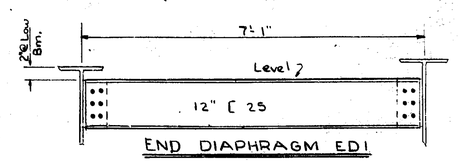


SECTION THRU HANGER PIN

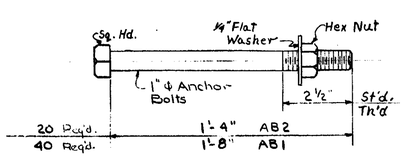


SECTION C-C

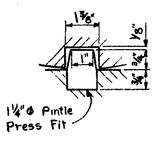




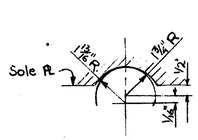
END DIAPHRAGM ED1



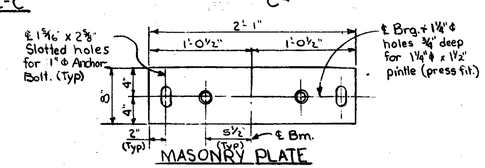
ANCHOR BOLT DETAIL



PINTLE DETAIL



DETAIL A



MASONRY PLATE

Work this sheet with sheet No. 12

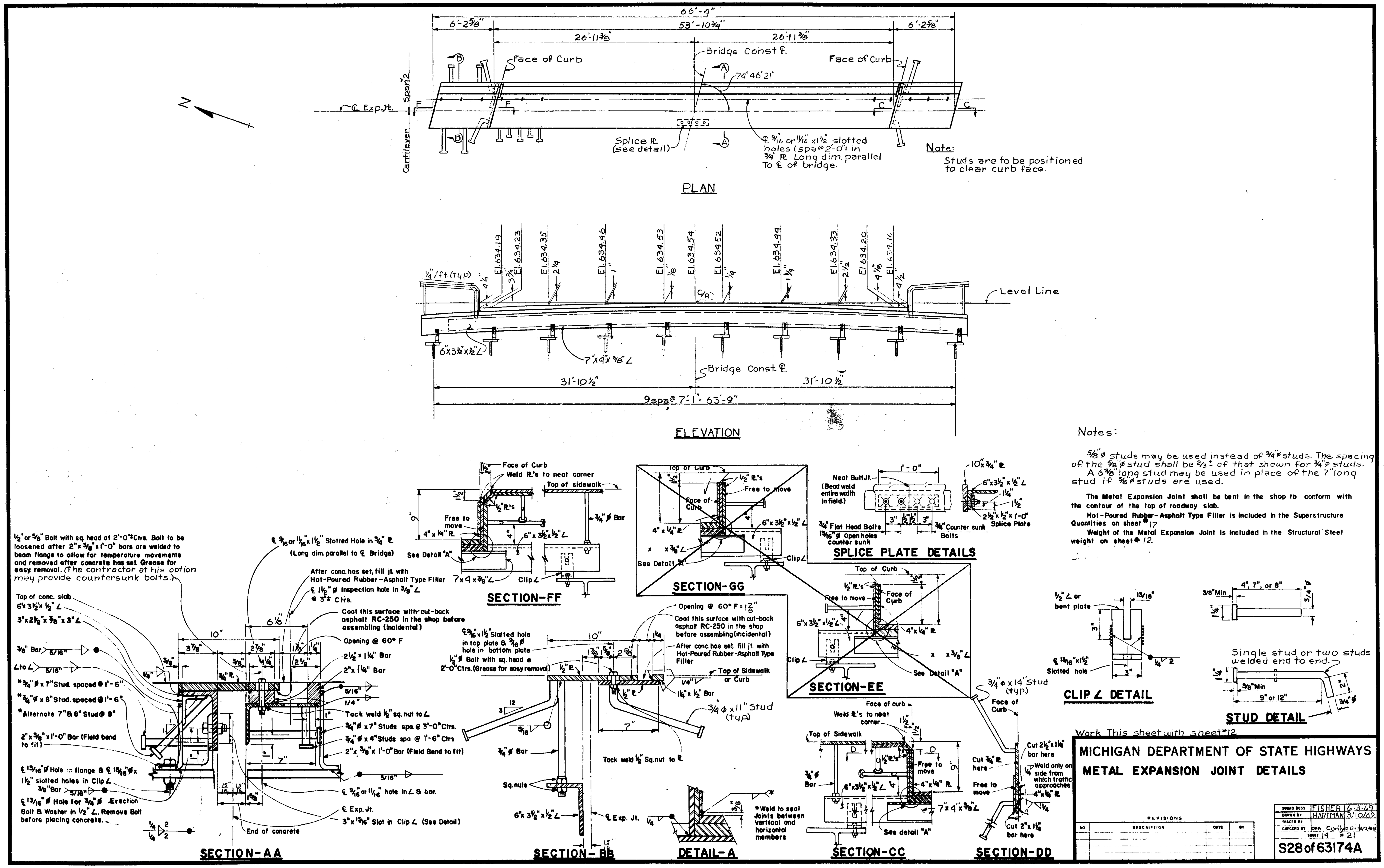
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STRUCTURAL STEEL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD NUMB	Fisher	6-3-69
DRAWN BY	R. MARSH	3/8/69
TRACED BY		
CHECKED BY	C.Y. WONG	4-2-69
SHEET 13 OF 21		

S28 of 63174A



Notes:

⅝"ø studs may be used instead of ¾"ø studs. The spacing of the ⅝"ø stud shall be ⅔± of that shown for ¾"ø studs.

A 6⅜" long stud may be used in place of the 7" long stud if ⅝"ø studs are used.

The Metal Expansion Joint shall be bent in the shop to conform with the contour of the top of roadway slab.

Hot-Poured Rubber-Asphalt Type Filler is included in the Superstructure Quantities on sheet # 17

Weight of the Metal Expansion Joint is included in the Structural Steel weight on sheet # 12.

Work This sheet with sheet # 12

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

METAL EXPANSION JOINT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

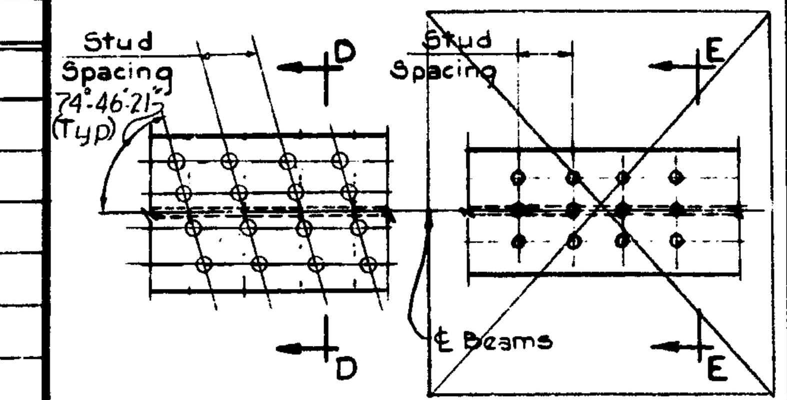
SQUAD BOSS	FISHER	6-3-69
DRAWN BY	HARTMAN	3/10/69
TRACED BY		
CHECKED BY	OAB Conly 10-27-?	4/2/69
SHEET 19 OF 21		

S28 of 63174A

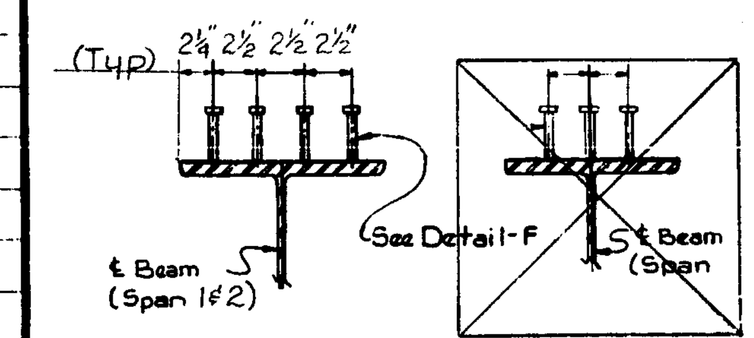
SS8 (11-7-67)

SHEAR DEVELOPER SPACING TABLE

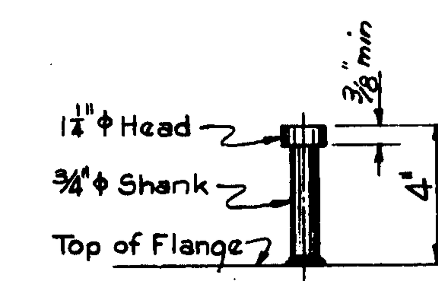
BEAM No	a	b	c	d	e	f	g	h	j	L
Span 1 A thru K	6"	21spa@9"=15'-9"	10spa@14"=11'-8"	4spa@20"=6'-8"	7spa@24"=14'-0"	4spa@20"=6'-8"	11spa@14"=12'-10"	17spa@9"=12'-9"	12'-1½"	92'-11½"
Span 2 A thru K	2"	15spa@9"=11'-3"	10spa@12½"=10'-5"	5spa@18½"=7'-8½"	9spa@1'-11½"=17'-7½"	5spa@18½"=7'-8½"	10spa@12½"=10'-5"	16spa@9"=12'-0"	6"	77'-9½"



PLAN of STUDS



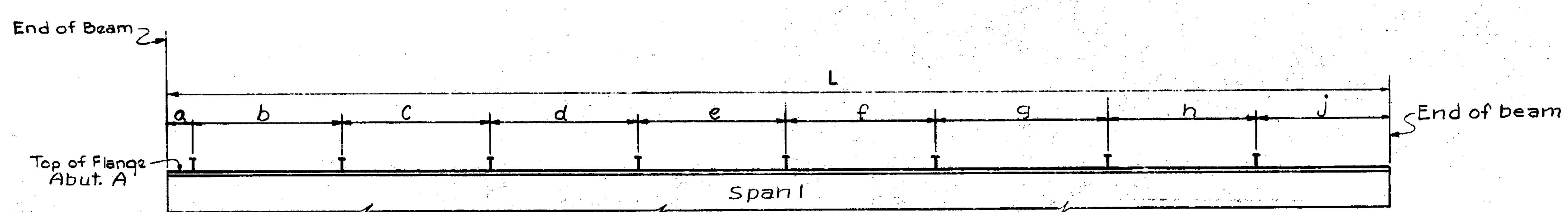
SECTION-DD SECTION-EE



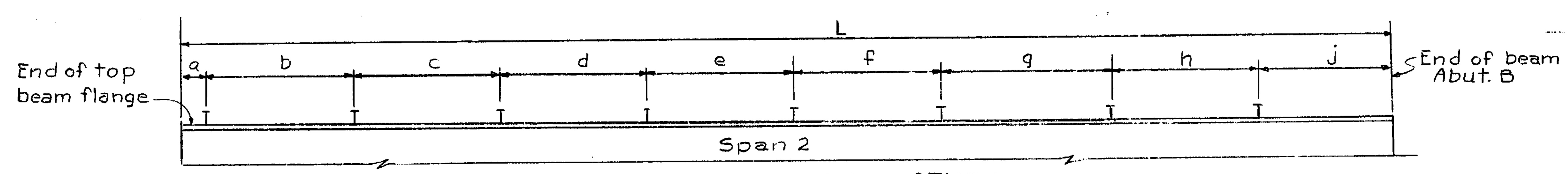
DETAIL-F

STUD SHEAR CONNECTOR DETAILS

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Shear developers	Lump Sum	Lump Sum



ELEVATION of STUDS



ELEVATION of STUDS

NOTES:

Welding of studs to beam flanges is incidental to Shear Developers.

Weight of studs is not included in structural steel weights.

Work this sheet with sheets No. 12

MICHIGAN STATE HIGHWAY DEPARTMENT

SHEAR DEVELOPER DETAILS

REVISIONS

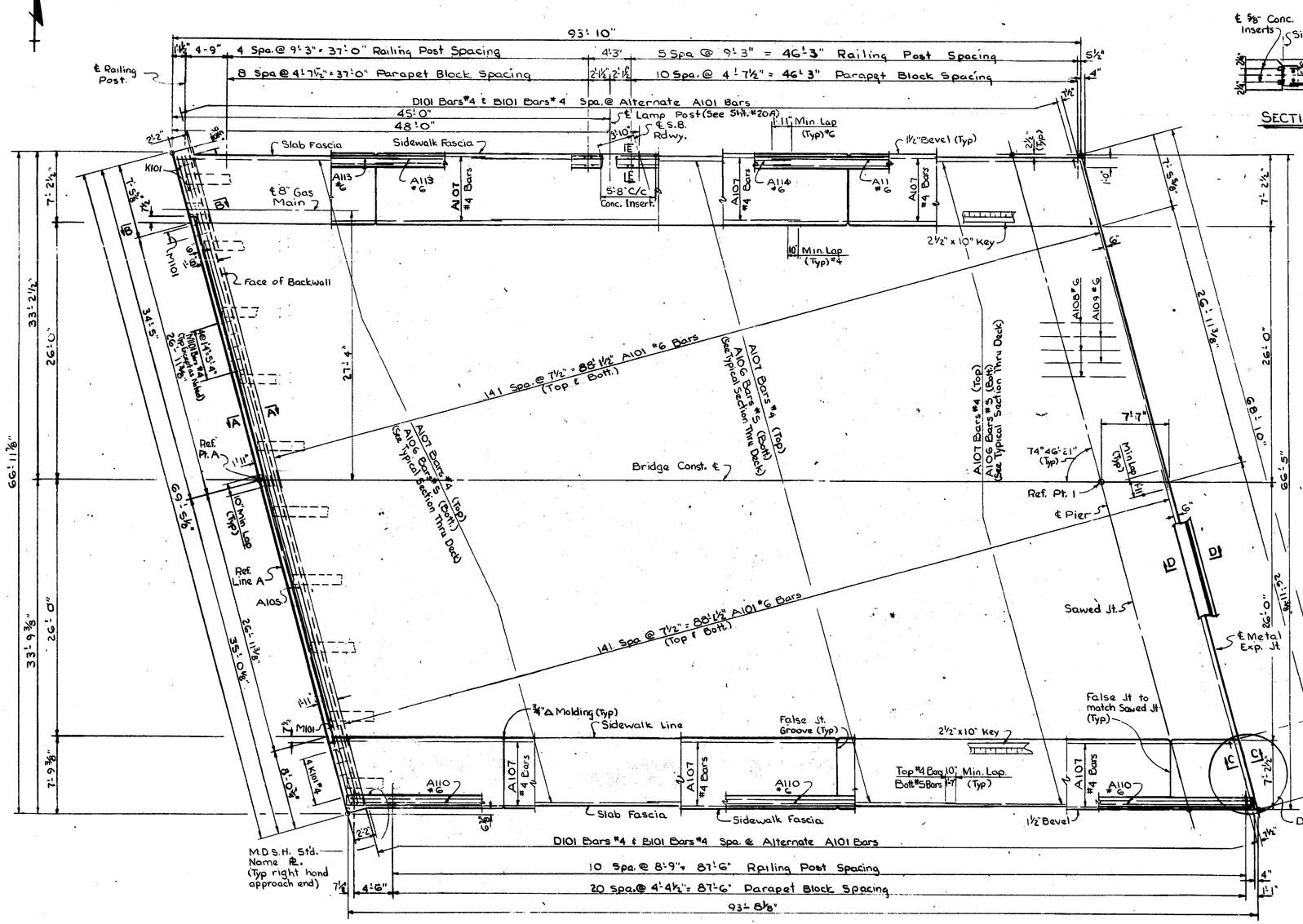
NO	DESCRIPTION	DATE	BY

SQUAD BOSS	FISHER	6-3-69
DRAWN BY	DEM 11-4-62	
TRACED BY	Hartman	3/26/69
CHECKED BY	C.Y. Wang	4-2-69
SHEET 15 OF 21		

S28 of 63174A

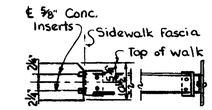
SD2 (2-13-69)

MASTER COPY



PLAN OF SLAB SPAN 1

For Location of Sections	See Sheet
A-A	18
B-B	18
C-C	18
D-D	18
Detail A	18



SECTION E-E

NOTE:

Inserts are to be ⅝" Truscon threaded inserts or approved equal and are to be provided with a suitable setting plug.
Furnishing and placing concrete inserts is incidental to superstructure concrete.
Clearance signs and mounting brackets are to be furnished and installed by others.

NOTES:

J.W.P. denotes Joint Waterproofing.
H.R.R.A.T.F. denotes Hot-Poured Rubber Asphalt Type Filler.
For details of bevels, moldings and Bridge Railing, see Standard Sheet R11 or R12.
Edge or groove denote edging or grooving with an approved tool.
Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by Section 5.01.05 of the Standard Specifications.
The District Utility Engineer is to be notified five days in advance of the time of installation of the ducts in the sidewalk.
The contractor is to provide a sawed joint ½" deep by ⅛" wide (min) in the top of slab over and parallel to the centerline of the pier. The joint is to be sawed before casting of sidewalks and is to be filled with Hot-Poured Rubber Asphalt Type Filler (Incidental).
Bridge Railing is to be either aluminum or Steel Tubular railing on concrete parapet. See Railing Standard R11 or R12. (For S.E. Quadrant see View F-F Sht. #17)
Protective Treatment for Bridge Decks is to be applied to all supperstructure concrete surfaces between fascia lines. (See Supplemental Specifications).
False joints in sidewalks shall be placed midway between concrete posts at approx. every forth panel.
For name plate mounting details see standard sheet R11 or R12. For location of name plates see this sheet.

work this sheet with sheets No. 17, 18, 19 & 20A

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

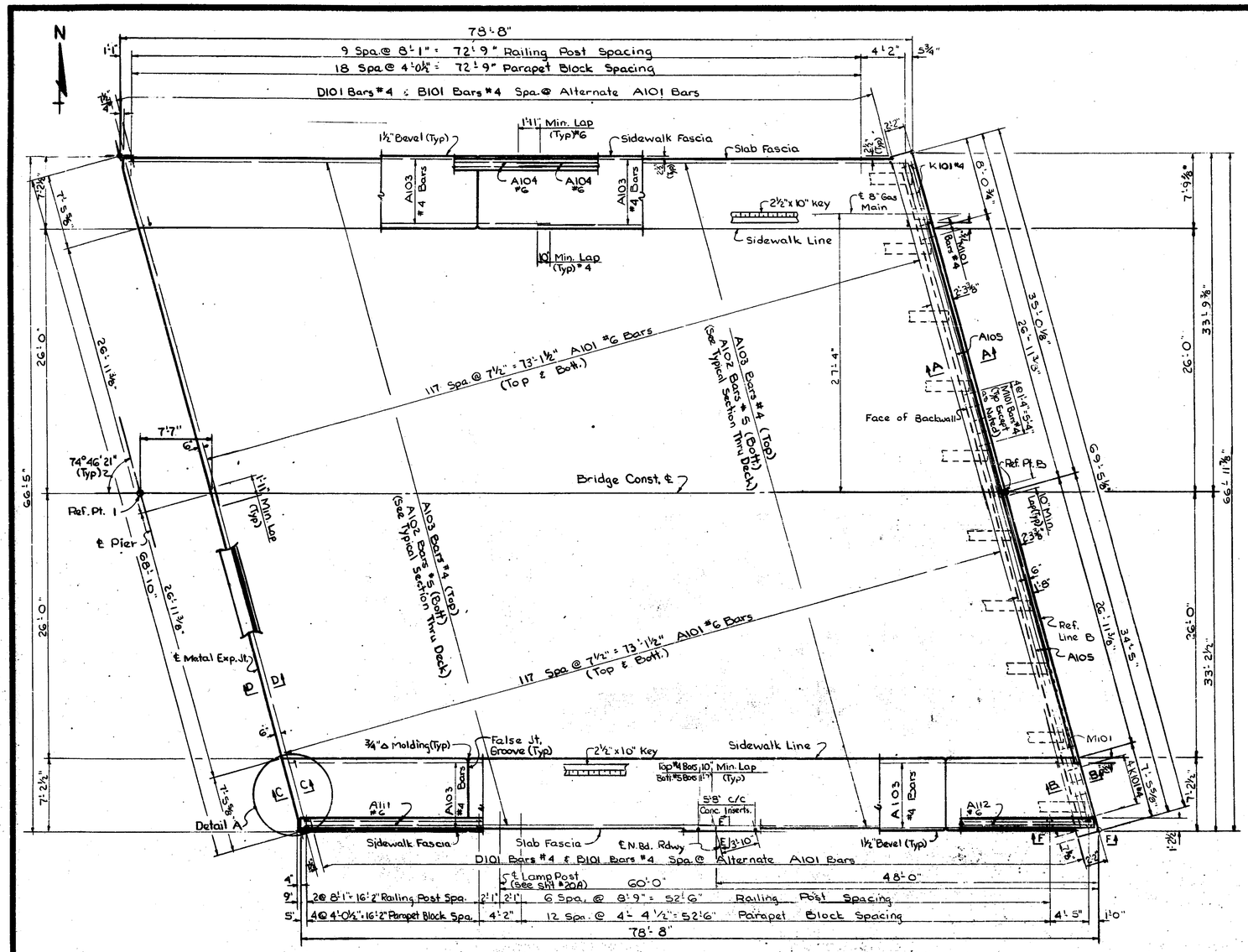
SUPERSTRUCTURE DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

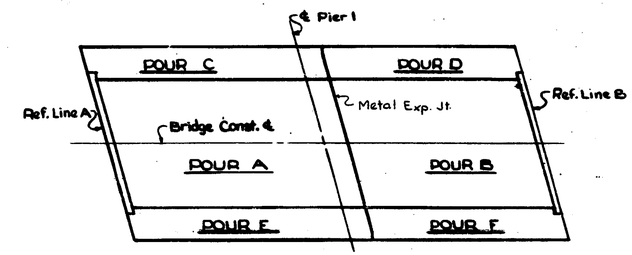
DESIGN BASIS	Fisher	6-3-69
DRAWN BY	R. MARSH	1-29-69
TRACED BY		
CHECKED BY	C.Y. WANG	4-2-69
SHEET 16 OF 21		

S28 of 63174 A



PLAN OF SLAB SPAN 2

For Location of Section	See Sheet
A-A	18
B-B	18
C-C	18
D-D	18
E-E	18
Detail A	18

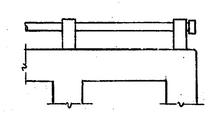


POUR DIAGRAM

Alphabetical designation of pours is not to be construed as a pour sequence.

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Hot-Poured Rubber Asphalt Type Filler	Lin. Ft.	67
Water Reducing Retarding Admixture	Gals.	46
Bridge Railing-Parapet Type	Lin. Ft.	345
Structural Tile 6"x 12"x 12"	Each	1520
Protective Treatment for Bridge Decks	Sq. Ft.	11,457
3" ø Fiber Conduit	Lin. Ft.	173

CONCRETE QUANTITIES		
	Pour	Grade A (GAA) Cu. Yds.
SLAB	A	160.5
	B	134.3
SIDEWALK	C	11.9
	D	10.1
	E	13.4
	F	11.4
Backwall - Abut. A		14.1
Backwall - Abut. B		14.1
Total		369.8 Cu. Yds.



VIEW F-F
(S.E. Quadrant Only)

Work this sheet with sheets No. 16, 18, 19 & 20A

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

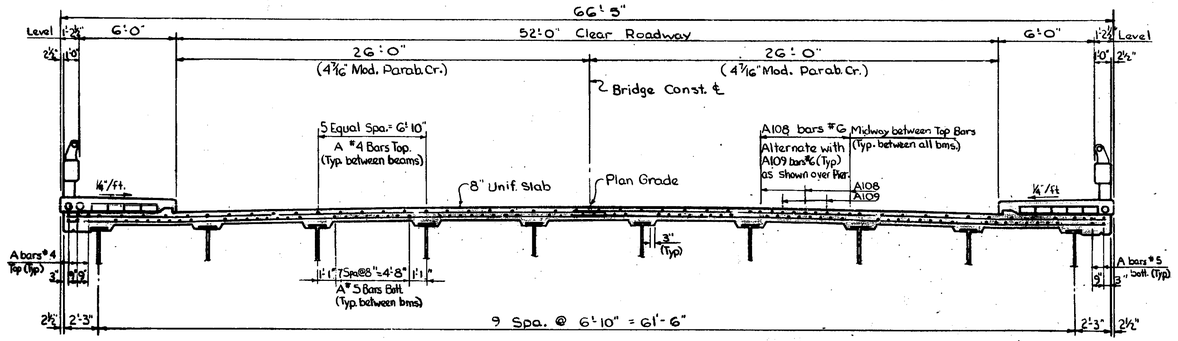
SUPERSTRUCTURE DETAILS

REVISIONS

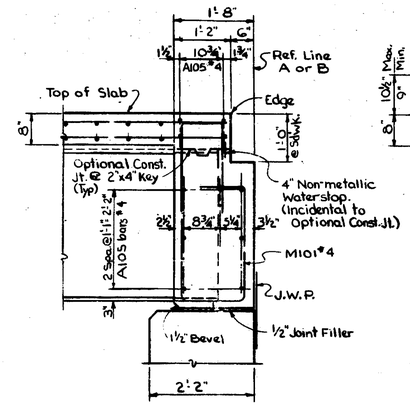
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	Fisher	6-5-63
DRAWN BY		1-29-59
CHECKED BY		
CHECKED BY	C.Y. Wang	4-2-64
SHEET	17 OF 21	

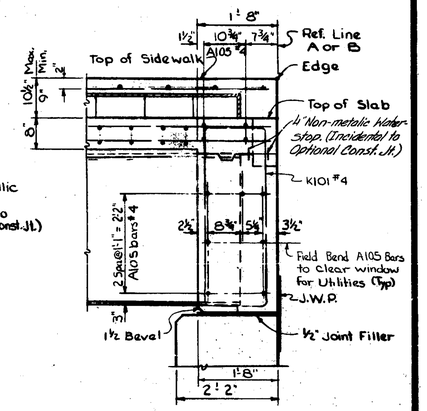
S28 of 63174A



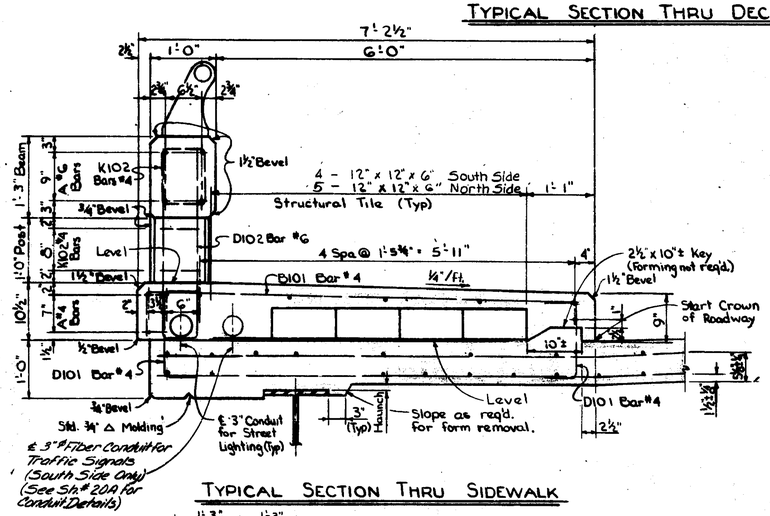
TYPICAL SECTION THRU DECK



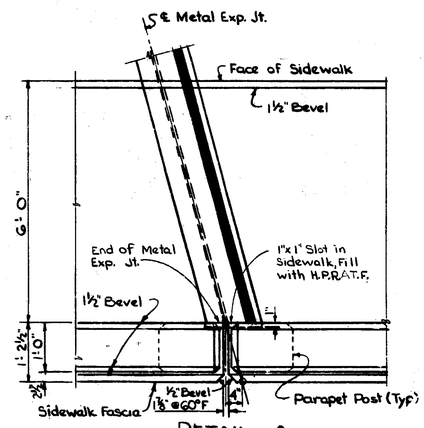
SECTION A-A



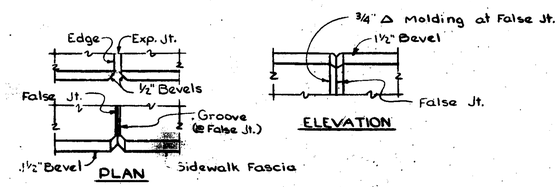
SECTION B-B



TYPICAL SECTION THRU SIDEWALK

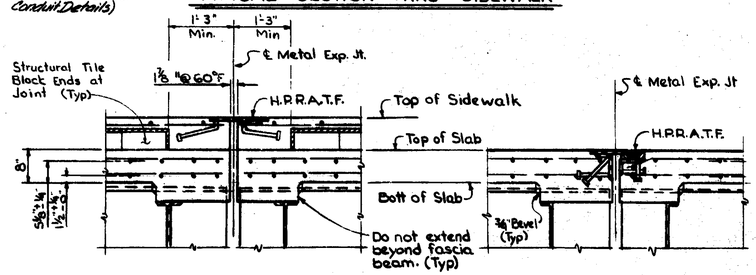


DETAIL A



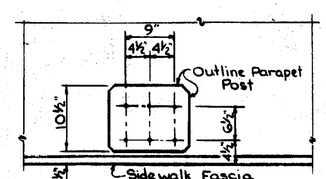
MOLDING DETAILS

For Location of Sections	See Sheet
A-A	16, 17
B-B	16, 17
C-C	16, 17
D-D	16, 17
Detail A	16, 17



SECTION C-C

SECTION D-D



SECTION THRU PARAPET POST

Work this sheet with sheets No. 16, 17 & 19

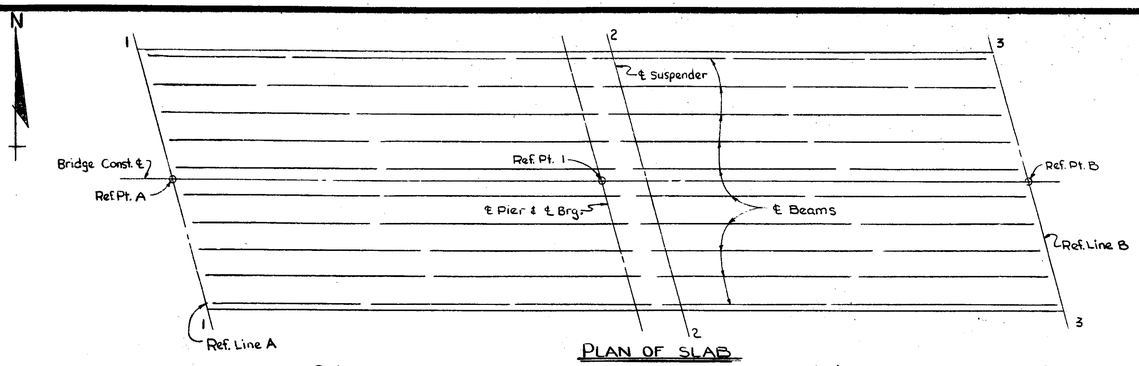
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

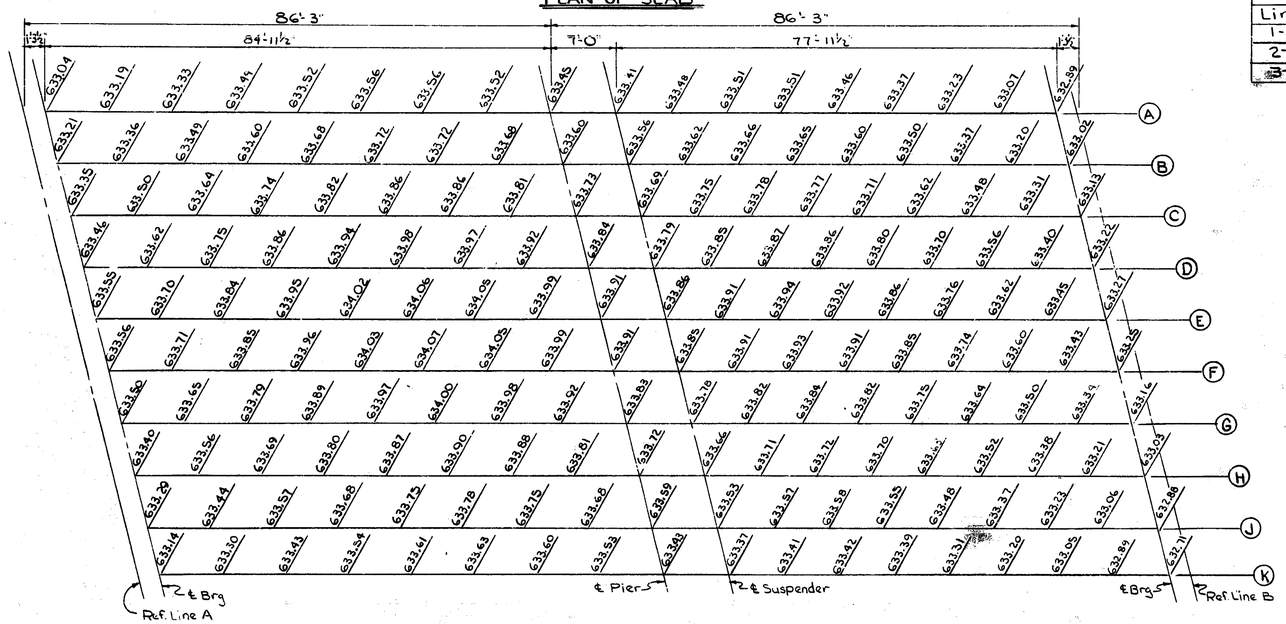
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN BASIS	Fisher	6-4-69
DRAWN BY	R.MARSH	1-29-69
TRACED BY		
CHECKED BY	C.Y.Wang	4-2-69
SHEET 18 OF 21		

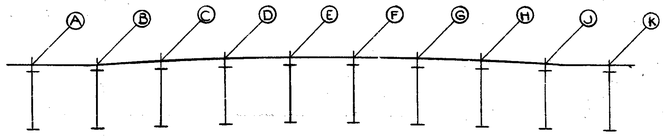
S28 of 63174A



PLAN OF SLAB

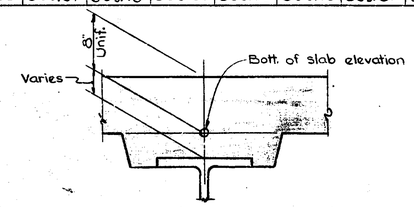


BOTTOM OF SLAB ELEVATION



SCREED TEMPLATE
(Looking East)

SCREED TEMPLATE ELEVATION											
Line	A	B	C	D	E	F	G	H	J	K
1-1	633.81	633.87	634.01	634.12	634.21	634.22	634.16	634.06	633.94	633.91
2-2	634.19	634.23	634.35	634.46	634.53	634.52	634.44	634.33	634.20	634.14
3-3	633.65	633.67	633.78	633.87	633.92	633.90	633.81	633.68	633.53	633.47



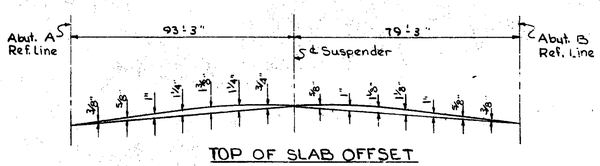
TYP. SECTION AT EACH BEAM

NOTES:

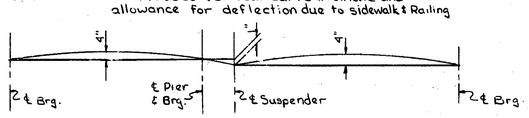
Screed elevations are based on the condition that no slab concrete has been cast and that formwork, steel reinforcement and shear developers are in place.

Bottom of slab elevations are based on the condition that all structural steel has been erected, but no other loads applied. These elevations include allowances for deflections due to forms, steel reinforcement, shear developers in place, deck concrete and railing.

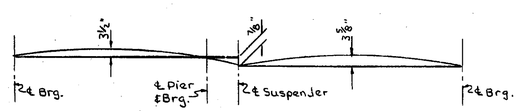
Screeds affected by loads in other spans are to be set to the elevations shown before casting any concrete. Concrete in the suspended span is to be cast before the concrete in the anchor span.



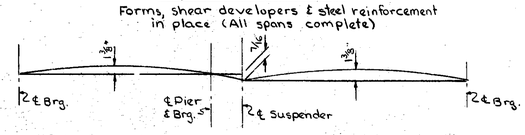
TOP OF SLAB OFFSET
Includes vertical curve ordinate and allowance for deflection due to sidewalk & Railing



CAMBER ORDINATES
Structural steel erected
(No other loads applied)



CAMBER ORDINATE
Forms, shear developers & steel reinforcement in place (All spans complete)



CAMBER ORDINATE
(Deck concrete cast-utilities not placed)
(All spans complete)

Work this sheet with sheets No. 16, 17 & 18

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

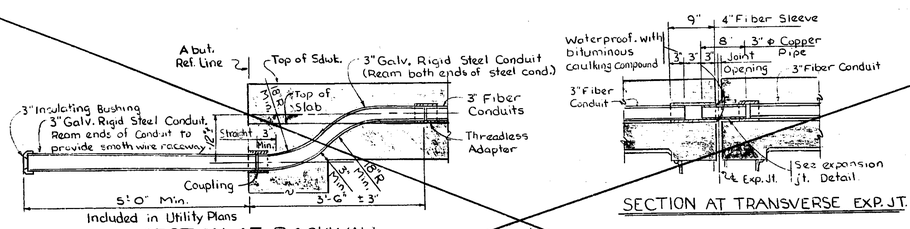
REVISIONS

NO.	DESCRIPTION	DATE	BY

DESIGN BOSS	Fisher	6-2-69
DRAWN BY	R. MARSH	3/31/69
TRACED BY		
CHECKED BY	C.Y. Wang	4-2-69

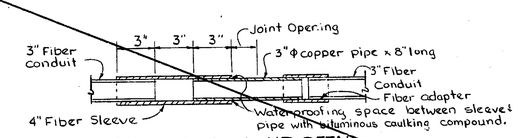
SHEET 19 OF 21

S28 of 63174A

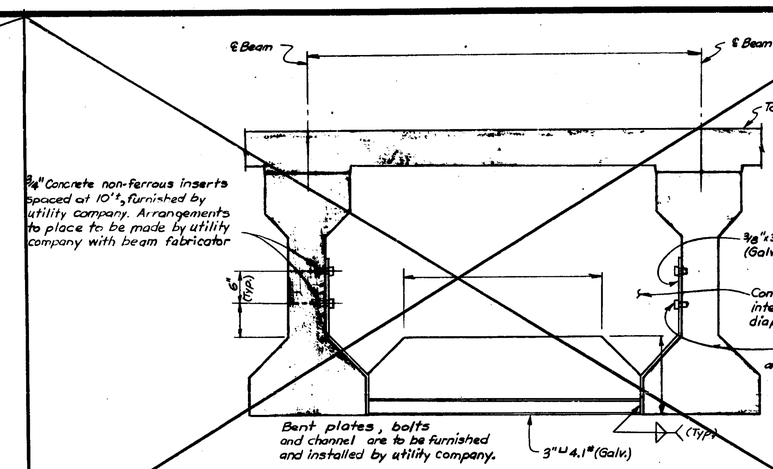


SECTION AT BACKWALL

SECTION AT TRANSVERSE EXP. JT.

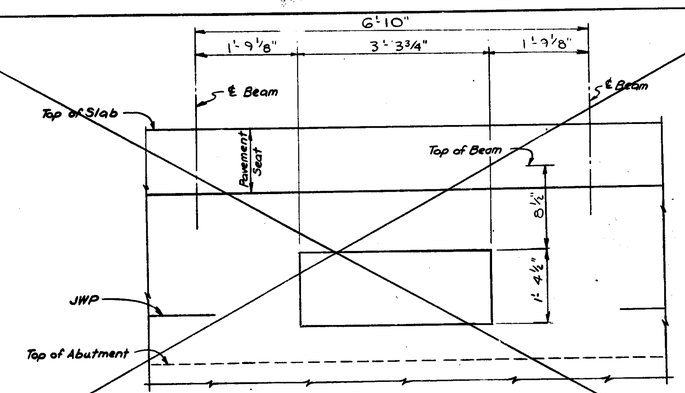


EXPANSION JOINT DETAIL



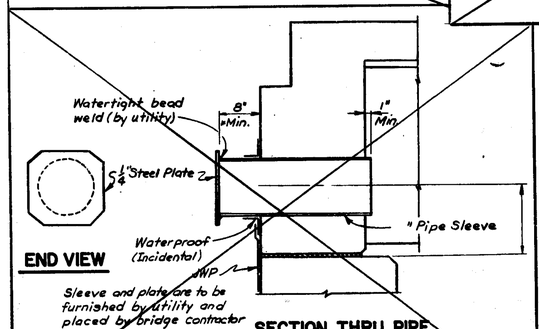
SECTION THRU PRESTRESSED CONCRETE I BEAMS

(@90° to Beam Lines)



ELEVATION OF BACKWALL WINDOW

(℄ 90° to Beam Lines)



END VIEW

SECTION THRU PIPE SLEEVE IN BACKWALL FOR FUTURE MAIN

(Parallel to Beams)

MISCELLANEOUS QUANTITIES			
UTILITY	ITEM	UNIT	AMOUNT
Consumers Power Co.	12" ϕ Pipe Sleeve - Placed	each	2

NOTES:

Installation of pipe sleeves and forming of windows through backwalls and diaphragms is included in this contract. All other work shown is not apart of this contract.

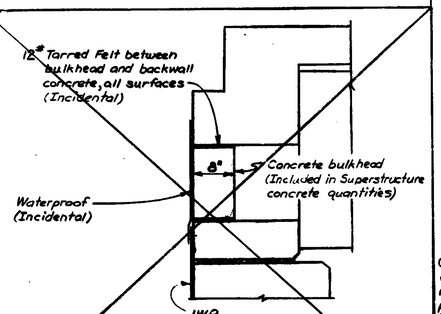
Furnishing and installing Gas Main including all incidental work necessary for installation are not a part of this contract.

The item JWP (Joint Waterproofing) is a pay item and is included in the quantity shown on sht. #6

Waterproof denotes waterproofing with Bituminous Calking Compound.

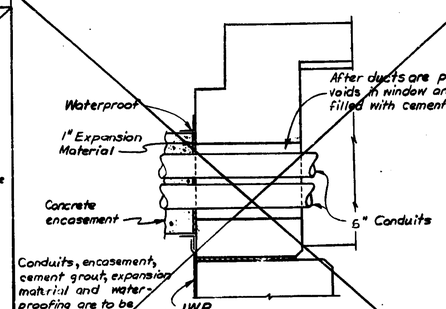
The contractor shall advise the District Utility Engineer as soon as the structure is ready for installation of conduits or gas main.

Work this sheet with sheets No. 4, 11, 12, 16, 17 & 18.



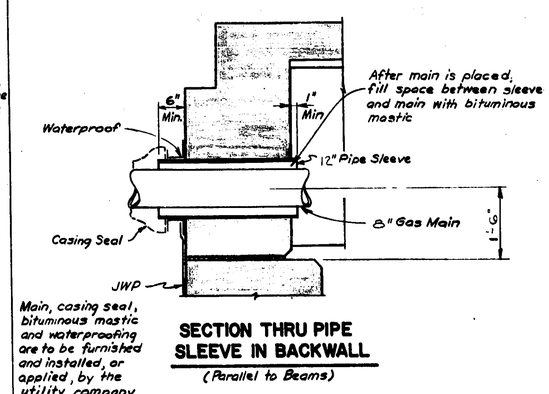
SECTION THRU WINDOW IN BACKWALL FOR FUTURE PIPES

(Parallel to Beams)



SECTION THRU WINDOW IN BACKWALL

(Parallel to Beams)



SECTION THRU PIPE SLEEVE IN BACKWALL

(Parallel to Beams)

MICHIGAN STATE HIGHWAY DEPARTMENT

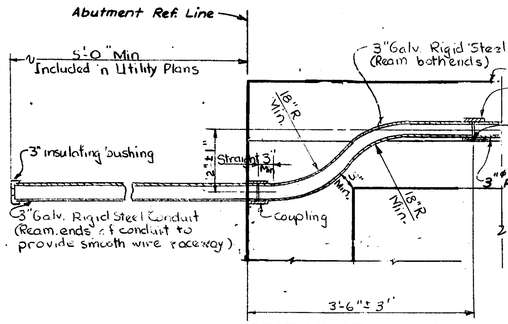
UTILITY DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

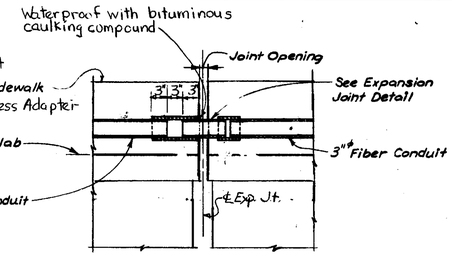
SQUAD BOSS	Fisher	6-3-69
DRAWN BY	R. MARSH	4-8-69
TRACED BY		
CHECKED BY	C.X. Wang	7-11-69
SHEET 20 OF 21		

S28 of 63174A

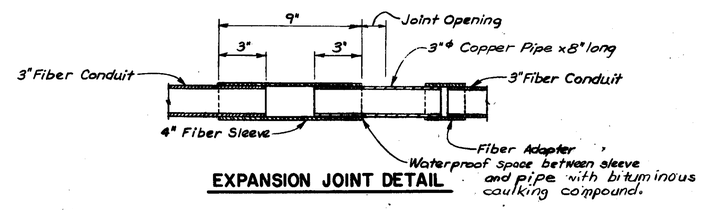
U4 (10-6-65)



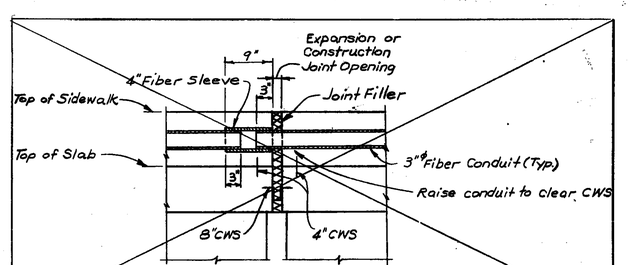
SECTION AT BACKWALL



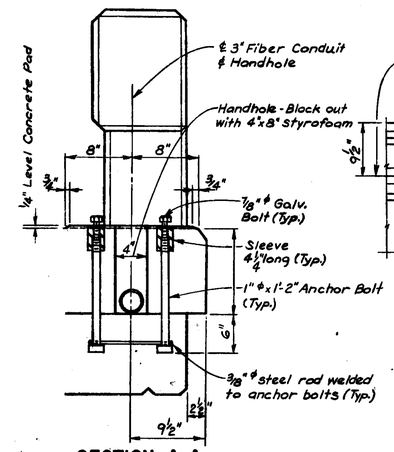
SECTION AT METAL EXP. JOINT



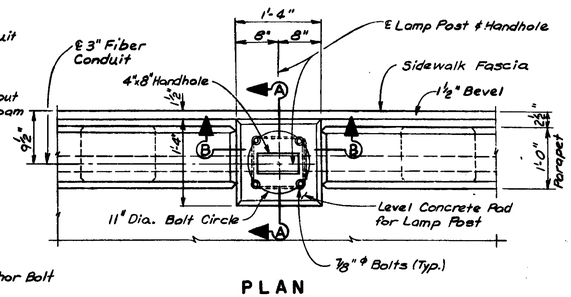
EXPANSION JOINT DETAIL



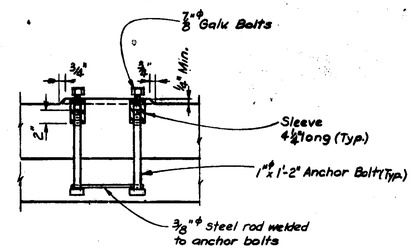
SECTION AT TRANSVERSE JOINT



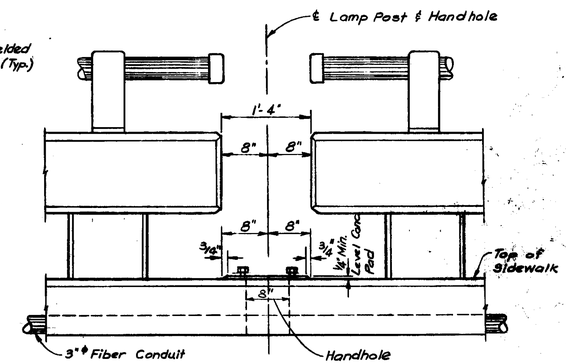
SECTION A-A



PLAN



SECTION B-B



ELEVATION

Notes:

7/8" ϕ bolts shall be galvanized steel (ASTM A153)

1/2" ϕ x 7/8" ϕ Anchor bolts are to be furnished by Detroit Edison Co. and installed by Bridge Contractor (Installation is incidental work.)

Furnishing and installing of Light Standard and 3" ϕ Fiber Conduit as well as conduit sleeves, styrofoam blocking and 1/8" Pad under light standard is by Detroit Edison Co.

3" ϕ Fiber Conduit for Traffic Signals shall be Furnished & Placed by the Contractor. Sleeves, copper pipe, adapters, couplings, galvanized steel conduit, bushings plug, and waterproofing are incidental to the item 3" ϕ Fiber Conduit.

Work this sheet with sheets No. 16 & 17

MICHIGAN STATE HIGHWAY DEPARTMENT

LIGHTING DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Fisher	6-1-61
DRAWN BY	R. Marsh	5/28/69
TRACED BY		
CHECKED BY	K. Y. Wang	5-28-69

SHEET 20A OF 21

S28 of 63174A

U3 (10-20-65)

ABUT. A & B

BAR	DIMENSIONS a	b	c	d	e			SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A1	35'-3"							6	35'-3"	68	3601
A2	17'-0"							7	17'-0"	138	4796
A3	10'-3"							7	10'-3"	138	2891
A4	10'-9"							7	10'-9"	140	3076
A5	7'-6"							6	7'-6"	92	1037
A6	11'-0"							7	11'-0"	92	2068
A7	7'-3"							7	7'-3"	92	1363
A8	4'-6"							6	4'-6"	99	635
A9	15'-0"							6	15'-0"	60	1352
A10	15'-6"							6	15'-6"	32	745
A11	17'-3"							6	17'-3"	62	1606
A12	17'-9"							6	17'-9"	32	853
A13	35'-0"							4	35'-0"	104	2432
A14	25'-9"							4	25'-9"	4	69
A15	3'-0							6	3'-0"	51	230
									Total		26,759
				WINGWALLS ABUT. A							
A200	23'-6"							6	23'-6"	90	1412
A201	24'-9"							6	24'-9"	12	446
A202	18'-3"							6	18'-3"	32	877
A203	10'-3"							9	10'-3"	32	1115
A204	12'-0"							8	12'-0"	98	1538
A205	8'-6"							6	8'-6"	32	409
A206	6'-3"							6	6'-3"	32	300
A207	24'-9"							4	24'-9"	44	727
A208	20'-0"							4	20'-0"	4	53
A209	23'-6"							4	23'-6"	4	63
A210	20'-3"							4	20'-3"	4	54
A211	17'-0"							4	17'-0"	4	45
A212	13'-6"							4	13'-6"	4	36
A213	10'-3"							4	10'-3"	4	27
A214	8'-0"							4	8'-0"	4	21
A215	7'-9"							4	7'-9"	48	1265
A216	13'-3"							4	13'-3"	48	2162
A217	16'-0"							6	16'-0"	22	529
A218	18'-3"							6	18'-3"	32	877
A219	8'-9"							6	8'-9"	28	368
A220	7'-6"							6	7'-6"	4	45
A221	6'-9"							6	6'-9"	4	41
A222	6'-0"							6	6'-0"	4	36
A223	5'-0"							6	5'-0"	4	30
A224	4'-3"							6	4'-3"	4	26
A225	3'-6"							6	3'-6"	4	21
A226	2'-9"							6	2'-9"	6	25
A227	3'-6"							6	3'-6"	2	11
A228	4'-0"							6	4'-0"	2	12
A229	4'-9"							6	4'-9"	2	14
A230	5'-3"							6	5'-3"	2	16
A231	5'-9"							6	5'-9"	2	17
A232	6'-6"							6	6'-6"	2	20
A233	7'-0"							6	7'-0"	2	21
A234	7'-9"							6	7'-9"	2	23
A235	11'-9"							7	11'-9"	4	96
A236	12'-6"							7	12'-6"	4	102
A237	13'-3"							7	13'-3"	4	108
A238	14'-3"							7	14'-3"	4	117
A239	15'-0"							7	15'-0"	4	123
A240	15'-9"							7	15'-9"	4	129
A241	16'-9"							7	16'-9"	4	137
A242	17'-6"							7	17'-6"	4	143
A243	11'-6"							6	11'-6"	10	173
A244	12'-3"							6	12'-3"	2	37
A245	13'-0"							6	13'-0"	2	39
A246	13'-6"							6	13'-6"	2	41
A247	14'-3"							6	14'-3"	2	43
A248	14'-9"							6	14'-9"	2	44
A249	15'-6"							6	15'-6"	2	47
A250	16'-0"							6	16'-0"	2	48
A251	16'-6"							6	16'-6"	2	50
A252	17'-3"							6	17'-3	2	52
A253	18'-0"							6	18'-0"	2	54
A254	21'-6"							4	21'-6"	28	402
A255	12'-3"							4	12'-3"	4	33
A256	9'-0"							4	9'-0"	4	24

WINGWALLS ABUT. A CONT'D

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
A257	5'-6"							4	5'-6"	4	15
A258	4'-0"							4	4'-0"	4	11
A259	17'-3"							4	17'-3"	4	46
A260	11'-6"							7	11'-6"	12	282
A261	23'-3"							6	23'-3"	12	419
D201	5'-6¾"	1'-0"						6	12'-0"		54
									Total		15,551
				WINGWALL ABUT. B							
A300	27'-6"							6	27'-6"	20	826
A301	32'-9"							6	32'-9"	12	590
A302	18'-3"							6	18'-3"	19	521
A303	10'-3"							9	10'-3"	18	627
A304	12'-0"							8	12'-0"	28	897
A305	8'-6"							6	8'-6"	32	409
A306	6'-3"							6	6'-3"	32	300
A307	29'-0"							4	29'-0"	28	542
A308	26'-0"							4	26'-0"	2	35
A309	22'-3"							4	22'-3"	2	30
A310	19'-9"							4	19'-9"	2	26
A311	10'-9"							4	10'-9"	2	14
A312	7'-9"							9	7'-9"	28	738
A313	13'-3"							9	13'-3"	28	1261
A314	16'-0"							6	16'-0"	27	649
A315	18'-3"							6	18'-3"	19	521
A316	8'-9"							6	8'-9"	34	447
A317	7'-9"							6	7'-9"	2	23
A318	7'-0"							6	7'-0"	2	21
A319	6'-0"							6	6'-0"	2	18
A320	5'-3"							6	5'-3"	3	24
A321	5'-9"							6	5'-9"	1	9
A322	6'-6"							6	6'-6"	1	10
A323	7'-3"							6	7'-3"	1	11
A324	7'-9"							6	7'-9"	1	12
A325	11'-6"							6	11'-6"	5	86
A326	12'-3"							6	12'-3"	1	18
A327	12'-9"							6	12'-9"	1	19
A328	13'-6"							6	13'-6"	1	20
A329	14'-0"							6	14'-0"	1	21
A330	14'-9"							6	14'-9"	1	22
A331	15'-3"							6	15'-3"	1	23
A332	15'-9"							6	15'-9"	1	24
A333	16'-6"							6	16'-6"	1	25
A334	17'-0"							6	17'-0"	1	26
A335	17'-9"							6	17'-9"	1	27
A336	18'-6"							6	18'-6"	1	28
A337	19'-0"							6	19'-0"	1	29
A338	19'-6"							6	19'-6"	1	29
A339	20'-3"							6	20'-3"	1	30
A340	20'-9"							6	20'-9"	1	31
A341	11'-6"							7	11'-6"	6	141
A342	11'-6"							7	11'-6"	2	47
A343	12'-6"							7	12'-6"	2	51
A344	13'-3"							7	13'-3"	2	54
A345	14'-0"							7	14'-0"	2	57
A346	15'-0"							7	15'-0"	2	61
A347	15'-9"							7	15'-9"	2	64
A348	16'-6"							7	16'-6"	2	67
A349	17'-3"							7	17'-3"	2	71
A350	18'-3"							7	18'-3	2	75
A351	19'-0"							7	19'-0"	2	78
A352	19'-9"							7	19'-9"	2	81
A353	20'-9"							7	20'-9"	2	85
A354	29'-6"							4	29'-6"	14	276
A355	20'-6"							4	20'-6"	2	27
A356	17'-0"							4	17'-0"	2	23
A357	13'-6"							4	13'-6"	2	18
A358	11'-6"							4	11'-6"	2	15
A359	8'-6"							4	8'-6"	2	11
A360	4'-6"							4	4'-6"	2	6
A361	25'-9"							4	25'-9"	2	34
A362	19'-9"							6	19'-9"	4	119

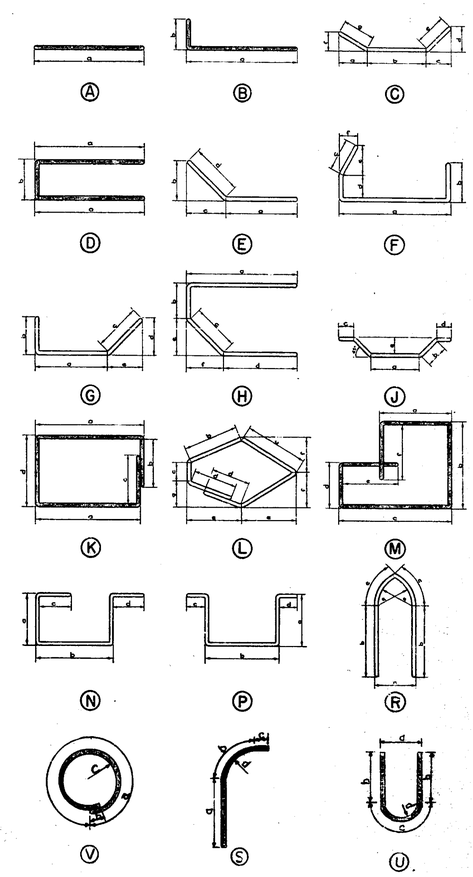
WINGWALL ABUTS CONT'D

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D	TOTAL WT.
D201	5'-6¾"	1'-0"						6	12'-0"	3	54
D300	2'-10⅝"	7⅛"						6	6'-3"	15	141
K300	0'-10⅝"	0'-6⅛"	0'-6"	0'-8¼"				4	3'-5"	26	59
									Total		10,739
				BARRIERS							
A95	14'-0"							4	14'-0"	52	486
A96	1'-6"							4	1'-6"	38	38
D95	6'-5"	6"						4	13'-3"	36	319
									Total		843
				PIER							
A51	35'-3"							6	35'-3"	14	741
A52	7'-6"							6	7'-6"	47	530
A53	7'-9"							6	7'-9"	90	1098
A54	33'-9"							4	33'-9"	20	451
A55	5'-8"							9	5'-8"	70	1399
A56	10'-9"							9	10'-9"	60	2193
A57	25'-9"							10	25'-9"	18	1994
A58	25'-9"							6	25'-9"	2	77
A59	25'-8"							6	25'-8"	2	77
A60	23'-6"							10	23'-6"	36	3690
A61	21'-6"							6	21'-6"	4	129
D51	1'-0¾"	2'-5½"						4	4'-6"	5	15
K51	3'-1¾"	1'-9½"	1'-9¾"	2'-5¾"				6	12'-3"	54	994
S51	9'-11"	1'-3"	2'-6"	9"				9	13'-8"	10	465
U51	2'-3½"	1'-3"	3'-6"	1'-1"				6	6'-0"	6	59
V51	6'-3½"	11½"	11¾"					4	7'-3"	90	194
									Total		13,950
				SUPERSTRUCTURE							
A101	35'-0"							6	35'-0"	1090	54,673
A102	40'-0"							5	40'-0"	152	6391
A103	39'-9"							4	39'-9"	190	3717
A104	40'-0"							6	40'-0"	8	481
A105	35'-0"							4	35'-0"	44	1029
A106	31'-9"							5	31'-9"	228	2551
A107	31'-6"							4	31'-6"	210	4418
A108	14'-0"							6	14'-0"	27	568
A109	15'-0"							6	15'-0"	18	406
A110	32'-3"							6	32'-3"	12	581
A111	17'-9"							6	17'-9"	4	107
A112	30'-3"							6	30'-3"	8	364
A113	22'-9"							6	22'-9"	8	273
A114	25'-3"							6	25'-3"	8	303
B101	7"	6'-11½"						4"	7'-6"	260	1,303
D101	6"	1'-2"						4	2'-1"	520	723
D102	2'-10⅝"	7⅛"						6	6'-3"	252	2,366
K101	3'-4"	1'-0"	1'-1½"	1'-3½"				4	10'-0"	12	80
K102	10¾"	6⅛"	6"	8¾"				4	3'-5"	488	1113
M101	10⅝"	3'-3⅝"	1'-3⅛"	2'-9⅝"	11¾"	1'-5"		9	10'-1"	76	512
									Total		86,909

Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 159,741.*

BAR BENDING DIAGRAM



Notes:
Tolerances in cutting & bending bars are as established in Manual of Standard Practice of the Concrete Reinforcing Steel Institute & Detailing Manual of the American Concrete Institute.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

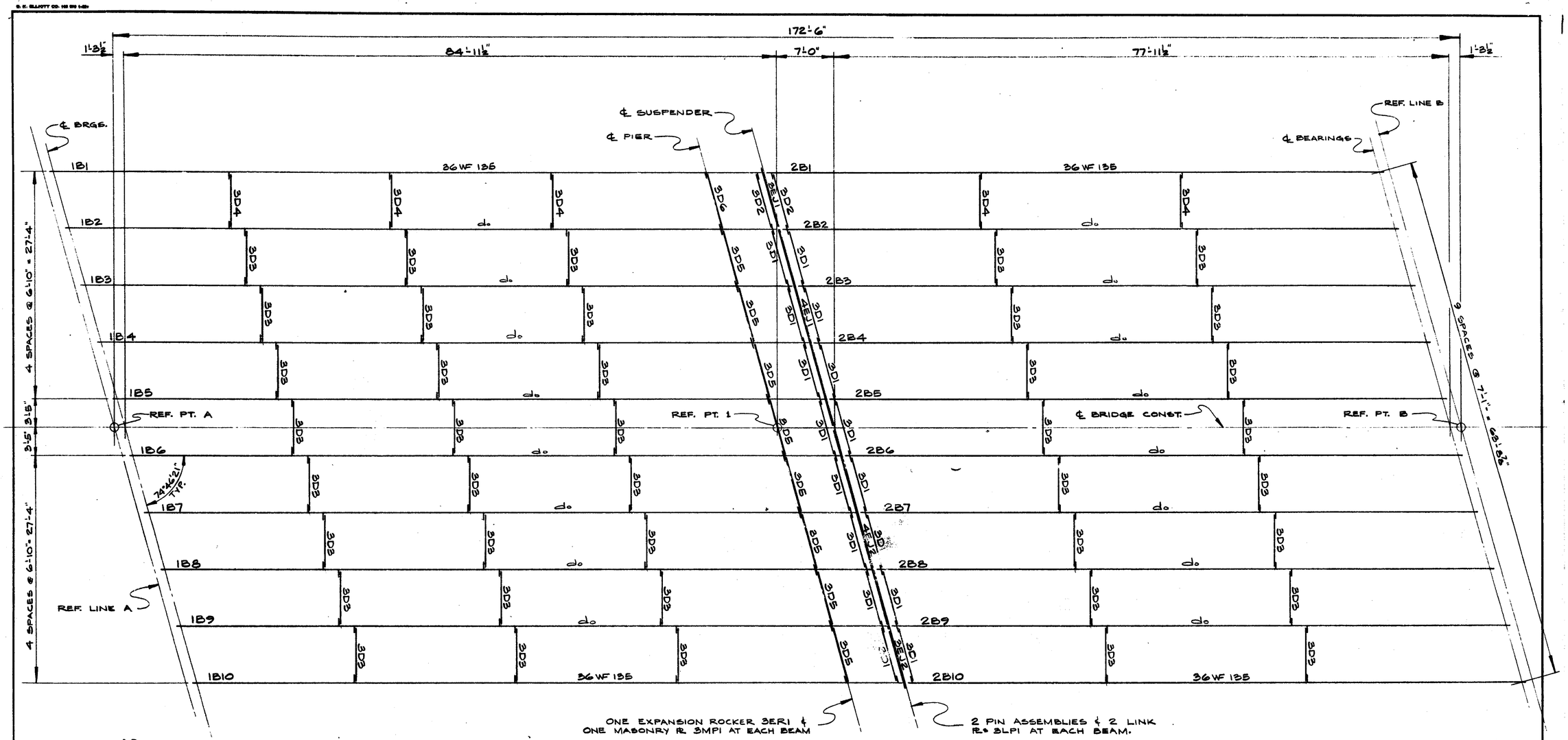
STEEL REINFORCEMENT DETAILS

REVISIONS

NO	DESCRIPTION	DATE	BY

SQUAD BOSS FISHER 6-3-69
DRAWN BY HARTMAN 9/25/69
TRACED BY
CHECKED BY C. Yhang 6-27-69
SHEET 21 OF 21

S28 of 63174A



ERECTION DIAGRAM

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

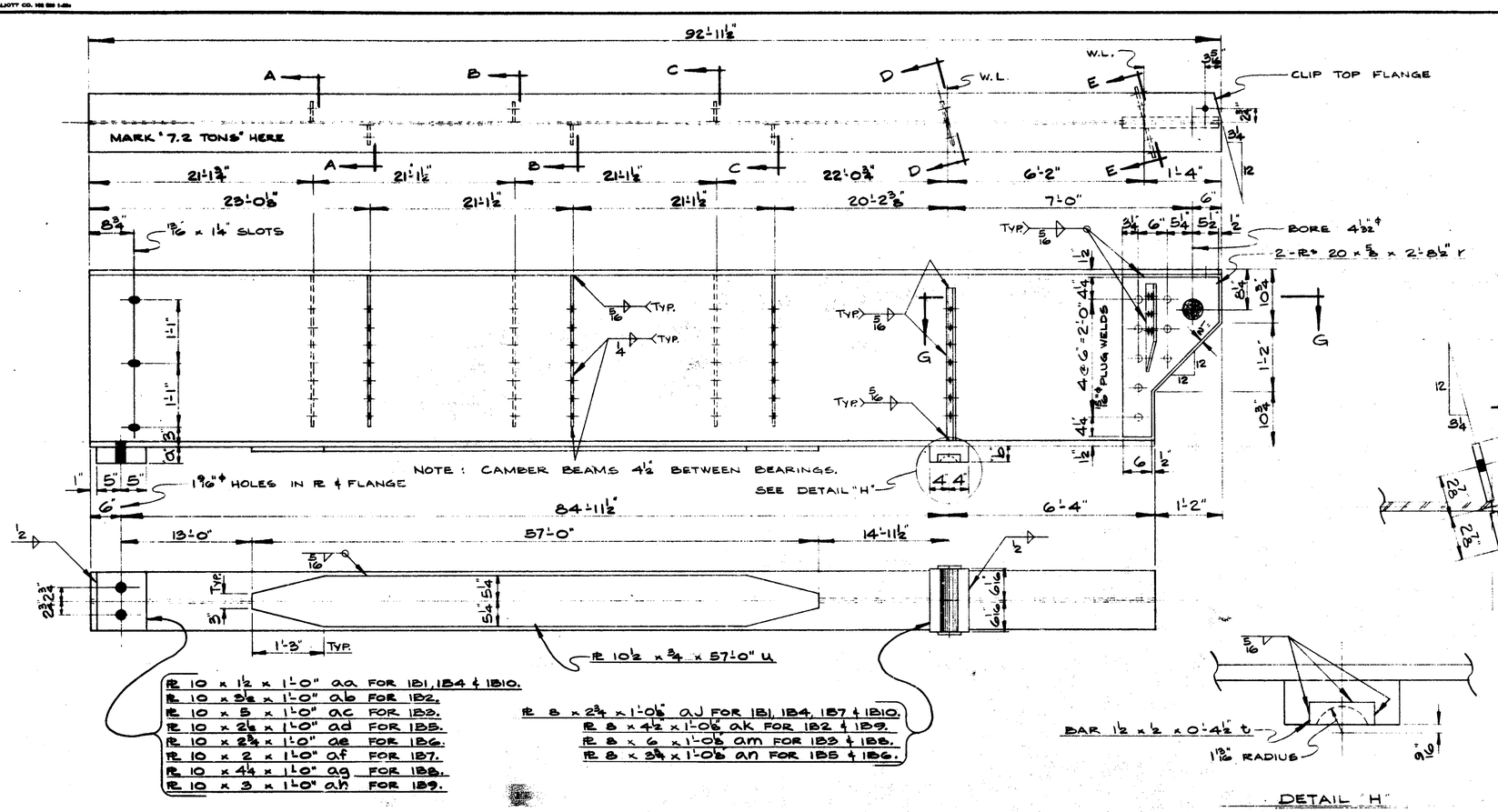
BRIDGE S28 OF 63174 A

I75 CROSSING WOODWARD HEIGHTS BLVD. IN THE CITY OF HAZEL PARK.

MIDWEST BRIDGE CO., CONT'R.

DATE 3-5-70	JOB NO. S5007	SHEET E1
BY AM		

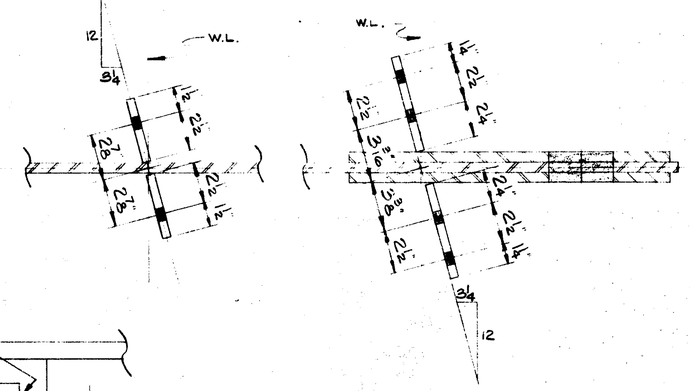
	a"	b"	c"	d"	e"	f"	g"	h"	k"	m"	n"	p"
1B1	1½	2¾	7⅛		7⅛		7⅛		7⅛		4¼	
1B2	3½	4½	7⅛	8⅝	7⅛	8¾	7⅛	8⅝	7⅛	8¾	4½	5⅞
1B3	5	6	7⅛	8½	7⅛	8⅝	7⅛	8¾	7⅛	8⅝	4½	6
1B4	1½	2¾	7⅛	8⅝	7⅛	8⅝	7⅛	8¾	7⅛	8⅝	4½	6
1B5	2½	3¾	7¼	7⅞	7⅛	8⅛	7⅛	8¼	7⅛	8⅛	4½	5½
1B6	2¾	3¾	8⅛	7⅛	8	7¼	8	7⅝	8⅛	7⅛	5½	4½
1B7	2	2¾	8⅝	7⅛	8⅜	7⅛	8¼	7⅛	8⅜	7⅛	5¾	4½
1B8	4¼	6	8⅝	7⅛	8⅝	7⅛	8½	7⅛	8⅝	7⅛	6⅛	4½
1B9	3	4½	8⅛	7⅛	8¾	7⅛	8⅝	7⅛	8¾	7⅛	6⅛	4½
1B10	1½	2¾		7⅛		7⅛		7⅛		7⅛		4½



PL 10 x 1½ x 1'-0" aa FOR 1B1, 1B4 & 1B10.
PL 10 x 3½ x 1'-0" ab FOR 1B2.
PL 10 x 5 x 1'-0" ac FOR 1B3.
PL 10 x 2½ x 1'-0" ad FOR 1B5.
PL 10 x 2¾ x 1'-0" ae FOR 1B6.
PL 10 x 2 x 1'-0" af FOR 1B7.
PL 10 x 4¼ x 1'-0" ag FOR 1B8.
PL 10 x 3 x 1'-0" ah FOR 1B9.

PL 8 x 2¾ x 1'-0⅛" aj FOR 1B1, 1B4, 1B7 & 1B10.
PL 8 x 4½ x 1'-0⅛" ak FOR 1B2 & 1B9.
PL 8 x 6 x 1'-0⅛ am FOR 1B3 & 1B8.
PL 8 x 3¾ x 1'-0⅛ an FOR 1B5 & 1B6.

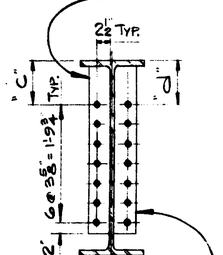
DETAIL "H"



SECTION G-G

10 BEAMS REQ'D. AS SHOWN & NOTED (36 WF 135 x 92'-11½") MARK 1B1 THRU 1B10

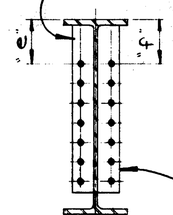
BAR 4 x ½ x 2'-6 1/16" ba FOR 1B1, 1B2, 1B3 & 1B4.
BAR 4 x ½ x 2'-6 13/16" bb FOR 1B5.
BAR 4 x ½ x 2'-7 1/16" bc FOR 1B6.
BAR 4 x ½ x 2'-7 9/16" bd FOR 1B7 & 1B8.
BAR 4 x ½ x 2'-7 13/16" be FOR 1B9.



BAR bd FOR 1B2 & 1B4.
BAR 4 x ½ x 2'-7 1/16" bf FOR 1B3.
BAR 4 x ½ x 2'-6 13/16" bg FOR 1B8.
BAR ba FOR 1B6, 1B7, 1B8, 1B9 & 1B10.

SECTION A-A

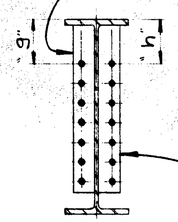
BAR ba FOR 1B1, 1B2, 1B3, 1B4 & 1B5.
BAR 4 x ½ x 2'-6 13/16" bh FOR 1B6.
BAR 4 x ½ x 2'-7 9/16" bj FOR 1B7.
BAR bd FOR 1B8.
BAR 4 x ½ x 2'-7 11/16" bk FOR 1B9.



BAR bd FOR 1B3 & 1B4.
BAR bk FOR 1B2.
BAR bc FOR 1B5.
BAR bb FOR 1B6.
BAR ba FOR 1B7, 1B8, 1B9 & 1B10.

SECTION B-B

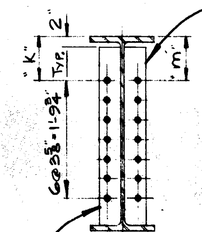
BAR ba FOR 1B1, 1B2, 1B3, 1B4 & 1B5.
BAR bh FOR 1B6.
BAR 4 x ½ x 2'-7 9/16" bm FOR 1B7.
BAR bf FOR 1B8.
BAR bd FOR 1B9.



BAR be FOR 1B2.
BAR bk FOR 1B3 & 1B4.
BAR bm FOR 1B5.
BAR 4 x ½ x 2'-6 9/16" bn FOR 1B6.
BAR ba FOR 1B7, 1B8, 1B9 & 1B10.

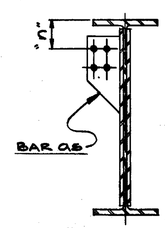
SECTION C-C

BAR bv FOR 1B2.
BAR bu FOR 1B3 & 1B4.
BAR bs FOR 1B5.
BAR br FOR 1B6, 1B7, 1B8, 1B9 & 1B10.



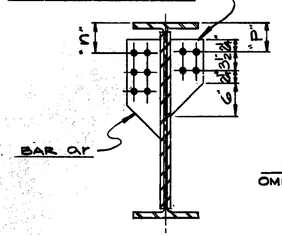
BAR 4 x ½ x 2'-8 1/16" br FOR 1B1, 1B2, 1B3, 1B4 & 1B5.
BAR 4 x ½ x 2'-8 11/16" bs FOR 1B6.
BAR 4 x ½ x 2'-8 1/16" bt FOR 1B7.
BAR 4 x ½ x 2'-8 11/16" bu FOR 1B8.
BAR 4 x ½ x 2'-8 1/16" bv FOR 1B9.

SECTION D-D



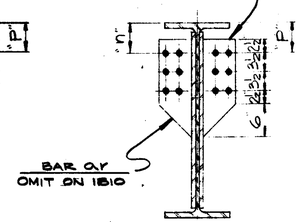
SECTION E-E
(FOR 1B1 ONLY)

BAR 6 x ½ x 1'-2" as



SECTION E-E
(FOR 1B2 ONLY)

BAR 6 x ½ x 1'-6" ar



SECTION E-E
(FOR 1B3 THRU 1B10)

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. PORT. HURON, MICH

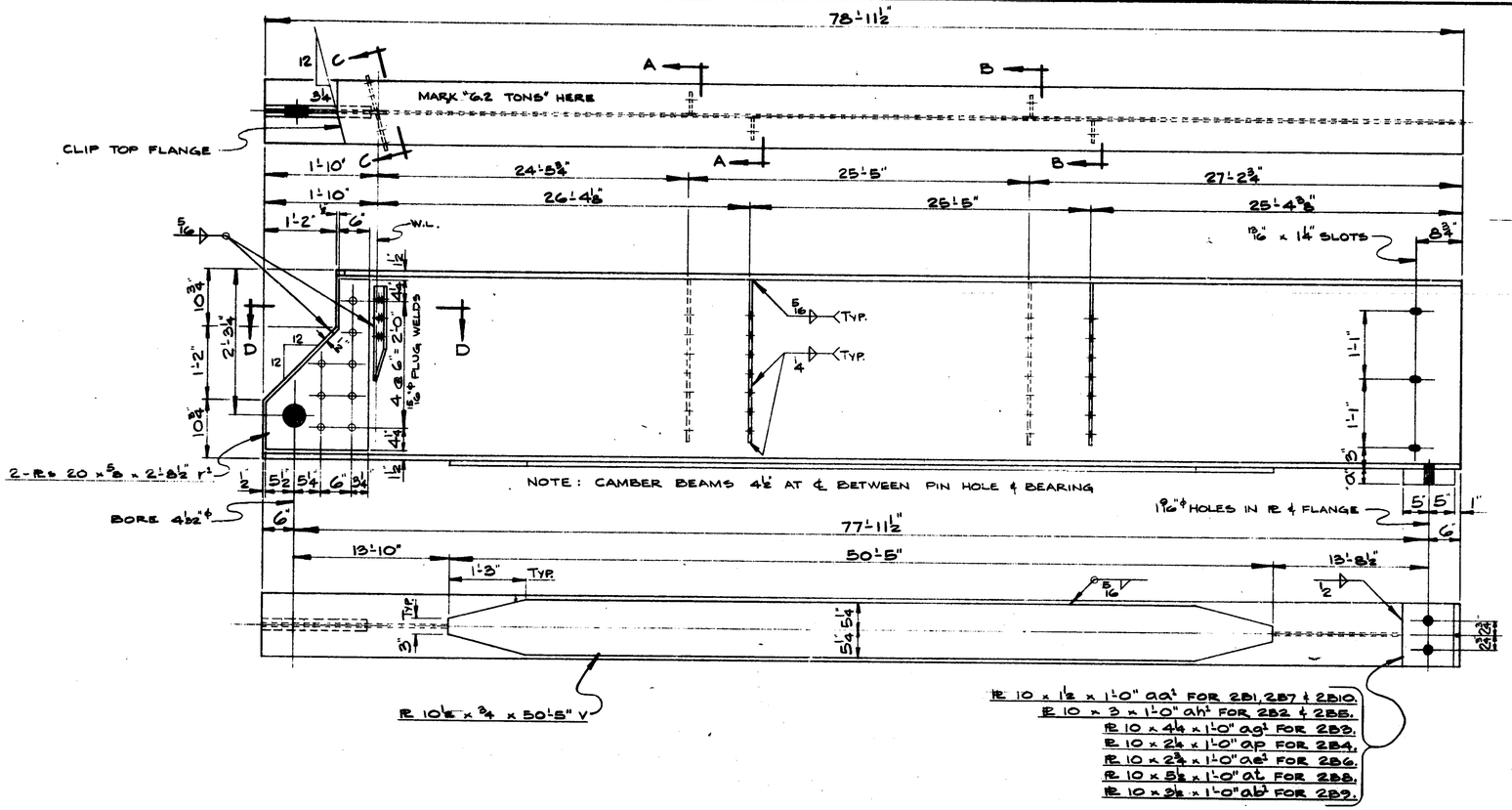
BRIDGE 528 OF 63174 A

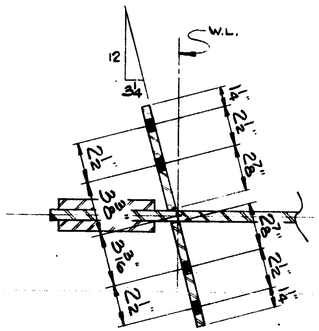
I75 CROSSING WOODWARD HEIGHTS BLVD. IN THE CITY OF HAZEL PARK.

MIDWEST BRIDGE CO., CONT'R.

DATE	JOB NO.	SHEET
3-3-70	55007	1 of 4

BY JAM





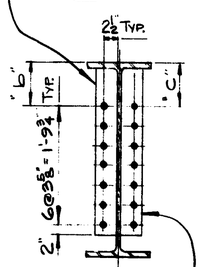
	"a"	"b"	"c"	"d"	"e"	"f"	"g"
2B1	1½"	7⅛"	X	7⅛"	X	4¼"	X
2B2	3"	7⅛"	8⅝"	7⅛"	8⅞"	4½"	5⅞"
2B3	4¼"	7⅛"	8⅝"	7⅛"	8⅝"	4½"	6"
2B4	2¼"	7⅛"	8⅝"	7⅛"	8⅝"	4½"	6"
2B5	3"	7¼"	8⅛"	7⅛"	8¼"	4½"	5½"
2B6	2¾"	8⅛"	7⅛"	7⅞"	7¼"	5½"	4½"
2B7	1½"	8⅜"	7⅛"	8¼"	7⅛"	5¾"	4½"
2B8	5½"	8¾"	7⅛"	8⅝"	7⅛"	6⅛"	4½"
2B9	3½"	8¾"	7⅛"	8⅝"	7⅛"	6⅛"	4½"
2B10	1½"	X	7⅛"	X	7⅛"	X	4½"

SHOP NOTES

FABRICATE PER M.D.S.H. 1967 SPECIFICATIONS.
ALL STRUCTURAL STEEL SHALL BE UNPAINTED A.S.T.M. A-588 UN.
OPEN HOLES 13/16" ϕ UNLESS OTHERWISE NOTED.
ALL BEAMS SHALL BE CAMBERED 4½". THIS CAMBER IS TO BE MEASURED WITH THE BEAM LYING ON ITS SIDE. CAMBER TOLERANCE IS ± ¼".
MAGNETIC PARTICLE INSPECTION OF WELDS IS REQ'D.
FASCIA BEAMS ONLY SHALL BE BLAST CLEANED.
ANCHOR BOLTS ARE TO BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. DESIGNATION A-153. ALL STEEL BEARING MATERIAL, EXCEPT THE PORTION WELDED TO BEAMS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. DESIGNATION A-123, AFTER FABRICATION.
BEAMS TO BE PROVIDED WITH LIFTING LUGS FOR HANDLING PURPOSES. SEE SHEET DL1 FOR DETAILS.
HIGH-STRENGTH BOLTS, NUTS & WASHERS SHALL BE A.S.T.M. A325, CORROSION RESISTANT.
MARK ALL BEAMS & DIAPHRAGMS @ LEFT END ON TOP SURFACE OF TOP FLANGE.
SINGLE PASS FILLET WELDS ⅜" OR SMALLER, MAY BE MADE WITH CONVENTIONAL ELECTRODES & FLUX. FILLET WELDS OVER ⅜" SHALL CONFORM TO THE ANALYSIS OF ONE OF THE GRADES OF STEEL SPECIFIED IN A.S.T.M. A588.
SEE SHEET P1 FOR SUSPENSION PIN DETAILS.

10 BEAMS REQ'D. AS SHOWN & NOTED 36WF 135 x 78'-11½") MARK 2B1 THRU 2B10

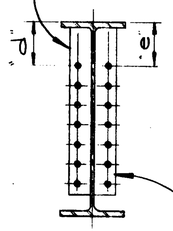
BAR 4 x ½ x 2'-6 1/16" ba² FOR 2B1, 2B2, 2B3 & 2B4.
BAR 4 x ½ x 2'-6 9/16" bb² FOR 2B5.
BAR 4 x ½ x 2'-7 1/16" bc² FOR 2B6.
BAR 4 x ½ x 2'-7 5/16" bj² FOR 2B7.
BAR 4 x ½ x 2'-7 1/16" bk² FOR 2B8 & 2B9.



BAR 4 x ½ x 2'-7 9/16" bd² FOR 2B2, 2B3 & 2B4.
BAR bc² FOR 2B5.
BAR ba² FOR 2B6, 2B7, 2B8, 2B9 & 2B10.

SECTION A-A

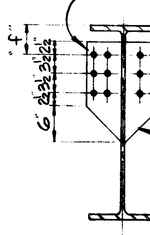
BAR ba² FOR 2B1, 2B2, 2B3, 2B4 & 2B5.
BAR 4 x ½ x 2'-6 15/16" bg² FOR 2B6.
BAR 4 x ½ x 2'-7 9/16" bm² FOR 2B7.
BAR bd² FOR 2B8 & 2B9.



BAR 4 x ½ x 2'-7 9/16" be² FOR 2B2.
BAR bd² FOR 2B3 & 2B4.
BAR bm² FOR 2B8.
BAR bb² FOR 2B6.
BAR ba² FOR 2B7, 2B8, 2B9 & 2B10.

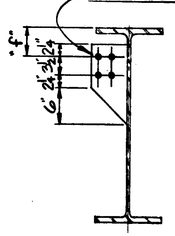
SECTION B-B

BAR 6⅝ x ½ x 1'-6" au
(OMIT ON 2B10)

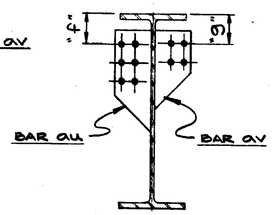


SECTION C-C
(FOR 2B3 THRU 2B10)

BAR 6⅝ x ½ x 1'-2" av



SECTION C-C
(FOR 2B1 ONLY)



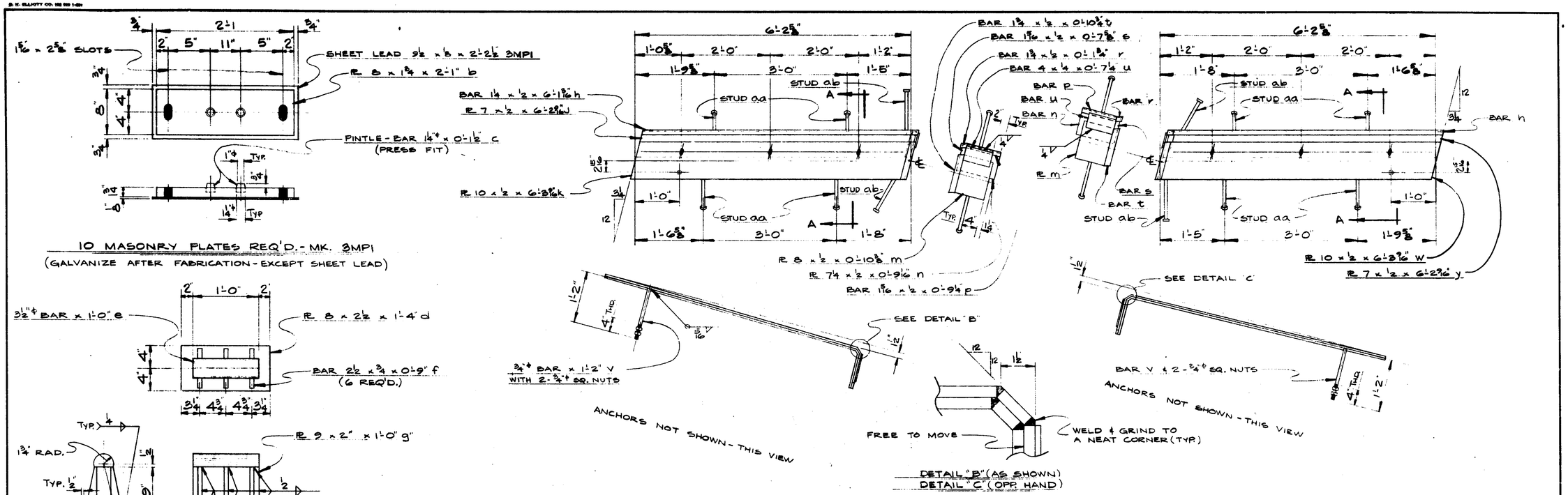
SECTION C-C
(FOR 2B2 ONLY)

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

BRIDGE S28 OF 63174 A
I75 CROSSING WOODWARD HEIGHTS BLVD. IN THE CITY OF HAZEL PARK.
MIDWEST BRIDGE CO., CONT'R.

DATE 3-4-70	JOB NO. S5007	SHEET 2 OF 4
BY DAM		



REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. - PORT HURON, MICH

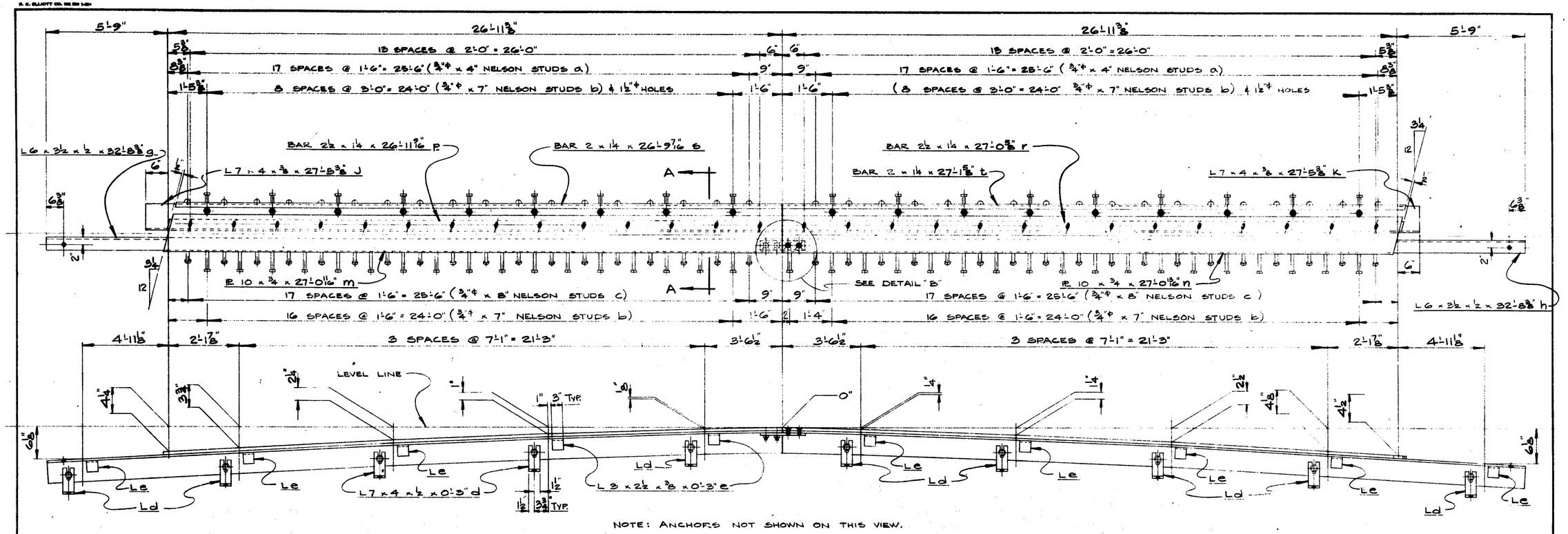
BRIDGE S28 OF 63174 A

I75 CROSSING WOODWARD HEIGHTS BLVD. IN THE CITY OF HAZEL PARK.

MIDWEST BRIDGE CO., CONT'R.

DATE	JOB NO.	SHEET
3-4-70	55007	3 of 4

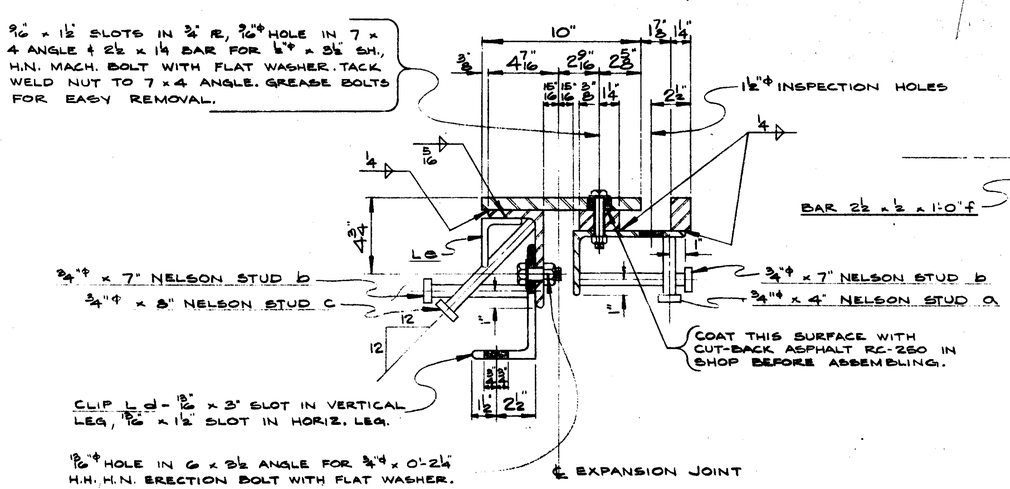
BY JAM



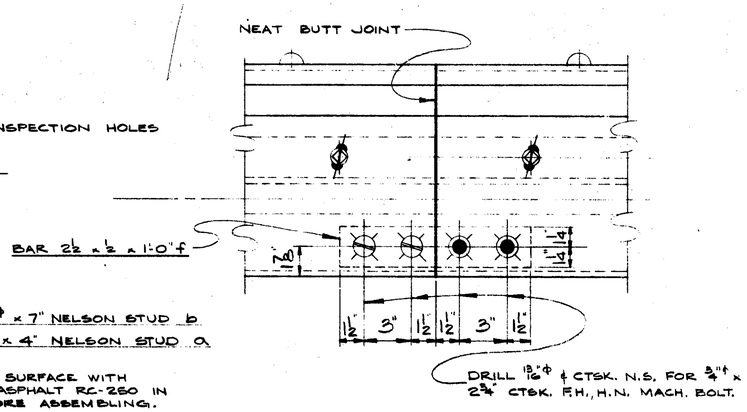
NOTE: ANCHORS NOT SHOWN ON THIS VIEW.

ONE EXPANSION JOINT REQ'D. - MK. 4EJ1

ONE EXPANSION JOINT REQ'D. - MK. 4EJ2



SECTION A-A



DETAIL "B"

FIELD MATERIAL

SHIP	COUNT	
17	16	- 3/4"φ x 2" HEX HD., HEX NUT WEATHER-R HI-STRENGTH BOLTS.
995	948	- 3/4"φ x 2 1/4" do , do do do do .
1012	964	- 3/4"φ HARDENED FLAT WEATHER-R WASHERS.
	20	- 1"φ x 1'-4" SQ. HD., HEX NUT GALV. A-588 MACH. BOLTS.
	40	- 1"φ x 1'-8" do , do do do do do .
	60	- 1"φ GALV. A-588 1/4" PL WASHERS.
	10	- 3/4"φ x 2 1/2" HEX HD. , HEX NUT A-588 MACH. BOLT.
	2	- 3/4"φ x 2 3/4" CTSK. FLAT HD. HEX NUT A-588 MACH. BOLT.
	20	- A-588 BAR 2 x 3/8 x 1'-0"

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

BRIDGE S28 OF 63174 A

I75 CROSSING WOODWARD HEIGHTS BLVD. IN THE CITY OF HAZEL PARK.

MIDWEST BRIDGE CO., CONT'R.

DATE	JOB NO.	SHEET
3-5-70	S5007	4 OF 4

BY JAM

S30 of 63174

CS: 63174

ID: S30

Ref MS 4.1969

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS

PLANS OF PROPOSED BRIDGES

MICHIGAN PROJECT I-696-8(24)224
STATE PROJECT I63103, 012, PART 2

DETROIT NORTH BELT ROAD
CITY OF FERNDALE, HAZEL PARK, ROYAL OAK & MADISON HEIGHTS
OAKLAND COUNTY

GENERAL NOTES

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1967 EDITION.

THE DESIGN OF THESE STRUCTURES IS BASED ON THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS SPECIFICATIONS FOR THE DESIGN OF HIGHWAY BRIDGES, 1958 EDITION AND CURRENT AASHO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES HS 20-44 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION EQUALS $^1/_{1000}$ OF SPAN LENGTH AND $^1/_{350}$ OF CANTILEVER ARM.

THE CHARACTER OF ALL MATERIALS AND THE EXTENT THEREOF AS SHOWN BY BORINGS HAS BEEN OBTAINED BY METHODS AND FROM SOURCES BELIEVED TO BE RELIABLE. THE EXACTNESS OF THIS INFORMATION IS, HOWEVER, IN NO CASE GUARANTEED.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH 1/2" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

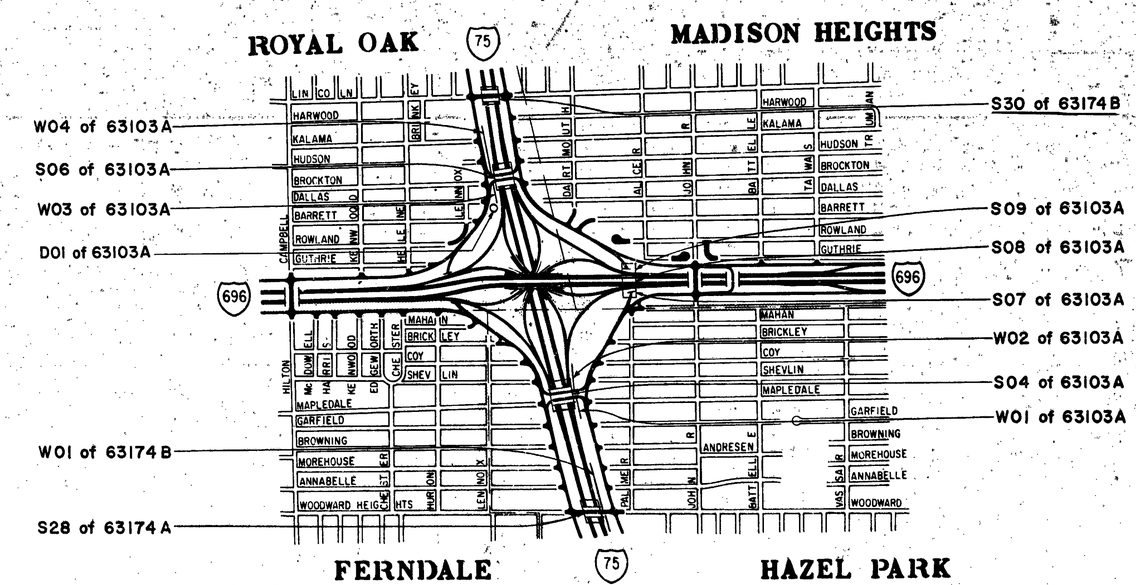
THE STATIONING AS SHOWN ON THESE PLANS FOR THE INTERSECTION OF THE CENTERLINE OF BRIDGES AND SURVEY CENTERLINES ARE BELIEVED TO BE CORRECT. IT SHALL, HOWEVER, BE CHECKED AT THE TIME OF STARTING CONSTRUCTION AND IF THE STATIONING SHOWN ON THE PLANS IS INCORRECT, IT SHALL BE REPORTED TO THE DESIGN OFFICE AT LANSING AND THE STRUCTURE SHALL BE STAKED OUT USING THE ACTUAL INTERSECTION OF THE CENTERLINE OF BRIDGE AND CENTERLINE AS THE CONTROL POINT.

THE GRADES AND STRESSES OF THE STRUCTURAL MATERIALS USED IN THIS STRUCTURE ARE AS FOLLOWS:

CONCRETE: GRADE A ..... $f_c' = 3{,}000$ psi

STEEL REINFORCEMENT: ..... $f_s = 20{,}000$ psi

STRUCTURAL STEEL: A588 ..... $f_s = 27{,}000$ psi



NOTE

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE
R11S & R12P	BRIDGE RAILING, BAR CHAIR, MOLDING AND BEVEL DETAILS
SP2J	STANDARD SLOPE PAVING DETAILS

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE
E-4-A-27R-4	MANHOLES, CATCH BASINS & INLETS.

AS CONSTRUCTED
ACCORDING TO CHANGED PLANS PREPARED BY RESIDENT ENGINEER

ITEM NO. 1181

CONTRACT FOR STRUCTURES, WALLS & PUMPHOUSE

APPROVALS

CHECKED — ENGINEER-DESIGN SECTION II — DATE 6-5-69

RECOMMENDED FOR APPROVAL — ASST. ENGINEER OF DESIGN — DATE 6-20-69

RECOMMENDED FOR APPROVAL — TRAFFIC DIVISION — DATE 6-30-69

RECOMMENDED FOR APPROVAL — CONSTRUCTION DIVISION — DATE 4/30/69

RECOMMENDED FOR APPROVAL — CHIEF - BUREAU OF ENGINEERING — DATE 6/26/69

DEPARTMENT OF STATE HIGHWAYS
HENRIK E. STAFSETH - STATE HIGHWAY DIRECTOR

APPROVED BY — DEPUTY STATE HIGHWAY DIRECTOR — DATE 6/30/69

PLANS PREPARED BY MICHIGAN DEPARTMENT OF STATE HIGHWAYS
AJUNI FISHER
SQUAD

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED BUREAU OF PUBLIC ROADS
FOR THE DIVISION ENGINEER

~~S04,06,07,08,09, & W01, 02,03,04 OF 63103A~~ ~~S28 & W01 OF 63174A~~ S30 OF 63174B ~~D01 OF 63103A~~	STATE PROJECT NO.	FEDERAL PROJECT	SHEET NO.
	I-63103A I-63174A&B	I-696-8	1

STATE PROJECT NO. ~~S04, 06, 07, 08, 09, & W01, 02, 03, 04 OF 63103A, D01 OF 63103A~~ ~~S28 & W01 OF 63174A~~ S30 OF 63174B

INDEX OF PLANS	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
1A	INDEX SHEET
1B,C,D,E	QUANTITY SHEET

RETAINING WALL PLANS

W01 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS AND STAKING DIAGRAM
4	GENERAL PLAN OF STRUCTURE
5 THRU 13	RETAINING WALL DETAILS
14,15	STEEL REINFORCEMENT DETAILS

W02 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS AND STAKING DIAGRAM
4	GENERAL PLAN OF STRUCTURE
5,6,7	RETAINING WALL DETAILS
8	STEEL REINFORCEMENT DETAILS

W03 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS AND STAKING DIAGRAM
4	GENERAL PLAN OF STRUCTURE
5 THRU 8	RETAINING WALL DETAILS
9	STEEL REINFORCEMENT DETAILS

W04 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	CONSTRUCTION SCHEME
5	GENERAL PLAN OF STRUCTURE
6 THRU 10	RETAINING WALL DETAILS
11	SIGN BASE AND LIGHT STANDARD ANCHORAGE DETAILS
12	STEEL REINFORCEMENT DETAILS

S04 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5,6,7	ABUTMENT DETAILS
8,9,10	WINGWALL DETAILS
11	PIER DETAILS
12,13,14	STRUCTURAL STEEL DETAILS
15	METAL EXPANSION JOINT DETAILS
16	SHEAR DEVELOPER DETAILS
17,18,19,20	SUPERSTRUCTURE DETAILS
21,22	STEEL REINFORCEMENT DETAILS

S07 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
2A	ALIGNMENT SHEET
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5,6	ABUTMENT A DETAILS
7,8	ABUTMENT B DETAILS
9,10	STRUCTURAL STEEL DETAILS
11	NEOPRENE EXPANSION JOINT DETAILS
12,13	SUPERSTRUCTURE DETAILS
14	SCREED DETAILS
15	STEEL REINFORCEMENT DETAILS

S09 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
2A	ALIGNMENT SHEET
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	ABUTMENT A DETAILS
6,7	ABUTMENT B DETAILS
8,9	STRUCTURAL STEEL DETAILS
10	NEOPRENE EXPANSION JOINT DETAILS
11,12,13	SUPERSTRUCTURE DETAILS
14	STEEL REINFORCEMENT DETAILS

S30 OF 63174 B	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	ABUTMENT DETAILS
6,7,8	WINGWALL DETAILS
9	PIER DETAILS
10,11	STRUCTURAL STEEL DETAILS
12	METAL EXPANSION JOINT DETAILS
13	SHEAR DEVELOPER DETAILS
14,15,16,17	SUPERSTRUCTURE DETAILS
18	LIGHTING DETAILS
19	UTILITIES DETAILS
20	STEEL REINFORCEMENT DETAILS

S06 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4,5	GENERAL PLAN OF STRUCTURE
5A	SHEET PILING AND BRACING DETAILS
6,7	ABUTMENT DETAILS
8,9,10	WINGWALL DETAILS
11	PIER DETAILS
12,13,14	STRUCTURAL STEEL DETAILS
15	METAL EXPANSION JOINT DETAILS
16	SHEAR DEVELOPER DETAILS
17,18,19,20	SUPERSTRUCTURE DETAILS
21	STEEL REINFORCEMENT DETAILS

S08 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
2A	ALIGNMENT SHEET
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5,6,7,8	ABUTMENT A DETAILS
9,10,11,12	ABUTMENT B DETAILS
13,14	STRUCTURAL STEEL DETAILS
15	NEOPRENE EXPANSION JOINT DETAILS
16,17,18,19,20	SUPERSTRUCTURE DETAILS
21,22	STEEL REINFORCEMENT DETAILS

S28 OF 63174 A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	EXIST. UTILITIES & PROP. ALTERATIONS
6	ABUTMENT DETAILS
7,8,9,10	WINGWALL DETAILS
11	PIER DETAILS
12,13	STRUCTURAL STEEL DETAILS
14	METAL EXPANSION JOINT DETAILS
15	SHEAR DEVELOPER DETAILS
16,17,18,19	SUPERSTRUCTURE DETAILS
20	UTILITIES DETAILS
20A	LIGHTING DETAILS
21	STEEL REINFORCEMENT DETAILS

D01 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	GENERAL PLAN OF STRUCTURE
4 - 7	PUMPHOUSE DETAILS
8 & 9	MISCELLANEOUS DETAILS
10	MECHANICAL & ELECTRICAL DETAILS
11	STEEL REINFORCEMENT DETAILS

RETAINING WALL PLANS

W01 OF 63174A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4,5	GENERAL PLAN OF STRUCTURE
6 THRU 14	RETAINING WALL DETAILS
15	STEEL REINFORCEMENT DETAILS

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

INDEX SHEET

REVISIONS

NO.	DESCRIPTION	DATE	BY

ROAD DESS	A. LUNI	5-21-69
DRAWN BY	KRAVE	5-21-69
TRACED BY		
CHECKED BY	R BACKOW	6-4-69

SHEET 1A OF ~~63103A~~ S30 of 63174 ~~A~~ B

I 696-8(24)

ITEM	CODE NO.	UNIT	CONTR. QUANT.	FINAL QUANT.	UNIT PRICE	FINAL COST	W04 of 63103 A CONTR. QUANT.	REMARKS (AUTH. NO'S.)	FINAL QUANT.	FINAL COST	S28 of 63174 A CONTR. QUANT.	REMARKS (AUTH. NO'S.)	FINAL QUANT.	FINAL COST	W01 of 63174 A CONTR. QUANT.	REMARKS (AUTH. NO'S.)	FINAL QUANT.	FINAL COST	S30 of 63174 B CONTR. QUANT.	REMARKS (AUTH. NO'S.)	FINAL QUANT.	FINAL COST
Unclassified Excavation		Cu.Yds.					2115	1163	2,157	16,177.50	1990	1163	2,101	15,757.50	5900	1163	5,749	43,117.50	2575	1163	2,412	18,090.00
Steel Sheet Piling Left-in-Place		Sq.Ft.					6150	1062 1149	5,832	43,740.00			—				—				—	
Temp Steel Sheet Piling		Sq.Ft.							—		2440	1169	2,322	16,254.00	1000	1169	898	6,286.00			—	
Concrete Subfooting		Cu.Yds.							—				—				—				—	
Grade A(6A) Concrete-Substructure		Cu.Yds.					274	1158	283.0	21,508.00	549.3	1158	546.9	41,564.40	678.0		678.0	51,528.00	542.9		542.9	41,260.40
Grade A(6AA) Concrete-Substructure		Cu.Yds.					300	1154	301.1	25,593.50	556.8	1154	556.9	47,336.50	806.8		806.8	68,578.00	628.2	1154	629.3	53,490.50
Protect-Sealant Coat for Concrete		Sq.Ft.							—				—				—				—	
Clear Protective Coat for Sub. Conc.		Sq.Yds.							—		532	1136	546.1	2,020.57			—		565	1136	445.0	1,646.50
Grade A(6AA) Conc.-Superstructure		Cu.Yds.							—		369.8		369.8	36,240.40			—		368.8	1141	377.1	36,955.80
Grade -X- Concrete		Cu.Yds.							—		35	1162	31.8	2,385.00			—				—	
Water Reducing Retarding Admixture		Gals.							—		46	1160	14	98.00			—		42	1160	45	315.00
Elastomeric Bearing Pads		Sq.Ft.							—		18		18.0	270.00			—		20	1136	18.0	270.00
5/8" Concrete I serts		Each							—				—				—		210		210	690.00
Low Temp. Protection Substructure Conc.		Cu.Yds.					574	1161	0.0	0.00			—		1484.8	1161	1,109.8	11.10			—	
Protective Treatment for Bridge Decks		Sq.Ft.							—		11,457	1157	5,729	859.35			—		11,300		11,300	1,695.00
Steel Reinforcement		Lbs.					32331	1033 1164	31452	5,975.88	154,741	1164	154,542	29,362.90	91,712	1164	91,680	17,419.20	160,186		160,186	30,435.34
Shear Developers		Lump Sum							—		L.S.		L.S.	2,500.00			—		L.S.		L.S.	2,500.00
Structural Steel-Furnishing & Fabricating		Lbs.							—		297,700	1045	295,593	50,842.00			—		295,500	1045	291,608	50,156.30
Structural Steel-Erection		Lbs.							—		297,700	1045	295,593	8,867.79			—		295,500	1045	291,608	8,748.24
Structural Steel-Furnishing & Fabricating		Lbs.							—				—				—				—	
Structural Steel-Erection		Lbs							—				—				—				—	
Structural Tile 6"x12"x12"		Each							—		1520	1136	1,503	1,503.00			—		1510	1136	1,478	1,478.00
1/4" Joint Filler		Sq.Ft.					20	1136	16	32.00	44	1136	36	72.00	70	1136	55	110.00	46	1136	41	82.00
1/2" Joint Filler		Sq.Ft.							—		224	1136	212	424.00			—		220	1136	219	438.00
1" Joint Filler		Sq.Ft.					75	1136	80	160.00	248	1136	237	474.00	280	1136	253	506.00	270	1136	237	474.00
3"in. Preformed Neoprene Joint Seal		Lin.Ft.							—				—				—				—	
Hot Poured Rubber-Asphalt Type Filler		Lin.Ft.							—		67	1136	67.8	237.30			—		66	1136	67.4	235.90
Joint Waterproofing		Sq.Ft.					330		330	495.00	500	1147	504	756.00	1055	1147	645	967.50	582	1147	615	922.50
Expansion Joint Drain		Each					2	1142	3	450.00	4		4	600.00	8		8	1,200.00	4		4	600.00
Bridge Railing Parapet Type C.D.		Lin.Ft.							—		365.3	1136	363.5	7,270.00	648.0	1136	647.3	12,946.00	342.1	1136	339.6	6,792.00
Bridge Guard Rail Type		Lin.Ft.							—				—				—				—	
Slope Protection-Class A		Sq.Yds.							—		136	1159	111	1,332.00			—		134	1159	110	1,320.00
Slope Protection-Headers		Lin.Ft.							—		175	1159	173	2,076.00			—		174	1159	173	2,076.00
Foundation Drain		Lin.Ft.					224	1156	221	994.50	344	1156	315	1,417.50	648	1156	725	3,262.50	364	1156	367	1,651.50
Light Standard Anchorage Assembly		Each					1		1	100.00			—				—				—	
8" Pipe Sleeve-Placed		Each							—				—				—		2		2	80.00
10" Pipe Sleeve-Placed		Each							—				—				—				—	
12" Pipe Sleeve-Placed		Each							—		2		2	120.00			—				—	
12" Cast Iron Pipe		Lin.Ft.					6		6	150.00			—				—				—	
3" Galvanized Iron Pipe Conduit		Lin.Ft.					16	1136	14.5	97.00			—				—				—	
Special Inlet		Each							—		2		2	800.00			—		2		2	800.00
8" Foundation Sewer		Lin.Ft.							—		8	1136	10	200.00			—		8	1136	9	180.00
2" Elastomeric Bearing Pads		Sq.Ft.							—				—				—				—	
3" Φ Fiber Conduit		Lin.Ft.							—		173	1136	172	448.92			—		172	1136	174	454.14
TOTAL										115,473.38				272,089.21				205,931.80				263,777.40

See Sheet 1-B

Plus Extras (W04 of 63103 A)

Plus Extras (S28 of 63174 A)

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL

CHECKED CONTRACT SECTION DATE 9/21/7?

ITEM 1181

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

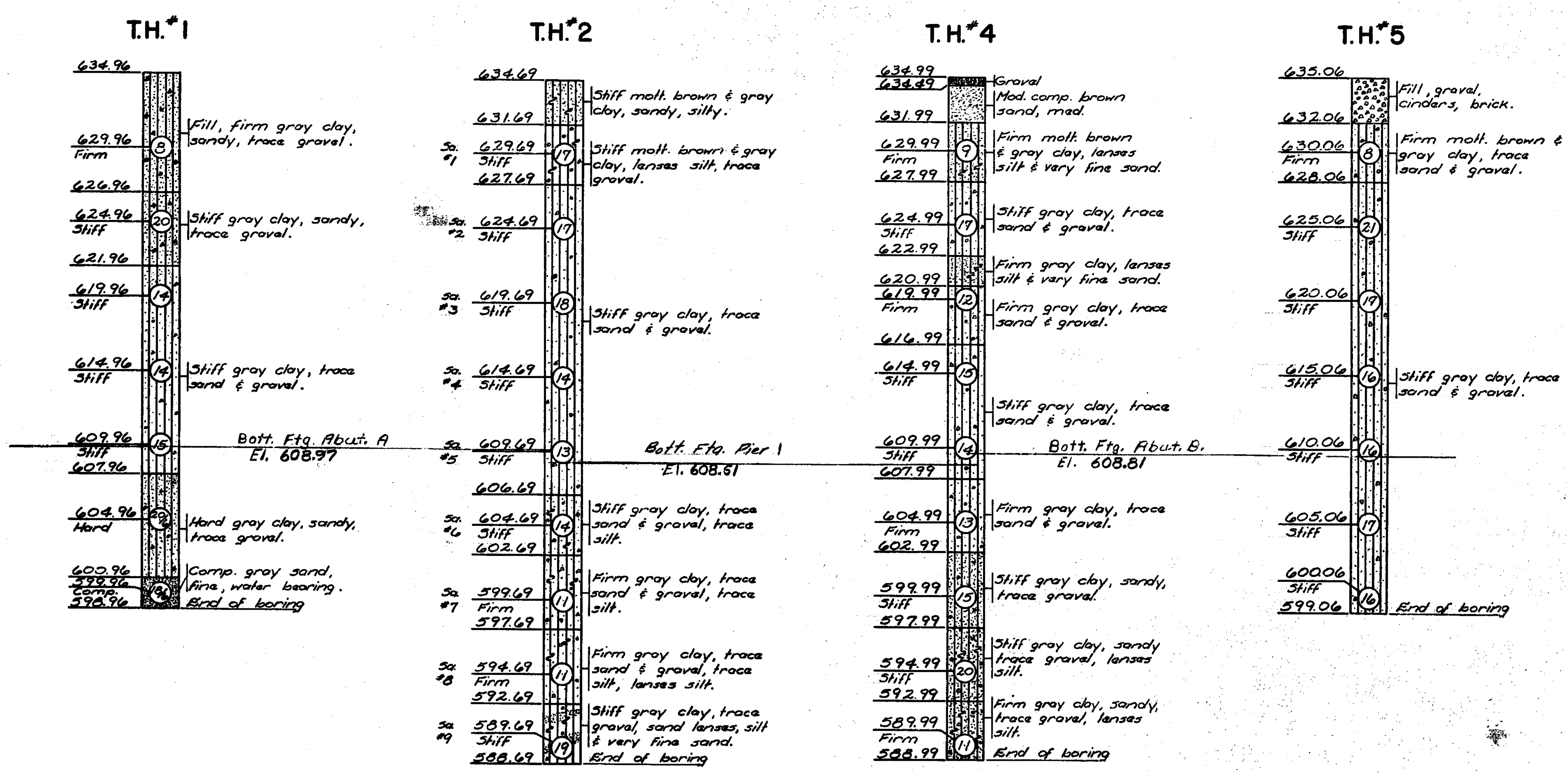
QUANTITY SHEET

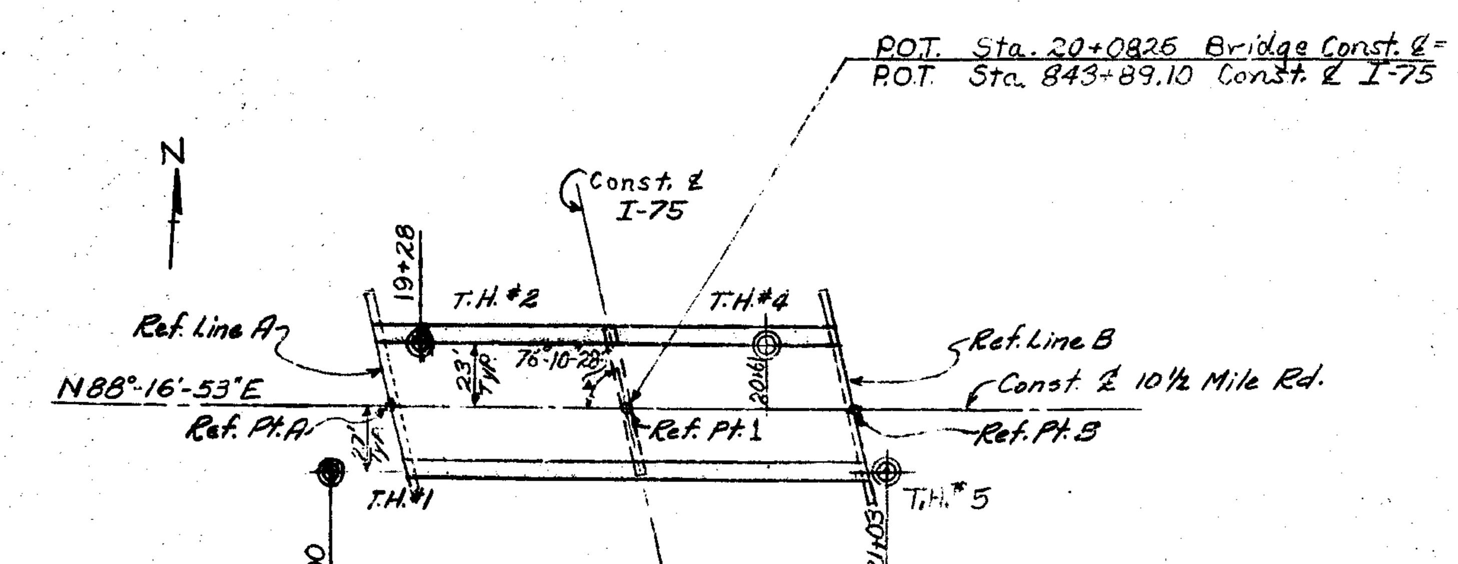
I 696-8(24)224

SQUAD BOSS	Fisher	6-4-69
DRAWN BY	R. Marsh	5/26/69
TRACED BY		
CHECKED BY		
SHEET 1D OF		

PROJECT I-63103A I-63174A&B S04,06,07,08,09 & W01,02,03,04 of 63103A, S28 & W01 of 63174A, S30 of 63174B

2½ MIN. V.F. BM I (5-6-66)





TEST HOLE LOCATION SKETCH

NOTES:

Consistancy determined by inspection of samples and substantiated by soils resistance to B-52 Mobile Drill.

(00) Number in circle denotes number of blows required to drive a 2" O.D. - 1½" I.D. split spoon sampler 12" using a 140 lb. hammer falling 30"

No borings were taken for T.H.#3 as it was considered not necessary.

T.H.#1 @ El. 604.96 - 20 blows for 6" penetration
@ El. 599.96 - 18 blows for 6" penetration

WATER LEVEL DATA

T.H.#1 56 hrs after completion of boring El. 612.96
T.H.#2 24 hrs after completion of boring T.H. Dry
T.H.#4 on completion of boring T.H. Dry
T.H.#5 on completion of boring T.H. Dry

Borings Taken 7-29-63

MICHIGAN STATE HIGHWAY DEPARTMENT

LOG OF BORINGS

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS Fisher 1-2-69
DRAWN BY Strouse 8-28-63
TRACED BY
CHECKED BY W.Buchcum 9-4-63
SHEET 3 OF 20

S30 of 63174 B

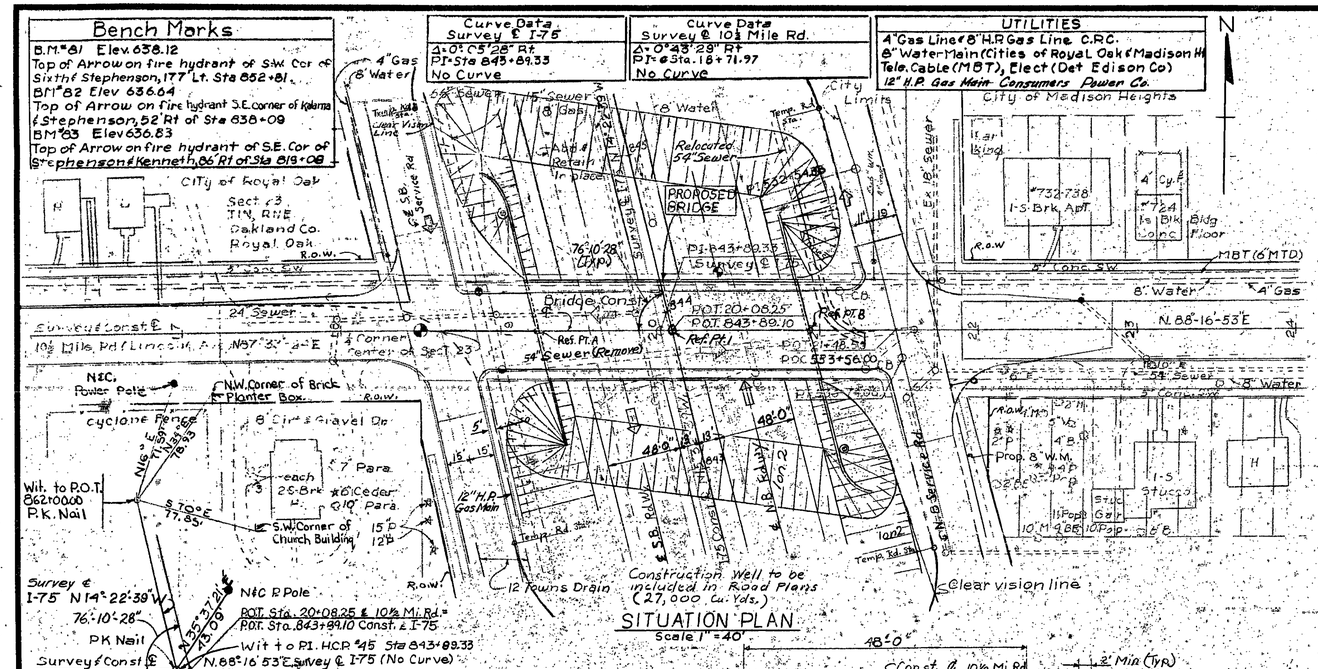
Bench Marks

B.M.#81 Elev. 638.12
Top of Arrow on fire hydrant of S.W. Cor of Sixth & Stephenson, 177' Lt. Sta 852+81.
BM#82 Elev 636.64
Top of Arrow on fire hydrant S.E. corner of Kalama & Stephenson, 52' Rt of Sta 838+09
BM#83 Elev 636.83
Top of Arrow on fire hydrant of S.E. Cor of Stephenson & Kenneth, 86' Rt of Sta 819+08

Curve Data
Survey ℄ I-75
Δ-01°05'28" Rt
PI-Sta 845+89.33
No Curve

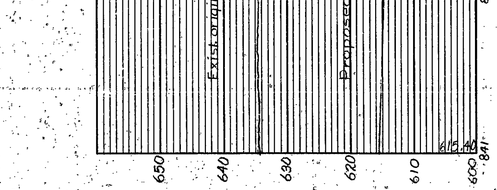
Curve Data
Survey ℄ 10½ Mile Rd.
Δ-0°43'29" Rt
PI-@ Sta. 18+71.97
No Curve

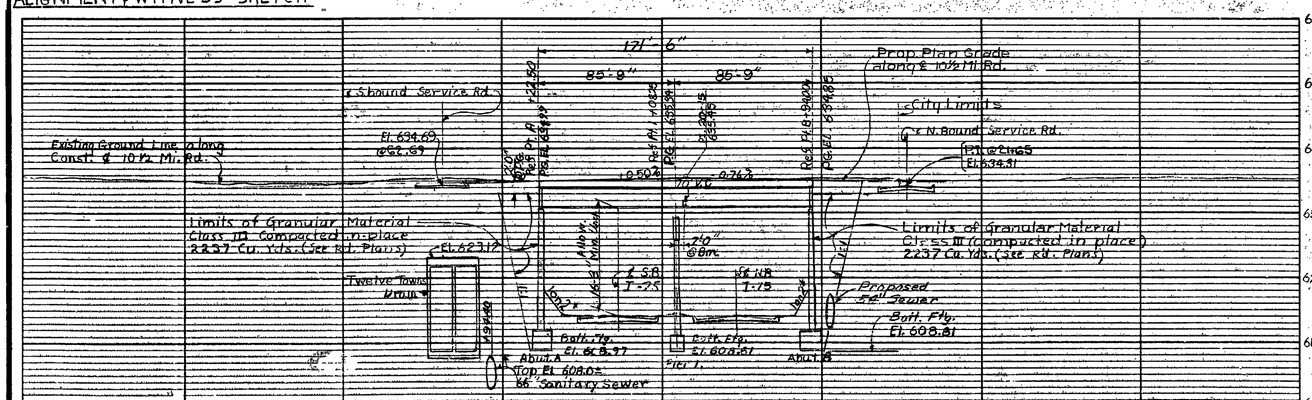
UTILITIES
4" Gas Line & 8" H.P. Gas Line C.R.C.
8" Water Main (Cities of Royal Oak & Madison Hts)
Tele. Cable (MBT), Elect (Det Edison Co)
12" H.P. Gas Main Consumers Power Co.



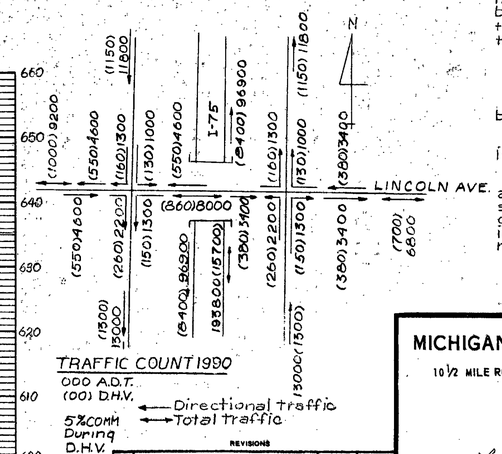
SITUATION PLAN
Scale 1" = 40'

ALIGNMENT & WITNESS SKETCH





APPROACH SECTION AT BRIDGE



TRAFFIC COUNT 1990
000 A.D.T.
(00) D.H.V.
5% COMM During D.H.V.
← Directional traffic
← Total traffic

REVISIONS

NO.	DESCRIPTION	DATE	BY

Construction Sequence

Construct E.N. & E.S. Service Rd.
Construct Temporary Run Around.
Excavate & Construct Bridge.

NOTES:

Traffic maintained for: I-75 on new & existing Service Roads 10½ Mi. Rd. by two one-way temp. run-arounds will be used to maintain traffic on Lincoln, one to the north and one to the South. They will be placed so that all slope walls can be built during one stage.

Grading of construction well only in the vicinity of the structure to be done prior to starting work on the structure.

The work covered by these plans includes construction of the proposed bridge, placing foundation drains including the special inlets and placing slope protection to the limits shown.

Utilities requiring moving are to be moved by their respective owners.

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

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

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

10½ MILE ROAD (LINCOLN AVE.) OVER I-75 - CITY OF ROYAL OAK

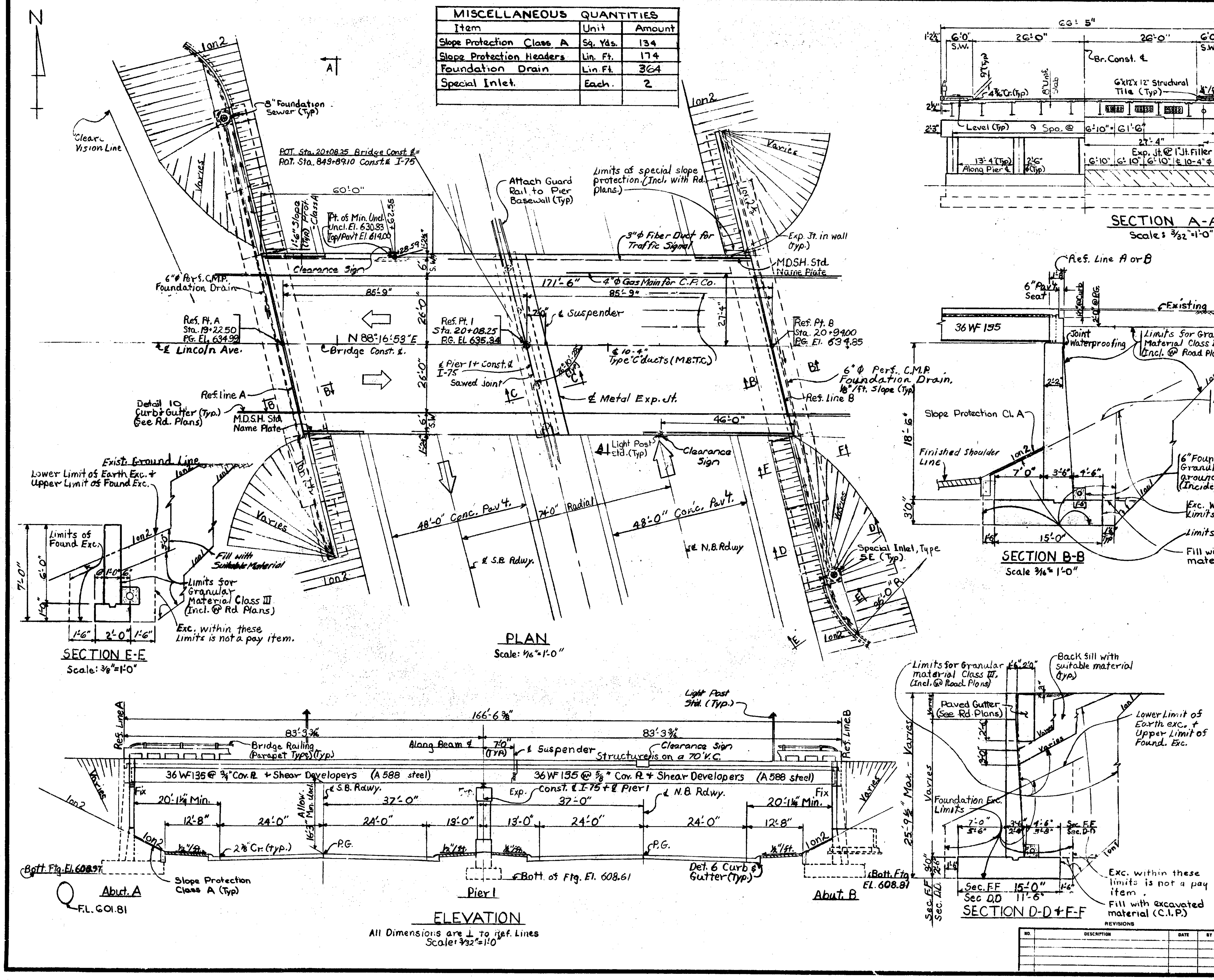
GENERAL PLAN OF SITE

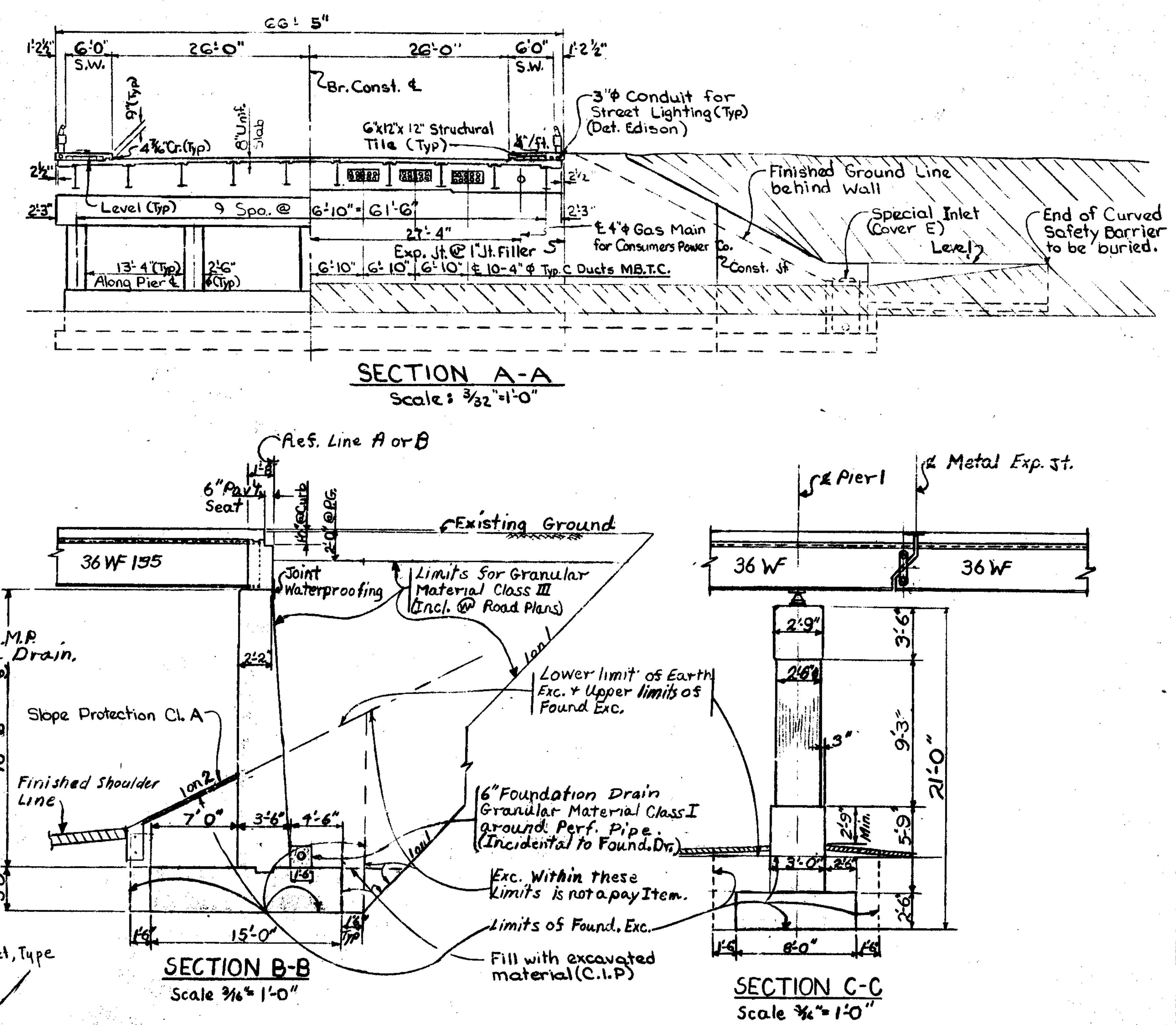
BRIDGE BOOK	FISHER	
DRAWN BY	HARTMAN	9-19-68
TRACED BY		
CHECKED BY	R. MARSH	9-24-68
SHEET 2 OF 20		

APPROVED Lawrence O. Christ 6-5-69
ASST. SUPERVISOR - DESIGN
APPROVED C. Trakas 6-5-69
SUPERVISOR - DESIGN

S 30 of 63174 B

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Slope Protection Class A	Sq. Yds.	134
Slope Protection Headers	Lin. Ft.	174
Foundation Drain	Lin. Ft.	364
Special Inlet.	Each.	2





NOTES:

The design of this structure is based on the M.D.S.H. Specifications for the Design of Highway Bridges, 1958 edition and current AASHO Standard Specifications for Highway Bridges - H20-44 loading. Live load plus impact deflection = 1/800 of the span length and = 1/300 of cantilever arm.

The top of roadway slab and tops of sidewalks are parallel to the vertical curve and tangents.

For details of Slope Protection, see Standard sheet SP 2.

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

10 1/2 MILE ROAD (LINCOLN AVE.) OVER I-75-CITY OF ROYAL OAK

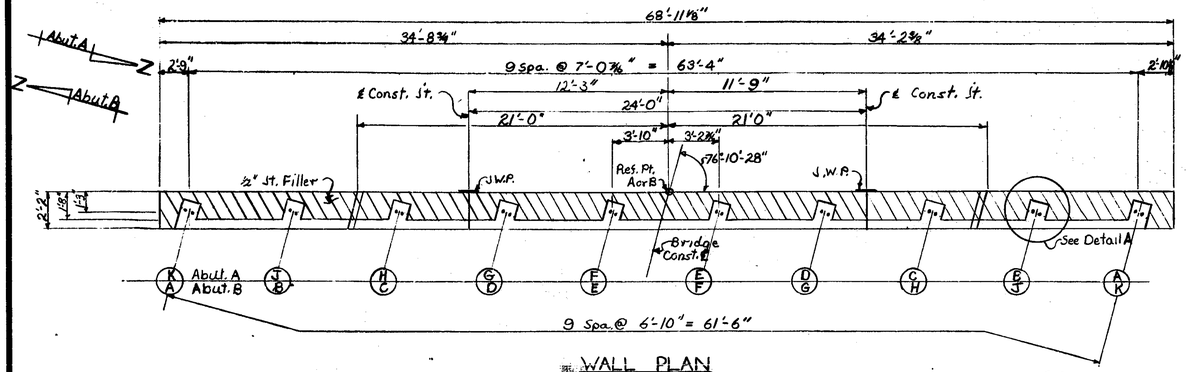
GENERAL PLAN OF STRUCTURE

APPROVED Lawrence O. Chick 6-5-69 ASS'T SUPERVISOR-DESIGN

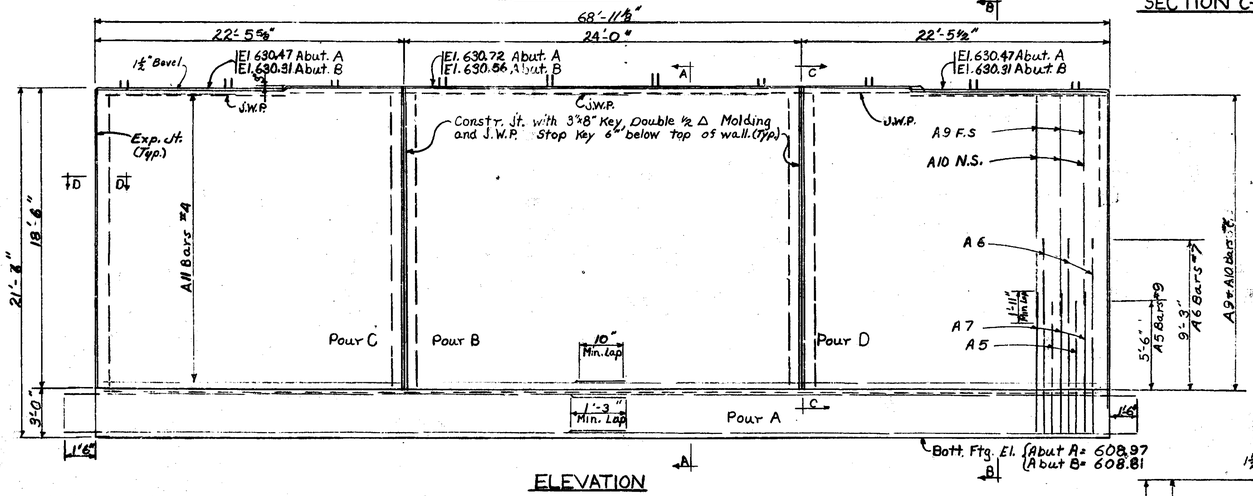
APPROVED J. C. Trakas 6-5-69 SUPERVISOR-DESIGN

SQUAD BOSS	Fisher	1-2-69
DRAWN BY	Hicks	
TRACED BY		
CHECKED BY	Taylor	3-7-69
SHEET 4 OF 20		

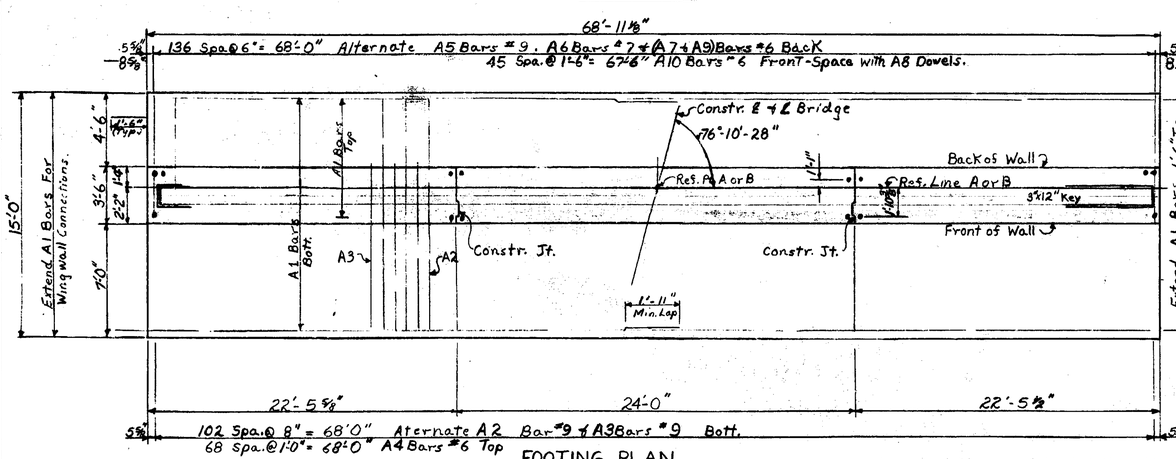
S30 of 63174 B



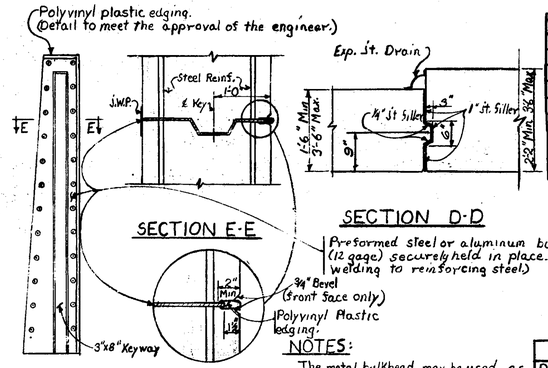
WALL PLAN



ELEVATION



FOOTING PLAN



SECTION C-C

NOTES:

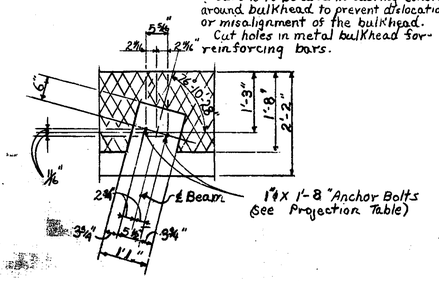
The metal bulkhead may be used as alternate construction joints at the contractor's expense.

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 bars.

MISCELLANEOUS QUANTITIES				
Item	Unit	Abut. A	Abut. B	Total
¼" Joint Filler	Sq. Ft.	23	23	46
½" Joint Filler	Sq. Ft.	110	110	220
1" Joint Filler	Sq. Ft.	129	129	258
Joint Waterproofing	Sq. Ft.	160	160	320
Expansion Joint Drain	each	2	2	4
Clear Protective Coating for Substr. Concrete	Sq. Yds.	160	160	320
Unclassified Excavation	Cu. Yd.	540	540	1080

CONCRETE QUANTITIES-SUBSTR.				
Pour	Grade A(6A) Cu. Yds.		Grade A(6AA) Cu. Yds.	
	Abut. A	Abut. B	Abut. A	Abut. B
A	114.9	114.9		
B			48.1	48.1
C			44.6	44.6
D			44.6	44.6
Sub Tot	114.9	114.9	137.3	137.3
Total	229.8 Cu. Yds.		274.6 Cu. Yds.	

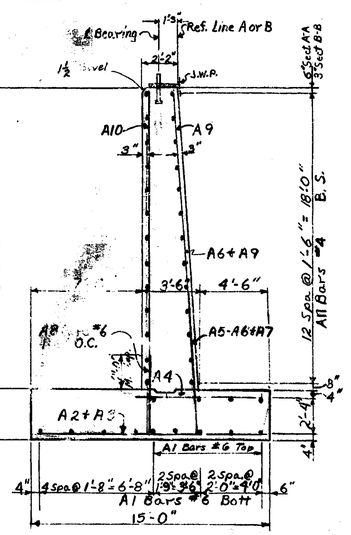


DETAIL A

ANCHOR BOLT PROJECTION TABLE		
Beam	Abut. A	Abut. B
A	5½"	7½"
B	7½"	9"
C	6"	7½"
D	7½"	8½"
E	8½"	9"
F	8¾"	8¾"
G	8"	7½"
H	6¾"	6¼"
J	8¼"	7¼"
K	7"	5½"

NOTES:

J.W.P. denotes Joint waterproofing.
N.S. denotes near side.
F.S. denotes far side.
B.S. denotes both sides.
For bevel and molding details, see standard sheet R11 or R12.
Anchor bolts shall be accurately set to a template.
Maximum average foundation pressure D.L. only = 2450 #/sq. ft.
Maximum foundation pressure D.L. and L.L. = 3800 #/sq. ft.
The top and front face of abutments above tops of footings shall be given an application of clear Protective Coating for Substructure Concrete. (See supplemental Specifications.)



SECTIONS A-A & B-B

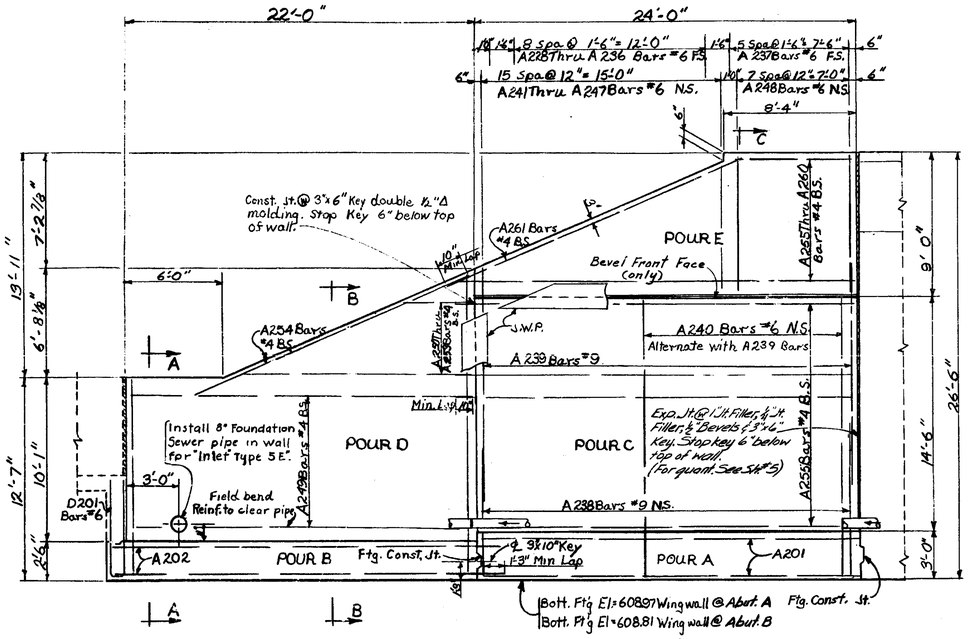
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENTS A & B DETAILS

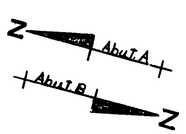
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Fisher 4-3-69
DRAWN BY	J. Hicks 2-20-69
TRACED BY	
CHECKED BY	T. Taylor 3-26-69
SHEET	5 OF 20

S30 of 63174B

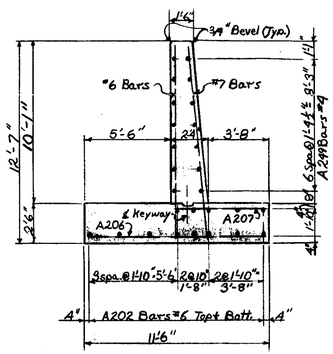


REAR ELEVATION

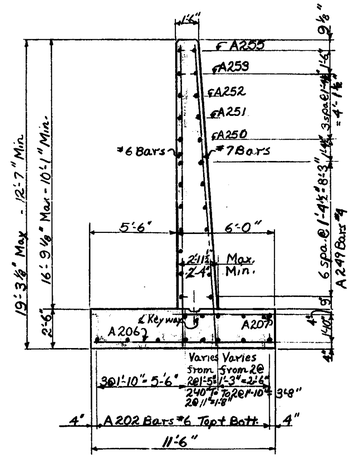


CONCRETE QUANTITIES				
Pour	Gr. A(6A) Wall A	Gr. A(6A) Wall B	Gr. A(6AA) Wall A	Gr. A(6AA) Wall B
A	40.0	40.0		
B	25.0	25.0		
C			34.8	34.8
D			21.0	21.0
E			10.8	10.8
Sub Total	65.0	65.0	66.6	66.6
Total	130.0 Cu. Yds.		133.2 Cu. Yds.	

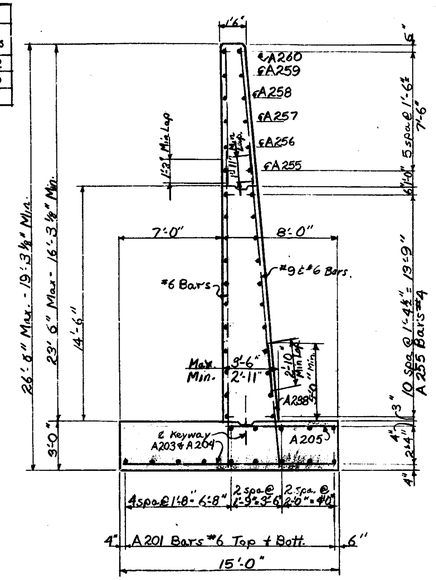
MISCELLANEOUS QUANTITIES				
Item	Unit	Amount Wall A	Amount Wall B	Totals
Joint Waterproofing	Sq. Ft.	61	61	122
Unclassified Excavation	Cu. Yd.	330	330	660
8" Foundation Sewer	Lin. Ft.	4	4	8



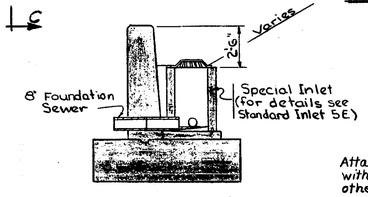
SECTION A-A



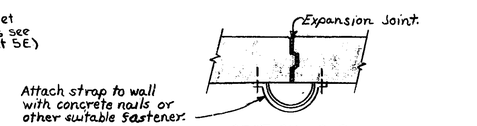
SECTION B-B



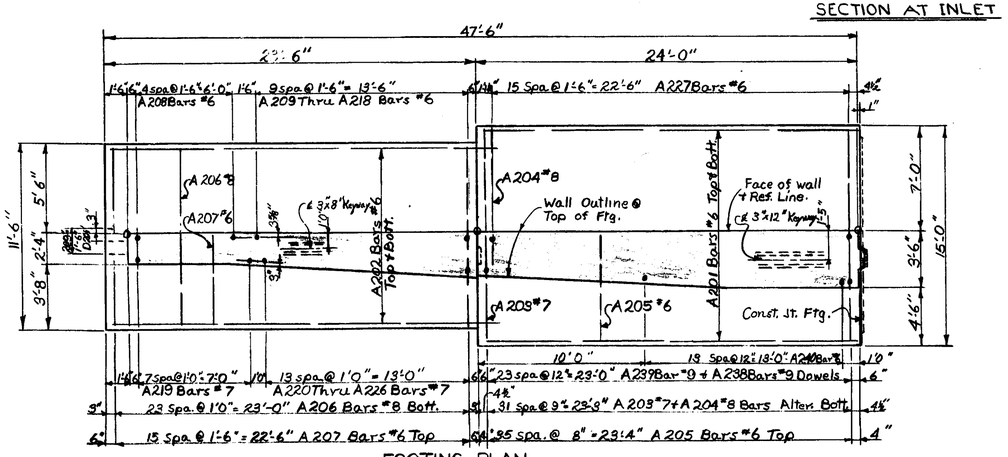
SECTION C-C



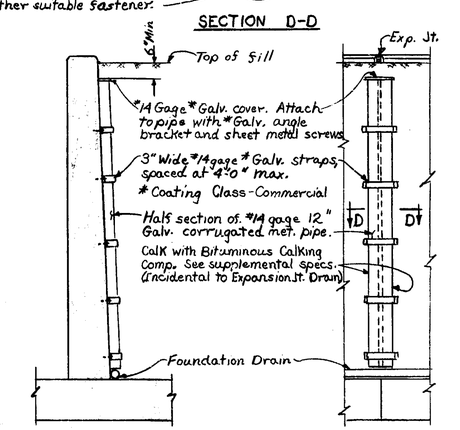
SECTION AT INLET



SECTION D-D



FOOTING PLAN



WALL SECTION

WALL ELEVATION

NOTES:

For bevel and molding details see Standard Sheet A.11 or A.12.
B.S. denotes both sides.
F.S. denotes far side.
N.S. denotes near side.
W.P. denotes working point.
J.W.P. denotes Joint waterproofing.
For expansion Joint details (See sheet #5)
A metal bulkhead may be used as an alternate construction joint at the contractors expense, for details. See sheet #5.
Maximum average foundation pressure D.L. only = 2300 #/sq.ft.
Maximum foundation pressure D.L. only 3400 #/sq.ft.
Pour E shall not be poured until superstructure is complete to tops of sidewalks.

Work this sheet with sheets #5, 7 + 8.

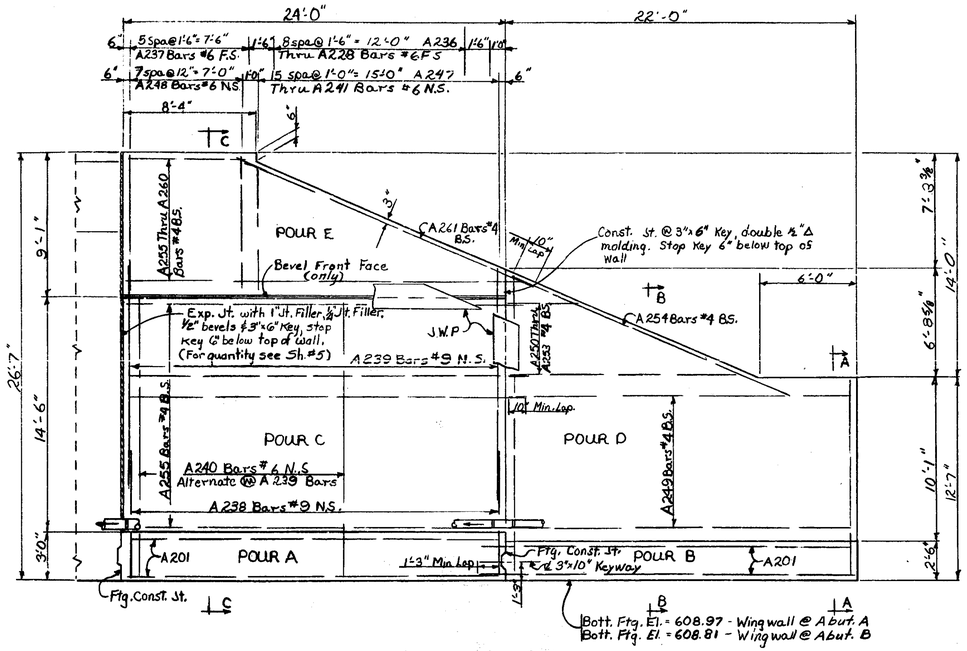
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENTS A & B - WINGWALL DETAILS

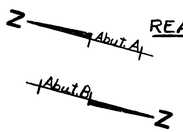
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN BASIS	C. Fisher	6-4-69
DRAWN BY	J. Hicks	4-21-69
TRACED BY		
CHECKED BY	Taylor	4-23-69
SHEET 6 OF 20		

S30 of 63174 B

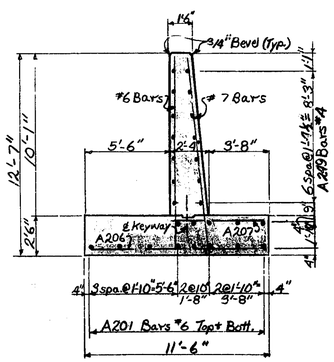


REAR ELEVATION

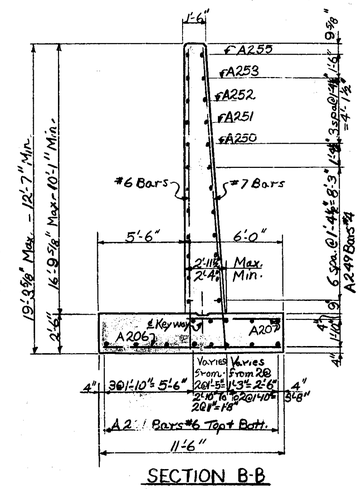


CONCRETE QUANTITIES				
Pour	Gr. A (6A) Wall #3	Gr. A (6A) Wall #4	Gr. A (6AA) Wall #3	Gr. A (6AA) Wall #4
A	40.0	40.0		
B	23.4	23.4		
C			34.8	34.8
D			21.0	21.0
E			10.9	10.9
Sub Total	63.4	63.4	66.7	66.7
Total	126.8 Cu. Yds		133.4 Cu. Yds	

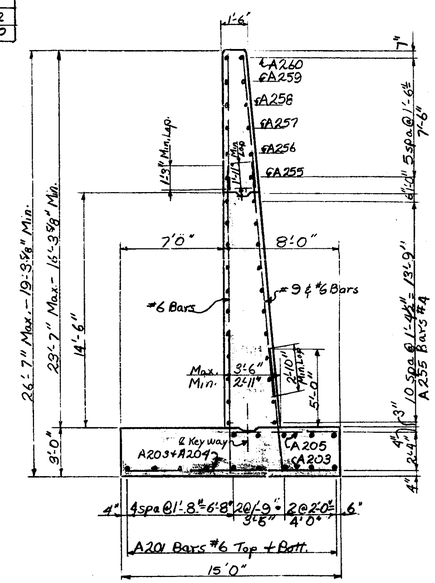
MISCELLANEOUS QUANTITIES				
Item	Unit	Amount Wall #3	Amount Wall #4	Totals
Joint Waterproofing	Sq. Ft.	61	61	122
Unclassified Excavation	Cu. Yds	320	320	640



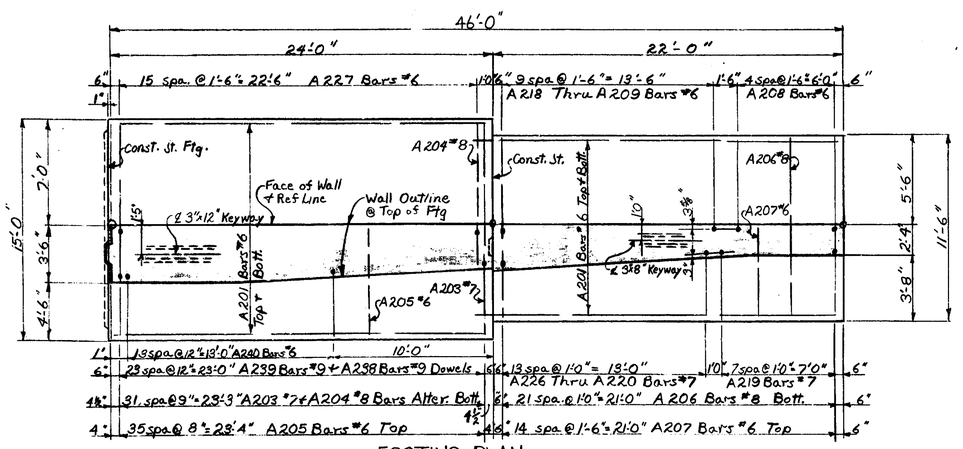
SECTION A-A



SECTION B-B



SECTION C-C



FOOTING PLAN

Work this sheet with sheets #5 & #6.

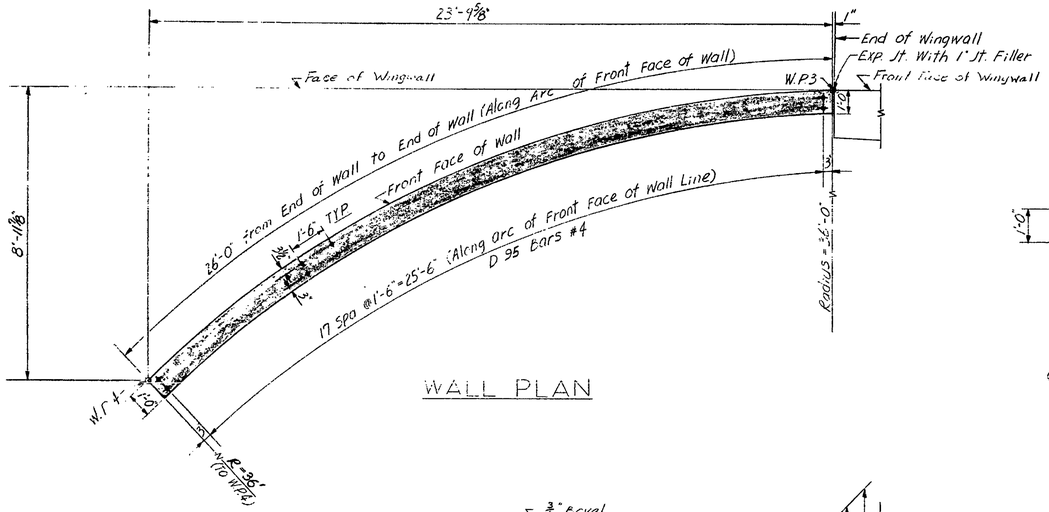
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENTS A & B – WINGWALL DETAILS

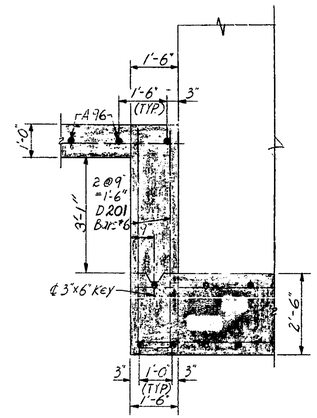
REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD BOSS	Fisher	4-4-69
DRAWN BY	J. Hicks	4-21-69
TRACED BY		
CHECKED BY	Taylor	4-23-69
SHEET 7 OF 20		

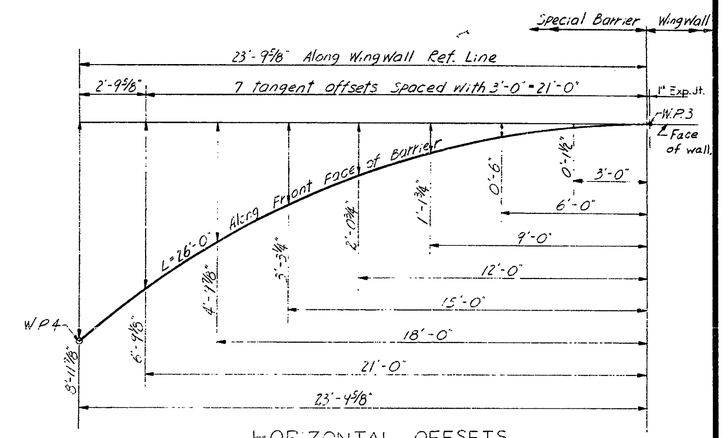
S30 of 63174 B



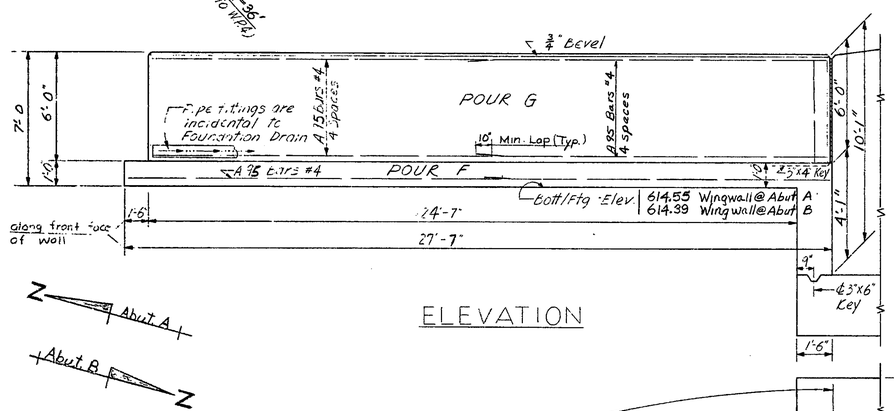
WALL PLAN



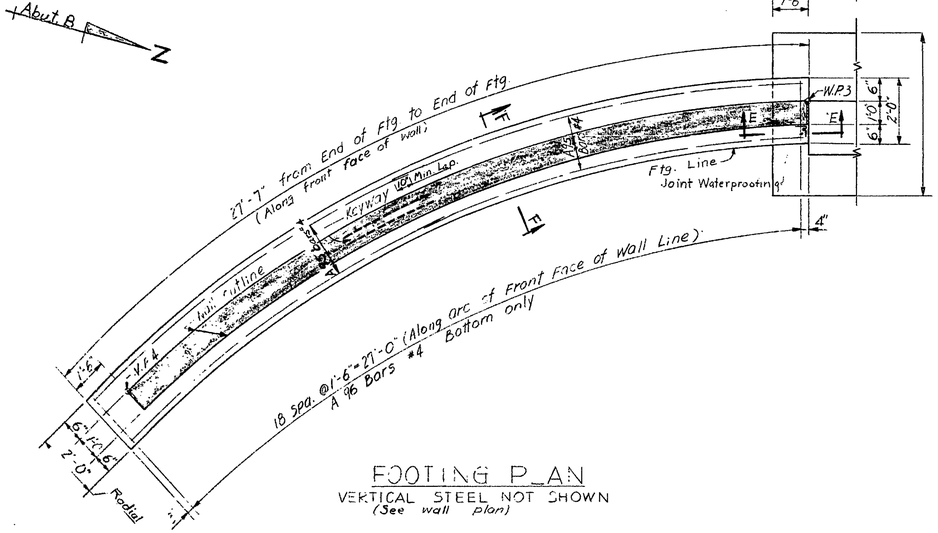
SECTION E-E



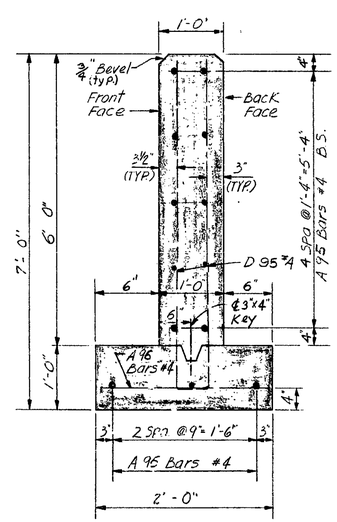
HORIZONTAL OFFSETS



ELEVATION



FOOTING PLAN
VERTICAL STEEL NOT SHOWN
(See wall plan)



SECTION F-F

MISCELLANEOUS QUANTITIES				
Item	Unit	Amount Wall A	Amount Wall B	Total
1" Joint Filler	Sq. Ft	6.0	6.0	12.
Unclassified Excavation	Cu. Yd.	25	25.	50.
Joint Waterproofing	Sq. Ft.	9.	9.	18.

CONC. QUANTITIES Cu. Yds				
	GRADE			
Pour	A (6 A) Wall A	A (6 A) Wall B	A (6 A A) Wall A	A (6 A A) Wall B
F	2.4	2.4		
G			5.8	5.8
Total	4.8		11.6	

NOTE

B.S. denotes Both Sides.

W.P. denotes Working Point.

For bevel & molding. See Std Sheet R11 or R12.

Work this sheet with sheet # 6.

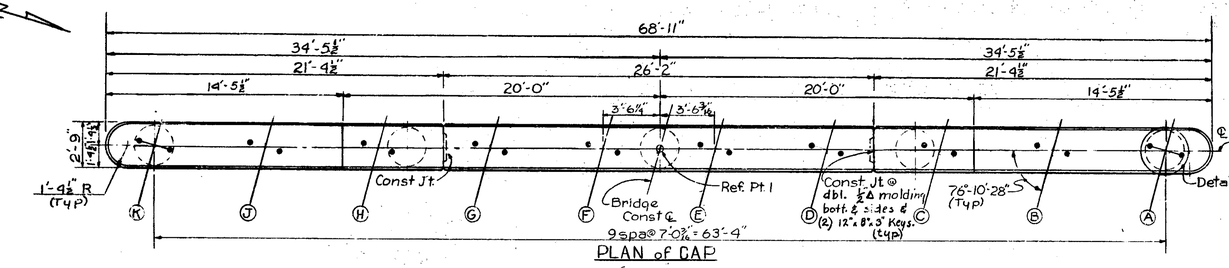
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENTS A & B - WALL ENDING DETAILS

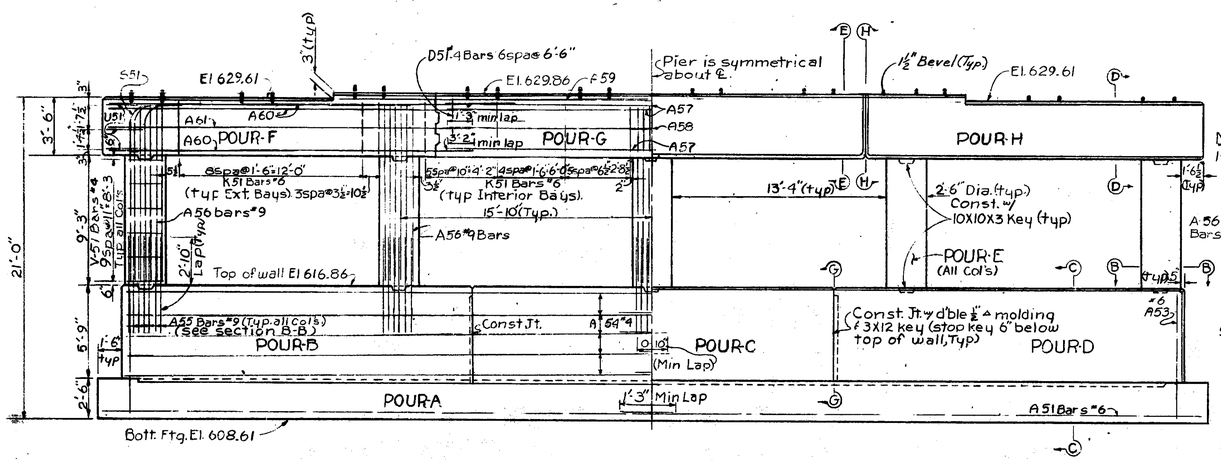
REVISIONS			
NO	DESCRIPTION	DATE	BY

SQUAD BOSS	C. Fisher	6-4-69
DRAWN BY	C. Dubose	3-17-69
TRACED BY		
CHECKED BY	Taylor	4-22-69
SHEET 8 OF 20		

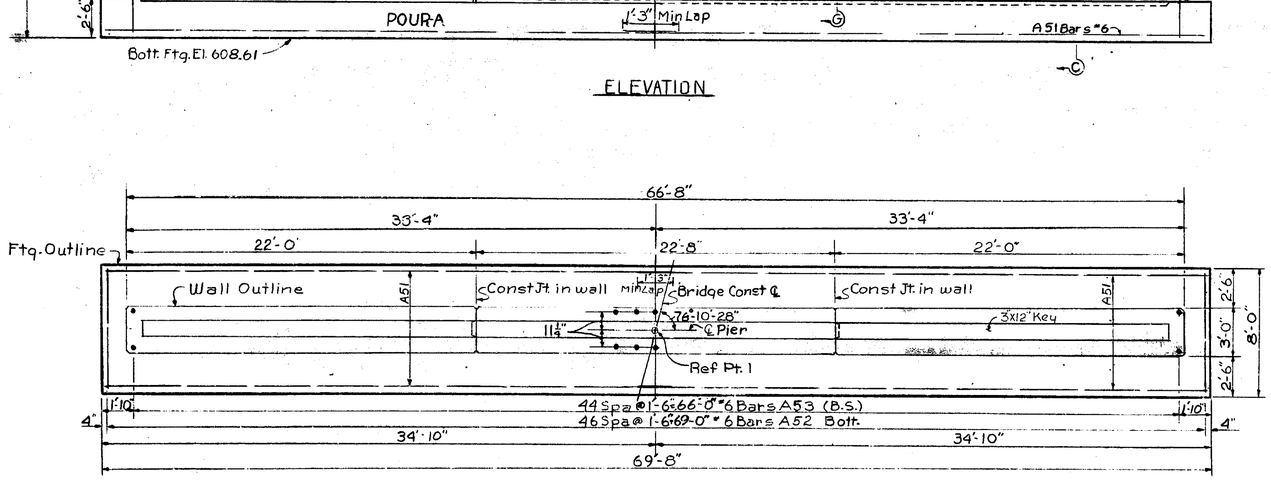
S30 of 63174B



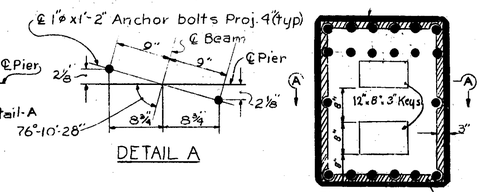
PLAN of CAP



ELEVATION

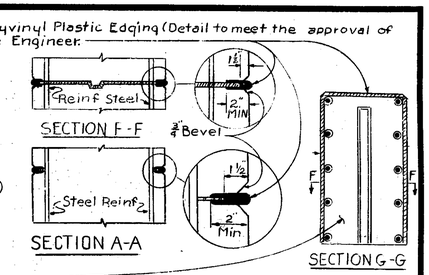


PLAN of FOOTING



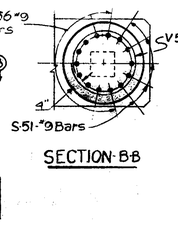
DETAIL A

SECTION H-H

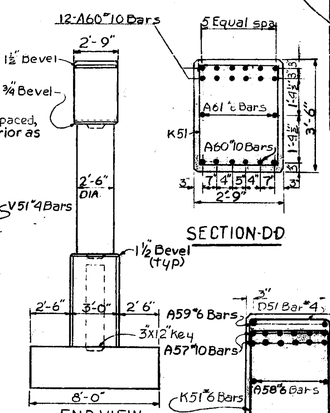


Note:
Partial metal bulkhead may be used as alternate const. joint in cap at contractors expense. Notch metal strip around reinf steel. Steel or aluminum strip (16 to 10 gage) securely held in place (no tack welding to reinf. steel.)
Care is to be used in casting concrete around bulkhead to prevent misalignment or dislocation of the bulkhead.
The preformed metal bulkhead may be used as alternate construction joint in basewall at contractors expense. Cut holes in metal bulkhead for reinf. steel.
12 gage preformed aluminum or steel bulkhead securely held in place (no tack welding to reinf. steel.

Note:
14 A56 #9 Bars equally spaced, Interior cols. Exterior as per section B-B

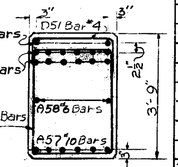


SECTION B-B



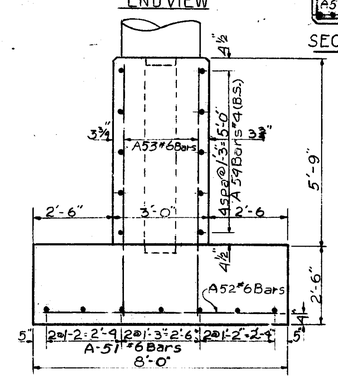
END VIEW

SECTION D-D



SECTION E-E

CONCRETE QUANTITIES		
Pour	Grade A (6A)	Grade A (6AA)
A	51.5	
B		14.1
C		14.5
D		14.1
E		8.9
F		7.5
G		9.3
H		7.5
Total	51.5 cu. yd.	75.4 cu. yd.



SECTION C-C

NOTES:

For bevel & molding details, see standard sheet R11 or R12.

Anchor bolts shall be accurately set to a template.

Adjust the spacing of the reinforcing steel as required to permit placing of anchor bolts.

Maximum average foundation pressure D.L. only = 3100 #/sq.ft. Maximum foundation Pressure D.L. & L.L. = 4600 #/sq.ft.

B.S. denotes Both Sides.

All exposed surfaces above the top of ftg. of pier shall be given an application of Clear Protective Coating for Substructure Concrete (See supplemental specifications)

Anchorage for guard rail is to be provided in pier base wall. For details see Road Plans.

MISCELLANEOUS QUANTITIES		
ITEM	Units	Amount
Unclassified Excavation	Cu. Yds	195
Clear Protective Coating for Substructure concrete	Sq. Yds.	245.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

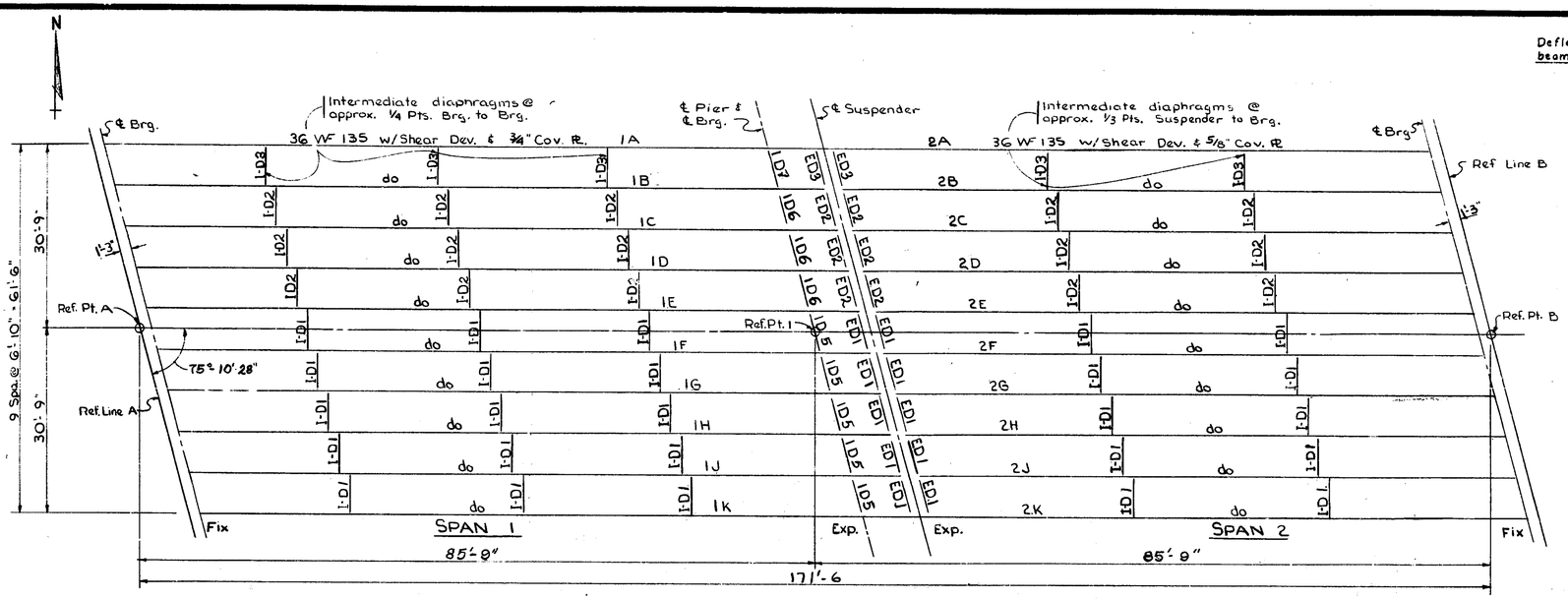
PIER DETAILS

REVISIONS

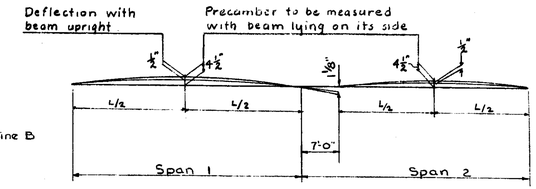
NO.	DESCRIPTION	DATE	BY

DESIGN BOSS	FISHER	6-4-69
DRAWN BY	Hartman	2/13/69
TRACED BY		
CHECKED BY	T. Taylor	9-26-69
SHEET 9 OF 20		

S30 of 63174 B



ERECTION DIAGRAM



CAMBER DIAGRAM

MISCELLANEOUS QUANTITIES		
Item	Unit	Total
Structural Steel-Furn. & Fabric.	lbs.	295,500
Structural Steel-Erection	lbs.	295,500
Elastomeric Bearing Pads	Sq. Ft	20.

NOTES:

Design: Michigan Department of State Highways Specifications for Design of Highway Bridges-1958 edition and current AASHO Standard Specifications for Highway Bridges. (H 20 Loading).

Fabrication: Michigan Department of State Highways Standard Specifications for Road and Bridge Construction 1967 edition.

Shop connections shall be welded as shown on the plans.

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

The beams are to be cambered as shown in the camber diagram. This camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ±1/4". Heating is to be used if necessary, to assure camber permanency within the above tolerance. The dead load deflection of the beams alone is calculated to be 1/2" in spans 1 & 2.

Sole plates 3" or more in thickness may be built up by welding together plates not less than 1 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 plate.

Magnetic particle inspection of welds is required and shall consist of 100% inspection of not less than one fabricated section selected at random for each ten sections or fabrications thereof.

Anchor Bolts (including nuts and washers) shall be galvanized in accordance with ASTM Designation A 153.

All steel material used for bearings, with exception of portion weldad to beams, shall be galvanized in accordance with ASTM Designation A123. Galvanizing shall be applied after fabrication of bearing. Mill scale and foreign material shall be removed prior to galvanizing.

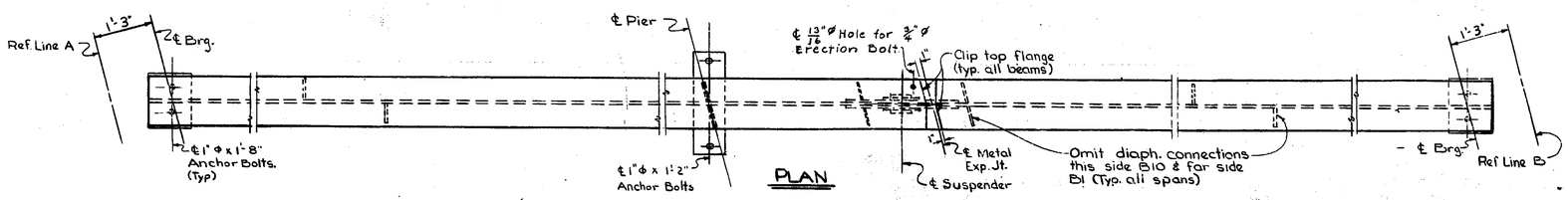
Bronze for washers shall be ASTM B100, Alloy No. 510 or No. 635.

The quantity Structural Steel includes:

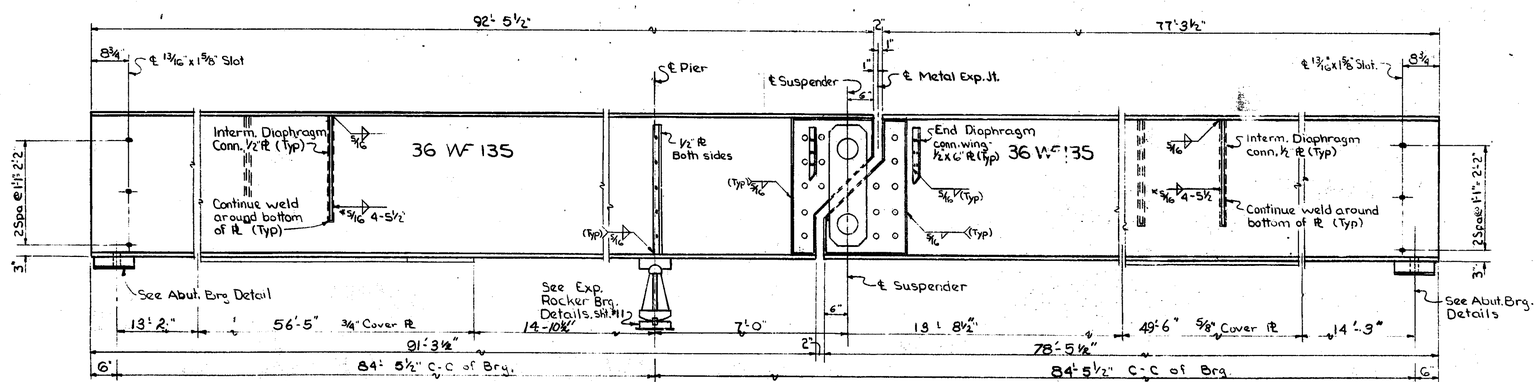
A588 Steel	295,321 #
Bronze	56 #
Lead	124 #
Total	295,500 #

All steel shall be unpainted A.S.T.M. A588.

For Details see sheet No. 11



PLAN



* Note: A 1/4" continous weld may be used in all cases instead of the 5/16 intermittent weld at the fabricator's option.

ELEVATION

Work this sheet with sheet No. 11

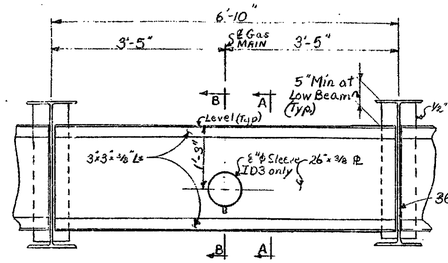
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STRUCTURAL STEEL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Fisher	6-4-69
DRAWN BY	R. MARSH	3/10/69
TRACED BY		
CHECKED BY	T. Taylor	3-26-69
SHEET 10 OF 20		

S30 of 63174 B



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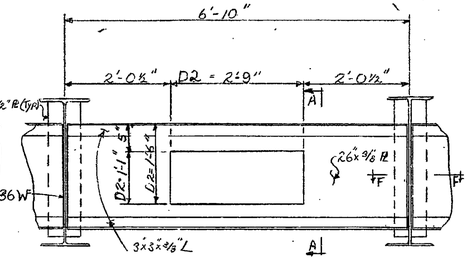

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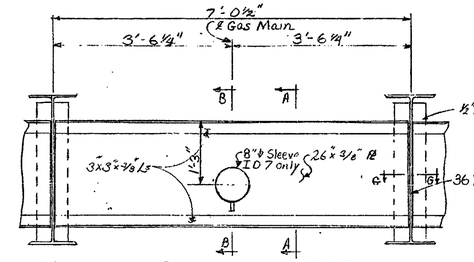

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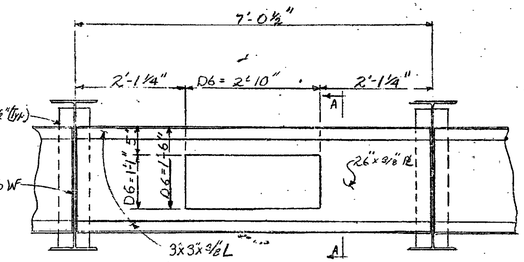

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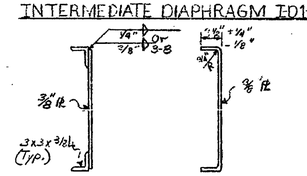
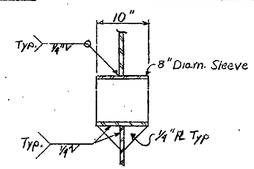
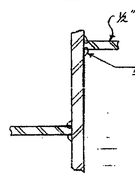


ALTERNATE

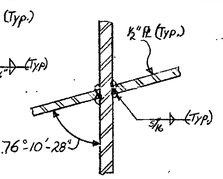
SECTION A-A



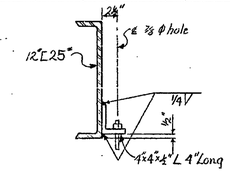
SECTION B-B



SECTION F-F

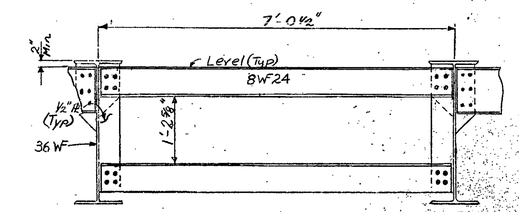


SECTION G-G

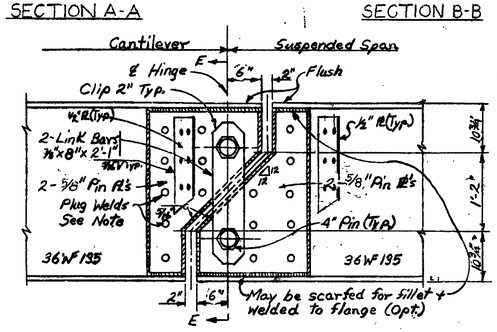


SECTION H-H ED3

SOLE PLATE THICKNESS TABLE			
Beam	Abut. A	Pier	Abut. B
A	1½"	3"	3½"
B	3½"	4¾"	5"
C	2"	3¼"	3¼"
D	3½"	4¾"	4¼"
E	4½"	5¾"	5"
F	4¾"	5¾"	4¾"
G	4"	4¾"	3½"
H	2¾"	3½"	2¼"
J	4¼"	5"	3¼"
K	3"	3½"	1½"

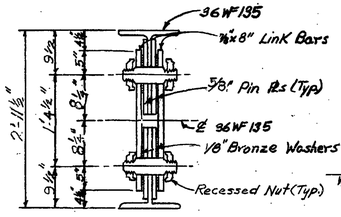


END DIAPHRAGM ED2

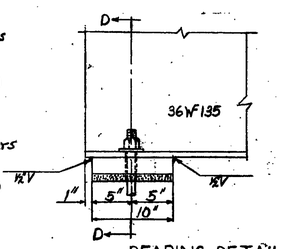


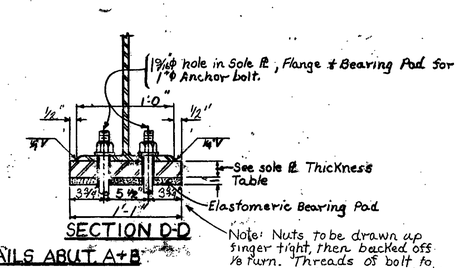
Note:
Size and spacing of plug welds shall be according to the A.W.S. Current specifications.

SUSPENDER DETAILS



SECTION E-E

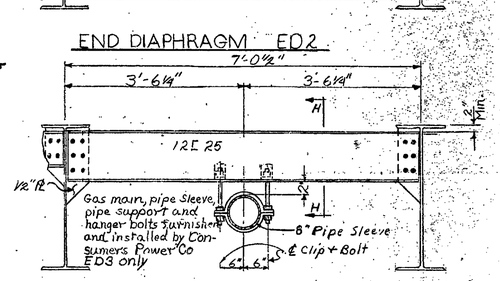




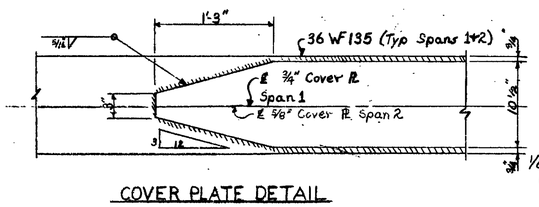
SECTION D-D

Note: Nuts to be drawn up finger tight, then backed off ⅛ turn. Threads of bolt to be burred off at face of nut with a pointed tool.

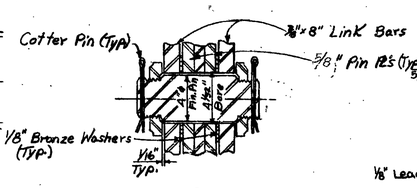
BEARING DETAILS ABUT. A+B



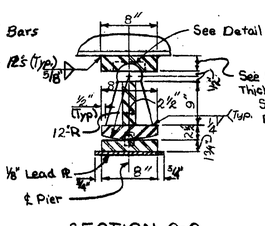
END DIAPHRAGM ED1 + ED3



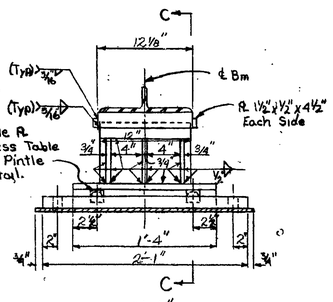
COVER PLATE DETAIL

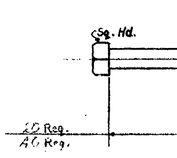


SECTION THRU HANGER PIN

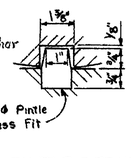


SECTION C-C

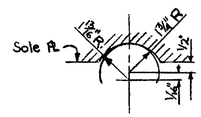




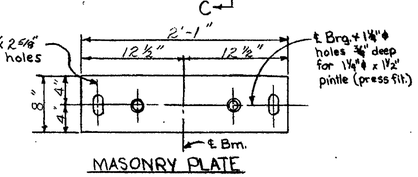
ANCHOR BOLT DETAIL



PINTLE DETAIL



DETAIL A



MASONRY PLATE

Work this sheet with sheet No. 10

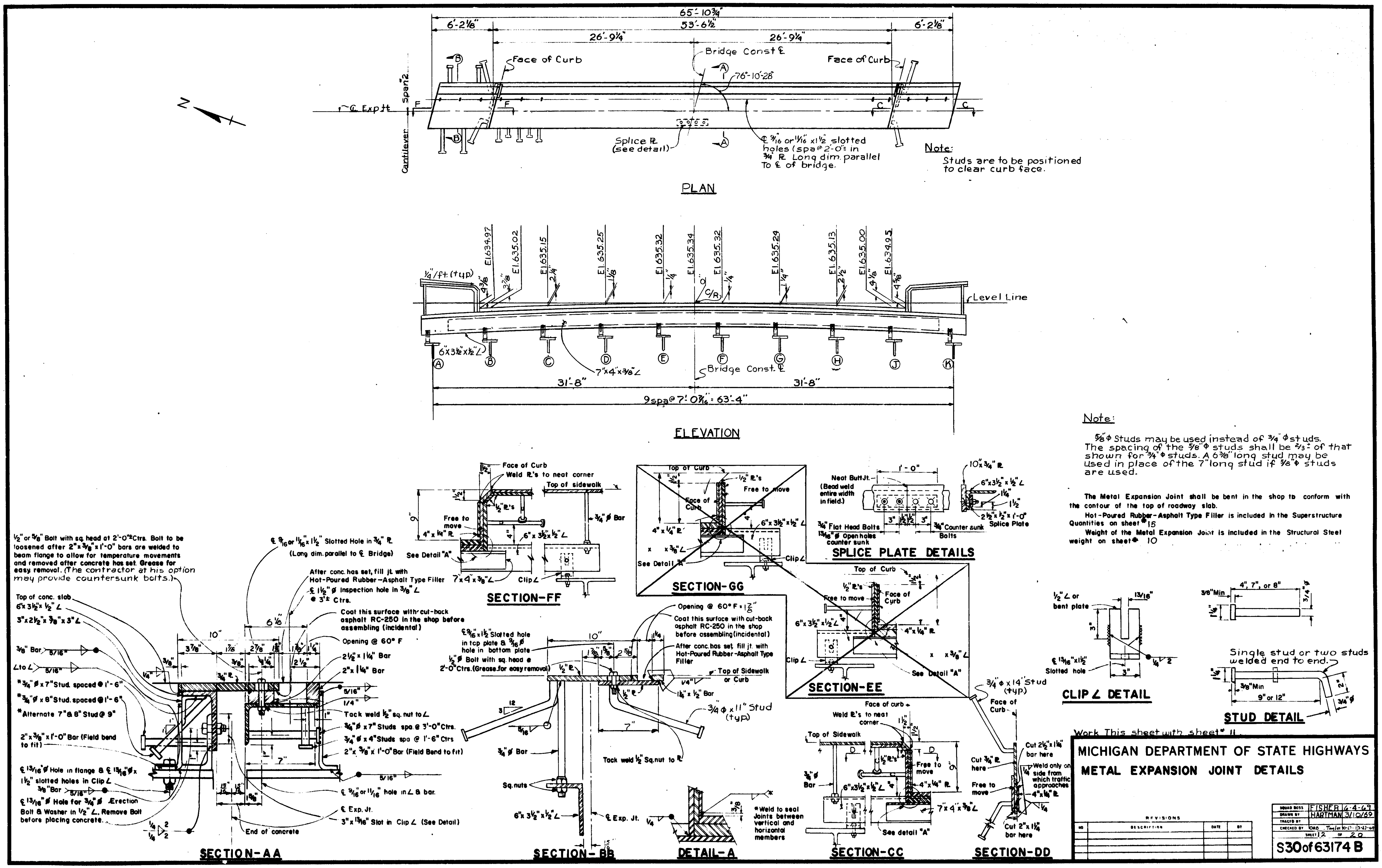
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STRUCTURAL STEEL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

LOAD DISG	Fisher	6-4-69
DRAWN BY	T.H.C.K.	2-17-69
TRACED BY		
CHECKED BY	T. Taylor	3-28-69
SHEET 11 OF 20		

S30 of 63174 B



Note:
Studs are to be positioned to clear curb face.

Note:
⅝"φ Studs may be used instead of ¾"φ studs. The spacing of the ⅝"φ studs shall be ⅔± of that shown for ¾"φ studs. A 6⅜" long stud may be used in place of the 7" long stud if ⅝"φ studs are used.

The Metal Expansion Joint shall be bent in the shop to conform with the contour of the top of roadway slab.

Hot-Poured Rubber-Asphalt Type Filler is included in the Superstructure Quantities on sheet # 15

Weight of the Metal Expansion Joint is included in the Structural Steel weight on sheet # 10

Work This sheet with sheet # 11

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

METAL EXPANSION JOINT DETAILS

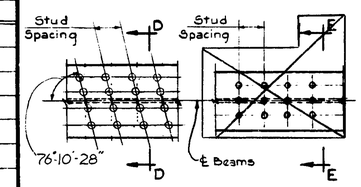
FISHER 6-4-69
HARTMAN 3/10/69

SHEET 12 OF 20

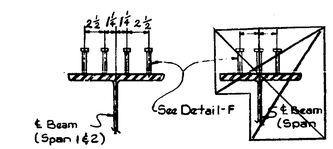
S30 of 63174 B

SHEAR DEVELOPER SPACING TABLE

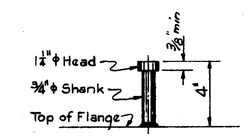
BEAM NO	a	b	c	d	e	f	g	h	j	Length Along Top of Beam
Span 1 A thru K	6"	21spa@9"=15'-9"	10spa@14"=11'-8"	4spa@20"=6'-8"	7spa@24"=14'-0"	4spa@20"=6'-8"	11spa@14"=12'-10"	17spa@9"=12'-9"	4'-1½"	92'-5½"
Span 2 A thru K	1"	16spa@9"=12'-0"	10spa@12½"=10'-5"	5spa@18½"=7'-8½"	8spa@23½"=15'-8"	6spa@18½"=9'-3"	10spa@12½"=10'-5"	15spa@9"=11'-3"	6"	77'-3½"



PLAN of STUDS



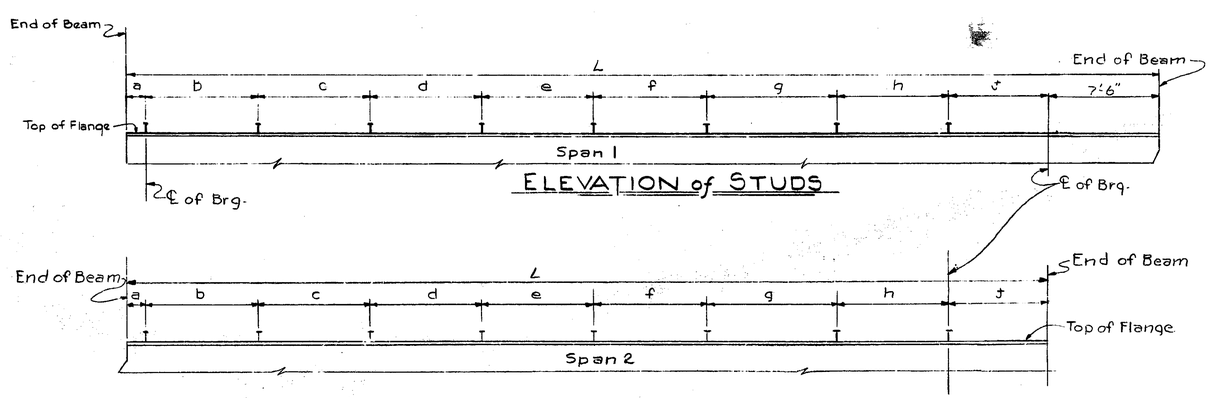
SECTION-DD SECTION-EE



DETAIL-F

STUD SHEAR CONNECTOR DETAILS

MISCELLANEOUS QUANTITIES		
Item	Unit	Total
Shear Developers	Lump Sum	Lump Sum



ELEVATION of STUDS

NOTES:

Welding of studs to beam flange is incidental to shear developers.

Weight of studs is not included in structural steel weights.

Work this sheet with sheet No. 10.

MICHIGAN STATE HIGHWAY DEPARTMENT

SHEAR DEVELOPER DETAILS

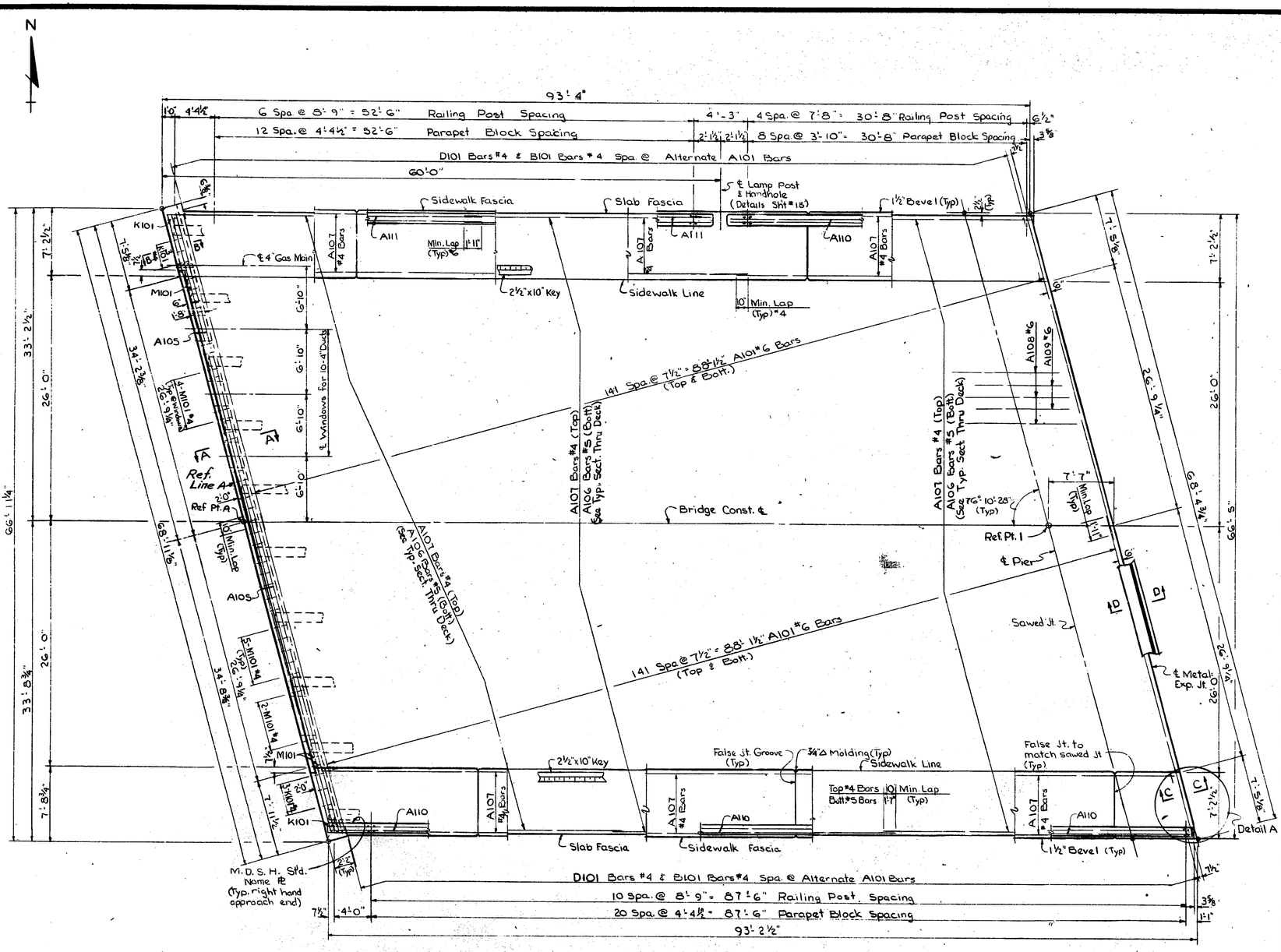
REVISIONS			
NO	DESCRIPTION	DATE	BY

SQUAD BOSS	FISHER	6-4-69
DRAWN BY	DEMILLER	
TRACED BY	Hoffman	3/26/69
CHECKED BY	T. Taylor	4-3-69
SHEET 13 OF 20		

S30 of 63174B

SD2 (2-13-69)

MASTER COPY



PLAN OF SLAB SPAN 1

For Details of Section	See Sheet
A-A	16
B-B	16
C-C	16
D-D	16
Detail A	16

NOTES:

J.W.P. denotes Joint Waterproofing.

