

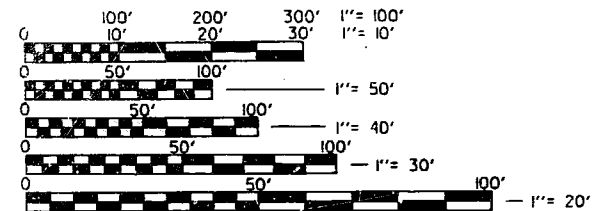
# STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

## PLANS FOR PROPOSED FEDERAL AID HIGHWAY

FA RTE	SECTION	COUNTIES	TOTAL SHEETS	NO.
FA-426	#	KANE & COOK	209	1
ILLINOIS PROJECT # P-91-356-84				

\*(8R & 8R-1)RS-1, 7Y-V-I-1, 8R-HB(4,5,6,7)BY, 8RB(I & 1-BY)86

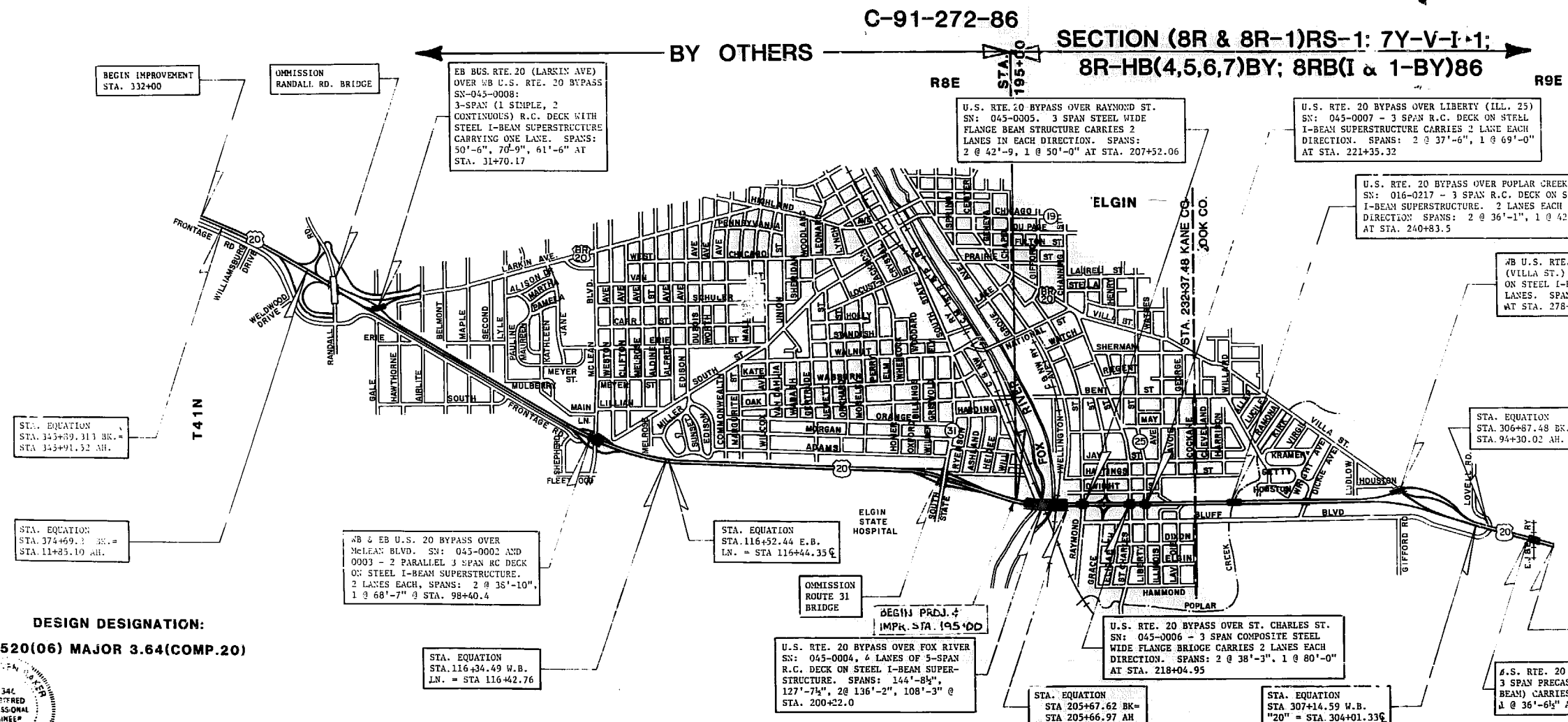
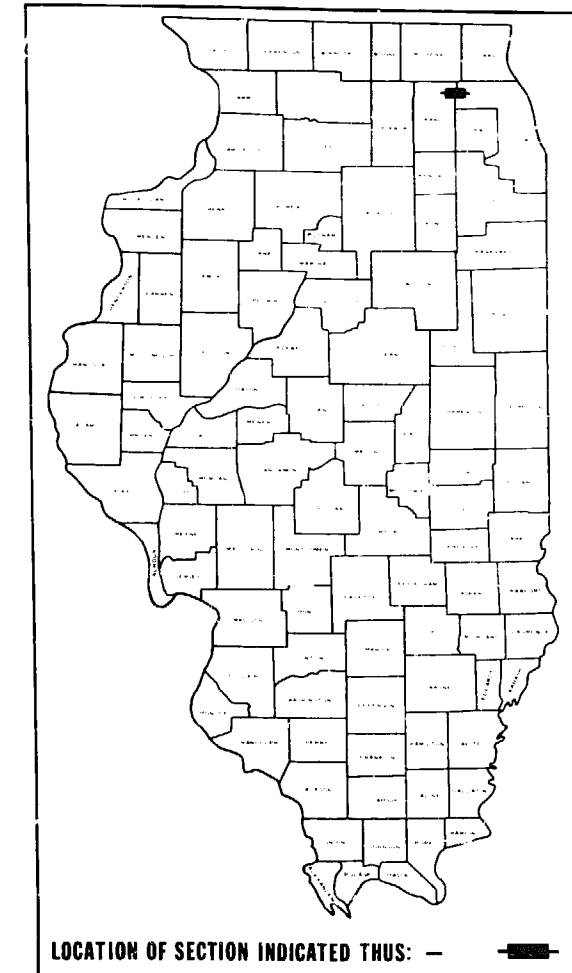
FOR INDEX OF SHEETS, SEE SHEET NO. 2



PLAN 1" = 50'  
PROFILE HORIZ. 1" = 50'  
PROFILE VERT. 1" = 5'  
CROSS SECTIONS HORIZ. 1" = 10'  
VERT. 1" = 5'

FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES, REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES, IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

F.A. ROUTE 426 (U.S. 20)  
SECTION (8R & 8R-1)RS-1; 7Y-V-I-1; 8R-HB(4,5,6,7)BY; 8RB(I & 1-BY)86  
PROJECT IX -426-I(19)  
KANE AND COOK COUNTIES



**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS**

SUBMITTED: 2-23 1986  
EXAMINED: 9-2 1986  
PASSED: 9-2 1986  
APPROVED: 9-2 1986

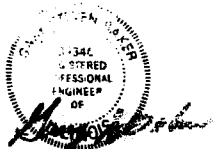
DISTRICT ENGINEER  
ENGINEER OF PLANS AND CONTRACTS  
ENGINEER OF DESIGN  
DIRECTOR DIVISION OF HIGHWAYS

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION**

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

TOTAL PROJECT  
GROSS LENGTH OF IMPROVEMENT 12,821.37 LIN. FT. (2.429 MILES) 3738.13 LIN. FT. (0.708 MI.) 9083.24 LIN. FT. (1.720 MI.)  
NET LENGTH OF IMPROVEMENT 12,821.37 LIN. FT. (2.429 MILES) 3738.13 LIN. FT. (0.708 MI.) 9083.24 LIN. FT. (1.720 MI.)

CONSULTANT PROJECT ENGINEER: R. SHAH (312) 884-4232



CONTRACT NO. 426-1(19)

# INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	INDEX OF SHEETS; STATE STANDARDS; GENERAL NOTES
3,4	TYPICAL SECTIONS
5-7	SUMMARY OF QUANTITIES
8	DRAINAGE SCHEDULES
9	SIGNING SCHEDULES
10-15	PROPOSED ROADWAY PLANS
16	PROFILE W.B. U.S. RTE 20 (BY-PASS) VILLA STREET REALIGNMENT
17	PROFILE W.B. U.S. RTE 20 (BUSINESS) VILLA STREET REALIGNMENT
18-25	STAGE CONSTRUCTION - MAINTENANCE OF TRAFFIC
26,27	MISCELLANEOUS DETAILS
28-33	PAVEMENT STRIPPING AND SIGNING PLANS
34-36	GUIDE SIGN LEGEND LAYOUT
37	GROUND MOUNT SIGN STRUCTURES - BREAKAWAY SIGN POSTS
38	OVERHEAD SIGN STRUCTURES - GENERAL PLAN AND ELEVATION
39	OVERHEAD SIGN STRUCTURES - POST AND CHORD DETAILS
40,41	OVERHEAD SIGN STRUCTURES - STEEL WALKWAY DETAILS
42	OVERHEAD SIGN STRUCTURES - FOUNDATION DETAILS
43	OVERHEAD SIGN STRUCTURES - CANTILEVER - GENERAL PLAN AND ELEVATION
44	OVERHEAD SIGN STRUCTURES - CANTILEVER - FRAME AND POST DETAILS
45-46	OVERHEAD SIGN STRUCTURES - STEEL WALKWAY DETAILS
47	OVERHEAD SIGN STRUCTURES - CANTILEVER - DRILLED SHAFT CONCRETE FOUNDATION
48	SIGN PANEL AND LIGHT FIXTURE PLACEMENT
49	FLUORESCENT SIGN LIGHTING EQUIPMENT ELECTRICAL DETAILS (OS-6)
50	FLUORESCENT SIGN LIGHTING FIXTURES (OS-6A)
51	TEMPORARY TRAFFIC SIGNAL INSTALLATION - US 20 AT LOVELL ROAD
52,53	TRAFFIC SIGNAL INSTALLATION - US 20 (LAKE STREET) AT LOVELL/BLUFF CITY BOULEVARD
54-72	CROSS-SECTIONS
73-76	PROPOSED LIGHTING
77	CONTROL CABINET "Y" WIRING DIAGRAM
78	48 FT. M.H. ALUMINUM LIGHT STANDARD
79	HIGH MAST LIGHT POLE & POLE FOUNDATION DETAILS
80	UNDERPASS LIGHTING DETAILS
81	CONTROL CABINET, CONSOLE TYPE PANEL LAYOUT
82	CONTROL CABINET, CONSOLE TYPE CABINET AND FOUNDATION
83	SERVICE POLE INSTALLATION
<b>U.S. RTE 20 OVER FOX RIVER</b>	
84	GENERAL PLAN & ELEVATION
85	STAGE CONSTRUCTION
86	SUPERSTRUCTURE
87	SUPERSTRUCTURE DETAILS
88	TYPE T-1 STEEL RAILING
89	APPROACH SLABS
90	EXISTING SUBSTRUCTURE REPAIRS W. ABUTMENT, PIER 1 & PIER 2
91	EXISTING SUBSTRUCTURE REPAIRS PIER 3, PIER 4 & E. ABUTMENT
92	CONTINUOUS SEAL NEOPRENE EXPANSION JOINT
93	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
94	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
<b>U.S. RTE 20 OVER RAYMOND STREET</b>	
95	GENERAL PLAN AND ELEVATION
96	STAGE CONSTRUCTION
97,98	TOP OF SLAB ELEVATIONS
99	SUPERSTRUCTURE
100-101	SUPERSTRUCTURE DETAILS
102	STEEL FRAMING PLAN & DETAILS
103	REPLACEMENT BEARING DETAILS WEST ABUTMENT
104	REPLACEMENT BEARING DETAILS EAST ABUTMENT
105	NEW BEARING DETAILS WEST ABUTMENT
106	NEW BEARING DETAILS EAST ABUTMENT
107	WEST ABUTMENT
108	EAST ABUTMENT
109	PIER NO. 1
110	PIER NO. 2
111	EXISTING SUBSTRUCTURE REPAIRS
112	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
113	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
114	ANCHOR BOLT DETAILS FOR BEARINGS
<b>U.S. RTE 20 OVER ST. CHARLES STREET</b>	
115	GENERAL PLAN AND ELEVATION
116	GENERAL NOTES, BILL OF MATERIAL AND DETAILS
117	STAGE CONSTRUCTION
118-119	TOP OF SLAB ELEVATIONS
120	SUPERSTRUCTURE

## INDEX OF SHEETS (CON'T.)

121-122	SUPERSTRUCTURE DETAILS
123-124	STRUCTURAL STEEL
125	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
126	NEW BEARING DETAILS EAST ABUTMENT & PIER 1
127	REPLACEMENT BEARING DETAILS WEST ABUTMENT
128	REPLACEMENT BEARING DETAILS EAST ABUTMENT & PIER 1
129	WEST ABUTMENT
130	EAST ABUTMENT
131	PIERS
132	EXISTING SUBSTRUCTURE REPAIRS
133	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
134	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
135	ANCHOR BOLT DETAILS FOR BEARINGS
136	PILE DETAILS
<b>U.S. RTE 20 OVER LIBERTY STREET</b>	
137	GENERAL PLAN AND ELEVATION
138	GENERAL NOTES, BILL OF MATERIAL AND DETAILS
139	STAGE CONSTRUCTION
140-141	TOP OF SLAB ELEVATIONS
142	SUPERSTRUCTURE
143-144	SUPERSTRUCTURE DETAILS
145	STRUCTURAL STEEL
146	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
147	NEW BEARING DETAILS EAST ABUTMENT & PIER 1
148	REPLACEMENT BEARING DETAILS WEST ABUTMENT
149	REPLACEMENT BEARING DETAILS EAST ABUTMENT & PIER 1
150	WEST ABUTMENT
151	EAST ABUTMENT
152	PIERS
153	EXISTING SUBSTRUCTURE REPAIRS
154	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
155	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
156	ANCHOR BOLT DETAIL FOR BEARINGS
157	PILE DETAILS
<b>U.S. RTE 20 OVER POPLAR CREEK</b>	
158	GENERAL PLAN AND ELEVATION
159	GENERAL NOTES AND BILL OF MATERIAL
160	STAGE CONSTRUCTION
161-162	TOP OF SLAB ELEVATIONS
163	SUPERSTRUCTURE
164-165	SUPERSTRUCTURE DETAILS
166	CONTINUOUS SEAL TYPE NEOPRENE EXPANSION JOINTS
167	STRUCTURAL STEEL
168	NEW BEARING DETAILS - WEST ABUTMENT AND PIER 2
169	NEW BEARING - DETAILS EAST ABUTMENT AND PIER 1
170	REPLACEMENT BEARING DETAILS - WEST ABUTMENT
171	REPLACEMENT BEARING DETAILS - EAST ABUTMENT AND PIER 1
172	WEST ABUTMENT
173	EAST ABUTMENT
174	PIERS
175	EXISTING SUBSTRUCTURE REPAIRS
176	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
177	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
178	ANCHOR BOLT DETAILS FOR BEARINGS
179	PILE DETAILS
<b>U.S. RTE 20 W.B. OVER VILLA STREET</b>	
180	GENERAL PLAN AND ELEVATION
181	GENERAL NOTES, BILL OF MATERIAL AND DETAILS
182	STAGE CONSTRUCTION
183-184	TOP OF SLAB ELEVATIONS
185	SUPERSTRUCTURE
186	SUPERSTRUCTURE DETAILS
187	STRUCTURAL STEEL
188	NEW BEARING DETAILS
189	REPLACEMENT BEARING DETAILS
190	SOUTH ABUTMENT
191	NORTH ABUTMENT
192	PIER 1
193	PIER 2
194	PIER 3
195	EXISTING SUBSTRUCTURE REPAIRS
196	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
197	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
198	ANCHOR BOLT DETAILS FOR BEARINGS
199	CONTINUOUS SEAL NEOPRENE EXPANSION JOINT
200	PILE DETAILS
201	STEEL DRAINAGE SCUPPER
202	ALTERNATE-CAST IRON DRAINAGE SCUPPER

## INDEX OF SHEETS (CON'T.)

<b>U.S. RTE 20 OVER E.J. &amp; E. R.R.</b>	
203	GENERAL PLAN AND ELEVATION
204	STAGE CONSTRUCTION
205	SUPERSTRUCTURE DETAILS
206	TYPE T-1 STEEL RAILING
207	EXISTING SUBSTRUCTURE REPAIRS
208	TEMPORARY CONC. BARRIER FOR STAGE CONSTRUCTION
209	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
<b>U.S. RTE 20 OVER FOX RIVER</b>	
210-211	GENERAL PLAN AND ELEVATION
212-213	TOP OF SLAB ELEVATIONS
214-215	SUPERSTRUCTURE
216-217	SUPERSTRUCTURE DETAILS
218-219	STRUCTURAL STEEL
220-221	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
222-223	NEW BEARING DETAILS EAST ABUTMENT & PIER 1
224-225	REPLACEMENT BEARING DETAILS WEST ABUTMENT
226-227	REPLACEMENT BEARING DETAILS EAST ABUTMENT & PIER 1
228-229	WEST ABUTMENT
230-231	EAST ABUTMENT
232-233	PIERS
234-235	EXISTING SUBSTRUCTURE REPAIRS
236-237	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
238-239	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
240-241	ANCHOR BOLT DETAIL FOR BEARINGS
242-243	PILE DETAILS
<b>U.S. RTE 20 OVER RAYMOND STREET</b>	
244-245	GENERAL PLAN AND ELEVATION
246-247	TOP OF SLAB ELEVATIONS
248-249	SUPERSTRUCTURE
250-251	SUPERSTRUCTURE DETAILS
252-253	STRUCTURAL STEEL
254-255	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
256-257	NEW BEARING - DETAILS EAST ABUTMENT AND PIER 1
258-259	REPLACEMENT BEARING DETAILS - WEST ABUTMENT
260-261	REPLACEMENT BEARING DETAILS - EAST ABUTMENT AND PIER 1
262-263	WEST ABUTMENT
264-265	EAST ABUTMENT
266-267	PIERS
268-269	EXISTING SUBSTRUCTURE REPAIRS
270-271	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
272-273	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
274-275	ANCHOR BOLT DETAILS FOR BEARINGS
276-277	PILE DETAILS
<b>U.S. RTE 20 W.B. OVER VILLA STREET</b>	
278-279	GENERAL PLAN AND ELEVATION
280-281	TOP OF SLAB ELEVATIONS
282-283	SUPERSTRUCTURE
284-285	SUPERSTRUCTURE DETAILS
286-287	STRUCTURAL STEEL
288-289	NEW BEARING DETAILS
290-291	REPLACEMENT BEARING DETAILS
292-293	SOUTH ABUTMENT
294-295	NORTH ABUTMENT
296-297	PIER 1
298-299	PIER 2
300-301	PIER 3
302-303	EXISTING SUBSTRUCTURE REPAIRS
304-305	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
306-307	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
308-309	ANCHOR BOLT DETAILS FOR BEARINGS
310-311	CONTINUOUS SEAL NEOPRENE EXPANSION JOINT
312-313	PILE DETAILS
314-315	STEEL DRAINAGE SCUPPER
316-317	ALTERNATE-CAST IRON DRAINAGE SCUPPER
<b>U.S. RTE 20 OVER E.J. &amp; E. R.R.</b>	
318-319	GENERAL PLAN AND ELEVATION
320-321	STAGE CONSTRUCTION
322-323	SUPERSTRUCTURE DETAILS
324-325	TYPE T-1 STEEL RAILING
326-327	EXISTING SUBSTRUCTURE REPAIRS
328-329	TEMPORARY CONC. BARRIER FOR STAGE CONSTRUCTION
330-331	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
332-333	ANCHOR BOLT DETAILS AT STAGE CONSTRUCTION
334-335	PILE DETAILS
<b>U.S. RTE 20 OVER LIBERTY STREET</b>	
336-337	GENERAL PLAN AND ELEVATION
338-339	TOP OF SLAB ELEVATIONS
340-341	SUPERSTRUCTURE
342-343	SUPERSTRUCTURE DETAILS
344-345	STRUCTURAL STEEL
346-347	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
348-349	NEW BEARING DETAILS EAST ABUTMENT & PIER 1
350-351	REPLACEMENT BEARING DETAILS WEST ABUTMENT
352-353	REPLACEMENT BEARING DETAILS EAST ABUTMENT & PIER 1
354-355	WEST ABUTMENT
356-357	EAST ABUTMENT
358-359	PIERS
360-361	EXISTING SUBSTRUCTURE REPAIRS
362-363	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
364-365	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
366-367	ANCHOR BOLT DETAIL FOR BEARINGS
368-369	PILE DETAILS
<b>U.S. RTE 20 OVER POPLAR CREEK</b>	
370-371	GENERAL PLAN AND ELEVATION
372-373	TOP OF SLAB ELEVATIONS
374-375	SUPERSTRUCTURE
376-377	SUPERSTRUCTURE DETAILS
378-379	STRUCTURAL STEEL
380-381	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
382-383	NEW BEARING - DETAILS EAST ABUTMENT AND PIER 1
384-385	REPLACEMENT BEARING DETAILS - WEST ABUTMENT
386-387	REPLACEMENT BEARING DETAILS - EAST ABUTMENT AND PIER 1
388-389	WEST ABUTMENT
390-391	EAST ABUTMENT
392-393	PIERS
394-395	EXISTING SUBSTRUCTURE REPAIRS
396-397	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
398-399	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
400-401	ANCHOR BOLT DETAIL FOR BEARINGS
402-403	PILE DETAILS
<b>U.S. RTE 20 OVER RAYMOND STREET</b>	
404-405	GENERAL PLAN AND ELEVATION
406-407	TOP OF SLAB ELEVATIONS
408-409	SUPERSTRUCTURE
410-411	SUPERSTRUCTURE DETAILS
412-413	STRUCTURAL STEEL
414-415	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
416-417	NEW BEARING - DETAILS EAST ABUTMENT AND PIER 1
418-419	REPLACEMENT BEARING DETAILS - WEST ABUTMENT
420-421	REPLACEMENT BEARING DETAILS - EAST ABUTMENT AND PIER 1
422-423	WEST ABUTMENT
424-425	EAST ABUTMENT
426-427	PIERS
428-429	EXISTING SUBSTRUCTURE REPAIRS
430-431	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
432-433	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
434-435	ANCHOR BOLT DETAILS FOR BEARINGS
436-437	PILE DETAILS
<b>U.S. RTE 20 W.B. OVER VILLA STREET</b>	
438-439	GENERAL PLAN AND ELEVATION
440-441	TOP OF SLAB ELEVATIONS
442-443	SUPERSTRUCTURE
444-445	SUPERSTRUCTURE DETAILS
446-447	STRUCTURAL STEEL
448-449	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
450-451	NEW BEARING - DETAILS EAST ABUTMENT AND PIER 1
452-453	REPLACEMENT BEARING DETAILS - WEST ABUTMENT
454-455	REPLACEMENT BEARING DETAILS - EAST ABUTMENT AND PIER 1
456-457	WEST ABUTMENT
458-459	EAST ABUTMENT
460-461	PIERS
462-463	EXISTING SUBSTRUCTURE REPAIRS
464-465	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
466-467	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
468-469	ANCHOR BOLT DETAILS FOR BEARINGS
470-471	PILE DETAILS
<b>U.S. RTE 20 OVER FOX RIVER</b>	
472-473	GENERAL PLAN AND ELEVATION
474-475	TOP OF SLAB ELEVATIONS
476-477	SUPERSTRUCTURE
478-479	SUPERSTRUCTURE DETAILS
480-481	STRUCTURAL STEEL
482-483	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
484-485	NEW BEARING - DETAILS EAST ABUTMENT AND PIER 1
486-487	REPLACEMENT BEARING DETAILS - WEST ABUTMENT
488-489	REPLACEMENT BEARING DETAILS - EAST ABUTMENT AND PIER 1
490-491	WEST ABUTMENT
492-493	EAST ABUTMENT
494-495	PIERS
496-497	EXISTING SUBSTRUCTURE REPAIRS
498-499	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
500-501	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
502-503	ANCHOR BOLT DETAILS FOR BEARINGS
504-505	PILE DETAILS
<b>U.S. RTE 20 OVER RAYMOND STREET</b>	
506-507	GENERAL PLAN AND ELEVATION
508-509	TOP OF SLAB ELEVATIONS
510-511	SUPERSTRUCTURE
512-513	SUPERSTRUCTURE DETAILS
514-515	STRUCTURAL STEEL
516-517	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
518-519	NEW BEARING - DETAILS EAST ABUTMENT AND PIER 1
520-521	REPLACEMENT BEARING DETAILS - WEST ABUTMENT
522-523	REPLACEMENT BEARING DETAILS - EAST ABUTMENT AND PIER 1
524-525	WEST ABUTMENT
526-527	EAST ABUTMENT
528-529	PIERS
530-531	EXISTING SUBSTRUCTURE REPAIRS
532-533	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
534-535	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
536-537	ANCHOR BOLT DETAILS FOR BEARINGS
538-539	PILE DETAILS
<b>U.S. RTE 20 W.B. OVER VILLA STREET</b>	
540-541	GENERAL PLAN AND ELEVATION
542-543	TOP OF SLAB ELEVATIONS
544-545	SUPERSTRUCTURE
546-547	SUPERSTRUCTURE DETAILS
548-549	STRUCTURAL STEEL
550-551	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
552-553	NEW BEARING - DETAILS EAST ABUTMENT AND PIER 1
554-555	REPLACEMENT BEARING DETAILS - WEST ABUTMENT
556-557	REPLACEMENT BEARING DETAILS - EAST ABUTMENT AND PIER 1
558-559	WEST ABUTMENT
560-561	EAST ABUTMENT
562-563	PIERS
564-565	EXISTING SUBSTRUCTURE REPAIRS
566-567	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
568-569	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
570-571	ANCHOR BOLT DETAILS FOR BEARINGS
572-573	PILE DETAILS
<b>U.S. RTE 20 OVER FOX RIVER</b>	
574-575	GENERAL PLAN AND ELEVATION
576-577	TOP OF SLAB ELEVATIONS
578-579	SUPERSTRUCTURE
580-581	SUPERSTRUCTURE DETAILS
582-583	STRUCTURAL STEEL
584-585	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
586-587	NEW BEARING - DETAILS EAST ABUTMENT AND PIER 1
588-589	REPLACEMENT BEARING DETAILS - WEST ABUTMENT
590-591	REPLACEMENT BEARING DETAILS - EAST ABUTMENT AND PIER 1
592-593	WEST ABUTMENT
594-595	EAST ABUTMENT
596-597	PIERS
598-599	EXISTING SUBSTRUCTURE REPAIRS
600-601	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
602-603	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
604-605	ANCHOR BOLT DETAILS FOR BEARINGS
606-607	PILE DETAILS
<b>U.S. RTE 20 OVER RAYMOND STREET</b>	
608-609	GENERAL PLAN AND ELEVATION
610-611	TOP OF SLAB ELEVATIONS
612-613	SUPERSTRUCTURE
614-615	SUPERSTRUCTURE DETAILS
616-617	STRUCTURAL STEEL
618-619	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
620-621	NEW BEARING - DETAILS EAST ABUTMENT AND PIER 1
622-623	REPLACEMENT BEARING DETAILS - WEST ABUTMENT
624-625	REPLACEMENT BEARING DETAILS - EAST ABUTMENT AND PIER 1
626-627	WEST ABUTMENT
628-629	EAST ABUTMENT
630-631	PIERS
632-633	EXISTING SUBSTRUCTURE REPAIRS
634-635	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
636-637	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
638-639	ANCHOR BOLT DETAILS FOR BEARINGS
640-641	PILE DETAILS
<b>U.S. RTE 20 W.B. OVER VILLA STREET</b>	
642-643	GENERAL PLAN AND ELEVATION
644-645	TOP OF SLAB ELEVATIONS
646-647	SUPERSTRUCTURE
648-649	SUPERSTRUCTURE DETAILS
650-651	STRUCTURAL STEEL
652-653	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
654-655	NEW BEARING - DETAILS EAST ABUTMENT AND PIER 1
656-657	REPLACEMENT BEARING DETAILS - WEST ABUTMENT
658-659	REPLACEMENT BEARING DETAILS - EAST ABUTMENT AND PIER 1
660-661	WEST ABUTMENT
662-663	EAST ABUTMENT
664-665	PIERS
666-667	EXISTING SUBSTRUCTURE REPAIRS
668-669	TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
670-671	BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION
672-673	ANCHOR BOLT DETAILS FOR BEARINGS
674-675	PILE DETAILS
<b>U.S. RTE 20 OVER FOX RIVER</b>	
676-677	GENERAL PLAN AND ELEVATION
678-679	TOP OF SLAB ELEVATIONS
680-681	SUPERSTRUCTURE
682-683	SUPERSTRUCTURE DETAILS
684-685	STRUCTURAL STEEL
686-687	NEW BEARING DETAILS WEST ABUTMENT & PIER 2
688-689	NEW BEARING - DETAILS EAST ABUTMENT AND PIER 1
690-691	REPLACEMENT BEARING DETAILS - WEST ABUTMENT
692-693	REPLACEMENT BEARING DETAILS - EAST ABUTMENT AND PIER 1
694-695	WEST ABUTMENT
696-697	EAST AB

**EXISTING STRUCTURE DATA:** THE EXISTING THREE SPAN CONTINUOUS NON-COMPOSITE ROLLED BEAM STRUCTURE WAS CONSTRUCTED IN 1959, CARRYING TWO LANES IN EACH DIRECTION OF U.S. ROUTE 20 BYPASS TRAFFIC OVER POPLAR CREEK. THE STRUCTURE IS 119'-0" LONG WITH A TOTAL ROADWAY WIDTH OF 75'-2". THE EAST AND THE WESTBOUND TRAFFIC IS SEPARATED BY A NEW JERSEY TYPE CONCRETE BARRIER WALL MEDIAN WHICH WAS CONSTRUCTED IN 1979. THE DECKS AND SUBSTRUCTURE ARE REINFORCED CONCRETE. THE PIERS ARE SUPPORTED ON SPREAD FOOTINGS AND THE ABUTMENTS ARE SUPPORTED ON PILES.