H.P.R.A.T.F. denotes Hot-Poured Rubber Asphalt Type Filler.

For details of bevels, moldings and Bridge Railing, see Standard Sheet R11 or R12.

Edge or groove denote edging or grooving with an approved tool.

Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by Section 5.01.05 of the Standard Specifications.

The District Utility Engineer is to be notified five days in advance of the time of installation of the ducts in the sidewalk.

The contractor is to provide a sawed joint ½" deep by ⅛" wide (min) in the top of slab over and parallel to the centerline of the pier. The joint is to be sawed before casting of sidewalks and is to be filled with Hot-Poured Rubber Asphalt Type Filler (Incidental).

Bridge Railing is to be either aluminum or Steel Tubular railing on concrete parapet. See Railing Standard R11 or R12.

Protective Treatment for Bridge Decks is to be applied to all supperstructure concrete surfaces between fascia lines. (See Supplemental Specifications).

False joints in sidewalks shall be placed midway between concrete posts at approx. every forth panel.

Screeds affected by loads in other spans are to be set to the elevations shown before casting any concrete. Concrete in the suspended span is to be cast before the concrete in the anchor span.

For name plate mounting details see standard sheet R11 or R12. For location of name plate see this sheet.

Work this sheet with sheets No. 15, 16 & 17

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

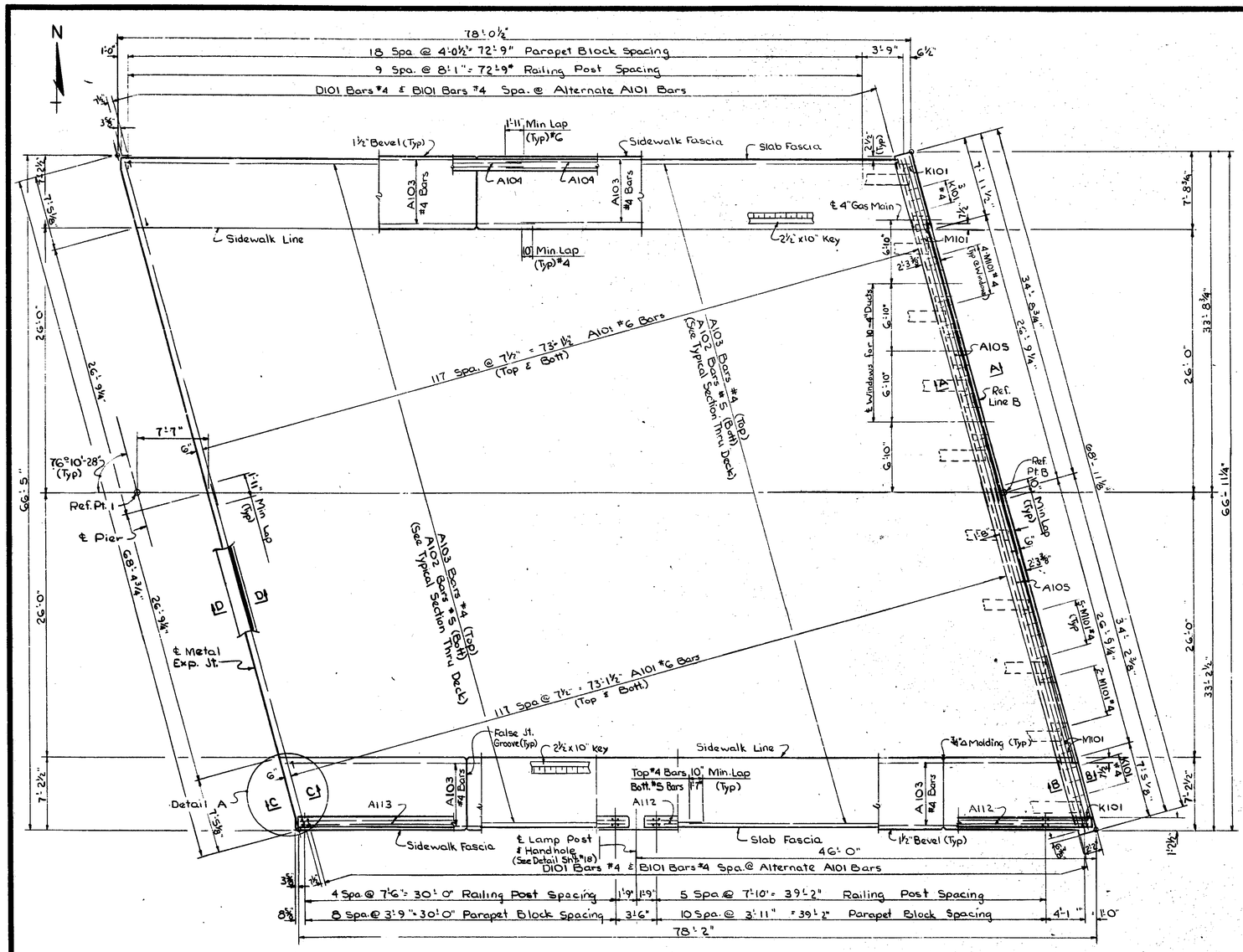
REVISIONS

NO.	DESCRIPTION	DATE	BY

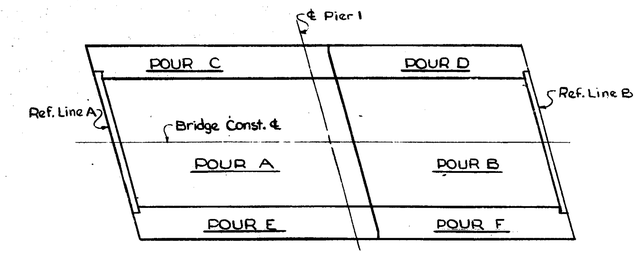
SQUAD BOSS	Fisher	4-4-69
DRAWN BY	R. MARSH	3/13/69
TRACED BY		
CHECKED BY	T. Taylor	3-20-69

SHEET 14 OF 20

S30 of 63174 B



PLAN OF SLAB SPAN 2



POUR DIAGRAM

Alphabetical designation of pours is not to be construed as a pour sequence.

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Hot-Poured Rubber Asphalt Type Filler	Lin. Ft.	66
Water Reducing Retarding Admixture	Gals.	42
Bridge Railing Parapet Type	Lin. Ft.	342.1
Structural Tile 6" x 12" x 12"	Each	1510
Protective Treatment for Bridge Decks	Sq. Ft.	11,300
3" ø Fiber Conduit	Lin. Ft.	172

CONCRETE QUANTITIES		
	Pour	Grade A (GAA) Cu. Yds.
SLAB	A	159.0
	B	134.2
CURB	C	13.0
	D	12.6
	E	11.5
	F	11.3
Backwall - Abut. A		14.1
Backwall - Abut. B		14.1
Total		369.8 Cu. Yds.

For Details of Section	See Sheet
A-A	16
B-B	16
C-C	16
D-D	16
Detail A	16

Work this sheet with sheets No. 14, 16 & 17

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

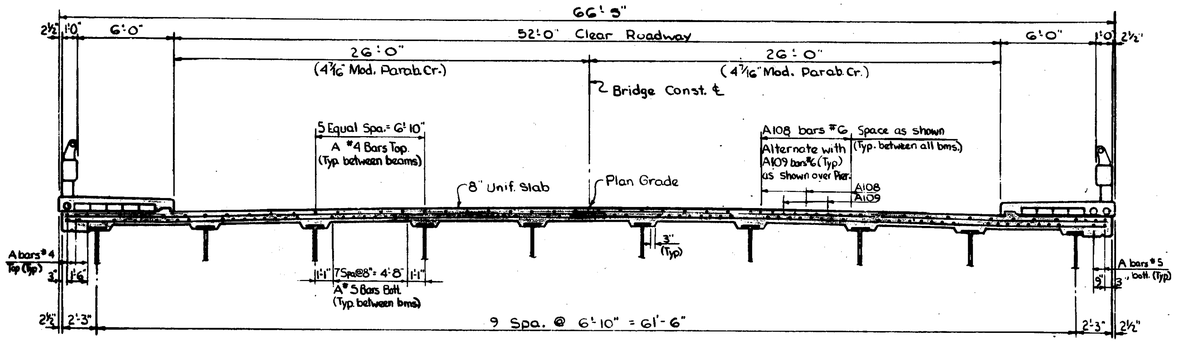
SUPERSTRUCTURE DETAILS

REVISIONS

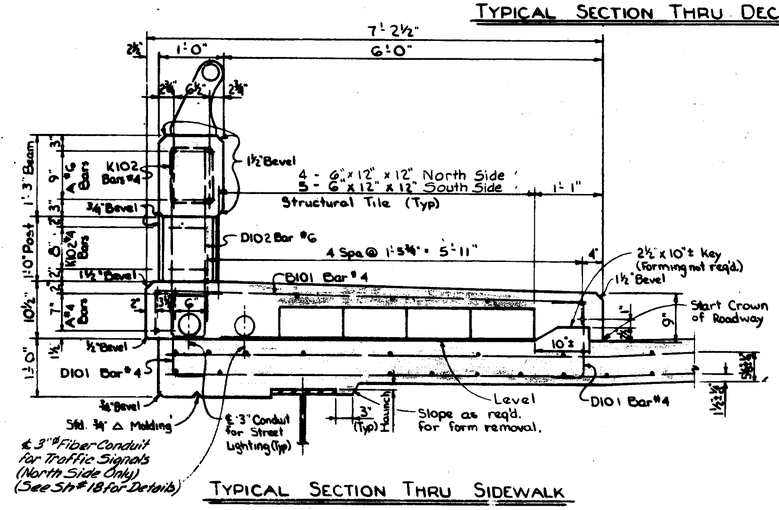
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Fisher 6-4-69
DRAWN BY	R. MARSH 3/13/69
TRACED BY	
CHECKED BY	T. Taylor 4-4-69
SHEET	15 OF 20

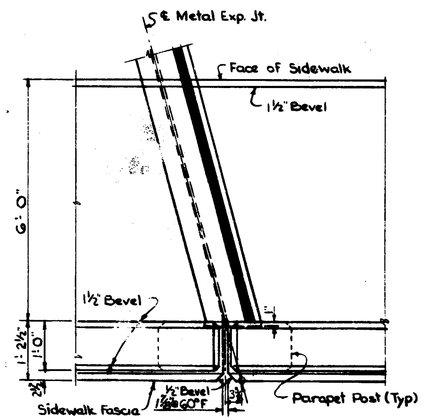
S30 of 63174 B



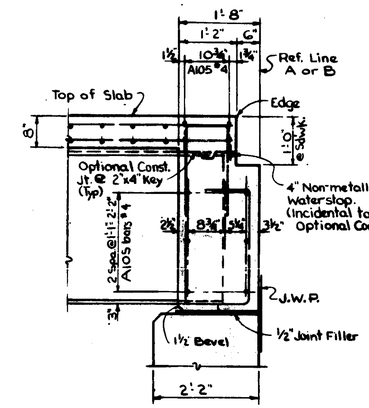
TYPICAL SECTION THRU DECK



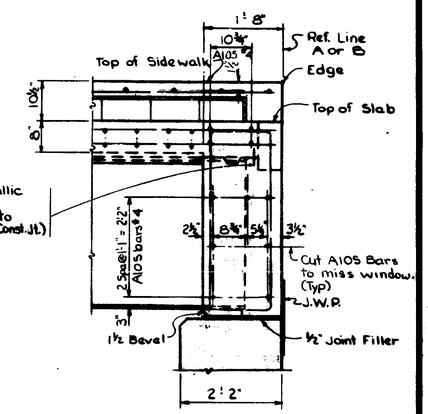
TYPICAL SECTION THRU SIDEWALK



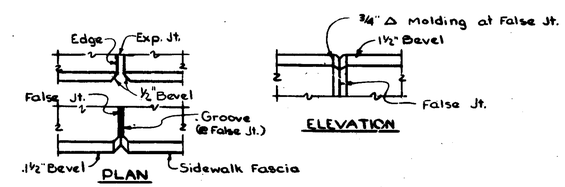
DETAIL A



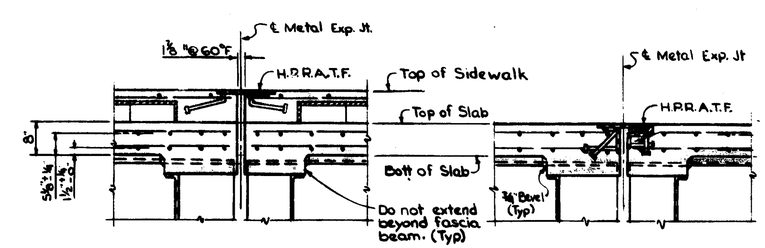
SECTION A-A



SECTION B-B



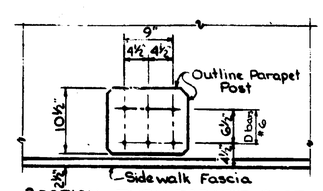
MOLDING DETAILS



SECTION C-C

SECTION D-D

For Location of Sections	See Sheet
A-A	14 & 15
B-B	14 & 15
C-C	14 & 15
D-D	14 & 15
Detail A	14 & 15



SECTION THRU PARAPET POST

Work this sheet with sheets No. 14, 15 & 17

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

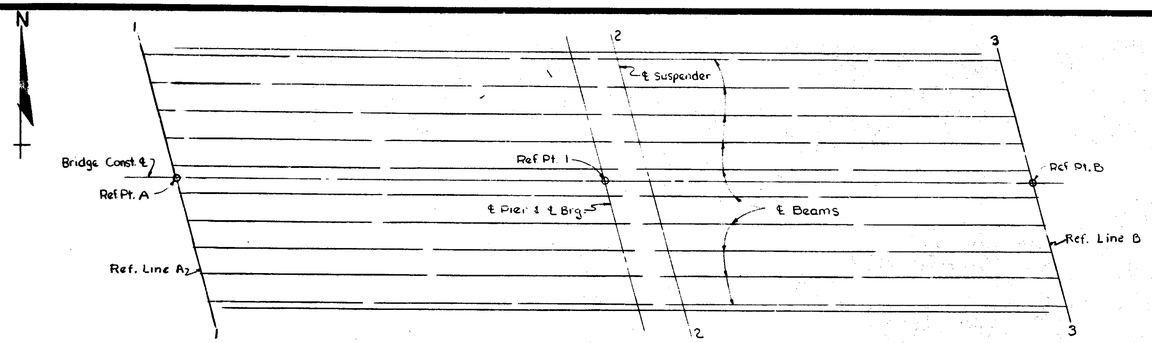
SUPERSTRUCTURE DETAILS

REVISIONS

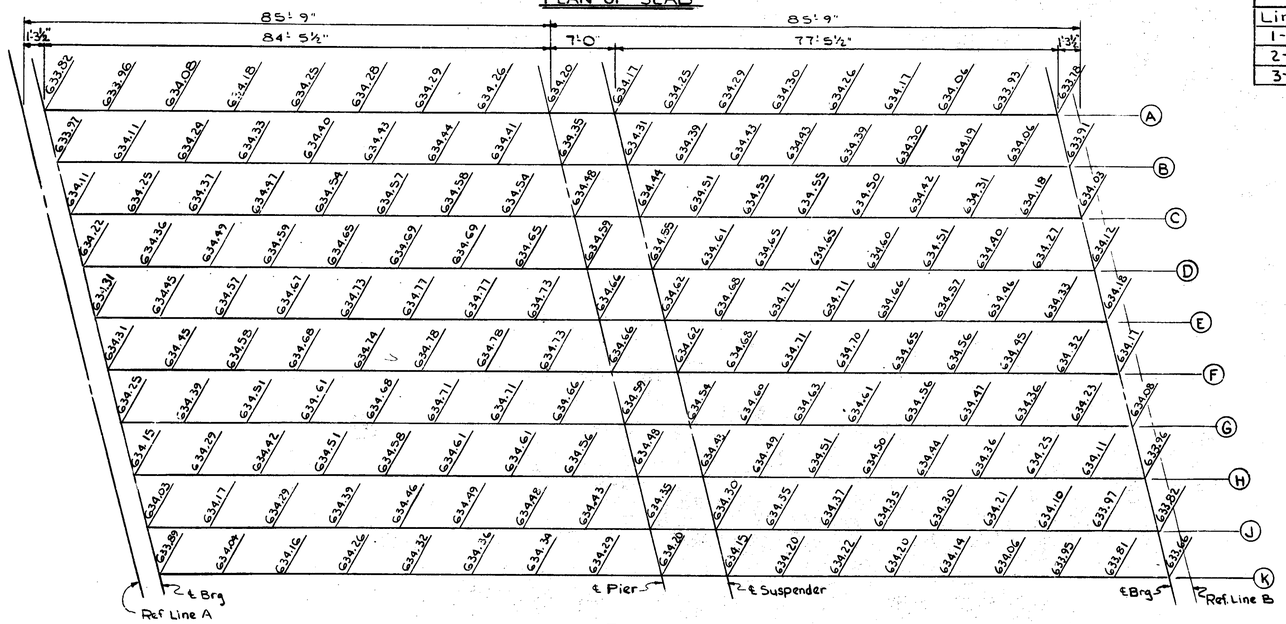
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	Eisher	6-4-69
DRAWN BY	R.MARSH	1-29-69
TRACED BY		
CHECKED BY	Taylor	3-18-69
SHEET 16 OF 20		

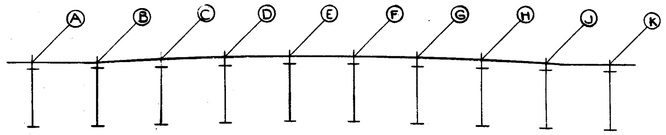
S30 of 63174B



PLAN OF SLAB

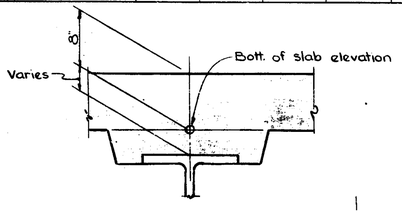


BOTTOM OF SLAB ELEVATION



SCREED TEMPLATE

SCREED TEMPLATE ELEVATION										
Line	A	B	C	D	E	F	G	H	J	K
1-1	634.58	634.63	634.77	634.88	634.97	634.97	634.91	634.81	634.69	634.65
2-2	634.94	634.98	635.11	635.21	635.29	635.28	635.21	635.10	634.96	634.92
3-3	634.54	634.57	634.68	634.78	634.84	634.83	634.74	634.62	634.48	634.42

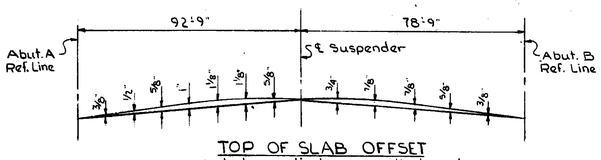


TYP. SECTION AT EACH BEAM

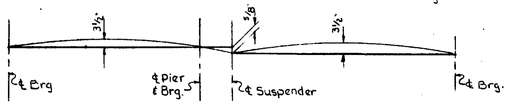
NOTES:

Screed elevations are based on the condition that no slab concrete has been cast and that formwork, steel reinforcement and shear developers are in place.

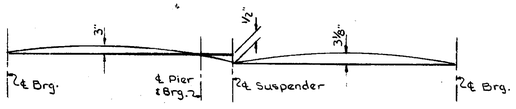
Bottom of slab elevations are based on the condition that all structural steel has been erected, but no other loads applied. These elevations include allowances for deflections due to forms, steel reinforcement, shear developers in place, deck concrete and railing.



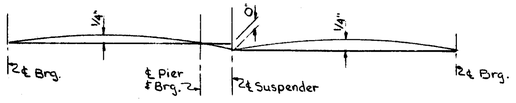
TOP OF SLAB OFFSET
Includes vertical curve ordinate and allowance for deflection due to sidewalk & railing.



CAMBER ORDINATES
Structural steel erected
(No other loads applied)



CAMBER ORDINATE
Form, shear developers & steel reinforcement in place (All spans complete)



CAMBER ORDINATE
(Deck concrete cast - utilities not placed)
(All spans complete.)

Work this sheet with sheets No. 14, 15 & 16

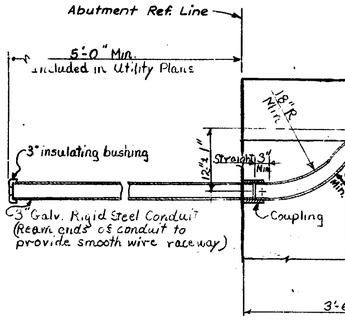
MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

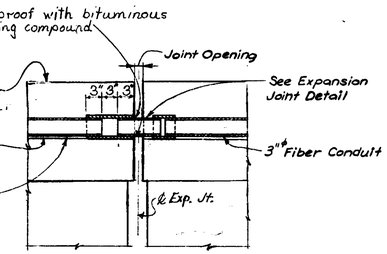
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN BASIS	Fisher	6-4-69
DRAWN BY	R. MARSH	3/21/69
TRACED BY		
CHECKED BY	T. Taylor	3/28/69
SHEET 17 OF 20		

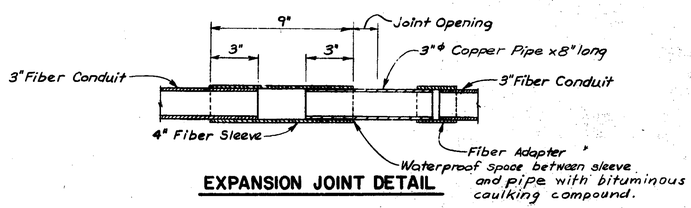
S30 of 63174 B



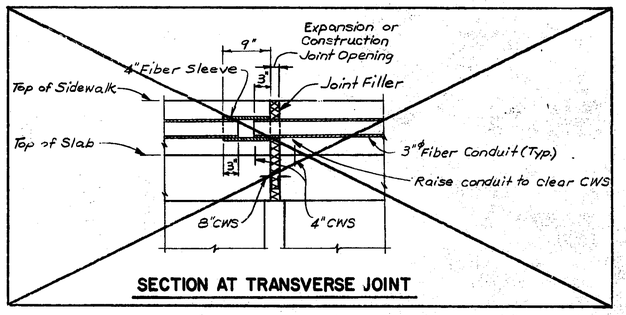
SECTION AT BACKWALL



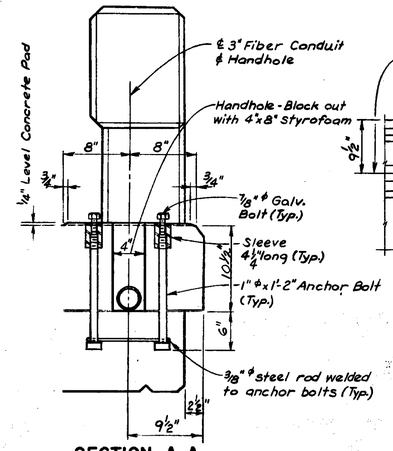
SECTION AT METAL EXP. JOINT



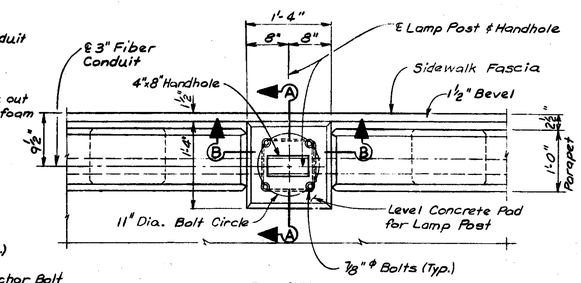
EXPANSION JOINT DETAIL



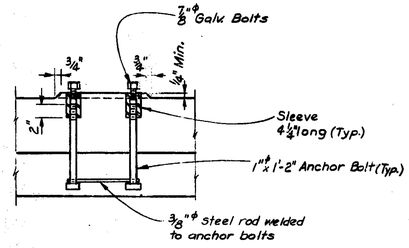
SECTION AT TRANSVERSE JOINT



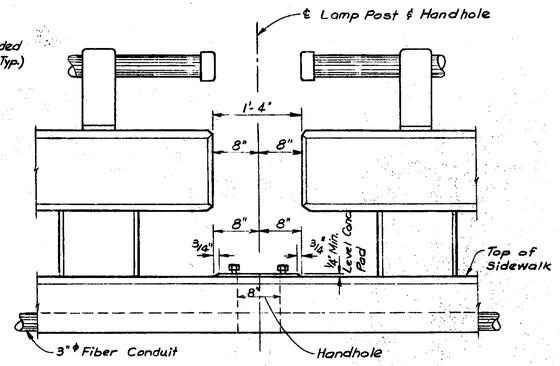
SECTION A-A



PLAN



SECTION B-B



ELEVATION

Notes:

7/8" ϕ bolts shall be galvanized steel (ASTM A153)
1 1/2" Rs. 7/8" ϕ Anchor bolts are to be furnished by Detroit Edison Co. and installed by Bridge Contractor. (Installation is incidental work.)

Furnishing and installing of Light Standard and 3" ϕ Fiber Conduit as well as Conduit sleeves, styrofoam blocking and 7/8" Pad under light standard is by Detroit Edison Co.

3" ϕ Fiber Conduit for Traffic Signals shall be Furnished & Placed by the Contractor. Sleeves, copper pipe, adapters, couplings, galvanized steel conduit, bushings plug, and waterproofing are incidental to the item 3" ϕ Fiber Conduit.

Work this sheet with sheets No. 4 & 16

MICHIGAN STATE HIGHWAY DEPARTMENT

LIGHTING DETAILS

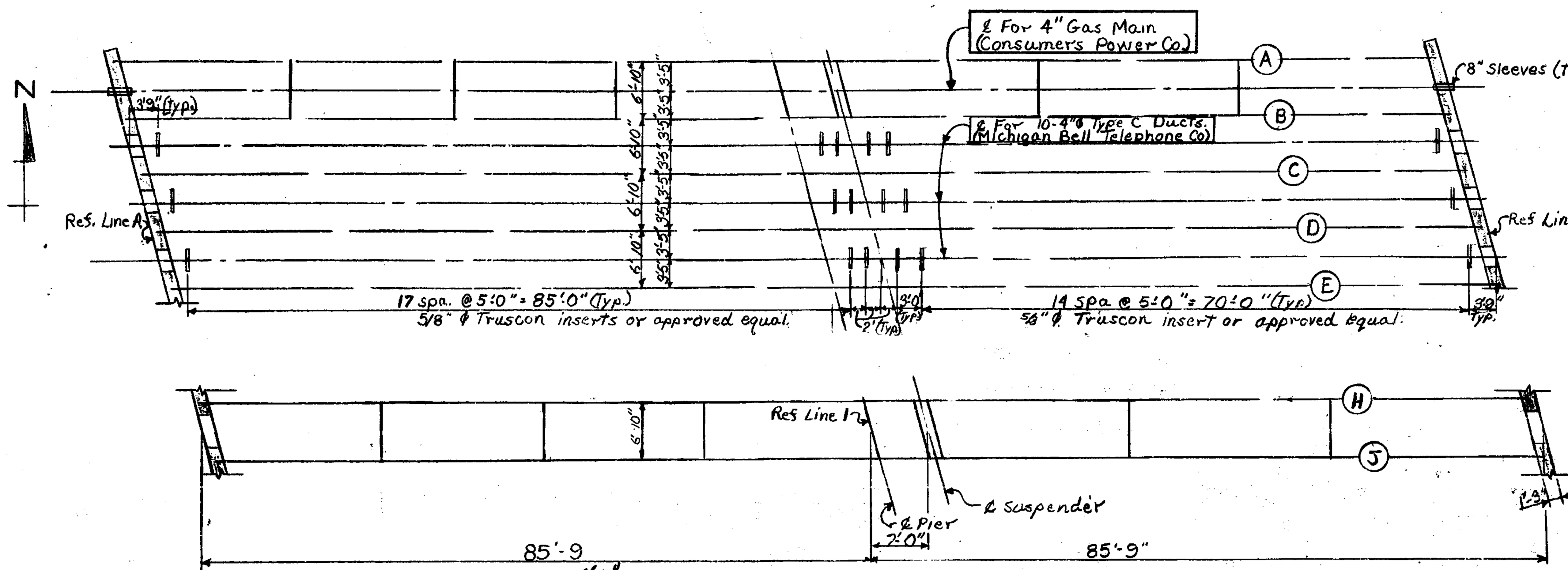
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Fisher	6-4-69
DRAWN BY	J. Hicks	2-24-69
TRACED BY		
CHECKED BY	Taylor	3-4-69

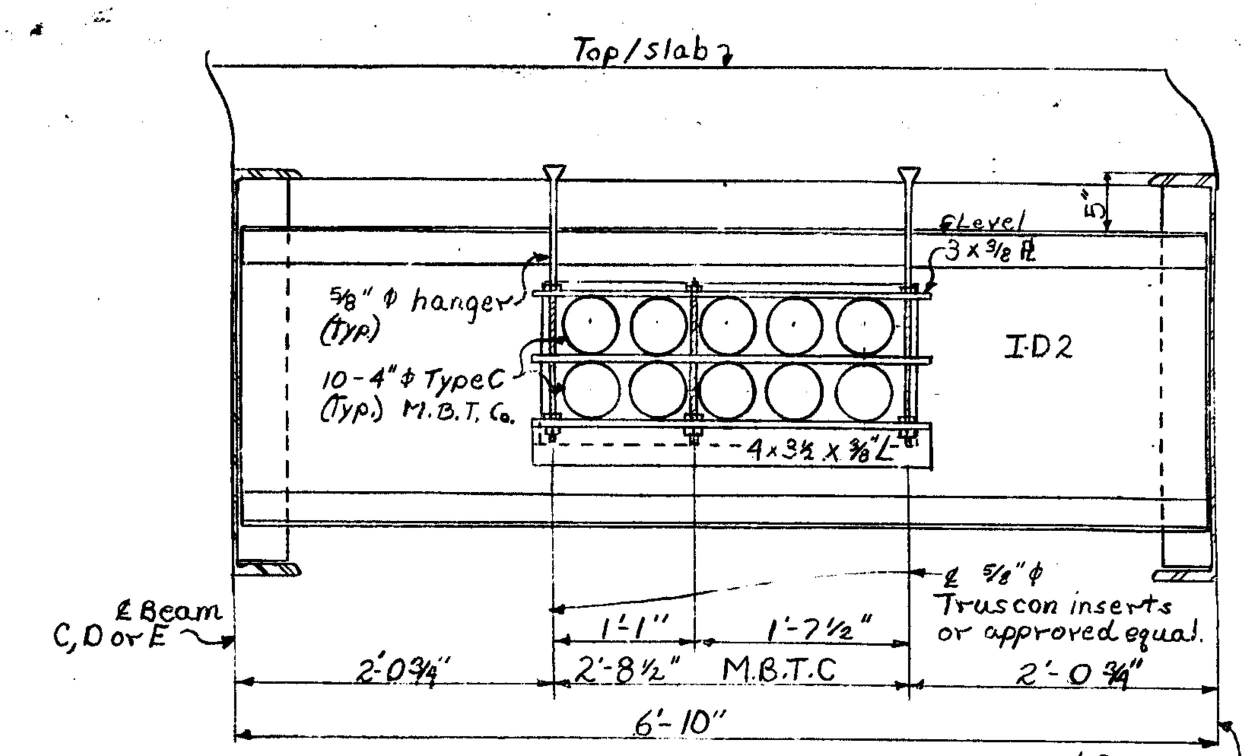
SHEET 18 OF 20

S30 of 63174B

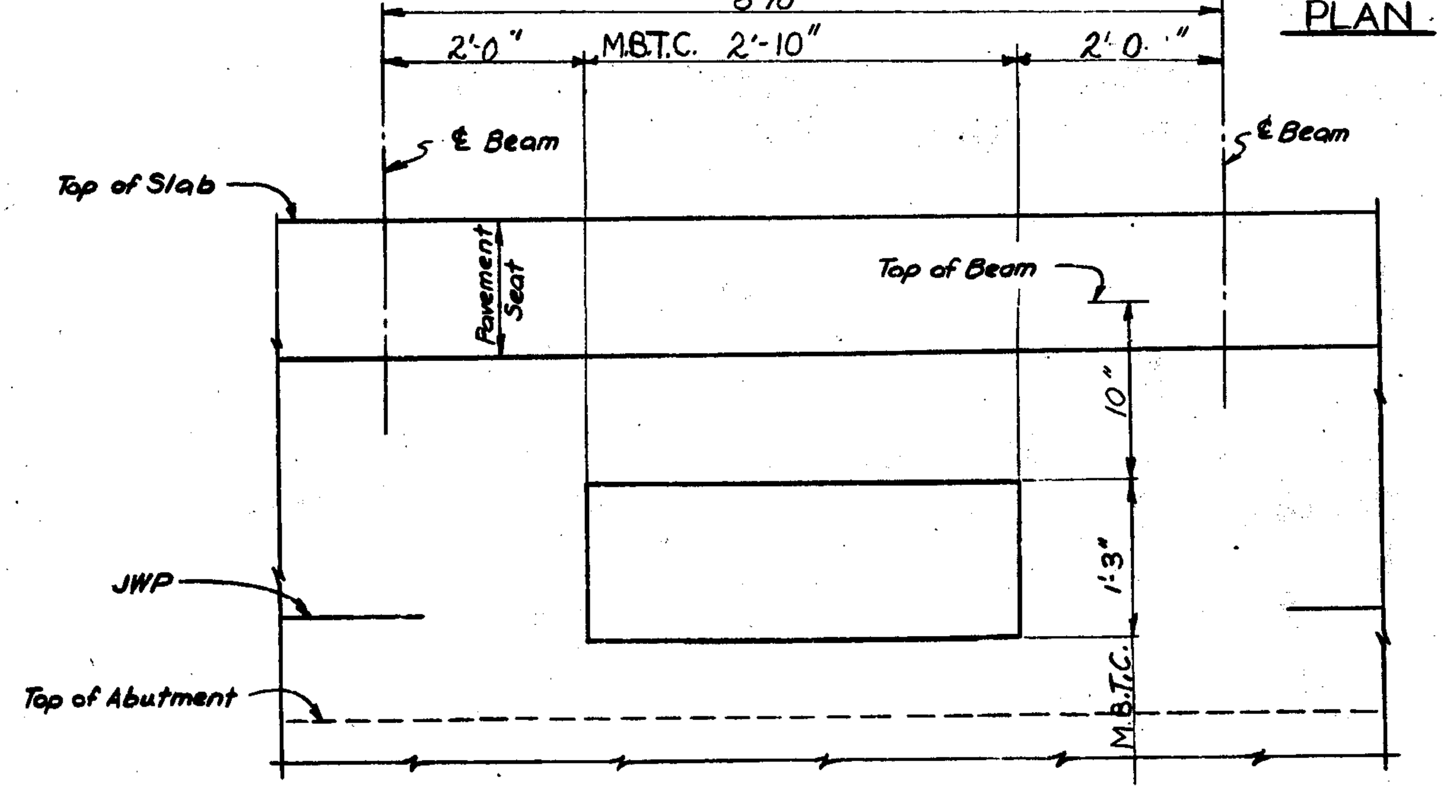
U3 (10-20-69)



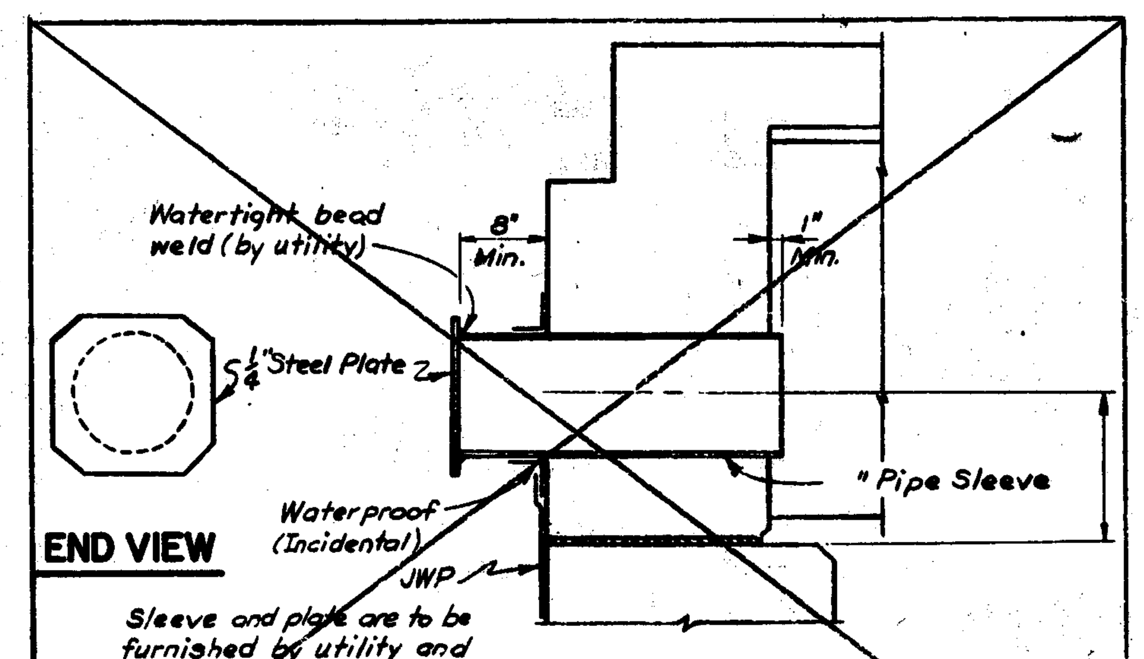
PLAN



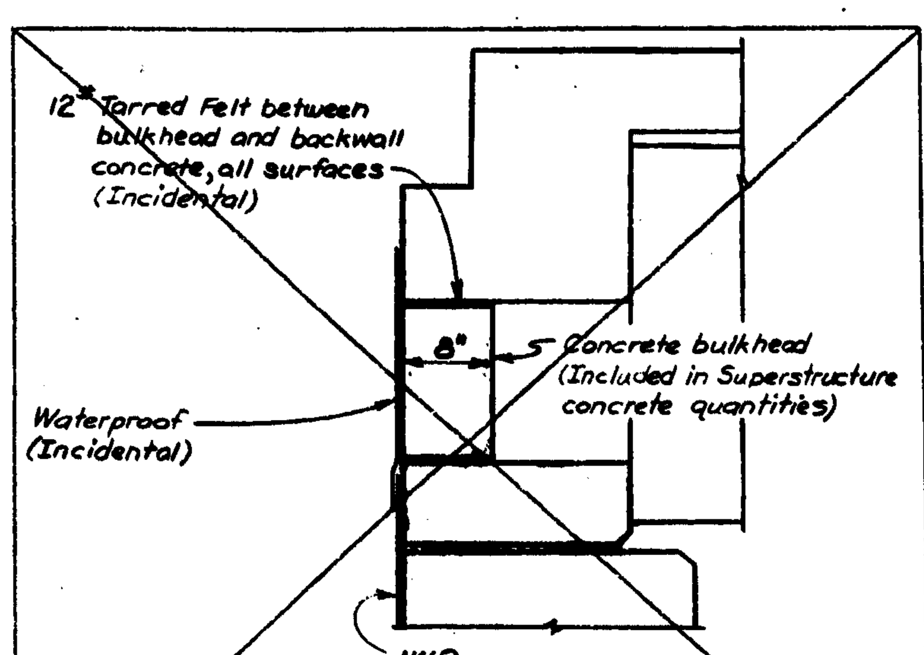
SECTION THRU BEAMS



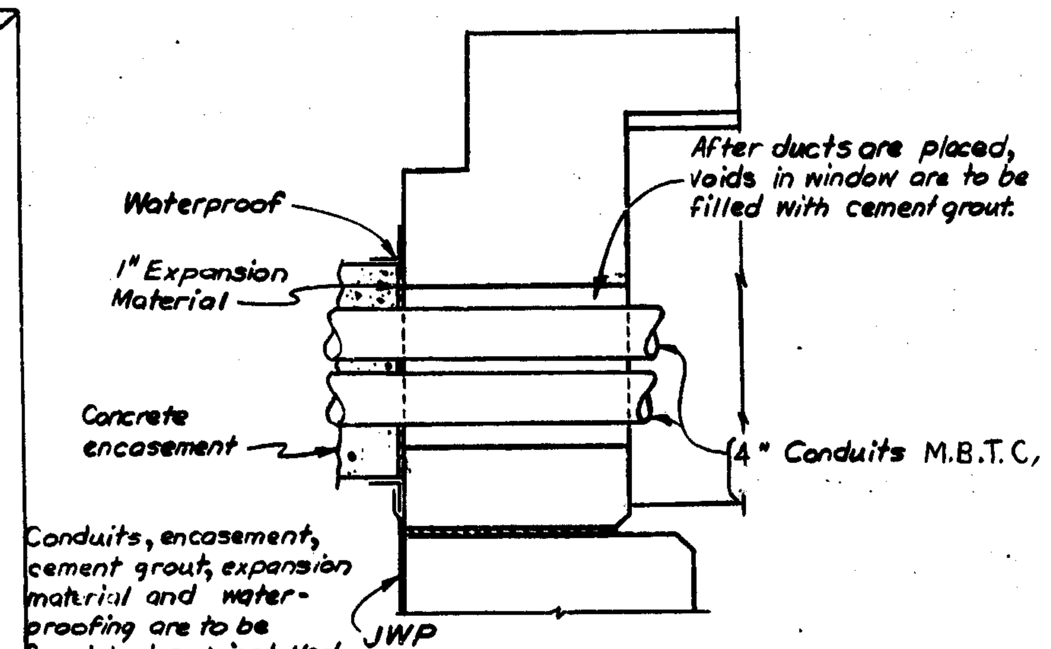
ELEVATION OF BACKWALL WINDOW
(℄ 90° to Beam Lines)



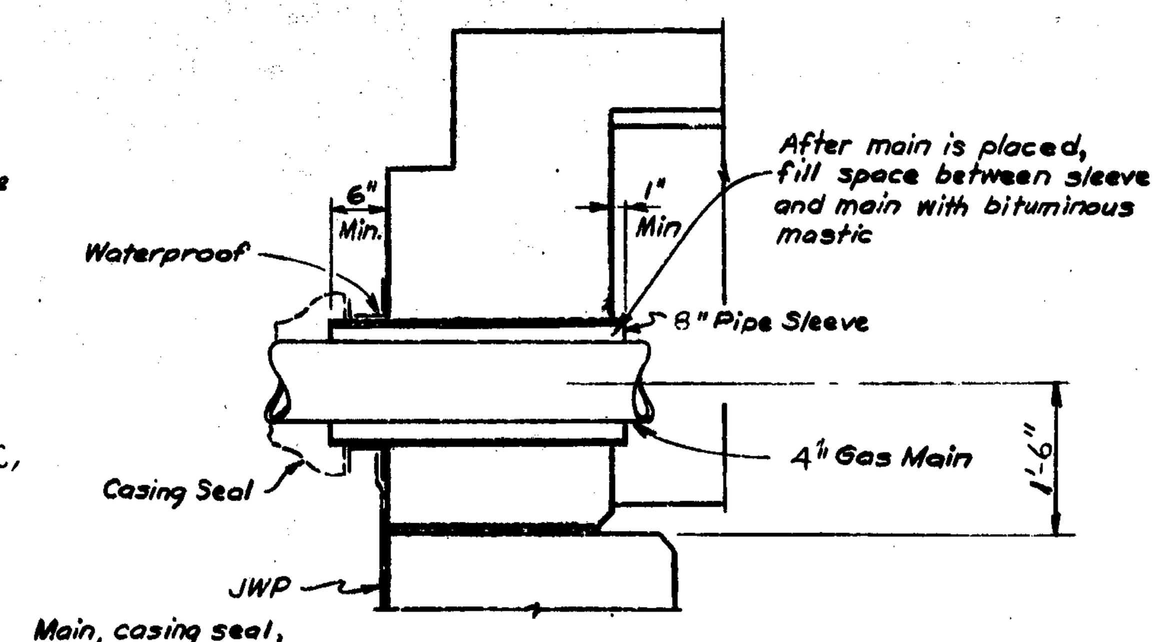
SECTION THRU PIPE SLEEVE IN BACKWALL FOR FUTURE MAIN
(Parallel to Beams)



SECTION THRU WINDOW IN BACKWALL FOR FUTURE PIPES
(Parallel to Beams)



SECTION THRU WINDOW IN BACKWALL
(Parallel to Beams)



SECTION THRU PIPE SLEEVE IN BACKWALL
(Parallel to Beams)

MISCELLANEOUS QUANTITIES

UTILITY	ITEM	UNIT	AMOUNT
Mich. Bell Tel. Co.	5/8" ϕ Conc. Inserts	each	210
Consumer Power Co.	8" ϕ Pipe Sleeve - Placed	each	2

NOTES:

Furnishing and installing telephone conduits including all incidental work necessary for installation are not a part of this contract. Installation of ducts shall be in accordance with the manufacturer's and telephone company's recommendations.

Installation of inserts, pipe sleeves and forming of windows through backwalls and diaphragms is included in this contract. All other work shown is not a part of this contract.

Furnishing and installing Gas Main including all incidental work necessary for installation are not a part of this contract.

Adjust the spacing of concrete inserts to clear intermediate and end diaphragms.

The item JWP (Joint Waterproofing) is a pay item and is included as such elsewhere in these plans.

Waterproof denotes waterproofing with four moppings of asphaltic roofing cement containing not more than 2.5% by weight of short fiber asbestos.

The contractor shall advise the District Utility Engineer as soon as the structure is ready for installation of conduits or main in bridge.

Items shown to be galvanized are to be galvanized steel (ASTM A-153)

Work this sheet with sheets No. 4+11

MICHIGAN STATE HIGHWAY DEPARTMENT

UTILITY DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

DESIGNED BY	Fisher	6-4-69
DRAWN BY	T. Hicks	2-25-69
TRACED BY		
CHECKED BY	T. Taylor	3-26-69
SHEET	19 of 20	

S30 of 63174B

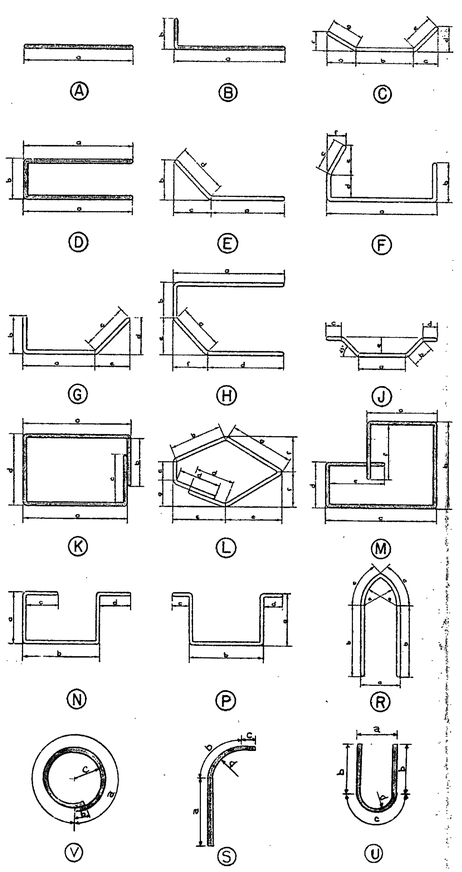
U4 (10-6-65)

	BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
ABUT. A&B	A1	37'-0"							6	37'-0"	52	2891
	A2	19'-4"							9	19'-4"	104	5065
	A3	10'-3"							9	10'-3"	102	3560
	A4	7'-9"							6	7'-9"	138	1601
	A5	8'-6"							9	8'-6"	90	2601
	A6	12'-0"							7	12'-0"	92	2259
	A7	8'-3"							6	8'-3"	92	1141
	A8	4'-9"							6	4'-9"	92	653
	A9	15'-0"							6	15'-0"	92	2070
	A10	18'-3"							6	18'-3"	92	2521
	A11	35'-3"							4	35'-3"	104	2499
										Total		26801#
WINGWALLS 1,2,3,4	A201	23'-6"							6	23'-6"	82	2895
	A202	25'-0"							6	25'-0"	26	976
	A203	14'-6"							7	14'-6"	64	1897
	A204	9'-0"							8	9'-0"	64	1538
	A205	7'-0"							6	7'-0"	144	1513
	A206	11'-0"							8	11'-0"	92	2702
	A207	5'-6"							6	5'-6"	62	512
	A208	12'-0							6	12'-0"	20	360
	A209	12'-9"							6	12'-9"	4	77
	A210	13'-6"							6	13'-6"	4	81
	A211	14'-0"							6	14'-0"	4	84
	A212	14'-9"							6	14'-9"	4	89
	A213	15'-3"							6	15'-3"	4	92
	A214	16'-0"							6	16'-0"	4	96
	A215	16'-6"							6	16'-6"	4	99
	A216	17'-3"							6	17'-3"	4	104
	A217	17'-9"							6	17'-9"	4	107
	A218	18'-6"							6	18'-6"	4	111
	A219	12'-0"							7	12'-0"	32	785
	A220	13'-0"							7	13'-0"	8	213
	A221	14'-0"							7	14'-0	8	229
	A222	14'-9"							7	14'-9"	8	241
	A223	15'-6"							7	15'-6"	8	253
	A224	16'-3"							7	16'-3"	8	266
	A225	17'-3"							7	17'-3"	8	282
	A226	18'-0"							7	18'-0"	8	294
	A227	18'-9"							6	18'-9"	64	1802
	A228	2'-3"							6	2'-3"	4	14
	A229	3'-0"							6	3'-0"	4	18
	A230	3'-6"							6	3'-6"	4	21
	A231	4'-3"							6	4'-3"	4	26
	A232	5'-0"							6	5'-0"	4	30
	A233	5'-6"							6	5'-6"	4	33
	A234	6'-3"							6	6'-3"	4	38
	A235	7'-0"							6	7'-0"	4	42
	A236	7'-9"							6	7'-9"	4	47
	A237	8'-6"							6	8'-6"	24	306
	A238	7'-9"							9	7'-9"	96	2530
	A239	14'-6"							9	14'-6"	96	4733
	A240	17'-0"							6	17'-0"	56	1430
	A241	2'-0"							6	2'-0"	8	24
	A242	3'-0							6	3'-0"	8	36
	A243	3'-9"							6	3'-9"	8	45
	A244	4'-9"							6	4'-9"	8	57
	A245	5'-9"							6	5'-9"	8	69
	A246	6'-6"							6	6'-6"	8	78
	A247	7'-3"							6	7'-3"	8	87
	A248	8'-3"							6	8'-3"	32	396
	A249	21'-6"							9	21'-6"	66	809
	A250	14'-6"							9	14'-6"	8	78
	A251	11'-0"							9	11'-0"	8	59
	A252	8'-0"							9	8'-0"	8	43
	A253	4'-6"							9	4'-6"	8	24
	A254	19'-0"							9	19'-0"	8	102
	A255	25'-0"							9	25'-0"	96	1603
	A256	21'-0"							9	21'-0"	8	112
	A257	17'-9"							9	17'-9"	8	95
	A258	14'-0"							9	14'-0"	8	75
	A259	10'-9"							9	10'-9"	8	57
	A260	7'-9"							9	7'-9"	8	41
	A261	20'-3"							9	20'-3"	8	108
	D201	6'-0¾"	1'-0						6	13'-0"	6	117
										Total		31,076#

	BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
BARRIER	A95	14'-0"							4	14'-0"	52	486
	A96	1'-6"							4	1'-6"	38	38
	D95	6'-5"	0'-6"						4	13'-3	36	319
										Total		843#
PIER	A51	35'-3"							6	35'-3"	14	741
	A52	7'-6"							6	7'-6"	47	530
	A53	7'-9"							6	7'-9"	90	1049
	A54	33'-9"							4	33'-9"	20	451
	A55	5'-8"							9	5'-8"	70	1399
	A56	12'-6"							9	12'-6"	60	2550
	A57	25'-9"							10	25'-9"	18	1994
	A58	25'-9"							6	25'-9"	2	77
	A59	39'-6"							6	39'-6"	2	119
	A60	23'-6"							10	23'-6"	36	3640
	A61	21'-6"							6	21'-6"	4	129
	D51	1'-0¾"	2'-5½"						4	4'-6"	7	21
	K51	3'-2¾"	1'-9½"	1'-9¾"	2'-5¾"				6	12'-5"	54	1007
	S51	11'-3"	1'-3"	2'-6"	0'-9"				9	15'-0"	10	510
	U51	2'-3½"	1'-3"	3'-6"	1'-1"				6	6'-0"	6	54
	V51	6'-3½"	0'-11½"	0'-11¾"					4	7'-3"	50	242
										Total		14,463#

	BAR	a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
SUPERSTRUCTURE	A101	35'-0"							6	35'-0"	1040	54673
	A102	39'-9"							6	39'-9"	152	6302
	A103	39'-3"							4	39'-3"	140	3671
	A104	39'-9"							6	39'-9"	8	478
	A105	39'-9"							4	39'-9"	94	1021
	A106	32'-0"							5	32'-0"	228	7611
	A107	31'-9"							4	31'-9"	210	4454
	A108	14'-0"							6	14'-0"	27	568
	A109	15'-0"							6	15'-0"	18	406
	A110	32'-3"							6	32'-3"	16	775
	A111	30'-6"							6	30'-6"	8	366
	A112	23'-3"							6	23'-3"	8	279
	A113	31'-3"							6	31'-3"	4	188
	B101	7'-1"	0'-8½"						4	7'-9	260	1347
	D101	0'-6½"	1'-2½"						4	2'-2"	520	749
	D102	2'-10⅝"	0'-7⅛"						6	6'-3	258	2423
	K101	3'-4"	1'-0"	1'-1½"	1'-3½"				4	10'-0"	16	107
	K102	0'-10¾"	0'-6¼"	0'-6"	0'-8¼"				4	3'-5"	500	1190
	M101	0'-10¼"	2'-3¼"	1'-3½"	2'-4½"	0'-11½"	1'-5¼"		4	10'-1"	66	995
										Total		87003

BAR BENDING DIAGRAM



Notes:

Tolerances in cutting & bending bars are as established in Manual of Standard Practice of the Concrete Reinforcing Steel Institute & Detailing Manual of the American Concrete Institute.

Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 160,186 #

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

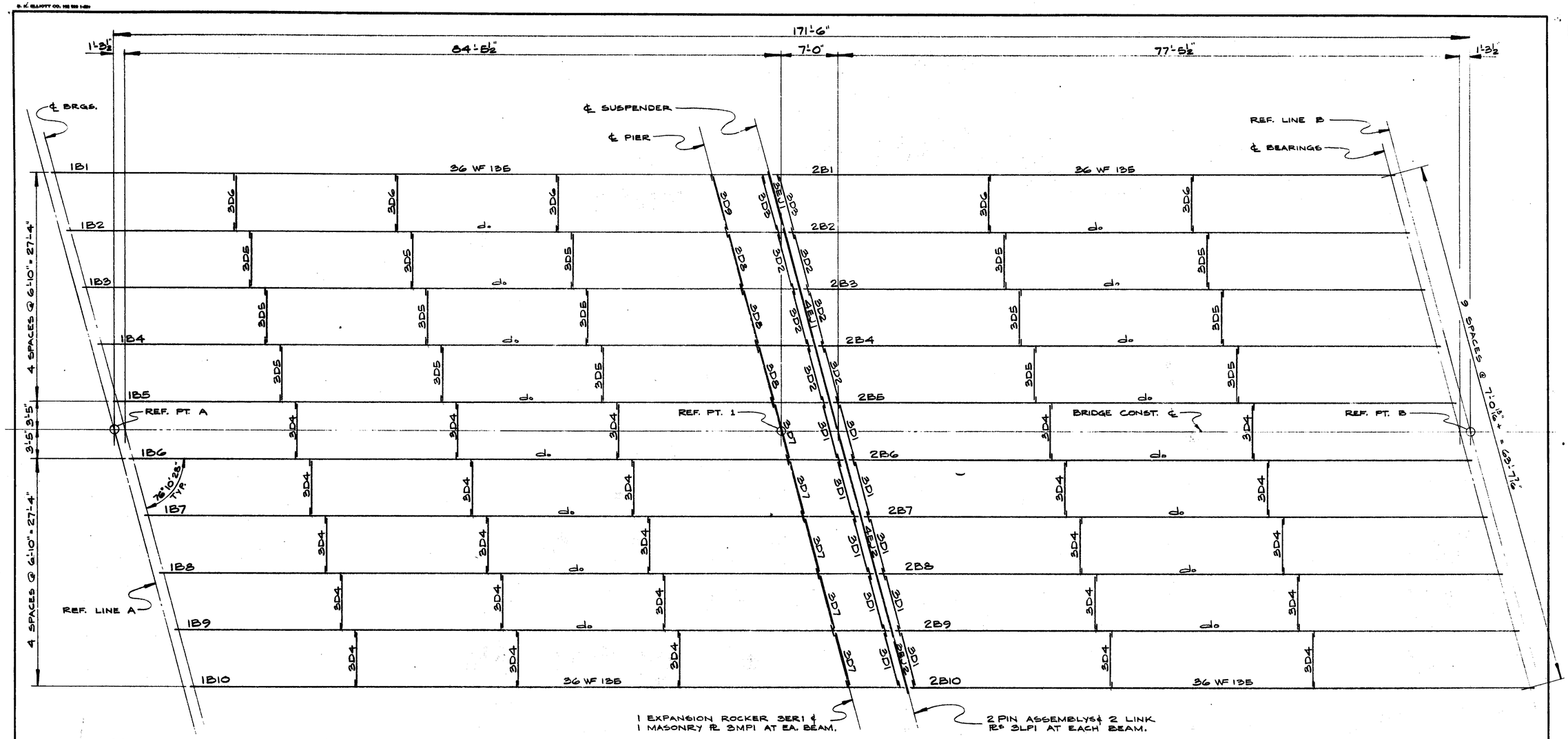
STEEL REINFORCEMENT DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS FISHER 6-4-69
DRAWN BY WARTMAN 4/30/69
TRACED BY
CHECKED BY Taylor 5-6-69
SHEET 20 OF 20

S30 of 63174 B



N

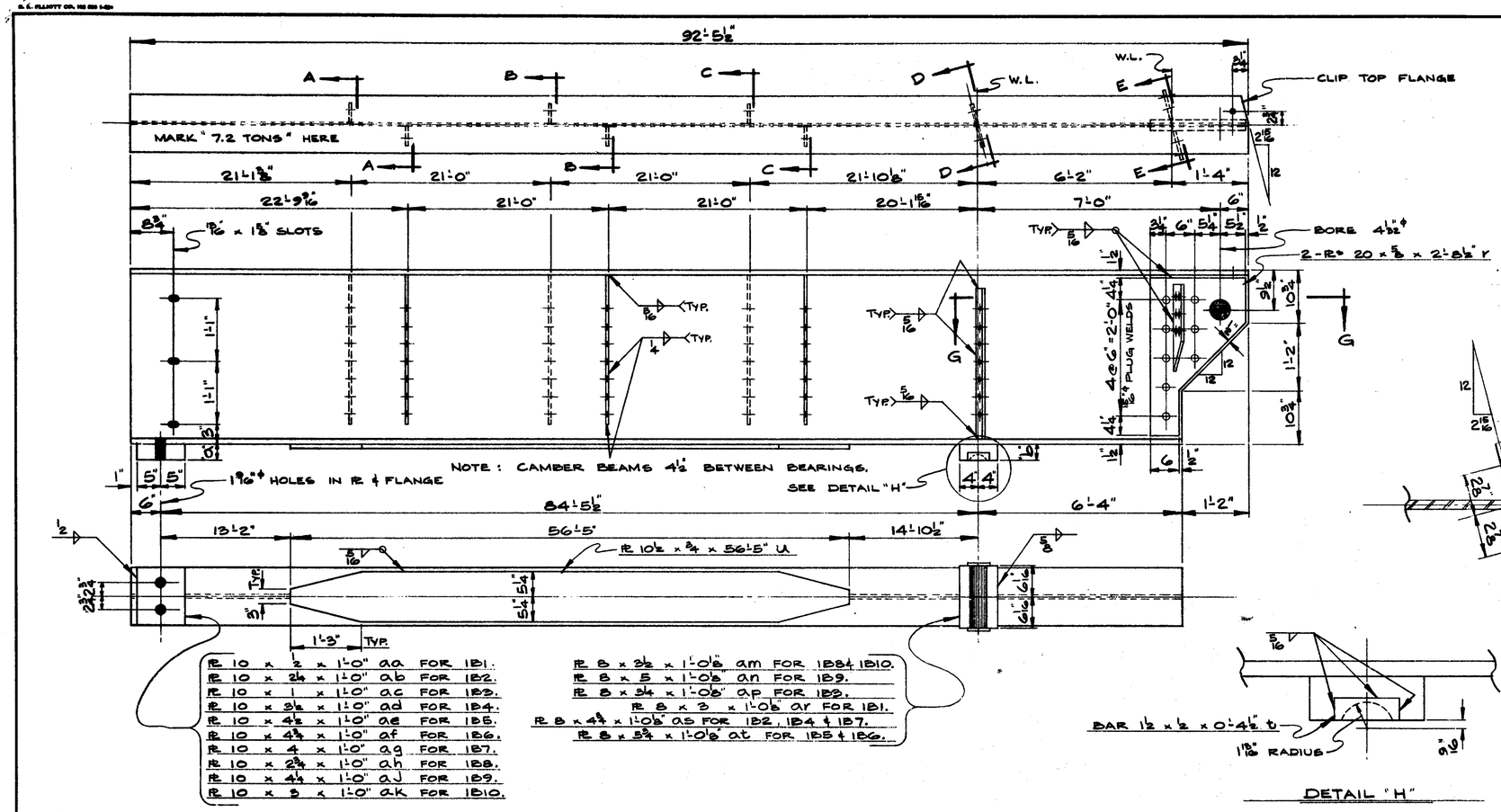
ERECTION DIAGRAM

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. - PORT HURON, MICH

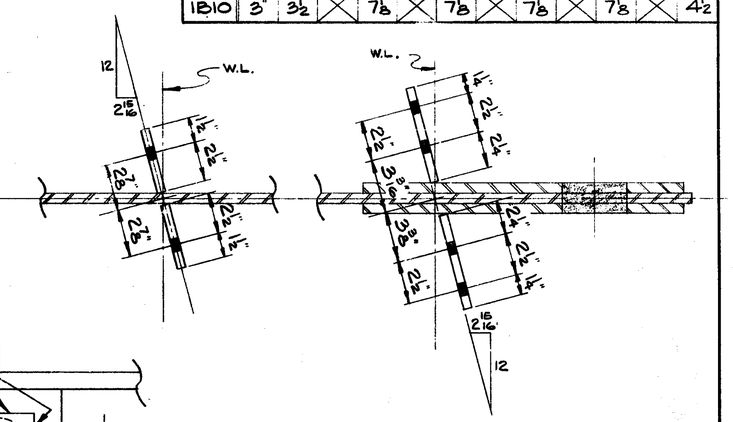
BRIDGE 530 OF 63174 B
10½ MILE ROAD (LINCOLN AVE.) OVER I75 IN THE CITY OF ROYAL OAK.
MIDWEST BRIDGE CO., CONT'R.

DATE 2-27-70	JOB NO. S5008	SHEET E1
BY JM		



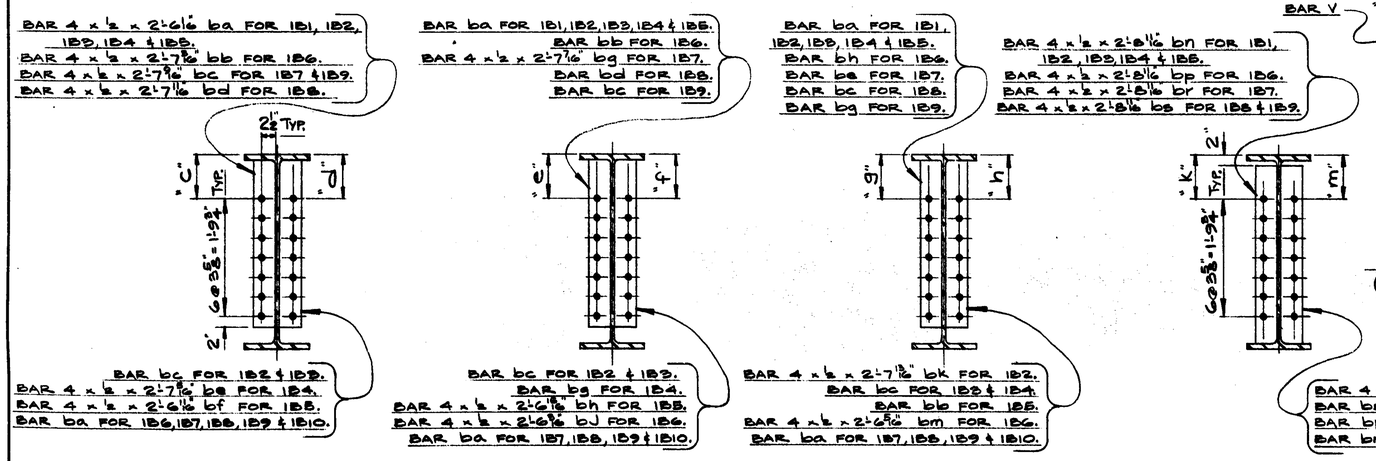
10 BEAMS REQ'D. AS SHOWN & NOTED (36 WF 135. x 92'-5½") MARK 1B1 THRU 1B10

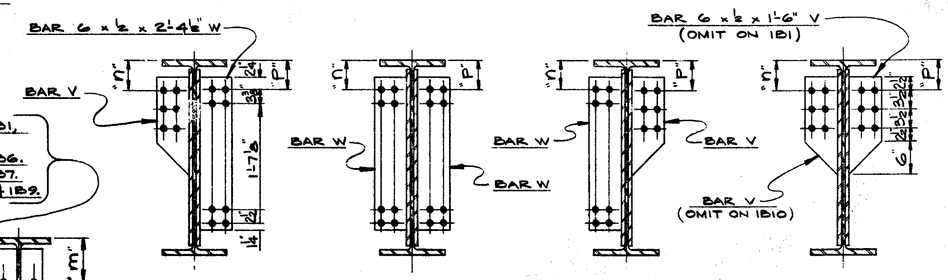
	"a"	"b"	"c"	"d"	"e"	"f"	"g"	"h"	"k"	"m"	"n"	"p"
1B1	½"	3"	7⅛"	X	7⅛"	X	7⅛"	X	7⅛"	X	4½"	X
1B2	2¼"	4¾"	7⅛"	8⅝"	7⅛"	8⅝"	7⅛"	8⅞"	7⅛"	8⅞"	4¼"	6¼"
1B3	1"	3¼"	7⅛"	8⅝"	7⅛"	8⅝"	7⅛"	8⅝"	7⅛"	8⅝"	4¼"	5¾"
1B4	3½"	4¾"	7⅛"	8⅜"	7⅛"	8½"	7⅛"	8⅝"	7⅛"	8⅝"	4¼"	5¾"
1B5	4½"	5¾"	7⅛"	7¾"	7⅛"	8"	7⅛"	8¼"	7⅛"	8⅛"	4½"	5¼"
1B6	4¾"	5¾"	8¼"	7⅛"	8¼"	7¼"	8"	7⅜"	8⅛"	7⅛"	5½"	4½"
1B7	4"	4¾"	8⅝"	7⅛"	8½"	7⅛"	8⅝"	7⅛"	8½"	7⅛"	5⅞"	4½"
1B8	2¾"	3½"	8¾"	7⅛"	8¾"	7⅛"	8⅝"	7⅛"	8⅝"	7⅛"	6"	4½"
1B9	4¼"	5"	8⅝"	7⅛"	8⅝"	7⅛"	8½"	7⅛"	8⅝"	7⅛"	6⅛"	4½"
1B10	3"	3½"	X	7⅛"	X	7⅛"	X	7⅛"	X	7⅛"	X	4½"



SECTION G-G

DETAIL "H"





SECTION E-E (FOR 1B8 ONLY)

SECTION E-E (FOR 1B3 & 1B4)

SECTION E-E (FOR 1B2 ONLY)

SECTION E-E (FOR 1B1 & 1B6 THRU 1B10)

REVISION			
NO.	DESCRIPTION	DATE	BY

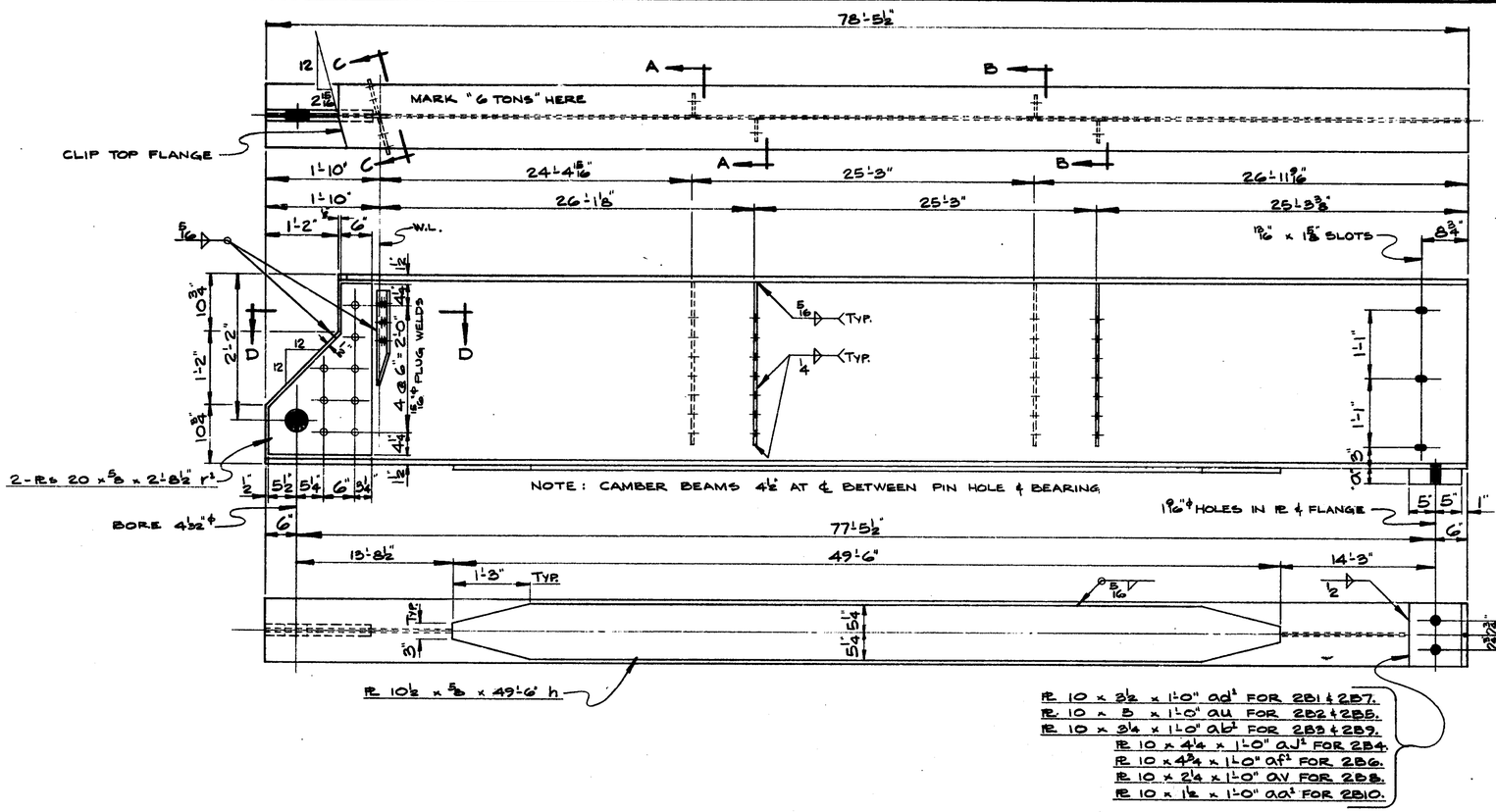
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

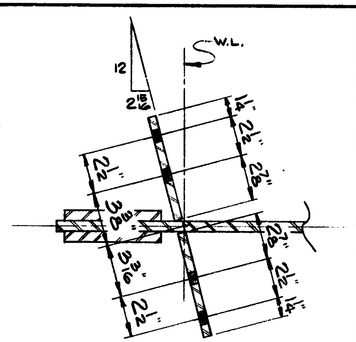
BRIDGE 530 OF 63174 B

10½ MILE ROAD (LINCOLN AVE.) OVER I75 IN THE CITY OF ROYAL OAK.

MIDWEST BRIDGE CO., CONT'R.

DATE	JOB NO.	SHEET
2-25-70 BY DAM	S5008	1 OF 4



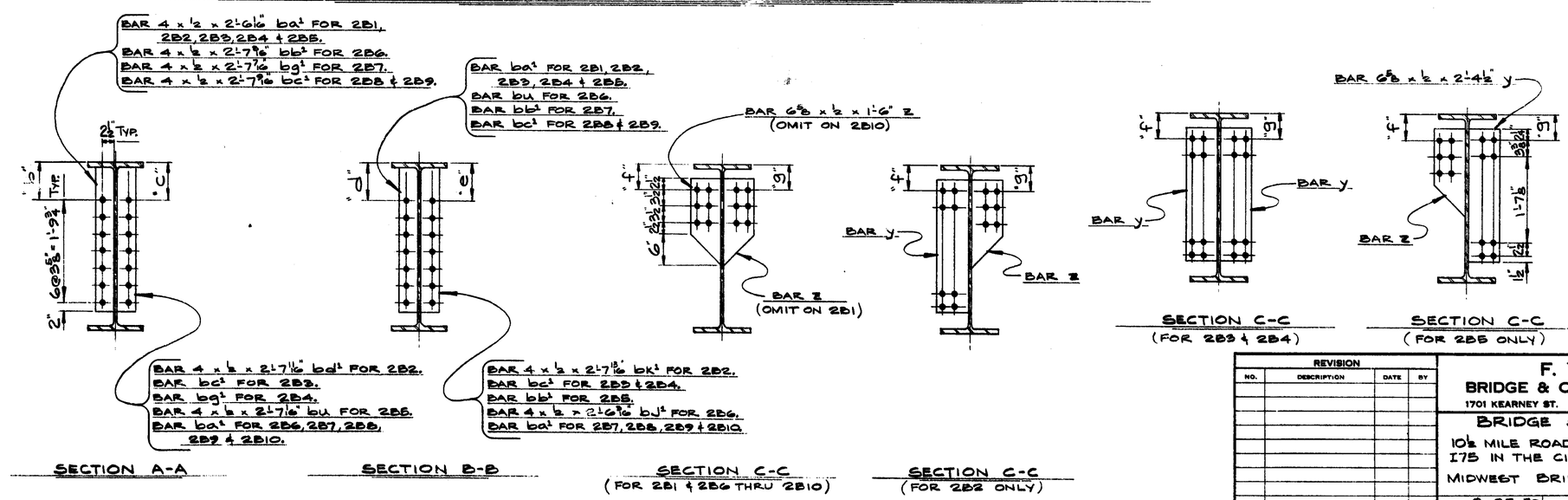


	"a"	"b"	"c"	"d"	"e"	"f"	"g"
2B1	3½"	7⅛"	X	7⅛"	X	4½"	X
2B2	5"	7⅛"	8¾"	7⅛"	8⅞"	4¼"	6¼"
2B3	3¼"	7⅛"	8⅝"	7⅛"	8⅝"	4¼"	5¾"
2B4	4¼"	7⅛"	8½"	7⅛"	8⅝"	4¼"	5¾"
2B5	5"	7⅛"	8⅛"	7⅛"	8¼"	4½"	5¼"
2B6	4¾"	8¼"	7⅛"	8⅛"	7¼"	5½"	4½"
2B7	3½"	8½"	7⅛"	8¼"	7⅛"	5⅞"	4½"
2B8	2¼"	8⅝"	7⅛"	8⅝"	7⅛"	6"	4½"
2B9	3¼"	8⅝"	7⅛"	8⅝"	7⅛"	6⅛"	4½"
2B10	1½"	X	7⅛"	X	7⅛"	X	4½"

SHOP NOTES

FABRICATE PER M.D.S.H. 1967 SPECIFICATIONS.
ALL STRUCTURAL STEEL SHALL BE UNPAINTED A.S.T.M. A-588 UN.
OPEN HOLES 19/16"ϕ UNLESS OTHERWISE NOTED.
ALL BEAMS SHALL BE CAMBERED 4½". THIS CAMBER IS TO BE MEASURED WITH THE BEAM LYING ON ITS SIDE. CAMBER TOLERANCE IS ± ¼".
MAGNETIC PARTICLE INSPECTION OF WELDS IS REQ'D.
FASCIA BEAMS ONLY SHALL BE BLAST CLEANED.
ANCHOR BOLTS ARE TO BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. DESIGNATION A-153. ALL STEEL BEARING MATERIAL, EXCEPT THE PORTION WELDED TO BEAMS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. DESIGNATION A-123, AFTER FABRICATION.
BEAMS TO BE PROVIDED WITH LIFTING LUGS FOR HANDLING PURPOSES. SEE SHEET DL1 FOR DETAILS.
HIGH-STRENGTH BOLTS, NUTS & WASHERS SHALL BE A.S.T.M. A325, CORROSION RESISTANT.
MARK ALL BEAMS & DIAPHRAGMS @ LEFT END ON TOP SURFACE OF TOP FLANGE.
SINGLE PASS FILLET WELDS ⅜" OR SMALLER, MAY BE MADE WITH CONVENTIONAL ELECTRODES & FLUX. FILLET WELDS OVER ⅜" SHALL CONFORM TO THE ANALYSIS OF ONE OF THE GRADES OF STEEL SPECIFIED IN A.S.T.M. A588.
SEE SHEET P1 FOR SUSPENSION PIN DETAILS.

10 BEAMS REQ'D. AS SHOWN & NOTED 36WF 135 x 78'-5½") MARK 2B1 THRU 2B10



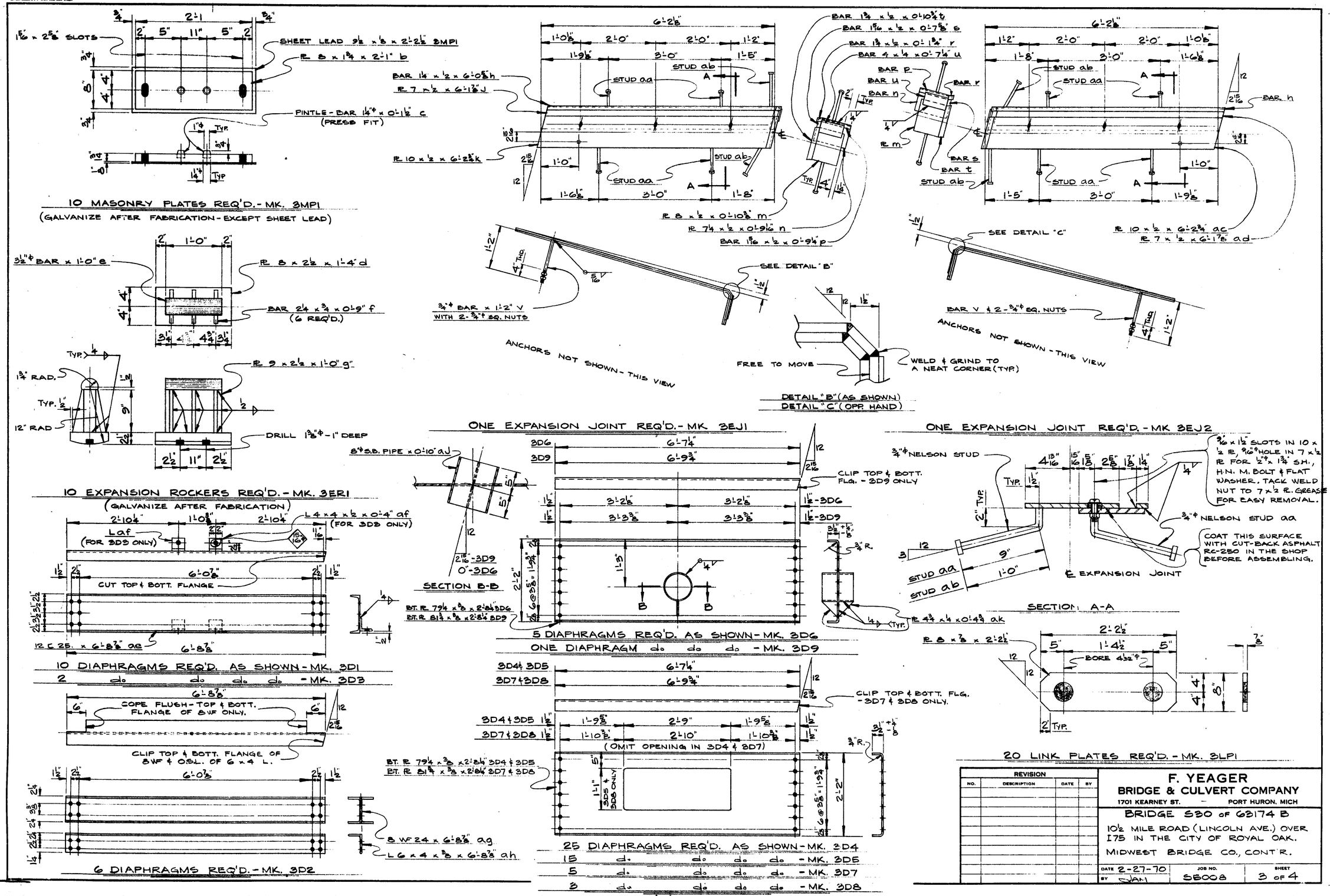
REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

BRIDGE 520 OF 68174 B
10½ MILE ROAD (LINCOLN AVE.) OVER I75 IN THE CITY OF ROYAL OAK.
MIDWEST BRIDGE CO., CONT'R.

DATE	JOB NO.	SHEET
2-25-70	55008	2 OF 4

BY JAM



REVISION			
NO.	DESCRIPTION	DATE	BY

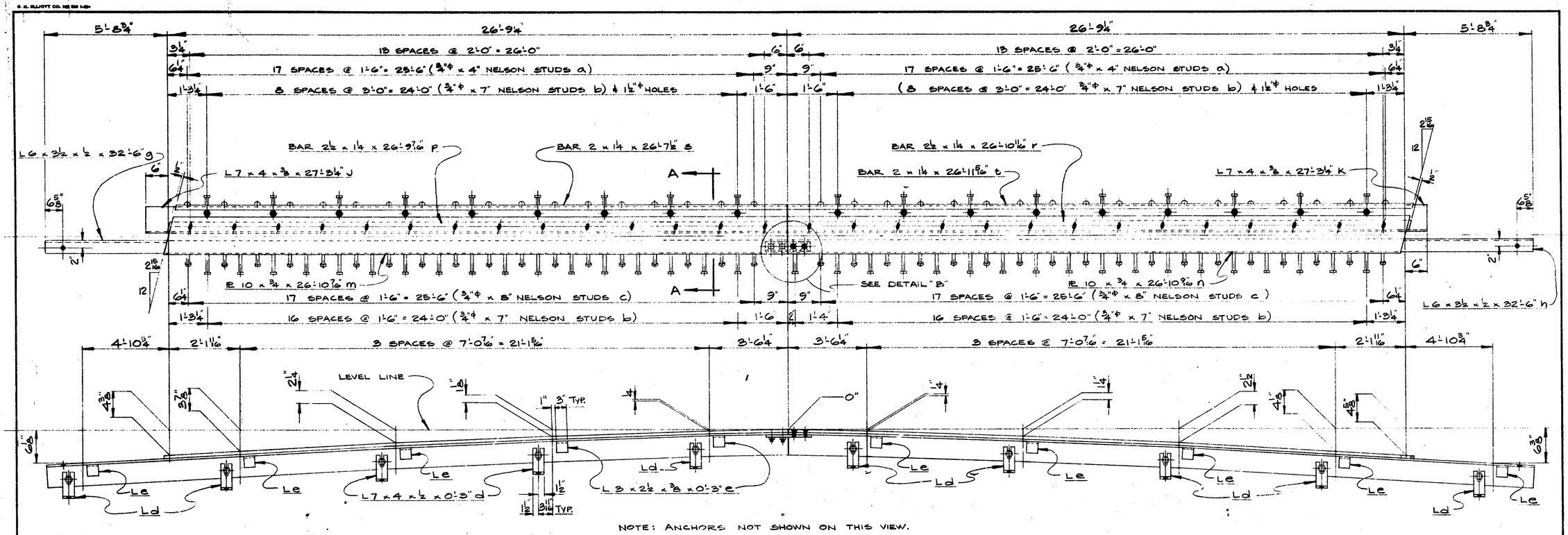
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH

BRIDGE 530 OF 63174 B

10 1/2 MILE ROAD (LINCOLN AVE.) OVER I75 IN THE CITY OF ROYAL OAK.

MIDWEST BRIDGE CO., CONT'R.

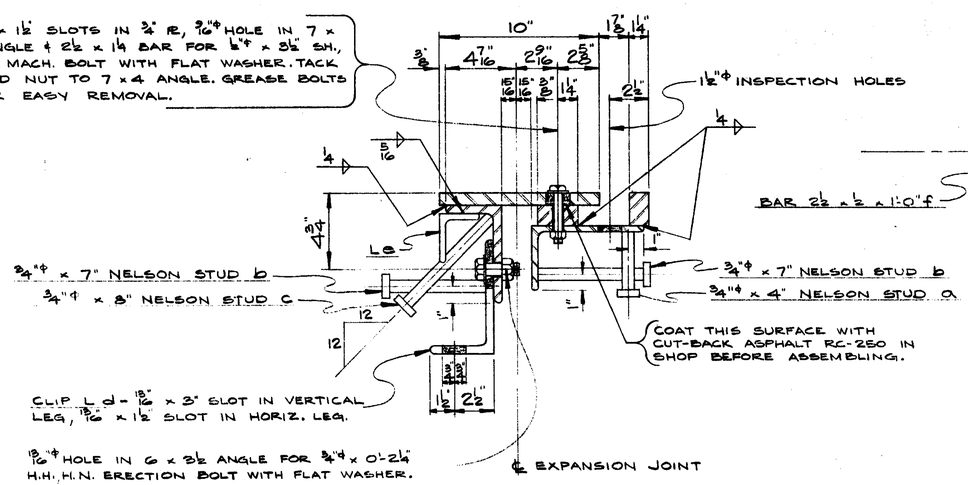
DATE 2-27-70	JOB NO. 56008	SHEET 3 OF 4
BY SJM		



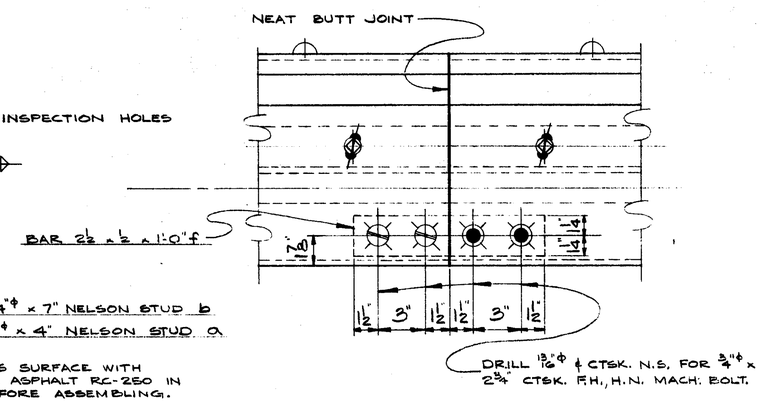
NOTE: ANCHORS NOT SHOWN ON THIS VIEW.

ONE EXPANSION JOINT REQ'D. - MK. 4EJ1

ONE EXPANSION JOINT REQ'D. - MK. 4EJ2



SECTION A-A



DETAIL "B"

FIELD MATERIAL

SHIP	COUNT	
50	48	- ¾"φ x 2" HEX HD., HEX NUT WEATHER-R HI-STRENGTH BOLTS.
995	948	- ¾"φ x 2¼" do , do do do do .
1045	996	- ¾"φ HARDENED FLAT WEATHER-R WASHERS.
	20	- 1"φ x 1'-2" SQ. HD., HEX NUT GALV. A-588 MACH. BOLTS.
	40	- 1"φ x 1'-8" do , do do do do do .
	60	- 1"φ GALV. A-588 4" PL WASHERS.
	10	- ¾"φ x 2½" HEX HD. , HEX NUT A-588 MACH. BOLT.
	2	- ¾"φ x 2¾" CTSK. FLAT HD. HEX NUT A-588 MACH. BOLT.
	20	- A-588 BAR 2 x ⅜ x 1'-0" (FIELD BEND & WELD TO EXPANSION JOINT AT EACH BEAM.)

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. – PORT HURON, MICH

BRIDGE S80 OF 68174 B
10½ MILE ROAD (LINCOLN AVE.) OVER I75 IN THE CITY OF ROYAL OAK.
MIDWEST BRIDGE CO., CONT'R.

DATE	JOB NO.	SHEET
2-27-70	55008	4 OF 4

BY JAH

S31 of 63174

CS: 63174

ID: S31

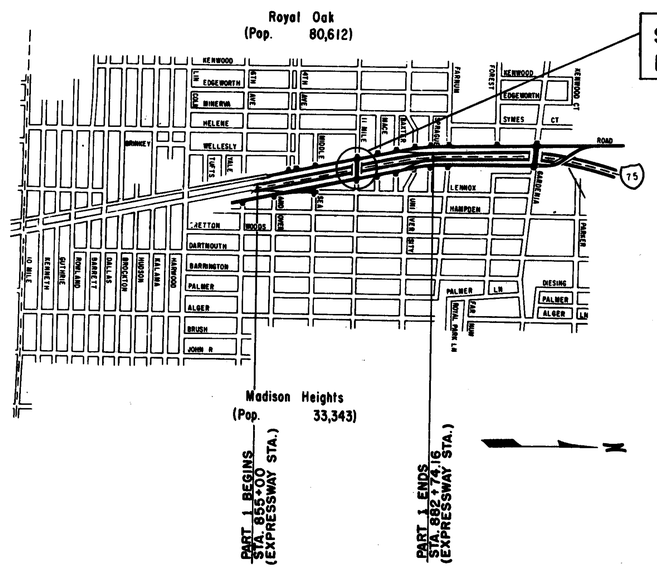
STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS

PLANS OF PROPOSED BRIDGES
MICHIGAN PROJECT I-75-2(92)62
STATE PROJECT I63174B, C61 (PART 2&3)
DETROIT - BAY CITY ROAD
CITIES OF ROYAL OAK & MADISON HEIGHTS
OAKLAND COUNTY

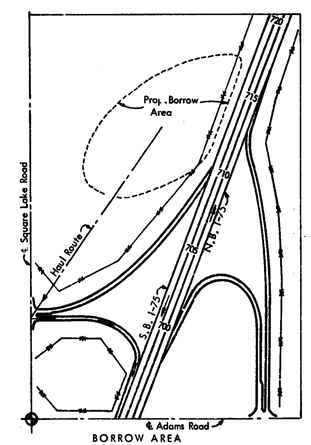
PLAN INDEX

S 31 of 63174 B	
SHEET NO.	DESCRIPTION
101	Title Sheet
102	General Plan of Site
103	Log of Borings
104	General Plan of Structure
105	Bill of Material
106	Abutment A & B Details
107	Pier 1 & 3 Details
108	Pier 2 Details
109-10-11	Superstructure Details
112	Light Details
113	Utility Details
114 & 115	Structural Steel Details
116	Shear Developer Details
117	Metal Expansion Joint Details
118	Steel Reinforcement Details
R11M or	Bridge Railing, Drain Casting
R 12 J	Bar Chair, Molding & Bevel Details

D 07 of 63174 B	
201	General Plan of Site
202	General Plan of Structure
203	Bill of Material
204 & 205	Sump Details
206	Boiler Room Details
207 & 208	Machine Room Details
209	Roof Details
210	Miscellaneous Details
211	Electrical and Mechanical Details
212	Steel Reinforcement Details
213	Permanent Sump



S31 of 63174B BRIDGE —PART 2
D07 of 63174B PUMPHOUSE-PART 3



BORROW AREA

Location: That part of the S 1/2 of the S.E. 1/4 of Sec. 1, T 2 N, R 10 E, Bloomfield Township Oakland County, that lies south of I-75 near the intersection of Adams Road and Square Lake Road.

Note: This area contains sufficient quantities to satisfy all granular borrow requirements. Other contractors may be using the area during the life of the contract. Excavation is to be carried out to lines and grades as directed by the Engineer.

GENERAL NOTES

Except where otherwise indicated on these Plans or in the Proposal and Supplemental Specifications contained therein, all materials and workmanship shall be in accordance with the Michigan Department of State Highways' Standard Specifications for Road and Bridge Construction, 1965 Edition.

The design of this structure is based on the Michigan Department of State Highways' Specifications for the design of Highway Bridges, 1958 Edition H20-44 Loading. Live load plus impact deflection = 1/800 of span length and 1/300 cantilever arm.

The character of all materials and the extent thereof as shown by borings has been obtained by methods and from sources believed to be reliable. The exactness of this information is, however, in no case guaranteed. Boring samples are on file in the Design Office at Lansing and are available for inspection.

All exposed concrete corners shown square on the Plans shall be beveled with 1.2" triangular moldings except as otherwise noted.

The stationing as shown on these Plans for the intersection of the centerline of bridge and roadway is believed to be correct. It shall, however, be checked at the time of starting construction and if the stationing shown on the plans is incorrect it shall be reported to the Design Office at Lansing and the structure shall be staked out using the actual intersection of the centerline of bridge and roadway as the control point.

CONSTRUCTED AS PER PLANS

TITLE SHEET

APPROACHES - SHEETS 1 to 42 Inclusive
PART 2 BRIDGE - SHEETS 101 to 118 Inclusive
PART 3 PUMPHOUSE- SHEETS 201 to 213 Inclusive

NOTE:
Where the following items are called for on the Plans, they are to be constructed according to the Standard Plan given below opposite each item, unless otherwise indicated.

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE
SP 2G	STANDARD SLOPE PAVING DETAILS

STANDARD PLANS NOT TO BE PRINTED

SHEET NO.	TITLE

ITEM NO. 757

CONTRACT FOR BRIDGE, APPROACHES & PUMPHOUSE

DIVISION APPROVAL

CHECKED — ENGINEER OF DESIGN — DATE 8-2-65
RECOMMENDED FOR APPROVAL — TRAFFIC ENGINEER — DATE 12-6-65
RECOMMENDED FOR APPROVAL — ENGINEER OF BRIDGE AND ROAD DESIGN — DATE 11-16-65

OFFICES OF DESIGN & CONSTRUCTION

APPROVED — CONSTRUCTION ENGINEER — DATE 12-7-65
APPROVED — CHIEF OF DESIGN AND TRAFFIC — DATE 12-8-65

DEPARTMENT OF STATE HIGHWAYS
HOWARD E. HILL - STATE HIGHWAY DIRECTOR

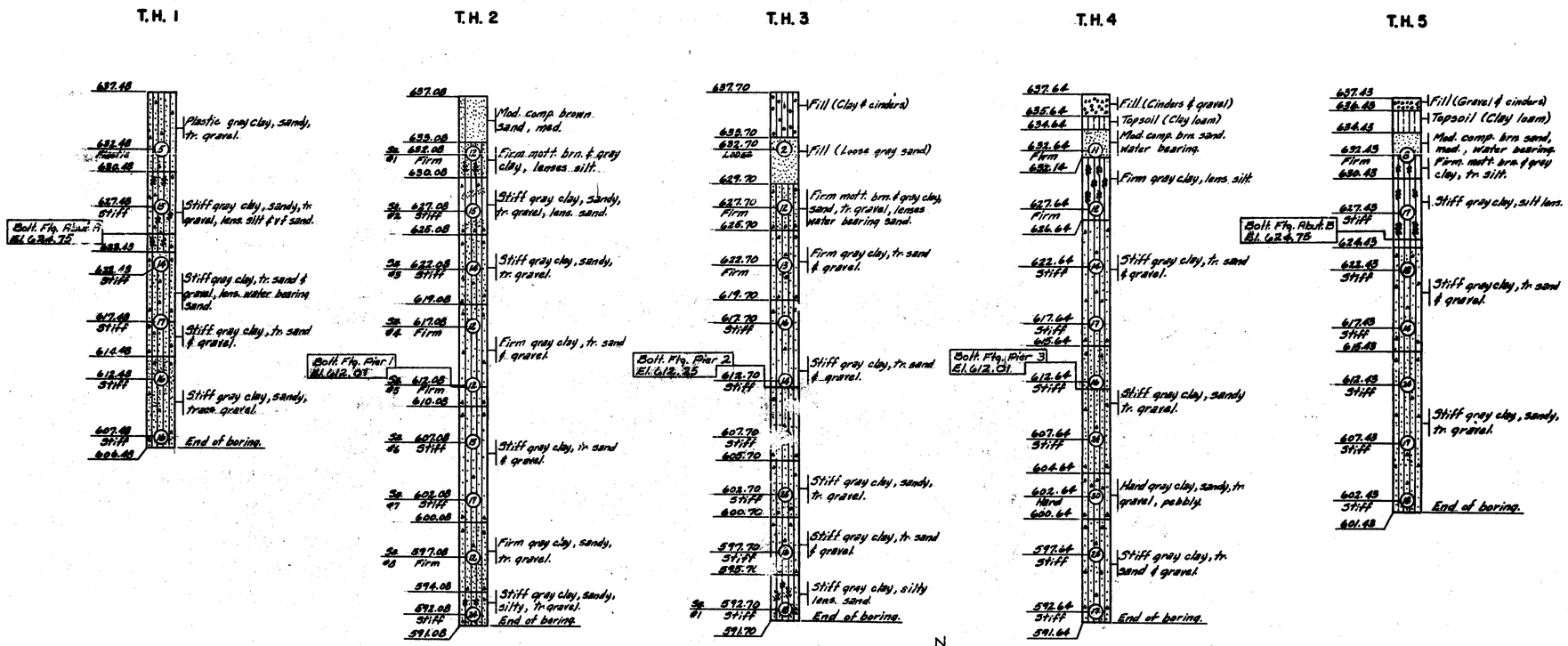
APPROVED BY — DIRECTOR OF ENGINEERING & CHIEF ENGINEER — DATE 12-8-65

PLANS PREPARED BY
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
SQUADS NOLAN LENTZ

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED [redacted]
FOR THE DIVISION ENGINEER — DATE

S 31 of 63174B [redacted]	STATE PROJECT NO.	FEDERAL PROJECT	SHEET NO.
			101

S31 of 63174B [redacted]
STATE PROJECT NO.



NOTES:

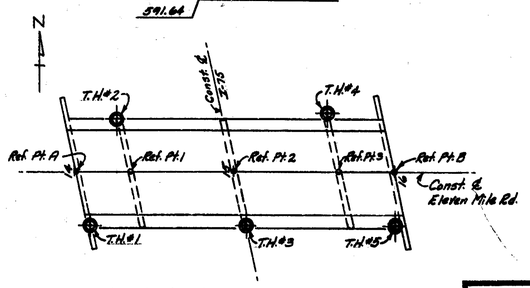
(5) Number in circle denotes number of blows required to drive a 2" O.D. - 1½" I.D. split spoon sampler 12" using a 140 lb. hammer falling 30".

Consistance of soil determined by inspection of samples and substantiated by soils resistance to B52 mobile drill.

WATER ELEVATIONS

T.H. #1	El. 629.48	18 #
T.H. #2	El. 602.08	24 #
T.H. #3	Dry	—
T.H. #4	Dry	—
T.H. #5	El. 607.43	On Completion

# Indicates No. of hrs. after completion of borings.



TEST HOLE LOCATION SKETCH

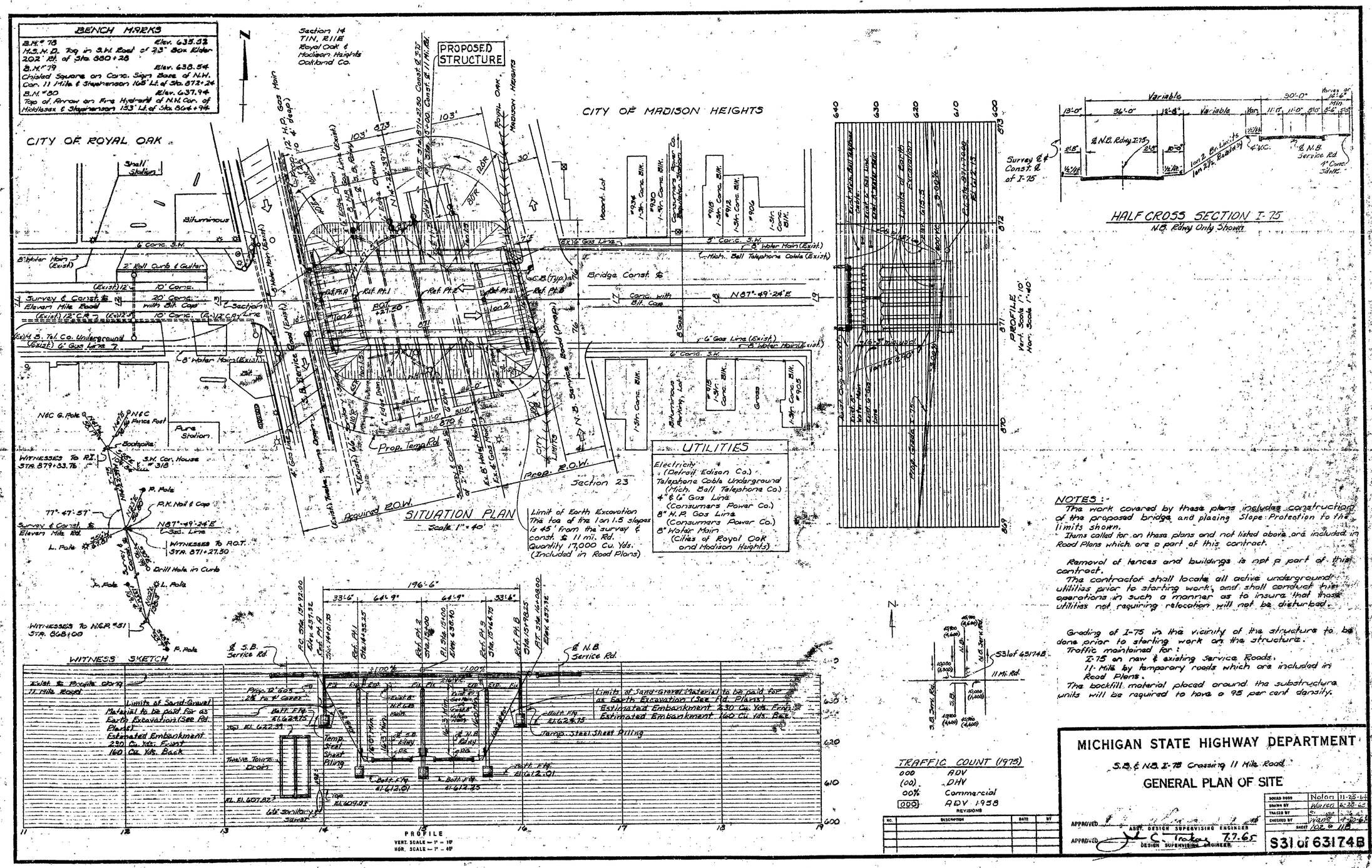
MICHIGAN STATE HIGHWAY DEPARTMENT

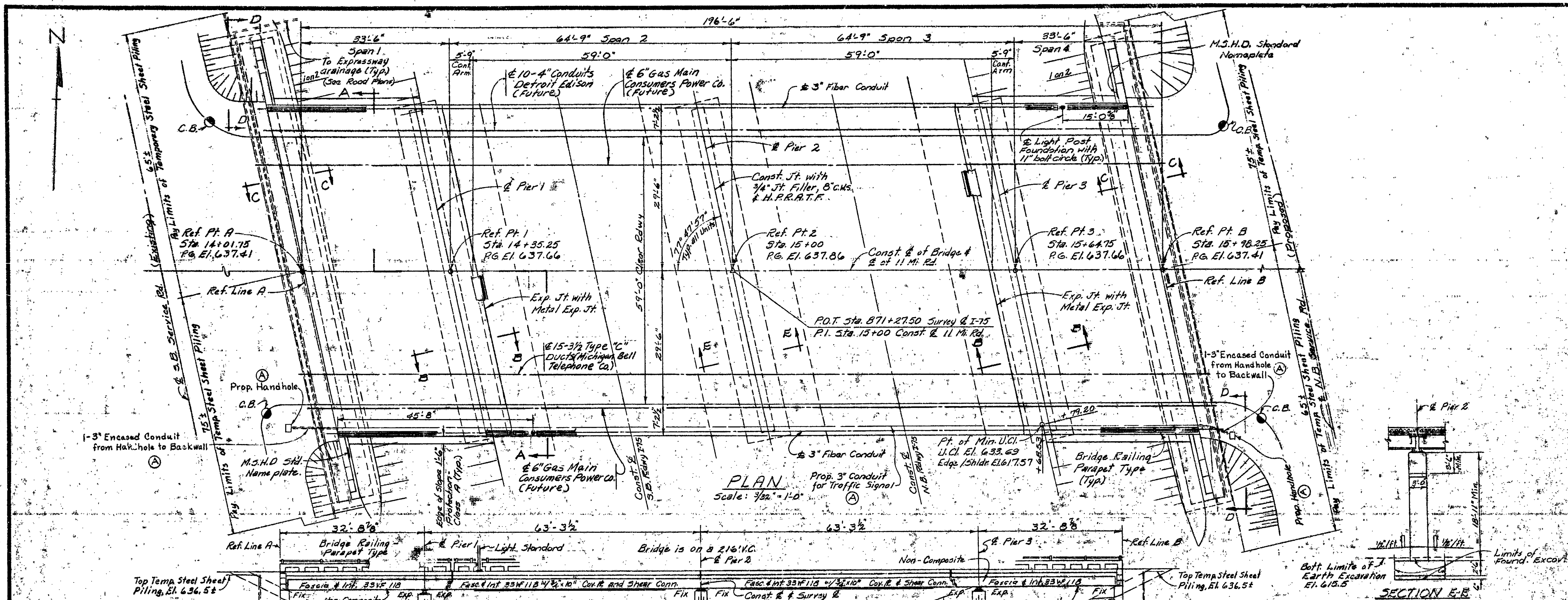
LOG OF BORINGS

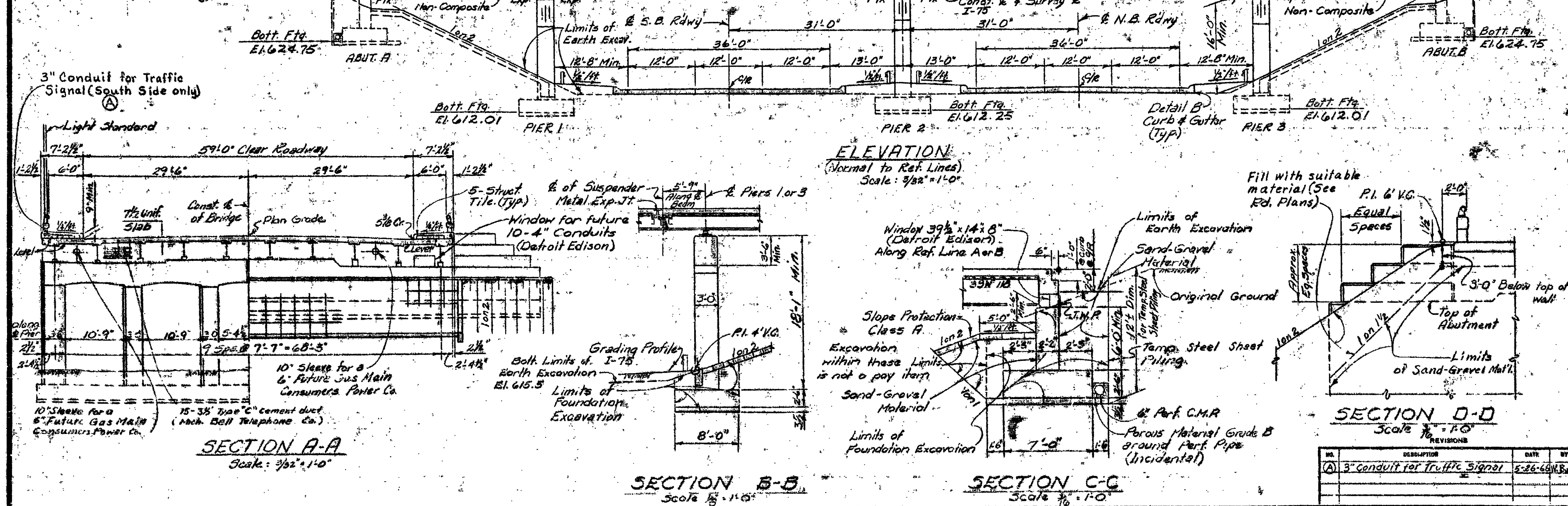
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Nolan	11-25-64
DRAWN BY	Warren	7-29-63
TRACED BY		
CHECKED BY		12-10-64
SHEET	103 of 118	

S31 of 63174B


BENCH MARKS
B.M. # 78 Elev. 635.32
M.S.H.D. Tag in S.W. Base of 23" Box Elder 202' Rt. of Sta. 880+28
B.M. # 79 Elev. 638.54
Chiseled Square on Conc. Sign Base of N.W. Cor. 11 Mile & Stephenson 105' Lt. of Sta. 872+24
B.M. # 80 Elev. 637.94
Top of Arrow on Fire Hydrant of N.W. Cor. of Middlesex & Stephenson 153' Lt. of Sta. 866+94
Section 14
T1N, R11E
Royal Oak &
Madison Heights
Oakland Co.
PROPOSED STRUCTURE
CITY OF ROYAL OAK
CITY OF MADISON HEIGHTS
Small Station
Bituminous
6" Conc. S.W.
8" Water Main (Exist)
2" Roll Curb & Gutter
Survey ℄ Const. ℄
Eleven Mile Road
20' Conc. with Bit. Cap
10' Conc.
Section Line
Bridge Const. ℄
Conc. with Bit. Cap
N87°-49'-24"E
Prop. Temp. Rd.
Prop. R.O.W.
Required R.O.W.
Section 23
Pure Station
UTILITIES
Electricity (Detroit Edison Co.)
Telephone Cable Underground (Mich. Bell Telephone Co.)
4" & 6" Gas Line (Consumers Power Co.)
8" H.P. Gas Line (Consumers Power Co.)
8" Water Main (Cities of Royal Oak and Madison Heights)
SITUATION PLAN
Scale 1" = 40'
Limit of Earth Excavation
The toe of the 1 on 1.5 slopes is 45' from the survey ℄ const. ℄ 11 mi. Rd.
Quantity 17,000 Cu. Yds.
(Included in Road Plans)
WITNESSES TO R.I. STA. 879+33.76
WITNESSES TO R.O.T. STA. 871+27.50
WITNESSES TO N.C.R. #51 STA. 868+00
WITNESS SKETCH
PROFILE
VERT. SCALE 1" = 10'
HOR. SCALE 1" = 40'
Limits of Sand-Gravel Material to be paid for as Earth Excavation (See Rd. Plans)
Estimated Embankment 230 Cu. Yds. Front
Estimated Embankment 160 Cu. Yds. Back
Temp. Steel Sheet Piling
Twelve Towns Drain
PROFILE
Vert. Scale 1" = 10'
Hor. Scale 1" = 40'
HALF CROSS SECTION I-75
N.B. Rdwy Only Shown
Survey ℄ Const. ℄ of I-75
℄ N.B. Rdwy I-75
℄ N.B. Service Rd.
NOTES:-
The work covered by these plans includes construction of the proposed bridge and placing Slope Protection to the limits shown.
Items called for on these plans and not listed above are included in Road Plans which are a part of this contract.
Removal of fences and buildings is not 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.
Grading of I-75 in the vicinity of the structure to be done prior to starting work on the structure.
Traffic maintained for:
I-75 on new & existing Service Roads.
11 Mile by temporary roads which are included in Road Plans.
The backfill material placed around the substructure units will be required to have a 95 per cent density.
TRAFFIC COUNT (1975)
000 ADV
(00) DHV
00% Commercial
000 ADV 1958
REVISIONS
MICHIGAN STATE HIGHWAY DEPARTMENT
S.B. & N.B. I-75 Crossing 11 Mile Road
GENERAL PLAN OF SITE
APPROVED ASST. DESIGN SUPERVISING ENGINEER
APPROVED DESIGN SUPERVISING ENGINEER
S31 of 63174B





MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Temporary Steel sheet Piling	Sq. Ft.	3400
* Slope Protection - Class A	Sq. Yds.	618
6" Perforated Corrugated Metal Pipe	Lin. Ft.	200
6" Corrugated Metal Pipe	Lin. Ft.	210

* Grouted Riprap shall not be used on this project.

NOTES:

The Contractor shall be responsible for providing adequate protection of bottoms and sides of the footing excavation against damage by personnel, equipment and water.

Top of roadway slab and tops of sidewalks are parallel to the vertical curve.

The design of this structure is based on the the M.S.H.D. standard Specifications for the Design of Highway Bridges - 1958 edition - H 20-44 Loading. Live load plus impact deflection = 1/800 of span length of suspended span and anchor span and 1/300 of cantilever arm.

The lateral pay limits of temporary steel sheet piling are as required and determined by the Engineer.

REVISIONS

NO.	DESCRIPTION	DATE	BY
(A)	3" Conduit for Traffic Signal	5-26-66	W. Bush

MICHIGAN STATE HIGHWAY DEPARTMENT

S.B. & N.B. I-75 crossing 11 Mile Rd.

GENERAL PLAN OF STRUCTURE

APPROVED ______ ASST. DESIGN SUPERVISING ENGINEER

APPROVED C. Trokas 7.7.65 DESIGN SUPERVISING ENGINEER

SQUAD BOSS	No. 04	1-25-64
DRAWN BY	Warren	9-16-64
TRACED BY		
CHECKED BY		4-26-64

SHEET 104 OF 118

S31 of 63174 B

ITEM	UNIT	QUANTITY	DATE	AS CONST		AUTH. NO.
Unclassified Excavation	Cu. Yds.	1070	3-6-68	1049.1	✓	1004
Temporary Steel Sheet Piling	Sq. Ft.	3400	3-6-68	3427	✓	1004
Grade A(LA) Concrete - Substructure	Cu. Yds.	338.6		338.6	✓	
Grade A(LAA) Concrete - Substructure	Cu. Yds.	291.6		291.6	✓	
Protective Sealant Coating for Concrete	Sq. Ft.	218	3-6-68	199	✓	1004
Grade A(LAA) Concrete - Superstructure	Cu. Yds.	459		459	✓	
Water-Reducing Retarding Admixture	Gal.	57	3-6-68	99.4	✓	1004
Concrete Inserts	Each	120		120	✓	
Steel Reinforcement	Lbs.	168,340		168340	✓	
Structural Steel - Furnishing & Fabricating	Lbs.	328,000	10-6-66	324008	✓	1002
Structural Steel - Erection	Lbs.	328,000	10-6-66	324008	✓	1002
Shear Developers	Lump Sum	Lump Sum		100%	✓	
Structural Tile 4"x12"x12"	Each	1860	3-6-68	1837	✓	1004
1/4" Joint Filler	Sq. Ft.	6		6	✓	
1/2" Joint Filler	Sq. Ft.	230		230	✓	
3/4" Joint Filler	Sq. Ft.	91	3-6-68	93.8	✓	1004
1" Joint Filler	Sq. Ft.	28		28	✓	
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	235	3-6-68	229	✓	1004
Joint Waterproofing	Sq. Ft.	414	3-6-68	382	✓	1004
Copper	Lbs.	220		220	✓	
Field Painting	Lump Sum	Lump Sum		100%	✓	
Bridge Railing - Parapet Type	Lin. Ft.	390.3	3-6-68	389.8	✓	1004
6" Corrugated Metal Pipe	Lin. Ft.	210	3-6-68	109.5	✓	1004
6" Perforated Corrugated Metal Pipe	Lin. Ft.	200		200	✓	
Slope Protection - Class A	Sq. Yds.	618	3-6-68	593.6	✓	1004
10" Pipe Sleeves - Placed	Each	4		4	✓	
Field Office - Bridge	Each	1	4-23-66	0	✓	1001

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL
7-18-66	3" Fiber Conduit (2001)	LFT	197	197
7-18-66	1-3" Encased Conduit (2001, 2002)	LFT	30	0
7-18-66	Side Walk Type Hand Holes (2001, 2002)	EA	2	0
9-21-66	Sawing & Sealing Joints (2002, 2003)	LFT	121.0	120.6
	Plan Extras - Part #1			
4-28-66	6" CI Watermain 2001	LFT	14	14
8-2-66	Contraction Joints 2002	LFT	1177	1177
8-2-66	Expansion Joints 2002	LFT	739	739
12-30-66	Repair Transverse - H.P.R. ATE E2 2003	LFT	596.5	596.5
6-27-67	Force Account #1 2004 27F	LS	500.00	392.32
9-26-67	Force Account #2 2005 28F	LS	600.00	438.03
9-26-67	Class B Sodding (Storm Repair Special) 2005 24F	SYDS	25	11.2
9-26-67	Bituminous Aggregate Shoulders (Patching Special) 2005 24F	TONS	20	11.87
9-26-67	Aggregate 22A (Loose Measured Delivered) 2005 24F	CYDS	40	0.9
9-26-67	Bituminous Sealing 2005, 24F	LFT	54	57
9-26-67	Pavement Cleanup (Sweeping & Waste Pickup) 2005 24F	Lane Mile	1	0.114
4-18-68	Manhole 1A Modified 31F	EA	2	2
4-22-68	Catch Basins - 3M - 6' Deep or Less 32F	EA	3	3
3-7-68	600V Three s/c #6 Cables Reduced) 2456 lft @ 1.96			2009
	600V 2 Three s/c #6 Cables (Reduced) 355 lft @ 3.02			2009
9-19-68	Contraction Joints (Hot Pour Rubber)	LFT	115.5	2012
	Expansion Joints (Hot Pour Rubber)	LFT	80.3	2012

CHECKED
CONTRACT SECTION
DATE 6/25/68

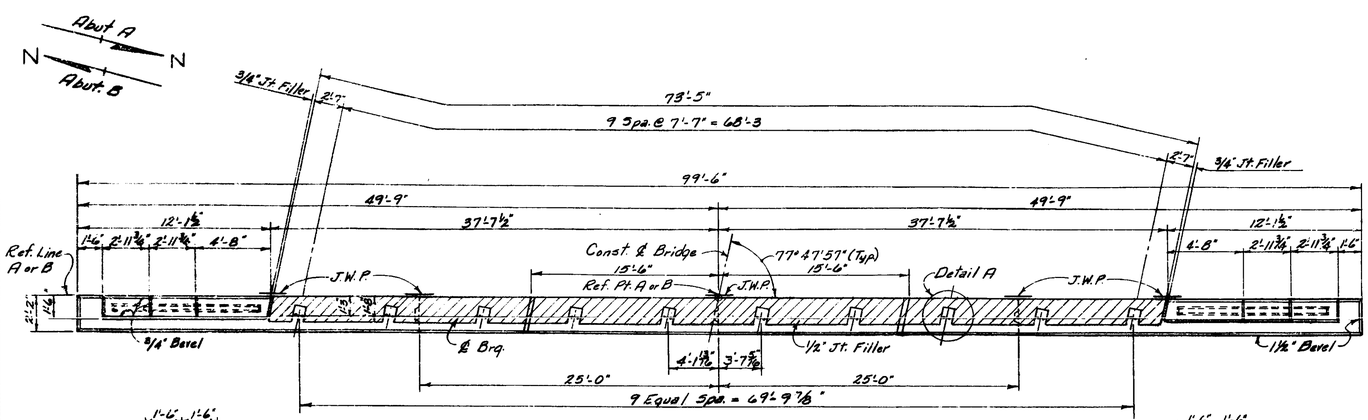
MICHIGAN STATE HIGHWAY DEPARTMENT

BILL OF MATERIAL

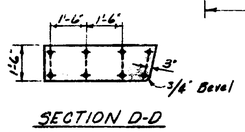
I 75-2(92)

SQUAD BOSS	Nolan	11-[illegible]
DRAWN BY	Warren	1-25-[illegible]
TRACED BY		
CHECKED BY	Wano	4-2-64
SHEET 105 OF 118		

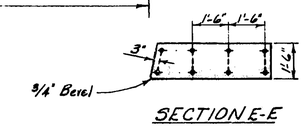
Pt 2
S31 of 63174B



PLAN



SECTION D-D



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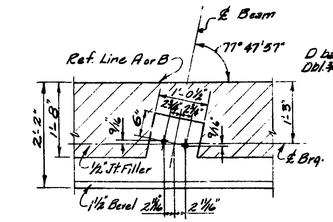
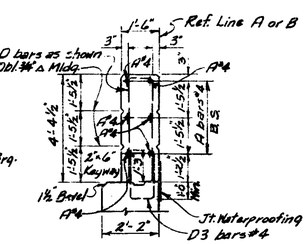


DETAIL A

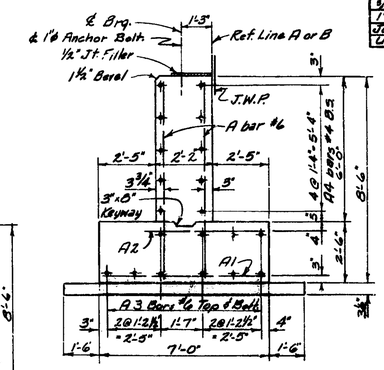


SECTION B-B

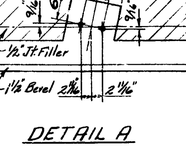
ANCHOR BOLT PROJECTION TABLE										
BEAM	A	B	C	D	E	F	G	H	J	K
ABUT. A	5½"	5½"	8¼"	5½"	6¾"	6¾"	6"	7½"	5½"	5½"
ABUT. B	5½"	5½"	7½"	6"	6¾"	6¾"	5½"	8¼"	5½"	5½"

MISCELLANEOUS QUANTITIES				
ITEM	UNIT	ABUT. A	ABUT. B	TOTAL
1/2" Joint Filler	Sq. Ft.	3	3	6
1/2" Joint Filler	Sq. Ft.	115	115	230
3/4" Joint Filler	Sq. Ft.	13	13	26
1" Joint Filler	Sq. Ft.	14	14	28
Joint Waterproofing	Sq. Ft.	191	191	382
Unclassified Excavation	Cu. Yd.	350	350	700

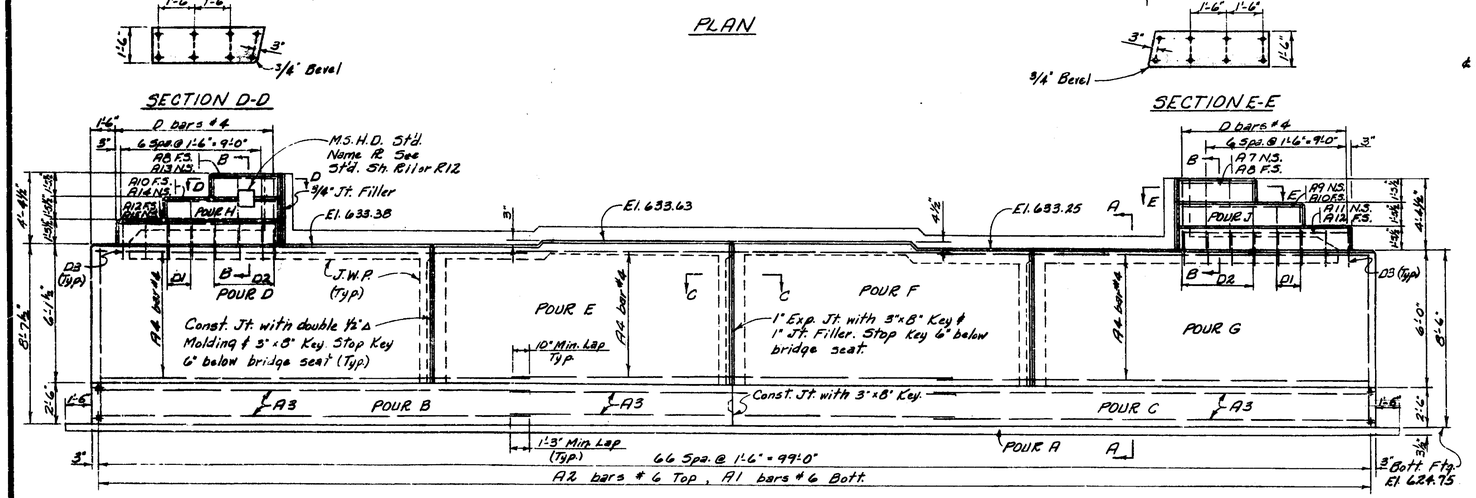
CONCRETE QUANTITIES				
	Abutment A		Abutment B	
Pour	Grade A(LA)	Grade A(LAA)	Grade A(LA)	Grade A(LAA)
A	11.0		11.0	
B	32.2		32.2	
C	32.2		32.2	
D		12.2		12.2
E		12.6		12.6
F		12.5		12.5
G		11.9		11.9
H		1.8		1.8
J		1.9		1.9
Total	75.4	52.9	75.4	52.9
Total Grade A(LA) Concrete			150.8	Cu. Yds.
Total Grade A(LAA) Concrete			105.8	Cu. Yds.



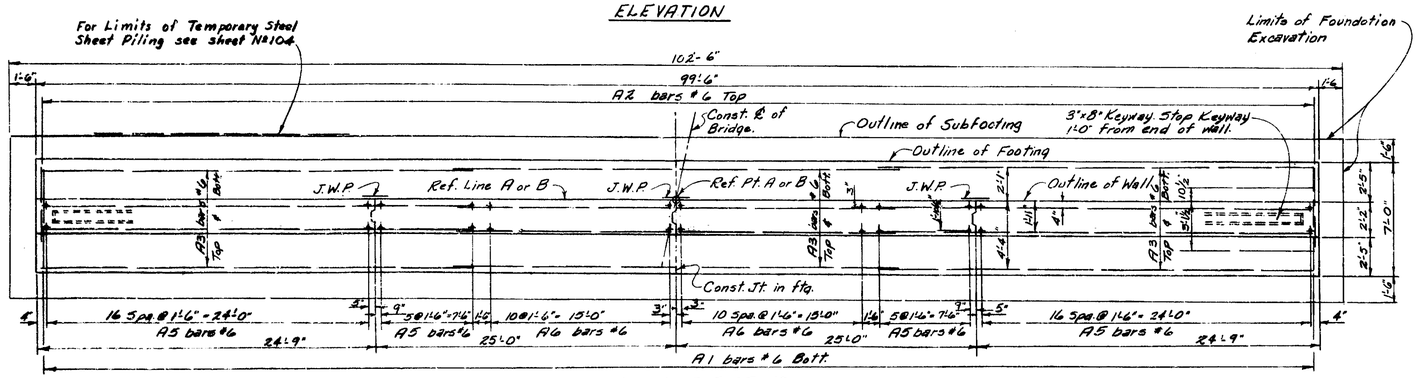
SECTION A-A



SECTION C-C



ELEVATION



PLAN OF FOOTING

NOTES:

Anchor bolts shall be set accurately to a template.

For bevel and molding details see Std. Sheet R11 or R12.

Slopewalls are to be cast after superstructure is complete to tops of sidewalks.

Temporary steel sheet piling shall be of the 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 & corner pieces. Ladle analysis & mill reports are not required for steel used in Sheet Piling.

This design is based on a maximum foundation pressure of D.L.+L.L. 2240 pounds per square foot and a maximum average foundation pressure of 1340 pounds per square foot D.L. only.

For Location of Name Plates see General Plan of Structure sheet and Standard Sheet R11 or R12, for mounting details see Standard Sheet R11 or R12.

J.W.P. denotes Joint waterproofing.

B.S. = Both Sides, N.S. = Near Side, F.S. = For Side.

MICHIGAN STATE HIGHWAY DEPARTMENT

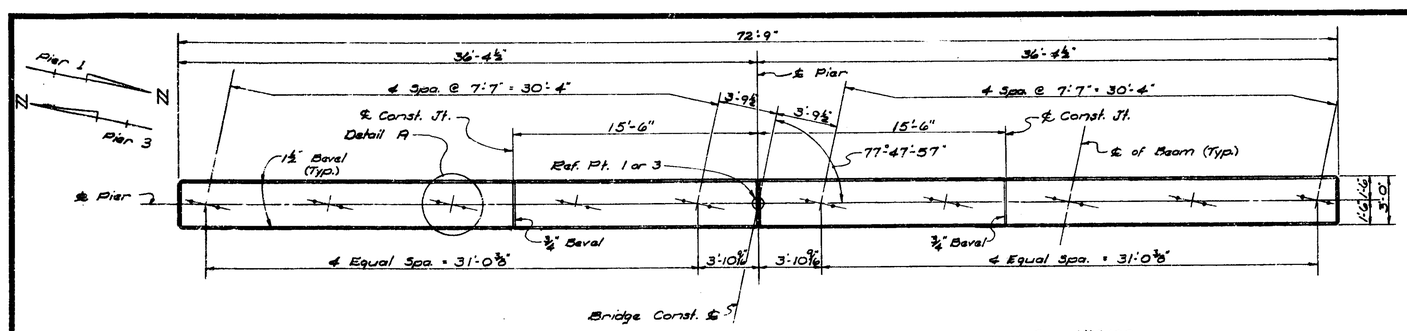
ABUTMENT A & B DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

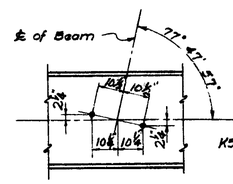
SQUAD BOSS	Nolan	11-25-64
DRAWN BY	Harrell	1-24-64
TRACED BY		
CHECKED BY	W.B.H.	4-23-64

SHEET 106 OF 118

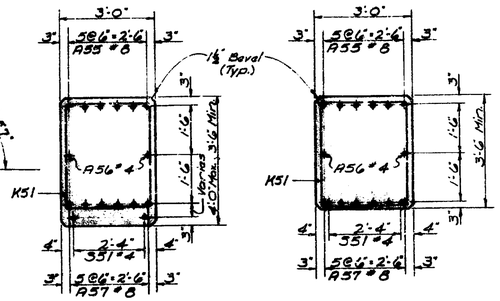
S31 of 63174B



PLAN OF GIRDER

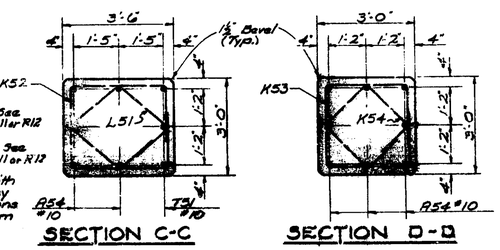


DETAIL A
Piers 1 and 3



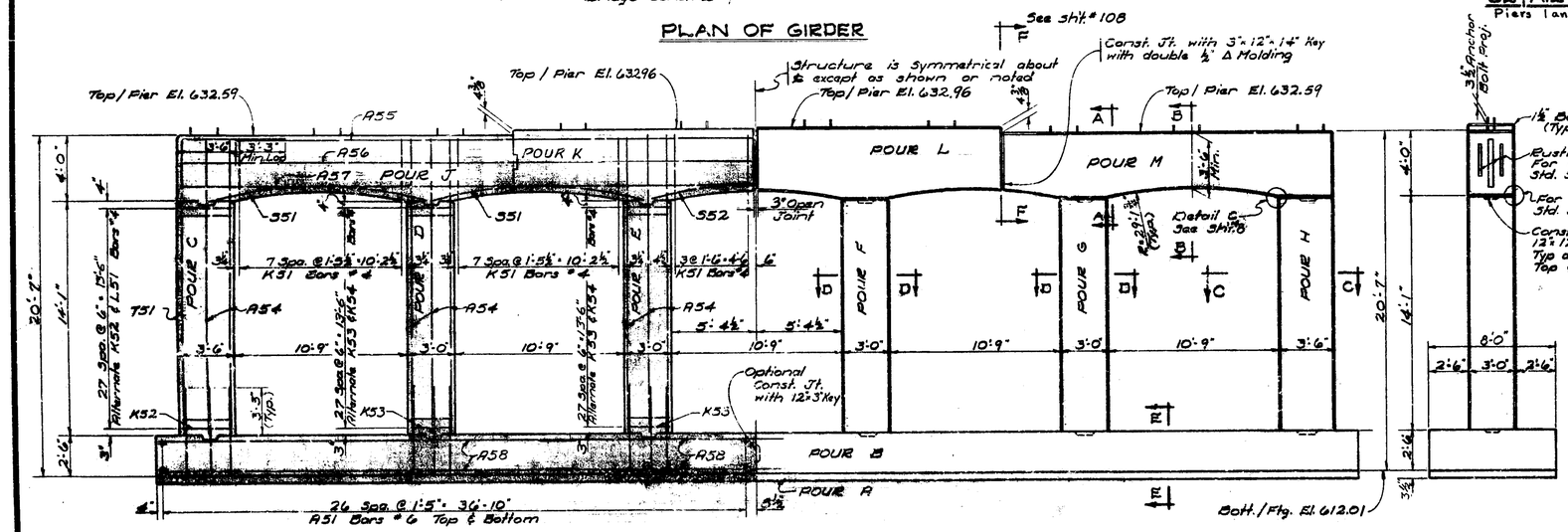
SECTION A-A

SECTION B-B



SECTION C-C

SECTION D-D



ELEVATION

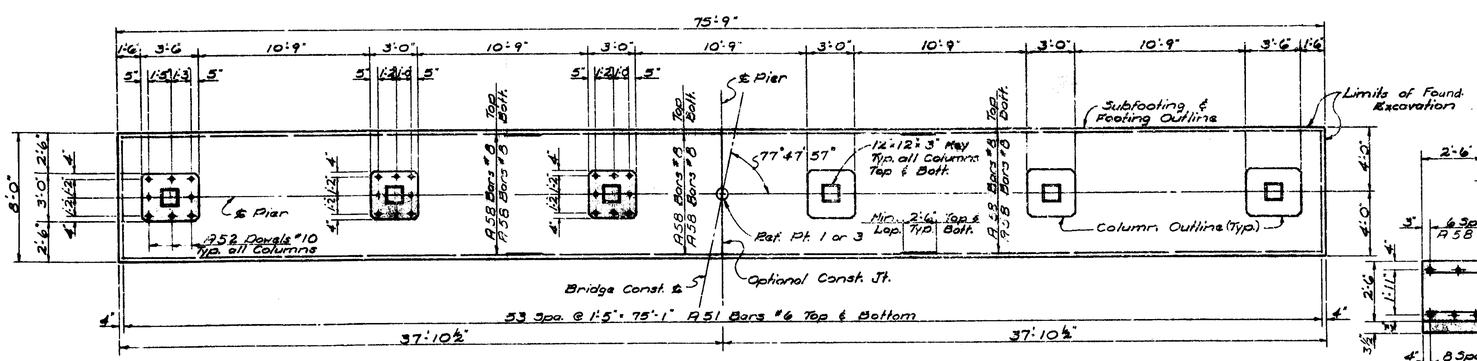
END VIEW

MISCELLANEOUS QUANTITIES - PIERS					
ITEM	UNIT	PIER 1	PIER 2	PIER 3	TOTAL
Unclassified Excavation	Cu. Yds.	145	80	145	370
Protective Sealant Coating for Concrete	Sq. Ft.		218		218

CONCRETE QUANTITIES - SUBSTRUCTURE						
POUR	GRADE A (6A) CU. YDS. PIER 1	PIER 2	PIER 3	GRADE A (6AA) CU. YDS. PIER 1	PIER 2	PIER 3
A	6.5	6.5	6.5			
B	56.1	56.1	56.1			
C				5.5	5.8	5.5
D				4.7	5.0	4.7
E				4.7	5.0	4.7
F				4.7	5.0	4.7
G				4.7	5.0	4.7
H				5.5	5.8	5.5
J				6.7	6.7	6.7
K				7.1	7.0	7.1
L				7.1	7.0	7.1
M				6.7	6.7	6.7
SUBTOTAL	62.6	62.6	62.6	61.4	63.0	61.4
TOTAL	187.8 Cu. Yds.			185.8 Cu. Yds.		

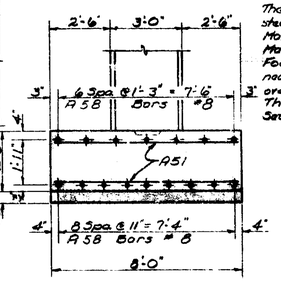
NOTES: Piers are similar except as noted.
For Bevel, Molding and Rustication details, see Std. Sht. #R11 or R12.
Anchor bolts shall be set accurately to a template.

The Project Engineer shall adjust the spacing of the reinforcing steel as required to permit placing of anchor bolts.
Maximum Average Foundation Pressure D.L. only 2540 #/sq. Ft.
Maximum Foundation Pressure D.L. + L.L. 3400 #/sq. Ft.
Footing & Subftg. concrete quantities are computed to the footing neat lines. No allowance will be made in the quantities for overruns due to excavating outside of neat lines.
The top of pier #2 shall be given an application of "Protective Sealant Coating for Concrete" prior to placing masonry plates.



PLAN OF FOOTING

Note: Work this sheet with sheet #108



SECTION E-E

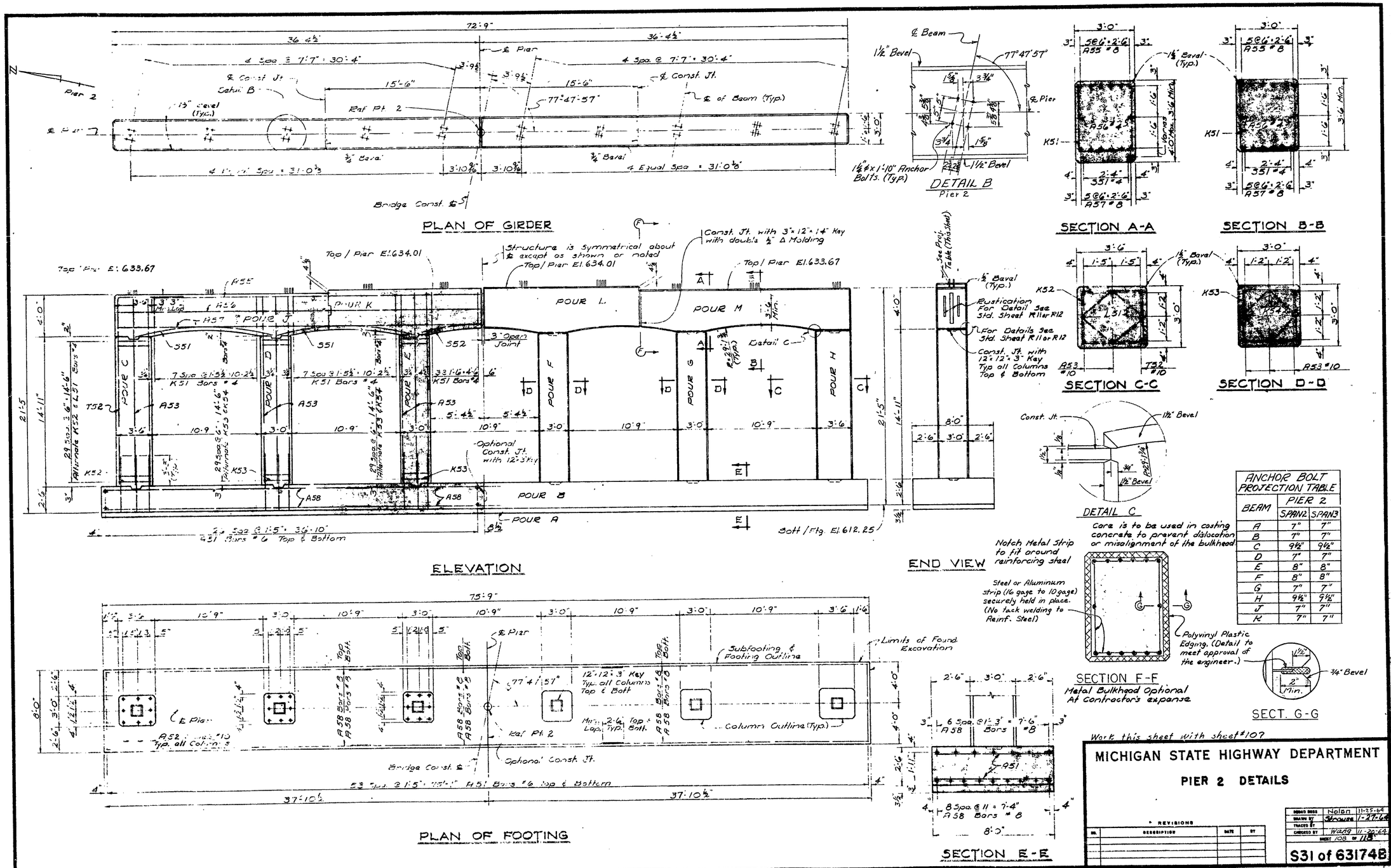
MICHIGAN STATE HIGHWAY DEPARTMENT

PIERS 1 & 3 DETAILS

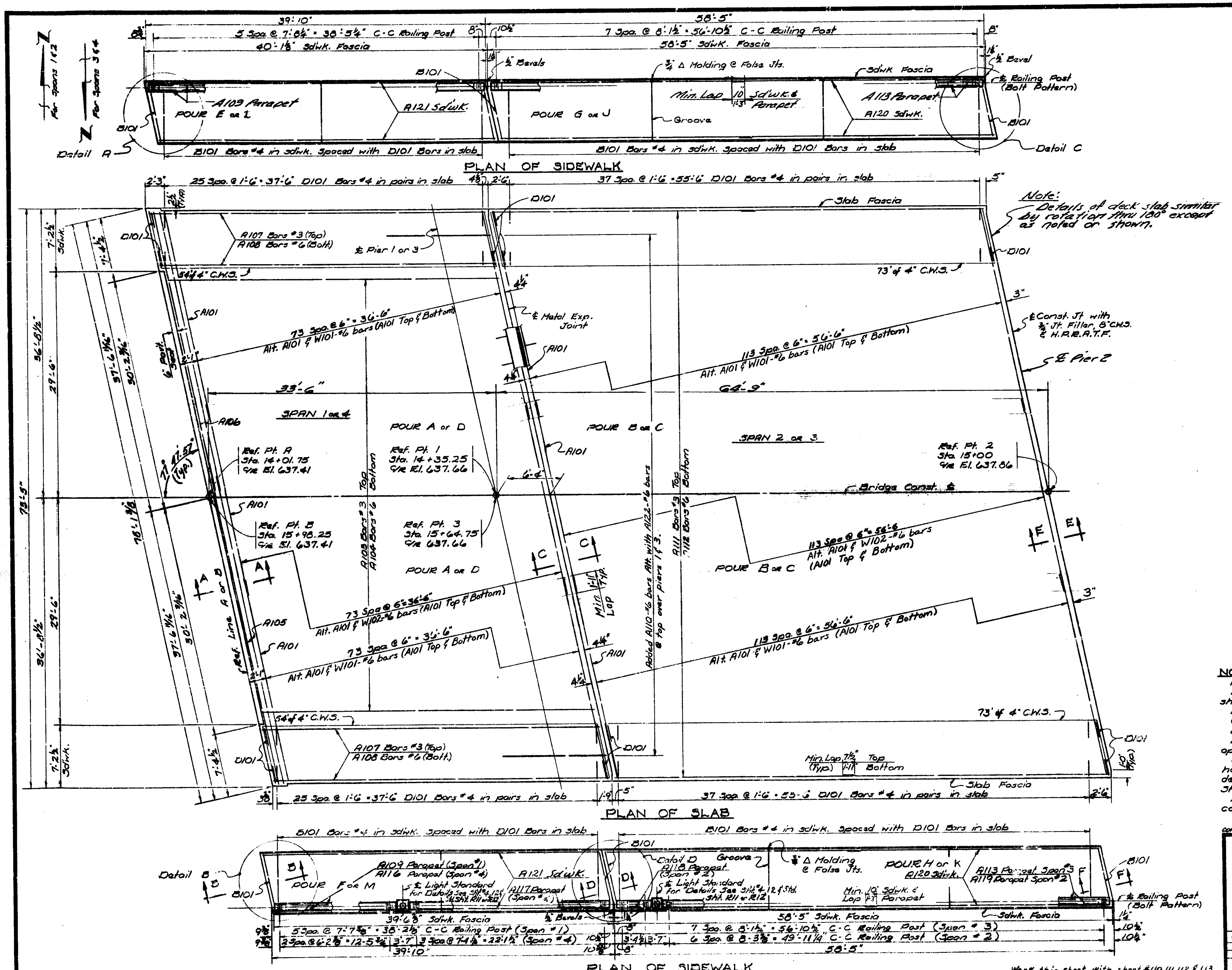
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Nolan	11-25-64
DRAWN BY	Strouse	1-27-64
TRACED BY		
CHECKED BY	Wang	4-20-64
SHEET 107 OF 183		

S31 of 63174B



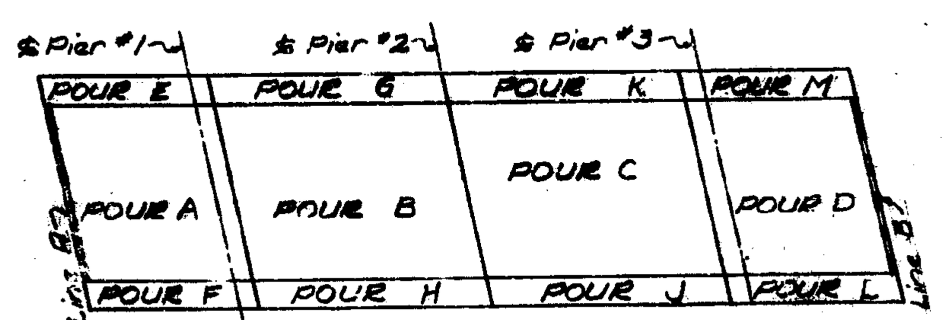
ANCHOR BOLT PROJECTION TABLE		
BEAM	PIER 2	
	SPAN 2	SPAN 3
A	7"	7"
B	7"	7"
C	9½"	9½"
D	7"	7"
E	8"	8"
F	8"	8"
G	7"	7"
H	9½"	9½"
J	7"	7"
K	7"	7"



Work this sheet with sheet #110, 111, 112 & 113.

CONCRETE QUANTITIES – SUPERSTR.		
POUR		GRADE A (6AA) Cu. Yds.
SLAB	A	87.5
	B	110.0
	C	110.0
	D	87.5
SDWK.	E	6.5
	F	6.5
	G	9.5
	H	9.5
	J	9.5
	K	9.5
	L	6.5
	M	6.5
TOTAL Cu. Yds.		459.0

MISCELLANEOUS QUANTITIES – SUPERSTR.		
ITEM	UNIT	AMOUNT
¾" Joint Filler	Sq. Ft.	65
Joint Waterproofing	Sq. Ft.	32
Copper	Lbs.	220
Bridge Railing - Parapet Type	Lin. Ft.	390.3
Water-Reducing Retarding Admixture	Gal.	57
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	235
Structural Tile 4"x12"x12"	Each	1860



POUR DIAGRAM

Alphabetical designation of pours is not to be construed as a pour sequence.

NOTES:

For Railing Details, See Standard Sheet No. R11 or R12

For Bevel and Molding Details, see standard sheet No. R11 or R12

H.P.R.A.T.F. indicates Hot-Poured Rubber-Asphalt Type Filler.

C.W.S. indicates copper waterstop.

J.W.P. indicates joint waterproofing.

Edge and Groove denote Edging or Grooving with an approved tool.

Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by the table in section 5.01.03 of the Standard Specifications.

False joints in sdwk. shall be placed midway between concrete blocks @ approx. every 4th. panel.

Bridge Railing is to be either aluminum or steel tubular railing on concrete parapet. See Std. Sh. R11 or R12

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

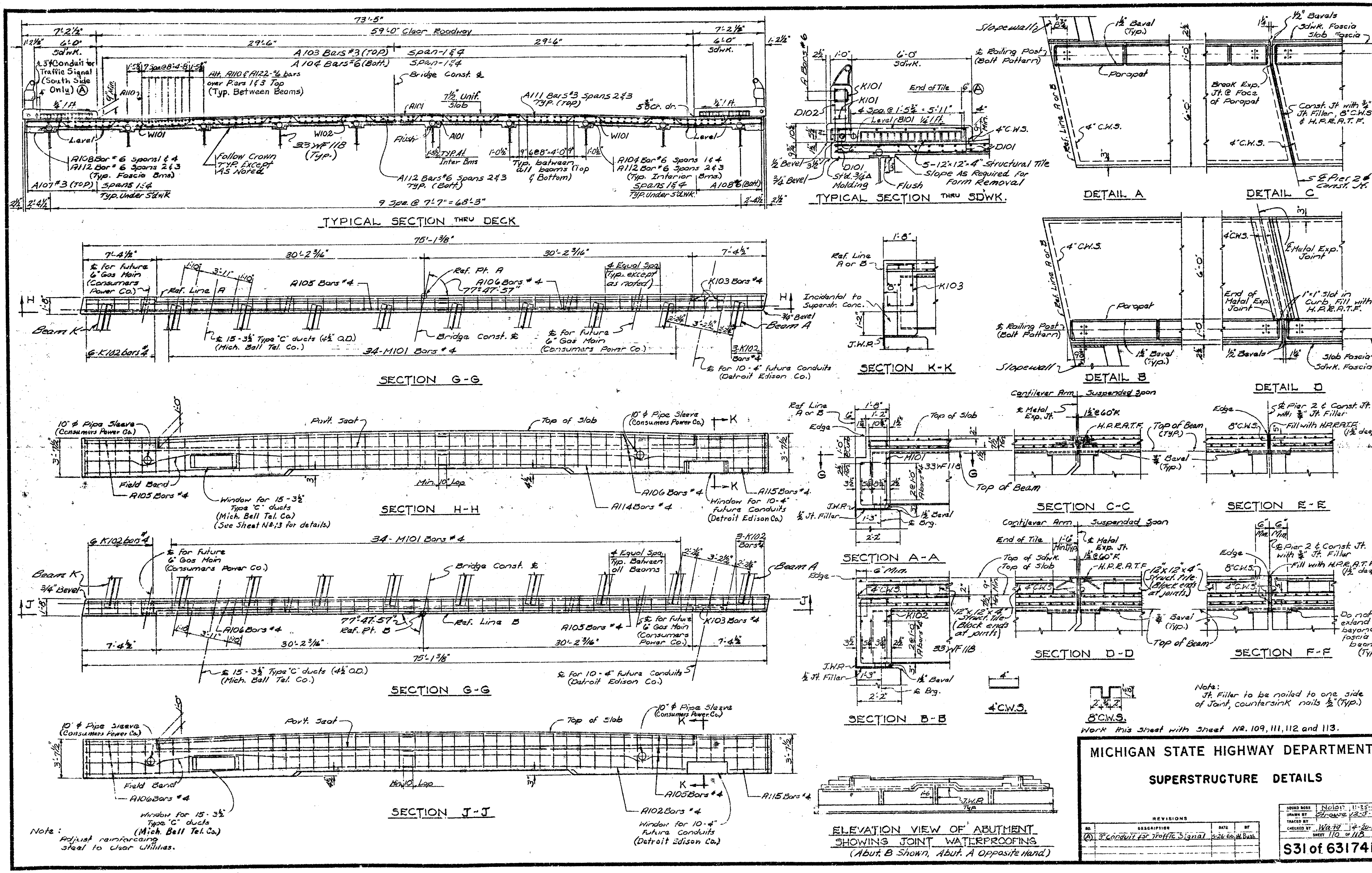
REVISIONS

NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Nolan	11-25-64
DRAWN BY	Strouse	12-5-63
TRACED BY		
CHECKED BY	Wany	4-20-64

SHEET 109 OF 118

S31 of 63174B



Work this sheet with Sheet No. 109, 111, 112 and 113.

MICHIGAN STATE HIGHWAY DEPARTMENT

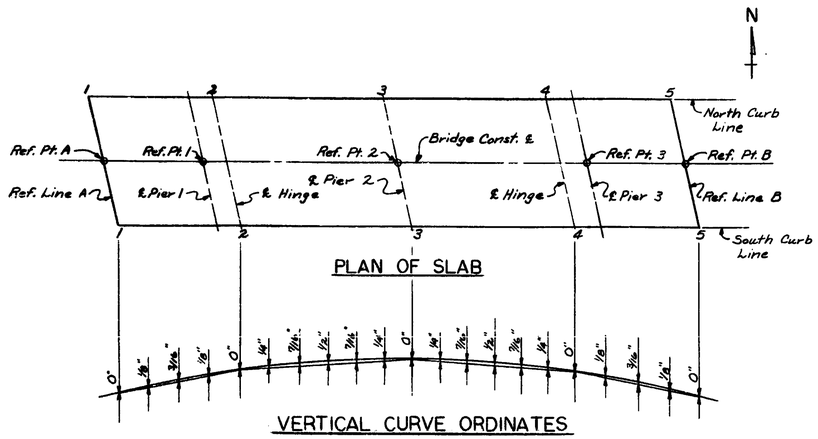
SUPERSTRUCTURE DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY
(A)	3" Conduit for Traffic Signal	4-26-66	W. Bush

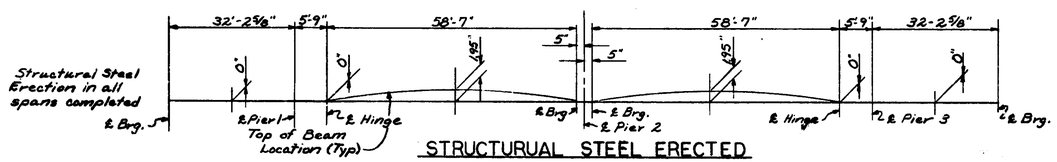
SQUAD BOSS	Nolan 11-25-64
DRAWN BY	Strowe 12-3-64
TRACED BY	
CHECKED BY	Ward 4-20-64
SHEET	110 of 118

S31 of 63174B

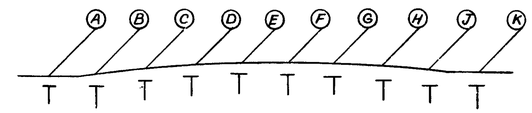


PLAN OF SLAB

VERTICAL CURVE ORDINATES



STRUCTURUAL STEEL ERECTED



SCREED TEMPLATE

TYPICAL HAUNCH SECTION

SCREED TEMPLATE ELEVATIONS												
Line	Sta. @ Const. ℄	Bm. A	Bm. B	Bm. C	Bm. D	Bm. E	Bm. F	Bm. G	Bm. H	Bm J	Bm. K
1-1	14+01.75	636.89	636.98	637.14	637.28	637.38	637.40	637.33	637.22	637.08	637.03
2-2	14+41.00	637.21	637.28	637.44	637.58	637.67	637.68	637.60	637.49	637.35	637.29
3-3	15+00.00	637.41	637.48	637.63	637.75	637.84	637.84	637.75	637.63	637.48	637.41
4-4	15+59.00	637.29	637.35	637.49	637.60	637.68	637.67	637.58	637.44	637.28	637.21
5-5	15+98.25	637.03	637.08	637.22	637.33	637.40	637.38	637.28	637.14	636.98	636.89

THEORETICAL TOP OF BEAM ELEVATION									
Beam	℄ Brg. Abut. A	℄ Pier 1	℄ Hinge	℄ Brg. Pier 2	℄ Brg. Pier 2	℄ Hinge	℄ Pier 3	℄ Brg. Abut. B
A	636.20	636.46	636.50	636.70	636.70	636.58	636.55	636.33
B	636.20	636.46	636.50	636.70	636.70	636.58	636.55	636.33
C	636.44	636.69	636.73	636.91	636.91	636.77	636.74	636.51
D	636.58	636.83	636.86	637.04	637.04	636.89	636.86	636.62
E	636.68	636.93	636.96	637.13	637.13	636.97	636.94	636.70
F	636.70	636.94	636.97	637.13	637.13	636.96	636.93	636.68
G	636.62	636.86	636.89	637.04	637.04	636.86	636.83	636.58
H	636.51	636.74	636.77	636.91	636.91	636.73	636.69	636.44
J	636.33	636.55	636.58	636.70	636.70	636.50	636.46	636.20
K	636.33	636.55	636.58	636.70	636.70	636.50	636.46	636.20

NOTES:

Screed template elevations are based on the condiction that no slab concrete has been poured and with formwork, steel reinforcement and shear developers in place.

Screeds which will be affected by loads in other spans are to be set to the elevations shown before casting any concrete.

Concrete in the suspended spans is to be cast before the concrete in the anchor spans.

Haunch dimensions as shown are based on the theoretical elevation of the tops of beams with beams only fully erected. If actural tops of beams differ from theoretical tops of beams adjust haunch depths accordingly.

Longitudinal strike-off finishing machine is to be used in placing deck concrete.

Work this sheet with sheets #109, 110, 113, 114 & 117

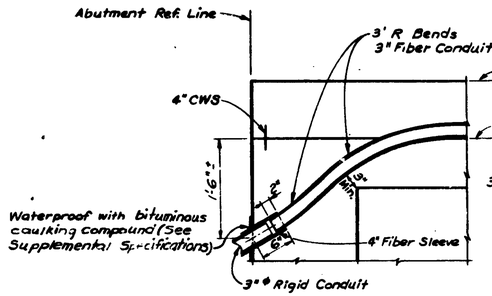
MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

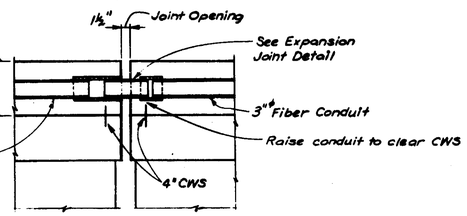
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Nelson	1-3-66
DRAWN BY	J. Bullen	12-27-65
TRACED BY		
CHECKED BY	Wang	12-29-66
SHEET 111 OF 118		

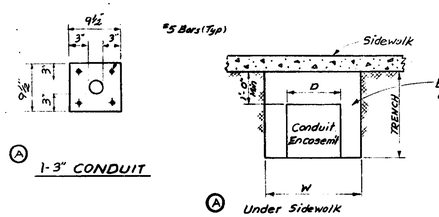
S31 of 63174B



Ⓐ SECTION AT BACKWALL



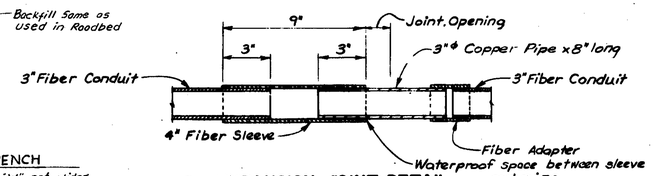
Ⓐ SECTION AT METAL EXP. JOINT



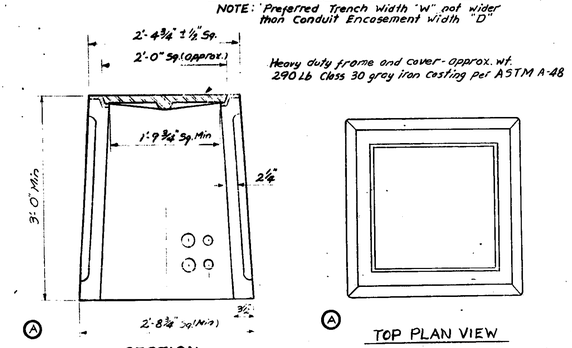
Ⓐ 1-3" CONDUIT

TYPICAL SECTION OF TRENCH

NOTE: Preferred Trench Width "W" not wider than Conduit Encasement Width "D"



Ⓐ EXPANSION JOINT DETAIL

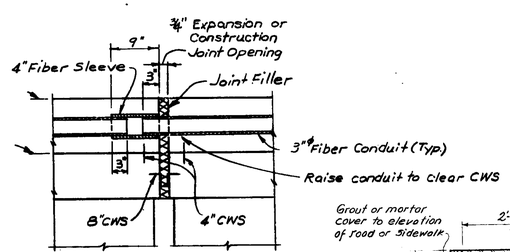


Ⓐ SECTION

PRECAST TYPE HANDHOLE

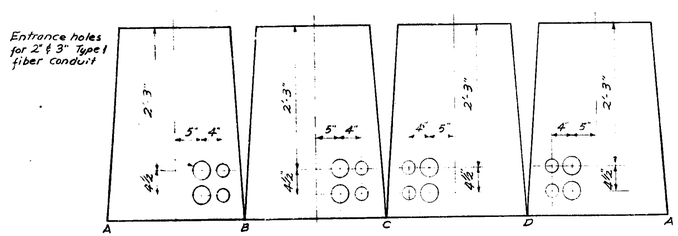
To be set on undisturbed or well compacted earth.

Ⓐ TOP PLAN VIEW



Ⓐ SECTION AT TRANSVERSE JOINT

@ Pier 2

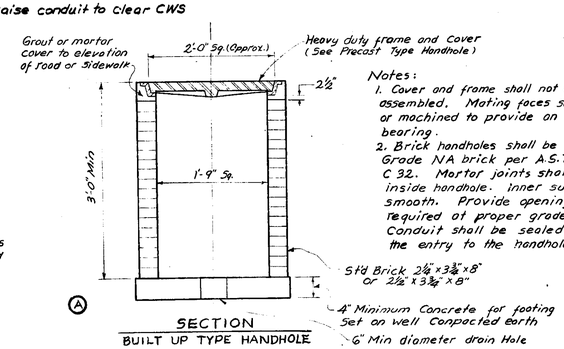


Ⓐ INTERIOR WALL ELEVATIONS-PRECAST TYPE

Notes:

Conduit arrangement my be modified. Additional openings shall be provided as required. See plans.

Plug all unused entrance holes and seal around holes entered with smaller size conduit than the design requires.



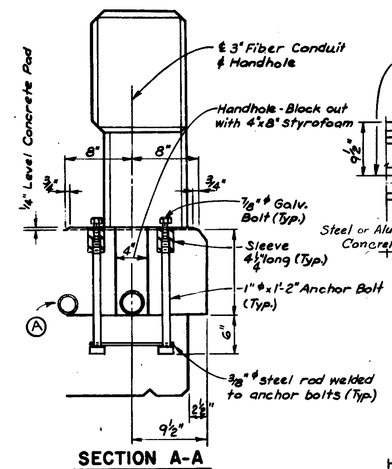
Ⓐ SECTION

BUILT UP TYPE HANDHOLE

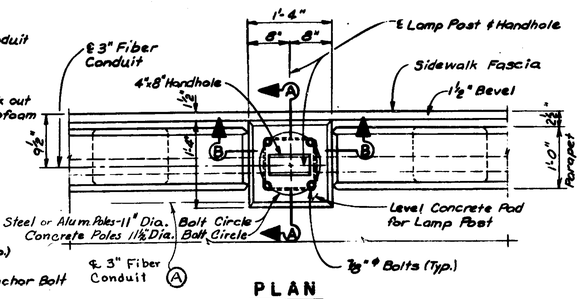
Notes:

1. Cover and frame shall not rock or tilt when assembled. Mating faces shall be finished or machined to provide an evenly distributed bearing.
2. Brick handholes shall be constructed of Grade NA brick per A.S.T.M. Designation C 32. Mortar joints shall be struck clean inside handhole. Inner surface shall be smooth. Provide openings for conduit as required at proper grade and location. Conduit shall be sealed with mortar around the entry to the handhole.

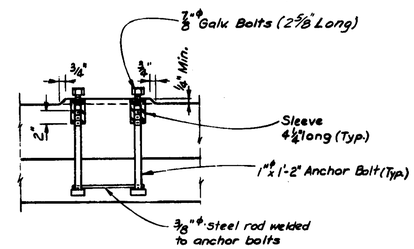
Ⓐ ELECTRICAL HANDHOLE PRECAST OR BUILT UP TYPE



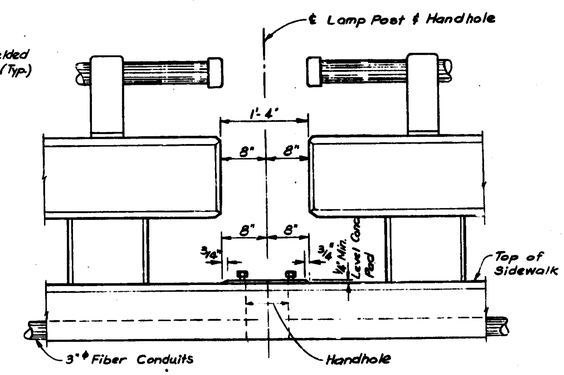
SECTION A-A



PLAN



SECTION B-B



ELEVATION

NOTES:

The District Utility Engineer is to be notified five days in advance of the time of installation of the ducts in the sidewalk.

Steel Sleeves, ⅞"φ, 1"φ Anchor Bolts & 3/8"φ Steel Rods are to be furnished by Detroit Edison Co. and installed by Bridge Contractor. (Installation is incidental work)

Furnishing and installing of Light Standard and 3"φ Fiber Duct as well as duct sleeves & styrofoam blocking is by Detroit Edison Co.

Conduit sections shown are typical. Variations from Arrangements shown are permitted within following limitations:

Minimum Spacing between adjacent conduit in all directions to be 1 inch.

All concrete shall be Grade A.

Concrete and Reinforcing Steel are incidental to encased conduit.

Ⓐ These details are to include the 3" duct for the Traffic Signal.

Work this sheet with sheets #109, 110, 111 and 113.

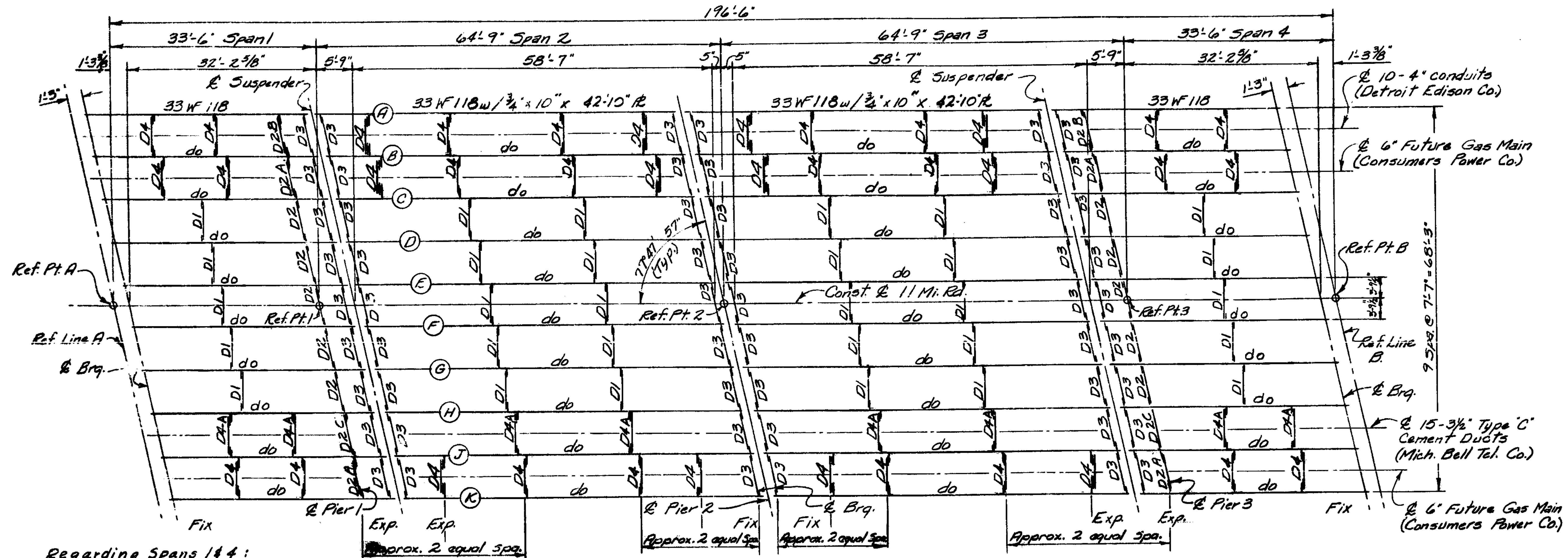
MICHIGAN STATE HIGHWAY DEPARTMENT

LIGHTING DETAILS

REVISIONS			
NO	DESCRIPTION	DATE	BY
Ⓐ	3" Conduit for Traffic Signal	5-26-66	W. Bush

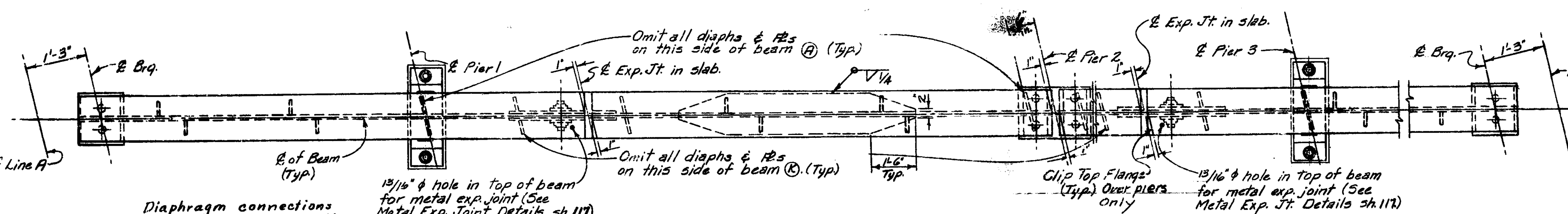
SQUAD BOSS	Nolan	1-3-66
DRAWN BY		
TRACED BY	A. KRAVE	1-3-66
CHECKED BY	Wang	1-3-66
SHEET	112 of 118	

S 31 of 63174B



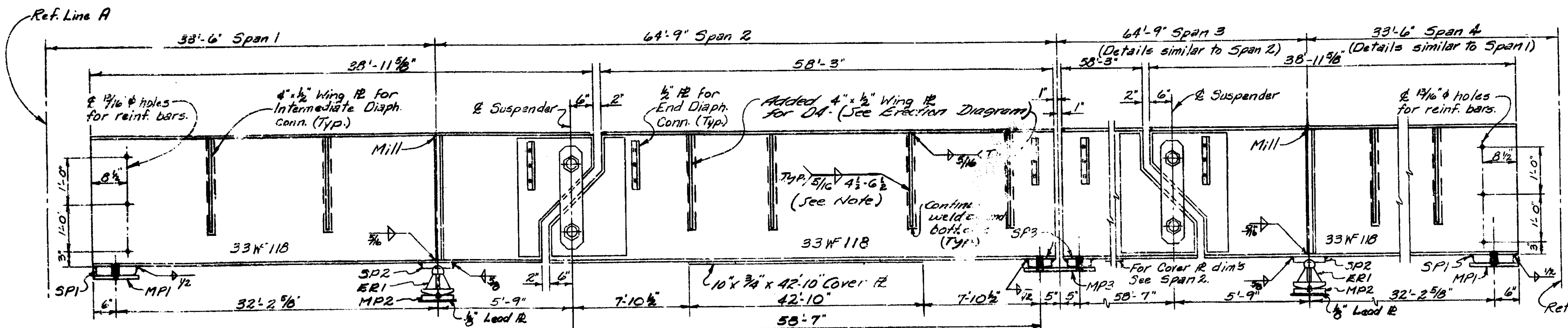
Regarding Spans 1 & 4: Diaphragms D1 will be at approx. midpoints, Diaphragms D4 & D4A will be at approx. third points.

ERECTION DIAGRAM



Diaphragm connections shown will vary - see Erection Diagram above.

PLAN



SPAN 1 (FASCIA & INTERIOR BMS.) SPAN 2 (FASCIA & INTERIOR BMS.) SPAN 3 (FASCIA & INTERIOR BMS.) SPAN 4 (FASCIA & INTERIOR BMS.)

ELEVATION

Note: Regarding Intermediate Diaphragm Connections, a 1/4" continuous weld may be used at the fabricators option.

STRUCTURAL STEEL NOTES

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

Design: Michigan State Highway Department's Specifications for the Design of Highway Bridges - 1958 Edition (H20-44 Loading).

Shop Connections: All shop connections shall be welded as shown on plans.

Field Connections shall be bolted with 3/4"⌀ high strength bolts.

Open Holes: Open holes for high-strength bolts shall be 13/16" ⌀ unless otherwise noted.

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

Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1 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 plate.

Camber: The beams in spans 1 & 4 are to have 0 inches of camber and the beams in spans 2 and 3 are to have a camber of 1 7/8" (max. ordinate). Allowable camber tolerance is +1/4, -1/4. Heating is to be used, if necessary, to assure camber permanency within the above tolerance. The dead load deflection of the beams alone is calculated to be 0" for spans 1 & 4 and 3/16" for spans 2 & 3.

Steel in anchor bolts may be ASTM A-307

Field Paint for Structural Steel is to be Gray-Blue. (See Supplemental Specifications)

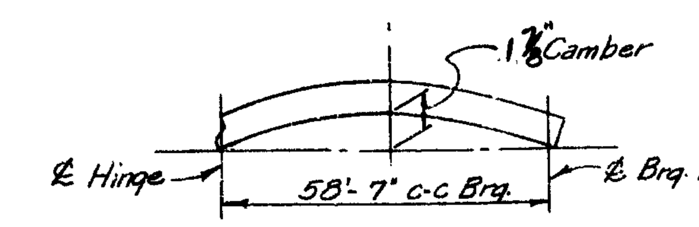
Utility Provisions: See sheet #103 for utility provisions (Consumers Power Co., Detroit Edison Co., Mich. Bell Telephone Co.).

All beams and cover plates shall conform to the requirements for welding (A.S.T.M. A36-62T).

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

A36	= 327,600 #
Lead	= 300 #
Bronze	= 100 #
Total	= 328,000 #

Structural Steel - Furnishing & Fabricating	328,000#
Structural Steel - Erection	328,000#
Field Painting	Lump Sum
Shear Developers	Lump Sum



CAMBER DIAGRAM SPANS 2 & 3

Note: This camber is to be measured with the beam lying on its side.

Work this sheet with sheet nos. 112, 113, 115, 116 and 117.

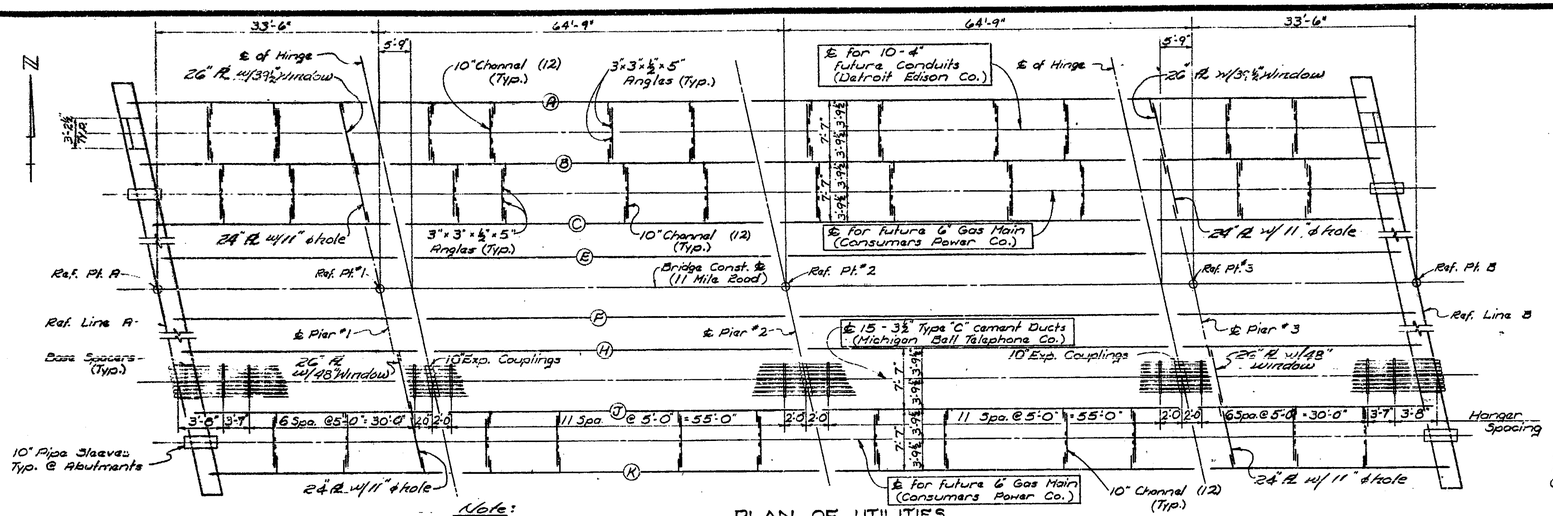
MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

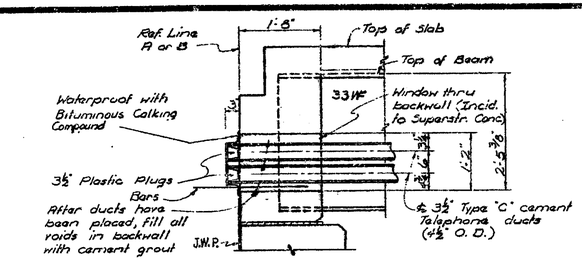
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	Nolan	11-25-64
DRAWN BY	Warren	11-14-63
TRACED BY		
CHECKED BY	Wang	9-20-64
SHEET	114	OF 118

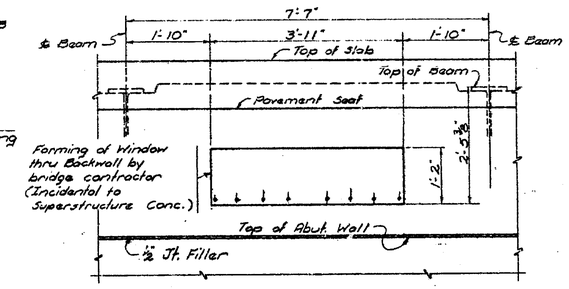
S31 of 631748



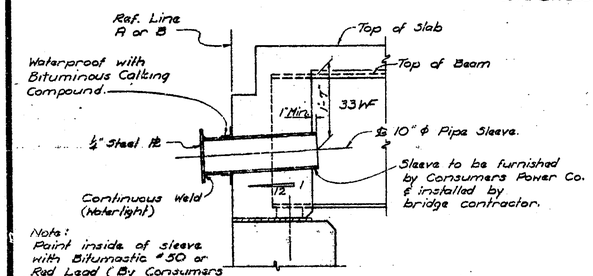
PLAN OF UTILITIES
(Michigan Bell Telephone Co.)
(Consumers Power Co.)
(Detroit Edison Co.)



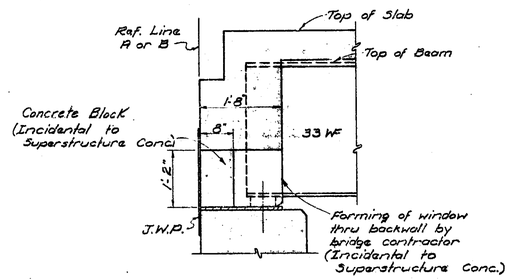
SECTION THRU BACKWALL



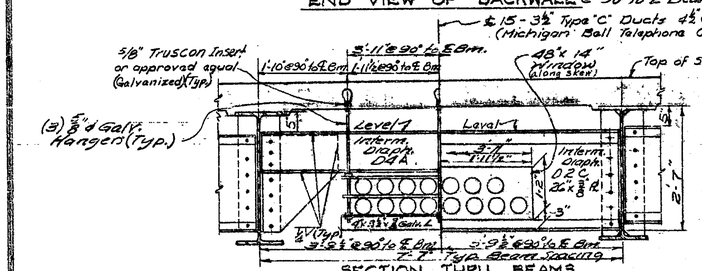
END VIEW OF BACKWALL @ 90° to ℄ Beams



SECTION THRU BACKWALL

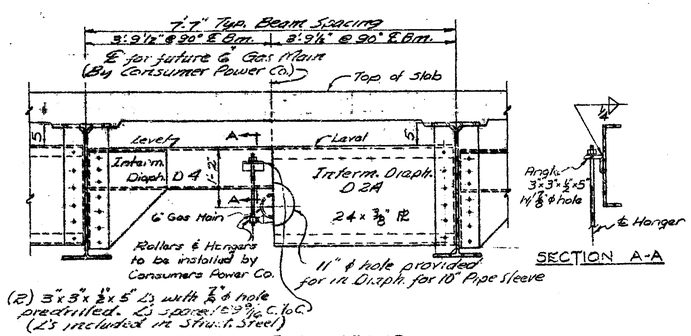


SECTION THRU BACKWALL



SECTION THRU BEAMS
(FOR TELEPHONE DUCTS)

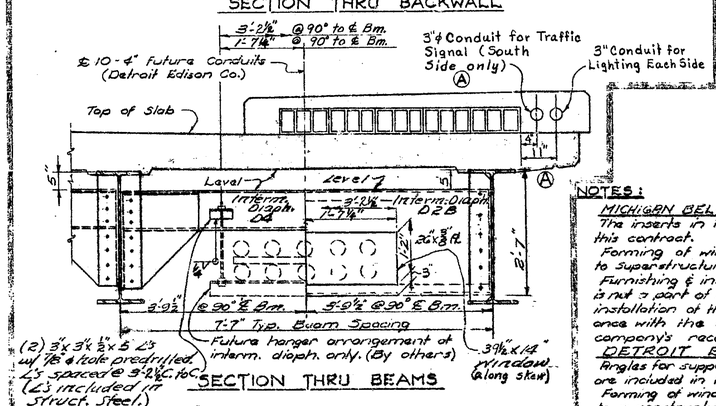
MICH. BELL TEL. CO.



SECTION THRU BEAMS

CONSUMERS POWER CO.
(FOR FUTURE 6" GAS LINE)

(For Quantities chargeable to Consumers Power Co. See Table)



SECTION THRU BEAMS

DETROIT EDISON CO.
(FOR FUTURE 10-4" ELEC. CONDUITS)
(For Quantities chargeable to Detroit Edison Co. See Table)

NOTES:

MICHIGAN BELL TELEPHONE CO.
The inserts in the deck slab are included in this contract.
Forming of window in backwalls is incidental to superstructure concrete.
Furnishing & installing of telephone conduit is not a part of this contract, and the installation of the ducts shall be in accordance with the manufacturers & telephone company's recommendations.

DETROIT EDISON CO.
Angles for supporting the future hanger arrangement are included in this contract. (Structural Steel)
Forming of window in backwalls is incidental to superstructure concrete.
All other work shown is not a part of this contract.

CONSUMERS POWER CO.
Angles for supporting the future hanger arrangement are included in this contract. (Structural Steel)
All other work shown is not a part of this contract.

UTILITY QUANTITIES

CHARGE TO	ITEM	UNIT	AMOUNT
Mich. Bell Tel. Co.	3/8" ϕ Concrete Inserts	Each	120
	10" ϕ Pipe Sleeves - Placed	Each	4
Consumers Power	* Structural Steel - Furnishing & Fabricating	Lbs.	190
	* Structural Steel - Erection	Lbs.	190
Detroit Edison Co.	* Structural Steel - Furnishing & Fabricating	Lbs.	100
	* Structural Steel - Erection	Lbs.	100

* Included in Structural Steel Quantities Sht. 114

The Contractor shall advise the District Utility Engineer as soon as the structure is ready for installation of conduits or mains in bridge.

Work this sheet with Sheet nos. 109, 110, 112, 114 & 115

MICHIGAN STATE HIGHWAY DEPARTMENT

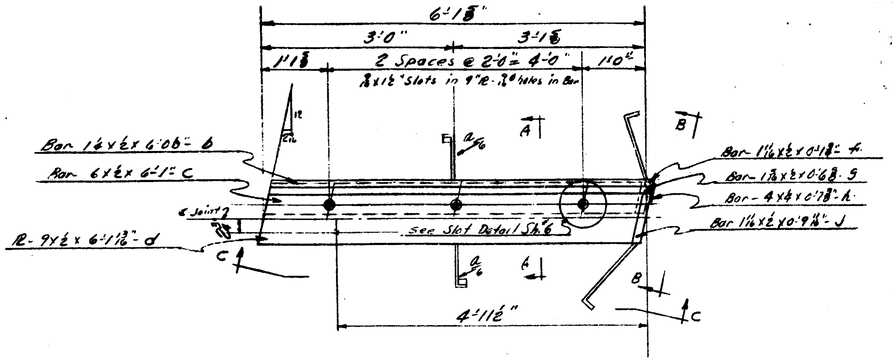
UTILITY DETAILS

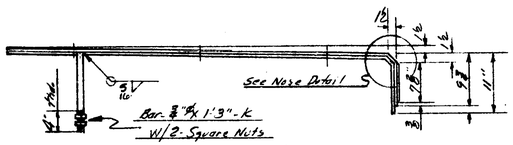
REVISIONS			
NO.	DESCRIPTION	DATE	BY
(A)	3" Conduit for Traffic Signal	5-26-66	N. Davis

SQUAD BOSS	Nolan	1-25-66
DRAWN BY	Strouse	3-4-66
TRACED BY		
CHECKED BY	Wang	4-20-66

S.H. 113 of 118

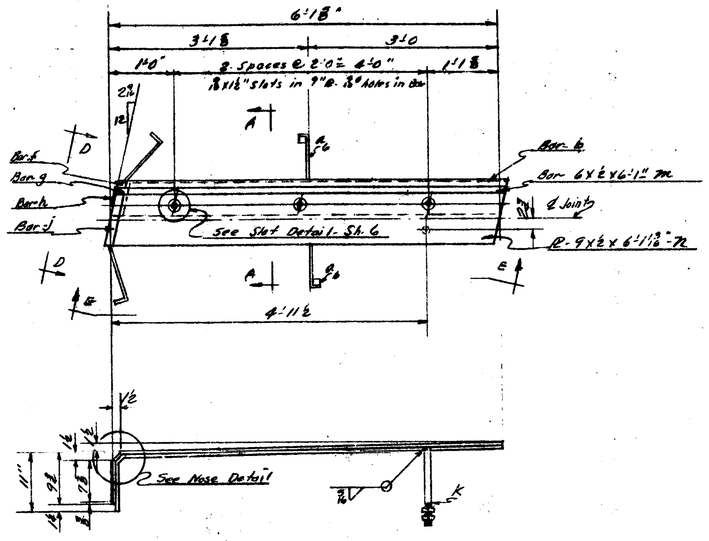
S31 of 63174B





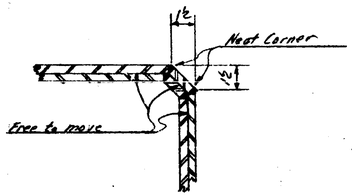
Anchors Not Shown

2- Curb Expansions Req'd- Mark 7EJ1

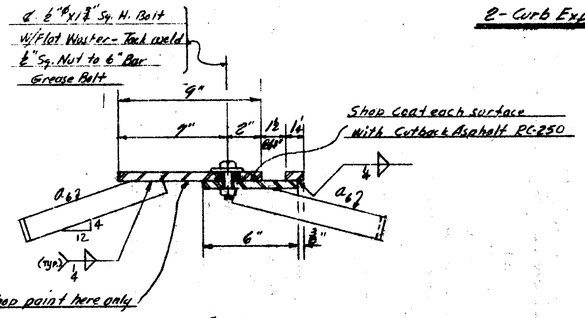


Anchors Not Shown

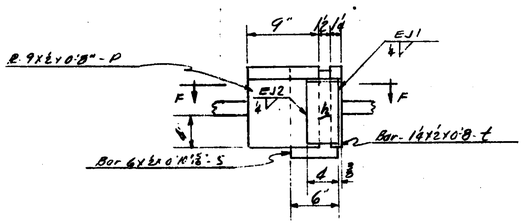
2- Curb Expansions Req'd- Mark 7EJ2



Nose Detail

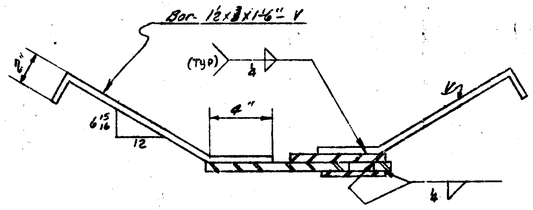


Section "AA"



View BB (Shown)

View DD (opp. hand)



Section "FF"

Field Bolts

Ship	Count	
1655	1576	3/4"Ø x 2 1/4" Hi. Strength Bolt. Hy Hex Head & Nut
277	264	3/4"Ø x 2 3/4" do do do do
1932	1840	3/4"Ø Hardened Washers

40- 1"Ø x 1'-8" - Sq. Head Bolt W/2-Hex Nuts & Flat Washer
40- 1 1/4"Ø x 1'-4" - Sq. Head Bolt - W/ Hex Nut & Flat Washer
40- 1 1/4"Ø x 1'-10" - Sq. Head Bolt - W/2-Hex Nuts & 2 1/2 x 6 x 2 1/2" ℞ Washer
20- 3/4" x 2 1/4 - Mach Bolt - Sq. Head & Nut
4- 3/8" x 2 3/4" - Flat Head- Bolt W/ Sq. Nut

See Shop Notes on Sheet #1

REVISION			
NO.	DESCRIPTION	DATE	BY

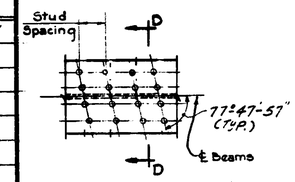
F. YEAGER
BRIDGE & CULVERT COMPANY
17701 KEARNEY ST. — PORT HURON, MICH.

I-75- South-bound & North-bound Crossing
11- Mile Road
Jutton- Kelly- Co. Contrs
S31 of 63174-B

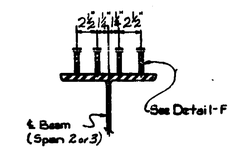
DATE 6-8-66	JOB NO. R25664	SHEET 7 of 7
BY A.W.B.		

SHEAR DEVELOPER SPACING TABLE

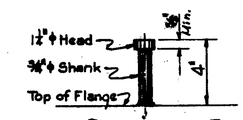
	BEAM NO	SPAN	a	b	c	d	e	f	g	h	S
SPIRAL SPACING	A	2&3	4"	26 Spa. @ 5"=10'-10"	27 Spa. @ 4"=9'-0"	12 Spa. @ 6"=6'-0"	12 Spa. @ 7"=7'-0"	5"	2"	3"	58'-3"
	B	do	do	do	do	do	do	do	do	do	do
	C	do	do	do	do	do	do	do	do	do	do
	D	do	do	do	do	do	do	do	do	do	do
	E	do	do	do	do	do	do	do	do	do	do
	F	do	do	do	do	do	do	do	do	do	do
	G	do	do	do	do	do	do	do	do	do	do
	H	do	do	do	do	do	do	do	do	do	do
	J	do	do	do	do	do	do	do	do	do	do
	K	do	do	do	do	do	do	do	do	do	do
STUD SPACING	A	2&3	4"	20 Sp @ 6"=10'-0"	9 Spa. @ 9"=6'-9"	9 Spa. @ 12"=9'-0"	4 Spa. @ 18"=6'-0"	5"			58'-3"
	B	do	do	do	do	do	do	do			do
	C	do	do	do	do	do	do	do			do
	D	do	do	do	do	do	do	do			do
	E	do	do	do	do	do	do	do			do
	F	do	do	do	do	do	do	do			do
	G	do	do	do	do	do	do	do			do
	H	do	do	do	do	do	do	do			do
	J	do	do	do	do	do	do	do			do
	K	do	do	do	do	do	do	do			do



PLAN of STUDS



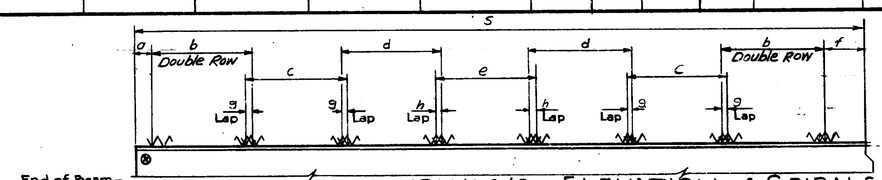
SECTION-DD SECTION-EE



DETAIL-F

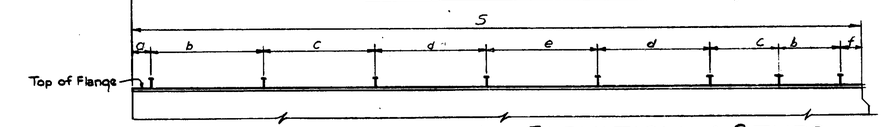
STUD SHEAR CONNECTOR DETAILS

No Shear Developer in Span 1.

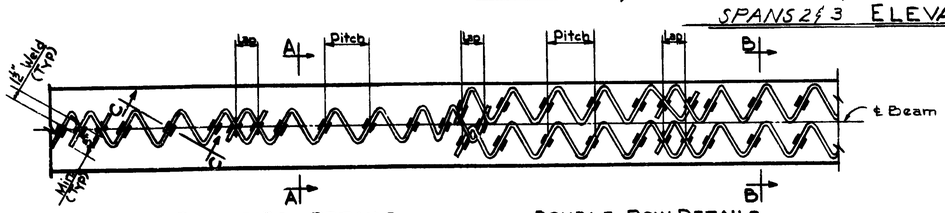


SPANS 2 & 3 ELEVATION of SPIRALS

No Shear Developer in Span 4.

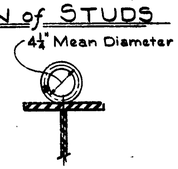


SPANS 2 & 3 ELEVATION of STUDS

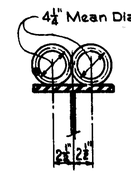


SINGLE ROW DETAILS DOUBLE ROW DETAILS

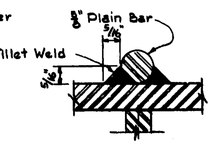
PLAN of TOP FLANGE



SECTION-AA



SECTION-BB



SECTION-CC

SPIRAL SHEAR DEVELOPER DETAILS

NOTES:

Either Spiral Shear Developers or Stud Shear Connectors may be used at the option of the contractor.

Welding of Spirals or Studs to Girder flanges is incidental to Shear Developers.

Weight of Spirals or Studs is not included in Structural Steel Weights.

Work this sheet with sheets No. 114, 115 and 117.

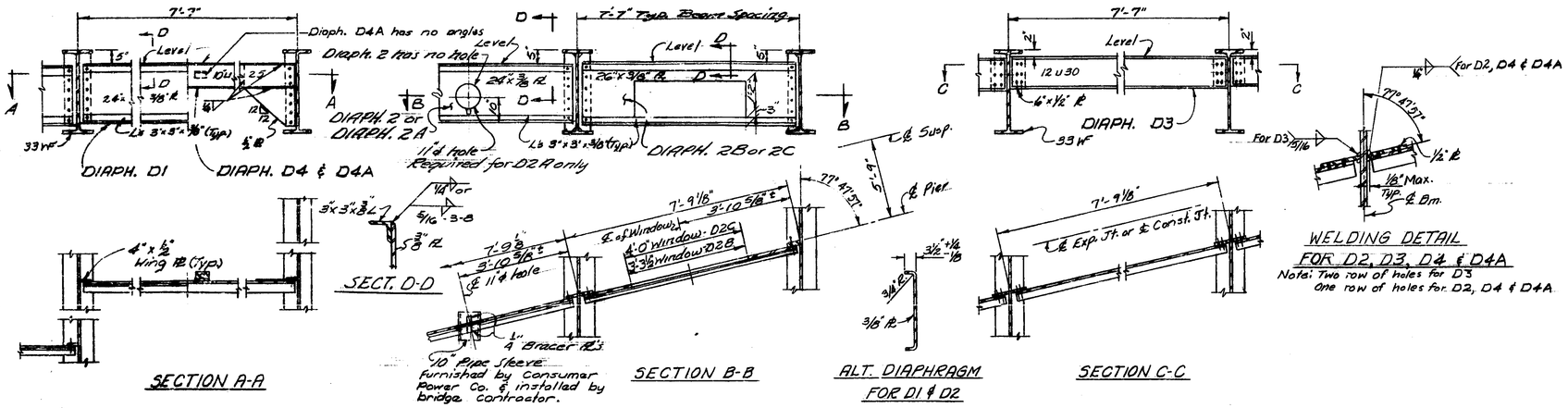
MICHIGAN STATE HIGHWAY DEPARTMENT

SHEAR DEVELOPER DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD BOSS	Nolan	11-25-64
DRAWN BY	C.Y. WANG	1-27-64
TRACED BY		
CHECKED BY	Hand	4-20-64
SHEET 116 OF 118		

S31 of 63174B

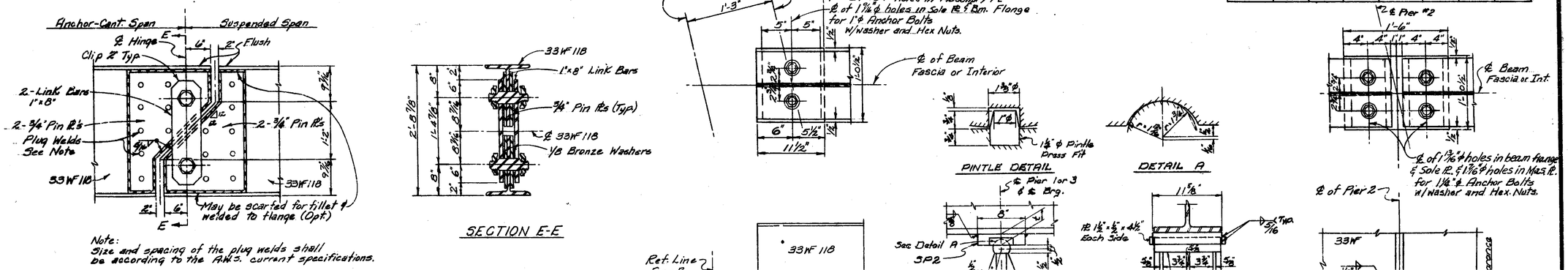


INTERM. DIAPHRAGM D1, D4 & D4A DETAILS

INTERM. DIAPHRAGM D2, D2A, D2B & D2C DETAILS @ Piers #1 & #3

END DIAPHRAGM D3 DETAILS @ Hinge & Pier #2

SOLE PLATE THICKNESS TABLE							
	BEAM	TYPE	t		BEAM	TYPE	t
Abutment A	A	SP1	2"	Pier 2 - Span 3	A	SP3	2"
	B	"	2"		B	"	2"
	C	"	4¾"		C	"	4½"
	D	"	2"		D	"	2"
	E	"	3½"		E	"	3"
	F	"	3½"		F	"	3"
	G	"	2½"		G	"	2"
	H	"	4"		H	"	4½"
	J	"	2"		J	"	2"
	K	"	2"		K	"	2"
Pier 1	A	SP2	2½"	Pier 3	A	SP2	3½"
	B	"	2½"		B	"	3½"
	C	"	5½"		C	"	5¾"
	D	"	2½"		D	"	2¾"
	E	"	3½"		E	"	3¾"
	F	"	3½"		F	"	3½"
	G	"	2¾"		G	"	2½"
	H	"	5¾"		H	"	5½"
	J	"	3½"		J	"	2½"
	K	"	3½"		K	"	2½"
Pier 2 - Span 2	A	SP3	2"	Abutment B	A	SP1	2"
	B	"	2"		B	"	2"
	C	"	4½"		C	"	4"
	D	"	2"		D	"	2½"
	E	"	3"		E	"	3½"
	F	"	3"		F	"	3½"
	G	"	2"		G	"	2"
	H	"	4½"		H	"	4¾"
	J	"	2		J	"	2"
	K	"	2"		K	"	2"



Note: See Utility Details, Sheet #113 for provisions for Utilities. (Consumers Power Co. & Detroit Edison Co.)

Work this sheet with sheet nos. 112, 113, 114, 116 and 117.

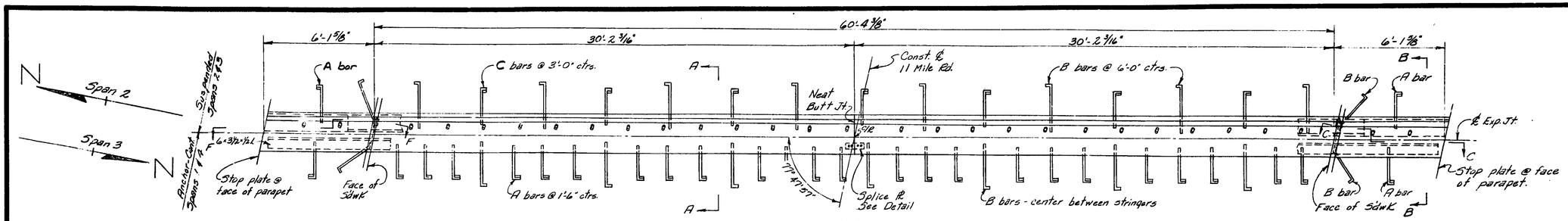
MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

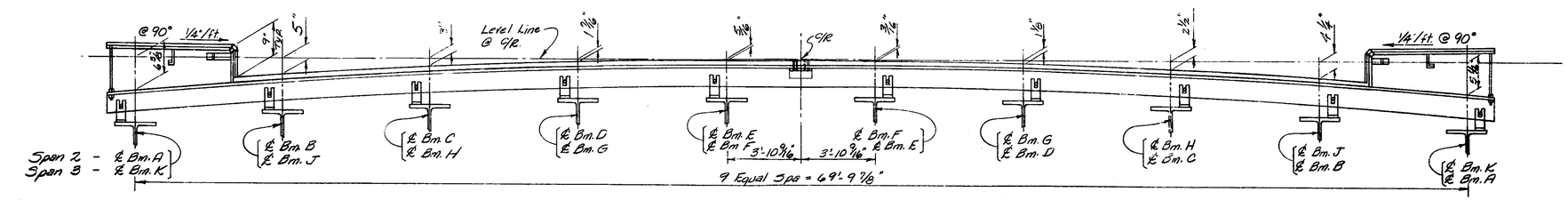
REVISIONS			
NO	DESCRIPTION	DATE	BY

SQUAD BOSS	Nolan	11-25-64
DRAWN BY	Narron	11-19-63
TRACED BY		
CHECKED BY	Wang	12-20-64
SHEET 115 OF 118		

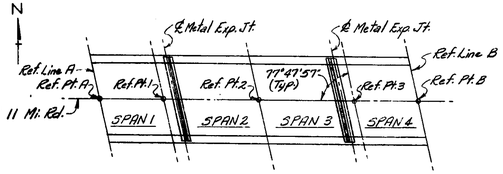
S31 of 63174B



PLAN

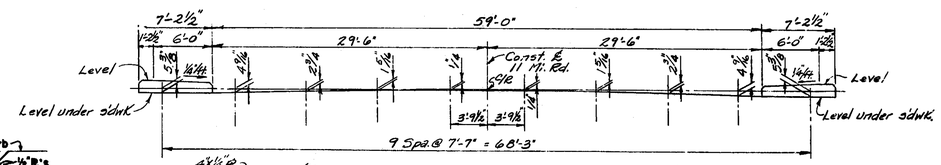


ELEVATION
(Parallel to Reference Lines)

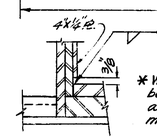


LOCATION SKETCH FOR METAL EXPANSION JTS.
(2 Required)

DETAILS FOR METAL EXPANSION JOINT IN SPANS 2 & 3



CROWN TEMPLATE
@ 90° to Const. ℄



DETAIL A

* Weld to seal joints between vertical and horizontal members.

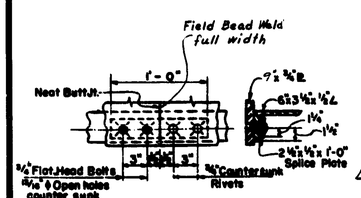
NOTES:

The Metal Expansion Joint shall be bent in the shop to conform with the contour of the top of roadway slab.

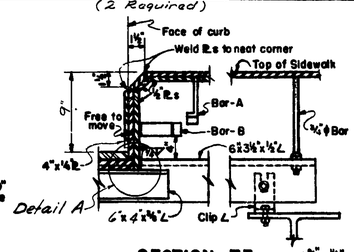
Hot-Poured Rubber-Asphalt Type Filler is included in the Superstructure Quantities on sheet #109.

Weight of Metal Expansion Joint is included in the Structural Steel weight on sheet #114.

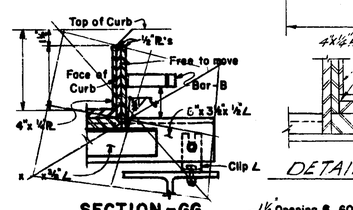
The Metal Expansion Joint shall not be painted in the shop except as noted on this sheet.