**CONTRACTOR SHALL WIDEN EXISTING STRUCTURE, SCARIFY EXISTING DECK AND APPLY CONCRETE OVERLAY USING STAGE CONSTRUCTION.**

Original Construction Boring Locations.  
1985 Reconstruction Boring Locations.

**DESIGN DATA**

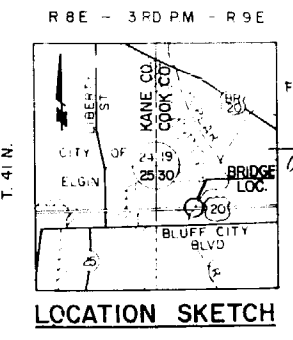
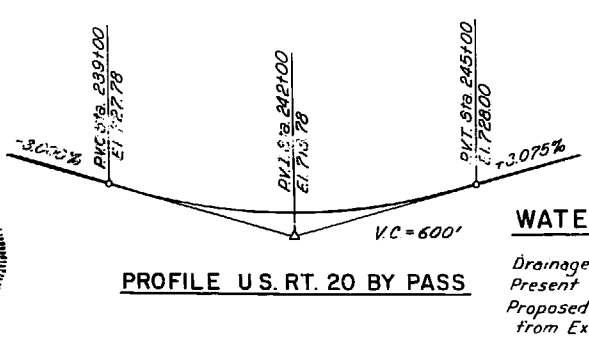
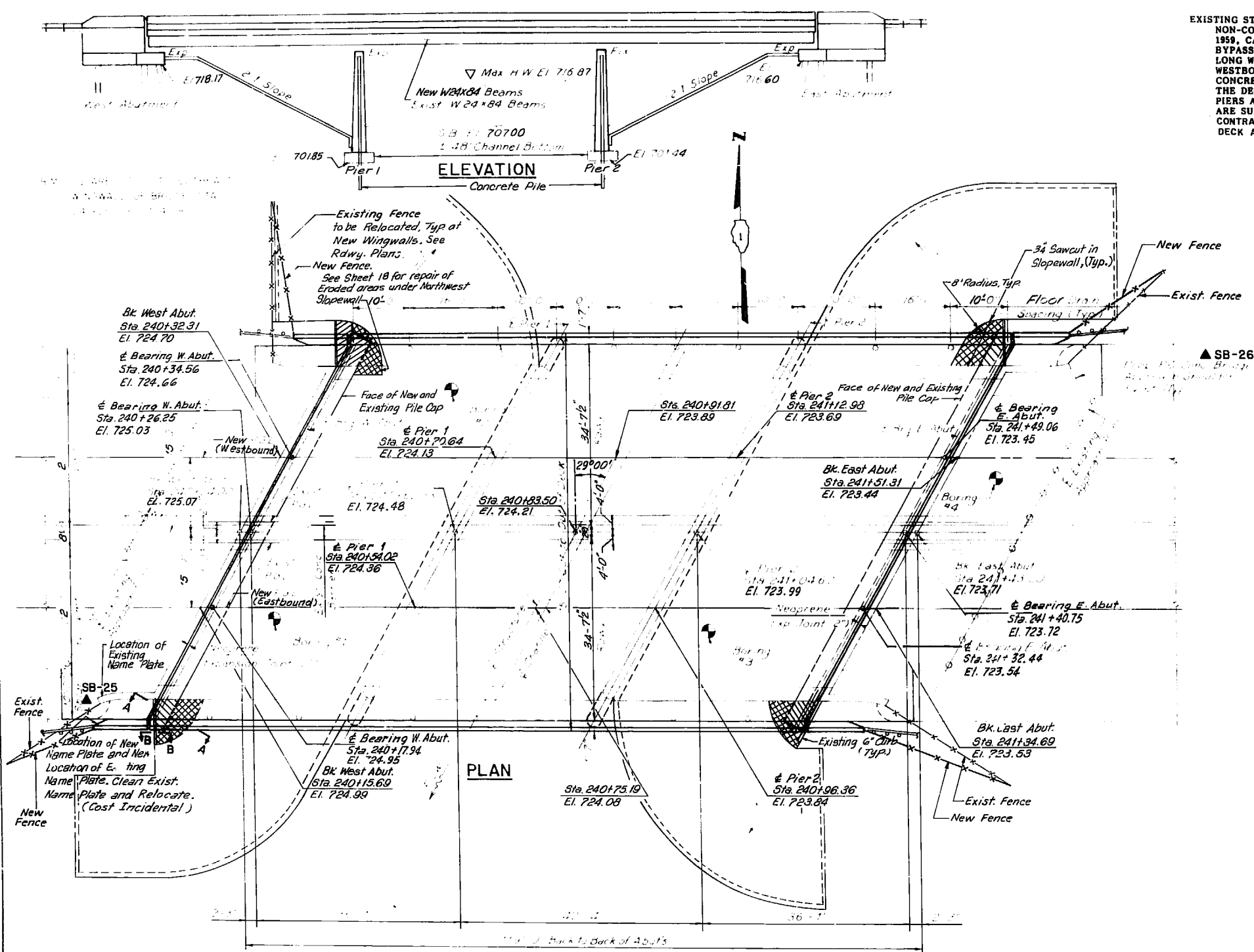
**DESIGN SPECIFICATIONS:** AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1983 EDITION, 1984 & 1985 INTERIMS.

**NEW CONCRETE:** F'C=3500 PSI  
FC=1400 PSI  
**NEW REINFORCING STEEL:** FY=60000 PSI  
FS=24000 PSI  
**NEW STRUCTURAL STEEL:** FS=20000 PSI  
**EXISTING STRUCTURAL STEEL:** FS=18000 PSI  
**DESIGN LOADING:** HS20-44

STRUCTURAL STEEL, CONCRETE DECK AND SUBSTRUCTURE CONCRETE ARE DESIGNED BY THE SERVICE LOAD METHOD.

STA. 240+83.50  
WIDENED 198 BY  
STATE OF ILLINOIS  
F.A.R.T.6(SB.15)SEC. 8R-B-1(86)  
F.A. PROJ. I.A. 46-1179  
LOADING HS20  
STR. NO. 016-0217  
See Standard 2113  
See Plan for locations of new and existing Name Plates.

- NOTES:**
- Denotes SlopeWall Removal
  - Denotes SlopeWall area to be Removed and n" n SlopeWall Constructed.
- For Sections A-A and B-B,  
See Sheet No. 18



**APPROVED**  
FOR STRUCTURAL ADEQUACY ONLY

James J. Radwin  
Engineer of Structural Steel Structures

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**GENERAL PLAN AND ELEVATION**

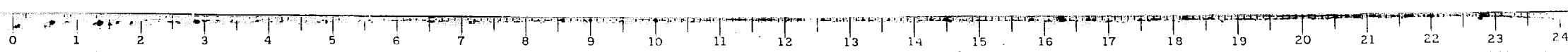
REVISIONS	
NAME	DATE
Profile Revised	2/186

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION 8R-B-1 (86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016 - 0217

**Baker Engineers**  
Baker Engineering, Inc.

DESIGNED P. Wood  
CHECKED J. Owen  
DRAWN J. Stelby  
CHECKED P. Wood

Signed *John H. Owen* Date 4-21-86  
John H. Owen, SE, Ill. Reg No. 81-3361



TOTAL BILL OF MATERIALS				
ITEM	UNIT	SUPER-STRUCTURE	SUB-STRUCTURE	TOTAL
CONCRETE REMOVAL	CU YD	64	4	68
EXPANSION BOLTS, 3/4 INCH	EACH	---	126	126
REMOVAL OF EXISTING BEARINGS	EACH	---	36	36
STRUCTURE EXCAVATION	CU YD	---	74	74
FLOOR DRAINS	EACH	14	---	14
PROTECTIVE COAT	SQ YD	1053	---	1053
PREFORMED JOINT SEAL, 2"	LIN FT	117	---	117
ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	---	28	28
ELASTOMERIC BEARING ASSEMBLY, TYPE II	EACH	---	14	14
CLASS X CONCRETE	CU YD	105.0	83.5	188.5
STRUCTURAL STEEL	L. SUM	.12	---	.12
CLEANING AND PAINTING ST. BR. NO. 4	L. SUM	1	---	1
REINFORCEMENT BARS	POUND	---	7,440	7,440
REINFORCEMENT BARS, (EPOXY COATED)	POUND	22,922	---	22,922
FURNISHING CONCRETE PILES	LIN FT	---	279	279
DRIVING CONCRETE PILES	LIN FT	---	279	279
TEST PILE CONCRETE	EACH	---	2	2
NAME PLATE	EACH	1	---	1
TEMPORARY CONCRETE BARRIER	UNIT	55	---	55
TEMPORARY CONCRETE BARRIER, TERMINAL SECTION	EACH	2	---	2
RELOCATE TEMPORARY CONCRETE BARRIER	UNIT	55	---	55
SLOPE WALL REMOVAL	SQ YD	---	195	195
SLOPE WALL, 6 INCH	SQ YD	---	121	121
BRIDGE DECK SCARIFICATION (1 1/2")	SQ YD	634	---	634
PLASTICIZED BRIDGE DECK CONCRETE OVERLAY	SQ YD	643	---	643
DECK SLAB REPAIR (FULL DEPTH)	SQ YD	40	---	40
DECK SLAB REPAIR (PARTIAL DEPTH)	SQ YD	200	---	200
NEOPRENE EXPANSION JOINT 2"	LIN FT	166	---	166
EPOXY MORTAR REPAIR	CU FT	---	3	3
EPOXY CRACK SEALING	LIN FT	---	146	146

### GENERAL NOTES

- SEE PROPOSAL FOR BORING DATA.
- FASTENERS SHALL BE HIGH STRENGTH BOLTS. BOLTS 3/4" DIA., OPEN HOLES 13/16" DIA., UNLESS OTHERWISE NOTED.
- ALL STRUCTURAL STEEL SHALL RECEIVE ONE COAT OF DULL ORANGE PRIMER; NEW STRUCTURAL STEEL SHALL BE SHOP PRIMED. ALL STRUCTURAL STEEL, NEW AND EXISTING, SHALL RECEIVE TWO FIELD COATS OF ALUMINUM PAINT WITH THE FOLLOWING EXCEPTIONS, AS APPLICABLE, WHICH SHALL RECEIVE ONE COAT OF MARINE ENAMEL PAINT WITH ONE COAT OF INTERSTATE GREEN PAINT.
  - THE EXTERIOR WEB SURFACE, THE BOTTOM AND EDGES OF THE BOTTOM FLANGE, THE BOTTOM SURFACE OF THE EXTERIOR TOP FLANGE, AND THE TOP SURFACE OF THE EXTERIOR BOTTOM FLANGE, OF NEW FACIA BEAMS.
  - ALL STRUCTURAL STEEL ELEMENTS OF NEW ELASTOMERIC BEARING ASSEMBLIES AND NEW STRUCTURAL STEEL FIXED BEARINGS FOR NEW FACIA BEAMS.
- FIELD WELDING OF CONSTRUCTION ACCESSORIES WILL NOT BE PERMITTED TO THE BOTTOM FLANGE OF BEAMS NOR TO THE TOP FLANGE FOR A DISTANCE EQUAL TO ONE-FOURTH THE SPAN LENGTH EACH WAY FROM THE PIER SUPPORTS. FIELD WELDING IN OTHER AREAS WILL BE PERMITTED ONLY WHEN APPROVED BY THE ENGINEER.
- ANCHOR BOLTS SHALL BE SET BEFORE BOLTING NEW DIAPHRAGMS OVER SUPPORTS.
- THE MAIN LOAD CARRYING MEMBER COMPONENTS SUBJECT TO TENSILE STRESS SHALL CONFORM TO THE SUPPLEMENTAL REQUIREMENTS FOR NOTCH TOUGHNESS ZONE 2. THESE COMPONENTS ARE THE WIDE FLANGE BEAMS, ALL SPLICE PLATE MATERIAL AND HINGE PLATES.
- REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 OR M-53, GRADE 60.
- PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING STRUCTURE HAVE BEEN TAKEN FROM EXISTING PLANS AND ARE SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SUCH DIMENSIONS AND DETAILS IN THE FIELD AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING OF MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN THE SCOPE OF WORK. HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE QUANTITY ACTUALLY FURNISHED AT THE UNIT PRICE BID FOR THE WORK.
- EXPANSION BOLTS SHALL CONSIST OF APPROVED EXPANSION ANCHORS, PROVIDING MINIMUM CERTIFIED PROOF LOAD = 4,080 LBS., AND 3/4" DIA. X 12" HOOKED BOLTS.
- BEARING SEAT SURFACES SHALL BE CONSTRUCTED OR ADJUSTED TO THE DESIGNATED ELEVATIONS WITHIN A TOLERANCE OF 1/8 INCH. ADJUSTMENT SHALL BE MADE EITHER BY GRINDING THE SURFACE OR BY SHIMMING THE BEARING. TWO 1/8" ADJUSTING SHIMS, OF THE DIMENSIONS OF THE BOTTOM BEARING PLATE, SHALL BE PROVIDED FOR EACH BEARING IN ADDITION TO ALL OTHER PLATES OR SHIMS. FOR TYPE I ELASTOMERIC BEARINGS, SHIMS OF THE DIMENSIONS OF TOP PLATE SHALL BE PROVIDED AND PLACED AS DETAILED.
- CONCRETE PILES AT ABUTMENTS SHALL BE DRIVEN THROUGH THE EMBANKMENT WITHOUT PRECORING.
- THE CONTRACTOR SHALL DRIVE TWO CONCRETE TEST PILES IN PERMANENT LOCATIONS SHOWN IN THE PLANS AND AS DIRECTED BY THE ENGINEER BEFORE ORDERING THE REMAINDER OF PILES.
- THE EMBANKMENT CONFIGURATION SHOWN SHALL BE THE MINIMUM EMBANKMENT THAT MUST BE CONSTRUCTED PRIOR TO WIDENING OF THE ABUTMENTS.

**Baker Engineers**  
Baker Engineering, Inc.

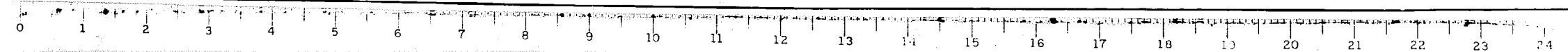
DESIGNED	<i>[Signature]</i>
CHECKED	<i>[Signature]</i>
DRAWN	<i>[Signature]</i>
CHECKED	<i>[Signature]</i>

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

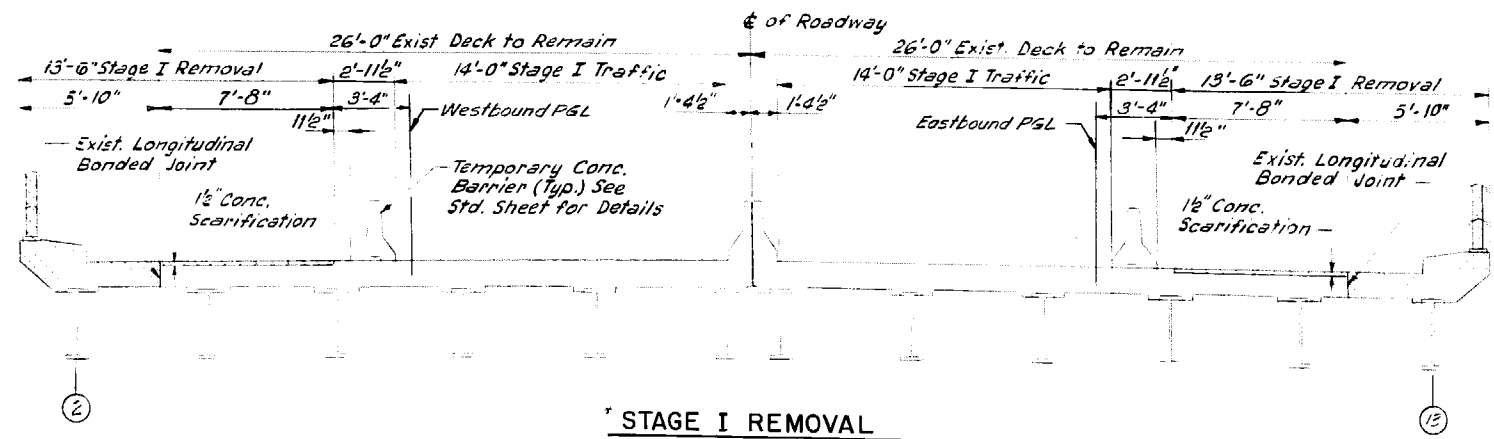
**GENERAL NOTES AND BILL OF MATERIALS**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION 8R-B-1(86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016 - 0217

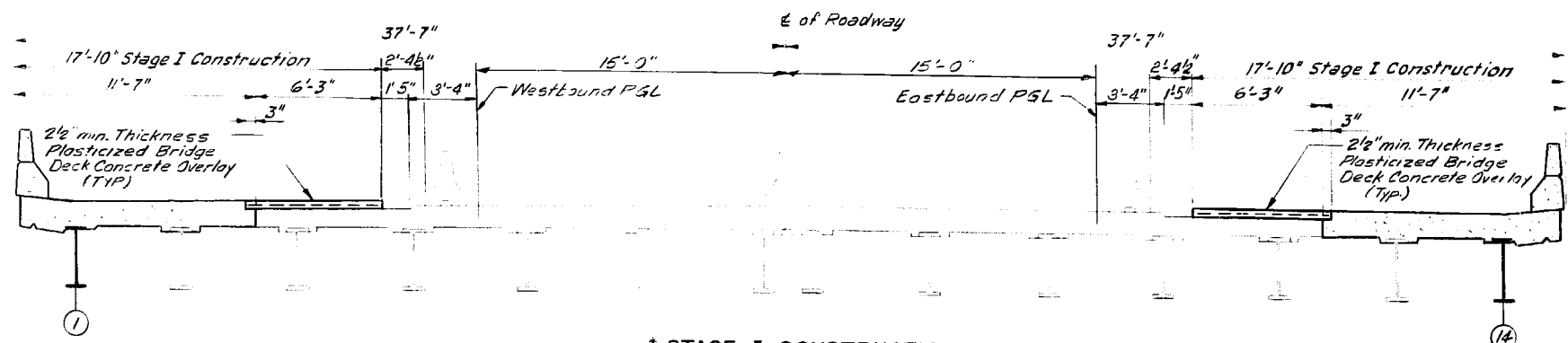
REVISIONS	
NAME	DATE



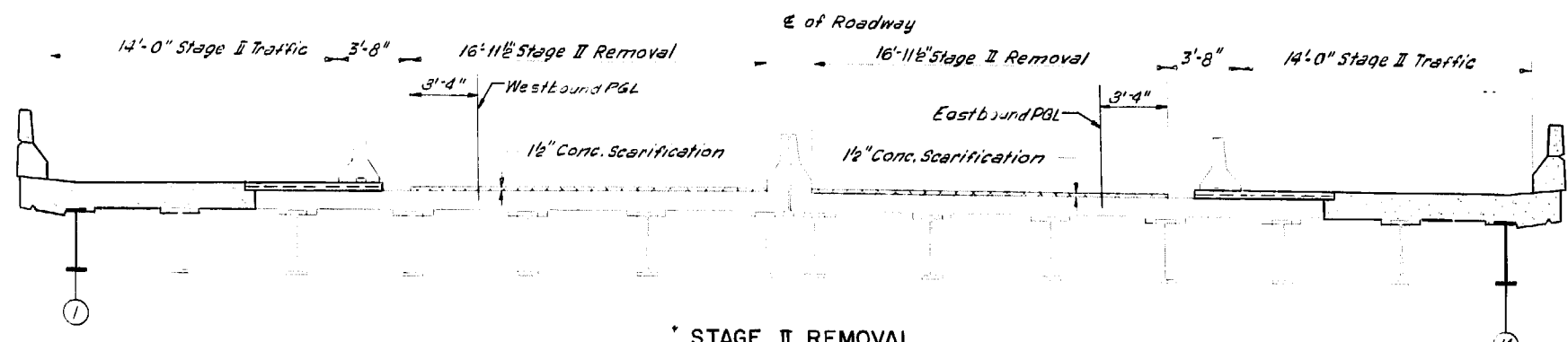
SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
426 BR-B-1 (86)	COOK	209	160
STA		TO STA	
FED. ROAD DIST. NO. 7		ILL. NO. 16	
FED. AID PROJECT			



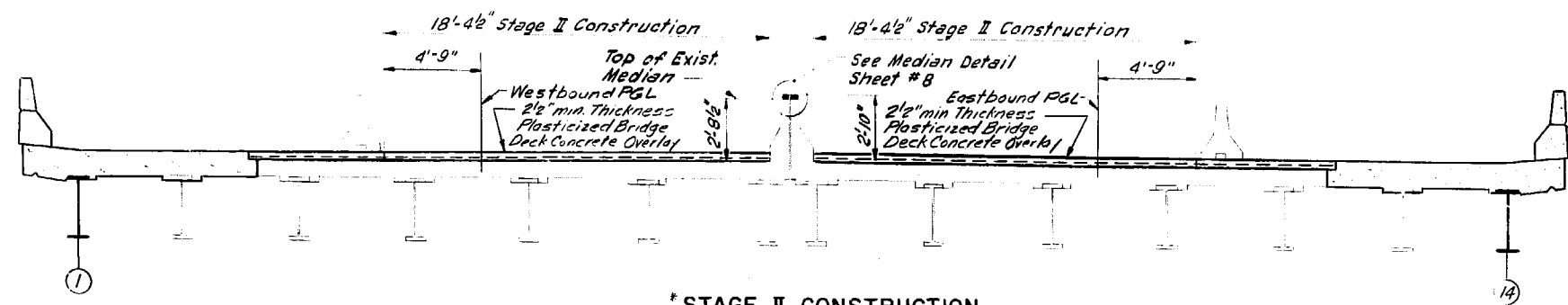
\* STAGE I REMOVAL



\* STAGE I CONSTRUCTION



\* STAGE II REMOVAL



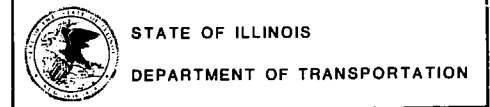
\* STAGE II CONSTRUCTION

\* LOOKING EAST

Note:  
Transverse deck reinforcement extending into removed area shall be cleaned and incorporated into the new construction.  
Denotes Removal



DESIGNED	T. Arey.
CHECKED	P. Wood.
DRAWN	Z. Dabrowski.
CHECKED	P. Wood.

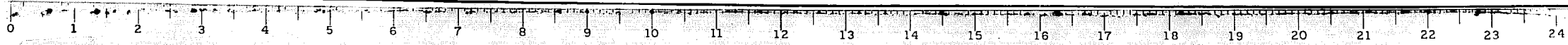


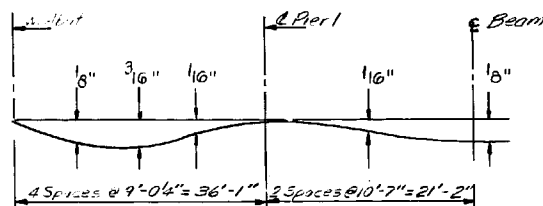
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION 8R-B-1 (86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016-0217

REVISIONS	
NAME	DATE

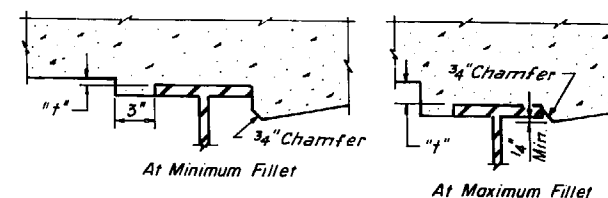




**DEAD LOAD DEFLECTION DIAGRAM**

(Includes weight of concrete only)

Note: The above deflections are not to be used in the field if the Engineer is working from the grade elevations adjusted for dead load deflection as shown below.



**FILLET HEIGHTS**

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown below, minus slab thickness, equals the fillet height's "t" above top flange of beams.

**BEAM 1**

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRGWA	240+45.41	-19.574	724.158	724.158
A	240+55.41	-19.574	724.010	724.022
B	240+65.41	-19.574	723.873	723.885
C	240+75.41	-19.574	723.745	723.749
CBRGP1	240+81.49	-19.574	723.673	723.673
D	240+91.49	-19.574	723.562	723.567
E	241+01.49	-19.574	723.461	723.471
F	241+11.49	-19.574	723.370	723.377
G	241+21.49	-19.574	723.289	723.290
CBRGP2	241+23.83	-19.574	723.271	723.271
H	241+33.83	-19.574	723.203	723.211
I	241+43.83	-19.574	723.145	723.159
J	241+53.83	-19.574	723.097	723.105
CBRGEA	241+59.91	-19.574	723.073	723.073

**BEAM 2**

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRGWA	240+42.36	-14.073	724.321	724.321
A	240+52.36	-14.073	724.170	724.182
B	240+62.36	-14.073	724.029	724.041
C	240+72.36	-14.073	723.899	723.903
CBRGP1	240+78.44	-14.073	723.824	723.824
D	240+88.44	-14.073	723.710	723.715
E	240+98.44	-14.073	723.606	723.616
F	241+08.44	-14.073	723.512	723.519
G	241+18.44	-14.073	723.428	723.429
CBRGP2	241+20.78	-14.073	723.410	723.410
H	241+30.78	-14.073	723.338	723.346
I	241+40.78	-14.073	723.277	723.291
J	241+50.78	-14.073	723.226	723.234
CBRGEA	241+56.86	-14.073	723.200	723.200

**NORTH LONG. CONST. JOINT**

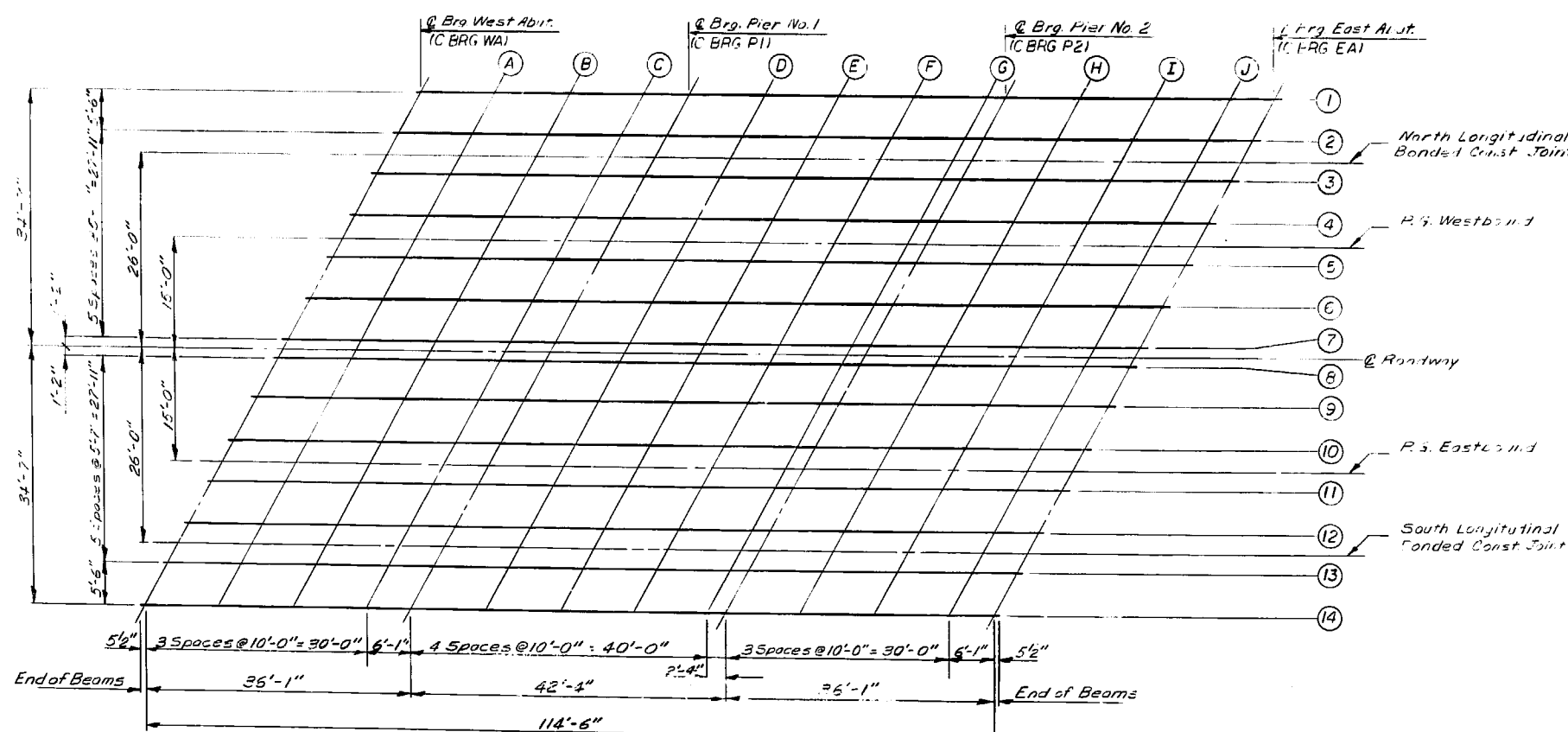
LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRGWA	240+40.65	-11.000	724.412	724.412
A	240+50.65	-11.000	724.259	724.271
B	240+60.65	-11.000	724.117	724.129
C	240+70.65	-11.000	723.985	723.989
CBRGP1	240+76.73	-11.000	723.909	723.909
D	240+86.73	-11.000	723.793	723.798
E	240+96.73	-11.000	723.687	723.697
F	241+06.73	-11.000	723.592	723.599
G	241+16.73	-11.000	723.506	723.507
CBRGP2	241+19.07	-11.000	723.488	723.488
H	241+29.07	-11.000	723.414	723.422
I	241+39.07	-11.000	723.351	723.365
J	241+49.07	-11.000	723.299	723.307
CBRGEA	241+55.15	-11.000	723.271	723.271