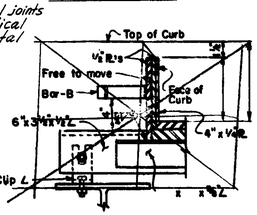
SPLICE PLATE DETAILS



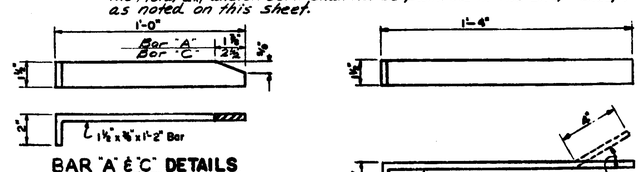
SECTION-FF



SECTION-GG

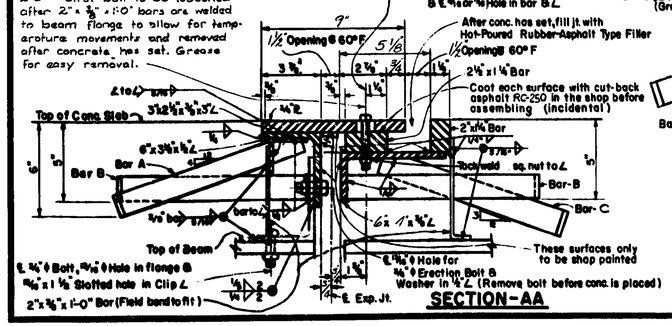


SECTION-EE

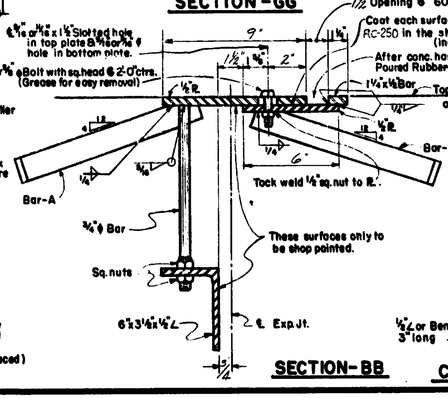


BAR "A" & "C" DETAILS

BAR "B" DETAILS

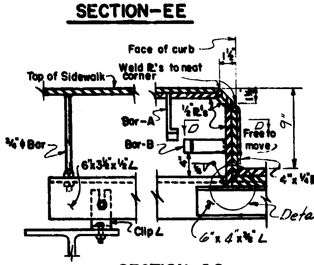


SECTION-AA

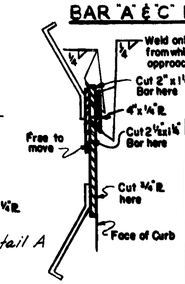


SECTION-BB

CLIP L DETAIL



SECTION-CC



SECTION-DD

Work this sheet with sheet nos. 114, 115 & 116

MICHIGAN STATE HIGHWAY DEPARTMENT

METAL EXPANSION JOINT DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	Nolan	11-25-64
DRAWN BY		
TRACED BY		
CHECKED BY		
SHEET 117 OF 118		

S31 of 63174B

ABUTMENTS

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A1	6'-6"							6	6'-6"	134	1308
A2	4'-6"							6	4'-6"	134	906
A3	33'-10"							6	33'-10"	60	3049
A4	33'-7"							4	33'-7"	60	1346
A5	8'-4"							6	8'-4"	184	2303
A6	8'-7"							6	8'-7"	88	1134
A7	4'-6"							4	4'-6"	2	6
A8	4'-3"							4	4'-3"	4	11
A9	7'-6"							4	7'-6"	2	10
A10	7'-3"							4	7'-3"	4	19
A11	10'-6"							4	10'-6"	2	14
A12	10'-3"							4	10'-3"	4	27
A13	4'-0"							4	4'-0"	2	5
A14	7'-0"							4	7'-0"	2	9
A15	10'-0"							4	10'-0"	2	13
D1	2'-0 3/8"	1'-0 1/2"						4	6'-5"	8	34
D2	4'-2 5/8"	1'-0 1/2"						4	9'-4"	16	100
D3	2'-5 5/8"	1'-0 1/2"						4	5'-6"	32	118

TOTAL FOR ABUTMENTS = 10,412#

PIERS

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A51	7'-6"							6	7'-6"	324	3651
A52	5'-9"							10	5'-9"	144	3563
A53	18'-8"							10	18'-8"	42	3373
A54	17'-10"							10	17'-10"	84	6446
A55	32'-9"							8	32'-9"	36	3148
A56	35'-10"							4	35'-10"	12	287
A57	35'-10"							8	35'-10"	36	3444
A58	26'-9"							8	26'-9"	144	10284
K51	3'-2 3/8"	1'-9 1/2"	1'-9 1/2"	2'-8 1/4"				4	12'-7"	120	1009
K52	3'-0 1/4"	1'-8 1/8"	1'-8 1/8"	2'-6 1/4"				4	11'-10"	86	680
K53	2'-6 1/4"	1'-8 1/2"	1'-8 3/4"	2'-6 1/4"				4	10'-11"	172	1254
K54	1'-10"	1'-4"	1'-4"	1'-10"				4	8'-1"	172	929
L51	2'-0 1/8"	2'-0 1/4"	0	1'-5 1/2"	1'-6 1/4"	1'-3 1/4"	1'-3 1/4"	4	8'-11"	86	512
S51	13'-11"	29'-5"	0'-9 3/8"					4	13'-11"	24	223
S52	6'-11"	29'-5"	0'-2 1/2"					4	6'-11"	12	56
T51	17'-1	5'-8 1/2"	1'-2 1/2"	0'-9"				10	24'-0"	12	1239
T52	17'-10"	5'-8 1/2"	1'-2 1/2"	0'-9"				10	24'-9"	6	639

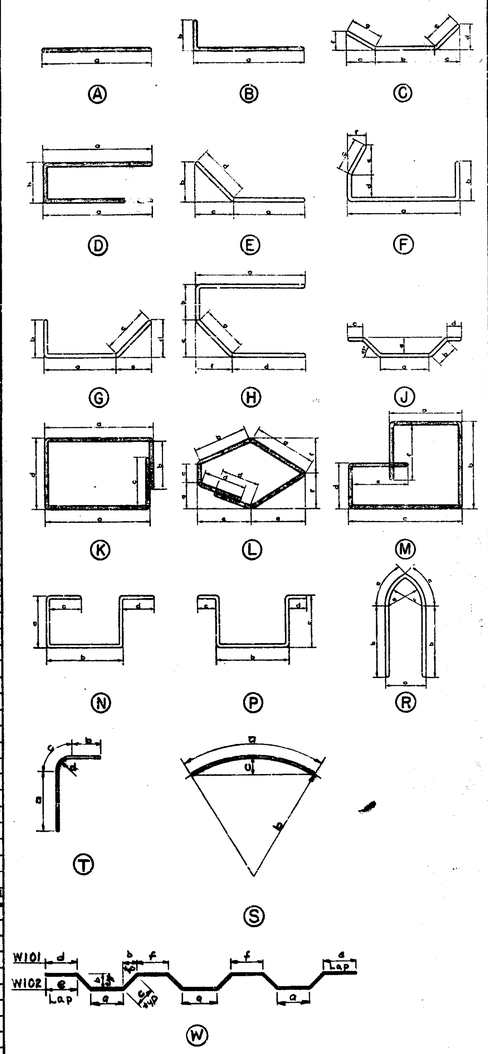
TOTAL FOR PIERS 40,732#

SUPERSTRUCTURE

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A101	26'-1"							6	26'-1"	1128	44195
A102	30'-2"							4	30'-2"	2	40
A103	38'-9"							3	38'-9"	154	2244
A104	38'-9"							6	38'-9"	154	8963
A105	38'-10"							4	38'-10"	20	519
A106	37'-0"							4	37'-0"	20	494
A107	39'-3"							3	39'-3"	32	472
A108	39'-3"							6	39'-3"	32	1886
A109	39'-2"							6	39'-2"	12	706
A110	15'-0"							6	15'-0"	72	1622
A111	29'-3"							3	29'-3"	372	4092
A112	30'-0"							6	30'-0"	372	16762
A113	29'-6"							6	29'-6"	24	1063
A114	28'-4"							4	28'-4"	2	38
A115	4'-6"							4	4'-6"	4	12
A116	13'-4"							6	13'-4"	4	80
A117	23'-6"							6	23'-6"	4	141
A118	4'-9"							6	4'-9"	4	29
A119	26'-3"							6	26'-3"	8	315
A120	29'-6"							4	29'-6"	72	1419
A121	39'-3"							4	39'-3"	36	944
A122	12'-6"							6	12'-6"	72	1352
B101	0'-7"	6'-10 1/2"						4	7'-5"	272	1349
D101	0'-6"	1'-2"						4	2'-1"	536	745
D102	2'-10 3/8"	0'-6 3/8"						6	6'-3"	315	2958
K101	0'-10 3/8"	0'-5 3/8"	0'-6"	0'-7 3/8"				4	3'-4"	590	1316
K102	3'-1 5/8"	1'-0 5/8"	1'-0 5/8"	1'-3 1/2"				4	9'-7"	18	115
K103	1'-9 5/8"	1'-0 5/8"	1'-0 5/8"	1'-3 1/2"				4	6'-10"	6	27
M101	0'-10 3/8"	3'-1 5/8"	1'-3 1/2"	2'-3 3/4"	0'-11 1/2"	1'-3 1/8"		4	9'-9"	6[illegible]	443
W101	4'-2 5/8"	4"	5 5/8"	3'-8 5/8"	2'-4 5/8"	2'-10 5/8"		6	27'-4"	376	15437
W102	4'-2 5/8"	4"	5 5/8"		2'-6 5/8"	2'-10 5/8"		6	26'-5"	188	7413

TOTAL FOR SUPERSTR. 117,191#

BAR BENDING DIAGRAM



Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 168,340#

MICHIGAN STATE HIGHWAY DEPARTMENT

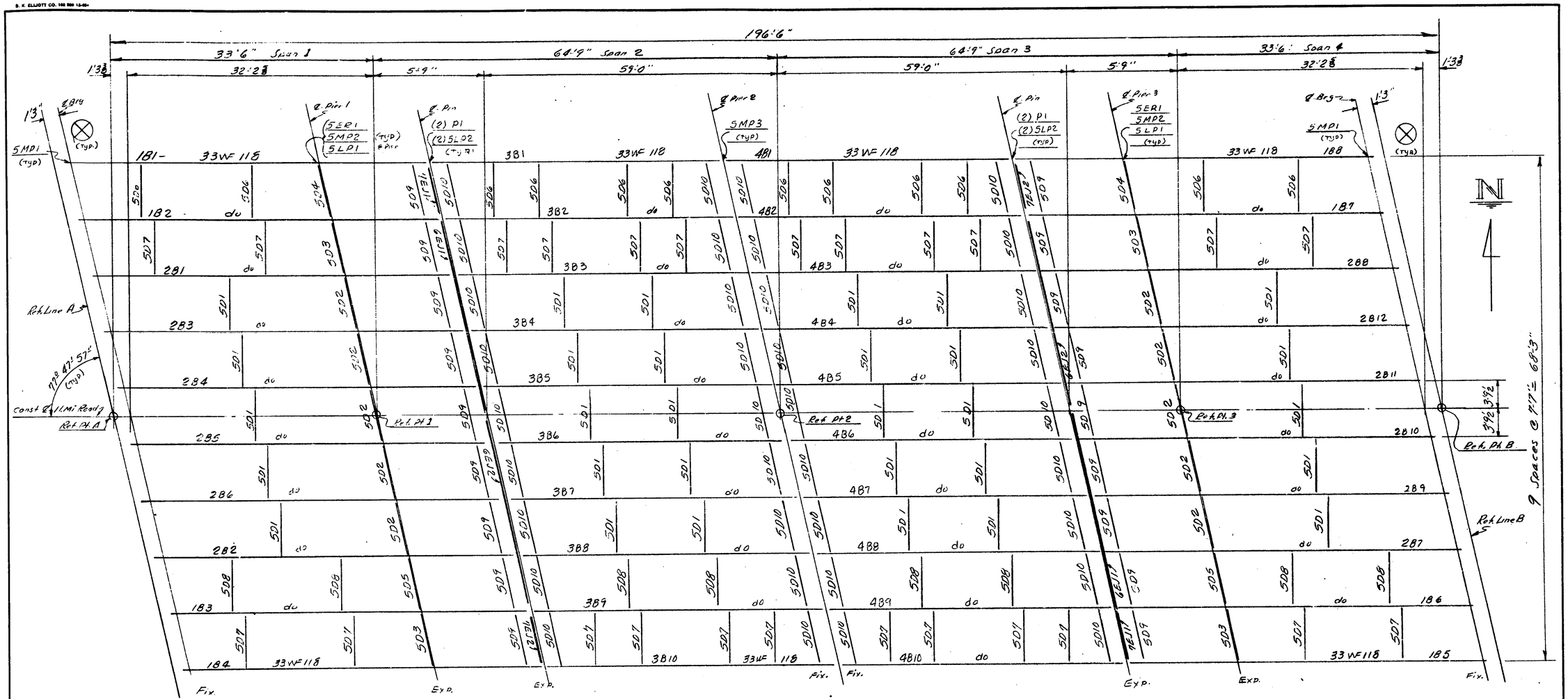
STEEL REINFORCEMENT DETAILS

REVISIONS

NO	DESCRIPTION	DATE	BY

SQUAD BOSS Nolan 8-5-64
DRAWN BY Warren 7-28-64
TRACED BY
CHECKED BY Wang 1-3-66
SHEET 118 OF 118

S31 of 63174B



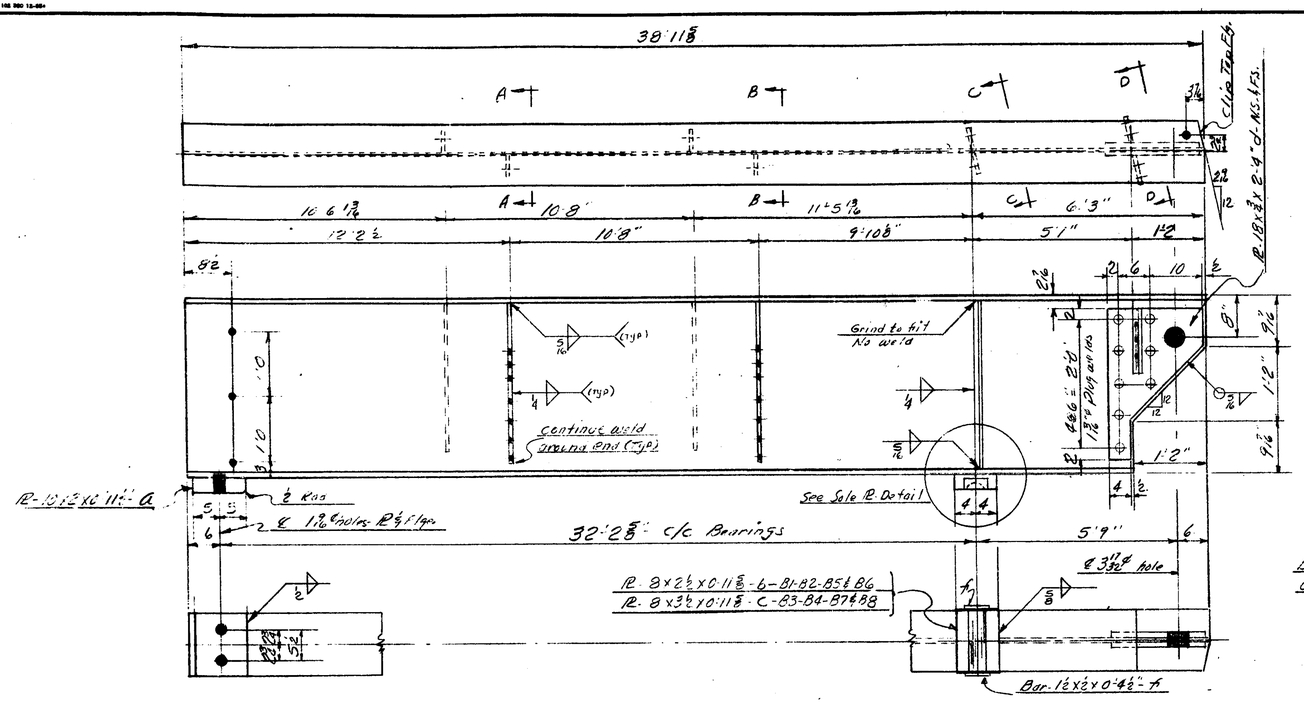
ERECTION DIAGRAM

REVISION			
NO.	DESCRIPTION	DATE	BY

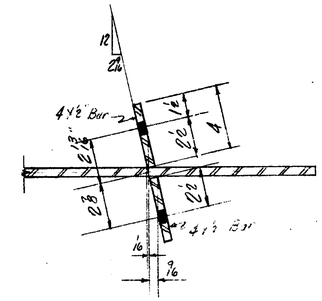
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

I-75 South bound & North bound
Crossing 11-Mile Road
Jutton-Kelly Co. Contr.
S31 of 63174 B

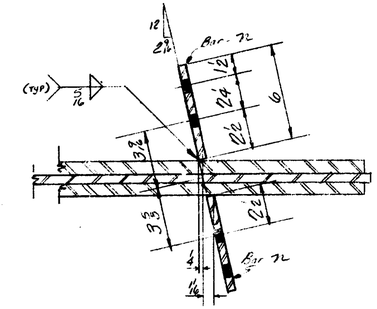
DATE 5-24-66	JOB NO. R25664	SHEET E1 of 1
BY AWB		



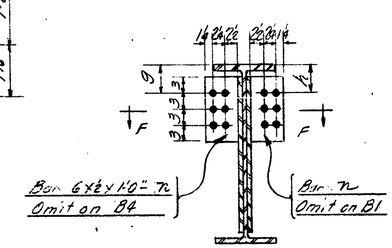
8-Beams Rolled (35 WF 118 x 38'-11 5/8") as shown & noted - Mark-1B1-1B8-incl.



Section "EE"



Section "FF"



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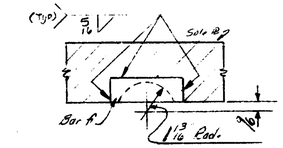
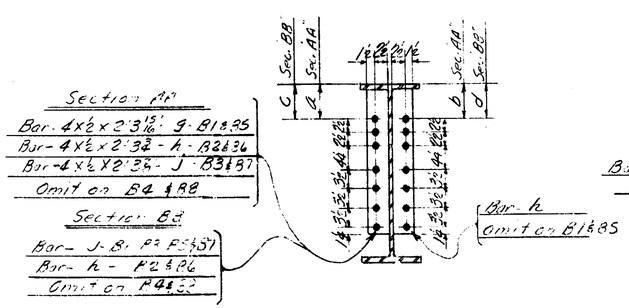
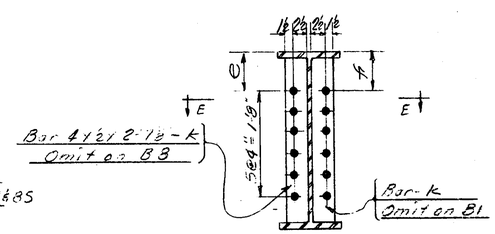


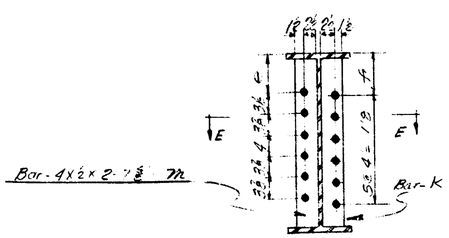
Sole Plate Detail



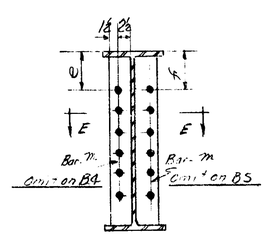
Sections AA & BB



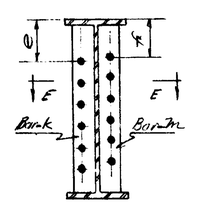
For B1 & B5 - only
Section "CC"



For B2 & B3 only
Section "CC"



For B4 & B8 only
Section - CC



For B6 & B7 - only
Section "CC"

Table of Dimensions

Beam	a	b	c	d	e	f	g	h
B1	7 11/16		7 5/8		8		5	
B2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/4	8	5	5
B3	7 5/8	7 1/2	7 5/8	7 1/2	7 1/4	8	5	5
B4		7 1/2		7 1/2		7 1/4		5
B5	7 11/16		7 5/8		7 1/4		5	
B6	7 1/2	7 1/2	7 1/2	7 1/2	8	7 1/4	5	5
B7	7 5/8	7 1/2	7 5/8	7 1/2	8	7 1/4	5	5
B8		7 1/2		7 1/2		8		5

Shop Notes

Fabrication - M.S.H.D. Standard Specs. 1965 Edition

Paint shop coat - M.S.H.D. #1A(1) Red Lead, except as follows. The top surface of the top flange of beams in spans 2 & 3 shall be given one shop coat of Boiled Linseed Oil only. The top surface of masonry plates - the bottom surface of sole plates & the top & bottom surfaces of expansion rockers shall be given one shop coat M.S.H.D. Specs 5.02.03 Tallow Mixture only. The metal expansion joint is to be shop painted only where noted.

Camber - The beams in spans 1 & 4 are to have a camber of 0" & the beams in spans 2 & 3 are to have a camber of 1 3/8" (Max. Ordinate) this camber is to be measured with beam lying on its side. The allowable camber tolerance is ±1/4"

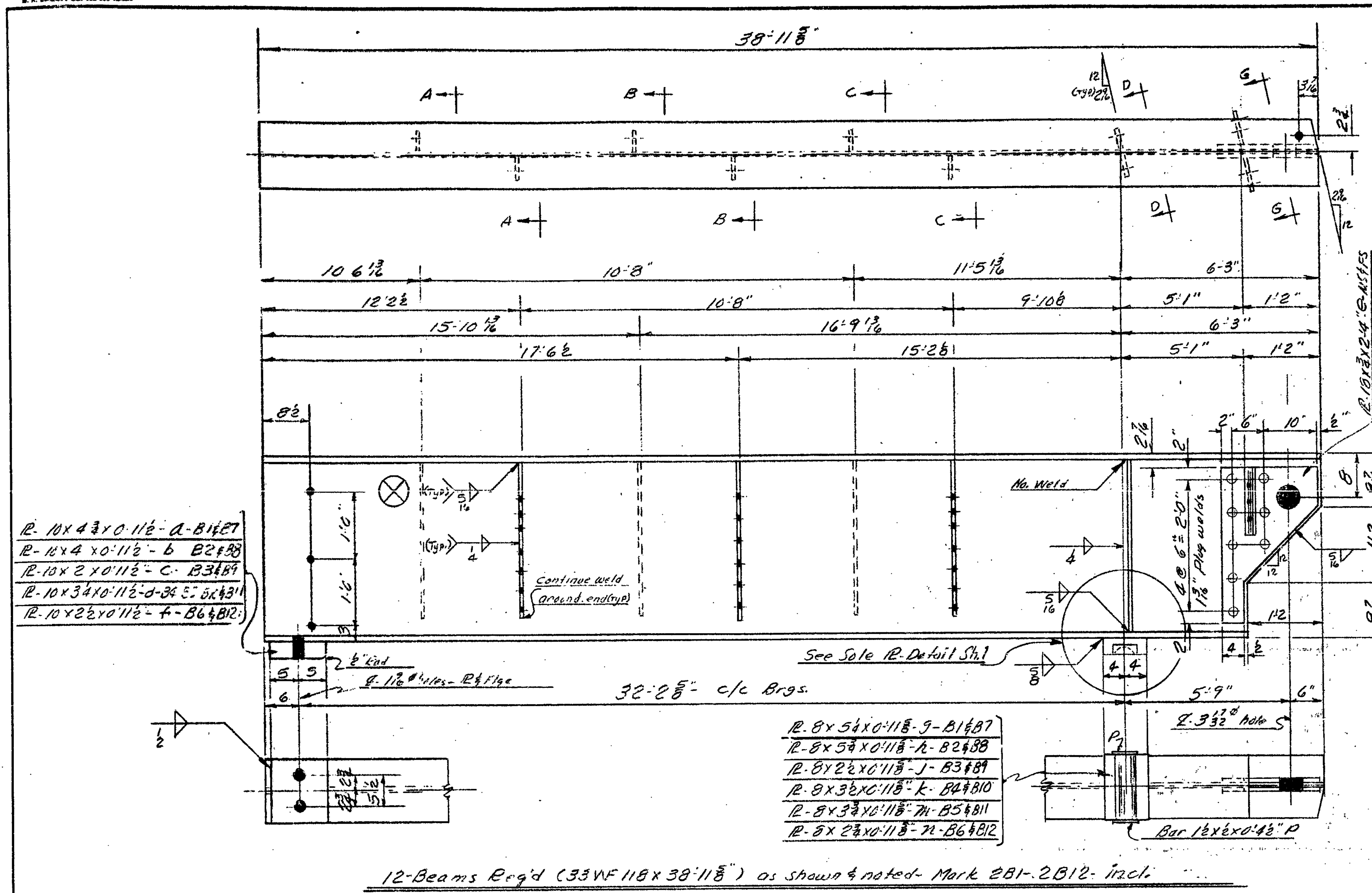
All structural steel - A 36 - Open holes 13/16" ø unless noted.

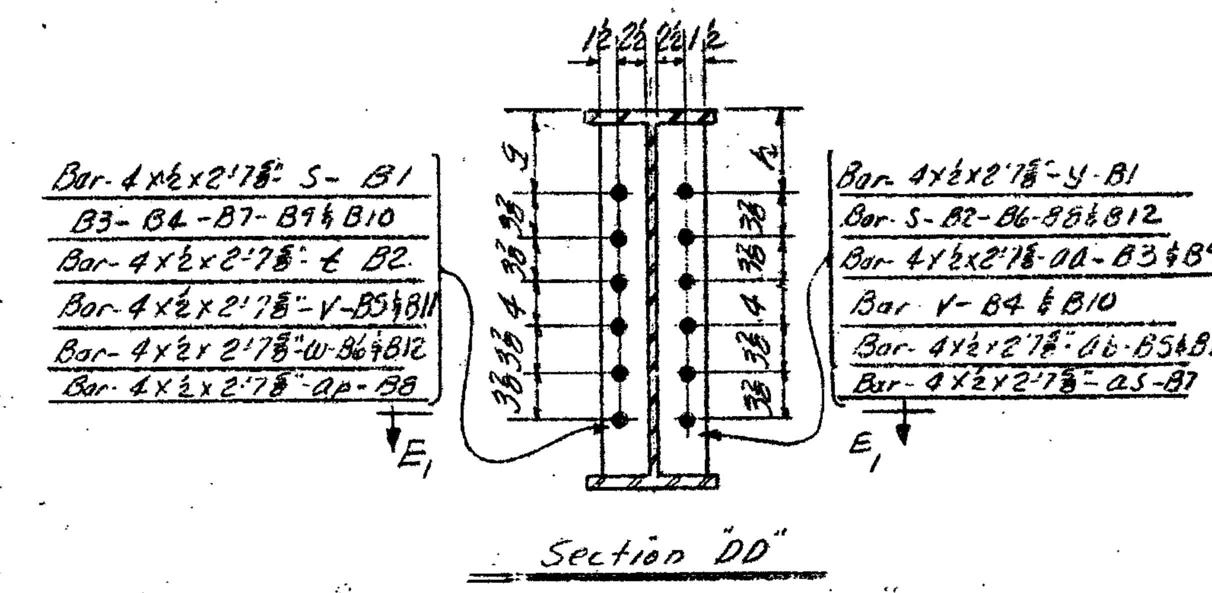
REVISION			
NO.	DESCRIPTION	DATE	BY

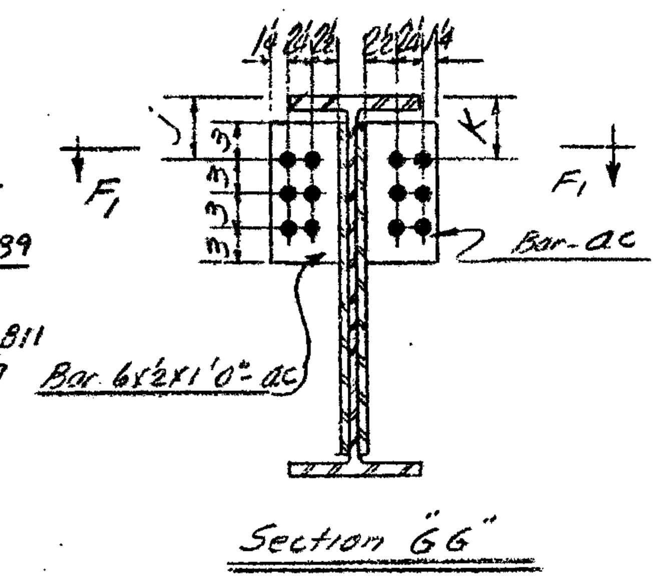
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

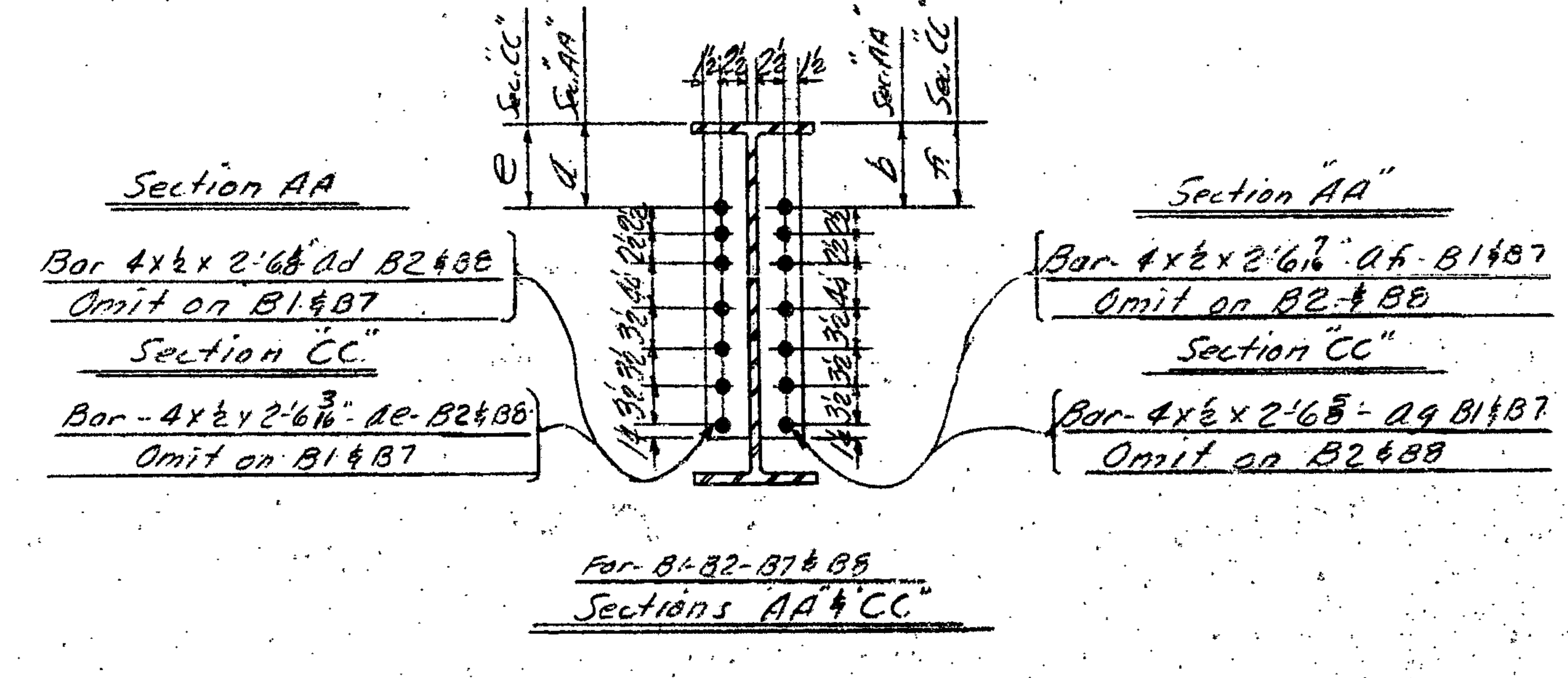
I-75 - South-bound & North-bound
Crossing 11 Mile Road
Jutton Kelly Co. Contr.
S31 of 63174 B

DATE	JOB NO.	SHEET
5-24-66	825664	1 of 7
BY A.W.B.		









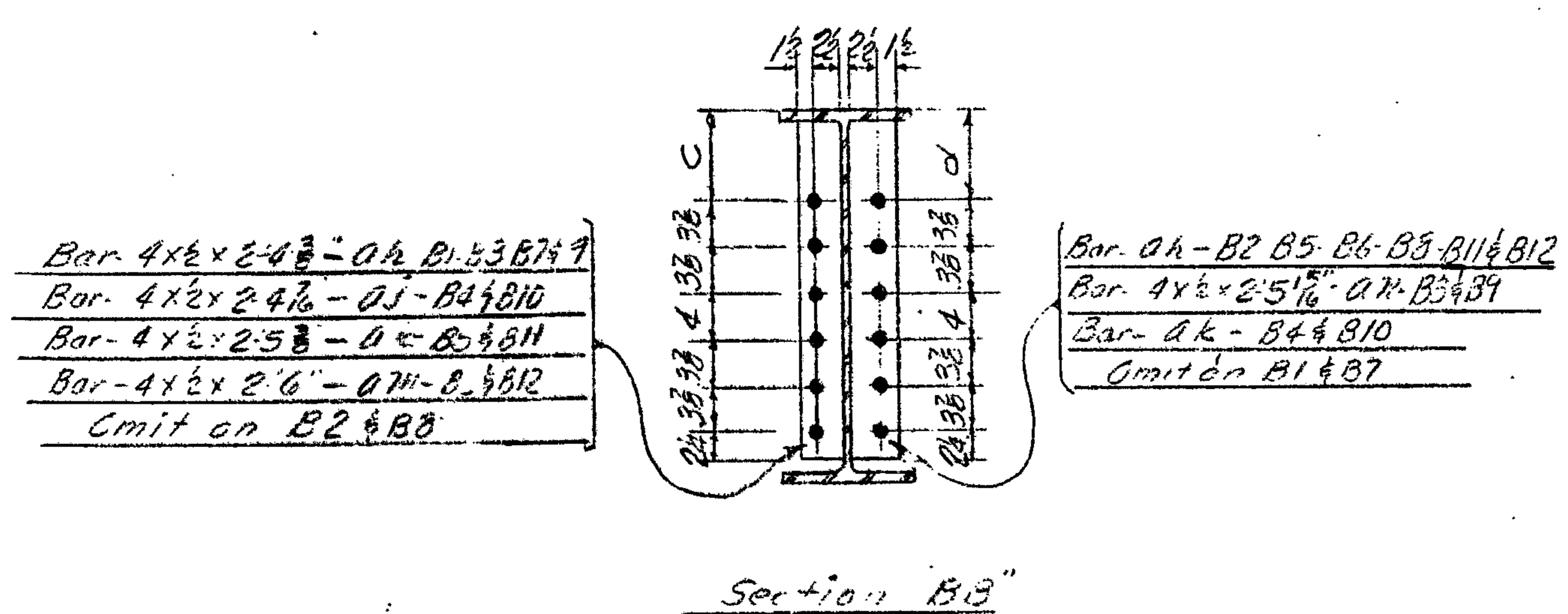


Table of Dimensions

Beam	a	b	c	d	e	f	g	h	j	k
B1	X	10 1/16	7 1/4	X	X	10 1/8	7 1/4	10	5	7 3/4
B2	9 3/4	X	X	7 1/4	9 13/16	X	10 1/4	7 1/4	7 5/16	5
B3	X	X	7 1/4	8 13/16	X	X	7 1/4	8 15/16	5	6 11/16
B4	X	X	7 5/16	8 1/4	X	X	7 1/4	8 1/4	5	6
B5	X	X	8 1/4	7 1/4	X	X	8 1/4	7 1/2	6	5 1/4
B6	X	X	8 3/8	7 1/4	X	X	8 11/16	7 1/4	6 7/16	5
B7	X	10 1/16	7 1/4	X	X	10 1/8	7 1/4	10 3/4	5	7 3/4
B8	9 3/4	X	X	7 1/4	9 13/16	X	9 1/2	7 1/4	7 5/16	5
B9	X	X	7 1/4	8 13/16	X	X	7 1/4	8 15/16	5	6 11/16
B10	X	X	7 5/16	8 1/4	X	X	7 1/4	8 1/4	5	6
B11	X	X	8 1/4	7 1/4	X	X	8 1/4	7 1/2	6	5 1/4
B12	X	X	8 3/8	7 1/4	X	X	8 11/16	7 1/4	6 7/16	5

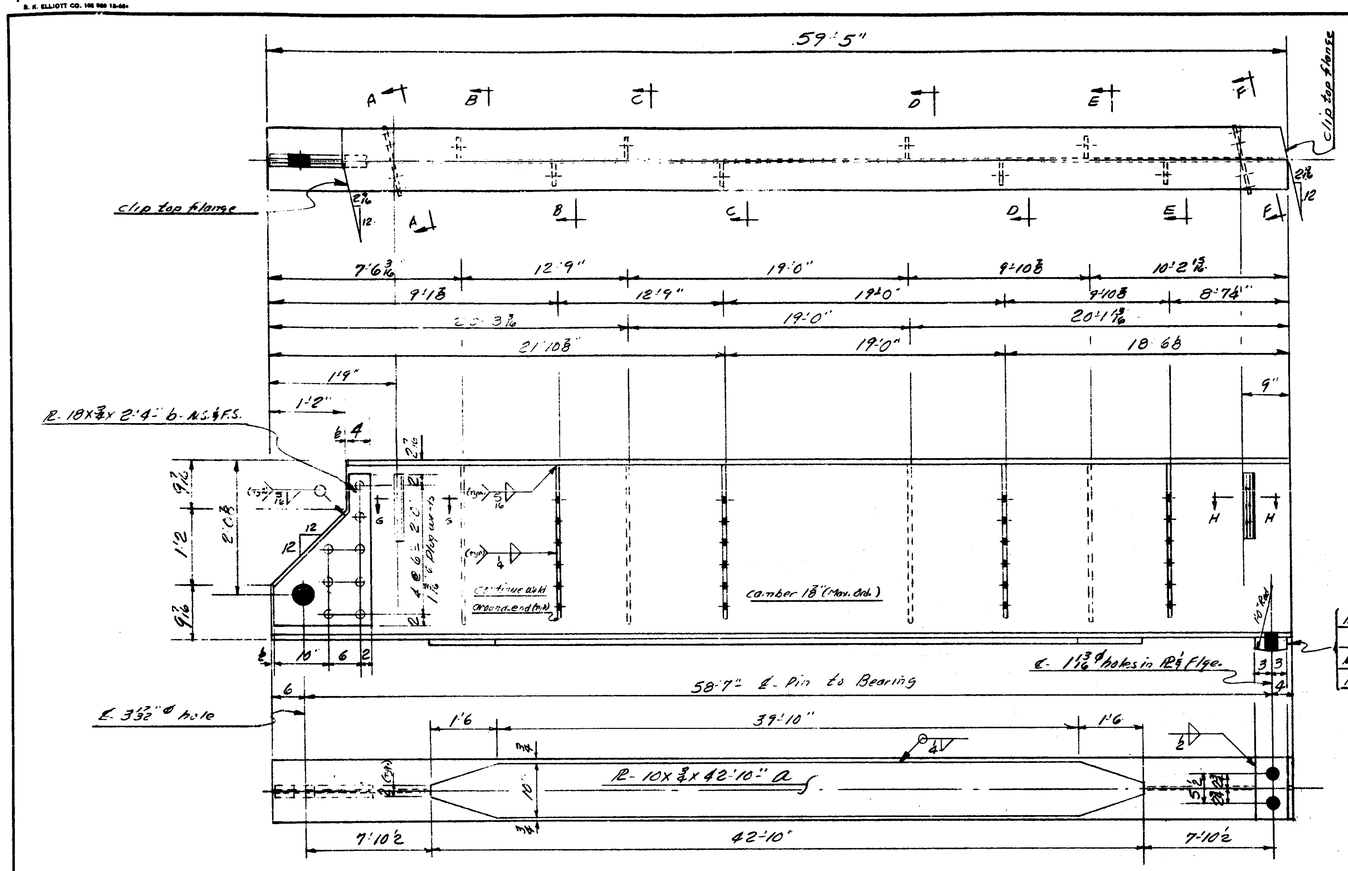
See Shop Notes on Sheet # 1

REVISION			
NO.	DESCRIPTION	DATE	BY

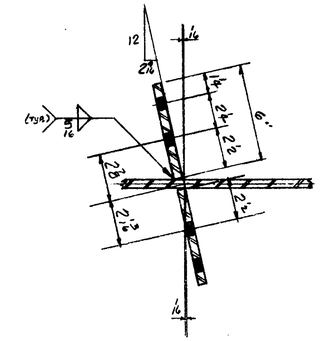
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

I-75 South-bound & North-bound
Crossing 11-Mile Road.
Sutton-Kelly-Co. Contr.
531 of 63174-B

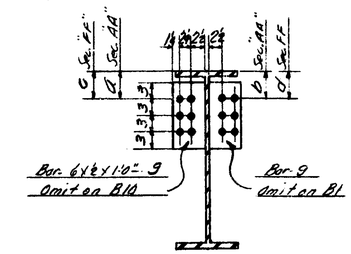
DATE 5-26-66 | BY A.W.B. | JOB NO. R25664 | SHEET 2 of 7



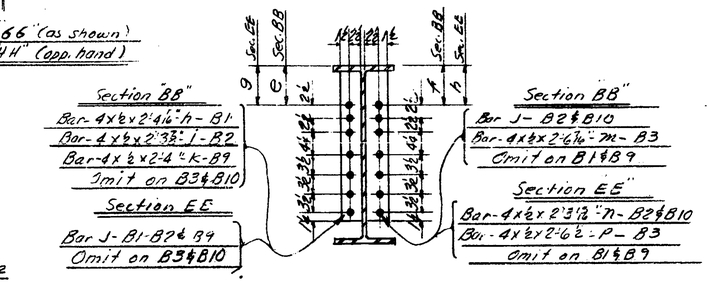
10-Beams Reqd (33 WF 118# x 59'-5") as shown & noted- Mark- 381-3810- inch.



Section GG" (as shown)
Section "HH" (opp. hand)



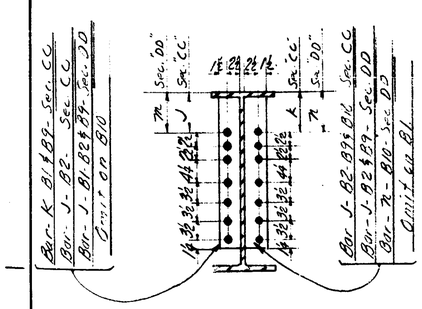
Sections "AA" & "FF"



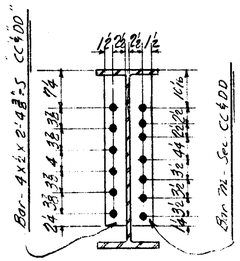
For B1-B2-B3-B9 & B10-only
Sections BB & EE"

Table of Dimensions

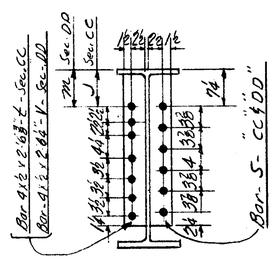
Beam	a	b	c	d	e	f	g	h	j	k	m	n
B1	5		5		7 11/16		7 1/2		7 3/8		7 1/2	
B2	5	5	5	5	7 1/2	7 1/2	7 1/2	7 9/16	7 1/2	7 1/2	7 1/2	7 1/2
B3	5	7 3/4	5	7 1/2		10 1/16		10 3/8	7 1/4	10 1/16	7 1/4	10 1/16
B4	5	6 11/16	5	6 3/8					7 1/4	8 3/4	7 1/4	8 13/16
B5	5	5 15/16	5	6					7 1/4	8 3/8	7 1/4	8 1/4
B6	6 1/16	5 7/16	6	5					8 7/16	7 13/16	8 1/4	7 3/8
B7	6 7/16	5	6 3/8	5					8 3/8	7 1/4	8 3/4	7 1/4
B8	7 15/16	5	7 1/2	5					10	7 1/4	9 3/8	7 1/4
B9	5	5	5	5	7 3/8		7 1/2		7 3/8	7 1/2	7 1/2	7 1/2
B10		5		5		7 1/2		7 9/16		7 1/2		7 9/16



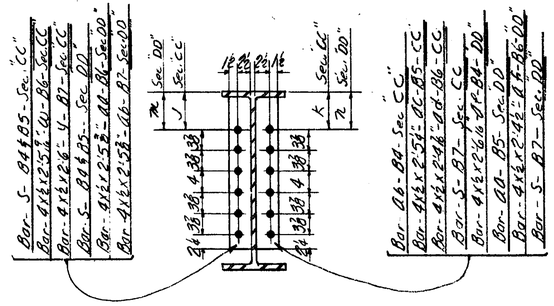
Sections CC & DD
For B1-B2-B4 & B10



Sections CC & DD
For B3 only



Sections "CC" & "DD
For B8-Only



Sections "CC" & "DD"
For- B4-B5-B6 & B7

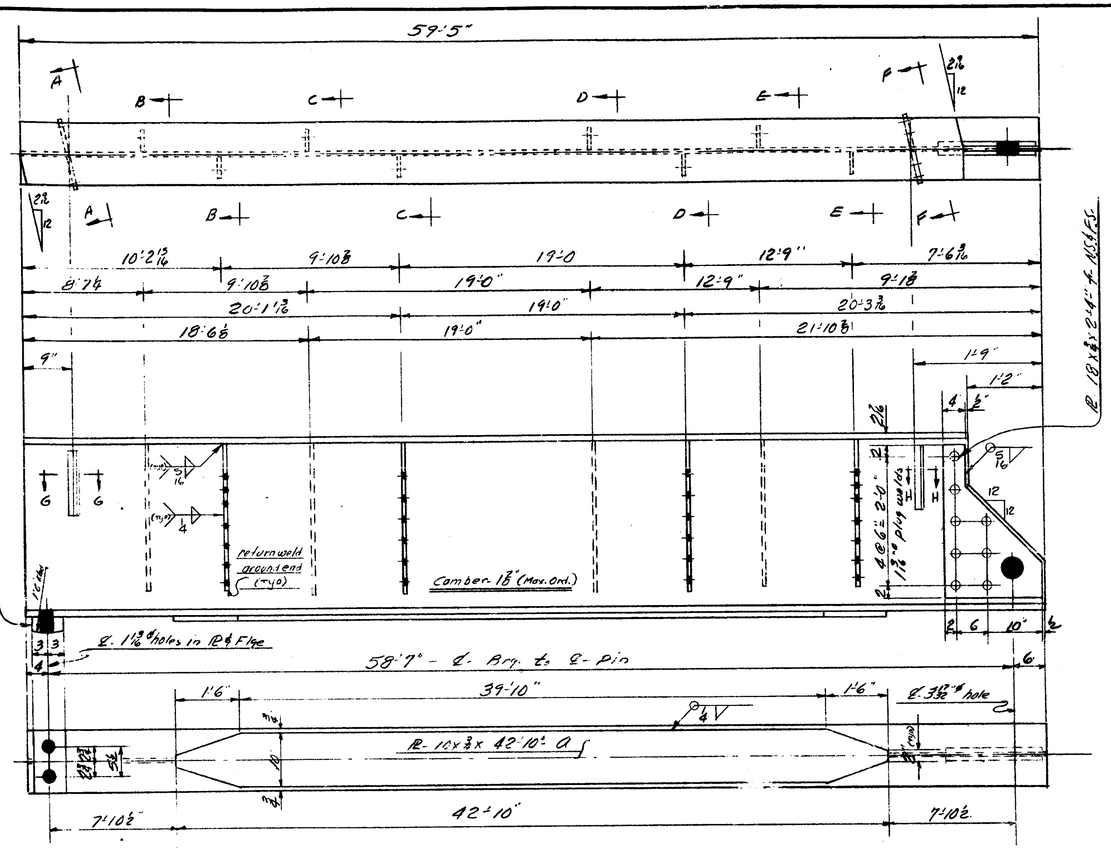
See Shop Notes on Sheet #7

REVISION			
NO.	DESCRIPTION	DATE	BY

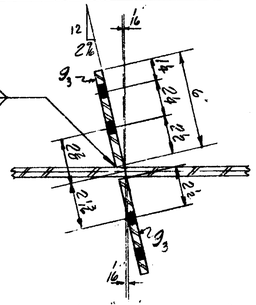
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

I-75- Southbound & North-bound
Crossing- 11 Mile Road-
Jutton & Kelly-Co- Contrs.
S-31 of 63174 B.

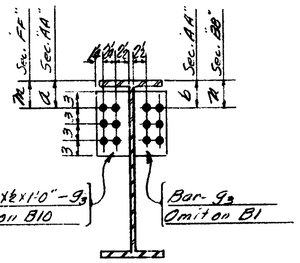
DATE 6-1-66 | JOB NO. P25664 | SHEET 3 of 7
BY A.W.B.



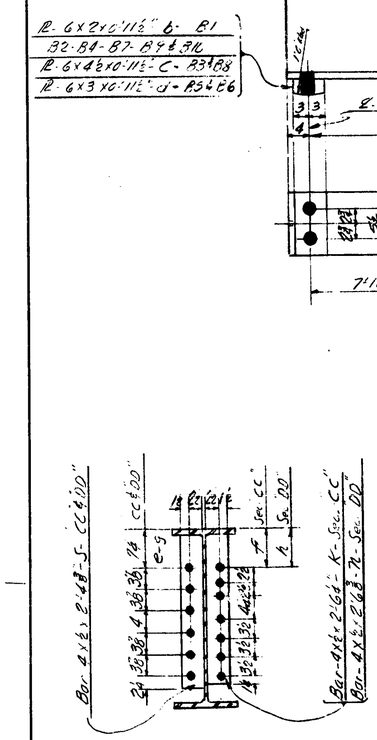
10 Beams Req'd (33WF118x 59'-5") as shown & noted - Mark 4B1-4B10 - incl.



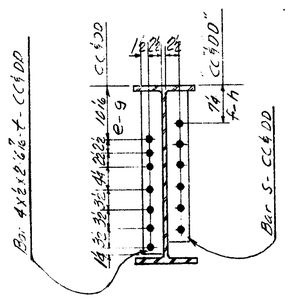
Section "GG" (shown)
Section "HH" (opp. hand)



Sections "AA" & "FF"



For B3 - c
Sections CC & DD



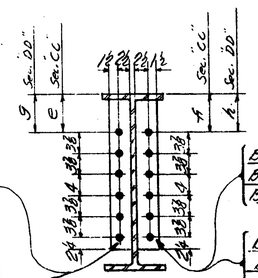
For B8 - only
Sections CC & DD

Section "CC"

Bar - S - B4
Bar - 4"x 1/2"x 2'-4 1/2" - V - B5
Bar - 4"x 1/2"x 2'-5 3/8" - w - B6
Bar - 4"x 1/2"x 2'-6 1/16" - y - B7

Section "u"

Bar - S - B4
Bar - 4"x 1/2"x 2'-4" - ua - B5
Bar - 4"x 1/2"x 2'-5" - ab - B6
Bar - 4"x 1/2"x 2'-5 3/8" - ac - B7



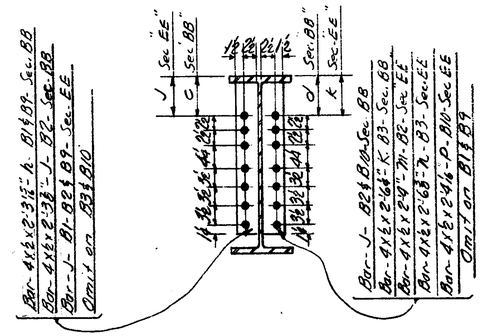
Section CC

Bar - ac - B4
Bar - w - B5
Bar - S - B6 & B7

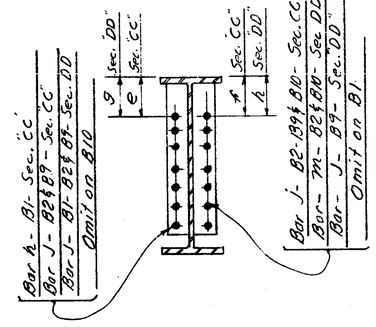
Section "DD"

Bar - 4"x 1/2"x 2'-6" - ad - B4
Bar - 4"x 1/2"x 2'-5 7/16" - ae - B5
Bar - S - B6 & B7

For - B4 - B5 - B6 & B7 - only
Sections CC & DD



For B1 - B2 - B3 - B9 & B10 only
Sections BB & EE



For B1 - B2 - B9 & B10 - only
Sections CC & DD

Table of Dimensions

Beam	a	b	c	d	e	f	g	h	j	k	m	n
B1	5	X	7 9/16	X	7 9/16	X	7 1/2	X	7 1/2	X	5	X
B2	5	5	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 5/8	7 1/2	7 5/8	5	5
B3	5	7 1/2	X	9 3/8	7 1/4	9 3/8	7 1/4	10	X	10	5	7 5/16
B4	5	6 5/8	X	X	7 1/4	8 3/4	7 1/4	8 3/8	X	X	5	6 7/16
B5	5	6	X	X	7 3/8	8 1/4	7 5/16	8 7/16	X	X	5 5/16	6 1/16
B6	6	5	X	X	8 1/4	7 1/4	8 1/8	7 1/4	X	X	5 15/16	5
B7	6 5/8	5	X	X	8 13/16	7 1/4	8 3/4	7 1/4	X	X	6 1/16	5
B8	7 1/2	5	X	X	10 1/16	7 1/4	10 1/16	7 1/4	X	X	7 3/4	5
B9	5	5	7 9/16	X	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	X	5	5
B10	X	5	X	7 1/2	X	7 1/2	X	7 5/8	X	7 11/16	X	5

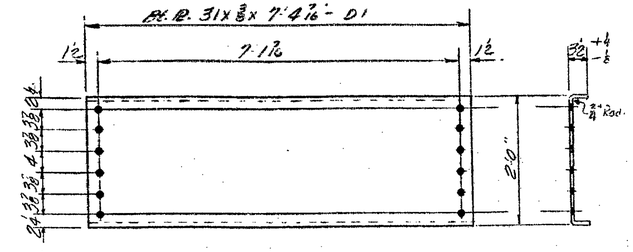
See Shop Notes on Sheet 1

REVISION			
NO.	DESCRIPTION	DATE	BY

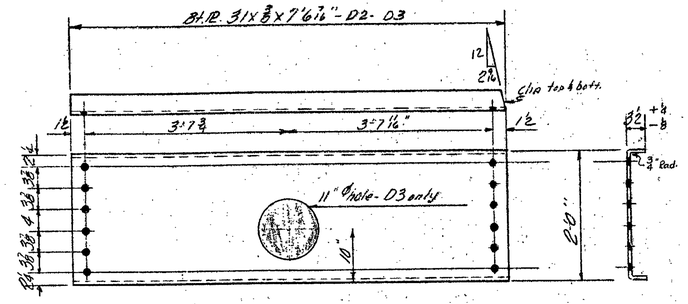
F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

I-75 - South-bound & North-bound
Crossing - 11 Mile Road
Jutton - Kelly - Co. Contrs
531 of 63174-8

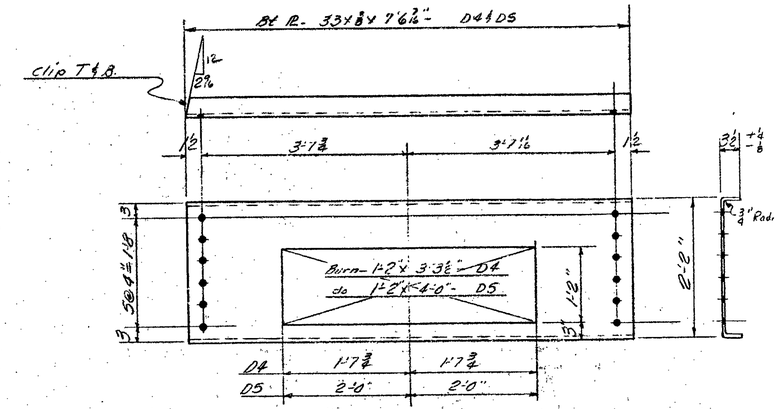
DATE 6-3-66 BY A.W.B. | JOB NO. R25664 | SHEET 4 of 7



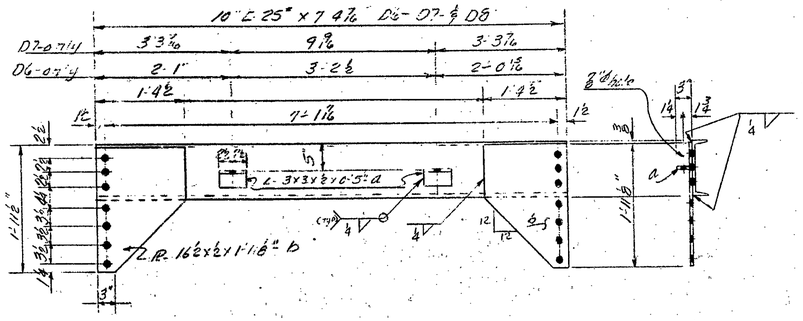
30 - Diaphragms Req'd - Mark - 5D1



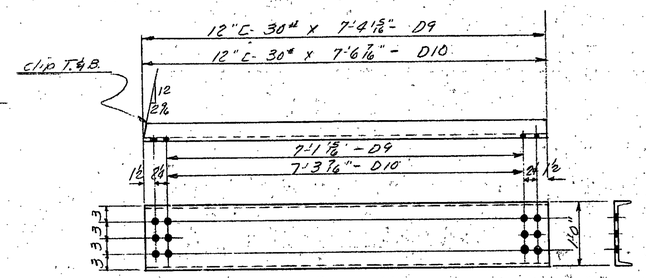
10 - Diaphragms Req'd (as shown & noted) Mark - 5D2
4 - Diaphragms Req'd (do do) Mark - 5D3



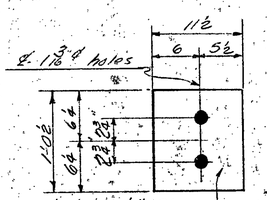
2 - Diaphragms Req'd (as shown & noted) Mark 5D4
2 - Diaphragms Req'd (do do) Mark 5D5



12 - Diaphragms Req'd - (as shown & noted) Mark - 5D6
24 - Diaphragms Req'd (do do) Mark - 5D7
8 - Diaphragms Req'd (do do) Mark - 5D8

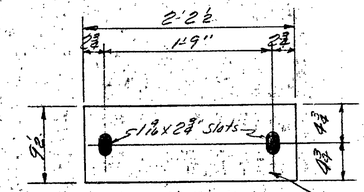


18 - Diaphragms Req'd (as shown & noted) Mark - 5D9
36 - Diaphragms Req'd (do do) Mark - 5D10



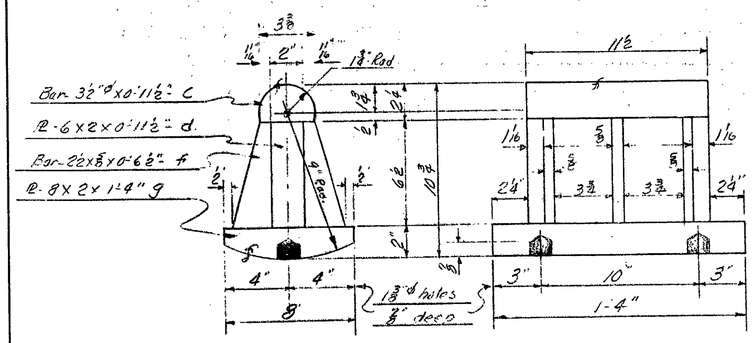
Pl. 11 1/2 x 2 x 1'-0 1/2" Pl.
Tallow Mix. only. NS.

20 Masonry Pls. Req'd Mk. 5MP1



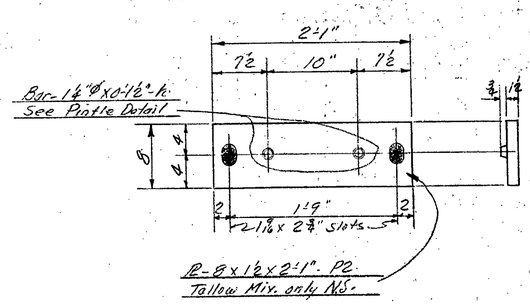
Sh. Lead - 9 1/2 x 6 x 2'-2 1/2" LP1

20 - Lead Pls. Req'd - Mark 5LP1

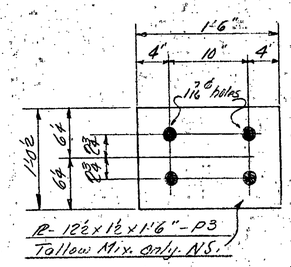


Weld - 1/2 continuous fillet

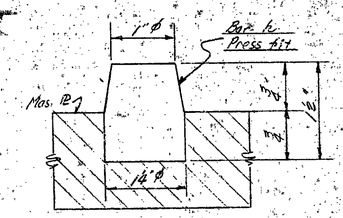
20 - Expansion Rockers Req'd - Mark 5ER1



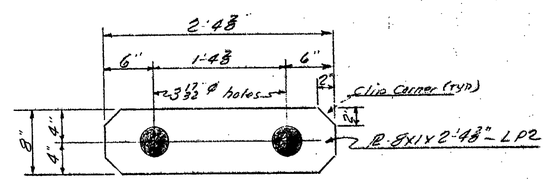
20 Masonry Plates Req'd - Mark 5MP2



10 - Masonry Plates Req'd Mark 5MP3



Pintle Detail



40 - Link Plates Req'd - Mark 5LP2

See Shop Notes on Sheet #1

REVISION			
NO.	DESCRIPTION	DATE	BY

F. YEAGER
BRIDGE & CULVERT COMPANY
1701 KEARNEY ST. — PORT HURON, MICH.

I-75 - South-bound & North-bound
Crossing 11 Mile Road
Jutton Kelly Co. Contr's
SS1 of 63174-B-

DATE 6-6-66	JOB NO. R25664	SHEET 5 of 7
BY A.M.B.		

MICROFILM CONTENT SHEET

BATCH 07-06C **OUT TO MICROFILM 6/15/2007**

Control Section	Structure	Job Number	Sheet Number	Let Date	Region	Total Sheets	Plan Set	Box
63103	S04	48404	(TWO ROLLS)	12/3/1999	METRO	163	2	1
63174		48404						
63174	P01, S02, S30, S31	48404						
			STRUCTURE ONLY					
			*AS CONSTRUCTED					
	63174-48404 AND 63103-48404 DECK REPLACEMENT, OVERLAY SUSPENDER REPLACEMENT, STEEL REPAIRS, SUBSTRUCTURE REPAIR, PAINTING, AND APPROACH WORK. S04, P01, S02, S30, S31- DECK REPLACEMENT, OVERLAY SUSPENDER REPLACEMENT, STEEL REPAIRS, SUBSTRUCTURE REPAIR, PAINTING, AND APPROACH WORK.							

CONTROL S04 OF 63103, P01, S02.
SECTION S30, S31 OF 63174

JOB NO. 48404A

SH. NO. 1

MICHIGAN
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED BRIDGE REHABILITATION

MICHIGAN PROJECT **BHI 0063(169)**

CONTROL SECTION **BHI** 63174

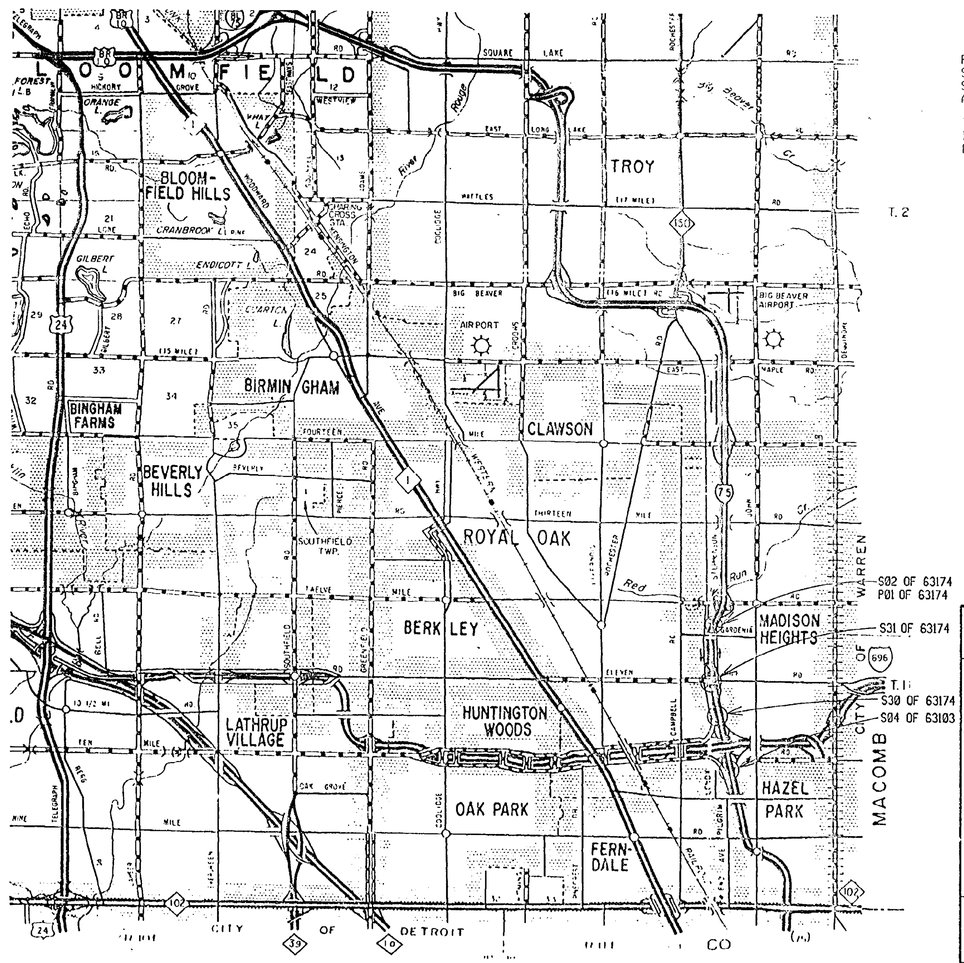
JOB NUMBER 48404A

I-75

CITIES OF HAZEL PARK, MADISON HEIGHTS, & ROYAL OAK

OAKLAND COUNTY

N



STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

B-25-A	BRIDGE RAILING, AESTHETIC PARAPET TUBE
B-32-A	FENCING FOR PEDESTRIAN STRUCTURE, EXISTING OPEN PARAPET
B-103-B	MOLDING, BEVEL, LIGHT STANDARD ANCHOR BOLT ASSEMBLY, AND NAME PLATE DETAILS

TITLE SHEET LEGEND

PROPOSED PROJECT .....

EXISTING ROADS

- PAVED .....
- BITUMINOUS .....
- GRAVEL .....
- UNIMPROVED OR CITY STREET ..

SECTION LINE .....

TOWNSHIP LINE .....

COUNTY LINE .....

CITY OR VILLAGE LIMITS .....

RAILROADS .....

GENERAL NOTES

THE RECONSTRUCTION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS18 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH AND 1/300 OF CANTILEVER ARM. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS DESIGN.

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDING TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION 1996 EDITION.

THE STATIONING AS SHOWN ON THESE PLANS FOR THE INTERSECTION OF THE CENTERLINE OF BRIDGE AND ROADWAY CENTERLINE IS BELIEVED TO BE CORRECT. IT SHALL, HOWEVER, BE CHECKED AT THE TIME OF STARTING CONSTRUCTION, AND IF THE STATIONING SHOWN ON THE PLANS IS INCORRECT, IT SHALL BE REPORTED TO THE DESIGN OFFICE IN LANSING, AND THE STRUCTURE SHALL BE STAKED OUT USING THE ACTUAL INTERSECTION OF THE CENTERLINE OF BRIDGE AND ROADWAY CENTERLINE AS THE CONTROL POINT.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:

CONCRETE: GRADE S2	f'c =	21 MPa
CONCRETE: GRADE D	f'c =	28 MPa
STEEL REINFORCEMENT	fy =	400 MPa
STRUCTURAL STEEL: AASHTO M270 Grade 250	fy =	250 MPa
STRUCTURAL STEEL: AASHTO M270 Grade 345	fy =	345 MPa
STRUCTURAL STEEL PINS: ASTM A276 UNS DESIGNATION S20161 OR S21800	fy =	345 MPa

PROPOSED PLAN SHEET DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN. ELEVATIONS, COORDINATES AND CURVE ALIGNMENT DATA ARE IN METERS. STATIONS ARE IN KILOMETERS + METERS. EXISTING PLAN SHEET DIMENSIONS ARE IN CUSTOMARY U. S. UNITS.

THE REGULATED WASTE ACTIVITY IDENTIFICATION NUMBERS FOR THIS PROJECT ARE AS FOLLOWS:

CONTROL SECTION	NUMBER
S04 OF 63103	MIR000039164
S02 OF 63174	MIR000039156
S30 OF 63174	MIR000039180
S31 OF 63174	MIR000039193
P01 OF 63174	MIR000039206

2020 ESTIMATED TRAFFIC DISTRIBUTION

194500 AVERAGE DAILY TRAFFIC
8% COMMERCIAL

CONTRACT FOR: DECK REPLACEMENT, OVERLAY, SUSPENDER REPLACEMENT, STEEL REPAIR, SUBSTRUCTURE REPAIR, PAINTING, AND APPROACH WORK

APPROVALS

RECOMMENDED FOR APPROVAL — Ali Mahdavi, PROJECT MANAGER — 10-18-99 DATE

RECOMMENDED FOR APPROVAL — Jerry W. Cooper, RESIDENT ENGINEER — 10-7-99 DATE

MICHIGAN
DEPARTMENT OF TRANSPORTATION
JAMES R. DESANA - DIRECTOR

APPROVED BY — Gary D. Taylor, DEPUTY DIRECTOR - HIGHWAYS — 11/3/99 DATE

MDOT Michigan Department of Transportation

MDOT DESIGN COORDINATOR — MAHDAVI

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	FEDERAL NUMBERS ITEM	SHEET NO.
S04 OF 63103, P01, S02, S03, S15, S30, S31 OF 63174	48404A	BHI0063(169)	RR2232	1

DRAWN BY: CASLER
CHECKED BY:
CORRECTED BY: CASLER
FILE NAME: S0263174.tl

DATE: 11-19-98
DATE: 10-6-99
DATE:

AS CONSTRUCTED FINAL PLANS

S04 OF 63103, P01, S02, S30, S31 OF 63174-48404A

CONTROL SECTION — JOB NUMBER

s0263174.tl

REVISIONS			
NO.	DESCRIPTION	DATE	BY

PLAN INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
1A	PLAN INDEX SHEET
1B-7B	APPROACH ROAD DETAILS
1C-7C	SPECIAL DETAILS
1D-31D	TEMPORARY AND PERMANET TRAFFIC SIGNAL DETAILS
1E-10E	ELECTRICAL DETAILS

S02 OF 63174	
SHEET NO.	DESCRIPTION
2-3	GENERAL PLAN OF STRUCTURE
4	EXISTING GENERAL PLAN OF SITE - FOR INFORMATION ONLY
5	EXISTING GENERAL PLAN OF STRUCTURE- REMOVAL PORTIONS
6-20	EXISTING DETAILS-FOR INFORMATION ONLY
21	EXPANSION JOINT DETAILS
22-25	SUPERSTRUCTURE DETAILS
26-27	FENCING DETAILS
28	SLAB AND SCREED DETAILS
29	STEEL REINFORCEMENT DETAILS

S04 OF 63103	
SHEET NO.	DESCRIPTION
2	EXISTING GENERAL PLAN OF SITE-FOR INFORMATION ONLY
3	EXISTING GENERAL PLAN OF STRUCTURE-FOR INFORMATION ONLY
4-17	EXISTING DETAILS-FOR INFORMATION ONLY
18-19	ABUTMENT A REPAIR DETAILS
20	SUSPENDER REPLACEMENT DETAILS
21	EXPANSION JOINT DETAILS
22-23	DECK OVERLAY DETAILS
24	FENCING DETAILS

P01 OF 63174	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF STRUCTURE
3	EXISTING GENERAL PLAN OF SITE - FOR INFORMATION ONLY
4	EXISTING GENERAL PLAN OF STRUCTURE AND REMOVAL PORTIONS
5-14	EXISTING DETAILS-FOR INFORMATION ONLY
15-16	SUPERSTRUCTURE DETAILS

S30 OF 63174	
SHEET NO.	DESCRIPTION
2-3	GENERAL PLAN OF STRUCTURE
4	EXISTING GENERAL PLAN OF SITE - FOR INFORMATION ONLY
5	EXISTING GENERAL PLAN OF STRUCTURE- REMOVAL PORTIONS
6-12	EXISTING DETAILS-FOR INFORMATION ONLY
13	SUSPENDER REPLACEMENT DETAILS
14	EXPANSION JOINT DETAILS
15-18	SUPERSTRUCTURE DETAILS
19-20	FENCING DETAILS
21	SLAB AND SCREED DETAILS
22	STEEL REINFORCEMENT DETAILS

S31 OF 63174	
SHEET NO.	DESCRIPTION
2-3	GENERAL PLAN OF STRUCTURE
4	EXISTING GENERAL PLAN OF SITE- FOR INFORMATION ONLY
5	EXISTING GENERAL PLAN OF STRUCTURE- REMOVAL PORTIONS
6-10	EXISTING DETAILS-FOR INFORMATION ONLY
12	SUSPENDER REPLACEMENT DETAILS
13	EXPANSION JOINT DETAILS
14-16	SUPERSTRUCTURE DETAILS
17-18	FENCING DETAILS
19	SLAB AND SCREED DETAILS
20	STEEL REINFORCEMENT DETAILS

MDOT Michigan Department of Transportation

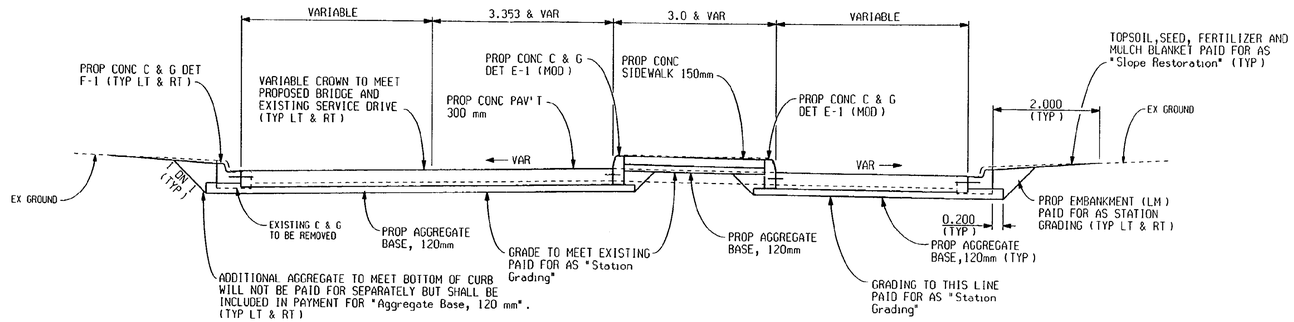
PLAN INDEX

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S04 OF 63103 & P01, S02, S30 & S31 OF 63174	48404A	MAHDAVI	1A OF

CONTROL SECTION S04 OF 63103 & P01, S02, S30 & S31 OF 63174 JOB NO. 48404A SH. NO. 1A

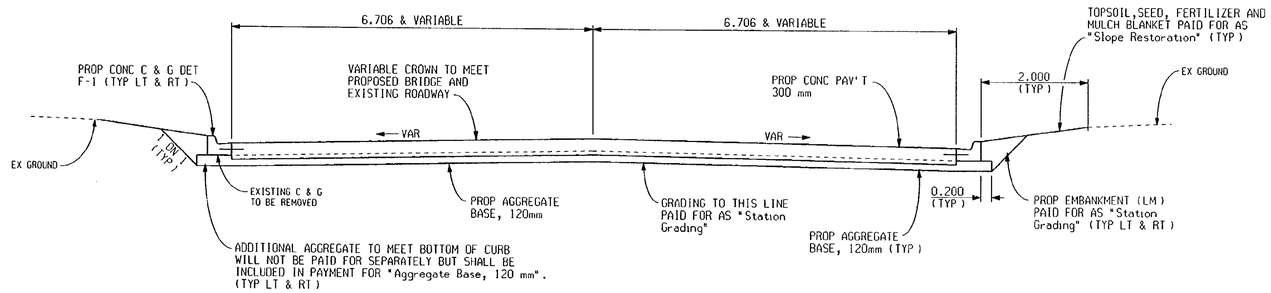
FILE NAME: s3063174.dx DRAWN BY: INDER DATE: 9-20-99 CHECKED BY: CORRECTED BY:CASLER DATE: 9-23-99

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



PROPOSED SECTION TO APPLY:

S04 OF 63174
STA 0+310.684 TO STA 0+324.487
STA 0+388.194 TO STA 0+397.119



PROPOSED SECTION TO APPLY:

S31 OF 63174
STA 0+416+468 TO STA 0+431.119
STA 0+483.077 TO STA 0+498.286
S30 OF 63174
STA 0+572.432 TO STA 0+587.883
STA 0+637.055 TO STA 0+651.350
S02 OF 63174
STA 3+547.041 TO STA 3+595.761
STA 3+653.496 TO STA 3+701.944

MDOT Michigan Department of Transportation

TYPICAL CROSS SECTIONS

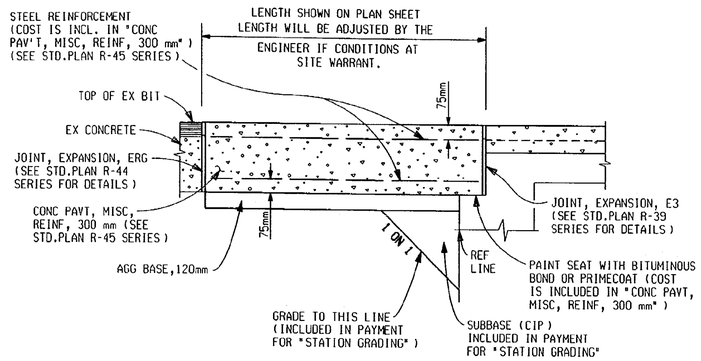
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
10/11/99	1:50	63174,63103	48404	RICK	R.O.W 1B

CONTROL SECTION 36174,63103 | JOB NO. 48404A | SH. NO. 1B

EXISTING BY: TJM DATE: 04-28-98
PROPOSED BY: TJM DATE: 10-11-98
LAST CORRECTION BY: DATE:

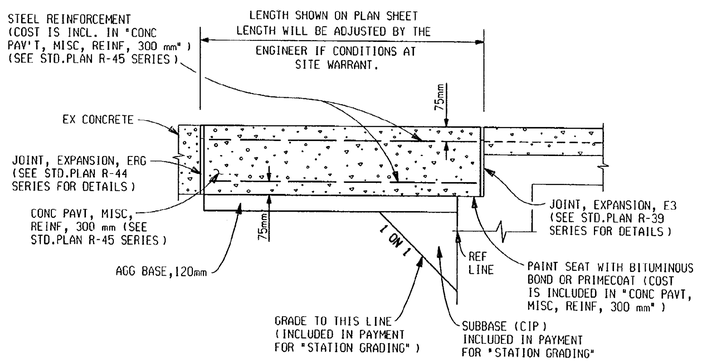
FILE NAME: 48404TYP.DGN

AUTH	DATE	NO.	FINAL R.O.W. REVISION



CONCRETE APPROACH DETAIL-EXISTING COMPOSITE SECTION

NOT TO SCALE



CONCRETE APPROACH DETAIL-EXISTING CONCRETE SECTION

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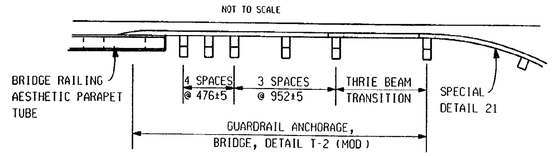
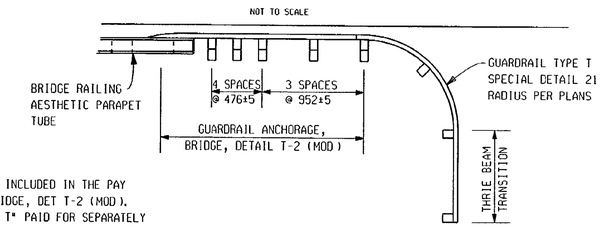


PROPOSED GUARDRAIL ANCHORAGE, BRIDGE, DETAIL T-2 (MOD) (TYP)

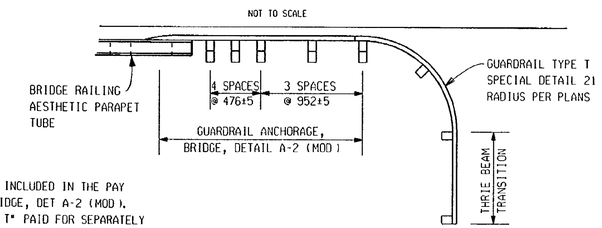
DETAIL 1



NOTE:
THRIE BEAM TRANSITION IS INCLUDED IN THE PAY ITEM "GUARDRAIL ANCH, BRIDGE, DET T-2 (MOD). "GUARDRAIL, CURVED, TYPE T" PAID FOR SEPARATELY

PROPOSED GUARDRAIL ANCHORAGE, BRIDGE, DETAIL T-2 (MOD) (TYP)

DETAIL 2



NOTE:
THRIE BEAM TRANSITION IS INCLUDED IN THE PAY ITEM "GUARDRAIL ANCH, BRIDGE, DET A-2 (MOD). "GUARDRAIL, CURVED, TYPE T" PAID FOR SEPARATELY

PROPOSED GUARDRAIL ANCHORAGE, BRIDGE, DETAIL A-2 (MOD) (TYP)

DETAIL 3

MISC DETAILS

MDOT Michigan Department of Transportation

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.	
10/11/99	1:300	63174,63103	48404A	RICK	R.O.W	2B

CONTROL SECTION 63174,63103 | JOB NO. 48404A | SH. NO. 2B

DATE: DATE: DATE: 10-11-99

EXISTING BY: PROPOSED BY: LAST CORRECTION BY: TJM

FILE NAME: 48404det.dgn

ENGINEERING REPORT NO	ENVIRON IMPACT STMT	
METHOD OF SURVEY		YEAR
SURVEY ORDER	SURVEY CHIEF	YEAR
AERIAL SURVEY NO		YEAR
HORIZ DATUM	VERT DATUM	
ROAD DESIGN INITIATED 1999	COMPLETED 1999	
PRELIMINARY PLANS BY RICK	FINAL PLANS BY RICK	
FIELD INSPECTION (GI) BY TIM BARRY		DATE 6-22-99
PLANS-IN-HAND BY (FHWA)	AND (MDOT)	DATE

GENERAL PLAN NOTES

UNDERGROUND UTILITIES

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

MDOT'S FREEWAY LIGHTING SYSTEM, THE SCANDI SYSTEM AND OTHER MISCELLANEOUS ELECTRICAL SYSTEMS ARE NOT A PART OF MISS DIG.

CONTRACTORS WORKING OUTSTATE SHOULD CONTACT THE MAINTENANCE REPRESENTATIVE AT THE MDOT DISTRICT OFFICE TO HAVE LIGHTING SYSTEMS STAKED.

GRADES FOR INTERSECTIONS

ALL INTERSECTIONS ARE TO BE CONSIDERED AS COMPLETE UNITS AND THEIR GRADES DETERMINED BEFORE CONSTRUCTION IS STARTED.

OLD PLANS

THE FOLLOWING OLD PLANS WERE REFERRED TO IN THE DESIGN OF THIS PROJECT.

S31 OF 63174B
S02 OF 63174D
S30 OF 63174B
S04 OF 63103A
I-75-2 (75) 62
I-696-8 (24) 224
S03 OF 631741
I-75-2 (137) 62
P01 OF 63174C
I-75-2 (78)-71
S15 OF 63174F
I-75-2 (92) 62

IN ADDITION, OTHER OLD PLANS THAT PREDATE THIS PROJECT MAY BE AVAILABLE. THESE PLANS MAY BE REVIEWED IN THE LANSING DESIGN OFFICE DURING NORMAL WORKING HOURS.

STATIONING

STATIONING ON THIS PROJECT WAS TAKEN FROM OLD PLANS AND PAVEMENT STENCILED STATIONING AND IS NOT NECESSARILY CORRECT.

SIGNS

ANY MDOT SIGNS REQUIRING RELOCATION DUE TO CONSTRUCTION OPERATIONS SHALL BE SALVAGED AND RESET BY THE CONTRACTOR AT LOCATIONS DESIGNATED BY THE ENGINEER. THIS WORK WILL BE CONSIDERED INCLUDED IN PAYMENT FOR OTHER CONTRACT ITEMS.

PAVEMENT REMOVAL QUANTITIES

PAVEMENT REMOVAL AS SHOWN ON THE PLANS SHALL BE AT THE DISCRETION OF THE ENGINEER. IF IN HIS/HER JUDGEMENT, AREAS OF PAVEMENT MAY BE LEFT IN PLACE, OR ADDITIONAL AREAS ADDED TO PROVIDE THE PROPER CROSS-SECTION AND BASE, CHANGES CAN BE MADE IN THE QUANTITIES.

MILLING PAVEMENT

PRIOR TO MILLING THE PAVEMENT, THE CONTRACTOR SHALL HAVE AN APPROVED MIX DESIGN AND AN ADEQUATE SUPPLY OF MATERIAL TO INSURE THAT THE FIRST LIFT OF THE SPECIFIED BITUMINOUS MIXTURE CAN BE PLACED ON ALL MILLED SURFACES

MITS

CALL MITS (313-256-9800) FOR LOCATION OF FIBER OPTIC LINES. IN CASE OF AN EMERGENCY CALL (313) 256-9800 EXT 310

GAS MAINS

A 4" STEEL GAS MAIN IS IN THE VICINITY OF THE LINCOLN AVE. STRUCTURE (S30 OF 63174). CONTRACTOR SHALL TAKE CAUTION DURING OPERATIONS NOT TO DISTURB THE GAS MAIN.

A 4" H.P. AND A 6" M.P. STEEL GAS MAIN ARE IN THE VICINITY OF THE ELEVEN MILE STRUCTURE (S31 OF 63174). CONTRACTOR SHALL TAKE CAUTION DURING OPERATIONS NOT TO DISTURB THE GAS MAINS.

PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED ON OUR SURVEYS. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO IT'S ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

NAME OF OWNER	KIND OF UTILITY
DEVEK BLOUNT AMERITECH PONTIAC/SOUTHFEILD ENGINEERING OFFICE 54 N MILL ST BOX 33 PH# (248) 456-0841 PONTIAC, MI 48342	PHONE
COMCAST CABLEVISION OF PONTIAC, WATERFOR ATTN: JIM CHURCH 1300 CRESENT LAKE RD WATERFORD, MI 48327	CTV
STEVE PLAWINSKI CONSUMERS ENERGY COMPANY 1030 HEATHERSTONE RD PONTIAC, MI 48342 PH# (248) 858-4448	GAS
MEDIA ONE ATT STEVE S RUDZINSKI 35155 INDUSTRIAL ROAD LIVONIA, MI 48150	PHONE/CTV
MS. CINDY NORLIN PRINCIPAL AREA LEADER - PROJECT MANAGEMENT DETROIT EDISON COMPANY 2000 SECOND AVENUE, 410 SB DETROIT, MI 48226	ELECTRICAL
SUN PIPE LINE COMPANY MR. ROBERT RYAN, SUPERINTENDENT 7155 INKSTER ROAD TAYLOR, MI 48180	
TCI CABLEVISION 720 N. BATES ST. SAGINAW, MI 48602-4868	CTV
TCI CABLE OF OAKLAND COUNTY ATT: DAVID EADES 4500 DELEMERE ROYAL OAK, MI 48073	CTV
UNITED CABLE TVC OF MID MICHIGAN 1070 TOWBRIDGE RD E LANSING, MI 48823	CTV
MITS 1050 SIXTH ST. DETROIT, MI 48226	

NOTES APPLYING TO STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

DRAINAGE STRUCTURES	R-1-B
SIDEWALK RAMP DETAILS	R-28-B
DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALKS	R-29-B
CONCRETE CURB AND CONCRETE CURB AND GUTTER	R-30-C
TRANSVERSE PAVEMENT JOINTS	R-39-D
LONGITUDINAL PAVEMENT JOINTS	R-41-C *
LOCATION OF TRANSVERSE JOINTS IN CONCRETE PAVEMENT	R-43-B
CONCRETE PAVEMENT REPAIR	R-44-B
CONVENTIONAL PAVEMENT REINFORCEMENT	R-45-C
GUARDRAIL AT STRUCTURES AND EMBANKMENTS	R-59-C
GUARDRAIL TYPES A, B, BD, T & TD	R-60-E *
GUARDRAIL DEPARTING TERMINAL TYPES B & T	R-66-C *
GUARDRAIL ANCHORAGE, BRIDGE, DETAILS	R-67-D
SODDING AND SEEDING	R-100-B
LIGHTED ARROWS AND BARRICADES	R-125-A

* SPECIAL DETAILS

MISCELLANEOUS ESTIMATES CONT.

THE FOLLOWING ITEMS OF WORK ARE ESTIMATED FOR THE ENTIRE PROJECT FOR MAINTAINING TRAFFIC AS DETERMINED BY THE ENGINEER.

50 m	Post, Steel, 4.5 kg
12 ea	Band, Sign
20 m2	Sign, Type IA
7.2 m2	Sign, Type IIA
3 m2	Sign, Type IIIA
7.2 m2	Sign, Type IB
7.2 m2	Sign, Type IIB
4 m2	Sign, Type IIIB
5 ea	Bridge Sign Connection, Bolt Replacement
2 ea	Sign, Type I, Rem
10 ea	Sign, Type II, Rem
23 ea	Sign, Type III, Rem
5 ea	Sign, Type I, Salv
4 ea	Sign, Type III, Salv
10 ea	Bridge Sign Connection, Type A, Rem
1 ea	Bridge Sign Connection, Type E, Rem
1 ea	Bridge Sign Connection, Type F, Rem
192 m	Pavt Mrkg, Overlay Cold Plastic, 600 mm, Stop Bar
440 m	Pavt Mrkg, Overlay Cold Plastic, 150 mm, Crosswalk
18 ea	Pavt Mrkg, Overlay Cold Plastic, Only
8 ea	Pavt Mrkg, Overlay Cold Plastic, Rt Turn Arrow Symb
14 ea	Pavt Mrkg, Overlay Cold Plastic, Lt Turn Arrow Symb
310 m	Pavt Mrkg, Overlay Cold Plastic, Pattern Tape, 100 mm, White
370 m	Pavt Mrkg, Overlay Cold Plastic, Pattern Tape, 100 mm, Yellow
475 m	Pavt Mrkg, Optional Material, 100 mm, White
450 m	Pavt Mrkg, Optional Material, 100 mm, Yellow

MISCELLANEOUS ESTIMATES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

1 ea	Bridge Sign Connection, Steel, Type E (15 degree)
1 ea	Bridge Sign Connection, Steel, Type F (15 degree)
5 ea	Bridge Sign Connection, Steel, Type A (0 degree)
2 ea	Bridge Sign Connection, Steel, Type A (10 degree)
2 ea	Bridge Sign Connection, Steel, Type A (15 degree)
1 ea	Bridge Sign Connection, Steel, Type A (30 degree)
175 m2	Sign, Type B Temp, Prismatic, Special

MISCELLANEOUS ESTIMATES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

ROYAL OAK 43%	MADISON HTS. 6%	MDOT 51%	
0.43	0.06	0.51 LS	Project Cleanup
645	90	765 hr	On the Job Training
0.43	0.06	0.51 LS	Contractor Staking for Bridges
24	3	28 hr	Staking Plan Errors and Extras, One Person
9	1	12 hr	Staking Plan Errors and Extras, Two Person
14	2	17 hr	Staking Plan Errors and Extras, Three Person
641	89	761 m3	Conc Quality Assurance
2397	335	2843 dlr	Conc Quality Initiative
6	1	8 m	Fence, Plastic, Temp
21	3	24 ea	Sand Module Impact Attenuator (Temp)
10	1	13 ea	Sand Module Impact Attenuator (Replace)
15	2	19 ea	Sand Module Impact Attenuator (Relocate)

MISCELLANEOUS ESTIMATES CONT.

THE FOLLOWING ITEMS OF WORK ARE ESTIMATED FOR THE ENTIRE PROJECT FOR MAINTAINING TRAFFIC AS DETERMINED BY THE ENGINEER.

ROYAL OAK 43%	MADISON HTS. 6%	MDOT 51%	
15	2	18 ea	Barricade, Type III, Lighted, Oper
4	1	5 ea	Truck Mtd Attenuator, Furn
4	1	5 ea	Truck Mtd Attenuator, Oper
215	30	255 m	Conc Barrier, Temp, Furn
215	30	255 m	Conc Barrier, Temp, Oper
95	13	114 m	Conc Barrier, Temp, Relocated
11	1	13 ea	Conc Barrier Reflector Replacement
3	0	4 ea	High Intensity Light, Type B, Furn
3	0	4 ea	High Intensity Light, Type B, Oper
0.43	0.06	0.51 LS	Minor Traf Devices
0.43	0.06	0.51 LS	Flag Control
2	0	3 m2	Sign, Type A Temp, Prismatic Retrflec Sheeting
129	18	153 m2	Sign, Type B Temp, Prismatic Retrflec Sheeting
4	1	5 ea	Sign Cover
2	0	2 ea	Sign, Portable, Changeable, Furn
2	0	2 ea	Sign, Portable, Changeable, Oper
387	54	459 m	Pavt Mrkg, Type R, 100 mm, White, Temp
1505	210	1785 m	Pavt Mrkg, Type R, 100 mm, Yellow, Temp
150	20	179 m	Pavt Mrkg, Longit, 125 mm or Less Width, Rem
43	6	51 m	Pavt Mrkg, Longit, 126 mm to 250 mm Width, Rem
291	41	345 m	Removing Curing Compound, for Longit Mrkg
58	8	69 m2	Removing Curing Compound, for Spec Mrkg
64	9	77 m2	Removing Spec Mrkg
6	1	7 ea	Lighted Arrow, Type C, Furn
6	1	7 ea	Lighted Arrow, Type C, Oper
0.43	0.06	0.51 ea	Lighted Arrow, Type C, Standby
602	84	714 ea	Plastic Drum with High Intensity Sheeting, Lighted, Furn
537	75	638 ea	Plastic Drum with High Intensity Sheeting, Lighted, Oper
15	2	18 ea	Barricade, Type III, Lighted, Furn

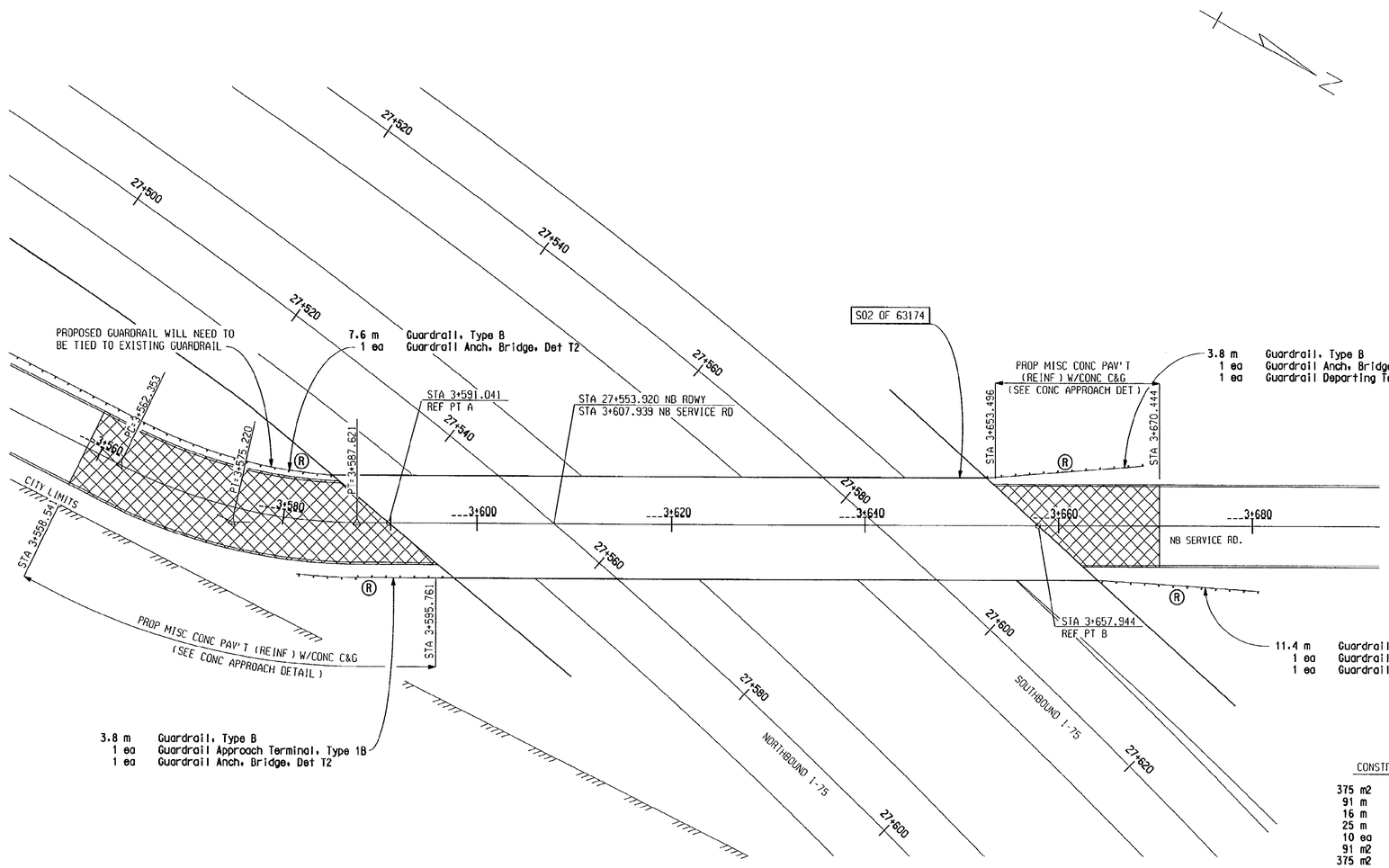
MICHIGAN DEPARTMENT OF TRANSPORTATION

NOTE SHEET

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
10/19/99	63174	48404	RICK		3B

AUTH	DATE	NO.	FINAL R.O.W. REVISION

SECTION 14
T1N ,R1E
ROYAL OAK TWP



LEGEND

REMOVING PAVEMENT

REMOVING ..... (R)

CONSTRUCTION QUANTITIES THIS SHEET

375 m2	Conc Pavt, Misc, Reinf, 300 mm
91 m	Curb and Gutter, Conc, Det F1
16 m	Joint, Expansion, Erg
25 m	Joint, Expansion, E3
10 ea	Guardrail Reflector
91 m2	Slope Restoration
375 m2	Aggregate Base, 120 mm

REMOVAL QUANTITIES THIS SHEET

66 m	Guardrail, Rem
375 m2	Pavt, Rem
91 m	Station Grading

NOTE:
ALL QUANTITIES ON THIS SHEET
ARE ROYAL OAK PARTICIPATION

REMOVAL/CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

S02 OF 63174 NB SERVICE RD OVER I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
10/11/99	1:250	63174	48404	RICK	R.O.W 4B

CONTROL SECTION 63174 | JOB NO. 48404 | SH. NO. 4B

EXISTING BY: ZAMORAB DATE: 05-04-99
PROPOSED BY: DATE:
LAST CORRECTION BY: TJM DATE: 10-11-99

FILE NAME: 48404s02.dgn

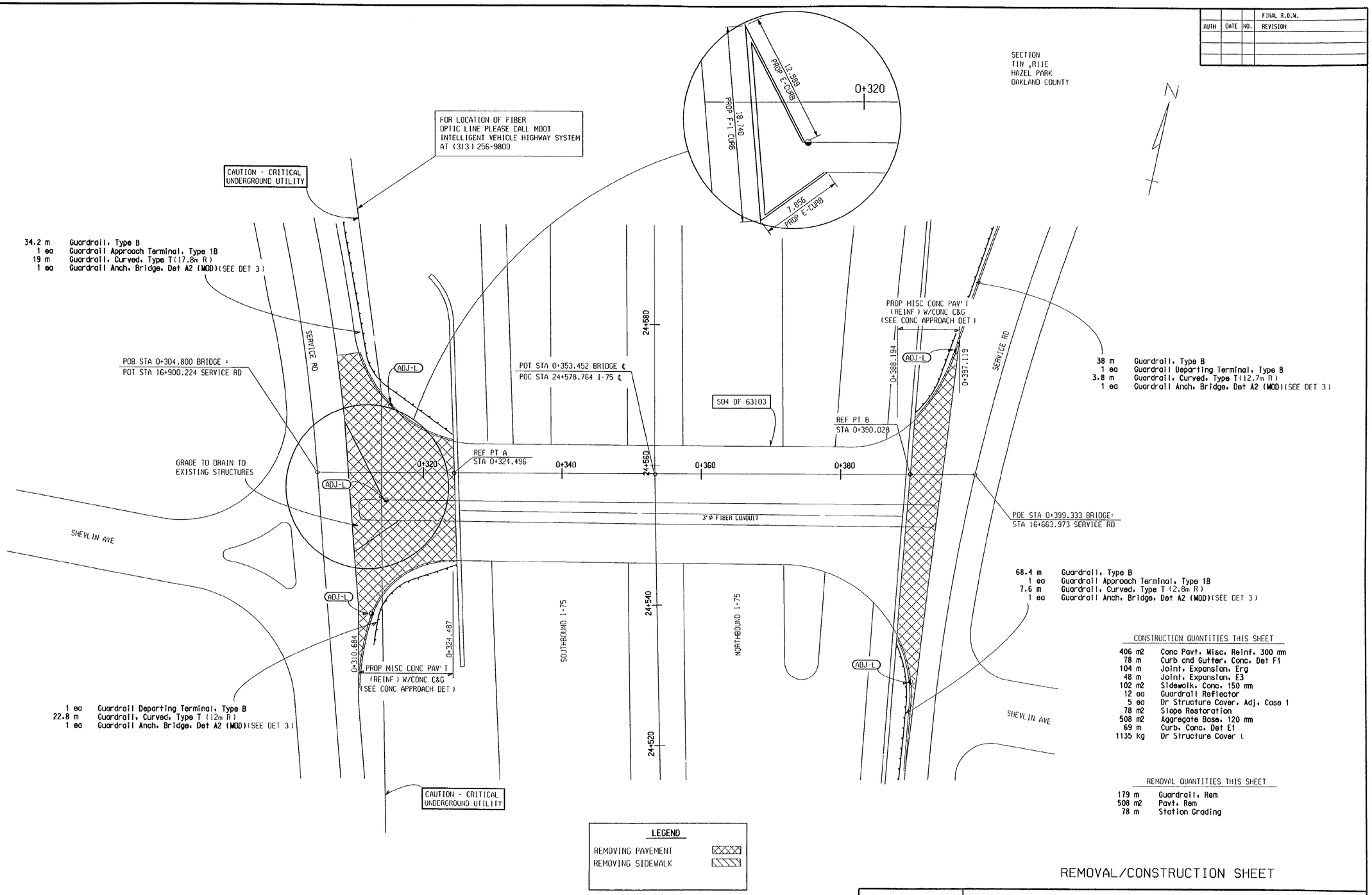
CONTROL SECTION 63174 | JOB NO. 48404 | SH. NO. 5B

DATE:
DATE:
DATE: 10-11-99

EXISTING BY:
PROPOSED BY:
LAST CORRECTION BY: RICK'S UNIT

AUTH	DATE	NO.	FINAL R.O.W. REVISION

SECTION
T1N ,R11E
HAZEL PARK
OAKLAND COUNTY



CONSTRUCTION QUANTITIES THIS SHEET

406 m2	Conc Pavt, Misc, Reinf, 300 mm
78 m	Curb and Gutter, Conc, Det F1
104 m	Joint, Expansion, Erg
48 m	Joint, Expansion, E3
102 m2	Sidewalk, Conc, 150 mm
12 ea	Guardrail Reflector
5 ea	Dr Structure Cover, Adj, Case 1
78 m2	Slope Restoration
508 m2	Aggregate Base, 120 mm
69 m	Curb, Conc, Det E1
1135 kg	Dr Structure Cover L

REMOVAL QUANTITIES THIS SHEET

179 m	Guardrail, Rem
508 m2	Pavt, Rem
78 m	Station Grading

REMOVAL/CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

S04 OF 63103 SHELVIN AVE OVER I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO.
10/11/99	1:250	63103	48404	RICK		5B

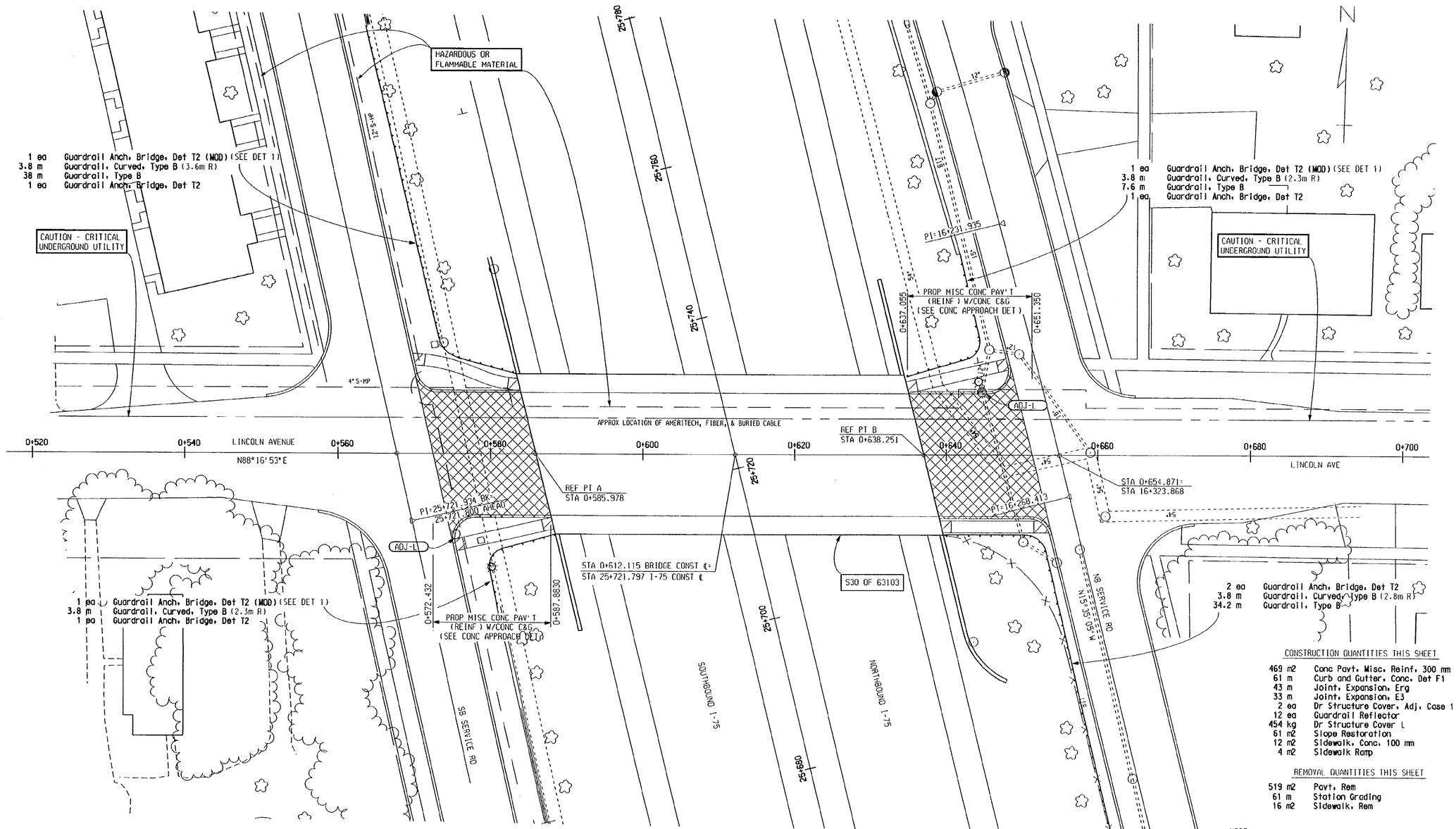
FILE NAME: 48404s04.dgn
1 2 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

CONTROL SECTION 63174 | JOB NO. 48404 | SH. NO. 6B

EXISTING BY: DATE:
PROPOSED BY: DATE:
LAST CORRECTION BY: RICK' UNIT DATE: 10-11-99

SECTION 23
TIN ,RIIE
OAKLAND COUNTY
CITY OF ROYAL OAK

AUTH	DATE	NO.	FINAL R.O.W. REVISION



CONSTRUCTION QUANTITIES THIS SHEET

469 m2	Conc Pavt, Misc, Reinf, 300 mm
61 m	Curb and Gutter, Conc, Det F1
43 m	Joint, Expansion, Erg
33 m	Joint, Expansion, E3
2 ea	Dr Structure Cover, Adj, Case 1
12 ea	Guardrail Reflector
454 kg	Dr Structure Cover L
61 m2	Slope Restoration
12 m2	Sidewalk, Conc, 100 mm
4 m2	Sidewalk Ramp

REMOVAL QUANTITIES THIS SHEET

519 m2	Pavt, Rem
61 m	Station Grading
16 m2	Sidewalk, Rem

NOTE:
ALL QUANTITIES ON THIS SHEET
ARE ROYAL OAK PARTICIPATION

LEGEND

REMOVING PAVEMENT
REMOVING SIDEWALK

REMOVAL/CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

S30 OF 63174 LINCOLN AVE OVER I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	
10/11/99	1:250	63174	48404	RICK		6B

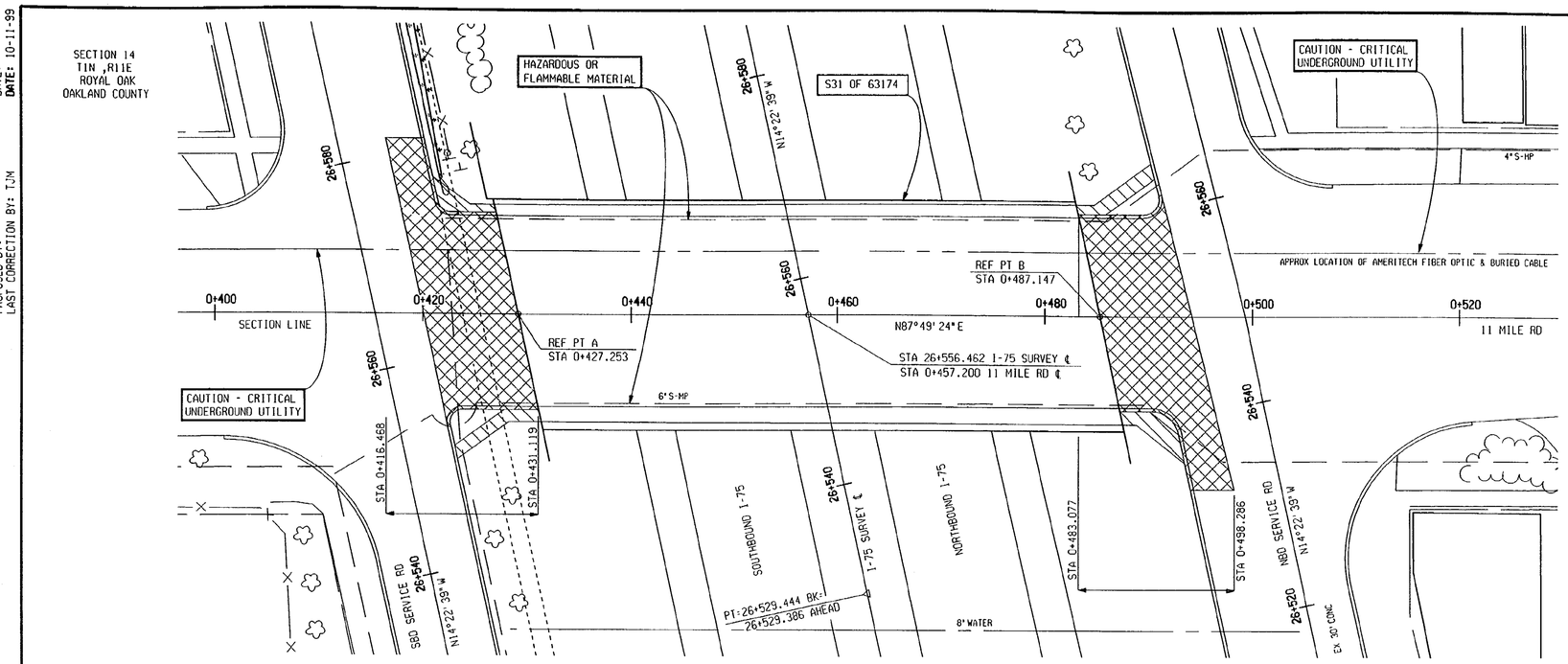
FILE NAME: 48404s30.dgn

CONTROL SECTION 63174 | JOB NO. 48404 | SH. NO. 7B

DATE: DATE: DATE: 10-11-99

EXISTING BY: PROPOSED BY: LAST CORRECTION BY: TJM

AUTH	DATE	NO.	FINAL R.O.W. REVISION

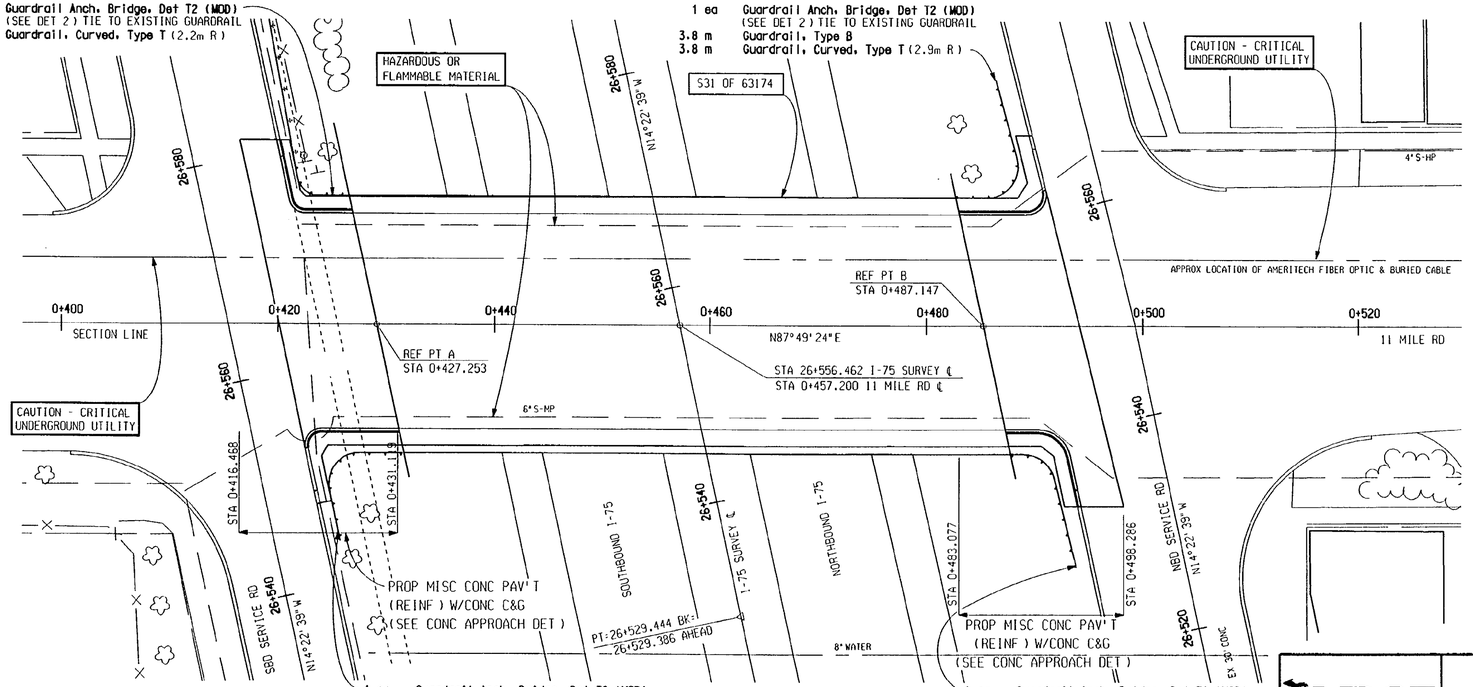


REMOVAL QUANTITIES THIS SHEET

30 m	Guardrail, Rem
398 m2	Pavt, Rem
40 m2	Sidewalk, Rem
28 m	Station Grading

1 ea Guardrail Anch, Bridge, Det T2 (MOD)
(SEE DET 2) TIE TO EXISTING GUARDRAIL
3.8 m Guardrail, Curved, Type T (2.2m R)

1 ea Guardrail Anch, Bridge, Det T2 (MOD)
(SEE DET 2) TIE TO EXISTING GUARDRAIL
3.8 m Guardrail, Type B
3.8 m Guardrail, Curved, Type T (2.9m R)



1 ea Guardrail Anch, Bridge, Det T2 (MOD)
(SEE DET 2)
7.6 m Guardrail, Type B
3.8 m Guardrail, Curved, Type T (2.8m R)

1 ea Guardrail Anch, Bridge, Det T2 (MOD)
(SEE DET 2) TIE TO EXISTING GUARDRAIL
7.6 m Guardrail, Type B
3.8 m Guardrail, Curved, Type T (2.1m R)

LEGEND

REMOVING PAVEMENT	
REMOVING BITUMINOUS	
REMOVING SIDEWALK	

CONSTRUCTION QUANTITIES THIS SHEET

340 m2	Conc Pavt, Misc, Reinf, 300 mm
42 m	Curb and Gutter, Conc, Det F1
65 m	Joint, Expansion, Erg
41 m	Joint, Expansion, E3
35 m2	Sidewalk, Conc, 100 mm
4 ea	Guardrail Reflector
15 m2	Sidewalk Ramp
28 m2	Slope Restoration
340 m2	Aggregate Base, 120 mm

NOTE:
ALL QUANTITIES ON THIS SHEET
ARE ROYAL OAK PARTICIPATION

REMOVAL/CONSTRUCTION SHEET

MDOT Michigan Department of Transportation

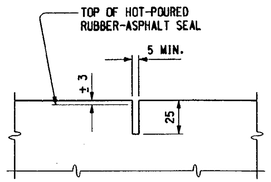
S31 OF 63174 11 MILE RD OVER I-75

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	
10/11/99	1:250	63174	48404	RICK		7B

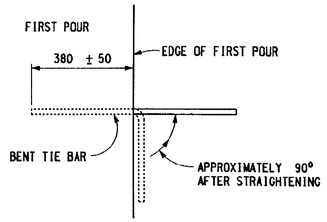
FILE NAME: 48404s31.dgn

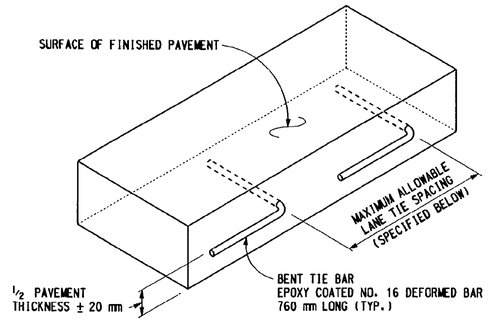
CONTROL SECTION 63174 | JOB NO. 48404A | SHEET NO.

SYMBOL (B)



SAWED JOINT SEALED WITH HOT - POURED RUBBER - ASPHALT

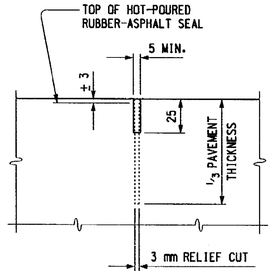




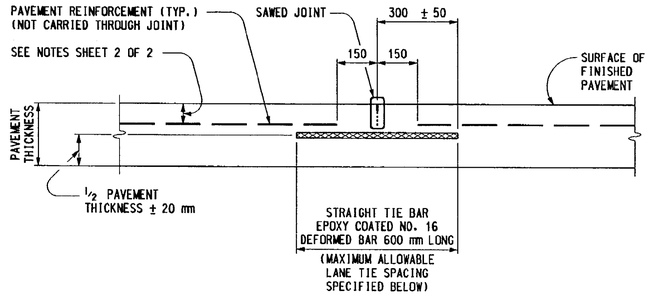
LONGITUDINAL BULKHEAD JOINT

ALL SYMBOL (B) JOINTS SHALL BE SAWED AND SEALED EXCEPT JOINTS WITHOUT LANE TIES AND JOINTS ADJACENT TO VERTICAL FACES WHICH WOULD PROHIBIT SAWING.

SYMBOL (D)



SAWED JOINT SEALED WITH HOT - POURED RUBBER - ASPHALT



LONGITUDINAL LANE TIE JOINT

SYMBOL (D) TIE BARS SHALL BE PLACED AT THE PROPER SPACING LONGITUDINALLY, AND TRANSVERSELY AT 90° WITH THE JOINT.

MAXIMUM ALLOWABLE LANE TIE SPACING, SYMBOLS (B) AND (D) (mm)		* TOTAL DISTANCE OF TIED JOINT FROM NEAREST FREE EDGE
(B) GRADE 300	(D) GRADE 400	
860	1090	3.6 m OR LESS
585	790	3.6 m + THROUGH 5.1 m
430	585	5.1 m + THROUGH 7.2 m
355	530	7.2 m + THROUGH 8.4 m
355	405	8.4 m + THROUGH 10.8 m
330	330	10.8 m OR GREATER

* INCLUDES ANY TIED COMBINATION OF LANE WIDTH, VALLEY GUTTER, CURB & GUTTER, OR SHOULDER

MAXIMUM ALLOWABLE LANE TIE SPACING

MDOT Michigan Department of Transportation

PREPARED BY DESIGN DIVISION

DRAWN BY: B.L.T.

CHECKED BY: W.K.P.

ENGINEER OF CONSTRUCTION & TECHNOLOGY

ENGINEER OF MAINTENANCE

ENGINEER OF TRAFFIC AND SAFETY

ENGINEER - ROAD DESIGN

ENGINEER OF DESIGN

DEPARTMENT DIRECTOR
James R. DeSana

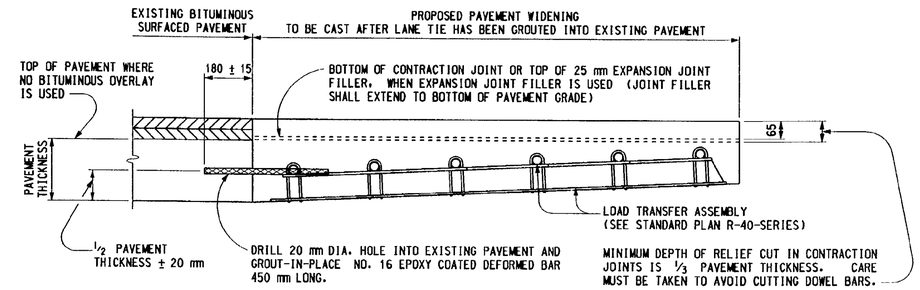
BY:
CHIEF ENGINEER/DEPUTY DIRECTOR
BUREAU OF HIGHWAY TECHNICAL SERVICES

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

LONGITUDINAL PAVEMENT JOINTS

F.H.W.A. APPROVAL	8-17-99 PLAN DATE	R-41-C	SHEET 1 OF 2

SYMBOL (L2)



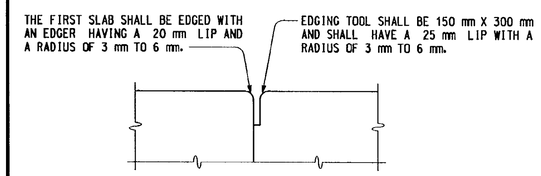
NOTE: SYMBOL (L2) JOINT USED FOR WIDENING CONCRETE PAVEMENTS WITHOUT BITUMINOUS OVERLAYS SHALL BE SAWED AND SEALED ACCORDING TO THE SYMBOL (B) JOINT.

THE LONGITUDINAL JOINT USED FOR WIDENING EXISTING CONCRETE BASE COURSE OR CONCRETE PAVEMENT HAVING A BITUMINOUS SURFACE SHALL HAVE EPOXY ANCHORED LANE TIES PLACED AS SPECIFIED.

TAPERED PAVEMENT THICKNESS OVER THE DISTANCE OF PAVEMENT WIDENING OR IN ONE LANE WIDTH WHEN WIDENING IS FOR TWO OR MORE LANES.

LONGITUDINAL BULKHEAD JOINT

FOR WIDENING EXISTING CONCRETE PAVEMENT OR CONCRETE BASE COURSE (USING EPOXY ANCHORED LANE TIES)



METHOD OF EDGING

NOTES:

LANE TIE BARS SHALL BE DEFORMED.

THE INSTALLATION OF LANE TIE BARS AND THE SAWING OF LONGITUDINAL JOINTS WILL NOT BE REQUIRED FOR TEMPORARY CONCRETE PAVEMENT UNLESS SPECIFIED ON PLANS OR IN THE PROPOSAL. THE EDGING OF TEMPORARY CONCRETE PAVEMENT WILL NOT BE REQUIRED.

FOR JOINT LAYOUT DETAILS, SEE STANDARD PLAN R-42-SERIES.

SAWING PROCEDURES AND RELATED OPERATIONS ARE DESCRIBED IN THE CURRENT STANDARD SPECIFICATIONS.

NO SAWED OR SEALED JOINT SHALL BE CONSTRUCTED BETWEEN THE PAVEMENT AND CURB OR PAVEMENT AND CURB AND GUTTER, WHERE THESE ITEMS ARE CAST INTEGRALLY.

ALL STRAIGHT TIE BARS SHALL BE EPOXY COATED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR EPOXY COATED STEEL REINFORCEMENT FOR STRUCTURES.

WHEN DEFORMED BARS ARE GROUTED INTO AN EXISTING PAVEMENT, THE GROUT SHALL BE SELECTED FROM THE PREQUALIFIED MATERIALS LISTED IN THE DEPARTMENT'S "MATERIALS SAMPLING GUIDE" FOR DEFORMED BARS.

IN ORDER TO AVOID CONFLICT WITH THE LOAD TRANSFER ASSEMBLY, THE PLACEMENT OF THE END LANE TIE ADJACENT TO ANY TRANSVERSE JOINT SHALL BE AS FOLLOWS:

1. WHEN MAXIMUM ALLOWABLE LANE TIE SPACING EXCEEDS 1000 mm, PLACE FIRST AND LAST LANE TIE HALF THE MAXIMUM ALLOWABLE LANE TIE SPACING FROM JOINT.
2. WHEN MAXIMUM ALLOWABLE LANE TIE SPACING IS LESS THAN 1000 mm, PLACE FIRST AND LAST LANE TIE A MINIMUM OF 500 mm FROM JOINT.

IT MAY BE NECESSARY TO ADJUST THE LAST THREE LANE TIE SPACINGS TO ENSURE UNIFORM LOADING RESISTANCE ALONG THE LONGITUDINAL JOINT.

FOR THE USE AND PLACEMENT OF STEEL REINFORCEMENT, SEE STANDARD PLAN R-45-SERIES.

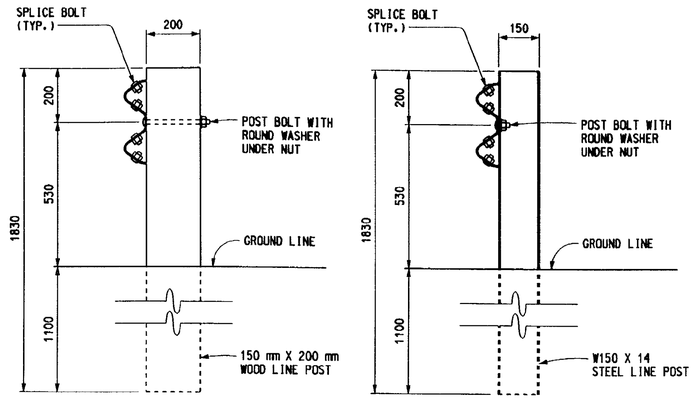
ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

LONGITUDINAL PAVEMENT JOINTS

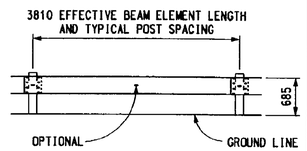
F.H.W.A. APPROVAL	8-17-99 PLAN DATE	R-41-C	SHEET 2 OF 2

CONTROL SECTION 63174 | JOB NO. 48404A | SHEET NO. 1C



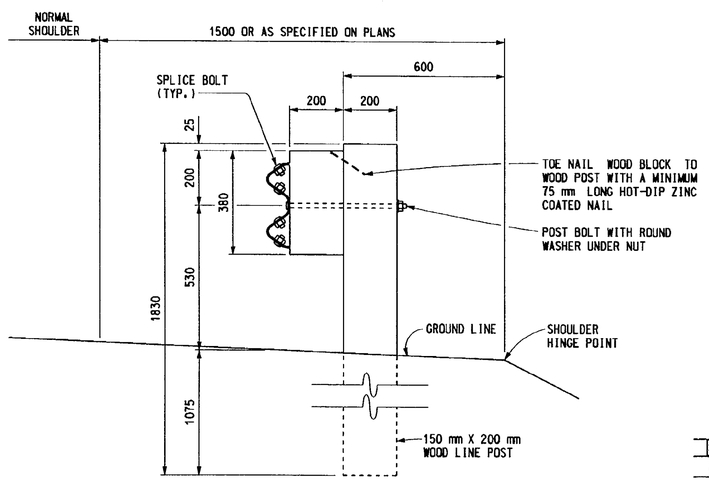
WOOD POST

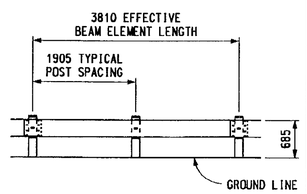
STEEL POST



ELEVATION SHOWING POST SPACING

GUARDRAIL, TYPE A

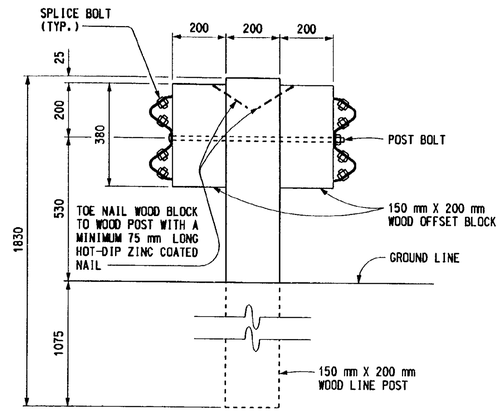


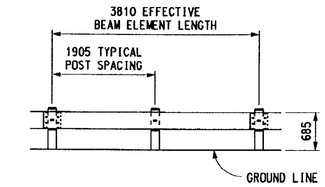


ELEVATION SHOWING POST SPACING

GUARDRAIL, TYPE B
(WOOD POST)

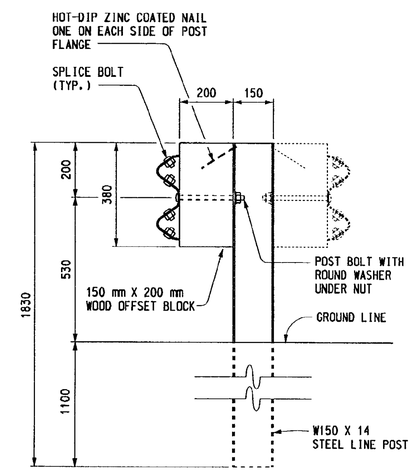
MDOT Michigan Department of Transportation	ENGINEER OF CONSTRUCTION & TECHNOLOGY	ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR GUARDRAIL, TYPES A, B, BD, T, & TD
PREPARED BY DESIGN DIVISION	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN DEPARTMENT DIRECTOR James R. DeSana	
DRAWN BY: B.L.T. CHECKED BY: W.K.P.	ENGINEER OF TRAFFIC AND SAFETY	BY: CHIEF ENGINEER/DEPUTY DIRECTOR BUREAU OF HIGHWAY TECHNICAL SERVICES	F.H.W.A. APPROVAL · 4-16-99 PLAN DATE · R-60-E · SHEET 1 OF 10

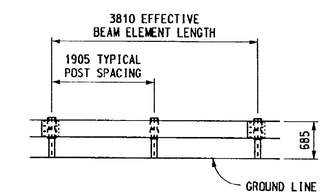




ELEVATION SHOWING POST SPACING

GUARDRAIL, TYPE BD
(WOOD POST)

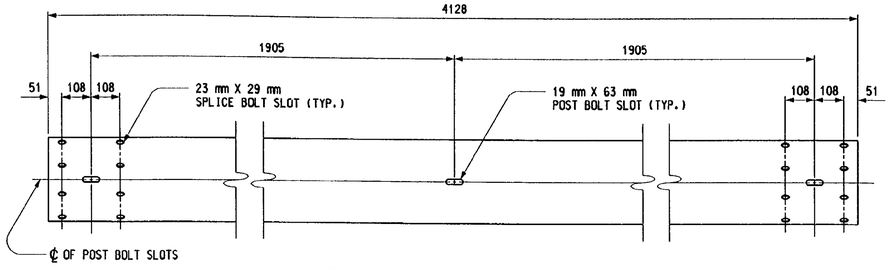




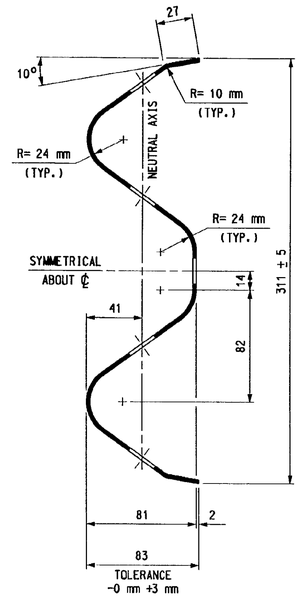
ELEVATION SHOWING POST SPACING

GUARDRAIL, TYPE B (OR BD)
(STEEL POST)

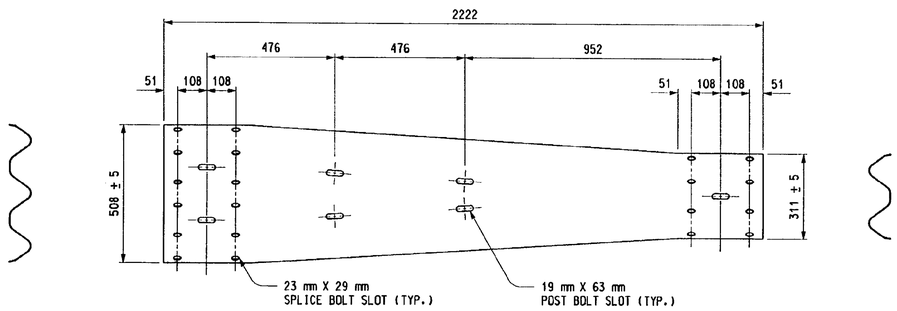
MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR GUARDRAIL, TYPES A, B, BD, T, & TD		
F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E · SHEET 2 OF 10



FRONT ELEVATION OF BEAM ELEMENT



SECTION THROUGH BEAM ELEMENT
(FOR GUARDRAIL, TYPE A, TYPE B, AND TYPE BD)

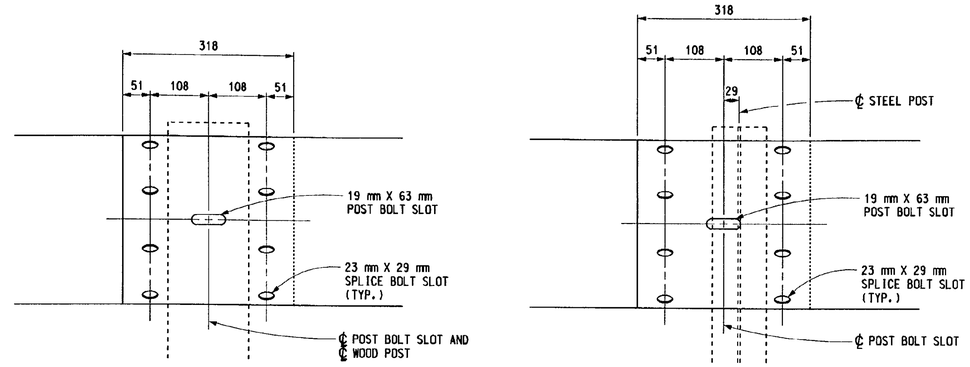


THRIE BEAM TRANSITION

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL, TYPES A, B, BD, T, & TD

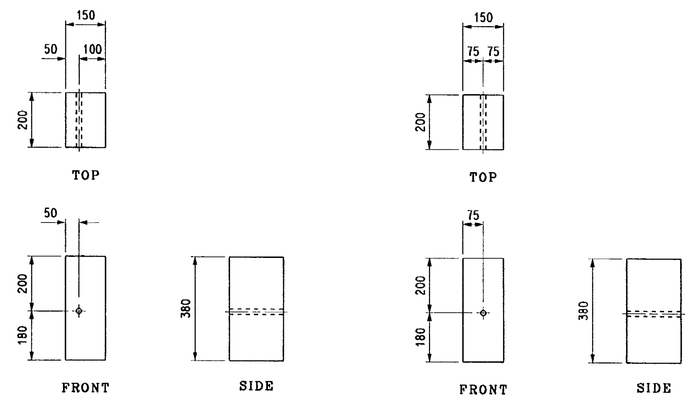
F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 3 OF 10



WOOD POST

STEEL POST

BEAM ELEMENT SPLICE DETAILS



FOR USE ON STEEL POSTS
(SEE NOTES ON SHEET 10 OF 10)

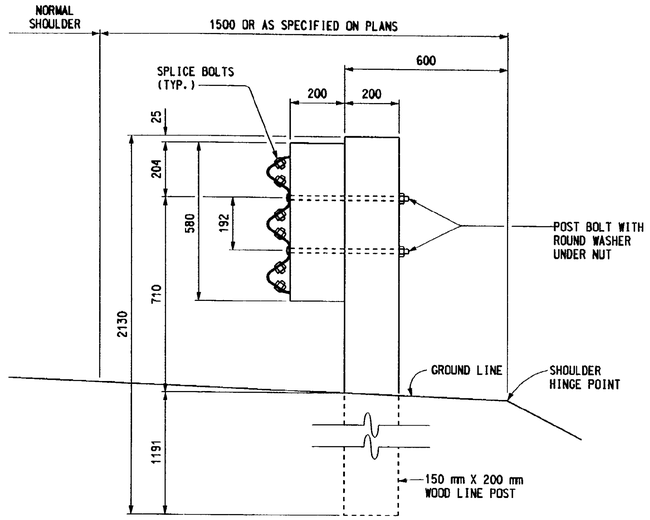
FOR USE ON WOOD POSTS
(SEE NOTES ON SHEET 10 OF 10)

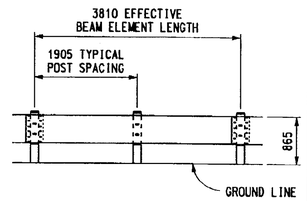
WOOD OFFSET BLOCKS FOR GUARDRAIL, TYPE B AND TYPE BD

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL, TYPES A, B, BD, T, & TD

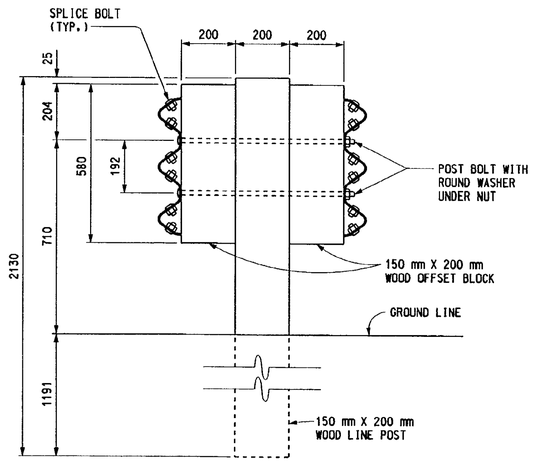
F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 4 OF 10

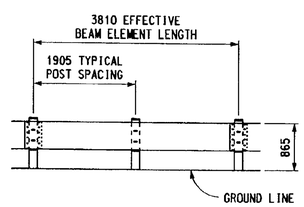




ELEVATION SHOWING POST SPACING

GUARDRAIL, TYPE T
(WOOD POST)





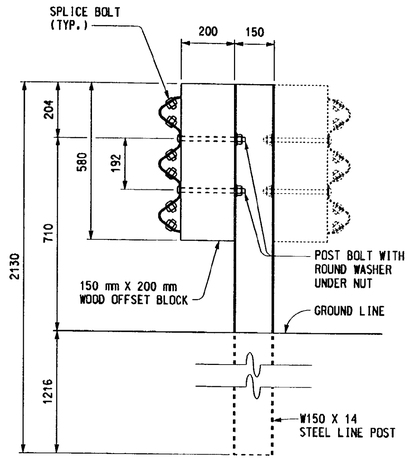
ELEVATION SHOWING POST SPACING

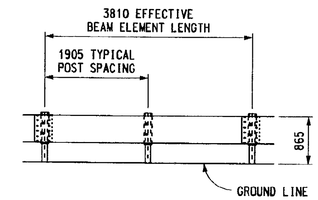
GUARDRAIL, TYPE TD
(WOOD POST)

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL, TYPES A, B, BD, T, & TD

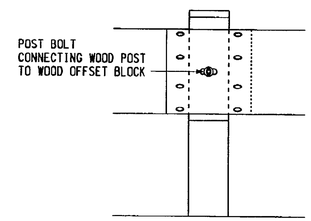
F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 5 OF 10



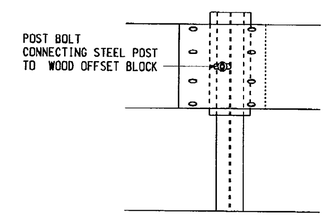


ELEVATION SHOWING POST SPACING

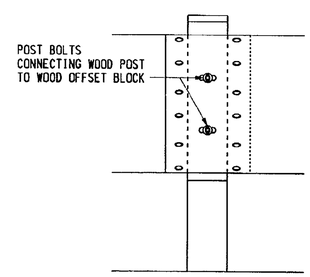
GUARDRAIL, TYPE T (OR TD)
(STEEL POST)



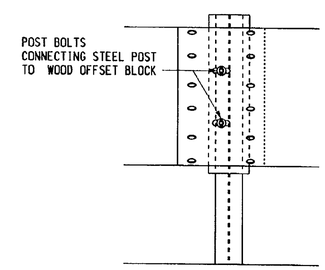
GUARDRAIL, TYPE B
WOOD POST



GUARDRAIL, TYPE B
STEEL POST



GUARDRAIL, TYPE T
WOOD POST



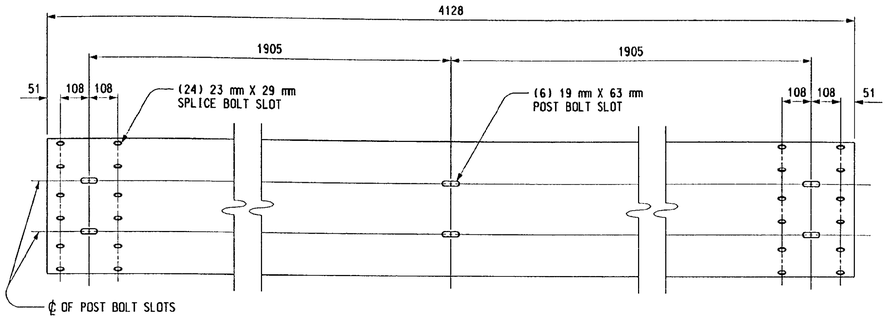
GUARDRAIL, TYPE T
STEEL POST

BLOCK AND POST CONNECTION DETAILS

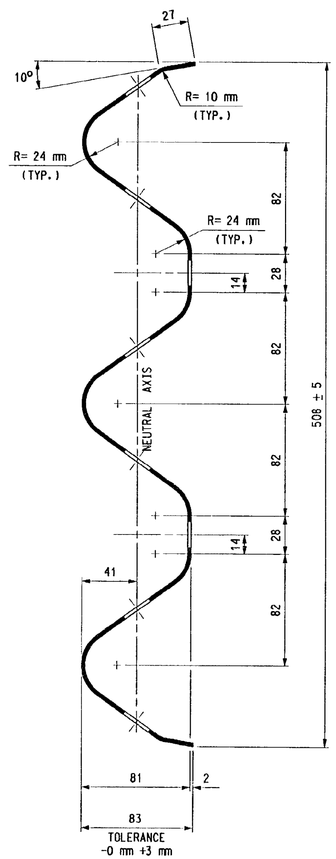
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL, TYPES A, B, BD, T, & TD

F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 6 OF 10



FRONT ELEVATION OF THRIE BEAM ELEMENT

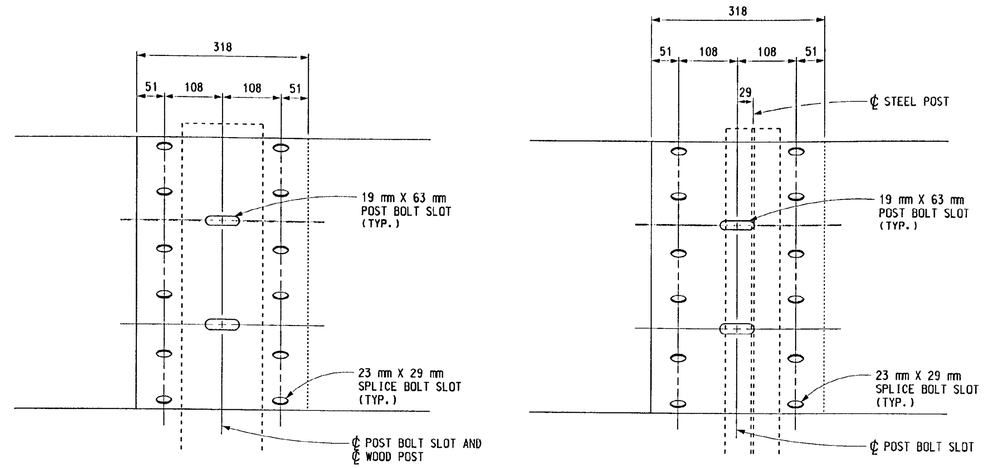


SECTION THROUGH THRIE BEAM ELEMENT
(FOR GUARDRAIL, TYPE T AND TYPE TD)

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL,
TYPES A, B, BD, T, & TD

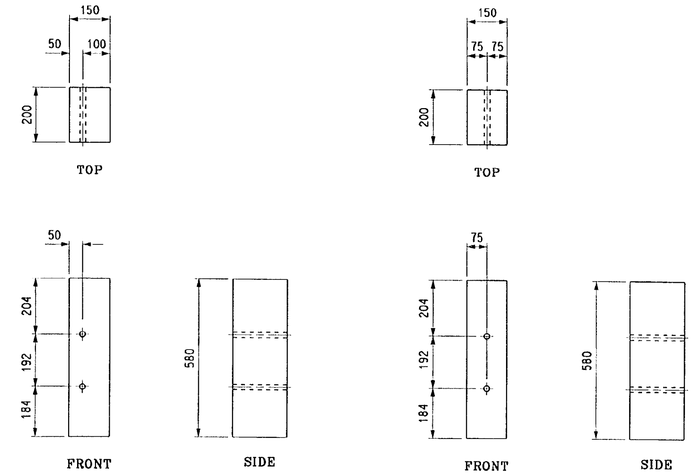
F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 7 OF 10



WOOD POST

STEEL POST

THRIE BEAM ELEMENT SPLICE DETAILS



FOR USE ON STEEL POSTS
(SEE NOTES ON SHEET 10 OF 10)

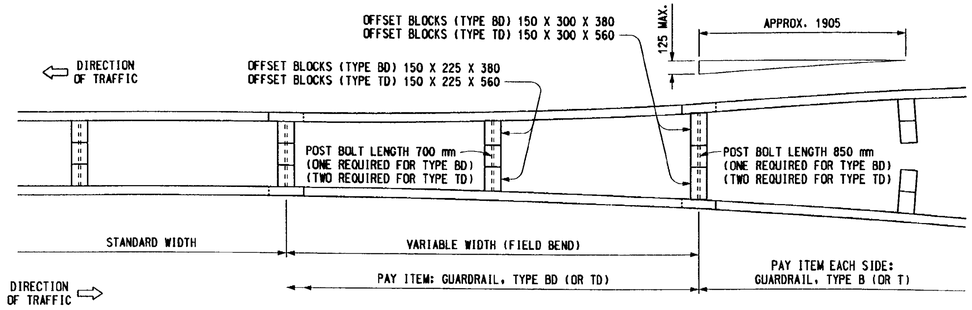
FOR USE ON WOOD POSTS
(SEE NOTES ON SHEET 10 OF 10)

WOOD OFFSET BLOCKS FOR GUARDRAIL, TYPE T AND TYPE TD

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL,
TYPES A, B, BD, T, & TD

F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 8 OF 10



DETAIL SHOWING TRANSITION FROM GUARDRAIL, TYPE B (OR TYPE T) TO GUARDRAIL, TYPE BD (OR TYPE TD)

POST BOLTS, SPLICE BOLTS AND WASHERS AT BEAM ELEMENT SPLICE POSTS AND AT INTERMEDIATE POSTS

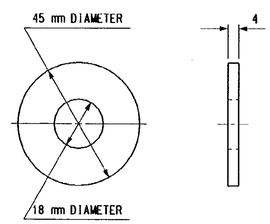
GUARDRAIL TYPE	POST	OFFSET BLOCK	POST BOLTS NO. REQ'D	POST BOLTS LENGTH (mm)	SPLICE BOLTS (32 mm LONG) (NO. REQ'D)		WASHERS (ROUND) (NO. REQ'D)
A	WOOD	N/A	1	240	8	NOT NEEDED AT INTERMEDIATE POSTS	1
	STEEL	N/A	1	50			1
B	WOOD	WOOD	1	460	8		1
	STEEL	WOOD	1	240			1
BD	WOOD	WOOD	1	*675	16		——
	STEEL	WOOD	2	240			2
T	WOOD	WOOD	2	460	12		2
	STEEL	WOOD	2	240			2
TD	WOOD	WOOD	2	*675	24		——
	STEEL	WOOD	4	240			4

THRIE BEAM TRANSITIONS REQUIRE 20 SPLICE BOLTS EACH (12 ON TYPE T END AND 8 ON TYPE B END).

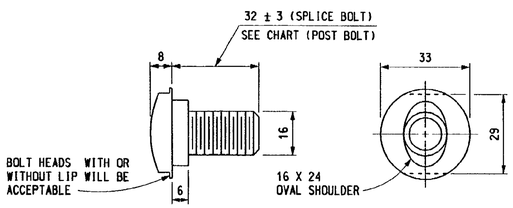
* EXCEPT AS SPECIFIED ON DETAIL SHOWING TRANSITION FROM GUARDRAIL, TYPE B (OR TYPE T) TO GUARDRAIL, TYPE BD (OR TYPE TD). POST BOLTS SHALL NOT EXTEND MORE THAN 15 mm BEYOND NUT.

MINIMUM POST BOLT THREAD LENGTH

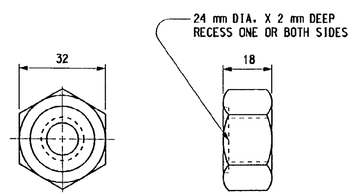
BOLT LENGTH (mm)	MINIMUM THREAD LENGTH (mm)
240	45
460	65
675	75



ROUND WASHER



SPLICE BOLT AND POST BOLT

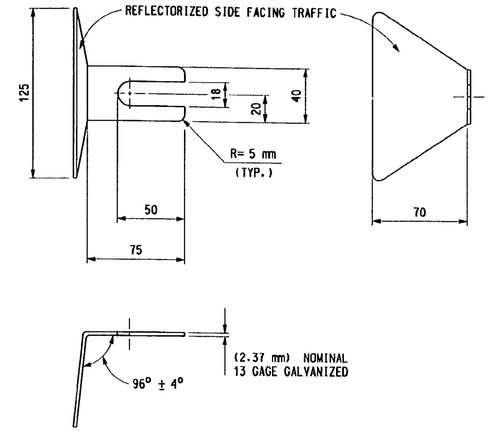


NUT

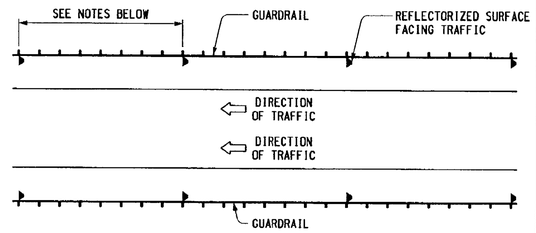
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL, TYPES A, B, BD, T, & TD

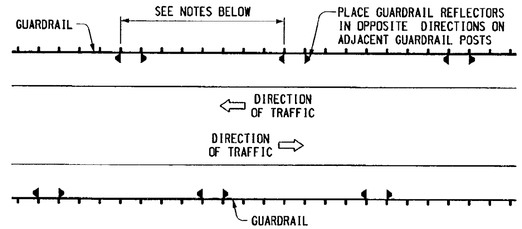
F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 9 OF 10



GUARDRAIL REFLECTOR



ONE-WAY TRAFFIC

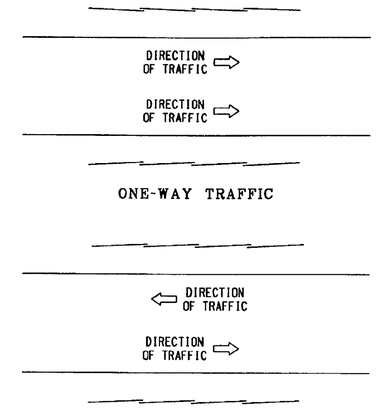


TWO-WAY TRAFFIC

PLACEMENT OF GUARDRAIL REFLECTORS

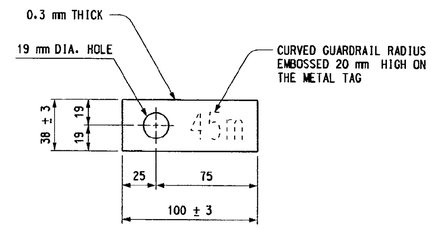
NOTES GOVERNING THE USE OF GUARDRAIL REFLECTORS

1. DO NOT USE GUARDRAIL REFLECTORS WHERE THE ROADWAY IS LIGHTED.
2. GUARDRAIL REFLECTORS ARE TO BE SPACED AT THE FOLLOWING INTERVALS:
   a) 15.24 m ON TANGENT SECTIONS AND CURVES WITH RADIUS OF 350.0 m OR MORE.
   b) 7.62 m ON CURVES WITH RADIUS LESS THAN 350.0 m.
3. FOR GUARDRAIL REFLECTOR PLACEMENT ON APPROACH TERMINALS, SEE THE APPROPRIATE GUARDRAIL APPROACH TERMINAL STANDARD PLAN.
4. A GUARDRAIL REFLECTOR IS TO BE PLACED ON THE SECOND POST FROM THE GUARDRAIL DEPARTING TERMINAL.
5. ON GUARDRAIL, TYPE T AND TYPE TD GUARDRAIL REFLECTORS ARE TO BE PLACED ON THE UPPER POST BOLT.
6. GUARDRAIL REFLECTORS SHALL MATCH COLOR OF EDGE LINE.



TWO-WAY TRAFFIC

DIRECTION OF RAIL LAP



METAL TAG

FOR CURVED GUARDRAIL WITH RADIUS OF 45.0 m OR LESS

NOTES:

DETAILS SPECIFIED ON THIS STANDARD ARE ACCORDING TO THE JOINT AASHTO - ARBA TECHNICAL BULLETIN NO. 268. "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE".

BEAM ELEMENTS SHALL BE SHOP BENT TO PLAN RADIUS FOR CURVE RADII 45.0 m OR LESS. A TAG IDENTIFYING THE CURVATURE OF THE SHOP BENT SECTION WILL BE REQUIRED FOR EACH CURVED ELEMENT.

POST BOLT SLOTS AT 1.905 m INTERVALS WILL BE ALLOWED IN BEAM ELEMENTS USED TO CONSTRUCT GUARDRAIL, TYPE A.

SEE STANDARD PLAN R-61-SERIES FOR GUARDRAIL APPROACH TERMINALS, STANDARD PLAN R-66-SERIES FOR GUARDRAIL DEPARTING TERMINALS AND STANDARD PLAN R-67-SERIES FOR GUARDRAIL ANCHORAGE, BRIDGE.

BEAM ELEMENTS SHALL BE FORMED FROM SHEETS HAVING A NOMINAL THICKNESS OF NOT LESS THAN 2.5 mm.

WHEN THE PLANS SPECIFY GUARDRAIL IS TO BE PLACED ON THE SHOULDER HINGE POINT, RATHER THAN AS SPECIFIED ON THIS PLAN, 2440 mm POSTS SHALL BE PROVIDED, WITH THE ADDITIONAL LENGTH EMBEDDED FOR ADDED STABILITY. (NOT NECESSARY WHEN THE SLOPE IS REASONABLY LEVEL BEYOND THE SHOULDER HINGE POINT, AS DETERMINED BY THE ENGINEER.)

WOOD POSTS WITH 10 mm BEVELS AT THE TOP MAY BE USED IN LIEU OF WOOD POSTS WITHOUT BEVELS SPECIFIED. THE LENGTH, WIDTH AND DEPTH OF THE POST SHALL BE AS SPECIFIED ON THIS STANDARD AND THE POST BOLT HOLES SHALL BE LOCATED TO ENSURE PROPER RAIL HEIGHT.

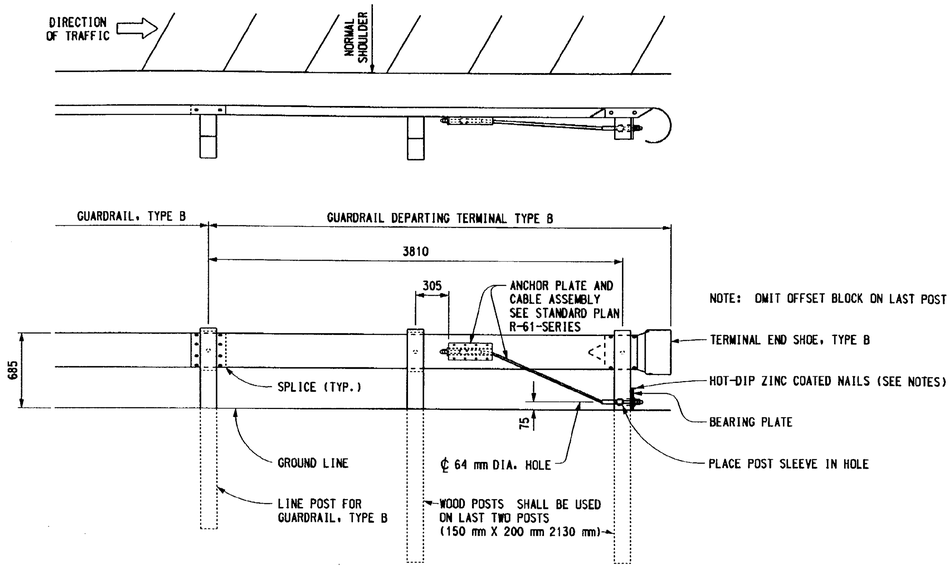
WOOD OFFSET BLOCKS WITH 10 mm BEVELS AT THE TOP AND BOTTOM OR A 20 mm BEVELED TOP MAY BE USED IN LIEU OF WOOD BLOCKS WITHOUT BEVELS SPECIFIED. THE LENGTH (FRONT AND BACK FACE), WIDTH AND DEPTH OF THE BLOCK SHALL BE AS SPECIFIED ON THIS STANDARD AND THE POST BOLT HOLES SHALL BE LOCATED TO ENSURE PROPER RAIL HEIGHT AND COMPATIBILITY WITH POST HOLES.

ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

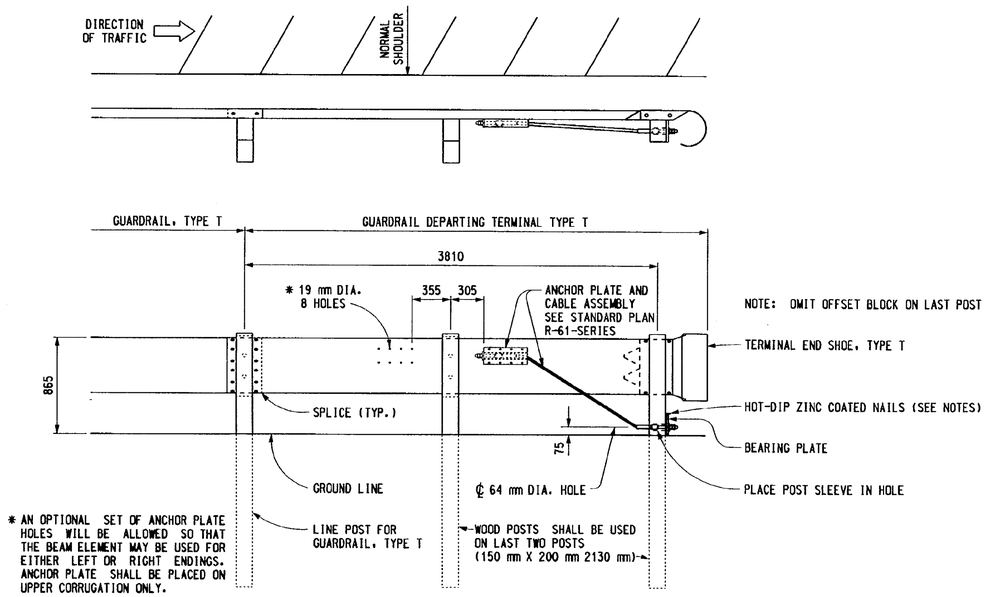
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

GUARDRAIL, TYPES A, B, BD, T, & TD

F.H.W.A. APPROVAL	4-16-99 PLAN DATE	R-60-E	SHEET 10 OF 10



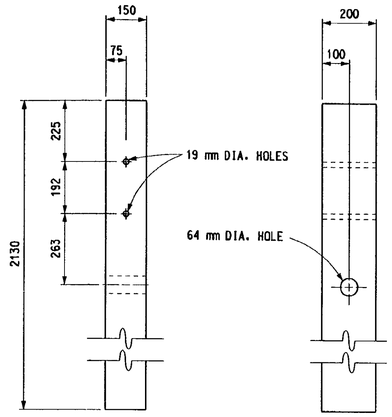
GUARDRAIL DEPARTING TERMINAL TYPE B



* AN OPTIONAL SET OF ANCHOR PLATE HOLES WILL BE ALLOWED SO THAT THE BEAM ELEMENT MAY BE USED FOR EITHER LEFT OR RIGHT ENDINGS. ANCHOR PLATE SHALL BE PLACED ON UPPER CORRUGATION ONLY.

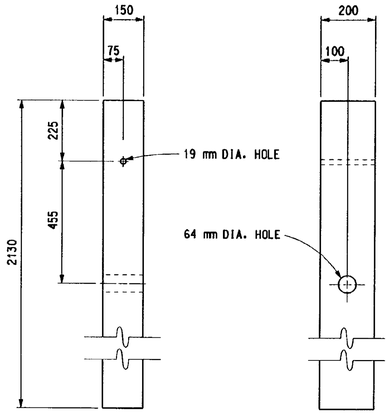
GUARDRAIL DEPARTING TERMINAL TYPE T

MDOT Michigan Department of Transportation	ENGINEER OF CONSTRUCTION & TECHNOLOGY	ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR GUARDRAIL DEPARTING TERMINAL TYPES B & T		
PREPARED BY DESIGN DIVISION	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN DEPARTMENT DIRECTOR James R. DeSana			
DRAWN BY: B.L.T. CHECKED BY: W.K.P.	ENGINEER OF TRAFFIC AND SAFETY	BY: CHIEF ENGINEER/DEPUTY DIRECTOR BUREAU OF HIGHWAY TECHNICAL SERVICES	F.H.W.A. APPROVAL	7-15-99 PLAN DATE	R-66-C	SHEET 1 OF 2



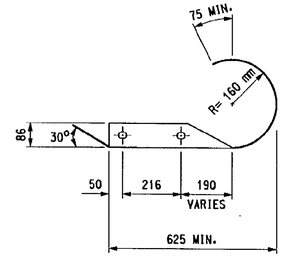
WOOD POST DETAIL

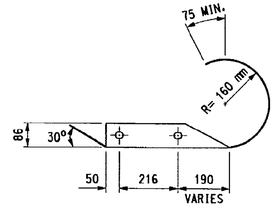
(FOR LAST POST, GUARDRAIL DEPARTING TERMINAL TYPE T)

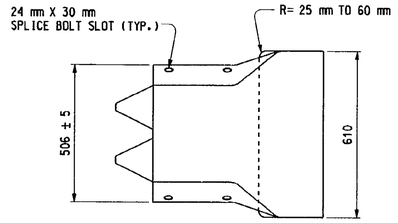


WOOD POST DETAIL

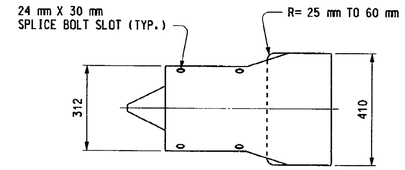
(FOR LAST POST, GUARDRAIL DEPARTING TERMINAL TYPE B)







TERMINAL END SHOE, TYPE T



TERMINAL END SHOE, TYPE B

NOTES:

ALL POSTS, OFFSET BLOCKS, BEAM ELEMENTS, AND HARDWARE (INCLUDING BOLTS, NUTS, AND WASHERS) SHALL CONFORM TO THE CURRENT STANDARD SPECIFICATIONS AND TO THE CURRENT STANDARD PLAN R-60-SERIES, WHERE APPLICABLE, EXCEPT AS SPECIFIED ON THIS STANDARD.

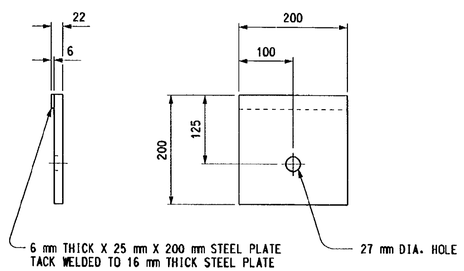
ALL 1:10 SLOPES SHALL BE GRADED TO CLASS A SLOPE TOLERANCES.

FOR DETAILS OF GUARDRAIL PLACEMENT, SEE STANDARD PLAN R-59-SERIES.

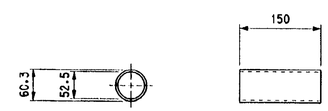
AFTER THE CABLE ASSEMBLY HAS BEEN TIGHTENED, A SECOND NUT SHALL BE INSTALLED ON EACH END OF THE CABLE SO THAT THE CABLE WILL NOT LOOSEN.

TWO HOT-DIP ZINC COATED NAILS SHALL BE DRIVEN INTO THE WOOD POST AT THE TOP OF THE BEARING PLATE TO KEEP THE BEARING PLATE FROM ROTATING.

ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.



BEARING PLATE



POST SLEEVE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR GUARDRAIL DEPARTING TERMINAL TYPES B & T			
F.H.W.A. APPROVAL	7-15-99 PLAN DATE	R-66-C	SHEET 2 OF 2

CS 63174 JN 48404A SH NO 1D

LEGEND SHEET

UNDERGROUND

- M.H. 1234 — EXISTING MANHOLE
- EXISTING HANDHOLE
- X — EXISTING DUCT RUN
- X — ABANDON EXISTING DUCT RUN
- 4-100 mm E.C. — BUILD ENCASED CONDUIT (E.C.) OR DIRECT BURIAL CONDUIT (D.B.) (4-100 mm E.C. SHOWN)
- M.H. 5678 — BUILD NEW MANHOLE (2-WAY)
- M.H. 9012 — BUILD NEW MANHOLE (3-WAY)
- M.H. 3456 — BUILD NEW MANHOLE (4-WAY)
- M.H. 7890 — BUILD NEW MANHOLE (CORNER)
- BUILD HANDHOLE (ROUND OR SQUARE AS INDICATED ON THE PLANS).
- BUILD POLYMER CONCRETE HANDHOLE
- BUILD TYPE "D" HANDHOLE
- EXISTING DIRECT BURIAL OR PARKWAY CABLE
- ABANDON DIRECT BURIAL OR PARKWAY CABLE
- INSTALL DIRECT BURIAL CABLE (NO. & SIZE AS INDICATED)
- 1-75 mm — INSTALL DIRECT BURIAL CONDUIT (1-75 mm SHOWN)
- EXISTING U.G.-FED ST. LTG. UNIT
- REMOVE U.G.-FED ST. LTG. UNIT & FDN. (EXCEPT AS OTHERWISE INDICATED)
- INSTALL COMB. T.S. & ST. LTG. STD. 1.8 m CLAMP-ON BRACKET ARM WITH 915 mm RISE ON NEW FDN. INSTALL 400W. TYPE LUMINAIRE.

OVERHEAD

- T — EXISTING WOOD POLE (M.B.T. POLE SHOWN)
- E — REMOVE WOOD POLE (D.E. CO. POLE SHOWN)
- REPLACE WOOD POLE (HEIGHT & CLASS AS INDICATED)
- INSTALL WOOD POLE (HEIGHT & CLASS AS INDICATED) (USE SALVAGED POLE WHERE INDICATED)
- EXISTING OVERHEAD ST. LTG. UNIT
- REMOVE OVERHEAD ST. LTG. UNIT
- INSTALL OVERHEAD ST. LTG. UNIT
- EXISTING OVERHEAD LINE
- REMOVE OVERHEAD LINE
- INSTALL OVERHEAD LINE
- INSTALL & LATER REMOVE OVERHEAD LINE
- 12.7 mm — INSTALL GUY & ANCHOR (12.7 mm GUY SHOWN)
- REMOVE GUY & ANCHOR ROD
- 12.7 mm — INSTALL POLE GUY (12.7 mm GUY SHOWN)
- 9.5 mm — INSTALL ARM GUY (9.5 mm GUY SHOWN)
- P OR A — REMOVE GUY (TYPE AS SHOWN)
- IN. — MATERIAL TO BE INSTALLED
- RM — MATERIAL TO BE REMOVED
- MSS — MAKE WOOD POLE SELF-SUPPORTING IN CONCRETE
- C.P. — CABLE POLE

TRAFFIC SIGNAL

- INSTALL 3-SECTION TRAFFIC SIGNAL (1-WAY SHOWN)
- INSTALL 3-SECTION TRAFFIC SIGNAL WITH SALVAGED HEADS (2-WAY SHOWN)
- REMOVE 3-SECTION TRAFFIC SIGNAL (3-WAY SHOWN)
- EXISTING 3-SECTION TRAFFIC SIGNAL (4-WAY SHOWN)
- INSTALL 3-SECTION, 300 mm TRAFFIC SIGNAL (1-WAY SHOWN)
- INSTALL 2-WAY ILLUMINATED CASE SIGN
- INSTALL 2-WAY ILLUMINATED CASE SIGN (SALVAGED)
- REMOVE 2-WAY ILLUMINATED CASE SIGN
- EXISTING 2-WAY ILLUMINATED CASE SIGN
- INSTALL 4-WAY ILLUMINATED CASE SIGN
- INSTALL 4-WAY ILLUMINATED CASE SIGN (SALVAGED)
- REMOVE 4-WAY ILLUMINATED CASE SIGN
- EXISTING 4-WAY ILLUMINATED CASE SIGN
- INSTALL 2-SECTION, 300 mm PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (2-WAY SHOWN)
- INSTALL 2-SECTION PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL WITH SALVAGED HEAD (2-WAY SHOWN)
- REMOVE 2-SECTION PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (1-WAY SHOWN)
- EXISTING 2-SECTION PEDESTRIAN (WALK-DON'T WALK) TRAFFIC SIGNAL (1-WAY SHOWN)
- INSTALL TRAFFIC SIGNAL CONTROLLER (NEW OR SALVAGED AS INDICATED) ON NEW FDN. (EXCEPT AS OTHERWISE INDICATED)
- INSTALL TRUSS TYPE MAST ARM STD. & MAST ARM ON NEW FOUNDATION (EXCEPT AS OTHERWISE INDICATED)
- INSTALL 2.4 m TRAFFIC SIGNAL PEDESTAL ON NEW FOUNDATION (EXCEPT AS OTHERWISE INDICATED)
- INSTALL STEEL STRAIN POLE ON NEW FOUNDATION (POLE HEIGHT AS INDICATED ON PLANS)
- EXISTING TRAFFIC SIGNAL CONTROLLER
- EXISTING MAST ARM STANDARD
- EXISTING PEDESTAL
- EXISTING STEEL STRAIN POLE
- INSTALL OVERHEAD PLASTIC JACKETED CABLE
- EXISTING OVERHEAD PLASTIC JACKETED CABLE
- REMOVE OVERHEAD PLASTIC JACKETED CABLE

SH. 1 OF 2

MICHIGAN DEPARTMENT OF TRANSPORTATION

LEGEND SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

FILENAME: 01-DGN-TSE-SIDE-METRIC-LEGSHT.TME

LEGEND SHEET

TRAFFIC SIGNAL

- INSTALL JUNCTION BOX
- INSTALL SALVAGED JUNCTION BOX
- REMOVE JUNCTION BOX
- EXISTING JUNCTION BOX
- BACK-OUT LAMPS & HOOD SIGNALS (INCIDENTAL TO INSTALLATION OF T.S. ON THIS CONTRACT)
- REMOVE HOOD & INSTALL LAMPS (INCIDENTAL TO INSTALLATION OF T.S. ON THIS CONTRACT)
- POCH — POLE CONTACT HEIGHT OF T.S. SPAN WIRE
- L.C.H. — LOW CONTACT HEIGHT OF SPAN WIRE T.S. TO SPAN WIRE
- INSTALL WARNING SIGN (TYPE AS INDICATED ON PLANS).
- INSTALL LOOP DETECTOR & CABINET (EXCEPT AS OTHERWISE INDICATED).

DIAGRAMS

(U.G.-FED ST. LTG. STD. SYMBOLS SAME AS UNDERGROUND LEGEND OF THIS SHEET)

- M.H. 1234 — PROPOSED MANHOLE
- M.H. 5678 — EXISTING MANHOLE
- M.H. — PROPOSED HANDHOLE
- H.H. — EXISTING HANDHOLE
- M.H. 9012 — PROPOSED MANHOLE IN SAME LOCATION AS EX. HOLE
- INSTALL U.G. CABLE (NO. & SIZE AS INDICATED)
- EXISTING U.G. CABLE
- U.G. CABLE TO BE ABANDONED
- U.G. CABLE TO BE REMOVED
- DISCONNECT, INSULATE & CAP CABLE END
- SPLICE STRAIGHT THRU
- SPLICES

GENERAL

- PROPERTY (ROW) LINE
- FACE OF CURB & BACK OF CURB
- FUTURE PAVEMENT
- S — SEWER LINE, MANHOLE & CATCH BASIN
- E — POWER CO. U.G. LINE & MANHOLE
- T — TELEPHONE TEL. CO. U.G. LINE & M.H.
- W — WATERMAIN & GATEWELL (OTHER UTILITIES SIMILAR)

PLAN INDEX

DRWG. NO.	SUB-TITLE
1	LEGEND
2-3	GENERAL INFORMATION
4-7	GENERAL PLANS
8-31	DETAIL SHEETS

SH. 2 OF 2

MICHIGAN DEPARTMENT OF TRANSPORTATION

LEGEND SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	1 of 31	1D

GENERAL INFORMATION SHEET

GENERAL NOTES

1. CALL MISS DIG (800)(482-7171) OR (313)(647-7344) 3 WORKING DAYS PRIOR TO ANY EXCAVATION FOR THE LOCATION OF UNDERGROUND UTILITIES.
2. WHERE ABANDONING OF U.G. CABLES IS CALLED FOR ON PLANS OR DIAGRAMS, CONTRACTOR SHALL CUT & REMOVE CABLES WITHIN MANHOLES & HANDHOLES.
3. WHERE INSTALLATION OF NEW MANHOLES OVER EXISTING CONDUITS (TO ACCOMMODATE NEW & EXISTING CONDUITS) IS CALLED FOR ON PLANS, CONTRACTOR SHALL CAREFULLY & SO AS NOT TO DAMAGE EXIST. CABLES, REMOVE THE EXISTING CONDUITS & ENCASEMENT WITHIN MANHOLES. EXIST. CABLES SHALL BE EXTENDED & PROPERLY TRAINED, RACKED & SUPPORTED.
4. ALL EXISTING STREET LIGHTING, TRAFFIC SIGNAL, PRIMARY, TRANSMISSION ETC. CIRCUITS SHALL ALWAYS BE MAINTAINED IN AN OPERATIONAL CONDITION (EXCEPT WHERE OTHERWISE NOTED).
5. ALL CONDUITS NOT TERMINATING IN STRUCTURES SUCH AS MANHOLES, HANDHOLES OR FOUNDATIONS SHALL EXTEND 600 mm BEYOND PAVEMENT LIMIT (EXCEPT AS OTHERWISE INDICATED). ALL UNOCCUPIED CONDUITS SHALL BE PLUGGED.
6. ALL TREE TRIMMING REQUIRED TO CLEAR NEW OR SALVAGED ST. LTG. & TRAFFIC SIGNAL STD.'S AND O.H. ST. LTG. & TRAFFIC SIGNAL UNITS SHALL BE INCLUDED TO THE PAY-ITEM & NO EXTRA PAYMENT SHALL BE MADE.
7. EXISTING O.H. & T.S. FACILITIES ARE NOT NECESSARILY SHOWN ON PLANS.
8. ALL OVERHEAD WIRES & UNDERGROUND CABLES SHALL CONSIST OF COPPER CONDUCTORS AS PER SPECIFICATIONS.
9. NEW CONDUITS BROKEN INTO EXISTING MANHOLES OR HANDHOLES SHALL NOT INTERFERE WITH RACKING AND/OR TRAINING OF CABLES.
10. ALL NEW ANCHOR GUYS SHALL BE INSTALLED ON A 1:1 RATIO OR AS NEARLY AS POSSIBLE (EXCEPT WHERE OTHERWISE NOTED). (STRUT GUYS ARE EXCEPTED).
11. ALL WIRES & CABLES SHALL BE TAGGED IN A PERMANENT MANNER INDICATING THE SOURCE & USE OF EACH. THIS SHALL BE DONE IN ALL MANHOLES, HANDHOLES & CABINETS WHERE THESE CABLES OR WIRES ENTER, EXIT, ARE SPLICED AND ARE TERMINATED.
12. INSTALL WOOD POLES SO AS NOT TO INTERFERE WITH TRAFFIC OR FUTURE CONSTRUCTION STAGES.
13. ALL SALVAGED WOOD POLES SHALL BE POLES PREVIOUSLY INSTALLED NEW ON THIS CONTRACT.
14. ALL TRAFFIC STREET SIGNS SUCH AS "NO PARKING", "NO STANDING" ETC. SHALL BE TRANSFERRED FROM OLD STD. OR POLE TO NEW STD. OR POLE AT SAME LOCATION OR IN CLOSE PROXIMITY BY DEPT. OF TRANSPORTATION.
15. ALL TRAFFIC SIGNALS SHALL BE MOUNTED WITH NEW STANDARD TRAFFIC SIGNAL BRACKETS & FITTINGS.
16. ALL TRAFFIC SIGNAL ITEMS, AS CALLED FOR ON PLANS, SHALL HAVE INCLUDED IN THE TRAFFIC SIGNAL ITEM ALL CABLES FROM THE CONTROLLER TO THE TRAFFIC SIGNALS & FOUNDATIONS AS INDICATED.
17. WHEN ENTERING PROPOSED CONDUIT INTO EXISTING MANHOLES & HANDHOLES, EXERCISE CAUTION NOT TO DISTURB EXISTING CABLES.
18. ALL SALVAGED TRAFFIC SIGNALS SHALL BE TRAFFIC SIGNALS PREVIOUSLY INSTALLED NEW ON THIS CONTRACT. (EXCEPT AS OTHERWISE INDICATED).
19. FOR TRAFFIC SIGNAL SPAN WIRE USE EXTRA HIGH STRENGTH GRADE AS PER SPECIFICATIONS.
20. CROSSARMS SHALL BE REMOVED AFTER ALL CONTACTS ARE REMOVED. (INCLUDED IN THE REMOVAL OF OVERHEAD LINES).

LAST CORRECTION DATE:
FILENAME:

MICHIGAN DEPARTMENT OF TRANSPORTATION

GENERAL INFORMATION SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

GENERAL INFORMATION SHEET

GENERAL NOTES

21. SEAL END OF CABLE WHERE COILING OF CABLE IS CALLED FOR ON PLANS. (CONTRACTOR SHALL RECEIVE PAYMENT FOR COILED-UP CABLES).
22. CONTRACTOR SHALL DELIVER WHERE REQUIRED TO THE ROAD COMMISSION OF OAKLAND COUNTY T.S. CONTROLLER FOR TIMING. CONTRACTOR SHALL PICK-UP CONTROLLER FROM R.C.O.C. WHEN READY FOR INSTALLATION.
23. PROPOSED T.S. SHALL BE PUT INTO OPERATION AT TIME OF REMOVAL OF EXISTING T.S. FACILITIES, CONTRACTOR SHALL NOTIFY R.C.O.C. IF UNABLE TO MAINTAIN T.S. IN AN OPERABLE CONDITION AT ALL TIMES.
24. A MINIMUM CLEARANCE OF 1050 mm HORIZONTAL & 300 mm VERTICAL MUST BE MAINTAINED BETWEEN PROPOSED FACILITIES & EXISTING U.G. WATER FACILITIES.
25. CONTACT LOCAL TELEPHONE COMPANY AND R.C.O.C. FOR INSTALLATION OF LOCAL TELEPHONE COMPANY SERVICE (INTERCONNECT).
26. UTILITY CO. SERVICE INSTALLATION FEES, METERED SERVICE CHARGES AND OTHER CHARGES AS DETAILED ON THE PLANS (FOR LENGTH OF CONTRACT) ARE TO BE ORDERED & PAID BY THE CONTRACTOR. (INCLUDED IN THE INSTALLATION OF T.S. ON THIS CONTRACT).
27. CONTACT MR. JOHN HORNING (R.C.O.C.) (248-858-7250) 2 WORKING DAYS PRIOR TO INSTALLATION AND INSPECTION OF TRAFFIC SIGNALS.
28. ALL MATERIAL REMOVED ON THE CONTRACT SHALL BECOME THE PROPERTY OF M.D.O.T., STORED ON SITE AND PICKED-UP BY R.C.O.C.
29. BAGGING OF TEMP. OR FINAL T.S. REQUIRED BY THE ENGINEER SHALL BE INCLUDED IN THE INSTALLATION OF T.S. ON THIS CONTRACT.
30. ALL O.H. TRAFFIC SIGNAL CABLE SHALL BE SUPPORTED BY 6.35 mm E.H.S. SPAN WIRE AS PER SPECIFICATIONS (INCLUDED IN THE INSTALLATION OF T.S. ON THIS CONTRACT.)
31. SEE DETAILS FOR TYPICAL PEDESTRIAN T.S. WIRING ON POLES; (M.D.O.T. STEEL POLES, WOOD POLES OR STEEL POLES OWNED BY OTHERS). ALL STEEL POLES SHALL BE ASSUMED TO BE OWNED BY MDOT UNLESS OTHERWISE NOTED ON PLANS.
32. ALL TRAFFIC SIGNAL INSTALLATIONS WITH SOLID STATE CONTROLLERS SHALL BE GROUNDED AT EACH SPAN CONTACT POLE. THE GROUNDING SHALL HAVE A MEASURED RESISTANCE NO GREATER THAN 10 OHMS WHEN INSTALLED.
33. CONCRETE PAVEMENT REPAIRS SHALL BE CONSTRUCTED IN ACCORDANCE WITH M.D.O.T. STANDARD PLAN R-44 SERIES, UP-1 & "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SEC. 603.
34. ALL CONDUIT BENDS SHALL HAVE MINIMUM RADII IN ACCORDANCE WITH THE CURRENT N.E.C.
35. ALL TRAFFIC SIGNAL FITTINGS (SCREWS, NUTS, BOLTS, PINNACLES, ETC.) SHALL BE GREASED WITH A NON-OXIDE TYPE GREASE.
36. INSTALL STEEL POLE HANDHOLE, AS DESCRIBED ON DETAIL SHEET, IN ALL EXIST. STEEL POLES AS DIRECTED BY ENGINEER. (INCLUDED IN THE INSTALLATION OF T.S. ON THIS CONTRACT.)
37. FOR ELECTRICAL SERVICE INSPECTION CONTACT THE MICHIGAN DEPARTMENT OF LABOR.
38. NO CHANGES FROM PLANS IN LOCATION OF SUPPORTING STRUCTURES, SIGNAL HEAD PLACEMENT OR TRAFFIC SIGNAL EQUIPMENT WILL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION, TRAFFIC AND SAFETY DIVISION, TRAFFIC SIGNALS UNIT IN LANSING, MI. ; PHONE: 1-517-373-2323.
39. INSTALLATION OF ENCASED CONDUIT CALLED FOR ON PLANS SHALL BE CONCRETE ENCASED UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
40. STEMMING OF SIGNAL HEADS TO MAINTAIN EQUAL UNDERCLEARANCE FOR EACH SPAN WIRE MOUNTED SIGNAL HEAD (AT ALL INTERSECTIONS IN THIS CONTRACT) IS INCLUDED IN THIS CONTRACT.

MICHIGAN DEPARTMENT OF TRANSPORTATION

GENERAL INFORMATION SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	2 of 31	2D

CS 63174 JN 48404A SH NO 3D

GENERAL INFORMATION SHEET

GENERAL NOTES

41. ALL PEDESTRIAN TRAFFIC SIGNAL HEADS SHALL BE 300 mm SYMBOLIC INDICATIONS CONSTRUCTED OF POLYCARBONATE MATERIAL UNLESS OTHERWISE INDICATED.
42. ALL JACKED-BORED, OPEN CUT OR DIRECT BURIAL CONDUIT CALLED FOR ON PLANS IS THE PREFERRED METHOD OF INSTALLATION. IF THE METHOD OF CONDUIT INSTALLATION IS IMPOSSIBLE TO CONSTRUCT OR IF THE CONTRACTOR PREFERS TO USE ANY OTHER METHOD, THE CHANGE OF METHOD MAY BE MADE UPON APPROVAL BY THE PROJECT ENGINEER.

    THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING OR ANTICIPATING HIS NEED OR DESIRE TO INSTALL THE CONDUIT BY ANY OTHER METHOD AND INCLUDE THE COST IN HIS CONTRACT BID.

    NO EXTRA PAYMENT WILL BE ALLOWED FOR ANY CHANGE IN THE METHOD OF CONDUIT INSTALLATION.

SH. 3 OF 3

MICHIGAN DEPARTMENT OF TRANSPORTATION

GENERAL INFORMATION SHEET

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

SH. OF

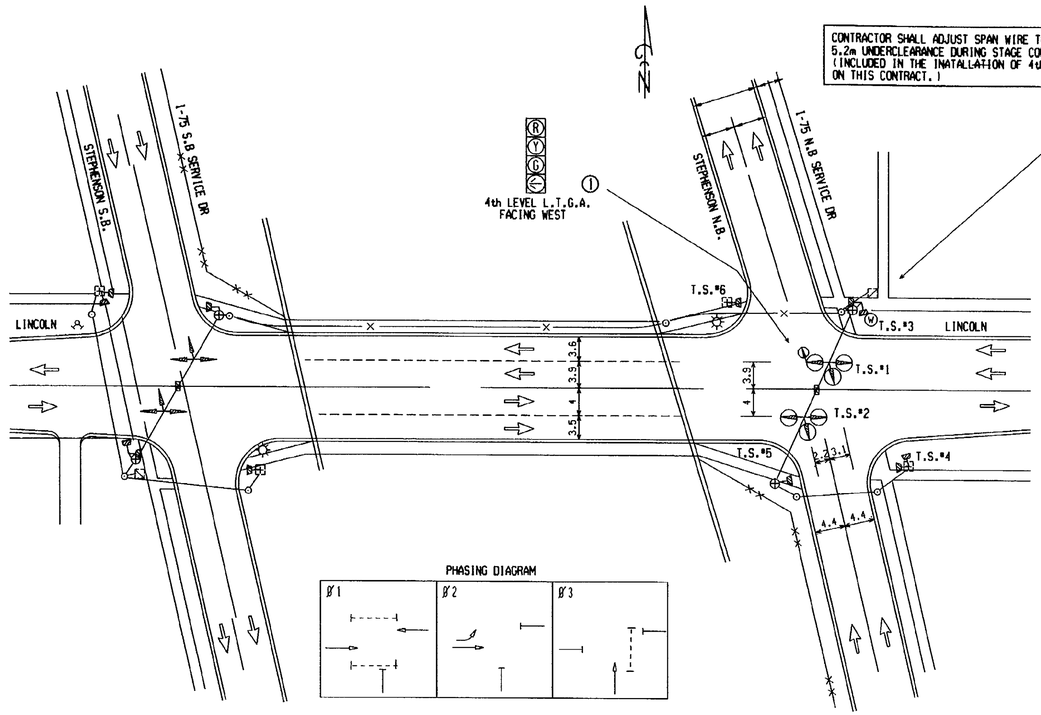
MICHIGAN DEPARTMENT OF TRANSPORTATION

GENERAL INFORMATION SHEET

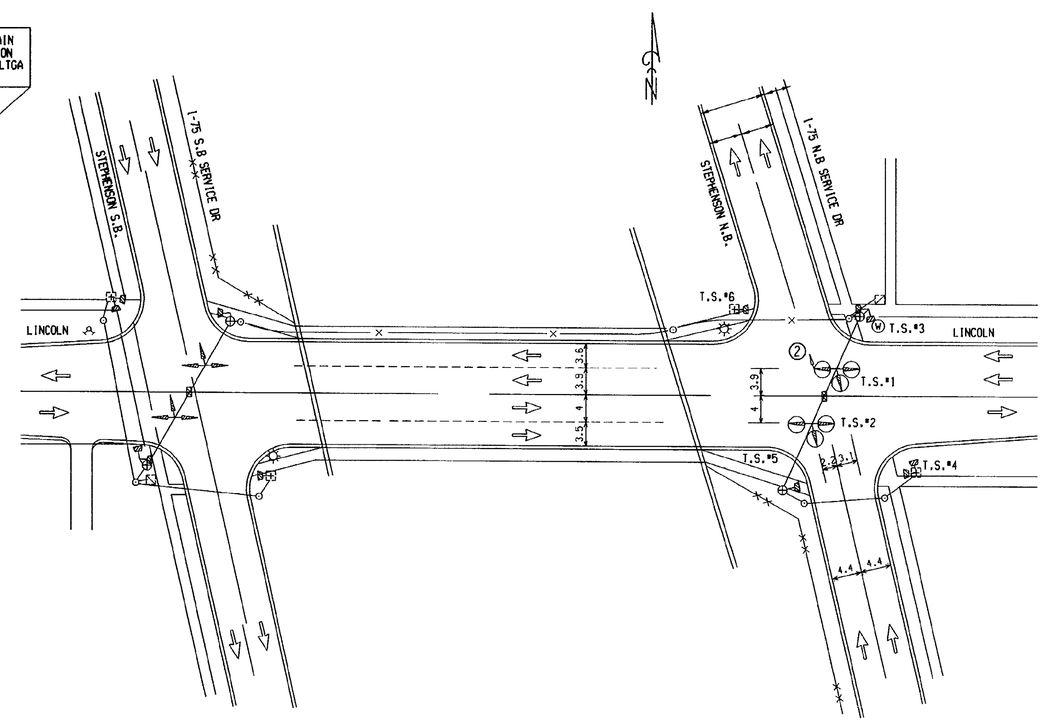
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	3 of 31	3D

CS 63174 JN 48404A SH. No 4D

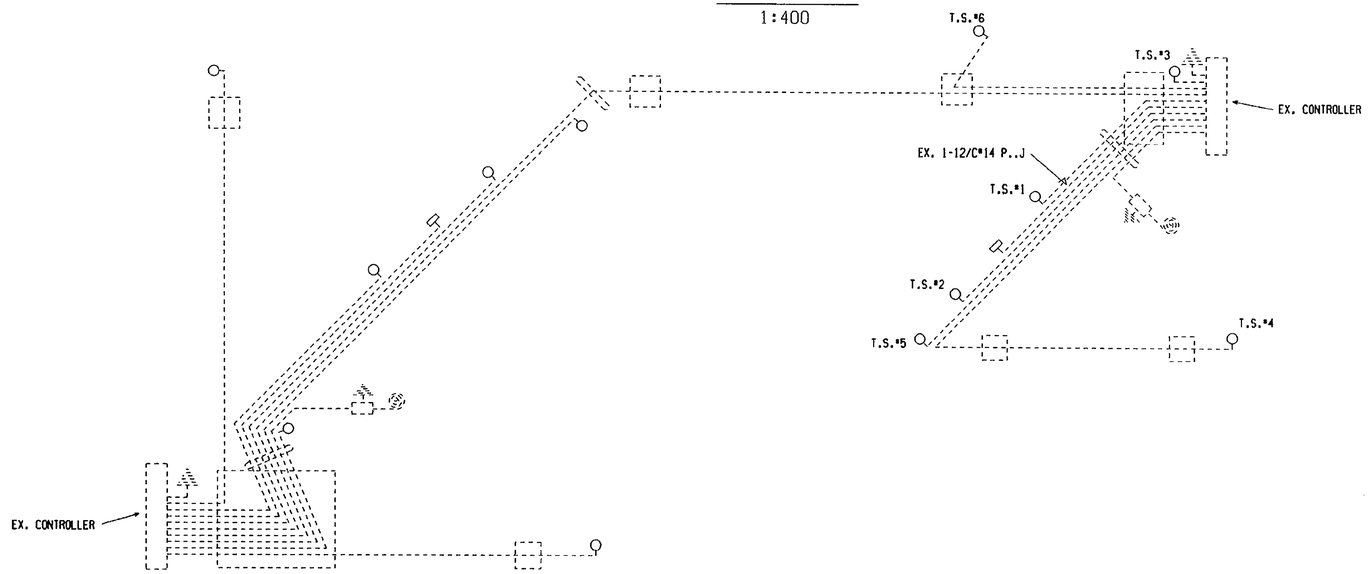
CONTROL SECTION	JOB NO.	SH. NO.
63174	48404A	4D



STAGE PLAN
1:400



STAGE REMOVAL
1:400



WIRING DIAGRAM
NOT TO SCALE

LIST OF MATERIAL			
NO.	ITEM	QUANTITIES	ITEM CODE
1	TS, 4th Level, LTGA	1 Each	8200250
2	TS, 4th Level Arrow , Rem	1 Each	8200066

All dimensions are in meters unless otherwise noted.

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	FEDERAL NUMBERS ITEM
63174	48404A		

MDOT Michigan Department of Transportation

AUTH. NO.
CONT. SEC. 63174
ENGR/TECH F. HUNT
SHEET 04 OF 31
PLAN 63174-01-023
DRAWN FH
DATE 9-11-99
SCALE 1:400

I-75 NB. SERVICE DR AT LINCOLN (10½MI)
CITY OF ROYAL OAK
OAKLAND COUNTY

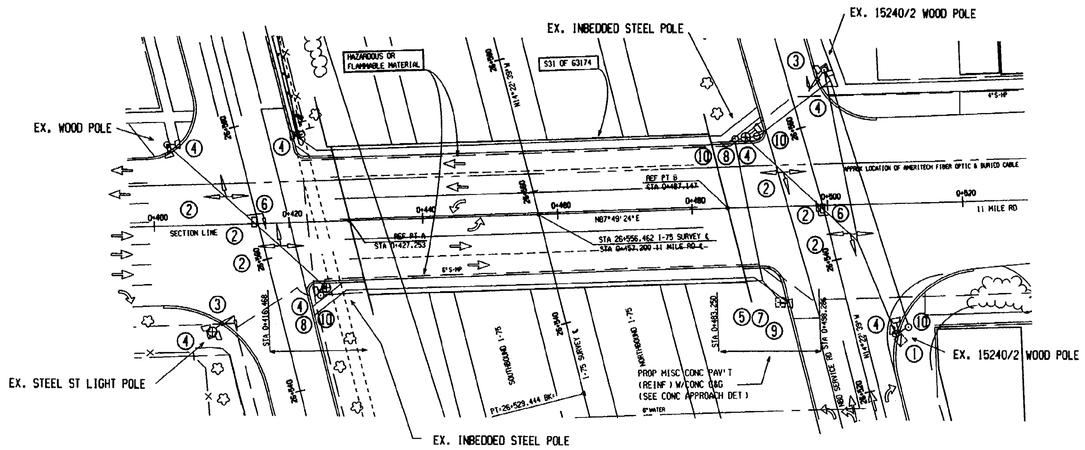
CYCLIC WATTS
STEADY WATTS

CONST SHEET NO. 4D

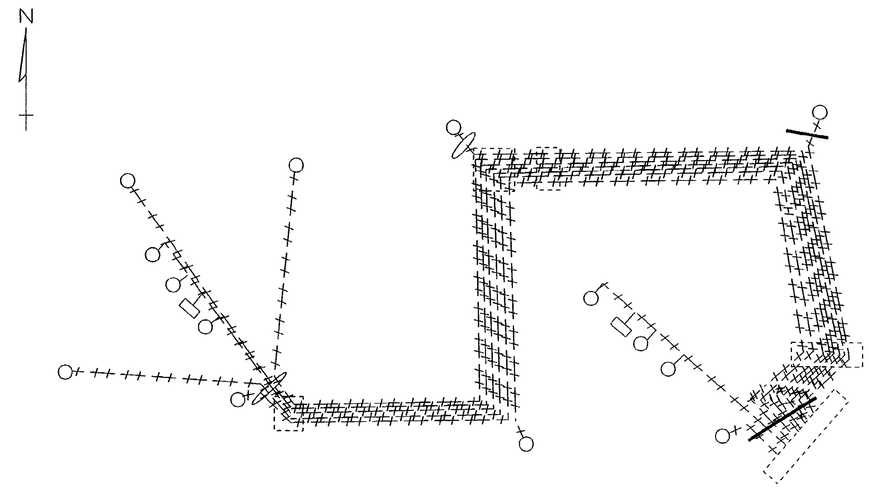
c:\data\fred\ns50\63174023.tne FMH Sep. 11, 1999 FMH

CS 63174 JN 48404A SH NO 5D

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 5D



REMOVAL DIAGRAM
NOT TO SCALE



REMOVAL WIRING DIAGRAM
NOT TO SCALE

CONTACT: BOB JONES (D.E.CO.)
248-594-7132 FOR REMOVAL OF 2 SPAN WIRES.

LIST OF MATERIAL

NO.	ITEM	QUANTITIES	ITEM CODE
1	Controller and Cabinet, Rem	1 Each	8200017
2	TS, Span Wire Mtd , Rem	6 Each	8200071
3	TS, Bracket Arm Mtd, Rem	2 Each	8200065
4	TS, Pedestrian, Bracket Arm Mtd , Rem	7 Each	8200069
5	TS, Pedestrian, Pedestal Mtd, Rem	1 Each	8200070
6	Case Sign, Rem	2 Each	8200014
7	Pedestal , Rem	1 Each	8200039
8	Steel Pole , Rem	2 Each	8200053
9	Fdn, Rem	1 Each	8200022
10	Hh, Rem	4 Each	8190344

All dimensions are in meters unless otherwise noted.

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS	
		PROJECT	ITEM
63174	48404A		

MDOT Michigan Department of Transportation

AUTH. NO.
CONT. SEC. 63174
ENGR/TECH F. HUNT
SHEET 05 OF 31 PLAN 63174-01-014
DRAWN FH
DATE 9-12-99
SCALE 1:400

I-75 N.B. SERVICE DRS AT
11 MILE RD
CITY OF ROYAL OAK
OAKLAND COUNTY

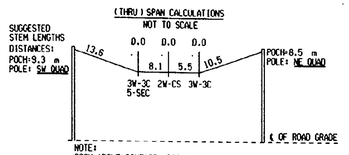
CONST SHEET NO. 5D

CYCLIC WATTS
STEADY WATTS

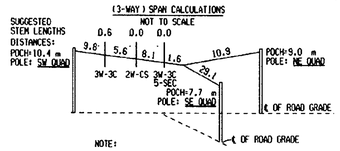
c:\data\fred\ms50-63174014.tmp FWH Sep. 12, 1999 FWH

CS 63174 JN 48404A SH NO 6D

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO.



NOTE:
POCH (POLE CONTACT HEIGHT) IS SHOWN ABOVE ℄ GRADE, FIELD ADJUSTMENTS ARE TO BE MADE FOR ANY DIFFERENCE IN GRADE AT POLE VS. ROAD GRADE.
POCH IS CALCULATED AT 454 kgs TENSION.



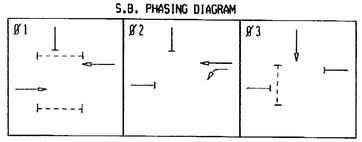
NOTE:
FIELD ADJUSTMENTS ARE TO BE MADE FOR ANY DIFFERENCE IN GRADE AT POLE VS. ROAD GRADE.
POCH IS CALCULATED AT 454 kgs TENSION.

CONTACT: MDOT METRO REGION OFFICE SOILS ENGINEER (248-569-3993) FOR INSPECTION OF DRILLED SHAFT PRIOR TO INSTALLATION OF STEEL POLE FOUNDATION.

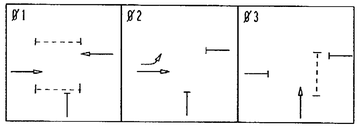
CONTACT: BOB JONES (D.E.CO.) 248-594-7132 FOR INSTALLATION OF 1 SPAN WIRE AND SECONDARY SERVICE AT 2 LOCATIONS. ESTIMATED COST TO CONTRACTOR $2,000.00.

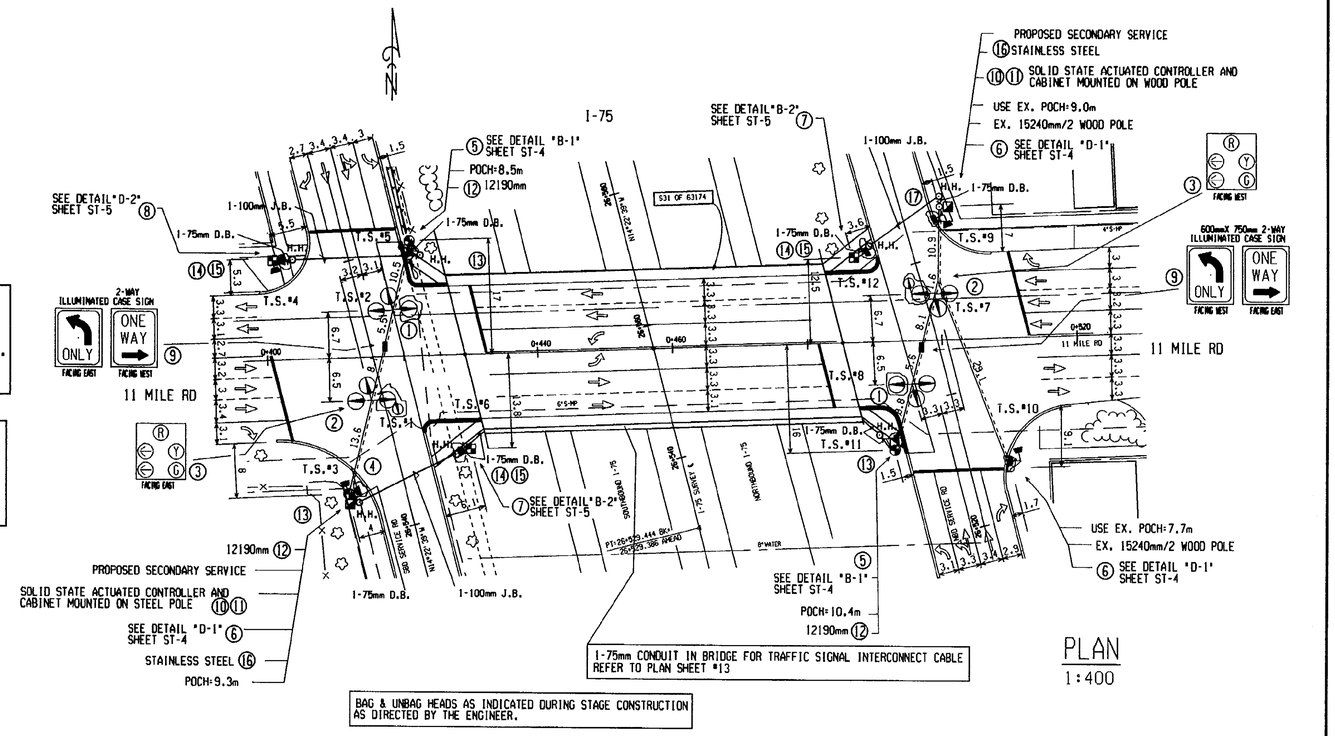
FOR ELECTRICAL SERVICE INSPECTION CONTACT THE MICHIGAN DEPARTMENT OF LABOR AT 517-241-9320 COST TO CONTRACTOR WILL BE $40.00.