**BEAM 3**

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRGWA	240+39.27	-8.493	724.473	724.473
A	240+49.27	-8.493	724.319	724.331
B	240+59.27	-8.493	724.175	724.187
C	240+69.27	-8.493	724.041	724.045
CBRGP1	240+75.35	-8.493	723.965	723.965
D	240+85.35	-8.493	723.847	723.852
E	240+95.35	-8.493	723.740	723.750
F	241+05.35	-8.493	723.643	723.650
G	241+15.35	-8.493	723.556	723.557
CBRGP2	241+17.69	-8.493	723.537	723.537
H	241+27.69	-8.493	723.463	723.471
I	241+37.69	-8.493	723.398	723.412
J	241+47.69	-8.493	723.341	723.352
CBRGEA	241+53.77	-8.493	723.316	723.316

**BEAM 4**

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRGWA	240+36.17	-2.912	724.609	724.609
A	240+46.17	-2.912	724.451	724.463
B	240+56.17	-2.912	724.305	724.317
C	240+66.17	-2.912	724.168	724.172
CBRGP1	240+72.25	-2.912	724.089	724.089
D	240+82.25	-2.912	723.969	723.974
E	240+92.25	-2.912	723.859	723.869
F	241+02.25	-2.912	723.758	723.765
G	241+12.25	-2.912	723.668	723.669
CBRGP2	241+14.59	-2.912	723.648	723.648
H	241+24.59	-2.912	723.571	723.579
I	241+34.59	-2.912	723.503	723.517
J	241+44.59	-2.912	723.446	723.454
CBRGEA	241+50.67	-2.912	723.416	723.416

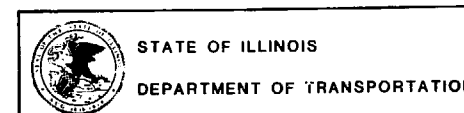


**LOCATION SKETCH**



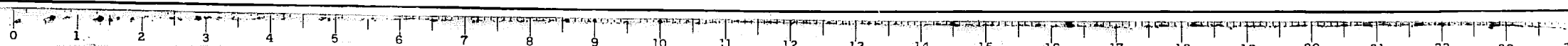
DESIGNED	P. Wood
CHECKED	J. Owen
DRAWN	K. Dytkowski
CHECKED	P. Wood

REVISIONS	
NAME	DATE



**TOP OF SLAB ELEVATIONS**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION 8R-B-1(86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016 - 0217



WESTBOUND PROFILE GRADE LINE

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+34.56	0.000	724.680	724.680
A	240+44.56	0.000	724.521	724.533
B	240+54.56	0.000	724.373	724.385
C	240+64.56	0.000	724.234	724.238
CBRCP1	240+70.64	0.000	724.155	724.155
D	240+80.64	0.000	724.033	724.038
E	240+90.64	0.000	723.921	723.931
F	241+00.64	0.000	723.819	723.826
G	241+10.64	0.000	723.727	723.728
CBRCP2	241+12.98	0.000	723.707	723.707
H	241+22.98	0.000	723.628	723.636
I	241+32.98	0.000	723.559	723.573
J	241+42.98	0.000	723.499	723.507
CBRCEA	241+49.06	0.000	723.469	723.469

BEAM 5

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+33.08	2.668	724.745	724.745
A	240+43.08	2.668	724.585	724.597
B	240+53.08	2.668	724.435	724.447
C	240+63.08	2.668	724.295	724.299
CBRCP1	240+69.16	2.668	724.215	724.215
D	240+79.16	2.668	724.091	724.096
E	240+89.16	2.668	723.978	723.988
F	240+99.16	2.668	723.874	723.881
G	241+09.16	2.668	723.781	723.782
CBRCP2	241+11.50	2.668	723.761	723.761
H	241+21.50	2.668	723.680	723.688
I	241+31.50	2.668	723.609	723.623
J	241+41.50	2.668	723.549	723.557
CBRCEA	241+47.58	2.668	723.517	723.517

BEAM 6

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+29.99	8.248	724.883	724.883
A	240+39.99	8.248	724.720	724.732
B	240+49.99	8.248	724.566	724.578
C	240+59.99	8.248	724.423	724.427
CBRCP1	240+66.07	8.248	724.341	724.341
D	240+76.07	8.248	724.214	724.219
E	240+86.07	8.248	724.098	724.108
F	240+96.07	8.248	723.991	723.998
G	241+06.07	8.248	723.895	723.896
CBRCP2	241+08.41	8.248	723.874	723.874
H	241+18.41	8.248	723.790	723.798
I	241+28.41	8.248	723.716	723.730
J	241+38.41	8.248	723.652	723.660
CBRCEA	241+44.49	8.248	723.619	723.619

BEAM 7

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+26.90	13.828	725.018	725.018
A	240+36.90	13.828	724.852	724.864
B	240+46.90	13.828	724.696	724.708
C	240+56.90	13.828	724.549	724.553
CBRCP1	240+62.98	13.828	724.465	724.465
D	240+72.98	13.828	724.335	724.340
E	240+82.98	13.828	724.216	724.226
F	240+92.98	13.828	724.106	724.113
G	241+02.98	13.828	724.006	724.007
CBRCP2	241+05.32	13.828	723.985	723.985
H	241+15.32	13.828	723.898	723.906
I	241+25.32	13.828	723.821	723.835
J	241+35.32	13.828	723.754	723.762
CBRCEA	241+41.40	13.828	723.718	723.718

BEAM 8

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+25.60	-13.828	725.041	725.041
A	240+35.60	-13.828	724.873	724.885
B	240+45.60	-13.828	724.715	724.727
C	240+55.60	-13.828	724.568	724.572
CBRCP1	240+61.68	-13.828	724.483	724.483
D	240+71.68	-13.828	724.352	724.357
E	240+81.68	-13.828	724.231	724.241
F	240+91.68	-13.828	724.120	724.127
G	241+01.68	-13.828	724.019	724.020
CBRCP2	241+04.02	-13.828	723.997	723.997
H	241+14.02	-13.828	723.908	723.916
I	241+24.02	-13.828	723.830	723.844
J	241+34.02	-13.828	723.762	723.770
CBRCEA	241+40.10	-13.828	723.725	723.725

BEAM 9

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+22.51	-8.248	725.012	725.012
A	240+32.51	-8.248	724.841	724.853
B	240+42.51	-8.248	724.680	724.692
C	240+52.51	-8.248	724.529	724.533
CBRCP1	240+58.59	-8.248	724.443	724.443
D	240+68.59	-8.248	724.308	724.313
E	240+78.59	-8.248	724.184	724.194
F	240+88.59	-8.248	724.070	724.077
G	240+98.59	-8.248	723.966	723.967
CBRCP2	241+00.93	-8.248	723.943	723.943
H	241+10.93	-8.248	723.852	723.860
I	241+20.93	-8.248	723.770	723.784
J	241+30.93	-8.248	723.699	723.707
CBRCEA	241+37.01	-8.248	723.661	723.661

BEAM 10

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+19.42	-2.668	724.980	724.980
A	240+29.42	-2.668	724.806	724.818
B	240+39.42	-2.668	724.643	724.655
C	240+49.42	-2.668	724.489	724.493
CBRCP1	240+55.50	-2.668	724.400	724.400
D	240+65.50	-2.668	724.263	724.268
E	240+75.50	-2.668	724.135	724.145
F	240+85.50	-2.668	724.018	724.025
G	240+95.50	-2.668	723.911	723.912
CBRCP2	240+97.84	-2.668	723.887	723.887
H	241+07.84	-2.668	723.793	723.801
I	241+17.84	-2.668	723.708	723.722
J	241+27.84	-2.668	723.634	723.642
CBRCEA	241+33.92	-2.668	723.594	723.594

EASTBOUND PROFILE GRADE LINE

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+17.94	0.000	724.966	724.966
A	240+27.94	0.000	724.790	724.802
B	240+37.94	0.000	724.625	724.637
C	240+47.94	0.000	724.470	724.474
CBRCP1	240+54.02	0.000	724.380	724.380
D	240+64.02	0.000	724.241	724.246
E	240+74.02	0.000	724.112	724.122
F	240+84.02	0.000	723.994	724.001
G	240+94.02	0.000	723.885	723.886
CBRCP2	240+96.36	0.000	723.861	723.861
H	241+06.36	0.000	723.765	723.773
I	241+16.36	0.000	723.679	723.693
J	241+26.36	0.000	723.603	723.611
CBRCEA	241+32.44	0.000	723.562	723.562

BEAM 11

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+16.33	2.912	724.950	724.950
A	240+26.33	2.912	724.773	724.785
B	240+36.33	2.912	724.606	724.618
C	240+46.33	2.912	724.449	724.453
CBRCP1	240+52.41	2.912	724.359	724.359
D	240+62.41	2.912	724.218	724.223
E	240+72.41	2.912	724.088	724.098
F	240+82.41	2.912	723.967	723.974
G	240+92.41	2.912	723.857	723.858
CBRCP2	240+94.75	2.912	723.833	723.833
H	241+04.75	2.912	723.735	723.743
I	241+14.75	2.912	723.647	723.661
J	241+24.75	2.912	723.570	723.578
CBRCEA	241+30.83	2.912	723.528	723.528

BEAM 12

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+13.23	8.493	724.921	724.921
A	240+23.23	8.493	724.741	724.753
B	240+33.23	8.493	724.570	724.582
C	240+43.23	8.493	724.410	724.414
CBRCP1	240+49.31	8.493	724.318	724.318
D	240+59.31	8.493	724.174	724.179
E	240+69.31	8.493	724.048	724.051
F	240+79.31	8.493	723.917	723.924
G	240+89.31	8.493	723.804	723.805
CBRCP2	240+91.65	8.493	723.779	723.779
H	241+01.65	8.493	723.678	723.686
I	241+11.65	8.493	723.587	723.601
J	241+21.65	8.493	723.506	723.514
CBRCEA	241+27.73	8.493	723.462	723.462

SOUTH LONG. CONST. JOINT

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+11.85	11.000	724.908	724.908
A	240+21.85	11.000	724.726	724.738
B	240+31.85	11.000	724.555	724.567
C	240+41.85	11.000	724.393	724.397
CBRCP1	240+47.93	11.000	724.300	724.300
D	240+57.93	11.000	724.155	724.160
E	240+67.93	11.000	724.020	724.030
F	240+77.93	11.000	723.895	723.902
G	240+87.93	11.000	723.780	723.781
CBRCP2	240+90.27	11.000	723.755	723.755
H	241+00.27	11.000	723.653	723.661
I	241+10.27	11.000	723.560	723.574
J	241+20.27	11.000	723.478	723.486
CBRCEA	241+26.35	11.000	723.433	723.433

BEAM 13

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+10.14	14.073	724.875	724.875
A	240+20.14	14.073	724.692	724.704
B	240+30.14	14.073	724.519	724.531
C	240+40.14	14.073	724.356	724.360
CBRCP1	240+46.22	14.073	724.261	724.261
D	240+56.22	14.073	724.114	724.119
E	240+66.22	14.073	723.978	723.988
F	240+76.22	14.073	723.851	723.858
G	240+86.22	14.073	723.734	723.735
CBRCP2	240+88.56	14.073	723.709	723.709
H	240+98.56	14.073	723.605	723.613
I	241+08.56	14.073	723.511	723.525
J	241+18.56	14.073	723.427	723.435
CBRCEA	241+24.64	14.073	723.381	723.381

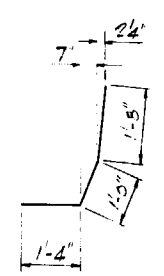
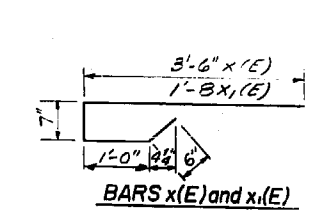
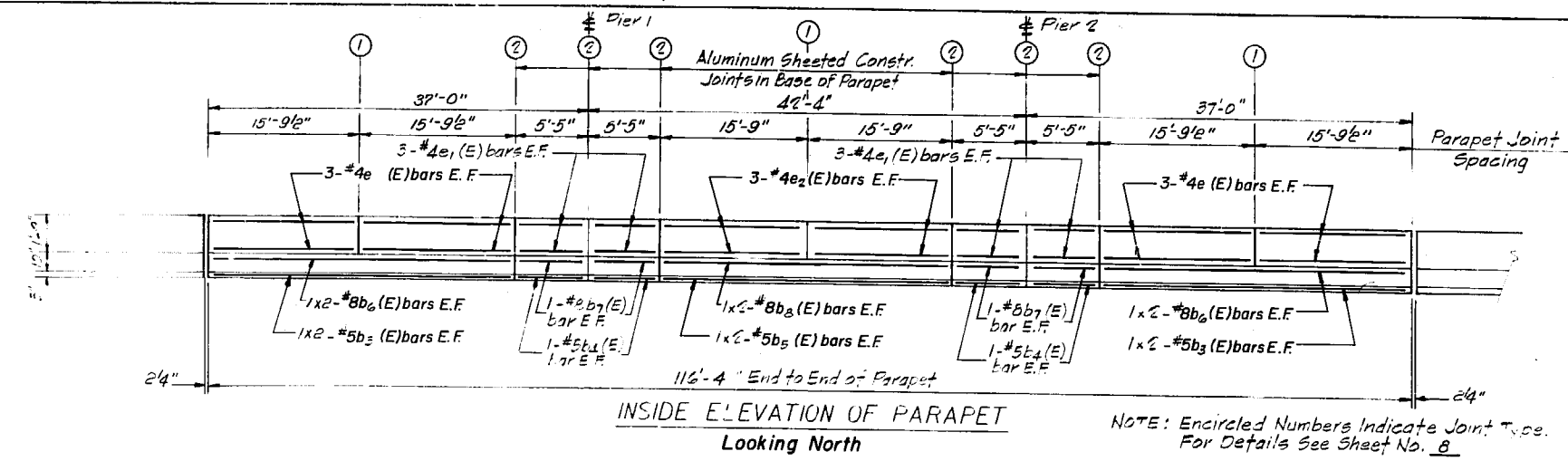
BEAM 14

LINE	STATION	OFFSET	THEORETICAL GRADE ELEVATION	ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
CBRCWA	240+07.09	19.574	724.818	724.818
A	240+17.09	19.574	724.631	724.643
B	240+27.09	19.574	724.455	724.467
C	240+37.09	19.574	724.289	724.293





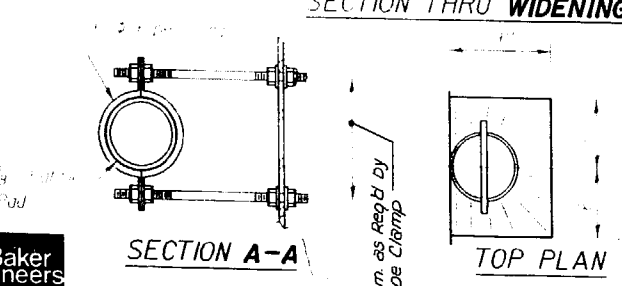
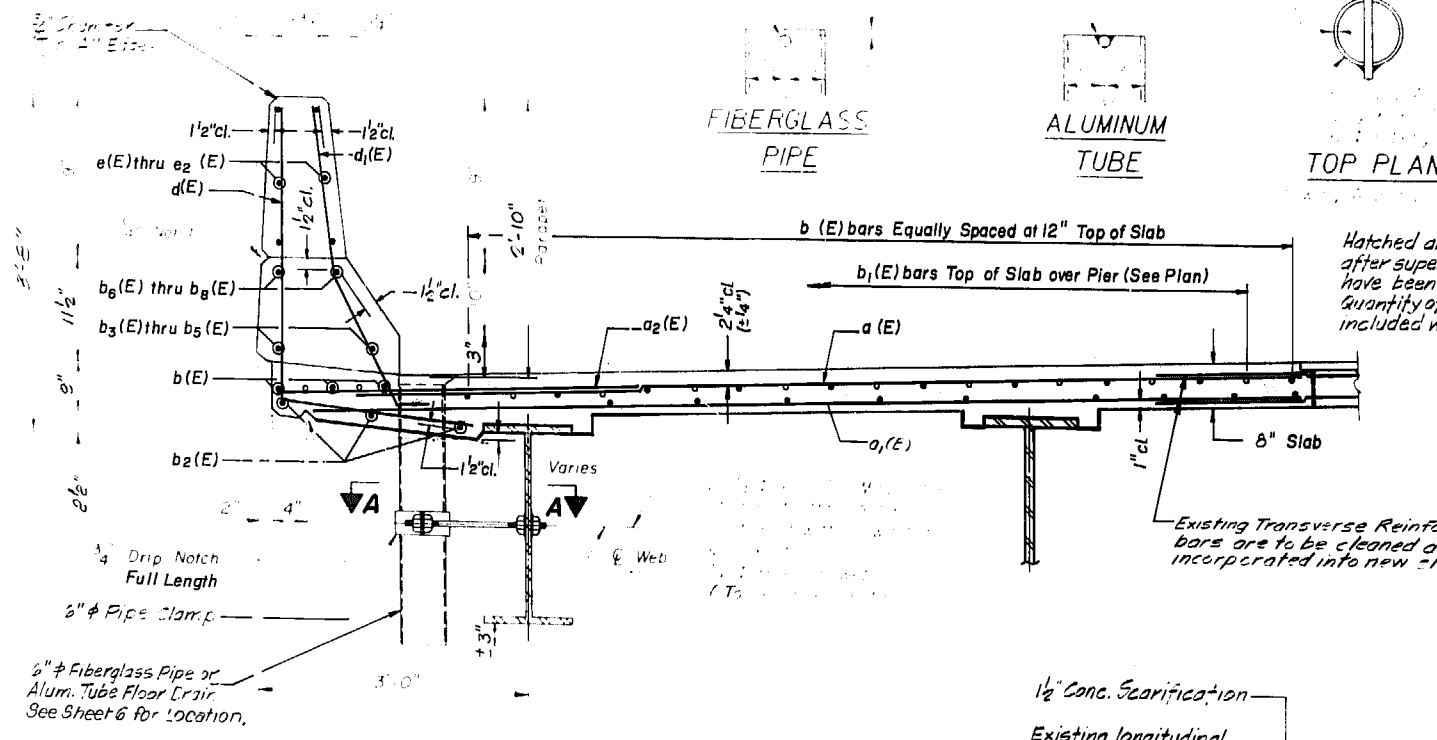
SHEET NO. 7	SECTION	COUNT	TOTAL SHEETS
OF 22 SHEETS	426 BR-B-1(86)	COOK	209 164



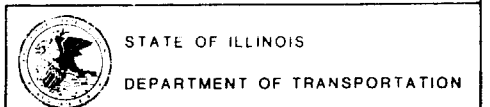
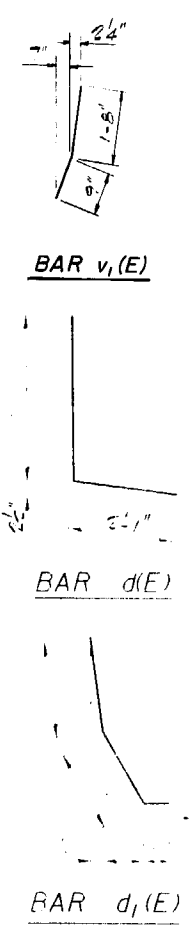
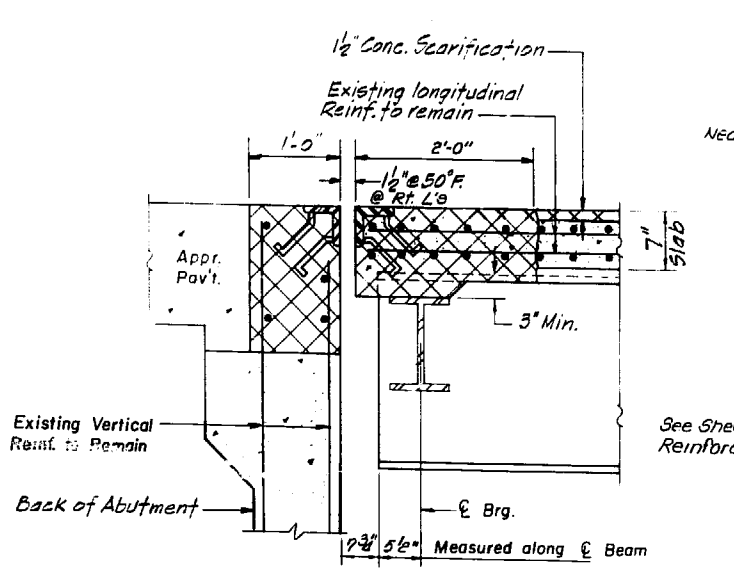
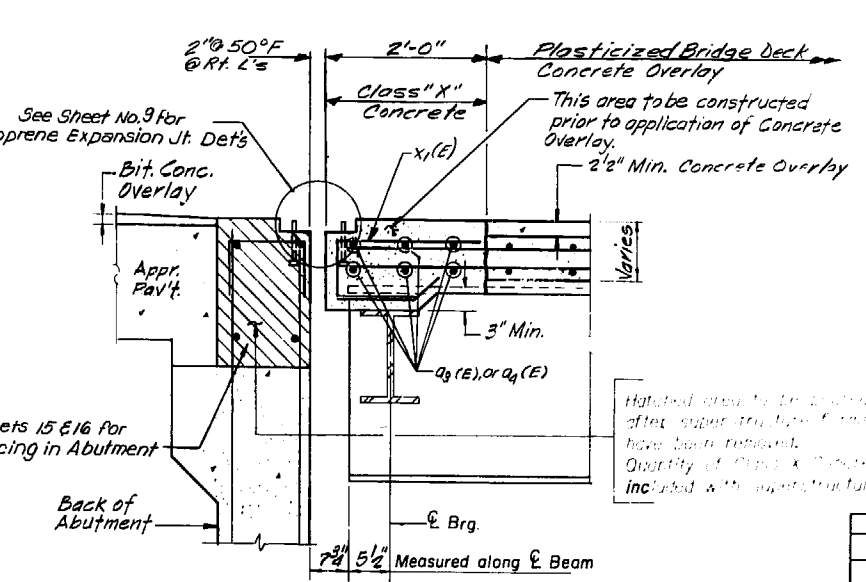
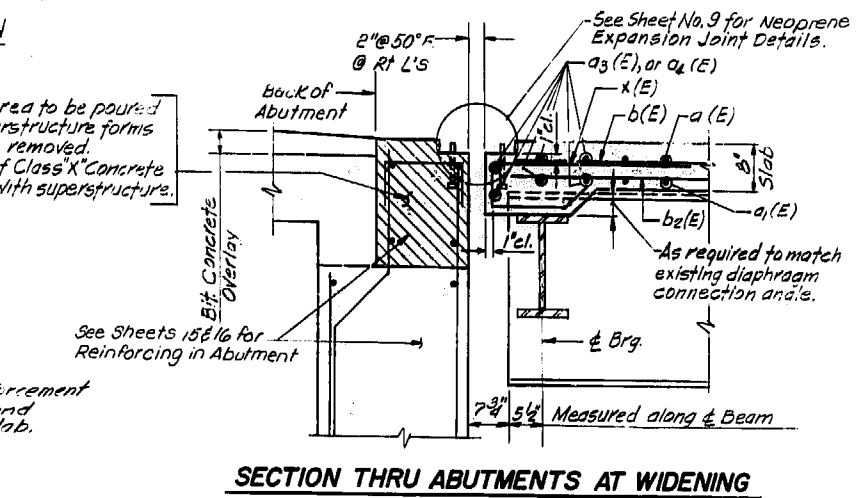
- NOTES:
- E.F. - INDICATES EACH FACE.
  - BARS INDICATED THUS 3 X 2 - #5 ETC. INDICATES 3 LINES OF BARS WITH 2 LENGTHS PER LINE.
  - THE EXTERIOR SURFACES OF THE FLOOR DRAIN SHALL BE PAINTED WITH MARCON AND GREEN PAINT AS SPECIFIED FOR STRUCTURAL STEEL. THE EXTERIOR SURFACES OF THE ALUMINUM TUBE SHALL BE CLEANED AND GIVEN A WASHCOAT PRETREATMENT IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL'S SPECIFICATION SSPC - SPI & SSPC - PAINT 27 PRIOR TO PAINTING.
  - FIBERGLASS PIPE SHALL CONFORM TO ASTM D3996, WITH SHORT-TIME RUPTURE STRENGTH HOOP TENSILE STRESS OF 30,000 P.S.I. MINIMUM. THE SURFACE OF THE FIBERGLASS PIPE SHALL BE FREE OF BOND INHIBITING AGENTS.
  - REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.

**SUPERSTRUCTURE  
BILL OF MATERIAL**

Bar	No	Size	Length	Shape
7'E	330	#5	10'-10"	—
11'E	330	#5	11'-0"	—
12'E	166	#6	4'-2"	—
23'E	24	#5	19'-3"	—
24'E	24	#5	22'-3"	—
b(E)	130	#5	24'-6"	—
b1(E)	44	#6	13'-7"	—
b2(E)	120	#5	24'-2"	—
b3(E)	16	#5	16'-6"	—
b4(E)	16	#5	5'-1"	—
b5(E)	5	#5	21'-10"	—
b6(E)	16	#8	17'-6"	—
b7(E)	16	#8	5'-1"	—
b8(E)	8	#8	22'-11"	—
d1(E)	234	#4	5'-5"	—
d1(E)	256	#5	3'-11"	—
d2(E)	96	#4	1'-0"	—
e(E)	48	#4	15'-5"	—
e1(E)	48	#4	5'-1"	—
e2(E)	24	#4	20'-15"	—
e3(E)	12	#4	19'-0"	—
h1(E)	12	#4	3'-8"	—
h1(E)	8	#4	2'-5"	—
x1(E)	176	#5	3'-9"	—
v1(E)	16	#4	4'-2"	—
v1(E)	12	#4	2'-5"	—
v2(E)	12	#8	—	—
x(E)	52	#5	5'-7"	—
Reinforcement Bars (Epoxy Coated)				Lbs. 22,922
Expansion Bolts				Ea. 6
Floor Drains				Ea. 14



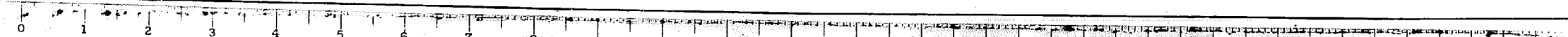
**Baker Engineers**  
 Baker Engineering, Inc.  
 DESIGNED R ZEMAITAITIS  
 CHECKED P WOOD  
 DRAWN Z DABROWSKI  
 CHECKED P WOOD



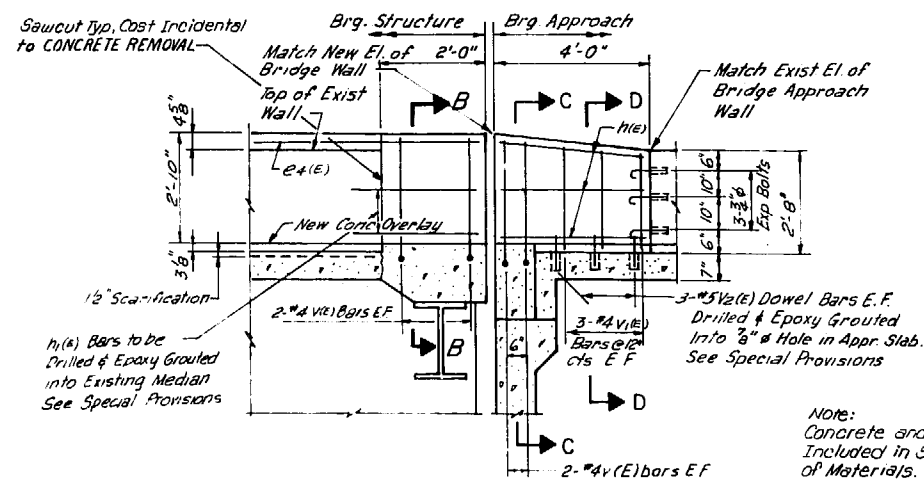
**SUPERSTRUCTURE DETAILS**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
 POPLAR CREEK  
 SECTION BR-B-1(86)  
 COOK COUNTY  
 STATION 240 + 83.50  
 STRUCTURE No. 016 - 0217

REVISIONS	
NAME	DATE

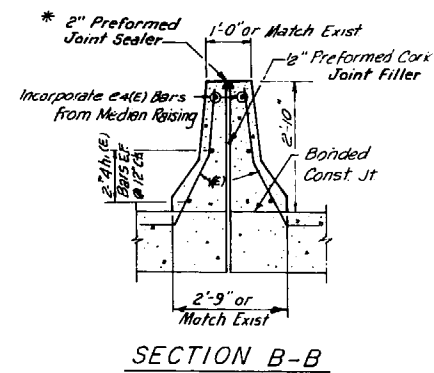


SHEET NO. 6	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
OF 22 SHEETS	BR-B-1 (86)	COOK	209	165
STA	TO STA			
FED. RD-DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

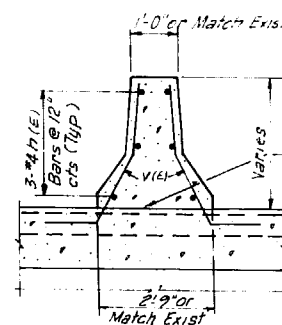


DETAIL OF MEDIAN BARRIER WALL

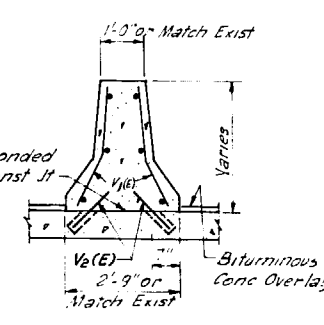
Note:  
Concrete and Reinforcing Steel  
Included in Superstructure Bill  
of Materials.