S.B. PHASING DIAGRAM

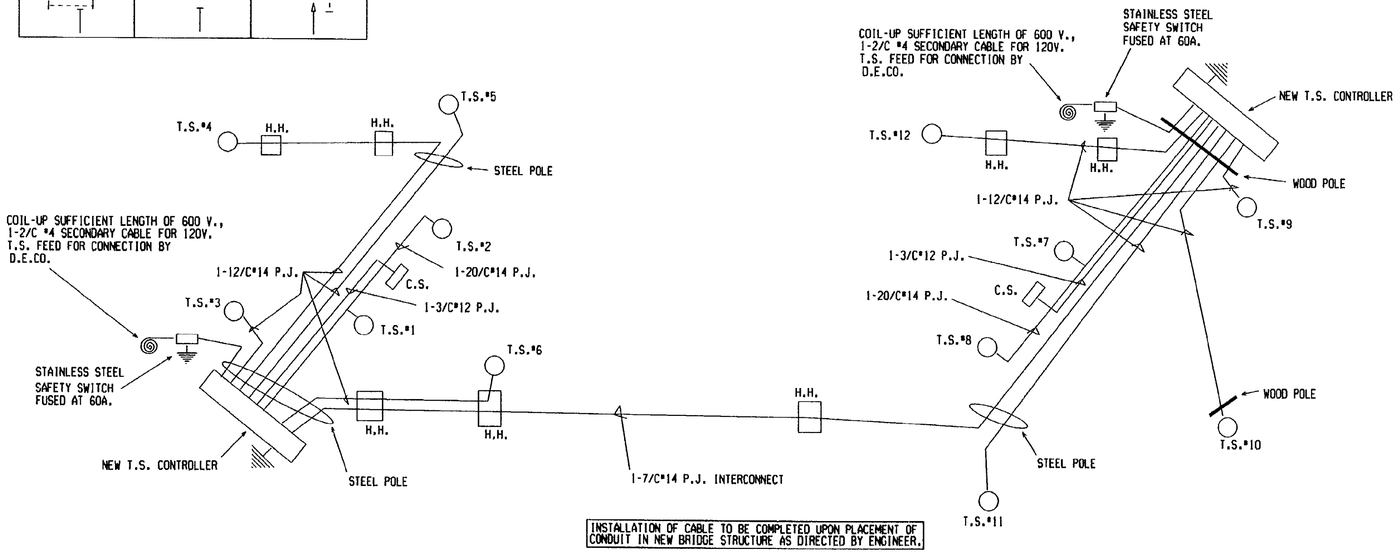


N.B. PHASING DIAGRAM





PLAN
1:400



INSTALLATION OF CABLE TO BE COMPLETED UPON PLACEMENT OF CONDUIT IN NEW BRIDGE STRUCTURE AS DIRECTED BY ENGINEER.

WIRING DIAGRAM
NOT TO SCALE

LIST OF MATERIAL

NO.	ITEM	QUANTITIES	ITEM CODE
1	TS, 3 Way Span Wire Mtd	2 Each	8200243
2	TS, 2 Way Span Wire Mtd	2 Each	8200230
3	TS, One Way Span Wire Mtd, Five Sect	2 Each	8200222
4	Span Wire	1 Each	8200201
5	TS, Pedestrian, 1 Way Bracket Arm Mtd	2 Each	8200258
6	TS, Pedestrian, 2 Way Bracket Arm Mtd	3 Each	8200260
7	TS, Pedestrian, 1 Way Pedestal Mtd	2 Each	8200266
8	TS, Pedestrian, 2 Way Pedestal Mtd	1 Each	8200268
9	Case Sign, Two Way, 600 mm by 750 mm	2 Each	8200302
10	Controller and Cabinet, Solid State Actuated	2 Each	8200334
11	Controller and Cabinet, Solid State Actuated, Delivered	2 Each	8200330
12	Strain Pole, Steel, Anchor Base , 12190 mm	3 Each	8200417
13	Strain Pole Fdn, Uncased	12m	8200420
14	Pedestal, Alum	3 Each	8200428
15	Pedestal, Fdn	3 Each	8200430
16	Safety Switch	2 Each	8200458
17	Wood Pole, Fit Up, TS Cable Pole	1 Each	8190942
◯	Hh, Round	7 Each	8190347
◯	Conduit, DB, 1, 75 mm	20m	8190064
◯	Conduit, Jacked Bored	30m	8190100
◯	P.J. Cable, 600V, 1, 7/C#14, Interc	125m	8190403

All dimensions are in meters unless otherwise noted.

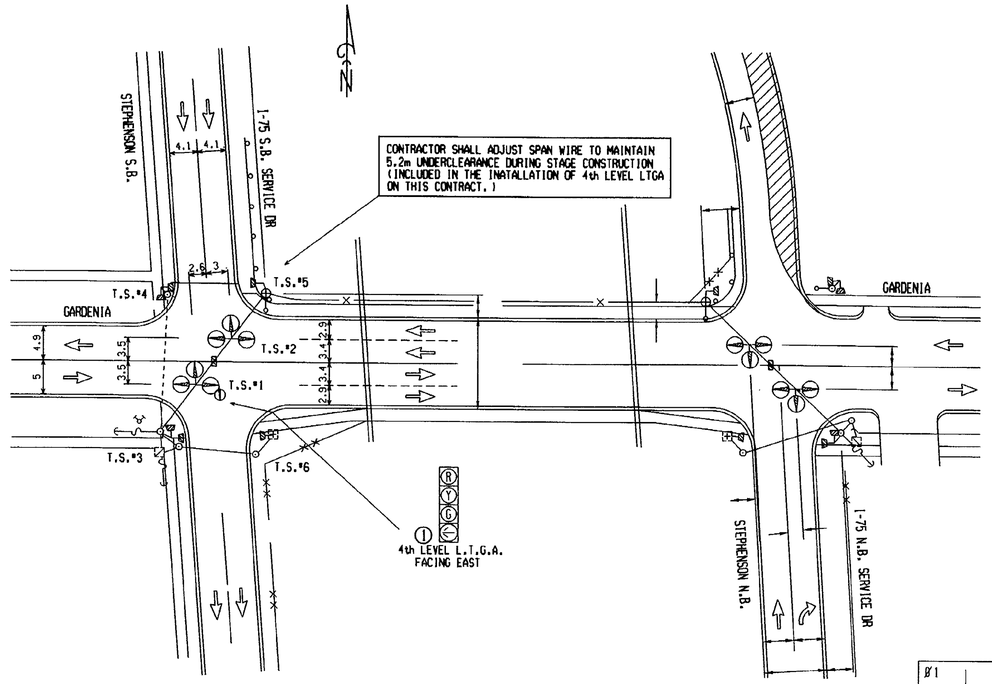
CYCLIC WATTS
STEADY WATTS

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	FEDERAL NUMBERS ITEM	MDOT Michigan Department of Transportation	AUTH. NO. / CONT. SEC. 63174 / ENGR/TECH F. HUNT / SHEET 06 OF 31	DRAWN FH / DATE 9-12-99 / SCALE 1:400 / PLAN 63174-01-014	I-75 SERVICE DRS AT 11 MILE RD CITY OF ROYAL OAK OAKLAND COUNTY	CONST SHEET NO. 6D
63174	48404A							

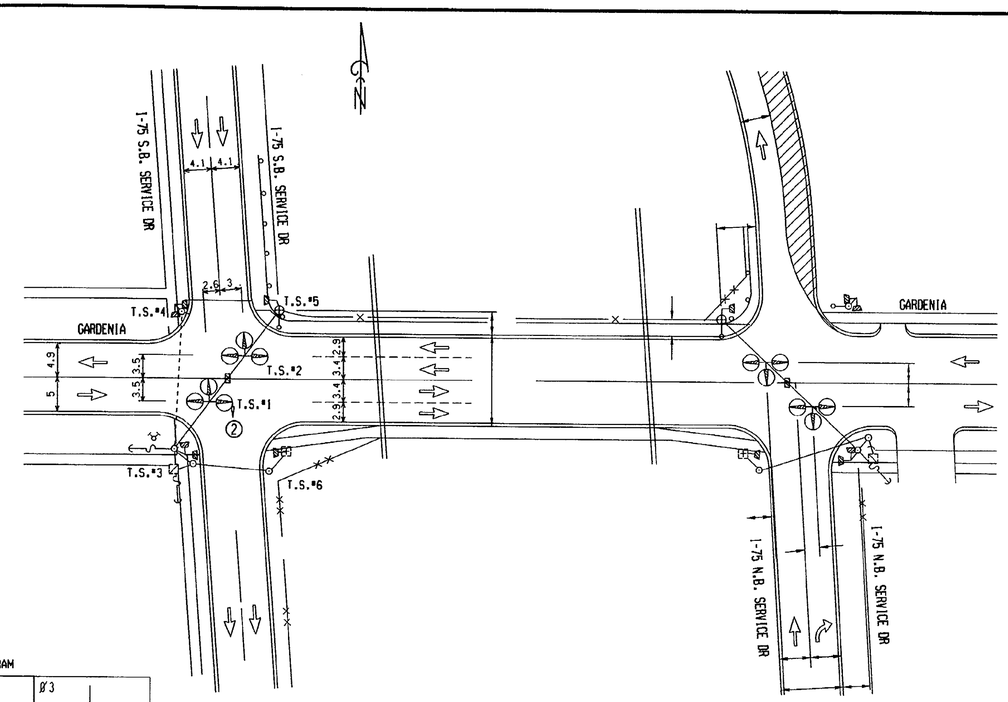
c:\data\fred\ms50-63174014.tmp FWH Sep. 12, 1999 FWH

CS 63174 JN 48404A SH. NO. 7D

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO.

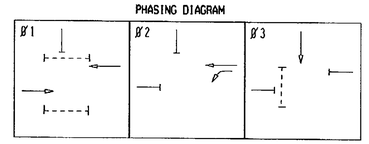


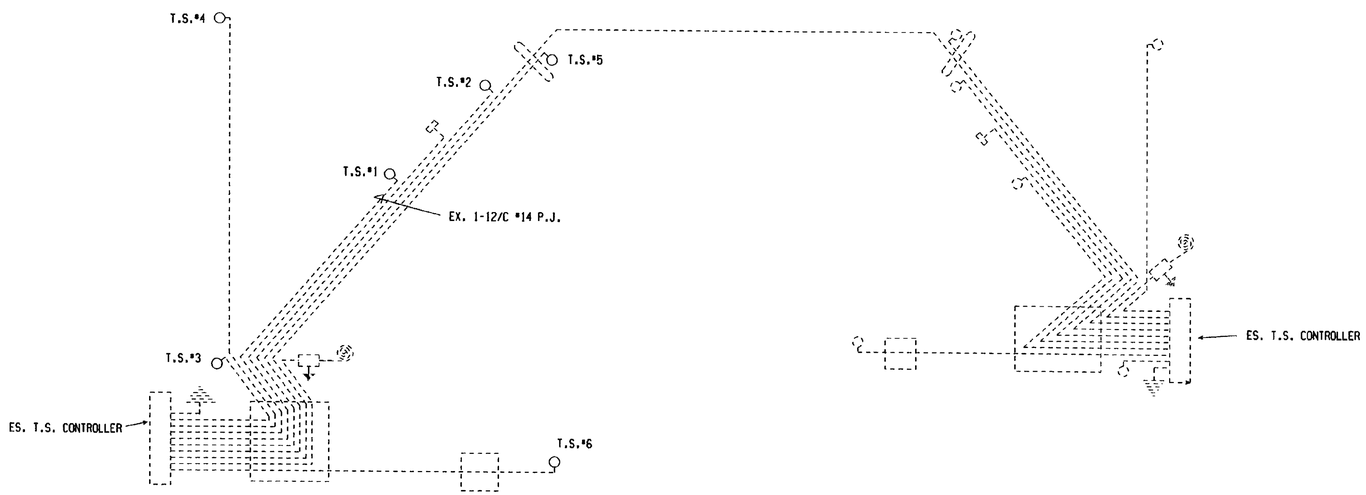
STAGE PLAN
1:400



STAGE REMOVAL
1:400

PHASING DIAGRAM





WIRING DIAGRAM
NOT TO SCALE

LIST OF MATERIAL

NO.	ITEM	QUANTITIES	ITEM CODE
1	TS, 4th Level, LTGA	1 Each	8200250
2	TS, 4th Level Arrow , Rem	1 Each	8200066

All dimensions are in meters unless otherwise noted.

CONTROL SECTION	JOB NUMBER	FEDERAL NUMBERS PROJECT	FEDERAL NUMBERS ITEM
63174	48404A		

MDOT Michigan Department of Transportation

AUTH. NO.
CONT. SEC. 63174
ENGR/TECH F. HUNT
SHEET 7 OF 31
DRAWN FH
DATE 0-11-99
SCALE 1:400
PLAN 63174-01-010

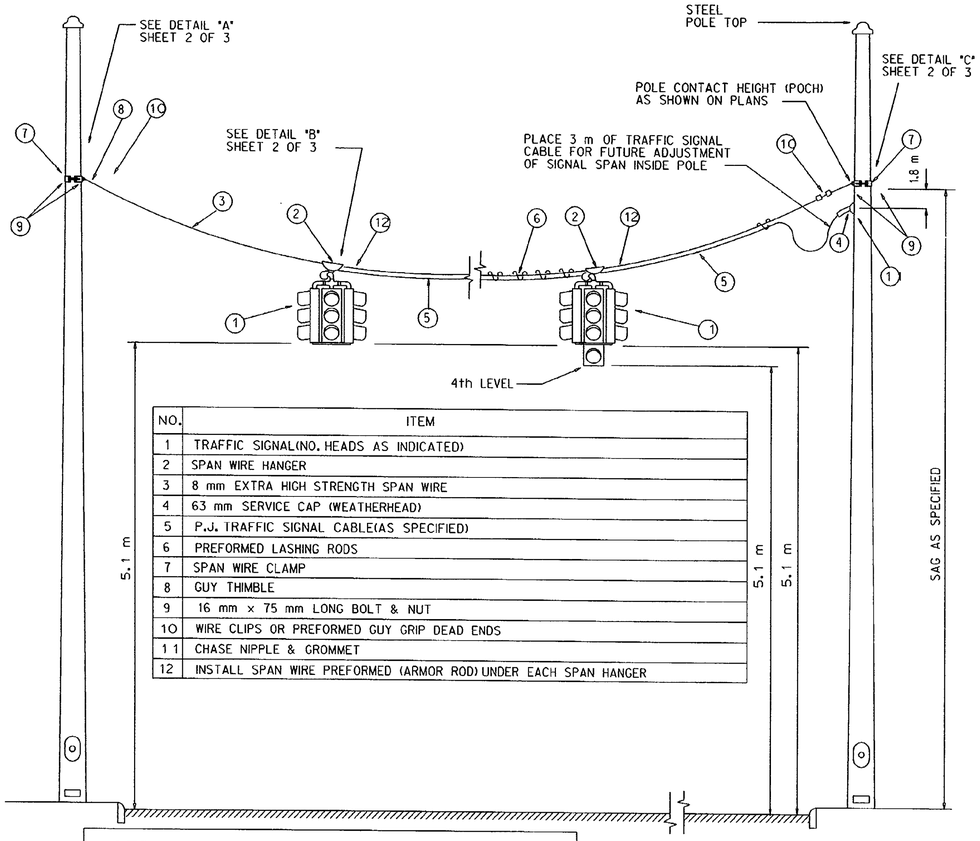
I-75 SB SERVICE DR AT GARDENIA (11½MI)
CITY OF ROYAL OAK
OAKLAND COUNTY

CYCLIC WATTS
STEADY WATTS

CONST SHEET NO. 7D

ci-data-fred-ns50-63174010.tne Sep. 11, 1999 FVH

CS 63174 JN 48404A SH NO 8D



NO.	ITEM
1	TRAFFIC SIGNAL(NO. HEADS AS INDICATED)
2	SPAN WIRE HANGER
3	8 mm EXTRA HIGH STRENGTH SPAN WIRE
4	63 mm SERVICE CAP (WEATHERHEAD)
5	P.J. TRAFFIC SIGNAL CABLE(AS SPECIFIED)
6	PREFORMED LASHING RODS
7	SPAN WIRE CLAMP
8	GUY THIMBLE
9	16 mm × 75 mm LONG BOLT & NUT
10	WIRE CLIPS OR PREFORMED GUY GRIP DEAD ENDS
11	CHASE NIPPLE & GROMMET
12	INSTALL SPAN WIRE PREFORMED (ARMOR ROD) UNDER EACH SPAN HANGER

NOTE:
USE NUMBER & TYPE OF T.S. AS CALLED FOR ON PLAN

DETAIL : INSTALLATION OF SPAN WIRE T.S. ON STEEL POLES

NOTE:
INSTALL 19 mm × 3 m COPPER CLAD GROUND ROD(S) AS REQUIRED TO PROVIDE LESS THAN 10 OHM RESISTANCE TO GROUND. INSTALL #6 MIN. COPPER GROUND WIRES FROM GROUND ROD(S) TO SPAN WIRE AT EACH SUPPORTING POLE USING NON-SOLDER TYPE CONNECTIONS FOR SPAN WIRE GROUNDING.

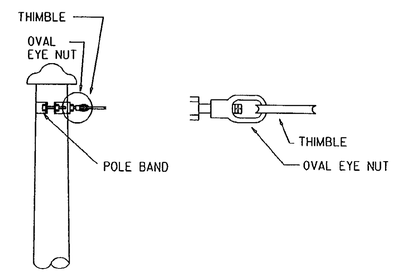
NOTE: DETAILS NOT TO SCALE (N.T.S.)

SH. 1 OF 3
OC-1

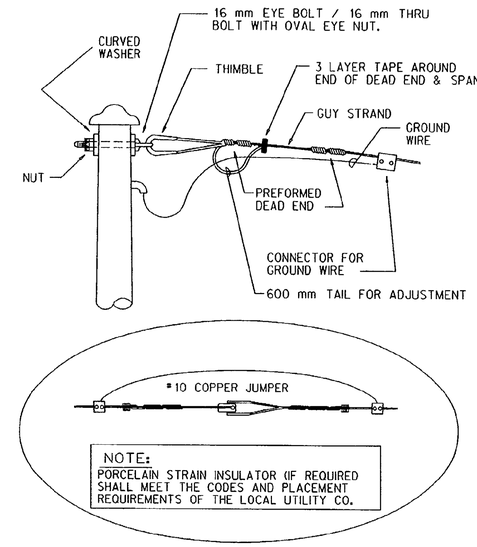
SPAN WIRE T.S. ON STEEL POLES

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE: 12/27/95
FILENAME: OC1.DGN

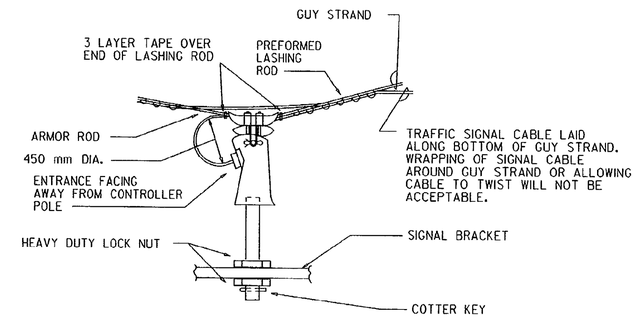


DETAIL A POLE BAND

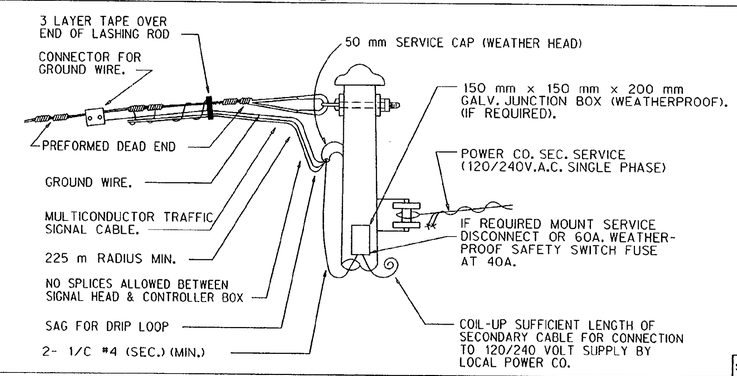


NOTE:
PORCELAIN STRAIN INSULATOR (IF REQUIRED SHALL MEET THE CODES AND PLACEMENT REQUIREMENTS OF THE LOCAL UTILITY CO.

DETAIL A (ALTERNATE) EYE BOLT



DETAIL B HANGER ATTACHMENT



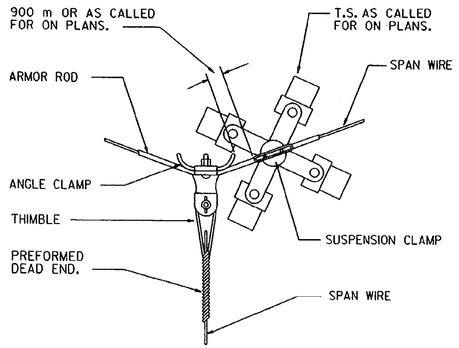
DETAIL C CABLING

SH. 2 OF 3
OC-1

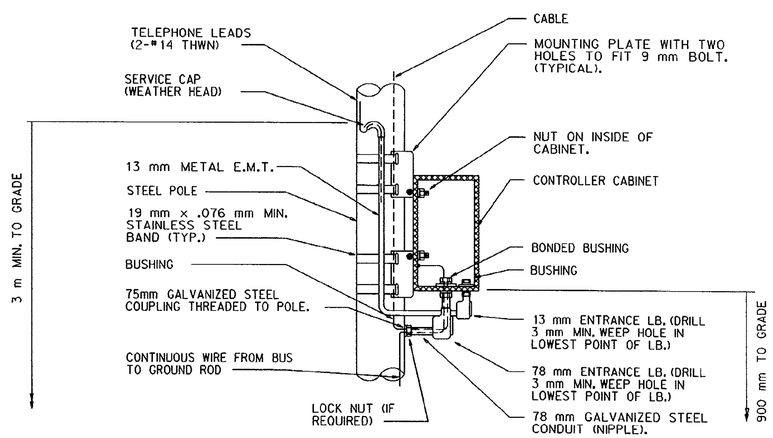
SPAN WIRE T.S. ON STEEL POLES

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	8 of 31	8D

CS 63174 JN 48404A SH NO 9D



DETAIL : PULL-OFF CONNECTION FOR 3-WAY SUSPENSION



DETAIL : CONTROLLER MOUNTING

SH. 3 OF 3

OC-1

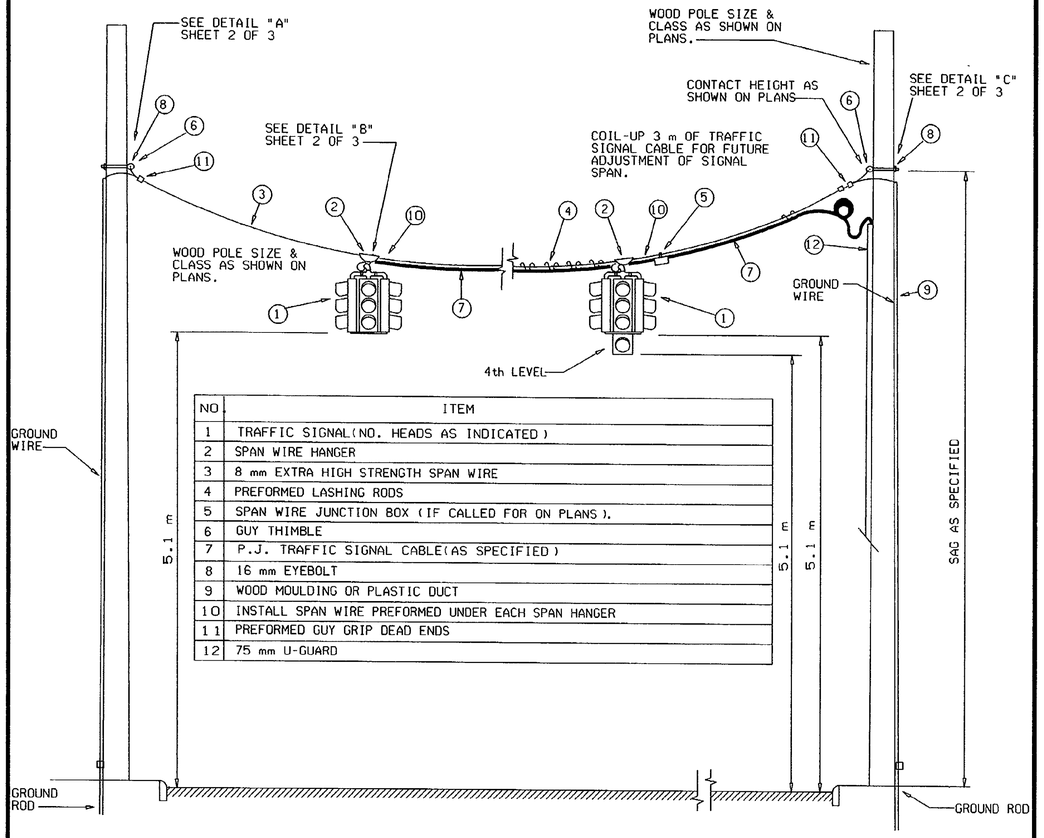
SPAN WIRE T.S. ON STEEL POLES

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	9 of 31	9D

CS 63174 JN 48404A SH No 10D



NO	ITEM
1	TRAFFIC SIGNAL(NO. HEADS AS INDICATED)
2	SPAN WIRE HANGER
3	8 mm EXTRA HIGH STRENGTH SPAN WIRE
4	PREFORMED LASHING RODS
5	SPAN WIRE JUNCTION BOX (IF CALLED FOR ON PLANS).
6	GUY THIMBLE
7	P.J. TRAFFIC SIGNAL CABLE(AS SPECIFIED)
8	16 mm EYEBOLT
9	WOOD MOULDING OR PLASTIC DUCT
10	INSTALL SPAN WIRE PREFORMED UNDER EACH SPAN HANGER
11	PREFORMED GUY GRIP DEAD ENDS
12	75 mm U-GUARD

DETAIL : INSTALLATION OF SPAN WIRE T.S. ON WOOD POLES

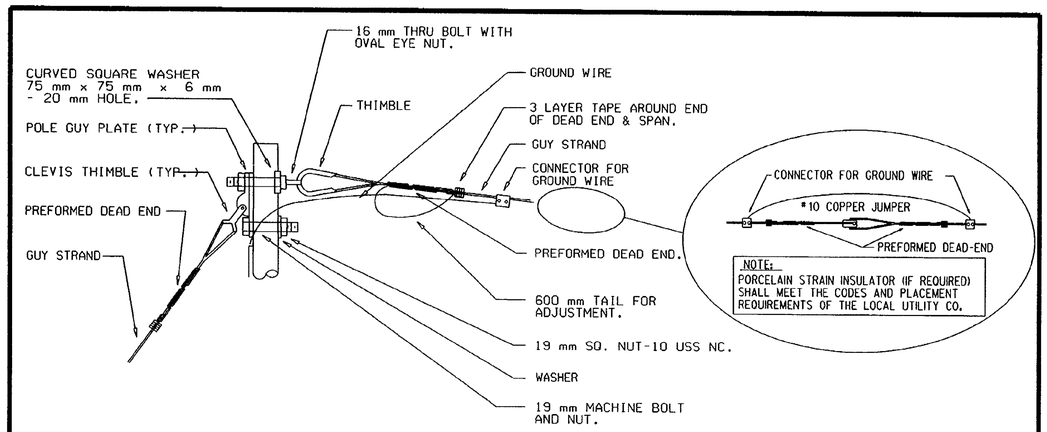
NOTE:
INSTALL 19 mm x 3 m COPPER CLAD GROUND ROD(S) AS REQUIRED TO PROVIDE LESS THAN 10 OHM RESISTANCE TO GROUND. INSTALL #6 MIN. COPPER GROUND WIRES FROM GROUND ROD(S) TO SPAN WIRE AT EACH SUPPORTING POLE USING NON-SOLDER TYPE CONNECTIONS FOR SPAN WIRE GROUNDING.

NOTE: DETAILS NOT TO SCALE (N.T.S.)

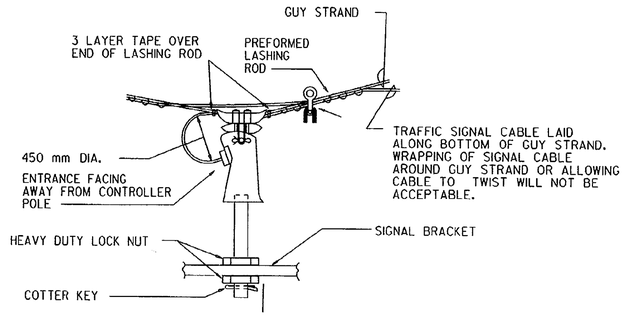
SH. 1 OF 3
OC-1A

SPAN WIRE T.S. ON WOOD POLES

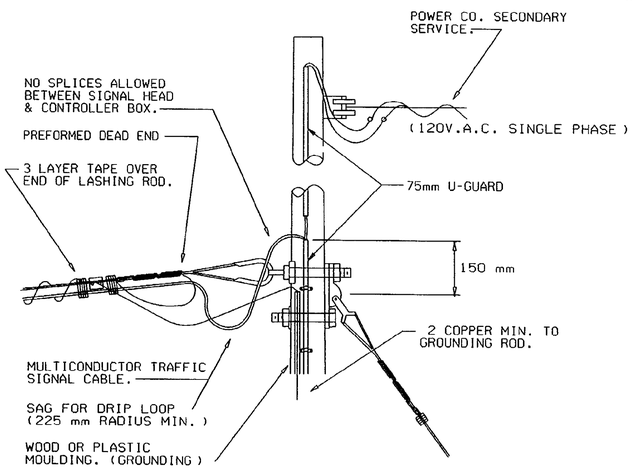
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.



DETAIL A POLE PLATE AND HARDWARE



DETAIL B HANGER ATTACHMENT



DETAIL C CABLING

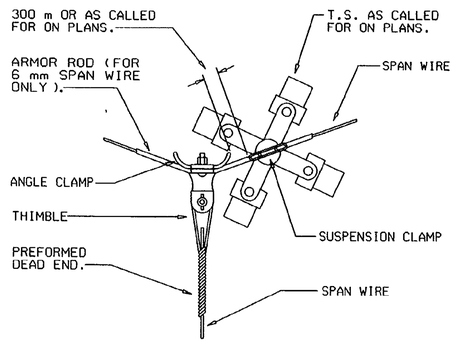
SH. 2 OF 3
OC-1A

SPAN WIRE T.S. ON WOOD POLES

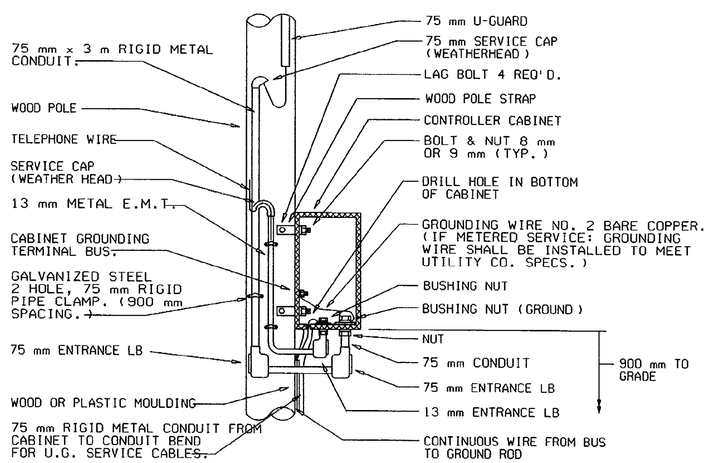
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	10 of 31	10 D

LAST CORRECTION DATE:12/27/95
FILENAME:OC1A.DGN

CS 63174 JN 48404A SH NO 11D



DETAIL : PULL-OFF CONNECTION FOR 3-WAY SUSPENSION



DETAIL : CONTROLLER MOUNTING

SH. 3 OF 3

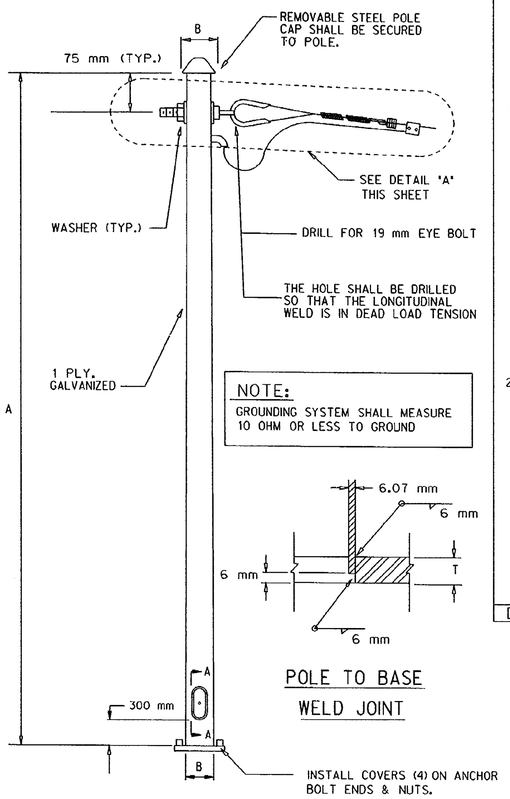
OC-1A

SPAN WIRE T.S. ON WOOD POLES

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	11 of 31	11D

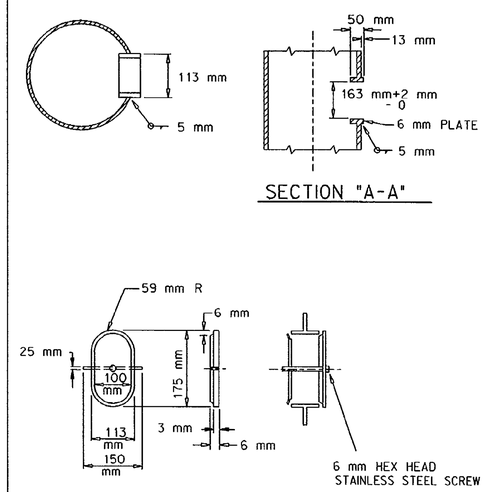


ANCHOR BASE STEEL STRAIN POLE

N.T.S.

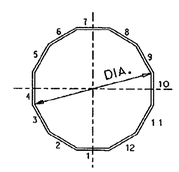
NOTE:
GROUNDING SYSTEM SHALL MEASURE 10 OHM OR LESS TO GROUND

POLE TO BASE WELD JOINT

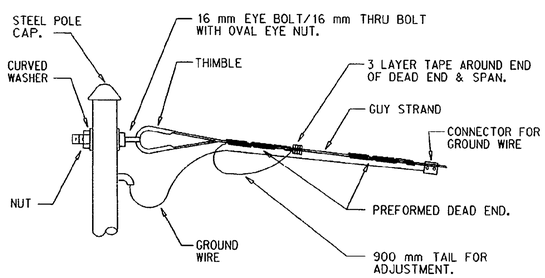


SECTION "A-A"

DETAIL : HAND HOLE

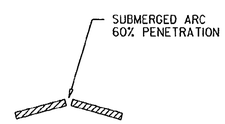


TYPICAL CROSS SECTION
(POLYGON OPTIONAL)



DETAIL "A"

N.T.S.



LONGITUDINAL WELD JOINT

SH. 1 OF 5

ST-2

MDOT Michigan Department of Transportation

ANCHOR BASE STEEL STRAIN POLE AND FOUNDATION

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE:12/22/95
FILENAME:ST2.DGN

POLE REQUIREMENTS

LENGTH	A	9 m	9 m (ALTERNATE)	10.8 m	12 m
GAUGE		#3-1 PLY (MIN.)	#3-1 PLY (MIN.)	#0-1 PLY (MIN.)	#0-1 PLY (MIN.)
POLE DIA. AT TOP AT BOTTOM	B B'	200 mm MIN+.13 mm 325 mm+.13 mm	194 mm MIN+6 mm 294 mm+6 mm	200 mm MIN+.13 mm 325 mm+.13 mm	212.5 mm MIN+.13 mm 350 mm+.13 mm
MAX. DEFLECTION LOAD 450 mm FROM TOP FOR UNGUYED POLE		1678 kg	1678 kg	1678 kg	1678 kg
DEFLECTION 450 mm FROM TOP		NOT GREATER THAN 10 mm/45 kg	NOT GREATER THAN 10 mm/45 kg	NOT GREATER THAN 10 mm/45 kg	NOT GREATER THAN 10 mm/45 kg
FULL LENGTH TAPER		+.05 mm 4 mm -.00 mm	+.05 mm 4 mm -.00 mm	+.05 mm 4 mm -.00 mm	+.05 mm 4 mm -.00 mm
ANCHOR BOLT CORD	C	319 mm	284 mm	319 mm	319 mm
BASE PLATE	D	450 mm	400 mm	450 mm	450 mm
BASE PLATE THICKNESS	T	50 mm	50 mm	50 mm	50 mm
ANCHOR BOLT CIRCLE	BC	450 mm	400 mm	450 mm	450 mm
ANCHOR BASE BOLT HOLE DIA.		50 mm	50 mm	50 mm	56 mm
ANCHOR BOLT DIA.	d	44 mm	44 mm	44 mm	50 mm
ANCHOR BOLT LENGTH (INCLUDES 150 mm "L" BEND)		3000 mm	3000 mm	2000 mm	3000 mm
POLE BAND (SPAN CLAMP)	188 mm	-------	POCH 8.7 m-0 mm-8.7 m-150 mm	-------	-------
	213 mm	POCH 7.5 m-150 mm-8.7 m-150 mm	POCH 6.3 m-150 mm-8.4 m-150 mm	POCH 9.6 m-150 mm-10.5 m-150 mm	POCH 10.8 m-0 mm-11.7 m-150 mm
	238 mm	POCH 6 m-0 mm-7.5 m-0 mm	-------	POCH 7.5 m-0 mm-9.6 m-0 mm	POCH 8.7 m-0 mm-10.5 m-150 mm

NOTES:

1. ACCEPTABLE MILL TOLERANCES TO APPLY TO ALL NOMINAL DIMENSIONS.
2. HANDHOLE SHALL BE PROVIDED & BE PERPENDICULAR TO EYE BOLT HOLE.
3. MATERIAL ( ) GALVANIZED FINISH.
   - A. SHAFT STEEL SHALL BE ASTM A572, Fy = 344.7 MPa.
   - B. BASE PLATE ASTM A36.
   - C. ALL GALVANIZING SHALL MEET ASTM A123.
   - D. ANCHOR BOLTS SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS FOR TRAFFIC SIGNAL STRAIN POLE.
4. WELDING
   - A. WELDING SHALL CONFORM TO AWS D1.1
   - B. ULTRASONIC INSPECTION FOR ALL 100% WELDS AND VISUAL AND/OR MAGNETIC PARTICLE FOR ALL OTHERS.
5. TOLERANCES OVERALL HEIGHT +_1%.
   - A. SWEEP AND CHAMBER 3 mm PER METER.
   - B. TWIST 10 °MAX. OVERALL.
6. DESIGN CONFORMING TO CURRENT AASHTO
   - A. SPECIFICATIONS FOR DESIGN OF STRUCTURAL SUPPORTS FOR TRAFFIC SIGNALS ASSUMING A SAG OF 10% OF SPAN WITH MAXIMUM OF 5 SIGNALS WITH PLASTIC HEADS NOT TETHERED.

SH. 2 OF 5

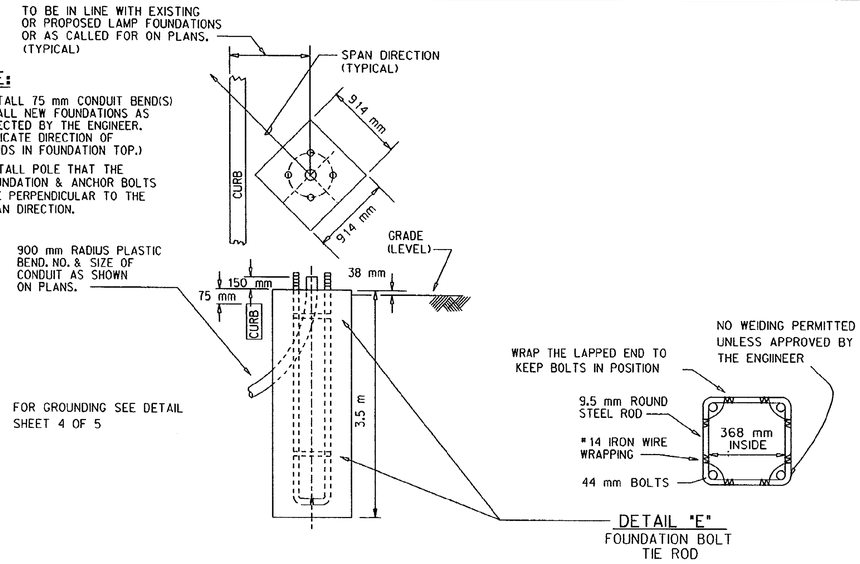
ST-2

MDOT Michigan Department of Transportation

ANCHOR BASE STEEL STRAIN POLE AND FOUNDATION

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	12 of 31	12D

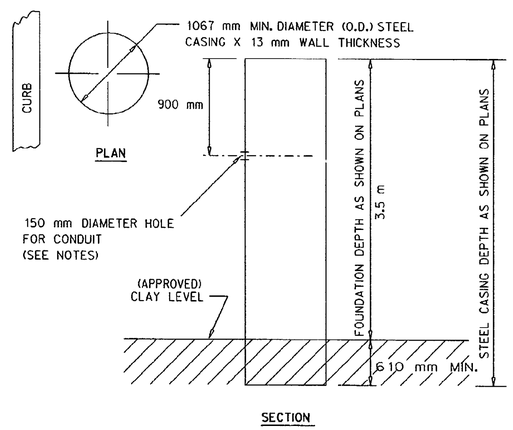
CS 63174 JN 48404A SH 13D

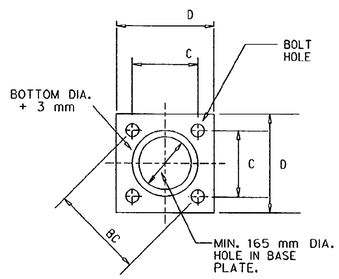


NOTE:

1. INSTALL 75 mm CONDUIT BEND(S) IN ALL NEW FOUNDATIONS AS DIRECTED BY THE ENGINEER. (INDICATE DIRECTION OF BENDS IN FOUNDATION TOP.)
2. INSTALL POLE THAT THE FOUNDATION & ANCHOR BOLTS ARE PERPENDICULAR TO THE SPAN DIRECTION.

DETAIL : ANCHOR BASE STEEL STRAIN POLE FOUNDATION





NOTES:

1. CUT 150 mm DIAMETER HOLE IN STEEL CASING AT 900 mm FROM TOP OF FOUNDATION FOR CONDUIT.
2. TRENCH FOR PLACEMENT OF CONDUIT AFTER CASING IS IN PLACE AND BEFORE DEWATERING.
3. SEE SPECIAL PROVISION FOR CONSTRUCTION OF DRILLED SHAFT FOUNDATIONS (TRAFFIC SIGNAL STRAIN POLES) AND LIGHT TOWERS.
4. ALL DRILLED SHAFT FOUNDATIONS CASED OR UNCASED, SHALL HAVE A MINIMUM DIAMETER OF 1050 mm (OR LARGER AS DIRECTED BY THE ENGINEER).

DETAIL : DRILLED SHAFT FOUNDATION FOR STRAIN POLE (CASED AND UNCASED) | DETAIL : BASE PLATE

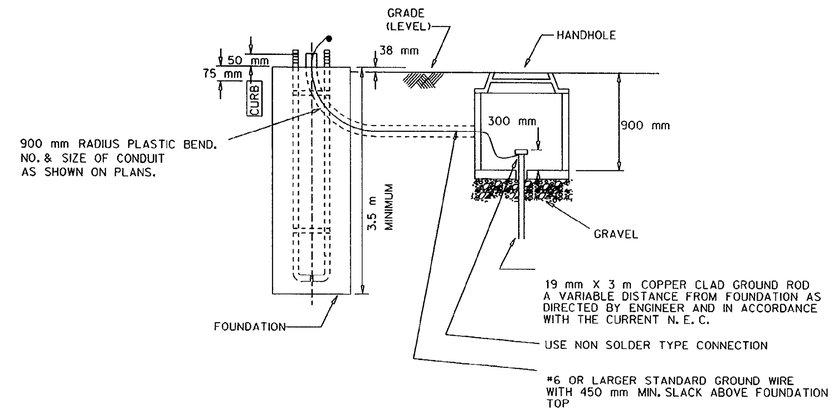
SH. 3 OF 5
ST-2

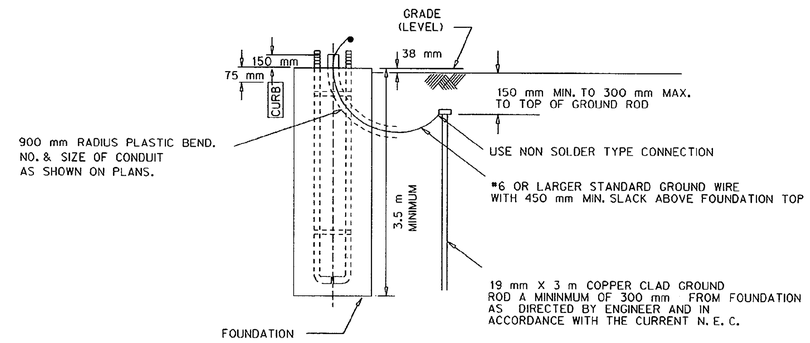
MIDOT Michigan Department of Transportation

ANCHOR BASE STEEL STRAIN POLE AND FOUNDATION

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE:
FILENAME:





NOTE: ALL GROUNDS SHALL PROVIDE LESS THAN 10 OHM RESISTANCE TO GROUND

DETAIL : ANCHOR BASE STEEL STRAIN POLE GROUNDING

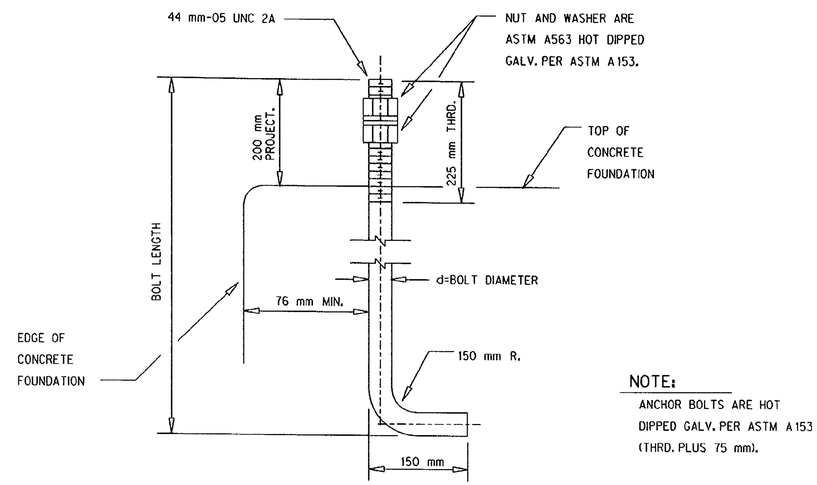
SH. 4 OF 5
ST-2

MIDOT Michigan Department of Transportation

ANCHOR BASE STEEL STRAIN POLE AND FOUNDATION

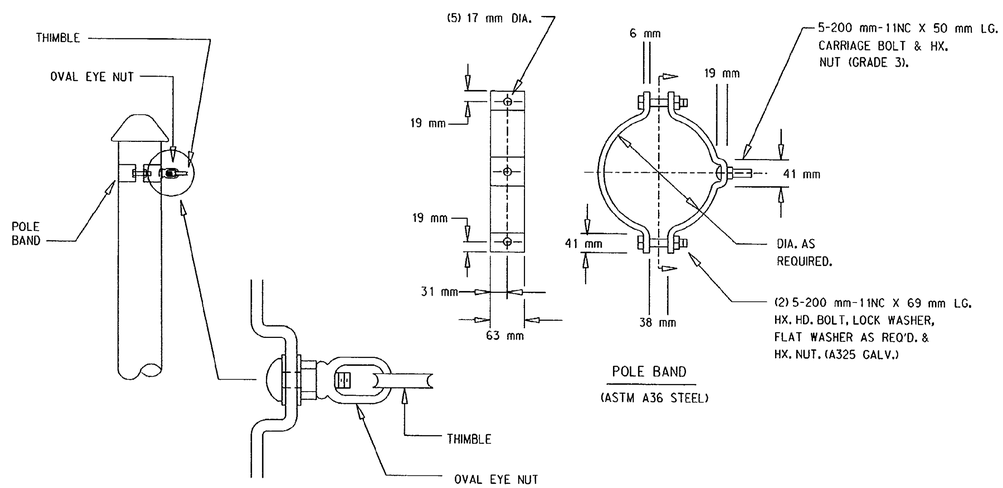
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	13 of 31	13D

CS 63174 JN 48404A JN No. 14D



NOTE:
ANCHOR BOLTS ARE HOT DIPPED GALV. PER ASTM A153 (THRD. PLUS 75 mm).

DETAIL : ANCHOR BASE STEEL STRAIN POLE FOUNDATION



DETAIL A (ALTERNATE) POLE BAND

SH. 5 OF 5

ST-2

MDOT Michigan Department of Transportation

ANCHOR BASE STEEL STRAIN POLE AND FOUNDATION

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

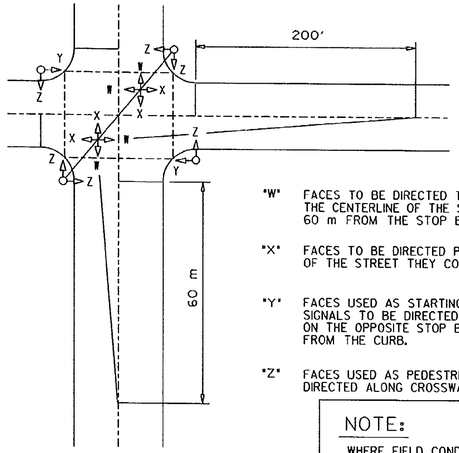
LAST CORRECTION DATE:
FILENAME:

SH. OF

MDOT Michigan Department of Transportation

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	14 of 31	14D

CS 63174 JN 48404A SH No 15D



"W" FACES TO BE DIRECTED TO INTERSECT A POINT ON THE CENTERLINE OF THE STREET THEY CONTROL 60 m FROM THE STOP BAR.

"X" FACES TO BE DIRECTED PARALLEL TO THE CENTERLINE OF THE STREET THEY CONTROL.

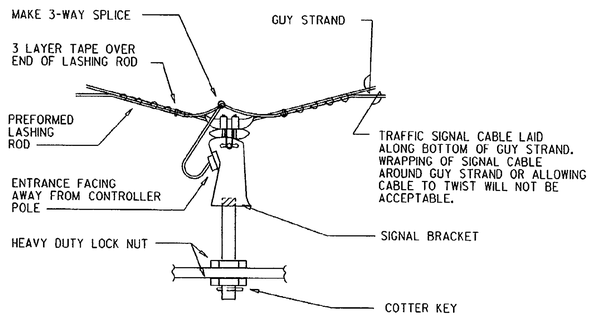
"Y" FACES USED AS STARTING SIGNALS WITH NEAR SIDE SIGNALS TO BE DIRECTED TO INTERSECT A POINT ON THE OPPOSITE STOP BAR APPROXIMATELY 1.2 m. FROM THE CURB.

"Z" FACES USED AS PEDESTRIAN SIGNALS TO BE DIRECTED ALONG CROSSWALKS.

NOTE:

WHERE FIELD CONDITIONS REQUIRE DEVIATION FROM THESE STANDARDS, ENGINEER WILL FURNISH SPECIFIC DIRECTIONAL SETTING FOR SIGNALS AT TIME OF INSTALLATION.

DETAIL : STANDARD FOR DIRECTIONAL SETTINGS OF TRAFFIC SIGNALS (N.T.S.)



DETAIL : O.H. T.S. CABLE SPLICE

SH. 1 OF 1

OC-3

DIRECTIONAL SETTINGS/CABLE SPLICE

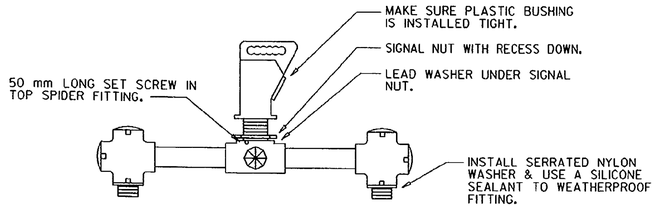
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE:12/27/95
FILENAME:OC3.DGN

SH. OF

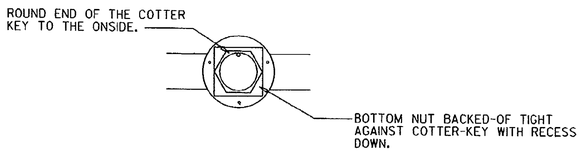
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	15 of 31	15D

CS 63174 JN 48404A SH NO 16D

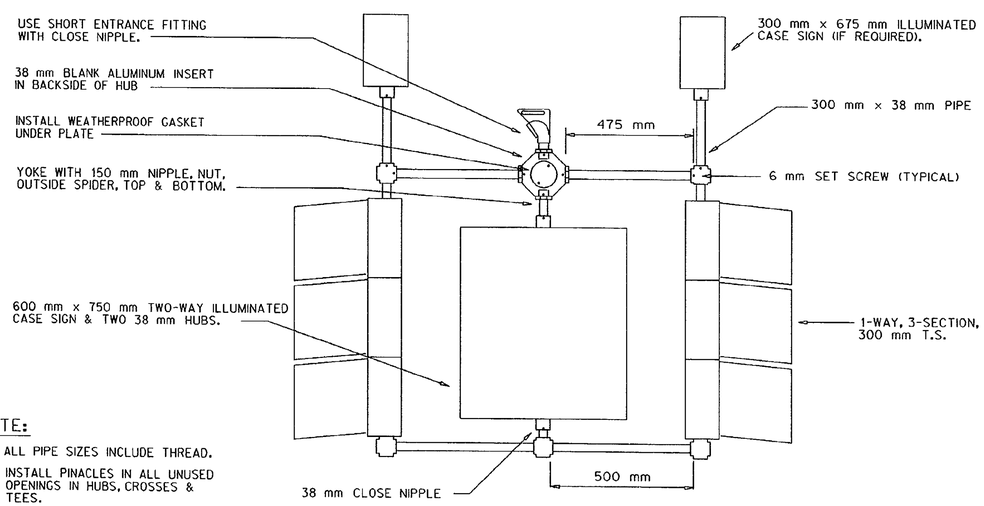


(2-WAY T.S. SHOWN 3-WAY & 4-WAY SIMILAR)

DETAIL : SPAN WIRE MOUNTED T.S. BRACKET ASSEMBLY (N.T.S.)



DETAIL : HUB WITH BOTTOM PLATE OFF (N.T.S.)



NOTE:

1. ALL PIPE SIZES INCLUDE THREAD.
2. INSTALL PINACLES IN ALL UNUSED OPENINGS IN HUBS, CROSSES & TEES.
3. 2-WAY CASE SIGN LEGEND TO BE AS SHOWN ON PLANS.

DETAIL : 2-WAY T.S./CASE SIGN COMBINATION ABOVE HUB

SH. 1 OF 1

OC-3A

TRAFFIC SIGNAL BRACKET ASSEMBLY/CASE SIGN COMBINATION

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE: 12/27/95
FILENAME: OC3A.DGN

SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	16 of 31	16D

C.S. 63174 JN 48404A SH NO 17D

	COLOR	VEHICLE 20/C	PEDESTRIAN 12/C	PUSHBUTTON 7/C
1	WHITE	COMMON (CASE SIGN)	COMMON	COMMON
2	BLACK	CASE SIGN	CASE SIGN	DW 2
3	RED	A O/RED	A O/RED	DW 1
4	GREEN	A Ø-GREEN	A Ø-GREEN	W 1
5	ORANGE	A Ø-AMBER	A Ø-AMBER	W 3
6	BLUE	L.T.G.A.	L.T.G.A.	W 2
7	WHITE W/BLACK TRACER	C Ø-AMBER	C Ø-AMBER	DW 3
8	GREEN W/BLACK TRACER	B Ø-GREEN	B Ø-GREEN	
9	ORANGE W/BLACK TRACER	B Ø-AMBER	B Ø-AMBER	
10	RED W/BLACK TRACER	B O/RED	B O/RED	
11	BLUE W/BLACK TRACER	C Ø-GREEN	C Ø-GREEN	
12	BLACK W/WHITE TRACER	C O/RED	C O/RED	
13	GREEN W/WHITE TRACER	D Ø-GREEN		
14	ORANGE W/RED TRACER	D Ø-AMBER		
15	RED W/WHITE TRACER	D O/RED		
16	BLACK W/RED TRACER	SPARE		
17	BLUE W/WHITE TRACER	SPARE		
18	BLUE W/RED TRACER	300 mm COMMON		
19	WHITE W/RED TRACER	300 mm COMMON		
20	RED W/GREEN TRACER	SPARE		

#10/2-CONDUCTOR AND #12/2 CONDUCTOR-COLORS 1 & 2
#12/3-CONDUCTOR-COLORS 1 THROUGH 3
#14/7-CONDUCTOR-COLORS 1 THROUGH 7
#14/12-CONDUCTOR-COLORS 1 THROUGH 12
#14/20-CONDUCTOR-COLORS 1 THROUGH 20

SH. 1 OF 1
OC-3B

COLOR CODE FOR WIRING CONNECTIUNG SIGNAL LAMPS

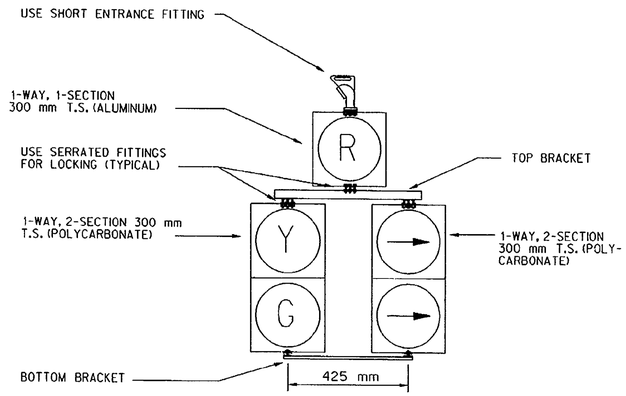
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE:12/27/95
FILENAME:OC3B.DGN

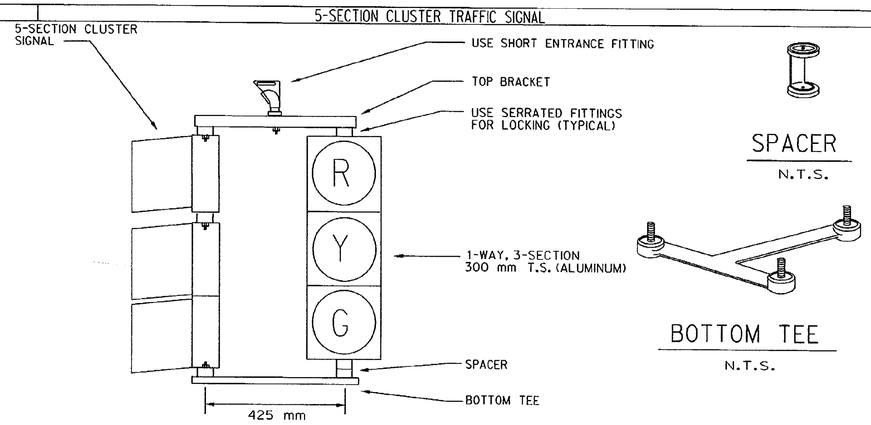
SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	17 of 31	17D

C.S. 63174 JN 48404A SH. No 18D



DETAIL : 5-SECTION CLUSTER TRAFFIC SIGNAL



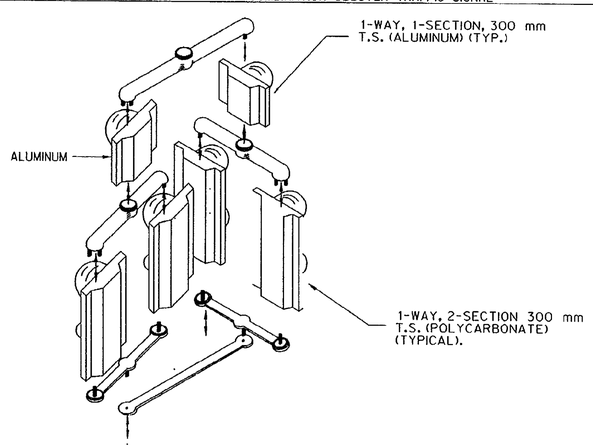
SPACER

N.T.S.

BOTTOM TEE

N.T.S.

DETAIL : COMBINATION CLUSTER TRAFFIC SIGNAL



DETAIL : TWIN CLUSTER TRAFFIC SIGNAL

SH. 1 OF 1

ST-3D

MDOT Michigan Department of Transportation

T.S. SPECIAL BRACKETS 5-SECTION HEADS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

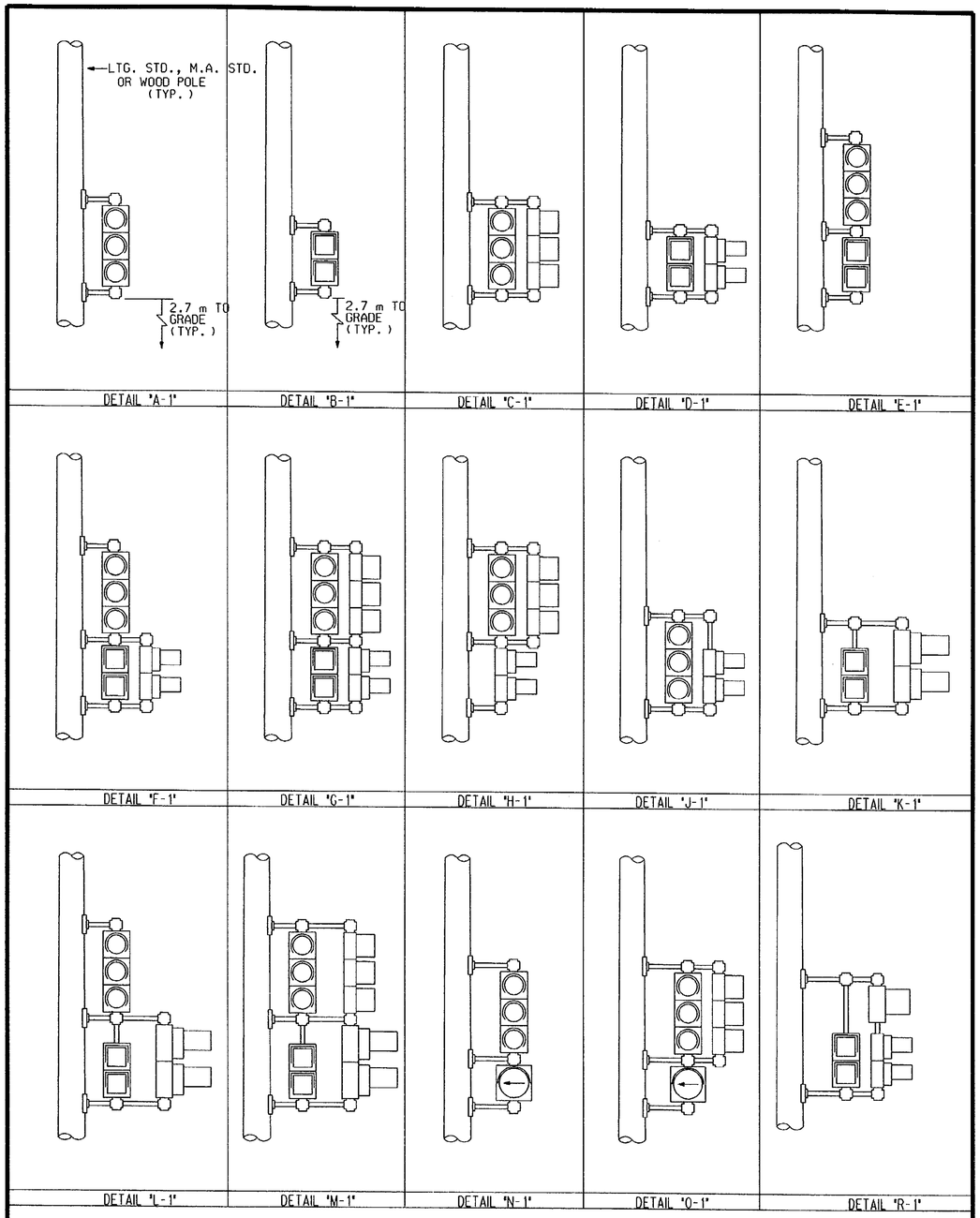
LAST CORRECTION DATE:12/22/95
FILENAME:ST3D.DGN

SH. OF

MDOT Michigan Department of Transportation

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	18 of 31	18D

C.S. 63174 JN 48404A SH. No 19D



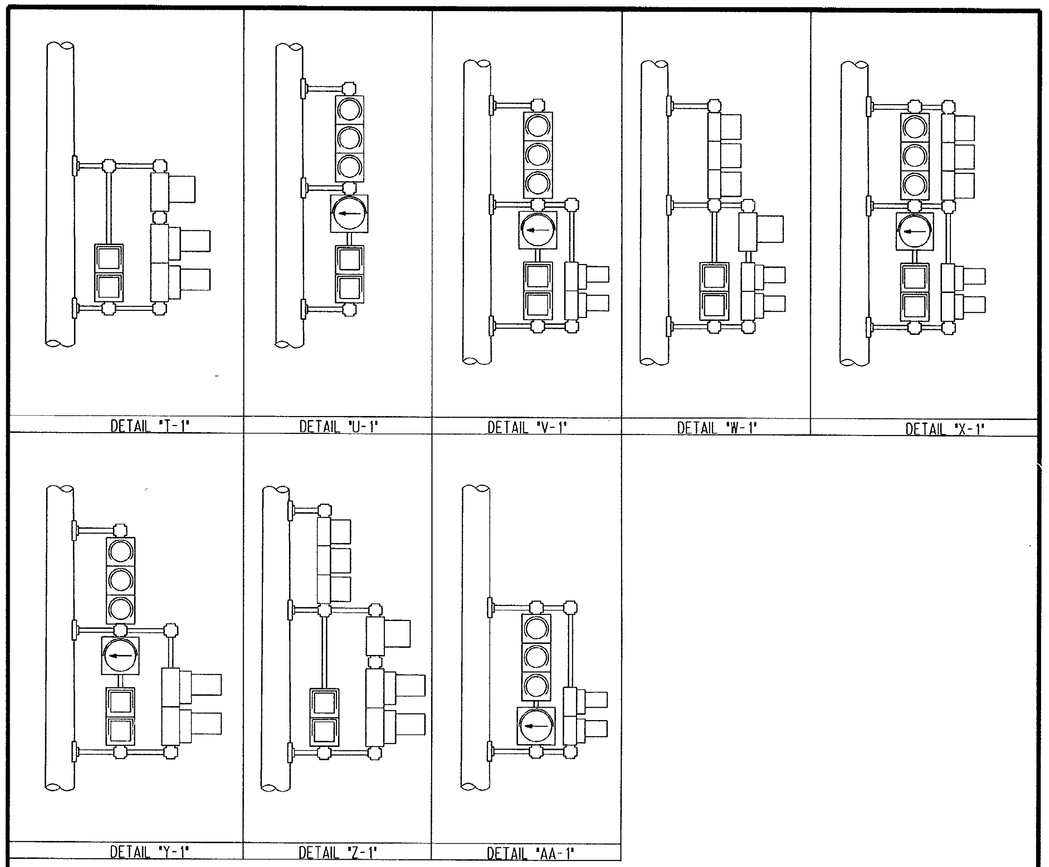
SH. 1 OF 2

ST-4

MDOT Michigan Department of Transportation

TYPICAL POLE MOUNTED - T.S./PEDESTRIAN COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.



NOTE:

1. THE RELATIVE POSITION OF 2-WAY T.S. & PEDESTRIAN BRACKET ARM SIGNALS WITHIN THE BRACKET ASSEMBLY SHALL BE REVERSED (I.E. THE SIGNAL NEAREST THE POLE GOES TO THE OUTSIDE OF THE BRACKET ASSEMBLY & THE OUTSIDE SIGNAL GOES INBOARD OR NEAREST TO POLE) ACCORDING TO THE PLAN VIEW TO PROVIDE CLEAR VEHICULAR AND PEDESTRIAN VIEWING.

2. PIPE ASSEMBLY SHALL BE OF SUCH LENGTH AND HEIGHT AS TO ACCOMMODATE TRAFFIC SIGNALS AND PEDESTRIAN SIGNALS FOR PROPER MAINTENANCE AND CLEAR VEHICULAR AND PEDESTRIAN VIEWING.

SH. 2 OF 2

ST-4

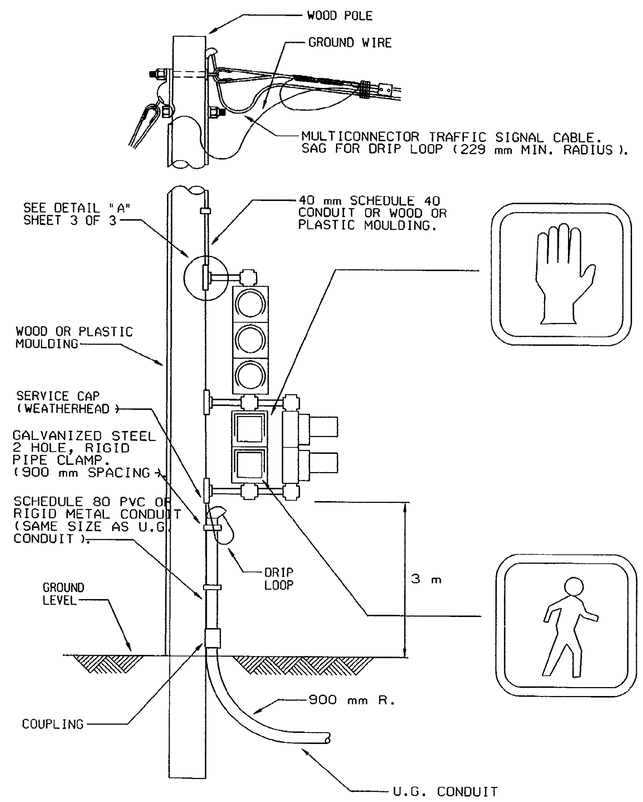
MDOT Michigan Department of Transportation

TYPICAL POLE MOUNTED - T.S./PEDESTRIAN COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	19 of 31	19D

LAST CORRECTION DATE:12/22/95
FILENAME:ST4.DGN

C.S. 63174 TN 48404A SH: 20D



WOOD POLE

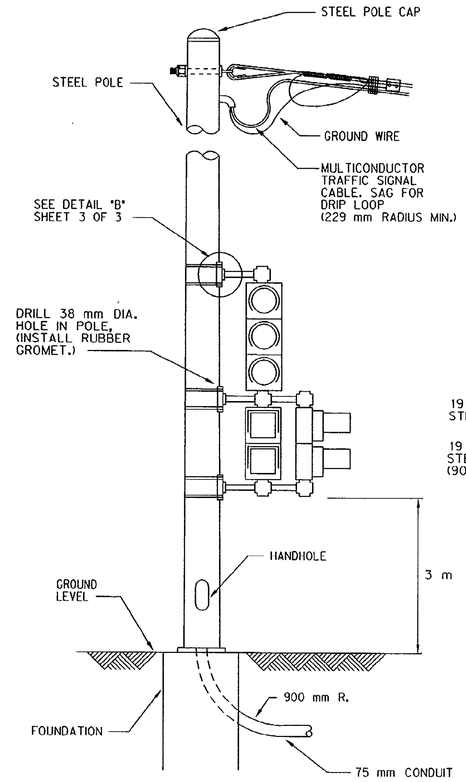
N.T.S.

SH. 1 OF 3

OC-4A

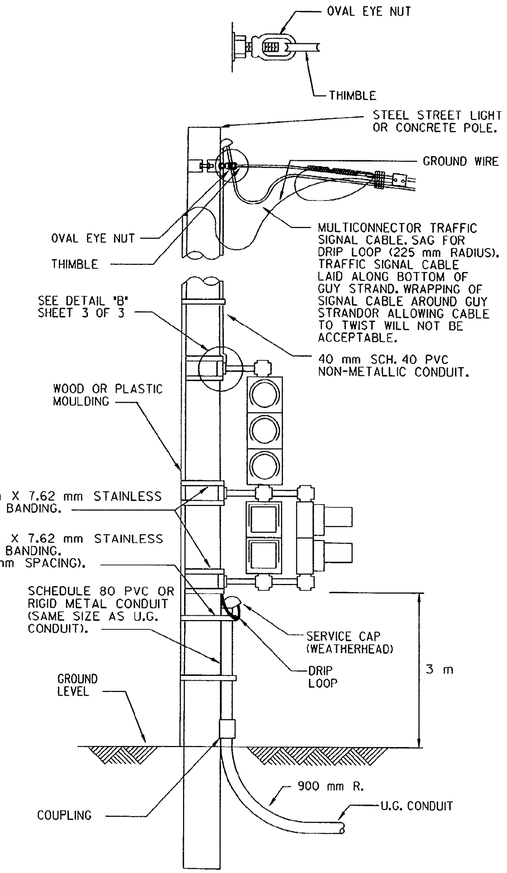
TYPICAL POLE MOUNTED - T.S./PEDESTRIAN COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.



STEEL POLE

N.T.S.



STEEL STREET LIGHT POLE

OR CONCRETE POLE

N.T.S.

SH. 2 OF 3

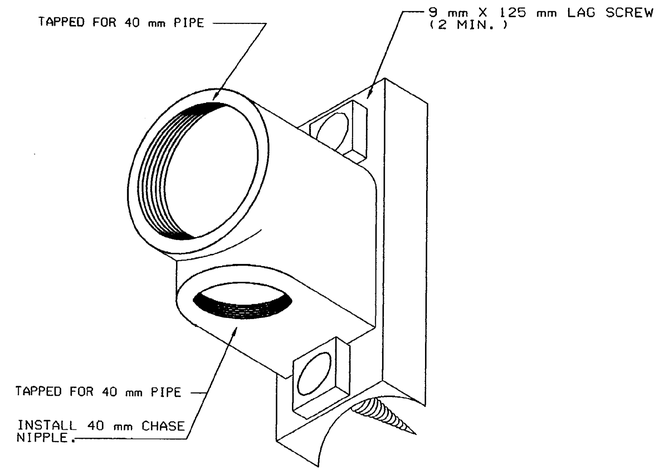
OC-4A

TYPICAL POLE MOUNTED - T.S./PEDESTRIAN COMBINATIONS

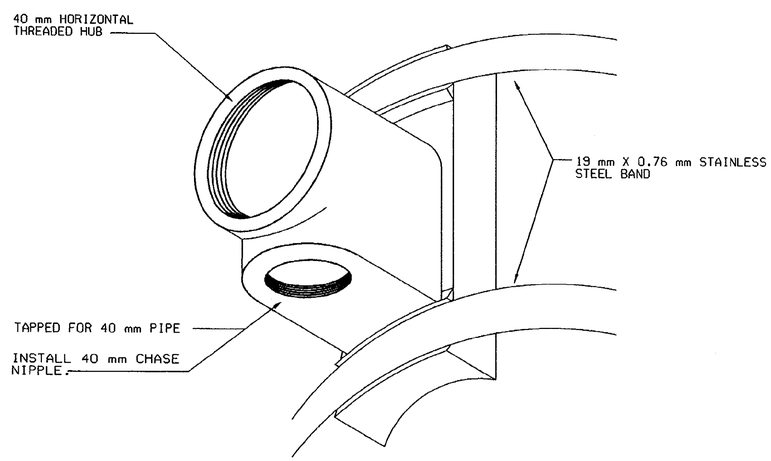
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	20 of 31	20D

LAST CORRECTION DATE: 12/27/95
FILENAME: OC4A.DGN

C.S. 63174 JN 48404A SH. 21D



DETAIL A | HUB MOUNTING DETAIL FOR WOOD POLE



DETAIL B | HUB MOUNTING DETAIL FOR STEEL OR CONCRETE POLE

SH. 3 OF 3

OC-4A

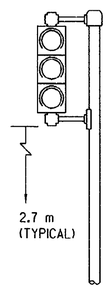
TYPICAL POLE MOUNTED - T.S./PEDESTRIAN COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

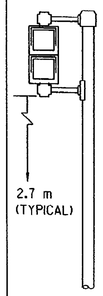
SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	21 of 31	21D

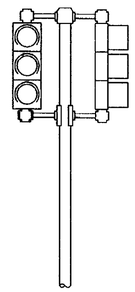
C.S. 63174 JN 48404A Sh. 22D



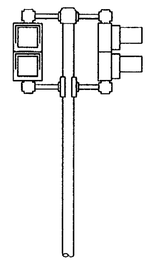
DETAIL "A-2"



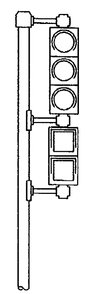
DETAIL "B-2"



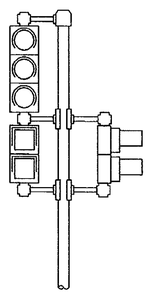
DETAIL "C-2"



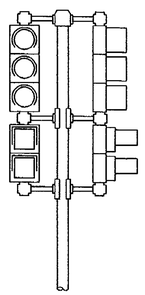
DETAIL "D-2"



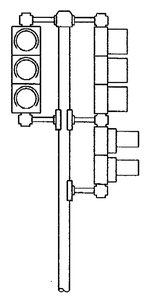
DETAIL "E-2"



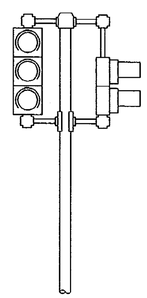
DETAIL "F-2"



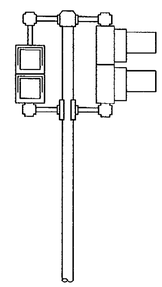
DETAIL "G-2"



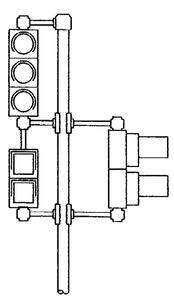
DETAIL "H-2"



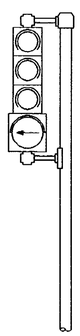
DETAIL "J-2"



DETAIL "K-2"



DETAIL "L-2"



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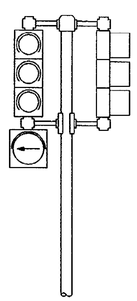

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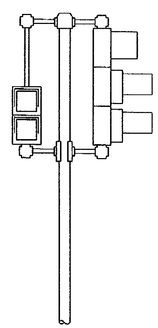

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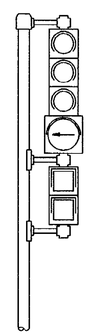


DETAIL "T-2"

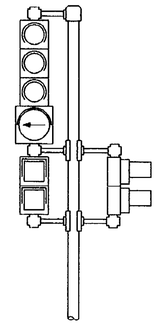
SH. 1 OF 2

ST-5

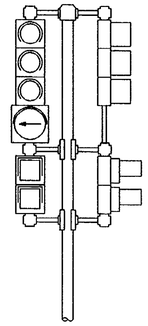
TYPICAL PEDESTAL MOUNTED-T.S. SIGNAL/PEDESTRIAN COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

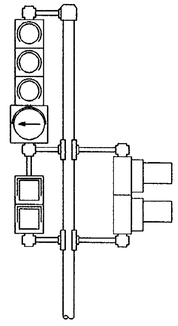
LAST CORRECTION DATE: 7/22/95
FILENAME: ST5.DGN



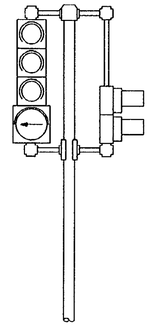
DETAIL "U-2"



DETAIL "V-2"



DETAIL "W-2"



DETAIL "X-2"

NOTE:

PIPE ASSEMBLY SHALL BE SUCH LENGTH AND HEIGHT AS TO ACCOMMODATE TRAFFIC SIGNALS AND PEDESTRIAN SIGNALS FOR PROPER MAINTENANCE AND CLEAR VEHICULAR AND PEDESTRIAN VIEWING.

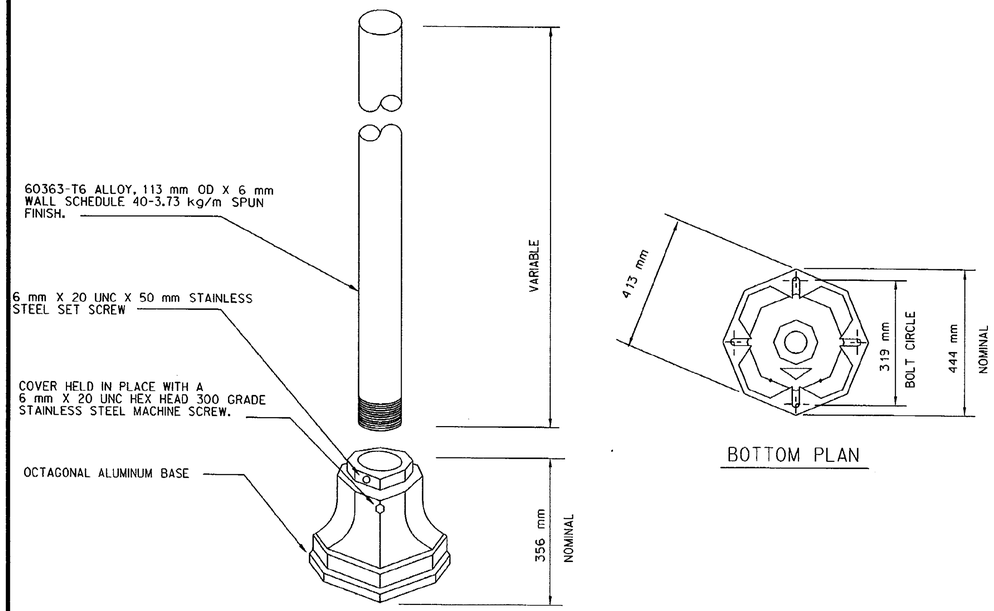
SH. 2 OF 2

ST-5

TYPICAL PEDESTAL MOUNTED-T.S. SIGNAL/PEDESTRIAN COMBINATIONS

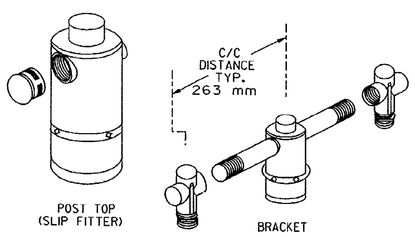
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	22 of 31	22D

C.S. 63174 JN 48404A SH. 23D

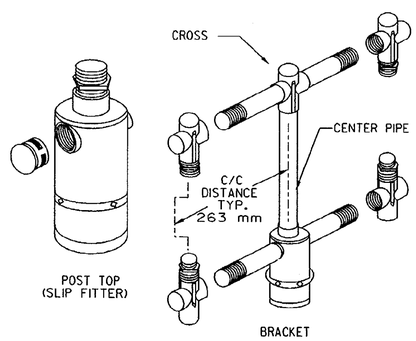


BOTTOM PLAN

DETAIL : PEDESTAL



MOUNTING HARDWARE



MOUNTING HARDWARE (ALTERNATE)

DETAIL : MOUNTING HARDWARE

SH. 1 OF 2

ST-5A

MDOT Michigan Department of Transportation

TYPICAL PEDESTAL/FOUNDATION & BRACKETING DETAILS

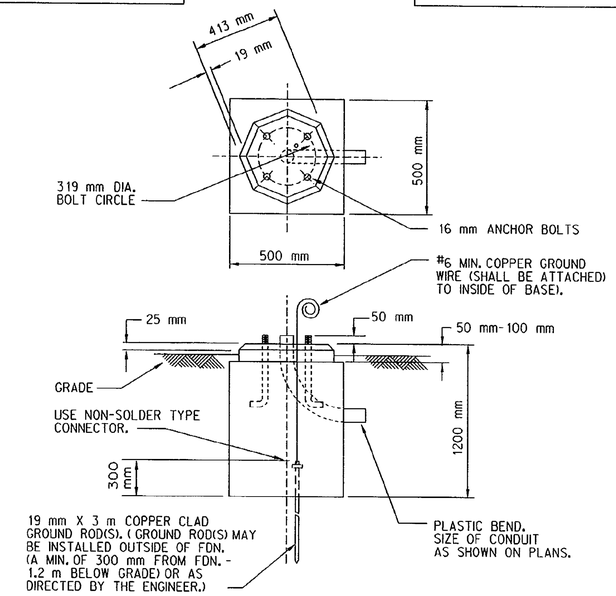
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

NOTE:

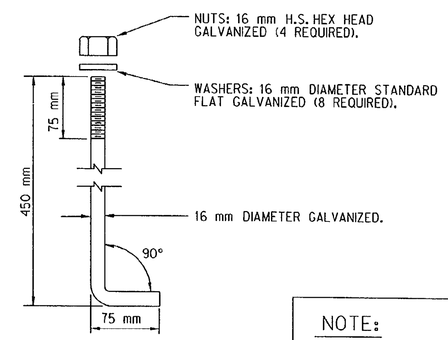
GROUNDING SYSTEM SHALL MEASURE 10 OHM OR LESS TO GROUND.

NOTE:

ALTERNATE FOUNDATION MAY BE CONSTRUCTED 600 mm ROUND - 1200 mm DEEP.



DETAIL : PEDESTAL FOUNDATION



NOTE:

ANCHOR BOLTS ARE TO BE 307 STEEL (4-REQUIRED)

DETAIL : ANCHOR BOLT

SH. 2 OF 2

ST-5A

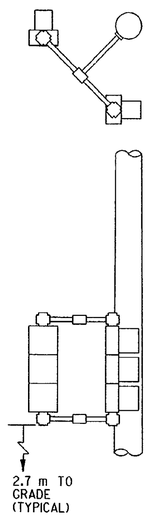
MDOT Michigan Department of Transportation

TYPICAL PEDESTAL/FOUNDATION & BRACKETING DETAILS

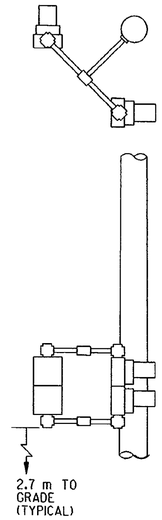
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	23 of 31	23D

LAST CORRECTION DATE:12/22/95
FILENAME:ST5A.DGN

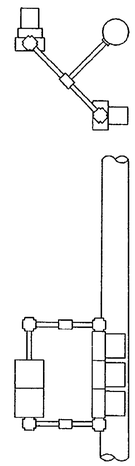
C.S. 63174 JN 48404A SH. 24D



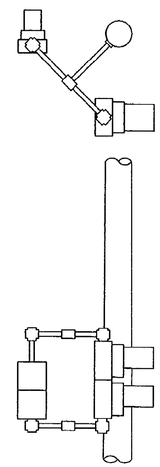
DETAIL 'A-3'



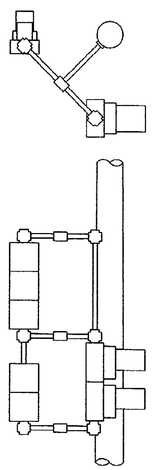
DETAIL 'B-3'



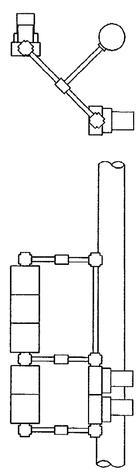
DETAIL 'C-3'



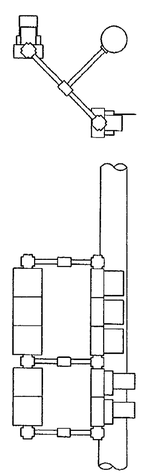
DETAIL 'D-3'



DETAIL 'E-3'



DETAIL 'F-3'



DETAIL 'G-3'

NOTE:

PIPE ASSEMBLY SHALL BE OF SUCH LENGTH AND HEIGHT AS TO ACCOMMODATE TRAFFIC SIGNALS AND PEDESTRIAN SIGNALS FOR PROPER MAINTENANCE AND CLEAR VEHICULAR AND PEDESTRIAN VIEWING.

SH. 1 OF 1

ST-6

MDOT Michigan Department of Transportation

TYPICAL POLE MOUNTED (BACK BRACKET) COMBINATIONS

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

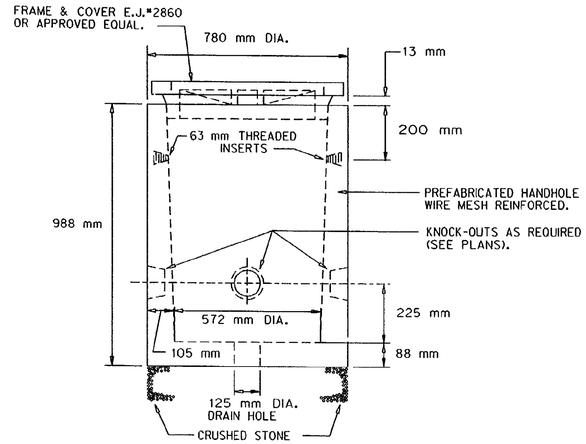
LAST CORRECTION DATE:12/22/95
FILENAME:ST6.DGN

SH. OF

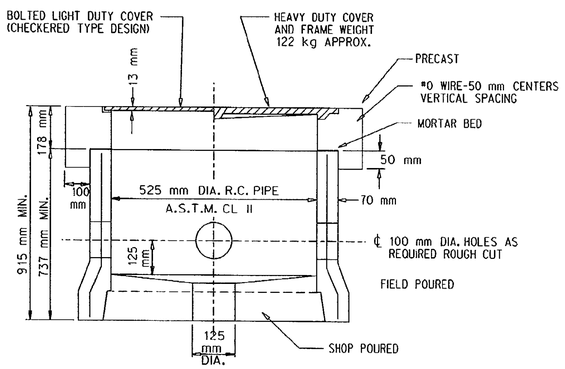
MDOT Michigan Department of Transportation

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	24 of 31	24D

C.S. 63174 JN 48404A SH. No. 25D

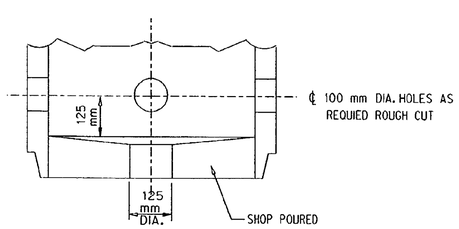


DETAIL : PRECAST ROUND HANDHOLE WITH FLOOR

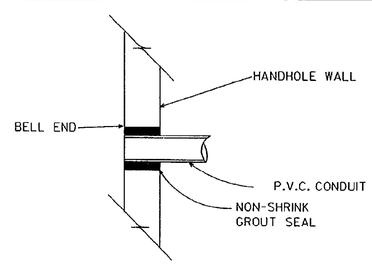


NOTE:
(USING RC PIPE)

DETAIL (ALTERNATE): PRECAST CONCRETE HANDHOLE



USE THE OPPOSITE
END OF PIPE
(ALL OTHER DIMENSIONS SAME)
N.T.S.

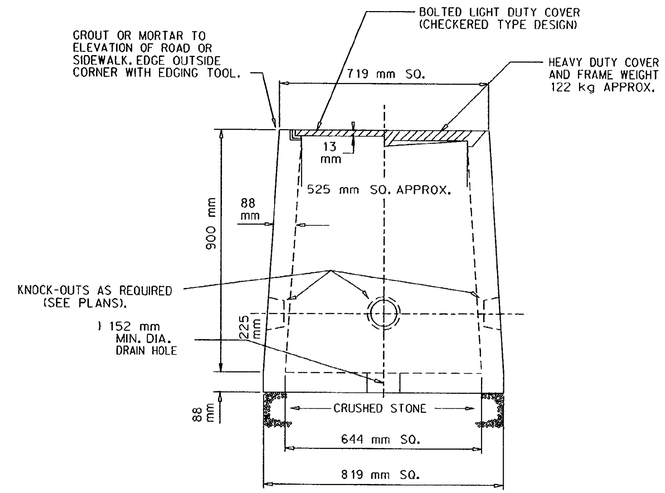


TYPICAL CONDUIT ENTRANCE
AT HANDHOLE
N.T.S.

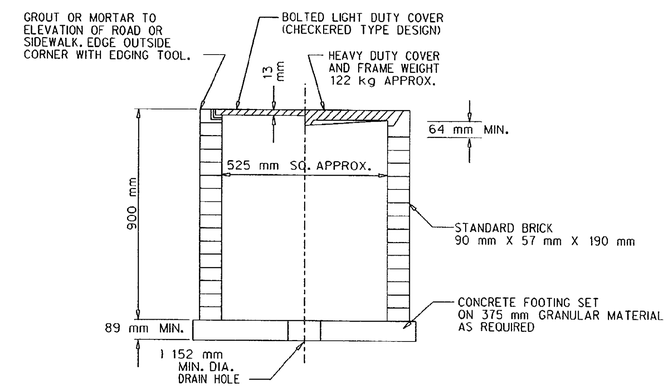
SH. 1 OF 3
ST-21

HANDHOLE - PRECAST, BRICK, POLYMER CONCRETE

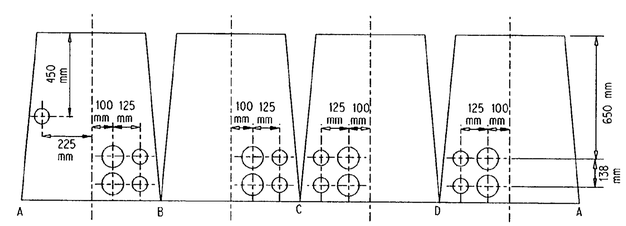
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.



DETAIL : PRECAST SQUARE HANDHOLE WITH FLOOR



DETAIL : BRICK HANDHOLE



NOTES:

ENTRANCE HOLES AS REQUIRED FOR CONDUIT.

CONDUIT ARRANGEMENT MAY BE MODIFIED.

ADDITIONAL OPENINGS SHALL BE PROVIDED AS REQUIRED, SEE PLANS.

PLUG ALL UNUSED ENTRANCE HOLES AND SEAL AROUND HOLES ENTERED.

DETAIL : INTERIOR WALL ELEVATIONS-LIGHT AND HEAVY DUTY COVER TYPES

SH. 2 OF 3
ST-21

HANDHOLE - PRECAST, BRICK, POLYMER CONCRETE

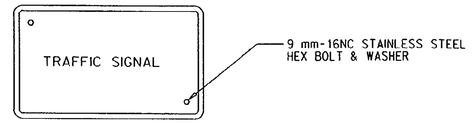
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	25 of 31	25D

LAST CORRECTION DATE:12/22/95
FILENAME:ST21.DGN

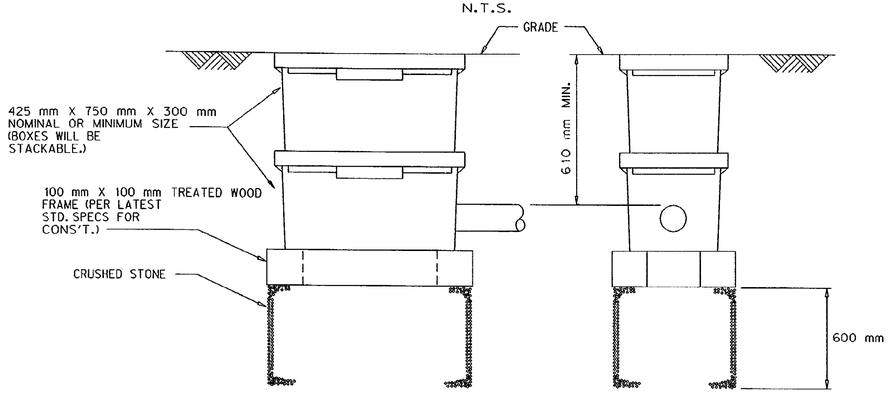
CS. 63174 JN 48404A SH. 26D

NOTE:

LOGO IMPRINT MAY READ "TRAFFIC CONTROL"



COVER
N.T.S.



DETAIL : POLYMER CONCRETE HANDHOLE

NOTES:

THE MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT M.D.O.T. STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY CONSTRUCT THE HANDHOLE STRUCTURE OF BRICK, CEMENT, CONCRETE, MASONARY, OR OF PRECAST REINFORCED CONCRETE.

ALL CONCRETE MASONARY SHALL BE GRADE 30M.

THE INNER SURFACE OF THE HANDHOLE SHALL BE SMOOTH.

HEAVY DUTY COVERS SHALL BE CASTINGS WHICH MEET THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR GRAY IRON CASTINGS ASTM DESIGNATION A48 AND SHALL HAVE A MINIMUM STRENGTH AS PROVIDED FOR CLASS NO. 30 GRAY IRON CASTINGS.

ALL CASTINGS SHALL BE CLEANED BY SAND BLASTING.

THE SEATING FACE OF THE COVER AND THE SEAT FOR THE SAME ON THE FRAME IF REQUIRED, SHALL BE GROUND OR MACHINED SO THAT THE COVER SHALL HAVE AN EVEN BEARING ON ITS SEAT TO PREVENT ROCKING OR TILTING.

THE CASTINGS SHALL BE FREE OF POURING FAULTS, BLOW HOLES, CRACKS, AND OTHER IMPERFECTIONS. THEY SHALL BE SOUND, TRUE TO FORM AND THICKNESS, CLEAN AND NEATLY FINISHED AND SHALL BE COATED WITH TAR PITCH VARNISH.

LIGHT DUTY COVER SHALL BE BOLTED TO FRAME WITH NOT LESS THAN 2 COUNTERSUNK HEX HEAD BRONZE BOLTS.

PRECAST HANDHOLE WITH HEAVY DUTY COVER SHALL BE SET ON A CONCRETE SLAB SIMILIAR TO DETAIL FOR BRICK HANDHOLE.

THE HEAVY DUTY COVER & FRAME SHALL BE EAST JORDAN IRON WORKS #8206 NEENAH FOUNDRY, #R-6662-HP FOR SQUARE COVER OR EAST JORDAN IRON WORKS #2860 TYPE "A", NEENAH FOUNDRY #R-6052 D FOR CIRCULAR COVER OR AN APPROVED EQUAL.

HANDHOLE SHALL BE EQUIPPED WITH CABLE RACK AND HOOKS TO TRAIN CABLE.

NOTES : PERTAIN TO PRECAST, BRICK HANDHOLES

SH. 3 OF 3

ST-21

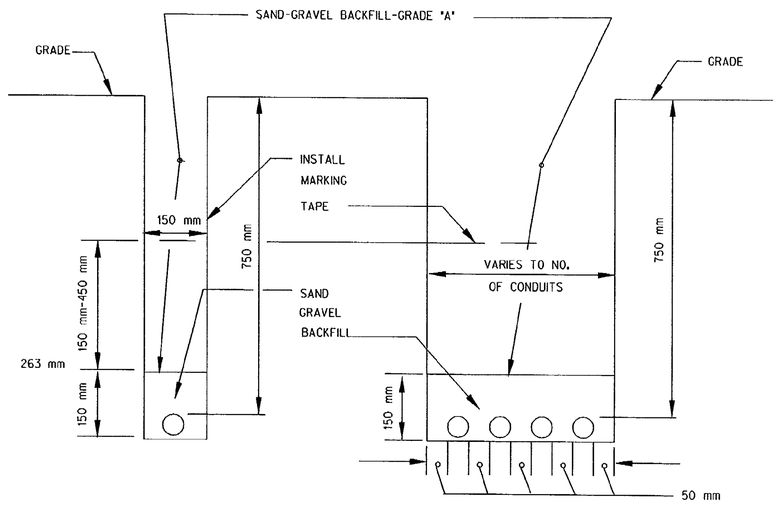
HANDHOLE - PRECAST, BRICK, POLYMER CONCRETE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	26 of 31	26D

C.S. 63174 JN 48404A SH. 27D



DIRECT BURIAL CONDUIT(S)/CABLE(S)

N.T.S.

SH. 1 OF 1

ST-22A

DIRECT BURIAL CONDUIT

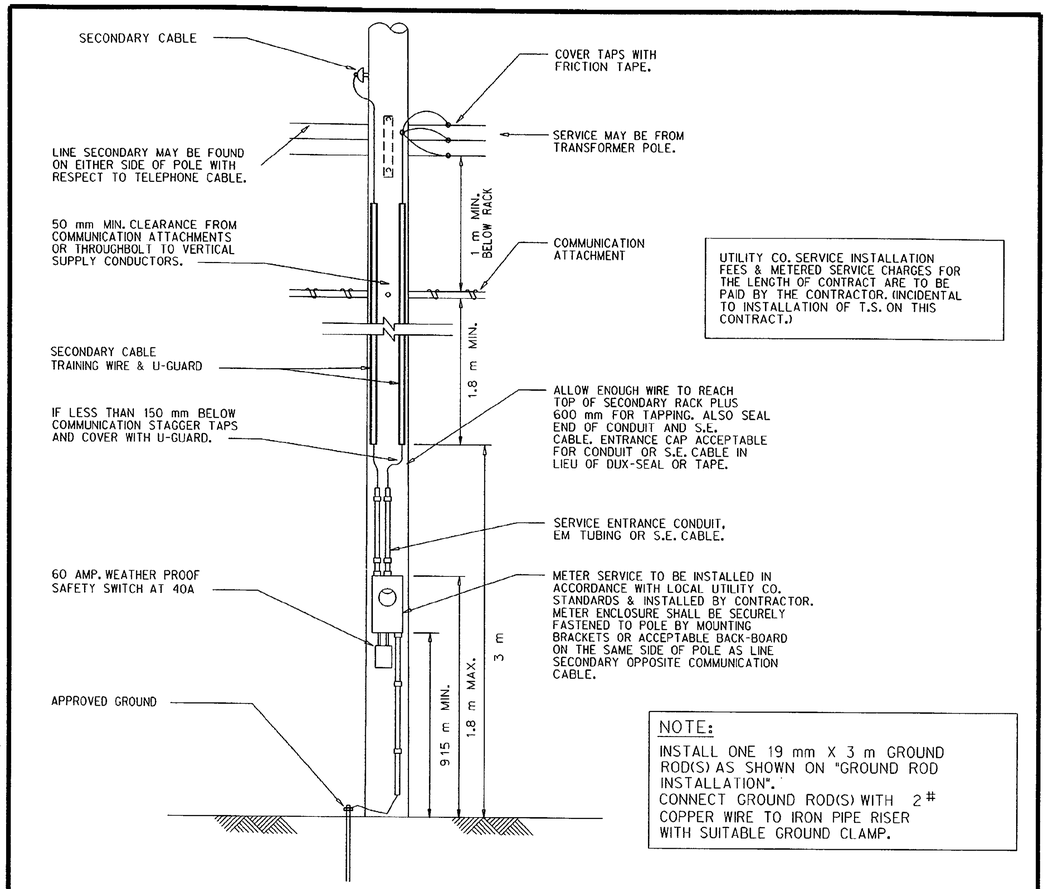
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE:12/22/95
FILENAME:ST22A.DGN

SH. OF

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	27 of 31	27D

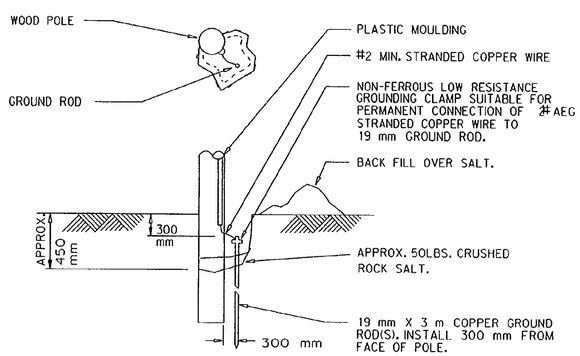
C.S. 63174 JN 48404A SH. No 28D



UTILITY CO. SERVICE INSTALLATION FEES & METERED SERVICE CHARGES FOR THE LENGTH OF CONTRACT ARE TO BE PAID BY THE CONTRACTOR. (INCIDENTAL TO INSTALLATION OF T.S. ON THIS CONTRACT.)

NOTE:
INSTALL ONE 19 mm X 3 m GROUND ROD(S) AS SHOWN ON "GROUND ROD INSTALLATION".
CONNECT GROUND ROD(S) WITH 2# COPPER WIRE TO IRON PIPE RISER WITH SUITABLE GROUND CLAMP.

DETAIL : SERVICE POLE



DETAIL : GROUND ROD INSTALLATION

SH. 1 OF 4

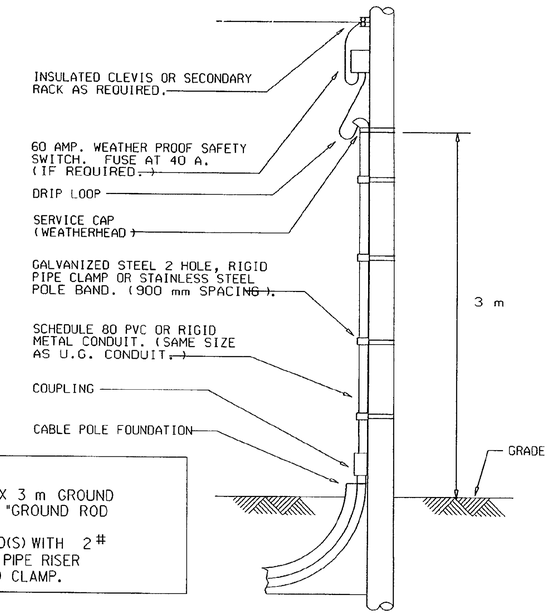
OC-24

MICHIGAN DEPARTMENT OF TRANSPORTATION

TEMPORARY SERVICE POLE

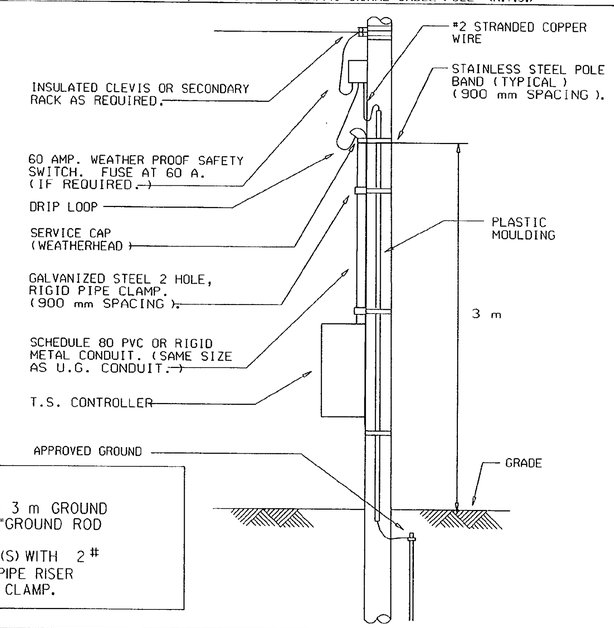
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE:12/21/95
FILENAME:OC24.DGN



NOTE:
INSTALL ONE 19 mm X 3 m GROUND ROD(S) AS SHOWN ON "GROUND ROD INSTALLATION".
CONNECT GROUND ROD(S) WITH 2# COPPER WIRE TO IRON PIPE RISER WITH SUITABLE GROUND CLAMP.

DETAIL : TYPICAL INTERCONNECT, SECONDARY & TRAFFIC SIGNAL CABLE POLE (N.T.S.)



NOTE:
INSTALL ONE 19 mm X 3 m GROUND ROD(S) AS SHOWN ON "GROUND ROD INSTALLATION".
CONNECT GROUND ROD(S) WITH 2# COPPER WIRE TO IRON PIPE RISER WITH SUITABLE GROUND CLAMP.

DETAIL : TYPICAL SERVICE POLE DETAIL

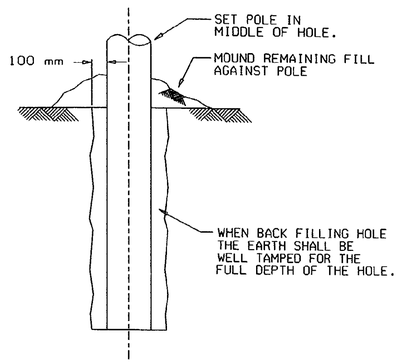
SH. 2 OF 4

OC-24

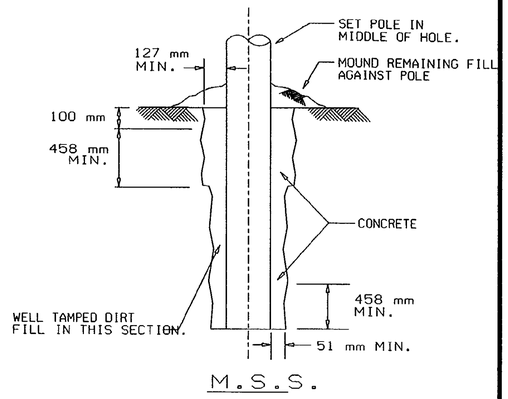
TEMPORARY SERVICE POLE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	28 of 31	28D

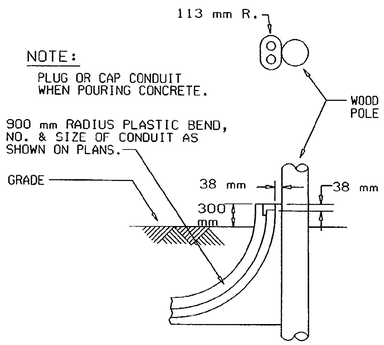
C.S. 63174 JN 48404A SH. 29D



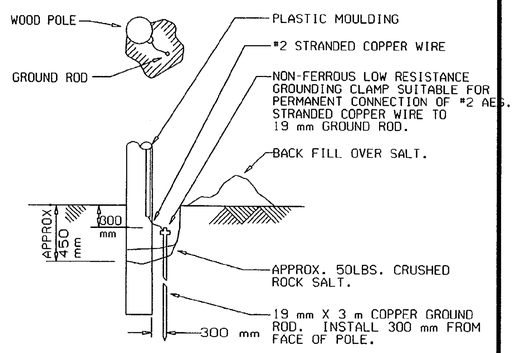
DETAIL : WOOD POLE INSTALLATION (N.T.S.)



DETAIL : SELF-SUPPORTING WOOD POLE IN CONCRETE (N.T.S.)



DETAIL : INSTALLATION OF CONDUIT AT CABLE POLE (N.T.S.)



DETAIL : GROUND ROD INSTALLATION (N.T.S.)

POLE HEIGHT	SETTING DEPTH
9.1 m	1.8 m
10.7 m	1.8 m
12.2 m	1.8 m
13.7 m	2.0 m
15.2 m	2.1 m
16.8 m	2.3 m
18.3 m	2.4 m

NOTE:

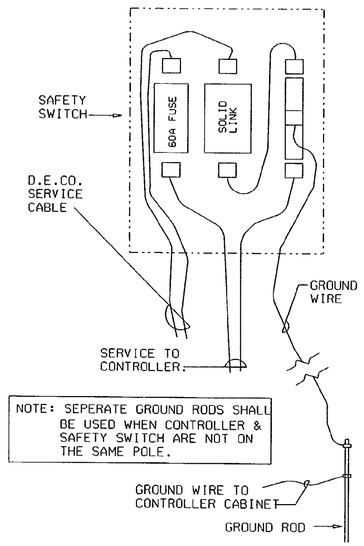
FOR ALL CABLE POLES, INSTALL ONE 19 mm X 3 m GROUND ROD AS SHOWN ON "GROUND ROD INSTALLATION". CONNECT GROUND ROD WITH #2 COPPER WIRE TO IRON PIPE RISER WITH SUITABLE GROUND CLAMP.

SH. 3 OF 4

OC-24

TEMPORARY SERVICE POLE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.



DETAIL : 60 AMP. SAFETY SWITCH (N.T.S.)

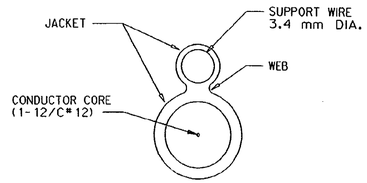
SH. 4 OF 4

OC-24

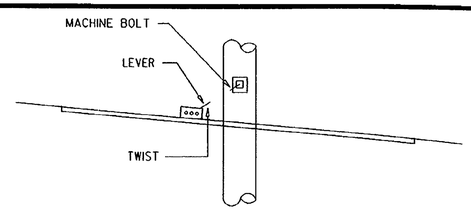
TEMPORARY SERVICE POLE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	29 of 31	29D

C.S. 63174 JN 48404A SH. No. 30D



DETAIL 'A' | I.M. CABLE SECTION

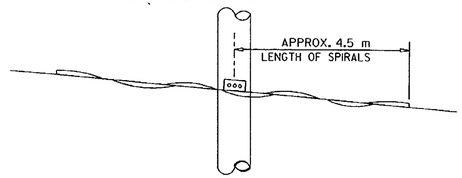


STEP 1 - SUPPORT AND POSITION INTEGRAL MESSENGER WIRE WITH CABLE PLACING BLOCKS.

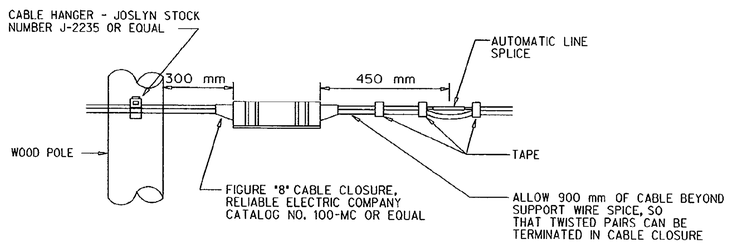
STEP 2 - FASTEN AND SUPPORT CLAMP TO THE SUPPORT MESSENGER AT THE POLE. TIGHTEN THE CARRIAGE BOLTS TO THE MANUFACTURER'S SPECIFICATIONS.

STEP 3 - USING A LEVER ON THE CLAMP, SPIRAL WIRE IN THE OPPOSITE DIRECTION FROM WHICH THE PREVIOUS ADJACENT SPIRALING OPERATION WAS PERFORMED. IF THE ADJACENT SPANS ARE UNEQUAL, USE THE SHORTER SPAN FOR DETERMINING THE NUMBER OF SPIRALS.

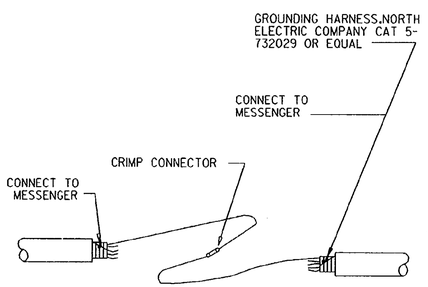
STEP 4 - PLACE THE CLAMP ON THE MACHINE BOLT AND TIGHTEN NUTS TO THE MANUFACTURER'S SPECIFICATIONS.



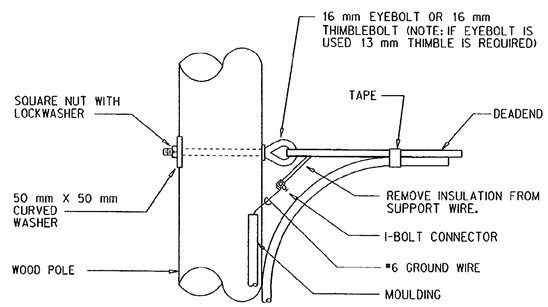
DETAIL 'B' | I.M. CABLE SPIRALS



DETAIL 'C' | AERIAL SPLICE



DETAIL 'D' | CABLE CLOSURE



DETAIL 'E' | DEAD-END POLE

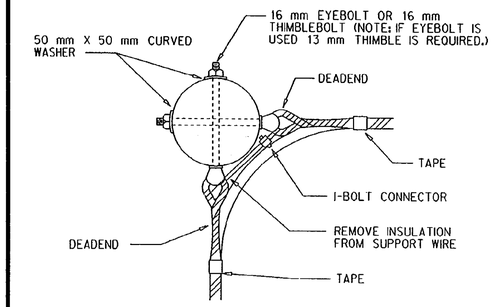
SH. 1 OF 3

ST-26

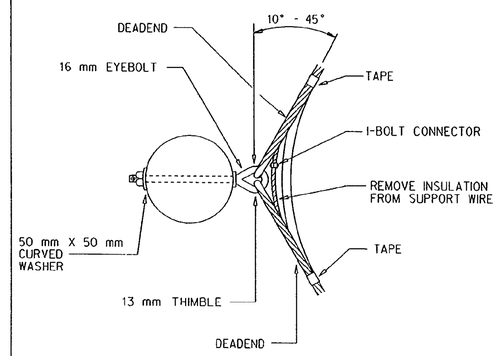
MDOT Michigan Department of Transportation

INSTALLATION OF INTEGRAL MESSENGER CABLE

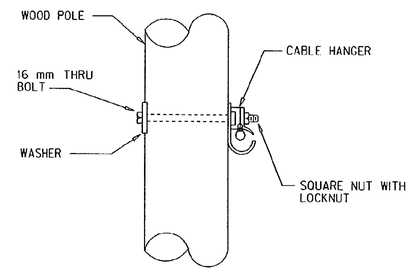
DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.



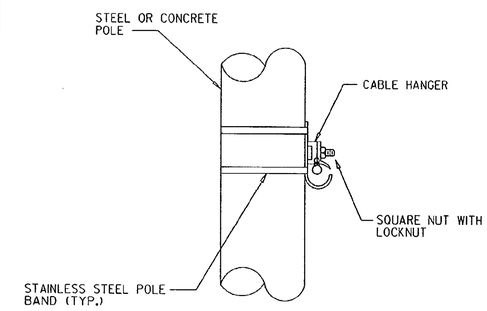
DETAIL 'F' | 90 DEG. CORNER POLE



DETAIL 'G' | 10 DEG. - 45 DEG. ANGLE POLE



DETAIL 'H' | TANGENT POLE (WOOD POLE)



DETAIL 'I' | TANGENT POLE (STEEL OR CONCRETE POLE)

NOTE FOR DETAILS "E", "F", "G":

INDIVIDUAL CONNECTORS TO BE TAPED WITH 3 LAYERS OF APPROVED PLASTIC TAPE & OVERALL ONE LAYER OF HALF LAP APPROVED PLASTIC TAPE

SH. 2 OF 3

ST-26

MDOT Michigan Department of Transportation

INSTALLATION OF INTEGRAL MESSENGER CABLE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	30 of 31	30D

LAST CORRECTION DATE: 12/22/95
FILENAME: ST26.DGN

DESCRIPTION:

INTEGRAL MESSENGER WIRE CONSISTS OF A SUPPORT WIRE AND A CONDUCTOR CORE LAID PARALLEL AND COVERED WITH A SINGLE EXTRUSION OF BLACK, LOW DENSITY POLYETHYLENE. THE SINGLE EXTRUSION PROVIDES A JACKET OVER THE SUPPORT WIRE AND CORE, AND FORMS A WEB JOINING THE TWO. SEE DETAIL "A" THIS SHEET. THE SUPPORT WIRE IS 3.4 mm IN DIAMETER, GRADE 190 STEEL, CLASS A GALVANIZED, EXTRA HIGH STRENGTH STEEL HAVING A RATED BREAKING STRENGTH OF 1216 kg.

INSTALLATION:

EVERY EFFORT SHALL BE MADE TO LIMIT THE LENGTH OF SPANS TO A MAXIMUM OF 76.2 m. INTEGRAL MESSENGER WIRE IS PRONE TO LOW FREQUENCY WIND VIBRATION COMMONLY REFERRED TO AS "DANCING" WHILE "DANCING" MAY NOT BE SO VIOLENT IN LOW WIND AREAS AS TO ATTRACT ATTENTION, PROLONGED LOW AMPLITUDE VIBRATION WILL EVENTUALLY CAUSE OPEN CIRCUITS AND/OR SUPPORT WIRE FAILURE. THEREFORE, REA RECOMMENDS THAT ALL INTEGRAL MESSENGER DISTRIBUTION WIRE BE SPIRALLED APPROXIMATELY ONE SPIRAL FOR EACH 5 m OF SPAN.

SPIRALLING OF THE WIRE SHOULD BE DONE FROM EVERY OTHER POLE BY APPLYING THE SPIRALLING TORQUE TO THE SUPPORT CLAMP AFTER THE TWO OUTSIDE BOLTS HAVE BEEN PROPERLY TIGHTENED, THUS KEEPING THE SPIRALLING TORQUE ON THE SUPPORT WIRE AND NOT ON THE CORE. AS SPIRALLING OPERATIONS PROCEED ALONG A LEAD, SPIRALLING AT ALTERNATE POLES SHOULD BE IN OPPOSITE DIRECTIONS, THEREBY REDUCING THE TORSION OTHERWISE IMPOSED ON THOSE CLAMPS WHICH ARE AT THE INTERMEDIATE POLES THE PROCEDURE TO BE FOLLOWED IN SPIRALLING DISTRIBUTION WIRE IS SHOWN IN DETAIL "B" OF THIS SHEET.

IF CLAMPS ARE NOT ADEQUATELY TIGHTENED THE TORSION DEVELOPED IN SPIRALLING WILL CAUSE THE SUPPORT WIRE TO TURN IN THE CLAMP RESULTING IN THE MIGRATION OF THE SPIRALS FROM THE SPANS TOWARD THE POLE. "DANCING" OF THE WIRE AND DAMAGE TO IT AT THE POLES WILL BE THE FINAL RESULTS OF INADEQUATE CLAMPING. THE PROPER TYPE OF SUPPORT CLAMPS MUST BE USED ON ALL CORNERS AS SHOWN IN DETAILS THIS SHEET.

WHEN PULLING THE WIRE UP TO CORRECT SAG, A SUITABLE WIRE GRIP SHOULD BE USED DIRECTLY ON THE INSULATED SUPPORT WIRE. THE GRIP SHOULD BE OF SUCH DESIGN AS TO GIVE PROPER HOLDING POWER AND YET NOT DAMAGE THE SUPPORT WIRE JACKET. THE CRESCENT TOOL COMPANY #800 OR AN EQUIVALENT GRIP IS SUGGESTED. A STANDARD LINE WIRE GRIP SHOULD NOT BE USED BECAUSE IT WILL DAMAGE THE INSULATION. IF THE INSULATION IS DAMAGED IN ANY WAY, IT MUST BE REPAIRED WITH SEALING COMPOUND OR BY CUTTING OUT THE DAMAGED PORTION. AT DEADENDS IT IS NECESSARY TO REMOVE THE SUPPORT WIRE COVERING BEFORE APPLYING THE DEADEND GRIPS. IT MUST BE DONE CAREFULLY TO AVOID DAMAGING THE SUPPORT WIRE OR CORE THE ELECTRICAL CONTINUITY OF THE SUPPORT WIRE MUST BE MAINTAINED THROUGHOUT THE LEAD.

SH. 3 OF 3

ST-26

MDOT Michigan Department of Transportation

INSTALLATION OF INTEGRAL MESSENGER CABLE

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.

LAST CORRECTION DATE:
FILENAME:

SH. OF

MDOT Michigan Department of Transportation

DATE	SCALE	CONT. SEC.	JOB NO.	T & S	CONST.
9-21-99		63174	48404A	31 of 31	31D

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO.

EXISTING BY: DATE:
PROPOSED BY: DATE:
LAST CORRECTION BY: CLARK/BENSON DATE: 10/18/99

UNDERGROUND

- EXISTING MANHOLE
- MANHOLE (2-WAY)
- MANHOLE (3-WAY)
- MANHOLE (4-WAY)
- EXISTING HANDHOLE
- HANDHOLE
- EXISTING CONDUIT (- mm SHOWN)
- ABANDON EXISTING CONDUIT
- ENCASED CONDUIT (- mm SHOWN)
- GALVANIZED STEEL CONDUIT (- mm SHOWN)
- GALVANIZED STEEL CONDUIT, JACKING-BORING (1- 75 mm SHOWN)
- DIRECT BURIAL CABLE (NO. & SIZE AS INDICATED)
- EXISTING DIRECT BURIAL CABLE
- ABANDON CABLE
- BUILD mm SEWER
- DIRECT BURIAL CONDUIT (1- 75mm SHOWN)
- CONCRETE FOUNDATION FOR PAD MOUNT TRANSFORMER
- CONCRETE FOUNDATION FOR FIRE OR POLICE CALL BOX
- EXISTING UG. FED. ST. LTG. UNIT
- R REMOVE UG. FED. ST. LTG. UNIT
- UG. FED, 250W, TYPE II HIGH PRESSURE SODIUM ST. LTG. UNIT WITH mm BRACKET ARM ON NEW FOUNDATION WITH mm MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- UG. FED, 400W, TYPE III HIGH PRESSURE SODIUM ST. LTG. UNIT WITH mm BRACKET ARM ON NEW FOUNDATION WITH mm MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- UG. FED, 250W, TYPE II HIGH PRESSURE SODIUM ST. LTG. UNIT WITH mm BRACKET ARM ON BRIDGE OR RETAINING WALL WITH mm MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- UG. FED, 400W, TYPE III HIGH PRESSURE SODIUM ST. LTG. UNIT WITH DBL. BRACKET ARM (mm) ON MEDIAN WALL WITH mm MOUNTING HEIGHT. (EXCEPT WHERE OTHERWISE NOTED)
- T- TOWER LIGHTING UNIT WITH 8-1000W METAL HALIDE LUMINAIRES, TYPE V, 30500mm MOUNTING HEIGHT.
- EXISTING UG. FED. ST. LTG. UNIT WITH INTERSTATE LUMINAIRE.
- EXISTING TOWER LIGHTING UNIT
- TOWER LIGHTING UNIT WITH 4-1000W METAL HALIDE LUMINAIRES, TYPE V, 24384mm MOUNTING HEIGHT
- EXISTING U.G. FED ST. LTG. UNIT. 400WATT HIGH PRESSURE SODIUM LUMINAIRE, 13710mm MOUNTING HEIGHT, NO ARM.

OVERHEAD

- EXISTING WOOD POLE
- WOOD POLE (HEIGHT & CLASS AS INDICATED)
- O.H.-FED. 400W, TYPE II, HIGH PRESSURE SODIUM ST. LTG. UNIT WITH mm BRACKET ARM ON WOOD POLE AND mm MOUNTING HEIGHT.
- EXISTING O.H. FED. ST. LTG. UNIT WITH WOOD POLE
- EXISTING O.H. LINE (-" SHOWN)
- OVERHEAD LINE (-" SHOWN)
- REMOVE O.H. LINE
- 400W TYPE I HIGH PRESSURE SODIUM ST. LTG. UNIT ON SPAN WIRE AND MINIMUM mm MOUNTING HEIGHT.

GENERAL

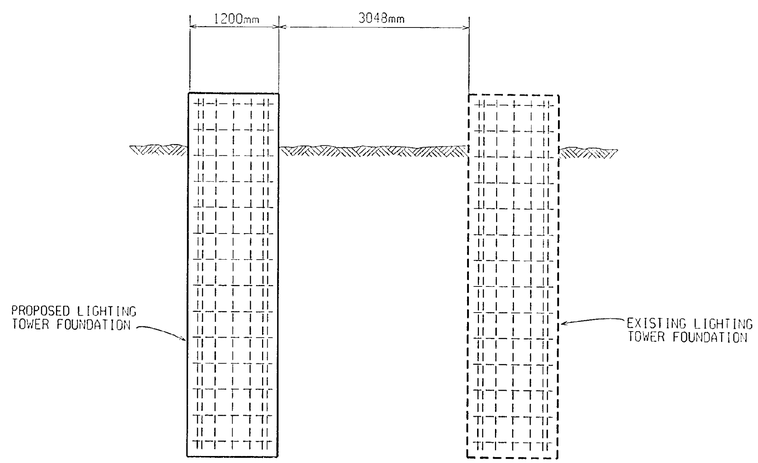
- RIGHT OF WAY LINE
- LIMITED ACCESS RIGHT OF WAY LINE
- PROPOSED PAVEMENT JOINT LINE
- P.L.D. INDICATES THE PUBLIC LIGHTING DEPARTMENT
- D.E. CO. INDICATES THE DETROIT EDISON COMPANY
- C.P. CO. INDICATES THE CONSUMER POWER COMPANY

PUBLIC UTITILIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THE PLANS REPRESENT THE INFORMATION AVALABLE TO US. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY IN CASE UTILITIES HAVE BEEN CONSTRUCTED OR REMOVED SINCE THEN.

TYPE OF UTILITY	OWNER
GAS	
TELEPHONE	
WATER	
ELECTRIC	

FOR THE PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF 48 HOURS PRIOR TO EXCAVATING IN THE VICINITY OF THE UTILITIES LINES. ALL MISS DIG PARTICIPATING MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.



LOCATION OF PROPOSED LIGHTING TOWER FOUNDATION

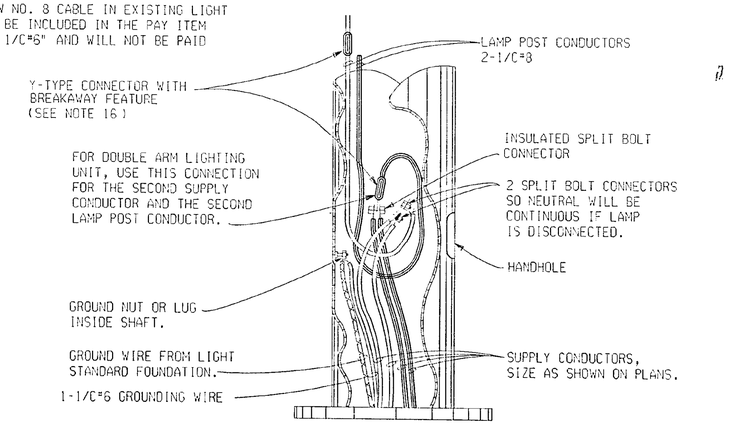
NOTES

1. NOTIFY THE SYSTEM OPERATING ENGINEER, DETROIT EDISON CO. AND DAVID JOHNS (PH # 248-483-5125), MDOT MAINTENANCE, 72 HOURS PROIR TO WORKING ON LIGHTING CIRCUITS.
2. ELECTRICAL SERVICE SHALL BE 240/480 VOLT, 1Ø, 3 WIRE.
3. ALL CONDUIT CROSSING PAVEMENT SHALL EXTEND 1220 mm BEYOND CURB, EDGE OF PAVEMENT, OR PAVED SHOULDER AND SHALL HAVE 762mm MINIMUM COVER.
4. SMOOTH SURFACE CONDUIT ONLY IS ALLOWED ON THIS JOB.
5. THE 152mm EDGE DRAIN REQUIRED TO REPLACE DAMAGED EDGE DRAIN DUE TO LIGHTING CONSTRUCTION SHALL BE INCLUDED IN THE PROJECT AND WILL NOT BE PAID FOR SEPARATELY.
6. ALL CABLE SHALL BE INSTALLED IN CONTINUOUS UNCUT LENGTH BETWEEN HANDHOLES OR LIGHT STANDARDS.
7. THE EXISTING FREEWAY LIGHTING SYSTEM SHALL BE IN OPERATION DURING CONSTRUCTION. ANY DAMAGES TO THE SYSTEM CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S OWN EXPENSE WITHIN A REASONABLE TIME AS DIRECTED BY THE ENGINEER.
8. LUMINAIRES FOR TOWER LIGHTING SHALL BE PROVIDED WITH 240 VOLT BALLASTS FOR METAL HALIDE.
9. ALL TOWERS SHALL BE MADE BY THE SAME MANUFACTURER.
10. THE POLES FOR THE 30500 mm TOWER LIGHTING UNITS MAY BE ONE SECTION OR NOT MORE THAN 4 SECTIONS.
11. JACKING PITS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER.
12. WHERE THERE IS TOWER LIGHTING OR LIGHTING IN THE SHOULDER, THE RESTORATION OF THE AREAS INVOLVED SHALL BE INCLUDED IN THE PAY ITEM "CONDUIT, SCHEDULE 40, 75mm".
13. TREES AND SHRUBS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPLACED (IN KIND) AT THE CONTRACTORS EXPENSE, AS DIRECTED BY THE ENGINEER.
14. LOCATION OF MITS UNDERGROUND AS SHOWN ON THE PLANS IS ONLY APPROXIMATE. CONTRACTOR WILL NEED TO LOCATE EXACT LOCATION OF MITS UNDERGROUND TO AVOID CONFLICT WITH PROPOSED UNDERGROUND TO TOWER LIGHTING.
15. DIRECTIONAL BORE IS AN OPTIONAL ALTERNATIVE AS APPROVED BY THE ENGINEER. WHERE UTILIZED, DIRECTIONAL BORE SHALL BE PAID FOR AS "CONDUIT JACKED IN PLACE".
16. BREAKAWAY CONNECTOR SHALL BE LITTLE FUSE LEBASS, BUSSMAN TYPE HEP WITH INSULATING BOOTS, HOMAC MFG. CO. FLOOD SEAL DYU OR APPROVED EQUAL.
17. CONTRACTOR SHALL INSTALL NEW NO. 8 CABLE IN EXISTING LIGHT STANDARDS AND PAYMENT SHALL BE INCLUDED IN THE PAY ITEM "DB CABLE IN CONDUIT, 600V, 1/C#6" AND WILL NOT BE PAID FOR SEPARATELY.

ENTIRE PROJECT

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLANS.

LOCATING UNDERGROUND CABLE 500m



TYPICAL MULTIPLE STREET LIGHTING CONNECTION

NOT TO SCALE

MDOT Michigan Department of Transportation

NOTES AND LEGEND

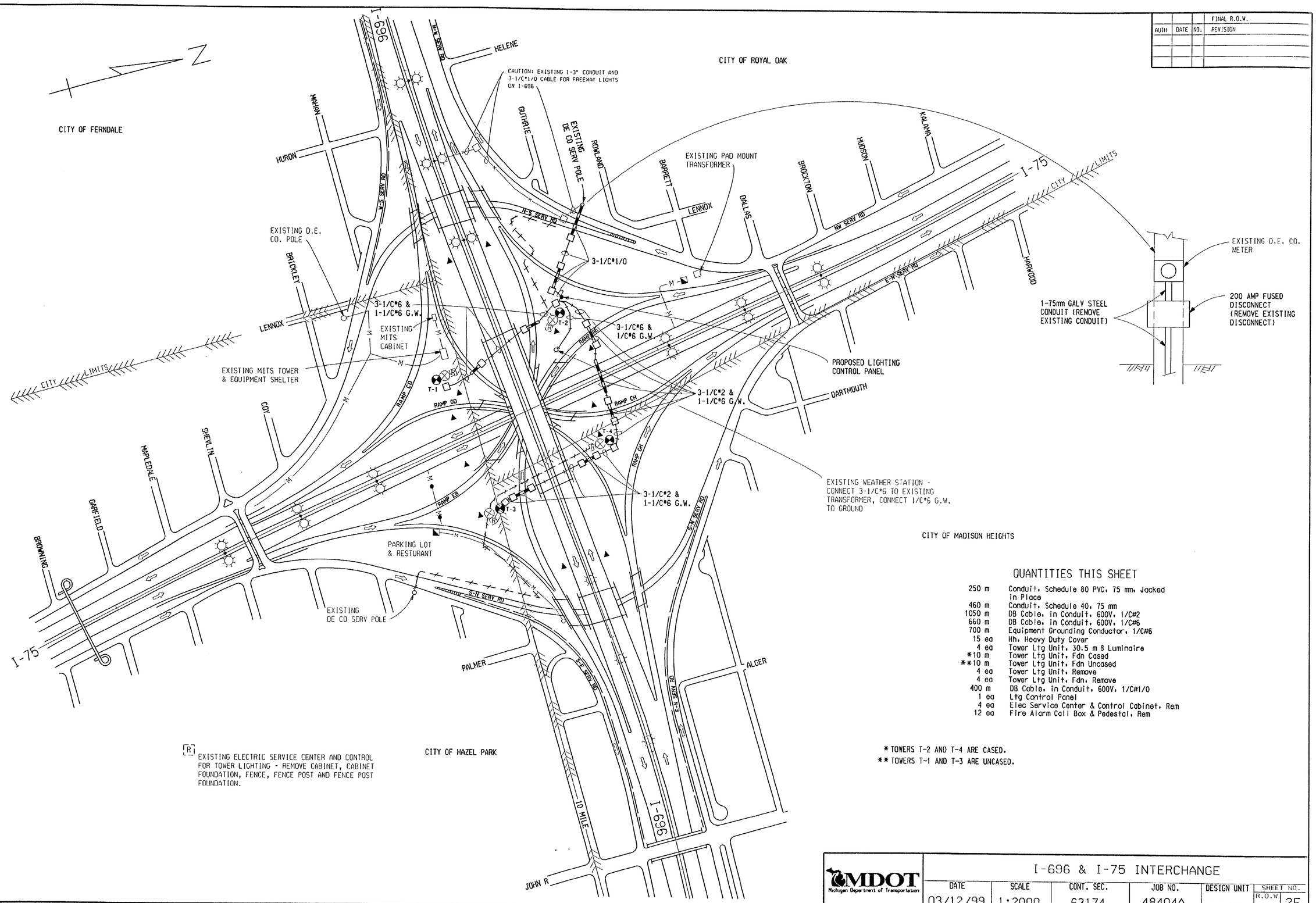
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
06/02/99	NONE	63174	48404A	ZIELINSKI	R.O.W 1E

FILE NAME: 48404note.dgn
1 2 3 4 5 6 7

CONTROL SECTION	JOB NO.	SH. NO.
63174	48404A	2E

EXISTING BY: DATE:
PROPOSED BY: DATE:
LAST CORRECTION BY: CLARK/BENSON DATE: 10/08/99

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



[R] EXISTING ELECTRIC SERVICE CENTER AND CONTROL FOR TOWER LIGHTING - REMOVE CABINET, CABINET FOUNDATION, FENCE, FENCE POST AND FENCE POST FOUNDATION.

QUANTITIES THIS SHEET

250 m	Conduit, Schedule 80 PVC, 75 mm, Jacked in Place
460 m	Conduit, Schedule 40, 75 mm
1050 m	DB Cable, in Conduit, 600V, 1/C#2
660 m	DB Cable, in Conduit, 600V, 1/C#6
700 m	Equipment Grounding Conductor, 1/C#6
15 ea	Hh, Heavy Duty Cover
4 ea	Tower Ltg Unit, 30.5 m 8 Luminaire
*10 m	Tower Ltg Unit, Fdn Cased
**10 m	Tower Ltg Unit, Fdn Uncased
4 ea	Tower Ltg Unit, Remove
4 ea	Tower Ltg Unit, Fdn, Remove
400 m	DB Cable, in Conduit, 600V, 1/C#1/0
1 ea	Ltg Control Panel
4 ea	Elec Service Center & Control Cabinet, Rem
12 ea	Fire Alarm Call Box & Pedestal, Rem

* TOWERS T-2 AND T-4 ARE CASED.
** TOWERS T-1 AND T-3 ARE UNCASED.

MDOT Michigan Department of Transportation

I-696 & I-75 INTERCHANGE

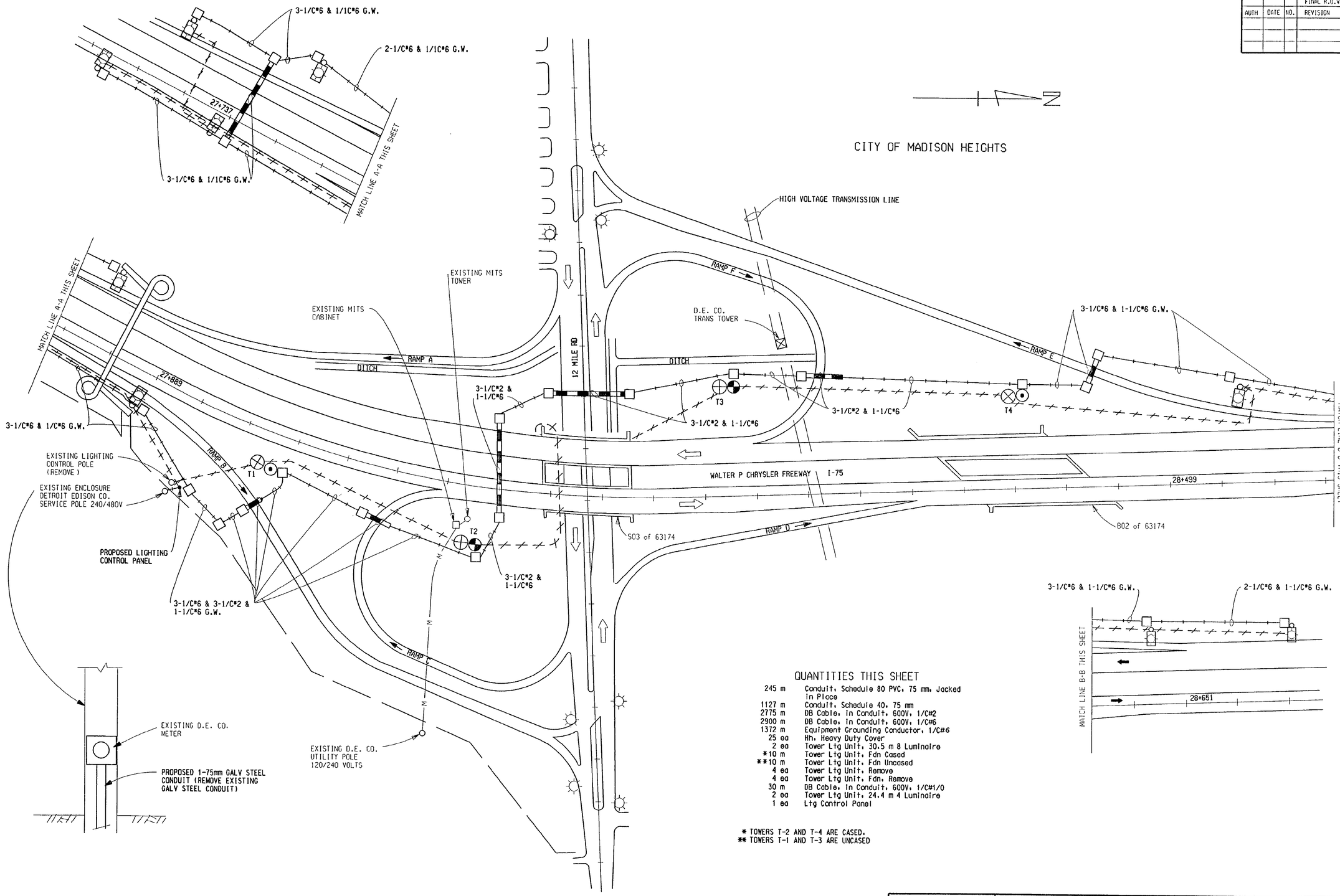
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
03/12/99	1:2000	63174	48404A	ZIELINSKI	R.O.W 2E

FILE NAME: 48404696.dgn

CONTROL SECTION	JOB NO.	SH. NO.
63174	48404A	3E

EXISTING BY: DATE:
PROPOSED BY: DATE:
LAST CORRECTION BY: CLARK/BENSON DATE: 10/08/99

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



QUANTITIES THIS SHEET

245 m	Conduit, Schedule 80 PVC, 75 mm, Jacked in Place
1127 m	Conduit, Schedule 40, 75 mm
2775 m	DB Cable, in Conduit, 600V, 1/C#2
2900 m	DB Cable, in Conduit, 600V, 1/C#6
1372 m	Equipment Grounding Conductor, 1/C#6
25 ea	Hh, Heavy Duty Cover
2 ea	Tower Ltg Unit, 30.5 m 8 Luminaire
*10 m	Tower Ltg Unit, Fdn Cased
**10 m	Tower Ltg Unit, Fdn Uncased
4 ea	Tower Ltg Unit, Remove
4 ea	Tower Ltg Unit, Fdn, Remove
30 m	DB Cable, in Conduit, 600V, 1/C#1/0
2 ea	Tower Ltg Unit, 24.4 m 4 Luminaire
1 ea	Ltg Control Panel

* TOWERS T-2 AND T-4 ARE CASED.
** TOWERS T-1 AND T-3 ARE UNCASED

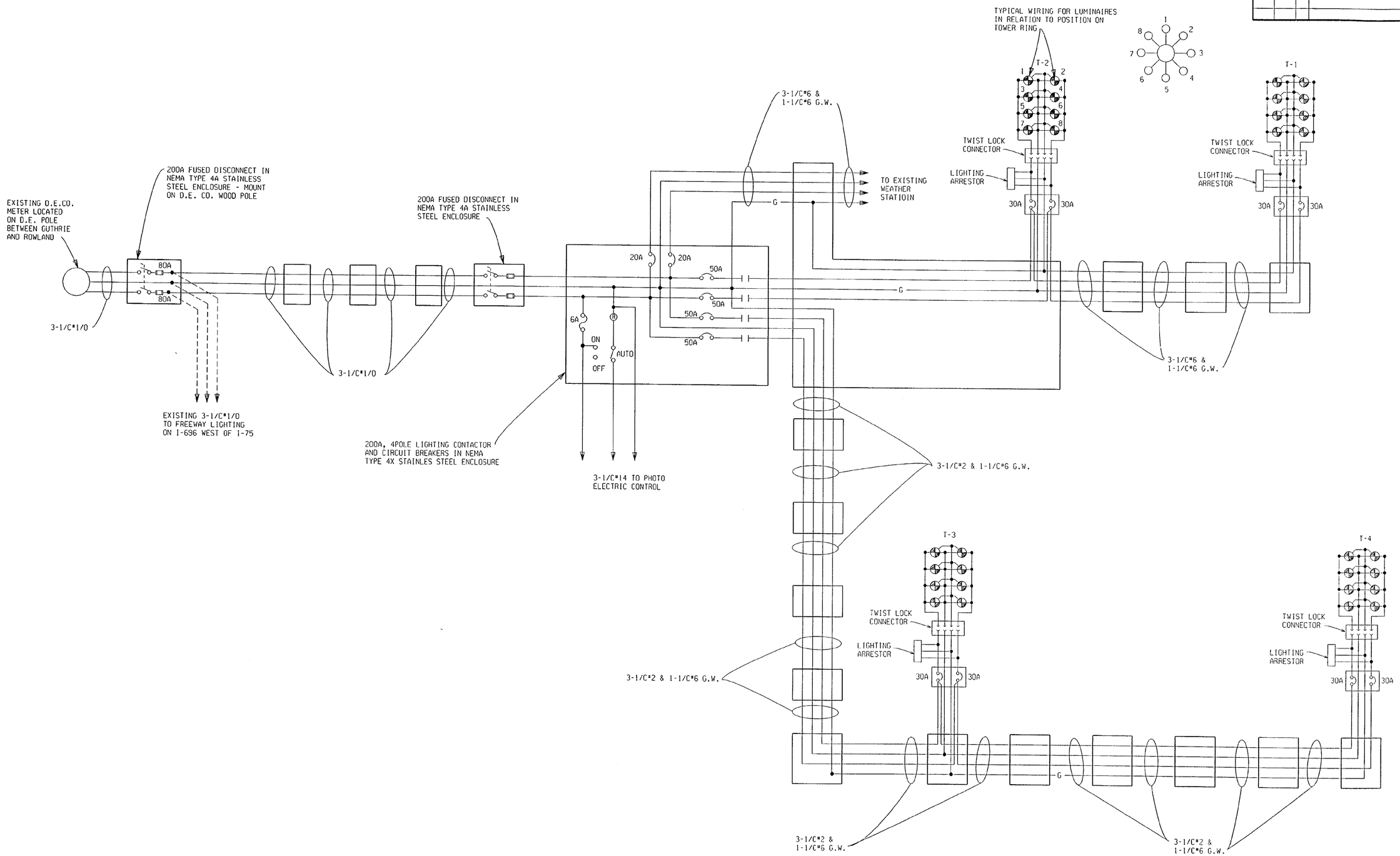
MDOT Michigan Department of Transportation

I-75 @ 12 MILE RD

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
04/06/99	1:1000	63174	48404A	ZIELINSKI	R.O.W. 3E

FILE NAME: 4840412m.dgn

AUTH	DATE	NO.	FINAL R.O.W. REVISION



MDOT Michigan Department of Transportation

WIRING DIAGRAM - I-696 & I-75 INTERCHANGE

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
09/01/99	NONE	63174	48404 A	ZIELINSKI		4E

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 4E

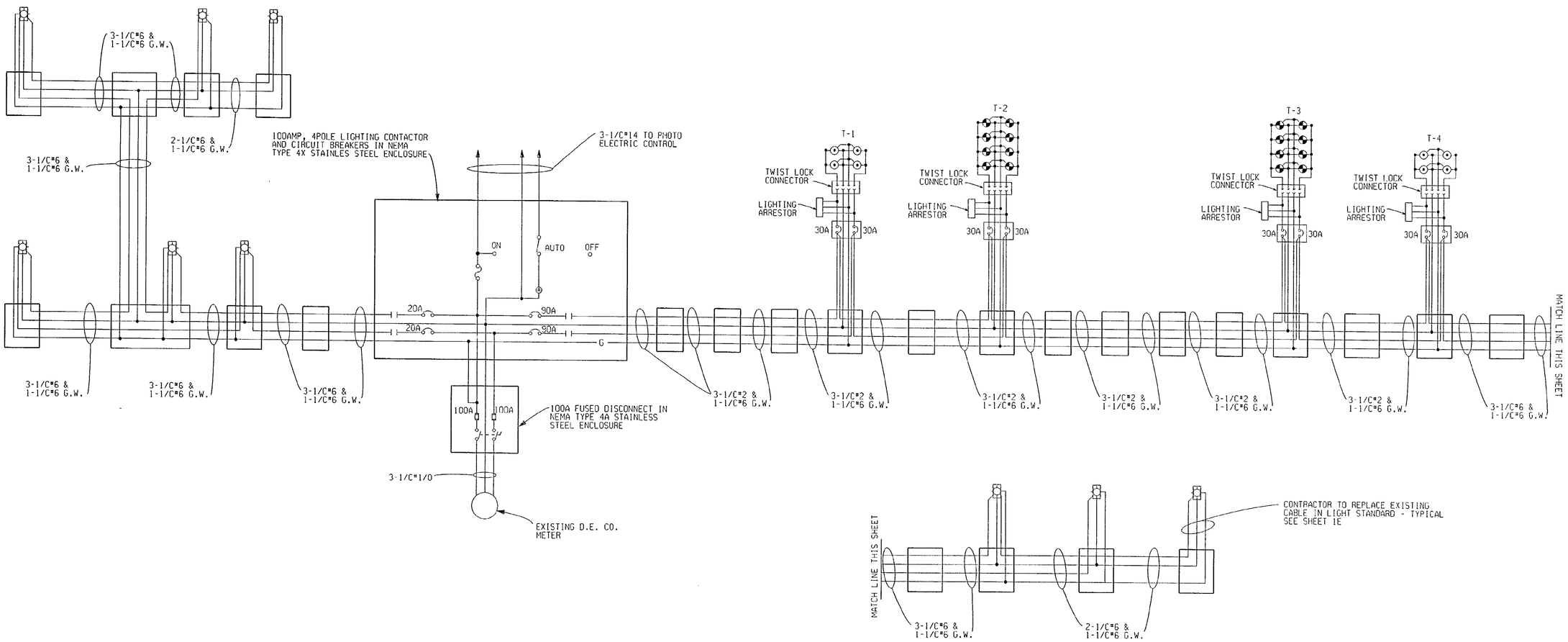
EXISTING BY: HARTENBURG DATE: SEPT. 99
PROPOSED BY: BENSON DATE:
LAST CORRECTION BY: BENSON DATE: 10/11/99

FILE NAME: 48404wd1.dgn

AUTH	DATE	NO.	FINAL R.O.W. REVISION

CONTROL SECTION 63174 | JOB NO. 48404 A | SH. NO. 5E

EXISTING BY: HARTENBURG DATE: SEPT. 99
PROPOSED BY: BENSON DATE: 09/01/99
LAST CORRECTION BY: BENSON DATE: 10/11/99



MDOT Michigan Department of Transportation

WIRING DIAGRAM - I-75 & 12 MILE RD

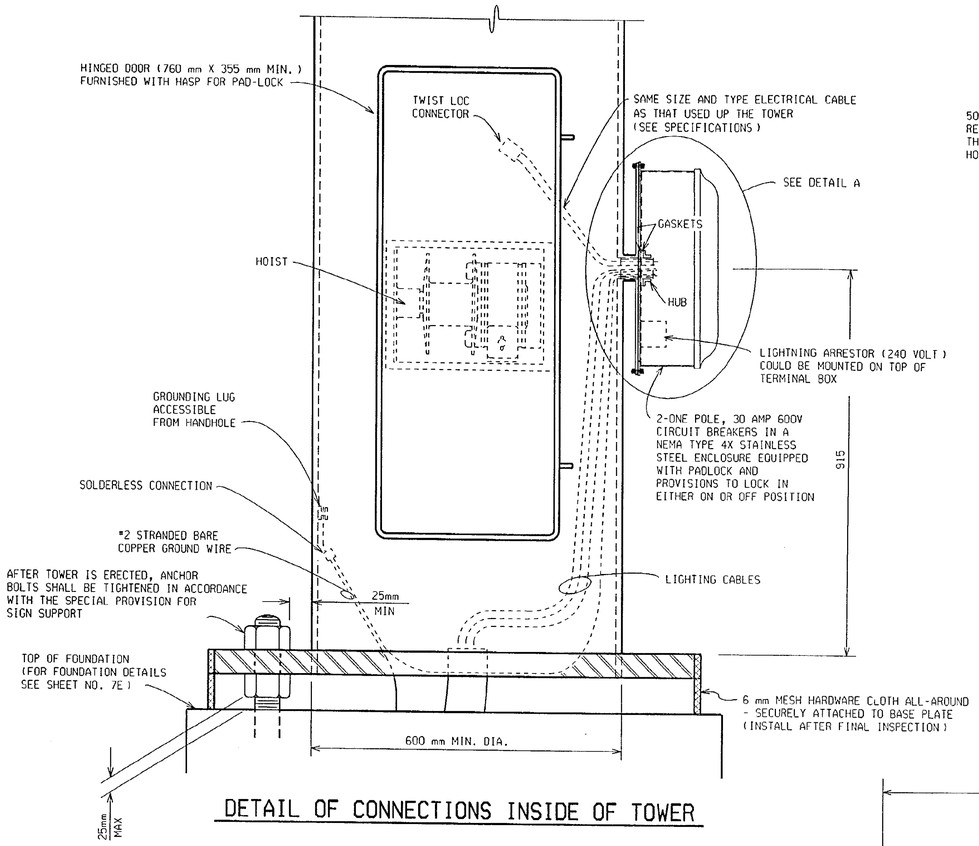
DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W	SHEET NO. CONST.
09/01/99	NONE	63174	48404 A	ZIELINSKI		5E

FILE NAME: 48404wd2.dgn

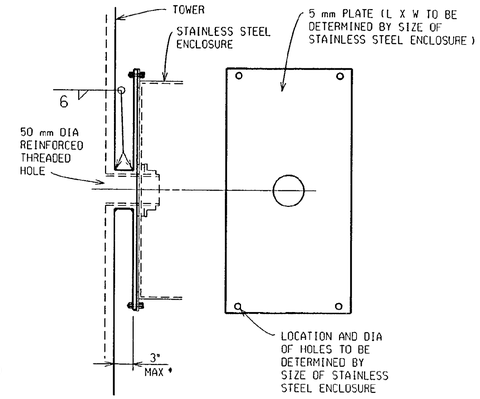
CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 6E

EXISTING BY: HARTENBURG DATE: JULY 99
PROPOSED BY: DATE:
LAST CORRECTION BY: BENSON/CLARK DATE: 10/11/99

AUTH	DATE	NO.	REVISION
			FINAL R.O.W.



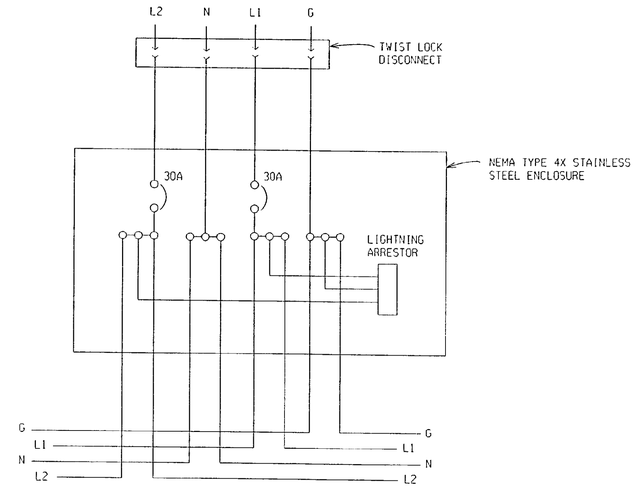
DETAIL OF CONNECTIONS INSIDE OF TOWER



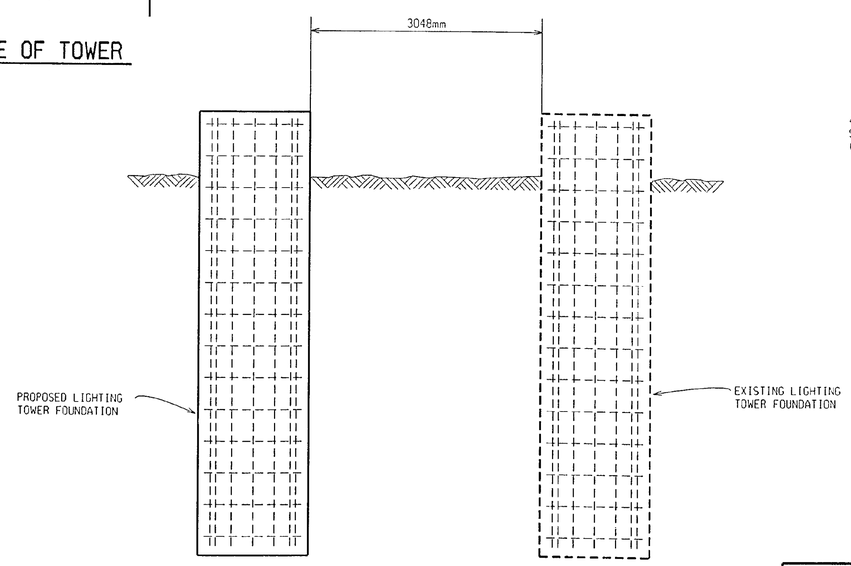
DETAIL A

* DISTANCE SHALL ONLY BE LARGE ENOUGH TO ALLOW ACCESS FOR WELDING.

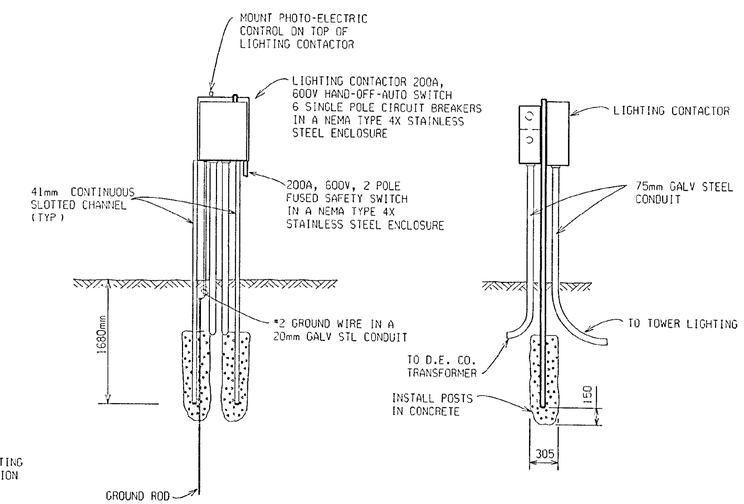
INSTALL 50 mm THREADED PIPE, INTERIOR AND EXTERIOR GASKETS, ENCLOSURE AND TIGHTEN WITH HUB.



WIRING DIAGRAM IN TOWER



LOCATION OF PROPOSED LIGHTING TOWER FOUNDATION



LIGHTING CONTROL PANEL

FILE NAME: 48404towerlgt.dgn
1 2 3 4 5

MDOT Michigan Department of Transportation

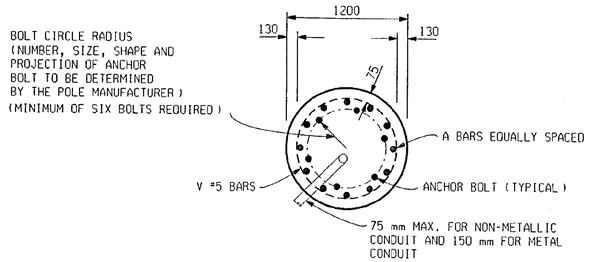
TOWER LIGHTING DETAILS

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
07/21/99	NONE	63174	48404	ZIELINSKI	R.O.W. 6E

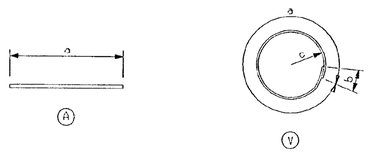
CONTROL SECTION	JOB NO.	SH. NO.
63174	48404A	7E

EXISTING BY: HARTENBURG DATE: 07/21/99
PROPOSED BY: DATE:
LAST CORRECTION BY: BENSON/CLARK DATE: 10/08/99

AUTH	DATE	NO.	FINAL R.O.W. REVISION

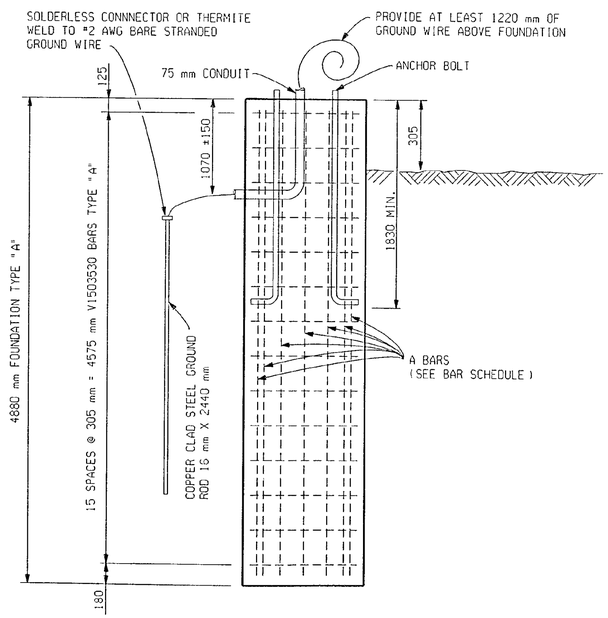


PLAN OF CYLINDRICAL FOOTING



FOUNDATION TYPE "A"

STEEL REINFORCEMENT BAR SCHEDULE										
A3604725	4725						36	4725	12	448.0
V1603530	2980	550	475				16	3530	16	88.0
FOUNDATION TYPE "A" TOTAL WT. 536 kg.										



SECTION THRU FOOTING

QUANTITIES			
	ITEM	UNIT	AMOUNT
FOUNDATION TYPE "A"	CONCRETE GRADE S2	m^3	5.50

NOTES:

ALL DIMENSIONS ARE IN MILLIMETERS.

ALL CONCRETE TO BE GRADE S2

THE GRADES AND WORKING STRESSES OF THE STRUCTURAL MATERIALS USED IN THESE FOUNDATIONS ARE AS FOLLOWS:

STEEL REINFORCEMENT f_y = 400 MPa
CONCRETE GRADE S2 f'_c = 21 MPa

THESE LIGHT STANDARD FOUNDATIONS ARE TO BE POURED AGAINST UNDISTURBED SOIL IN AS MUCH AS POSSIBLE.

ALL EXCESS EXCAVATED MATERIAL SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. THIS REMOVAL SHALL BE PART OF THE ITEM "LIGHT TOWER FOUNDATION" OF THE TYPE SPECIFIED AND WILL NOT BE PAID FOR SEPARATELY.

MDOT Michigan Department of Transportation

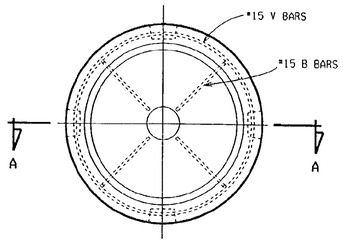
TOWER LIGHTING FOUNDATION AND BAR DETAIL

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO. R.O.W.	SHEET NO. CONST.
07/21/9	NONE	63174	48404A	ZIELINSKI		7E

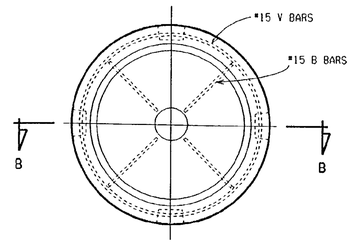
FILE NAME: 48404tlfdn.dgn
12 8

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 8E

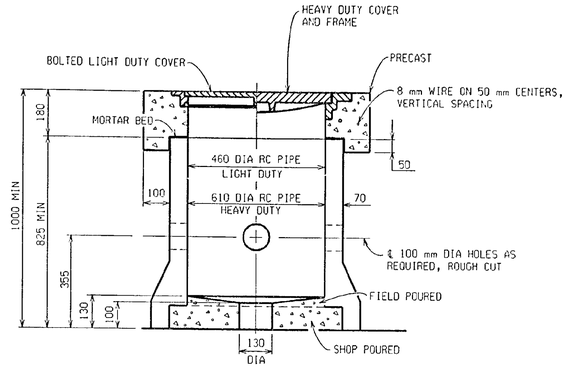
EXISTING BY: HARTENBURG DATE: JULY 99
PROPOSED BY: DATE:
LAST CORRECTION BY: BENSON/CLARK DATE: 10/08/99



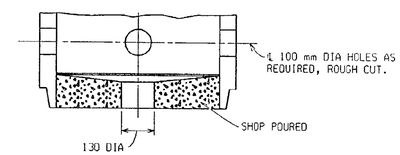
PLAN VIEW



PLAN VIEW



ALTERNATE PRECAST CONCRETE HANDHOLE
USING REINFORCED CONCRETE PIPE



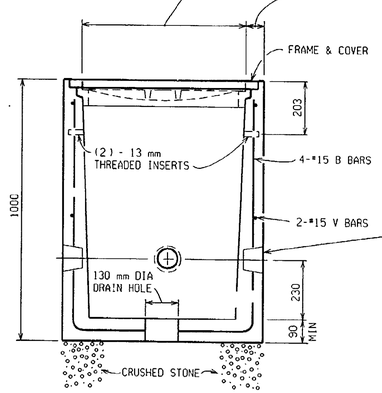
ALTERNATE PRECAST CONCRETE HANDHOLE
USE OF OPPOSITE END OF R.C. PIPE
(ALL OTHER DIMENSIONS SAME)

OPENING
460 FOR LIGHT DUTY COVER
610 FOR HEAVY DUTY COVER

FRAME
FRAME & COVER
SEE MATERIAL NOTES

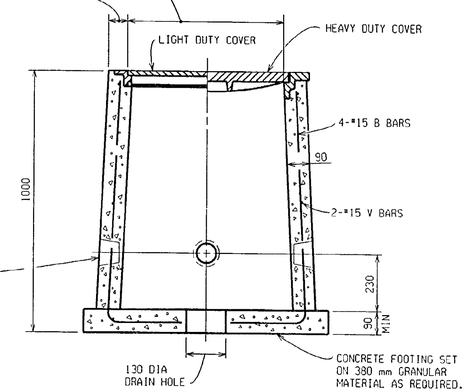
WALL THICKNESS
MIN WALL THICKNESS FOR LIGHT DUTY COVER - 70, FOR HEAVY DUTY COVER - 90. SHOULD THE WALL BE TAPERED, A 7.5 mm/100 mm SLOPE SHALL BE USED.

STEEL REINFORCEMENT
REINFORCEMENT SHALL BE #15 BARS AS SHOWN OR AN EQUIVALENT AREA OF STEEL USING WELDED WIRE MESH.

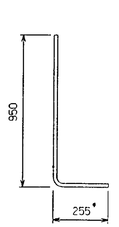


SECTION A-A PRECAST CONCRETE HANDHOLE

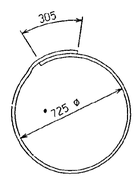
ENTRANCE HOLES AS REQUIRED FOR 75 mm & 100 mm CONDUIT. ADDITIONAL OPENINGS SHALL BE PROVIDED AS REQUIRED. HOLES MAY BE DRILLED IN THE FIELD.



SECTION B-B PRECAST CONCRETE HANDHOLE



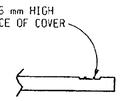
B BAR



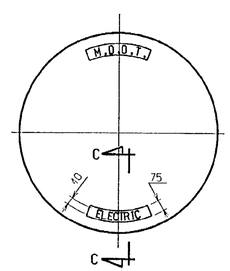
V BAR

* APPLIES TO 610 mm HANDHOLE

ALL LETTERING TO BE 6 mm HIGH AND FLUSH WITH SURFACE OF COVER



SECTION C-C



TOP VIEW

GENERAL NOTES:

ALL DIMENSIONS ARE IN MILLIMETERS.

THE MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT M.D.O.T. STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY CONSTRUCT THE HANDHOLE STRUCTURE OF CONCRETE MASONRY, OR OF PRECAST REINFORCED CONCRETE.

THE INNER SURFACE OF THE HANDHOLE SHALL BE SMOOTH.

ALL CASTINGS SHALL BE CLEANED BY SAND BLASTING.

THE SEATING FACE OF THE COVER AND THE SEAT FOR THE COVER ON THE FRAME IF REQUIRED, SHALL BE GROUND OR MACHINED SO THAT THE COVER SHALL HAVE AN EVEN BEARING ON ITS SEAT TO PREVENT ROCKING OR TILTING.

THE CASTINGS SHALL BE FREE OF POURING FAULTS, BLOW HOLES, CRACKS, AND OTHER IMPERFECTIONS. THEY SHALL BE SOUND, TRUE TO FORM AND THICKNESS, CLEAN AND NEATLY FINISHED AND SHALL BE COATED WITH COAL TAR PITCH VARNISH.

HANDHOLE SHALL BE EQUIPPED WITH CABLE RACK AND HOOKS TO TRAIN CABLE.

LIGHT DUTY COVER SHALL BE BOLTED TO FRAME WITH NOT LESS THAN 2 COUNTERSUNK HEX HEAD BRONZE BOLTS.

PRECAST HANDHOLE WITH HEAVY DUTY COVER SHALL BE SET ON A CONCRETE SLAB .

MATERIAL NOTES:

HEAVY DUTY COVERS SHALL BE CASTINGS WHICH MEET THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR GRAY IRON CASTINGS ASTM DESIGNATION A48 AND SHALL HAVE A MINIMUM STRENGTH AS PROVIDED FOR CLASS NO. 30B GRAY IRON CASTINGS.

ALL CONCRETE MASONRY SHALL BE GRADE 30M.

THE HEAVY DUTY COVER & FRAME SHALL BE EAST JORDAN IRON WORKS #2860 TYPE "A" OR NEENAH FOUNDRY #R-6052 D FOR CIRCULAR COVER OR AN APPROVED EQUAL.

LIGHT DUTY COVER AND FRAME SHALL BE EAST JORDAN IRON WORKS #2982A-18 OR NEENAH FOUNDRY #R-6012 D FOR CIRCULAR COVER OR AN APPROVED EQUAL.

6900242-3

MDOT Michigan Department of Transportation

ELECTRIC HANDHOLE DETAILS

DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
07/21/99	NONE	63174	48404A	ZIELINSKI	R.O.W 8E

FILE NAME: 48404Ah.dgn
12 4

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 9E

TESTHOLE NO. 01

Sta. SEE PLANS N.W. QUADRANT
I-75 & 696 INTERCHANGE
T1N R11E SEC. 23, OAKLAND CO.
Date Drilled 08-17-99
Elevation:

Elev.	Blows	Description
-.2		SANDY TOPSOIL
-2.5	3 5 6	MODERATELY COMPACT DARK BROWN FINE SAND, TRACE CLAY, TRACE FINE GRAVEL
-3.0		qu=4.50 TSF
-5.0	2 2 2	HARD BROWN MOTTLED SILTY CLAY, TRACE SAND
-5.0		qu=3.00 TSF
-7.5	2 2 2	HIGH FIRM BROWN MOTTLED SILTY CLAY, TRACE SAND
-7.5		qu=4.50 TSF
-10.0	2 4 5	qu=4.20 TSF
-12.5	3 4 6	HARD GRAY, TRACE BROWN, MOTTLED SILTY CLAY, TR4ACE COARSE SAND
		qu=4.20 TSF
-15.0	4 6 6	qu=4.20 TSF
-17.5	4 3 5	qu=3.00 TSF
-17.5		FIRM GRAY ORGANIC CLAY
-18.5		
-20.0	2 1 1	qu=0.00 TSF
-22.0		LOOSE SATURATED GRAY AND BROWN MOTTLED CLAYEY SILT
-25.0	4 5 8	qu=3.75 TSF
-30.0	3 4 7	qu=4.20 TSF
		STIFF GRAY SILTY CLAY, TRACE COARSE SAND
-35.0	2 4 7	qu=4.00 TSF
-40.0	3 5 7	qu=3.50 TSF
-41.5		E.O.B.

qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
DRY HOLE

TESTHOLE NO. 02

Sta. SEE PLANS N.W. QUADRANT
I-75 & 696 INTERCHANGE
T1N R11E SEC. 23, OAKLAND CO.
Date Drilled 08-18-99
Elevation:

Elev.	Blows	Description
-.2		SANDY TOPSOIL
-2.5	3 3 3	MODERATELY COMPACT BROWN FINE SAND, TRACE CLAY, TRACE FINE GRAVEL, TRACE BRICK
-2.5		
-4.0	2 2 3	qu=4.50 TSF
-5.0		HARD BROWN MOTTLED SANDY CLAY
-5.0		
-7.5	1 2 2	MODERATELY COMPACT BROWN MOTTLED FINE SAND
-7.5		qu=4.00 TSF
-10.0	3 3 8	HARD GRAY SILTY CLAY, TRACE COARSE SAND
-11.0		qu=2.50 TSF
-12.5	8 6 3	FIRM GRAY SILTY CLAY, WITH SAND SEAMS, TRACE COARSE SAND
-13.5		qu=2.20 TSF
-15.0	3 3 9	MODERATELY COMPACT MOIST BROWN MOTTLED FINE TO MEDIUM SAND
-15.0		
-17.5	3 4 7	qu=0.00 TSF
-17.5		FIRM BROWN AND GRAY MOTTLED SILTY CLAY
-20.0	4 6 10	qu=4.50 TSF
		HARD BROWN AND GRAY MOTTLED SILTY CLAY
		qu=4.50 TSF
		qu=4.50 TSF
-25.0	3 6 8	HARD GRAY SILTY CLAY, TRACE MEDIUM SAND
		qu=4.20 TSF
-30.0	3 4 7	qu=3.20 TSF
-30.0		
-35.0	2 5 8	qu=3.00 TSF
		HIGH FIRM GRAY SILTY CLAY, TRACE MEDIUM SAND
-40.0	3 4 8	qu=3.00 TSF
-41.5		E.O.B.

qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
DRY HOLE

TESTHOLE NO. 03

Sta. SEE PLANS N.W. QUADRANT
I-75 & 696 INTERCHANGE
T1N R11E SEC. 26, OAKLAND CO.
Date Drilled 08-18-99
Elevation:

Elev.	Blows	Description
-.3		SANDY TOPSOIL
-2.5	0 2 5	MODERATELY COMPACT BROWN FINE SAND, TRACE FINE GRAVEL,
-2.5		qu=4.00 TSF
-4.0		HARD GRAY, TRACE BROWN, MOTTLED SILTY CLAY, WITH SAND SEAMS
-5.0	2 2 3	
		qu=0.00 TSF
-7.5	2 4 4	LOW MODERATELY COMPACT DARK GRAY MOTTLED CLAYEY FINE SAND
-7.5		
-10.0	3 3 7	qu=3.20 TSF
-10.0		HIGH FIRM GRAY SILTY CLAY, TRACE COARSE SAND
-12.5	2 4 4	qu=4.20 TSF
		qu=4.20 TSF
-15.0	4 1 2	STIFF GRAY SILTY CLAY, WITH SAND LAYER, TRACE COARSE SAND
		qu=4.20 TSF
-17.5	1 3 7	qu=3.20 TSF
-18.5		
-20.0	3 4 5	qu=0.00 TSF
		LOW MODERATELY COMPACT YELLOWISH-BROWN MOTTLED FINE SAND, SATURATED @ 6.40m, COBBLES @ 7.01m TO 7.62m
-25.0	3 4 6	qu=2.00 TSF
		FIRM GRAY SILTY CLAY, TRACE COARSE SAND
-30.0	9 10 13	qu=0.00 TSF
-30.0		
		MODERATELY COMPACT SATURATED GRAY FINE SAND
-33.0		
-35.0	3 5 8	qu=2.50 TSF
		FIRM TO HIGH FIRM GRAY SILTY CLAY, TRACE COARSE SAND
-40.0	4 5 10	qu=3.50 TSF
-41.5		E.O.B.

qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
WATER LEVEL @ 6.86m
WATER LEVEL @ 6.71m (AFTER 20 MIN.)

TESTHOLE NO. 04

Sta. SEE PLANS N.W. QUADRANT
I-75 & 696 INTERCHANGE
T1N R11E SEC. 23, OAKLAND CO.
Date Drilled 08-19-99
Elevation:

Elev.	Blows	Description
-.2		SANDY TOPSOIL
-2.5	8 8 11	MODERATELY COMPACT DARK BROWN FINE SAND, TRACE FINE GRAVEL, COBBLES @ .61m TO .76m
-2.5		
		qu=4.50 TSF
-5.0	6 7 8	HARD BROWN MOTTLED SILTY CLAY, TRACE MEDIUM SAND
-7.0	3 4 5	qu=4.50 TSF
-7.5		qu=4.50 TSF
		HARD GRAYISH-BROWN SILTY CLAY, TRACE COARSE SAND AND FINE GRAVEL
-10.0	2 2 2	
-10.0		
-12.5	2 4 3	qu=2.00 TSF
-13.0		LOW FIRM GRAYISH-BROWN SILTY CLAY, TRACE COARSE SAND AND FINE GRAVEL
-15.0	2 5 11	
-15.0		qu=2.50 TSF
-17.5	3 6 8	FIRM BROWN AND GRAY MOTTLED SILTY CLAY, WITH SILT PARTINGS, TRACE SAND
-19.5	3 5 8	qu=4.50 TSF
-20.0		HARD BROWN AND GRAY MOTTLED SILTY CLAY, WITH SILT PARTINGS, TRACE SAND
		qu=4.50 TSF
		qu=4.50 TSF
-25.0	2 5 7	HARD GRAY SILTY CLAY, TRACE COARSE SAND
-25.0		
		qu=3.00 TSF
-30.0	3 5 8	qu=3.00 TSF
		HIGH FIRM GRAY SILTY CLAY, TRACE COARSE SAND
-35.0	3 5 8	qu=3.00 TSF
-40.0	3 5 8	qu=3.20 TSF
-41.5		E.O.B.

qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
DRY HOLE

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

(0 0 0) 1st 0.15 m, 2nd 0.15 m, 3rd 0.15 m

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 51 mm O.D. (38 mm I.D.) SPLIT SPOON SAMPLER 3 SUCCESSIVE 0.15 m INCREMENTS USING A 63.5 kg HAMMER FALLING 0.76 m.

CONSISTENCY WAS DETERMINED BY INSPECTION OF SAMPLES AND SUBSTANTIATED BY SOILS RESISTANCE TO DRILLING TOOLS.

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.

MDOT Michigan Department of Transportation

SOIL BORING DATA

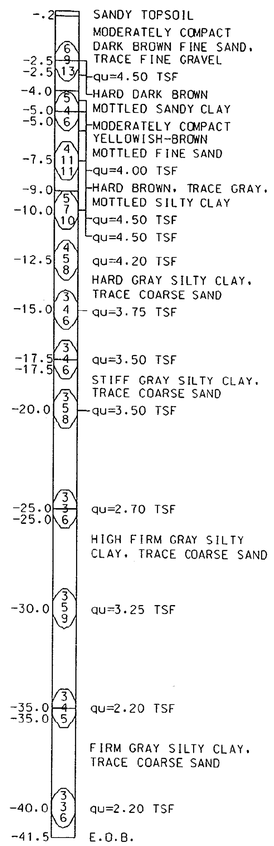
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
09-09-99	63174	48404A	ZIELINSKI	9E

DATE: 10-08-99 | CORRECTED BY: CLARK | DATE: | CHECKED BY: | DATE: | DRAWN BY: | FILE NAME: 48404sbr2.dgn

CONTROL SECTION 63174 | JOB NO. 48404A | SH. NO. 10E

TESTHOLE NO. 03

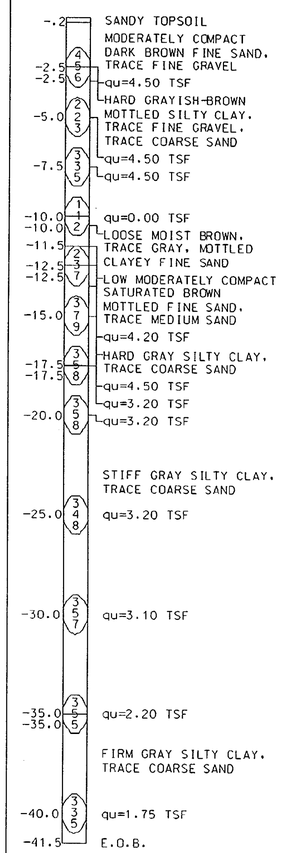
Sta. SEE PLANS
I-75 & 12 MILE RD. INTERCHANGE
T1N R11E SEC. 11, OAKLAND CO.
Date Drilled 08-11-99
Elevation:



qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
TEST HOLE DRY

TESTHOLE NO. 04

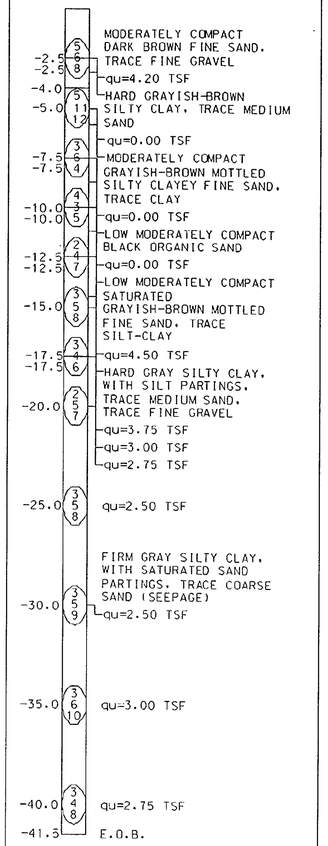
Sta. SEE PLANS
I-75 & 12 MILE RD. INTERCHANGE
T1N R11E SEC. 11, OAKLAND CO.
Date Drilled 08-12-99
Elevation:



qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
WATER LEVEL @ 6.54m
WATER LEVEL @ 5.30m (AFTER 90 MIN.)

TESTHOLE NO. 01

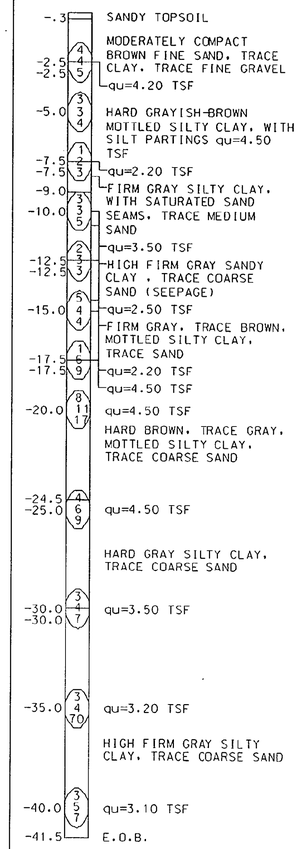
Sta. SEE PLANS
I-75 & 12 MILE RD. INTERCHANGE
T1N R11E SEC. 14, OAKLAND CO.
Date Drilled 08-16-99
Elevation:



qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
WATER LEVEL @ 9.66m
WATER LEVEL @ 8.41m (AFTER 30 MIN.)

TESTHOLE NO. 02

Sta. SEE PLANS
I-75 & 12 MILE RD. INTERCHANGE
T1N R11E SEC. 14, OAKLAND CO.
Date Drilled 08-17-99
Elevation:



qu= UNCONFINED COMP. STR.
POCKET PEN. IN TSF
DRY HOLE (AFTER 25 MIN.)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

(0 0 0) 1st 0.15 m, 2nd 0.15 m, 3rd 0.15 m

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 51 mm O.D. (38 mm I.D.) SPLIT SPOON SAMPLER 3 SUCCESSIVE 0.15 m INCREMENTS USING A 63.5 kg HAMMER FALLING 0.76 m.

CONSISTENCY WAS DETERMINED BY INSPECTION OF SAMPLES AND SUBSTANTIATED BY SOILS RESISTANCE TO DRILLING TOOLS.

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.

MDOT Michigan Department of Transportation

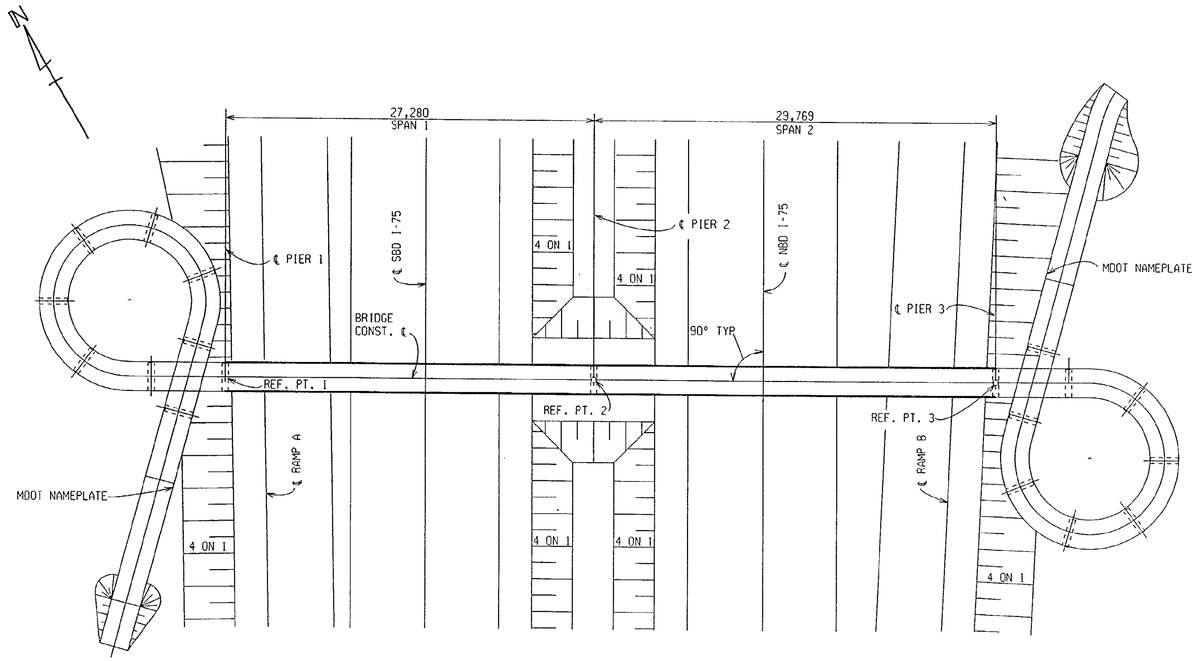
SOIL BORING DATA

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
09-09-99	63174	48404A	ZIELINSKI	10E

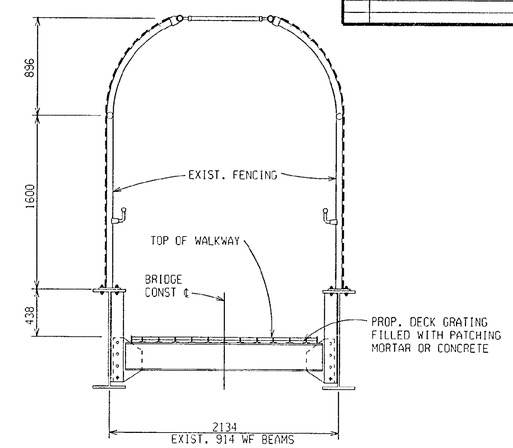
DATE: 10-08-99 | CORRECTED BY: CLARK | DATE: | CHECKED BY: | DATE: | DRAWN BY: | FILE NAME: 48404bor.dgn

CONTROL SECTION P01 OF 63174 | JOB NO. 48404A | SH. NO. 2

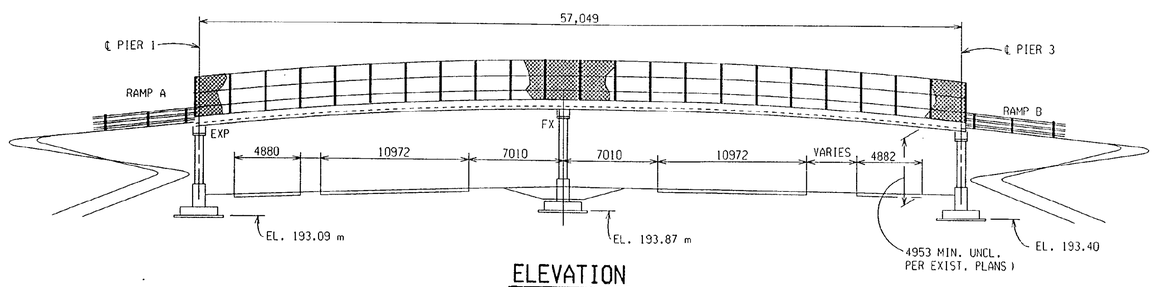
REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN



DECK SECTION



ELEVATION

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, PAINTING, STRUCTURAL STEEL REPAIR AND RETROFIT AND MAINTAINING TRAFFIC.

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO STANDARDS SPECIFICATIONS FOR HIGHWAY BRIDGES. THE LOAD FACTOR METHOD WAS USED FOR THIS DESIGN.

FALSE DECKING SHALL INCLUDE THE AREA FROM PIER 1 TO PIER 3 AND BETWEEN THE BEAM WEBS.

I-75 TRAFFIC IS TO BE MAINTAINED BY PART WIDTH CONSTRUCTION. THE BRIDGE SHALL BE CLOSED TO PEDESTRIAN TRAFFIC DURING CONSTRUCTION.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE ENGINEER, STRUCTURES AND ROAD MAINTENANCE OF THE MAINTENANCE DIVISION IN LANSING.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE COATED IS 366 SQUARE METERS. THE PAINTING AREAS ARE FOR ALL STRUCTURAL STEEL MEMBERS INCLUDING THE DOWNSPOUTS AT PIERS 1 AND 3, ALL FENCE POSTS AND HORIZONTAL FENCE RAILS, THE TOP OF BEAMS AND BEAM ENDS.

PENETRATING WATER REPELLENT TREATMENT SHALL BE APPLIED TO THE TOP OF PIERS 1 & 3.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF BEARING PLATES TO CONCRETE CONTACT SURFACES AFTER CUTTING AWAY ANY PROTRUDING PORTION OF LEAD PLATE.

THIS BRIDGE IS COATED WITH LEAD BASED PAINT.

THE COLOR OF THE URETHANE PROTECTIVE COAT SHALL MATCH COLOR NUMBER 1, LIGHT GRAY OF FEDERAL STANDARD NUMBER 595a.

THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES. (INCLUDED IN THE BID ITEM "STEEL STRUCTURE, COATING, TYPE 4 (P01)".

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

MISCELLANEOUS QUANTITIES

1	ea	Elec Grounding System
123	m2	False Decking
1	LS	Structures, Rehabilitation, Rem Portions (P01)
1	LS	Steel Structure, Cleaning, Type 4 (P01)
1	LS	Steel Structure, Coating, Type 4 (P01)
5	m2	Water Repellent Treatment

APPROVED Steven P. Beck 10/19/99
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE				
I-75 UNDER 12 MILE WALKOVER				
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
9-21-99	P01 OF 63174	48404A	MAHDAVI	2 OF 16

DATE: 10-18-99 | CORRECTED BY: R. PRATT | DATE: | CHECKED BY: MICKUK | DATE: 2-19-99 | DRAWN BY: SHAFFER | FILE NAME: p0163174.st

BENCH MARKS

B.M. No. 71 - Elev. 638.34 M.S.H.D. Tag in root of 24" Elm 167' Rt. Sta. 912+60 N.B. Rdwy.

B.M. No. 73 - Elev. 638.77 M.S.H.D. Tag in base of 20" Oak 248' Lt. of Sta. 905+37 N.B. Rdwy.

UTILITIES

None

CURVE DATA — RAMP "A"

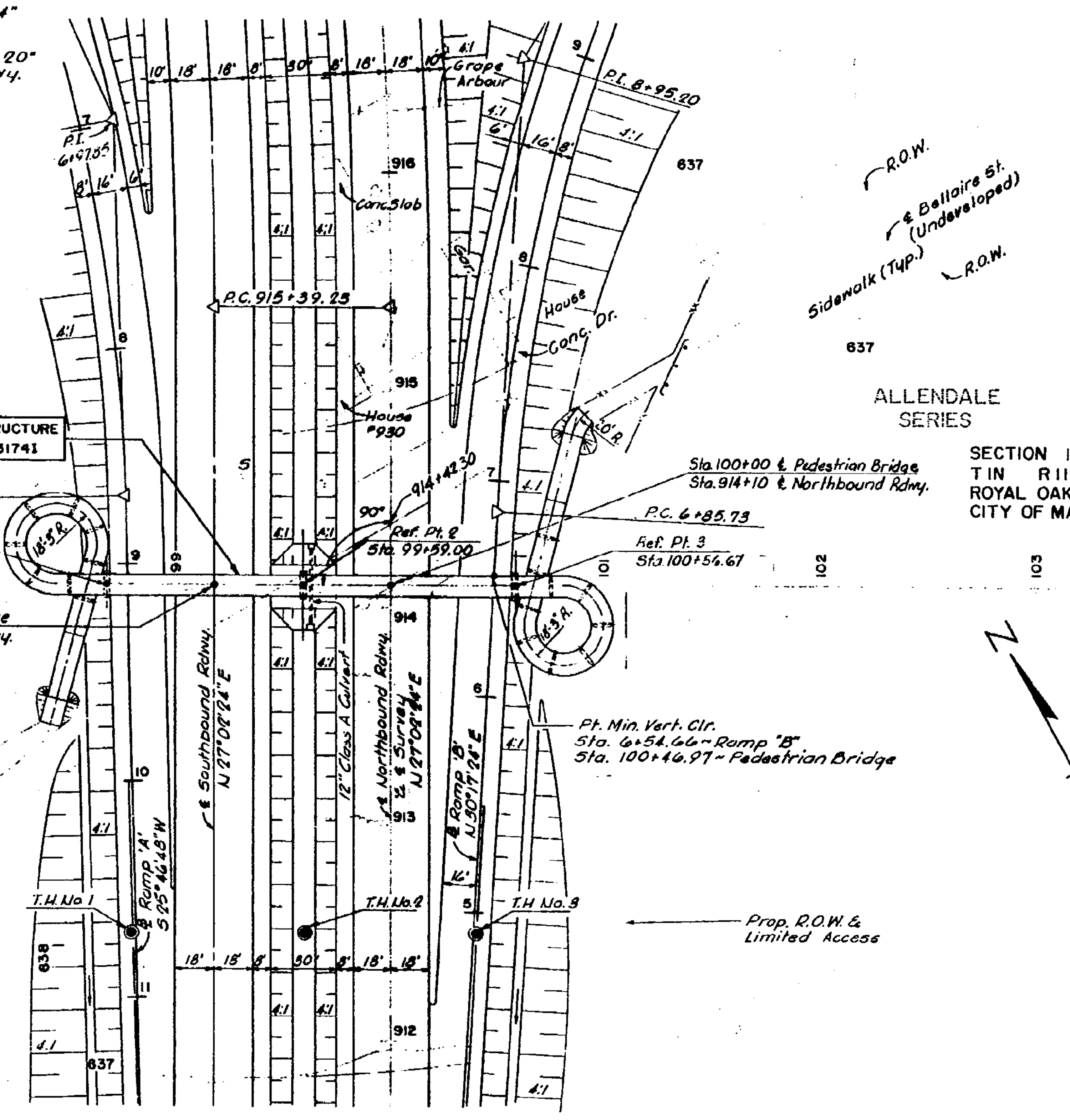
- Δ = 24°22'18"
- D = 7°00'00"
- R = 818.51'
- T = 176.76'
- L = 348.17'
- E = 18.87'
- P.C. = 5+21.09
- P.I. = 6+97.85
- P.T. = 8+69.26
- Se. = 0.07'/FT.

CURVE DATA — RAMP "B"

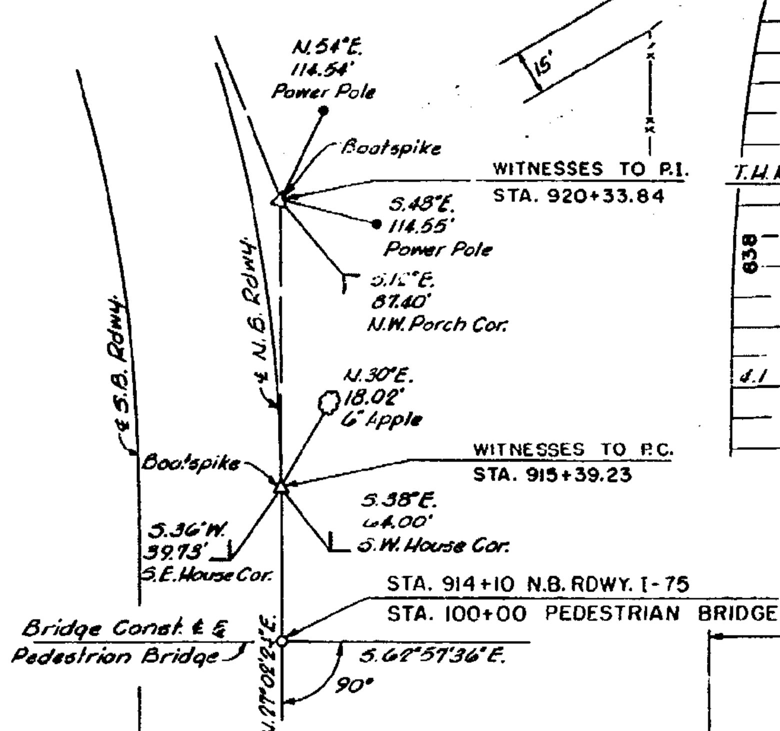
- Δ = 28°42'35"
- D = 7°00'00"
- R = 818.51'
- T = 209.47'
- L = 410.14'
- E = 26.38'
- P.C. = 6+85.73
- P.I. = 8+95.20
- P.T. = 10+95.87
- Se. = 0.07'/ft.

CURVE DATA — N.B. CONST.

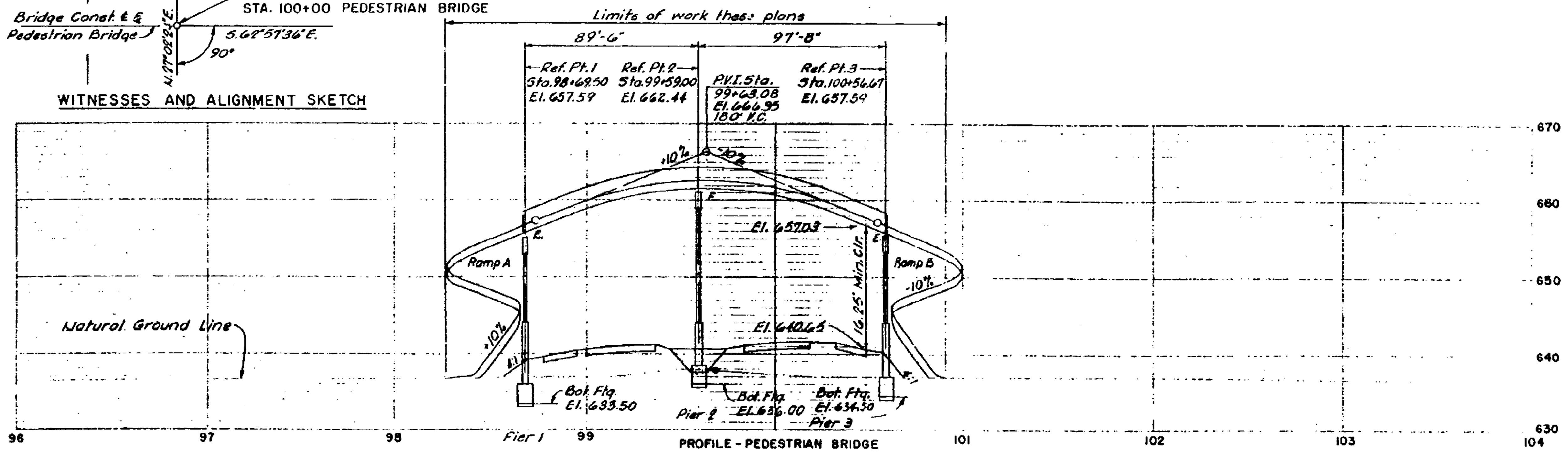
- Δ = 29°02'20"
- D = 3°00'00"
- R = 1,909.86'
- T = 494.61'
- L = 967.96'
- E = 63.01'
- P.C. = 915+39.23
- P.I. = 920+33.84
- P.T. = 925+07.19
- Se. = 0.057'/FT.



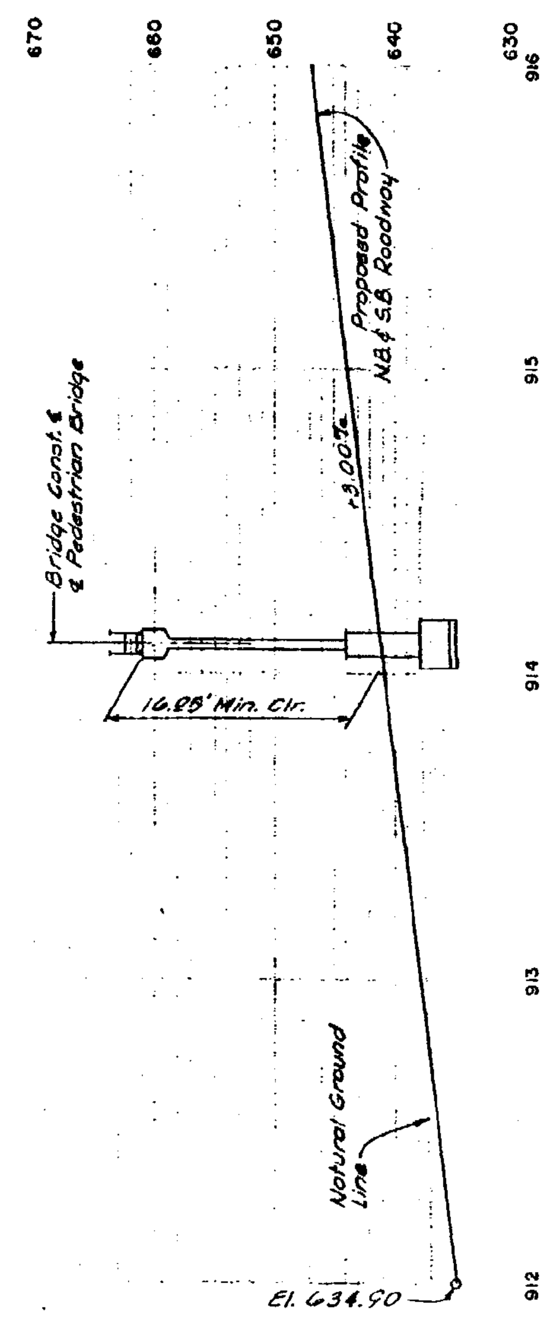
SITUATION PLAN
SCALE: 1" = 40'

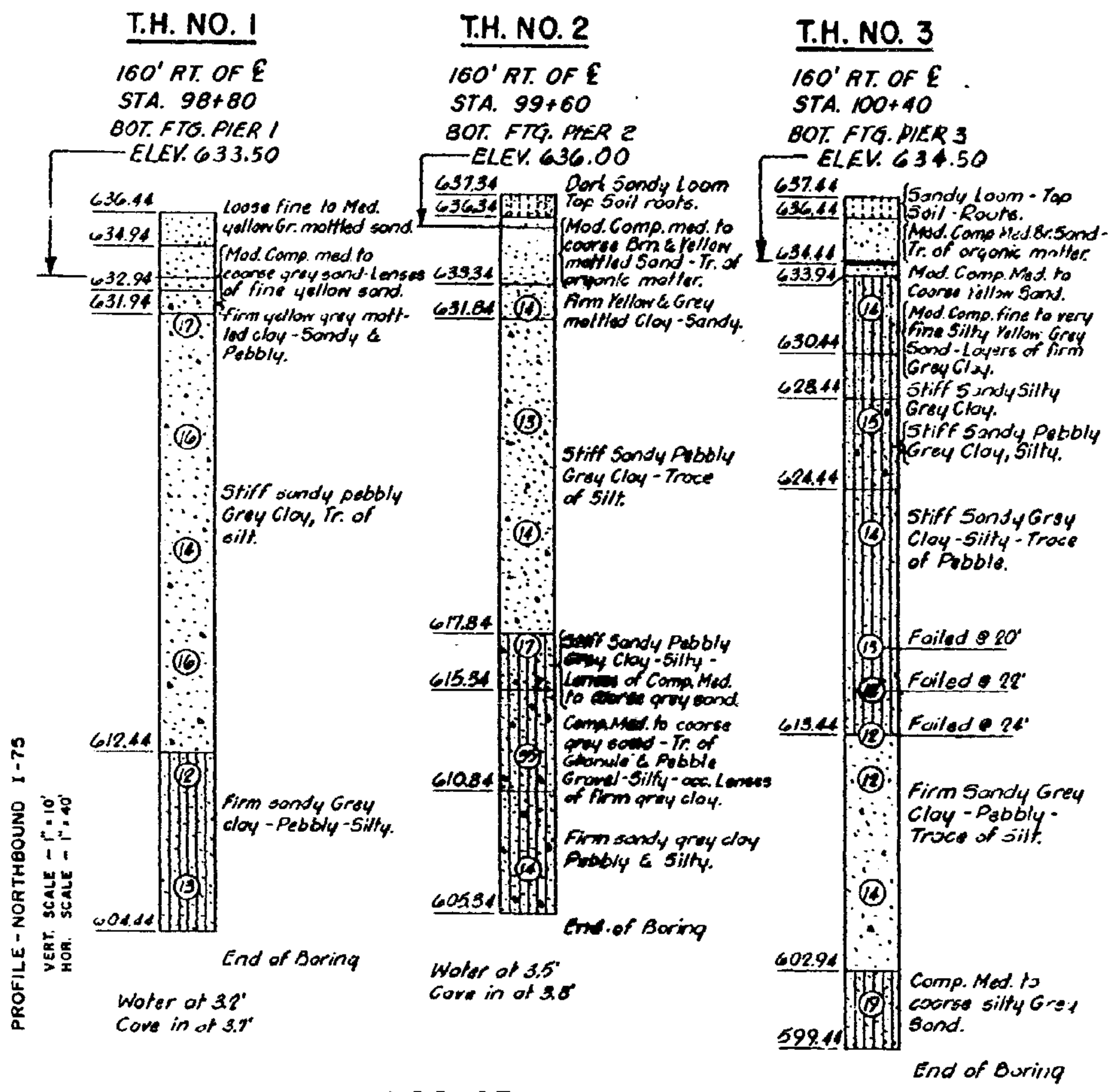


WITNESSES AND ALIGNMENT SKETCH



PROFILE - PEDESTRIAN BRIDGE
VERT. SCALE - 1" = 10'
HOR. SCALE - 1" = 40'





LOG OF BORINGS
SCALE: 3/16" = 1'-0"

NOTES:

Consistency determined by inspection of samples and substantiated by soils resistance to casing and jet rod (All T.H.s).
Penetration samples taken with O.D. 1¾", I.D. 1⅜" Sampler driven 12" with 140# hammer with a free fall of 30".
Method of Sampling - Undisturbed.
No water table as water used in Boring Operations does not recede into the clay soils below first 3' to 4' of Sand (All T.H.s).

GENERAL NOTES:

Fences, and utilities are to be moved by others.
Buildings are to be removed by others.
Datum refers to U.S.G.S. Datum.
The work covered by these plans includes construction of the proposed bridge, ramps, sidewalks and fill under sidewalks.
All work not listed above is included in the Road Plans.

CONTROL SECTION 631741

MICHIGAN STATE HIGHWAY DEPARTMENT
PEDESTRIAN BRIDGE CROSSING I-75 SOUTH OF 12 MILE ROAD
IN THE CITY OF MADISON HEIGHTS
GENERAL PLAN OF SITE
TECON ENGINEERS, INC.
J. V. Murray 6-5-62 COORDINATING ENGINEER
ENGINEER OF DESIGN — CONSULTANTS
JDC 1-9-62 M.B.A.
CDB 1-2-62 135 - 312
P01 OF 631741

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTE:
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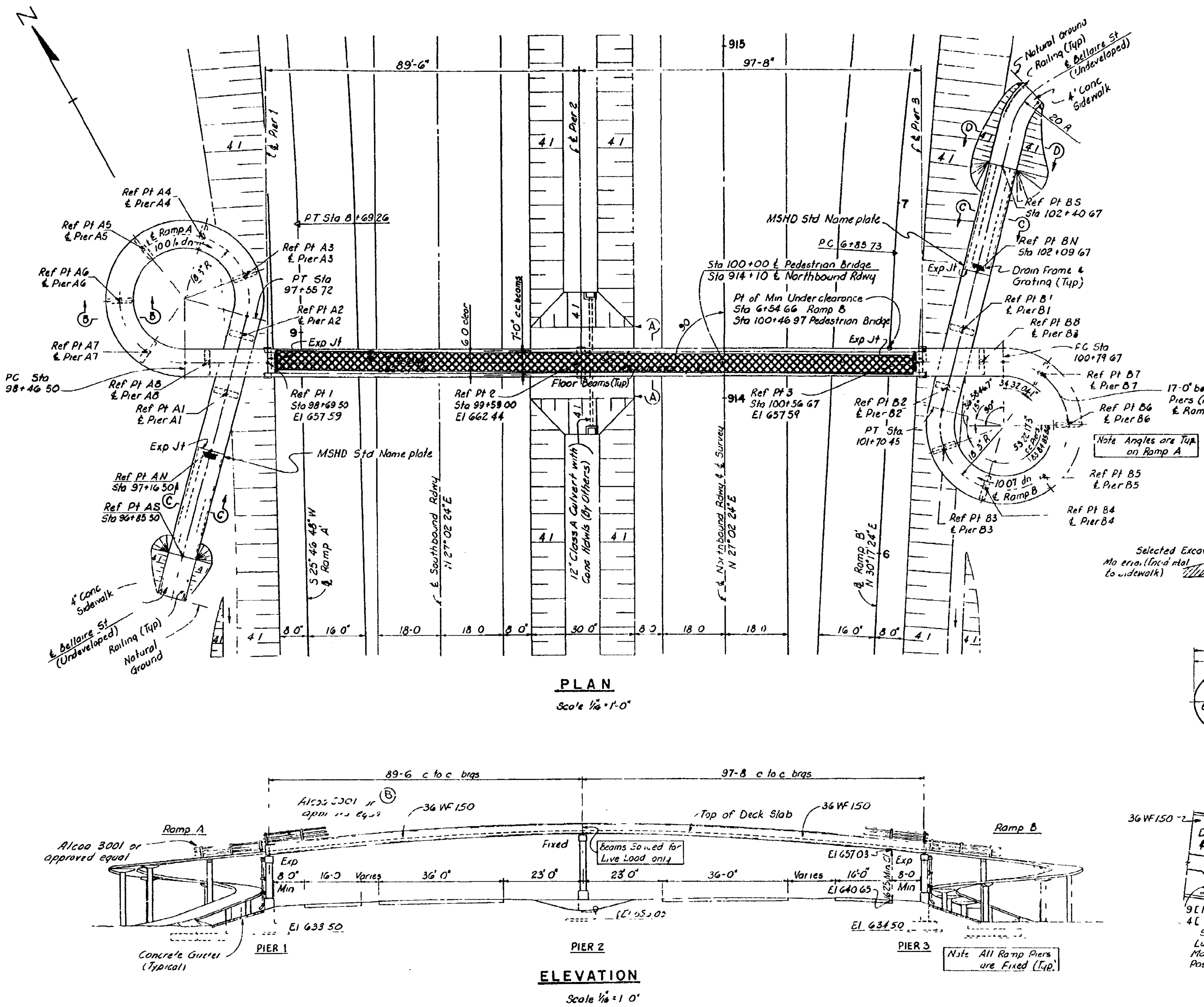
FOR INFORMATION ONLY

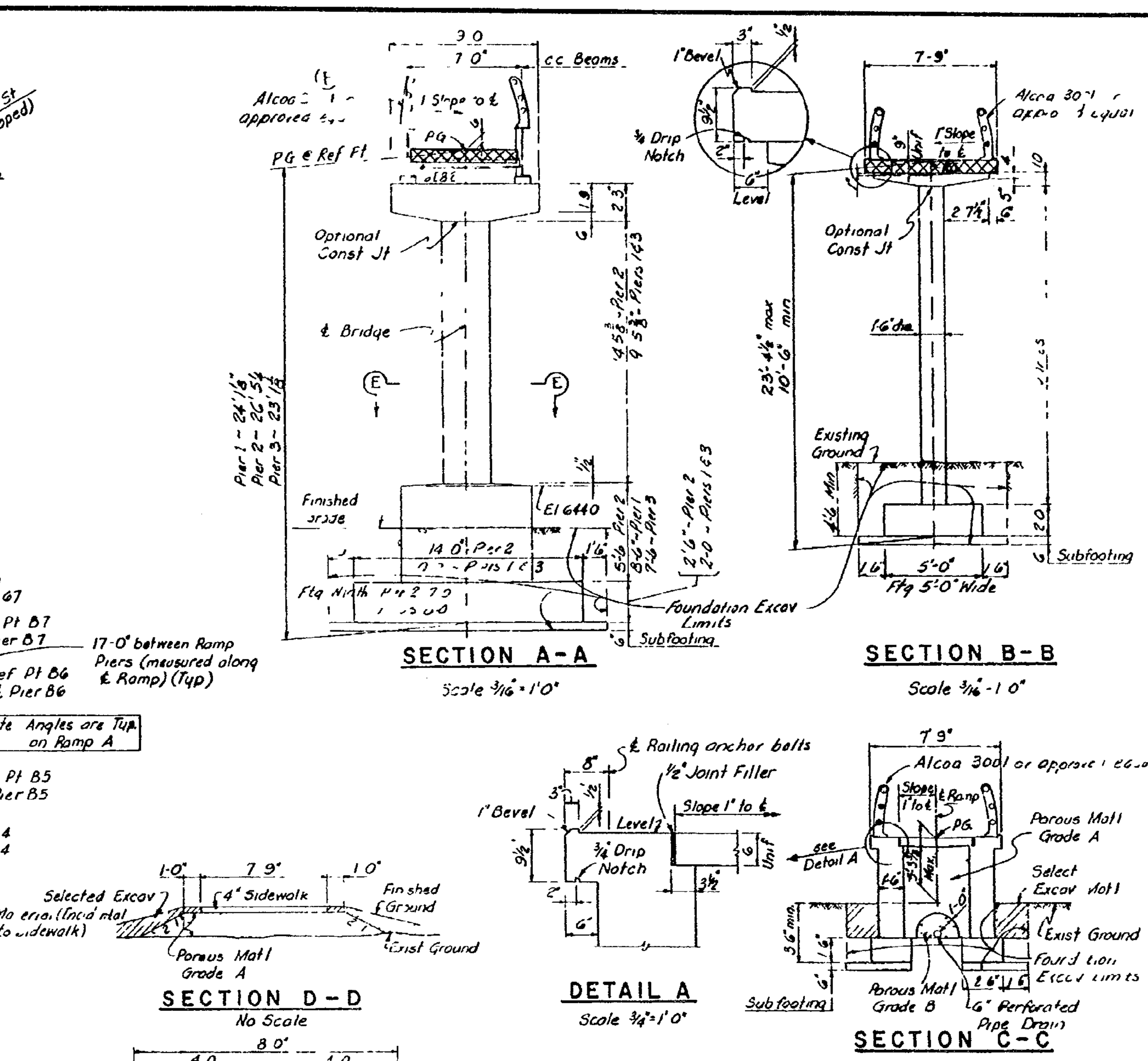
MDOT Michigan Department of Transportation

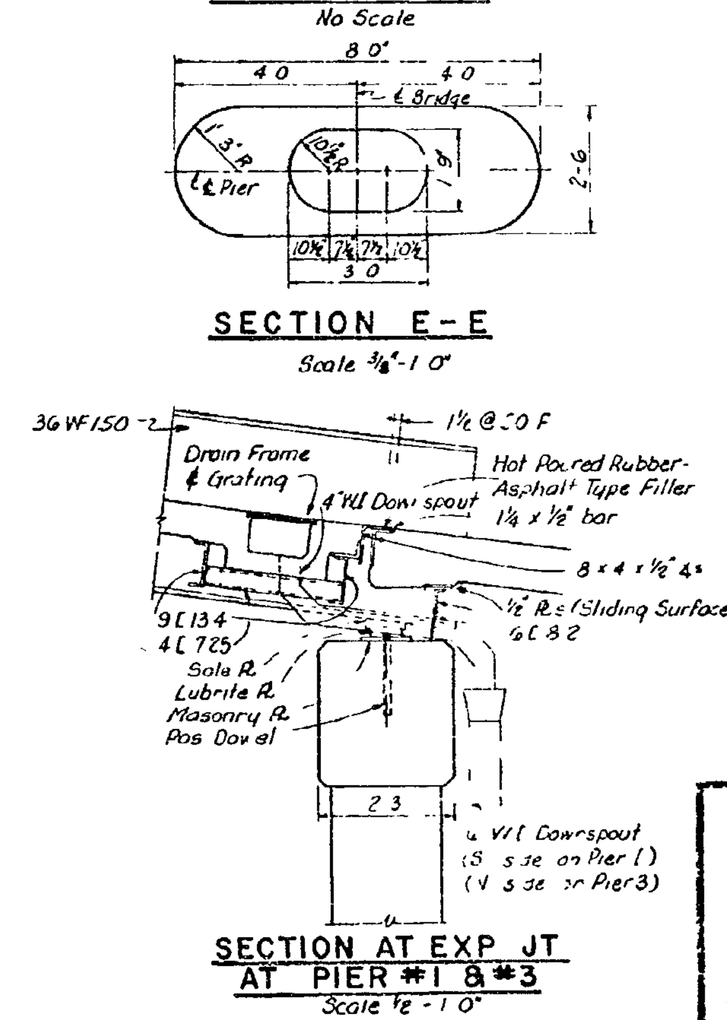
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	3 OF 16

DRAWN BY: inder | DATE: | CHECKED BY: | DATE: | CORRECTED BY: | DATE:

FILE NAME: p0163174sn







GENERAL NOTES

DESIGN SPECIFICATIONS
MSHD Specifications for the Design of Highway Bridges' 1958 Edition
Live Load Deflections not more than 1/1000 of Span Length

LIVE LOADING
Main Steel Beams - 60 lbs per sq ft of deck area
Steel Floor Beams - 85 lbs per sq ft of deck area
Conc Slab on Steel Spans - 85 lbs per sq ft of deck area
Conc Slab - Ramp A & B - 85 lbs per sq ft of deck area

CONCRETE
Grade A (GA) in Footings & Sub Footings
Grade A (GAA) above footings

B Changed railing or main spans from ... to ...

CONTROL SECTION 63174I

MICHIGAN STATE HIGHWAY DEPART...
PEDESTRIAN BRIDGE CROSSING I-75 SOUTH OF 12 MILE ROAD
IN THE CITY OF MADISON HEIGHTS
GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC
J. V. Murray 6-5-62 COORDINATING ENGINEER
ENGINEER OF DESIGN — CONSULTANTS
CDB 2-29-61
139 312
P01 OF 63174I

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTE:
THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 44073A

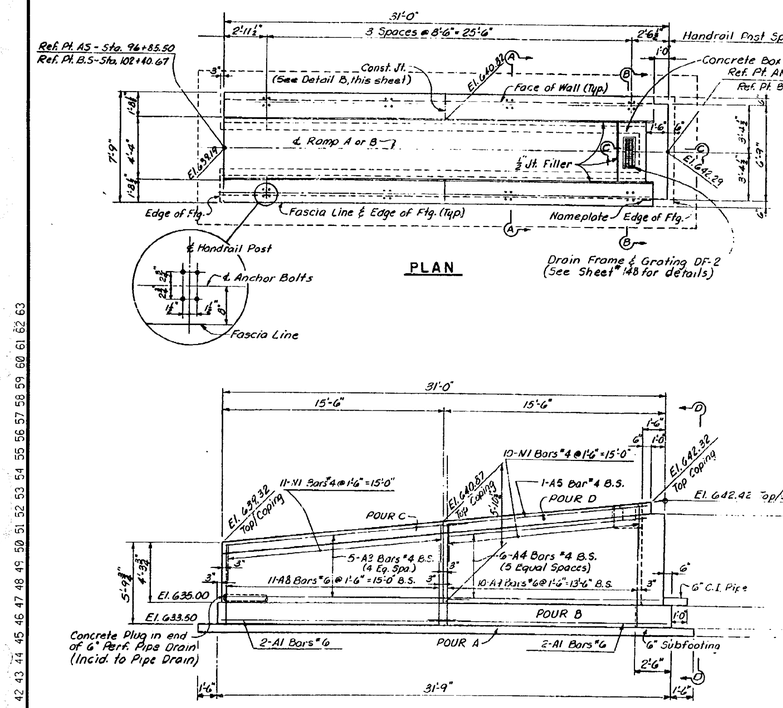
DENOTES REMOVAL PORTIONS

REMOVAL PORTIONS

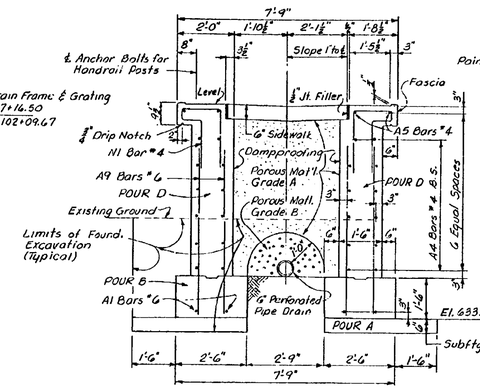
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	4 OF 16

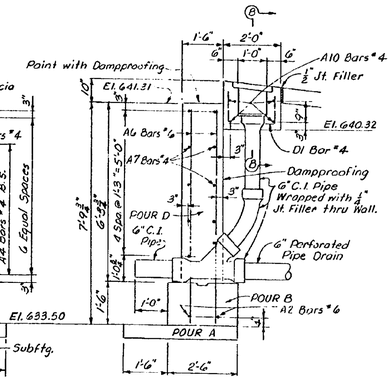
DRAWN BY: under CHECKED BY: DATE: CORRECTED BY: DATE:
FILE NAME: p0163174sn



PLAN

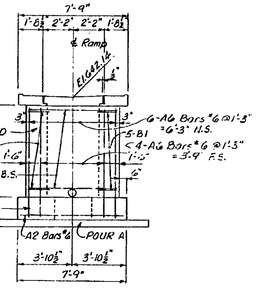


SECTION A-A

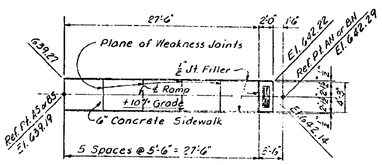


SECTION C-C

TYPICAL WALL ELEVATION



ELEVATION D-D



PLAN OF SIDEWALK

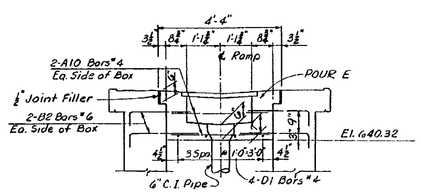
CONCRETE QUANTITIES - CU. YDS.				
POUR	RAMP A		RAMP B	
	GR. A(GA)	GR. A(GAA)	GR. A(GA)	GR. A(GAA)
A	5.0		5.0	
B	9.2		9.2	
C		4.1		9.1
D		12.8		12.8
E		0.4		0.4
F	1.2		1.8	
Totals	17.4	22.3	18.0	22.3

MISCELLANEOUS QUANTITIES			
ITEM	UNIT	QUANTITY	
		RAMP A	RAMP B
Foundation Excavation	Cu. Yds.	65	50
½" Joint Filler	Sq. Ft.	38	40
Porous Material Gr. A	Cu. Yds.	20	25
Porous Material Gr. B	Cu. Yds.	4	4
Dampproofing	Sq. Ft.	335	335
4" Conc. Sidewalk	Sq. Ft.	85	161
6" Conc. Sidewalk	Sq. Ft.	117	117
½" Joint Filler	Sq. Ft.	109	100
6" C.I. Pipe	Lin. Ft.	11	11
6" Perforated Pipe	Lin. Ft.	31	31

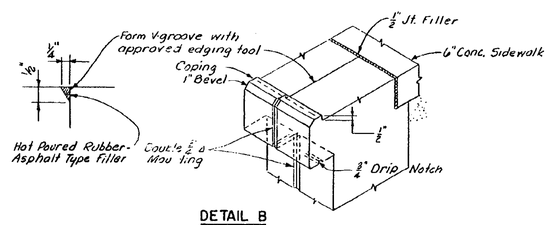
REVISIONS			
NO.	DESCRIPTION	DATE	BY

GENERAL NOTES

N.S. denotes near side.
F.S. denotes far side.
B.S. denotes both sides.
For Bevel & Molding details see Standard Sheet R11.
For location of name plates see General Plan of Structure.
Top of end wall (at Ref. Pt. AN or BN) shall be finished to a true plane at the elevation shown and shall not vary more than ⅛" under a ten foot straight edge.



SECTION B-B



DETAIL B

Work this sheet with sheets 142, 149 & 150.

MICHIGAN STATE HIGHWAY DEPARTMENT

RAMP APPROACH DETAILS

TECON ENGINEERS, INC.

JDC 5-7-62
RFC
M.A.C. 6-25-62
141 312

P01 OF 63174I

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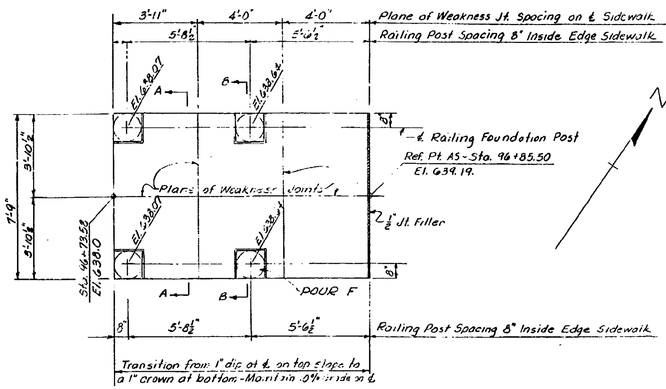
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

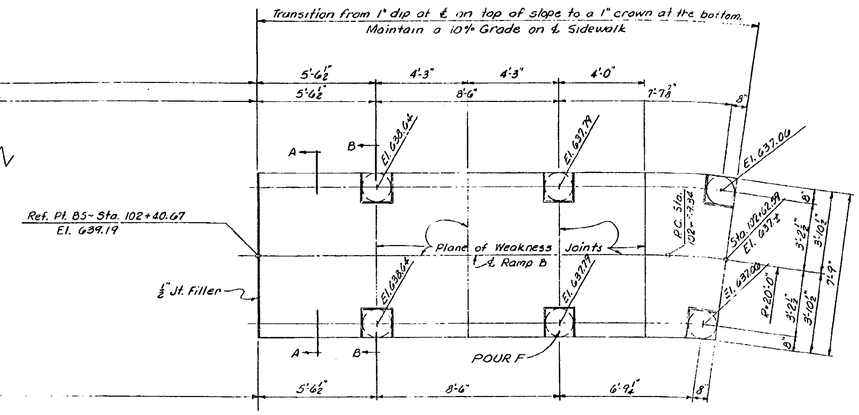
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	5 OF 16

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: FILE NAME: p0163174sn

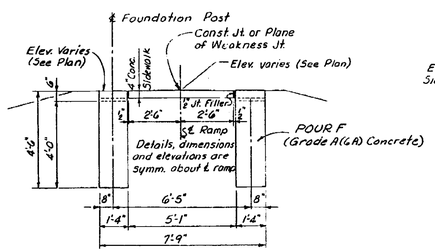
REVISIONS			
NO.	DESCRIPTION	DATE	BY



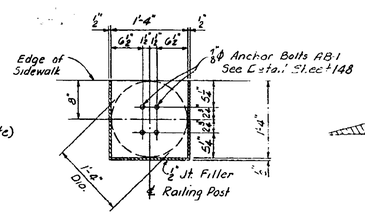
APPROACH PLAN RAMP A



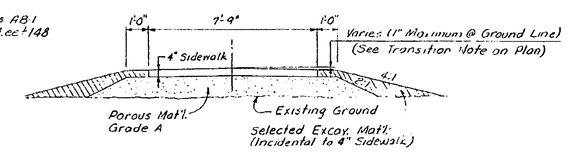
APPROACH PLAN RAMP B



SECTION B-B



POST PLAN



SECTION A-A

Work this sheet with sheets 141 & 149

MICHIGAN STATE HIGHWAY DEPARTMENT

RAMP APPROACH DETAILS

TECON ENGINEERS, INC.

JDC 5-7-62
RFC
MAC 4-26-62
142 , 312

P01 OF 63174 I

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MDOT Michigan Department of Transportation

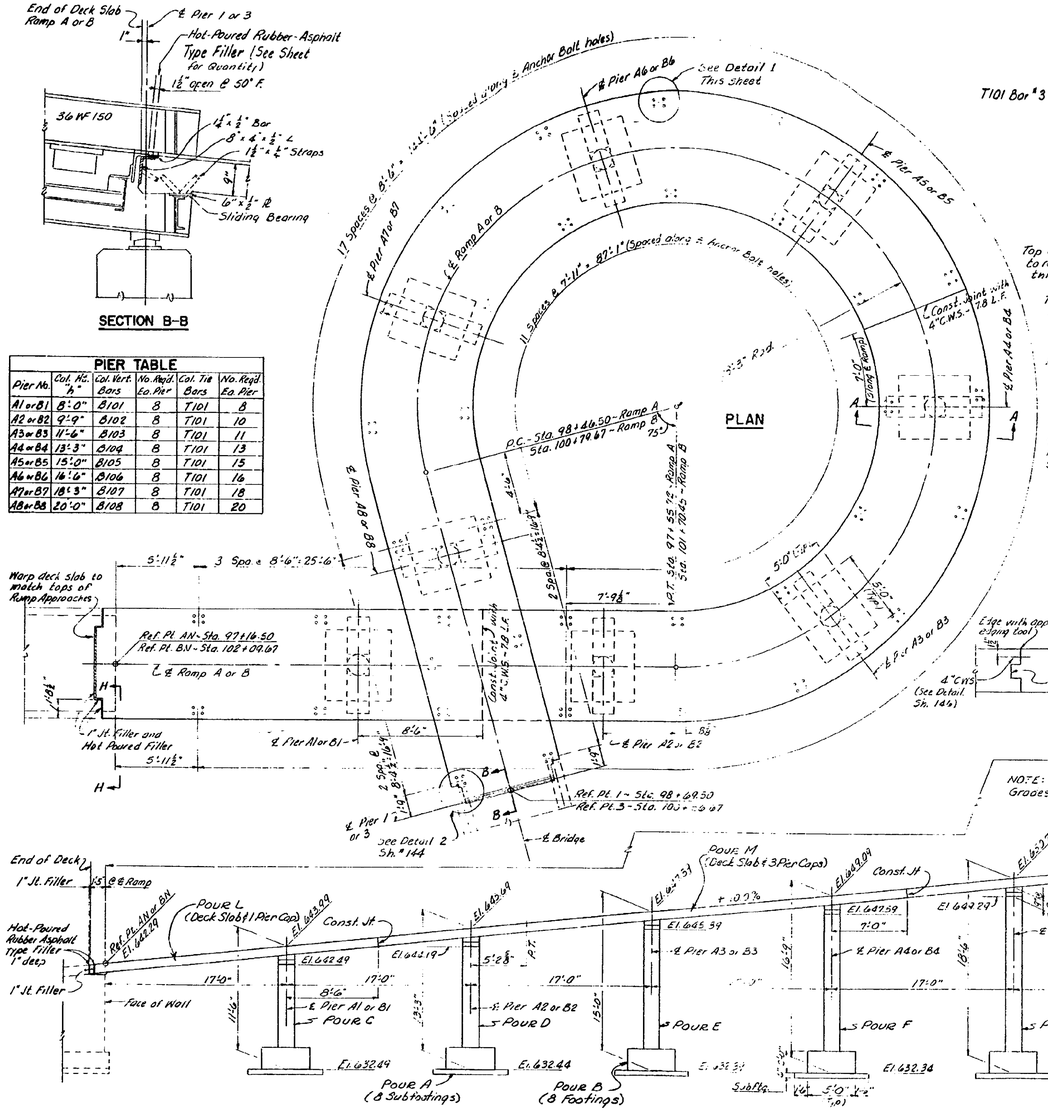
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	6 OF 16

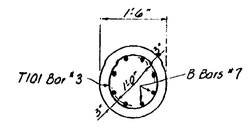
DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: inder FILE NAME: p0163174sn

CONTROL SECTION P01 OF 63174 | JOB NO. 48404A | SH. NO. 7

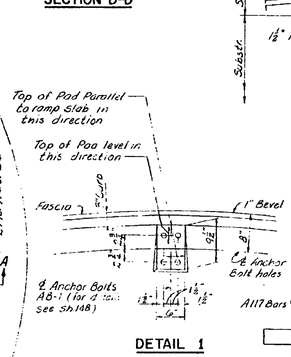
SECTION B-B

PIER TABLE					
Pier No.	Col. Ht. "h"	Col. Vert. Bars	No. Reqd. Ea. Pier	Col. Tie Bars	No. Reqd. Ea. Pier
A1 or B1	8'-0"	B101	8	T101	8
A2 or B2	9'-9"	B102	8	T101	10
A3 or B3	11'-6"	B103	8	T101	11
A4 or B4	13'-3"	B104	8	T101	13
A5 or B5	15'-0"	B105	8	T101	15
A6 or B6	16'-6"	B106	8	T101	16
A7 or B7	18'-3"	B107	8	T101	18
A8 or B8	20'-0"	B108	8	T101	20

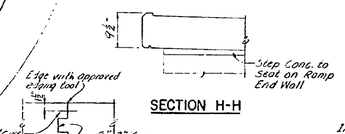




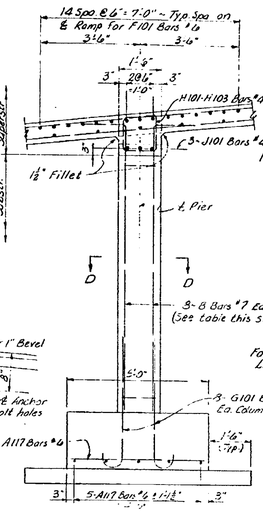
SECTION D-D



DETAIL 1



SECTION H-H



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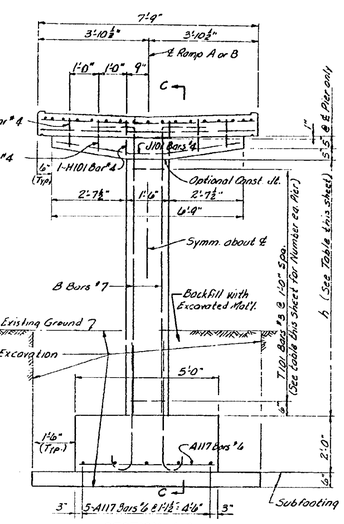
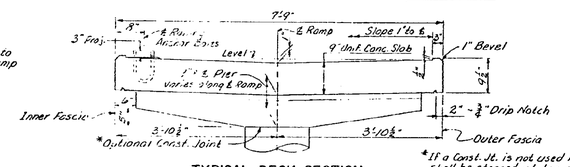
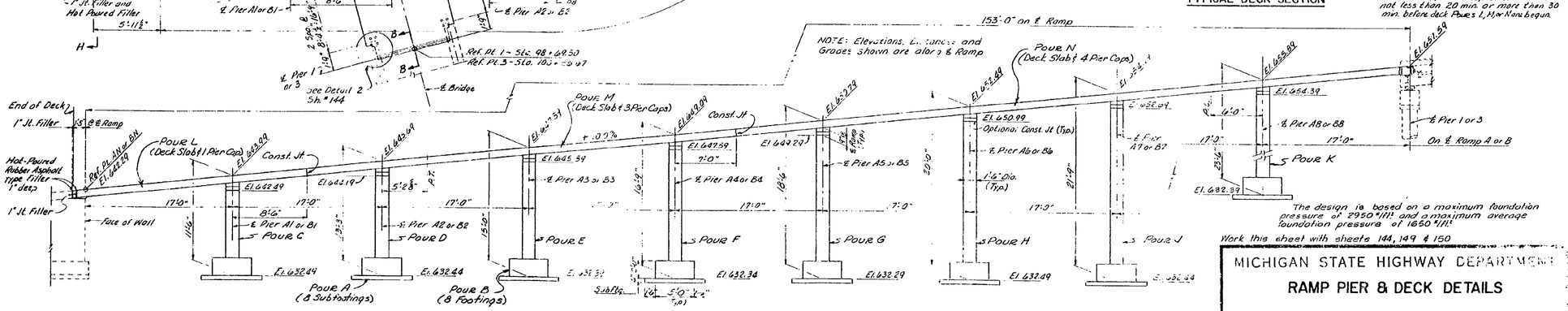


SECTION A-A



TYPICAL DECK SECTION

*If a Const. Jt. is not used here, the pour shall be stopped at top of column for not less than 20 min. or more than 30 min. before deck Pours L, M, or N are begun.



DEVELOPED ELEVATION

MICHIGAN STATE HIGHWAY DEPARTMENT

RAMP PIER & DECK DETAILS

TECON ENGINEERS, INC.

JDC FDH 5-76

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DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	7 OF 16

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NO.	DESCRIPTION	DATE	BY

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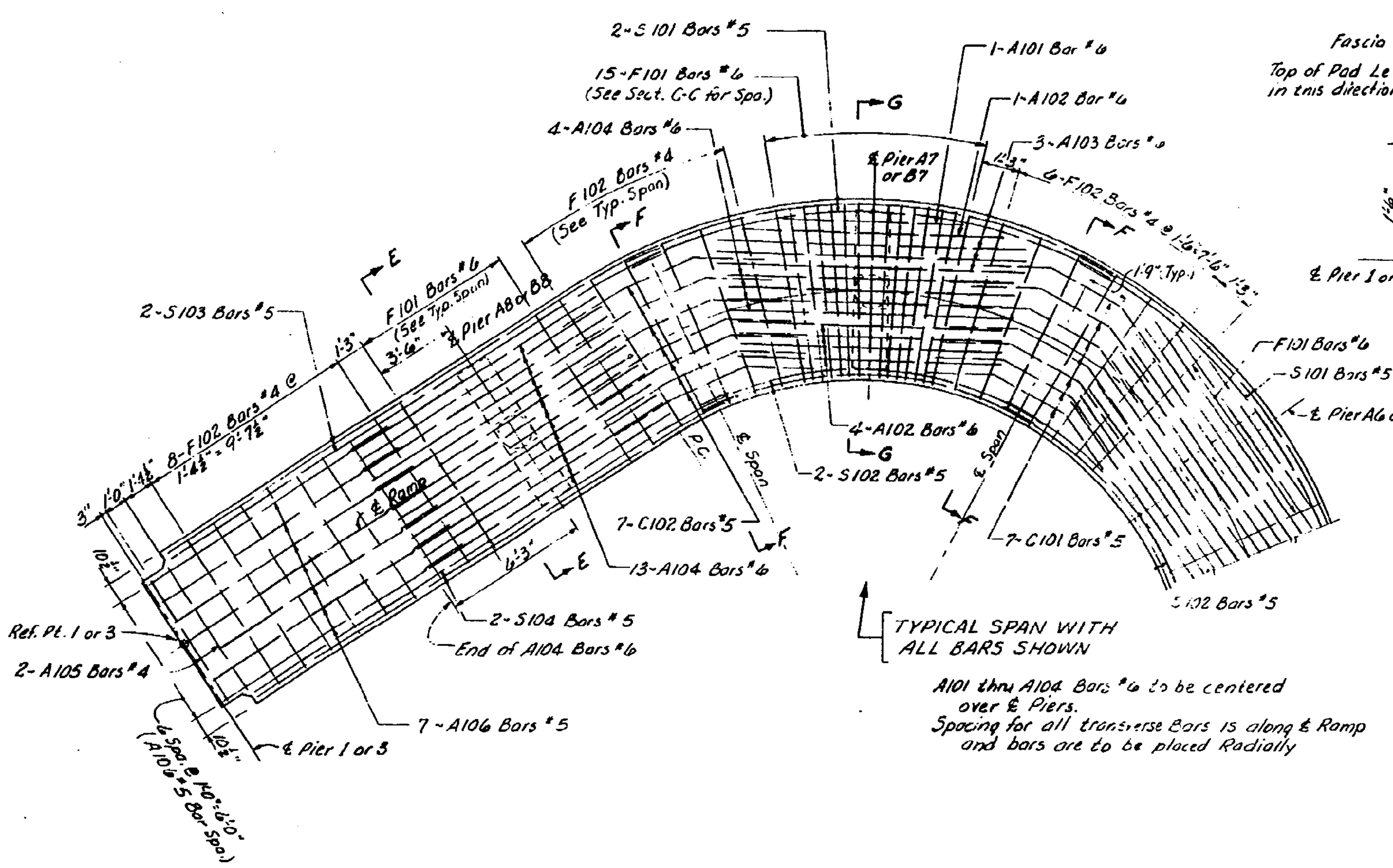
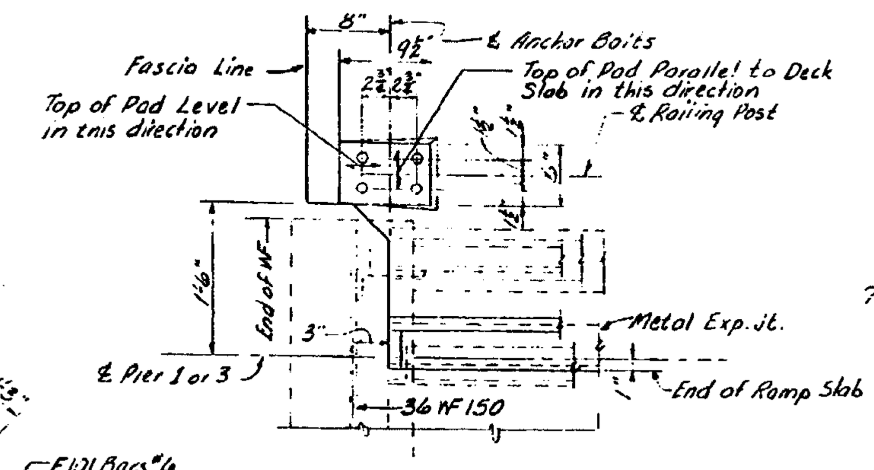
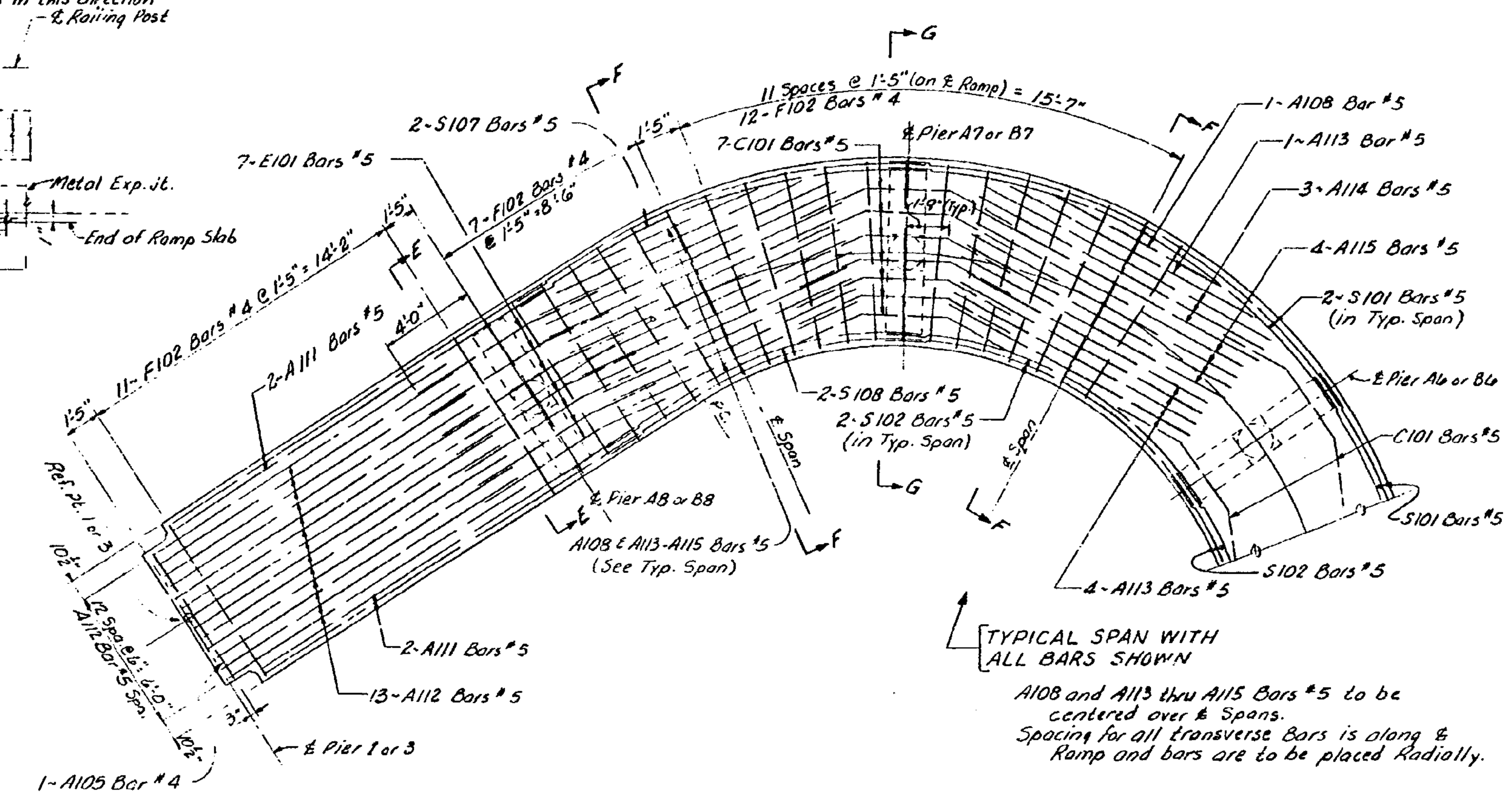
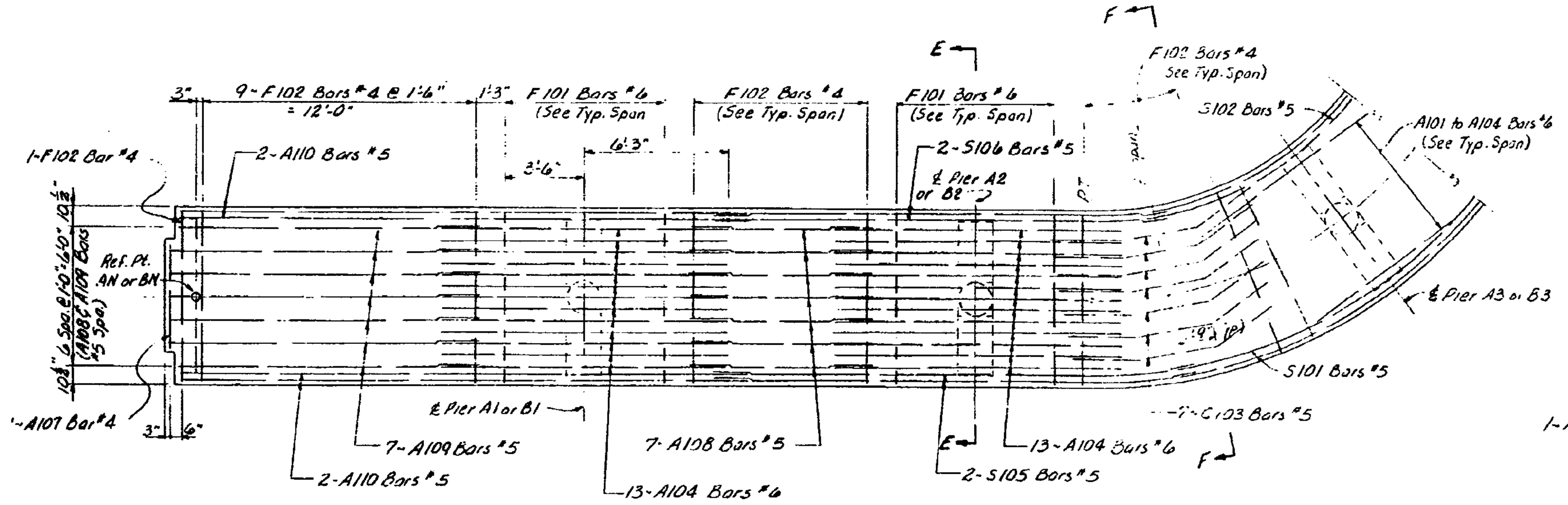
CONTROL SECTION P01 OF 63174 JOB NO. 48404A SH. NO. 8



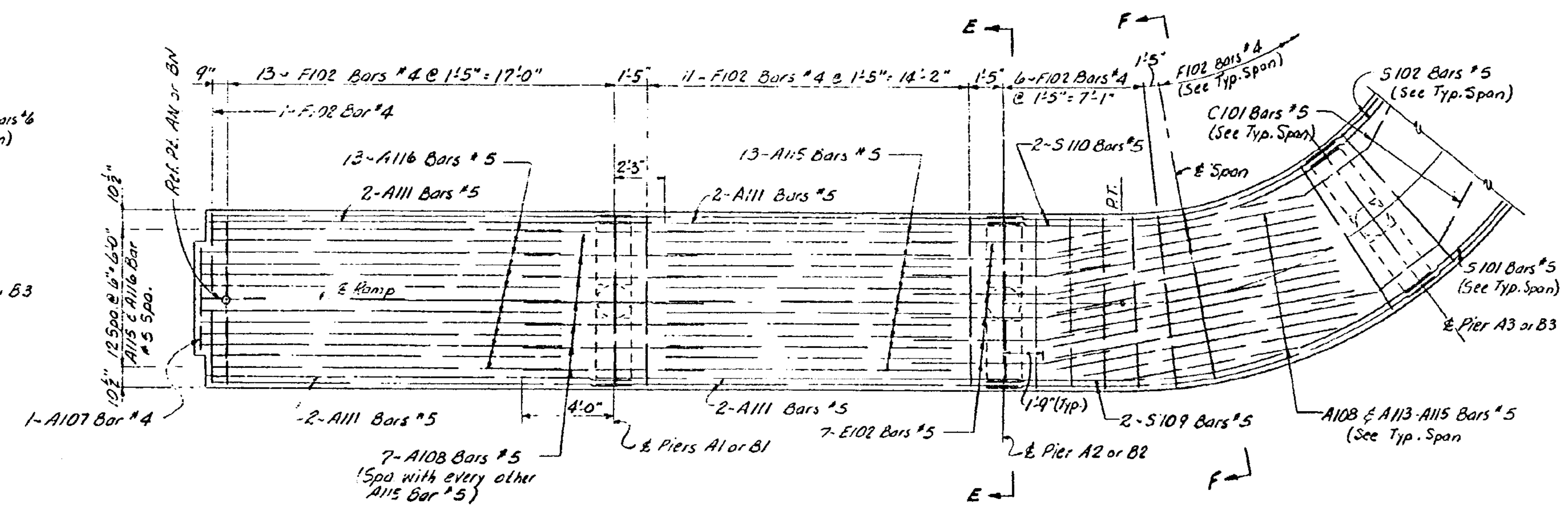


DETAIL 2

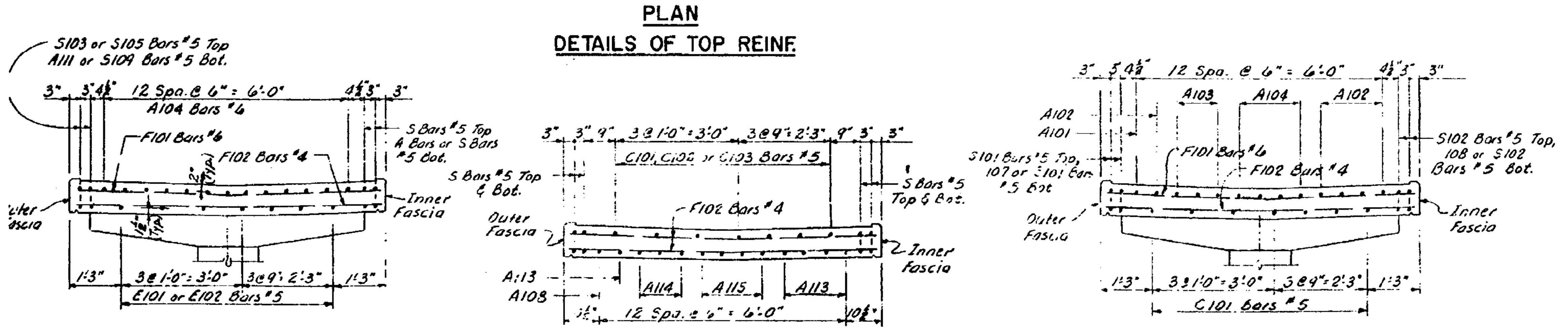




PLAN
DETAILS OF TOP REINF.



PLAN
DETAILS OF BOTTOM REINF.



SECTION F-F

SECTION G-G

*CONCRETE (CU. YDS)		
POUR	Gr.A(6A)	Gr.A(6AA)
A	9.5	
B	14.9	
C		0.5
D		0.6
E		0.8
F		0.9
G		1.0
H		1.1
J		1.2
K		1.3
L		6.0
M		11.4
N		17.6
TOTALS	24.4	42.6

Foundation Excav. 2100 C.Y.
1" Joint Filler [illegible] Sq. Ft.
H.P.R.A Type Filler 183 Lin Ft.
8" Copper Water [illegible] 11.0 Lbs.

* Concrete quantities shown are for Ramp A [illegible]

Work this sheet with sheets 143, 149 & 150

MICHIGAN STATE HIGHWAY DEPARTMENT

RAMP PIER & DECK DETAILS

TECON ENGINEERS, INC.

JSC 5-7-62
FOH
M.A.C. 4-28-62
144 312

POI OF 63174 I

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02-05-99	P01 OF 63174	48404A	MADHAVI	8 OF 16

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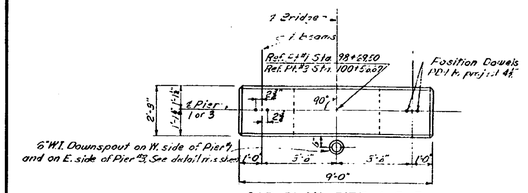
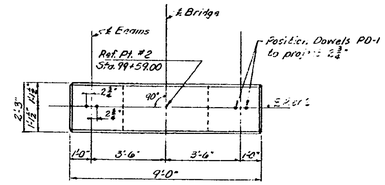
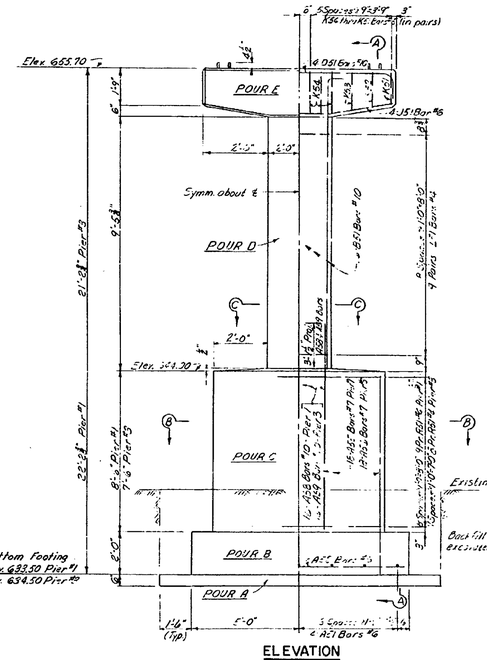
FILE NAME: p0163174sn



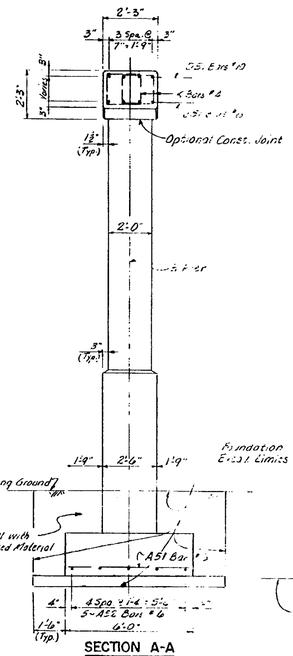
CAP PLAN PIER 1 & 3



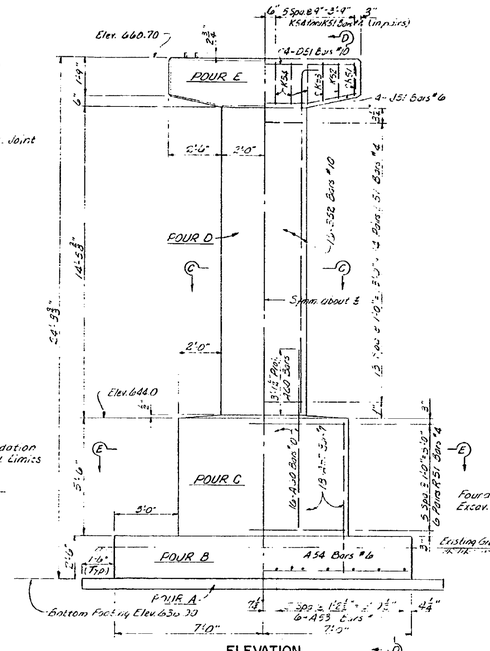
CAP PLAN PIER 2



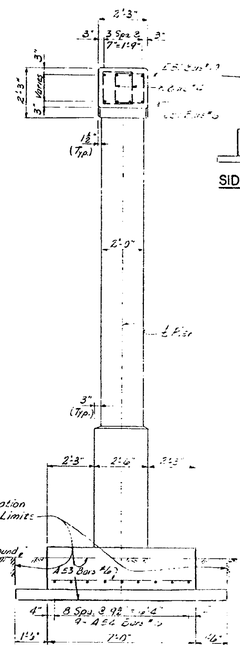
ELEVATION



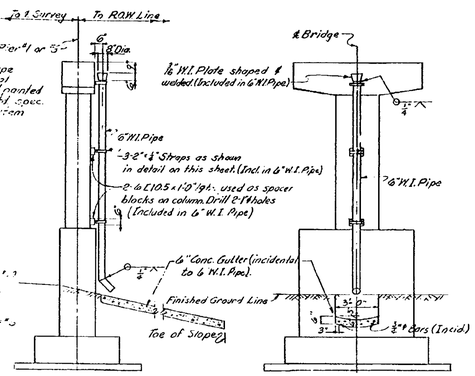
SECTION A-A



ELEVATION

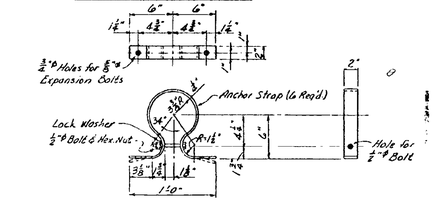


SECTION D-D



SIDE ELEVATION FRONT ELEVATION

6" DOWNSPOUT DETAILS



ANCHOR STRAP DETAILS

GENERAL NOTES

Top of Pier Shall be finished to a true plane at elevation shown and shall not vary more than 1/8" under a 10' straight edge or more than 1/4" under any bearing.

If the contractor elects to pour column and beam monolithically, the concrete pour in the column shall be stopped at the bottom of the beam for not less than 20 minutes, and not more than 30 minutes before completing the pour.

The design is based on a maximum foundation pressure of 4750 #/ft² and a maximum average foundation pressure of 2450 #/ft².

CONCRETE QUANTITIES-CU.YDS.							
POUR	LOCATION	GRADE	PIER 1	PIER 2	PIER 3	TOTAL	TOTAL EA. GRADE
A	Sub Footing	A(GA)	2.2	3.2	2.2	7.6	6.4 A(GA)
B	Footing	"	4.5	9.2	4.5	18.2	= 25.8
C	Pedestal	A(GA)	4.0	3.8	5.2	15.0	
D	Column	"	2.2	3.8	2.5	8.8	6.3 A(GA)
E	Pier Beam	"	1.6	1.6	1.6	4.8	= 28.6

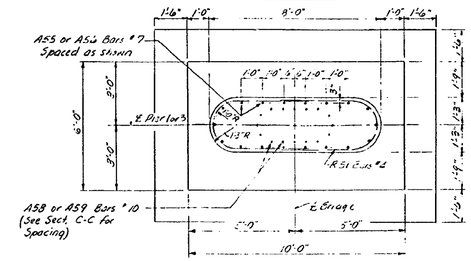
MISCELLANEOUS QUANTITIES					
ITEM	UNIT	PIER 1	PIER 2	PIER 3	TOTAL
Foundation Excavation	Cu. Yds.	17.0	13.0	17.0	47.0
6" Wrought Iron Pipe	Lin. Ft.	15.0	—	15.0	30.0

Work this sheet with sheet 16a.

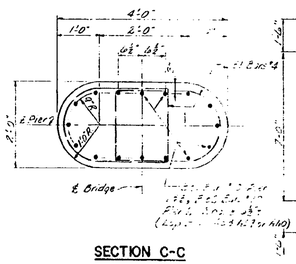
MICHIGAN STATE HIGHWAY DEPARTMENT

BRIDGE PIER DETAILS

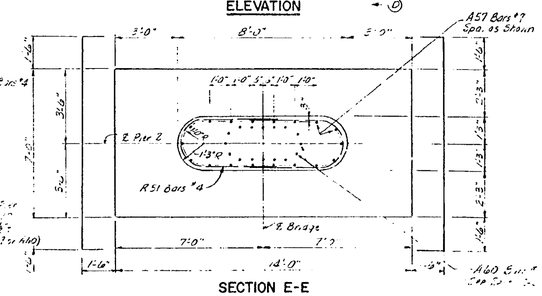
TECON ENGINEERS, INC.



SECTION B-B



SECTION C-C



SECTION E-E

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DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	9 OF 16

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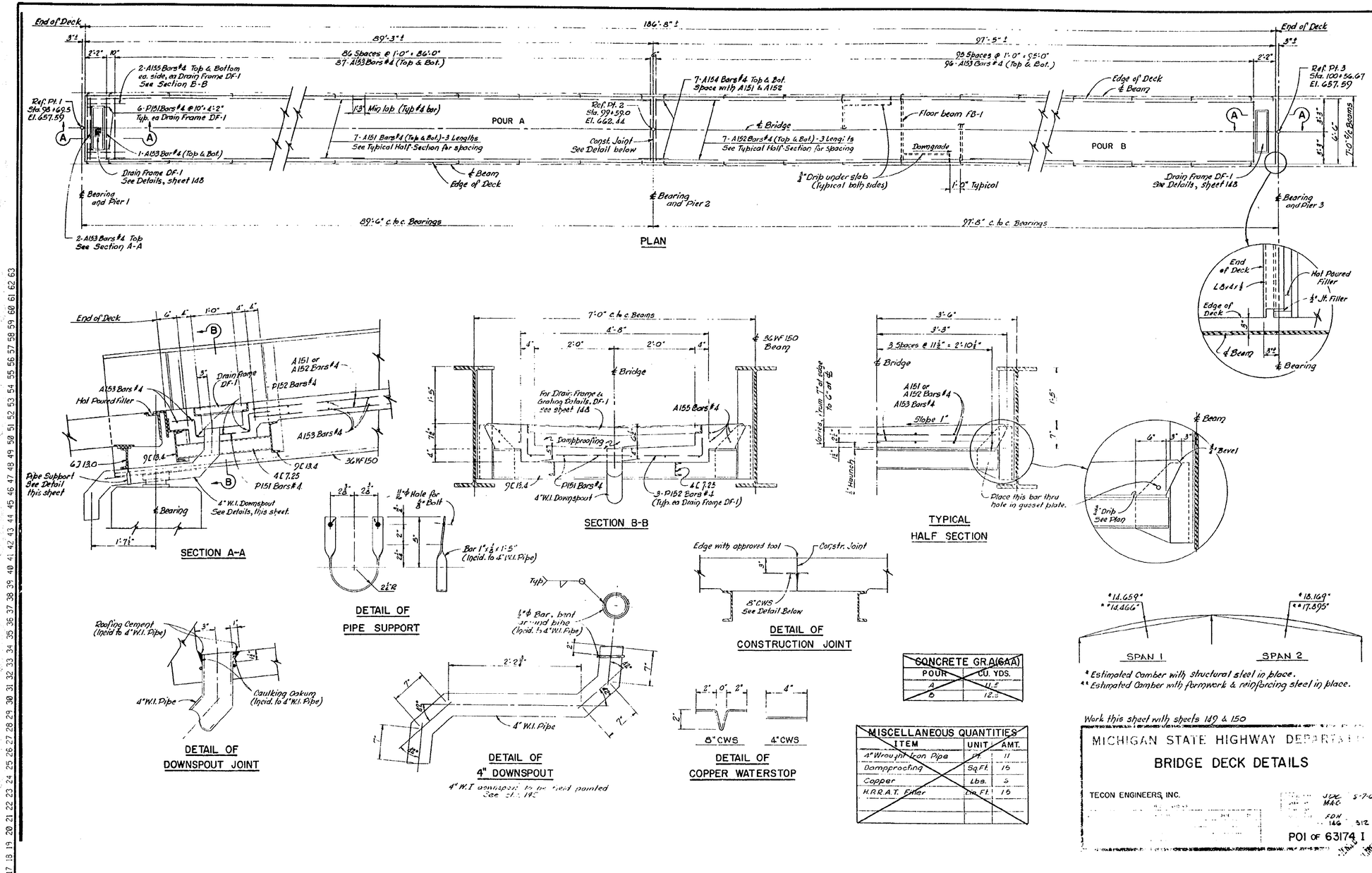
CONTROL SECTION P01 OF 63174 | JOB NO. 48404A | SH. NO. 10



CONCRETE GRADE (AA)	
POUR	CU. YDS.
A	11.5
B	12.5

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMT.
4" Wrought Iron Pipe	Ft.	11
Dampproofing	Sq. Ft.	15
Copper	Lbs.	5
H.R.R.A.T. Filler	Cu. Ft.	15

* Estimated Camber with structural steel in place.
** Estimated Camber with formwork & reinforcing steel in place.

Work this sheet with sheets 149 & 150

MICHIGAN STATE HIGHWAY DEPARTMENT

BRIDGE DECK DETAILS

TECON ENGINEERS, INC.

JDC 5-7-62
MAC
FDW
IAG 3-12

P01 OF 63174 I

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02-05-99	P01 OF 63174	48404A	MADHAVI	10 OF 16

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CONTROL SECTION P01 OF 63174 JOB NO. 48404A SH. NO. 11

REVISIONS			
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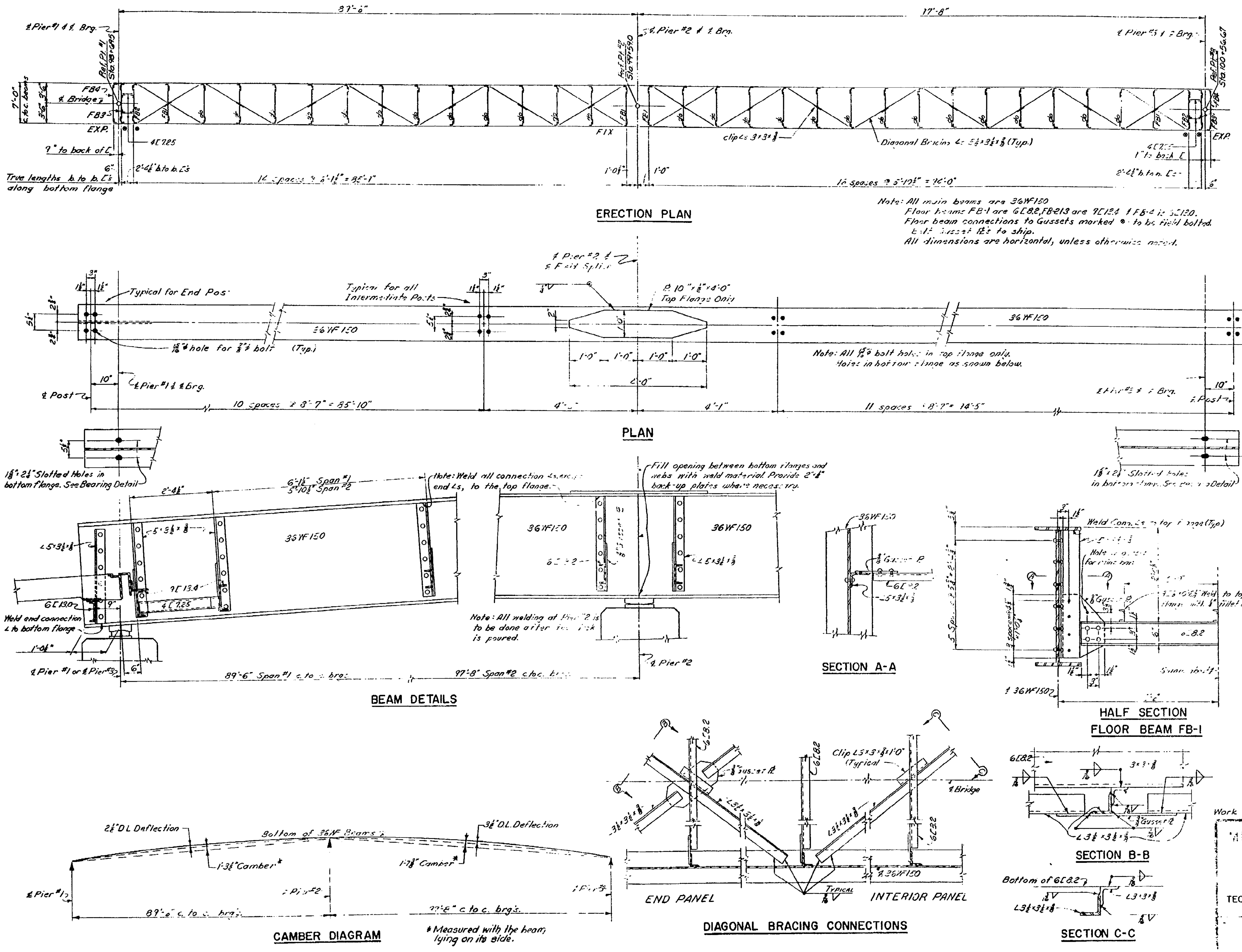

STRUCTURAL STEEL NOTES

FABRICATION: Michigan State Highway Department's Standard Specifications for Road and Bridge Construction-1960 Edition.

DESIGN: Michigan State Highway Department's Specifications for Design of Highway Bridges-1958 Edition. Live Load for main steel beams - 60#/a' and for floor beams - 85#/a'.

SHOP CONNECTIONS: All shop connections to be welded or riveted as shown on the plans.

FIELD CONNECTIONS: Field connections shall be bolted with high strength bolts except the sole plates, splices and diagonal bracing shall be welded. Where high strength bolts are used for field connections, contact surfaces shall be thoroughly cleaned immediately prior to assembly of the joint.

RIVETS OR HIGH STRENGTH BOLTS: 3/4"φ

OPEN HOLES: Open holes for rivets or high strength bolts shall be 13/16"φ unless otherwise noted.

SHOP PAINT: In addition to the shop paint provisions of the Standard Specifications, the finished surfaces of the sole plates and masonry plates shall be coated in accordance with the requirements for machine finished surfaces. The top surfaces of all floor beams and surfaces to be field welded shall receive one coat of boiled linseed oil only. Metal expansion joints shall be painted as noted on the plans.

CAMBER: The WF beams shall be cambered 1'-3½" in Span 1 and cambered 1'-7⅜" in Span 2 as shown on the Camber Diagram, this sheet. The camber is to be measured with the beam lying on its side. The allowable tolerance is ±½". Where necessary, heat is to be applied to assure permanency of camber and camber within the required tolerances.

GALVANIZING: Floor Drain Frames shall be galvanized in accordance with current A.S.T.M. Specification Designation A123.

MATERIAL: The main beams and splices shall conform to the requirements for weldable steel (A.S.T.M.-A373). All other steel shall be A.S.T.M.-A7. Self lubricating plates shall be "Lubrite" or equal. Where wrought iron materials are called for on the plans, corrosion resistant, low-alloy steels such as "Corten," "Mayari-R," "Yoloy" and "Hi-steel" may be substituted.

QUANTITIES: The quantity "Structural Steel - Furnishing & Fabricating" includes:

A7 Steel	9920 #	(Includes drains & Exp. devices)
A 373 Steel	57055	
Lubrite Pls (or equal)	125	
Total	67100 #	Structural Steel - Furnish. & Fab.
Total	67100 #	Structural Steel - Erection
Field Painting - Lump Sum		

MISCELLANEOUS MATERIAL		
Mark	No. Read	Description
B1	92	⅝"φ x 3" long Bolt / H.H. & N. & Lock washer - all Galv.
AB-1	168	⅝"φ "U" Bolts / 2-Hex. Nuts & 2-Lock washers - all Galv.
PD-1	12	1¼"φ Plain Rod x 1'-4" long.

FIELD PAINTING: Includes painting of 4" and 6" W.I. pipe. See shts 145 & 146

Work this sheet with sheet 148.

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

TECON ENGINEERS, INC.

P01 OF 63174 I

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02-05-99	P01 OF 63174	48404A	MADHAVI	11 OF 16

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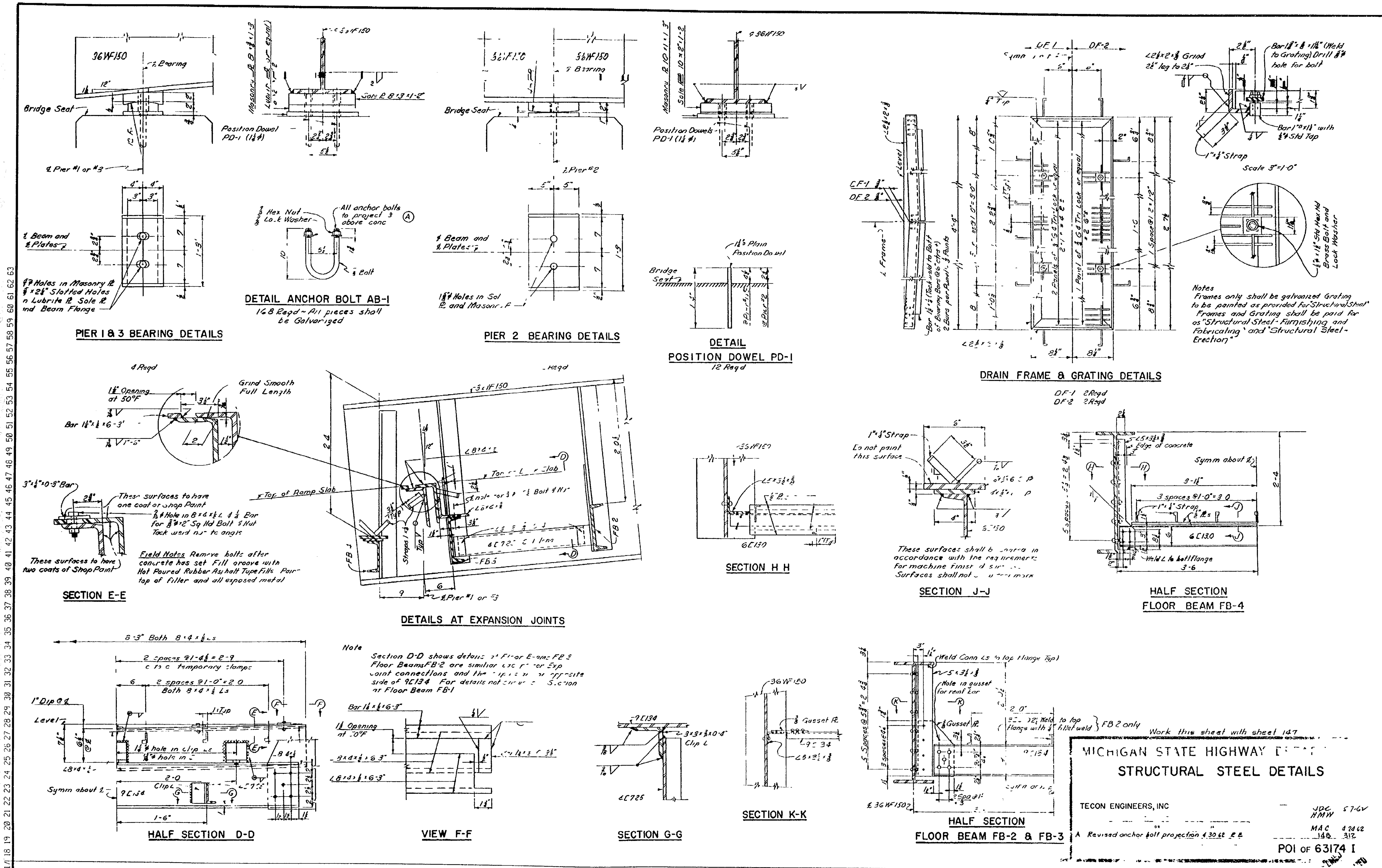

CONTROL SECTION P01 OF 63174 | JOB NO. 48404A | SH. NO. 12

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02-05-99	P01 OF 63174	48404A	MADHAVI	12 OF 16

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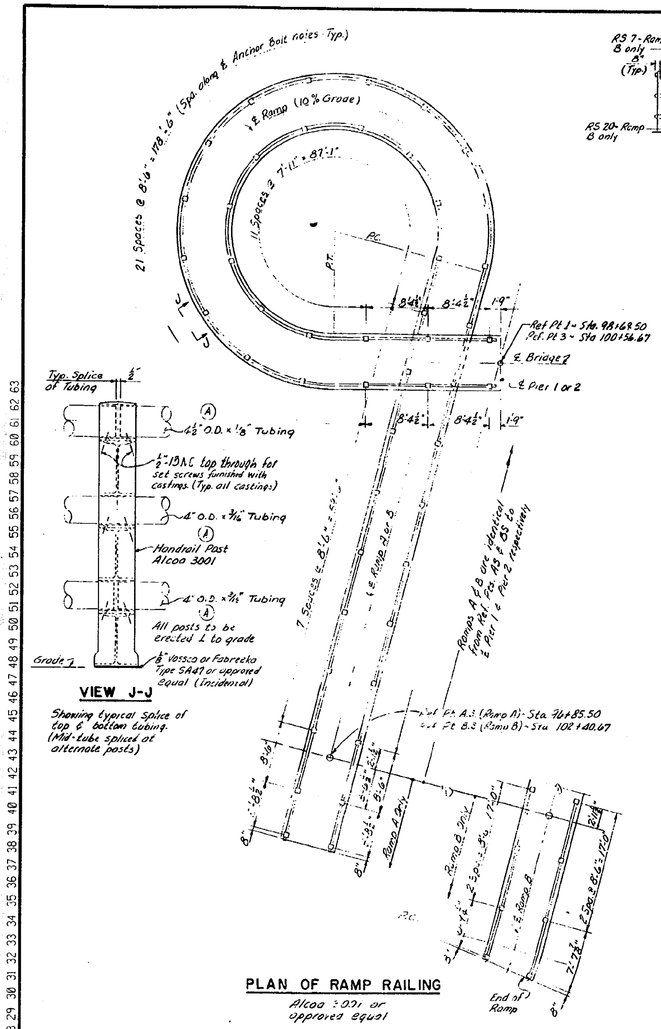
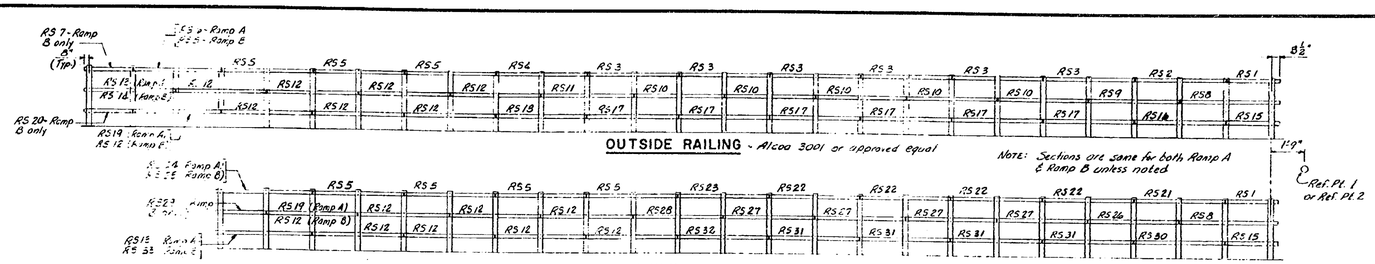


PLAN OF RAMP RAILING

Alcoa 3001 or approved equal

VIEW J-J

Showing typical splice of top & bottom tubing. (Mid-tube spliced at alternate posts)



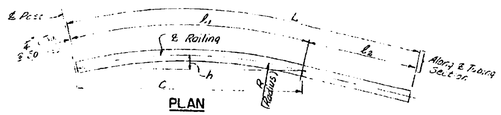
OUTSIDE RAILING - Alcoa 3001 or approved equal

Note: Sections are same for both Ramp A & Ramp B unless noted

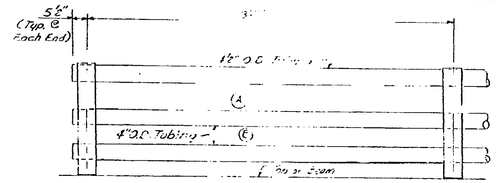
INSIDE RAILING - Alcoa 3001 or approved equal

NOTE: All Posts to be erected perpendicular to Grade.

DEVELOPED VIEW OF RAMP RAILING SHOWING TUBE SECTIONS

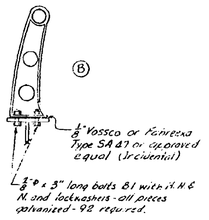


PLAN



TYPICAL PANEL - BRIDGE RAILING

Alcoa 3001 or approved equal



* RAMP TUBE SECTIONS (ALCOA 3001)

MARK	TUBE SIZE	NO. REQ'D	L	R	C	h	l_1	l_2
RS 1	4"	4	8'-8"	—	—	—	—	—
RS 2		2	16'-10⅜"	21'-3 7/16"	5'-11 7/16"	18"	3'-11⅝"	12'-11"
RS 3		12	16'-10⅜"	"	16'-5⅝"	1'-7⅜"	—	—
RS 4		1	17'-7½"	—	9⅝"	6"	8⅜"	16'-3⅜"
RS 5		13	17'-7½"	—	—	—	—	—
RS 6		1	14'-11⅜"	—	—	—	—	—
RS 7		1	5'-3⅜"	23'-0 15/16"	3'-2 1/16"	11/16"	3'-2⅜"	5'-1 1/16"
RS 8		1	17'-1"	—	—	—	—	—
RS 9		1	17'-0 11/16"	21'-6"	2'-4½"	10⅜"	18'-1 7/16"	4'-6"
RS 10		1	17'-0⅜"	"	16'-7⅜"	1'-8"	—	—
RS 11		1	17'-7 11/16"	"	7'-2⅜"	6"	7'-3⅜"	7'-1 3/16"
RS 12		50	17'-7½"	—	—	—	—	—
RS 13	4"	1	5'-4⅜"	—	—	—	—	—
RS 14		1	17'-10⅜"	23'-3"	2'-2 1/16"	11/16"	3'-2⅜"	15'-3⅜"
RS 15		1	3'-5"	—	—	—	—	—
RS 16		1	16'-11⅜"	21'-7⅜"	4'-0 1/16"	18"	4'-0⅜"	1'-11"
RS 17		1	17'-3"	"	16'-8 1/16"	6"	—	—
RS 18		1	17'-3½"	"	9 1/16"	3/16"	8⅜"	16'-3⅜"
RS 19		1	14'-11⅜"	—	—	—	—	—
RS 20		1	5'-3 1/16"	23'-4⅜"	3'-3⅜"	11/16"	3'-2⅜"	5'-1 1/16"
RS 21		1	16'-4⅜"	15'-7 1/16"	3'-5⅜"	3/16"	3'-5⅜"	12'-11"
RS 22		1	16'-0⅜"	"	15'-5⅜"	3/16"	—	—
RS 23		1	15'-1 5/16"	"	5'-1 1/16"	13"	8'-5⅜"	7'-9 5/16"
RS 24		1	[illegible]	—	—	—	—	—
RS 25		1	14'-0⅜"	16'-11 7/16"	2'-2⅜"	3/16"	2'-4 7/16"	3'-8 3/16"
RS 26		1	15'-12⅜"	15'-0"	11'-1⅜"	1'-0⅜"	11'-4⅜"	4'-2"
RS 27		6	12'-1⅜"	"	8'-1⅜"	2'-0⅜"	—	—
RS 28		1	14'-5⅜"	"	3'-3⅜"	3"	13"	14'-3⅜"
RS 29		1	7'-5 3/16"	16'-9"	2'-3⅜"	3/16"	2'-3⅜"	5'-1 1/16"
RS 30		1	3'-3 15/16"	14'-0⅜"	3'-4⅜"	3/16"	3'-4 5/16"	2'-11"
RS 31		1	[illegible]	"	5'-0⅜"	3/16"	—	—
RS 32		6	[illegible]	"	7'-11 7/16"	6 1/16"	8'-0⅜"	[illegible]
RS 33		1	15'-11 15/16"	15'-7⅜"	2'-3⅜"	3/16"	2'-3⅜"	13'-3 3/16"

*NOTE: Tubes are to be bent in the shop to conform to the required radius for the curved portions of the ramp.

QUANTITIES

Ramp Railing - Alcoa 3001 or approved equal - 802.2 Lin. Ft.
Bridge Railing - Alcoa 3001 or approved equal - 379.5 Lin. Ft.

NOTE: All railing tube shall be spliced within posts. All posts are to have approved test coupon cast integrally with the base.
Ⓐ The anchor bolts for both the two-tube and the three-tube railing are included in the bid items Structural Steel-Furnishing and Fabricating and Structural Steel-Erection.

MICHIGAN STATE HIGHWAY DEPARTMENT

HANDRAIL DETAILS

TECON ENGINEERS, INC.

A Added Tube Thickness 7-30-62 R.E.
6 Changed from 2001 to 3001 tube railing on Bridge 5-24-64 A.F.B.

JDC 5-1-62
RAY
NAC 5-3-62
149 312

P01 OF 63174 I

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

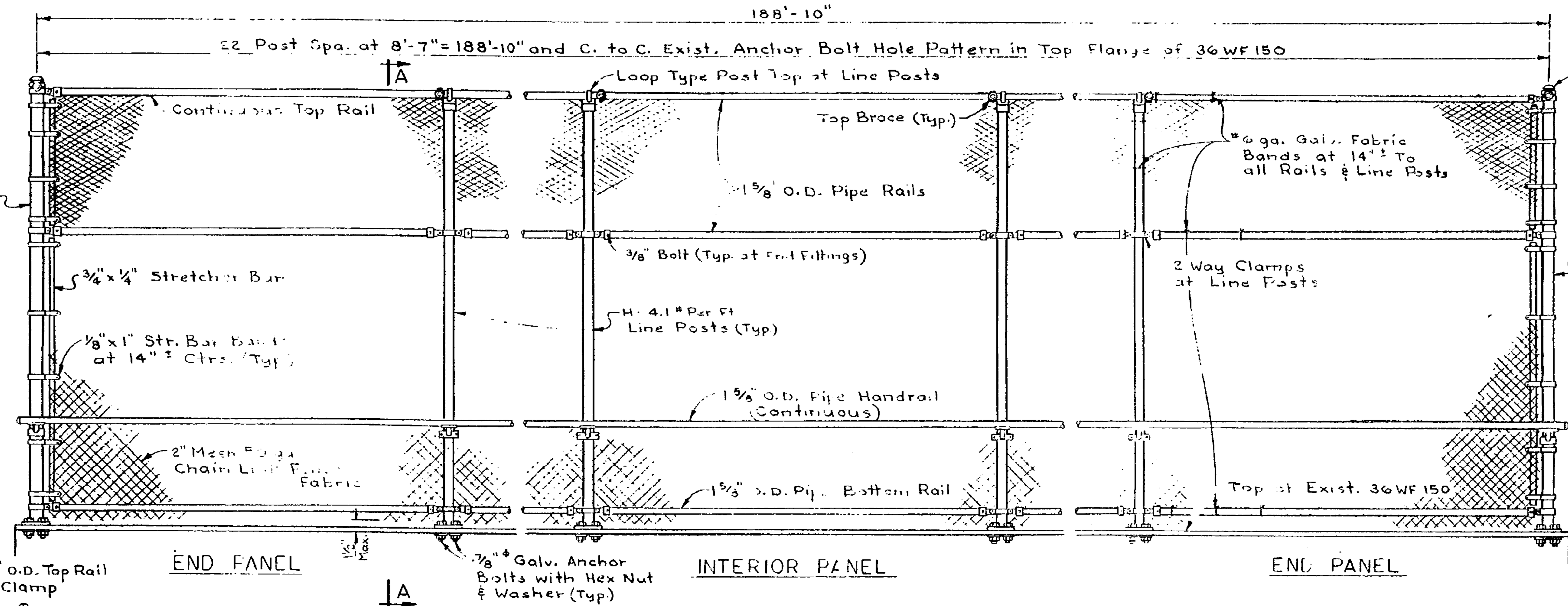
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	13 OF 16

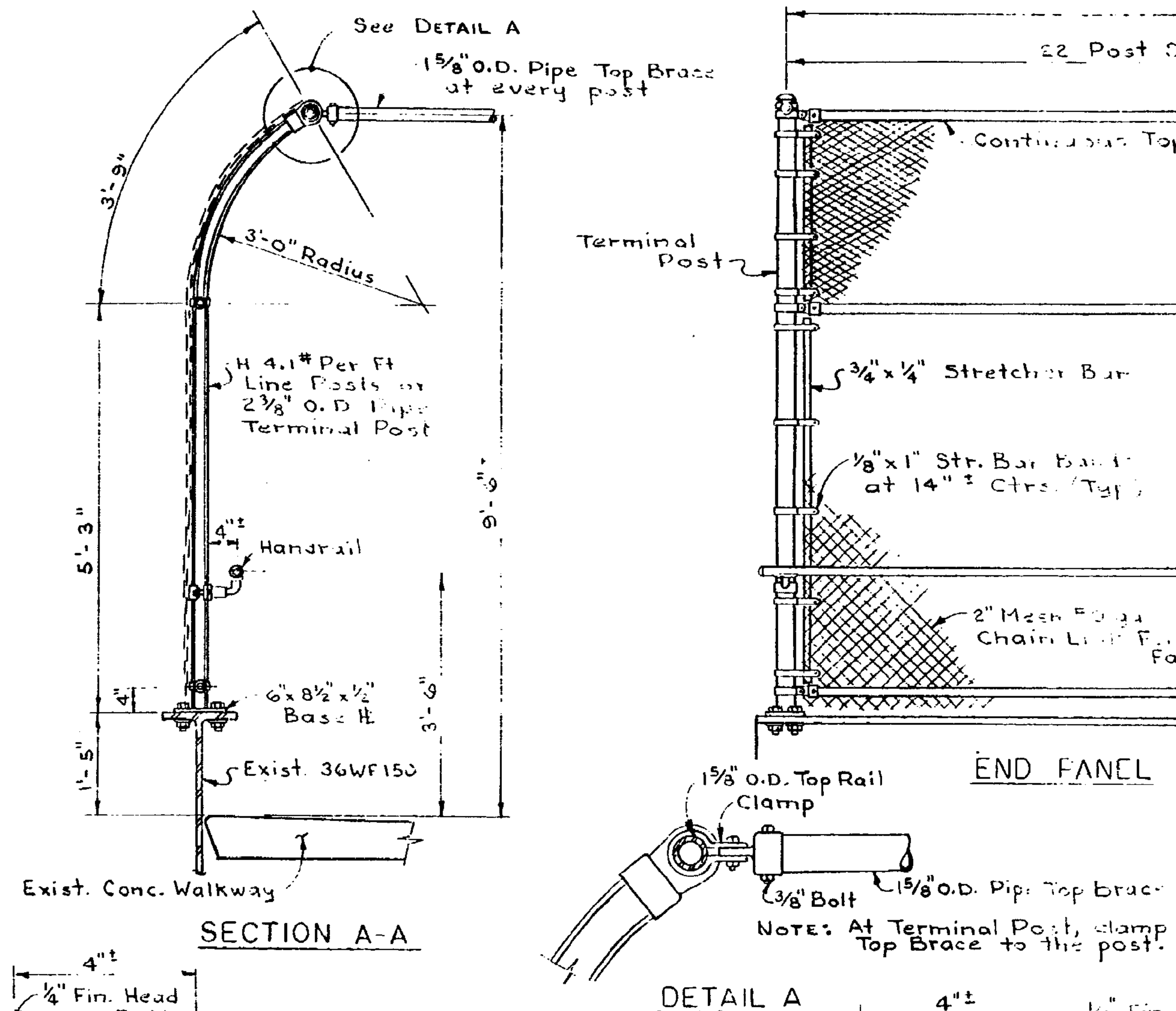
REVISIONS

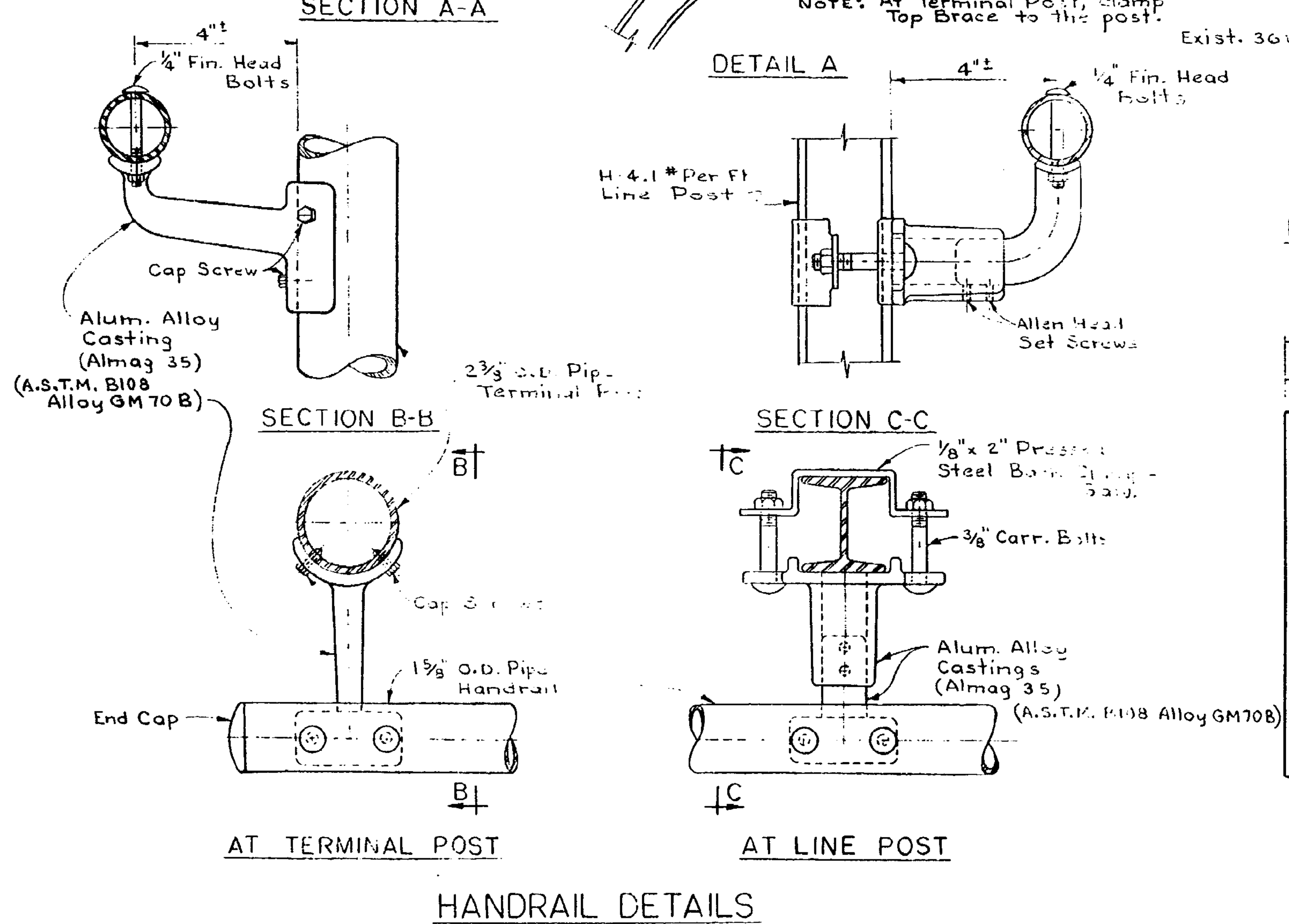
NO.	DESCRIPTION	DATE	BY

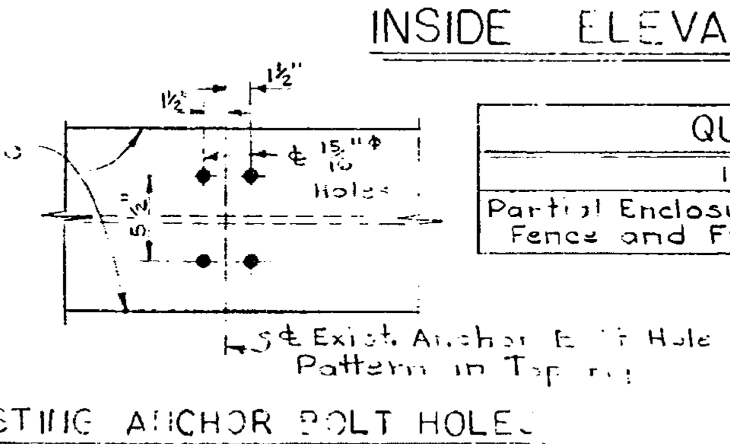
DATE: DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: indar FILE NAME: p0163174sn

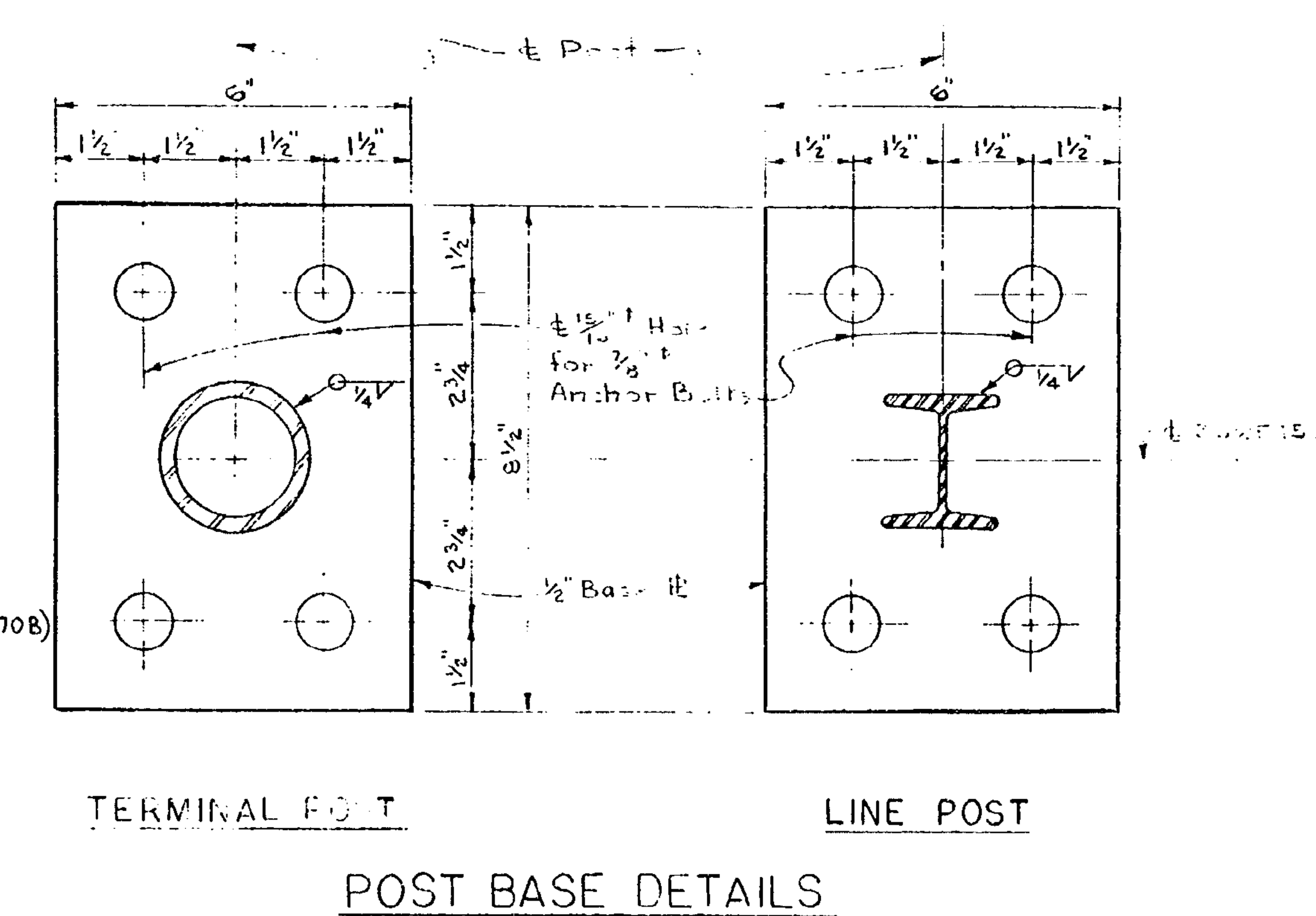
CONTROL SECTION P01 OF 63174 | JOB NO. 48404A | SH. NO. 14











QUANTITIES		
ITEM	UNIT	AMT.
Partial Enclosure Chain Link Fence and Framing	Lin.Ft.	377.7

NOTES

The Chain Link Fence Enclosure shall conform to the M.D.S.H. Standard Specifications except as shown on these plans.

2 3/8" O.D. pipe shall be 2.375" outside diameter steel pipe or tubing weighing 3.65 lbs. per ft., galvanized. 1 5/8" O.D. pipe shall be 1.660" outside diameter steel pipe or tubing weighing 2.27 lbs. per ft., galvanized. The H-posts shall be 2 1/4" x 2" H Beam weighing 4.1 lbs. per ft., galvanized. The Chain Link Fence Fabric shall be #9 gage - 2" Mesh Aluminum or Zinc coated steel wire.

All tubing and H-posts shall be furnished with suitable connections and its minimum weight shall be within 5% of that specified.

The post base plates, anchor bolts, hand rail supports, end caps and other fittings are incidental to the Chain Link fence enclosure.

All components are to be galvanized after fabrication. Bolts, nuts and washers to be galvanized in accordance with A.S.T.M. designation A-153.

The enclosure posts are to be placed vertically.

All fabric for chain link fence shall be furnished with knuckling at both selvages.

Steel in anchor bolts may be A.S.T.M. A-307.

Touch up the top flange of the existing WF beams, in the vicinity of the post base plates, with a commercial grade aluminum paint. (Incidental)

Peen all 3/8" bolts.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SCREENING DETAILS

Rieger 2-26-70 | W.L. 2-13-70 | JOB 4 - 4 | P01 of 63174 C

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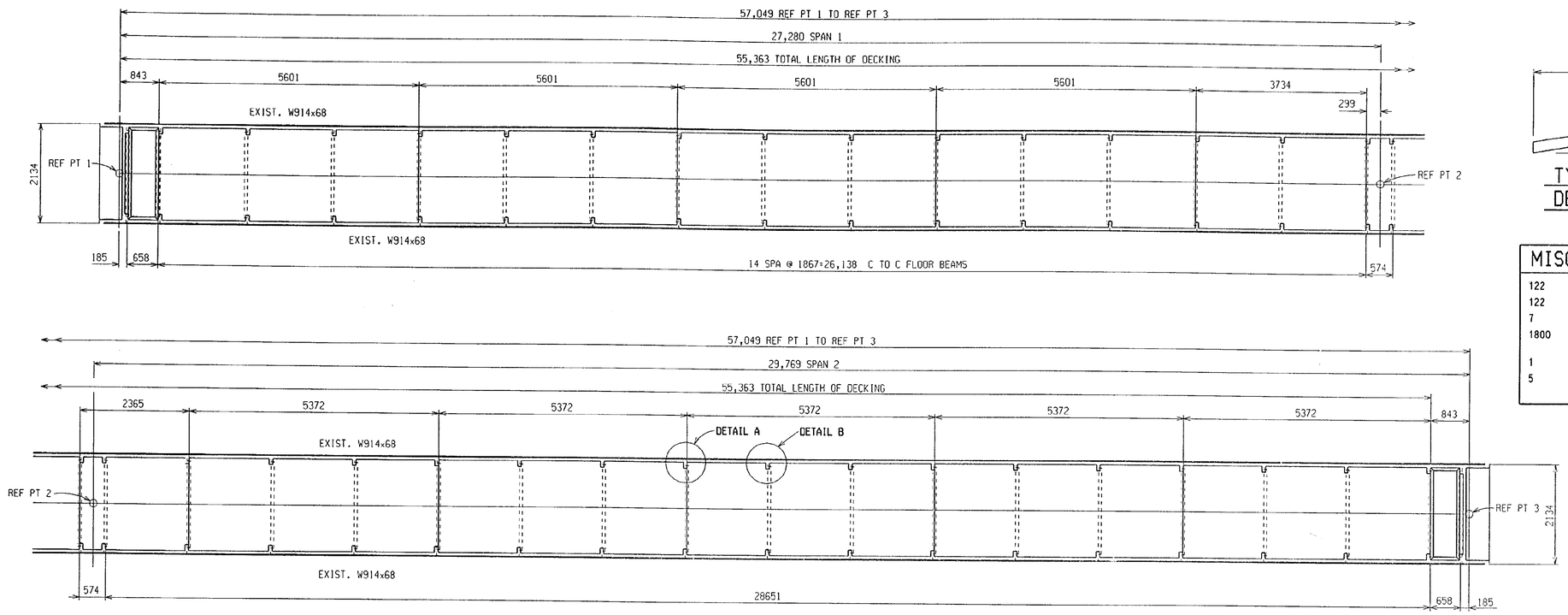
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
02-05-99	P01 OF 63174	48404A	MADHAVI	14 OF 16

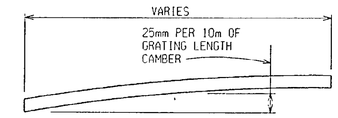
FILE NAME: p0163174sn
DRAWN BY: CHECKED BY: CORRECTED BY: DATE:

CONTROL SECTION P01 OF 63174 JOB NO. 48404A SH. NO. 15

REVISIONS			
NO.	DESCRIPTION	DATE	BY



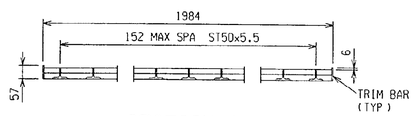
PLAN OF DECK



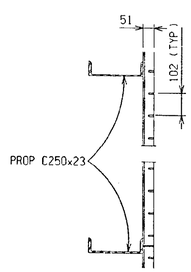
TYPICAL ELEVATION OF DECK GRATING SECTION

MISCELLANEOUS QUANTITIES

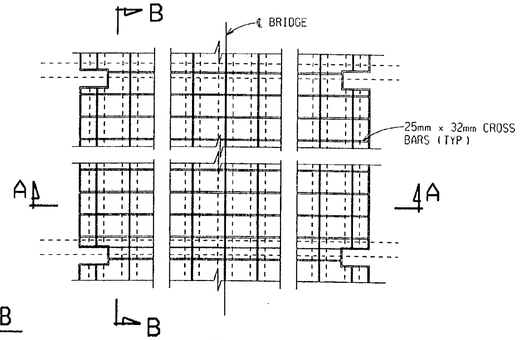
122	m2	Deck Grating, Furnishing
122	m2	Deck grating, Erecting
7	m3	Patching Mortar or Conc
1800	kg	Structural Steel, Retrofit, Furn, Fab, and Erect
1	LS	Field Repair of Damaged Coating (P01)
5	m	Expansion Joint Device



SECTION A-A

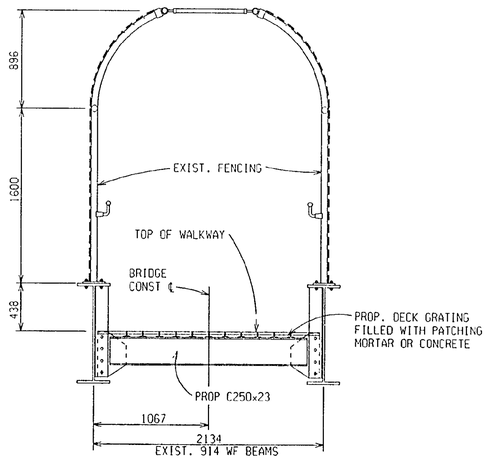


SECTION B-B



PLAN

PROP DECK GRATING DETAILS



DECK SECTION

NOTES:

THE PROPOSED DECK SHALL BE MORTAR FILLED STEEL GRATINGS AS DETAILED ON THESE PLANS.

DECK GRATING AND ALL APPURTANCES ARE TO BE HOT-DIPPED GALVANIZED AS PER STANDARD SPECIFICATIONS, SECTION 707.03C.

DECK GRATING IS TO BE FILLED WITH PATCHING MORTAR OR CONCRETE FLUSH WITH THE TOP OF GRATING SECTION AND CROSS BARS.

DIMENSIONS ASSOCIATED WITH EXISTING STRUCTURAL STEEL ARE FROM THE EXISTING DETAIL SHEETS. THE CONTRACTOR SHALL VERIFY THESE DIMENSIONS ON THE ACTUAL STRUCTURE PRIOR TO FABRICATING ANY PROPOSED STRUCTURAL ELEMENTS.

DECK GRATING AND ALL APPURTANCES SHALL BE CONSTRUCTED FROM ASTM A36 STEEL, SHALL BE AS MANUFACTURED BY IKG GREULICH, LB FOSTER, UNITED INTERLOCK, OR APPROVED EQUAL, AND SHALL BE ABLE TO SPAN A MINIMUM OF 2134mm, WITHSTANDING A LIVE LOAD OF 488 Kg/m2 WITH A MAXIMUM ALLOWABLE DEFLECTION OF 1/800.

EXPANSION JOINT SHALL BE PROVIDED AT PIERS 1 AND 3 AND SHALL BE DESIGED FOR THE SPECIFIC DECK GRATING SYSTEM USED, AS APPROVED BY THE ENGINEER. NO OPENING SHALL BE ALLOWED AND A SMOOTH RIDING SURFACE SHALL BE MAINTAINED. PAID FOR AS "EXPANSION JOINT DEVICE".

THE EXPANSION JOINT DEVICE SHALL PROVIDE A MIMIMUN TOTAL TRAVEL OF 32mm.

ALL EXISTING EXPOSED REINFORCEMENT SHALL BE EMBEDDED INTO THE NEW CONCRETE, AS DIRECTED BY THE ENGINEER.

BLAST CLEAN AND PRIME FAYING SURFACES PRIOR TO ERECTING DIAPHRAGMS AND BENT PLATES. THIS WORK IS INCLUDED IN THE PAY ITEMS FOR CLEANING AND COATING EXISTING STRUCTURAL STEEL.

MDOT Michigan Department of Transportation

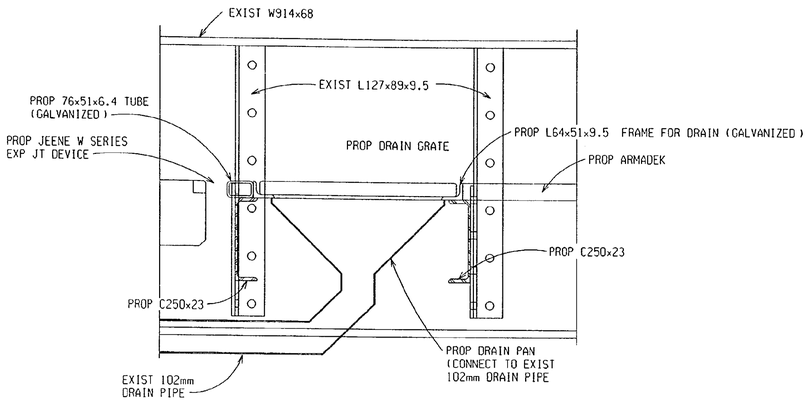
SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
9-21-99	P01 OF 63174	48404A	MAHDAVI	15 OF 16

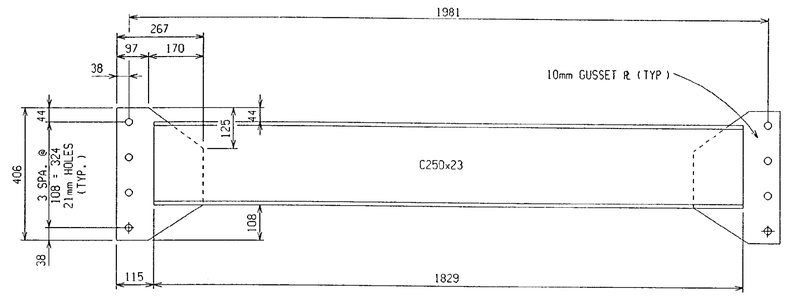
DATE: 10-18-99 CORRECTED BY: R. PRATT DATE: CHECKED BY: DATE: 9/99 DRAWN BY: R.K.OLIN FILE NAME: p0163174.dk

CONTROL SECTION P01 OF 63174 JOB NO. 48404A SH. NO. 16

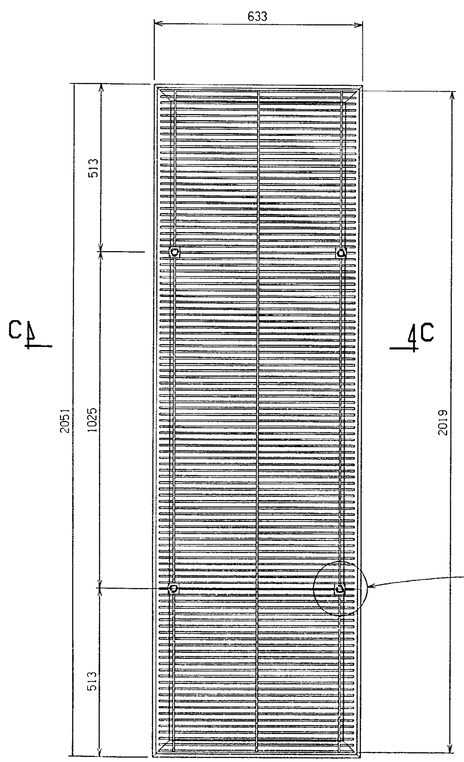
REVISIONS			
NO.	DESCRIPTION	DATE	BY



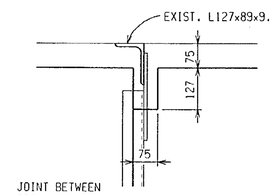
SECTION AT DRAIN



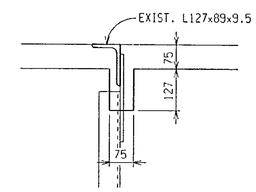
FLOOR BEAM DETAILS



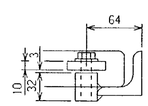
DRAIN DETAILS

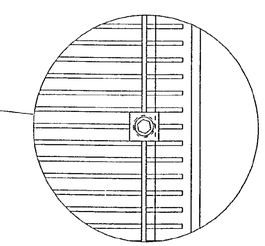


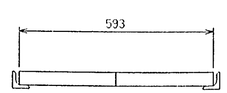
DETAIL A



DETAIL B







SECTION C-C

NOTES:

DRAIN CASTINGS SHALL BE GRAY IRON CASTINGS IN ACCORDANCE WITH ASTM A48, CLASS 35B.

STEEL FOR BRACKETS AND CONNECTION FRAME SHALL BE ASTM A36, GALVANIZED.

FASTENERS SHALL MEET THE REQUIREMENTS OF ASTM A307, GALVANIZED.

WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844, GALVANIZED

GALVANIZING SHALL BE BY THE HOT DIP PROCESS IN ACCORDANCE WITH SECTION 7.07 OF THE 1996 STANDARD SPECIFICATIONS. ALL FABRICATION SHALL BE COMPLETED BEFORE GALVANIZING.

ALL WORK FOR DRAIN CASTINGS SHALL BE INCLUDED IN THE PAY ITEM "STRUCTURAL STEEL, RETROFIT FURN, FAB AND ERECT".

MDOT Michigan Department of Transportation

SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
9-21-99	P01 OF 63174	48404A	MAHDAVI	16 OF 16

DATE: 10-18-99 CORRECTED BY: R. PRATT DATE: CHECKED BY: DATE: 9/99 DRAWN BY: R.K.OLIN FILE NAME: p0163174.dk

CONTROL SECTION S04 OF 63103 | JOB NO. 48404A | SH. NO. 2

WITNESSES TO TRANSIT PTS.

Sta. 801+00 H.C.P. #34
N 30°W 195.3' Light Pole
N 22°E 216.4' Light Pole
S 27°W 109.5' Light Pole

Sta 805+00 H.C.P. #35
N 51°W 117.9' Light Pole
N 71°E 106.2' Light Pole
N 06°E 93.3' 25'x4' Conc.

Sta 809+00 H.C.P. #36
S 57°W 93.3' Light Pole
S 04°W 52.9' P. Pole
S 63°E 120.8' Light Pole

Curve Data Const. ℄ I-75	Curve Data Service Rd. W-S	Curve Data Service Rd S.E.	Curve Data Ramp CD	Curve Data Ramp EB
Δ = 08°-14'-32" Rt.	Δ = 46°-08'-43" Rt.	Δ = 44°-47'-08" Rt.	Δ = 01°-45'-51" Lt.	Δ = 08°-07'-57" Lt
D = 00°-15'-25"	D = 6°00'00"	D = 6°-00'-00"	D = 00°-15'-25"	D = 03°-45'-00"
R = 22,298.90'	R = 954.93'	R = 954.93'	R = 22,298.90	R = 1527.89'
T = 1606.66'	T = 406.77'	T = 393.45'	T = 343.32'	T = 108.62'
L = 3207.78	L = 769.09	L = 746.43'	L = 686.59'	L = 216.87'
E = 57.81	E = 83.03'	E = 77.88'	E = 2.64'	E = 3.86'
PC = 782+20.01	P.C. = 546+75.40	P.C. = 544+27.57	P.C. = 556+80.09	P.C. = 560+66.03
P.I. = 798+26.67	P.I. = 550+82.17	P.I. = 548+21.02	P.I. = 560+23.41	P.I. = 561+74.65
P.T. = 814+27.79	P.T. = 554+44.49	P.T. = 551+74.00	P.O.E. = 563+66.68	P.T. = 562+82.90

BENCH MARKS

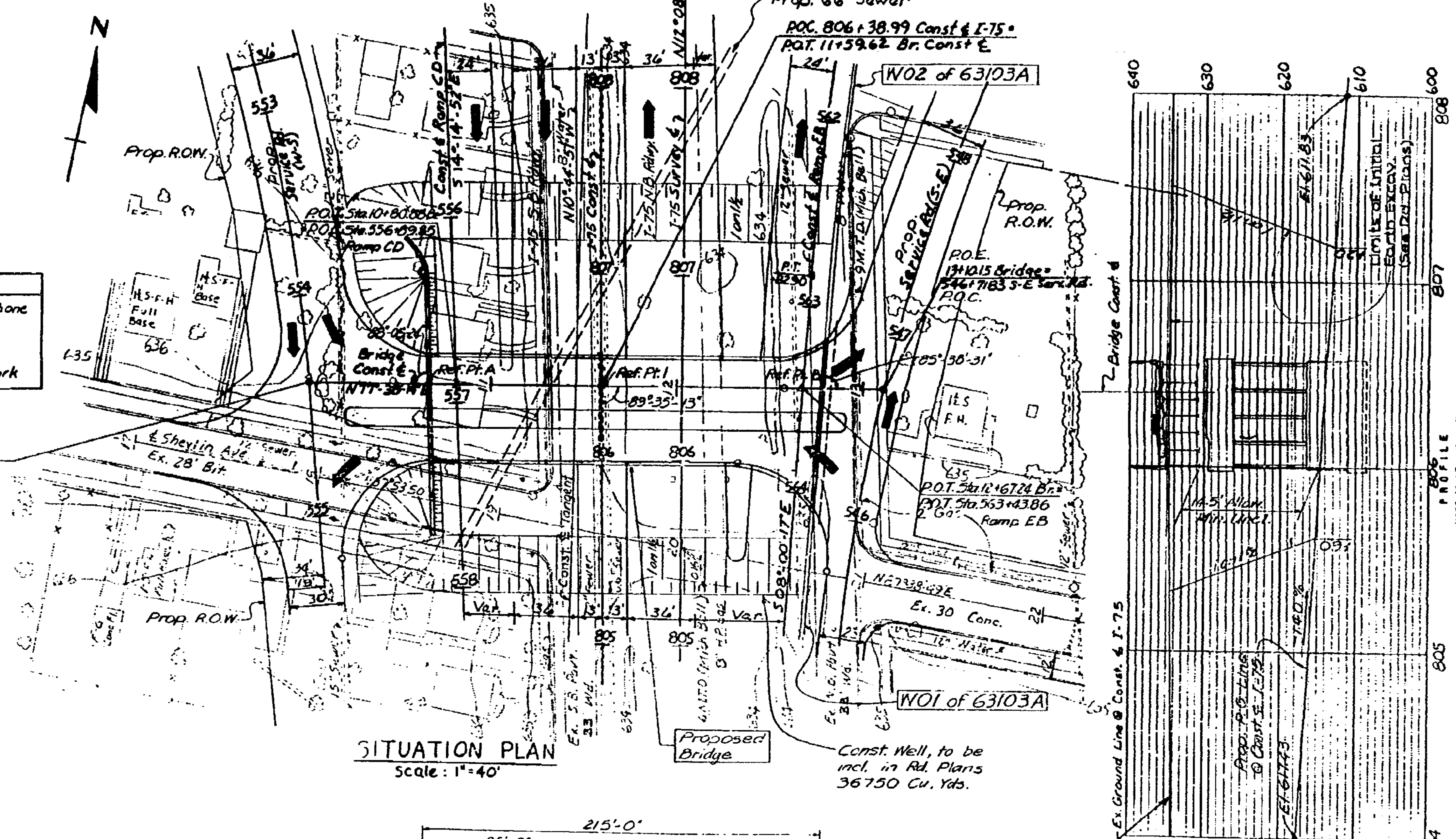
B.M. #83 El. 636.83
Top of Arrow on fire hydrant. S.E. Cor. Stephenson & Kenneth 86' Rt. Sta. 819+09

B.M. #84 El. 636.93
Top of Arrow on fire hydrant. S.E. Cor. Coy & Stephenson 118' Rt. Sta. 807+80

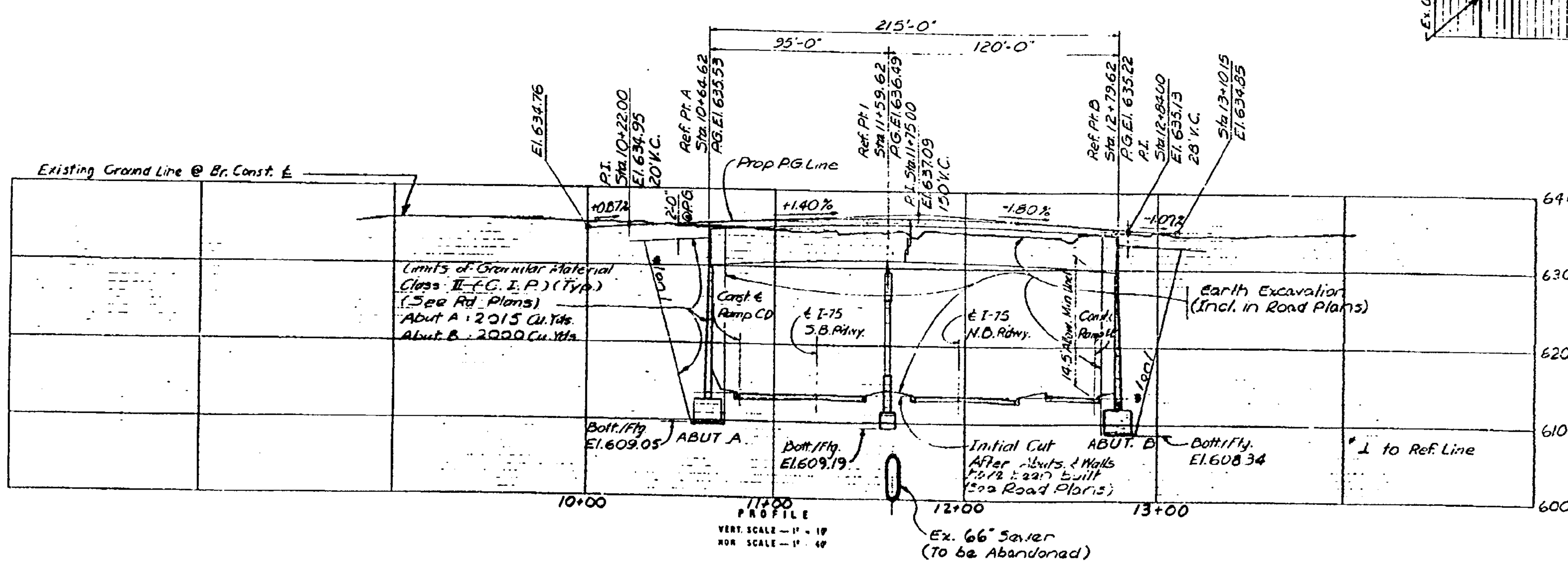
B.M. #85 El. 637.17
Top of Arrow on fire hydrant S.E. Cor. Morehouse & Stephenson 137' Rt. Sta. 793+92

UTILITIES

Telephone - Michigan Bell Telephone
Gas - Consumers Power Co.
Power - Detroit Edison Co.
66" Sewer - Oakland County
Water & Sewer - City of Hazel Park

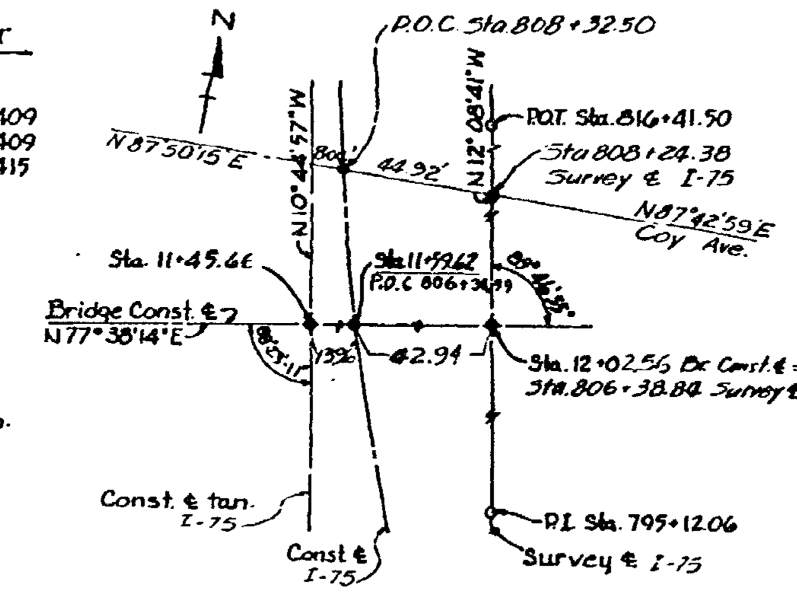


SITUATION PLAN
Scale: 1" = 40'



WITNESSES TO ALIGNMENT

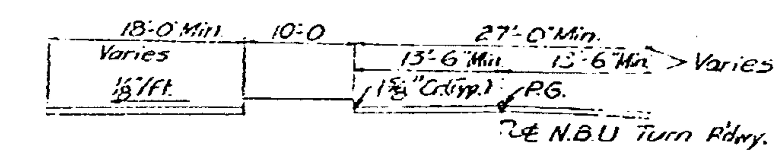
P.I. Sta. 828+48.07
P.K. Nail
N 55°E 74.78' N.W. Cor. Bldg. #1409
N 77°E 63.10' S.W. Cor. Bldg. #1409
S 60°E 85.04' S.W. Cor. Bldg. #1415
P.O.T. Sta. 816+41.50
P.K. Nail
N 2°W 62.08' N.&C. - G.P.
N 54°E 87.57' N.&C. - G.P.
S 63°E 89.22' N.&C. - G.P.
P.I. Sta. 795+12.06
Boat Spike N.E. Corner
N 76°W 55.25' Bldg. #24207
S 53°W 56.58' N.&C. - L.P.
S 18°W 113.25' N.&C. - Tw. 12" Elm.



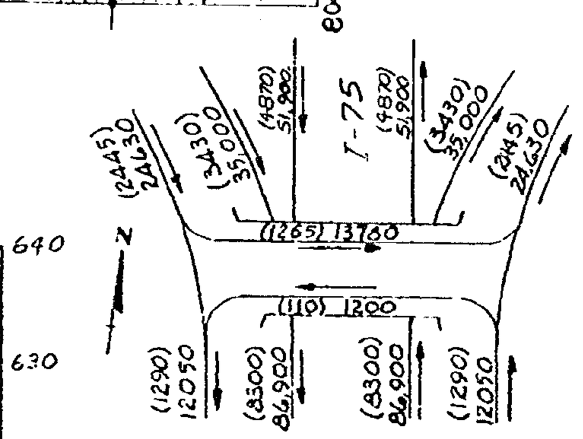
ALIGNMENT DIAGRAM

Construction Sequence

Construct Abut. A.
Remove Old N.B. Pavement.
Construct Abut. B.
Construct Ret. Wall W01 & W02 of 63103A.
Complete Construction of Bridge.



APPROACH SECTION
(Looking West)
Scale: 3/32" = 1'-0"



1990 ESTIMATED TRAFFIC DISTRIBUTION

00000 - 1990 Average Daily Traffic
(0000) - 1990 Design Hour Volume

NOTES:

This bridge is part of an interchange and all area shown is within M.D.S.H. R.O.W.

The work covered by these plans includes construction of the proposed bridge, placing slope protection to the limits shown and [illegible] X-Concrete to the limits noted. [illegible] Plans which are 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.

Removal of buildings is not a part of this contract.

Shevlin Ave. traffic is to be detoured over the Exist. Streets.

The Detroit Edison Co. power lines in the vicinity of the proposed structure will be relocated or removed.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN STATE HIGHWAY DEPARTMENT

SHEVLIN DOUBLE U TURN OVER I-75 IN THE CITY OF HAZEL PARK

GENERAL PLAN OF SITE

APPROVED Laurence O. Chick 6-5-69 ASS'T SUPERVISOR-DESIGN
APPROVED C. Trakas 6.5.69 SUPERVISOR-DESIGN

Sheet 2 of 22
S04 of 63103A

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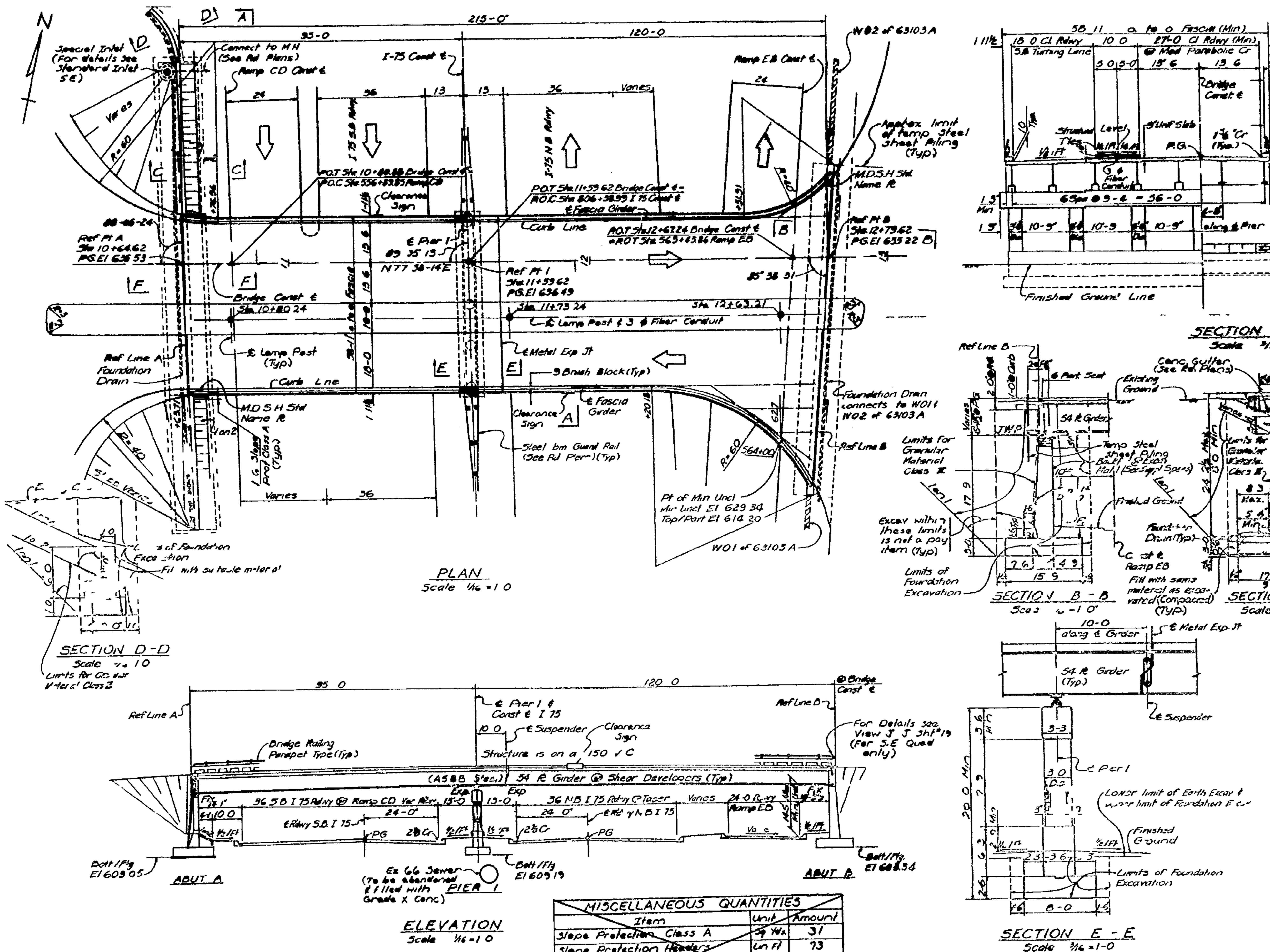
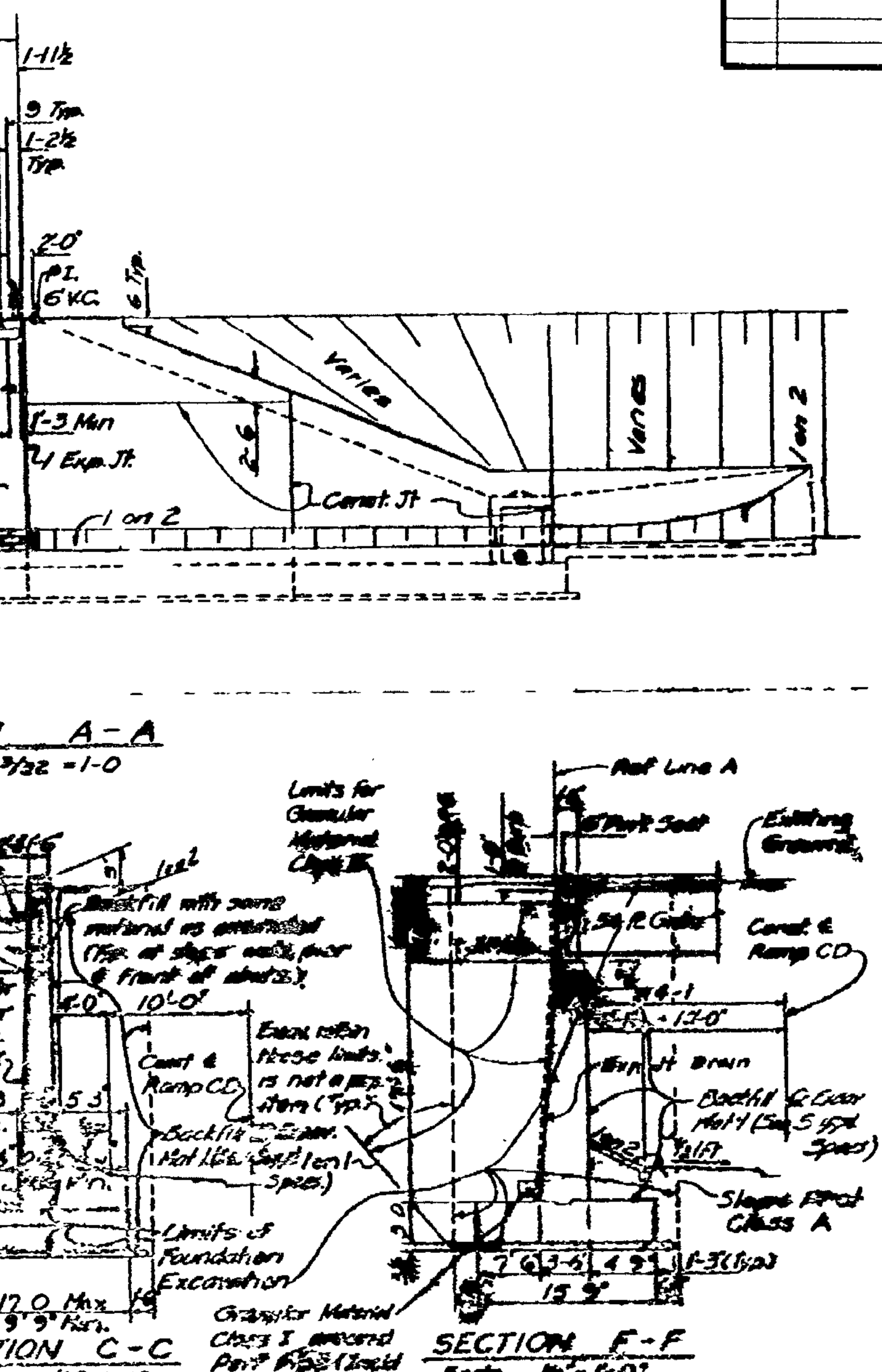
FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	2 OF 24

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 02-10-99 DRAWN BY: INDER FILE NAME: s0463103sn.





NOTES:

The design of the structure is based on the M.D.S.H. Specifications for the Design of Highway Bridges, 1958 edition and current AASHO Standard Specifications for Highway Bridges (HS20) loading. Live load plus impact deflection equals 1/1000 of span length and 1/350 of cantilever arm.

The top of roadway slab and tops of curbs are parallel to the vertical curve and tangents except as modified by super-elevation transition.

The lateral pay limits of temporary steel sheet piling are as required & determined by the Engineer.

The contractor shall be responsible for providing adequate protection of bottoms and sides of the footing excavations against damage by personnel equipment and water.

The abandoned 66 Sewer shall be filled with grade X Concrete between Sta 805+85 and Sta 806+70.

For details of Slope Protection see Standard Sheet SP2.

Where backfilling against faces of walls that are to be exposed, the concrete will be protected by 4 mil polyethylene film or other suitable material. Included in Unclassified Excavation.

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Slope Protection Class A	Sq Yds	31
Slope Protection Headers	Lin Ft	73
Temporary Steel Sheet Piling	Sq Ft	990
Foundation Drain	Lin Ft	296
Special Inlet	Each	1
Grade X Concrete	Cu Yds	7.5

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
I 696 EB SERVICE RD & I 75 SERVICE RD U TURNS OVER I 75 IN HAZEL PARK

GENERAL PLAN OF STRUCTURE

S04 of 63103A

NOTE:
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FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

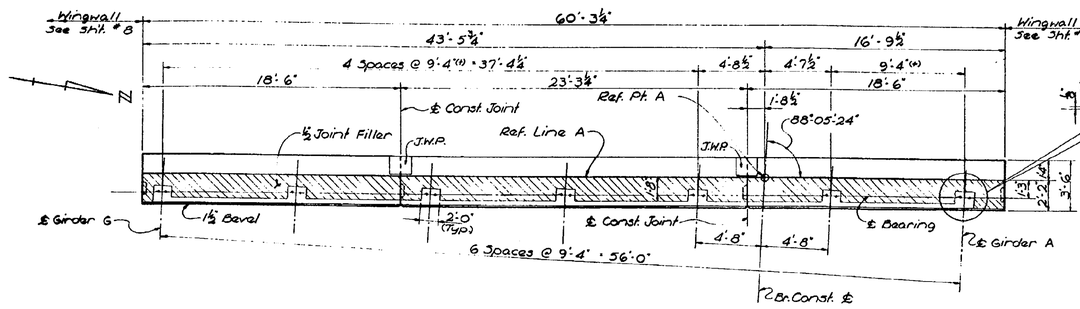
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	3 OF 24

CONTROL SECTION S04 OF 63103 JOB NO. 48404A SH. NO. 3

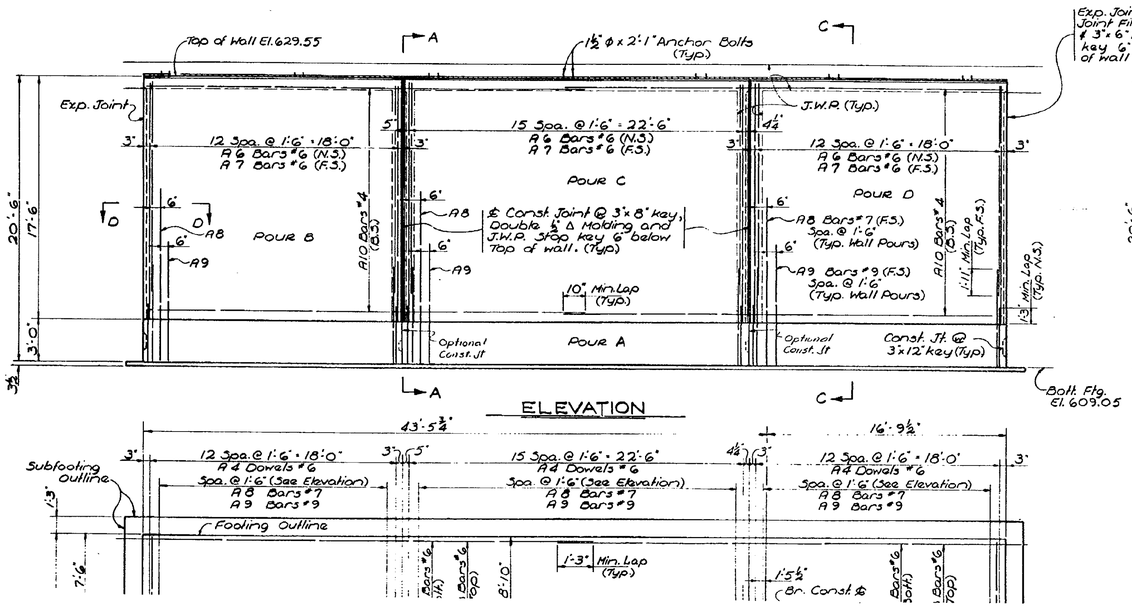
DRAWN BY: INDER CHECKED BY: DATE: 02-18-99 CORRECTED BY: DATE:

FILE NAME: s04631030n.

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN



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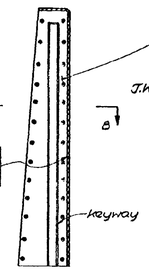
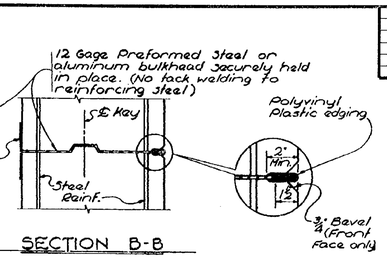


SECTION A-A



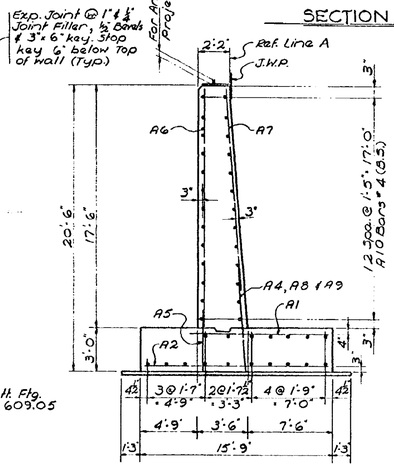
SECTION B-B

NOTES:

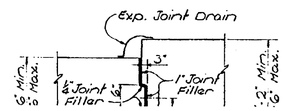
The metal bulkhead may be used as alternate construction joint at contractor's expense.

Care is to be used in casting conc. around bulkhead to prevent dislocation or misalignment of the bulkhead.

Cut holes in metal bulkhead for reinforcing steel.



SECTION C-C



CONCRETE QUANTITIES				
	Grade A (GA) Cu. Yds.		Grade A (GAA) Cu. Yds.	
Pour	Abut. "A"	Abut. "B"	Abut. "A"	Abut. "B"
A	105.5	72.3		
B		123.1	33.9	
C			42.7	37.5
D			33.9	37.3
E				37.3
F				48.0
G				46.4
SUBTOTAL	105.5	195.4	110.5	206.5
TOTAL	300.9 Cu. Yds.		317.0 Cu. Yds.	

MISCELLANEOUS QUANTITIES				
Item	Unit	Abut. A	Abut. B	Total
½" Joint Filler	Sq. Ft.	23	34	57
½" Joint Filler	Sq. Ft.	89	175	264
1" Joint Filler	Sq. Ft.	121	174	295
Joint Waterproofing	Sq. Ft.	141	245	386
Expansion Joint Drain	Each	2	3	5
Clear Prot. Coating for Subst. C	Sq. Yds.	121	226	347
Concrete Subfooting	Cu. Yds.	12.3		12.3
Unclassified Excavation	Cu. Yds.	1080	1970	3050
Low Tem. Protection: Substructure Concrete	Cu. Yds.		401.9	401.9

NOTES:

J.W.P. denotes joint waterproofing.
N.S. denotes near side.
F.S. denotes far side.
B.S. denotes both sides
For bevel and molding details, see standard sheet R11 or R12.
Anchor bolts shall be accurately set to a template.
Maximum average foundation pressure D.L. only equals 3050 pounds per sq. ft.
Maximum foundation pressure D.L. and L.L. equals

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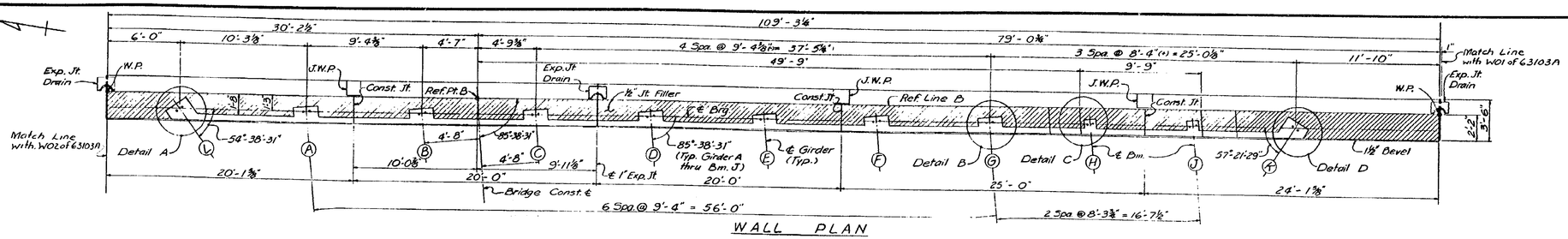
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

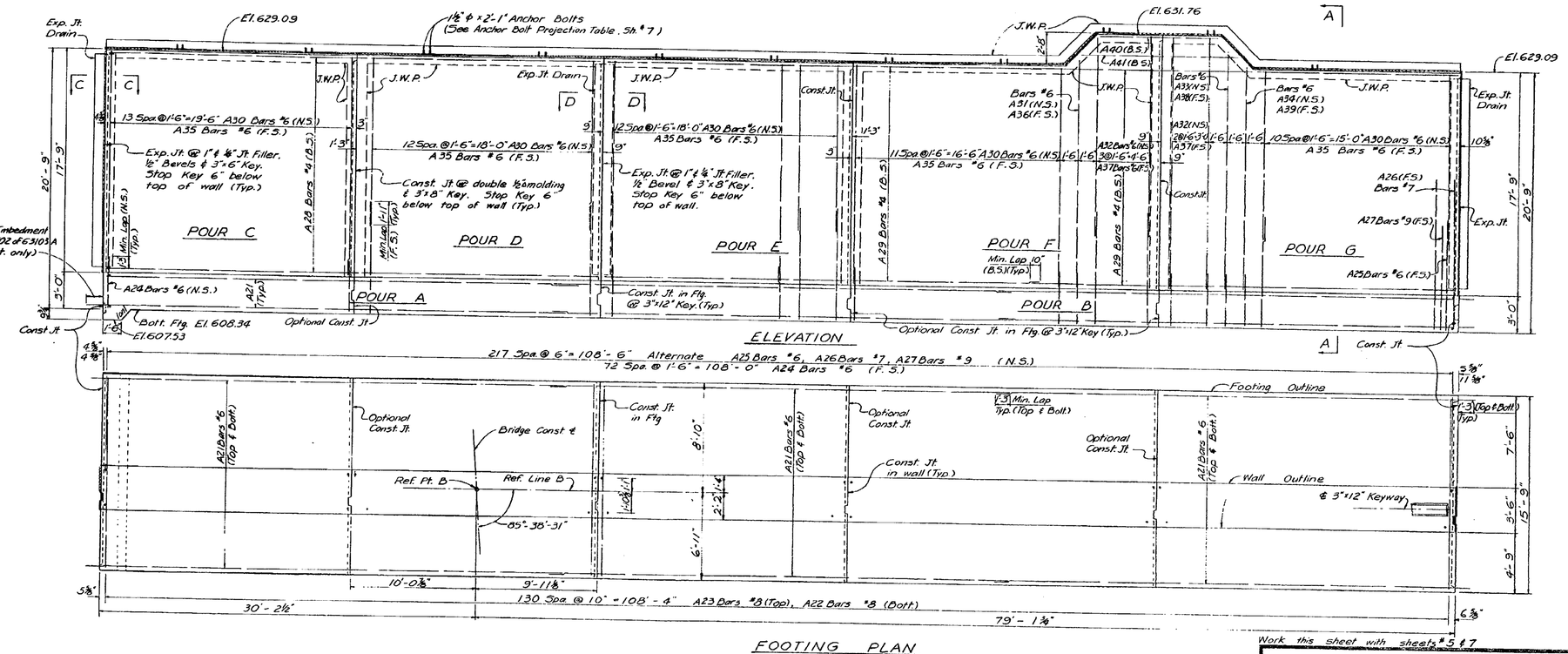
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	4 OF 24

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 02-10-99 DRAWN BY: INGER FILE NAME: s0463103sn.

CONTROL SECTION S04 OF 63103 | JOB NO. 48404A | SH. NO. 5



WALL PLAN



FOOTING PLAN

Work this sheet with sheets #5 & 7

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENT B DETAILS

REVISIONS

NO.	DESCRIPTION	DATE	BY

ROAD DESIGN	Fisher	4-4-69
DRAWN BY	CHUANG	3-17-69
TRACED BY		
CHECKED BY		8-16-69
SHEET	6 of 22	

S04 of 63103A

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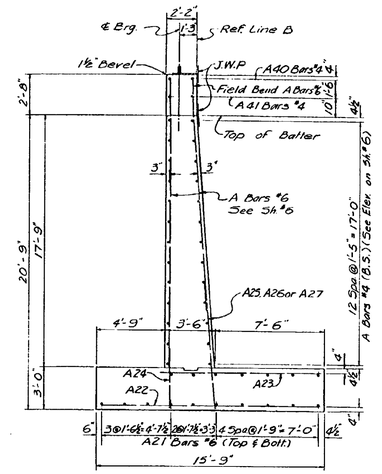
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

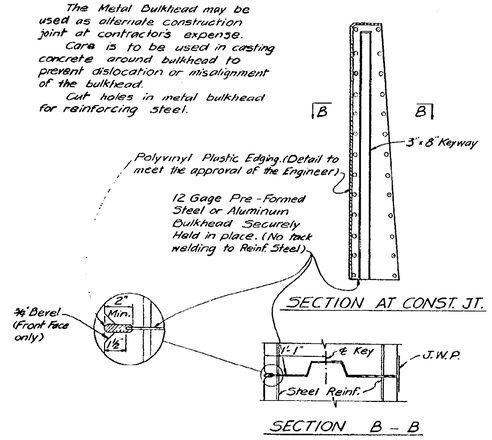
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	5 OF 24

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 02-10-99 | DRAWN BY: INDER | FILE NAME: s0463103sn.

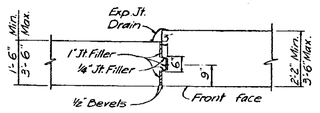


SECTION A - A

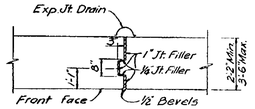
NOTES.
The Metal Bulkhead may be used as alternate construction joint at contractors expense.
Care is to be used in casting concrete around bulkhead to prevent dislocation or misalignment of the bulkhead.
Cut holes in metal bulkhead for reinforcing steel.



CONST. JT. DETAILS



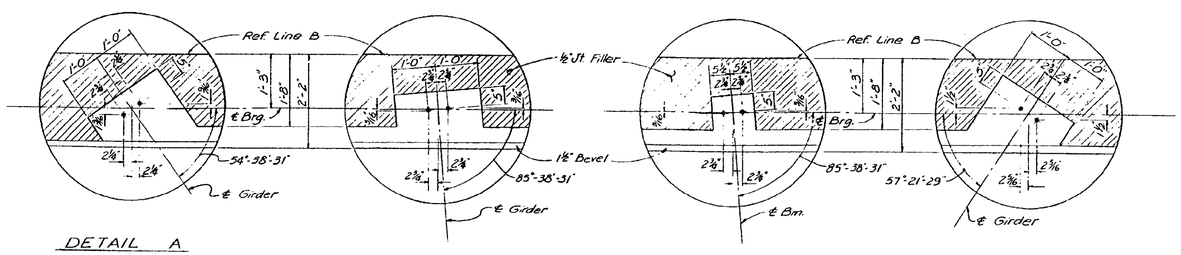
SECTION C - C



SECTION D - D

ANCHOR BOLT PROJECTION TABLE	
Beam	Abut. B
L	7⅛"
A	8⅜"
B	10"
C	10⅛"
D	9⅛"
E	9⅛"
F	8⅛"
G	7⅛"
H	7"
J	6⅛"
K	5⅜"

NOTES:
Steel Sheet Piling left in place & Temporary steel sheet piling shall be of the 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. Ladle 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.
For Expansion Joint Drain Details, see sheet #8.
For general notes, concrete quantities & miscellaneous quantities, see sh. #5.
Footing concrete quantities are computed on the basis of an outline 3¼" outside of the footing outline, back of the Abutment B, 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.



DETAIL A DETAIL B DETAIL C DETAIL D

Work this sheet with sh. #5 & 6

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENT B DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

TRACED BY	Fisher	4-8-69
DRAWN BY	CHUANG	3-19-69
TRACED BY		
CHECKED BY		
SHEET	7 OF 22	

S04 of 63103 A

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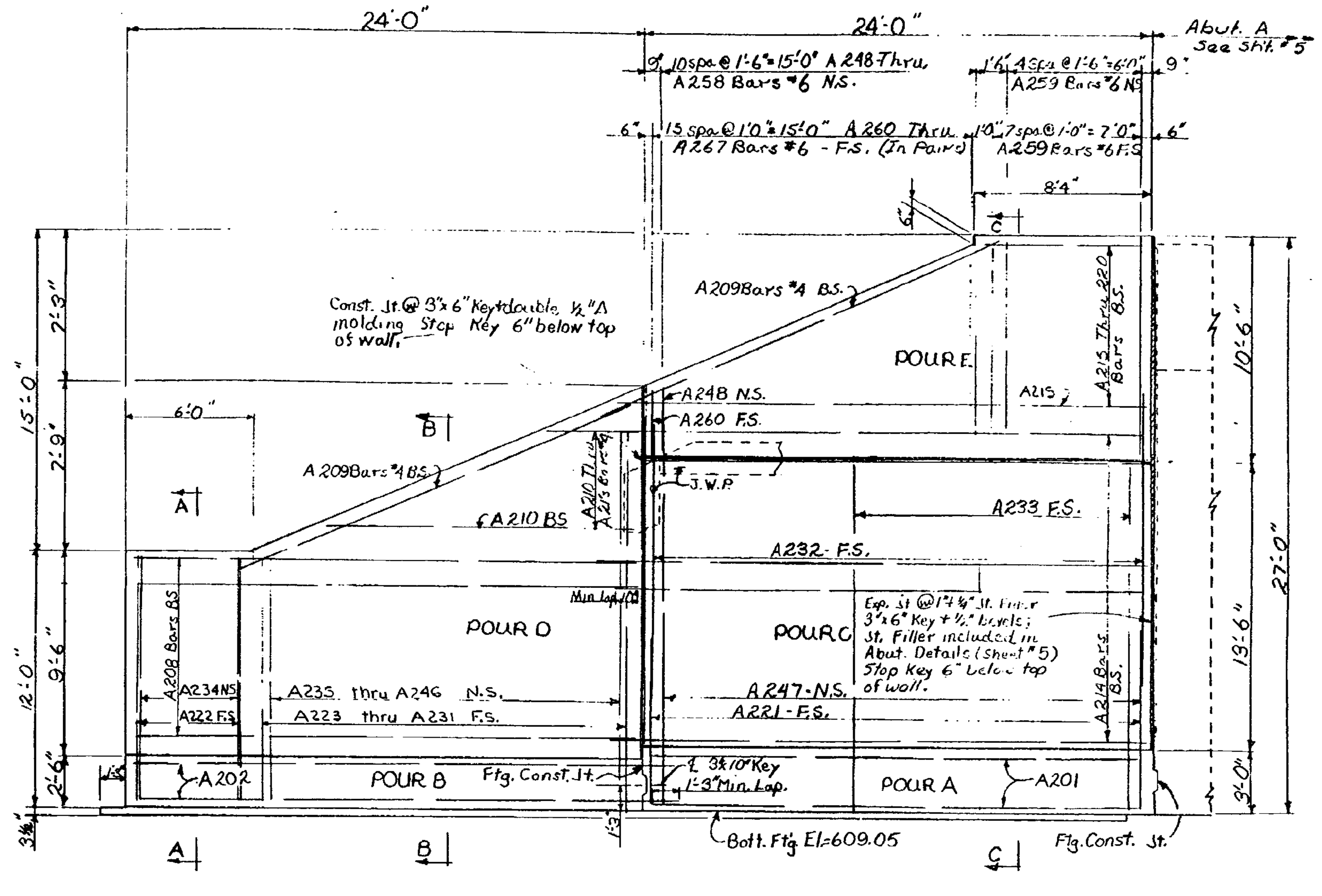
MDOT Michigan Department of Transportation

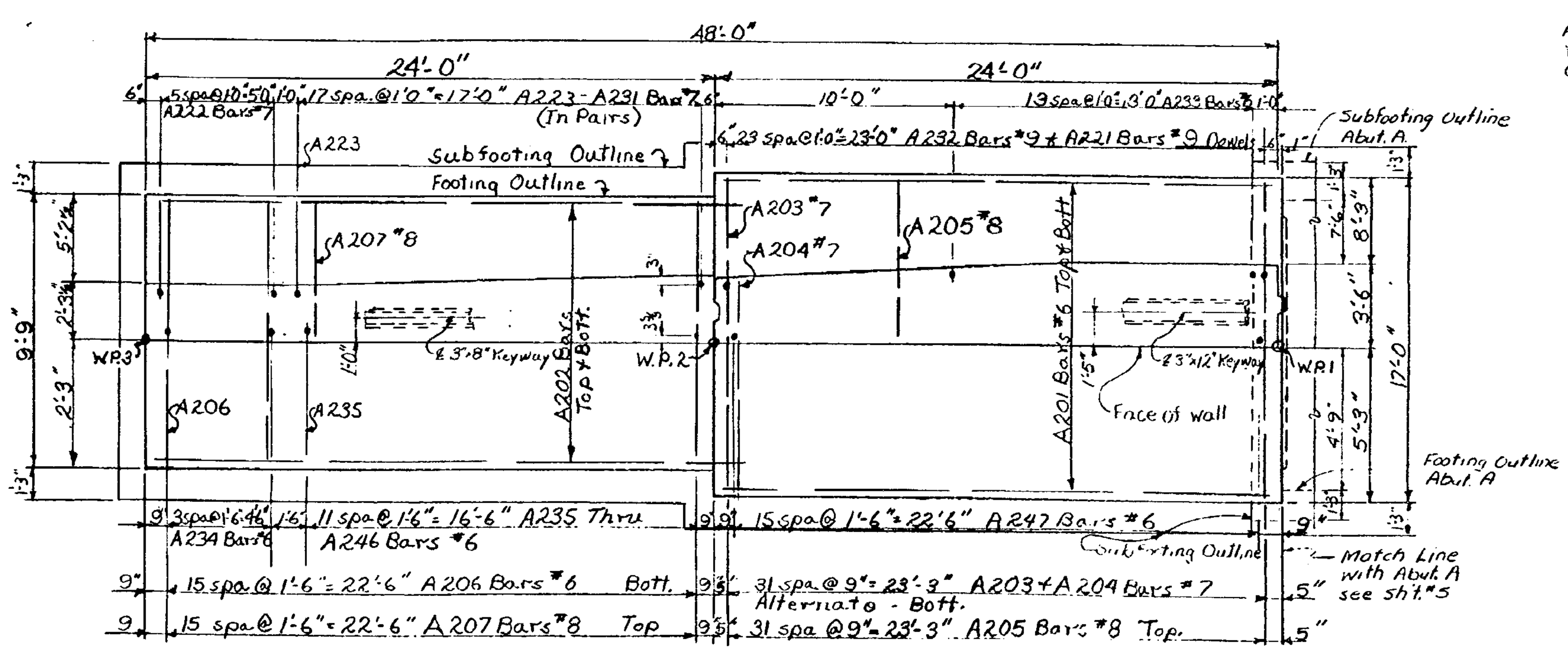
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	6 OF 24

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 02-10-99 DRAWN BY: RIDER FILE NAME: u0463103sc.



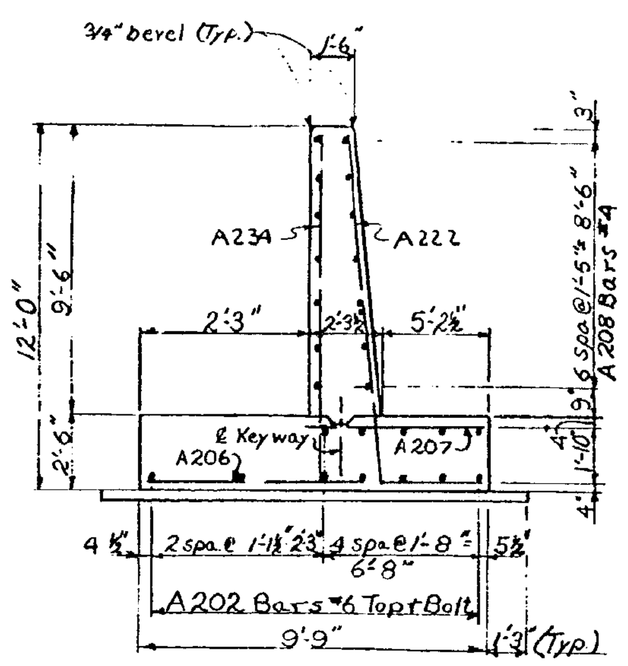
ELEVATION



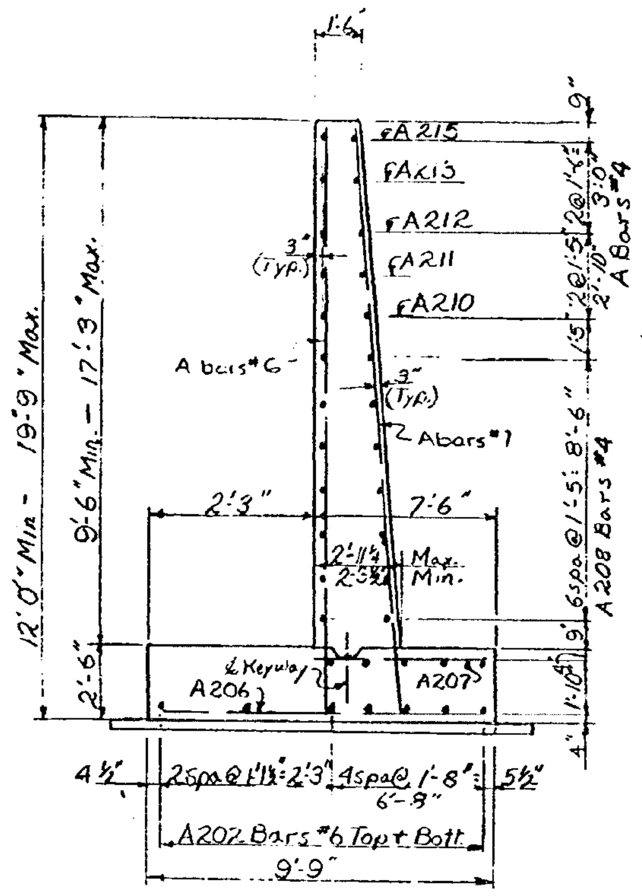
FOOTING PLAN

CONCRETE QUANTITIES		
Pour	Gr. A(6A)	Gr. A(6AA)
A	45.5	
B	21.7	
C		33.0
D		22.8
E		13.5
Total	67.2 Cu. Yds.	69.3 Cu. Yds.

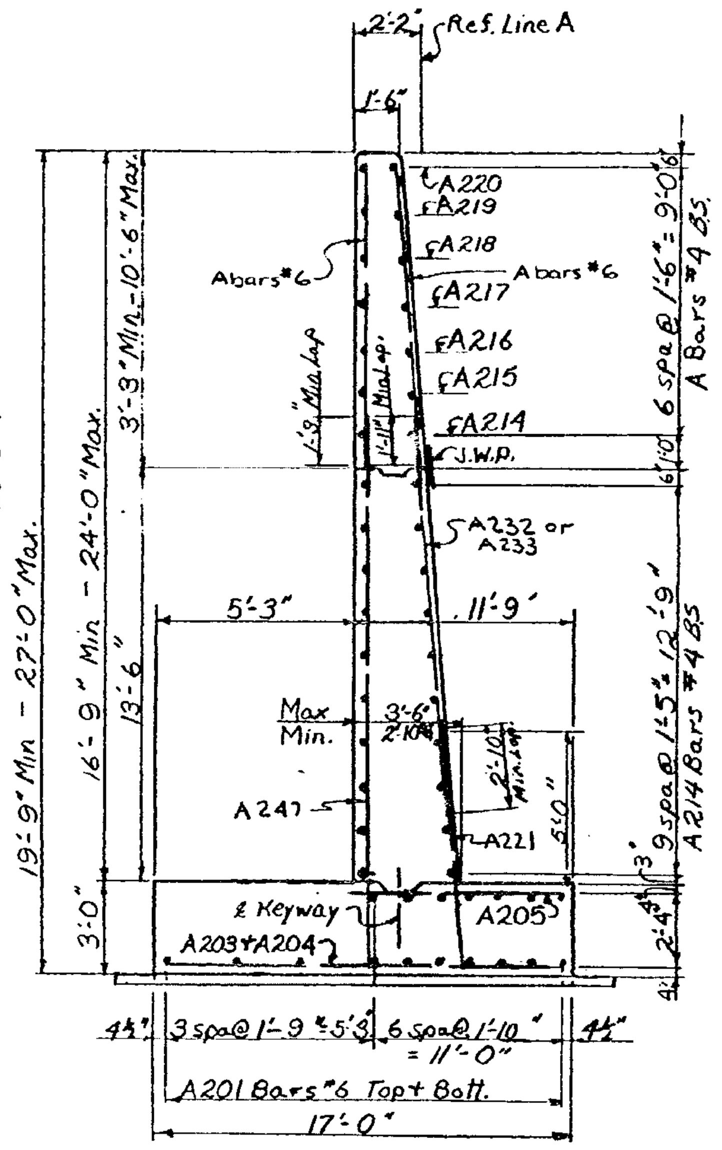
MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Joint Waterproofing	Sq. Ft.	57
Unclassified Exc.	Cu. Yd.	760
Concrete Subfooting	Cu. Yd.	8.0



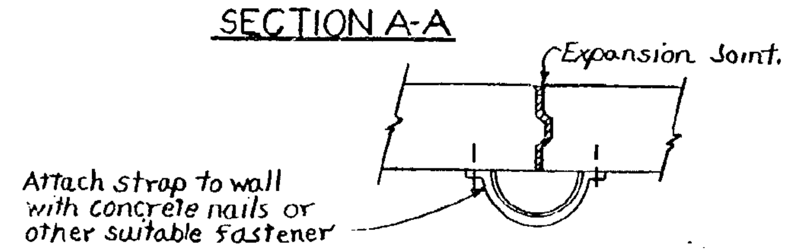
SECTION A-A



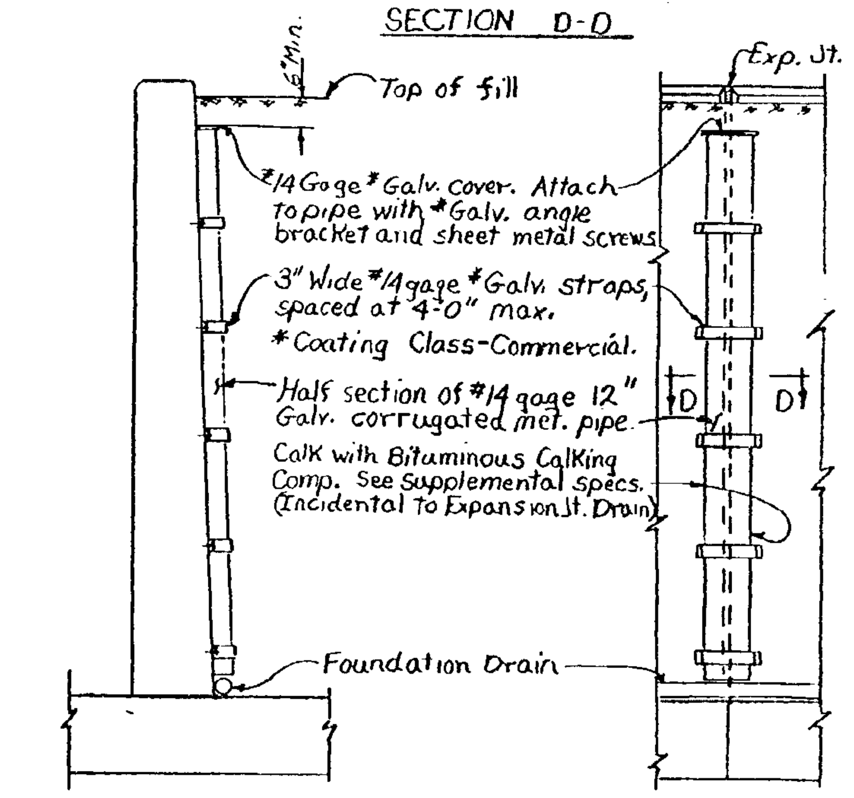
SECTION B-B



SECTION C-C



SECTION D-D



WALL SECTION

WALL ELEVATION

NOTES:

For bevel and molding details see standard sheet R11 or R12.
B.S. denotes both sides.
F.S. denotes far side.
N.S. denotes near side.
W.P. denotes working point.
J.W.P. denotes joint waterproofing.
For expansion joint details (See sheet #5)
A metal bulkhead may be used as an alternate construction joint at the contractors expense, for details. (See sheet #5)
Maximum average foundation pressure D.L. only = 2570 #/sq. ft.
Wingwall shall not be poured until superstructure is completed to tops of sidewalks.

Work this sheet with sheet #5.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

ABUTMENT A
WINGWALL DETAILS

Fisher 4-4-69
Hicks 4-29-69
Sheet 8 of 22

S04 of 63103A

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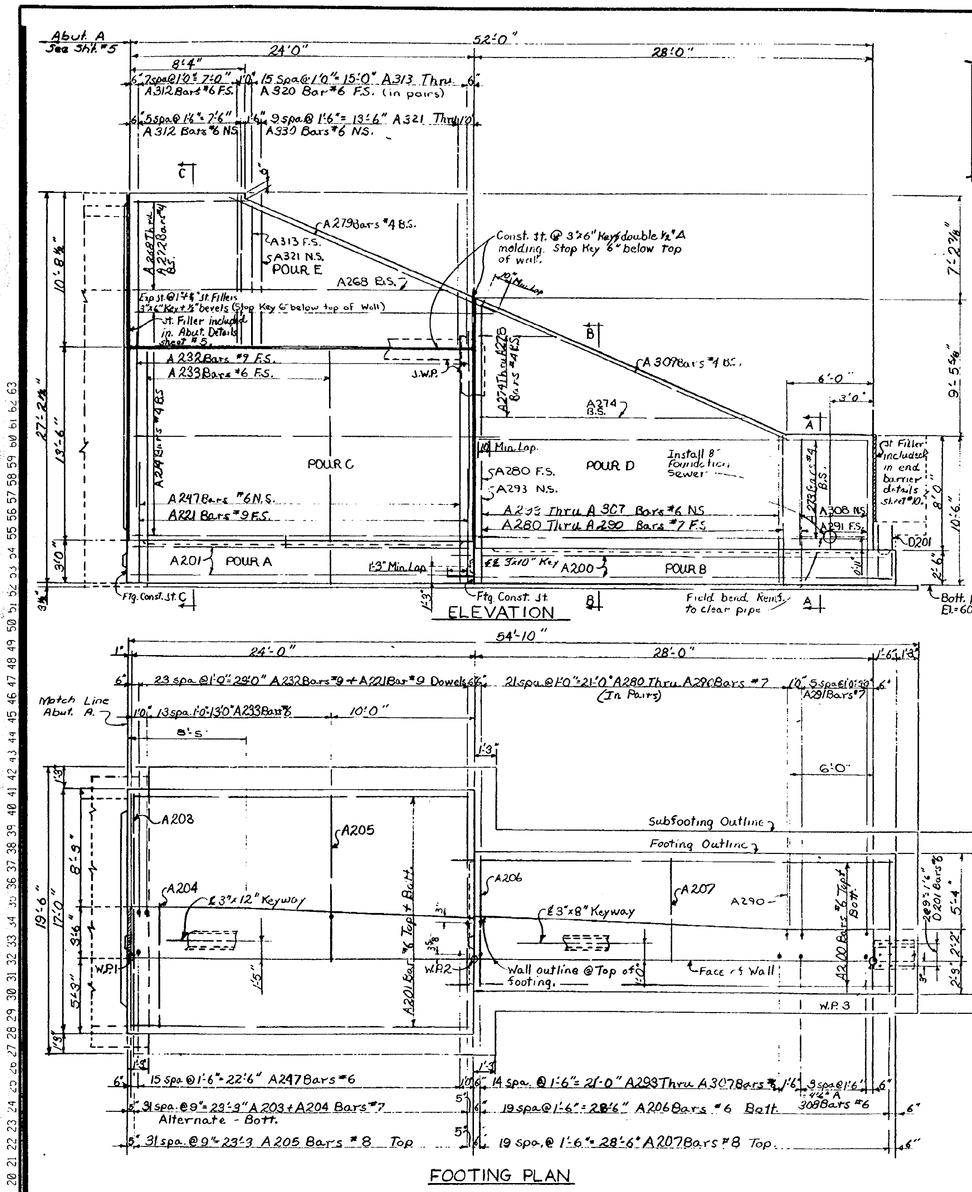
FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	7 OF 24

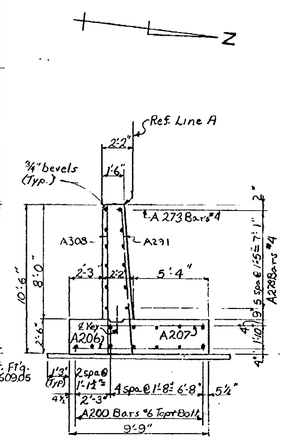
CONTROL SECTION S04 OF 63103 JOB NO. 48404A SH. NO. 7

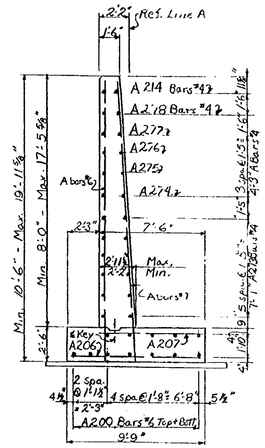
FILE NAME: s0463103sn.

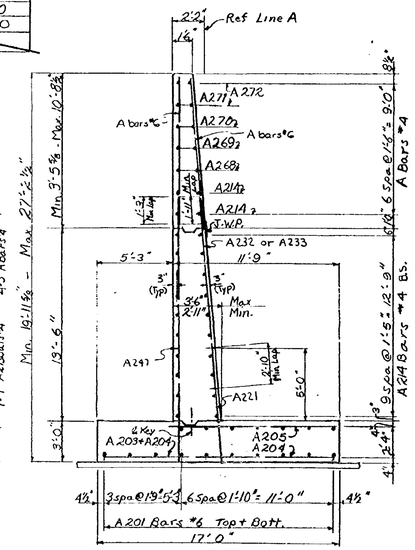


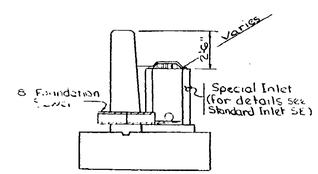
CONCRETE QUANTITIES		
Pour	Gr. A(6AA)	Gr. A(6AA)
A	45.5	
B	26.6	
C		33.2
D		25.2
E		13.8
Total	72.1 Cu. Yds.	72.2 Cu. Yds.

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Joint Waterproofing	Sq. Ft.	57
Concrete Subfooting	Cu. Yd.	8.8
8" Foundation sewer	lin. ft.	4.0
Unclassified Exc.	Cu. Yd.	850
Special Inlet	Each	1









SECTION AT INLET

NOTES:
For notes see sheet #8
For expansion joint drain details see sheet #8

Work this sheet with sheets No. 5 + 8 + 10

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
ABUTMENT A
WINGWALL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN BASIS	Fisher	4-4-69
DRAWN BY	Hicks	4-30-69
TRACED BY		
CHECKED BY	Delinski	5-31-69
SHEET 8 OF 22		

S04 of 63103A

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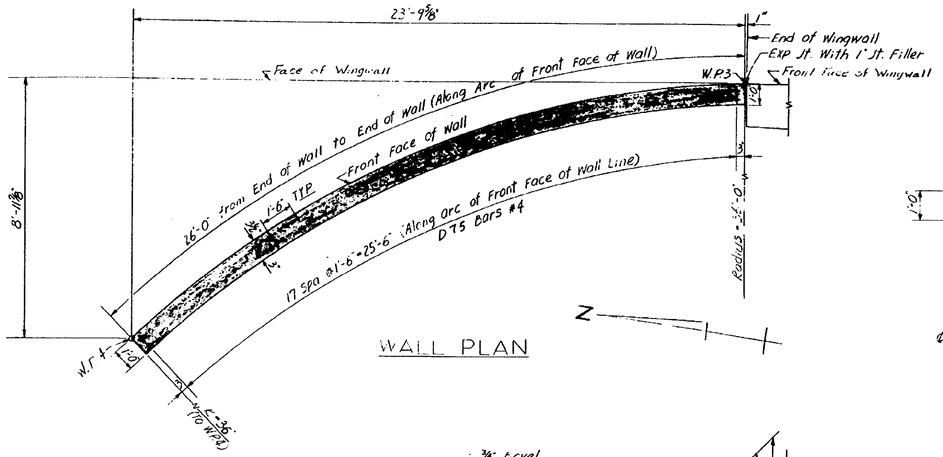
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

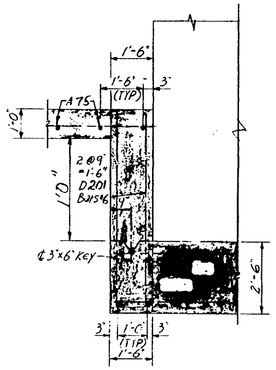
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	8 OF 24

CONTROL SECTION S04 OF 63103 | JOB NO. 48404A | SH. NO. 9

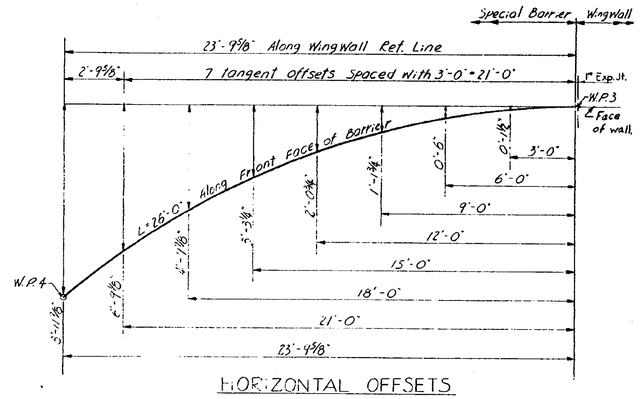
REVISIONS			
NO.	DESCRIPTION	DATE	BY



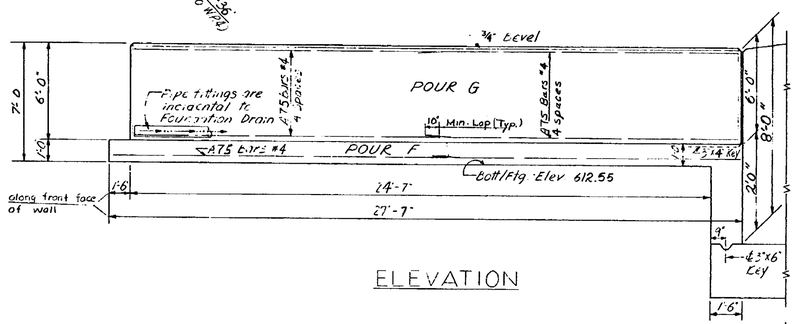
WALL PLAN



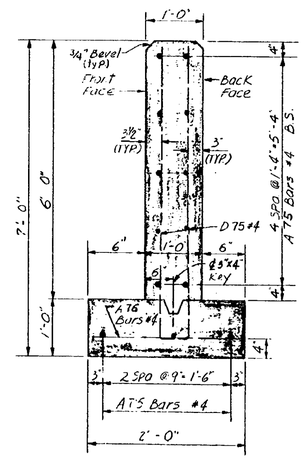
SECTION B-B



HORIZONTAL OFFSETS



ELEVATION



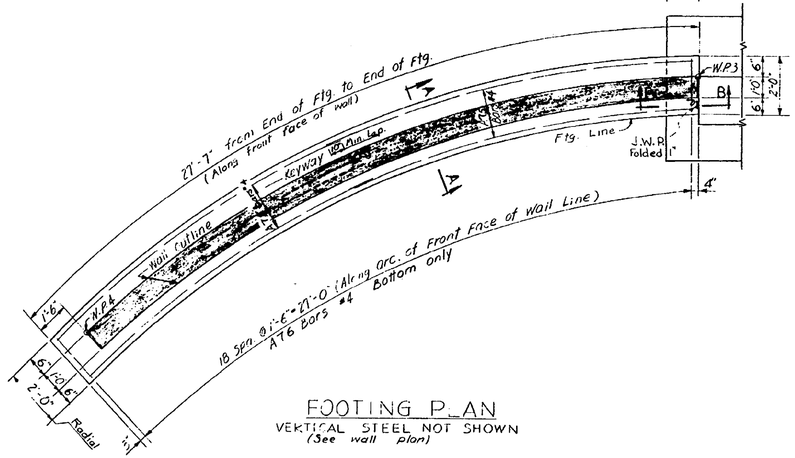
SECTION A-A

MISCELLANEOUS QUANTITIES		
~~Item~~	~~Unit~~	~~Amount~~
1" Joint Filler	Sq. Ft.	6
Joint Waterproofing	Sq. Ft.	9
~~Unclassified Exc.~~	Cu. Yds.	120

CONC QUANTITIES CU. YDS.		
	GRADE	
POUR	A(6 AA)	A(6 AA)
F	2.2	
G		5.8

NOTES:

B.S. denotes Both Sides.
W.P. denotes Working Point.
For bevel & molding. See Std Sheet R11 + R12.
J.W.P. denotes Joint Waterproofing.



FOOTING PLAN
VERTICAL STEEL NOT SHOWN
(See wall plan)

Work this sheet with sheet # 9.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

WALL ENDING DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN BASIS	Fisher	6-4-49
DRAWN BY	C Dubose	3-13-49
TRACED BY		
CHECKED BY	Sakpaard	5-3-49
SHEET 10 OF 12		

S04 of 63103A

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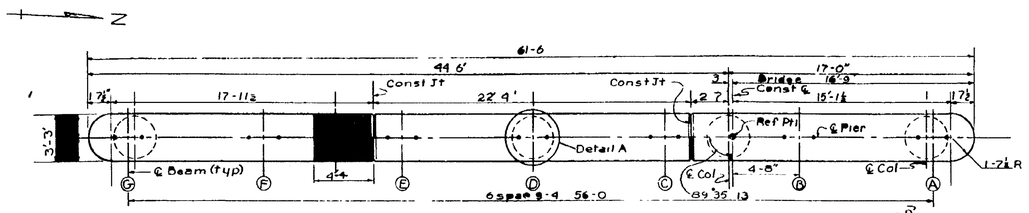
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

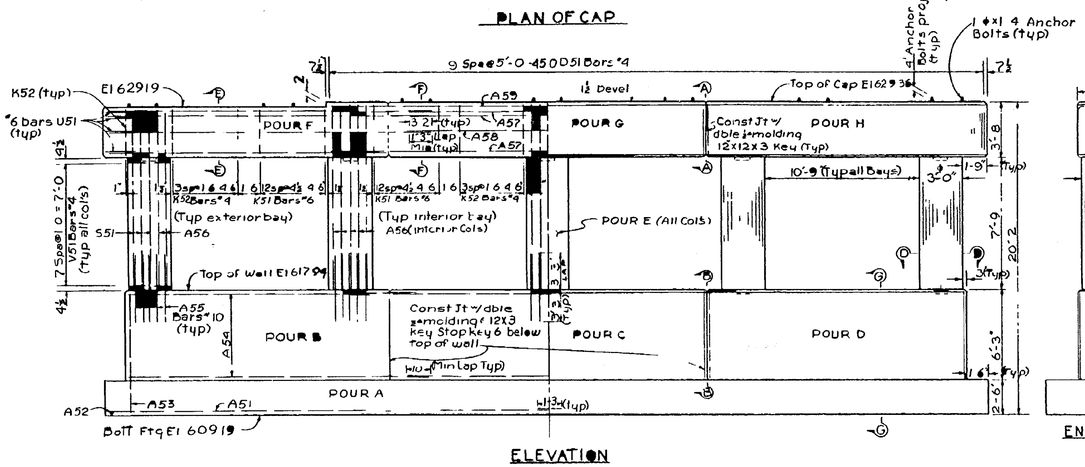
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	9 OF 24

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 02-10-99 | DRAWN BY: INDER | FILE NAME: s0463103sn.

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN OF CAP



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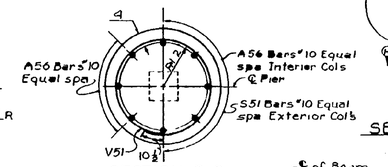
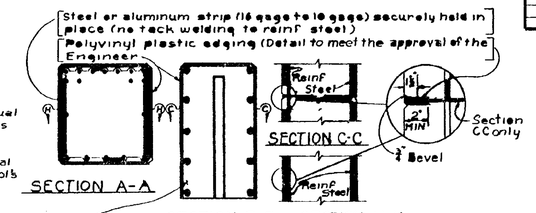


SECTION D-D



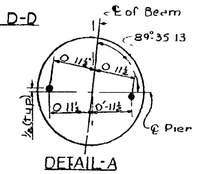
NOTE

12 gage preformed Alum or steel bulkhead securely held in place (No tack welding to reinf steel)

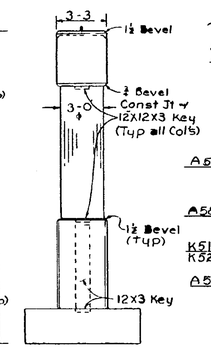
Partial metal bulkhead may be used as alternate const jt in cap at contractor's expense Notch metal strip around reinf steel

The metal bulkhead in base wall may be used as alternate const jt at contractor's expense Cut holes in metal bulkhead for reinf steel

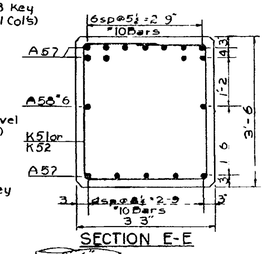
Care is to be used in casting concrete around bulkhead to prevent misalignment or dislocation of the bulkhead



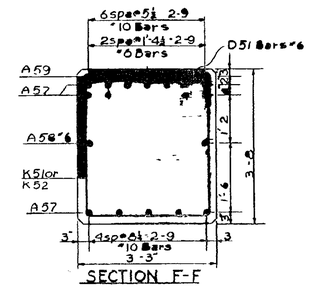
DETAIL-A



END VIEW



SECTION E-E



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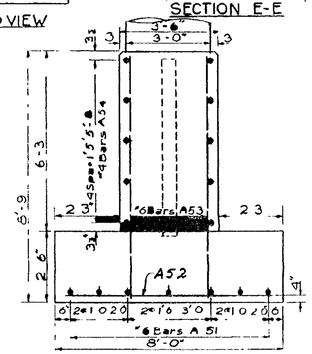
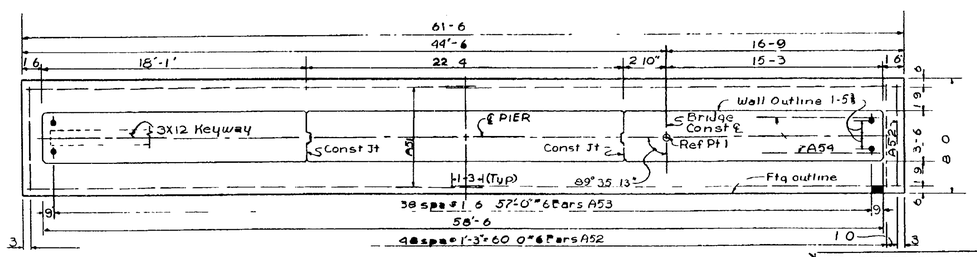


SECTION G-G



PLAN OF FOOTING

NOTES-

For bevel & molding details, see standard sheet R11 or R12

Anchor bolts shall be accurately set to a template

Adjust the spacing of the reinforcing steel as required to permit placing of anchor bolts

Maximum average foundation pressure DL only = 3800 #/sq ft Maximum foundation pressure DL + LL = 5950 #/sq ft

All exposed surfaces above the top of footing of the pier shall be given an application of Clear Protective Coating for Substructure Concrete (See Supplemental Specifications)

Anchorage for guard rail is to be provided in pier basewall For details see Rd Plans

MISCELLANEOUS QUANTITIES		
ITEM		
Unclassified Excavation	[redacted]	
Clear Protective Coating for Substructure Concrete	[redacted]	237

CONCRETE QUANTITIES		
Pour	Grade A(6A)	Grade A(6AA)
A	45.6 cu yds	
B		116 cu yds
C		181
D		146
E		10.1
F		8.2
G		9.0
H		8.5
Total	45.6 cu yds	89.0 cu yds

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

PIER DETAILS

REVISIONS

DESCRIPTION

[redacted]

11 of 22

S04 of 63103A

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MDOT Michigan Department of Transportation

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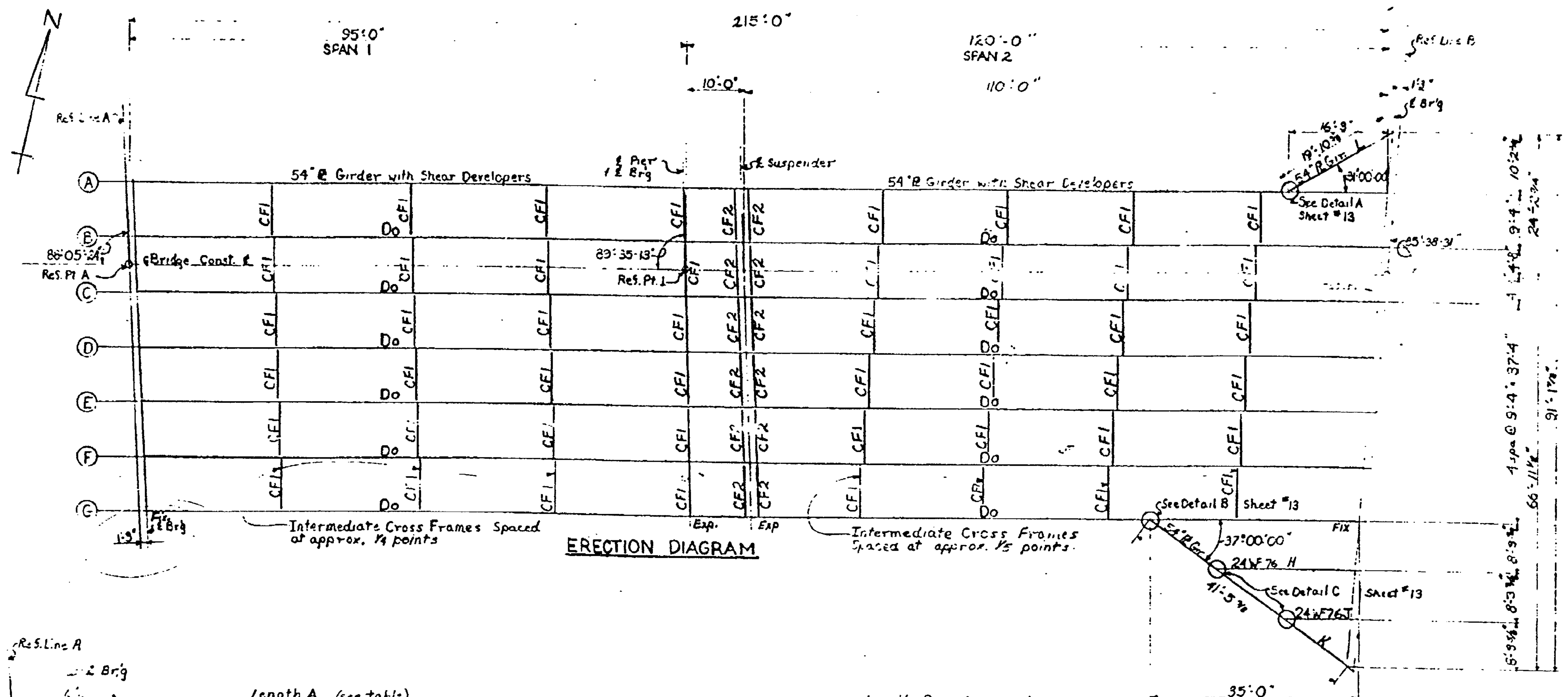
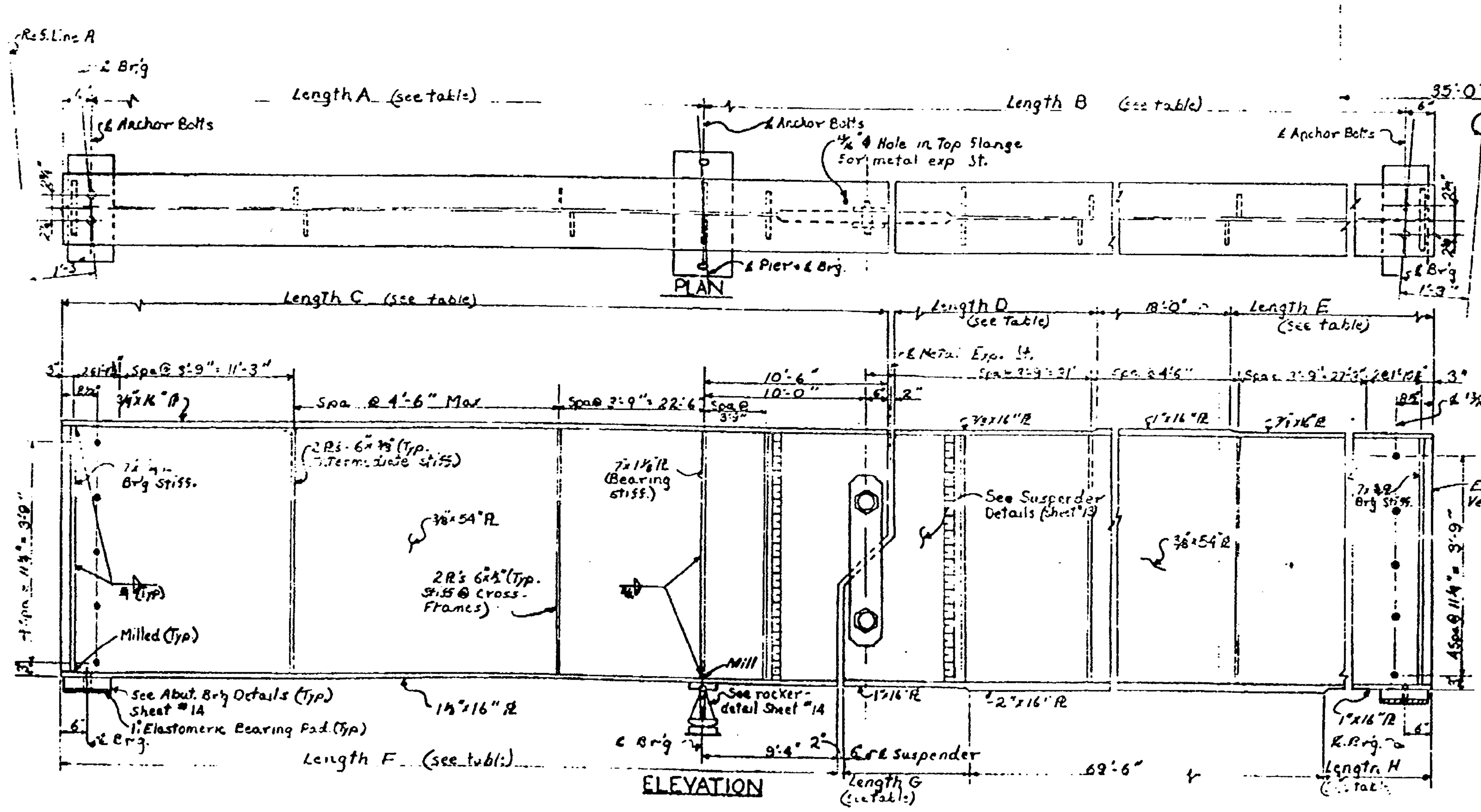
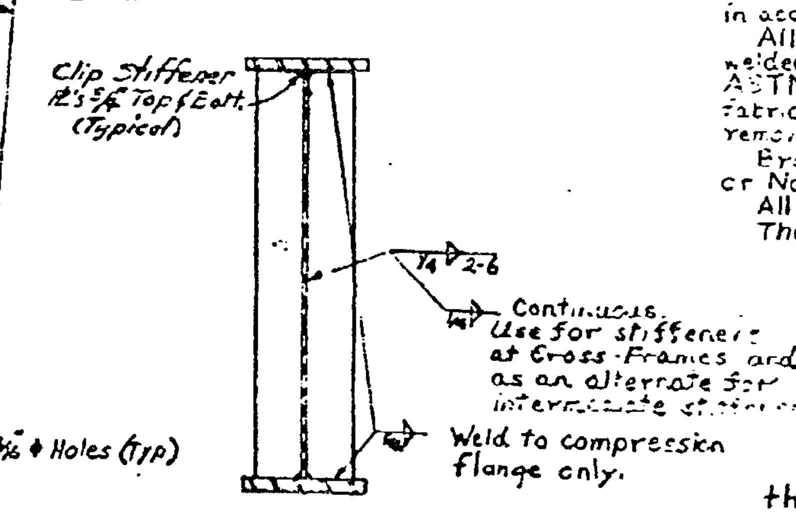
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	10 OF 24

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 02-18-99 DRAWN BY: INDER FILE NAME: s0463103sn.

CONTROL SECTION S04 OF 63103 | JOB NO. 48404A | SH. NO. 11



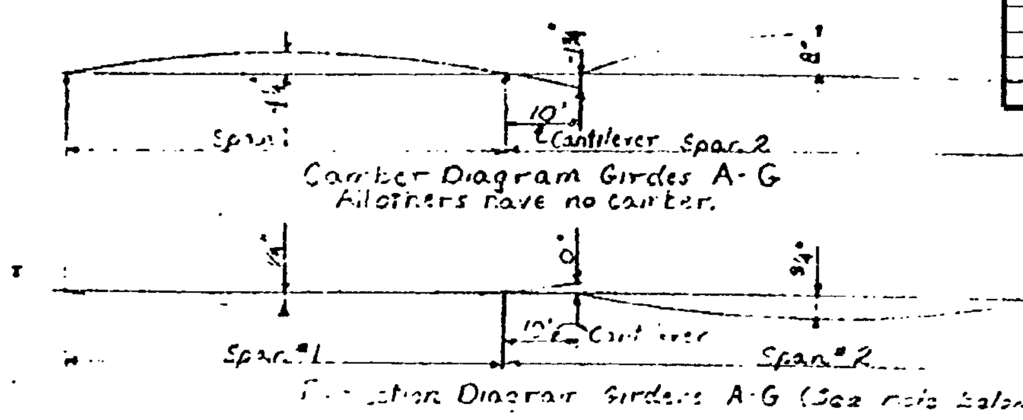




INTERMEDIATE TRANSVERSE STIFFENERS

Note: When fabricating Intermediate Stiffeners
A-Use a stiffener that does not fit too tightly
B-Push it tight against the tension flange
C-Weld it to the web.
D-Weld it to the compression flange. For location of compression region see Sheet #13.

	LENGTH							
Girder	A	B	C	D	E	F	G	H
A	94'-1⅞	19'-11	105'-1⅞	45'-3⅝	46'-5⅛	103'-11⅝	20'-8½	20'-8½
B	95'-10⅝	19'-1⅞	104'-10⅝	44'-10⅝	46'-0⅝	105'-8½	20'-5⅞	20'-5⅞
C	95'-7½	18'-4⅛	104'-7½	44'-6⅞	45'-8⅛	103'-5⅝	19'-11⅝	19'-11⅝
D	93'-4⅜	17'-7	[illegible]	[illegible]	45'-3⅜	103'-2⅝	19'-6½	19'-6½
E	93'-1⅞	16'-9⅞	104'-1⅝	43'-8⅞	44'-10⅝	102'-11⅝	19'-1⅞	19'-1⅞
F	92'-10⅞	16'-0⅞	105'-10⅝	43'-4⅝	44'-6⅝	102'-8⅝	18'-9⅞	18'-9⅞
G	92'-7⅞	15'-3⅞	105'-7⅞	42'-11⅞	44'-1½	102'-5⅝	18'-4½	18'-4½



MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Structural Steel - Furn. + Fab.	lbs.	374,000
Structural Steel - Erection	lbs.	374,000
Elastomeric Bearing Pad	Sq. ft.	98.1

NOTES:

Design: Michigan Department of State Highways Specifications for Design of Highway Bridges - 1955 edition and current AASHO Standard Specifications for Highway Bridges (HS 20-44) loading.

Fabrication: Michigan Department of State Highways Standard Specifications for Road and Bridge Construction - 1967 edition.

Shop connections shall be welded as shown on plans.

Field connections shall be bolted with ¾" ϕ high strength bolts.

The top and bottom edges of the web plates are to be cut simultaneously, to a parabolic camber to minimize distortion.

The girders are to be cambered as shown on the camber diagram. The camber is to be measured with the girder lying on its side. Heating is to be used, if necessary, to assure camber permanency within the tolerance specified in AWS Specifications. The dead load deflection of the girders alone is as shown on the deflection diagram.

Steel in anchor bolts may be ASTM A-307.

A shop splice will be permitted in flange plates over 50 feet in length. This splice must be located at a minimum distance of 10 feet from the center of the plate.

Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ¼" and welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plates.

Magnetic particle inspection of welds is required and shall consist of 100% inspection of not less than one fabricated section selected at random for each ten sections or fractions thereof.

Anchor Bolts (including nuts and washers) shall be galvanized in accordance with ASTM Designation A153.

All steel material used for bearings, with exception of part welded to girders, shall be galvanized in accordance with ASTM Designation A123. Galvanizing shall be applied after fabrication of bearing. Mill scale and foreign material shall be removed prior to galvanizing.

Bronze for washers shall be ASTM B100, Alloy No. 510 or No. 635.

All steel shall be unpainted A.S.T.M. A588 except as noted.

The quantity Structural Steel includes

A-588 Steel	373,802
Bronze	149
Lead	49
Total	374,000

The web plate may be spliced at the option of the fabricator.

Work this sheet with sheets No. 13, 14

MICHIGAN DEPARTMENT OF STATE HIGHWAY

STRUCTURAL STEEL DETAILS

S04 of 63103

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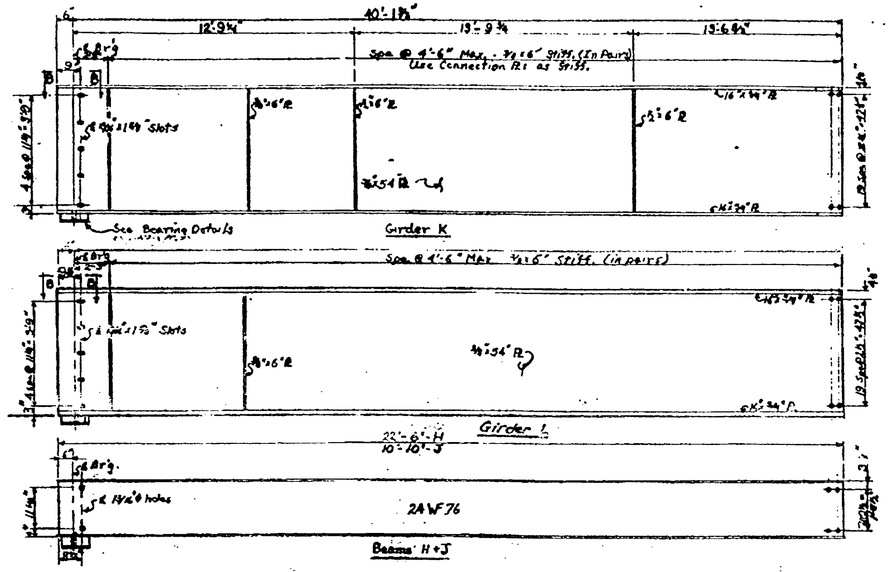
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	11 OF 24

DRAWN BY: INDER | DATE: 02-10-99 | CHECKED BY: | DATE: | CORRECTED BY: | DATE:

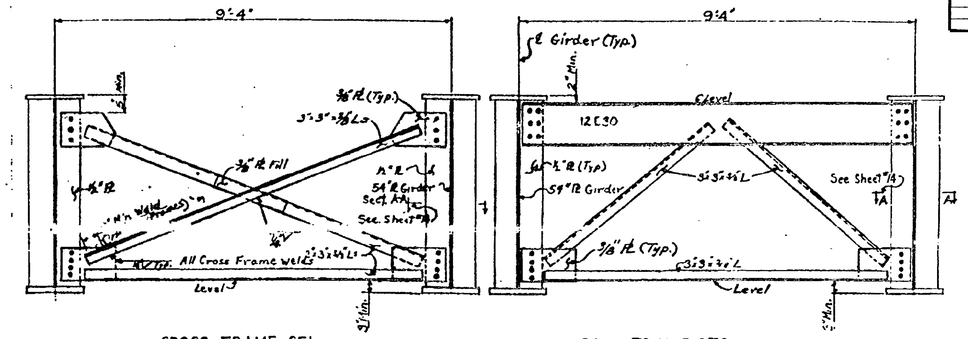
FILE NAME: s0463103sh.