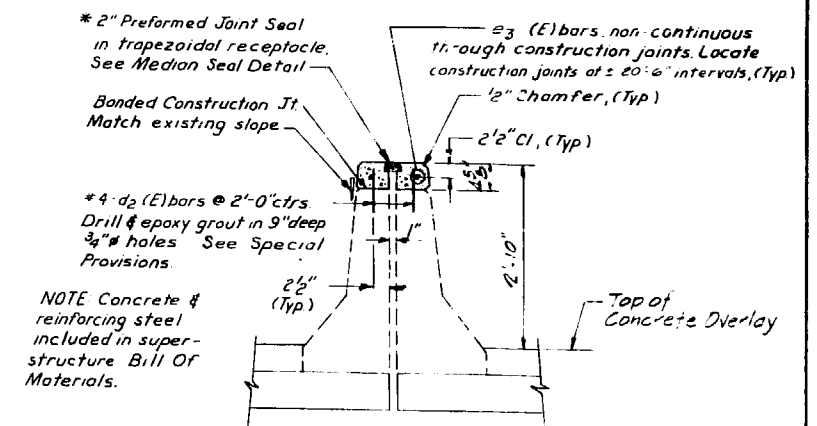
SECTION B-B



SECTION C-C

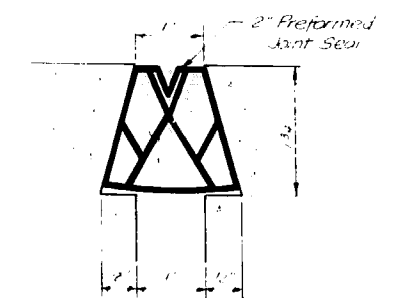


SECTION D-D

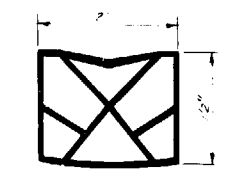


MEDIAN DETAIL

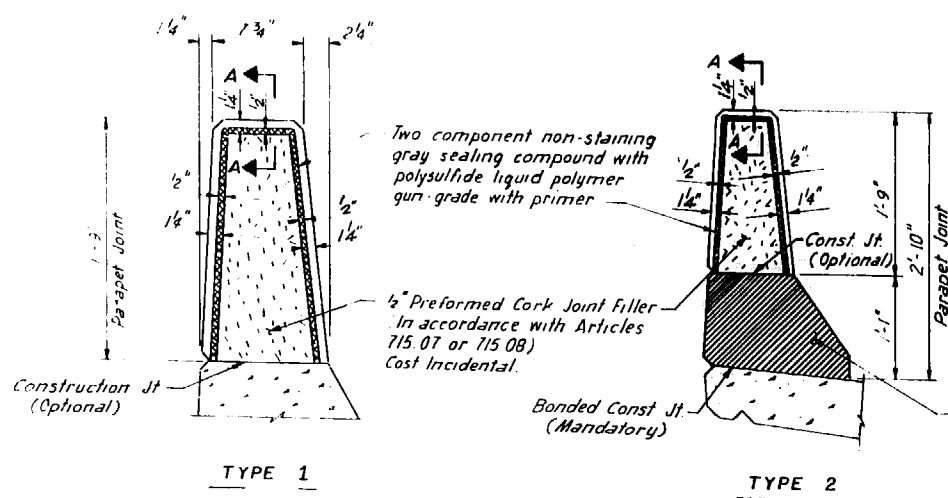
NOTE Concrete & reinforcing steel included in superstructure Bill Of Materials.



MEDIAN SEAL DETAIL

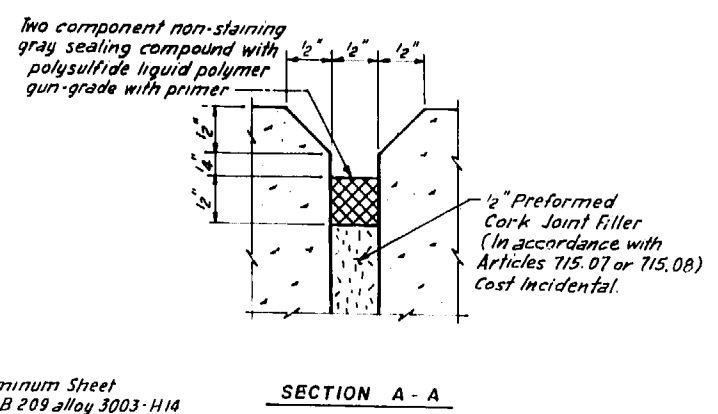


PREFORMED JOINT SEAL (2")



PARAPET JOINT DETAILS

(For Location of Parapet Joints See Sheet No. 7)



SECTION A-A

DESIGNED	P. Wood
CHECKED	J. Owen
DRAWN	Z. Dabrowski
CHECKED	P. Wood

REVISIONS	
NAME	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

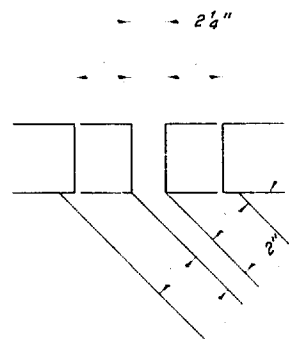
**SUPERSTRUCTURE DETAILS**

U.S. ROUTE 20 BY-PASS (F.A.R. 426) OVER  
POPLAR CREEK  
SECTION BR-B-1 (86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016 - 0217

**GENERAL NOTES**

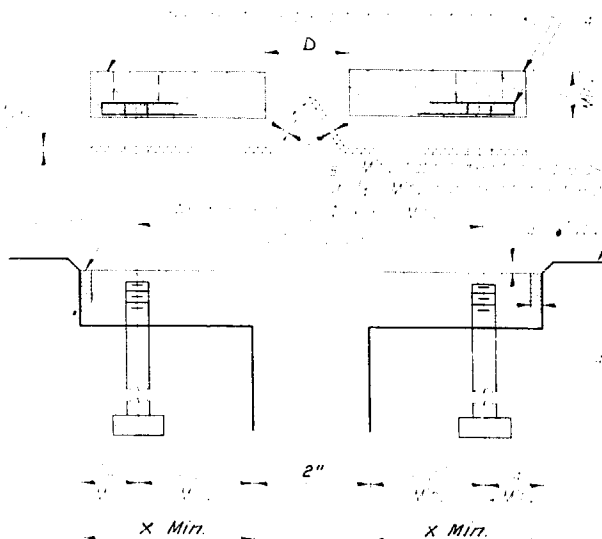
Anchor Bolts, Washers and Nuts are to be Plated against Corrosion in Accordance with the Special Provisions, and shall be Zinc-coated by the Mechanical Plating Method Conforming to ASTM B695, Class 50. Zinc-coated Nuts shall be Tapped Oversize in Accordance with the Requirements of AASHTO M291 and shall Meet the Supplementary Requirements S1.1 thru S1.2.1 of the Same Specifications for Lubricant and Testing.

**INSTALLATION NOTES**



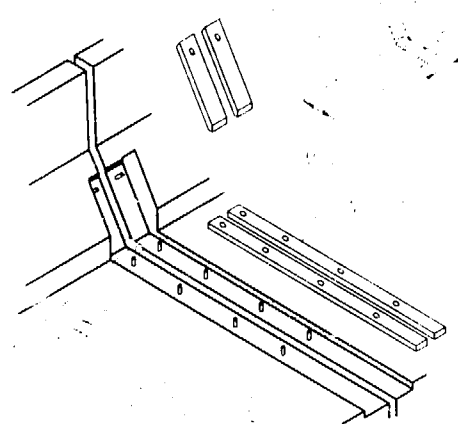
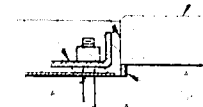
**FORMING BLOCKOUT SKETCH**

**SKEW LIMITATIONS**

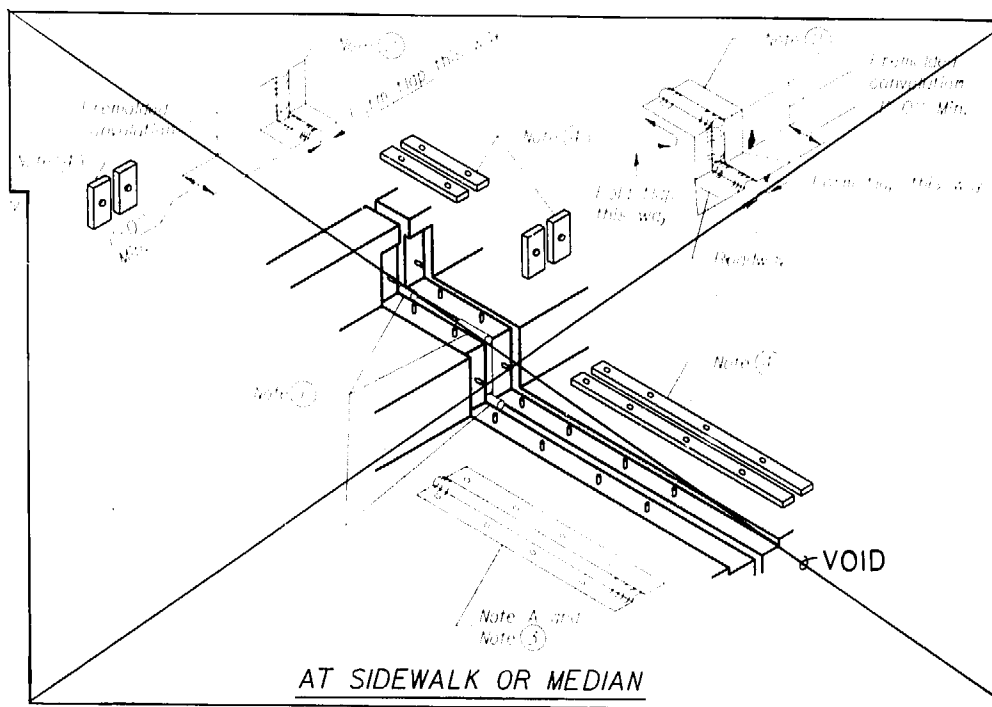


**CROSS SECTION**

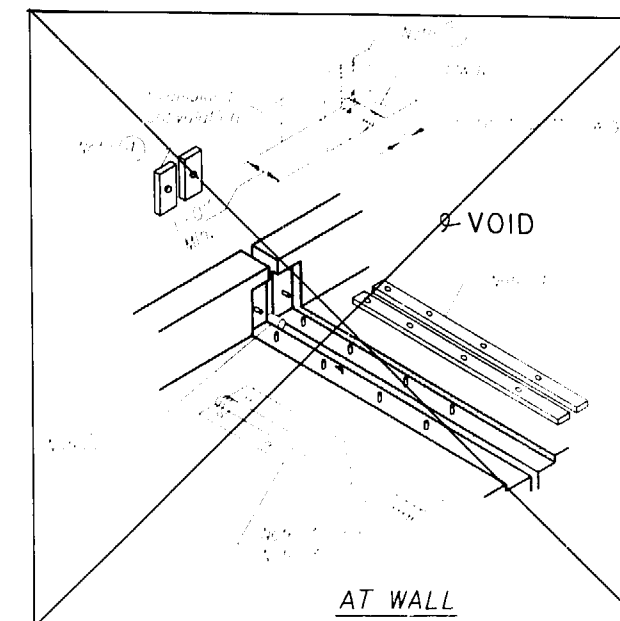
**ANCHOR BLOCK REINFORCEMENT WITH ASPHALT SURFACE**



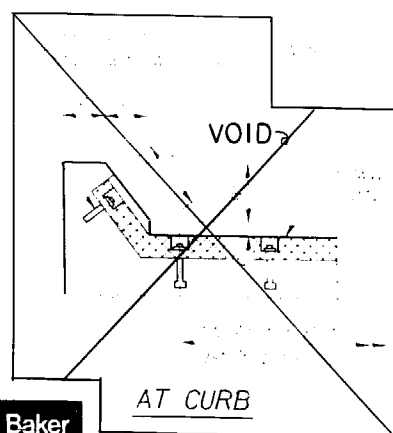
**AT PARAPET**



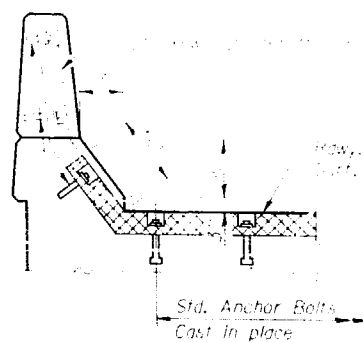
**AT SIDEWALK OR MEDIAN**



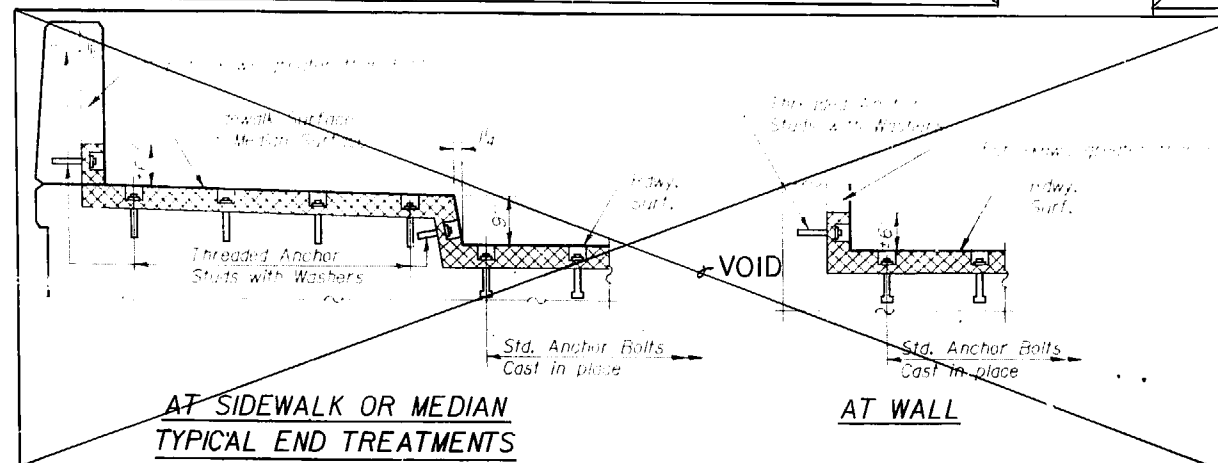
**AT WALL**



**AT CURB**



**AT PARAPET**



**AT SIDEWALK OR MEDIAN  
TYPICAL END TREATMENTS**

**AT WALL**

NOTE: Continuous Seal Type Neoprene Exp. Joints For 2", 2 1/4" & 4" Movement

REVISIONS	
NAME	DATE

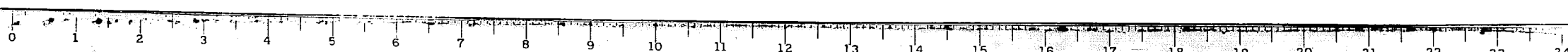
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