CONTROL SECTION S04 OF 63103 JOB NO. 48404A SH. NO. 12

REVISIONS			
NO.	DESCRIPTION	DATE	BY

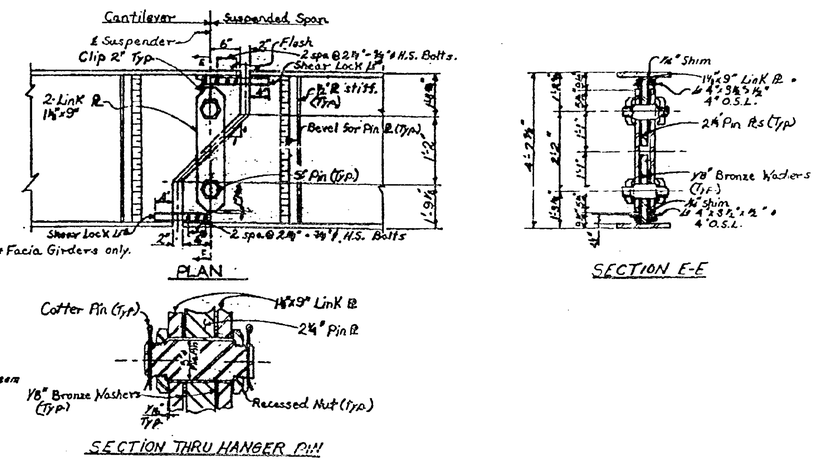


GIRDER + BEAM ELEVATIONS



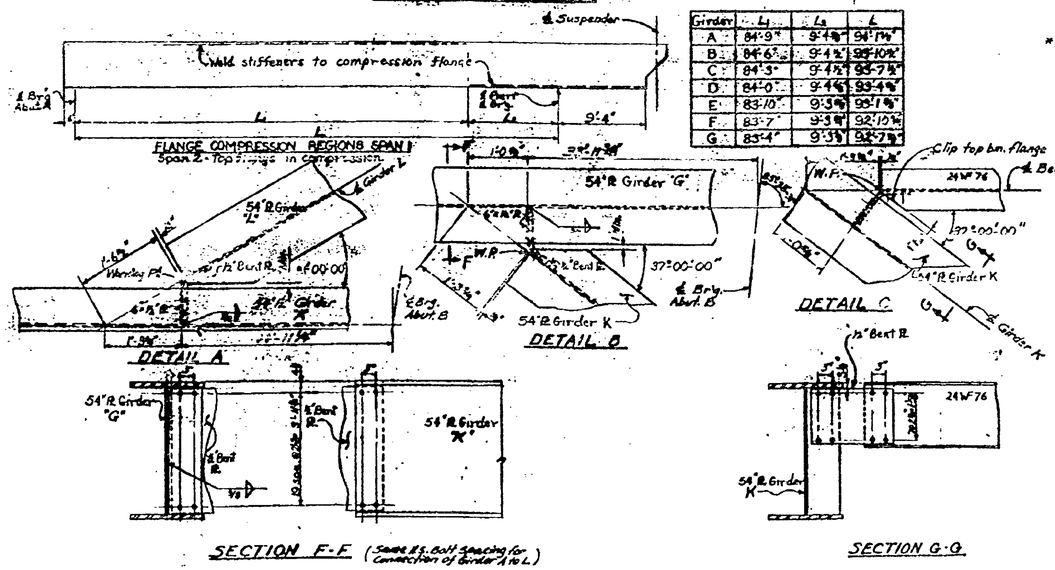
CROSS FRAME CF1

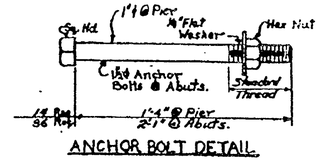
CROSS FRAME CF2



SUSPENDER DETAILS

Girder	L_1	L_2	L
A	84'-9"	9'-4 3/8"	94'-1 3/8"
B	84'-6"	9'-4 1/2"	93'-10 1/2"
C	84'-3"	9'-4 1/2"	93'-7 1/2"
D	84'-0"	9'-4 1/2"	93'-4 1/2"
E	83'-10"	9'-3 3/8"	93'-1 3/8"
F	83'-7"	9'-3 3/8"	92'-10 3/8"
G	83'-4"	9'-3 3/8"	92'-7 3/8"





ANCHOR BOLT DETAIL

Work this sheet with sheets No. 12+14.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STRUCTURAL STEEL DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

Fisher 6-4-6
F. McKee 9-24
Gutierrez 12-99
13 of 32
S04 of 63103A

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10-18-99	S04 OF 63103	48404A	MAHDAVI	12 OF 24

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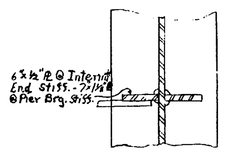
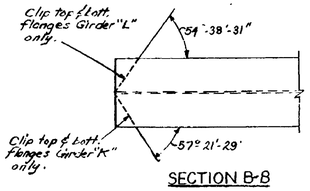
REVISIONS			
NO.	DESCRIPTION	DATE	BY



SECTION A-A



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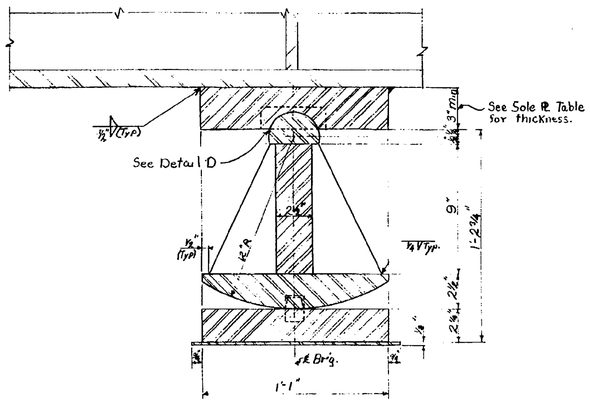

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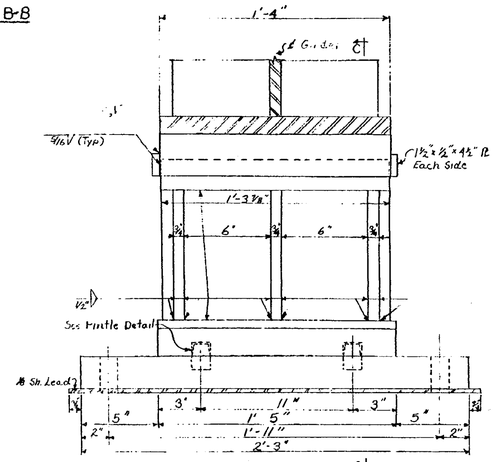
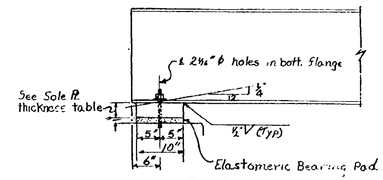
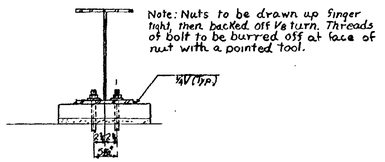


END VIEW ℄

BEARING DETAILS - PIER



Elevation



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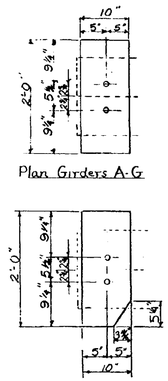
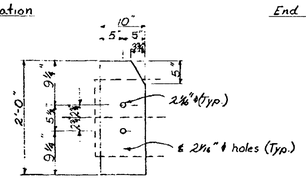
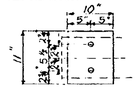


Plan Girders A-G



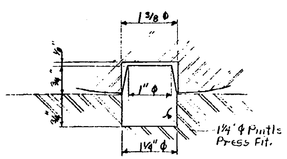
Plan Girder K

Plan Girder L

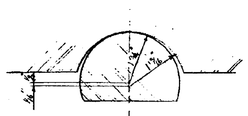


Plan Beams H & J

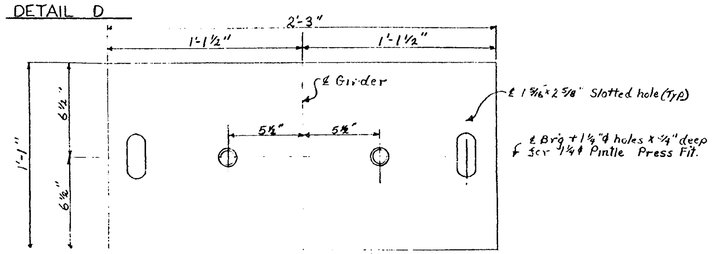
BEARING DETAILS ABUT. A + B



PINTLE DETAIL



DETAIL D



SOLE PLATE THICKNESS TABLE						
Girder	Abut. A		Pier		Abut. B	
	Thickness	Bevel	Thickness	Bevel	Thickness	Bevel
A	3½"	+¼%	3¼"	0%	4½"	+¼%
B	4¾"	+¼%	4½"	0%	5¾"	+¼%
C	4¾"	+¼%	4½"	0%	6"	+¼%
D	3½"	+¼%	3¼"	0%	5"	+¼%
E	3¾"	+¼%	3¼"	0%	5"	+¼%
F	2¾"	+¼%	4"	0%	4"	+¼%
G	1½"	+¼%	3"	0%	3"	+¼%

Work this sheet with sheets No. 12+13.

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STRUCTURAL STEEL DETAILS

DESIGN BASIS	Fischer	6-4-68
DRAWN BY	L. Hinkel	9-14-68

S04 of 63103A

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DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	13 OF 24

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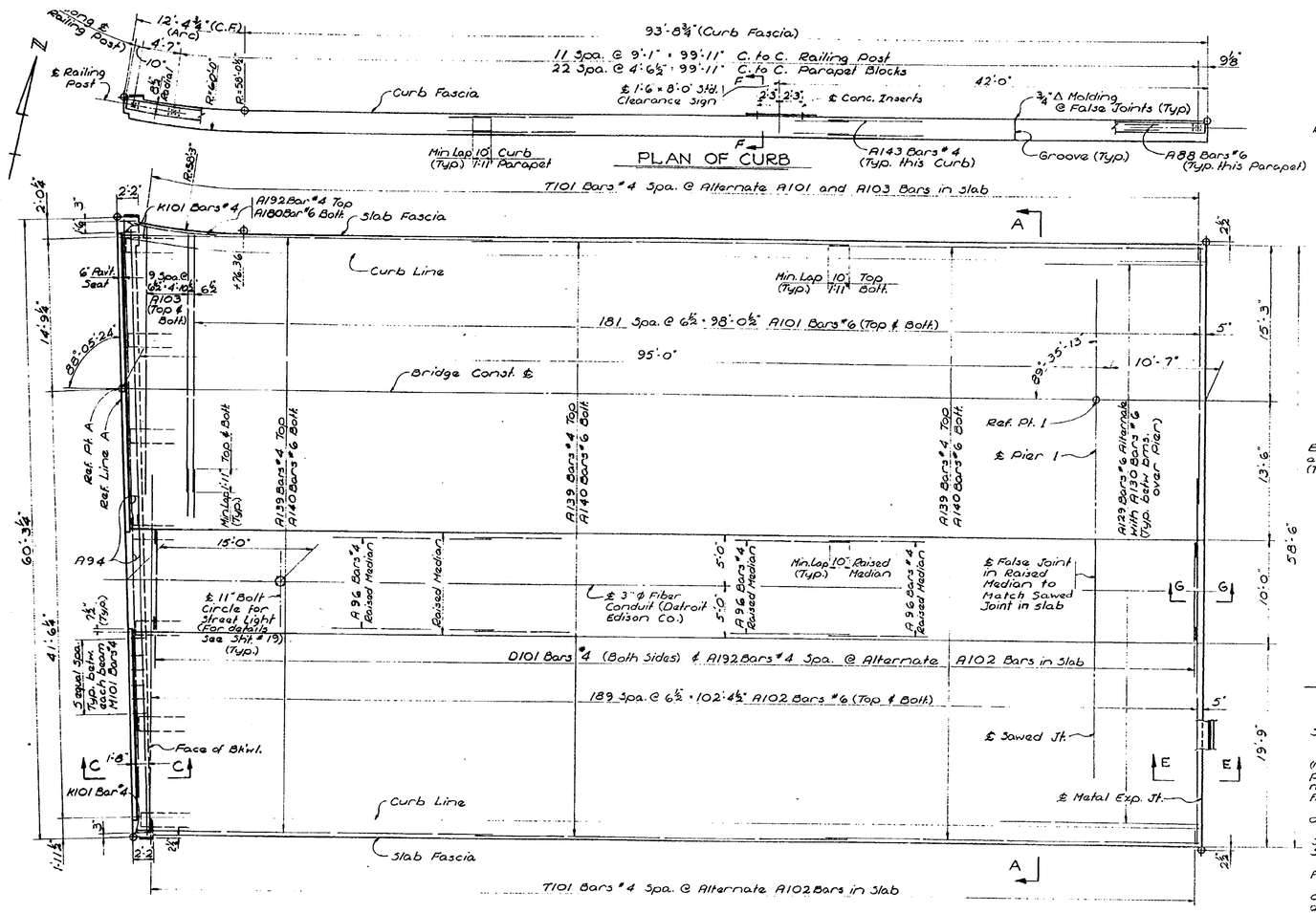
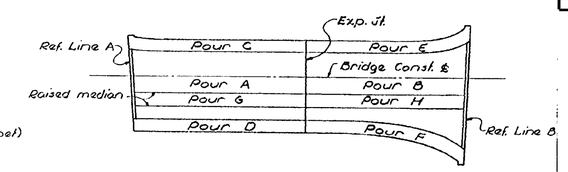
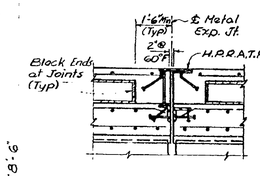


For Location of Details of Sections	See Sheet
A-A	/19
B-B	/19
C-C	/19
D-D	/19



POUR DIAGRAM

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
Bridge Railing - Parapet Type	Lin. Ft.	440.6
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	59
Water Reducing Retarding Admixture	Gals.	61
Structural Tile 6"x12"x12"	Each	1254
Protective Treatment for Bridge Decks	Sq. Ft.	13250



SECTION G-G

CONCRETE QUANT.	
Pour	Grade A(6AX) (Cu. Yds.)
A	175.9
B	200.8
C	6.4
D	6.3
E	7.0
F	7.1
G	22.9
H	23.6
Bkwl. A	18.4
Bkwl. B	32.4
Total	500.8 Cu. Yds.

NOTES:

J.W.P. denotes Joint Waterproofing.
H.P.R.A.T.F. denotes Hot-Poured Rubber Asphalt Type Filler.
For details of bevels, moldings and bridge railing, see Standard Sheet R11 or R12.
Edge or Groove denote edging or grooving with an approved tool.
The contractor is to provide a sawed joint ½" deep by ⅛" wide (min) in the top of slab over and parallel to the centerline of pier. The joint is to be sawed before casting of curbs and raised median and is to be filled with hot-poured rubber asphalt type filler (incidental).
Bridge railing is to be either aluminum or steel tubular railing on concrete parapet. See railing standard R11 or R12.
Protective treatment for bridge decks is to be applied to all superstructure concrete surfaces between fascia lines. (See Supplemental Specifications)
For name plate mounting details see standard sheet R11 or R12. For location of name plate see sheet #4.
Curb and raised median pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by section 5.01.05 of the standard Specifications.
False joints in curbs & raised medians shall be placed midway between parapet blocks at approx. every fourth panel.
Alphabetical designation of pours is not to be construed as a pour sequence.

Work this sheet with Sheet #18 & 19

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

FISHER 6-4-69

S04 of 63103A

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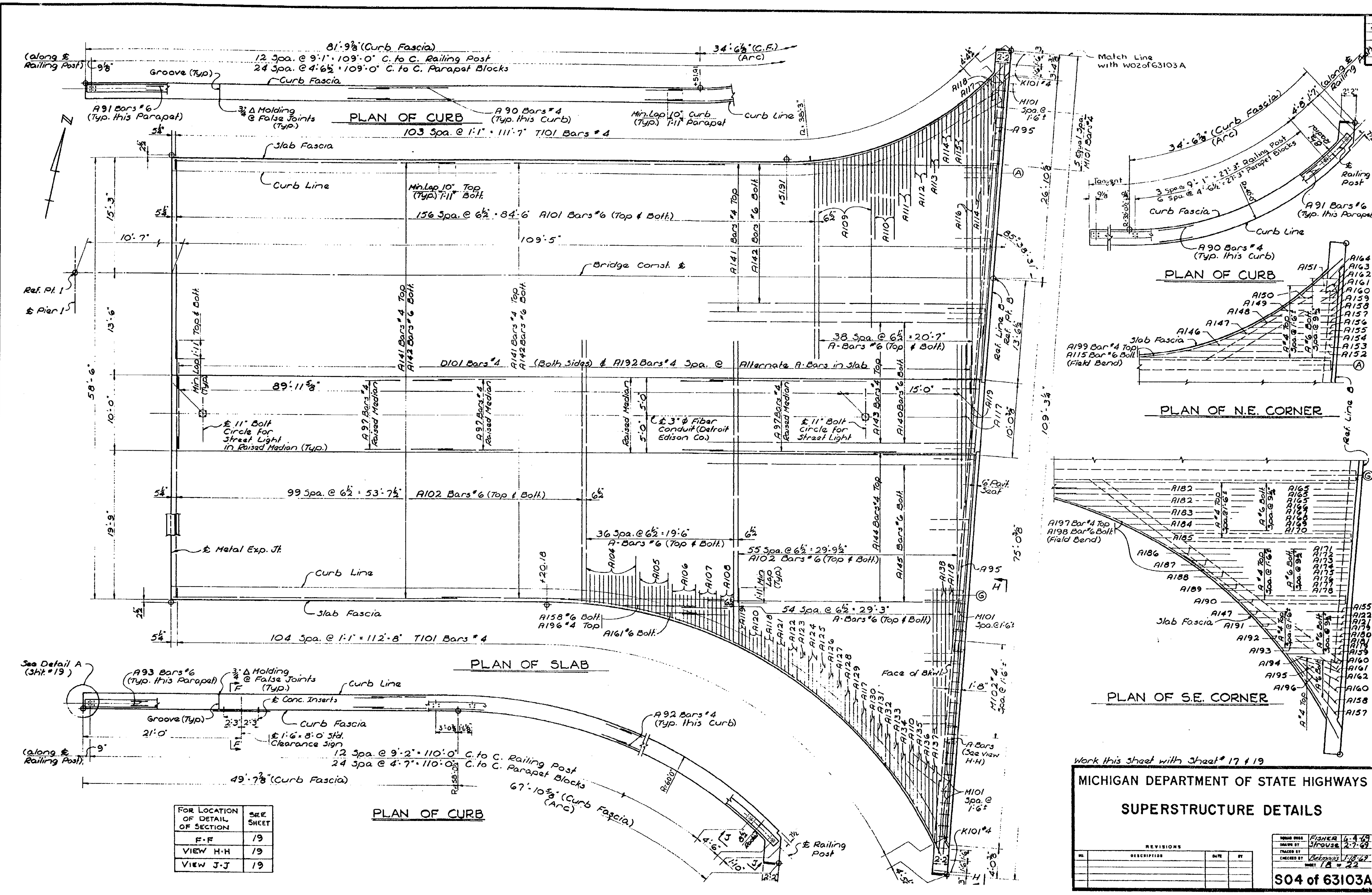
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	14 OF 24

REVISIONS

NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 02-18-99 DRAWN BY: INDER FILE NAME: s0463103sn.



For Location of Detail or Section	See Sheet
F-F	19
VIEW H-H	19
VIEW J-J	19

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

S04 of 63103A

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	15 OF 24

CONTROL SECTION S04 OF 63103 JOB NO. 48404A SH. NO. 15

DRAWN BY: INDER DATE: 02-10-99 CHECKED BY: DATE: CORRECTED BY: DATE:

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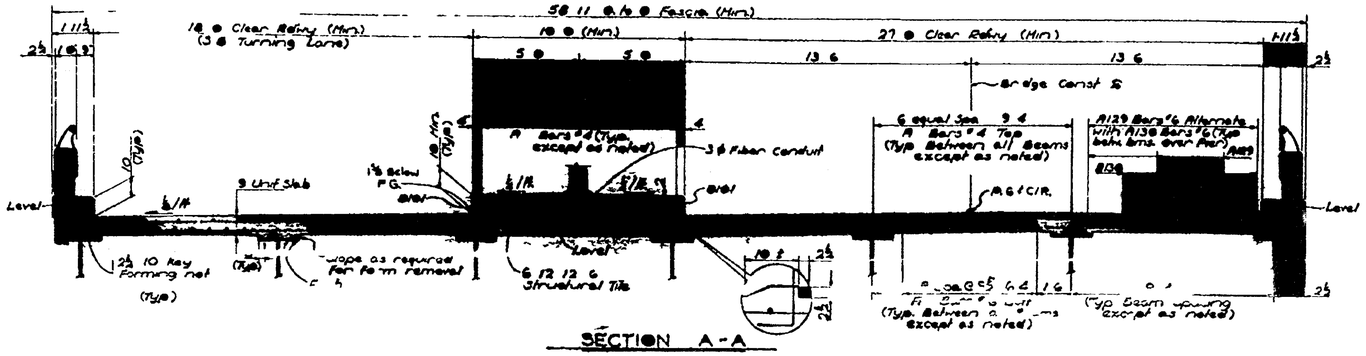
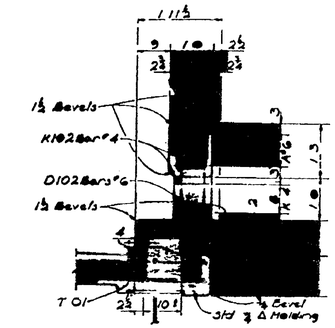
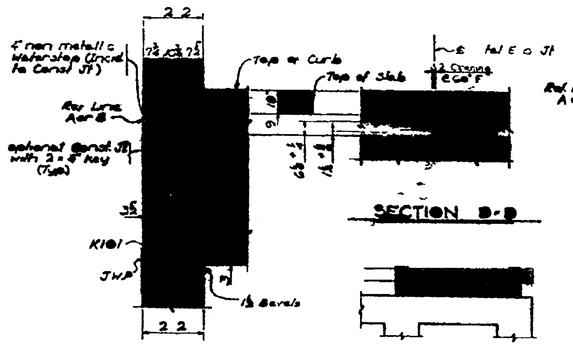


SECTION A-A

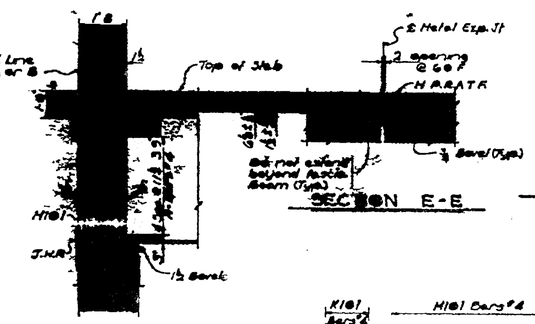


TYP SECTION THRU CURB

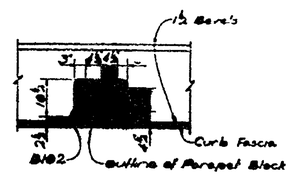


SECTION B-B

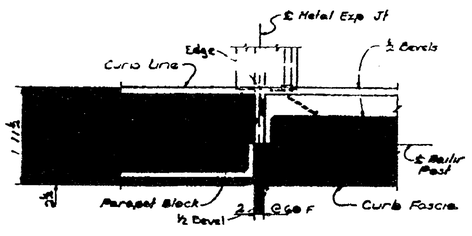
VIEW J J
(3 ℄ Quad only)



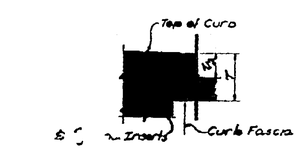
SECTION E-E



SECTION THRU PARAPET POST



DETAIL A



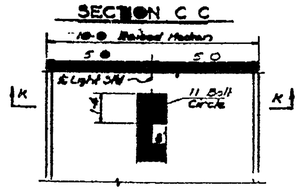
SECTION F-F

Inserts are to be ⅝ Truscan Threaded inserts or approved equal and are to be provided with a suitable wiping plug

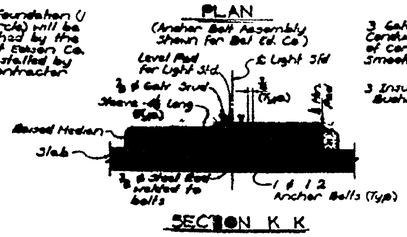
Furnishing and placing concrete Inserts is incidental to Superstructure Conc

Clearance signs and mounting brackets are to be furnished and installed by others

Note: Post Foundation (Bolt Circle) will be furnished by the Detroit Edison Co. and installed by the contractor

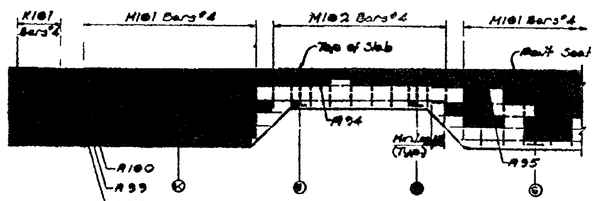


SECTION C C

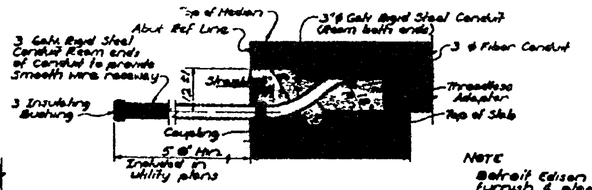


PLAN
(Anchor Bolt Assembly Shown for Bel Ed. Co.)

SECTION K K

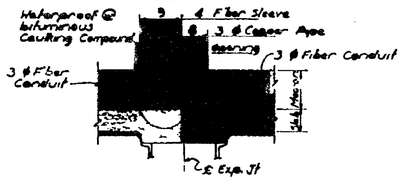


VIEW H-H

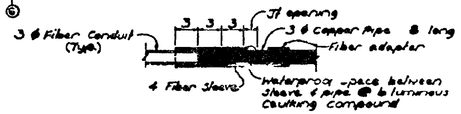


SECTION AT BACKWALL

NOTE
Detroit Edison Co. will furnish & place their own Conduits



SECTION



EXP JT DETAIL

Work this sheet with Sheet # 17 & 18

MICHIGAN DEPARTMENT OF STATE HIGHWAY

SUPERSTRUCTURE DETAILS

S04 of 63103

NOTE:
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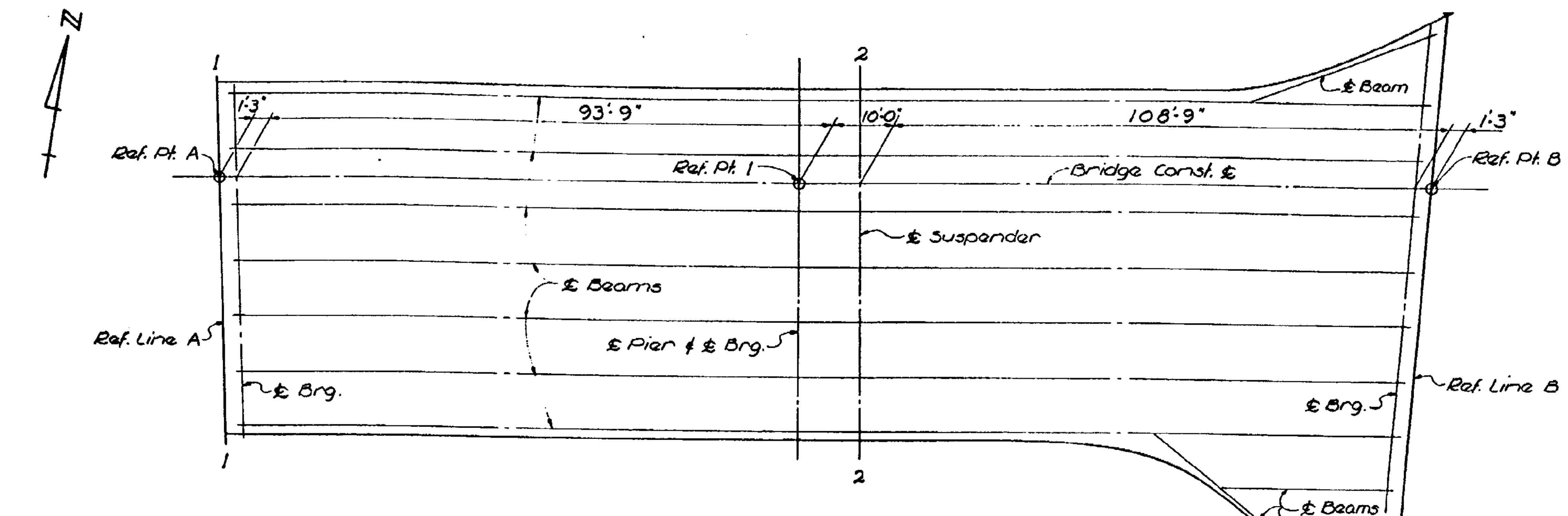
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

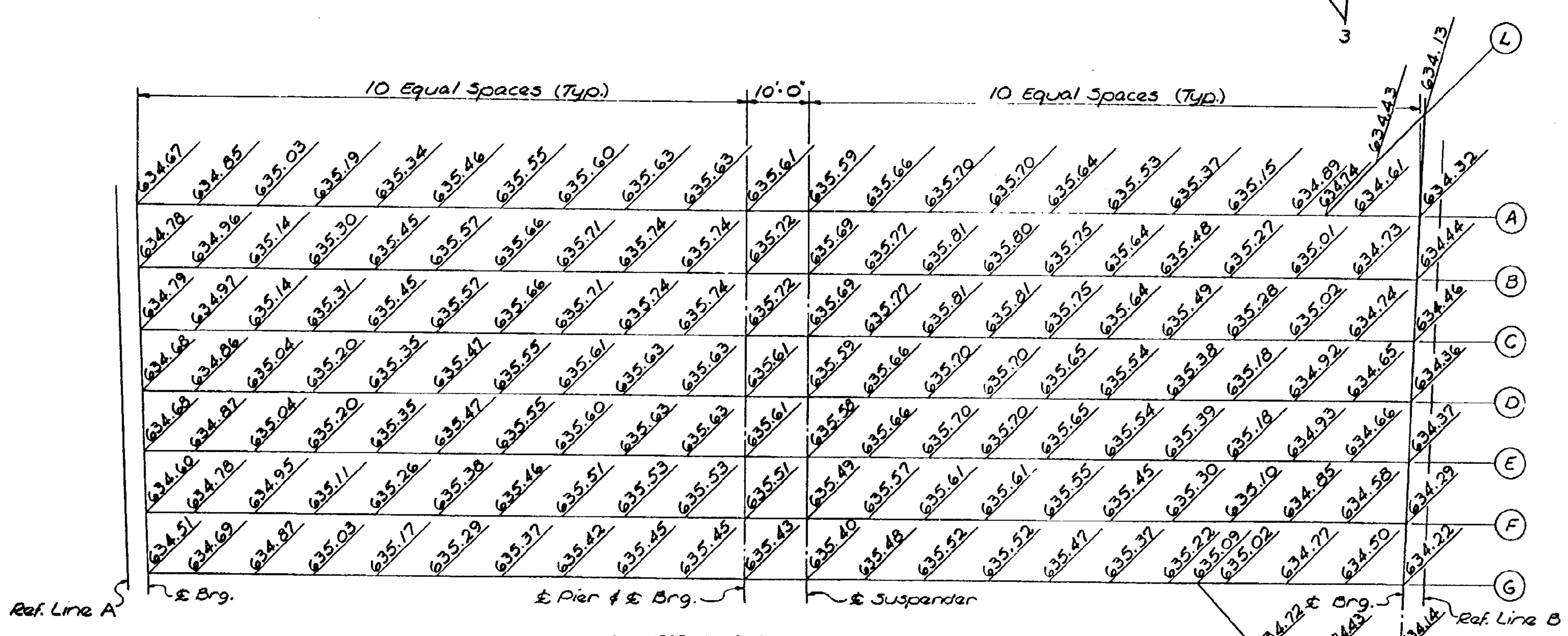
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	16 OF 24

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 02-10-99 DRAWN BY: INDER FILE NAME: s0463103sn.

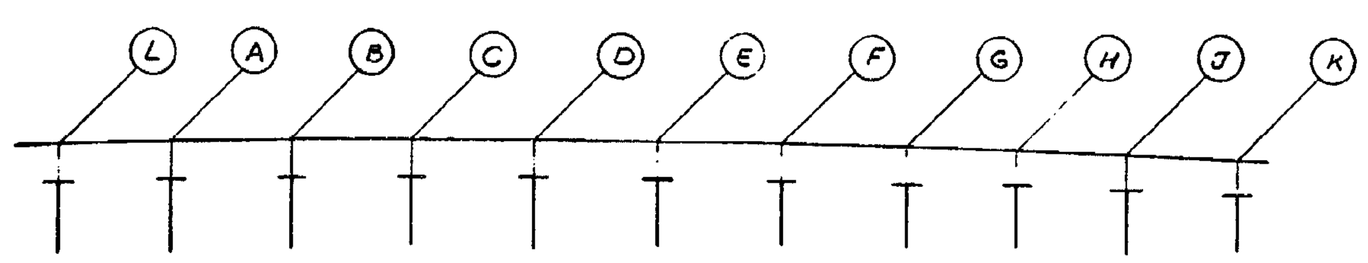


PLAN OF SLAB



BOTTOM OF SLAB ELEVATIONS

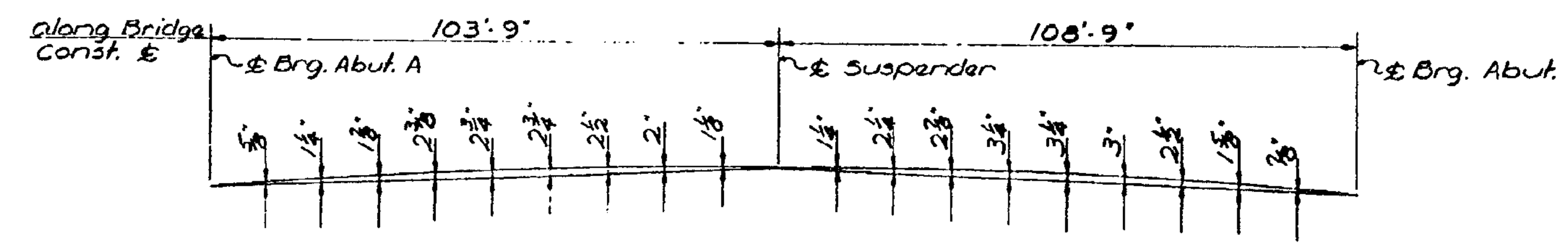
(See Section @ Beam)



SCREED TEMPLATE

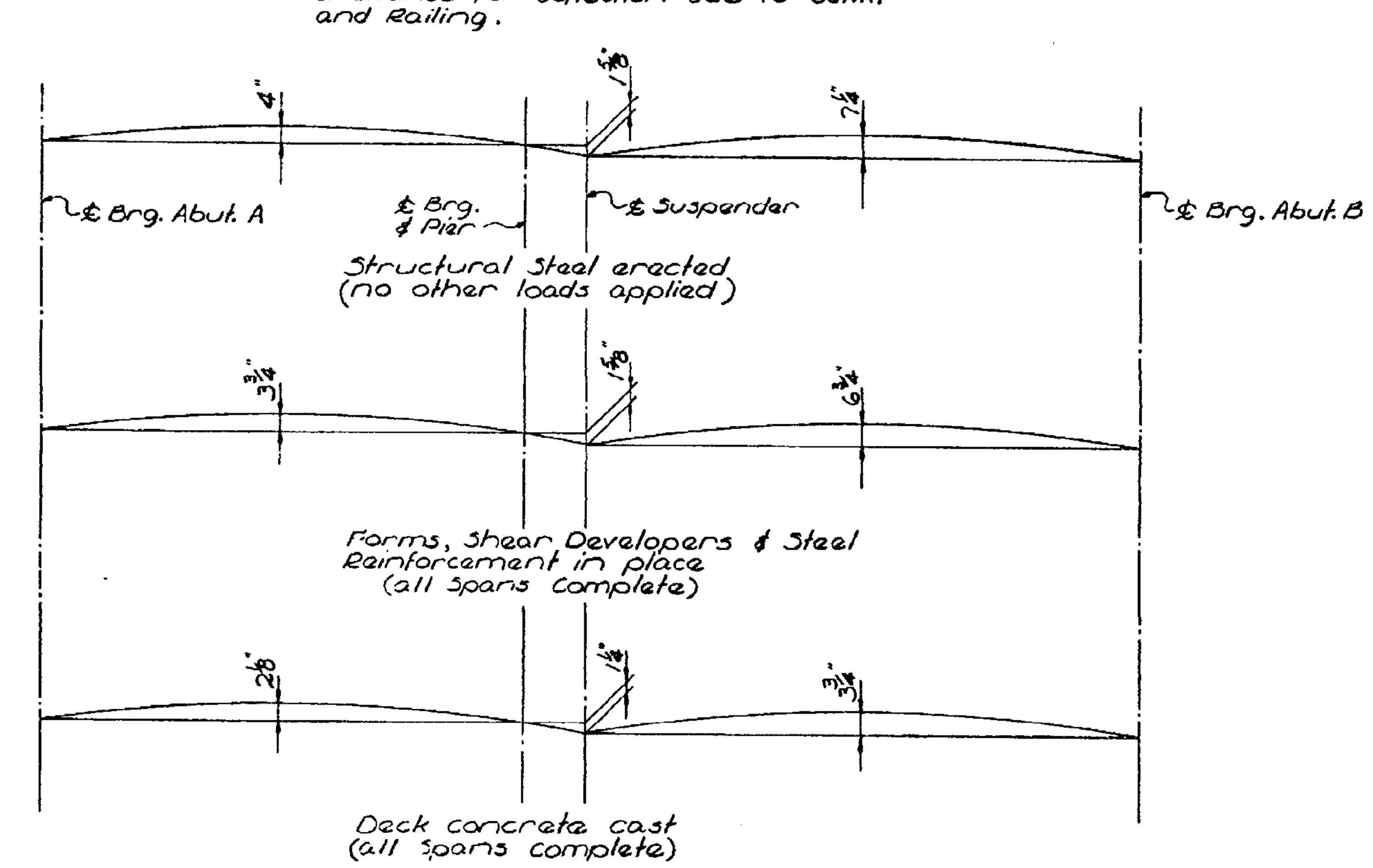
(Looking East)

SCREED TEMPLATE ELEVATION											
LINE	L	A	B	C	D	E	F	G	H	J	K
1-1		635.40	635.51	635.52	635.41	635.42	635.33	635.24			
2-2		636.33	636.44	636.44	636.33	636.33	636.24	636.15			
3-3	634.84	635.05	635.17	635.19	635.09	635.10	635.02	634.94	634.87	634.80	634.72



TOP OF SLAB OFFSET

Includes vertical curve ordinate and allowance for deflection due to Sdwk. and Railing.



CAMBER ORDINATES

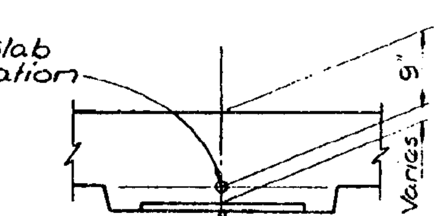
NOTES:

Screed elevations are based on the condition that no slab concrete has been cast and that formwork, steel reinforcement and shear developers are in place.

Bottom of slab elevations are based on the condition that all structural steel has been erected, but no other loads applied. These elevations include allowances for deflections due to forms, steel reinforcement, shear developers in place, deck concrete and railing.

Screeds affected by loads in other spans are to be set to the elevations shown before casting any concrete. Concrete in the suspended span is to be cast before the concrete in the anchor span.

Longitudinal strike-off finishing machine is to be used in placing deck concrete and the flared quadrants shall be hand screeded.



TYP. SECTION AT EACH BEAM

Work this sheet with sheet # 17, 18 & 19

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

REVISIONS

NO	DESCRIPTION	DATE	BY

SQUAD BOSS	FISHER	6-4-69
DRAWN BY	Strouse	4-17-69
TRACED BY		
CHECKED BY	Bakopanis	4-18-69
SHEET 20 OF 22		

S04 of 63103A

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DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	17 OF 24

DRAWN BY: INDER DATE: 02-10-99 CHECKED BY: DATE: CORRECTED BY: DATE:

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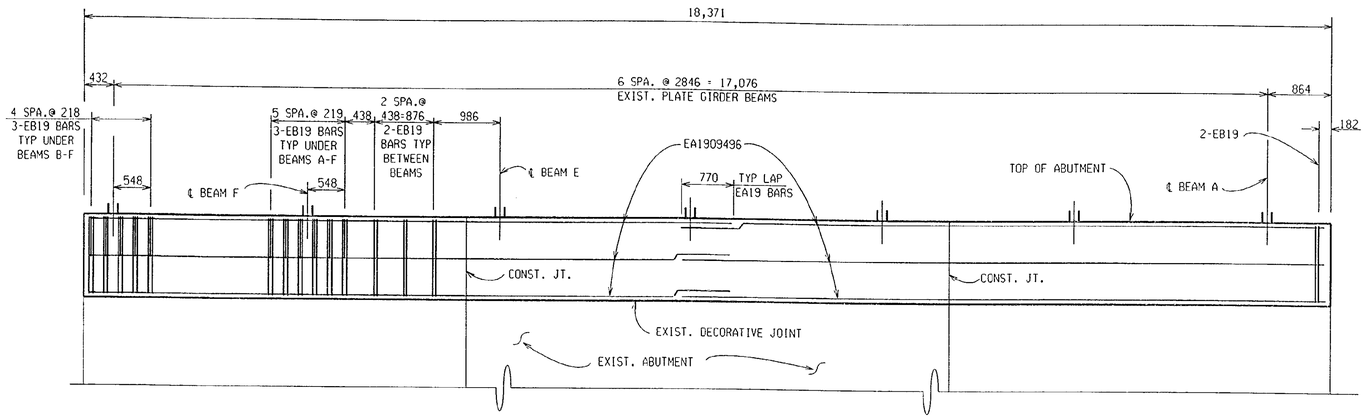
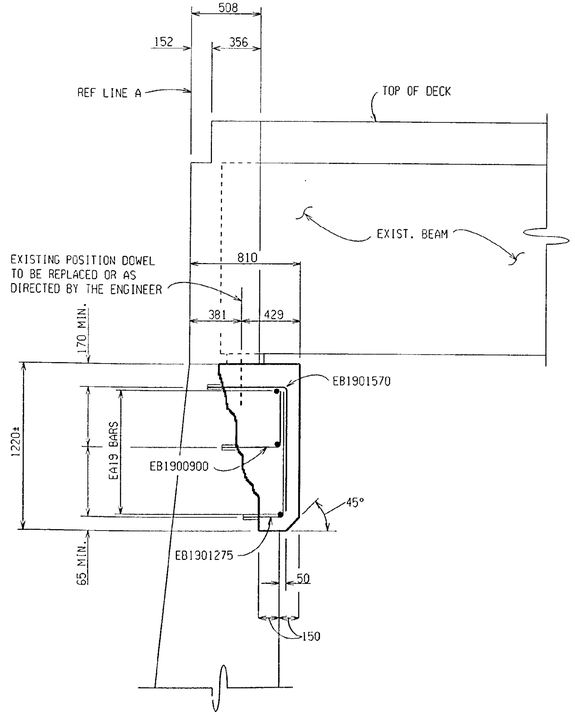


ABUTMENT A ELEVATION

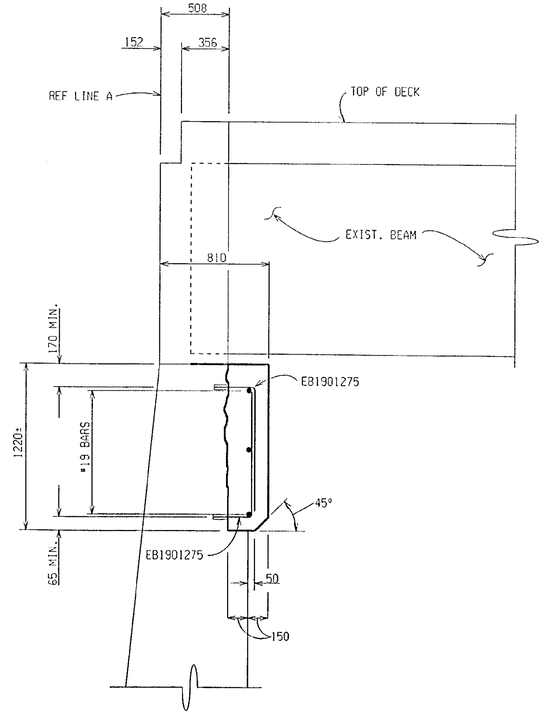
MISCELLANEOUS QUANTITIES	
7 ea	Support, Column, Temp
565 kg	Reinforcement, Steel, Epoxy Coated
156 ea	Adhesive Anchoring of Horizontal Bar, 19
5 m3	Hand Chipping, Other Than Deck
8 m3	Patching Conc, LM
26 m2	Patch, Forming
105 m2	Water Repellent Treatment



SECTION THRU ABUTMENT

PROPOSED REPAIRS UNDER BEAMS

SALVAGE ALL REINFORCEMENT EXCEPT LONGITUDINAL



SECTION THRU ABUTMENT

PROPOSED REPAIRS BETWEEN BEAMS

NOTES:

EXISTING TEMPORARY SUPPORTS LOCATED UNDER THE BEAMS AT ABUTMENT A SHALL BE REMOVED AND REPLACED WITH THE NEW TEMPORARY SUPPORTS DESIGNED FOR THE ABUTMENT REPAIR WORK. PLACE PROPOSED TEMPORARY SUPPORTS PRIOR TO REMOVAL OF ANY OF THE EXISTING SUPPORTS.

EXISTING TEMPORARY SUPPORTS SHALL BE STOCK PILED ON THE JOB SITE AND DELIVERED TO AUBURN HILLS MAINTENANCE FACILITY AS DIRECTED BY THE ENGINEER (INCLUDED IN PAYMENT FOR TEMPORARY SUPPORTS.)

REMOVAL OF THE EXISTING TEMPORARY SUPPORTS SHALL BE INCLUDED IN THE PAY ITEM "SUPPORT, COLUMN, TEMP".

ALTERNATE DESIGNS FOR THE TEMPORARY SUPPORT SHALL BE BASED ON LOADS AS FOLLOWS:

800 kN VERTICAL GIRDER LOAD
120 kPa ALLOWABLE SOIL PRESSURE

FORMS FOR LARGE PATCHES SHALL BE INSTALLED IN 600 mm TO 1200 mm HIGH SECTIONS WITH THE TOP OF FORM NO MORE THAN 1200 mm ABOVE THE LEVEL OF CONCRETE AS THE POUR PROGRESSES.

TEMPORARY SUPPORTS SHALL NOT REMAIN LOADED FOR A PERIOD GREATER THAN FOUR WEEKS.

WATER REPELLENT TREATMENT SHALL BE APPLIED TO THE ENTIRE REPAIRED AND EXPOSED EXISTING SURFACES OF ABUTMENT A.

ALL CONCRETE ANCHORS SHALL BE INSTALLED ACCORDING TO MANUFACTURERS RECOMMENDATIONS

SYSTEMS FOR ANCHORING HORIZONTAL OR VERTICAL REINFORCEMENT IN EXISTING CONCRETE SHALL BE CHOSEN FROM THE QUALIFIED PRODUCTS LIST IN THE CURRENT MDOT MATERIALS SAMPLING GUIDE.

TEMPORARY CONCRETE BARRIER SHALL BE USED TO PROTECT THE TEMPORARY SUPPORT AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR WILL BE FURNISHED WITH PLANS OF THE EXISTING STRUCTURE IF REQUESTED.

WELDING ON EXISTING BEAMS WILL NOT BE PERMITTED (EXCEPT AS NOTED).

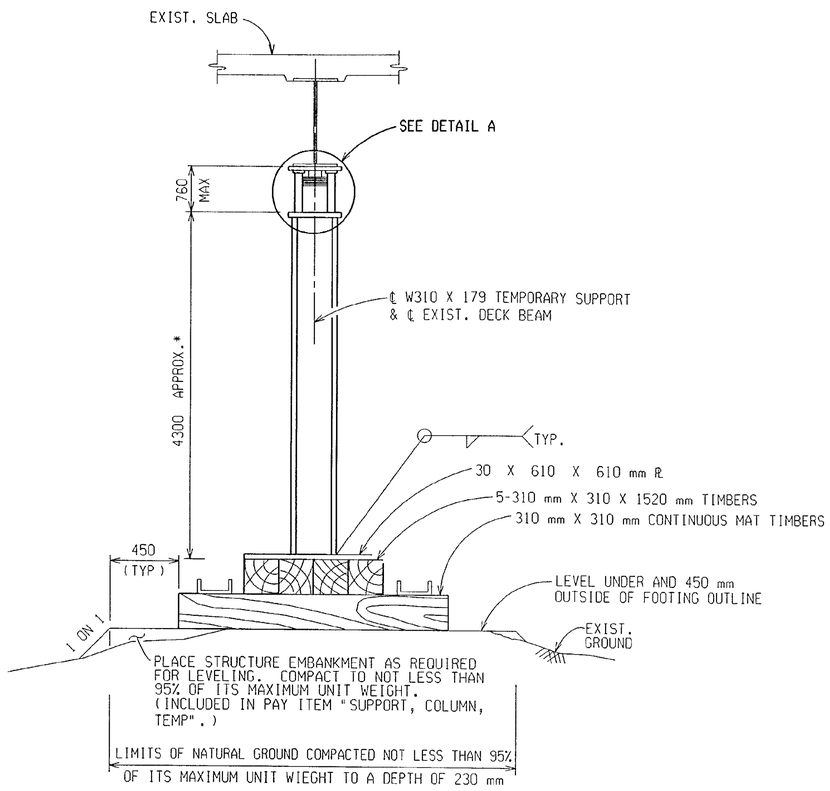
REVISIONS			
NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

ABUTMENT A REPAIR DETAILS

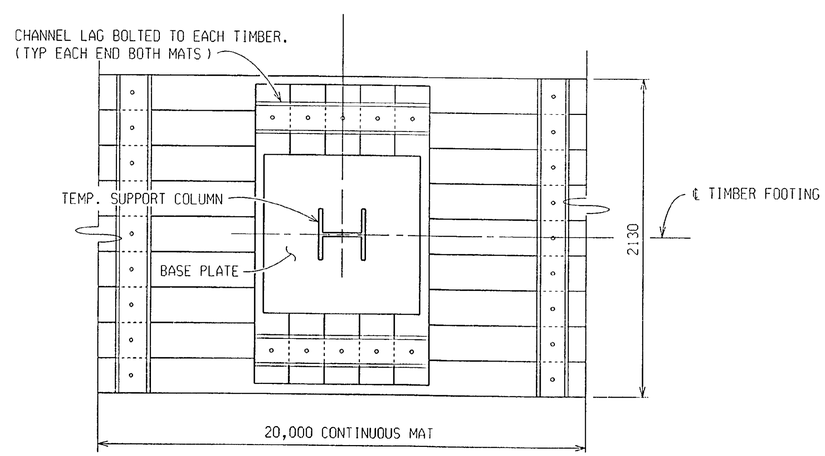
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	18 OF 24

DATE: 10-19-99 CORRECTED BY: R. PRATT/ UNDER DATE: 3-15-99 CHECKED BY: DRAWN BY: SHAFFER FILE NAME: S0463103.48R

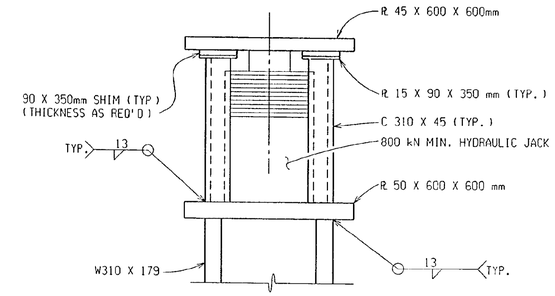


TIMBER FOOTING ON NATURAL GROUND

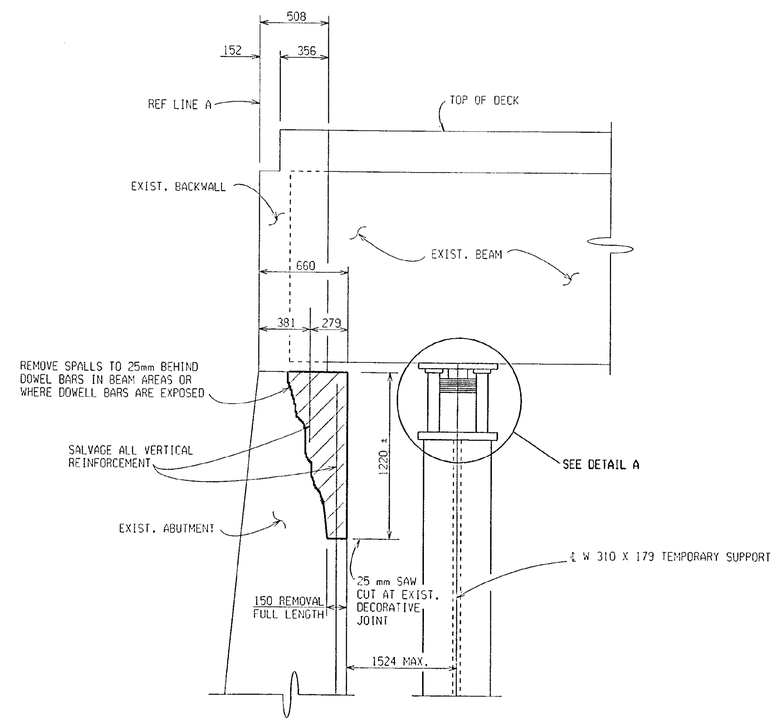
* EXACT HEIGHT TO BE DETERMINED BY CONTRACTOR. HEIGHT NOT TO EXCEED



TIMBER FOOTING PLAN



DETAIL A



SECTION THRU ABUTMENT

SHOWING REMOVAL

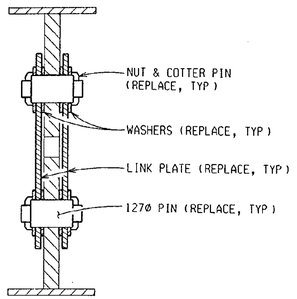
REVISIONS			
NO.	DESCRIPTION	DATE	BY

ABUTMENT A REPAIR DETAILS

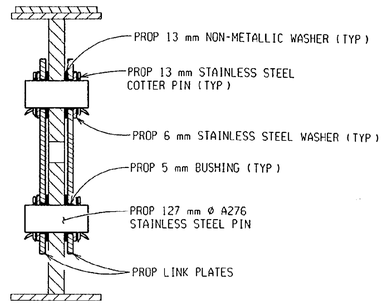
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	19 OF 24

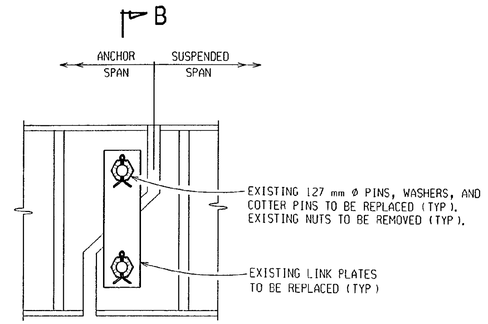
FILE NAME: S0463103.ABR DRAWN BY: SHAFFER CHECKED BY: DATE: 3-15-99 CORRECTED BY:R. PRATT / INDER DATE: 10-18-99



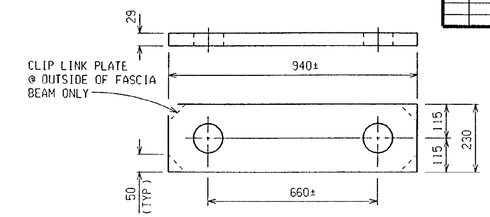
SECTION B-B
(EXISTING)



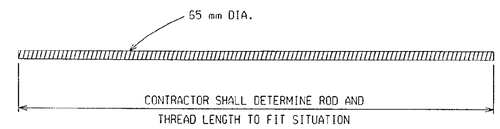
SECTION B-B
(PROPOSED)



ELEVATION AT PIN



LINK PLATE
(14 REQ'D.)

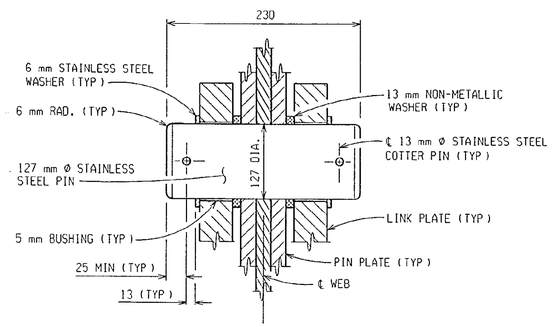


SUSPENDER ROD DETAIL

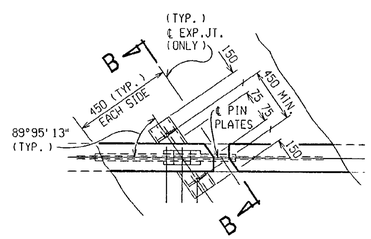
4 REQUIRED PER ASSEMBLY W/7 HEAVY HEX NUTS
& 4 HARDENED WASHER PER ROD

MISCELLANEOUS QUANTITIES

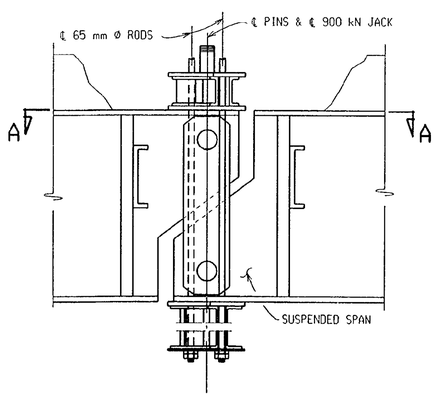
7 ea	Support, Suspension, Temp
28 ea	Bushing
1000 kg	Structural Steel, Furn and Fab, Pin and Hanger
7 ea	Hanger Assembly, Rem and Erect
7 ea	Hanger Assembly, Field Measurement
1 LS	Field Repr of Damaged Coating (S04)
1 LS	Steel Structure, Cleaning, Type 4 (S04)
1 LS	Steel Structure, Coating, Type 4 (S04)



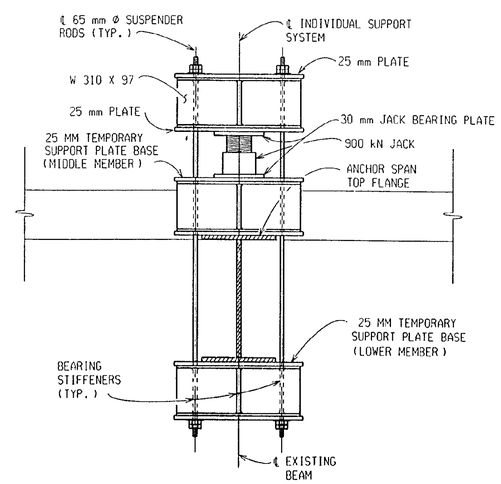
PROPOSED
PIN DETAIL
(14 REQ'D.)



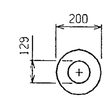
SECTION A-A



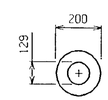
TEMPORARY SUPPORT



DECK SECTION A-A
(TYPICAL ALL BEAMS)



13 mm NON-
METALLIC WASHER
(INCIDENTAL TO STRUCTURAL STEEL)
(28 REQ'D.)



6 mm STAINLESS
STEEL WASHER
(28 REQ'D.)

NOTES:

THE AREA BEHIND AND AROUND THE HANGER ASSEMBLY SHALL BE COATED PRIOR TO INSTALLING THE NEW LINK PLATES AND PINS. PROPOSED LINK PLATES SHALL BE SHOP COATED.

THE PROTECTION OF WORK AND ENVIRONMENT DURING BLAST CLEANING OF WEBS BEHIND AND AROUND HANGER ASSEMBLIES SHALL BE ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. (INCLUDED IN THE BID ITEM "HANGER ASSEMBLY, REMOVE AND ERECT".)

THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS OF THE EXISTING HANGER ASSEMBLIES INDICATED ON THE PLANS PRIOR TO THE PREPARATION OF LINK PLATE AND PIN SHOP DRAWINGS.

WELDING ON EXISTING GIRDERS WILL NOT BE PERMITTED.

THE CONTRACTOR WILL BE FURNISHED WITH PLANS OF THE EXISTING STRUCTURE IF REQUESTED.

ALTERNATE DESIGNS OF THE TEMPORARY SUPPORT SHALL BE BASED ON LOADS AS FOLLOWS:

900 kN VERTICAL GIRDER LOAD.

THIS BRIDGE IS COATED WITH LEAD BASED PAINT.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE ENGINEER, STRUCTURES AND ROAD MAINTENANCE OF THE MAINTENANCE DIVISION IN LANSING.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE COATED IS 2090 SQUARE METERS.

THE SIGNS OVER I-75, NB AND SB, SHALL BE REMOVED FOR CLEANING AND COATING OF THE FASCIA BEAMS. SIGNS SHALL BE REINSTALLED USING NEW CONNECTION HARDWARE ACCORDING TO SUBSECTION 919.02 OF THE STANDARD SPECIFICATIONS. (INCLUDED IN THE BID ITEMS FOR CLEANING AND COATING EXISTING STEEL STRUCTURES.)

THE COLOR OF THE URETHANE PROTECTIVE COAT SHALL MATCH COLOR NUMBER 15488 LIGHT BLUE OF FEDERAL STANDARD NUMBER 595a.

THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES. (INCLUDED IN THE BID ITEM "STEEL STRUCTURE, COATING, TYPE 4",(S04)).

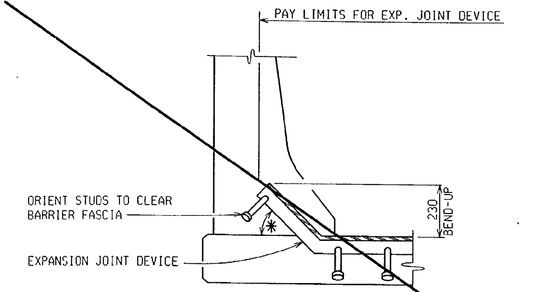
REVISIONS			
NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

SUSPENDER REPLACEMENT DETAILS

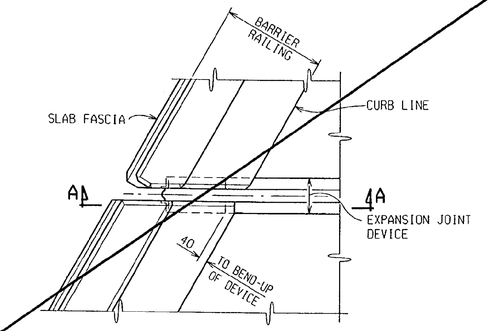
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404D	MAHDAVI	20 OF 24

DATE: 9-20-99 CORRECTED BY: SHAFFER DATE: CHECKED BY: DATE: DRAWN BY: SHAFFER FILE NAME: S0463103.PR



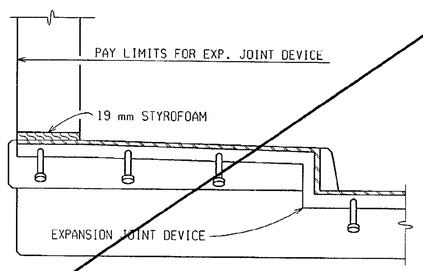
SECTION A-A

✱—FOR ANGLES OF CROSSING FROM 90° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG ℄ EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.

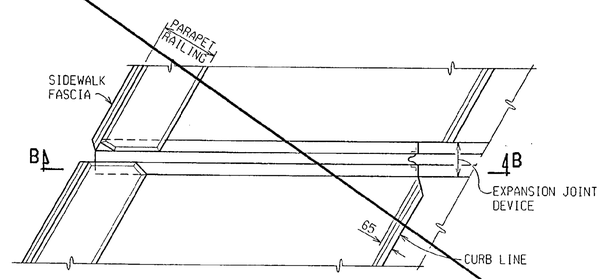


PLAN AT BARRIER RAILING

BARRIER TREATMENT



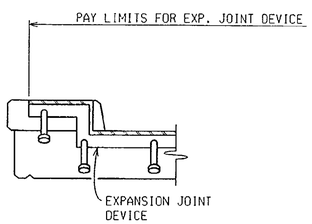
SECTION B-B



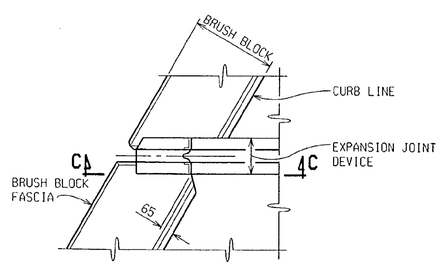
PLAN AT PARAPET RAILING

(DETAILS ARE SIMILAR FOR BRIDGE RAILING, 5 TUBE)

SIDEWALK TREATMENT



SECTION C-C



PLAN AT BRIDGE RAILING, 2 TUBE

BRUSH BLOCK TREATMENT

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
S04	90°	PIER 1	35	18 m

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	18

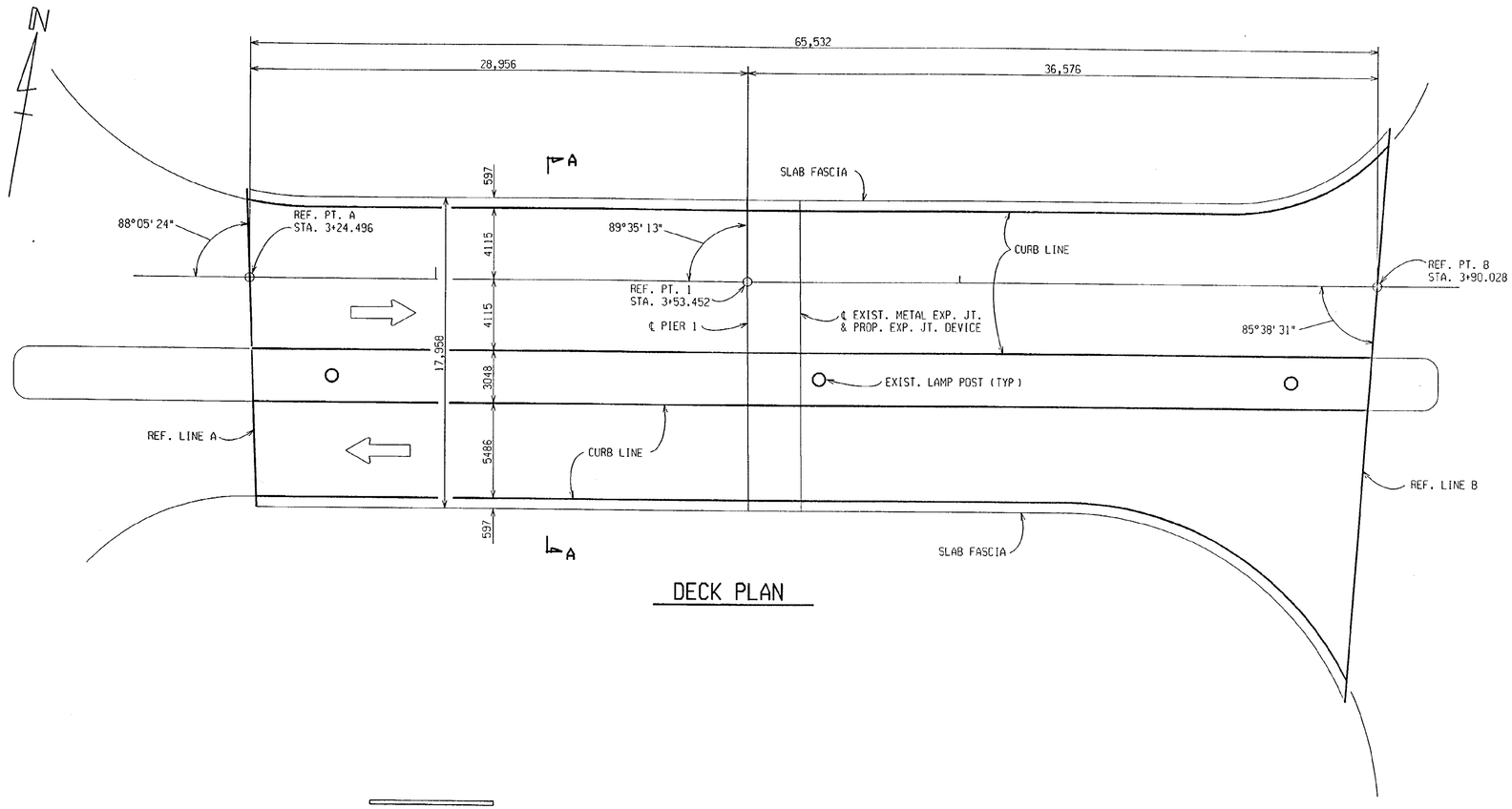
MICHIGAN DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404D	MAHDAVI	21 OF 24

EJ3T (11-17-97)

REVISIONS			
NO.	DESCRIPTION	DATE	BY



DECK PLAN

EA BAR

EPOXY COATED STEEL REINFORCEMENT		
BAR	NO. REQ'D	TOTAL MASS
EA1910670	14	334
EA1907920	14	248
* OVERRUN	500	
GRAND TOTAL = 1082		

* STEEL REINFORCEMENT NEEDED TO REPLACE WEAKENED REINFORCEMENT FOUND DURING DECK PREPARATION.

EPOXY COATED
BAR SIZE
BAR LENGTH(mm)
EA1913000
BAR SHAPE

BAR LEGEND

MISCELLANEOUS QUANTITIES

30 m2	Bit Patch, Rem
960 m2	Scarifying
960 m2	Bridge Deck Surface Construction
18 m	Deck Joint, Rem
1082 kg	Reinforcement, Steel, Epoxy Coated
40 m3	Conc, Bridge Deck Overlay
5 m3	Conc, Grade D
1176 m2	False Decking
960 m2	Hydrodemolition, First Pass
40 m2	Hydrodemolition, Second Pass

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES JOINT REPLACEMENT, PIN AND HANGER REPLACEMENT, PAINTING, ABUTMENT REPAIR, RESURFACING THE EXISTING BRIDGE DECK AND MAINTAINING TRAFFIC. ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE PART OF THIS CONTRACT.

I-75 TRAFFIC IS TO BE MAINTAINED BY PART WIDTH CONSTRUCTION. SHELVIN U-TURN TRAFFIC IS TO BE DETOURED OVER EXISTING ROADS.

THE VOLUME OF CONCRETE, BRIDGE DECK OVERLAY IS BASED ON THE OVERLAY AND AN ESTIMATED QUANTITY TO REPLACE UNSOUND CONCRETE AS DETERMINED BY THE ENGINEER.

EXPANSION JOINT REPLACEMENT SHALL EXTEND ACROSS BRUSHBLOCKS.

THE CONTRACTOR WILL BE FURNISHED WITH EXISTING PLANS IF REQUESTED

THE CONTRACTOR SHALL REMOVE AND REPLACE ONLY THAT PORTION OF THE BRUSH BLOCK THAT IS NECESSARY FOR INSTALLATION OF THE DECK JOINT.

THE ITEM "JOINT, REMOVE" INCLUDES HAND CHIPPING WITHIN LIMITS REQUIRED FOR REMOVAL.

BEFORE OVERLAYING, SOUND CONCRETE TO DETERMINE WHETHER 450 mm REMOVAL AT EITHER SIDE OF TRANSVERSE JOINTS WILL BE ADEQUATE. INCREASE THE REMOVAL LIMITS IF NECESSARY.

WHERE STRUCTURAL STEEL IS EXPOSED DURING THE REMOVAL OF UNSOUND DECK CONCRETE, IT SHALL BE CLEANED AND COATED. CLEANING SHALL BE BY BLASTING OR POWER TOOLS. THE PROTECTION OF WORK AND ENVIRONMENT DURING CLEANING WILL BE PAID FOR AS EXTRA WORK.

THE ACTUAL QUANTITY OF "CONCRETE,BRIDGE DECK OVERLAY" PLACED ON THE DECK WAS CUBIC METERS. (THIS INFORMATION IS TO BE FILLED IN BY THE ENGINEER WHEN SUBMITTING "AS CONSTRUCTED" PLANS.)

SILICA FUME MODIFIED CONCRETE OR LATEX MODIFIED CONCRETE MAY BE SELECTED FOR THE BRIDGE DECK OVERLAY CONCRETE, SEE SPECIAL PROVISION.

FALSE DECKING SHALL INCLUDE THE AREA FROM FACE TO FACE OF ABUTMENTS AND BETWEEN SLAB FASCIAS.

MDOT Michigan Department of Transportation

DECK OVERLAY DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	22 OF 24

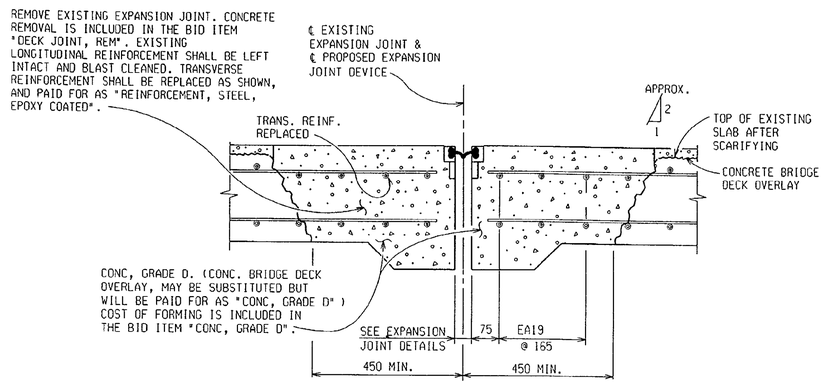
DRAWN BY: SHAFFER DATE: CHECKED BY: MIKUCKI DATE: 2-25-99 CORRECTED BY: SHAFFER DATE: 9-20-99

FILE NAME: S04G3103.OV

ACTIVE SCALE=

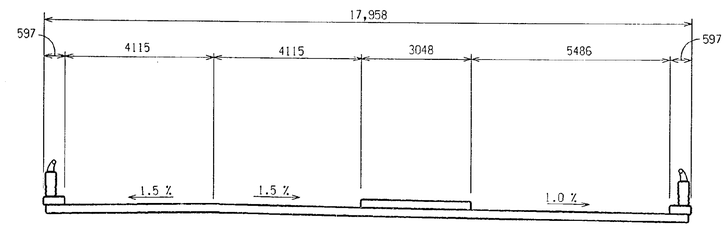
CONTROL SECTION S04 OF 63103 | JOB NO. 48404A | SH. NO. 23

REVISIONS			
NO.	DESCRIPTION	DATE	BY

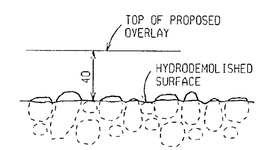


SECTION AT PROPOSED EXPANSION JOINT DEVICE

BEFORE FORMING, SOUND CONCRETE TO SEE IF ADDITIONAL REMOVAL WILL BE REQUIRED.

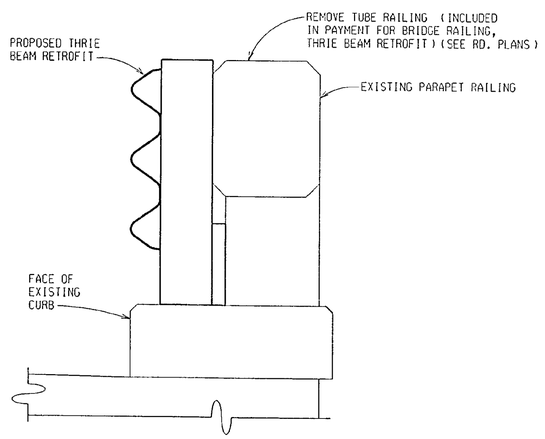


SECTION A-A



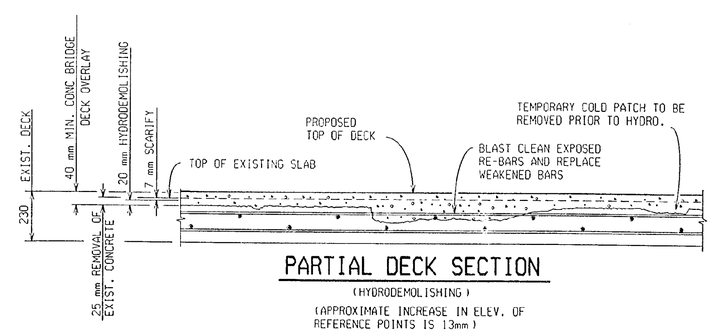
OVERLAY LIMITS SKETCH

(HYDRODEMOLISHING)



SECTION THRU PARAPET RAILING THRIE BEAM RETROFIT

(SEE ROAD PLANS AND STANDARD PLAN B-23 FOR THRIE BEAM RETROFIT DETAILS AND QUANTITIES)



PARTIAL DECK SECTION

(HYDRODEMOLISHING)

(APPROXIMATE INCREASE IN ELEV. OF REFERENCE POINTS IS 13mm)

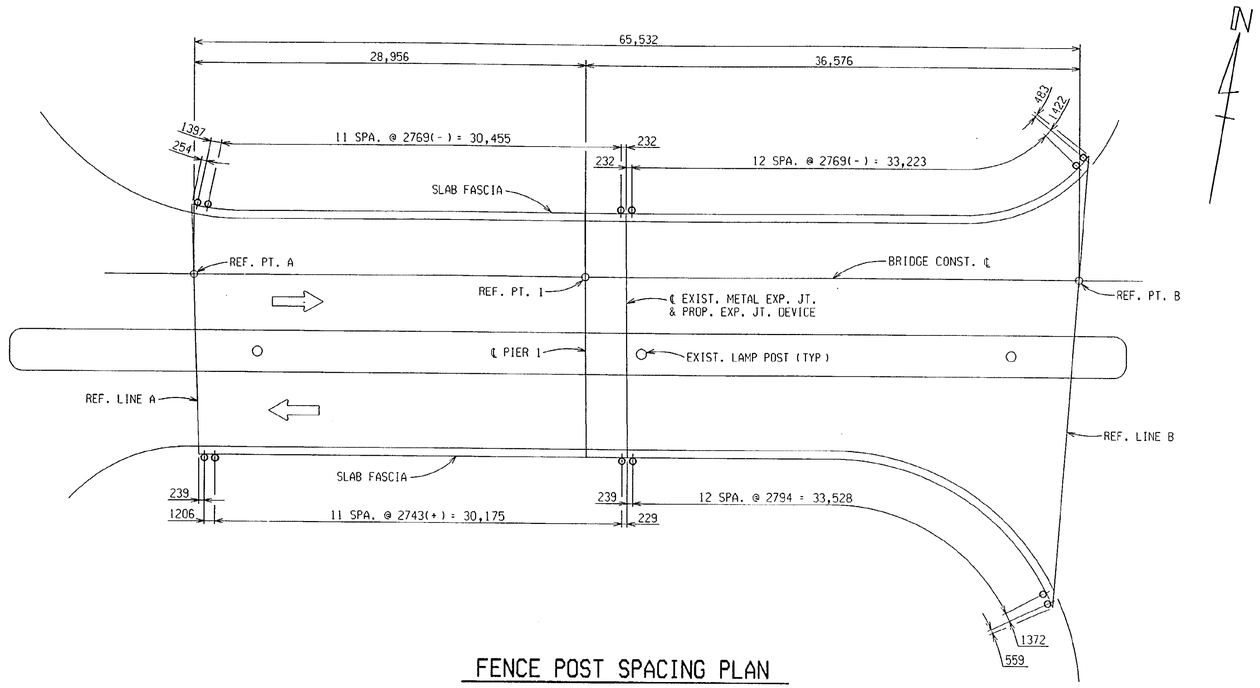
MDOT Michigan Department of Transportation

DECK OVERLAY DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	23 OF 24

FILE NAME: S0463103.OV | DRAWN BY: SHAFFER | CHECKED BY: MIKUCKI | DATE: 2-26-99 | CORRECTED BY: SHAFFER | DATE: 9-20-99

REVISIONS			
NO.	DESCRIPTION	DATE	BY



FENCE POST SPACING PLAN

THE EXISTING BRIDGE RAILING ON THIS STRUCTURE IS OPEN PARAPET TYPE.

MISCELLANEOUS QUANTITIES

322	m2	Fencing, Structures
1	ea	Elec Grounding System

NOTES:

ANY BRUSH OR OTHER VEGETATION WHICH MAY INTERFERE WITH THE INSTALLATION OF THE PROPOSED PEDESTRIAN FENCING SHALL BE REMOVED AS DIRECTED BY THE ENGINEER AND IS INCLUDED IN THE BID ITEM "FENCING, STRUCTURES".

SIGNING MOUNTED ON BRIDGE FASCIAS SHALL BE LEFT IN PLACE DURING INSTALLATION OF PEDESTRIAN FENCING UNLESS OTHERWISE DIRECTED BY THE ENGINEER. FENCE POST SPACING MAY BE ADJUSTED (3050 MAX.) WITH THE APPROVAL OF THE ENGINEER TO FACILITATE INSTALLATION AND IS INCLUDED IN THE BID ITEM "FENCING, STRUCTURES".

THE CONTRACTOR WILL BE FURNISHED WITH PLANS OF THE EXISTING STRUCTURE IF REQUESTED.

THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS BEFORE FABRICATING FENCE DETAILS.

A STRAIGHT FENCE AS SHOWN IN THE STANDARD PLAN B-32A SHALL BE USED ON THIS STRUCTURE.

GROUNDING CABLES AND TOPS OF GROUNDING RODS SHALL BE PLACED 300 mm MINIMUM BELOW FINISHED GROUND.

CHAIN LINK FENCE FABRIC SHALL BE 50mm MESH.

MDOT Michigan Department of Transportation

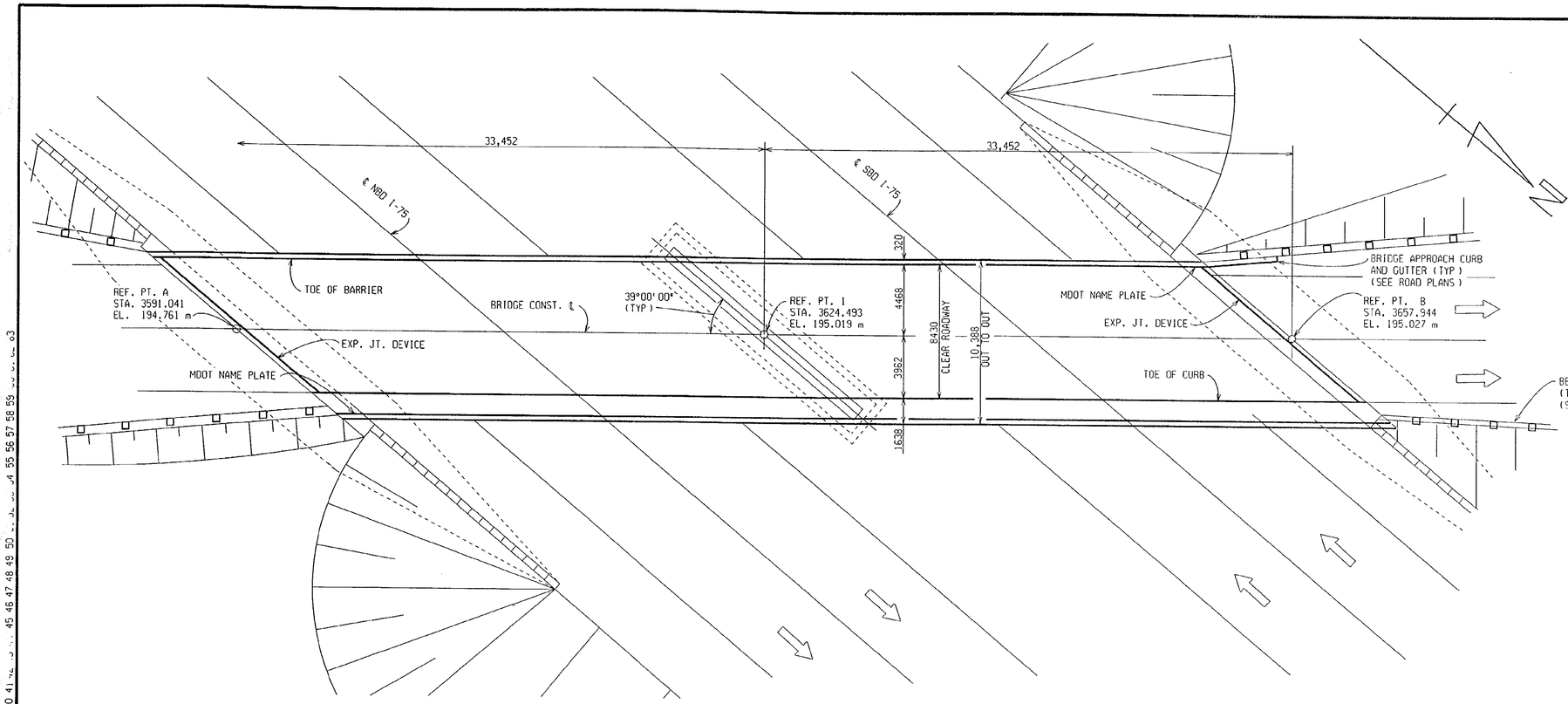
FENCING DEATILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-18-99	S04 OF 63103	48404A	MAHDAVI	24 OF 24

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 9-22-99 DRAWN BY: R. PRATT FILE NAME: s0463103.fe

CONTROL SECTION S02 OF 63174 | JOB NO. 48404 | SH. NO. 2

REVISIONS			
NO.	DESCRIPTION	DATE	BY



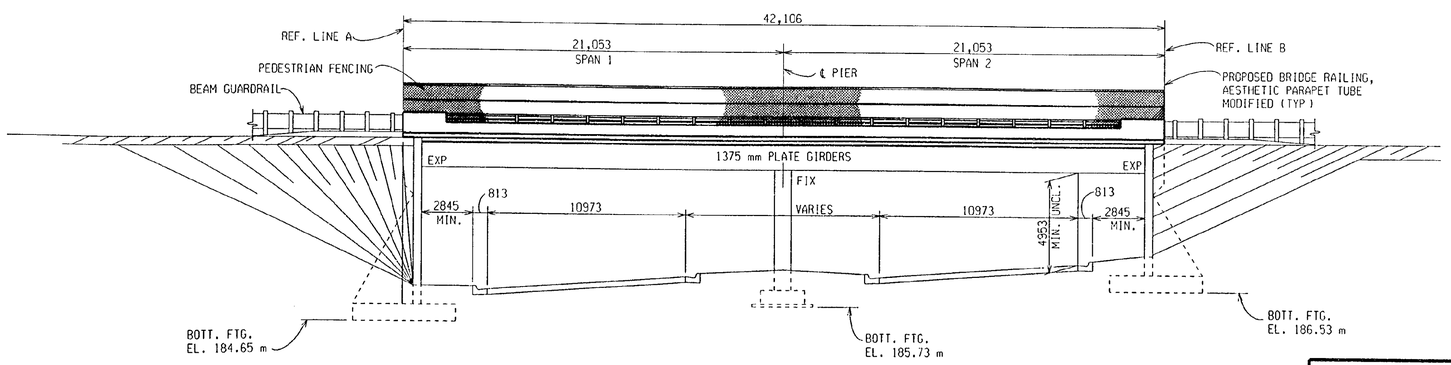
MISCELLANEOUS QUANTITIES

	1 LS	Structures, Rehabilitation, Rem Portions (S02)
*	5 m3	Hand Chipping, Other Than Deck
*	5 m3	Patching Conc, LM
*	50 m2	Patch, Forming
	685 m2	False Decking
	412 m2	Water Repellent Treatment

* TO BE USED FOR ABUTMENT REPAIRS A DIRECTED BY THE ENGINEER

PLAN

THE LIMITS OF FALSE DECKING ARE BETWEEN THE FACES OF THE ABUTMENTS AND SLAB FASCIAS.



ELEVATION

SHOWN 1 TO SUBSTRUCTURE UNITS

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, ABUTMENT REPAIR, PEDESTRIAN FENCING, AND MAINTAINING TRAFFIC. ALL OTHER WORK IS COVERED BY ROAD PLANS THAT ARE PART OF THIS CONTRACT.

THE REHABILITATION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS18 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH. THE WORKING STRESS METHOD WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR H20 LOADING.

N.B. SERVICE ROAD TRAFFIC IS TO BE DETOURED. I-75 TRAFFIC IS TO BE MAINTAINED BY PART-WIDTH CONSTRUCTION.

THE EXISTING TUBE RAILINGS SHALL BE SALVAGED AND STOCKPILED ON THE JOB SITE AS DIRECTED BY THE ENGINEER. INCLUDED IN THE PAY ITEM "STRUCTURES, REHABILITATION, REMOVE PORTIONS (S02)."

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

PENETRATING WATER REPELLENT TREATMENT SHALL BE APPLIED TO THE TOP OF ABUTMENTS AND FRONT FACE OF THE INDEPENDENT BACKWALL.

APPROVED Steven P. Beck 10/19/99
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

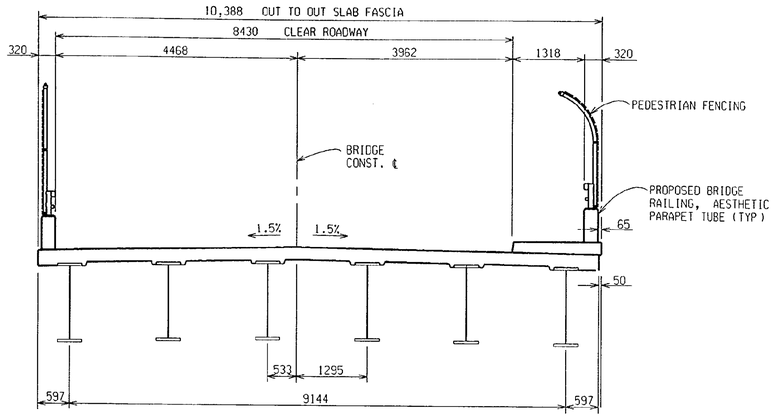
I-75 UNDER NB SERVICE RD.

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404	MAHDAVI	2 OF 29

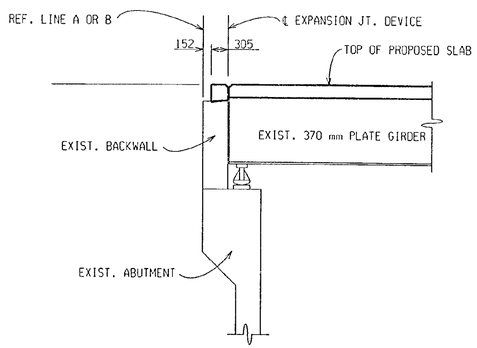
DATE: 10-13-99 | CORRECTED BY: SHAFFER | DATE: | CHECKED BY: MIKUCKI | DATE: 2-8-99 | DRAWN BY: SHAFFER | FILE NAME: S0263174.ST1

CONTROL SECTION S02 OF 63174 | JOB NO. 48404 | SH. NO. 3

REVISIONS			
NO.	DESCRIPTION	DATE	BY



TYPICAL DECK SECTION



SECTION THRU ABUTMENT

APPROVED _____
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

I-75 UNDER NB SERVICE RD.

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
7-23-99	S02 OF 63174	48404	MAHDAVI	3 OF 29

FILE NAME: S0263174.S11 | DRAWN BY: SHAFFER | CHECKED BY: MIKUCKI | DATE: 2-8-99 | CORRECTED BY:SHAFFER | DATE: 7-23-99

CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. 4

BENCH MARKS

B.M. #76 El. 635.52 M.S.H.D. B.M. Tag in base of 12" elm 178' Lt. of 89+80 N.B. Rdwy.

B.M. #73 El. 638.77 M.S.H.D. B.M. Tag in base of 20" oak 248' Lt. of 90+57 N.B. Rdwy.

UTILITIES

City of Royal Oak Combined Sewer 30" tap crosses ℄ approx. at Sta. 90+10.

City of Royal Oak Combined Sewer 12"-15" pipe 120' Rt. of ℄ N.B. between Forest and Gardenia Ave.

Detroit Edison Co. Power Line 1 Wire crosses ℄ 30' South of ℄ at Gardenia Ave.

Detroit Edison Co. Power Line 3 Wires, crosses ℄ 36' North of ℄ at Gardenia Ave.

Mich. Bell Telephone Co. 1 Telephone Cable crosses ℄ 36' North of ℄ of Gardenia Ave.

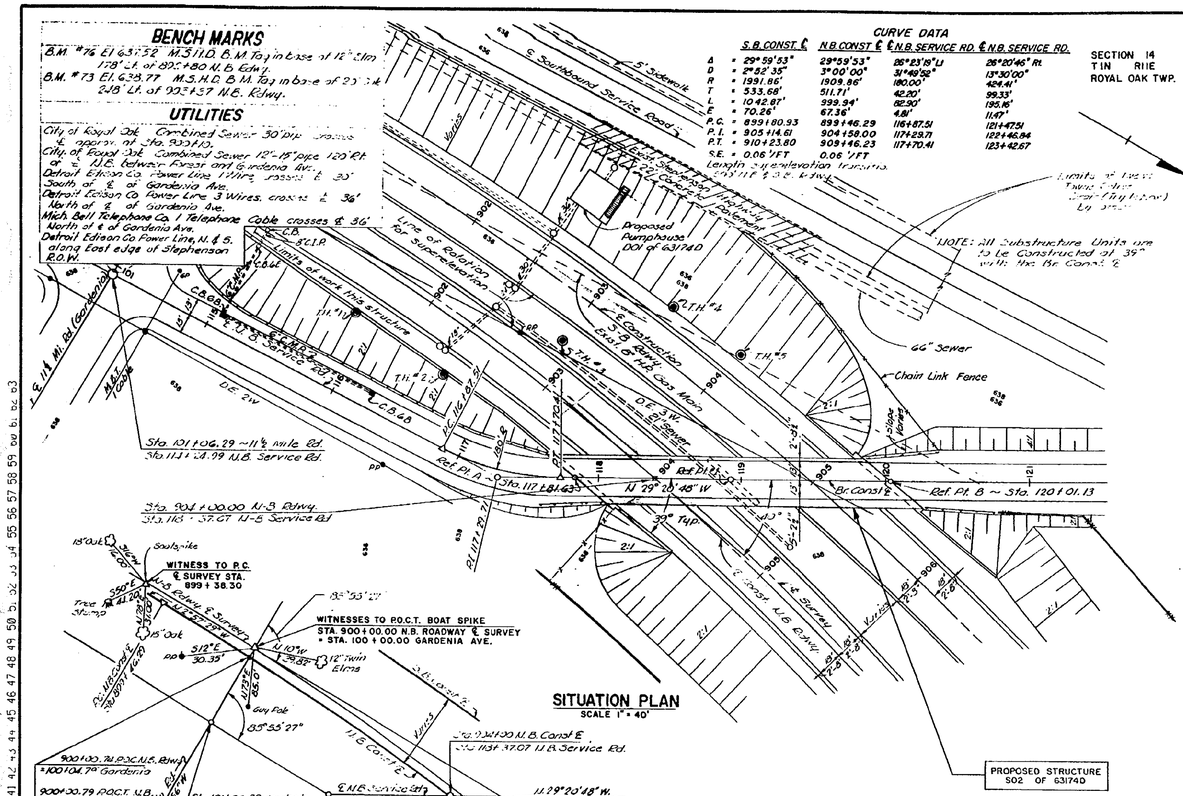
Detroit Edison Co. Power Line, N. & S. along East edge of Stephenson R.O.W.

CURVE DATA

	S.B. CONST. ℄	N.B. CONST. ℄	N.B. SERVICE RD. ℄	N.B. SERVICE RD.
Δ =	29°59'53"	29°59'53"	86°23'19" Lt	26°20'46" Rt.
D =	2°52'35"	3°00'00"	31°49'52"	13°30'00"
R =	1991.86'	1909.86'	180.00'	424.41'
T =	533.68'	511.71'	42.20'	99.33'
L =	1042.87'	999.94'	82.90'	195.16'
E =	70.28'	67.36'	4.8'	11.47'
P.C. =	899+80.93	899+46.29	116+87.51	121+47.51
P.I. =	905+14.61	904+58.00	117+29.71	122+46.84
P.T. =	910+23.80	909+46.23	117+70.41	123+42.67
S.E. =	0.08 1/FT	0.06 1/FT		

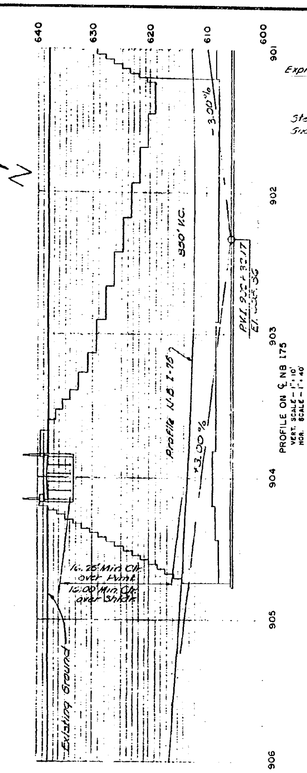
Lexington superelevation transitions

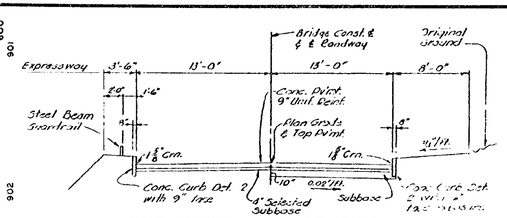
SECTION 14
T1N R11E
ROYAL OAK TWP.



SITUATION PLAN

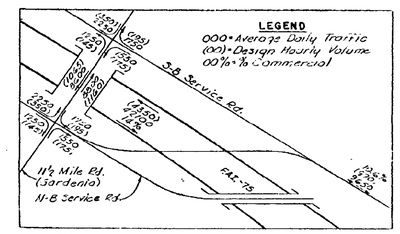
SCALE 1" = 40'



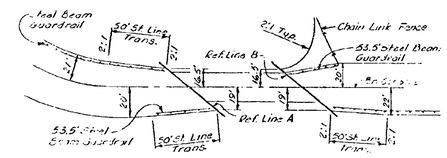


HALF SECTION AT STRUCTURE

HALF SECTION ON APPROACH



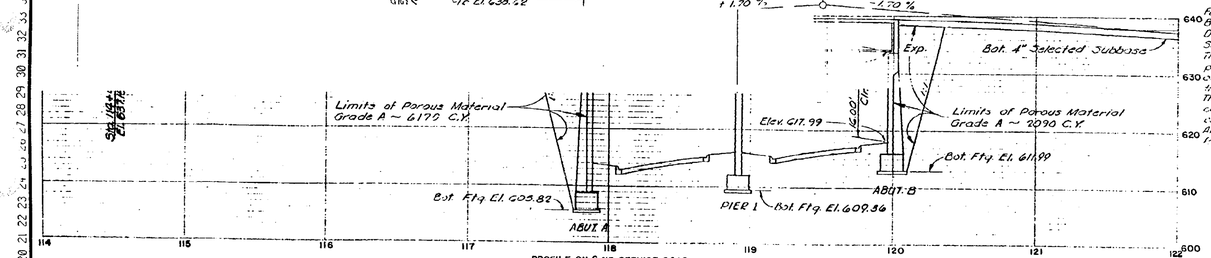
1978 ESTIMATED TRAFFIC DISTRIBUTION



APPROACH GRADING PLAN

GENERAL NOTES

Fences & utilities are to be removed by others
Buildings are to be removed by [illegible]
Datum Refers to U.S.G.S. Datum
See Sketch above for Detours.
The contractor shall locate underground utilities prior to starting work and shall [illegible] operations in such a manner as [illegible] that they will not be disturbed.
The work covered by these plans includes construction of the porous material to the limits shown.
All work not noted above is included in the Grad Plans.



REVISIONS			
NO.	DESCRIPTION	DATE	BY
A	Relocated Structure	[illegible]	Tecon

CONTROL SECTION 63174D

MICHIGAN STATE HIGHWAY COMMISSION

NORTHBOUND SERVICE ROAD OVER I75 IN THE CITY OF ROYAL OAK

GENERAL PLAN

TECON ENGINEERS, INC.

COORDINATING ENGINEER

ENGINEER OF DESIGN-CONSULTANTS

R.A.D. 9-1-02
119 312

S02 OF 63174D

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

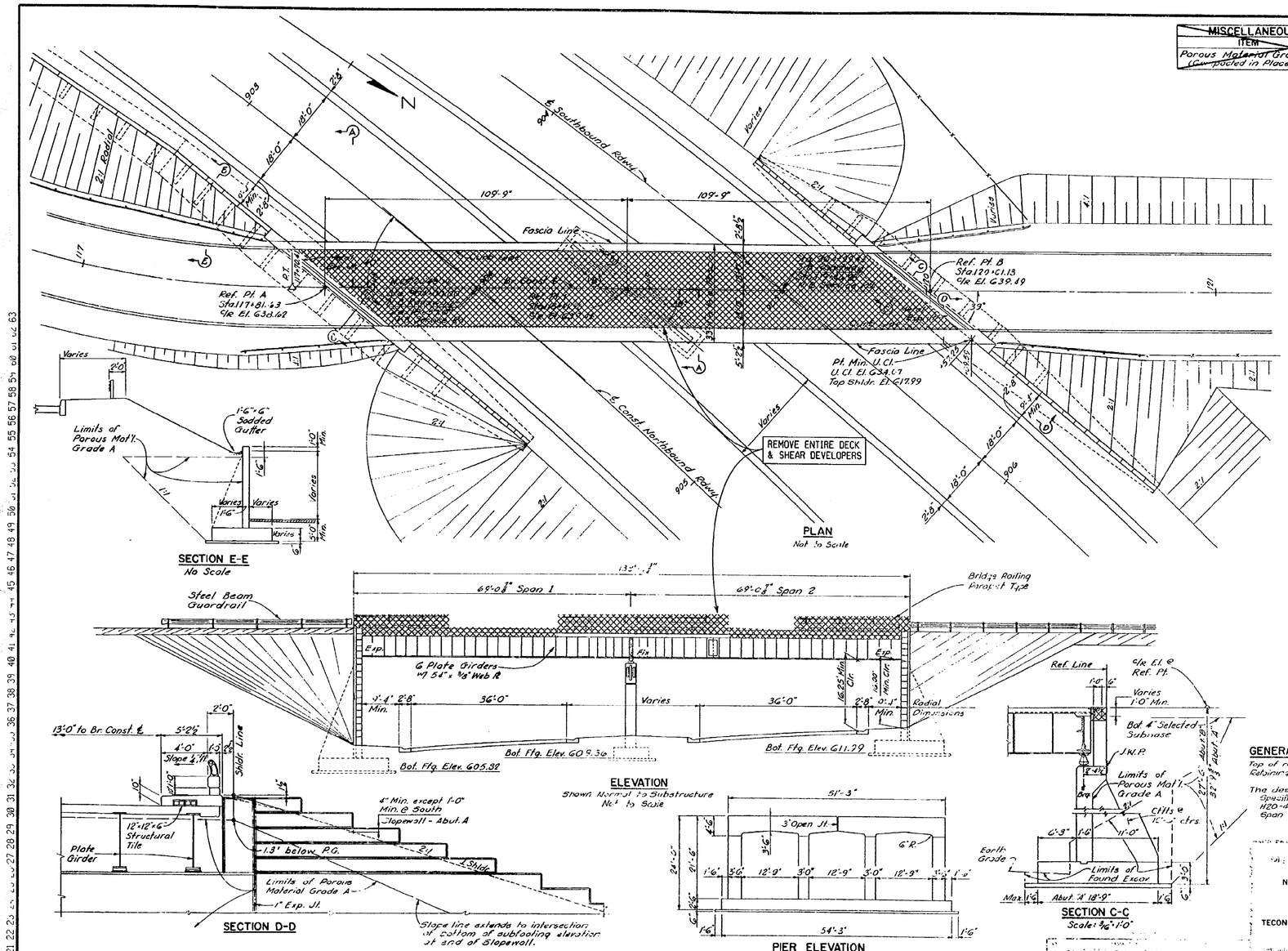
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404A	MADHAVI	4 OF 29

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: | DRAWN BY: andor | FILE NAME: s0263174.sn.

CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 5

MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
Porous Material Grade A (Compacted in Place)	Cu. Yds.	8260

REVISIONS			
NO.	DESCRIPTION	DATE	BY



GENERAL NOTES

Top of roadway slab and tops of curbs are parallel to the vertical curve. Retaining wall and integral catch basin are a part of this contract.

The design of this structure is based on the AASHO Standard Specifications for the Design of Highway Bridges-1958 Edition H20-44 Loading. Live Load plus impact deflection = 1/800 of Span Length.

CONTROL SECTION 63174D

MICHIGAN STATE HIGHWAY DEPARTMENT

NORTHBOUND SERVICE ROAD OVER I-75 IN CITY OF ROYAL OAK

GENERAL PLAN OF STRUCTURE

TECON ENGINEERS, INC.

J.W. Murray 6-5-62 COORDINATING ENGINEER

ENGINEER OF DESIGN — CONSULTANTS

GTC 5-2-61

A Structure Relocated 9-10-62 Tecon

S02 OF 63174D

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 48404A

DENOTES REMOVAL PORTIONS

PROPOSED WORK

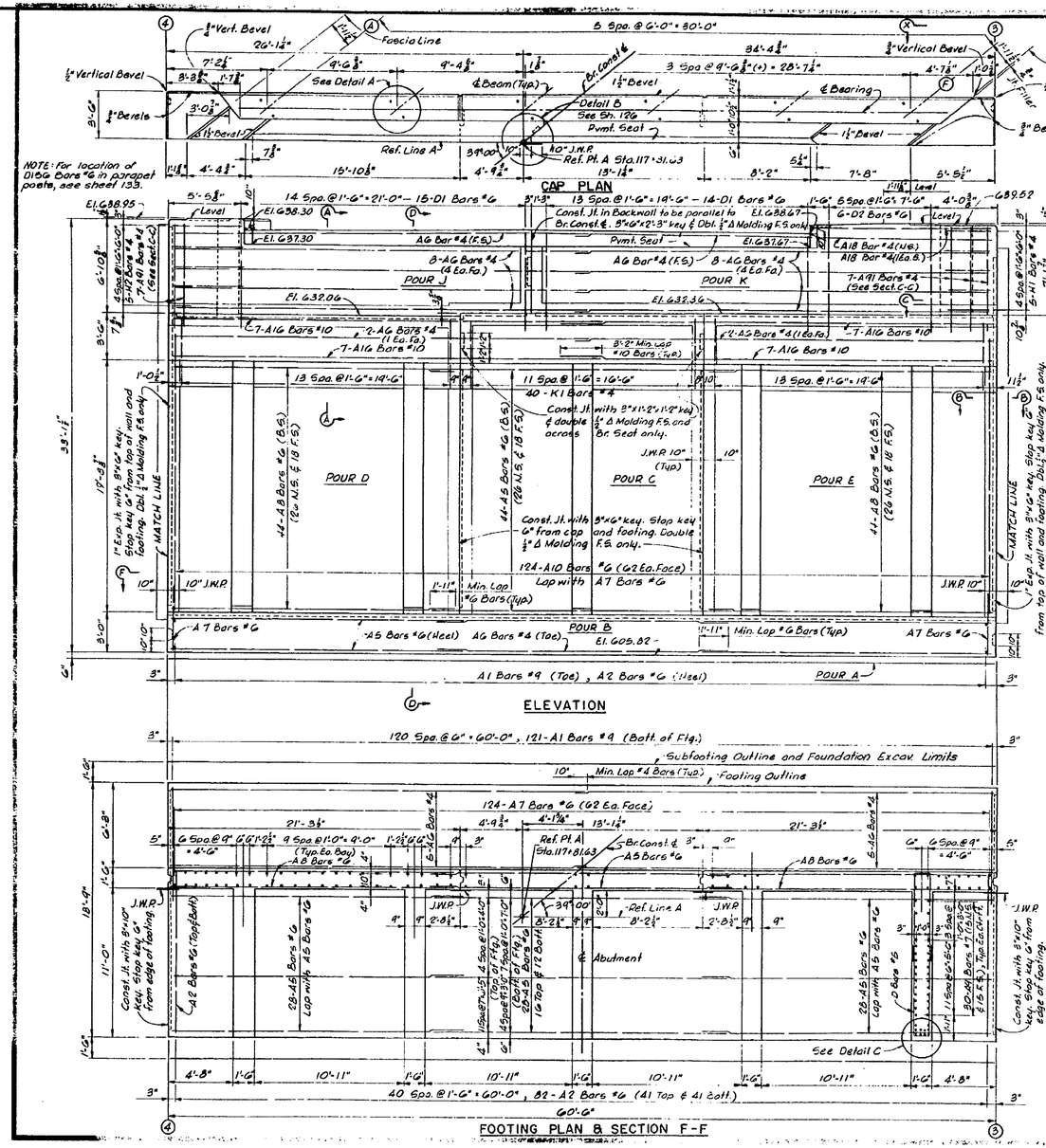
MDOT Michigan Department of Transportation

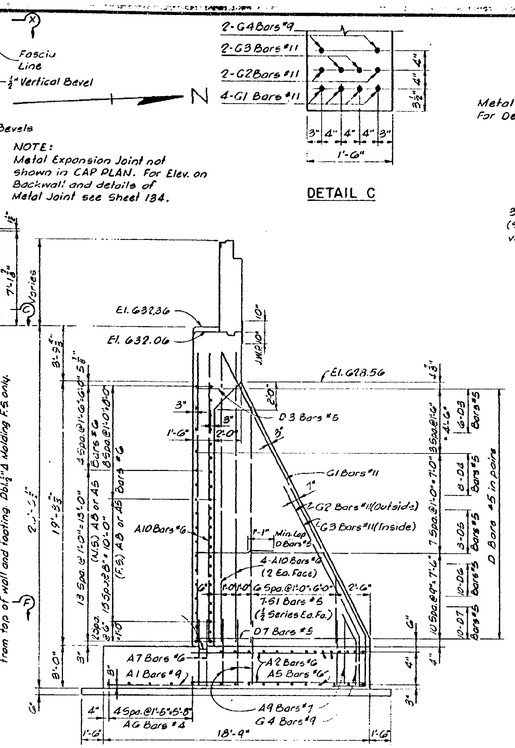
REMOVAL PORTIONS

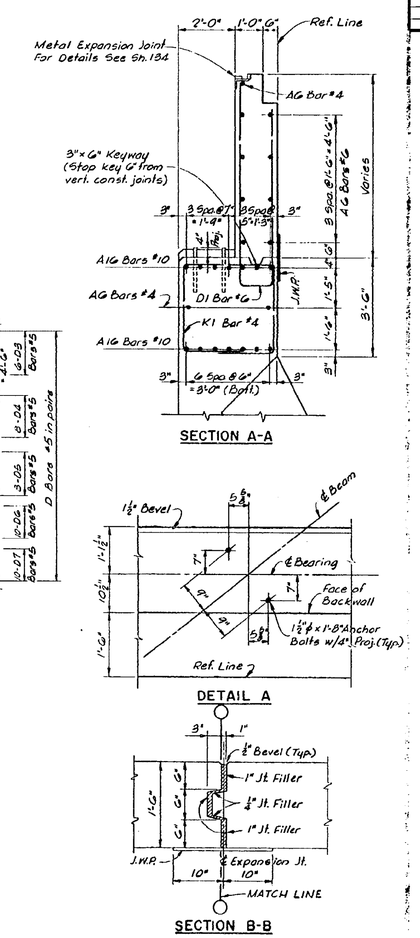
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404A	MADHAVI	5 OF 29

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: under FILE NAME: s0263174.sh

CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 6







Work this sheet with sheets 123 thru 128, 134 & 137

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-62 Tecon

JDC 3-29-62
AEB 3-9-62
WRC 3-21-62
123 .312

S02 OF 63174D

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MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

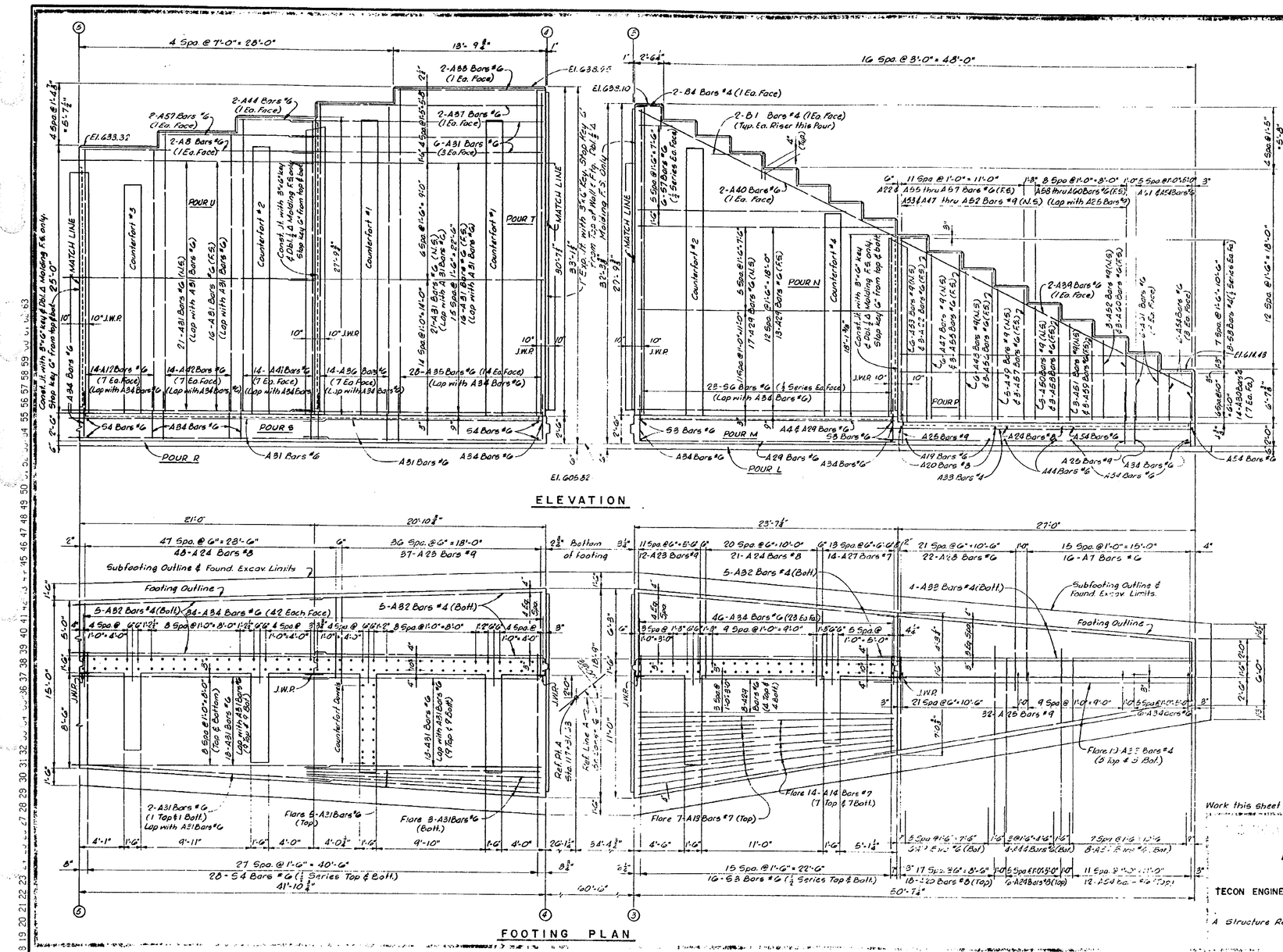
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404A	MADHAVI	6 OF 29

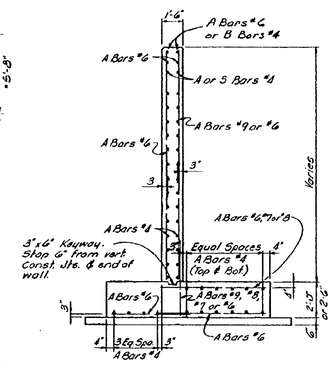
REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: inder FILE NAME: s0263174.sht

CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 7

REVISIONS			
NO.	DESCRIPTION	DATE	BY





TYPICAL SECTION
CANTILEVER WALL

NOTE: See Sheet #128 for Typical Counterforted Wall Section.

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-62 Tecon

JDC 3-29-62
AED 3-16-62
CWC 3-29-62
128 318

S02 OF 63174D

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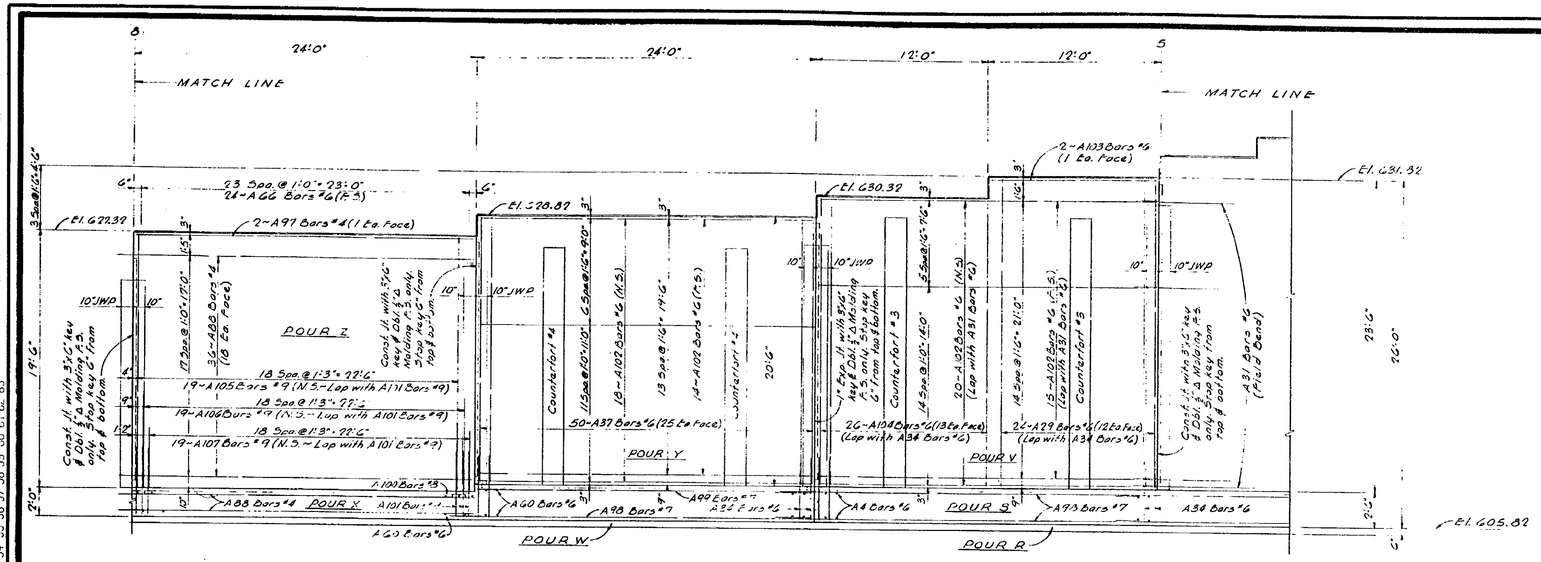
MDOT Michigan Department of Transportation

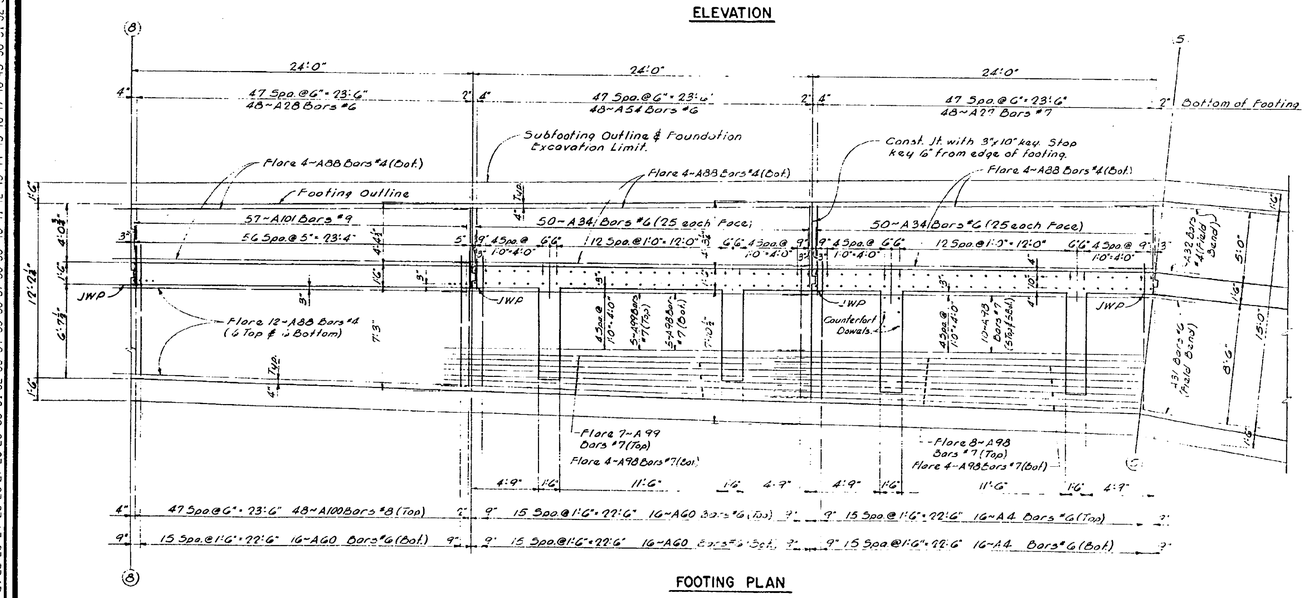
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	7 OF 29

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 10/99 DRAWN BY: R.K. OLIN FILE NAME: s0263714.sn1



ELEVATION



FOOTING PLAN

Note: See Sheet #124 for Typical Cantilever Wall Sections. See Sheet #128 for Typical Counterforted Wall Section.

Work this sheet with sheets 123 thru 128, 134 & 137

MICHIGAN STATE HIGHWAY COMMISSION

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-62 Tecon

JDC 9-5-62
RLN 8-30-62
HMW 9-5-62
125A 312

S02 OF 63174D

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MDOT Michigan Department of Transportation

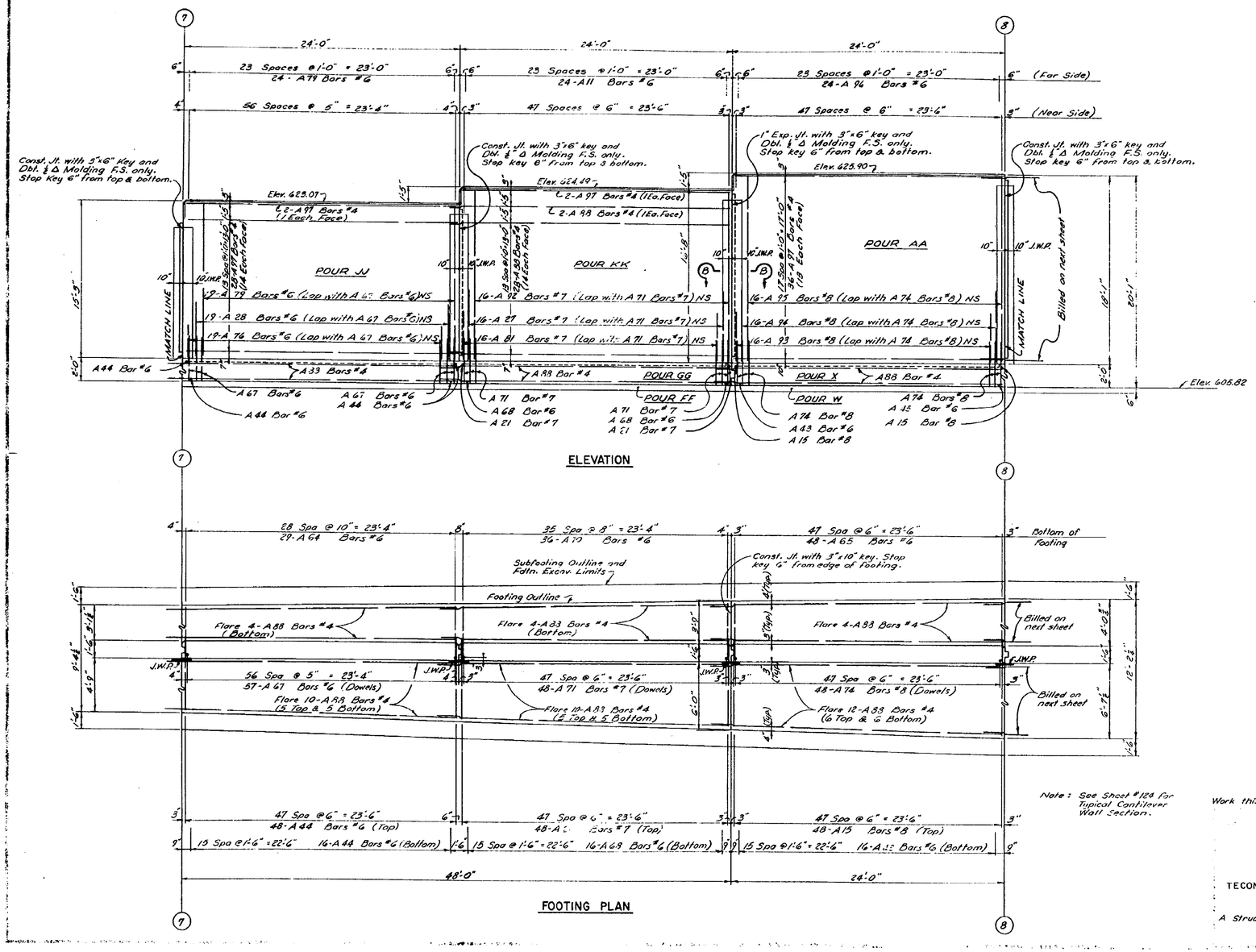
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	8 OF 29

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 10/99 DRAWN BY: R.K.OLIN FILE NAME: s0263174.sn1

CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 9



ELEVATION

FOOTING PLAN

Note: See Sheet #124 For Typical Cantilever Wall Section.

Work this sheet with sheets 123 thru 128, 134, 137

ILLINOIS STATE HIGHWAY DEPARTMENT

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

JDC 9-5-62
CEV 9-5-62
HWY 9-5-62
125 B 312

A Structure Relocated 9-10-62 Tecon

S02 OF 63174 D

REVISIONS			
NO.	DESCRIPTION	DATE	BY

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MDOT Michigan Department of Transportation

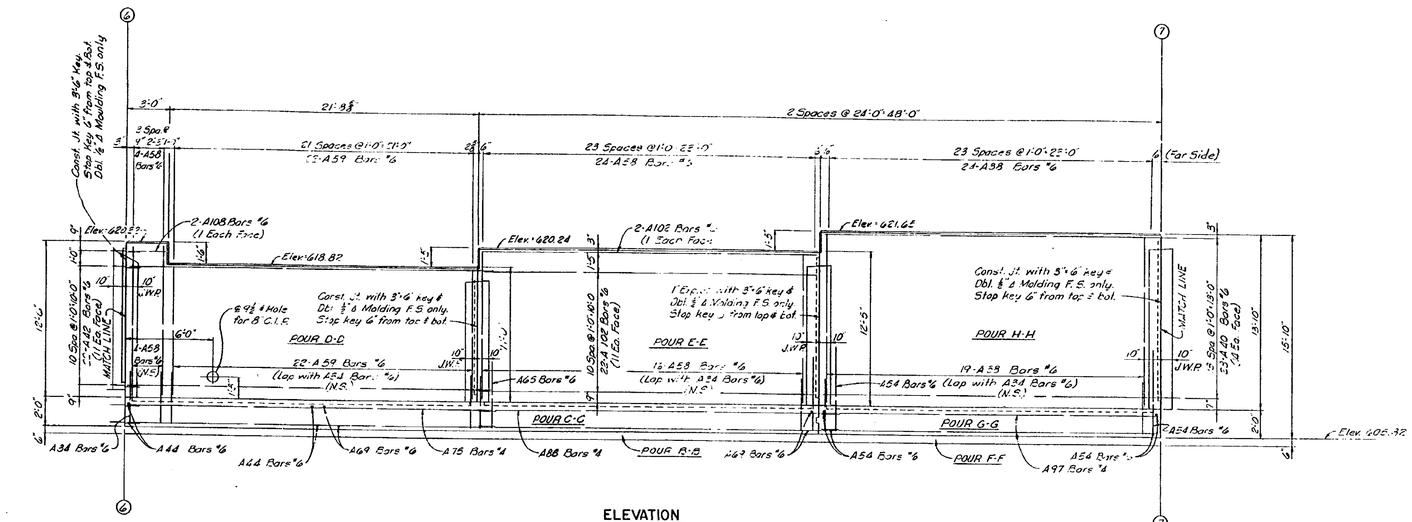
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404A	MADHAVI	9 OF 29

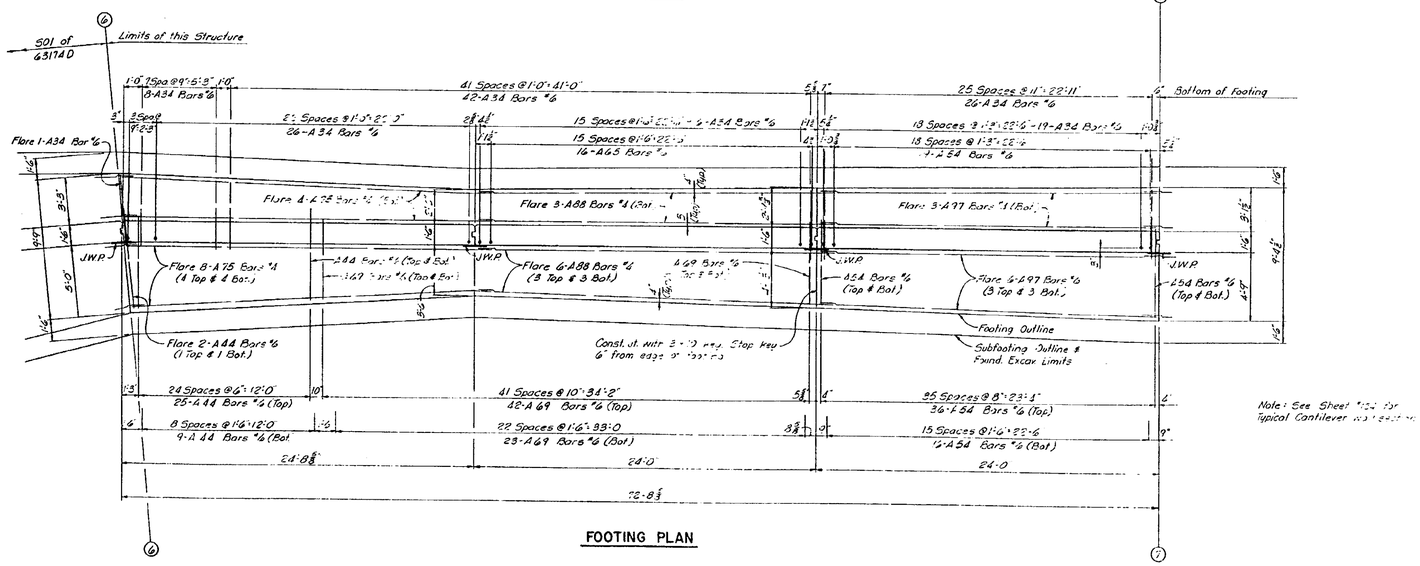
DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: under FILE NAME: s0263174.sn

CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 10

REVISIONS			
NO.	DESCRIPTION	DATE	BY



ELEVATION



FOOTING PLAN

Note: See Sheet 122 for Typical Cantilever

Work this sheet with sheets 123 thru 128, 134 & 137

STATE HIGHWAY

ABUTMENT A DETAILS

TECON ENGINEERS, INC.

		JDC	9-562
		DRS	8-30-02
A Structure Relocated	9-1042 Tecon	HMW	9-562
		1220	312

S02 OF 63174 D

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MDOT Michigan Department of Transportation

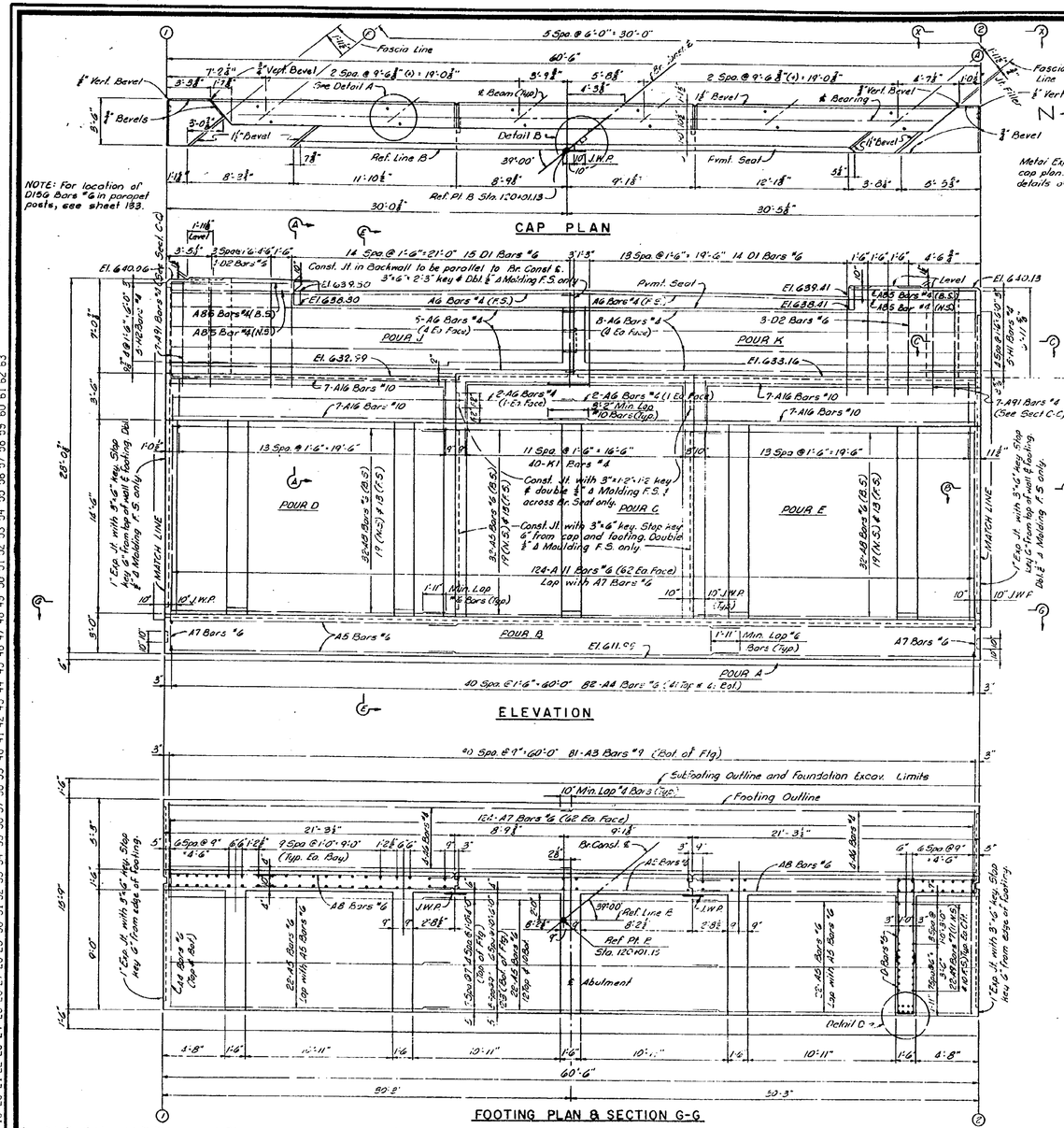
FOR INFORMATION ONLY

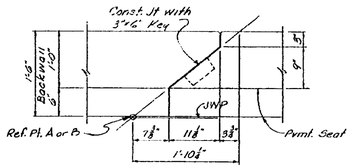
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404A	MADHAVI	10 OF 29

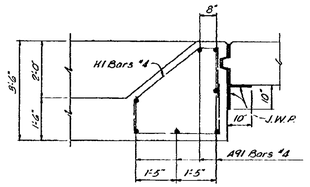
DATE: DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: under FILE NAME: s0263174.sh

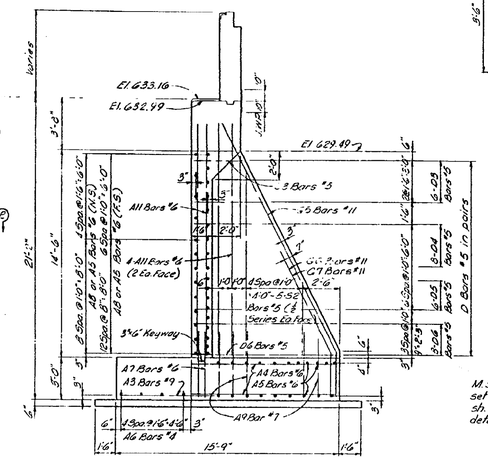
CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 11

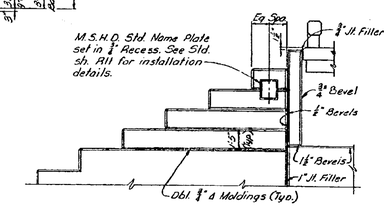
REVISIONS			
NO.	DESCRIPTION	DATE	BY

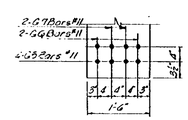












Work this Sheet with Sheets 123 thru 128, 134 & 137

STATE HIGHWAY

ABUTMENT B DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-62 Tecon

JDC 3-19-62
D.R.S. 3-15-62
GJKC 3-20-62
126 312

S02 OF 63174D

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MDOT Michigan Department of Transportation

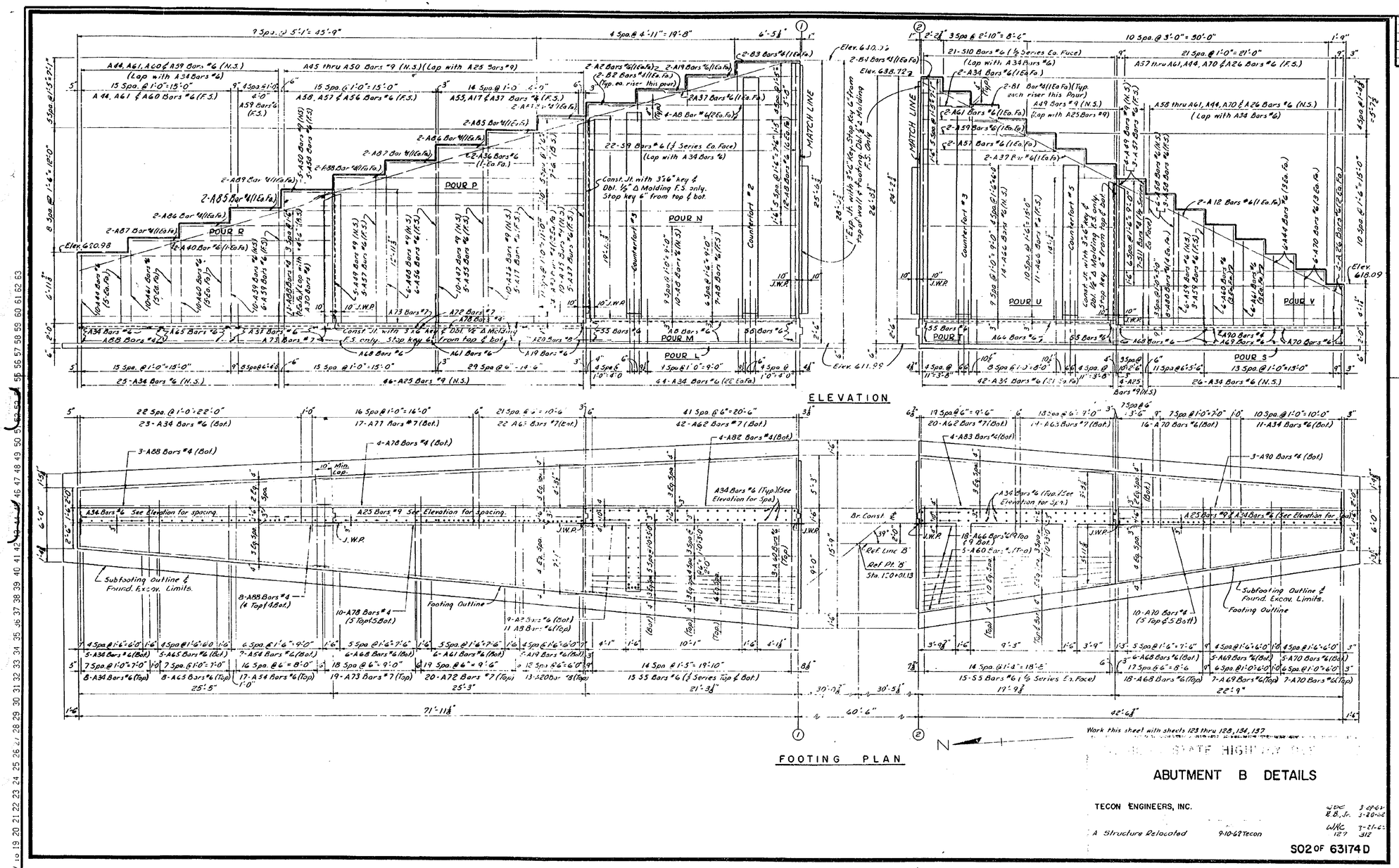
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	11 OF 29

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 10/99 | DRAWN BY: R.K.OLIN | FILE NAME: s0263174.sn1

CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 12

REVISIONS			
NO.	DESCRIPTION	DATE	BY



ABUTMENT B DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-62 Tecon

S02 OF 63174 D

NOTE:
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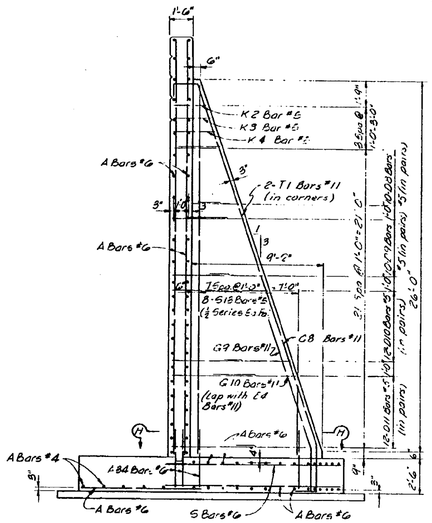
FOR INFORMATION ONLY

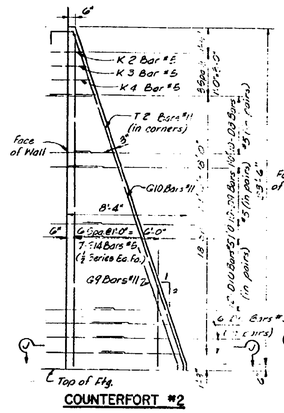
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	12 OF 29

DATE: DATE: CORRECTED BY: DATE: 10/99 CHECKED BY: DRAWN BY: R.K. OLIN FILE NAME: s0263174.snl

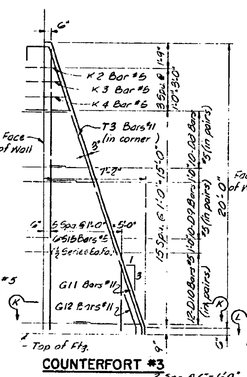
CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 13



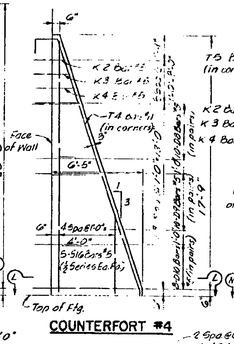
TYPICAL COUNTERFORT SECTION & COUNTERFORT #1



COUNTERFORT #2



COUNTERFORT #3



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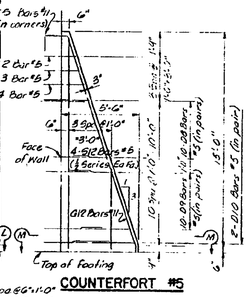

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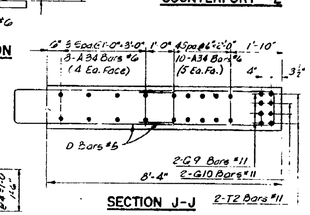
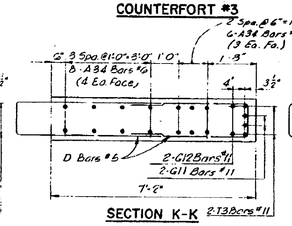
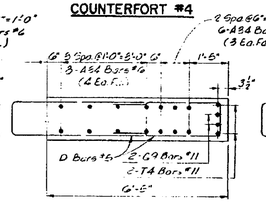


SECTION J-J



SECTION K-K



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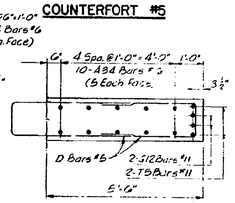

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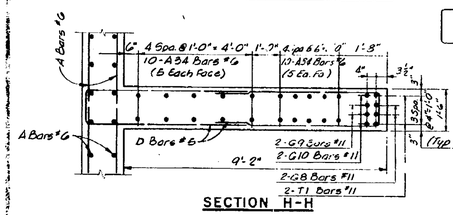
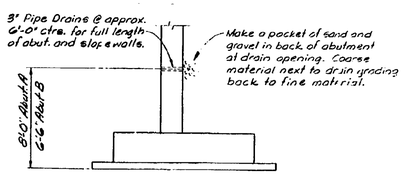
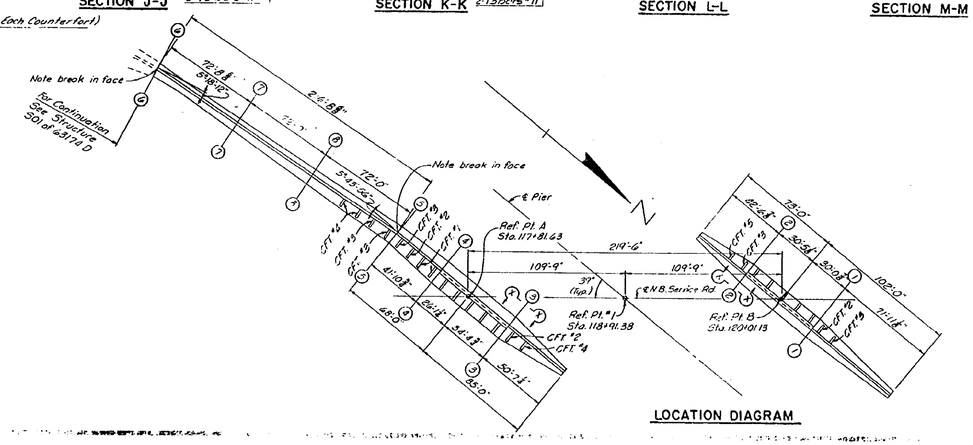


SECTION H-H



WALL DRAIN DETAIL

(Incidental to substructure concrete)



LOCATION DIAGRAM

MISCELLANEOUS QUANTITIES

ITEM	UNIT	ABUT. A	ABUT. B	TOTAL
½" Joint Filler	Sq. Ft.	34	16	50
¾" Joint Filler	Sq. Ft.	2	2	4
1" Joint Filler	Sq. Ft.	164	73	237
Jt. Waterpr. Tg.	Sq. Ft.	620	327	947
Unclass. Excav.	Cu. Yds.	1323	684	2007

CONCRETE QUANTITIES

POUR	ABUTMENT A A(6A)	ABUTMENT A A(6AA)	ABUTMENT B A(6A)	ABUTMENT B A(6AA)
A	24.4		21.0	
B	126.0		106.1	
C		38.9		28.3
D		48.9		37.4
E		49.7		37.4
F		Not	Used	
G		Not	Used	
H		Not	Used	
J		11.5		13.2
K		13.0		11.5
L	14.6		18.7	
M	53.2		63.7	
N		41.7		38.3
P		18.9		24.4
R	23.7			14.1
S	100.1		11.2	
T		49.3	39.3	
U		41.1		28.8
V		39.2		12.1
W	20.8			
X	73.5			
Y		34.5		
Z		26.0		
A-A		24.1		
B-B	10.2			
C-C	29.9			
D-D		15.3		
E-E		16.5		
F-F	17.1			
G-G	52.5			
H-H		18.4		
J-J		20.3		
K-K		22.2		
Total	546.0	527.5	260.0	245.5

Pours need not be made in alphabetical order, except pours H-H, J-J & K-K are to be made last.

NOTES:

J.W.P. denotes joint waterproofing.
N.S. denotes nearside.
F.S. denotes farside.
B.S. denotes backsides.
For Bevel and Molding Details, see Standard Sheet R11.
For location of Name Plates, see Sheet 107 and Standard Sheet R11; for mounting Details, see Standard Sheet R11.
Anchor bolts shall be set accurately to a template.
The Project Engineer shall adjust the spacing of the reinforcing steel to permit placing of anchor bolts.
Field bend steel reinforcing to clear drain holes.
The top of abutment shall be finished to a true plane at the elevation shown and shall not vary more than ⅛" under a ten foot straight edge nor more than ¼" under any bearing.
This design is based on a maximum foundation pressure of 5350 pounds per square foot and a maximum average foundation pressure of 3100 pounds per square foot.

Work this sheet with sheets 123 thru 128, 136 and 137

MICHIGAN STATE HIGHWAY COMMISSION

ABUTMENT DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-62 Tecon

UDC 1-27-62
AEB 3-22-62
UNC 3-28-62
188 312

S02 OF 63174 D

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

MDOT Michigan Department of Transportation

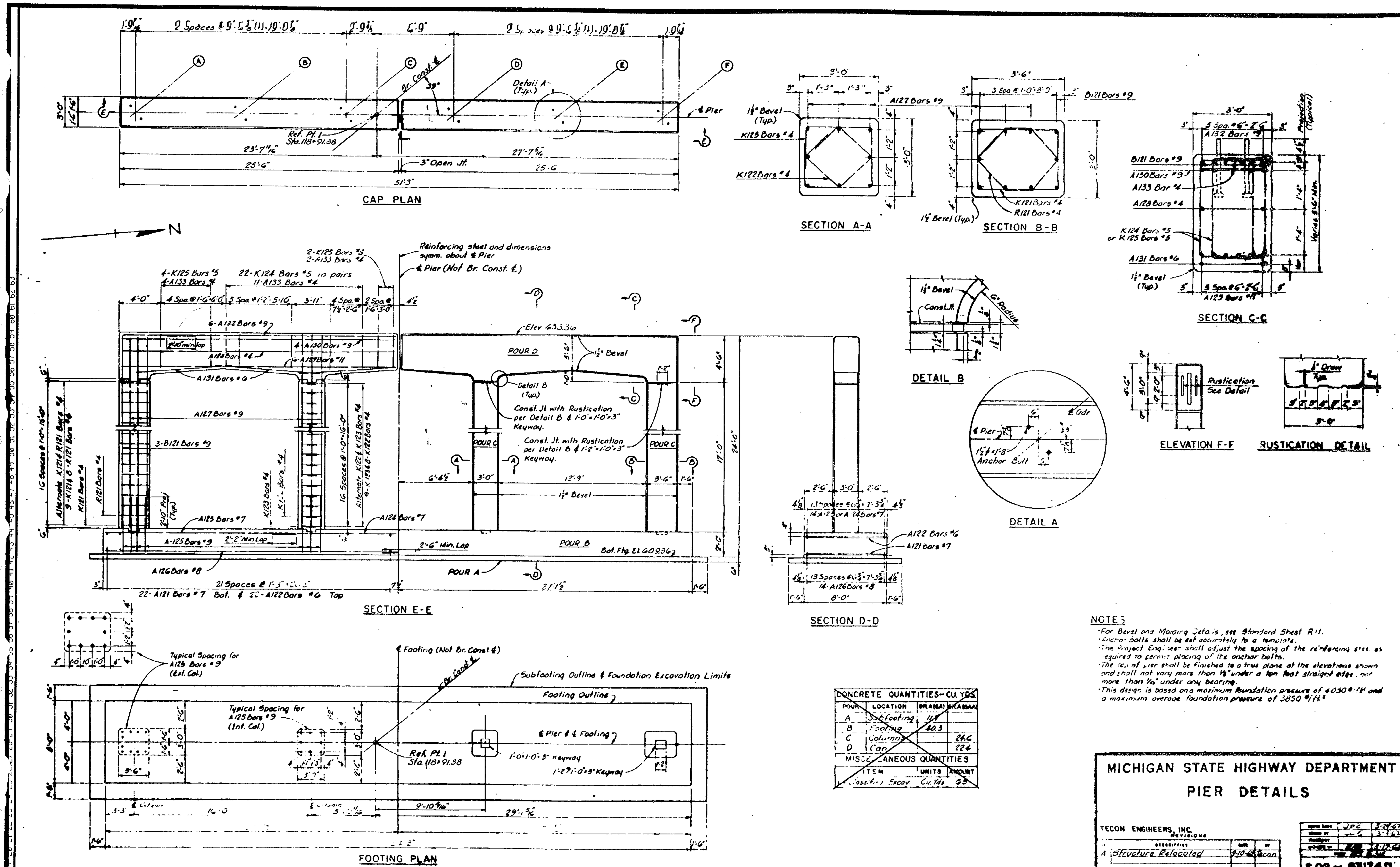
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-14-99	S02 OF 63174	48404A	MADHAVI	13 OF 29

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: | DRAWN BY: inder | FILE NAME: s0263174.sn.

CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 14



NOTES

- For Bevel and Molding Details, see Standard Sheet R 11.
- 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 shall be finished to a true plane at the elevations shown and shall not vary more than 1/8" under a ten foot straight edge, nor more than 1/16" under any bearing.
- This design is based on a maximum foundation pressure of 4050 #/ft² and a maximum average foundation pressure of 3850 #/ft²

CONCRETE QUANTITIES—CU. YDS.			
POUR	LOCATION	GR A(SA)	GR A(SAA)
A	Subfooting	11.1	
B	Footing	40.3	
C	Columns		24.6
D	Cap		22.4

MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
Unclassified Excav.	Cu. Yds.	65

MICHIGAN STATE HIGHWAY DEPARTMENT

PIER DETAILS

TECON ENGINEERS, INC.

REVISIONS: A Structure Relocated

S02 of 63174D

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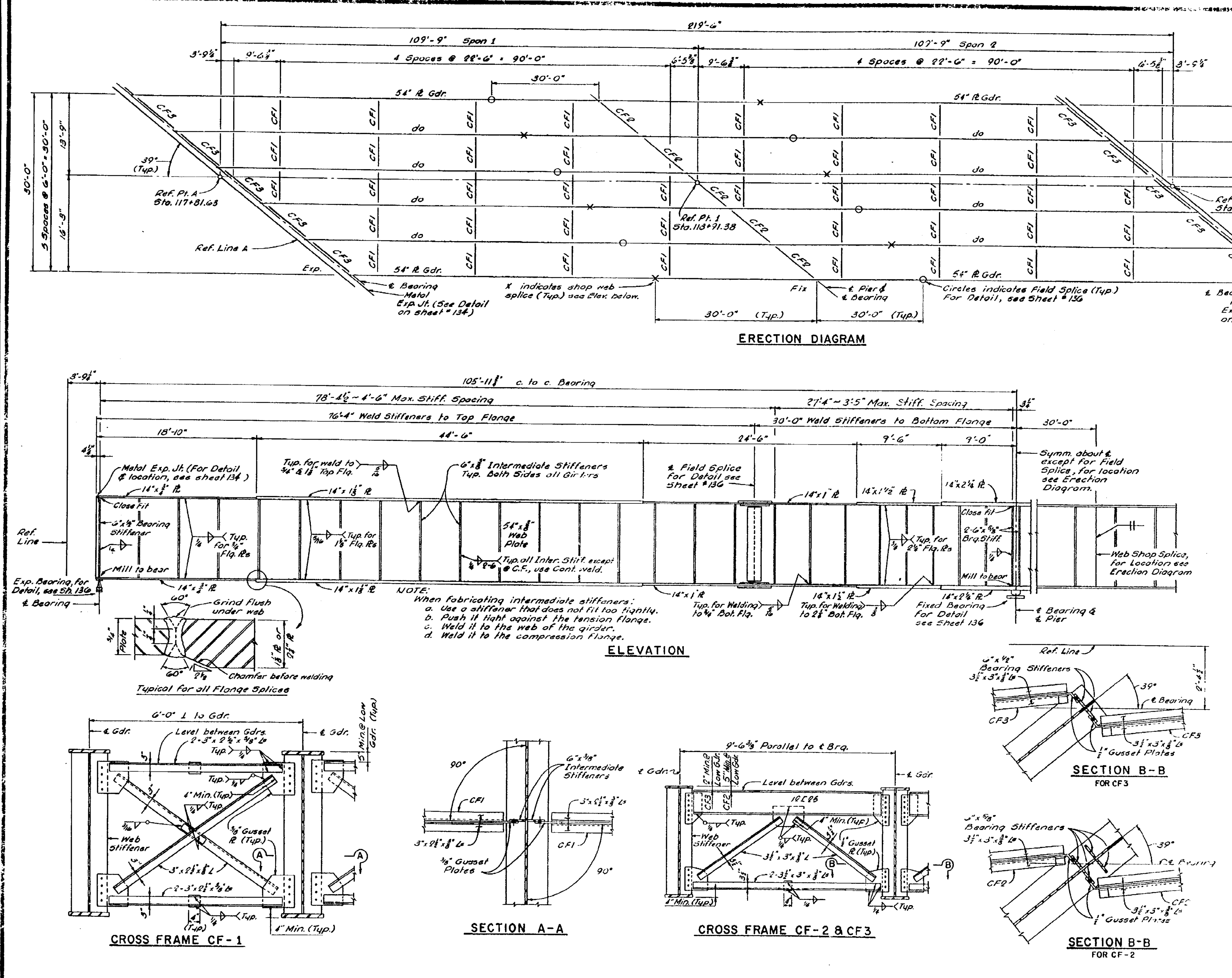
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-14-99	S02 OF 63174	48404A	MADHAVI	14 OF 29

FILE NAME: s0263174.sr | DRAWN BY: | CHECKED BY: | CORRECTED BY: | DATE:



STRUCTURAL STEEL NOTES:

Fabrication: Michigan State Highway Department's Standard Specification's for Road & Bridge Construction - 1960 Edition.

Design: Michigan State Highway Department's Specifications for Design of Highway Bridges - 1958 Edition. H20-44 Loading. Allowable Live Load + Impact Deflection = Span ÷ 800.

Shop Connections: All shop connections shall be welded or riveted as shown on the plans.

Field Connections: Field connections, unless otherwise noted, shall be bolted with high-strength bolts. Contact surfaces shall be thoroughly cleaned immediately prior to assembly of joints.

High-Strength Bolts: 3/4" ϕ.

Open Holes: Open holes for high-strength bolts shall be 13/16" ϕ.

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

Metal floor joints shall not be painted in shop except as noted on the plans.

Camber: The girders shall be cambered as shown on the plans.

Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ¼" and welded, with a continuous weld, for the full perimeter. Welds shall be ground flush with faces of plate.

All web plates, flange plates and stiffeners shall conform to the requirements for welding A.S.T.M. A-373. All other steel shall be A-7.

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

A-7 Steel 34900 (Includes Wt. Metal Exp. Jt.)
A-373 Steel 233,300
Lead Plates 200
Total 268,400 Structural Steel - Furnishing & Fabricating
Total 268,400 Structural Steel - Erection
Field Painting: Lump Sum

Camber and other dimensional tolerances are to be in accordance with American welding Society Specifications.

Work this sheet with sheets 134 & 136

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-62 Tecon

JDC 3-29-62
M.B.A.
RAD 3-10-62
135 312

S02 OF 63174D

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MDOT Michigan Department of Transportation

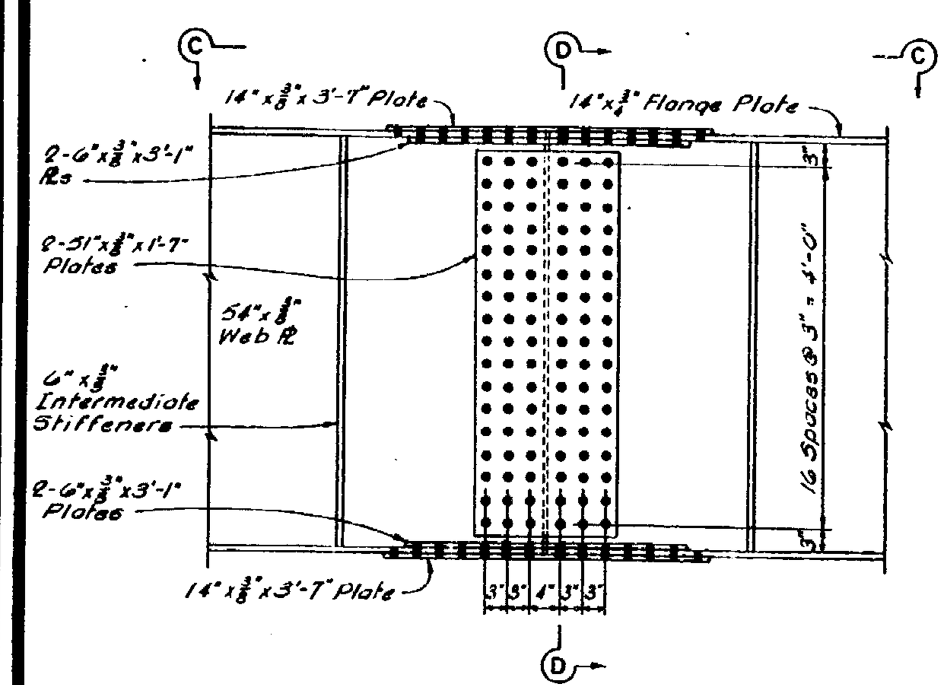
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	15 OF 29

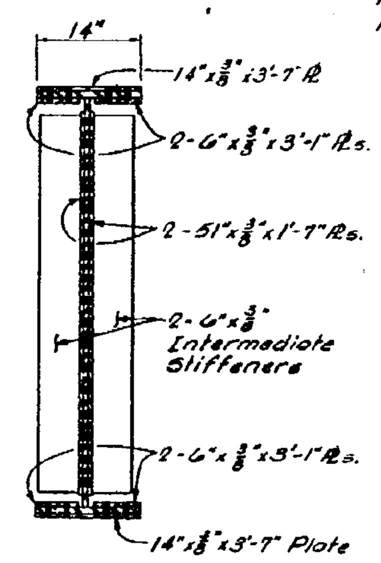
CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 15

DRAWN BY: R.K.OLIN DATE: 10/99 CHECKED BY: DATE: CORRECTED BY: DATE:

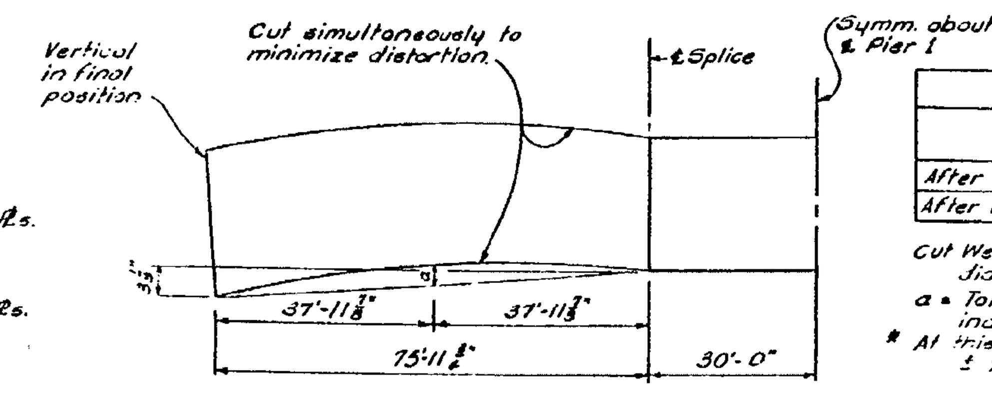
FILE NAME: s0263174.sol



FIELD SPLICE DETAIL



SECTION D-D



CAMBER & BLOCKING DIAGRAM FOR FABRICATION OF SPLICES

(Interior & Fascia Girders)

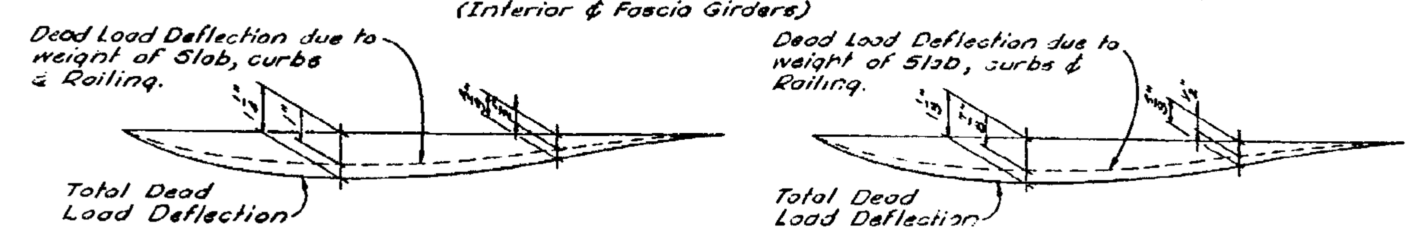
TABLE OF THEORETICAL CAMBER (INCHES)		
CONSTRUCTION STAGE	BEAM POSITION	
	FLAT	UPRIGHT
After cutting web and assembling	1¾"	
After welding flanges & Stiffeners*	1¾"	1½"

Cut Web plates to parabolic camber indicated by diagram.

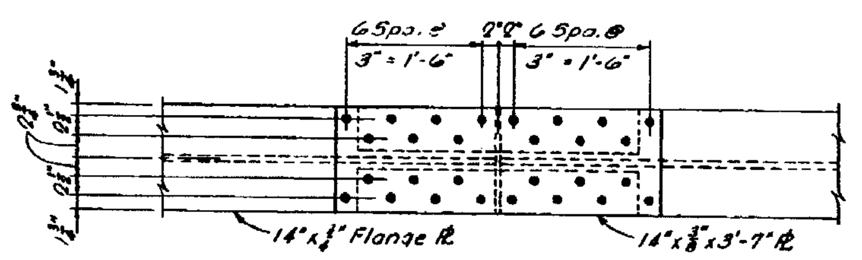
a = Total camber required at mid-span at stage indicated.

* At this stage camber should be corrected within ± 1/32" x 4/10 ft. tolerance by heating in the shop.

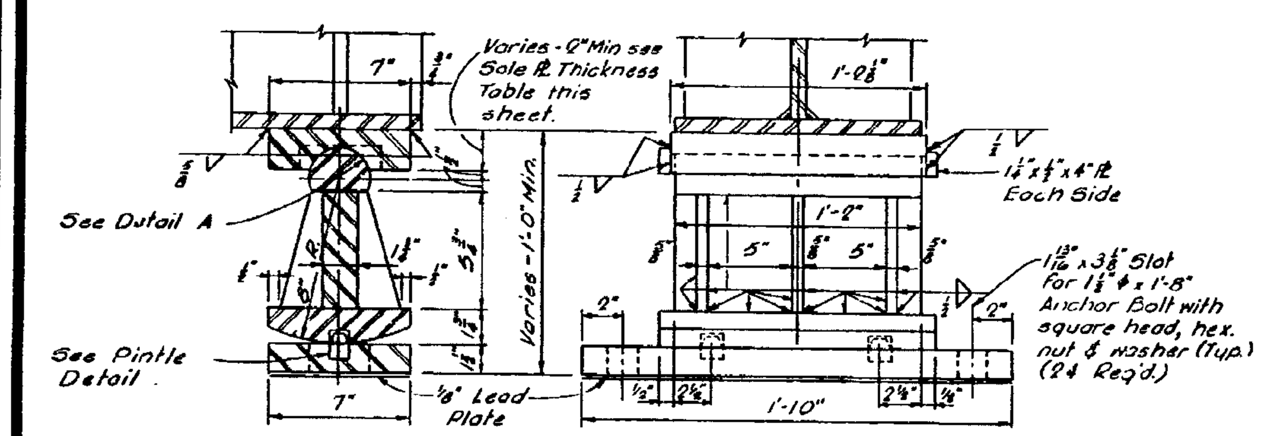
SOLE PLATE THICKNESS TABLE			
BEAM LINE	ABUT. A	PIER 1	ABUT. B
A	2"	2"	2"
B	3⅞"	3¼"	2½"
C	2"	4⅜"	3"
D	2⅞"	4½"	2⅜"
E	3"	4"	3¼"
F	3"	3⅜"	2"



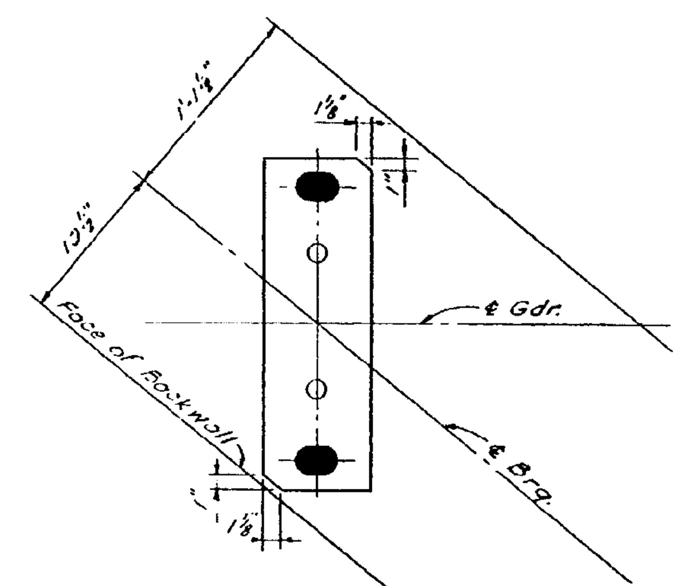
DEFLECTION DIAGRAMS



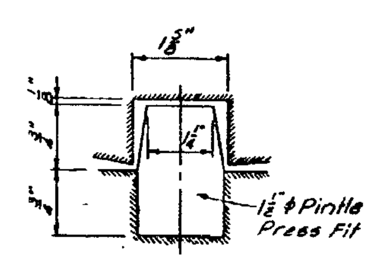
SECTION C-C



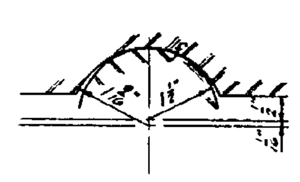
EXPANSION BEARING DETAIL - ABUT. A & B



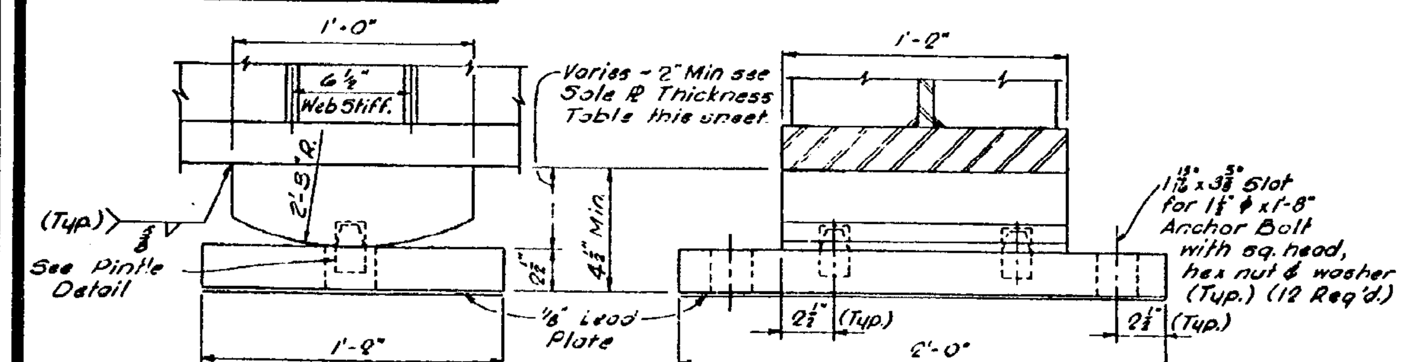
DETAIL OF ABUTMENT BEARING PLATE SHOWING CLIP



PINTLE DETAIL



DETAIL A



FIXED BEARING DETAIL — PIER 1

Work this sheet with sheets 134 & 135

MICHIGAN STATE HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-62 Tecon

S02 OF 63174D

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MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	16 OF 29

CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 16

DATE: 10/99 DRAWN BY: R.K.OLIN CHECKED BY: DATE: CORRECTED BY: DATE:

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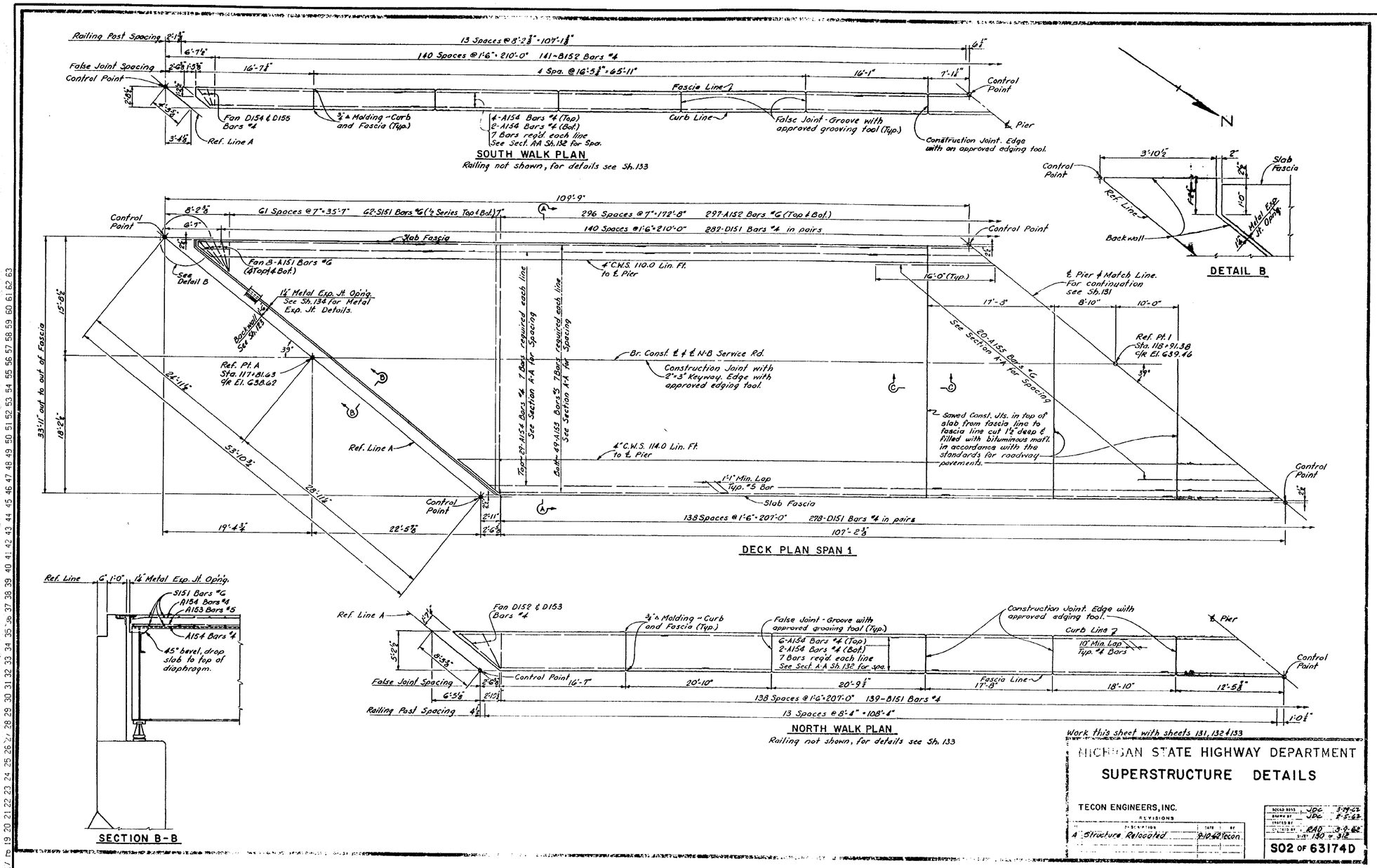

Work this sheet with sheets 131, 132 & 133

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS		
A Structure Relocated	8-10-62	Tecon

DESIGN BASIS	JDC	7-19-62
DRAWN BY	VDC	7-5-62
TRACED BY		
CHECKED BY	RAD	3-9-62
SCALE	1/30 & 3/8"	

S02 OF 63174D

REVISIONS			
NO.	DESCRIPTION	DATE	BY

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FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	17 OF 29

DATE: CORRECTED BY:
DATE: CHECKED BY:
DATE: 10/99
DRAWN BY: R.K.OLIN
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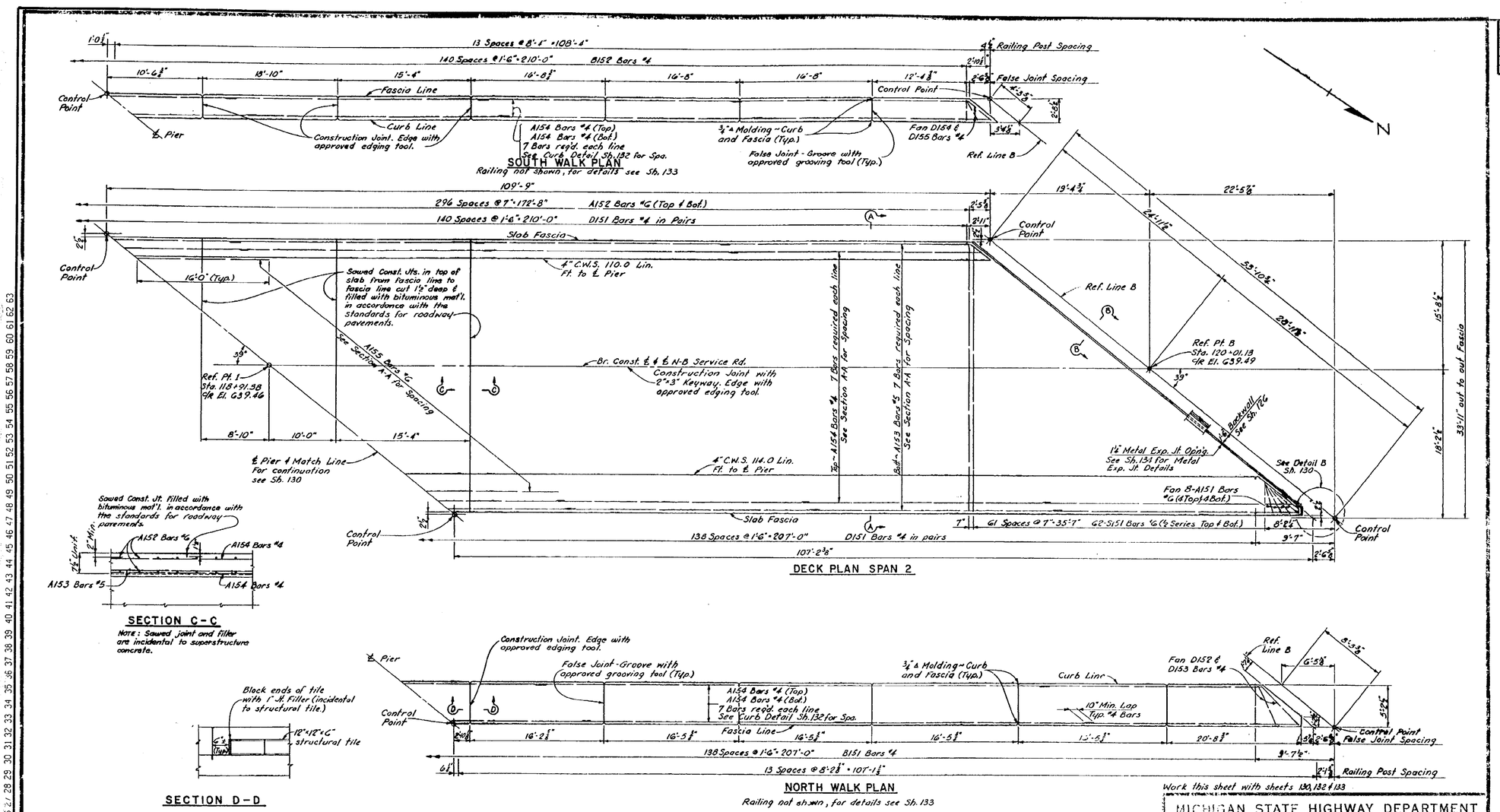

SECTION C-C

Note: Sawed joint and filler are incidental to superstructure concrete.

SECTION D-D

NORTH WALK PLAN

Railing not shown, for details see Sh. 133

Work this sheet with sheets 130, 132 & 133

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

LOADED BY	JPC	3-27-62
DRAWN BY	JPC	2-26-62
TRACED BY		
CHECKED BY	RAD	3-9-62
SHEETS	131 & 312	

S02 OF 63174D

MICROFILMED

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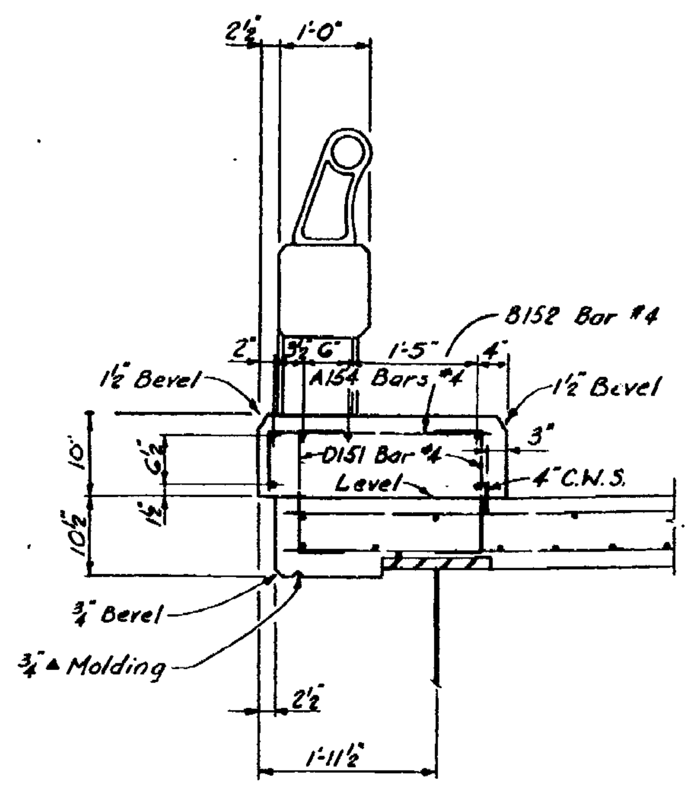
MDOT Michigan Department of Transportation

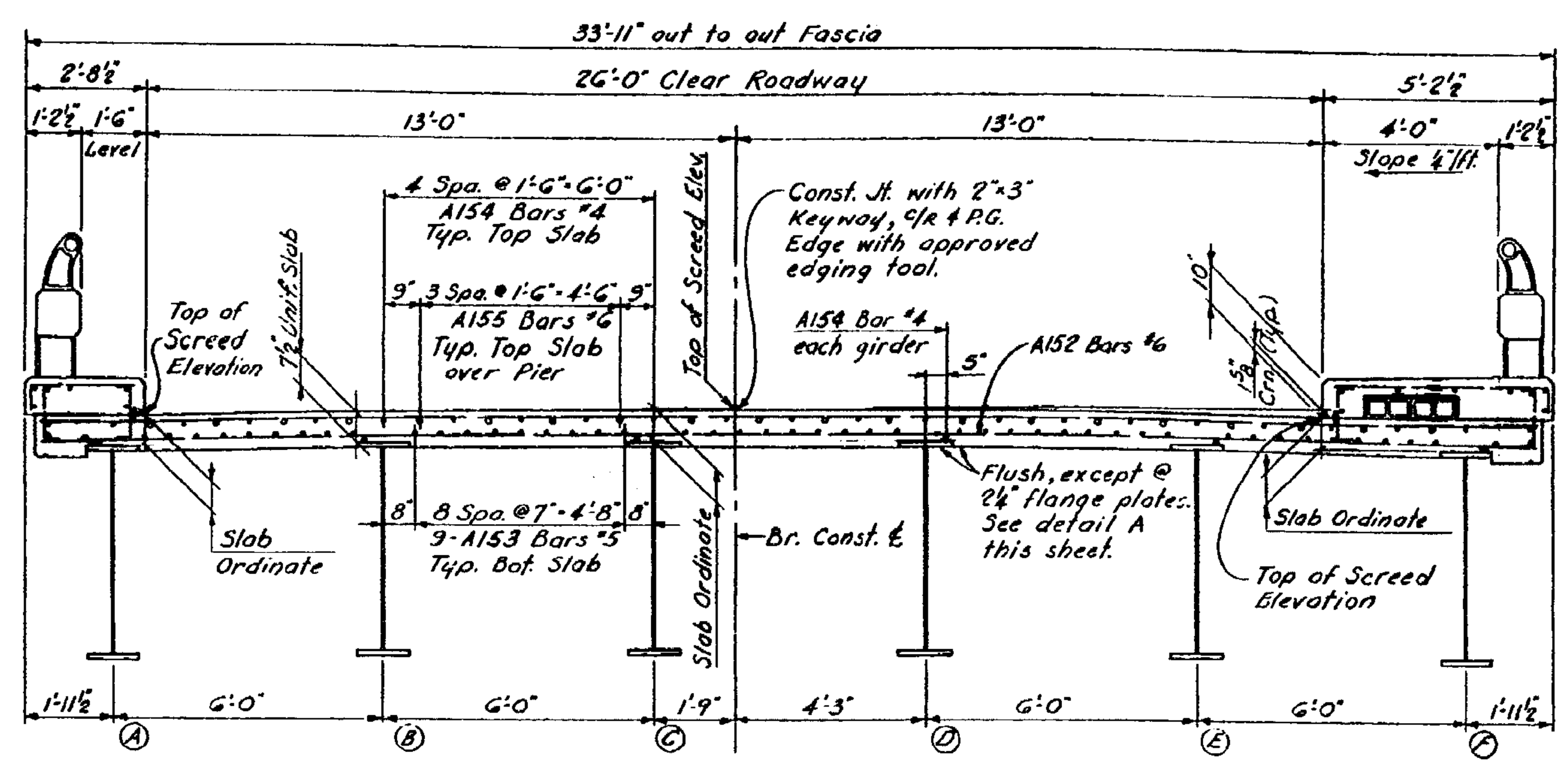
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	18 OF 29

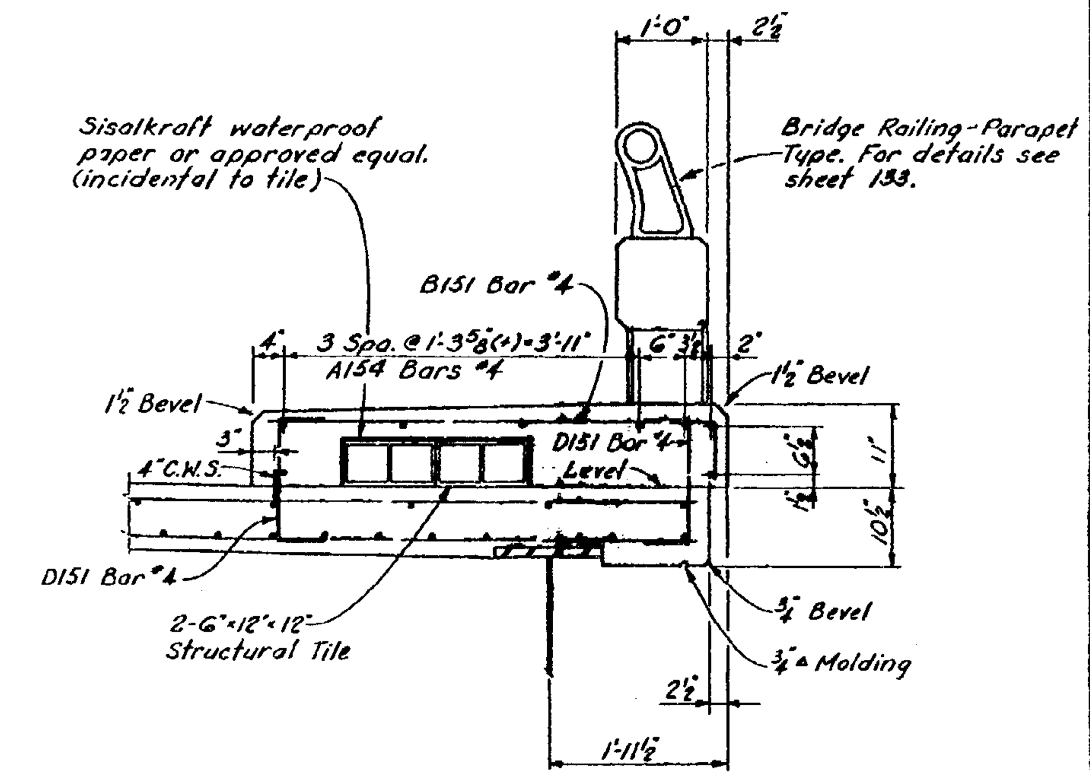
DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 10/99 DRAWN BY: R.K.OLIN FILE NAME: s0263174.sn1



CURB DETAIL



SECTION A-A



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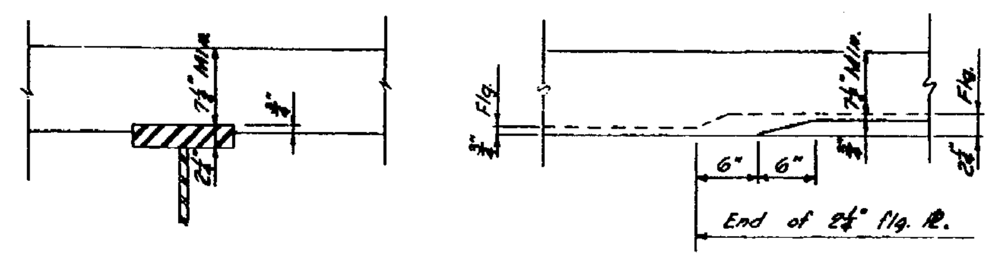
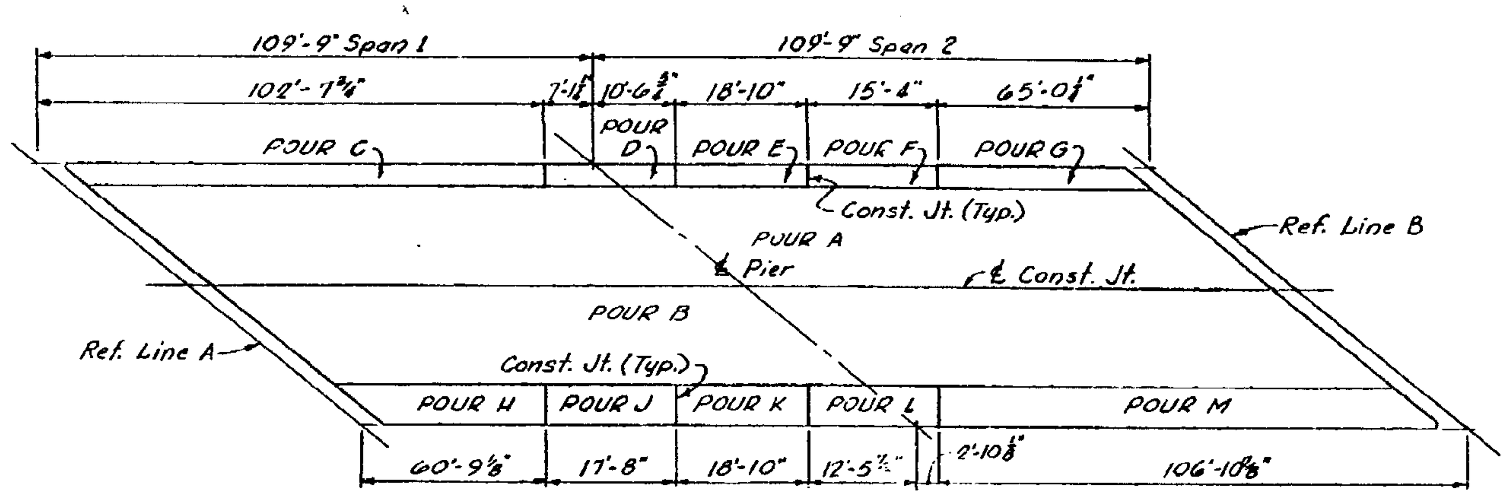


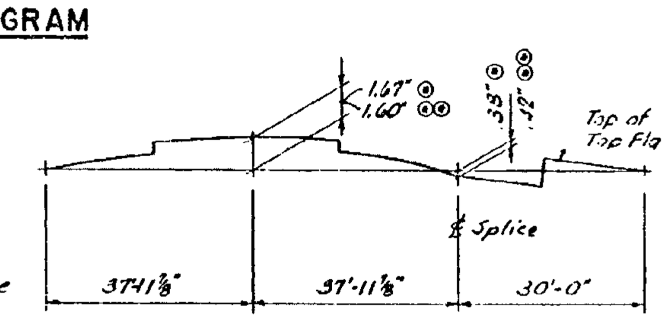
SECTION

ELEVATION

DETAIL A

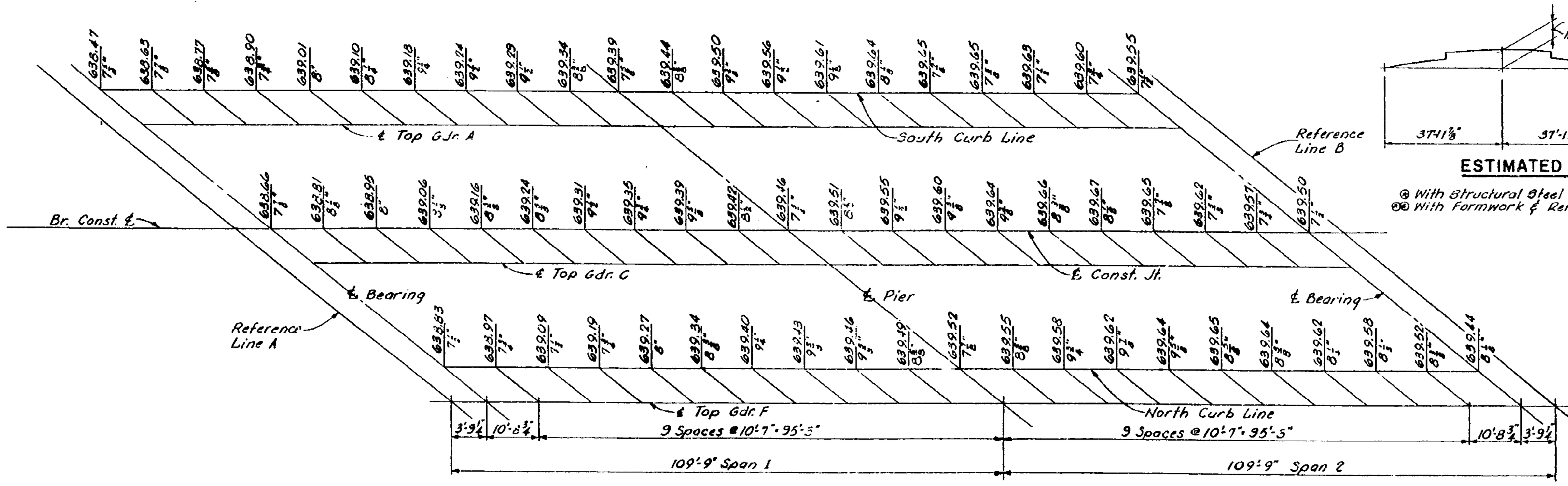


POUR DIAGRAM



ESTIMATED CAMBER

⊙ With Structural Steel in place.
⊙⊙ With Formwork & Reinforcing Steel in place.



TOP OF SCREED ELEVATIONS AND SLAB ORDINATES

CONCRETE QUANTITIES GRADE A (6AA)-CU. YDS.													
POUR	A	B	C	D	E	F	G	H	J	K	L	M	Total
AMOUNT	94.1	109.2	8.1	1.5	1.6	1.2	5.4	8.5	2.3	2.5	2.1	13.5	250.0

Concrete Pours need not be placed in alphabetical order.

MISCELLANEOUS QUANTITIES		
ITEM	UNITS	AMOUNT
12"x12"x6" Structural Tile	Ea.	414
Copper	Lbs.	149
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	108
Bridge Railing-Parapet Type	Lin. Ft.	435.9

NOTES

For Railing Details, See Sheet No. 133.
C.W.S. indicates copper waterstop.
For Bevel and Molding Details, See Std. Sheet R11.
Edge and Groove denote Edging or Grooving with an approved tool.

Elevations shown are for top of screed before pouring any concrete and are based on a minimum slab thickness of 7½". After screeds are set, if check indicates that less than the minimum thickness will be obtained, adjust screeds and expansion dams accordingly. The slab ordinates shown provide for dead load deflection, crown, girder camber, and are to be measured from the top of the girder indicated (on a line parallel to the reference lines) to the top of the screed.
Screeds affected by loads in other spans are to be set to the elevations shown and checked for minimum slab thickness before pouring any concrete.

Work this Sheet with Sheets 130, 131, 133

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

A Structure Relocated 9-10-63 Tecon

S02 OF 63174D

NOTE:
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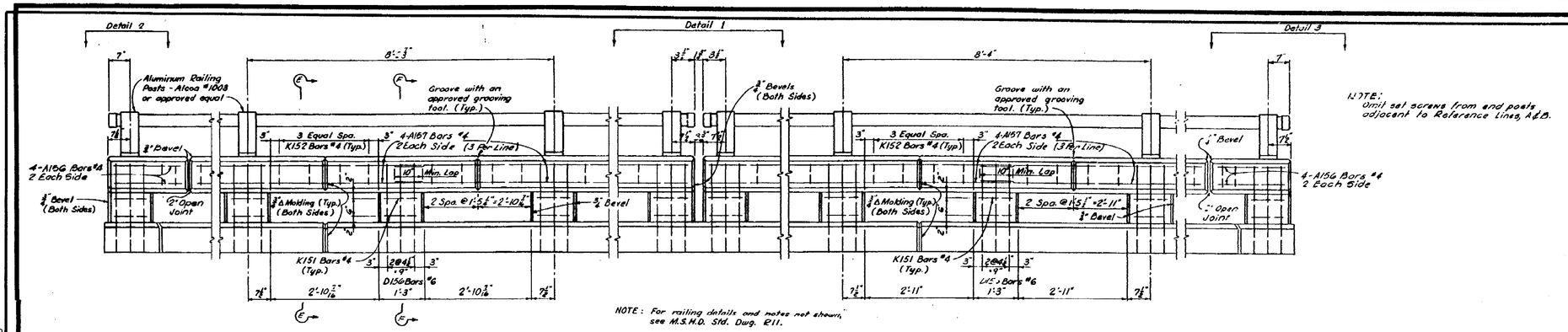
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	19 OF 29

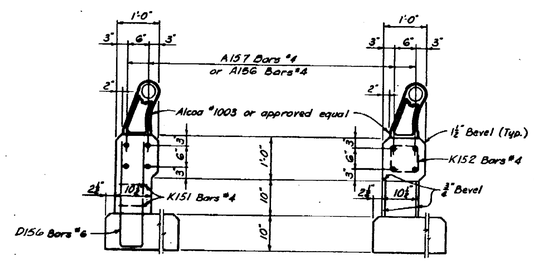
CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 19

DRAWN BY: R.K.OLIN DATE: 10/99 CHECKED BY: DATE: CORRECTED BY: DATE:

FILE NAME: s0263174.sn1

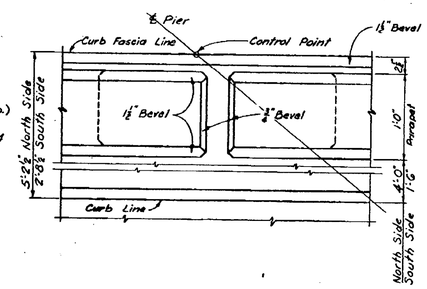


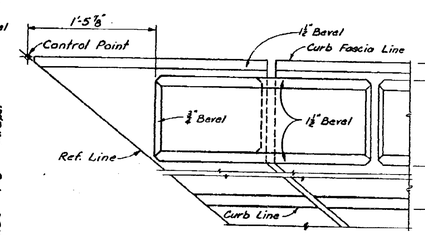
INSIDE ELEVATION - BRIDGE RAILING - PARAPET TYPE



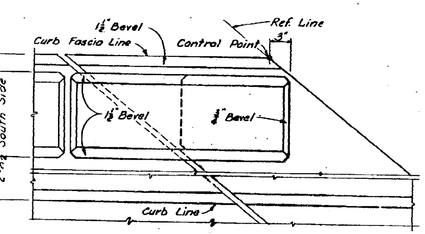
SECTION F-F

SECTION E-E



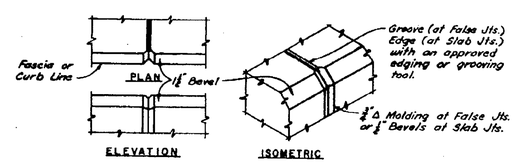


DETAIL 2



DETAIL 3

COPPER WATERSTOP DETAILS



MOLDING DETAILS

Work this sheet with sheets 130, 131 & 132

MICHIGAN STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE DETAILS

TECON ENGINEERS, INC.

REVISIONS

NO.	DESCRIPTION	DATE	BY
A	Structure Relocated	9-10-62	Tecon

S02 OF 63174D

NOTE:
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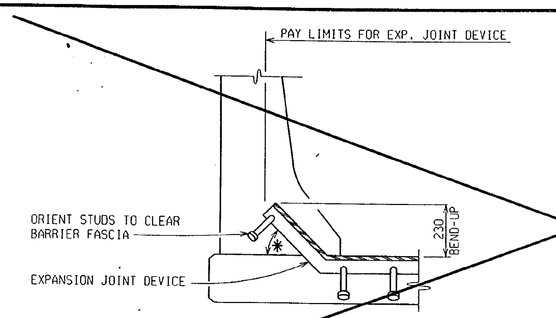
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

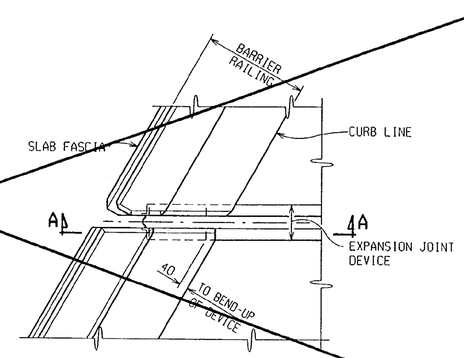
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-14-99	S02 OF 63174	48404A	MADHAVI	20 OF 29

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: under FILE NAME: s0263174.sr.



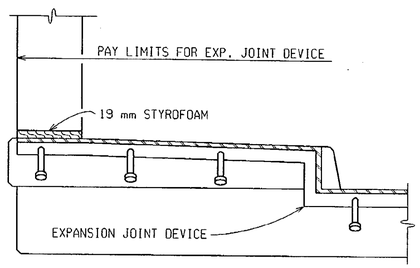
SECTION A-A

* FOR ANGLES OF CROSSING FROM 90° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG ℄ EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.

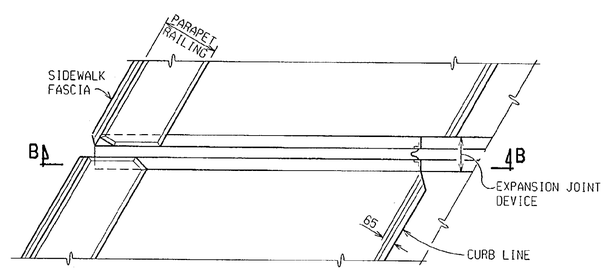


PLAN AT BARRIER RAILING

BARRIER TREATMENT



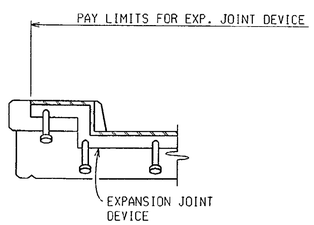
SECTION B-B



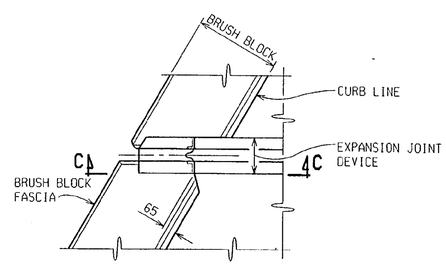
PLAN AT PARAPET RAILING

(DETAILS ARE SIMILAR FOR BRIDGE RAILING, 5 TUBE)

SIDEWALK TREATMENT



SECTION C-C



PLAN AT BRIDGE RAILING, 2 TUBE

BRUSH BLOCK TREATMENT

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
S02	40°	ABUT A	25 mm	16.2 m
S02	40°	ABUT B	25 mm	16.2 m

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	33

MICHIGAN DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT DETAILS

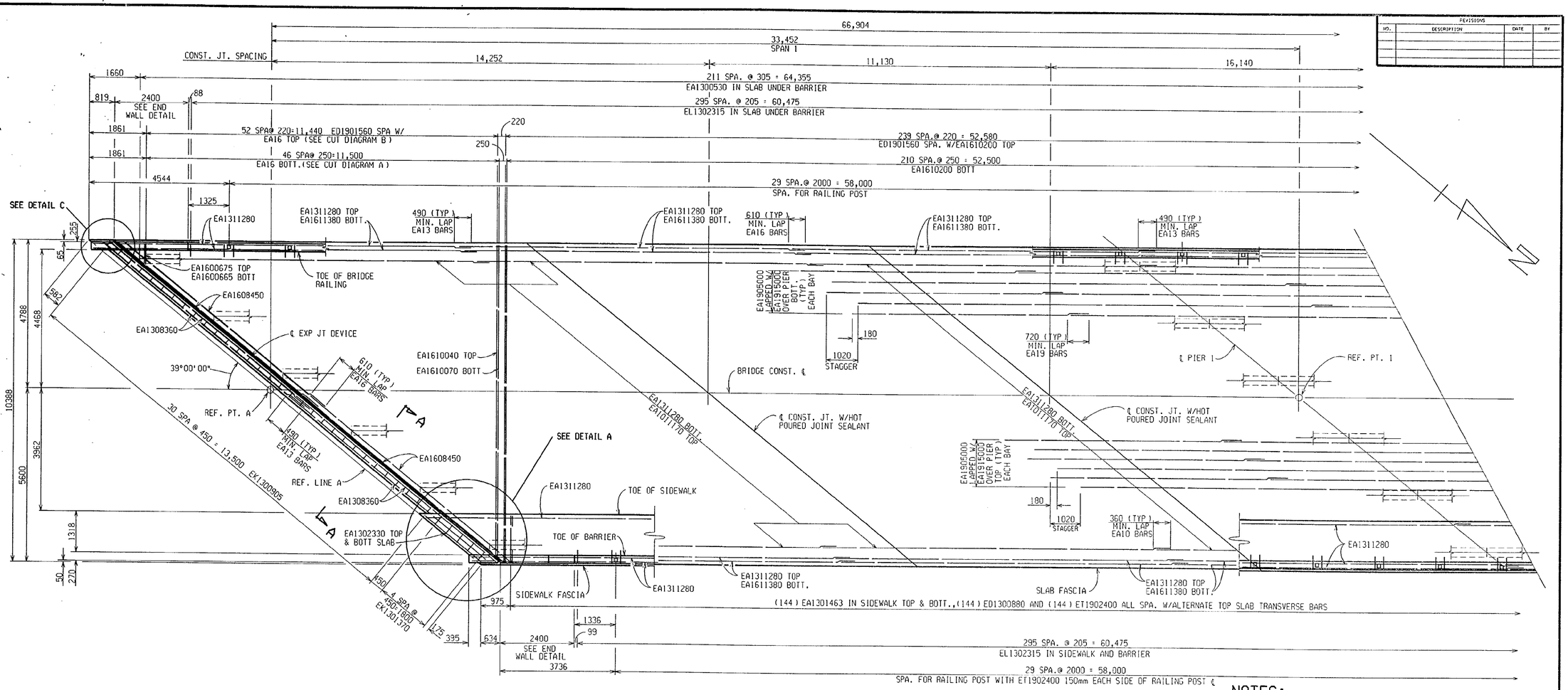
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404E	MAHDAVI	21 OF 29

EJ3T (11-17-97)

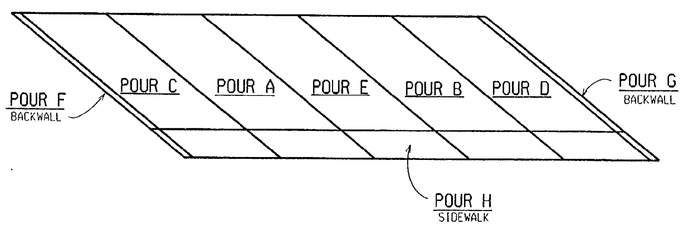
DATE: 5-11-99 | DATE: 07-16-96 CORRECTED BY: SHAFFER | CHECKED BY: VZ/SPB | DATE: | DRAWN BY: STANDARDS | FILE NAME: S0263174.EJ

CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 22

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN OF SLAB



POUR DIAGRAM

DECK POURS

SUPERSTRUCTURE CONCRETE NIGHT CASTING QUANTITIES	
POUR	CUBIC METERS
A	28.1
B	28.1
C	33.9
D	33.9
E	41.0
TOTAL CONC:	165 CUBIC METERS

SIDEWALK AND BARRIERS

SUPERSTRUCTURE CONCRETE QUANTITIES	
POUR	CUBIC METERS
F	3
G	3
H	20
TOTAL CONC:	26 CUBIC METERS

MISCELLANEOUS QUANTITIES

1 LS	Shear Developers (S02)
1 LS	Superstructure Conc. Form, Finish, and Cure, Night Casting (S02)
134 m	Bridge Railing, Aesthetic Parapet Tube, Modified
1 LS	Bridge Lighting, Furnish and Remove (S02)
165 m3	Bridge Lighting, Operate and Maintain
140 m2	Top Flanges and Beam Ends, Clean and Prime
85 m2	Joint Waterproofing
1 LS	Superstructure Conc. Form, Finish, and Cure (S02)
320 m2	Conc Surface Sealer

NOTES:

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL AND NAME PLATE MOUNTING DETAILS, SEE STANDARD B-25 SERIES. FOR DETAILS OF NAME PLATES, MOLDINGS AND BEVELS, SEE STANDARD PLAN B-103-SERIES.

FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE SHEET.

PERMANENT METAL STAY-IN-PLACE DECK FORMS ARE OPTIONAL.

HPJS DENOTES HOT-POURED JOINT SEALANT.

THE CONTRACTOR IS TO PROVIDE A SAWED JOINT 12 mm DEEP BY 3 mm WIDE (MINIMUM) IN THE TOP OF SLAB AT TRANSVERSE CONSTRUCTION JOINTS. THE JOINT IS TO BE SAWED BEFORE CASTING OF BARRIERS OR SIDEWALKS AND IS TO BE FILLED WITH HOT-POURED JOINT SEALANT OR COLD-APPLIED JOINT SEALANT, SINGLE COMPONENT TYPE IN ACCORDANCE WITH STANDARD SPECIFICATION SUBSECTION 9.14.04. INCLUDED IN THE BID ITEM "SUPERSTRUCTURE CONC.,FORM, FINISH AND CURE (NIGHT CASTING)(S02)

NO PORTION OF THE DECK FORMWORK SHALL ENCROACH ON THE EXISTING UNDERCLEARANCE.

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03 J OF THE STANDARD SPECIFICATIONS.

DECK POURS ARE TO BE MADE IN THE FOLLOWING SEQUENCE A, B, C, D, AND E.

MDOT Michigan Department of Transportation

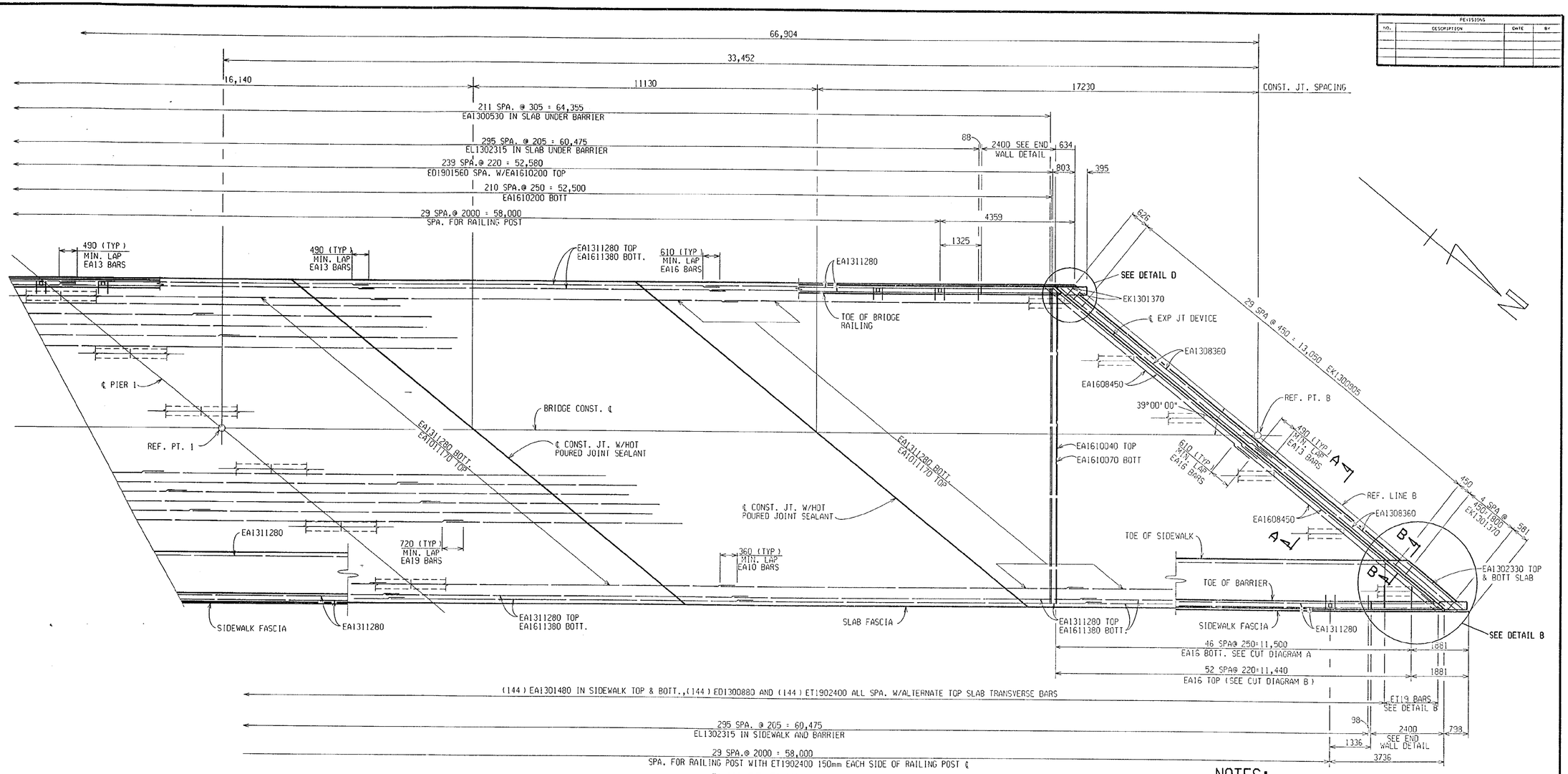
DECK REPLACEMENT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S02 OF 63174	48404A	MAHDAVI	22 OF 29

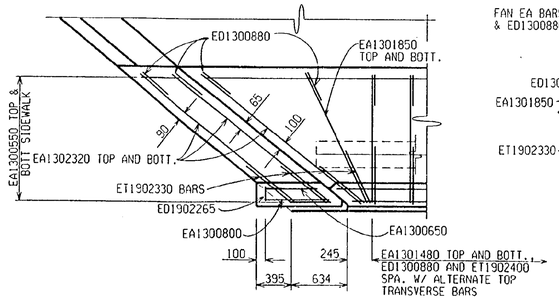
DATE: 10-13-99 CORRECTED BY: SHAFFER
DATE: DATE: 8-24-99 CHECKED BY:
DRAWN BY: SHAFFER
FILE NAME: S0263174.DK

CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 23

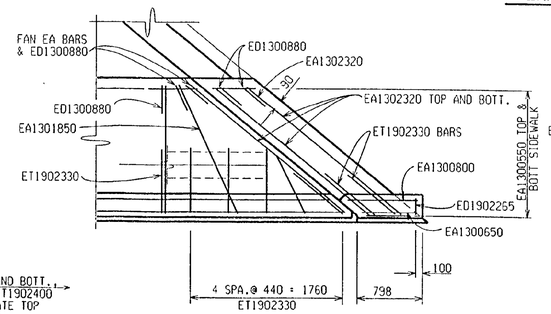
REVISIONS			
NO.	DESCRIPTION	DATE	BY



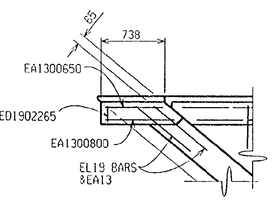
PLAN OF SLAB



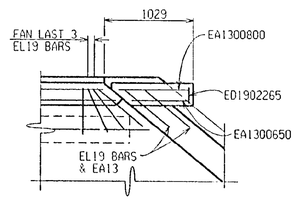
DETAIL A



DETAIL B



DETAIL C



DETAIL D

NOTES:

BRIDGE RAILING, AESTHETIC PARAPET TUBE, MODIFIED SHALL BE IN ACCORDANCE WITH THE STANDARD PLAN B-25 EXCEPT FOR THE ADDITION OF FRACTURED FIN RUSTIFICATION ON THE BACK SIDE OF THE RAILING AS DETAILED ON THE PLANS.

THE ENTIRE CONCRETESURFACES OF THE BRIDGE RAILING, ASTHETIC PARAPET TUBE, MODIFIED SHALL BE COATED WITH CONCRETE SURFACE SEALER (SEE SPECIAL PROVISIONS).

WHERE CAST-IN-ANCHORAGE IS USED FOR EXPANSION JOINT DEVICES, IT IS RECOMMENDED THAT THE PLACING OF DECK CONCRETE PROGRESS TOWARD THE JOINT SO THAT THE EFFECTS OF DEAD LOAD DEFLECTION WILL OCCUR BEFORE CONCRETE IS PLACED AT THE ANCHORAGE.

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03 J OF THE STANDARD SPECIFICATIONS.

"EDGE" OR "GROOVE" DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

MDOT Michigan Department of Transportation

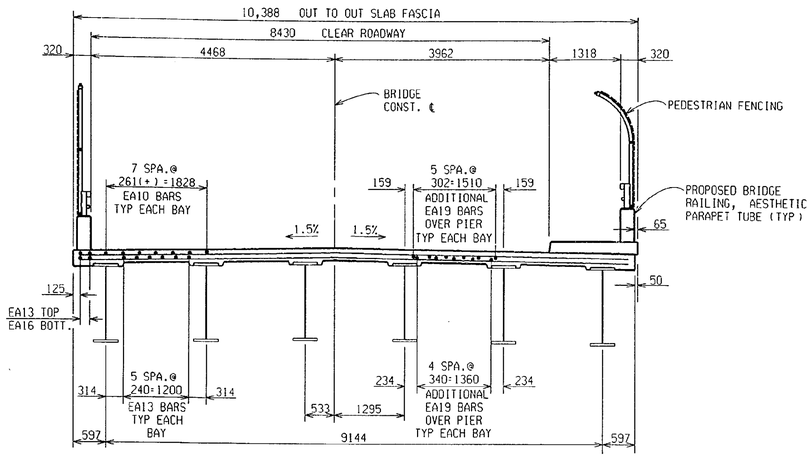
DECK REPLACEMENT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-12-99	S02 OF 63174	48404A	MAHDAVI	23 OF 29

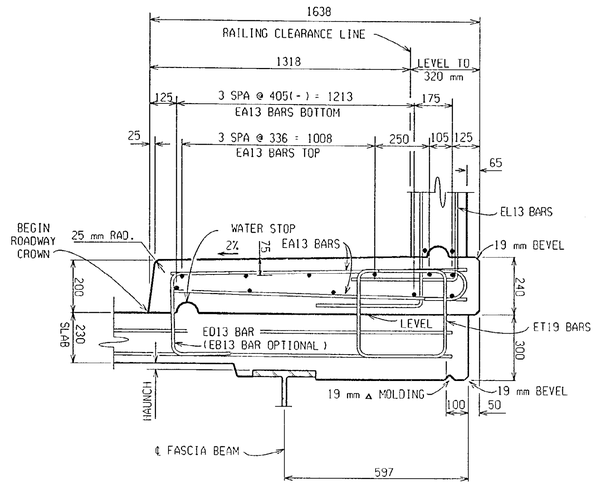
DATE: 10-12-99 CORRECTED BY: SHAFFER
DATE: DATE: 8-24-99 CHECKED BY:
DRAWN BY: SHAFFER
FILE NAME: 63174

CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 24

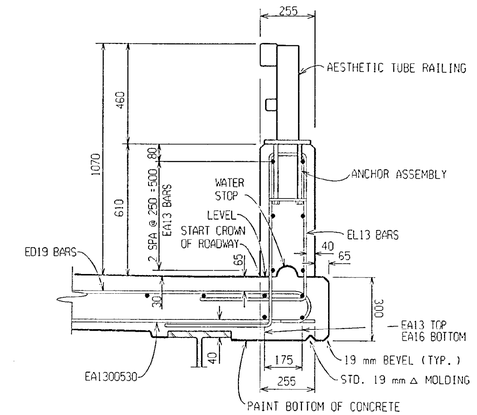
REVISIONS			
NO.	DESCRIPTION	DATE	BY



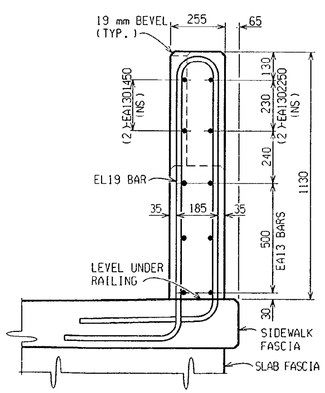
TYPICAL DECK SECTION



SIDEWALK SECTION

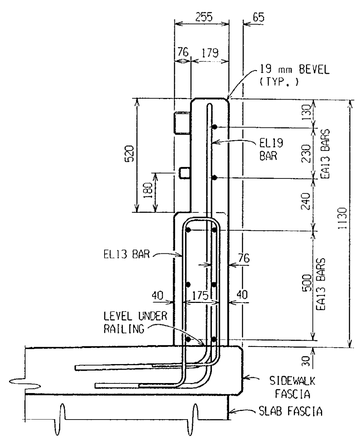


SECTION THRU RAILING



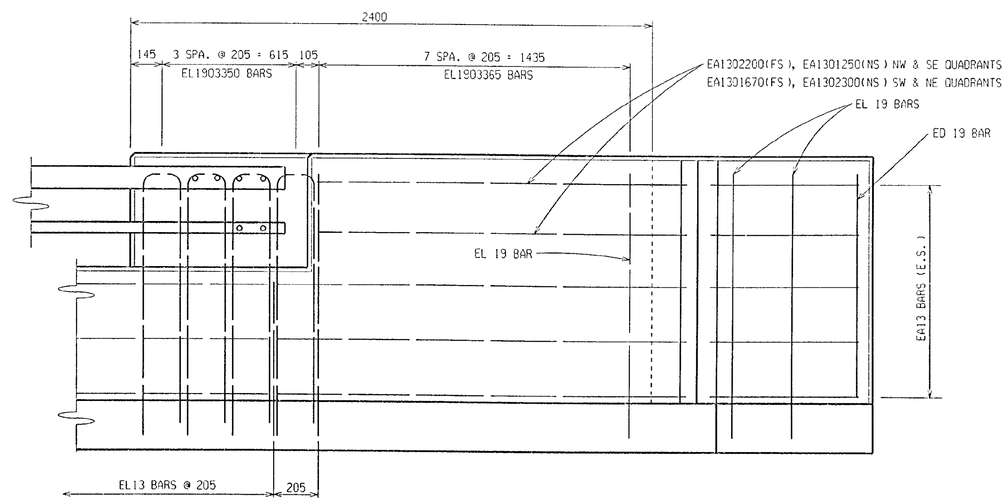
SECTION AT END WALL

(FULL CONCRETE AREA)



SECTION AT END WALL

(TUBE CONNECTION AREA)



END WALL DETAIL

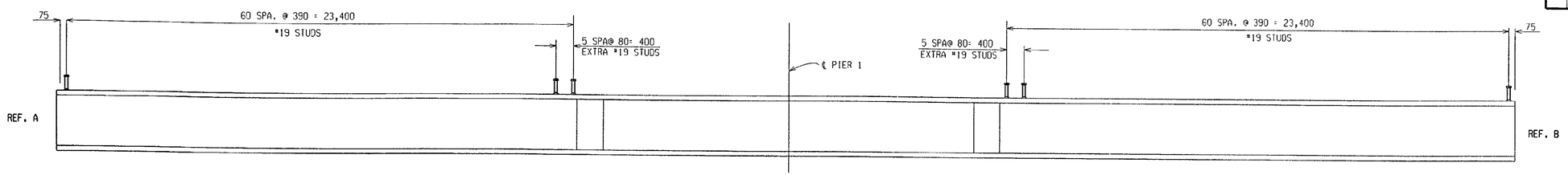
MDOT Michigan Department of Transportation

DECK REPLACEMENT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-8-99	S02 OF 63174	48404A	MAHDAVI	24 OF 29

DATE: 10-8-99 CORRECTED BY: SHAFFER DATE: CHECKED BY: DATE: 8-24-99 DRAWN BY: SHAFFER FILE NAME: S0263174.DK

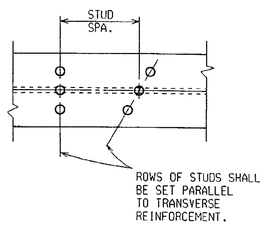
REVISIONS			
NO.	DESCRIPTION	DATE	BY



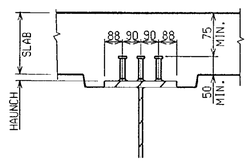
SPAN 1

SPAN2

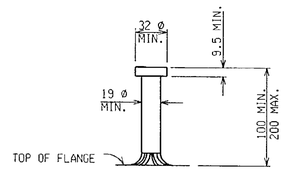
SHEAR DEVELOPER DETAIL



PLAN

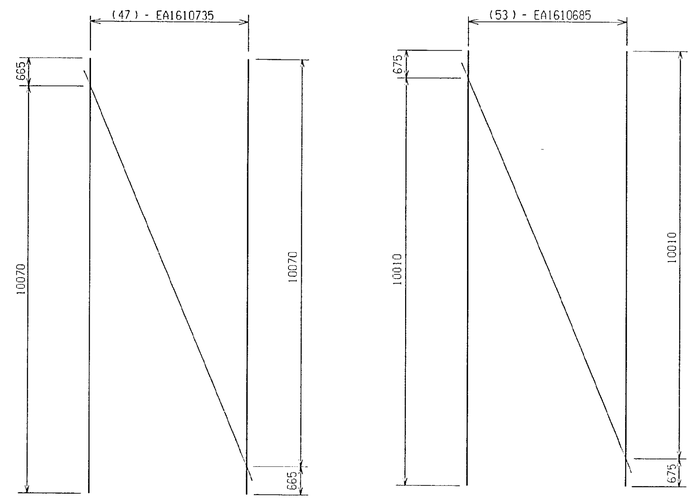


SECTION



STUD DETAIL

STUD SHEAR DEVELOPER DETAILS

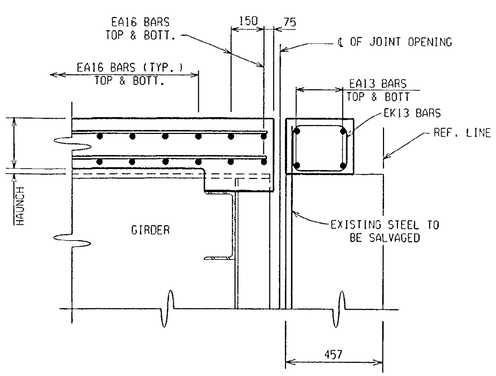


CUT DIAGRAM A

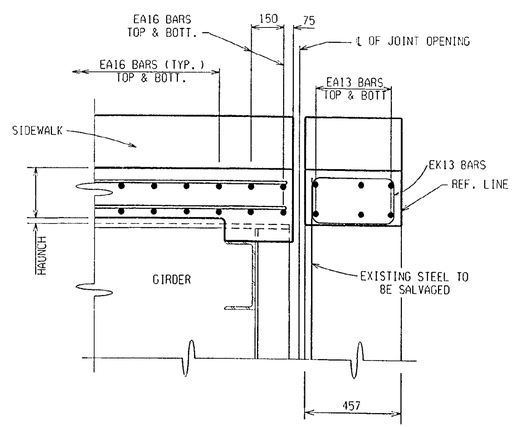
FOR BOTTOM BARS

CUT DIAGRAM B

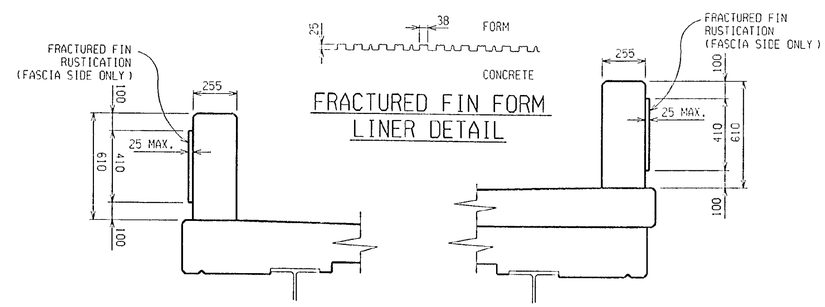
FOR TOP BARS



SECTION A-A



SECTION B-B



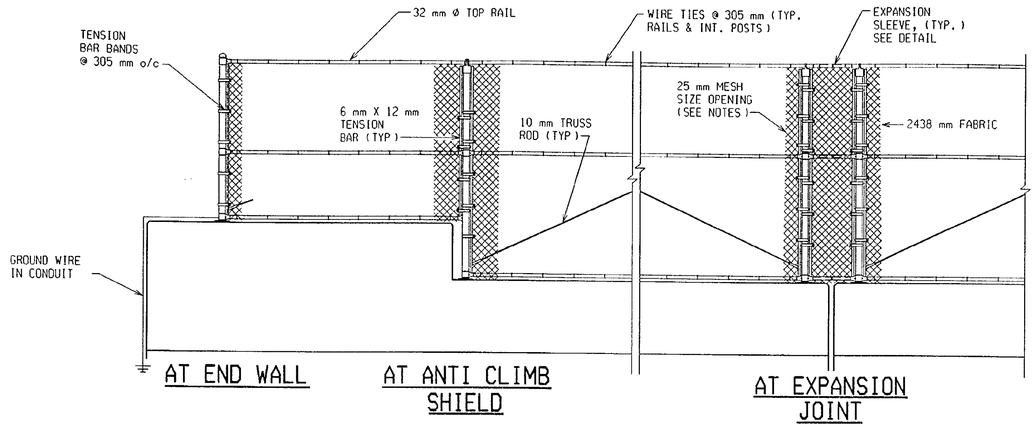
FRACTURED FIN FORM
LINER DETAIL

TYPICAL RAILING SECTION
SHOWING RUSTICATION

MDOT Michigan Department of Transportation

DECK REPLACEMENT DETAILS

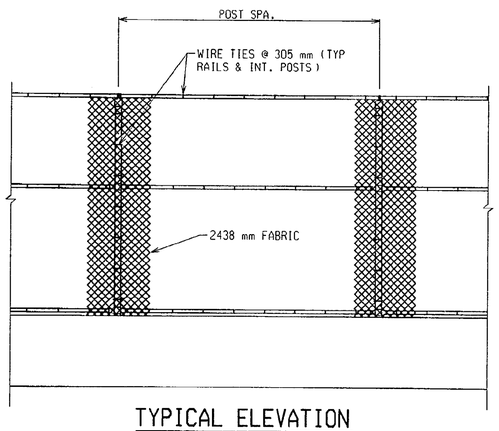
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-11-99	S02 OF 63174	48404A	MAHDAVI	25 OF 19



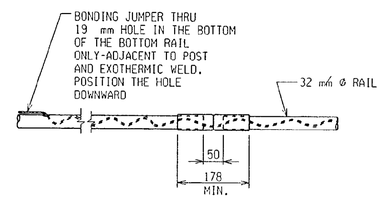
REVISIONS			
NO.	DESCRIPTION	DATE	BY

MISCELLANEOUS QUANTITIES

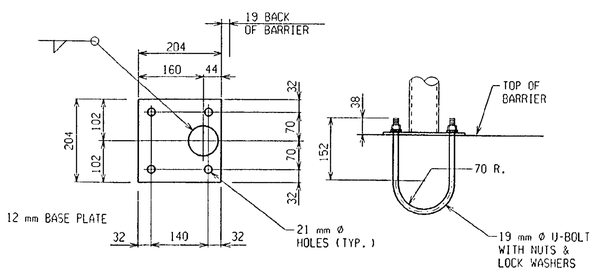
327 m2	Fencing, Structures
1 ea	Elec Grounding System



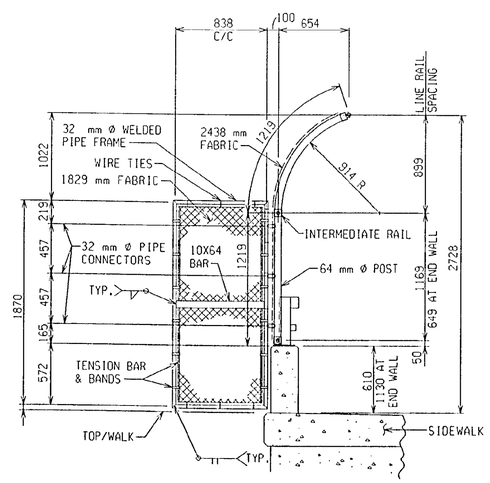
TYPICAL ELEVATION



EXPANSION SLEEVE DETAIL



BASE PLATE DETAILS



TYPICAL SECTION
(SHOWING ANTI-CLIMB SHIELD)

NOTES:

ALL FENCE POSTS SHALL BE 64 NOMINAL, (73 O.D.) PIPE AND ANTI-CLIMB SHIELD PIPE FRAMES SHALL BE 32 NOMINAL, (42 O.D.) PIPE, IN CONFORMANCE WITH ASTM F669, CLASS 1C.

HORIZONTAL RAILS SHALL BE 32 NOMINAL (42 O.D.) PIPE IN CONFORMANCE WITH ASTM F669, CLASS 1C OR ASTM F1083.

ALL FENCE COMPONENTS, UNLESS OTHERWISE INDICATED, SHALL BE GALVANIZED IN ACCORDANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

ALL POSTS, ANTI-CLIMB SHIELDS OR OTHER COMPONENTS TO BE FABRICATED SHALL BE FURNISHED "BLACK" AND THEN GALVANIZED AFTER FABRICATION.

DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN CONFORMANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

FENCE FABRIC SHALL BE #9 GAGE MESH AND BE GALVANIZED OR ALUMINUM COATED IN CONFORMANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION. MESH SIZE OPENING SHALL BE 25 mm.

GALVANIZED 10 mm Ø TRUSS RODS SHALL EXTEND DIAGONALLY FROM THE TOP CONNECTION CLIP AT EACH TENSION BAR TO THE ADJACENT POST, EXCEPT ACROSS EXPANSION JOINTS AND AT LIGHT STANDARDS WITH A CURVED FENCE DETAIL, WHEN THERE ARE TWO OR MORE CONTINUOUS PANELS OF FABRIC.

ALL POSTS SHALL BE INSTALLED PLUMB AND MAY BE SHIMMED WITH NON-METALLIC SHIMS, APPROVED BY THE ENGINEER. COSTS FOR SHIMMING SHALL BE INCLUDED IN THE PAY ITEM "FENCING, STRUCTURES".

BOTTOM STRAP ON THE VERTICAL POST SHALL BE CONNECTED WITH RAIL ENDS (BRACE BANDS) RATHER THAN A TWO WAY CLAMP TO ALLOW A MINIMUM OF 7 mm OFFSET.

FIELD WELDING SHALL BE ALLOWED ONLY FOR THE HANDRAIL SPLICES AND FOR ATTACHMENT OF THE HANDRAIL TO THE POST. ALL FIELD WELDS SHALL BE GROUND SMOOTH PRIOR TO COATING WITH ZINC-RICH PAINT OR SPRAYED ZINC IN ACCORDANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS.

THE GROUND WIRE SHALL BE PLACED IN A NON-METALLIC CONDUIT, FROM THE END POST CONNECTION TO THE GROUND ROD CONNECTION. THE CONDUIT SHALL BE SECURED TO THE STRUCTURE USING EITHER EXPANSION BOLTS OR ADHESIVE ANCHORED BOLTS WITH GALVANIZED METAL STRIPS, AS APPROVED BY THE ENGINEER.

IN THE EVENT THAT INSTALLATION OF A GROUND ROD IS IMPRACTICAL, THE GROUND WIRE SHALL BE CONNECTED TO THE NEAREST LIGHT STANDARD, USING A MECHANICAL CLIP, ONLY AFTER OBTAINING PERMISSION FROM THE LOCAL PUBLIC LIGHTING AUTHORITY.

EXPANSION JOINT SLEEVES, FOR HORIZONTAL RAILS, SHALL BE THE MANUFACTURER'S STANDARD OVERSIZED SLEEVES, CRIMPED IN THE MIDDLE.

ALL DIMENSIONS ARE IN MILLIMETERS.

GROUNDING CABLES AND TOPS OF GROUNDING RODS SHALL BE PLACED 300 mm MINIMUM BELOW FINISHED GROUND.

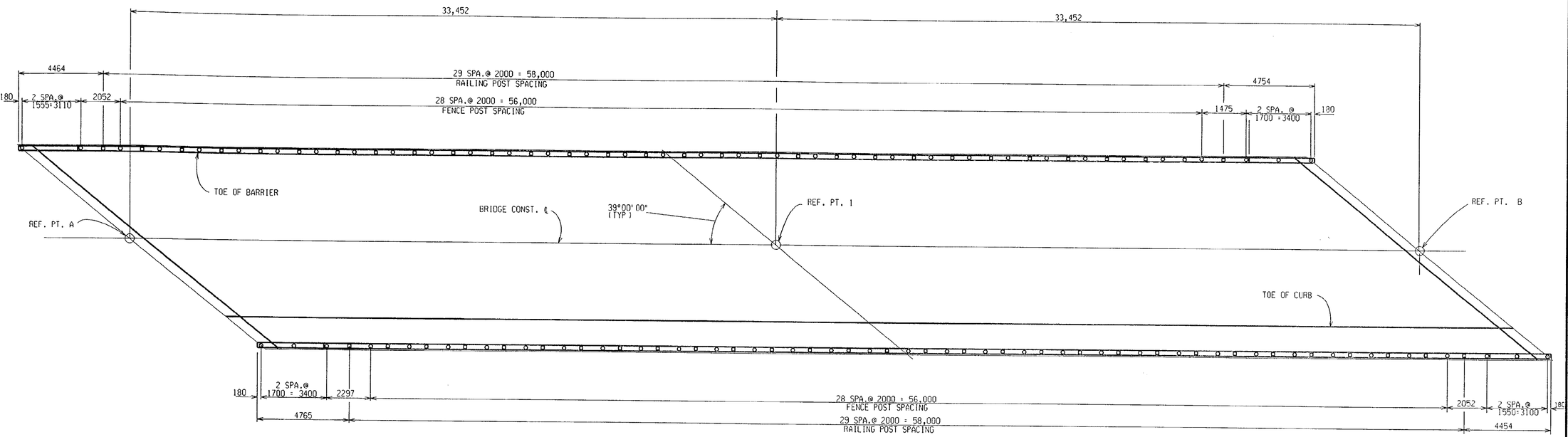
MDOT Michigan Department of Transportation

FENCING DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-12-99	S02 OF 63174	48404A	MAHDAVI	26 OF 29

CONTROL SECTION S02 OF 63174 | JOB NO. 48404A | SH. NO. 27

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN VIEW

MDOT Michigan Department of Transportation

FENCING DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-12-99	S02 OF 63174	48404A	MAHDAVI	27 OF 29

DATE: 10-12-99 | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 9-22-99 | DRAWN BY: SHAFFER | FILE NAME: S0263174.FE

CONTROL SECTION S02 OF 63174 JOB NO. 48404D SH. NO. 28

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BOTTOM OF SLAB ELEVATIONS

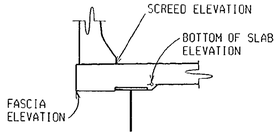
REF.A — SPAN 1 — REF.1 — SPAN 2 — REF.B

		0	1	2	3	4	5	6	7	8	9	10	11	12
A	FASCIA	194.350	194.393	194.433	194.470	194.501	194.529	194.551	194.570	194.585	194.598	194.609	194.620	194.632
	RIGHT	194.424	194.467	194.506	194.543	194.575	194.602	194.625	194.643	194.658	194.671	194.682	194.693	194.706
B	LEFT	194.471	194.513	194.552	194.587	194.617	194.643	194.664	194.682	194.695	194.707	194.716	194.726	194.737
	RIGHT	194.478	194.520	194.559	194.594	194.624	194.650	194.671	194.688	194.702	194.713	194.723	194.733	194.744
C	LEFT	194.525	194.565	194.603	194.636	194.665	194.690	194.710	194.726	194.738	194.748	194.756	194.765	194.775
	RIGHT	194.532	194.572	194.609	194.643	194.672	194.697	194.717	194.732	194.745	194.755	194.763	194.772	194.781
D	LEFT	194.545	194.584	194.620	194.653	194.680	194.703	194.722	194.737	194.748	194.756	194.763	194.770	194.779
	RIGHT	194.539	194.578	194.613	194.646	194.673	194.697	194.715	194.730	194.741	194.749	194.757	194.764	194.772
E	LEFT	194.542	194.579	194.614	194.645	194.671	194.693	194.710	194.723	194.733	194.740	194.746	194.752	194.759
	RIGHT	194.535	194.573	194.607	194.638	194.664	194.686	194.704	194.717	194.726	194.734	194.739	194.745	194.752
F	LEFT	194.549	194.585	194.618	194.648	194.673	194.693	194.709	194.721	194.729	194.735	194.739	194.744	194.749
	FASCIA	194.481	194.517	194.551	194.580	194.605	194.625	194.641	194.653	194.662	194.667	194.672	194.676	194.682

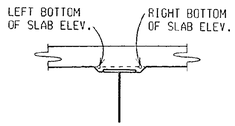
		0	1	2	3	4	5	6	7	8	9	10	11	12
A	FASCIA	194.632	194.648	194.664	194.680	194.695	194.708	194.717	194.722	194.723	194.719	194.710	194.697	194.682
	RIGHT	194.706	194.721	194.737	194.754	194.769	194.781	194.790	194.795	194.796	194.792	194.783	194.771	194.755
B	LEFT	194.737	194.751	194.766	194.781	194.795	194.806	194.814	194.818	194.817	194.811	194.801	194.787	194.771
	RIGHT	194.744	194.758	194.773	194.788	194.802	194.813	194.821	194.824	194.823	194.818	194.808	194.794	194.778
C	LEFT	194.775	194.787	194.801	194.814	194.827	194.837	194.843	194.845	194.843	194.836	194.825	194.810	194.792
	RIGHT	194.781	194.794	194.808	194.821	194.834	194.844	194.850	194.852	194.850	194.843	194.832	194.817	194.799
D	LEFT	194.779	194.790	194.802	194.815	194.826	194.834	194.839	194.840	194.836	194.828	194.816	194.799	194.780
	RIGHT	194.772	194.783	194.795	194.808	194.819	194.827	194.832	194.833	194.830	194.822	194.809	194.792	194.773
E	LEFT	194.759	194.769	194.780	194.791	194.800	194.808	194.811	194.811	194.806	194.796	194.782	194.764	194.744
	RIGHT	194.752	194.762	194.773	194.784	194.794	194.801	194.805	194.804	194.799	194.790	194.775	194.758	194.737
F	LEFT	194.749	194.758	194.767	194.777	194.785	194.791	194.794	194.792	194.785	194.775	194.759	194.740	194.718
	FASCIA	194.682	194.690	194.700	194.710	194.718	194.724	194.726	194.724	194.718	194.707	194.692	194.672	194.650

SCREED ELEVATIONS

LEFT	194.642	194.683	194.722	194.758	194.789	194.816	194.839	194.859	194.875	194.889	194.901	194.913	194.926	194.926	194.941	194.957	194.973	194.987	194.999	195.008	195.012	195.013	195.010	195.003	194.992	194.979
RIGHT	194.766	194.802	194.834	194.864	194.889	194.910	194.926	194.940	194.950	194.957	194.963	194.969	194.976	194.976	194.985	194.994	195.004	195.012	195.017	195.020	195.018	195.013	195.004	194.990	194.973	194.953



TYPICAL FASCIA SECTION



TYPICAL INTERIOR SECTION

(LOOKING UP STATION)

BULKHEAD ELEVATIONS

	ABUT.A					ABUT.B
A	194.649	194.823	194.895	194.978	195.017	194.982
B	194.703	194.871	194.938	195.012	195.046	195.004
C	194.757	194.918	194.979	195.046	195.074	195.025
D	194.771	194.925	194.981	195.039	195.062	195.006
E	194.767	194.915	194.965	195.015	195.032	194.970
F	194.777	194.918	194.963	195.005	195.017	194.947

SECTIONS FOR BOTTOM OF SLAB AND/OR SCREED ELEVATIONS ARE GIVEN ALONG BEAM CENTERLINES FROM CENTERLINE OF BEARING OR PIN & HANGER TO CENTERLINE OF BEARING OR PIN & HANGER AS APPLICABLE AT EQUAL SPACINGS.

MDOT Michigan Department of Transportation

SLAB AND SCREED DATA

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
9-22-1999	S02 OF 63174	48404D	MAHDAVI	28 OF 29

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: FILE NAME: s0263174.ss

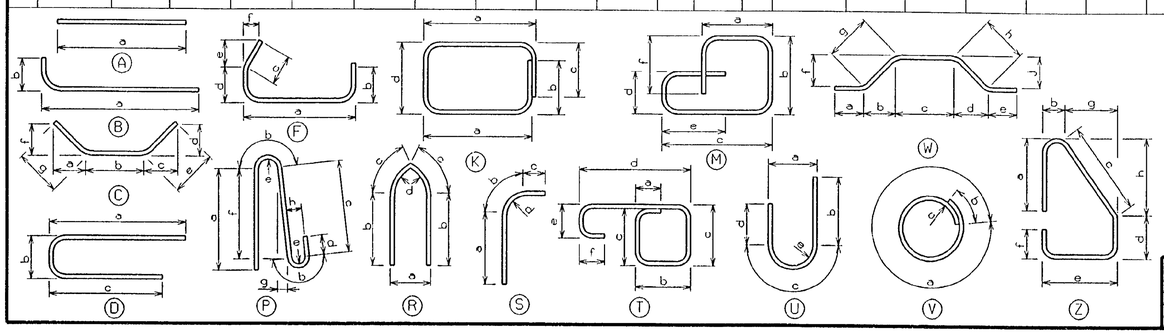
CONTROL SECTION S02 OF 63174 JOB NO. 48404A SH. NO. 29

SUPERSTRUCTURE

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1011170	11170									216	1351
EA1311280	11280									24	269
EA1311280	11280									180	2018
EA1611380	11380									24	424
EA1905000	5000									55	615
EA1915000	15000									55	1844
EA1610200	10200									451	7140
EA1610685	10685									53	879
EA1610735	10735									47	783
EA1300530	530									216	114
EA1608450	8450									16	210
EA1308360	8360									16	133
EA1302330	2330									4	9
EA1311280	11280									138	1547
EA1301480	1480									288	424
EA1301850	1850									4	7
EA1302320	2320									12	28
EA1300550	550									22	12
EA1302200	2200									4	9
EA1301250	1250									4	5
EA1302300	2300									4	9
EA1301670	1670									4	7
EA1300800	800									20	16
EA1300650	650									20	13
ED1901560	1260	150	150							297	1036
ED1300880	270	340	270							155	136
ED1902185	1000	185	1000							4	20
EK1301370	175	340	340	340						12	16
EK1300905	175	185	185	185						61	55
EL1302315	660	175	760	360	360	175				592	1362
EL1903350	1180	170	1280	360	360		170			16	120
EL1903365	1180	185	1280	360	360	185				40	301
ET1902400	310	410	380	510	160	200				154	826

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.



EPOXY COATED
BAR SIZE
BAR LENGTH (mm)
EA2013000
BAR SHAPE

BAR LEGEND

MISCELLANEOUS QUANTITIES

0	kg	REINFORCEMENT, STEEL
21738	kg	REINFORCEMENT, STEEL, EPOXY COATED

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

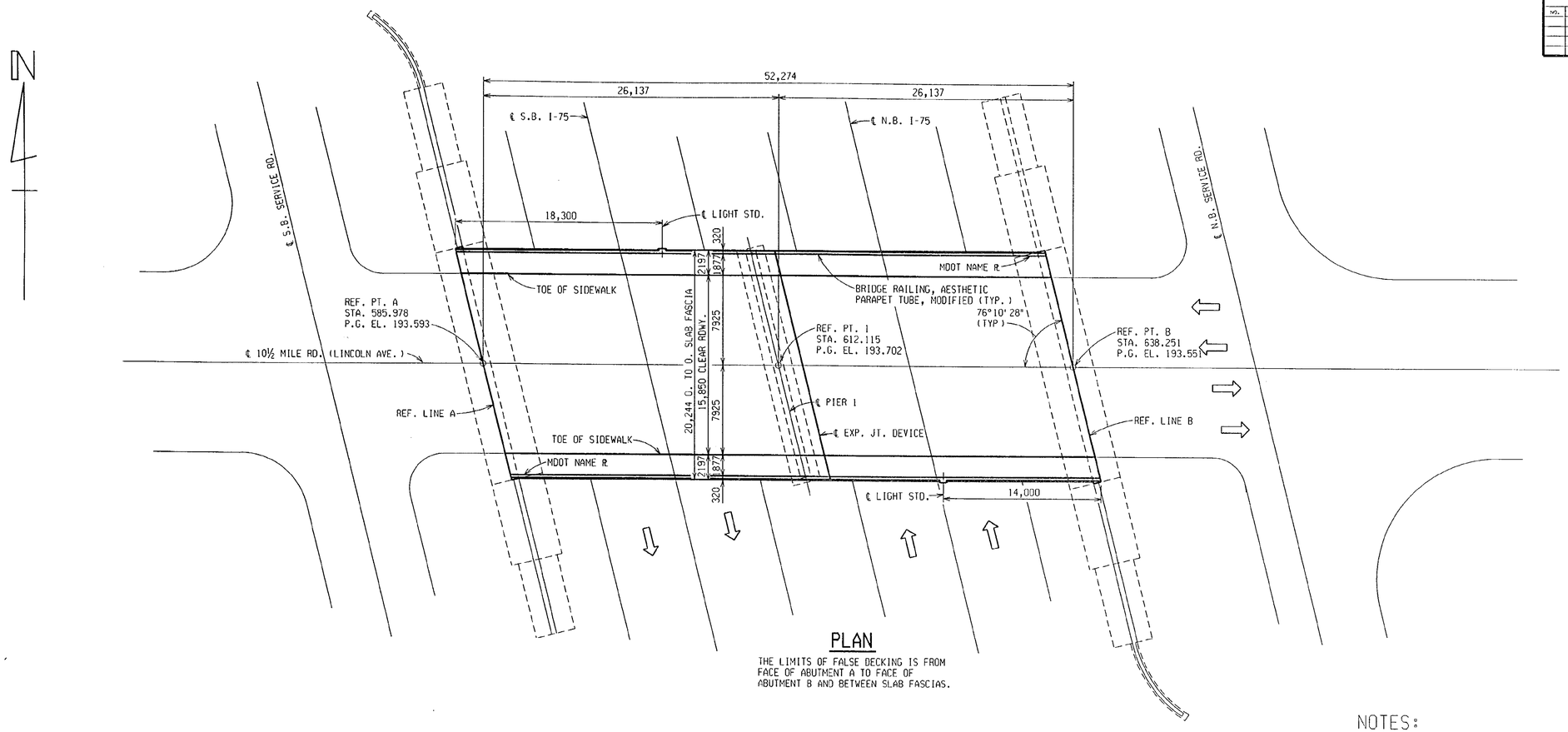
STEEL REINFORCEMENT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10/13/99	S02 OF 63174	48404A	MAHDAVI	29 OF 29

DATE: CORRECTED BY: DATE: 10/99 CHECKED BY: DRAWN BY: R.K.OLIN FILE NAME: s0263174.rs

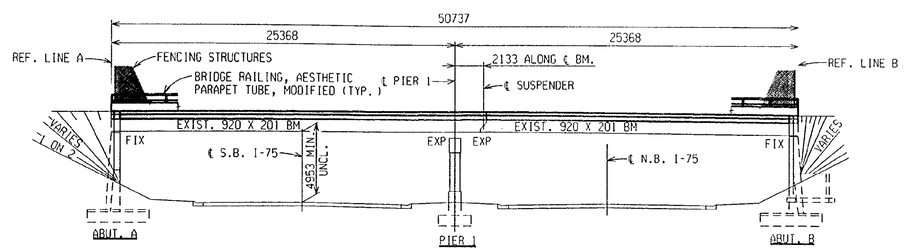
CONTROL SECTION S30 OF 63174 JOB NO. 48404A SH. NO. 2

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN

THE LIMITS OF FALSE DECKING IS FROM FACE OF ABUTMENT A TO FACE OF ABUTMENT B AND BETWEEN SLAB FASCIAS.



ELEVATION

SHOWN ⊥ TO I-75

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, PEDESTRIAN SCREENING, PIN AND HANGER REPLACEMENT, PAINTING OF THE EXISTING STRUCTURAL STEEL, AND MAINTAINING TRAFFIC. ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE A PART OF THIS CONTRACT.

THE REHABILITATION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS18 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH AND 1/375 OF CANTILEVER ARM. THE LOAD FACTOR) METHOD WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR MS18 LOADING.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

THE CONTRACTOR SHALL NOTIFY DETROIT EDISON FOR DEACTIVATION OF STREET LIGHTS AND TRAFFIC SIGNAL CIRCUITS PRIOR TO DECK REMOVAL AND FOR REINSTALLATION OF THE STREET LIGHTING AND SIGNALS FOLLOWING COMPLETION OF BRIDGE DECK CONSTRUCTION.

ALL WORK FOR TEMPORARY SUPPORT AND PROTECTION OF THE AMERITECH DUCTS AND THE CONSUMER ENERGY GAS MAIN SHALL BE INCLUDED IN THE PAY ITEM "STRUCTURES, REHABILITATION, REMOVE PORTIONS (S30)"

LINCOLN AVE. TRAFFIC IS TO BE DETOURED OVER OTHER EXISTING ROADS.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

THE EXISTING GAS MAIN AND AMERITECH DUCTS WILL REQUIRE TEMPORARY SUPPORTS PRIOR TO REMOVAL OF THE DECK.

MISCELLANEOUS QUANTITIES

1031 m2	False Decking
1 LS	Structures, Rehabilitation, Rem Portions (S30)

APPROVED Steven P. Beck 10/19/99
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

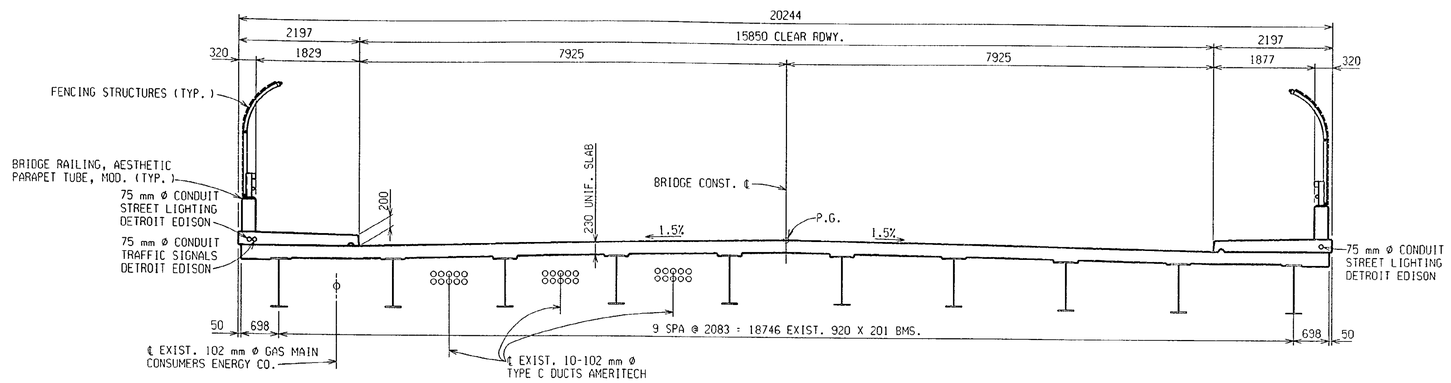
I-75 UNDER 10.5 MI., LINCOLN AVE. IN ROYAL OAK

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	2 OF 22

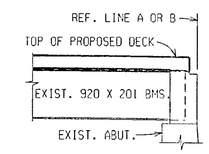
DATE: 10-13-99 CORRECTED BY: CASLER DATE: CHECKED BY: DATE: 1-15-99 DRAWN BY: CASLER FILE NAME: s3063174.st

CONTROL SECTION S30 OF 63174 | JOB NO. 48404A | SH. NO. 3

REVISIONS			
NO.	DESCRIPTION	DATE	BY



TYPICAL DECK SECTION



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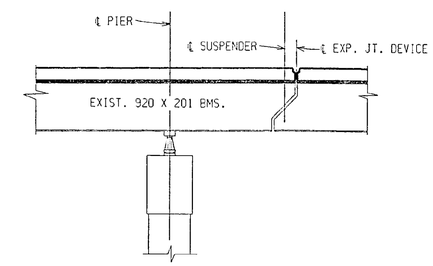


SECTION AT PIER

DATE: 7-24-99 | CORRECTED BY: SHAFFER | DATE: | DATE: 1-25-99 | CHECKED BY: | DRAWN BY: CASLER | FILE NAME: s3063174.st

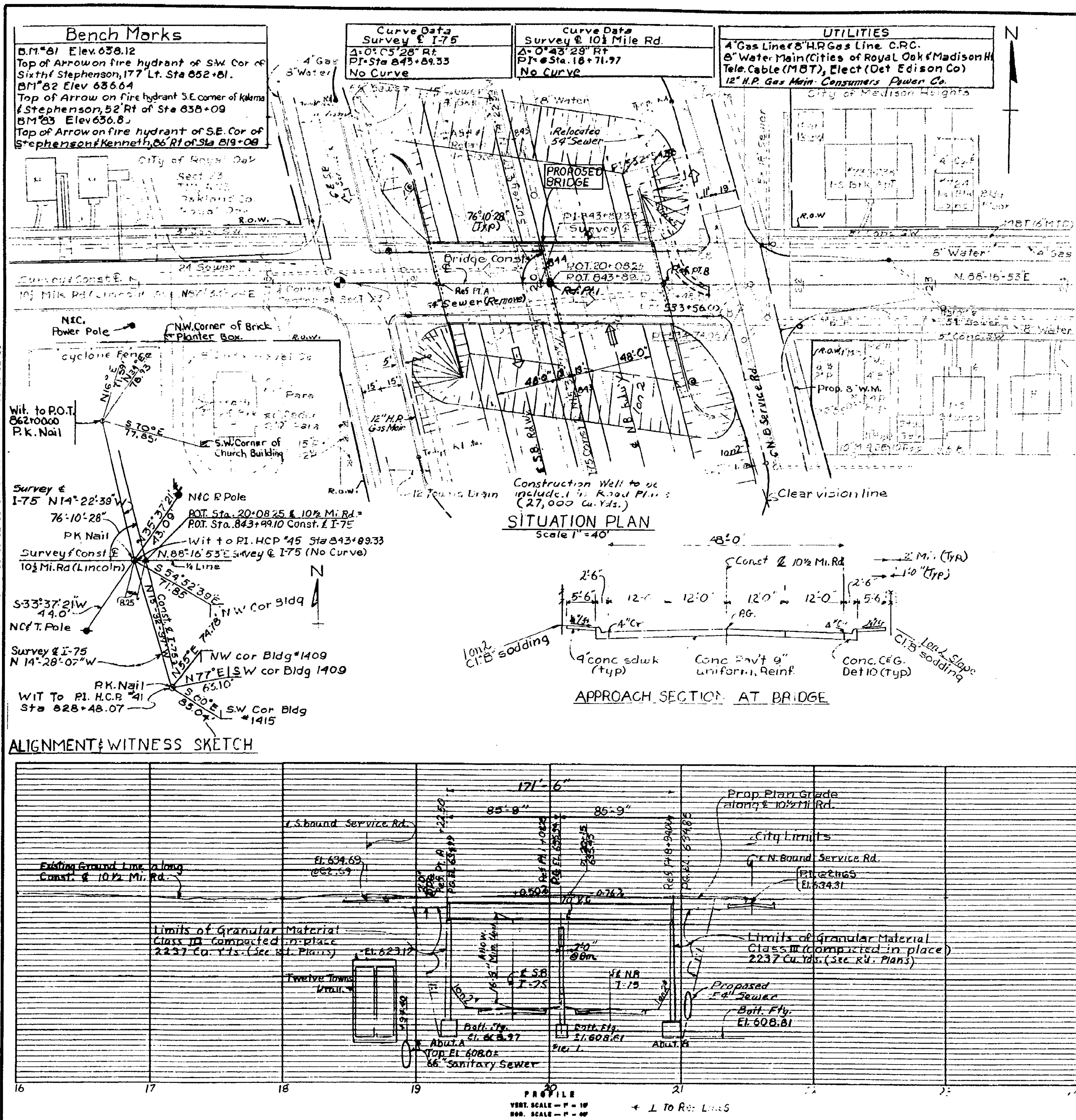
APPROVED Steven P. Beck 10/19/99
DESIGN SUPERVISING ENGINEER

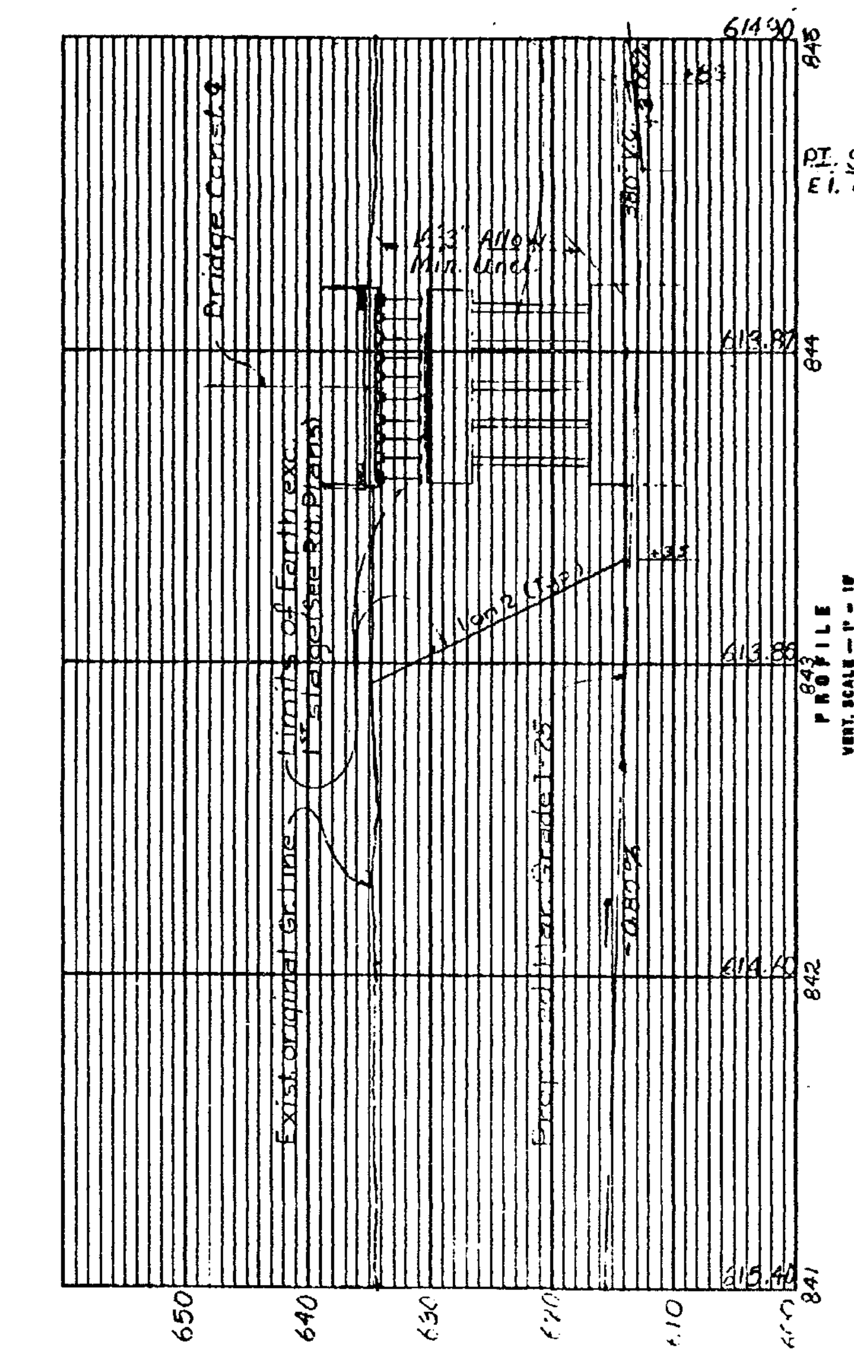
MDOT Michigan Department of Transportation

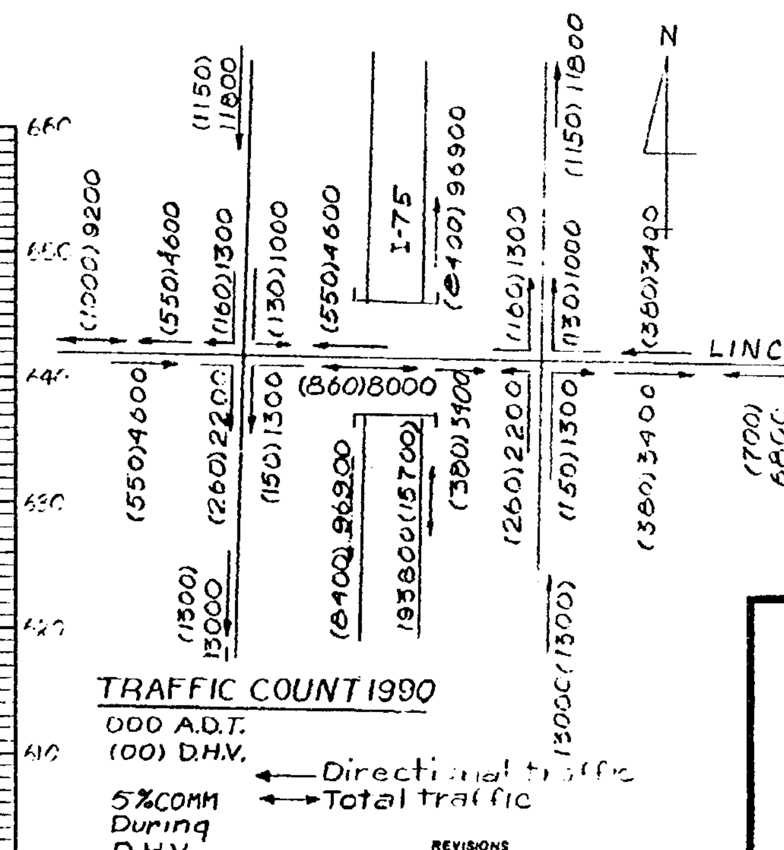
GENERAL PLAN OF STRUCTURE

I-75 UNDER 10.5 MI., LINCOLN AVE. IN ROYAL OAK

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	3 OF 22







Construction Sequence

Construct E.N. & E.S. Service Rd.
Construct Temporary Run Around.
Excavate & Construct Bridge.

NOTES:

Traffic maintained for:
I-75 on new & existing Service Roads
10½ Mi. Rd. by two one-way temp. run arounds will be used to maintain traffic on Lincoln, one to the north and one to the south. They will be placed so that all slope walls can be built during one stage.

Grading of construction well only in the vicinity of the structure to be done prior to starting work on the structure.

The work covered by these plans includes construction of the proposed bridge, placing foundation drains including the special inlets and placing slope protection to the limits shown.

Utilities requiring moving are to be moved by their respective owners.

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

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

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

10½ MILE ROAD (LINCOLN AVE.) OVER I-75 – CITY OF ROYAL OAK

GENERAL PLAN OF SITE

APPROVED ASST. SUPERVISOR–DESIGN 6-5-69
APPROVED SUPERVISOR–DESIGN 6-5-69

FISHER · HARTMAN 9-19-68 · R. MARSH 9-24-68 · SHEET 2 OF 20

S 30 of 63174 B

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY

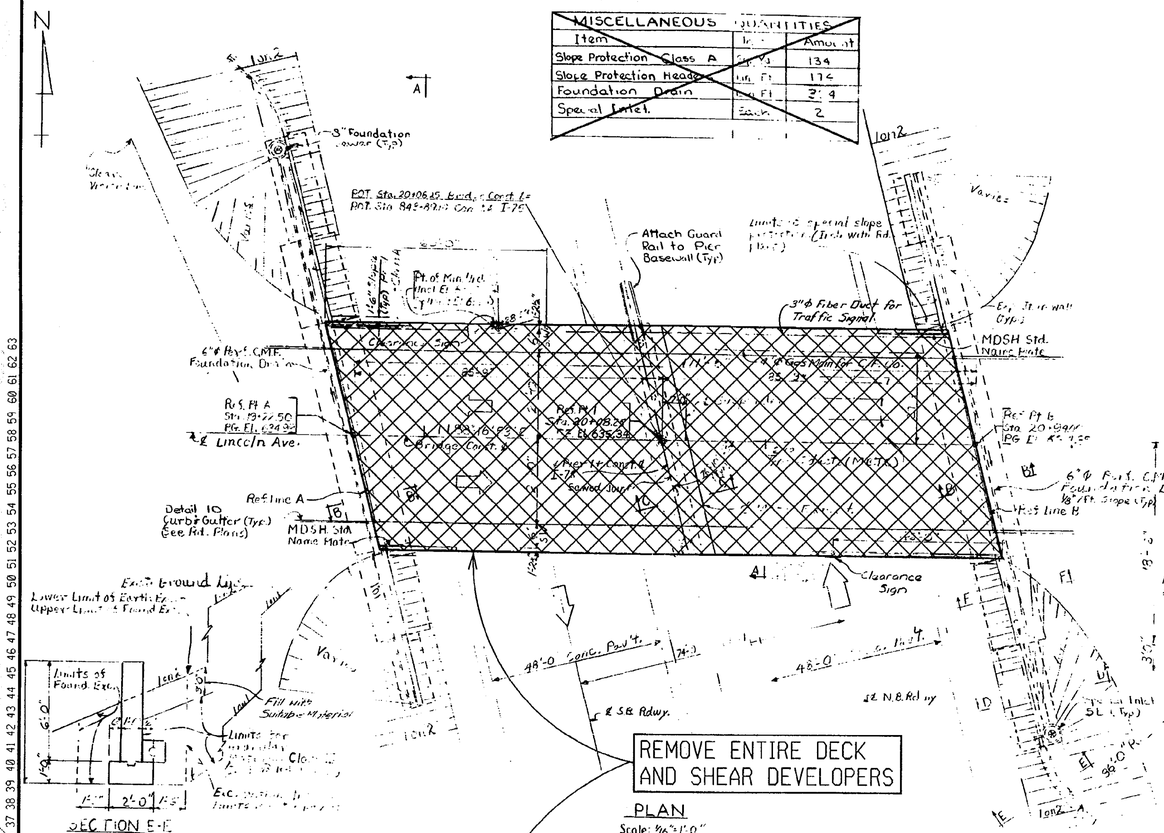
MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	4 OF 22

FILE NAME: s307317 4.sn · DRAWN BY: · DATE: 01-12-99 · CHECKED BY: · DATE: · CORRECTED BY: · DATE:

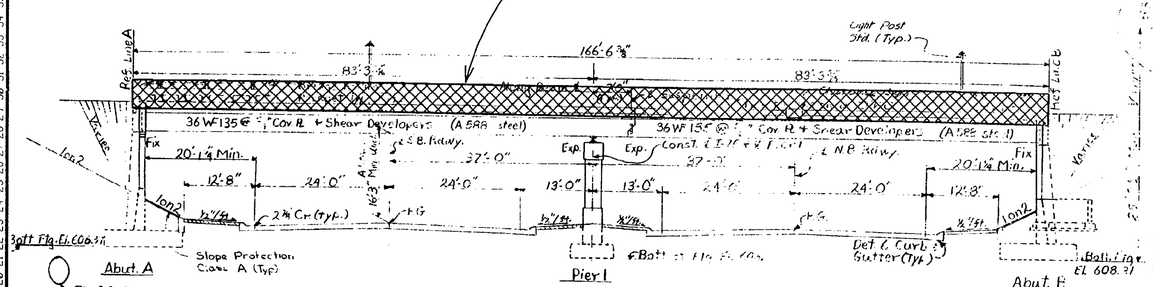
CONTROL SECTION S30 OF 63174 | JOB NO. 48404A | SH. NO. 5

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Slope Protection Class A	Sq. Yd.	134
Slope Protection Header	Lin. Ft.	176
Foundation Drain	Lin. Ft.	349
Special Inlet	Each	2

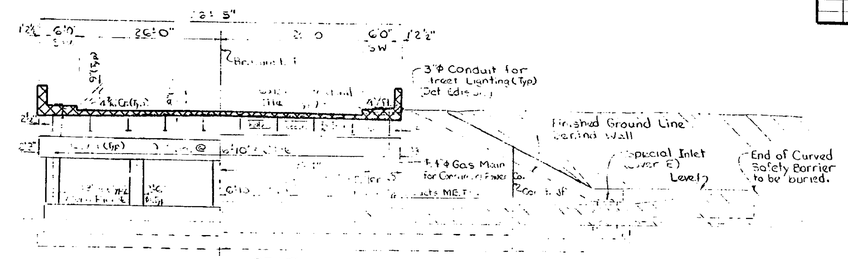


PLAN
Scale: 1/16" = 1'-0"

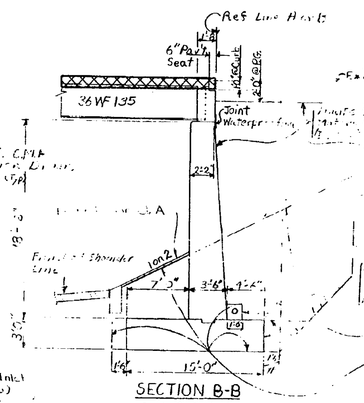
SECTION E-E
Scale: 3/8" = 1'-0"



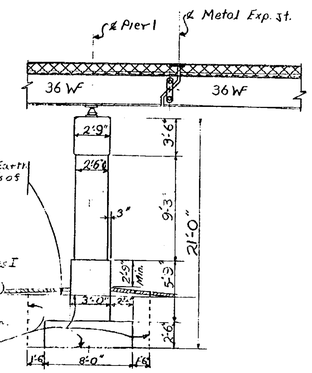
ELEVATION
All Dimensions are ⊥ to Ref. Lines
Scale: 1/32" = 1'-0"



SECTION A-A



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



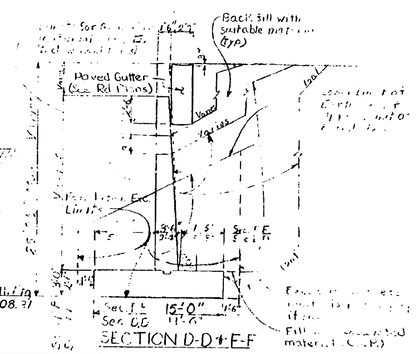
SECTION C-C
Scale 3/16" = 1'-0"

NOTES:

The design of this structure is based on the AASHTO Specifications for the Design of Highway Bridges, 1998 edition, and current AASHO Standard Specifications for Highway Bridges - H20-44 loading. Live load plus impact deflection = 1/800 of the span length and 1/300 of cantilever arm.

The top of roadway slab and tops of sidewalks are parallel to the vertical curve and tangents.

For details of Slope Protection, see Standard Sheet SP2.



SECTION D-D & E-E

10½ MILE ROAD (LINCOLN AVE) OVER I-75-CITY OF ROYAL OAK

Lawrence O. Chick 6-5-69 ASS'T SUPERVISOR - DESIGN
J. C. Tarkey 6-5-69 SUPERVISOR - DESIGN
Fisher 1-2-69 Hicks
Taylor 5-7-69

S30 of 63174B

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 48404A

DENOTES REMOVAL PORTIONS

PROPOSED WORK

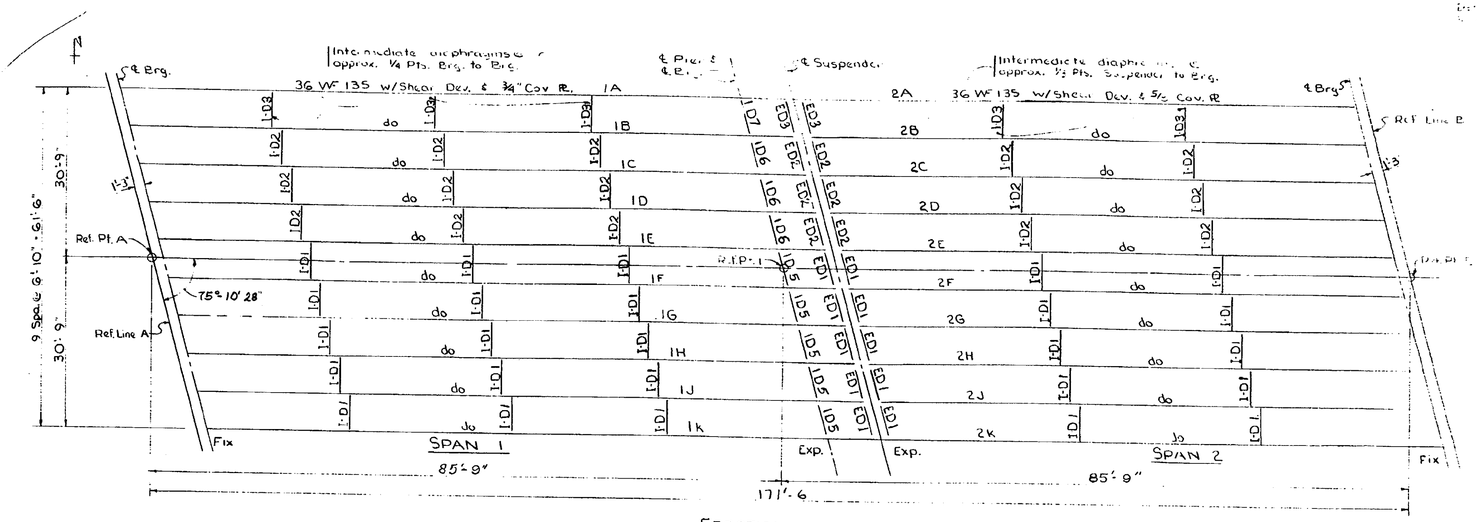
MDOT Michigan Department of Transportation

REMOVAL PORTIONS

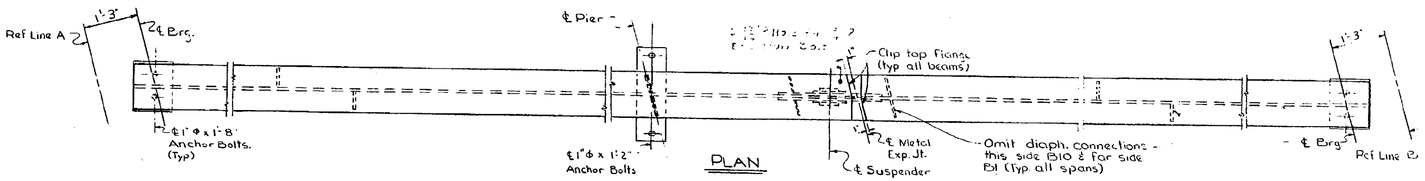
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	5 OF 22

REVISIONS			
NO.	DESCRIPTION	DATE	BY

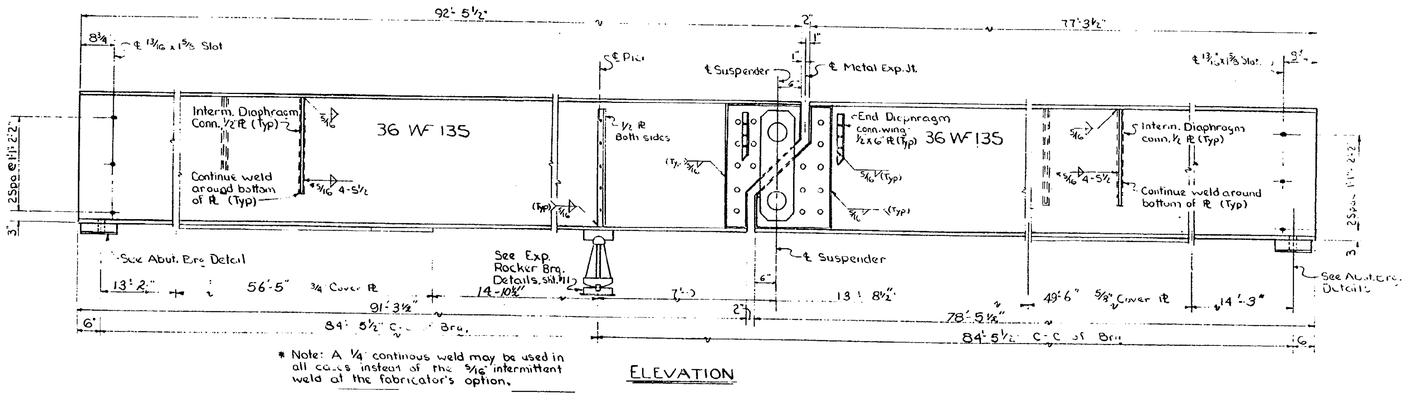
DATE: 5-11-99 | CORRECTED BY: CASLER | DATE: 01-12-99 | CHECKED BY: | DRAWN BY: inder | DATE: | FILE NAME: s3073174.sn



ERECTION DIAGRAM

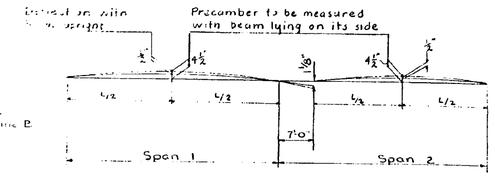


PLAN



* Note: A ¼ continuous weld may be used in all cases instead of the 5/16" intermittent weld at the fabricator's option.

ELEVATION



CAMBER DIAGRAM

REVISIONS			
NO.	DESCRIPTION	DATE	BY

~~MISCELLANEOUS QUANTITIES~~

~~Item~~	~~Unit~~	~~Total~~
~~Structural Steel-Fyra-t Fabric.~~	~~lbs.~~	~~295,500~~
~~Structural Steel-Erection~~	~~lbs.~~	~~295,500~~
~~Elastomeric Bearing Pads~~	~~Sq. Ft~~	~~28.~~

NOTES:

Design: Michigan Department of State Highways Specifications for Design of Highway Bridges - 1958 edition and current AASHO Standard Specifications for Highway Bridges. (H 20 Loading).

Fabrication: Michigan Department of State Highways Standard Specifications for Road and Bridge Construction 1967 edition.

Shop connections shall be welded as shown on the plans.

Field connections shall be bolted with ¾" high-strength bolts, except as noted.

The beams are to be cambered as shown in the camber diagram. This camber is to be measured with the beam lying on its side. Allowable camber tolerance for rolled beams is ±¼". Heating is to be used if necessary, to assure camber permanency within the above tolerance. The dead load deflection of the beams alone is calculated to be ½" in spans 1 & 2.

Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" in thickness. Edges must be beveled ¼" and welded with a continuous weld for the full perimeter. Welds shall be ground flush with faces of plate.

Magnetic particle inspection of welds is required and shall consist of 100% inspection of not less than one fabricated section selected at random for each ten sections or fabrications thereof.

Anchor Bolts (including nuts and washers) shall be galvanized in accordance with ASTM Designation A 153.

All steel material used for bearings, with exception of portion welded to beams, shall be galvanized in accordance with ASTM Designation A123. Galvanizing shall be applied after fabrication of bearing. Mill scale and foreign material shall be removed prior to galvanizing.

Bronze for washers shall be ASTM B100, Alloy No. 510 or No. 635.

~~The quantity Structural Steel includes:~~

~~A588 Steel~~	~~295,321~~	~~*~~
~~Bronze~~	~~55~~	~~*~~
~~Lead~~	~~124~~	~~*~~
~~Total~~	~~295,500~~	~~*~~

All steel shall be unpainted A.S.T.M. A588.

For Details see sheet No. 11

Work this sheet with sheet No. 11

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STRUCTURAL STEEL DETAILS

REVISIONS			
NO	DESCRIPTION	DATE	BY

ROAD DESIGN	Fisher	6-4-69
DRAWN BY	R. MARSH	3/10/69
TRACED BY		
CHECKED BY	T. Tajir	3-26-69
SHEET 10 OF 20		

S30 of 63174 B

NOTE:
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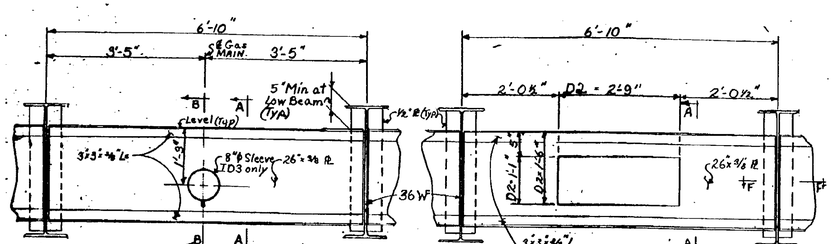
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	6 OF 22

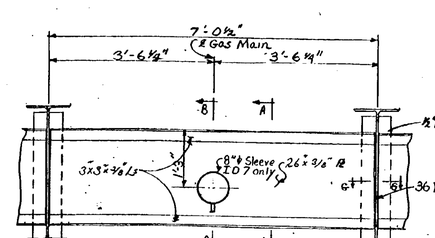
DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 01-12-99 | DRAWN BY: under | FILE NAME: s2073174.sn

CONTROL SECTION S30 OF 63174 | JOB NO. 48404A | SH. NO. 7



INTERMEDIATE DIAPHRAGM ID1+ID3

INTERMEDIATE DIAPHRAGM ID2



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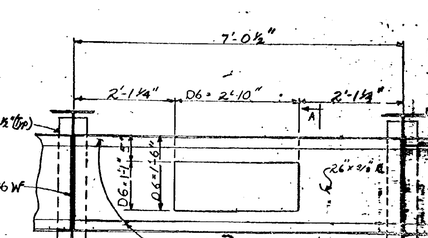

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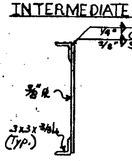
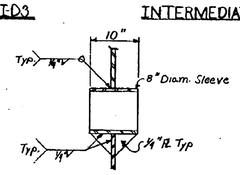
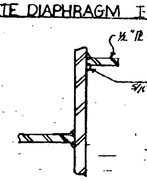


ALTERNATE

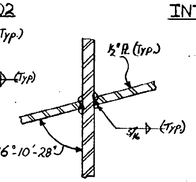
SECTION A-A



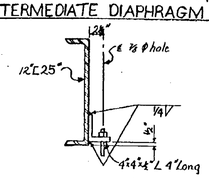
SECTION B-B



SECTION F-F

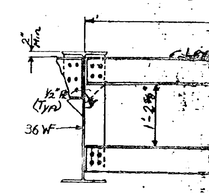


SECTION G-G



SECTION H-H ED3

SOLE PLATE THICKNESS TABLE			
Beam	Abut. A	Pier	Abut. B
A	1½"	3"	3½"
B	3¼"	4¾"	5"
C	2"	3¼"	3¼"
D	3½"	4¾"	4¼"
E	4½"	5¾"	5"
F	4¾"	5¾"	4¾"
G	4"	4¾"	3½"
H	2¾"	3½"	2¼"
J	4¼"	5"	3¼"
K	3"	3½"	1½"



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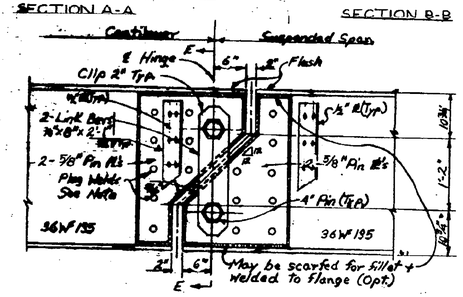
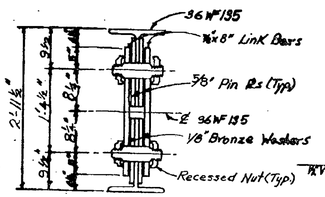
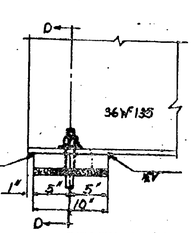


Note: Size and spacing of plug welds shall be according to the A.W.S. Current specifications.

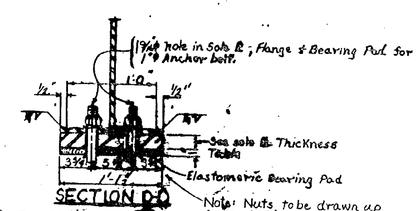
SUSPENDER DETAILS



SECTION E-E

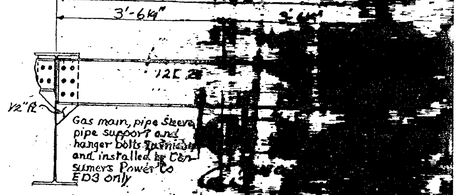


BEARING DETAILS ABUT. A+B



SECTION D-D

Note: Nuts to be drawn up finger tight, then backed off ⅛ turn. Threads of bolt to be burred off at face of nut with a pointed tool.



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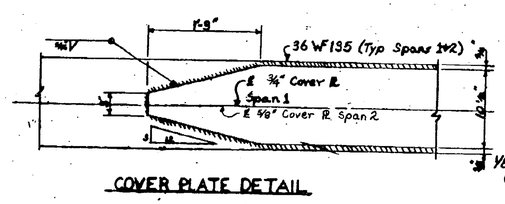
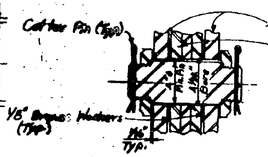
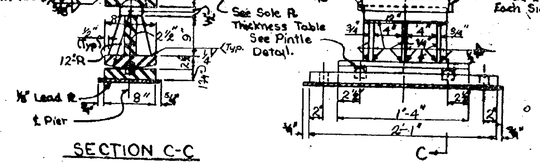


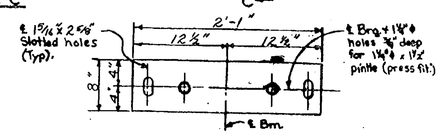
COVER PLATE DETAIL



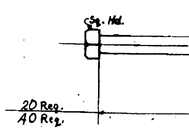
SECTION THRU HANGER PIN



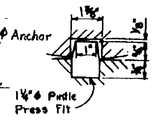
SECTION C-C



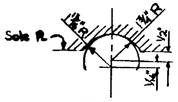
MASONRY PLATE



ANCHOR BOLT DETAIL



PINTLE DETAIL



DETAIL A

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

STRUCTURAL STEEL - DETAILS

S30 of 63174B

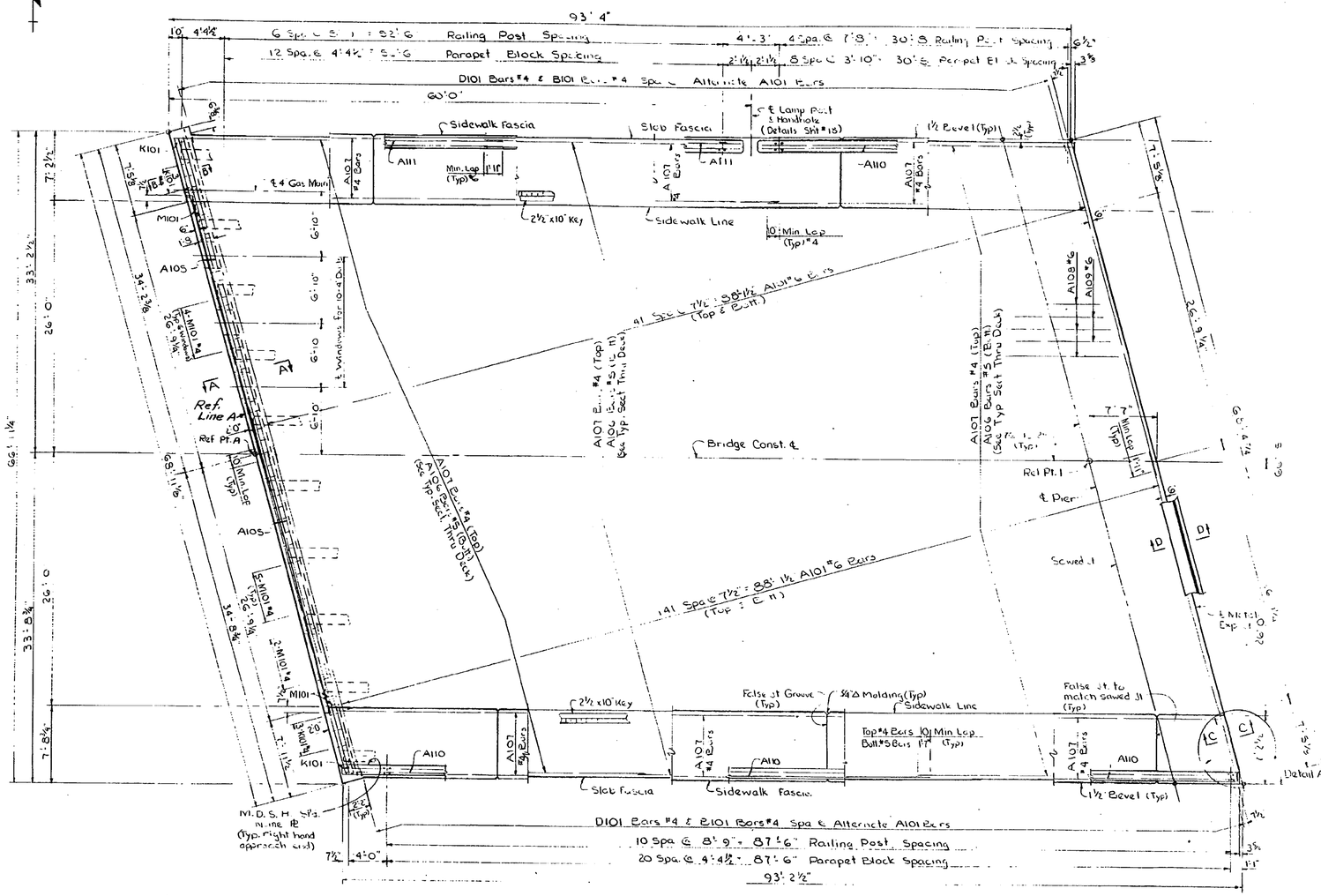
NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	7 OF 22

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 01-12-99 | DRAWN BY: | FILE NAME: s30731741.sn



PLAN OF SLAB SPAN 1

For Details of Section	See Sheet
A-A	16
B-B	16
C-C	16
D-D	16
Detail A	16

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

NOTES:

J.W.P. denotes Joint Waterproofing.
H.P.R.A.T.F. denotes Hot-Poured Rubber Asphalt Type Filler.
For details of bevels, moldings and Bridge Railing, see Standard Sheet R11 or R12.
Edge or groove denote edging or grooving with an approved tool.
Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by Section 5.01.05 of the Standard Specifications.
The District Utility Engineer is to be notified five days in advance of the time of installation of the ducts in the sidewalk.
The contractor is to provide a sawed joint ½" deep by ⅛" wide (min) in the top of slab over and parallel to the centerline of the pier. The joint is to be sawed before casting of sidewalks and is to be filled with Hot-Poured Rubber Asphalt Type Filler (Incidental).
Bridge Railing is to be either aluminum or Steel Tubular railing on concrete parapet. See Railing Standard R11 or R12.
Protective Treatment for Bridge Decks is to be applied to all supperstructure concrete surfaces between fascia lines. (See Supplemental Specifications).
False joints in sidewalks shall be placed midway between concrete posts at approx. every forth panel.
Screeds affected by loads in other spans are to be set to the elevations shown before casting any concrete. Concrete in the suspended span is to be cast before the concrete in the anchor span.
For name plate mounting details see standard sheet R11 or R12. For location of name plate see this sheet.

Work this sheet with sheets No. 15, 16&17

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD DES.	Fisher	6-4-69
DRAWN BY	R.MARSH	3/13/69
TRACED BY		
CHECKED BY	T. Fraylor	3-20-69
SHEET 14 OF 20		

S30 of 63174 B

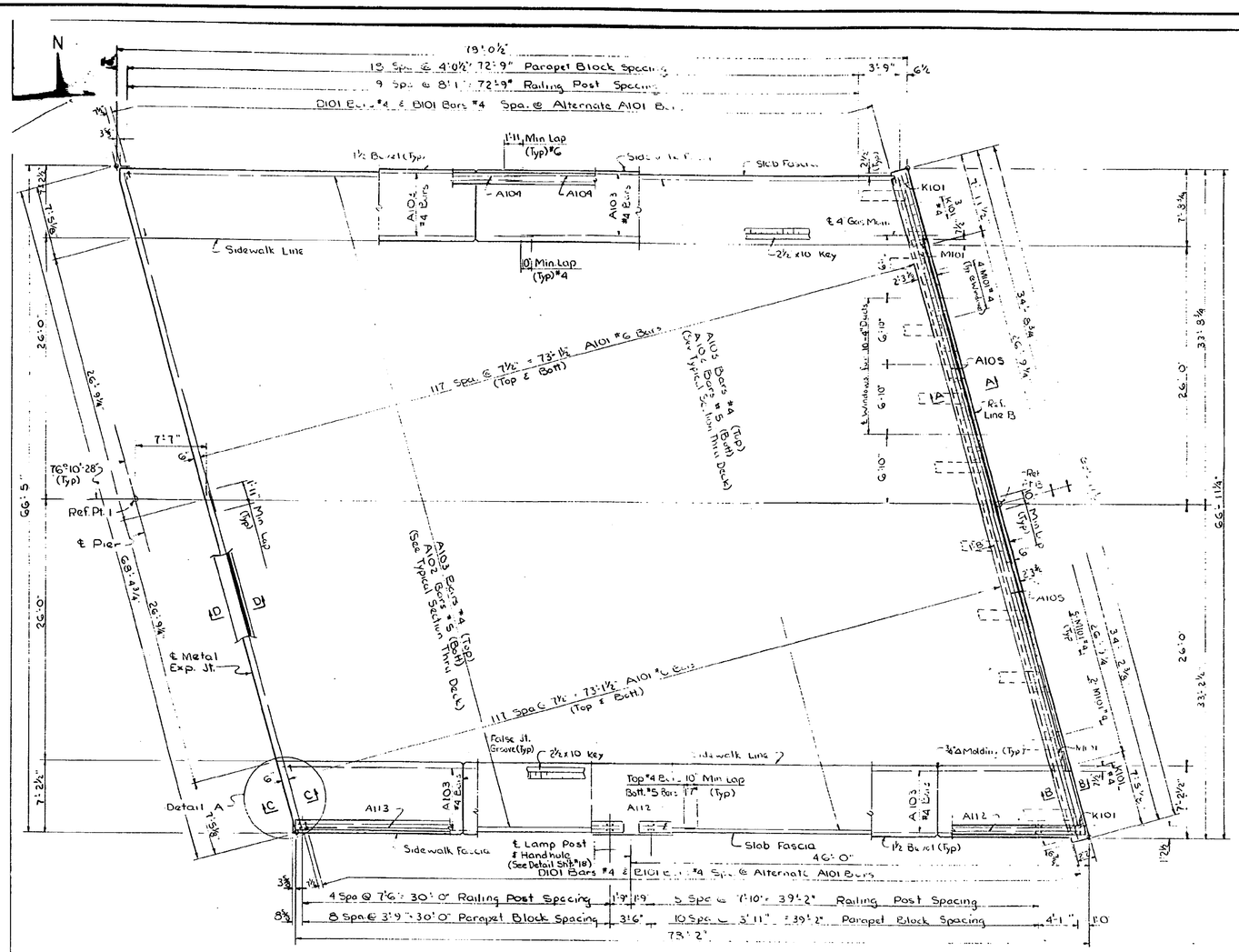
FOR INFORMATION ONLY

MDOT Michigan Department of Transportation

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	8 OF 22

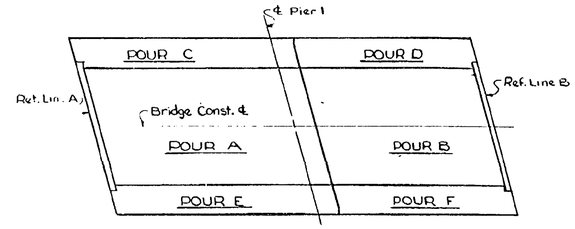
DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 01-12-99 | DRAWN BY: indur | FILE NAME: s3073174.sn

CONTROL SECTION S30 OF 63174 | JOB NO. 48404A | SH. NO. 9



PLAN OF SLAB SPAN 2

For Details of Section	See Sheet
A-A	16
B-B	16
C-C	16
D-D	16
Detail A	16



POUR DIAGRAM

Alphabetical designation of pours is not to be construed as a pour sequence.

MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Hot Poured Rubber Asphalt Type Filler	Lin. Ft.	66
Water Reducing Retarding Admixture	Gals.	42
Bridge Railing Parapet Type	Lin. Ft.	342.1
Structural Tile 6 x 12" x 12"	Each	1510
Protective Treatment for Bridge Decks	Sq. Ft.	11,300
* Fiber Conduit	Lin. Ft.	72

CONCRETE QUANTITIES		
	Pour	Grade A (GAA) Cu. Yds.
SLAB	A	159.0
	B	134.2
CURB	C	13.0
	D	12.6
	E	11.5
	F	11.3
Backwall: Abut. A		14.1
Backwall: Abut. B		14.1
Total		369.8 Cu. Yds.

Work this sheet with sheets No. 14, 16 & 17

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD BOSS	Fisher	6-4-65
DRAWN BY	R. MARSH	3/13/6
TRACED BY		
CHECKED BY	T. Taylor	4-9-6
SHEET 15 OF 20		

S30 of 63174 B

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MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

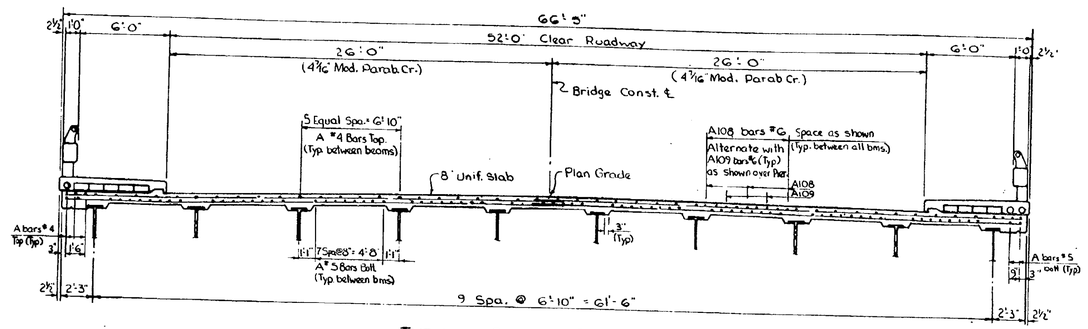
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	9 OF 22

REVISIONS			
NO.	DESCRIPTION	DATE	BY

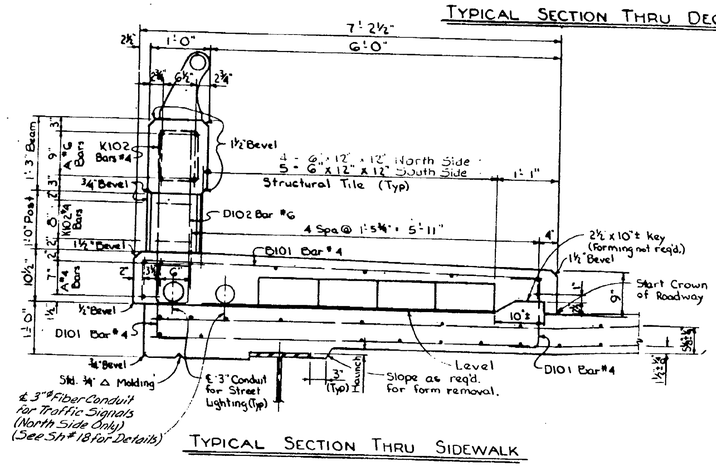
DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 01-12-99 | DRAWN BY: inder | FILE NAME: s3073174.sn

CONTROL SECTION S30 OF 63174 | JOB NO. 48404A | SH. NO. 10

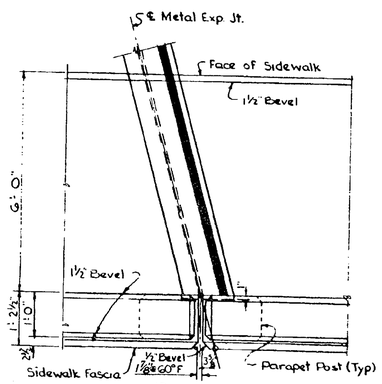
REVISIONS			
NO.	DESCRIPTION	DATE	BY



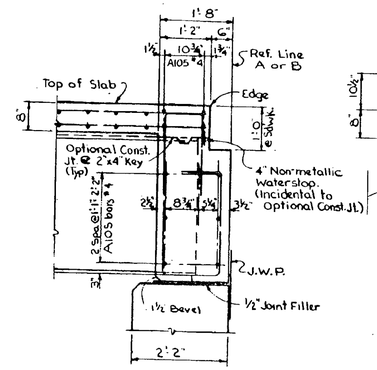
TYPICAL SECTION THRU DECK



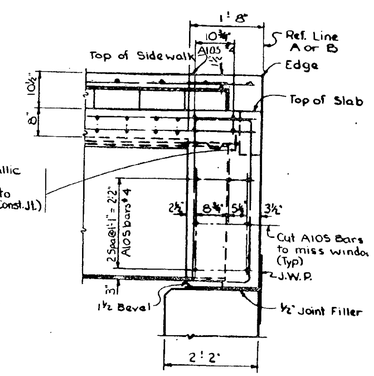
TYPICAL SECTION THRU SIDEWALK



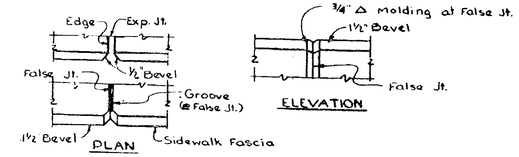
DETAIL A



SECTION A-A

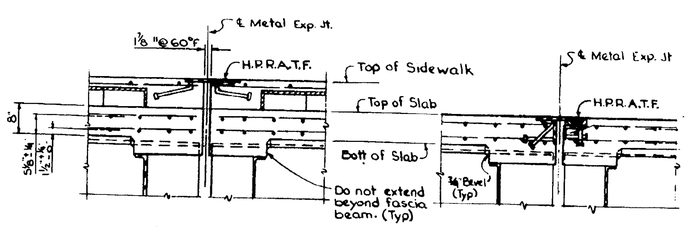


SECTION B-B



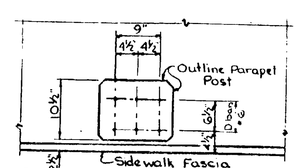
MOLDING DETAILS

For Location of Sections	See Sheet
A-A	14 & 15
B-B	14 & 15
C-C	14 & 15
D-D	14 & 15
Detail A	14 & 15



SECTION C-C

SECTION D-D



SECTION THRU PARAPET POST

Work this sheet with sheets No. 14, 15 & 17

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
SUPERSTRUCTURE DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGNED BY	Fisher	6-4-69
DRAWN BY	R.MARSH	1-29-69
TRACED BY		
CHECKED BY	Taylor	3-18-69
SHEET 16 OF 20		

S30 of 63174B

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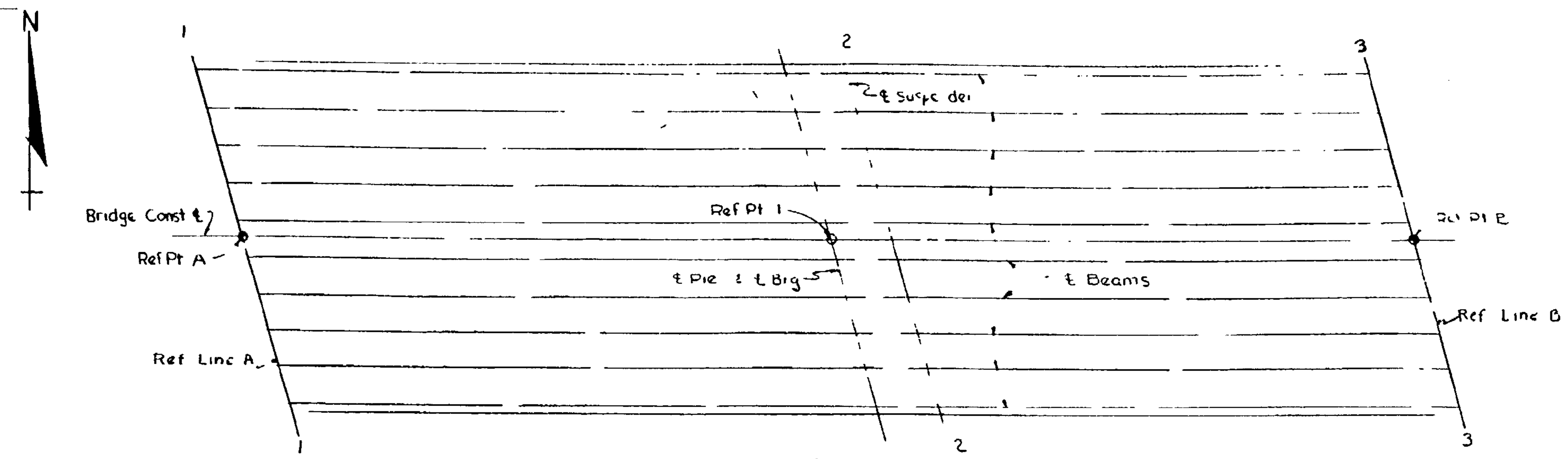
MDOT Michigan Department of Transportation

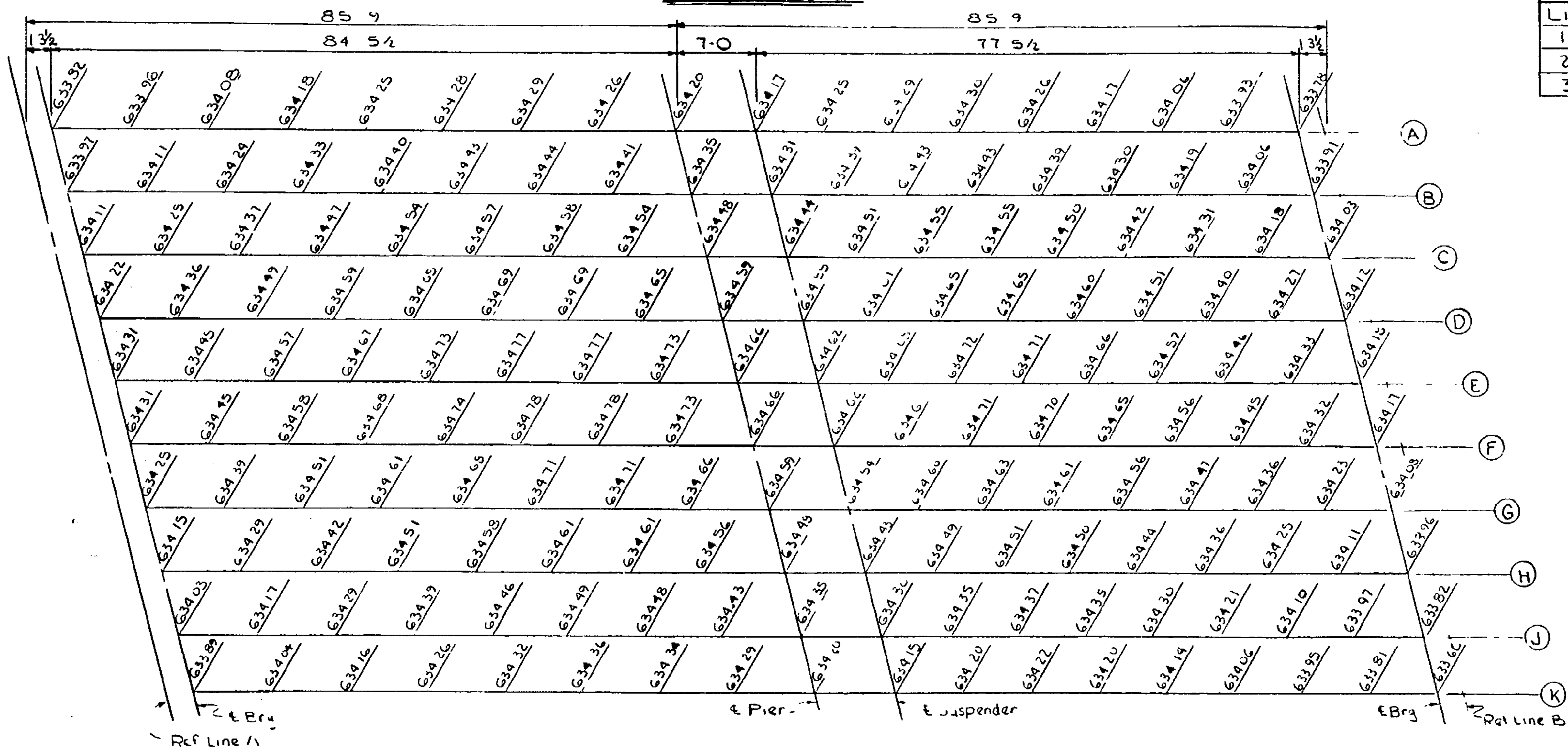
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	10 OF 22

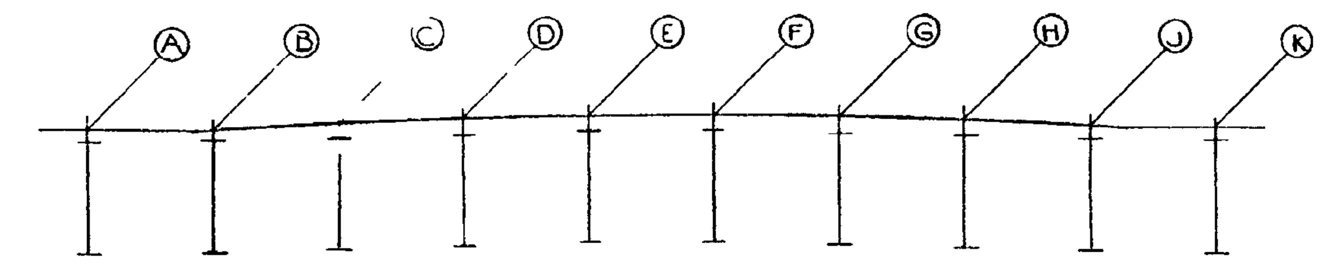
DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 01-12-99 | DRAWN BY: inder | FILE NAME: s3073174.sn



PLAN OF SLAB

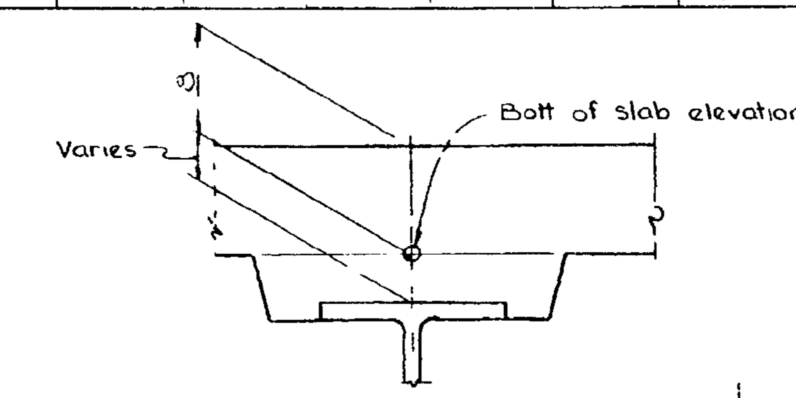


BOTTOM OF SLAB ELEVATION



SCREED TEMPLATE

SCREED TEMPLATE ELEVATION										
Line	A	B	C	D	E	F	G	H	J	K
1-1	634 58	634 63	634 77	634 88	634 97	634 97	634 91	634 81	634 69	634 65
2-2	634 94	634 98	635 11	635 21	635 29	635 28	635 21	635 10	634 96	634 92
3-3	634 54	634 51	634 69	634 78	634 84	634 83	634 74	634 62	634 48	634 42

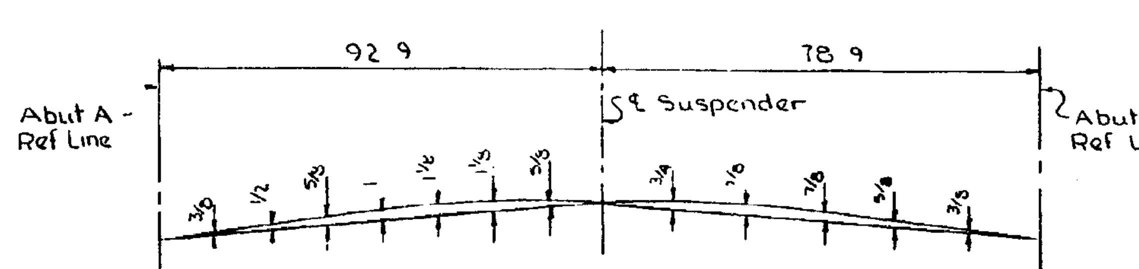


TYP SECTION AT EACH BEAM

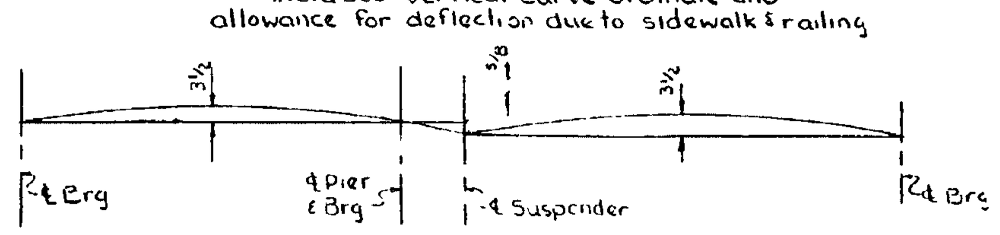
NOTES

Screed elevations are based on the condition that no slab concrete has been cast and that formwork, steel reinforcement and shear developers are in place.

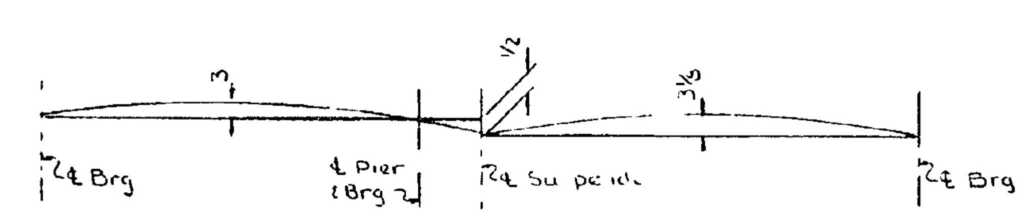
Bottom of slab elevations are based on the condition that all structural steel has been erected, but no other loads applied. These elevations include allowances for deflections due to forms, steel reinforcement, shear developers in place, deck concrete and railing.



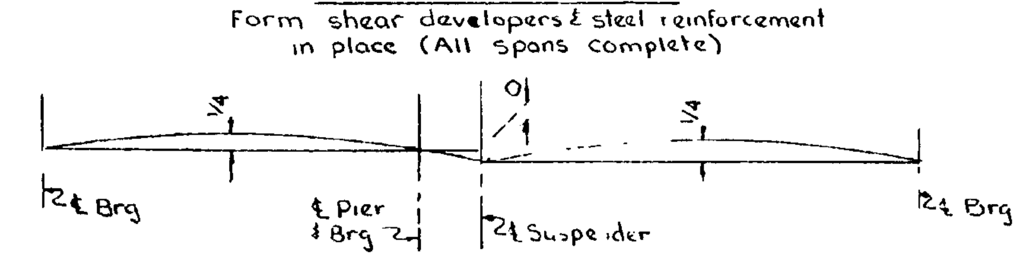
TOP OF SLAB OFFSET
Includes vertical curve ordinate and allowance for deflection due to sidewalk & railing



CAMBER ORDINATES
Structural steel erected
(No other loads applied)



CAMBER ORDINATE
Form shear developers & steel reinforcement in place (All spans complete)



CAMBER ORDINATE
(Deck concrete cast utilities not placed)
(All spans complete)

Work this sheet with sheets No 14, 15 & 16

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUPERSTRUCTURE DETAILS

Fisher 4 4 69
R MARSH 3/21/69
T Taylor 3/28/69
SHEET 17 of 20

S30 of 63174B

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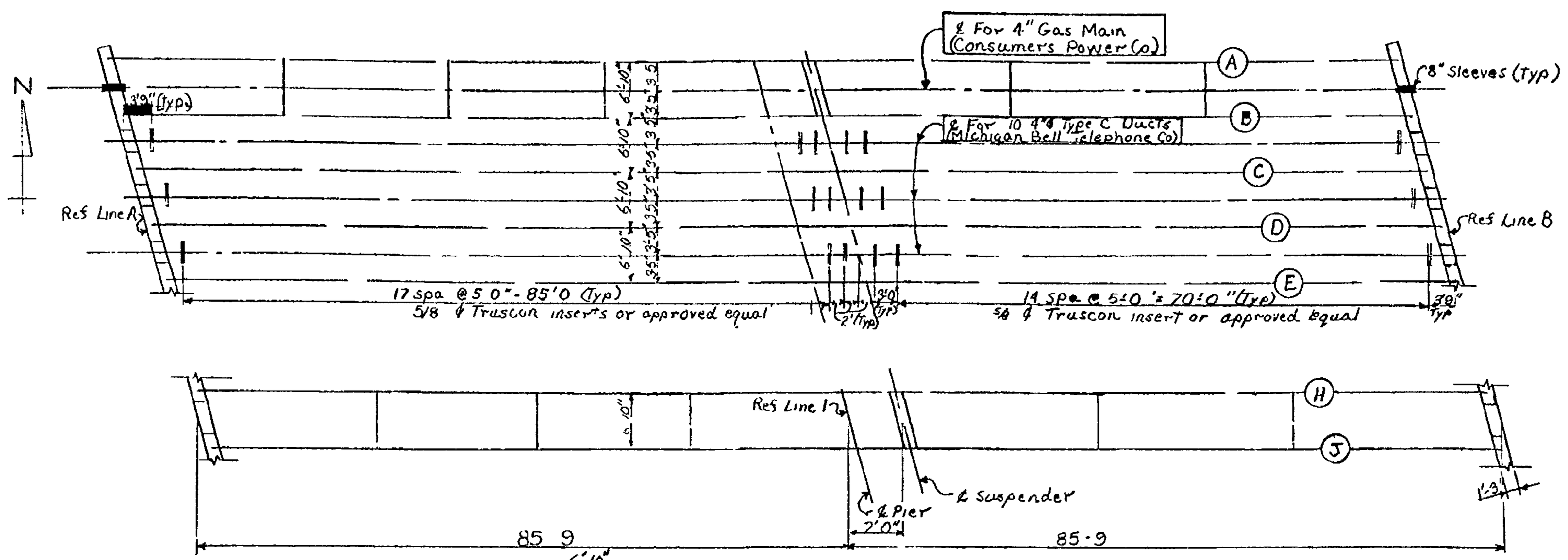
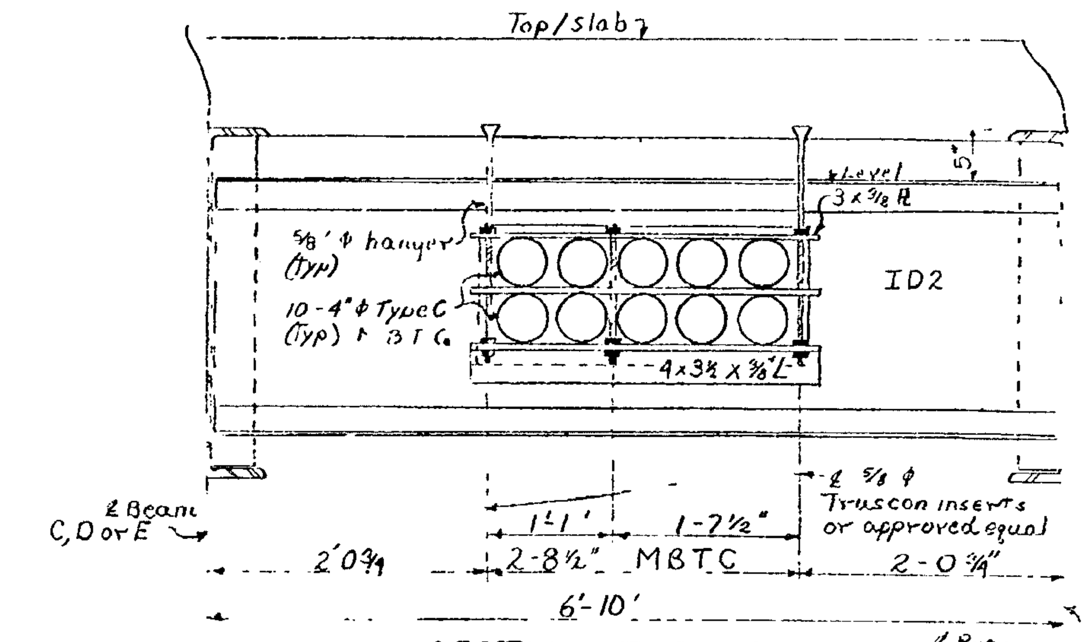
MDOT Michigan Department of Transportation

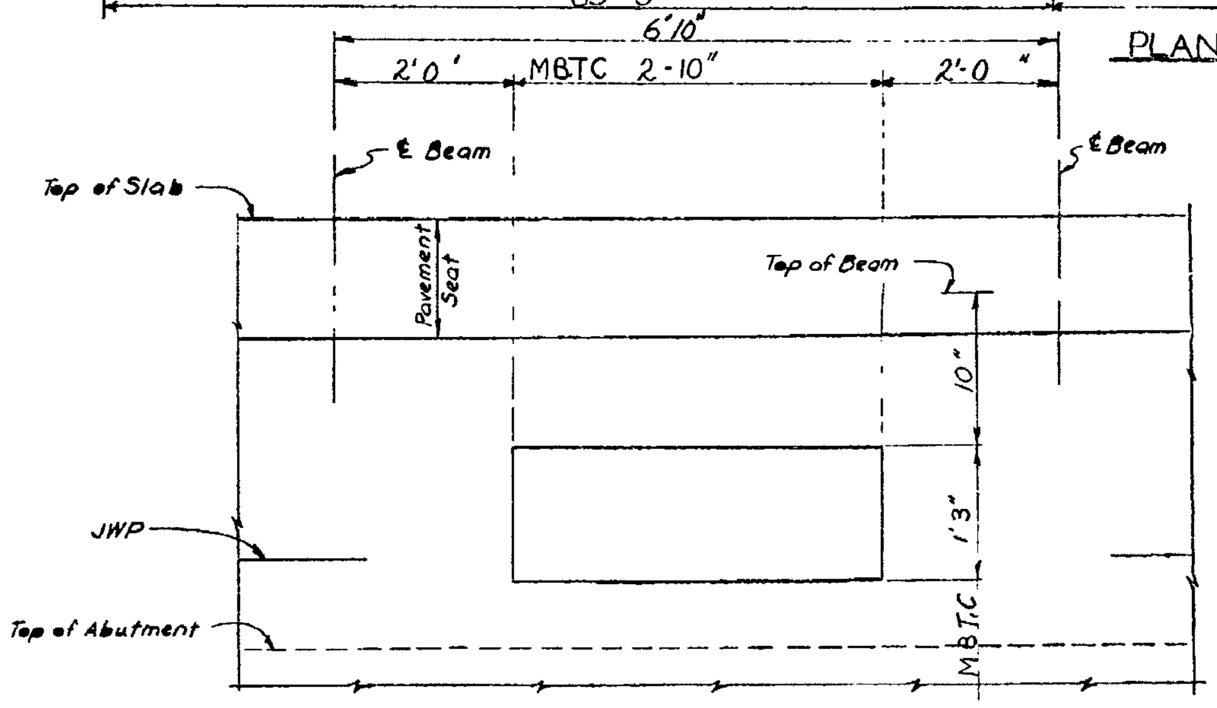
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	11 OF 22



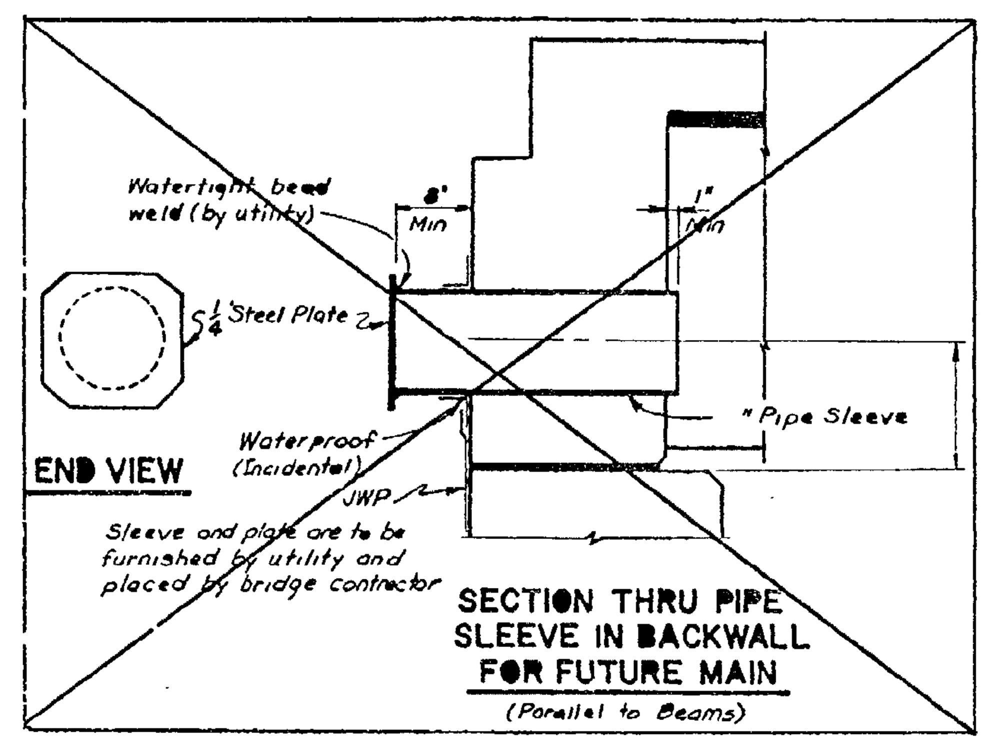
PLAN



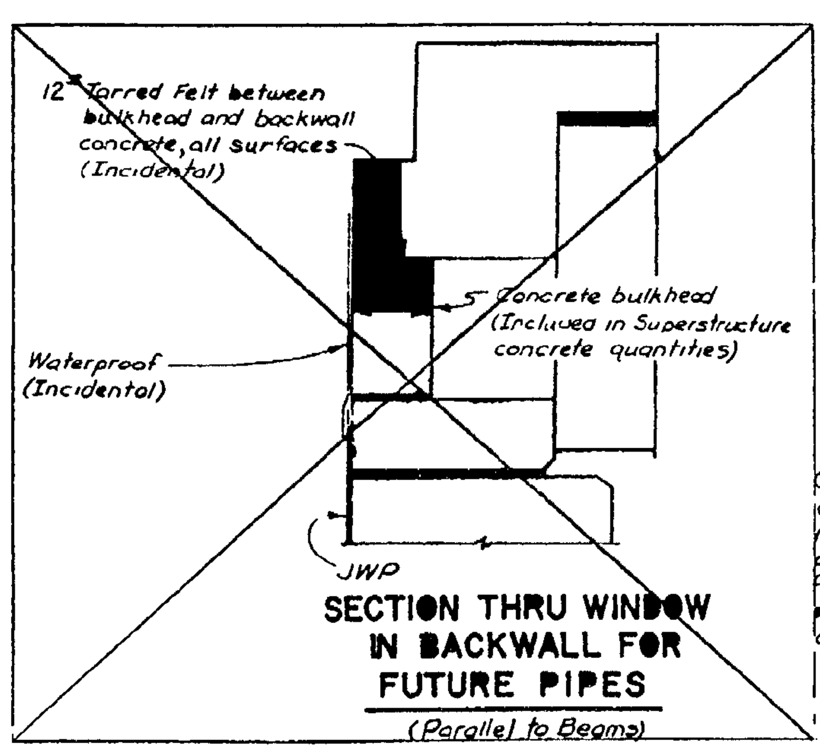
SECTION THRU BEAMS



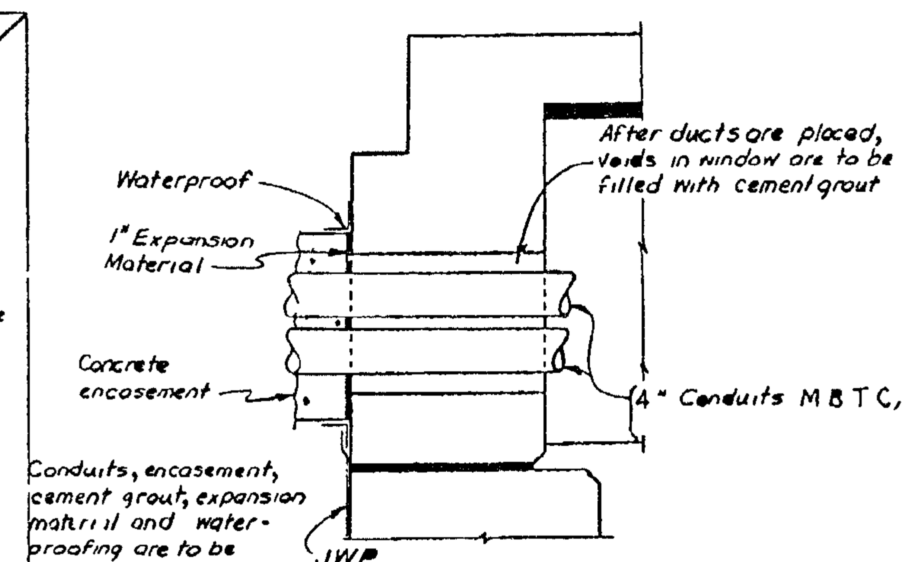
ELEVATION OF BACKWALL WINDOW
(℄ 90° to Beam Lines)



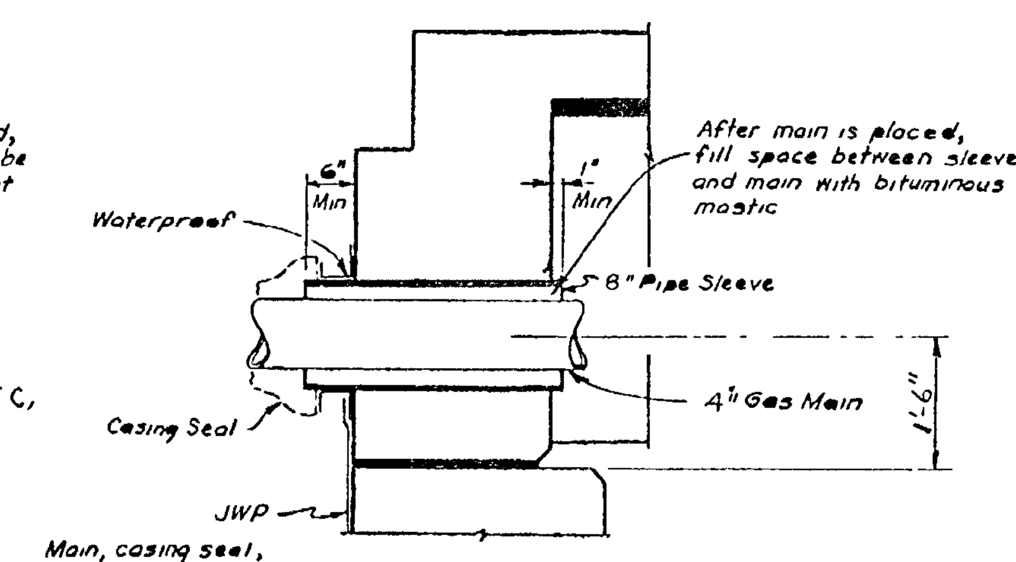
SECTION THRU PIPE SLEEVE IN BACKWALL FOR FUTURE MAIN
(Parallel to Beams)



SECTION THRU WINDOW IN BACKWALL FOR FUTURE PIPES
(Parallel to Beams)



SECTION THRU WINDOW IN BACKWALL
(Parallel to Beams)



SECTION THRU PIPE SLEEVE IN BACKWALL
(Parallel to Beams)

MISCELLANEOUS QUANTITIES		
UTILITY	ITEM	[redacted]
Mich Bell Tel Co	5/8"φ Cone Inserts	
Consumer Power Co	8"φ Pipe Sleeve - Placed	

NOTES.

Furnishing and installing telephone conduits including all incidental work necessary for installation, are not a part of this contract. Installation of ducts shall be in accordance with the manufacturer's and telephone companys recommendations.

Installation of inserts, pipe sleeves and forming of windows through backwalls and diaphragms is included in this contract. All other work shown is not a part of this contract.

Furnishing and installing Gas Main including all incidental work necessary for installation are not a part of this contract.

Adjust the spacing of concrete inserts to clear intermediate and end diaphragms

The item JWP (Joint Waterproofing) is a pay item and is included as such elsewhere in these plans

Waterproof denotes waterproofing with four moppings of asphaltic roofing cement containing not more than 2 5 % by weight of short fiber asbestos

The contractor shall advise the District Utility Engineer as soon as the structure is ready for installation of conduits or main in bridge

Items shown to be galvanized are to be galvanized steel (ASTM A 153)

Work this sheet with sheets No 4+11

MICHIGAN STATE HIGHWAY DEPARTMENT

UTILITY DETAILS

REVISIONS

NO	DESCRIPTION	DATE	BY

[redacted] Fisher 6-4-(?) J. Hicks 2-25 69
TRACED BY
CHECKED BY T. T... 13...
SHEET 19 OF ...

S30 of 63174B

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MDOT Michigan Department of Transportation

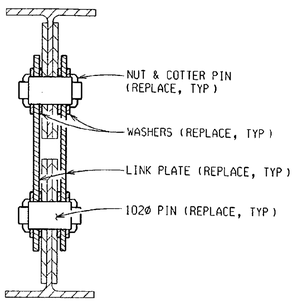
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MADHAVI	12 OF 22

DRAWN BY: inder | CHECKED BY: | DATE: | CORRECTED BY: | DATE: 01-12-99 | DATE:

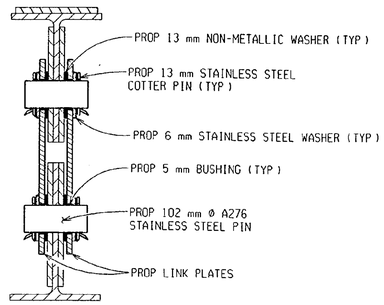
FILE NAME: s307374.sn

CONTROL SECTION S30 OF 63174 | JOB NO. 48404A | SH. NO. 13

REVISIONS			
NO.	DESCRIPTION	DATE	BY



SECTION A-A (EXISTING)



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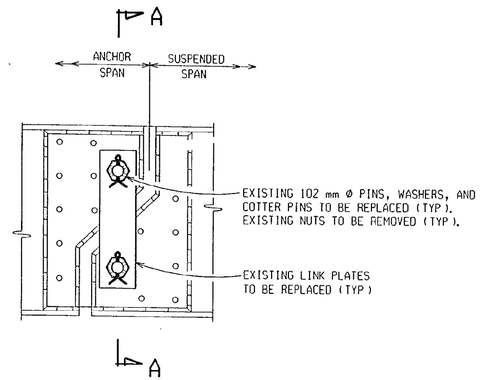
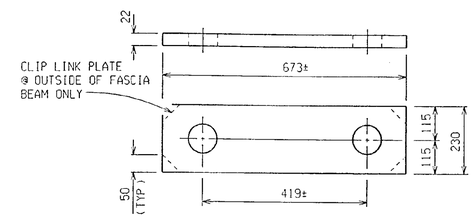


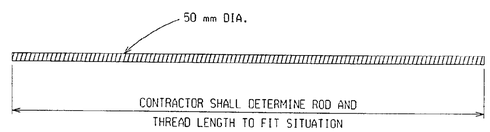
ELEVATION AT PIN

6 mm STAINLESS STEEL WASHER
(40 REQ'D.)

13 mm NON-METALLIC WASHER
(INCIDENTAL TO STRUCTURAL STEEL)
(40 REQ'D.)

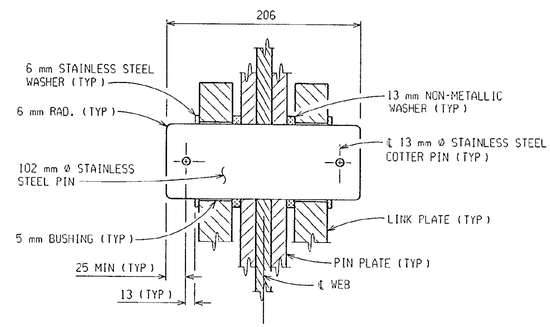


LINK PLATE
(20 REQ'D.)

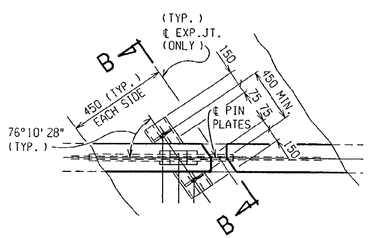


SUSPENDER ROD DETAIL

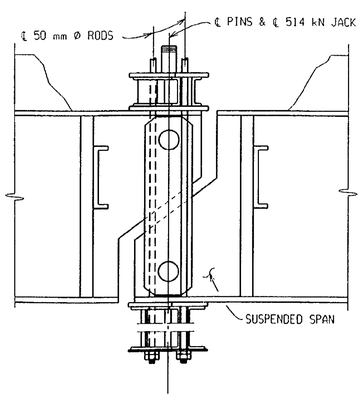
4 REQUIRED PER ASSEMBLY W/7 HEAVY HEX NUTS & 4 HARDENED WASHER PER ROD



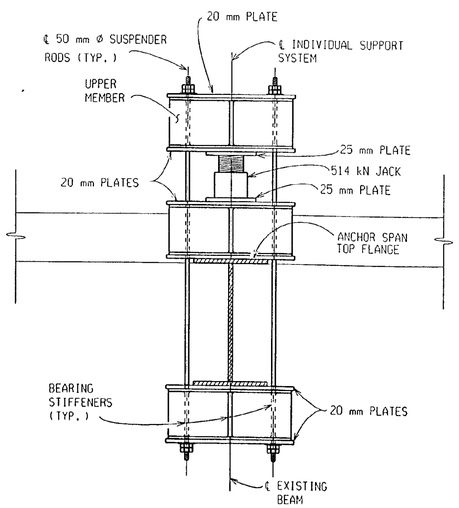
PROPOSED PIN DETAIL
(20 REQ'D.)



PLAN OF TEMPORARY SUPPORT



TEMPORARY SUPPORT



DECK SECTION B-B
(TYPICAL ALL BEAMS)

MISCELLANEOUS QUANTITIES

10 ea	Support, Suspension, Temp
40 ea	Bushing
610 kg	Structural Steel, Furn and Fab, Pin and Hanger
10 ea	Hanger Assembly, Rem and Erect
10 ea	Hanger Assembly, Field Measurement
1 LS	Field Repr of Damaged Coating (S30)
1 LS	Steel Structure, Cleaning, Type 4 (S30)
1 LS	Steel Structure, Coating, Type 4 (S30)
16 m	Beam Plate, Seal Perimeter
*208 m	Protective Shield, Utility Pipe

*PAY ITEM IS FOR PROTECTIVE SHIELD OF THE AMERITECH DUCTS AND THE CONSUMER ENERGY GAS MAIN.

NOTES:

THE AREA BEHIND AND AROUND THE HANGER ASSEMBLY SHALL BE PAINTED PRIOR TO INSTALLING THE NEW LINK PLATES AND PINS. PROPOSED LINK PLATES SHALL BE SHOP PAINTED.

THE PROTECTION OF WORK AND ENVIRONMENT DURING BLAST CLEANING OF WEBS BEHIND AND AROUND HANGER ASSEMBLIES SHALL BE ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. (INCLUDED IN THE BID ITEM "HANGER ASSEMBLY, REMOVE AND ERECT".)

THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS OF THE EXISTING HANGER ASSEMBLIES INDICATED ON THE PLANS PRIOR TO THE PREPARATION OF LINK PLATE AND PIN SHOP DRAWINGS.

WELDING ON EXISTING BEAMS WILL NOT BE PERMITTED.

THE CONTRACTOR WILL BE FURNISHED WITH PLANS OF THE EXISTING STRUCTURE IF REQUESTED.

ALTERNATE DESIGNS OF THE TEMPORARY SUPPORT SHALL BE BASED ON LOADS AS FOLLOWS:

514 kN VERTICAL GIRDER LOAD.

THIS BRIDGE IS COATED WITH LEAD BASED PAINT.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

THE COLOR FOR THE URETHANE PROTECTIVE COAT SHALL MATCH COLOR NUMBER 16440 (LIGHT GRAY) OF FEDERAL STANDARD NUMBER 595a.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE ENGINEER, STRUCTURES AND ROAD MAINTENANCE OF THE MAINTENANCE DIVISION IN LANSING.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE PAINTED IS 1600 SQUARE METERS.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF BEARING PLATES TO CONCRETE CONTACT SURFACES OVER PIER 2 AFTER CUTTING AWAY ANY PROTRUDING PORTION OF LEAD PLATE.

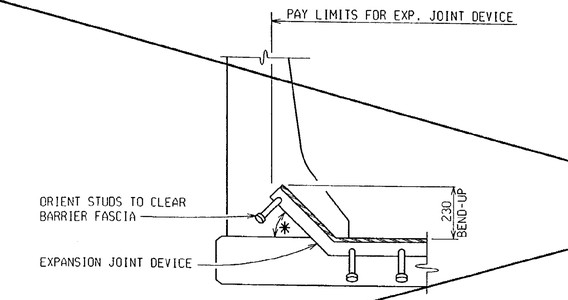
THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES. (INCLUDED IN THE BID ITEM "STEEL STRUCTURE, COATING, TYPE 4 (S30)".)

MDOT Michigan Department of Transportation

SUSPENDER REPLACEMENT DETAILS

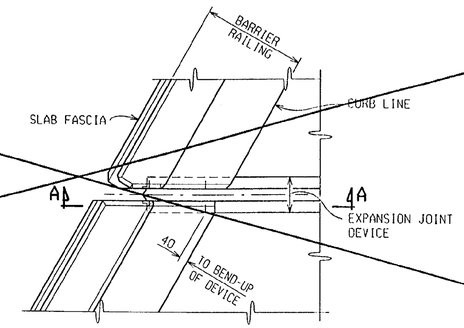
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	13 OF 22

DATE: 9-21-99 | CORRECTED BY: CASLER | DATE: | CHECKED BY: | DATE: 4-30-99 | DRAWN BY: CASLER | FILE NAME: s3063174.pr



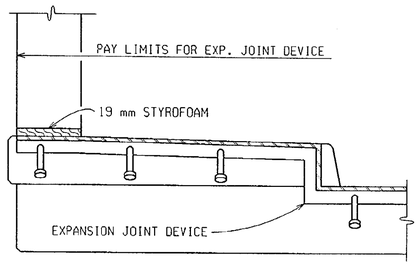
SECTION A-A

* — FOR ANGLES OF CROSSING FROM 90° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG ℄ EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.

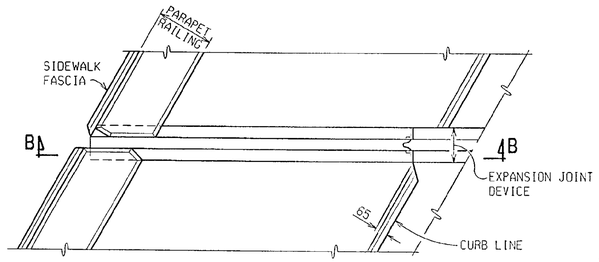


PLAN AT BARRIER RAILING

BARRIER TREATMENT



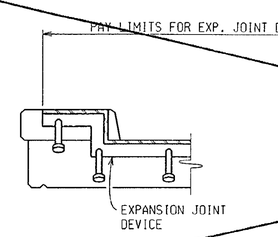
SECTION B-B



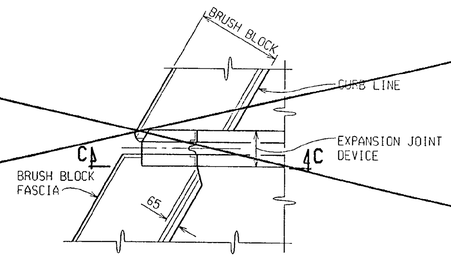
PLAN AT PARAPET RAILING

(DETAILS ARE SIMILAR FOR BRIDGE RAILING, 5 TUBE)

SIDEWALK TREATMENT



SECTION C-C



PLAN AT BRIDGE RAILING, 2 TUBE

BRUSH BLOCK TREATMENT

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
S30	80	PIER 1	51 mm	21.2 m

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUPCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	22

MICHIGAN DEPARTMENT OF TRANSPORTATION

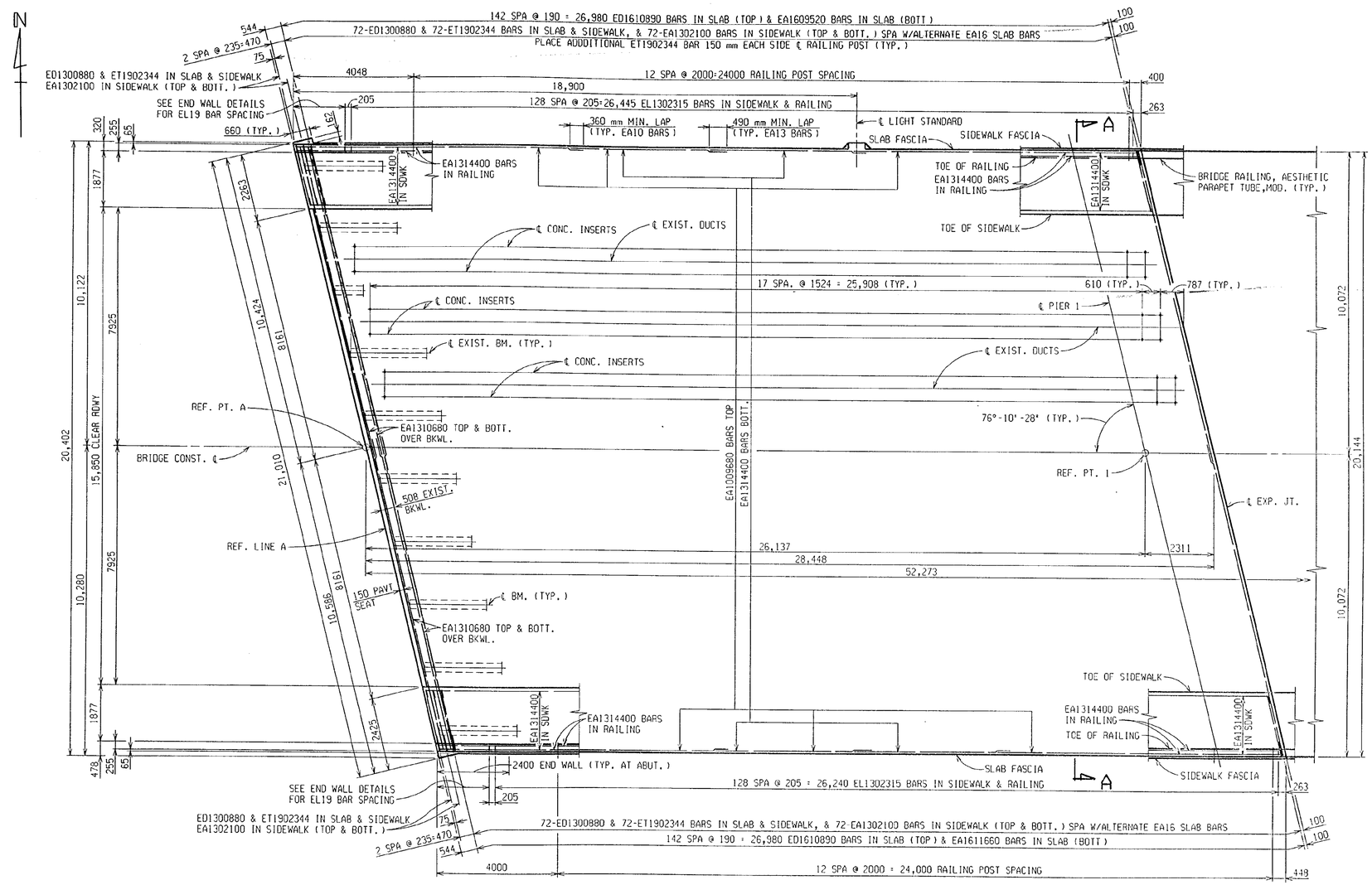
EXPANSION JOINT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	14 OF 22

EJ3T (11-17-97)

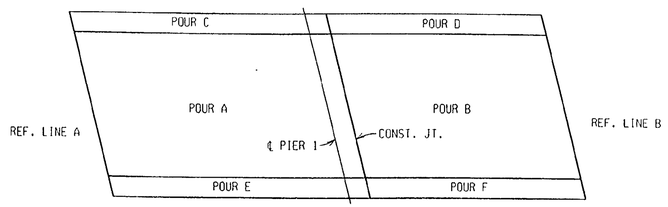
CONTROL SECTION S30 OF 63174 JOB NO. 48404A SH. NO. 15

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN-SPAN 1

ADJUST REINFORCEMENT TO PERMIT PLACEMENT OF RAILING & FENCE POST ANCHORAGES & LIGHT STANDARDS.



POUR DIAGRAM

SUPERSTRUCTURE CONCRETE NIGHT CASTING QUANTITIES	
POUR	CUBIC METERS
A	147.5
B	118.5
TOTAL CONC:	266 CUBIC METERS

SUPERSTRUCTURE CONCRETE QUANTITIES	
POUR	CUBIC METERS
C	13.7
D	11.3
E	13.7
F	11.3
TOTAL CONC:	50 CUBIC METERS

MISCELLANEOUS QUANTITIES

105 m	Bridge Railing, Aesthetic Parapet Tube, Modified
30 m2	Joint Waterproofing
152 m2	Top Flanges and Beam Ends, Clean and Prime
50 m3	Superstructure Conc
1 LS	Superstructure Conc, Form, Finish, and Cure (S30)
266 m3	Superstructure Conc, Night Casting
1 LS	Superstructure Conc, Form, Finish, and Cure, Night Casting (S30)
1 LS	Shear Developers (S30)
1 LS	Bridge Lighting, Furnish and Remove (S30)
266 m3	Bridge Lighting, Operate and Maintain
157 m	Conduit, 75 mm
270 m2	Conc Surface Sealer
210 ea	Conc Insert, Placed

NOTES:

N.S. DENOTES NEAR SIDE.

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL AND NAME PLATE MOUNTING DETAILS, SEE STANDARD PLAN B-25-SERIES. FOR DETAILS OF NAME PLATES, MOLDINGS AND BEVELS, SEE STANDARD PLAN B-103-SERIES.

BRIDGE RAILING, AESTHETIC PARAPET TUBE, MODIFIED SHALL BE IN ACCORDANCE WITH THE STANDARD PLAN B-25 EXCEPT FOR THE ADDITION OF FRACTURE FIN RUSTIFICATION ON THE BACK SIDE OF THE RAILING AS DETAILED ON THE PLANS.

FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE SHEET .

FOR DETAILS OF LIGHT STANDARD ANCHOR BOLT ASSEMBLIES, SEE STANDARD PLAN B-103-SERIES.

"EDGE" OR "GROOVE" DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

ALPHABETICAL DESIGNATION OF DECK POURS IS NOT TO BE CONSTRUED AS A POUR SEQUENCE.

NO PORTION OF THE DECK FORMWORK SHALL ENCROACH ON THE EXISTING UNDERCLEARANCE.

THE UTILITY COMPANY SHALL BE NOTIFIED ONE WEEK IN ADVANCE OF THE TIME OF INSTALLATION OF THE DUCTS IN THE SIDEWALK.

WHERE CAST-IN-ANCHORAGE IS USED FOR EXPANSION JOINT DEVICES, IT IS RECOMMENDED THAT THE PLACING OF DECK CONCRETE PROGRESS TOWARD THE JOINT SO THAT THE EFFECTS OF DEAD LOAD DEFLECTION WILL OCCUR BEFORE CONCRETE IS PLACED AT THE ANCHORAGE.

THE LIGHT STANDARD ANCHOR BOLT ASSEMBLIES ARE INCLUDED IN THE PAYMENT FOR "BRIDGE RAILING, AESTHETIC PARAPET TUBE, MODIFIED".

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03 J OF THE STANDARD SPECIFICATIONS.

METAL STAY IN PLACE FORMS ARE OPTIONAL.

IF STAY IN PLACE METAL FORMS ARE TO BE USED, THE CONTRACTOR MAY OMIT THE STYROFOAM FROM THE CORRUGATIONS AND FILL THE FORMS FULL DEPTH. THE EXTRA CONCRETE REQUIRED TO FILL THE CORRUGATIONS WILL NOT BE PAID FOR.

ALL CONCRETE SURFACES OF THE BRIDGE RAILING, THE DECK FASCIAS, AND THE OUTSIDE BOTTOM OF DECK TO FASCIA BEAMS SHALL BE COATED WITH CONCRETE SURFACE SEALER (SEE SPECIAL PROVISION.

CONCRETE INSERTS SHALL BE FURNISHED BY AMERITECH AND INSTALLED BY THE CONTRACTOR. ALL MATERIAL NECESSARY FOR REINSTALLATION OF THE DUCTS SHALL BE PROVIDED BY THE UTILITY COMPANY.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE INSERTS PRIOR TO INSTALLING THE INSERTS IN THE DECK (SEE SHEET # 12 FOR INFORMATION).

MDOT Michigan Department of Transportation

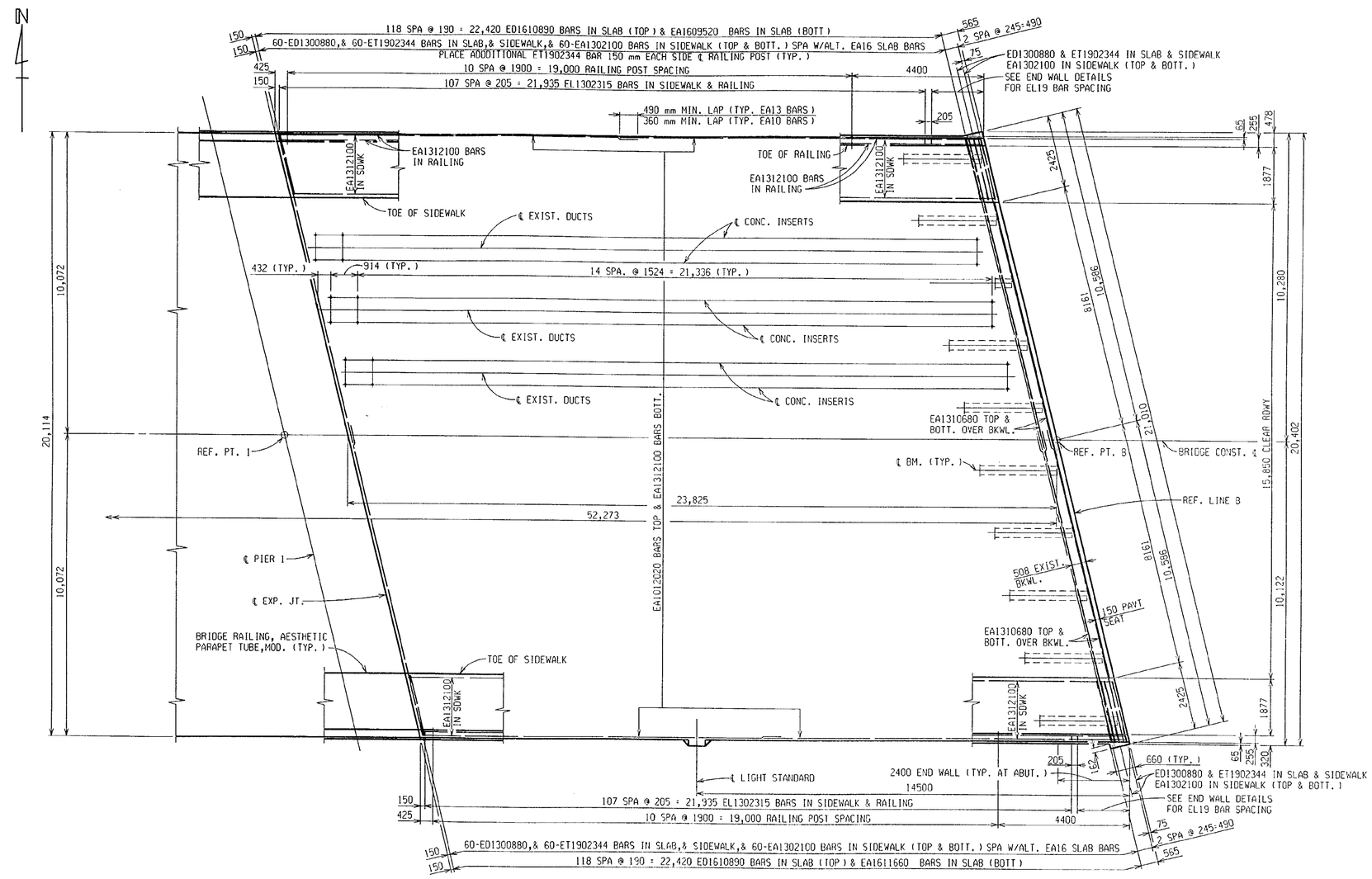
SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	15 OF 22

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 9-3-99 DRAWN BY: CASLER FILE NAME: s3063174.dk

CONTROL SECTION S30 OF 63174 JOB NO. 48404A SH. NO. 16

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN-SPAN 2

ADJUST REINFORCEMENT TO PERMIT PLACEMENT OF RAILING & FENCE POST ANCHORAGES & LIGHT STANDARDS.

MDOT Michigan Department of Transportation

SUPERSTRUCTURE DETAILS

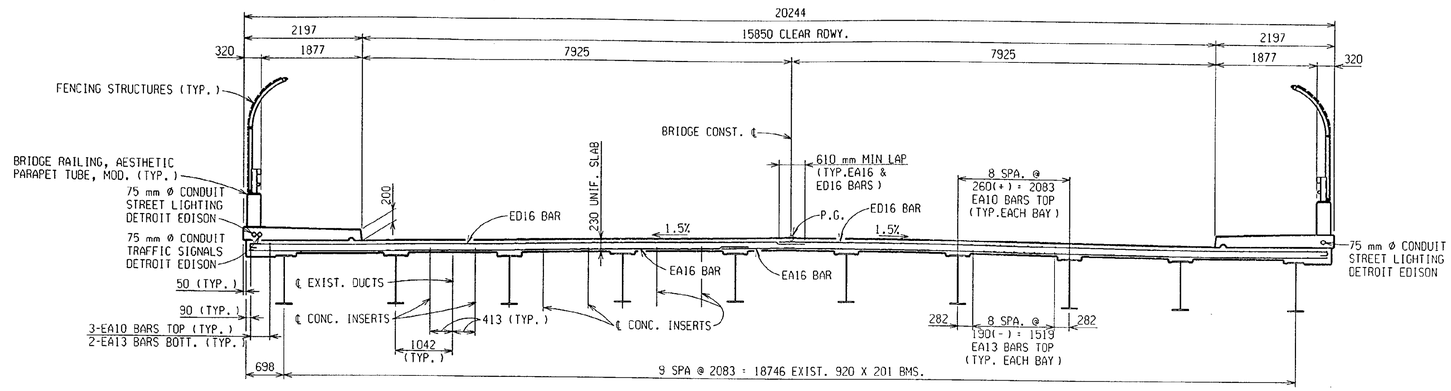
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	16 OF 22

DRAWN BY: CASLER DATE: CHECKED BY: DATE: CORRECTED BY: DATE:

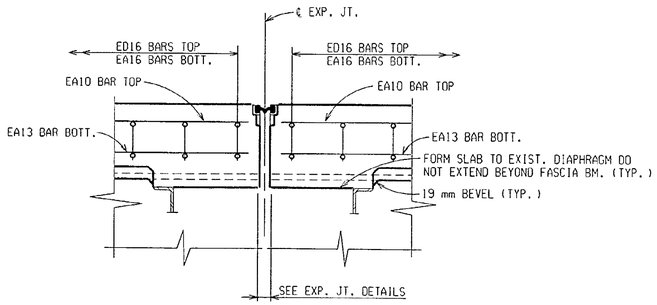
FILE NAME: s3063174.dk

CONTROL SECTION S30 OF 63174 | JOB NO. 48404A | SH. NO. 17

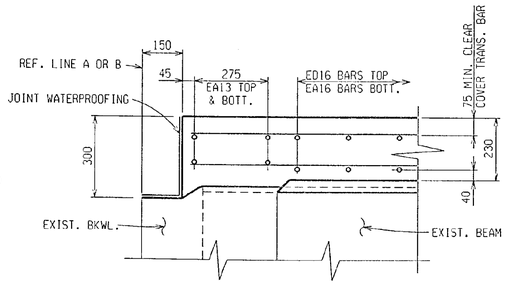
REVISIONS			
NO.	DESCRIPTION	DATE	BY



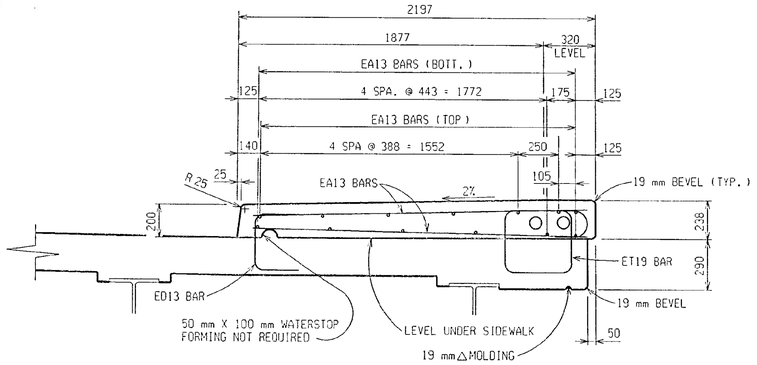
SECTION A-A



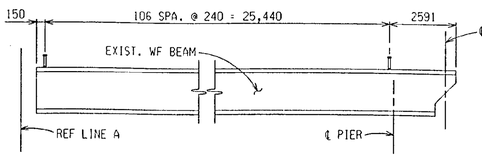
SECTION THRU EXPANSION JOINT



SECTION THRU BACKWALL

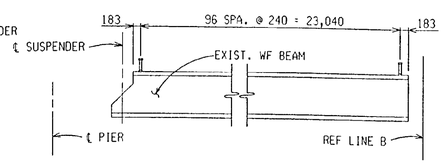


SECTION THRU SIDEWALK



BEAM ELEVATION SPAN 1

SHOWING STUD SPACING



BEAM ELEVATION SPAN 2

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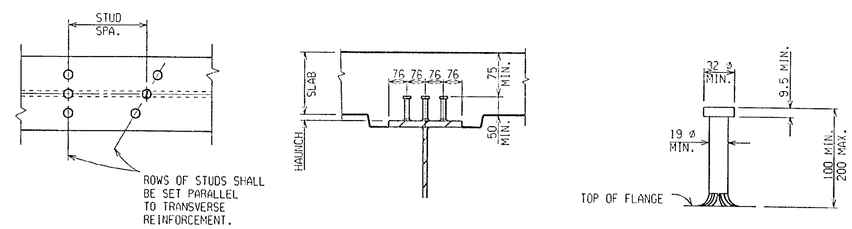


PLAN

SECTION

STUD DETAIL

STUD SHEAR DEVELOPER DETAILS

MDOT Michigan Department of Transportation

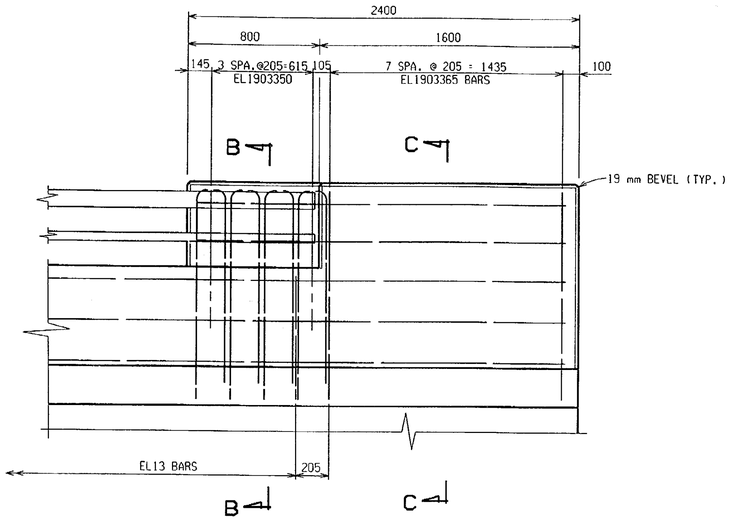
SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	17 OF 22

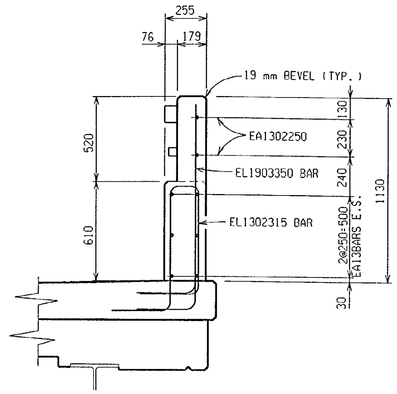
DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 9-3-99 | DRAWN BY: CASLER | FILE NAME: s3063174.dk

CONTROL SECTION S30 OF 63174 JOB NO. 48404A SH. NO. 18

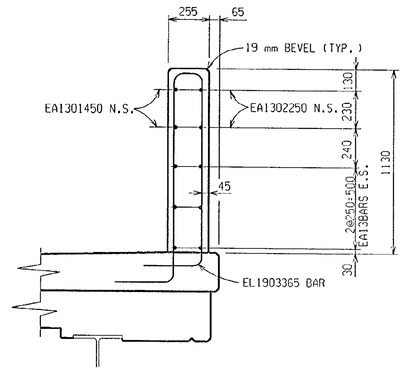
REVISIONS			
NO.	DESCRIPTION	DATE	BY



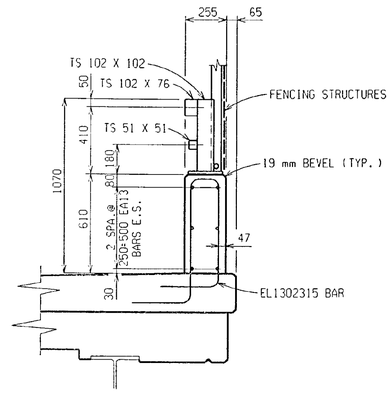
END WALL ELEVATION



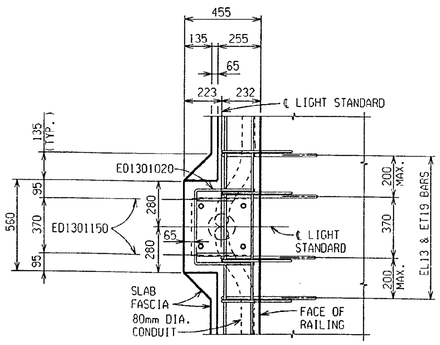
SECTION B-B



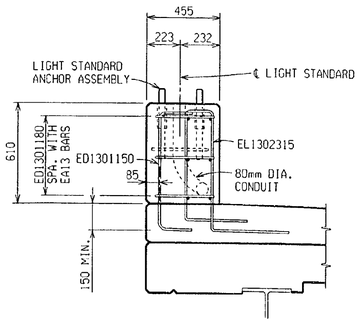
SECTION C-C



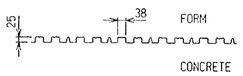
SECTION THRU AESTHETIC RAILING



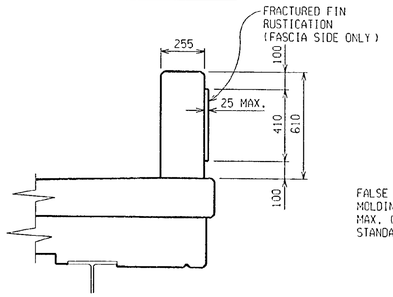
PLAN OF RAILING AT LIGHT STANDARD



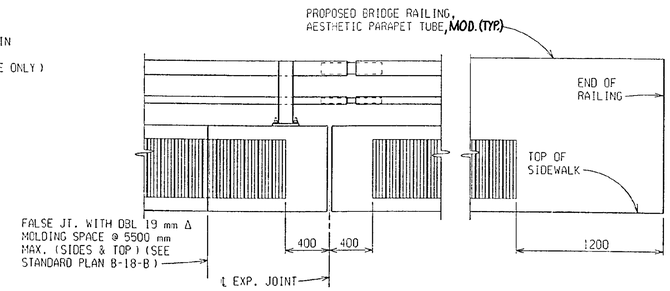
SECTION THRU RAILING AT LIGHT STANDARD



FRACTURED FIN FORM LINER DETAIL



TYPICAL RAILING SECTION SHOWING RUSTICATION



RAILING ELEVATION
LATERAL LIMITS OF RUSTICATION

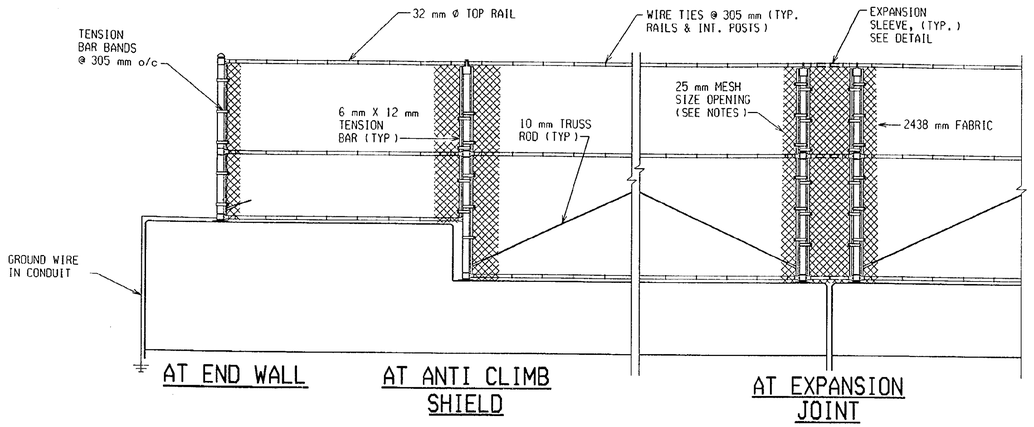
MDOT Michigan Department of Transportation

SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	18 OF 22

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 9-3-99 DRAWN BY: CASLER FILE NAME: s30631174.dk

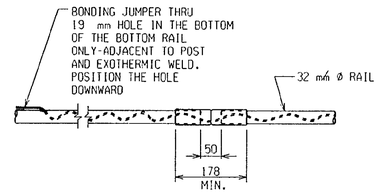
CONTROL SECTION S30 OF 63174 JOB NO. 48404A SH. NO. 19



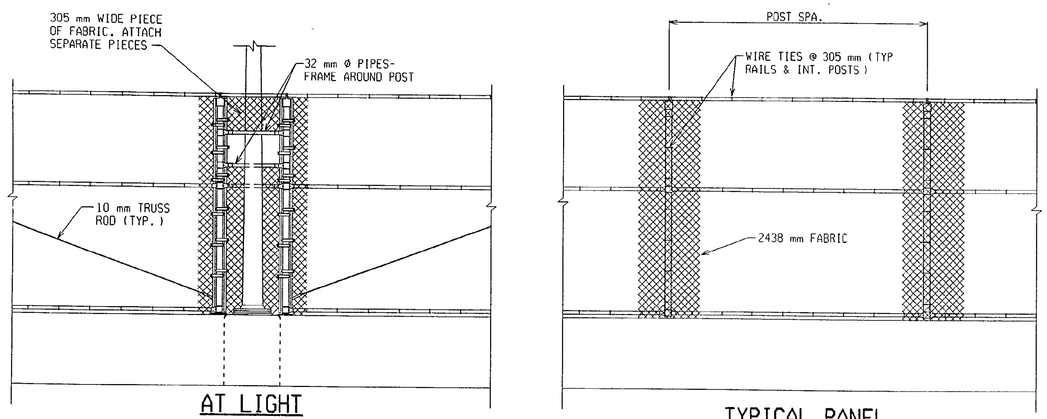
AT END WALL

AT ANTI CLIMB SHIELD

AT EXPANSION JOINT



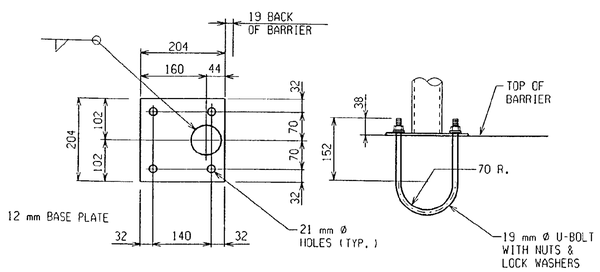
EXPANSION SLEEVE DETAIL



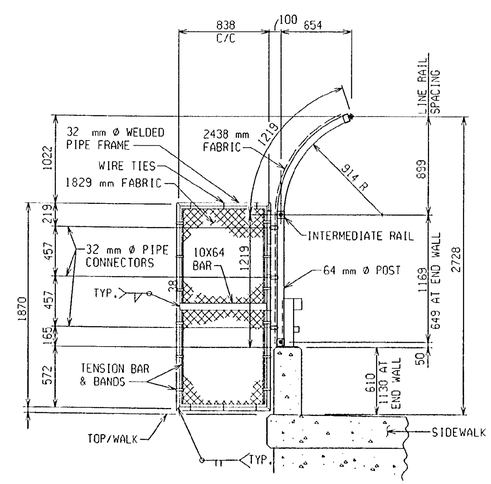
AT LIGHT STANDARD

TYPICAL PANEL

TYPICAL ELEVATIONS



BASE PLATE DETAILS



TYPICAL SECTION

(SHOWING ANTI-CLIMB SHIELD)

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MISCELLANEOUS QUANTITIES

265 m2	Fencing, Structures
1 ea	Elec Grounding System

NOTES:

ALL FENCE POSTS SHALL BE 64 NOMINAL, (73 O.D.) PIPE AND ANTI-CLIMB SHIELD PIPE FRAMES SHALL BE 32 NOMINAL, (42 O.D.) PIPE, IN CONFORMANCE WITH ASTM F669, CLASS 1C.

HORIZONTAL RAILS SHALL BE 32 NOMINAL (42 O.D.) PIPE IN CONFORMANCE WITH ASTM F669, CLASS 1C OR ASTM F1083.

ALL FENCE COMPONENTS, UNLESS OTHERWISE INDICATED, SHALL BE GALVANIZED IN ACCORDANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

ALL POSTS, ANTI-CLIMB SHIELDS OR OTHER COMPONENTS TO BE FABRICATED SHALL BE FURNISHED "BLACK" AND THEN GALVANIZED AFTER FABRICATION.

DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN CONFORMANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

FENCE FABRIC SHALL BE #9 GAGE MESH AND BE GALVANIZED OR ALUMINUM COATED IN CONFORMANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION. MESH SIZE OPENING SHALL BE 25 mm.

GALVANIZED 10 mm Ø TRUSS RODS SHALL EXTEND DIAGONALLY FROM THE TOP CONNECTION CLIP AT EACH TENSION BAR TO THE ADJACENT POST, EXCEPT ACROSS EXPANSION JOINTS AND AT LIGHT STANDARDS WITH A CURVED FENCE DETAIL, WHEN THERE ARE TWO OR MORE CONTINUOUS PANELS OF FABRIC.

ALL POSTS SHALL BE INSTALLED PLUMB AND MAY BE SHIMMED WITH NON-METALLIC SHIMS, APPROVED BY THE ENGINEER. COSTS FOR SHIMMING SHALL BE INCLUDED IN THE PAY ITEM "FENCING, STRUCTURES".

BOTTOM STRAP ON THE VERTICAL POST SHALL BE CONNECTED WITH RAIL ENDS (BRACE BANDS) RATHER THAN A TWO WAY CLAMP TO ALLOW A MINIMUM OF 7 mm OFFSET.

FIELD WELDING SHALL BE ALLOWED ONLY FOR THE HANDRAIL SPLICES AND FOR ATTACHMENT OF THE HANDRAIL TO THE POST. ALL FIELD WELDS SHALL BE GROUND SMOOTH PRIOR TO COATING WITH ZINC-RICH PAINT OR SPRAYED ZINC IN ACCORDANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS.

THE GROUND WIRE SHALL BE PLACED IN A NON-METALLIC CONDUIT, FROM THE END POST CONNECTION TO THE GROUND ROD CONNECTION. THE CONDUIT SHALL BE SECURED TO THE STRUCTURE USING EITHER EXPANSION BOLTS OR ADHESIVE ANCHORED BOLTS WITH GALVANIZED METAL STRIPS, AS APPROVED BY THE ENGINEER.

IN THE EVENT THAT INSTALLATION OF A GROUND ROD IS IMPRACTICAL, THE GROUND WIRE SHALL BE CONNECTED TO THE NEAREST LIGHT STANDARD, USING A MECHANICAL CLIP, ONLY AFTER OBTAINING PERMISSION FROM THE LOCAL PUBLIC LIGHTING AUTHORITY.

EXPANSION JOINT SLEEVES, FOR HORIZONTAL RAILS, SHALL BE THE MANUFACTURER'S STANDARD OVERSIZED SLEEVES, CRIMPED IN THE MIDDLE.

ALL DIMENSIONS ARE IN MILLIMETERS.

FENCE FABRIC SHALL BE CONTINUOS AT LIGHT POLE, BUT MAY BE CUT AND SPLICED. REINFORCE OPENING IN THE FABRIC AT POSTS WITH #6 GAUGE WIRE.

GROUNDING CABLES AND TOPS OF GROUNDING RODS SHALL BE PLACED 300 mm MINIMUM BELOW FINISHED GROUND.

MDOT Michigan Department of Transportation

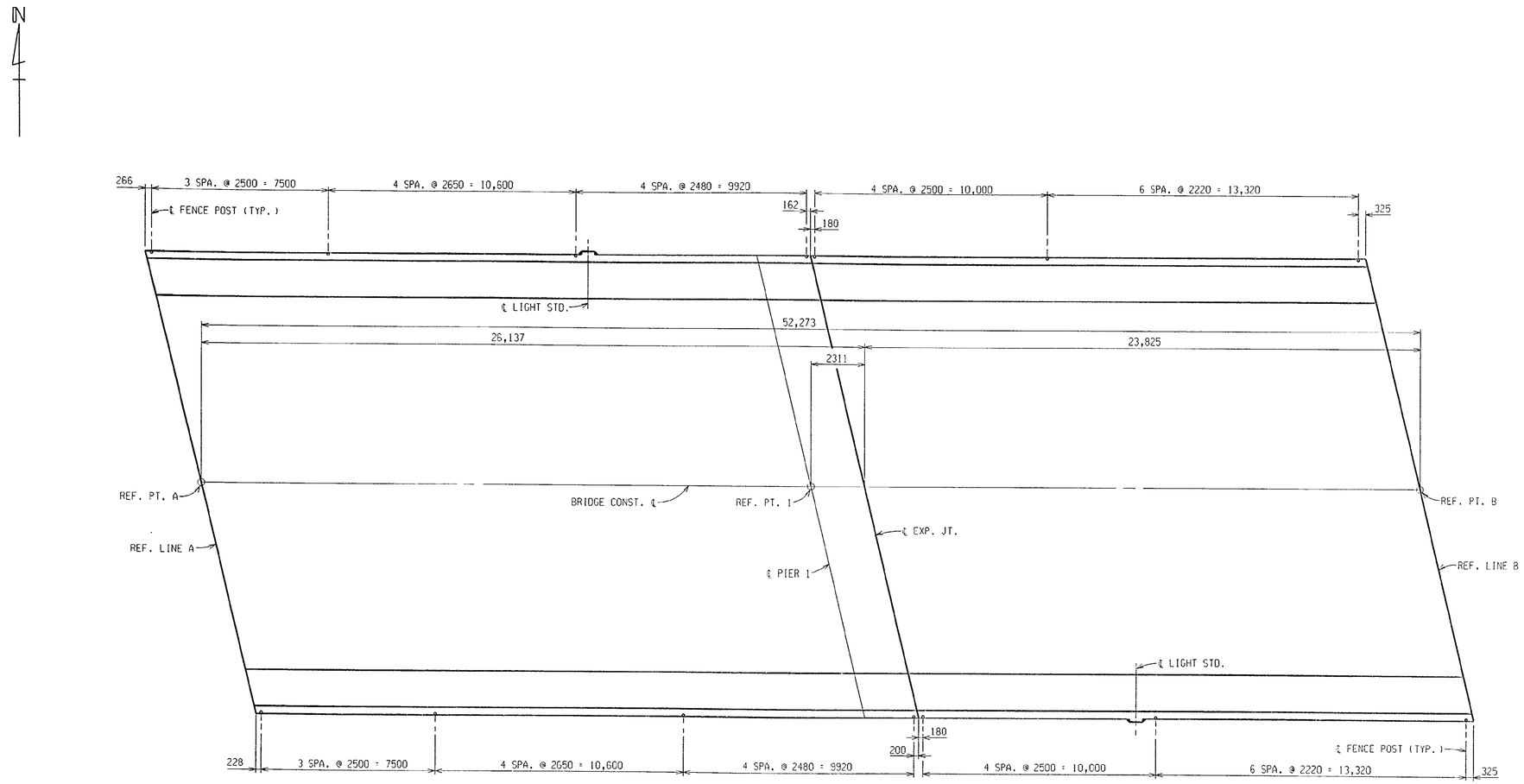
FENCING DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	19 OF 22

DATE: 9-20-99 CORRECTED BY: CASLER DATE: DATE: 8-10-99 CHECKED BY: DRAWN BY: CASLER FILE NAME: s3063174.fe

CONTROL SECTION S30 OF 63174 | JOB NO. 48404A | SH. NO. 20

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN

(SHOWING FENCE POST SPACING)

MDOT Michigan Department of Transportation

FENCING DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	20 OF 22

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 9-7-99 | DRAWN BY: CASLER | FILE NAME: s3063174.fe

REVISIONS			
NO.	DESCRIPTION	DATE	BY

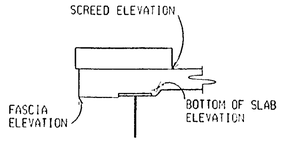
BOTTOM OF SLAB ELEVATIONS

REF.A — SPAN 1 — REF.1 — SPAN 2 — REF.B

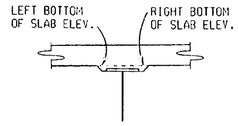
		0	1	2	3	4	5	6	7	℄BRG 8	℄P&H 0	1	2	3	4	5	6	7	8
A	FASCIA	193.172	193.218	193.259	193.292	193.314	193.324	193.323	193.311	193.289	193.291	193.312	193.324	193.324	193.311	193.284	193.249	193.207	193.161
	RIGHT	193.236	193.282	193.323	193.355	193.377	193.387	193.387	193.375	193.352	193.354	193.375	193.387	193.387	193.374	193.347	193.312	193.270	193.224
B	LEFT	193.244	193.290	193.331	193.364	193.386	193.396	193.395	193.383	193.359	193.360	193.380	193.391	193.390	193.376	193.349	193.314	193.272	193.226
	RIGHT	193.251	193.297	193.338	193.371	193.392	193.403	193.402	193.389	193.366	193.367	193.387	193.398	193.397	193.383	193.356	193.321	193.279	193.233
C	LEFT	193.278	193.324	193.365	193.398	193.419	193.430	193.429	193.415	193.391	193.391	193.410	193.420	193.419	193.404	193.377	193.341	193.299	193.253
	RIGHT	193.285	193.331	193.372	193.405	193.426	193.436	193.436	193.422	193.398	193.398	193.417	193.427	193.426	193.410	193.384	193.348	193.306	193.260
D	LEFT	193.312	193.358	193.399	193.432	193.453	193.463	193.462	193.448	193.422	193.422	193.440	193.449	193.447	193.431	193.404	193.369	193.327	193.281
	RIGHT	193.319	193.365	193.406	193.438	193.460	193.470	193.469	193.455	193.429	193.428	193.447	193.456	193.454	193.438	193.411	193.376	193.334	193.287
E	LEFT	193.346	193.392	193.433	193.465	193.487	193.497	193.496	193.480	193.454	193.452	193.470	193.478	193.475	193.458	193.431	193.396	193.354	193.308
	RIGHT	193.353	193.399	193.440	193.472	193.494	193.504	193.503	193.487	193.461	193.459	193.477	193.485	193.482	193.465	193.438	193.403	193.361	193.315
F	LEFT	193.355	193.401	193.442	193.475	193.496	193.507	193.505	193.488	193.461	193.458	193.475	193.483	193.478	193.461	193.434	193.399	193.357	193.311
	RIGHT	193.348	193.394	193.435	193.468	193.490	193.500	193.498	193.481	193.454	193.452	193.468	193.476	193.471	193.454	193.428	193.392	193.350	193.304
G	LEFT	193.326	193.372	193.414	193.446	193.468	193.478	193.475	193.458	193.429	193.426	193.442	193.449	193.444	193.426	193.399	193.364	193.322	193.276
	RIGHT	193.320	193.366	193.407	193.439	193.461	193.471	193.468	193.451	193.422	193.419	193.435	193.442	193.437	193.419	193.392	193.357	193.315	193.269
H	LEFT	193.298	193.344	193.385	193.417	193.439	193.449	193.446	193.427	193.398	193.394	193.409	193.415	193.409	193.391	193.364	193.329	193.287	193.241
	RIGHT	193.291	193.337	193.378	193.411	193.432	193.442	193.439	193.420	193.391	193.387	193.402	193.408	193.402	193.384	193.357	193.322	193.280	193.234
J	LEFT	193.269	193.315	193.356	193.389	193.410	193.421	193.416	193.396	193.366	193.361	193.375	193.380	193.373	193.356	193.329	193.294	193.252	193.205
	RIGHT	193.262	193.308	193.349	193.382	193.404	193.414	193.409	193.390	193.359	193.355	193.369	193.374	193.367	193.349	193.322	193.287	193.245	193.199
K	LEFT	193.259	193.305	193.346	193.378	193.400	193.410	193.404	193.384	193.352	193.347	193.360	193.364	193.357	193.339	193.312	193.277	193.235	193.189
	FASCIA	193.194	193.240	193.281	193.314	193.335	193.345	193.340	193.319	193.288	193.283	193.296	193.300	193.293	193.275	193.248	193.213	193.171	193.125

SCREED ELEVATIONS

LEFT	193.467	193.509	193.547	193.577	193.598	193.609	193.610	193.602	193.583	193.584	193.601	193.609	193.607	193.592	193.566	193.533	193.494	193.451
CENTER	193.596	193.638	193.675	193.705	193.726	193.737	193.738	193.725	193.703	193.701	193.715	193.720	193.714	193.697	193.670	193.637	193.598	193.555
RIGHT	193.487	193.529	193.566	193.596	193.617	193.628	193.625	193.609	193.583	193.578	193.588	193.590	193.581	193.563	193.537	193.503	193.464	193.421



TYPICAL FASCIA SECTION



TYPICAL INTERIOR SECTION

(LOOKING UP STATION)

BULKHEAD ELEVATIONS

	ABUT.A	℄ JT.	ABUT.B
A	193.465	193.584	193.453
B	193.477	193.593	193.458
C	193.511	193.624	193.486
D	193.545	193.655	193.513
E	193.578	193.686	193.540
F	193.581	193.685	193.536
G	193.552	193.653	193.501
H	193.524	193.621	193.466
J	193.495	193.589	193.431
K	193.488	193.578	193.418

NOTES:

SCREED ELEVATIONS ARE BASED ON THE CONDITION THAT NO SLAB CONCRETE HAS BEEN CAST AND THAT FORMWORK, SHEAR DEVELOPERS AND STEEL REINFORCEMENT ARE IN PLACE.

BOTTOM OF SLAB ELEVATIONS ARE AT RIGHT ANGLES TO THE BEAM CENTERLINE AND ARE BASED ON THE CONDITION THAT THE BEAMS AND DIAPHRAMS ARE COMPLETELY ERECTED WITH NO OTHER LOADS APPLIED. NO TEMPORARY SUPPORTS ARE ALLOWED AT THIS TIME. THESE ELEVATIONS INCLUDE ALLOWANCE FOR VERTICAL CURVE AND DEFLECTION DUE TO FORMS, STEEL REINFORCEMENT, CONCRETE SLAB, SIDEWALKS, RAILING, AND UTILITIES.

SECTIONS FOR BOTTOM OF SLAB AND/OR SCREED ELEVATIONS ARE GIVEN ALONG BEAM CENTERLINES FROM CENTERLINE OF BEARING OR PIN & HANGER TO CENTERLINE OF BEARING OR PIN & HANGER AS APPLICABLE AT EQUAL SPACINGS.

MDOT Michigan Department of Transportation

SLAB AND SCREED DATA

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	21 OF 22

DATE: 10-13-99 CORRECTED BY: CASLER DATE: CHECKED BY: DATE: DRAWN BY: FILE NAME: s3063174.ss

CONTROL SECTION S30 OF 63174 JOB NO. 48404A SH. NO. 22

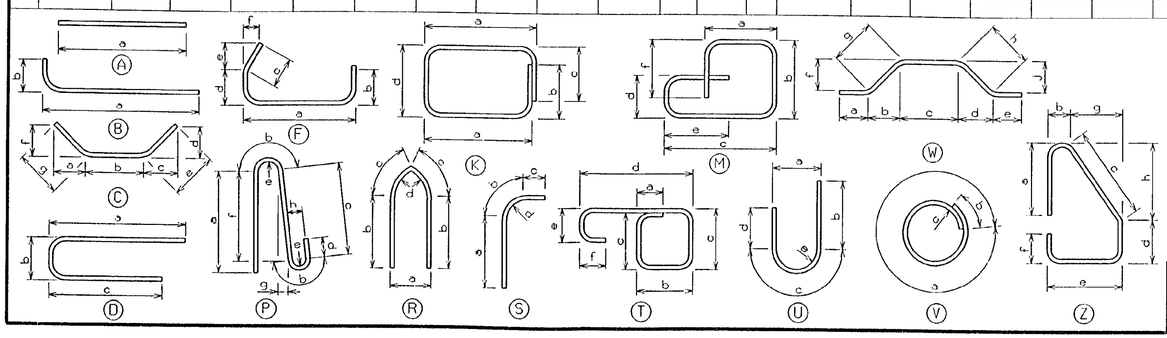
SUPERSTRUCTURE SPAN 1

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1009680	9680									237	1285
EA1314400	14400									246	3521
EA1310680	10680									8	85
EA1609520	9520									143	2113
EA1611660	11660									143	2588
EA1302100	2100									296	618
EA1302250	2250									4	9
EA1301450	1450									4	6
ED1610890	10660	97	133							286	4834
ED1300880	270	340	270							148	129
ED1301150	225	700	225							2	2
ED1301020	305	410	305							3	3
EL1302315	760	175	660	360	360	162				258	594
EL1903365	1280	185	1180	360	360	172				16	120
EL1903350	1180	170	1280	360	360		170			8	60
ET1902344	310	410	378	510	158	200				200	1048

SUPERSTRUCTURE SPAN 2

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1012020	12020									237	1595
EA1312100	12100									246	2959
EA1310680	10680									8	85
EA1609520	9520									119	1758
EA1611660	11660									119	2153
EA1302100	2100									248	518
EA1302250	2250									4	9
EA1301450	1450									4	6
ED1610890	10660	97	133							238	4023
ED1300880	270	340	270							124	108
ED1301150	225	700	225							2	2
ED1301020	305	410	305							3	3
EL1302315	760	175	660	360	360	162				216	497
EL1903365	1280	185	1180	360	360	172				16	120
EL1903350	1180	170	1280	360	360		170			8	60
ET1902344	310	410	378	510	158	200				168	880

BAR	DIMENSIONS a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.



EPOXY COATED
BAR SIZE
BAR LENGTH (mm)
EA2013000
BAR SHAPE

BAR LEGEND

MISCELLANEOUS QUANTITIES		
0	kg	REINFORCEMENT, STEEL
31791	kg	REINFORCEMENT, STEEL, EPOXY COATED

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

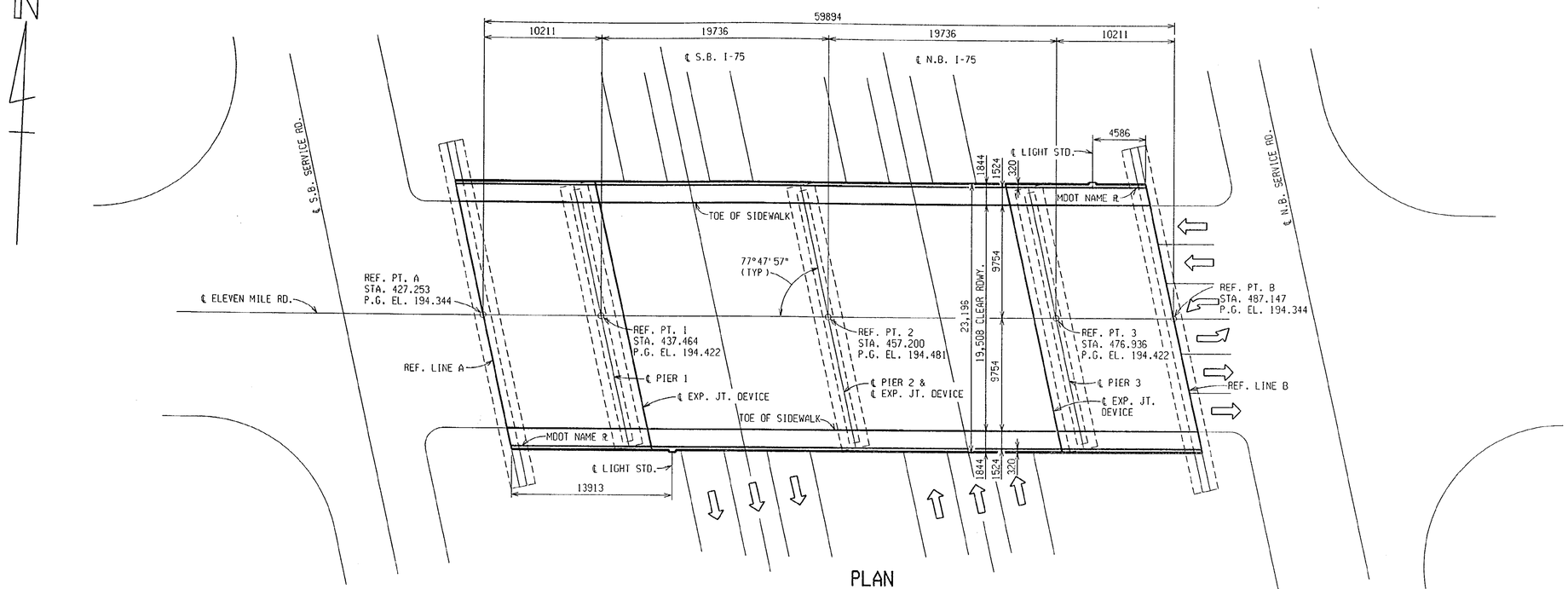
STEEL REINFORCEMENT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S30 OF 63174	48404A	MAHDAVI	22 OF 22

DATE: 10-13-99 CORRECTED BY: under DATE: 10-12-99 CHECKED BY: WM DATE: 9-27-99 DRAWN BY: under FILE NAME: s3063174.rs

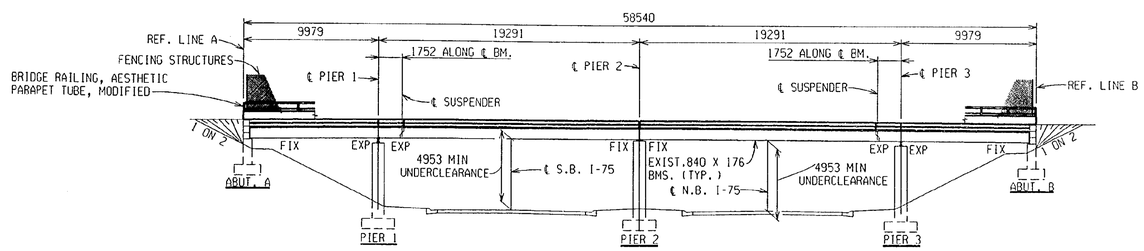
CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 2

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN

THE LIMITS OF FALSE DECKING IS FROM INSIDE FACE OF PIER 1 TO INSIDE FACE OF PIER 3 AND BETWEEN SLAB FASCIAS.



ELEVATION

SHOWN ⊥ TO I-75

MISCELLANEOUS QUANTITIES

863 m2	False Decking
1 LS	Structures, Rehabilitation, Rem Portions (S31)

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES DECK REPLACEMENT, PEDESTRIAN SCREENING, PIN AND HANGER REPLACEMENT, PAINTING OF THE EXISTING STRUCTURAL STEEL, AND MAINTAINING TRAFFIC. ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE A PART OF THIS CONTRACT.

THE REHABILITATION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS18 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH AND 1/375 OF CANTILEVER ARM. THE LOAD FACTOR) METHOD WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR MS18 LOADING.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

THE CONTRACTOR SHALL NOTIFY DETROIT EDISON FOR DEACTIVATION OF STREET LIGHTS AND TRAFFIC SIGNAL CIRCUITS PRIOR TO DECK REMOVAL AND FOR REINSTALLATION OF THE STREET LIGHTING AND SIGNALS FOLLOWING COMPLETION OF BRIDGE DECK CONSTRUCTION.

ALL WORK FOR TEMPORARY SUPPORT AND PROTECTION OF THE AMERITECH DUCTS AND THE CONSUMER ENERGY GAS MAIN SHALL BE INCLUDED IN THE PAY ITEM "STRUCTURES, REHABILITATION, REMOVE PORTIONS (S31)"

ELEVEN MILE ROAD TRAFFIC IS TO BE DETOURED OVER OTHER EXISTING ROADS.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

THE EXISTING GAS MAIN AND AMERITECH DUCTS WILL REQUIRE TEMPORARY SUPPORTS PRIOR TO REMOVAL OF THE DECK.

APPROVED Steve P. Beck 10/19/99
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

GENERAL PLAN OF STRUCTURE

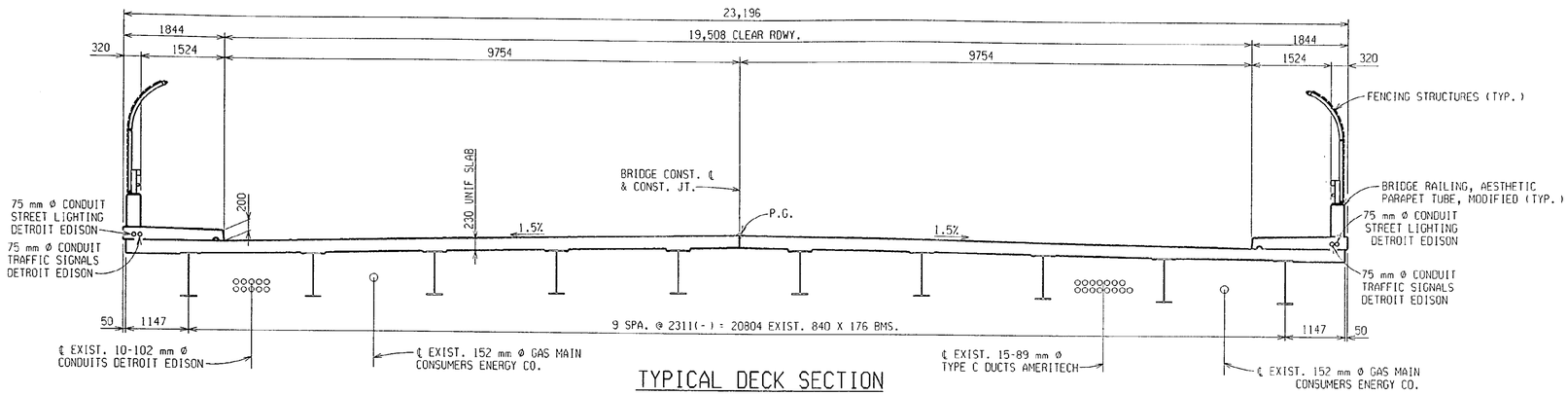
I-75 UNDER ELEVEN MI. IN ROYAL OAK

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	2 OF 20

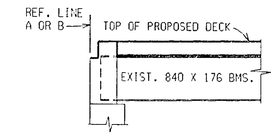
DATE: 9-20-99 | CORRECTED BY: CASLER | DATE: | CHECKED BY: | DATE: 2-5-99 | DRAWN BY: CASLER | FILE NAME: s3163174.st

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 3

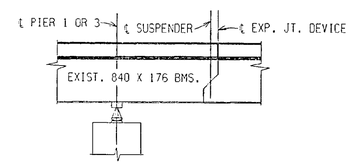
REVISIONS			
NO.	DESCRIPTION	DATE	BY



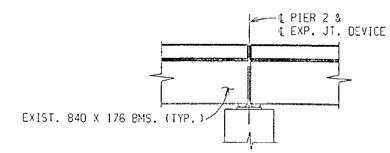
TYPICAL DECK SECTION



SECTION AT ABUTMENT



SECTION AT PIER 1 & 3



SECTION AT PIER 2

DATE: 9-20-99 | CORRECTED BY: CASLER | DATE: 4-1-99 | CHECKED BY: MIKUCKI | DATE: 3-29-99 | DRAWN BY: CASLER | FILE NAME: s3163174.s1

APPROVED Steven P. Beck 10/19/99
DESIGN SUPERVISING ENGINEER

MDOT Michigan Department of Transportation

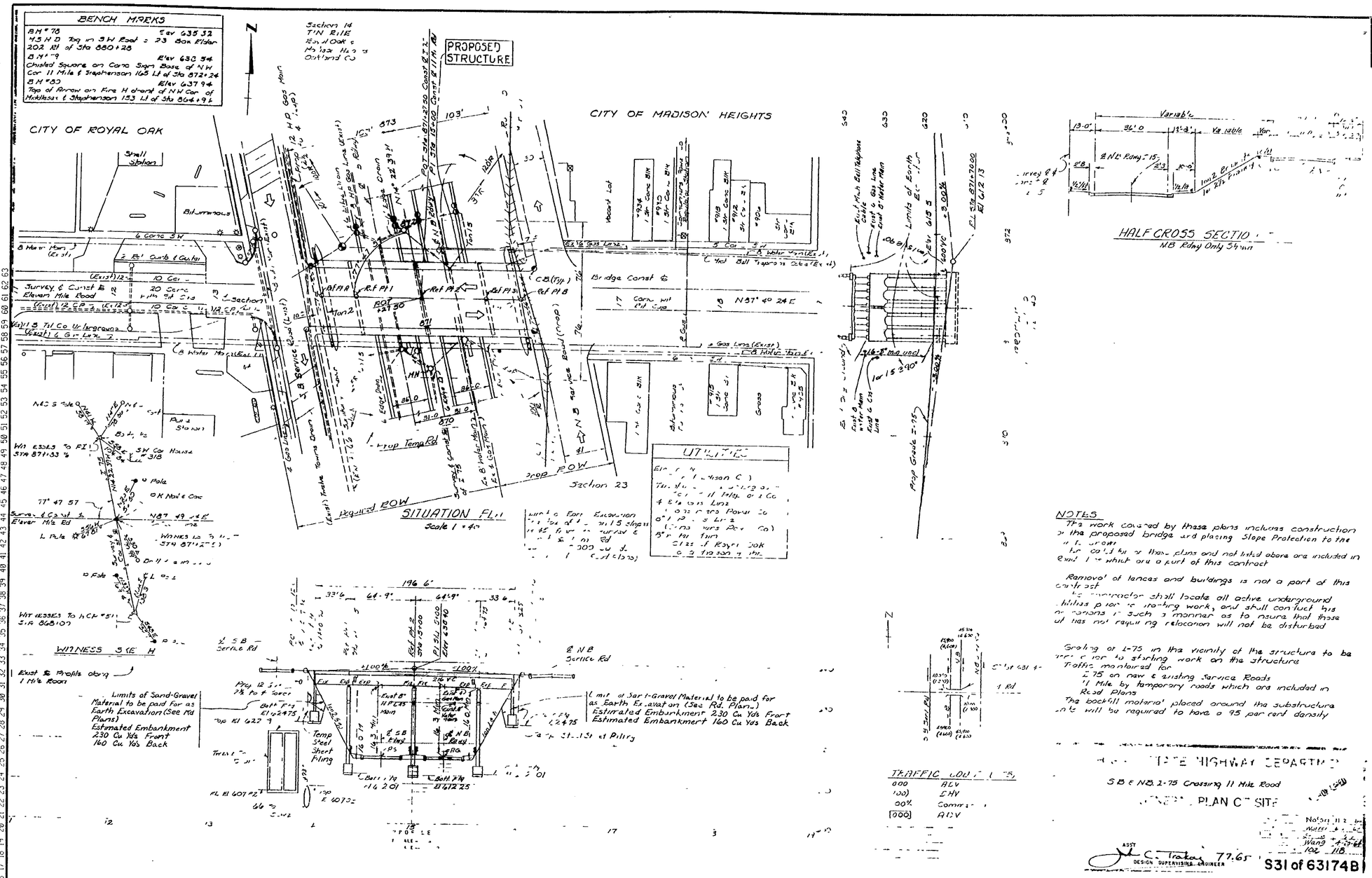
GENERAL PLAN OF STRUCTURE

I-75 UNDER ELEVEN MI., IN ROYAL OAK

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	3 OF 20

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 4

REVISIONS			
NO.	DESCRIPTION	DATE	BY



NOTE:
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MDOT Michigan Department of Transportation

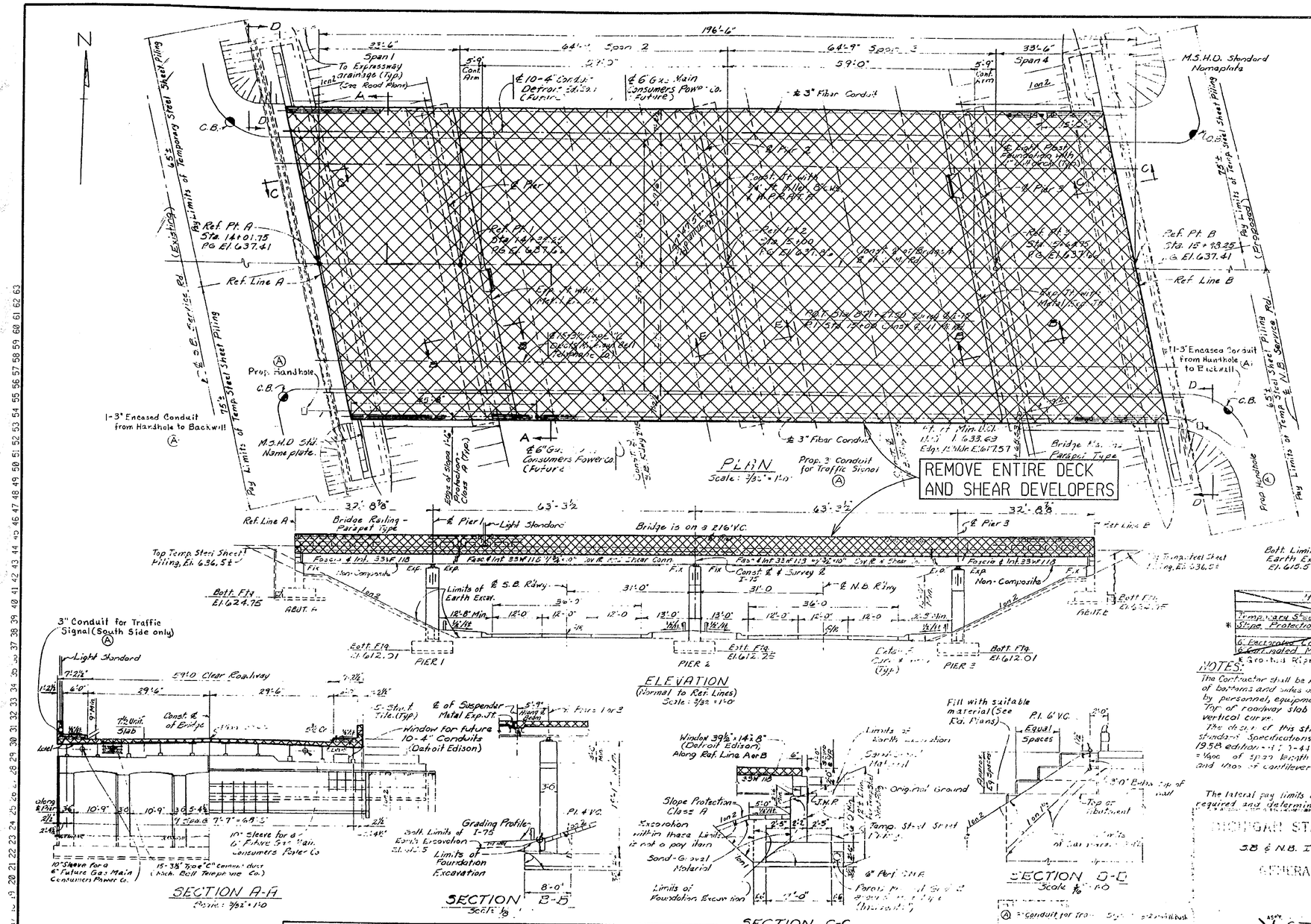
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174.	48404A	MAHDAVI	4 OF 20

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 01-13-99 | DRAWN BY: INDER | FILE NAME: s3163174.sn

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 5

REVISIONS			
NO.	DESCRIPTION	DATE	BY



MISCELLANEOUS QUANTITIES		
Item	Unit	Amount
Temporary Steel Sheet Piling	Sq. Ft.	3400
* Slope Protection - Class A	Sq. Yds.	613
6" Encased Corrugated Metal Pipe	Lin. Ft.	200
6" Corrugated Metal Pipe	Lin. Ft.	210

* Grouted Riprap shall not be used on this project

NOTES:

The Contractor shall be responsible for providing adequate protection of bottoms and sides of the footing excavation against damage by personnel, equipment and water.

Top of roadway slab and tops of sidewalks are parallel to the vertical curve.

The design of this structure is based on the the M.S.H.D. Standard Specifications for the Design of Highway Bridges - 1958 edition and I-94 Loading. Live load plus impact deflection = 1/800 of span length or suspended span and 1/300 of cantilever arm.

The lateral pay limits of temporary steel sheet piling are as required and determined by the Engineer.

MICHIGAN STATE HIGHWAY DEPARTMENT

S.B. & N.B. I-75 crossing 11 Mile Rd.

GENERAL PLAN OF STRUCTURE

Asst. C. Trakas 7.7.65
DESIGN SUPERVISING ENGINEER

Warren 9-16-63
104 118 4-20-66

S31 of 63174 B

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

JOB NO. 48404A

DENOTES REMOVAL PORTIONS

PROPOSED WORK

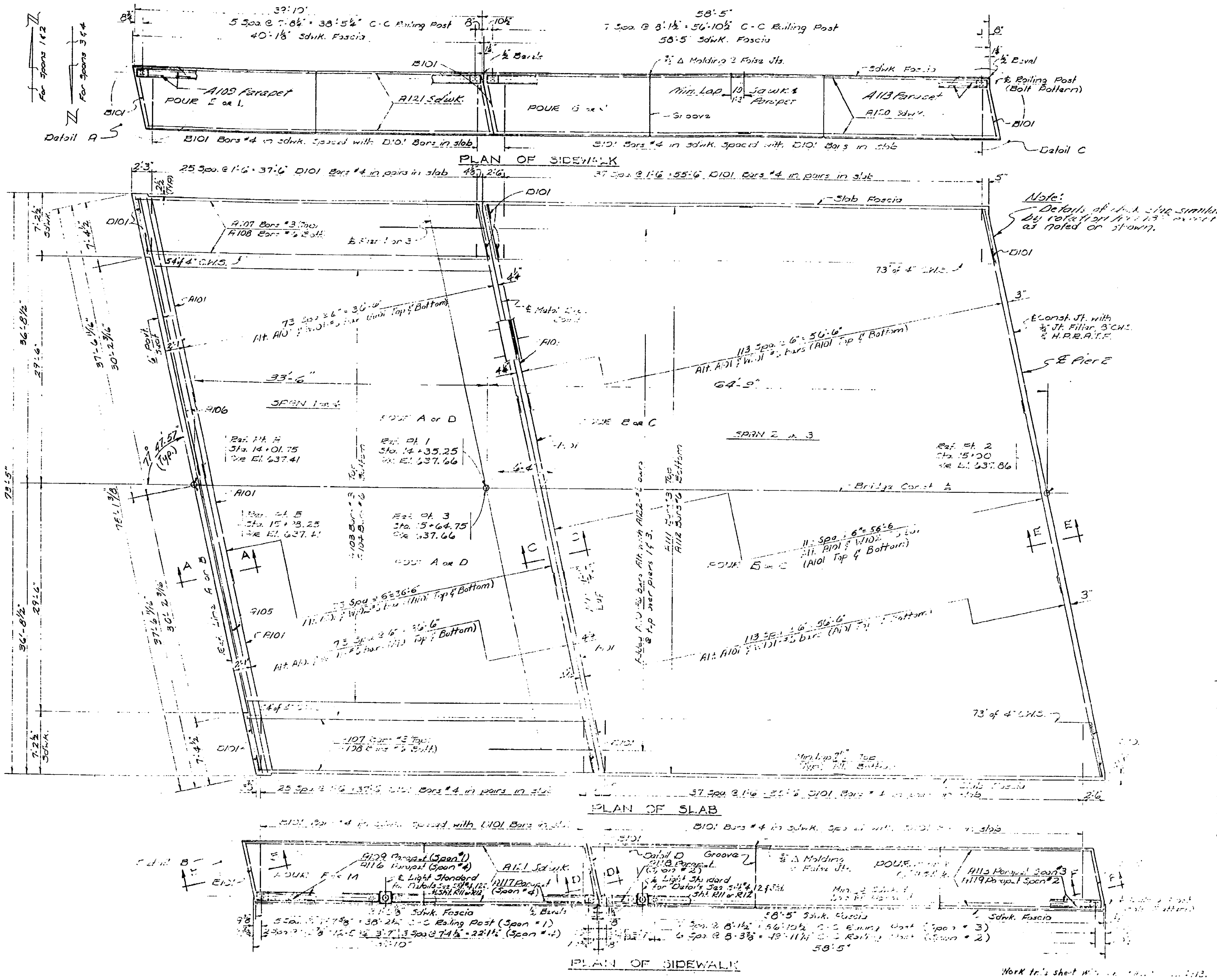
MDOT Michigan Department of Transportation

REMOVAL PORTIONS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	5 OF 20

DATE: 5-11-99 | CORRECTED BY: CASLER | DATE: | CHECKED BY: | DATE: 01-13-99 | DRAWN BY: INGER | FILE NAME: s3163174.sn

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 6

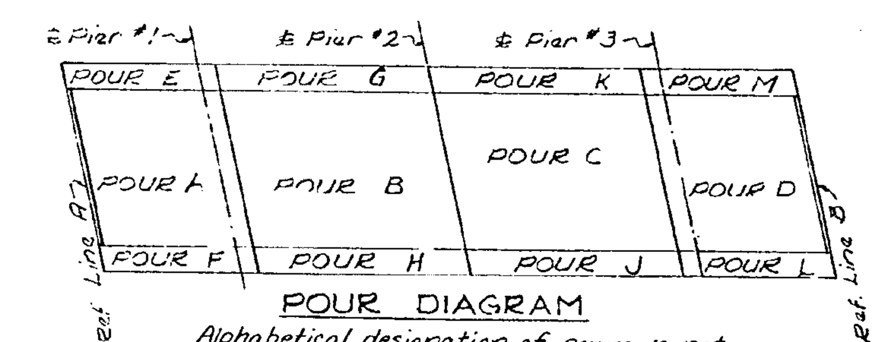


CONCRETE QUANTITIES – SUPERSTR.

	POUR	GRADE A (6AA) Cu. Yds.
SLAB	A	87.5
	B	110.0
	C	110.0
	D	87.5
SDWK.	E	6.5
	F	6.5
	G	9.5
	H	9.5
	J	9.5
	K	9.5
	L	6.5
	M	6.5
TOTAL	Cu. Yds.	459.0

MISCELLANEOUS QUANTITIES ~ SUPERSTR.

ITEM	UNIT	AMOUNT
3/4" Joint Filler	Sq. Ft.	65
Joint Waterproofing	Sq. Ft.	32
Copper	Lbs.	220
Bridge Railing - Parapet Type	Lin. Ft.	390.3
Water-Reducing Retarding Admixture	Gal.	57
Hot-Poured Rubber-Asphalt Type Filler	Lin. Ft.	235
Structural Tile 4"x12"x12"	Each	1860



POUR DIAGRAM

Alphabetical designation of pours is not to be construed as a pour sequence.

NOTES:

For Railing Details, See Standard Sheet No. R11 or R12

For Bevel and Molding Details, see standard sheet No. R11 or R12

H.P.R.A.T.F. indicates Hot-Poured Rubber-Asphalt Type Filler.

C.W.S. indicates copper waterstop.

J.W.P. indicates joint waterproofing.

Edge and Groove denote Edging or Grooving with an approved tool.

Sidewalk pours shall not be cast until slab concrete has attained at least 50% of its design strength as determined by the table in section 5.01.03 of the Standard Specifications.

False joints in sdwk. shall be placed midway between concrete blocks @ approx. every 4th. panel.

Bridge Railing is to be either aluminum or steel tubular railing on concrete parapet. See Std. Sh. R11 or R12

SUPERSTRUCTURE DETAILS

S31 of 63174B

NOTE:
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MDOT Michigan Department of Transportation

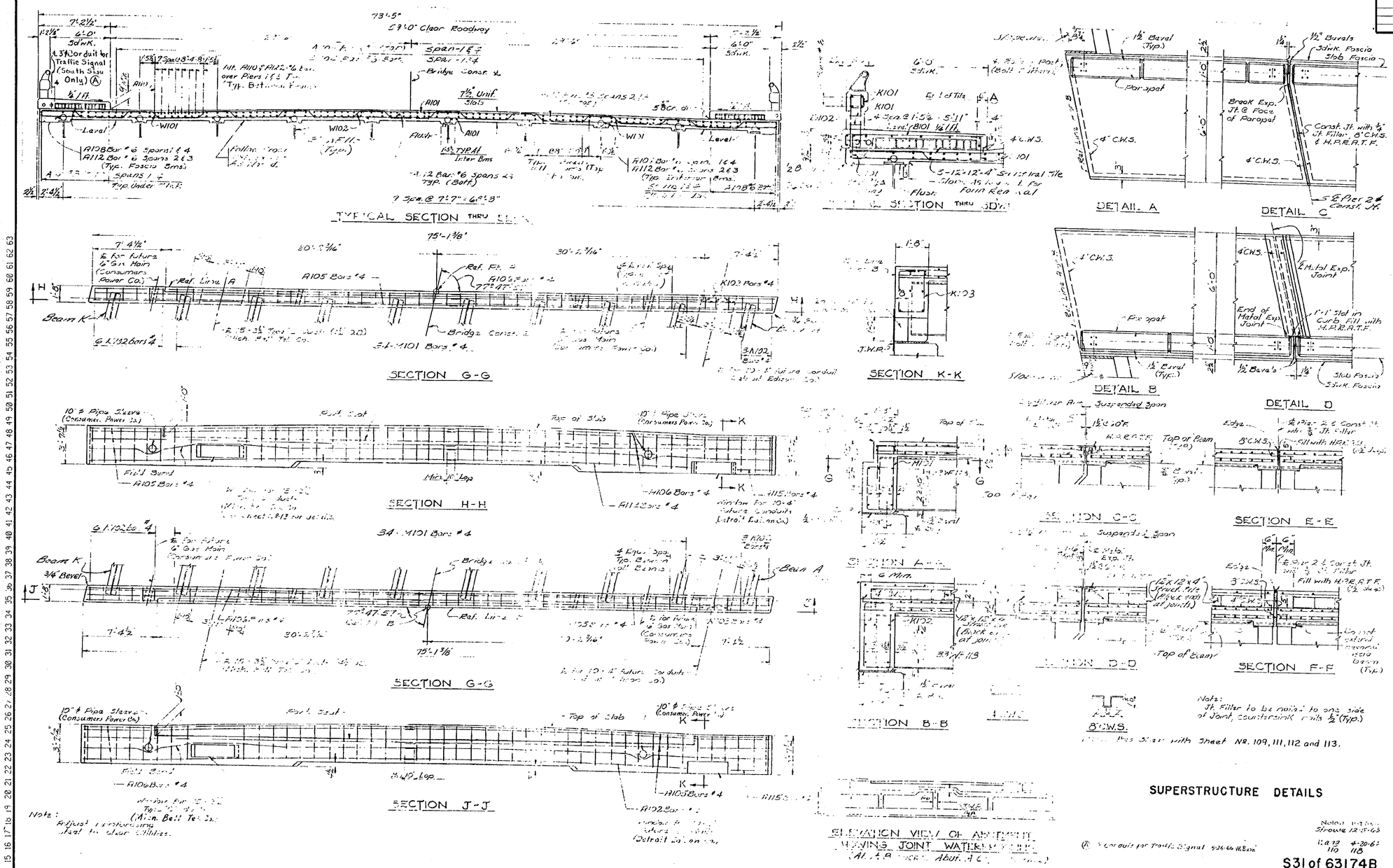
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174.	48404A	MAHDAVI	6 OF 20

FILE NAME: s3163174.sn

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 7

REVISIONS			
NO.	DESCRIPTION	DATE	BY



SUPERSTRUCTURE DETAILS

S31 of 63174B

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

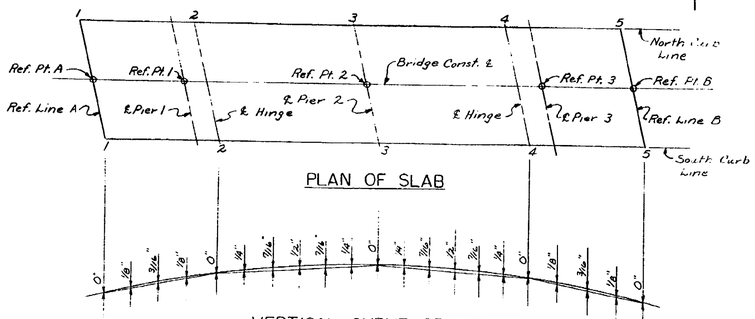
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

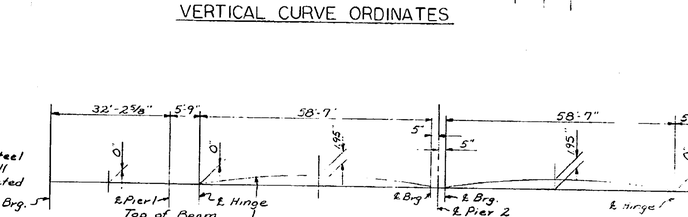
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174.	48404A	MAHDAVI	7 OF 20

DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 01-13-99 | DRAWN BY: UNDER | FILE NAME: s3163174.sn

CONTROL SECTION S31 OF 63174 JOB NO. 48404A SH. NO. 8

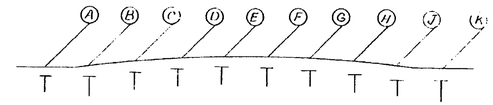


PLAN OF SLAB

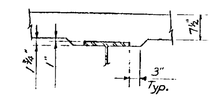


VERTICAL CURVE ORDINATES

STRUCTURUAL STEEL ERECTED



SCREED TEMPLATE



TYPICAL HAUNCH SECTION

SCREED TEMPLATE ELEVATIONS

Line	Sta. @ Const. ℄	Bm. A	Bm. B	Bm. C	Bm. D	Bm. E	Bm. F	Bm. G	Bm. H	Bm. J	Bm. K
1-1	14+01.75	636.89	636.98	637.14	637.28	637.38	637.40	637.33	637.22	637.08	637.03
2-2	14+41.00	637.21	637.28	637.44	637.58	637.67	637.68	637.60	637.49	637.35	637.29
3-3	15+00.00	637.41	637.48	637.63	637.75	637.84	637.84	637.75	637.63	637.48	637.41
4-4	15+59.00	637.29	637.35	637.49	637.60	637.68	637.67	637.58	637.44	637.28	637.21
5-5	15+98.25	637.03	637.08	637.22	637.33	637.40	637.38	637.28	637.14	636.98	636.89

THEORETICAL TOP OF BEAM ELEVATION

Beam	℄ Brg. Abut. A	℄ Pier 1	℄ Hinge	℄ Brg. Pier 2	℄ Brg. Pier 2	℄ Hinge	℄ Pier 3	℄ Brg. Abut. B
A	636.20	636.46	636.50	636.70	636.70	636.58	636.55	636.33
B	636.20	636.46	636.50	636.70	636.70	636.58	636.55	636.33
C	636.44	636.69	636.73	636.91	636.91	636.77	636.74	636.51
D	636.58	636.83	636.86	637.04	637.04	636.89	636.86	636.62
E	636.68	636.93	636.96	637.13	637.13	636.97	636.94	636.70
F	636.70	636.94	636.97	637.13	637.13	636.96	636.93	636.68
G	636.62	636.86	636.89	637.04	637.04	636.86	636.83	636.58
H	636.51	636.74	636.77	636.91	636.91	636.73	636.69	636.44
J	636.33	636.55	636.58	636.70	636.70	636.50	636.46	636.20
K	636.33	636.55	636.58	636.70	636.70	636.50	636.46	636.20

NOTES:

Screed template elevations are based on the condiction that no slab concrete has been poured and with formwork, steel reinforcement and shear developers in place.

Screeds which will be affected by loads in other spans are to be set to the elevations shown before casting any concrete.

Concete in the suspended spans is to be cast before the concrete in the anchor spans.

Haunch dimensions as shown are based on the theoretical elevation of the tops of beams with beams only fully erected. If actural tops of beams differ from theoretical tops of beams adjust haunch depths accordingly.

Longitudinal strike-off finishing machine is to be used in placing deck concrete.

Work this sheet with sheets #109, 110, 113, 114 & 117

SUPERSTRUCTURE DETAILS

Nolan 1-3-56
J. Bullen 12-27-65
Wang 12-29-65
111 118

S31 of 63174B

MICROFILMED

NOTE:
DO NOT WORK FROM THIS SHEET. THE INFORMATION SHOWN HERE IS FOR REFERENCE ONLY. NO PAY ITEMS ARE SHOWN.

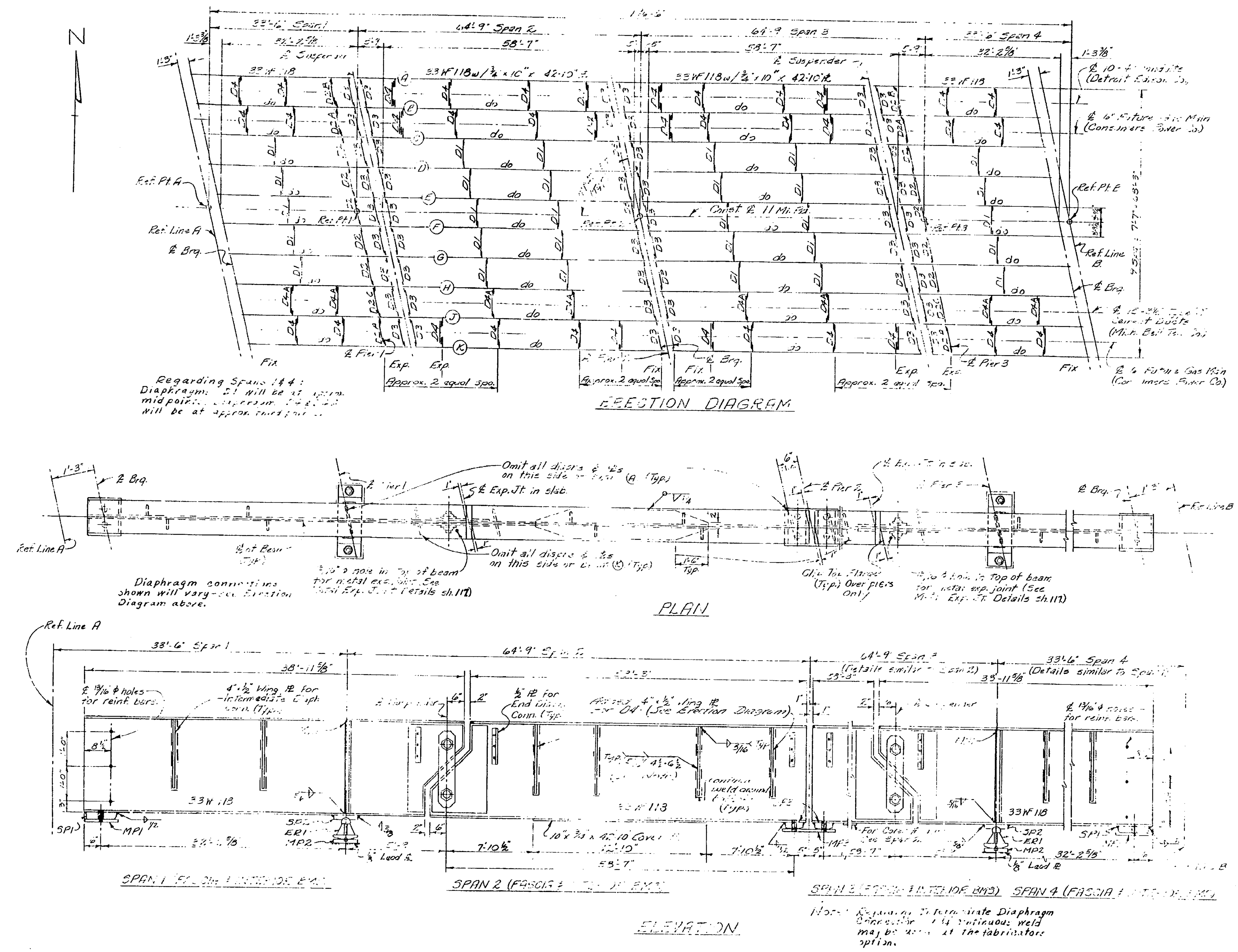
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174.	48404A	MAHDAVI	8 OF 20

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 01-13-99 DRAWN BY: INDER FILE NAME: s3163174.sn



STRUCTURAL STEEL NOTES

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

Design: Michigan State Highway Department's Specifications for the Design of Highway Bridges - 1958 Edition (H20-44 Loading).

Shop Connections: All shop connections shall be welded as shown on plans.

Field Connections shall be bolted with 3/4"⌀ high strength bolts.

Open Holes: Open holes for high-strength bolts shall be 13/16"⌀ unless otherwise noted.

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

Sole Plates: Sole plates 3" or more in thickness may be built up by welding together plates not less than 1½" 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 plate.

Camber: The beams in spans 1 & 4 are to have 0 inches of camber and the beams in spans 2 and 3 are to have a camber of 17/8" (max. ordinate). Allowable camber tolerance is + 1/4, - 1/4. Heating is to be used, if necessary, to assure camber permanency within the above tolerance. The dead load deflection of the beams alone is calculated to be 0" for spans 1 & 4 and 3/16" for spans 2 & 3.

Steel in anchor bolts may be ASTM A-307

Field Paint for Structural Steel is to be Gray-Blue. (See Supplemental Specifications)

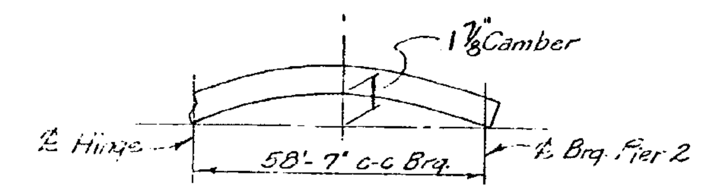
Utility Provisions: See sheet #103 for utility provisions (Consumers Power Co., Detroit Edison Co., Mich. Bell Telephone Co.).

All beams and cover plates shall conform to the requirements for welding (A.S.T.M. A36-62T).

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

~~A36~~	=	~~327,600 #~~
~~Lead~~	=	~~300 #~~
~~Bronze~~	=	~~100 #~~
~~Total~~	=	~~328,000 #~~

~~Structural Steel - Furnishing & Fabricating~~	~~328000#~~
~~Structural Steel - Erection~~	~~328,000#~~
~~Field Painting~~	~~Lump Sum~~
~~Wear Developers~~	~~Lump Sum~~



CAMBER DIAGRAM
SPANS 2 & 3

Note: This camber is to be measured with the beam lying on its side.

Work this sheet with sheet nos. 112, 113, 115, 116 and 117.

STRUCTURAL STEEL DETAILS

S31 of 63174B

NOTE:
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MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174.	48404A	MAHDAVI	9 OF 20

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 9

DRAWN BY: INDER DATE: 01-13-99 CHECKED BY: DATE: CORRECTED BY: DATE:

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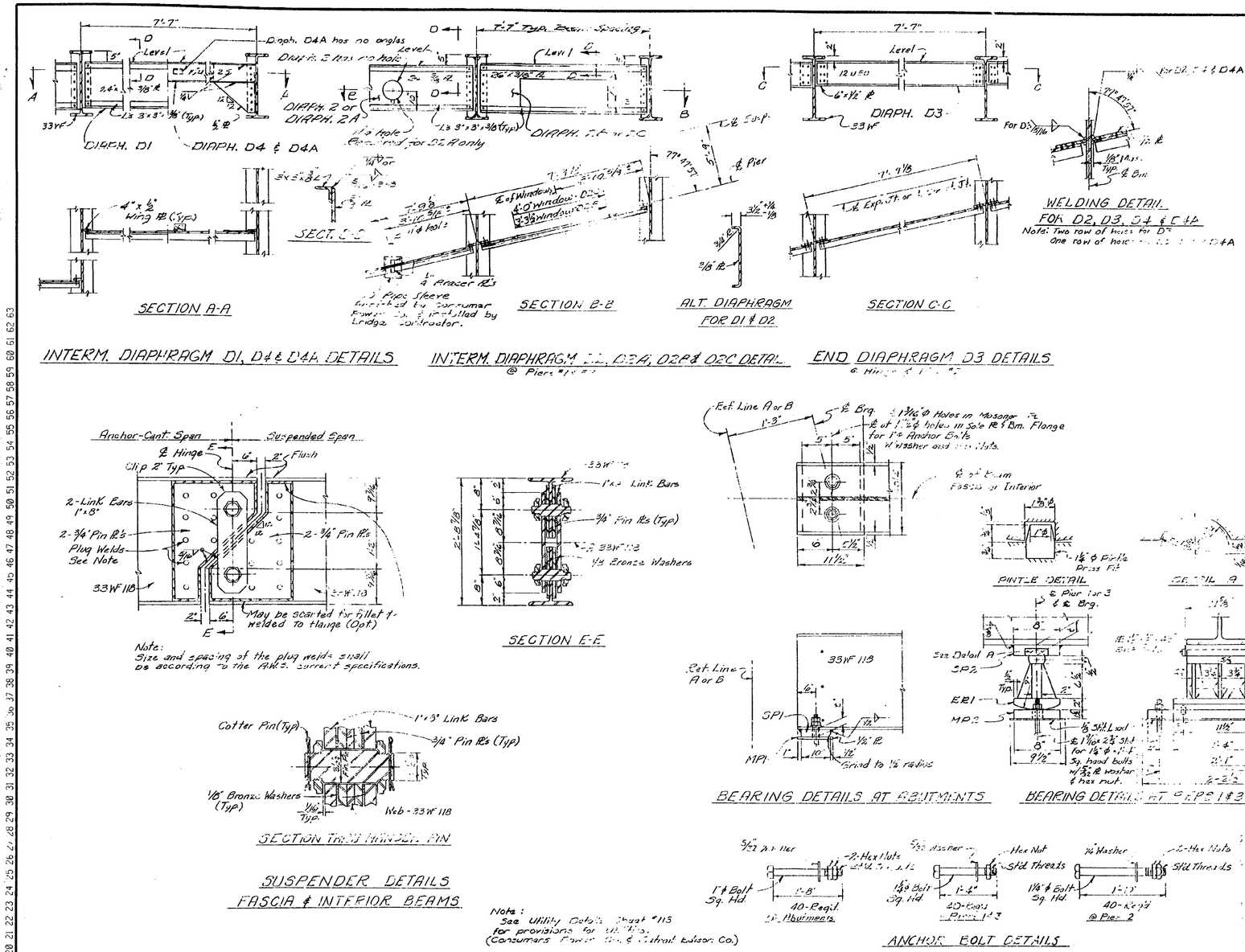

SOLE PLATE THICKNESS TABLE							
	BEAM	TYPE	t		BEAM	TYPE	t
Abutment A	A	SP1	2"	Pier 2 - Span 3	A	SP3	2"
	B	"	2"		B	"	2"
	C	"	4½"		C	"	4½"
	D	"	2"		D	"	2"
	E	"	3¼"		E	"	3"
	F	"	3¼"		F	"	3"
	G	"	2½"		G	"	2"
	H	"	4"		H	"	4½"
	J	"	2"		J	"	2"
	K	"	2"		K	"	2"
Pier 1	A	SP2	2½"	Pier 3	A	SP2	3½"
	B	"	2½"		B	"	3½"
	C	"	5⅛"		C	"	5⅜"
	D	"	2½"		D	"	2⅜"
	E	"	3½"		E	"	3⅜"
	F	"	3⅜"		F	"	3½"
	G	"	2⅜"		G	"	2½"
	H	"	5⅜"		H	"	5⅛"
	J	"	3½"		J	"	2½"
	K	"	3½"		K	"	2½"
Pier 2 - Span 2	A	SP3	2"	Abutment B	A	SP1	2"
	B	"	2"		B	"	2"
	C	"	4½"		C	"	4"
	D	"	2"		D	"	2½"
	E	"	3"		E	"	3¼"
	F	"	3"		F	"	3¼"
	G	"	2"		G	"	2"
	H	"	4⅛"		H	"	4⅜"
	J	"	2"		J	"	2"
	K	"	2"		K	"	2"

REVISIONS			
NO.	DESCRIPTION	DATE	BY

Note:
Size and spacing of the plug welds shall be according to the AWS. current specifications.

Note:
See Utility Details Sheet #113 for provisions for Utilities. (Consumers Power Co. & Detroit Edison Co.)

Work this sheet with sheet nos. 112, 113, 114, 116 and 117.

STATE HIGHWAY COMMISSION

STRUCTURAL STEEL DETAILS

S31 of 63174B

NOTE:
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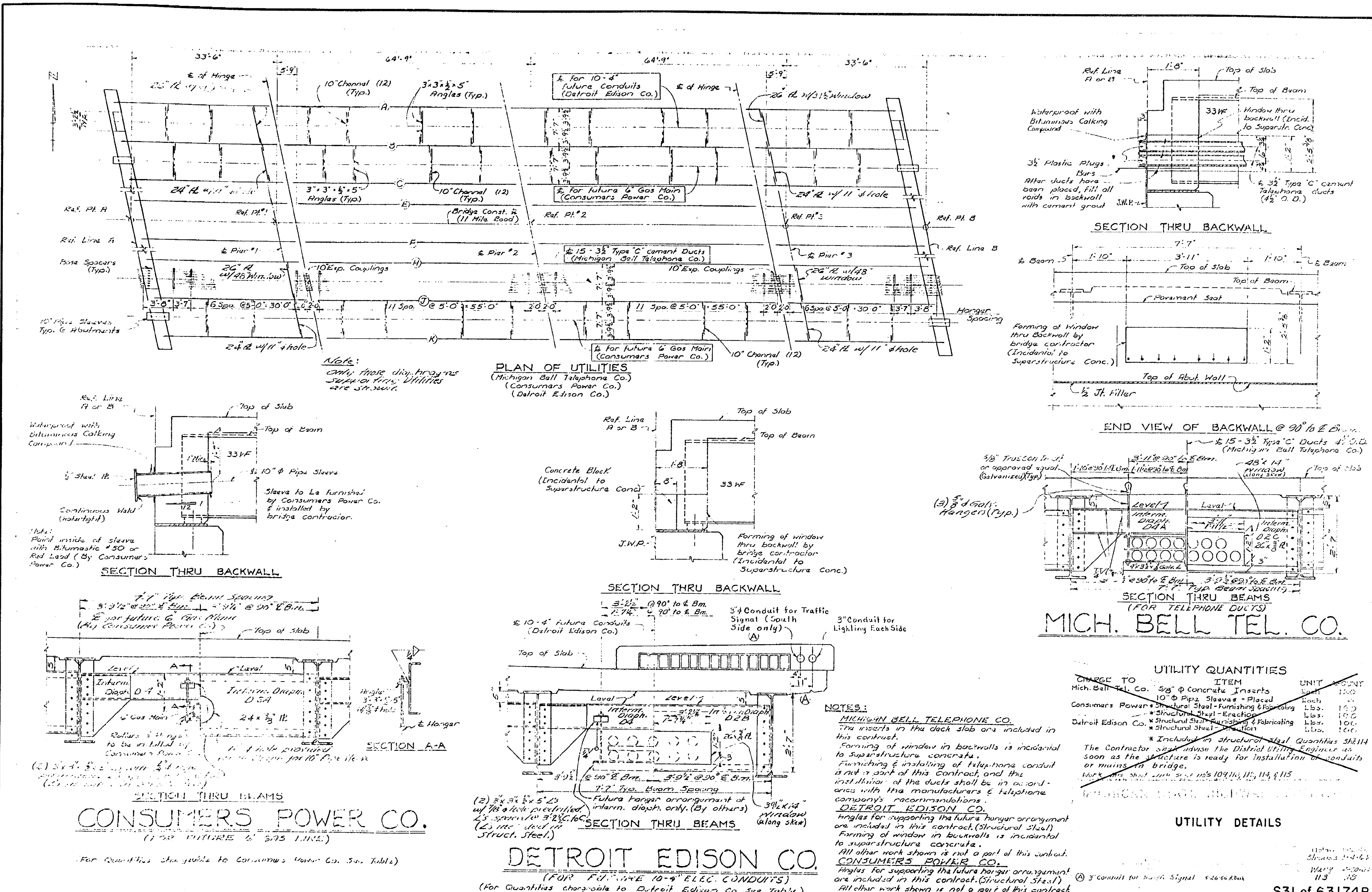
MDOT Michigan Department of Transportation

FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174.	48404A	MAHDAVI	10 OF 20

DRAWN BY: INDER CHECKED BY: DATE: 01-13-99 CORRECTED BY: DATE: FILE NAME: s316317 4.sn



NOTES:

MICHIGAN BELL TELEPHONE CO.

The inserts in the deck slab are included in this contract.

Forming of window in backwalls is incidental to superstructure concrete.

Furnishing & installing of telephone conduit is not a part of this Contract, and the installation of the ducts shall be in accordance with the manufacturers & telephone company's recommendations.

DETROIT EDISON CO.

Angles for supporting the future hanger arrangement are included in this contract. (Structural Steel)

Forming of window in backwalls is incidental to superstructure concrete.

All other work shown is not a part of this contract.

CONSUMERS POWER CO.

Angles for supporting the future hanger arrangement are included in this contract. (Structural Steel)

All other work shown is not a part of this contract.

UTILITY QUANTITIES

CHARGE TO	ITEM	UNIT	AMOUNT
Mich. Bell Tel. Co.	5/8" Φ Concrete Inserts	Each	[illegible]
	10" Φ Pipe Sleeves - Placed	Each	[illegible]
Consumers Power	* Structural Steel - Furnishing & Fabricating	Lbs.	[illegible]
	* Structural Steel - Erection	Lbs.	[illegible]
Detroit Edison Co.	* Structural Steel - Furnishing & Fabricating	Lbs.	[illegible]
	* Structural Steel - Erection	Lbs.	[illegible]

* Included in Structural Steel Quantities Sht. 114

The Contractor shall advise the District Utility Engineer as soon as the structure is ready for installation of conduits or mains in bridge.

Work this sheet with sheet no's 109, 110, 112, 114, & 115

UTILITY DETAILS

Ⓐ 3" conduit for traffic Signal 5-26-66

113 .18

S31 of 63174B

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MDOT Michigan Department of Transportation

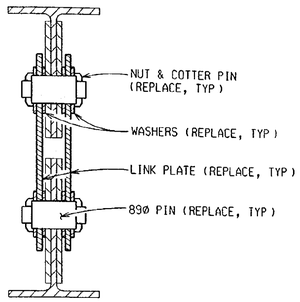
FOR INFORMATION ONLY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174.	48404A	MAHDAVI	11 OF 20

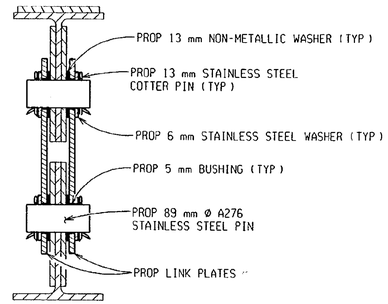
CONTROL SECTION S31 OF 63174 JOB NO. 48404A SH. NO. 11

DRAWN BY: INDER DATE: 01-13-99 CHECKED BY: DATE: CORRECTED BY: DATE:

FILE NAME: s3163174.sn



SECTION A-A
(EXISTING)



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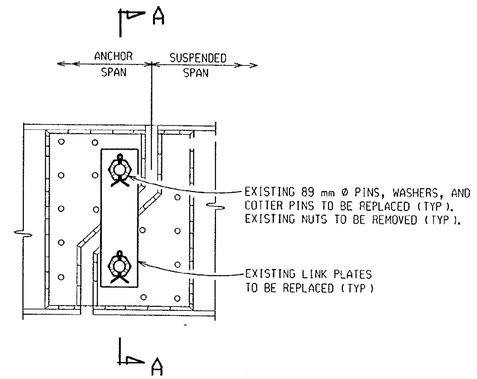
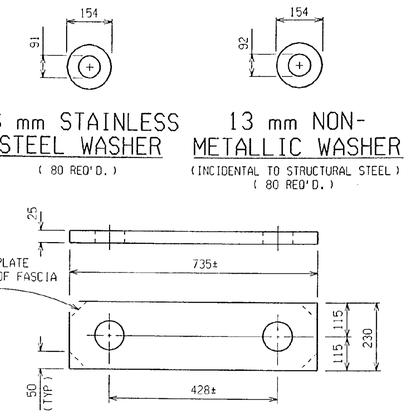
(PROPOSED)



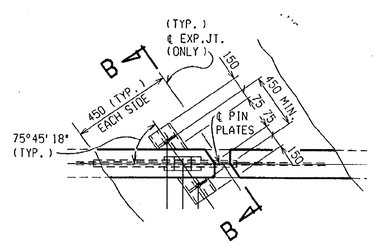
ELEVATION AT PIN



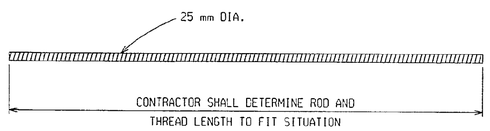
6 mm STAINLESS STEEL WASHER
(80 REQ'D.)

13 mm NON-METALLIC WASHER
(INCIDENTAL TO STRUCTURAL STEEL)
(80 REQ'D.)

LINK PLATE
(40 REQ'D.)

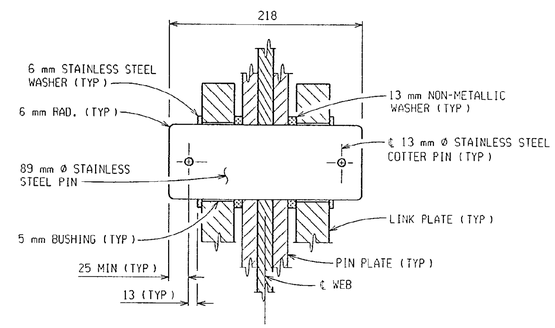


PLAN OF TEMPORARY SUPPORT

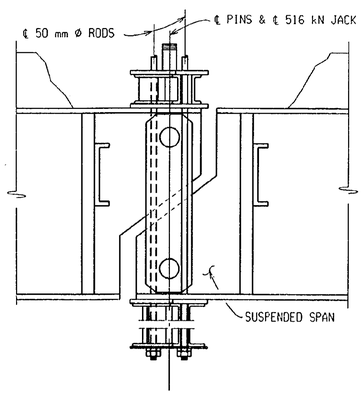


SUSPENDER ROD DETAIL

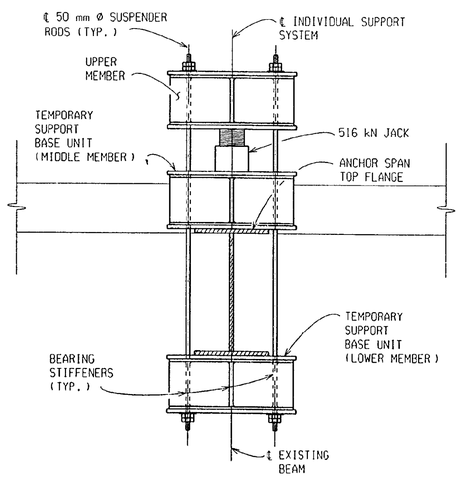
4 REQUIRED PER ASSEMBLY W/7 HEAVY HEX NUTS
& 4 HARDENED WASHER PER ROD



PROPOSED
PIN DETAIL
(40 REQ'D.)



TEMPORARY SUPPORT



DECK SECTION B-B
(TYPICAL ALL BEAMS)

MISCELLANEOUS QUANTITIES

20 ea	Support, Suspension, Temp
80 ea	Bushing
1715 kg	Structural Steel, Furn and Fab, Pin and Hanger
20 ea	Hanger Assembly, Rem and Erect
20 ea	Hanger Assembly, Field Measurement
1 LS	Field Repr of Damaged Coating (S31)
1 LS	Steel Structure, Cleaning, Type 4 (S31)
1 LS	Steel Structure, Coating, Type 4 (S31)
20 m2	Water Repellent Treatment
16 m	Beam Plate, Seal Perimeter
* 239 m	Protective Shield, Utility Pipe

* PAY ITEM IS FOR PROTECTIVE SHIELD OF THE AMERITECH DUCTS, DETROIT EDISON DUCTS, AND THE CONSUMER ENERGY GAS MAIN.

NOTES:

ALL STRUCTURAL STEEL SHALL BE FIELD PAINTED. THE AREA BEHIND AND AROUND THE HANGER ASSEMBLY SHALL BE PAINTED PRIOR TO INSTALLING THE NEW LINK PLATES AND PINS. PROPOSED LINK PLATES SHALL BE SHOP PAINTED.

WELDING ON EXISTING BEAMS WILL NOT BE PERMITTED.

THE PROTECTION OF WORK AND ENVIRONMENT DURING BLAST CLEANING OF WEBS BEHIND AND [illegible] HANGER ASSEMBLIES SHALL BE ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. (INCLUDED IN THE BID ITEM "HANGER ASSEMBLY, REMOVE AND ERECT".)

THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS OF THE EXISTING HANGER ASSEMBLIES INDICATED ON THE PLANS PRIOR TO THE PREPARATION OF LINK PLATE AND PIN SHOP DRAWINGS.

THE CONTRACTOR WILL BE FURNISHED WITH PLANS OF THE EXISTING STRUCTURE IF REQUESTED.

ALTERNATE DESIGNS OF THE TEMPORARY SUPPORT SHALL BE BASED ON LOADS AS FOLLOWS:

516 kN VERTICAL GIRDER LOAD.

THIS BRIDGE IS COATED WITH LEAD BASED PAINT.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

THE COLOR FOR THE URETHANE PROTECTIVE COAT SHALL MATCH COLOR NUMBER 16440 (LIGHT GRAY) OF FEDERAL STANDARD NUMBER 595A.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE ENGINEER, STRUCTURES AND ROAD MAINTENANCE OF THE MAINTENANCE DIVISION IN LANSING.

THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE PAINTED IS 1700 SQUARE METERS.

SEALANT SHALL BE APPLIED AROUND THE PERIMETER OF BEARING PLATE TO CONCRETE CONTACT SURFACES AFTER CUTTING AWAY ANY PROTRUDING PORTION OF THE LEAD PLATE AT PIER 2 ONLY.

THE TOP OF PIER 2 SHALL BE GIVEN AN APPLICATION OF PENETRATING WATER REPELLENT TREATMENT.

THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES. (INCLUDED IN THE BID ITEM "STEEL STRUCTURE, COATING, TYPE 4 (S31)".)

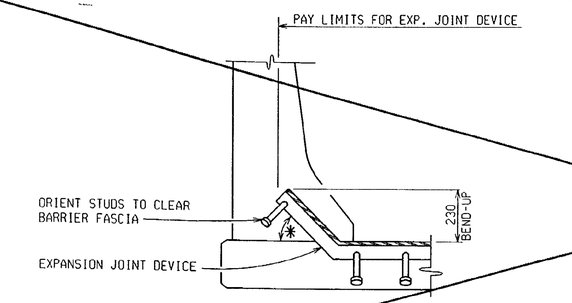
REVISIONS			
NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

SUSPENDER REPLACEMENT DETAILS

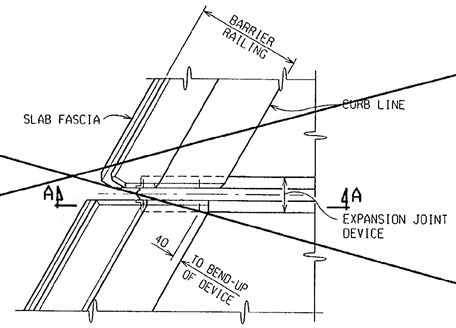
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	12 OF 20

DATE: 7-26-99 CORRECTED BY: CASLER
DATE: CHECKED BY:
DATE: 4-30-99
DRAWN BY: CASLER
FILE NAME: s3163174.pr



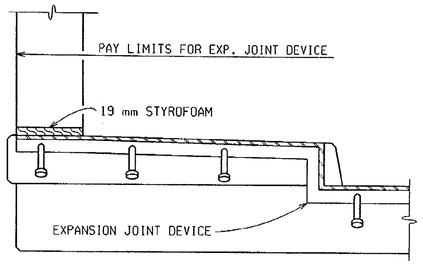
SECTION A-A

* FOR ANGLES OF CROSSING FROM 90° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG ℄ EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.

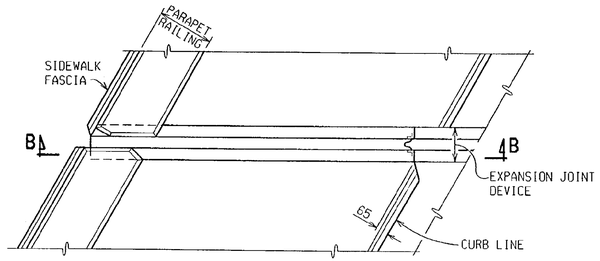


PLAN AT BARRIER RAILING

BARRIER TREATMENT



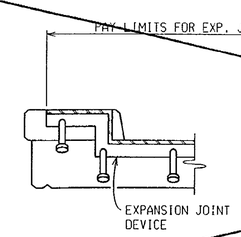
SECTION B-B



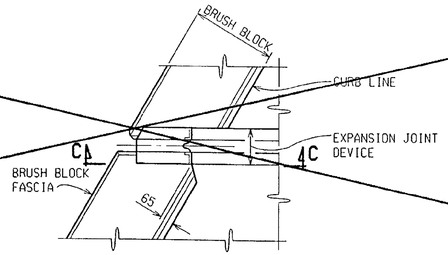
PLAN AT PARAPET RAILING

(DETAILS ARE SIMILAR FOR BRIDGE RAILING, 5 TUBE)

SIDEWALK TREATMENT



SECTION C-C



PLAN AT BRIDGE RAILING, 2 TUBE

BRUSH BLOCK TREATMENT

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE
S31	80	PIER 1	28 mm	23.3 m
S31	80	PIER 2	15 mm	23.3 m
S31	80	PIER 3	28 mm	23.4 m

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NOTES:

JOINT TYPES:

THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
ONFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRUFCO 400L	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-S-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

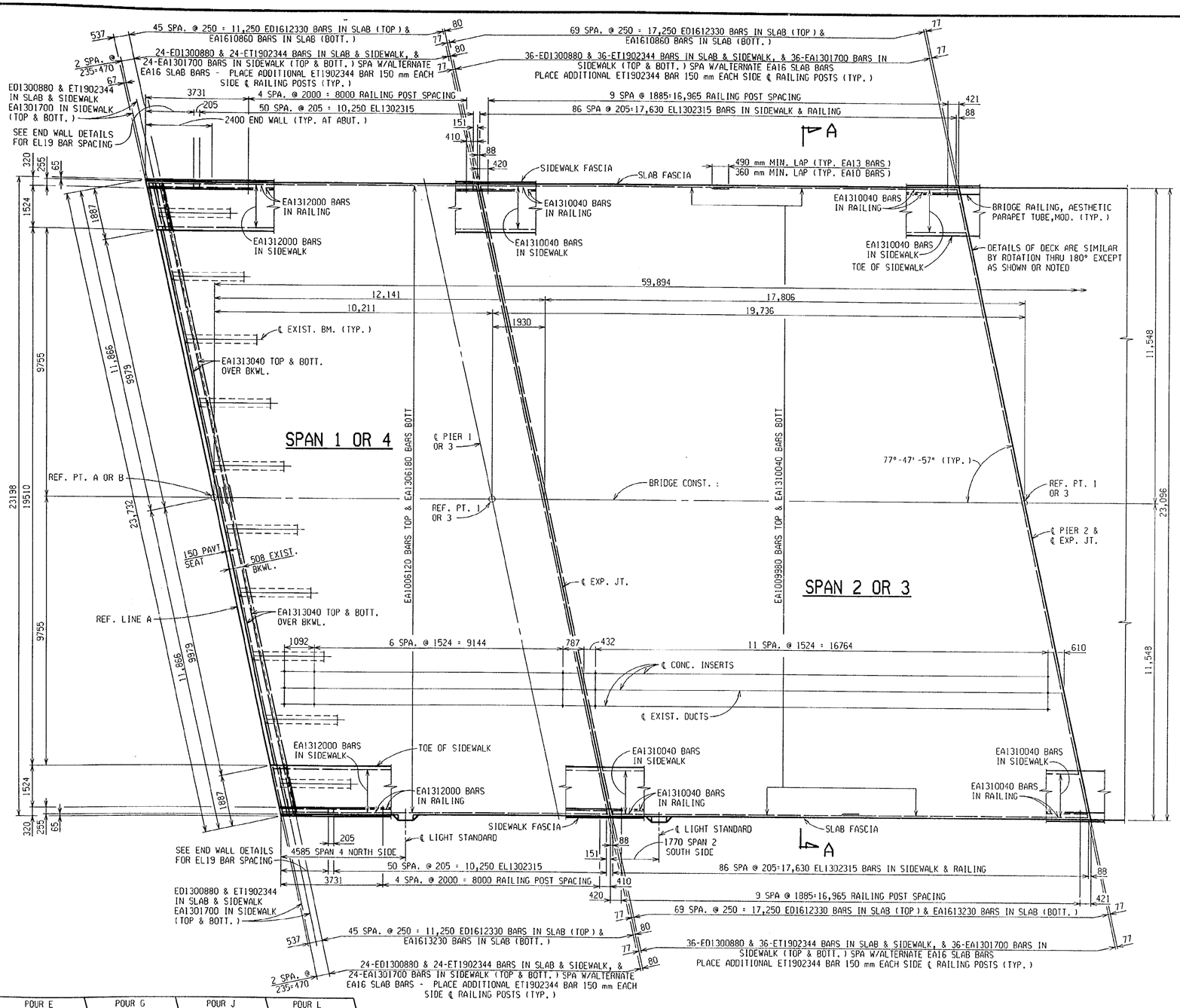
QUANTITY		
ITEM	UNIT	AMOUNT
EXPANSION JOINT DEVICE	m	70

MICHIGAN DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	13 OF 20

EJ3T (11-17-97)



PLAN

ADJUST REINFORCEMENT TO PERMIT PLACEMEMT OF RAILING & FENCE POST ANCHORAGES & LIGHT STANDARDS.

POUR E	POUR G	POUR J	POUR L
POUR A	POUR B	POUR C	POUR D
POUR F	POUR H	POUR K	POUR M

POUR DIAGRAM

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SUPERSTRUCTURE CONCRETE NIGHT CASTING QUANTITIES

POUR	CUBIC METERS
A	65
B	105
C	105
D	65
TOTAL CONC:340	CUBIC METERS

SUPERSTRUCTURE CONCRETE QUANTITIES

POUR	CUBIC METERS
E	5
F	5
G	7
H	7
J	7
K	7
L	5
M	5
TOTAL CONC:	48 CUBIC METERS

MISCELLANEOUS QUANTITIES

120 m	Bridge Railing, Aesthetic Parapet Tube, Modified
22 m2	Joint Waterproofing
194 m2	Top Flanges and Beam Ends, Clean and Prime
50 m3	Superstructure Conc
1 LS	Superstructure Conc, Form, Finish, and Cure (S31)
340 m3	Superstructure Conc, Night Casting
1 LS	Superstructure Conc, Form, Finish, and Cure, Night Casting (S31)
1 LS	Shear Developers (S31)
1 LS	Bridge Lighting, Furnish and Remove (S31)
340 m3	Bridge Lighting, Operate and Maintain
240 m	Conduit, 75 mm
338 m2	Conc Surface Sealer
120 ea	Conc Insert, Placed

NOTES:

N.S. DENOTES NEAR SIDE.

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL AND NAME PLATE MOUNTING DETAILS, SEE STANDARD PLAN B-25-SERIES. FOR DETAILS OF NAME PLATES, MOLDINGS AND BEVELS, SEE STANDARD PLAN B-103-SERIES.

BRIDGE RAILING, AESTHETIC PARAPET TUBE, MODIFIED SHALL BE IN ACCORDANCE WITH THE STANDARD PLAN B-25 EXCEPT FOR THE ADDITION OF FRACTURE FIN RUSTIFICATION ON THE BACK SIDE OF THE RAILING AS DETAILED ON THE PLANS.

FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE SHEET .

FOR DETAILS OF LIGHT STANDARD ANCHOR BOLT ASSEMBLIES, SEE STANDARD PLAN B-103-SERIES.

"EDGE" OR "GROOVE" DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

ALPHABETICAL DESIGNATION OF DECK POURS IS NOT TO BE CONSTRUED AS A POUR SEQUENCE.

NO PORTION OF THE DECK FORMWORK SHALL ENCROACH ON THE EXISTING UNDERCLEARANCE.

THE UTILITY COMPANY SHALL BE NOTIFIED ONE WEEK IN ADVANCE OF THE TIME OF INSTALLATION OF THE DUCTS IN THE SIDEWALK.

WHERE CAST-IN-ANCHORAGE IS USED FOR EXPANSION JOINT DEVICES, IT IS RECOMMENDED THAT THE PLACING OF DECK CONCRETE PROGRESS TOWARD THE JOINT SO THAT THE EFFECTS OF DEAD LOAD DEFLECTION WILL OCCUR BEFORE CONCRETE IS PLACED AT THE ANCHORAGE.

THE LIGHT STANDARD ANCHOR BOLT ASSEMBLIES ARE INCLUDED IN THE PAYMENT FOR "BRIDGE RAILING, AESTHETIC PARAPET TUBE, MODIFIED".

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03 J OF THE STANDARD SPECIFICATIONS.

METAL STAY IN PLACE FORMS ARE OPTIONAL.

IF STAY IN PLACE METAL FORMS ARE TO BE USED,THE CONTRACTOR MAY OMIT THE STYROFOAM FROM THE CORRUGATIONS AND FILL THE FORMS FULL DEPTH. THE EXTRA CONCRETE REQUIRED TO FILL THE CORRUGATIONS WILL NOT BE PAID FOR.

ALL CONCRETE SURFACES OF THE BRIDGE RAILING, THE DECK FASCIAS,AND THE OUTSIDE BOTTOM OF DECK TO FASCIA BEAMS SHALL BE COATED WITH CONCRETE SURFACE SEALER (SEE SPECIAL PROVISION.

CONCRETE INSERTS SHALL BE FURNISHED BY AMERITECH AND INSTALLED BY THE CONTRACTOR. ALL MATERIAL NECESSARY FOR REINSTALLATION OF THE DUCTS SHALL BE PROVIDED BY THE UTILITY COMPANY.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE INSERTS PRIOR TO INSTALLING THE INSERTS IN THE DECK (SEE SHEET # 11 FOR INFORMATION).

MDOT Michigan Department of Transportation

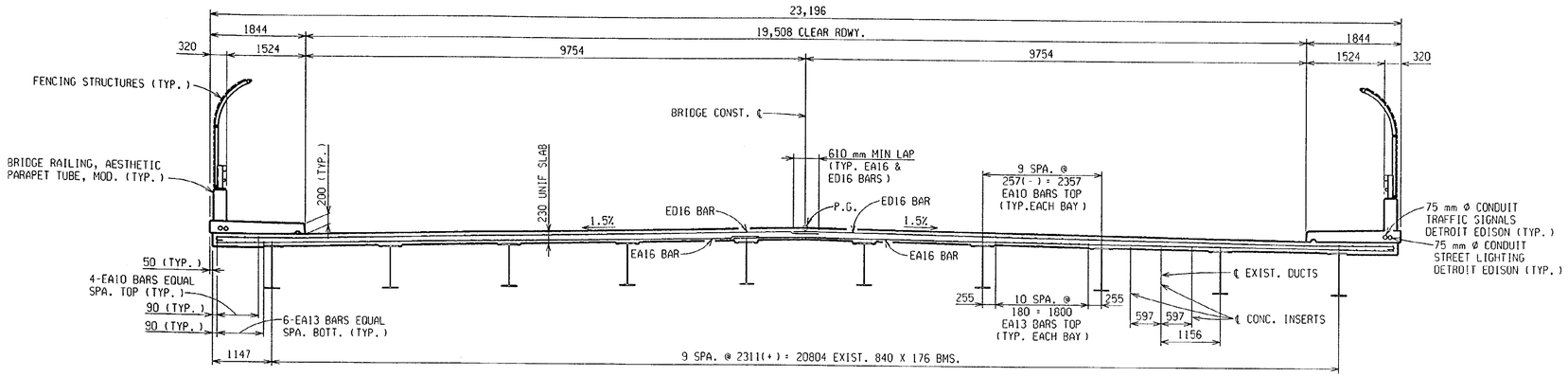
SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	14 OF 20

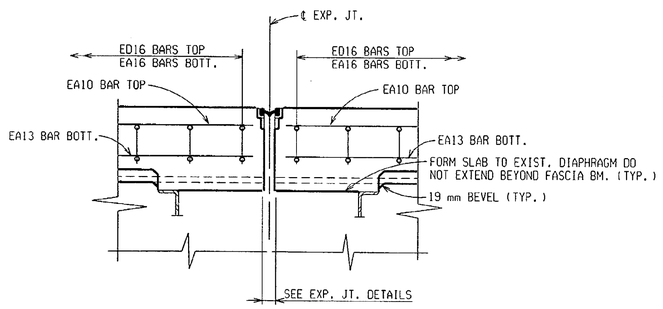
DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 9-16-99 DRAWN BY: CASLER FILE NAME: s3163174.dk

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 15

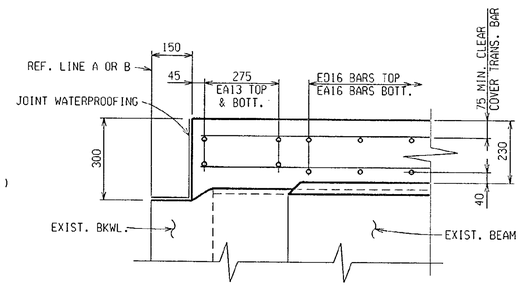
REVISIONS			
NO.	DESCRIPTION	DATE	BY



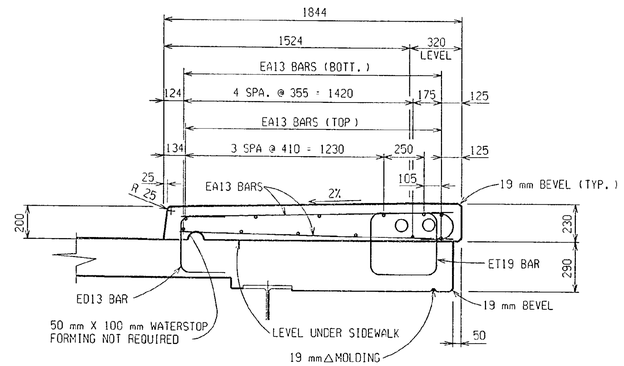
SECTION A-A



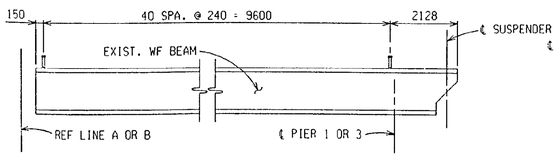
SECTION THRU EXPANSION JOINT



SECTION THRU BACKWALL

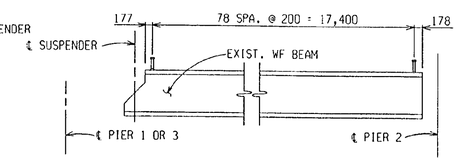


SECTION THRU SIDEWALK



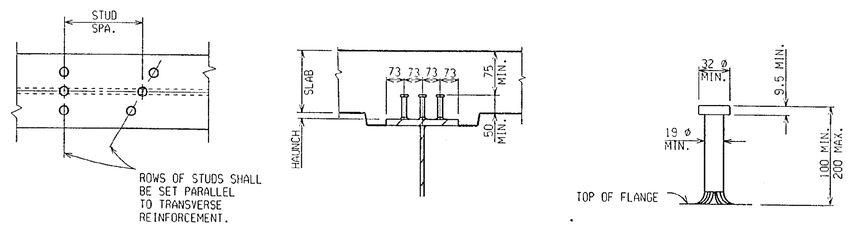
BEAM ELEVATION SPAN 1 OR 3

SHOWING STUD SPACING



BEAM ELEVATION SPAN 2 OR 4

SHOWING STUD SPACING



PLAN

SECTION

STUD DETAIL

STUD SHEAR DEVELOPER DETAILS

MDOT Michigan Department of Transportation

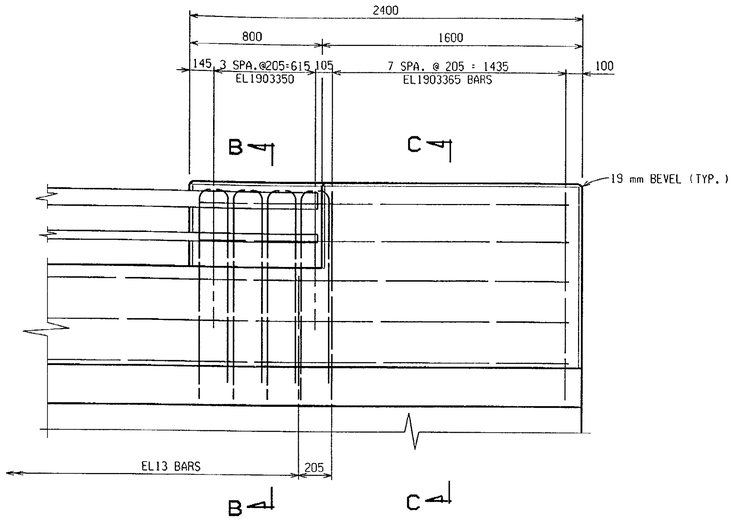
SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	15 OF 20

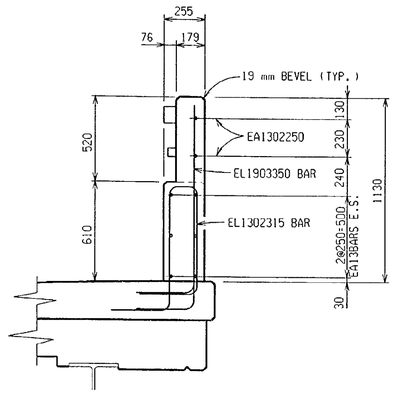
DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 9-17-99 | DRAWN BY: CASLER | FILE NAME: s3163174.dk

CONTROL SECTION S31 OF 63174 | JOB NO. 48404A | SH. NO. 16

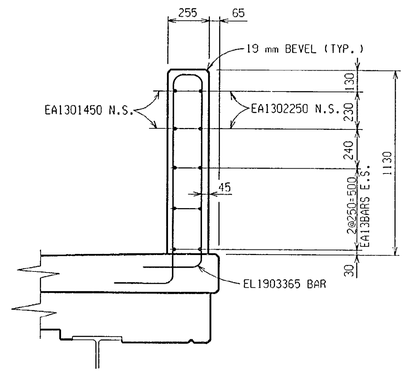
REVISIONS			
NO.	DESCRIPTION	DATE	BY



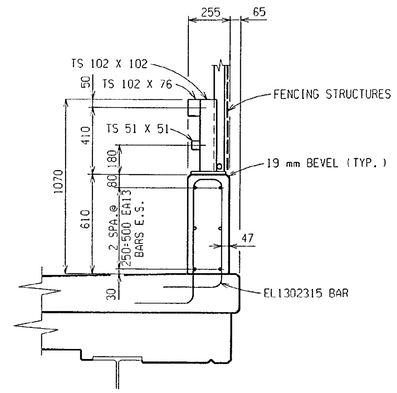
END WALL ELEVATION



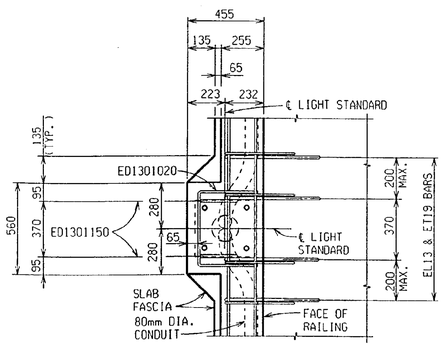
SECTION B-B



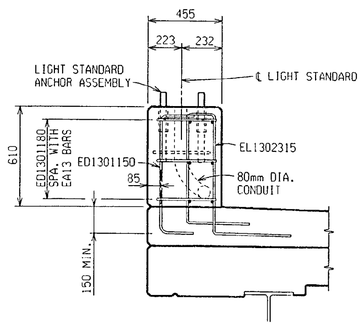
SECTION C-C



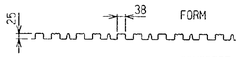
SECTION THRU AESTHETIC RAILING



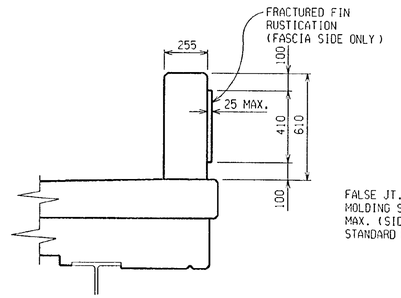
PLAN OF RAILING AT LIGHT STANDARD



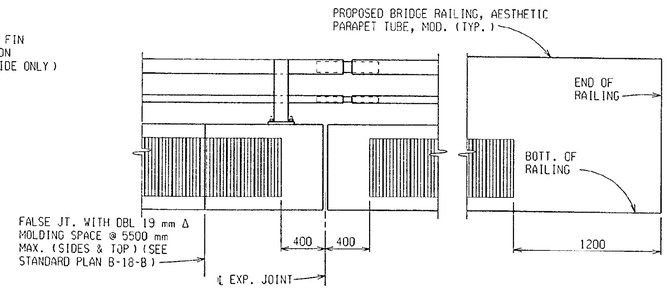
SECTION THRU RAILING AT LIGHT STANDARD



FRACTURED FIN FORM LINER DETAIL



TYPICAL RAILING SECTION SHOWING RUSTICATION



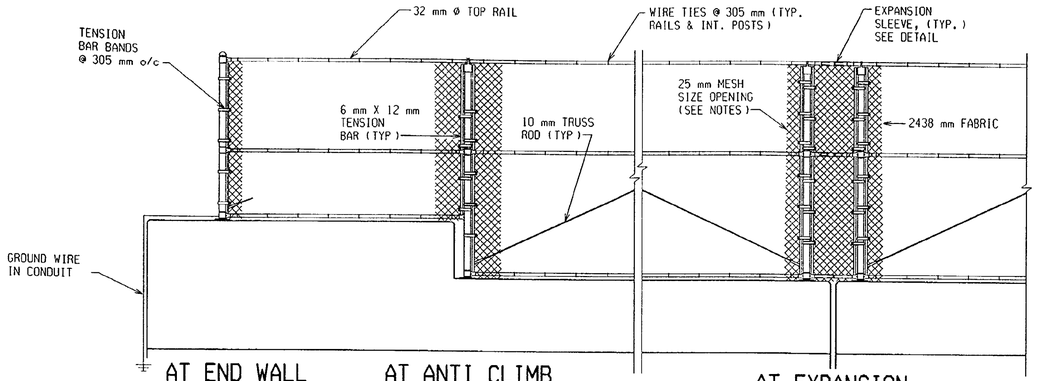
RAILING ELEVATION
LATERAL LIMITS OF RUSTICATION

MDOT Michigan Department of Transportation

SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	16 OF 20

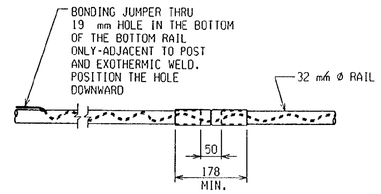
DATE: | CORRECTED BY: | DATE: | CHECKED BY: | DATE: 9-16-99 | DRAWN BY: CASLER | FILE NAME: s3163174.dk



AT END WALL

AT ANTI CLIMB SHIELD

AT EXPANSION JOINT

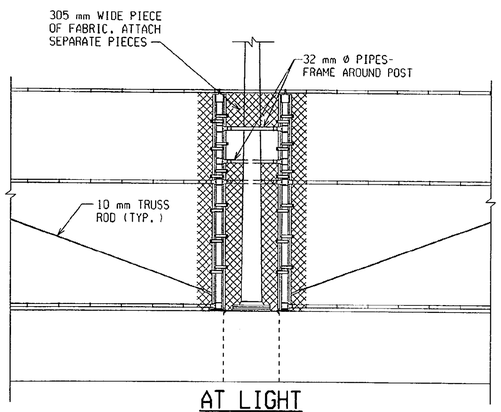


EXPANSION SLEEVE DETAIL

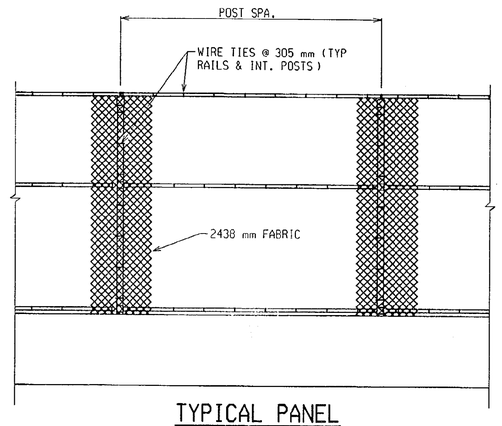
REVISIONS			
NO.	DESCRIPTION	DATE	BY

MISCELLANEOUS QUANTITIES

292 m2	Fencing, Structures
1 ea	Elec Grounding System

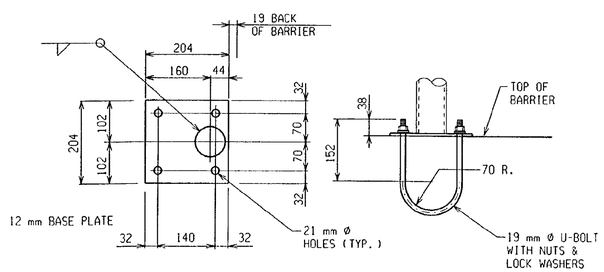


AT LIGHT STANDARD

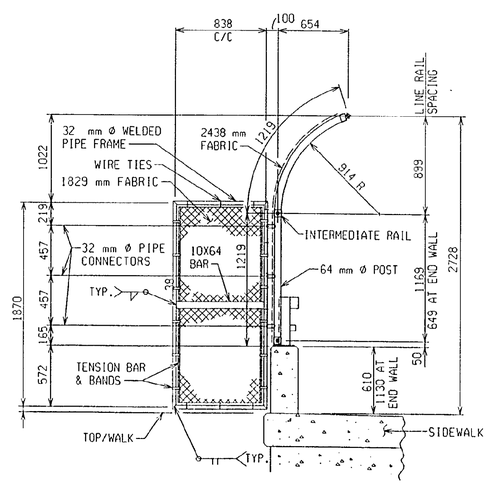


TYPICAL PANEL

TYPICAL ELEVATIONS



BASE PLATE DETAILS



TYPICAL SECTION

(SHOWING ANTI-CLIMB SHIELD)

NOTES:

ALL FENCE POSTS SHALL BE 64 NOMINAL, (73 O.D.) PIPE AND ANTI-CLIMB SHIELD PIPE FRAMES SHALL BE 32 NOMINAL, (42 O.D.) PIPE, IN CONFORMANCE WITH ASTM F669, CLASS 1C.

HORIZONTAL RAILS SHALL BE 32 NOMINAL (42 O.D.) PIPE IN CONFORMANCE WITH ASTM F669, CLASS 1C OR ASTM F1083.

ALL FENCE COMPONENTS, UNLESS OTHERWISE INDICATED, SHALL BE GALVANIZED IN ACCORDANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

ALL POSTS, ANTI-CLIMB SHIELDS OR OTHER COMPONENTS TO BE FABRICATED SHALL BE FURNISHED "BLACK" AND THEN GALVANIZED AFTER FABRICATION.

DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN CONFORMANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

FENCE FABRIC SHALL BE #9 GAGE MESH AND BE GALVANIZED OR ALUMINUM COATED IN CONFORMANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION. MESH SIZE OPENING SHALL BE 25 mm.

GALVANIZED 10 mm Ø TRUSS RODS SHALL EXTEND DIAGONALLY FROM THE TOP CONNECTION CLIP AT EACH TENSION BAR TO THE ADJACENT POST, EXCEPT ACROSS EXPANSION JOINTS AND AT LIGHT STANDARDS WITH A CURVED FENCE DETAIL, WHEN THERE ARE TWO OR MORE CONTINUOUS PANELS OF FABRIC.

ALL POSTS SHALL BE INSTALLED PLUMB AND MAY BE SHIMMED WITH NON-METALLIC SHIMS, APPROVED BY THE ENGINEER. COSTS FOR SHIMMING SHALL BE INCLUDED IN THE PAY ITEM "FENCING, STRUCTURES".

BOTTOM STRAP ON THE VERTICAL POST SHALL BE CONNECTED WITH RAIL ENDS (BRACE BANDS) RATHER THAN A TWO WAY CLAMP TO ALLOW A MINIMUM OF 7 mm OFFSET.

FIELD WELDING SHALL BE ALLOWED ONLY FOR THE HANDRAIL SPLICES AND FOR ATTACHMENT OF THE HANDRAIL TO THE POST. ALL FIELD WELDS SHALL BE GROUND SMOOTH PRIOR TO COATING WITH ZINC-RICH PAINT OR SPRAYED ZINC IN ACCORDANCE WITH MDOT'S CURRENT STANDARD SPECIFICATIONS.

THE GROUND WIRE SHALL BE PLACED IN A NON-METALLIC CONDUIT, FROM THE END POST CONNECTION TO THE GROUND ROD CONNECTION. THE CONDUIT SHALL BE SECURED TO THE STRUCTURE USING EITHER EXPANSION BOLTS OR ADHESIVE ANCHORED BOLTS WITH GALVANIZED METAL STRIPS, AS APPROVED BY THE ENGINEER.

IN THE EVENT THAT INSTALLATION OF A GROUND ROD IS IMPRACTICAL, THE GROUND WIRE SHALL BE CONNECTED TO THE NEAREST LIGHT STANDARD, USING A MECHANICAL CLIP, ONLY AFTER OBTAINING PERMISSION FROM THE LOCAL PUBLIC LIGHTING AUTHORITY.

EXPANSION JOINT SLEEVES, FOR HORIZONTAL RAILS, SHALL BE THE MANUFACTURER'S STANDARD OVERSIZED SLEEVES, CRIMPED IN THE MIDDLE.

ALL DIMENSIONS ARE IN MILLIMETERS.

FENCE FABRIC SHALL BE CONTINUOS AT LIGHT POLE, BUT MAY BE CUT AND SPLICED. REINFORCE OPENING IN THE FABRIC AT POSTS WITH #6 GAUGE WIRE.

GROUNDING CABLES AND TOPS OF GROUNDING RODS SHALL BE PLACED 300 mm MINIMUM BELOW FINISHED GROUND.

MDOT Michigan Department of Transportation

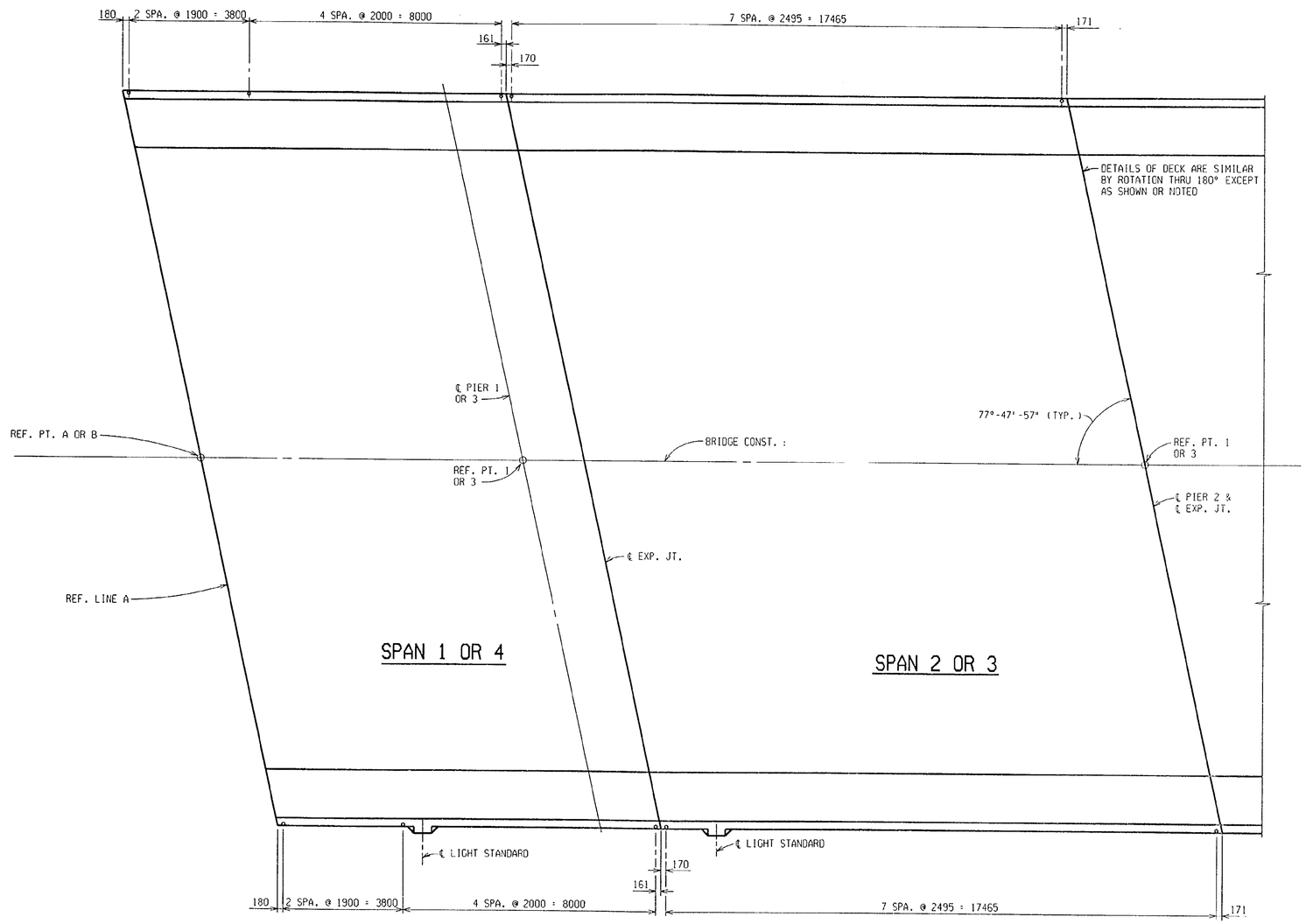
FENCING DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	17 OF 20

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: 9-17-99 DRAWN BY: CASLER FILE NAME: s3063174.fe

CONTROL SECTION S31 OF 63174 JOB NO. 48404A SH. NO. 18

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN
(SHOWING FENCE POST SPACING)

MDOT Michigan Department of Transportation

FENCING DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	18 OF 20

DATE: CORRECTED BY: DATE: 9-17-99 CHECKED BY: DRAWN BY: CASLER FILE NAME: s3163174.fe

CONTROL SECTION S31 OF 63174 JOB NO. 48404A SH. NO. 19

REVISIONS			
NO.	DESCRIPTION	DATE	BY

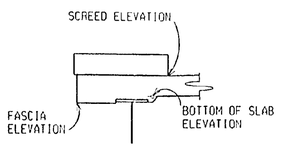
BOTTOM OF SLAB ELEVATIONS

REF.A — SPAN 1 — REF.1 — SPAN 2 — REF.2 — SPAN 3 — REF.3 — SPAN 4 — REF.B

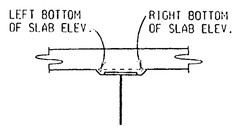
		0	1	2	3	℄ BRG 4	℄ P&H 0	1	2	3	4	5	℄ BRG 6	0	1	2	3	4	5	℄ P&H 6	℄ BRG 0	1	2	3	4
A	FASCIA	193.887	193.912	193.933	193.951	193.966	193.986	194.017	194.042	194.057	194.062	194.057	194.046	194.046	194.061	194.070	194.069	194.058	194.038	194.010	193.993	193.982	193.967	193.949	193.927
	RIGHT	193.951	193.976	193.997	194.015	194.030	194.043	194.075	194.100	194.115	194.120	194.115	194.104	194.104	194.119	194.128	194.127	194.116	194.095	194.068	194.057	194.045	194.031	194.013	193.991
B	LEFT	193.977	194.002	194.023	194.040	194.055	194.068	194.099	194.123	194.138	194.142	194.137	194.125	194.126	194.141	194.149	194.147	194.136	194.115	194.087	194.076	194.064	194.049	194.030	194.009
	RIGHT	193.984	194.008	194.029	194.047	194.061	194.075	194.106	194.130	194.145	194.149	194.144	194.132	194.132	194.147	194.155	194.154	194.143	194.122	194.094	194.082	194.071	194.056	194.037	194.015
C	LEFT	194.017	194.041	194.061	194.079	194.092	194.106	194.136	194.160	194.174	194.178	194.173	194.160	194.160	194.175	194.183	194.181	194.169	194.148	194.119	194.108	194.096	194.080	194.061	194.039
	RIGHT	194.023	194.047	194.068	194.085	194.099	194.112	194.143	194.167	194.181	194.185	194.179	194.167	194.167	194.182	194.189	194.188	194.176	194.154	194.126	194.114	194.102	194.087	194.068	194.046
D	LEFT	194.056	194.080	194.100	194.117	194.130	194.143	194.173	194.197	194.210	194.214	194.208	194.195	194.195	194.209	194.217	194.214	194.202	194.180	194.151	194.139	194.127	194.111	194.092	194.069
	RIGHT	194.062	194.086	194.107	194.123	194.137	194.150	194.180	194.203	194.217	194.221	194.215	194.202	194.202	194.216	194.223	194.221	194.209	194.187	194.158	194.146	194.134	194.118	194.099	194.076
E	LEFT	194.095	194.118	194.139	194.155	194.168	194.181	194.210	194.233	194.247	194.250	194.243	194.230	194.230	194.244	194.250	194.248	194.235	194.213	194.183	194.171	194.158	194.142	194.123	194.100
	RIGHT	194.102	194.125	194.145	194.162	194.175	194.187	194.217	194.240	194.253	194.256	194.250	194.237	194.237	194.250	194.257	194.255	194.242	194.219	194.190	194.178	194.165	194.149	194.129	194.106
F	LEFT	194.106	194.129	194.149	194.165	194.178	194.190	194.219	194.242	194.255	194.257	194.250	194.237	194.237	194.250	194.256	194.253	194.240	194.217	194.187	194.175	194.162	194.145	194.125	194.102
	RIGHT	194.100	194.123	194.142	194.158	194.171	194.183	194.213	194.235	194.248	194.250	194.244	194.230	194.230	194.243	194.250	194.247	194.233	194.210	194.181	194.168	194.155	194.139	194.118	194.095
G	LEFT	194.076	194.099	194.118	194.134	194.146	194.158	194.187	194.209	194.221	194.223	194.216	194.202	194.202	194.215	194.221	194.217	194.203	194.180	194.150	194.137	194.123	194.107	194.086	194.062
	RIGHT	194.069	194.092	194.111	194.127	194.139	194.151	194.180	194.202	194.214	194.217	194.209	194.195	194.195	194.208	194.214	194.210	194.197	194.173	194.143	194.130	194.117	194.100	194.080	194.056
H	LEFT	194.046	194.068	194.087	194.102	194.114	194.126	194.154	194.176	194.188	194.189	194.182	194.167	194.167	194.179	194.185	194.181	194.167	194.143	194.112	194.099	194.085	194.068	194.047	194.023
	RIGHT	194.039	194.061	194.080	194.096	194.108	194.119	194.148	194.169	194.181	194.183	194.175	194.160	194.160	194.173	194.178	194.174	194.160	194.136	194.106	194.092	194.079	194.061	194.041	194.017
J	LEFT	194.015	194.037	194.056	194.071	194.082	194.094	194.122	194.143	194.154	194.155	194.147	194.132	194.132	194.144	194.149	194.145	194.130	194.106	194.075	194.061	194.047	194.029	194.008	193.984
	RIGHT	194.009	194.030	194.049	194.064	194.076	194.087	194.115	194.136	194.147	194.149	194.141	194.126	194.125	194.137	194.142	194.138	194.123	194.099	194.068	194.055	194.040	194.023	194.002	193.977
K	LEFT	193.991	194.013	194.031	194.045	194.057	194.068	194.095	194.116	194.127	194.128	194.119	194.104	194.104	194.115	194.120	194.115	194.100	194.075	194.043	194.030	194.015	193.997	193.976	193.951
	FASCIA	193.927	193.949	193.967	193.982	193.993	194.010	194.038	194.058	194.069	194.070	194.061	194.046	194.046	194.057	194.062	194.057	194.042	194.017	193.986	193.966	193.951	193.933	193.912	193.887

SCREED ELEVATIONS

LEFT	194.182	194.206	194.228	194.246	194.260	194.274	194.303	194.326	194.341	194.346	194.343	194.334	194.334	194.347	194.354	194.352	194.342	194.323	194.297	194.286	194.274	194.259	194.241	194.220
CENTER	194.348	194.371	194.391	194.407	194.420	194.433	194.460	194.481	194.494	194.497	194.492	194.481	194.481	194.492	194.497	194.494	194.481	194.460	194.433	194.420	194.407	194.391	194.371	194.348
RIGHT	194.220	194.241	194.259	194.274	194.286	194.297	194.323	194.342	194.352	194.354	194.347	194.334	194.334	194.343	194.346	194.341	194.326	194.303	194.274	194.260	194.246	194.228	194.206	194.182



TYPICAL FASCIA SECTION



TYPICAL INTERIOR SECTION

(LOOKING UP STATION)

BULKHEAD ELEVATIONS

	ABUT.A	℄ JT.	PIER 2	℄ JT.	ABUT.B
A	194.179	194.272	194.334	194.297	194.220
B	194.209	194.300	194.359	194.319	194.241
C	194.249	194.338	194.394	194.351	194.271
D	194.288	194.375	194.429	194.384	194.302
E	194.327	194.413	194.463	194.416	194.332
F	194.332	194.416	194.463	194.413	194.327
G	194.302	194.384	194.429	194.375	194.288
H	194.271	194.351	194.394	194.338	194.249
J	194.241	194.319	194.359	194.300	194.209
K	194.220	194.297	194.334	194.272	194.179

NOTES:

SCREED ELEVATIONS ARE BASED ON THE CONDITION THAT NO SLAB CONCRETE HAS BEEN CAST AND THAT FORMWORK, SHEAR DEVELOPERS, AND STEEL REINFORCEMENT ARE IN PLACE.

BOTTOM OF SLAB ELEVATIONS ARE AT RIGHT ANGLES TO THE BEAM CENTERLINE AND ARE BASED ON THE CONDITION THAT THE BEAMS AND DIAPHRAMS ARE COMPLETELY ERECTED WITH NO OTHER LOADS APPLIED. NO TEMPORARY SUPPORTS ARE ALLOWED AT THIS TIME. THESE ELEVATIONS INCLUDE ALLOWANCE FOR VERTICAL CURVE AND DEFLECTION DUE TO FORMS, STEEL REINFORCEMENT, CONCRETE SLAB, SIDEWALKS, RAILING AND UTILITIES.

SECTIONS FOR BOTTOM OF SLAB AND/OR SCREED ELEVATIONS ARE GIVEN ALONG BEAM CENTERLINES FROM CENTERLINE OF BEARING OR PIN & HANGER TO CENTERLINE OF BEARING OR PIN & HANGER AS APPLICABLE AT EQUAL SPACINGS.

MDOT Michigan Department of Transportation

SLAB AND SCREED DATA

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	19 OF 20

DATE: CORRECTED BY: DATE: CHECKED BY: DATE: DRAWN BY: FILE NAME: s3163174.ss

CONTROL SECTION S31 OF 63174 JOB NO. 48404A SH. NO. 20

SUPERSTRUCTURE SPAN 1

BAR	a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1006120	6120									180	617
EA1306180	6180									222	1364
EA1312000	12000									48	573
EA1312040	12040									8	96
EA1610860	10860									46	775
EA1613230	13230									46	945
EA1301700	1700									104	176
EA1302250	2250									4	9
EA1301450	1450									4	6
ED1612330	12100	97	133							92	1761
ED1300880	270	340	270							52	45
EL1302315	760	175	660	360	360	162				102	235
EL1903365	1280	185	1180	360	360	172				16	120
EL1903350	1180	170	1280	360	360		170			8	60
ET1902344	310	410	378	510	158	200				72	377

SUPERSTRUCTURE SPAN 2

BAR	a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1009980	9980									180	1006
EA1310040	10040									270	2695
EA1610860	10860									70	1180
EA1613230	13230									70	1437
EA1301700	1700									144	243
ED1612330	12100	97	133							140	2679
ED1300880	270	340	270							72	63
ED1301150	255	700	255							2	2
ED1301020	305	410	305							3	3
EL1302315	760	175	660	360	360	162				174	400
ET1902344	310	410	378	510	158	200				112	587

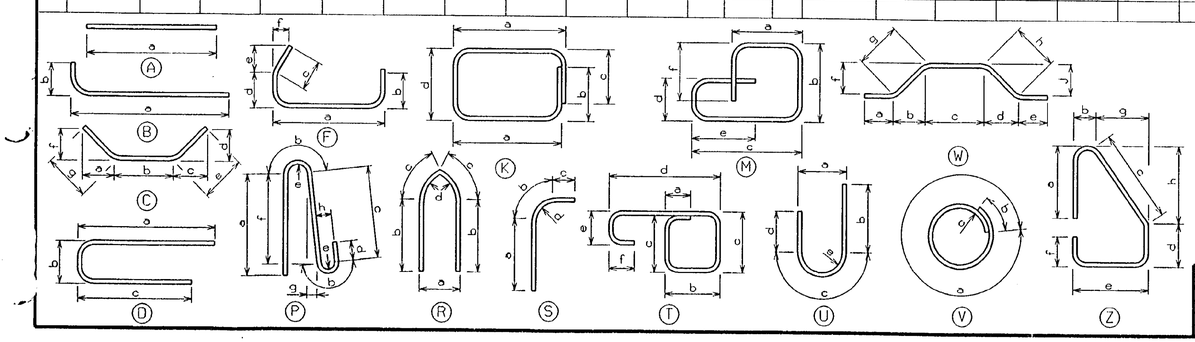
SUPERSTRUCTURE SPAN 3

BAR	a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1009980	9980									180	1006
EA1310040	10040									270	2695
EA1610860	10860									70	1180
EA1613230	13230									70	1437
EA1301700	1700									144	243
ED1612330	12100	97	133							140	2679
ED1300880	270	340	270							72	63
EL1302315	760	175	660	360	360	162				174	400
ET1902344	310	410	378	510	158	200				112	587

SUPERSTRUCTURE SPAN 4

BAR	a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.
EA1006120	6120									180	617
EA1306180	6180									222	1364
EA1312000	12000									48	573
EA1312040	12040									8	96
EA1610860	10860									46	775
EA1613230	13230									46	945
EA1301700	1700									104	176
EA1302250	2250									4	9
EA1301450	1450									4	6
ED1301150	255	700	255							2	2
ED1612330	12100	97	133							92	1761
ED1300880	270	340	270							52	45
ED1301020	305	410	305							3	3
EL1302315	760	175	660	360	360	162				102	235
EL1903365	1280	185	1180	360	360	172				16	120
EL1903350	1180	170	1280	360	360		170			8	60
ET1902344	310	410	378	510	158	200				72	377

BAR	a	b	c	d	e	f	g	h	j	NO. REQ'D	TOTAL WT.



EPOXY COATED
BAR SIZE
BAR LENGTH (mm)
EA2013000
BAR SHAPE

BAR LEGEND

MISCELLANEOUS QUANTITIES		
0	kg	REINFORCEMENT, STEEL
34908	kg	REINFORCEMENT, STEEL, EPOXY COATED

REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MDOT Michigan Department of Transportation

STEEL REINFORCEMENT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
10-13-99	S31 OF 63174	48404A	MAHDAVI	20 OF 20

DATE: CORRECTED BY: DATE: 10-11-99 CHECKED BY: DRAWN BY: INDER FILE NAME: s3163174.rs

MICROFILM CONTENT SHEET

BATCH 07-06C **OUT TO MICROFILM 6/15/2007**

Control Section	Structure	Job Number	Sheet Number	Let Date	Region	Total Sheets	Plan Set	Box
63103	S04	48404	(TWO ROLLS)	12/3/1999	METRO	163	2	1
63174		48404						
63174	P01, S02, S30, S31	48404						
			STRUCTURE ONLY					
			*AS CONSTRUCTED					
	63174-48404 AND 63103-48404 DECK REPLACEMENT, OVERLAY SUSPENDER REPLACEMENT, STEEL REPAIRS, SUBSTRUCTURE REPAIR, PAINTING, AND APPROACH WORK. S04, P01, S02, S30, S31- DECK REPLACEMENT, OVERLAY SUSPENDER REPLACEMENT, STEEL REPAIRS, SUBSTRUCTURE REPAIR, PAINTING, AND APPROACH WORK.							

W01 of 63174

CS: 63174

ID: W01

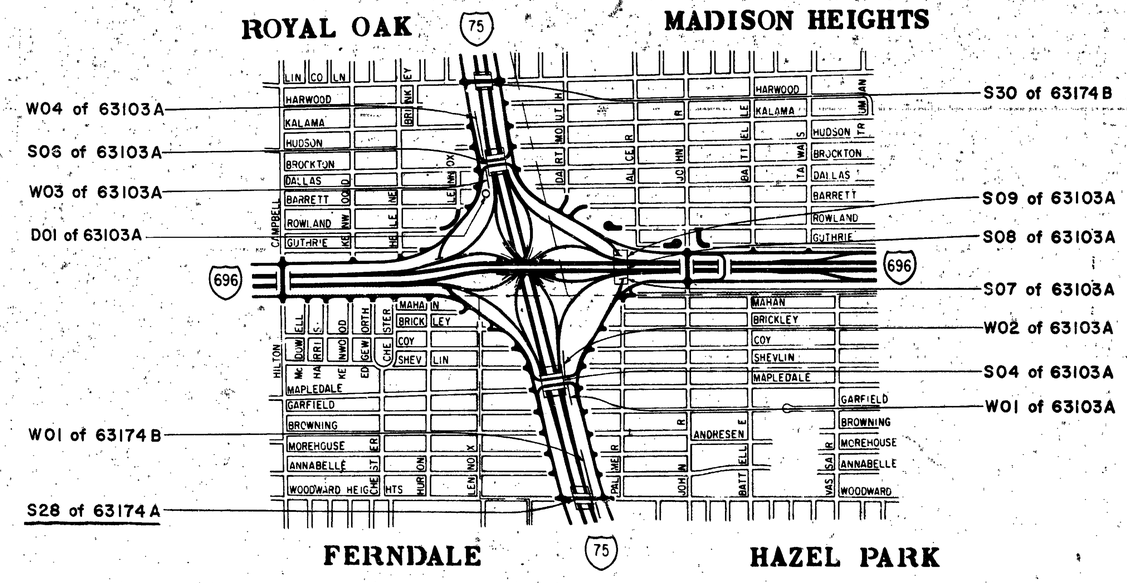
Ret Aus 6 1969

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS

PLANS OF PROPOSED BRIDGES

MICHIGAN PROJECT I-696-8(24)224
STATE PROJECT I63103, 012, PART 2

DETROIT NORTH BELT ROAD
CITY OF FERNDALE, HAZEL PARK, ROYAL OAK & MADISON HEIGHTS
OAKLAND COUNTY



NOTE

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED

STANDARD PLANS TO BE PRINTED

SHEET NO.	TITLE
R11S & R12P	BRIDGE RAILING, BAR CHAIR, MOLDING AND BEVEL DETAILS
SP2J	STANDARD SLOPE PAVING DETAILS

STANDARD PLANS NOT TO BE PRINTED

SHEET NO	TITLE
E-4-A-27R-4	MANHOLES, CATCH BASINS & INLETS.

GENERAL NOTES

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1967 EDITION.

THE DESIGN OF THESE STRUCTURES IS BASED ON THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS SPECIFICATIONS FOR THE DESIGN OF HIGHWAY BRIDGES, 1958 EDITION AND CURRENT AASHO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES HS 20-44 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION EQUALS $1/1000$ OF SPAN LENGTH AND $1/350$ OF CANTILEVER ARM.

THE CHARACTER OF ALL MATERIALS AND THE EXTENT THEREOF AS SHOWN BY BORINGS HAS BEEN OBTAINED BY METHODS AND FROM SOURCES BELIEVED TO BE RELIABLE. THE EXACTNESS OF THIS INFORMATION IS, HOWEVER, IN NO CASE GUARANTEED.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH 1/2" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

THE STATIONING AS SHOWN ON THESE PLANS FOR THE INTERSECTION OF THE CENTERLINE OF BRIDGES AND SURVEY CENTERLINES ARE BELIEVED TO BE CORRECT. IT SHALL, HOWEVER, BE CHECKED AT THE TIME OF STARTING CONSTRUCTION AND IF THE STATIONING SHOWN ON THE PLANS IS INCORRECT, IT SHALL BE REPORTED TO THE DESIGN OFFICE AT LANSING AND THE STRUCTURE SHALL BE STAKED OUT USING THE ACTUAL INTERSECTION OF THE CENTERLINE OF BRIDGE AND CENTERLINE AS THE CONTROL POINT.

THE GRADES AND STRESSES OF THE STRUCTURAL MATERIALS USED IN THIS STRUCTURE ARE AS FOLLOWS:

CONCRETE: GRADE A ..... $f_c' = 3{,}000$ psi

STEEL REINFORCEMENT ..... $f_s = 20{,}000$ psi

STRUCTURAL STEEL: A588 ..... $f_s = 27{,}000$ psi

AS CONSTRUCTED
10-72

ITEM NO. 1181

CONTRACT FOR STRUCTURES, WALLS & PUMPHOUSE

APPROVALS

CHECKED — ENGINEER – DESIGN SECTION II — 6-5-69 DATE

RECOMMENDED FOR APPROVAL — ENGINEER OF DESIGN — DATE

RECOMMENDED FOR APPROVAL — TRAFFIC DIVISION — 6-30-69 DATE

RECOMMENDED FOR APPROVAL — CONSTRUCTION DIVISION — DATE

RECOMMENDED FOR APPROVAL — CHIEF – BUREAU OF ENGINEERING — 6/6/69 DATE

DEPARTMENT OF STATE HIGHWAYS
HENRIK E. STAFSETH – STATE HIGHWAY DIRECTOR

APPROVED BY — DEPUTY STATE HIGHWAY DIRECTOR — DATE

PLANS PREPARED BY MICHIGAN DEPARTMENT OF STATE HIGHWAYS
AJLUNI
FISHER
SQUAD

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED BUREAU OF PUBLIC ROADS
FOR THE DIVISION ENGINEER

~~S04,06,07,08,09, & W01, 02,03,04 OF 63103A~~
~~S28 &~~ W01 OF 63174 A
~~S30 OF 63174 B~~
~~D01 OF 63103A~~

STATE PROJECT NO.	FEDERAL PROJECT	SHEET NO.
I-63103A ~~I-63174A&B~~	I-696-8	1

STATE PROJECT NO.
~~S04, 06, 07, 08, 09, & W01, 02, 03, 04 OF 63103A, D01 OF 63103A~~
~~S28 & W01 OF 63174 A S30 OF 63174 B~~

INDEX OF PLANS	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
1A	INDEX SHEET
1B,C,D,E	QUANTITY SHEET

S04 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5,6,7	ABUTMENT DETAILS
8,9,10	WINGWALL DETAILS
11	PIER DETAILS
12,13,14	STRUCTURAL STEEL DETAILS
15	METAL EXPANSION JOINT DETAILS
16	SHEAR DEVELOPER DETAILS
17,18,19,20	SUPERSTRUCTURE DETAILS
21,22	STEEL REINFORCEMENT DETAILS

S07 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
2A	ALIGNMENT SHEET
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5,6	ABUTMENT A DETAILS
7,8	ABUTMENT B DETAILS
9,10	STRUCTURAL STEEL DETAILS
11	NEOPRENE EXPANSION JOINT DETAILS
12,13	SUPERSTRUCTURE DETAILS
14	SCREED DETAILS
15	STEEL REINFORCEMENT DETAILS

S09 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
2A	ALIGNMENT SHEET
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	ABUTMENT A DETAILS
6,7	ABUTMENT B DETAILS
8,9	STRUCTURAL STEEL DETAILS
10	NEOPRENE EXPANSION JOINT DETAILS
11,12,13	SUPERSTRUCTURE DETAILS
14	STEEL REINFORCEMENT DETAILS

S30 OF 63174 B	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	ABUTMENT DETAILS
6,7,8	WINGWALL DETAILS
9	PIER DETAILS
10,11	STRUCTURAL STEEL DETAILS
12	METAL EXPANSION JOINT DETAILS
13	SHEAR DEVELOPER DETAILS
14,15,16,17	SUPERSTRUCTURE DETAILS
18	LIGHTING DETAILS
19	UTILITIES DETAILS
20	STEEL REINFORCEMENT DETAILS

S06 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4,5	GENERAL PLAN OF STRUCTURE
5A	SHEET PILING AND BRACING DETAILS
6,7	ABUTMENT DETAILS
8,9,10	WINGWALL DETAILS
11	PIER DETAILS
12,13,14	STRUCTURAL STEEL DETAILS
15	METAL EXPANSION JOINT DETAILS
16	SHEAR DEVELOPER DETAILS
17,18,19,20	SUPERSTRUCTURE DETAILS
21	STEEL REINFORCEMENT DETAILS

S08 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
2A	ALIGNMENT SHEET
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5,6,7,8	ABUTMENT A DETAILS
9,10,11,12	ABUTMENT B DETAILS
13,14	STRUCTURAL STEEL DETAILS
15	NEOPRENE EXPANSION JOINT DETAILS
16,17,18,19,20	SUPERSTRUCTURE DETAILS
21,22	STEEL REINFORCEMENT DETAILS

S28 OF 63174 A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	GENERAL PLAN OF STRUCTURE
5	EXIST. UTILITIES & PROP. ALTERATIONS
6	ABUTMENT DETAILS
7,8,9,10	WINGWALL DETAILS
11	PIER DETAILS
12,13	STRUCTURAL STEEL DETAILS
14	METAL EXPANSION JOINT DETAILS
15	SHEAR DEVELOPER DETAILS
16,17,18,19	SUPERSTRUCTURE DETAILS
20	UTILITIES DETAILS
20A	LIGHTING DETAILS
21	STEEL REINFORCEMENT DETAILS

D01 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	GENERAL PLAN OF STRUCTURE
4 - 7	PUMPHOUSE DETAILS
8 & 9	MISCELLANEOUS DETAILS
10	MECHANICAL & ELECTRICAL DETAILS
11	STEEL REINFORCEMENT DETAILS

RETAINING WALL PLANS

W01 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS AND STAKING DIAGRAM
4	GENERAL PLAN OF STRUCTURE
5 THRU 13	RETAINING WALL DETAILS
14,15	STEEL REINFORCEMENT DETAILS

W02 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS AND STAKING DIAGRAM
4	GENERAL PLAN OF STRUCTURE
5,6,7	RETAINING WALL DETAILS
8	STEEL REINFORCEMENT DETAILS

W03 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS AND STAKING DIAGRAM
4	GENERAL PLAN OF STRUCTURE
5 THRU 8	RETAINING WALL DETAILS
9	STEEL REINFORCEMENT DETAILS

RETAINING WALL PLANS

W01 OF 63174 A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4,5	GENERAL PLAN OF STRUCTURE
6 THRU 14	RETAINING WALL DETAILS
15	STEEL REINFORCEMENT DETAILS

W04 OF 63103A	
SHEET NO.	DESCRIPTION
2	GENERAL PLAN OF SITE
3	LOG OF BORINGS
4	CONSTRUCTION SCHEME
5	GENERAL PLAN OF STRUCTURE
6 THRU 10	RETAINING WALL DETAILS
11	SIGN BASE AND LIGHT STANDARD ANCHORAGE DETAILS
12	STEEL REINFORCEMENT DETAILS

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

INDEX SHEET

REVISIONS			
NO.	DESCRIPTION	DATE	BY

ROAD BOSS	AJLUNI	5-21-69
DRAWN BY	KRAVE	5-21-69
TRACED BY		
CHECKED BY	R BECKOW	6-4-69

SHEET 1A OF ~~63103A~~ W01 of 63174 A & B

I 696-8 (24)

ITEM	CODE NO.	UNIT	CONTR. QUANT.	FINAL QUANT.	UNIT PRICE	FINAL COST	W04 of 63103 A CONTR QUANT	REMARKS (AUTH NO'S)	FINAL QUANT	FINAL COST	S28 of 63174 A CONTR QUANT	REMARKS (AUTH NO'S)	FINAL QUANT	FINAL COST	W01 of 63174 A CONTR QUANT	REMARKS (AUTH NO'S)	FINAL QUANT	FINAL COST	S30 of 63174 B CONTR QUANT	REMARKS (AUTH NO'S)	FINAL QUANT	FINAL COST
Unclassified Excavation		Cu.Yds.					2115	1163	2,157	16,177.50	1990	1163	2,101	15,757.50	5900	1163	5,749	43,117.50	2575	1163	2,412	18,090.00
Steel Sheet Piling Left-in-Place		Sq.Ft.					6150	1062 1149	5,832	43,740.00			–				–				–	
Temp Steel Sheet Piling		Sq.Ft.							–		2440	1169	2,322	16,254.00	1800	1169	898	6,286.00			–	
Concrete Subfooting		Cu.Yds.							–				–				–				–	
Grade A(6A) Concrete-Substructure		Cu.Yds.					274	1158	283.0	21,508.00	549.3	1158	546.9	41,564.40	678.0		678.0	51,528.00	542.9		542.9	41,260.40
Grade A(6AA) Concrete-Substructure		Cu.Yds.					300	1154	301.1	25,593.50	556.8	1154	556.9	47,336.50	806.8		806.8	68,578.00	628.2	1154	629.3	53,490.50
Protect.-Sealant Coat for Concrete		Sq.Ft.							–				–				–				–	
Clear Protective Coat for Sub. Conc.		Sq.Yds.							–		532	1136	546.1	2,020.57			–		565	1136	445.0	1,646.50
Grade A(6AA) Conc.-Superstructure		Cu.Yds.							–		369.8		369.8	36,240.40			–		369.8	1141	372.1	36,955.80
Grade -X- Concrete		Cu.Yds.							–		35	1162	31.8	2,385.00			–				–	
Water Reducing Retarding Admixture		Gals.							–		46	1160	14	98.00			–		42	1160	45	315.00
Elastomeric Bearing Pads		Sq.Ft.							–		18		18.0	270.00			–		20	1136	18.0	270.00
5/8 Concrete Inserts		Each							–				–				–		210		210	630.00
Low Temp. Protection Substructure Conc.		Cu.Yds.					574	1161	0.0	0.00			–		1484.8	1161	1,109.8	11.10			–	
Protective Treatment for Bridge Decks		Sq.Ft.							–		11,457	1157	5,729	859.35			–		11,300		11,300	1,695.00
Steel Reinforcement		Lbs.					32331	1033 1164	31,452	5,975.88	154,741	1164	154,542	29,362.98	91,712	1164	91,680	17,419.20	160,186		160,186	30,435.34
Shear Developers		Lump Sum							–		L.S.		L.S.	2,500.00			–		L.S.		L.S.	2,500.00
Structural Steel-Furnishing & Fabricating		Lbs.							–		297,700	1045	295,593	50,842.00			–		295,500	1045	291,608	50,156.58
Structural Steel-Erection		Lbs.							–		297,700	1045	295,593	8,867.79			–		295,500	1045	291,608	8,748.24
Structural Steel-Furnishing & Fabricating		Lbs.							–				–				–				–	
Structural Steel-Erection		Lbs.							–				–				–				–	
Structural Tile 6"x12"x12"		Each							–		1520	1136	1,503	1,503.00			–		1510	1136	1,478	1,478.00
1/4" Joint Filler		Sq.Ft.					20	1136	16	32.00	44	1136	36	72.00	70	1136	55	110.00	46	1136	41	82.00
1/2" Joint Filler		Sq.Ft.							–		224	1136	212	424.00			–		220	1136	219	438.00
1" Joint Filler		Sq.Ft.					75	1136	80	160.00	248	1136	237	474.00	280	1136	253	506.00	270	1136	237	474.00
3 in. Preformed Neoprene Joint Seal		Lin.Ft.							–				–				–				–	
Hot Poured Rubber-Asphalt Type Filler		Lin.Ft.							–		67	1136	67.8	237.30			–		66	1136	67.4	235.90
Joint Waterproofing		Sq.Ft.					330		330	495.00	500	1147	504	756.00	1055	1147	645	967.50	582	1147	615	922.50
Expansion Joint Drain		Each					2	1142	3	450.00	4		4	600.00	8		8	1,200.00	4		4	600.00
Bridge Railing Parapet Type Bridge Guard Rail Type C.D.		Lin.Ft. Lin.Ft.							– –		365.3	1136	363.5 –	7,270.00	648.0	1136	647.3 –	12,946.00	342.1	1136	338.6 –	6,772.00
Slope Protection-Class A		Sq.Yds.							–		136	1159	111	1,332.00			–		134	1159	110	1,320.00
Slope Protection-Headers		Lin.Ft.							–		175	1159	173	2,076.00			–		174	1159	173	2,076.00
Foundation Drain		Lin.Ft.					224	1156	221	994.50	344	1156	315	1,417.50	648	1156	725	3,262.50	364	1156	367	1,651.50
Light Standard Anchorage Assembly		Each					1		1	100.00			–				–				–	
8" Pipe Sleeve-Placed		Each							–				–				–		2		2	80.00
10" Pipe Sleeve-Placed		Each							–				–				–				–	
12" Pipe Sleeve-Placed		Each							–		2		2	120.00			–				–	
12" Cast Iron Pipe		Lin.Ft.					6		6	150.00			–				–				–	
3" Galvanized Iron Pipe Conduit		Lin.Ft.					16	1136	14.5	97.00			–				–				–	
Special Inlet		Each							–		2		2	800.00			–		2		2	800.00
8" Foundation Sewer		Lin.Ft.							–		8	1136	10	200.00			–		8	1136	9	180.00
2" Elastomeric Bearing Pads		Sq.Ft.							–				–				–				–	
3" Φ Fiber Conduit		Lin.Ft.							–		173	1136	172	448.92			–		172	1136	174	454.14
TOTAL										115,473.38				272,089.21				205,931.80				263,777.40

See Sheet 1-B

Plus Extras   Plus Extras

PLAN EXTRAS

DATE	DESCRIPTION	UNIT	QUANTITY ESTIMATE	QUANTITY FINAL

CHECKED 9/1/7?

ITEM 1181

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

QUANTITY SHEET

I 696-8 (24) 224

SQUAD BOSS	Fisher	6-4-69
DRAWN BY	R. Marsh	5/26/69
TRACED BY		
CHECKED BY		
SHEET 1 B OF		

PROJECT ~~I-63103A~~ I-63174A&B ~~S04,06,07,08,09 & W01,02,03,04 of 63103A, S28~~ & W01 of 63174A, ~~S30 of 63174B~~

2½ MIN. V.F. BM I (5-6-66)

WIT TO I75 SURVEY ℄

Wit to sta 786+00 : HCP #29
N 05°E - 139.9' Power Pole
N 24°E - 66.9' Light Pole
S 72° 36.8' Power Pole

Wit to sta 790+00 : HCP #30
S 11° E - 66.6' - Power Pole
S 40°W - 63.8' - Guy Pole
S 54°E - 113.5' - Light Pole
No wit to Woodward Hgt Blvd.

Wit to P.I. 781+53.21 : HCP #27
N 24°W - 48.88' - N&C 12" Elm
N 49°E - 52.77' N&C Power Pole
S 17°W - 61.99 - N&C Light Pole

Wit to P.I. 795-12.06 : HCP #32
N 76°W - 55.25 - N.E. Corner Bldg #24207
S 53°W - 56.58' - N&C Light Pole
S 18° W - 113.25' - N&C Twin 12" Elm

BENCH MARKS

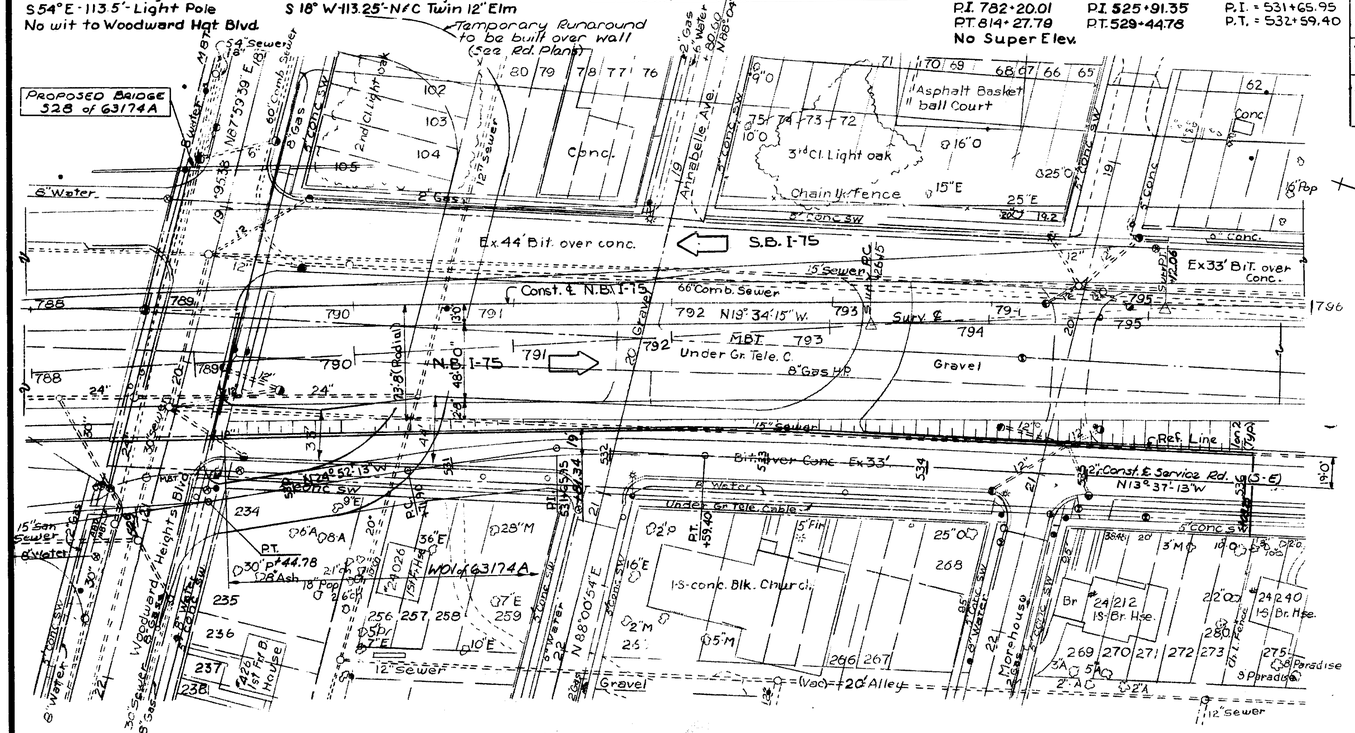
B.M. #85 El. 637.17
Arrow on Hydrant S.E. Corner of Morehouse & Stephenson 137' Rt. of Sta. 793+92

CURVE DATA

I-75 Const ℄	Service Rd. (S-E)	Service Rd. (S-E)
Δ = 08° 14' 32" Rt.	Δ = 10° 16' 44" Lt	Δ = 11° 15' 00" Rt.
D: 00° 15' 25"	D = 2°54'-30"	D = 6°-00'00"
R = 22,298.90'	R = 1970.06'	R = 954.93'
T = 1606.66'	T = 177.19'	T = 94.05'
L = 3207.78'	L = 353.43'	L = 187.50'
E = 57.81'	E = 7.95'	E = 4.62'
P.C. 798+26.67	P.C. 527+68.54'	P.C. = 530+71.90
P.I. 782+20.01	P.I. 525+91.35	P.I. = 531+65.95
P.T. 814+27.78	P.T. 529+44.76	P.T. = 532+59.40
No Super Elev.		

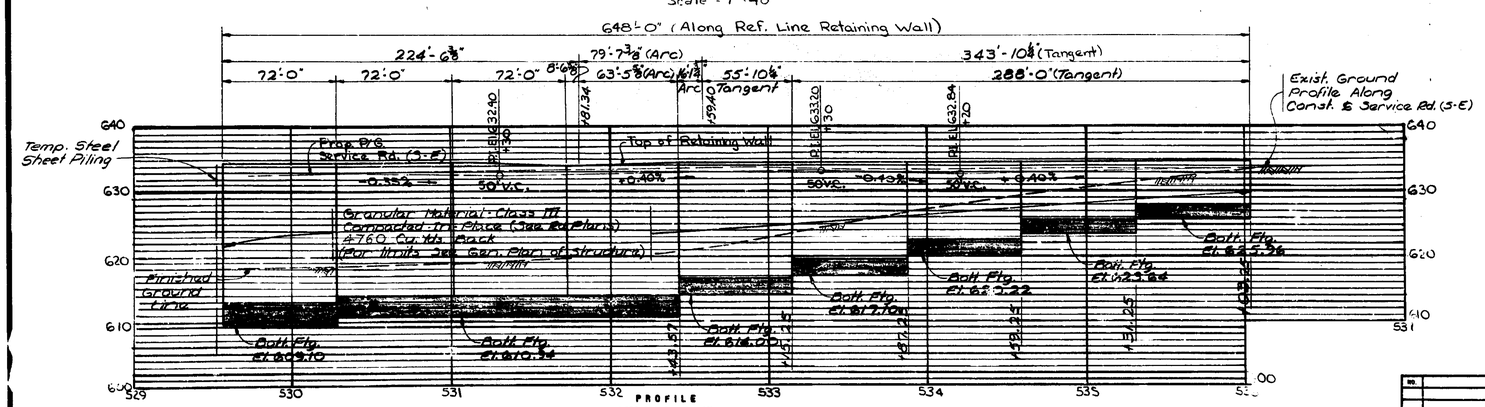
UTILITIES

Consumers Power Co has a gas line on the N side of Woodward Hts. Blvd. and the center of Stephenson.
Detroit Edison Co. has a pole Line on the N. side of Woodward Hts. Blvd. and along the E. & W. sides of Stephenson.
Mich. Bell tel. Co. has a buried tel. cable on the S. side of Woodward Hts. Blvd. and down center of Stephenson & tel. wires along Woodward Hts. Blvd. & Stephenson.
Water: 8" main on So. side of Woodward Hts. Blvd. & E. and W. sides of Stephenson.
Sewers: in the vicinity of the proposed structure along Woodward Hts Blvd. and Stephenson.

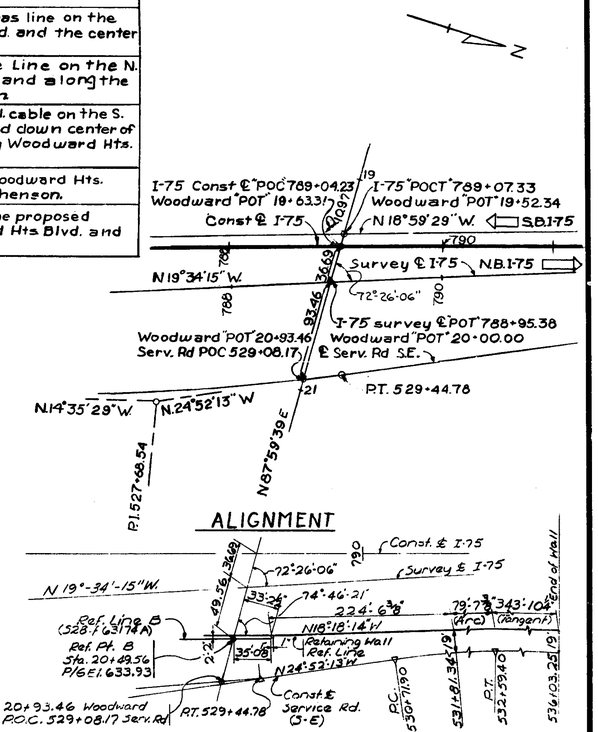


SITUATION PLAN

Scale = 1" = 40'



PROFILE
VERT. SCALE — 1" = 10'
HOR. SCALE — 1" = 40'



NOTES:

The work covered by these plans includes construction of the proposed Retaining Wall. and placing foundation drains.

All other work is included in the Road Plans which are a part of this contract.

Removal of fences & buildings is not part of this contract.

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

The topography shown represents conditions existing at the time the survey was made; however these conditions will have been materially altered by the operations of others before the work is started.

The reference line of Retaining Wall (Front Face) is parallel to construction ℄ of Service Road (S-E) from Sta. 531+81.34 to Sta. 536+03.25

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

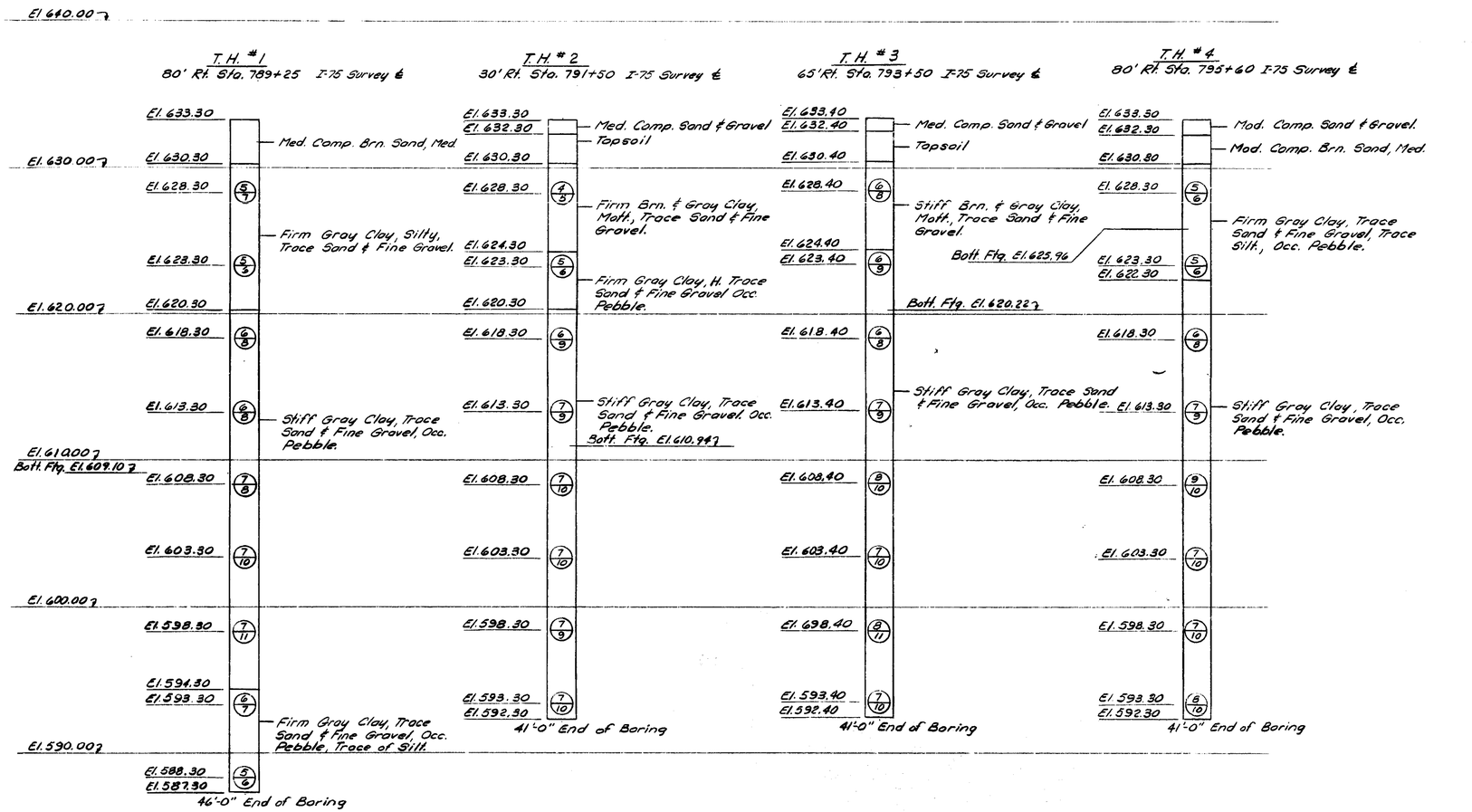
WALL N. OF WOODWARD HEIGHTS BLVD. ALONG N.B. I-75 IN HAZEL PARK

GENERAL PLAN OF SITE

APPROVED [signature] SUPERVISOR DESIGN 6-3-69
APPROVED [signature] ENGINEER - DESIGN SECTION I 6-5-69

SQUAD BOSS	F	2-5-69
DRAWN BY	Hartman	
TRACED BY	Morris	
CHECKED BY	[illegible]	
SHEET 2 OF 15		

W01-63174 A



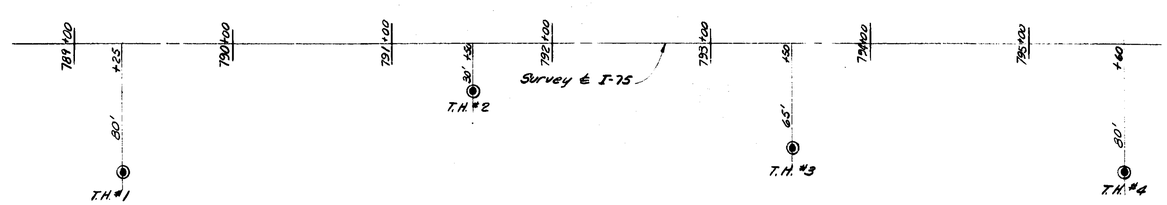
NOTES:

Soils consistency determined by soils resistence to jet rod and substantiated by visual inspection of samples.

Samples obtained with 2.0" O.D. by 1.5" I.D. split spoon sampler.

(0/0) Denotes no. of blows with 140 Lb. hammer falling 30" to drive sampler 12" in 6" increments.

Borings were taken April 10, 1969.
Water level after casing pulled - Dry.



LOCATION OF BORINGS

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

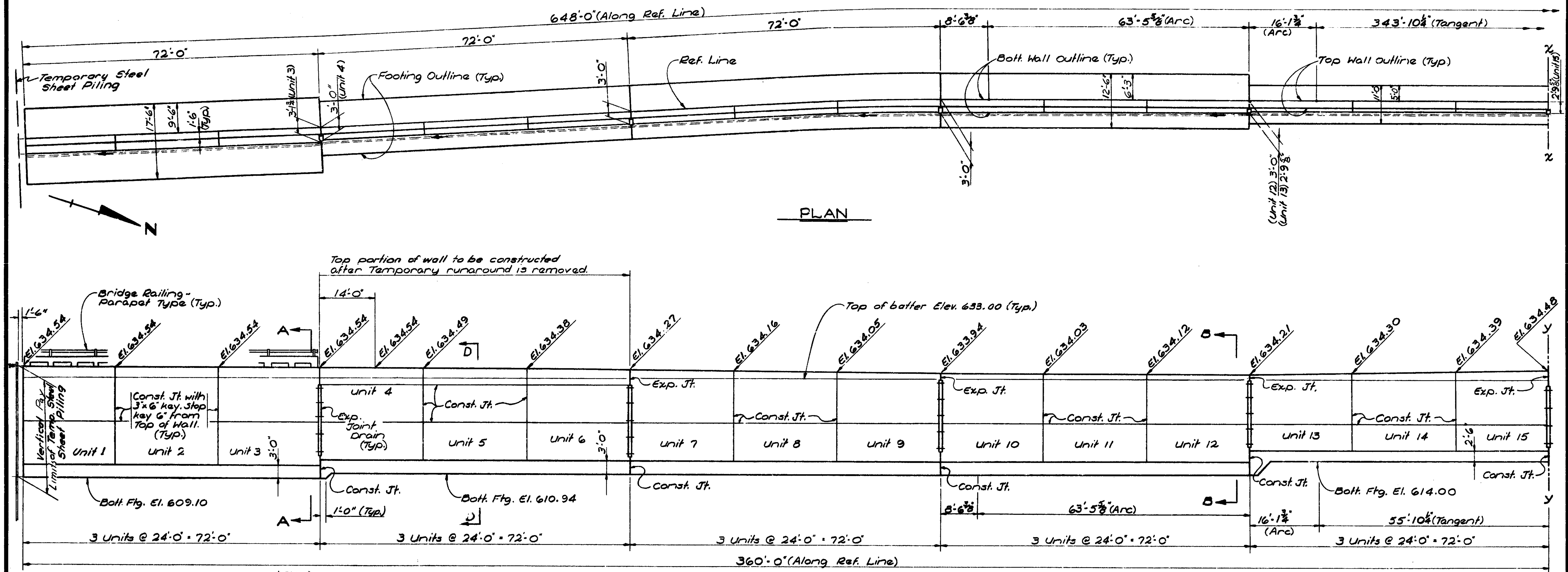
LOG OF BORINGS

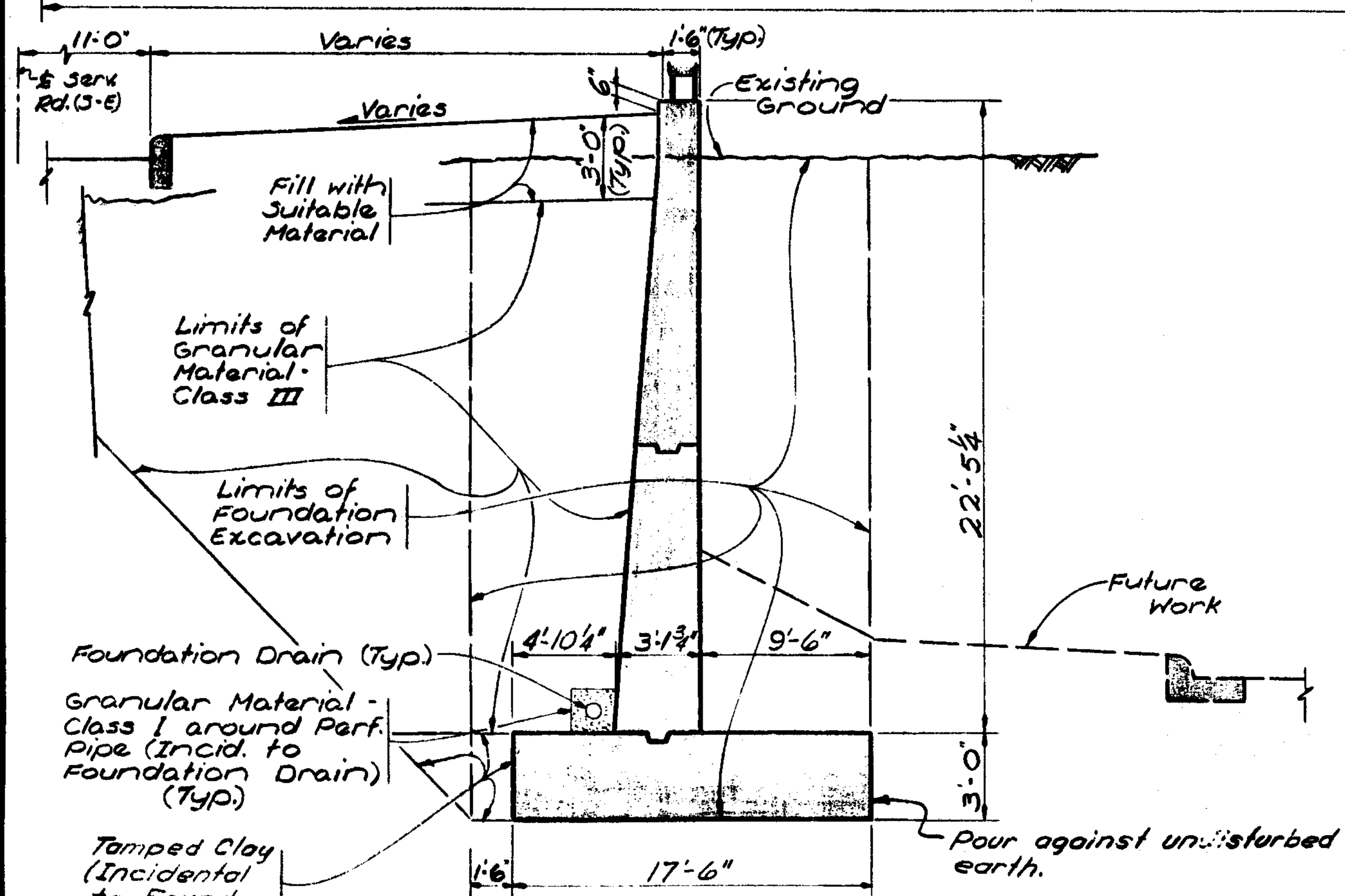
REVISIONS

NO.	DESCRIPTION	DATE	BY

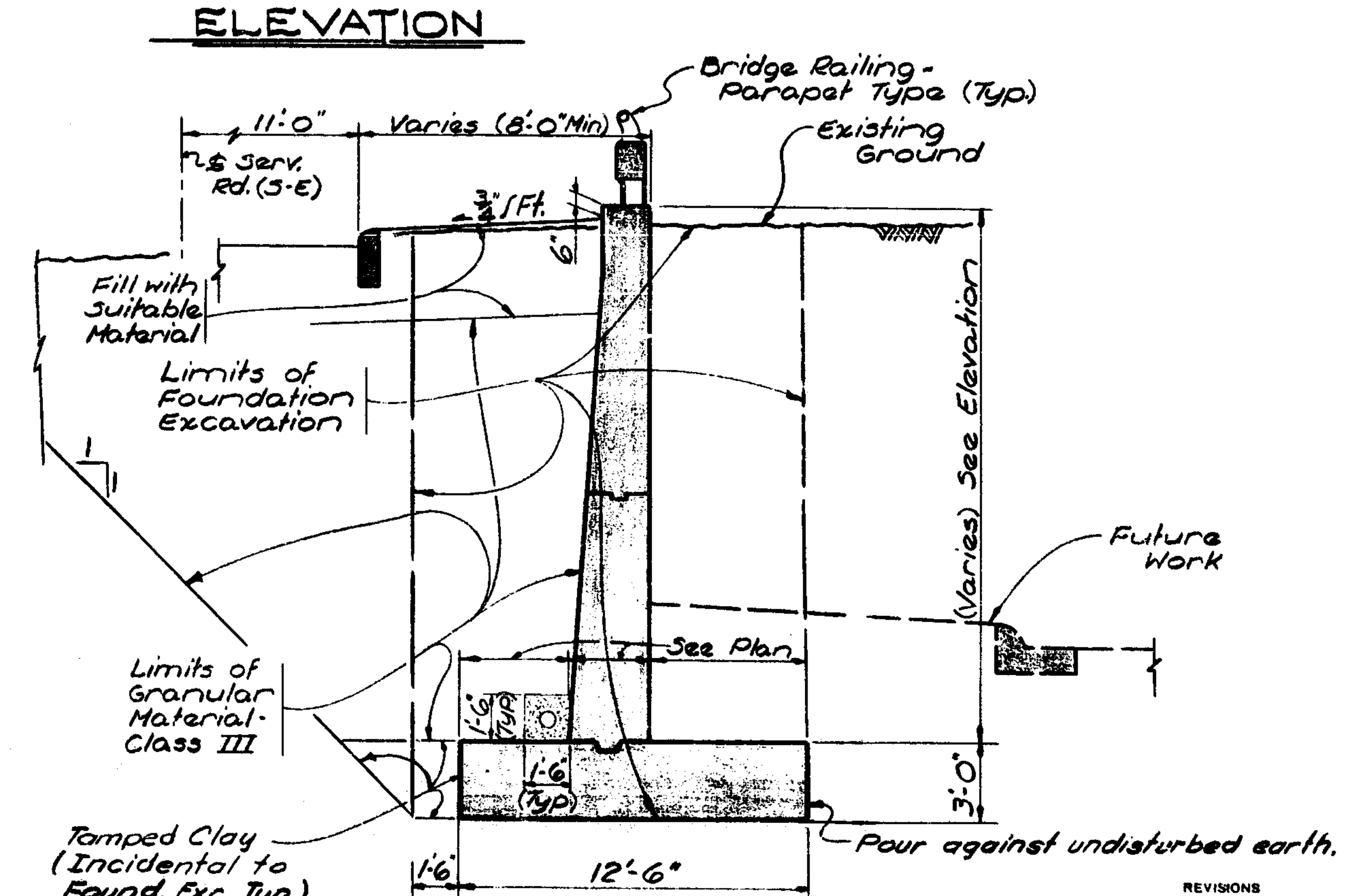
SQUAD BOSS		
DRAWN BY	A.F.B.	3-26-69
TRACED BY		
CHECKED BY	G.C.D.	3-26-69
SHEET 3 OF 15		

W01 of 63174A





SECTION A-A
(Units 1, 2 & 3)



SECTION B-B
(Units 7 thru 12)

NOTES:

The design of this structure is based on the M.D.S.H. Specifications for the Design of Highway Bridges, 1958 edition and current AASHO Standard Specifications for Highway Bridges (HS-20-44 loading)

The lateral pay limits of temporary steel sheet piling are as required and determined by the engineer.

The ftg. toe for wall units 1 thru 12 shall be poured against undisturbed soil. The contractor shall be responsible for providing adequate protection of the excavation in these areas against damage by personnel, equipment and water.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

WALL NORTH OF WOODWARD HEIGHTS BLVD. ALONG N.B. I-75 IN HAZEL PARK

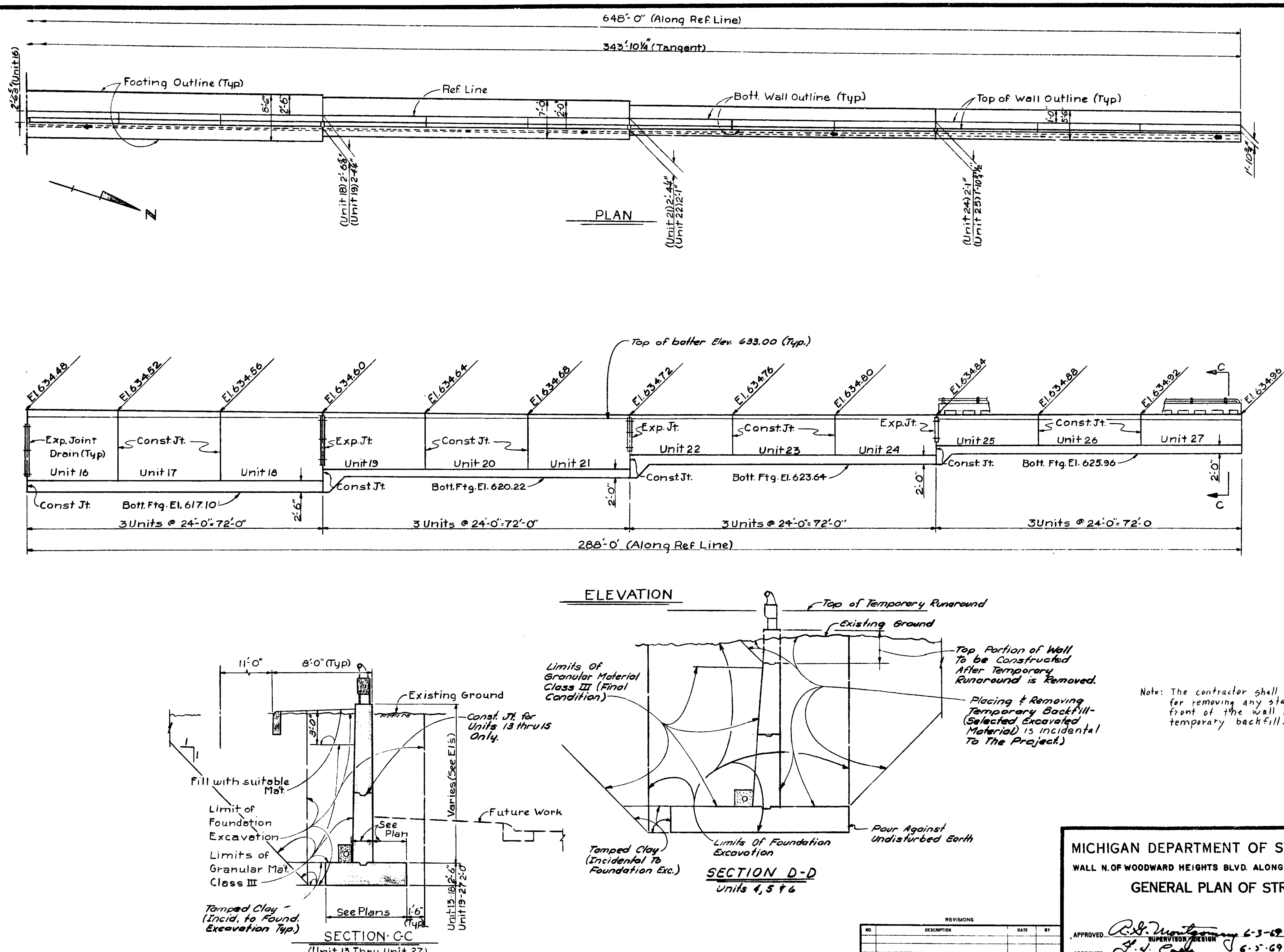
GENERAL PLAN OF STRUCTURE

APPROVED R. G. Montgomery 6-3-69 SUPERVISOR - DESIGN

APPROVED F. J. Cook 1-5-69 ENGINEER - DESIGN SECTION I

SQUAD BOSS	Fuhr	2-5-69
DRAWN BY	Strouse	1-6-69
TRACED BY		
CHECKED BY	C. Y. Wang	1-27-69
SHEET 4 OF 15		

W01-63174A



Note: The contractor shall be responsible for removing any staining to the front of the wall caused by the temporary backfill. (Incidental)

REVISIONS			
NO	DESCRIPTION	DATE	BY

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

WALL N. OF WOODWARD HEIGHTS BLVD. ALONG N.B. I-75 IN HAZEL PARK

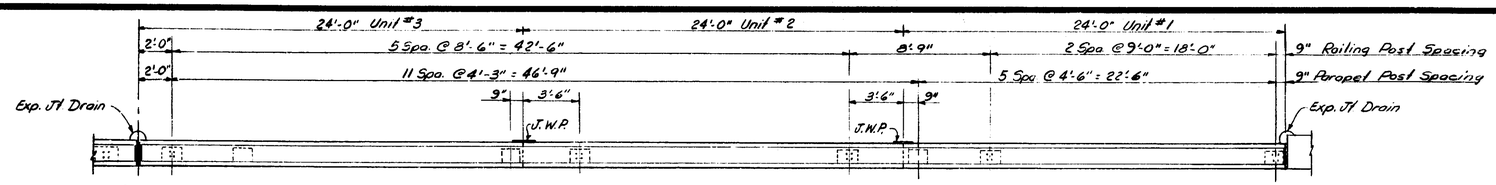
GENERAL PLAN OF STRUCTURE

SQUAD BOSS	Fuhr 2-5-69
DRAWN BY	HARTMAN 1/23/69
TRACED BY	
CHECKED BY	C.Y. Wang 1-27-69
SHEET	2 OF 15

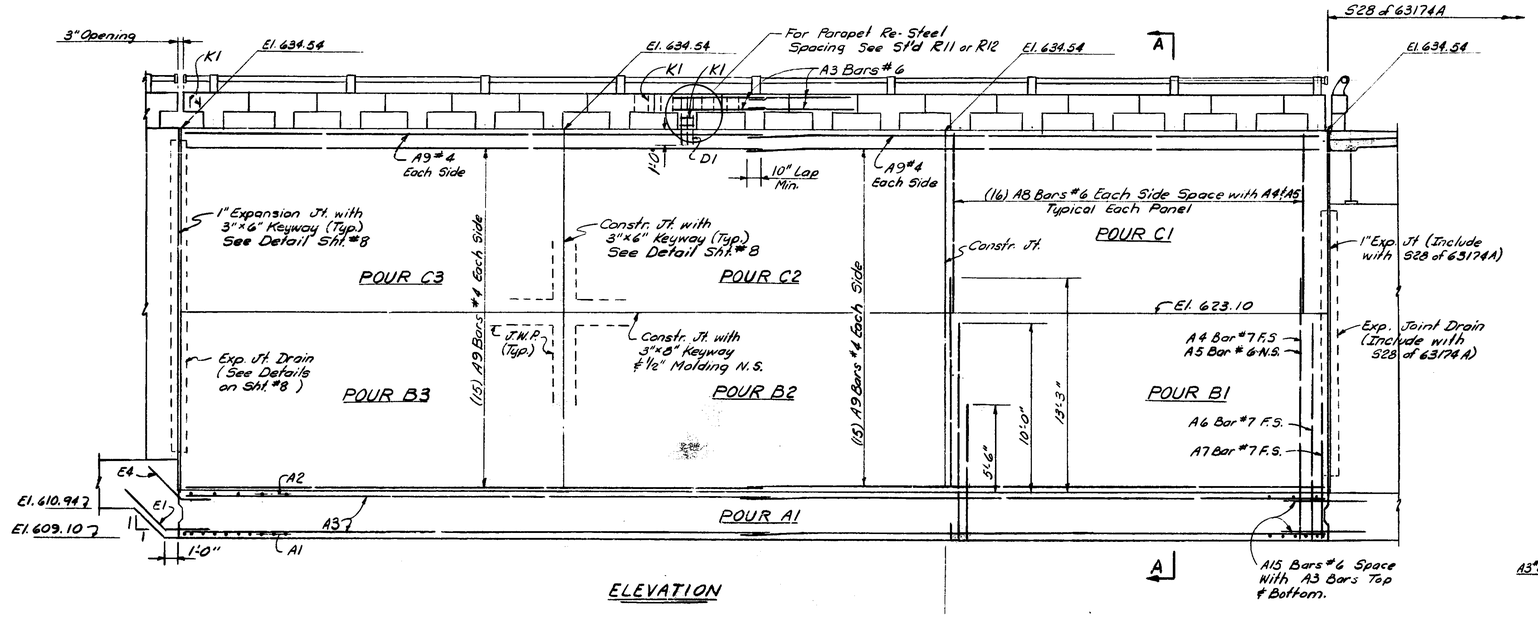
APPROVED R.G. Montgomery 6-3-69 SUPERVISOR - DESIGN

APPROVED G.J. Cook 6-5-69 ENGINEER - DESIGN SECTION I

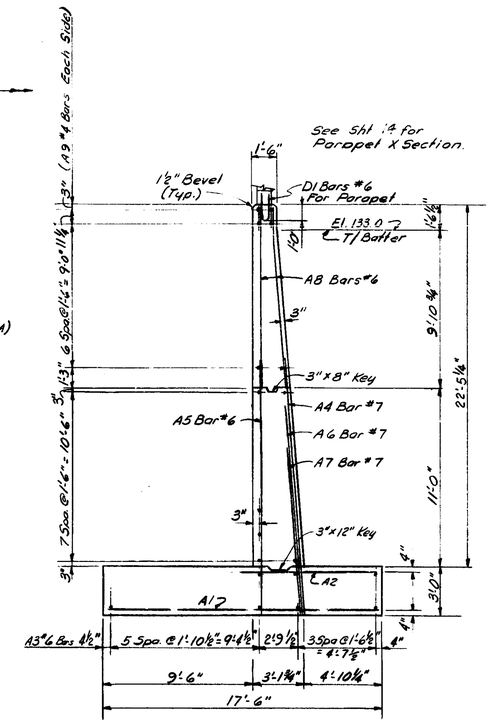
W01 of 63174A



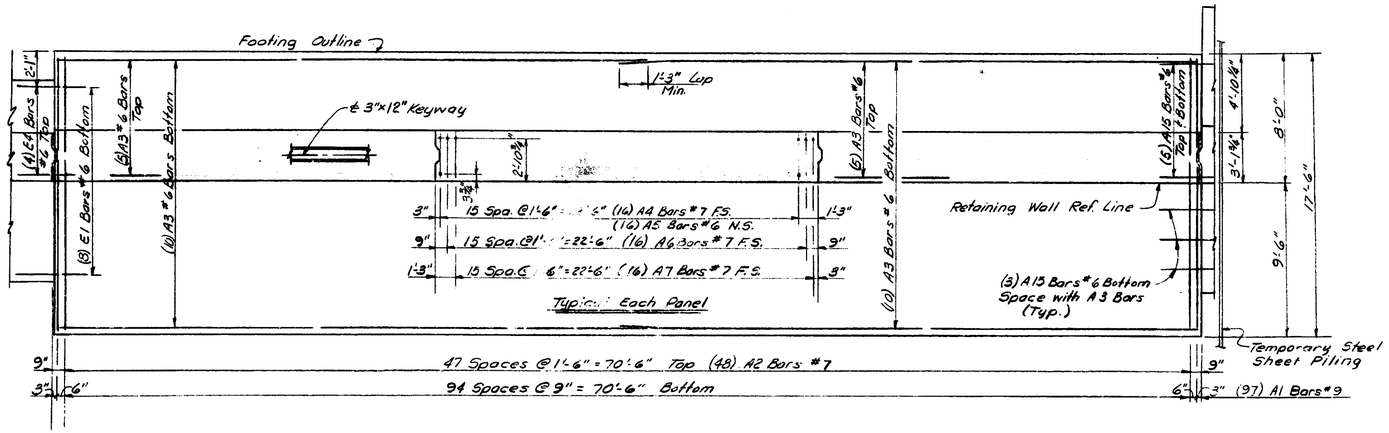
PLAN



ELEVATION



SECTION A-A



PLAN OF FOOTING

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

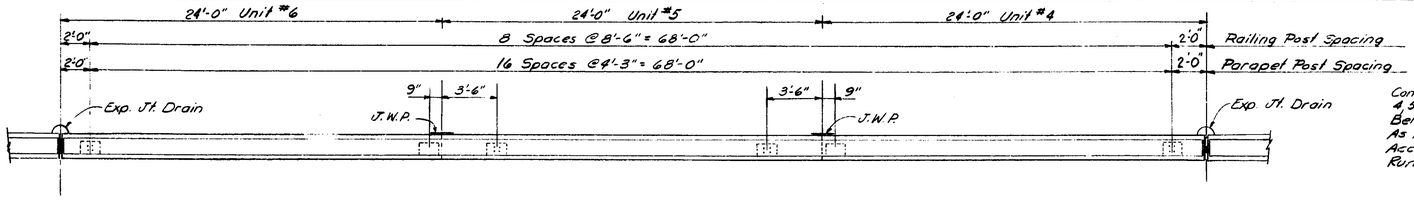
RETAINING WALL DETAILS
UNITS 1, 2 & 3

REVISIONS

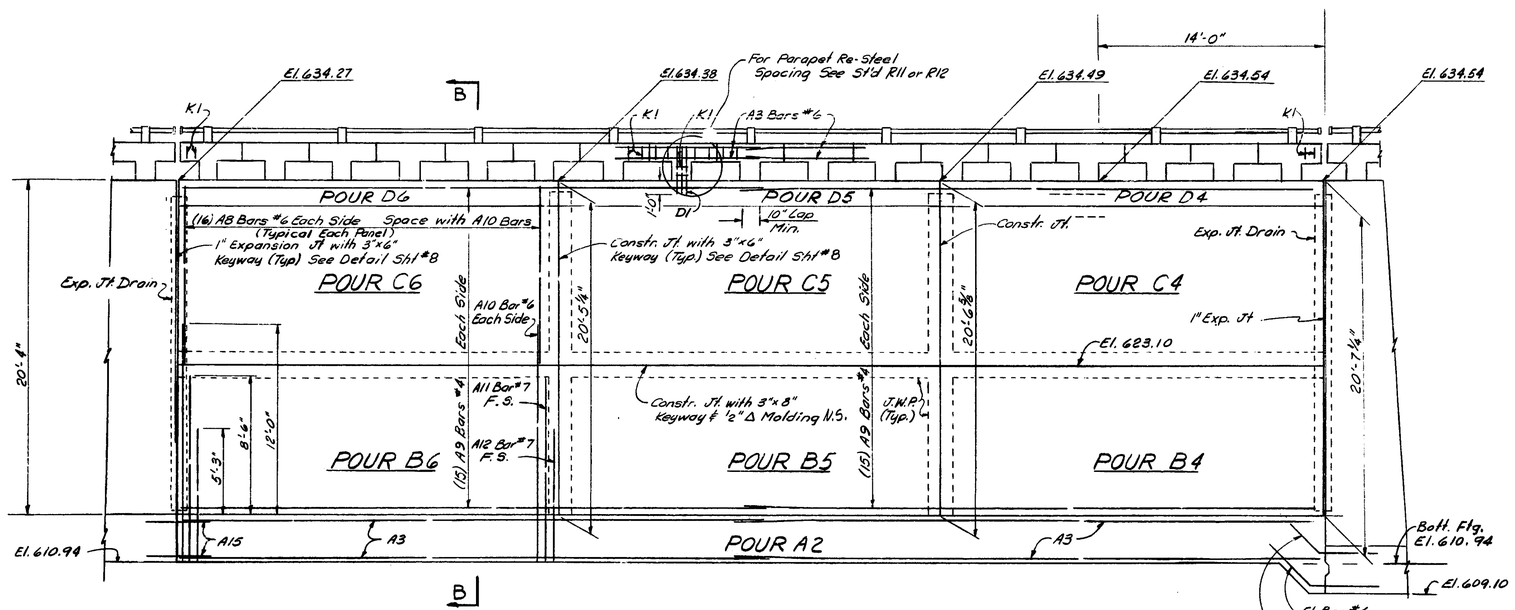
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Fuhr	
DRAWN BY	A.F.B.	3-21-69
TRACED BY		
CHECKED BY	G.C.D.	5-8-69
SHEET 6 OF 15		

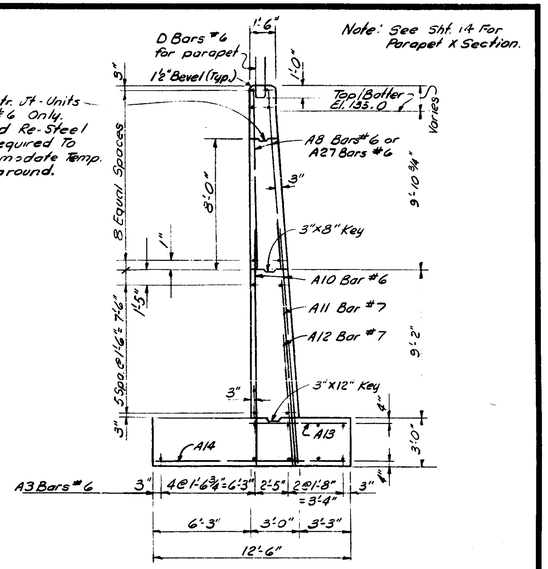
W01 of 63174A



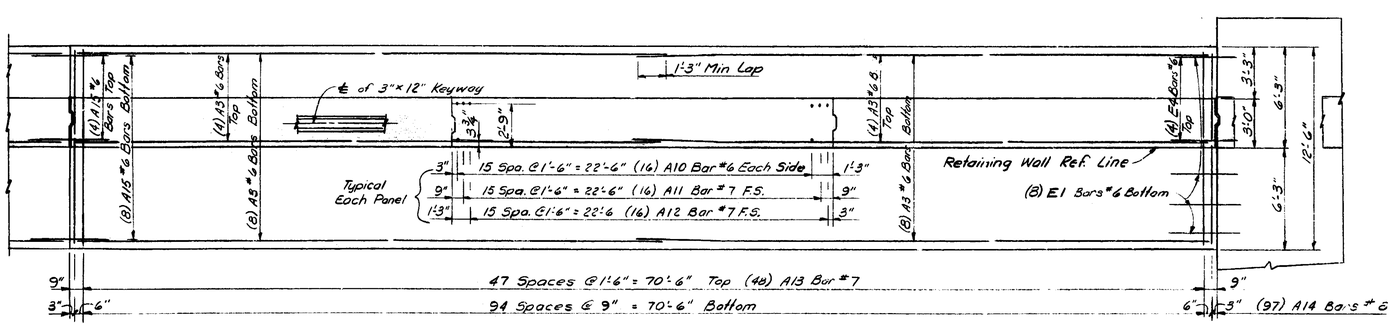
PLAN



ELEVATION



SECTION B-B
Units 4 thru 12



PLAN OF FOOTING

GENERAL NOTES

J.W.P. denotes Joint Waterproofing.
N.S. denotes Near Side.
F.S. denotes Far Side.
For bevel and molding details, see standard sheet R11 or R12.
Footing Toes for Units 4 thru 12 are to be poured against undisturbed soil. No allowance will be made in concrete quantities due to excavation outside of the footing neat lines.
Maximum average foundation pressure D.L. only = 1800 #/sq. ft. Maximum foundation pressure D.L. and L.L. = 3200 #/sq. ft.
Bridge Railing is to be either aluminum or steel tubular railing on concrete parapet. See Railing Standards R11 or R12.

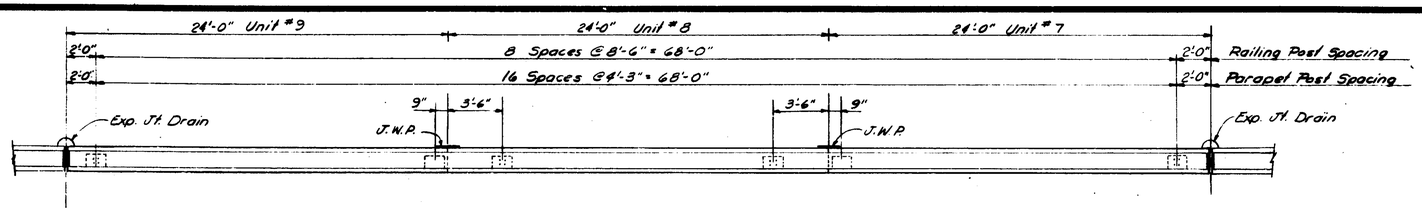
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
RETAINING WALL DETAILS
UNITS 4, 5 & 6

REVISIONS

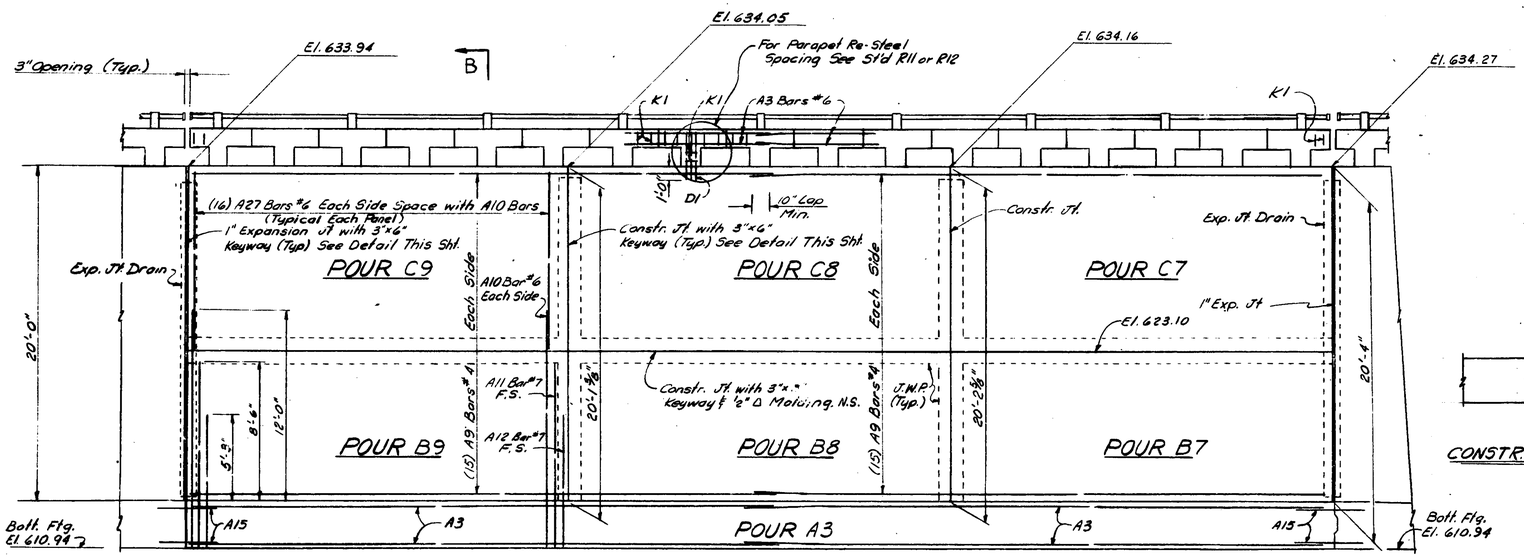
NO.	DESCRIPTION	DATE	BY

ROAD 9025	Fuhr	
DRAWN BY	A.F.B.	8-25-69
TRACED BY		
CHECKED BY	G.C.D.	8-8-69
SHEET 7 OF 15		

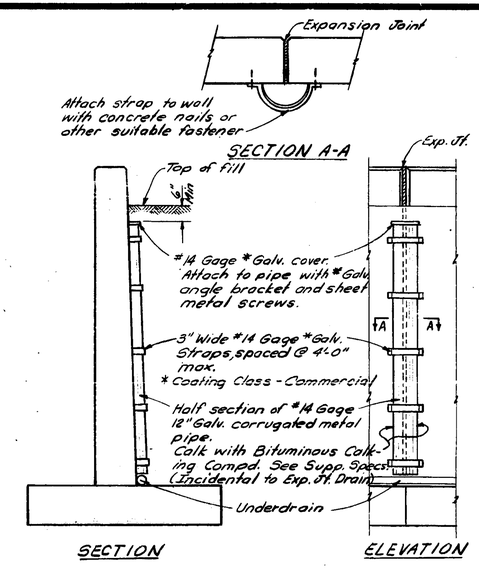
W01 of 63174A



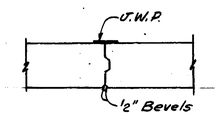
PLAN



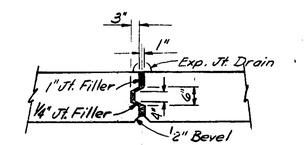
ELEVATION



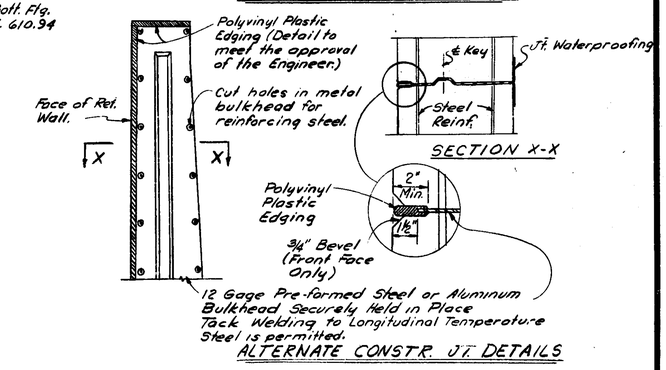
EXPANSION JOINT DRAIN



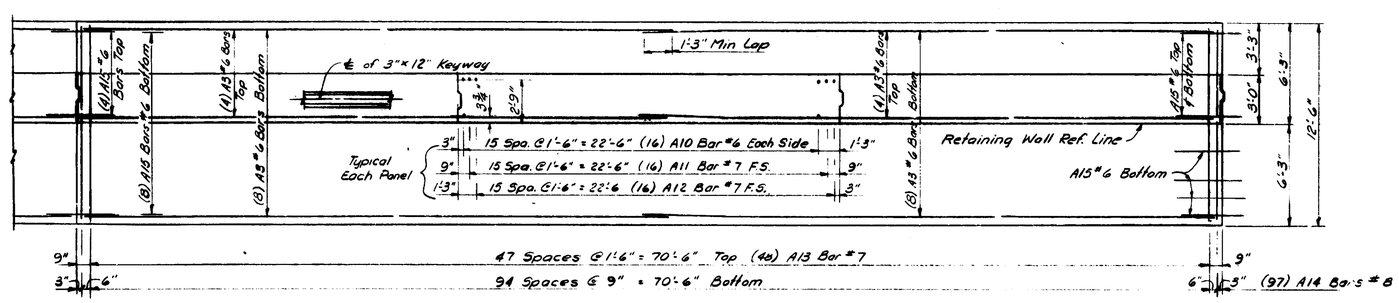
CONSTR. JT. DETAIL



EXPANSION JOINT DETAILS



ALTERNATE CONSTR. JT. DETAILS



PLAN OF FOOTING

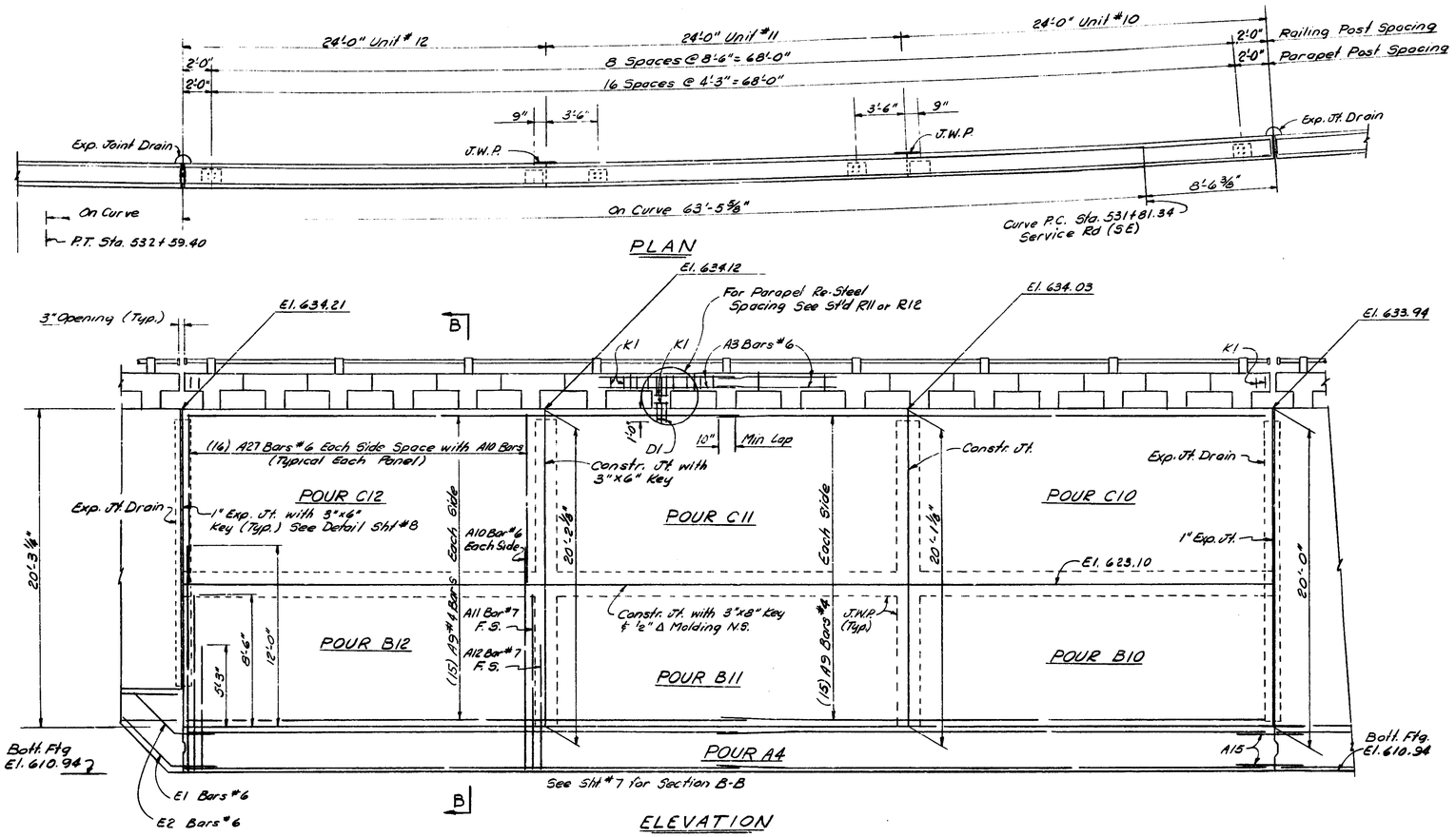
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
RETAINING WALL DETAILS
UNITS 7, 8 & 9

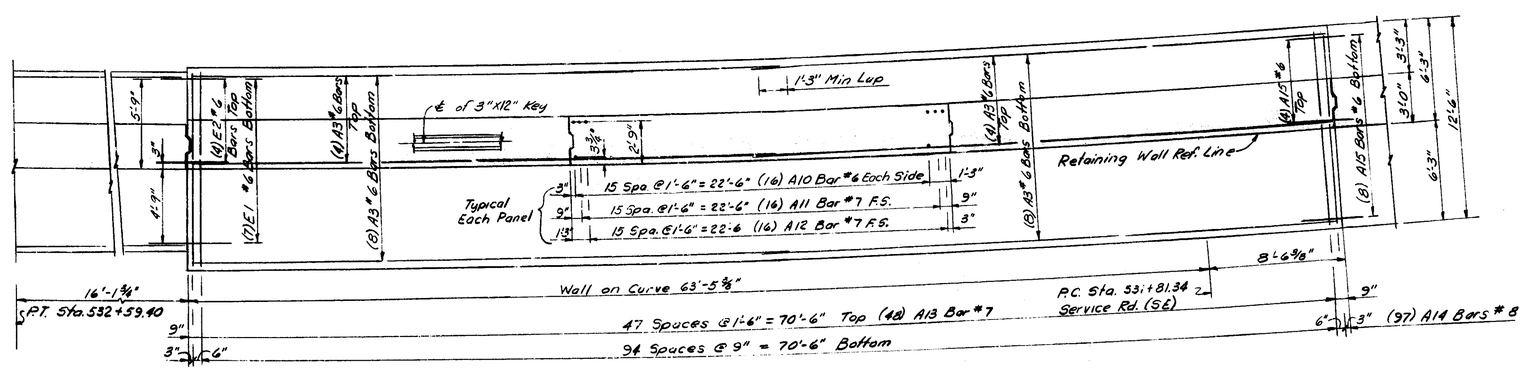
REVISIONS

NO.	DESCRIPTION	DATE	BY

DESIGN BOOK	Fuhr	
DRAWN BY	A.F.B.	3-28-69
TRACED BY		
CHECKED BY	G.C.D.	3-28-69
SHEET 8 OF 15		

W01 of 63174A





GRADE A (6A) CONCRETE QUANTITIES					
POUR	CU. YDS.	POUR	CU. YDS	POUR	CU YDS.
A1	140.0	A4	100.0	A7	39.5
A2	101.6	A5	76.5	A8	30.9
A3	100.0	A6	59.1	A9	30.4
TOTAL = 678.0 CU. YDS					

GRADE A (6AA) CONCRETE QUANTITIES					
POUR	CU. YDS.	POUR	CU. YDS	POUR	CU YDS.
B1	26.6	B8	21.5	B15	14.9
C1	18.7	C8	18.1	C15	18.5
B2	26.6	B9	21.5	B16	26.1
C2	18.7	C9	18.0	B17	26.2
B3	26.6	B10	21.5	B18	26.2
C3	18.7	C10	17.9	B19	20.7
B4	21.5	B11	21.5	B20	20.7
C4	14.0	C11	18.0	B21	20.8
B5	21.5	B12	21.5	B22	14.0
C5	14.0	C12	18.2	B23	14.1
B6	21.5	B13	14.9	B24	14.1
C6	14.0	C13	18.3	B25	10.1
B7	21.5	B14	14.9	B26	10.1
C7	18.3	C14	18.4	B27	10.2
D4	4.7	D5	4.6	D6	4.4
TOTAL = 806.8 CU. YDS.					

MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
Expansion Jt. Drains	Each	8
Joint Waterproofing	Sq. Ft.	1055
1" Joint Filler	Sq. Ft.	280
1/4" Joint Filler	Sq. Ft.	70
Bridge Railing - Parapet Type	Lin. Ft.	648
Unclassified Excavation	Cu. Yds	5900
Temporary Steel Sheet Piling	Sq. Ft.	1000
Foundation Drains	Lin. Ft.	648
Low Temp. Prot. - Subst. Conc.	Cu. Yds.	1484.8

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

RETAINING WALL DETAILS

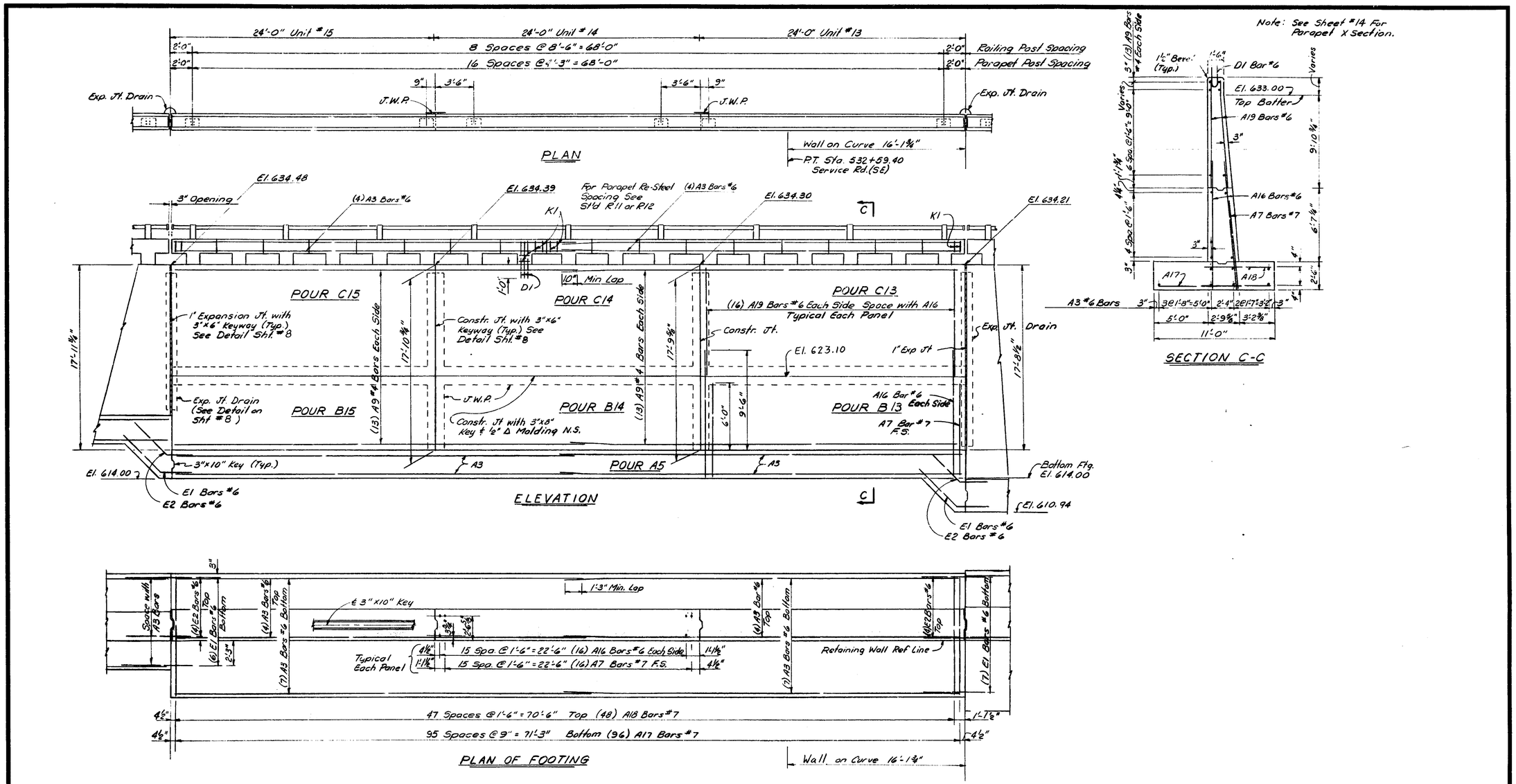
UNITS 10, 11 & 12

REVISIONS

NO.	DESCRIPTION	DATE	BY

ROAD BOSS	Fuhr	
DRAWN BY	A.F.B.	2-1-69
TRACED BY		
CHECKED BY	G.C.D.	5-9-69
SHEET 9 OF 12		

W01 of 63174A



MICHIGAN DEPARTMENT OF STATE HIGHWAYS

RETAINING WALL DETAILS

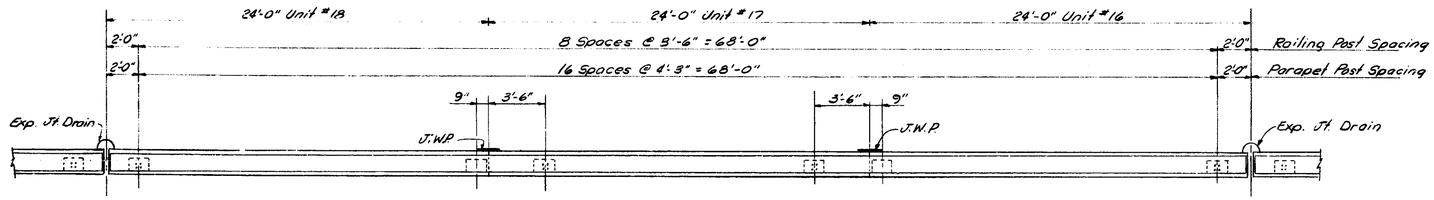
UNITS 13, 14 & 15

REVISIONS

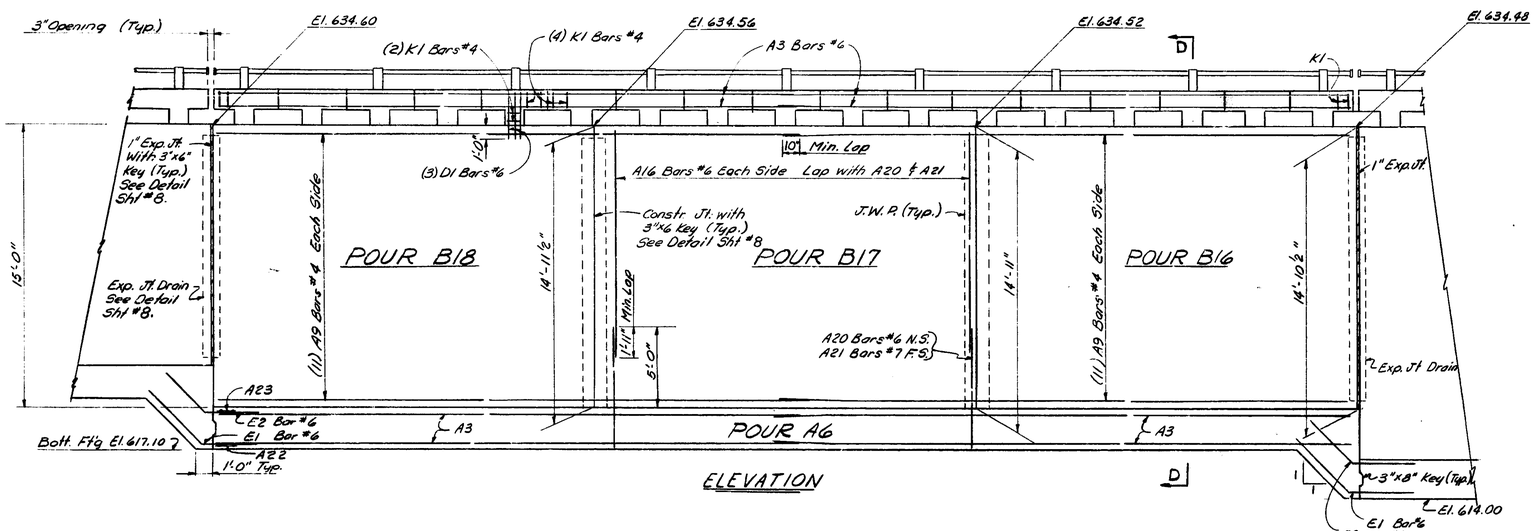
NO.	DESCRIPTION	DATE	BY

ROAD NOS.	Fohr	
DRAWN BY	A.F.B.	4-2-69
TRACED BY		
CHECKED BY	G.C.D.	3-9-69
SHEET 10 OF 15		

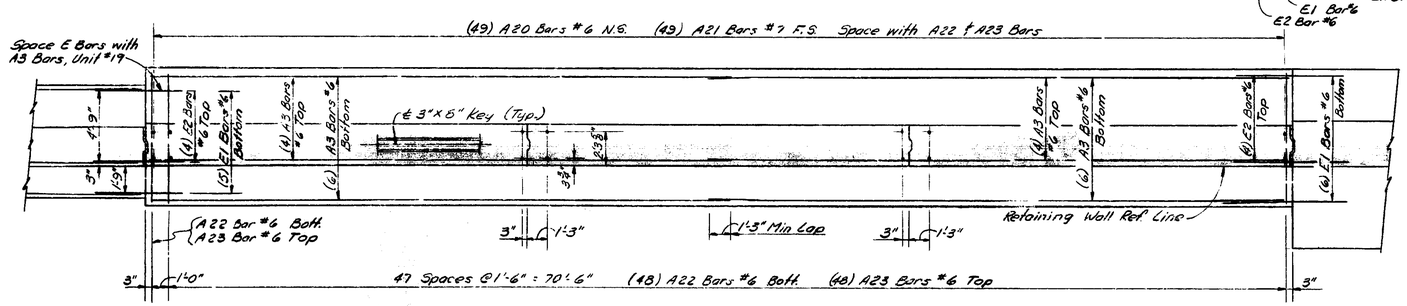
WOI of 63174A



PLAN

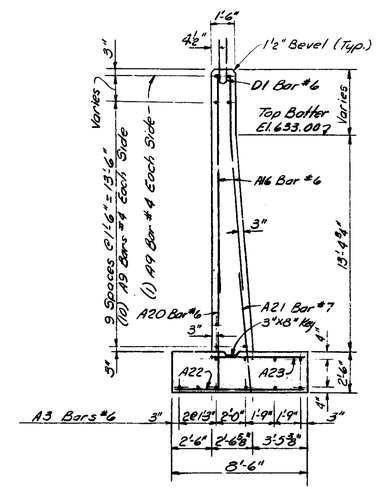


ELEVATION



PLAN OF FOOTING

Note: See Sht. #14 For Parapet X Section.



SECTION D-D

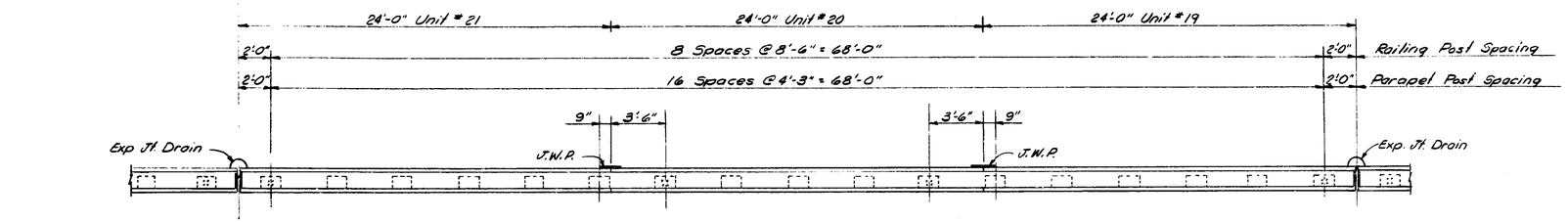
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
RETAINING WALL DETAILS
UNITS 16, 17 & 18

REVISIONS

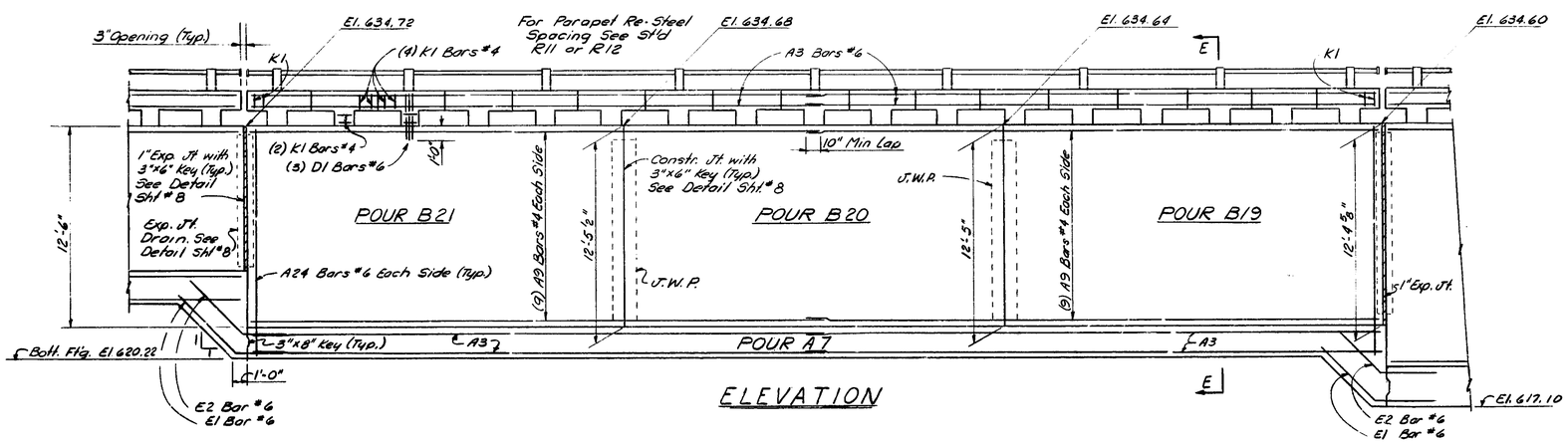
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Fuhr	
DRAWN BY	A.F.B.	4-17-69
TRACED BY		
CHECKED BY	G.C.D.	5-9-69
SHEET 11 OF 15		

W01 of 63174A



PLAN



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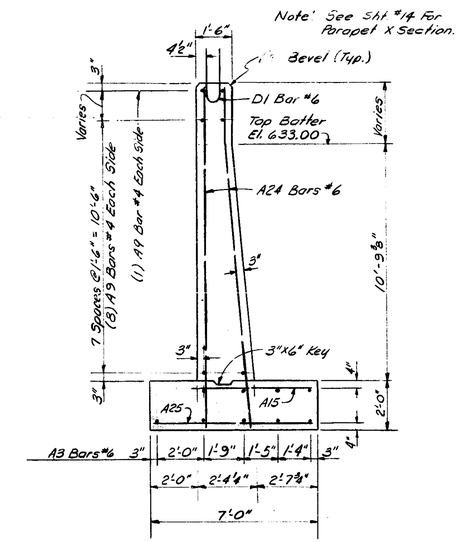
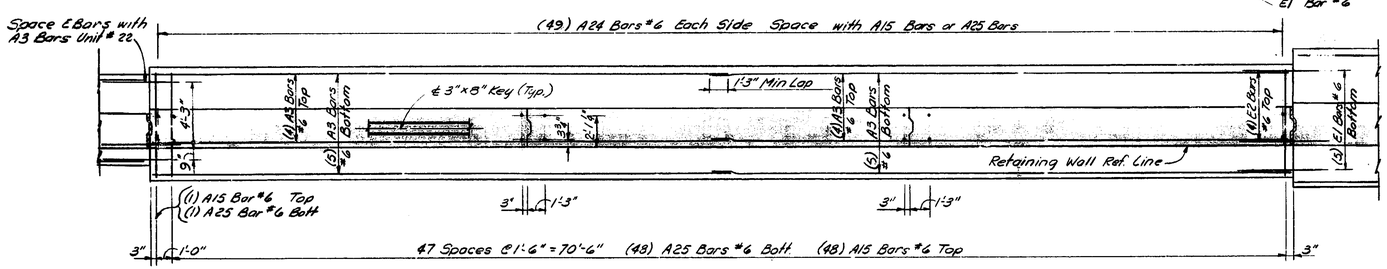


SECTION E-E



PLAN OF FOOTING

MICHIGAN DEPARTMENT OF STATE HIGHWAYS

RETAINING WALL DETAILS

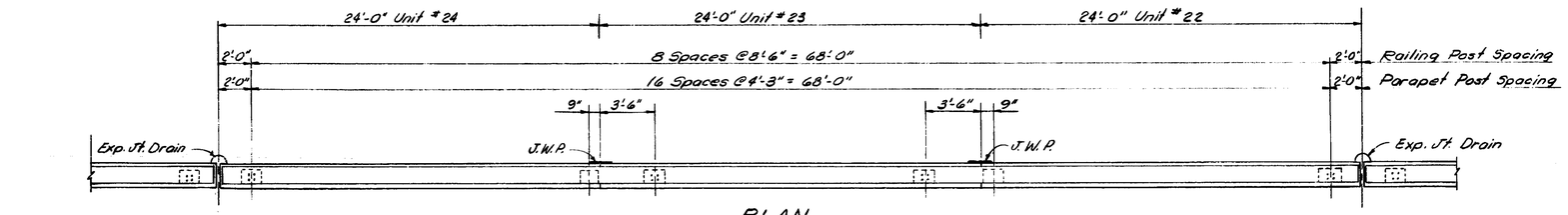
UNITS 19, 20 & 21

REVISIONS

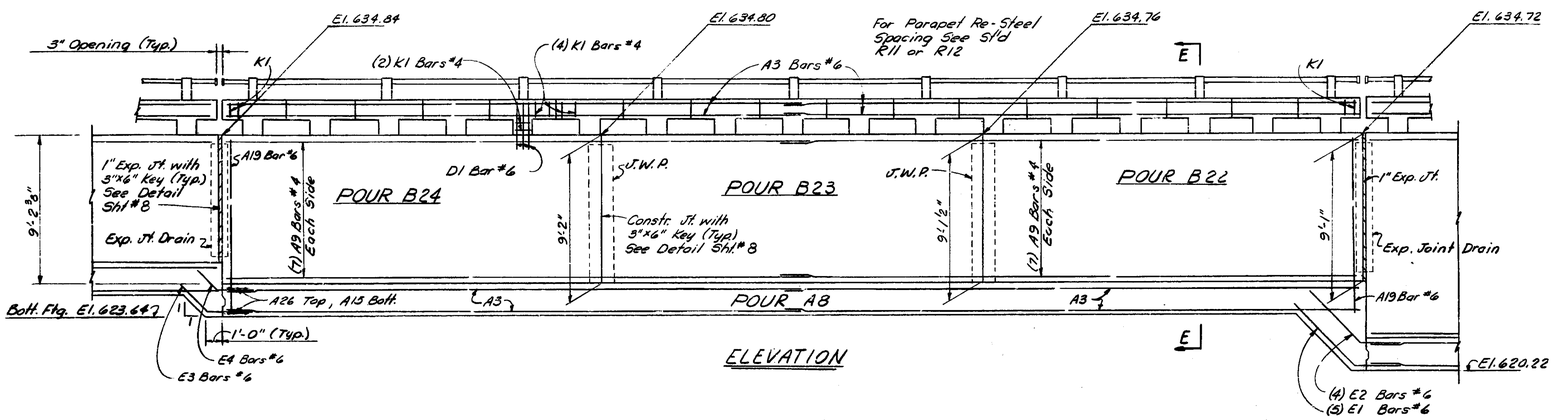
NO.	DESCRIPTION	DATE

SQUAD BOSS	Fuhr	
DRAWN BY	A.F.B.	4-22-69
TRACED BY		
CHECKED BY	GCD	5-9-69
SHEET 12 OF 15		

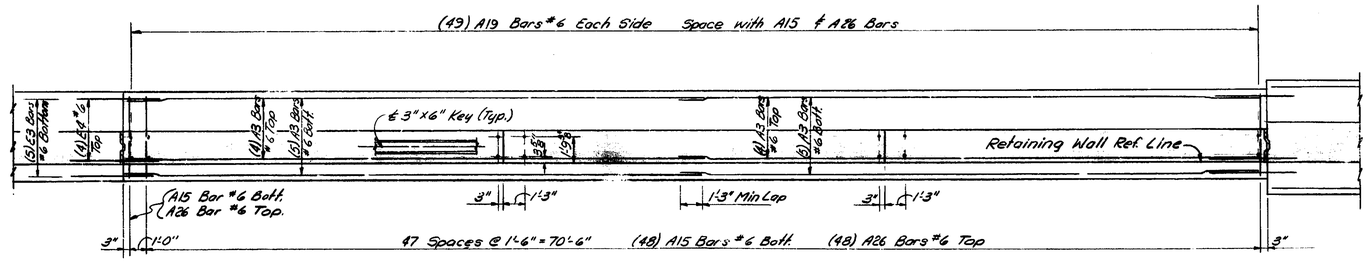
W01 of 63174A



PLAN

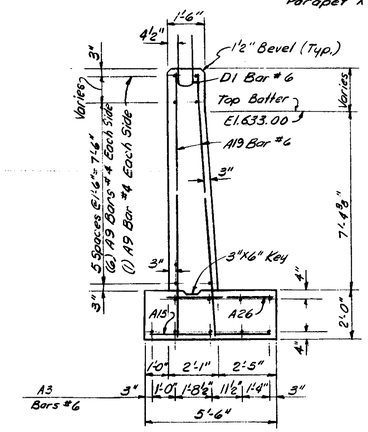


ELEVATION



PLAN OF FOOTING

Note: See Sht. #14 For Parapet X Section.



SECTION E-E

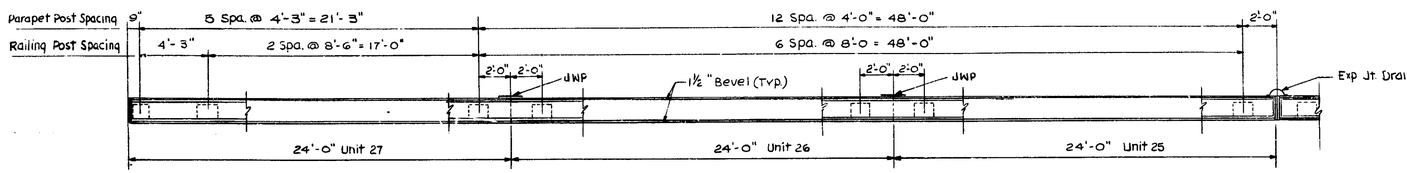
MICHIGAN DEPARTMENT OF STATE HIGHWAYS
RETAINING WALL DETAILS
UNITS 22, 23 & 24

REVISIONS

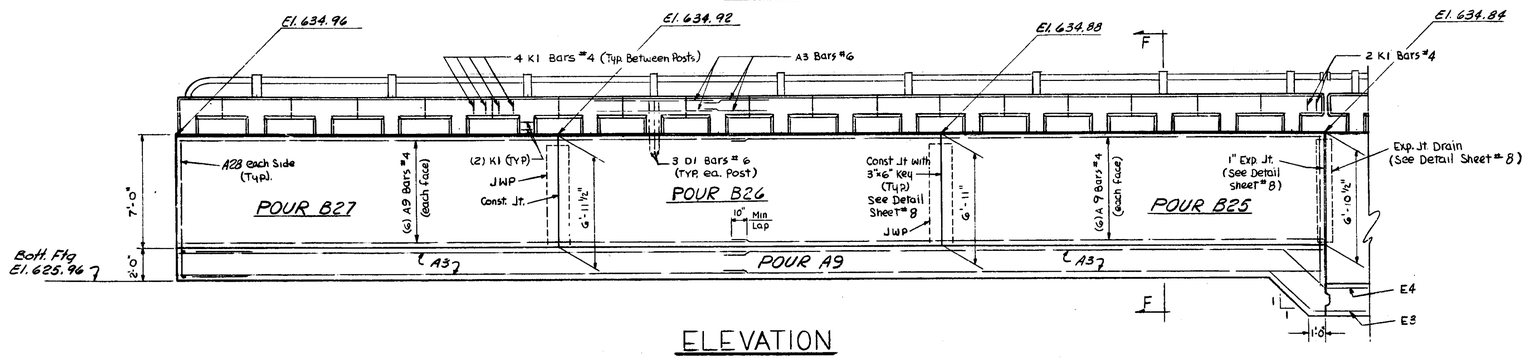
NO.	DESCRIPTION	DATE	BY

SQUAD BOSS	Kuhr	
DRAWN BY	R.F.B.	4-24-69
TRACED BY		
CHECKED BY	G.C.D.	5-7-69
SHEET 13 OF 15		

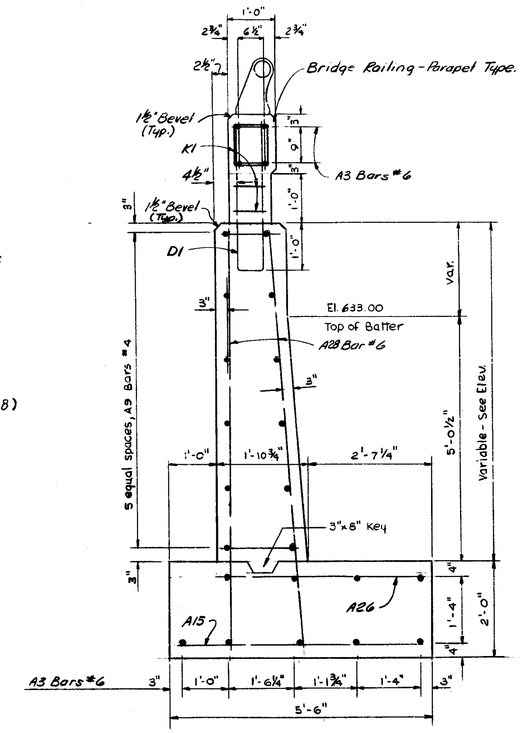
WO: of 63174A



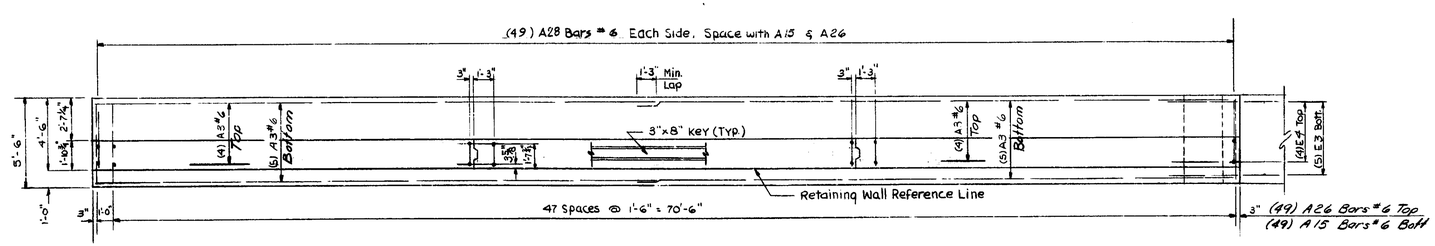
PLAN



ELEVATION



SECTION F-F



PLAN OF FOOTING

MICHIGAN DEPARTMENT OF STATE HIGHWAYS
RETAINING WALL DETAILS
UNITS 25, 26 & 27

REVISIONS

NO.	DESCRIPTION	DATE	BY

ROAD BOSS	FUHR
DRAWN BY	LAMERE
TRACED BY	
CHECKED BY	G.C.B. 5-8-69
SHEET 17 OF 15	

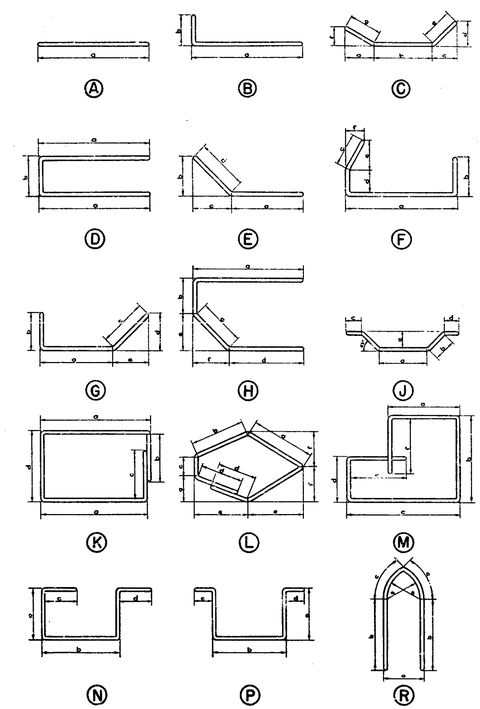
W01 of 63174A

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.
A1	17'-0"							9	17'-0"	97	5607
A2	7'-9"							7	7'-9"	48	760
A3	36'-6"							6	36'-6"	270	14,801
A4	16'-3"							7	16'-3"	49	1595
A5	16'-3"							6	16'-3"	48	1172
A6	13'-0"							7	13'-0"	49	1275
A7	8'-6"							7	8'-6"	96	1668
A8	11'-0"							6	11'-0"	192	3172
A9	36'-3"							4	36'-3"	428	10,366
A10	15'-0"							6	15'-0"	288	6489
A11	11'-6"							7	11'-6"	144	3385
A12	8'-3"							7	8'-3"	144	2428
A13	6'-0"							7	6'-0"	144	1765
A14	12'-0"							8	12'-0"	291	9324
A15	5'-0"							6	5'-0"	184	1382
A16	12'-0"							6	12'-0"	194	3496
A17	10'-6"							7	10'-6"	96	2060
A18	5'-9"							7	5'-9"	48	564
A19	10'-9"							6	10'-9"	194	3133
A20	7'-6"							6	7'-6"	49	552
A21	7'-6"							7	7'-6"	49	751
A22	8'-0"							6	8'-0"	49	589
A23	5'-9"							6	5'-9"	49	423
A24	14'-3"							6	14'-3"	98	2097
A25	6'-6"							6	6'-6"	49	478
A26	4'-3"							6	4'-3"	98	625
A27	10'-6"							6	10'-6"	192	3028
A28	8'-9"							6	8'-9"	98	1288
D1	3'-1 5/16"	7 1/8"						6	6'-9"	462	4685
K1	10 3/4"	8 1/4"	6"	6 1/4"				4	3'-5"	920	2098
E1	3'-0"	4'-0 3/8"	4'-0 3/8"	5'-9"				6	8'-9"	31	407
E2	3'-0"	2'-5 3/4"	2'-5 3/4"	3'-6"				6	6'-6"	16	156
E3	3'-0"	3'-6 3/8"	3'-6 3/8"	5'-0"				6	8'-0"	5	60
E4	3'-0"	1'-9 3/8"	1'-9 3/8"	2'-6"				6	5'-6"	4	33

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.

BAR	DIMENSIONS a	b	c	d	e	f	g	SIZE	LENGTH	NO. REQ'D.	TOTAL WT.

BAR BENDING DIAGRAM



Tolerances in cutting and bending bars are as established in Manual of Standard Practice of the Concrete Reinforcing Steel Institute and Detailing Manual of the American Concrete Institute.

Note:—
All right angle bends in Reinforcing Steel to be made about a pin of the minimum diameter allowed by the Standard Specifications.

Grand Total Steel Reinforcement 91,712 #

MICHIGAN STATE HIGHWAY DEPARTMENT

STEEL REINFORCEMENT DETAILS

REVISIONS			
NO	DESCRIPTION	DATE	BY

SQUAD BOSS RCE
DRAWN BY R.A.J.
TRACED BY
CHECKED BY GCD 5-20-67
SHEET 15 OF 15

W01 of 63174A