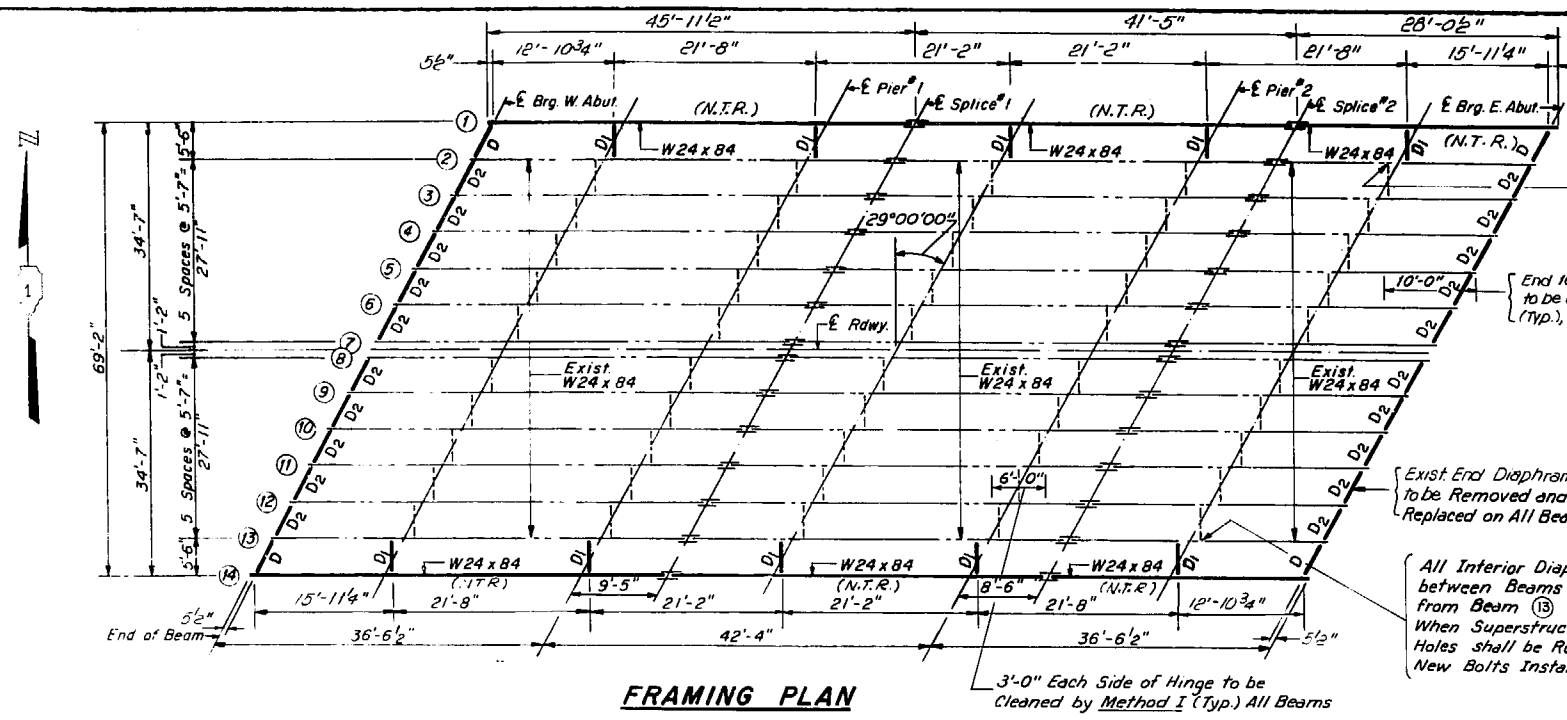
**CONTINUOUS SEAL TYPE NEOPRENE EXPANSION JOINTS(2)**

**U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION BR-B-1 (86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016 - 0217**

**Baker Engineers**

DESIGNED  
CHECKED  
DRAWN  
CHECKED





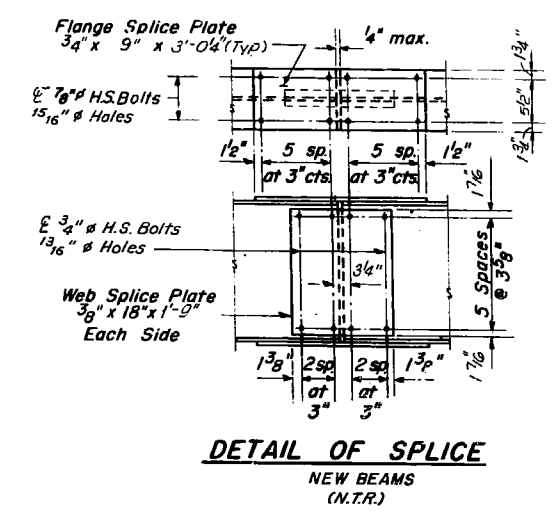
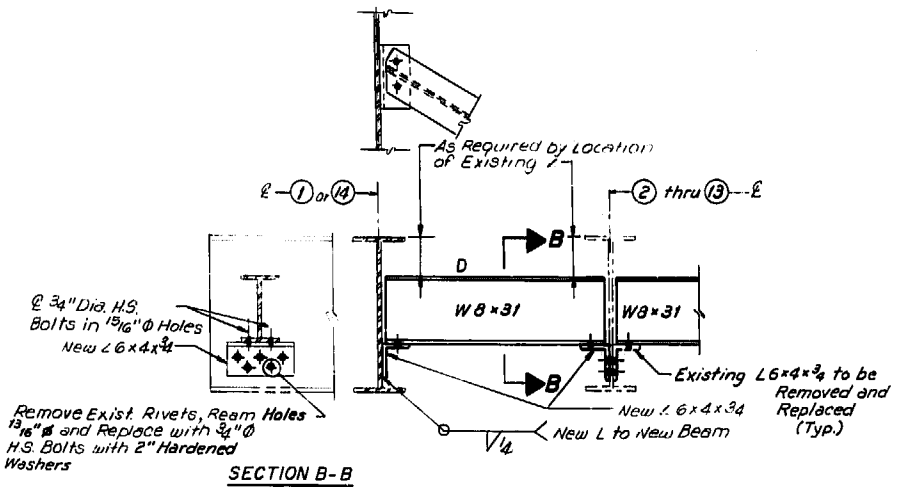
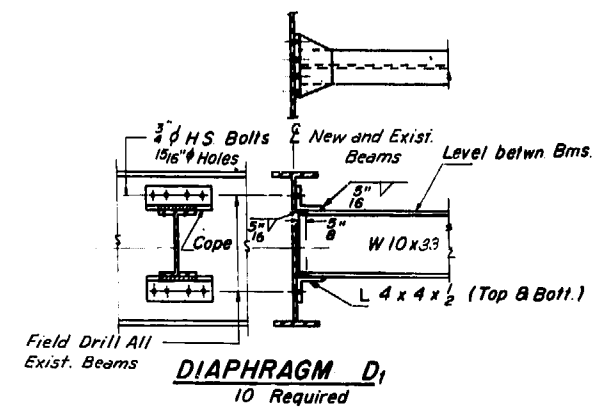
All Interior Diaphragms (except at Piers) between Beams (2) and (3) to be Disconnected from Beam (2) during Placement of Concrete. When Superstructure is Complete, 1 1/2" # Bolt Holes shall be Redrilled as Necessary and New Bolts Installed.

End 10'-0" of Exist. Beams to be Cleaned by Method I (Typ.) ALL Beams.

Exist. End Diaphragms to be Removed and Replaced on All Beams

All Interior Diaphragms (except at Piers) between Beams (12) and (13) to be Disconnected from Beam (13) during Placement of Concrete. When Superstructure is Complete, 1 1/2" # Bolt Holes shall be Redrilled as Necessary and New Bolts Installed.

- NOTES:
- TWO HARDENED WASHERS SHALL BE REQUIRED OVER ALL 1 1/2" HOLES IN DIAPHRAGMS.
  - ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M183.
  - CLEAN AND PAINT ALL STRUCTURAL METALS. ALL EXISTING STRUCTURAL METALS SHALL BE CLEANED USING METHOD II, WITH THE EXCEPTION OF THE FOLLOWING WHICH SHALL BE CLEANED BY METHOD I: THE END 10 FT. OF EACH BEAM AT THE ABUTMENTS; THE END DIAPHRAGMS AND THE BEARINGS AT PIER 2. FOLLOWING REMOVAL OF THE CONCRETE DECK IN THE DESIGNATED AREAS, THE TOP FLANGES OF THE FACIA BEAMS, SPLICES AND END DIAPHRAGMS SHALL BE CLEANED USING METHOD II. THE METAL THUS EXPOSED SHALL BE FIELD PRIMED PRIOR TO FORMING THE NEW DECK.
  - ALL CONTACT SURFACES OF JOINTS FOR THE DIAPHRAGMS SHALL BE FREE OF PAINT OR LACQUER.



**BEAM REACTION TABLE**

	ABUTMENT	PIER
R <sub>D</sub> (K)	12.3	38.7
R <sub>L</sub> (K)	29.7	36.6
Imp. (K)	8.9	11.1
R. Total (K)	50.9	86.6

**MOMENT TABLE**

	0.4 Sp. 1	PIER 1 or 2	0.5 Sp. 2
I (New) (in <sup>4</sup> )	2370	2370	2370
DL (K')	0.892	0.892	0.892
M <sub>D</sub> (K)	84.7	136.6	61.7
M <sub>L</sub> (K)	154.3	123.5	151.7
Imp. (K)	46.3	37.0	45.5
M. Total (K)	285.3	297.1	258.9
f <sub>s</sub> (New) (ksi)	17.4	18.2	15.8

**TOP OF FLANGE ELEVATIONS (BEFORE ANY DEFLECTION)\***

BEAM	E. Brg. W. Abut	E. Brg. Pier 1	E. Splice 1	E. Brg. Pier 2	E. Splice 2	E. Brg. E. Abut
1	723.43	722.88	722.74	722.46	722.39	722.34
14	724.09	723.40	723.22	722.82	722.71	722.56

\* For Fabrication Only

- I --- MOMENT OF INERTIA
- DL --- DEAD LOAD INCLUDING BEAM, SLAB, MEDIAN AND/OR PARAPET
- M<sub>D</sub> --- MOMENT DUE TO DEAD LOAD
- M<sub>L</sub> --- MOMENT DUE TO LIVE LOAD
- IMP --- IMPACT
- f<sub>s</sub> --- BENDING STRESS DUE TO TOTAL MOMENT, M<sub>T</sub>.

**REVISIONS**

NAME	DATE

**Baker Engineers**  
Baker Engineering, Inc.

DESIGNED  
R. ZEMAITAITIS

CHECKED  
F. WOOD

DRAWN  
J. SHELBY

CHECKED  
R. ZEMAITAITIS

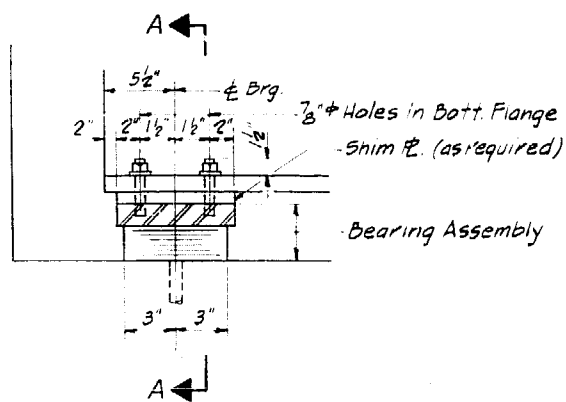
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**STRUCTURAL STEEL**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION BR-B-1 (86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016 - 0217

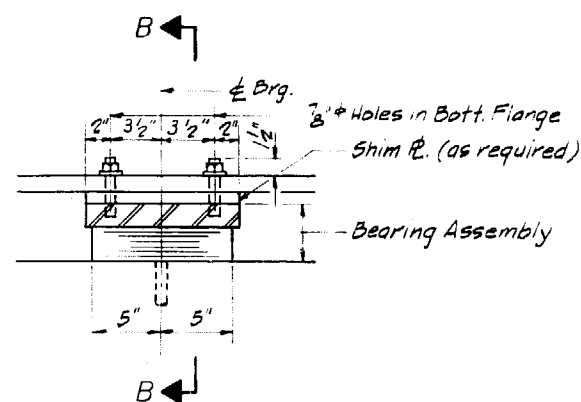




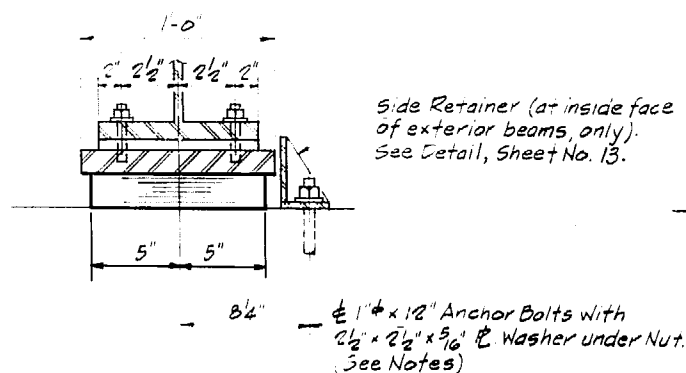


ELEVATION AT EAST ABUT

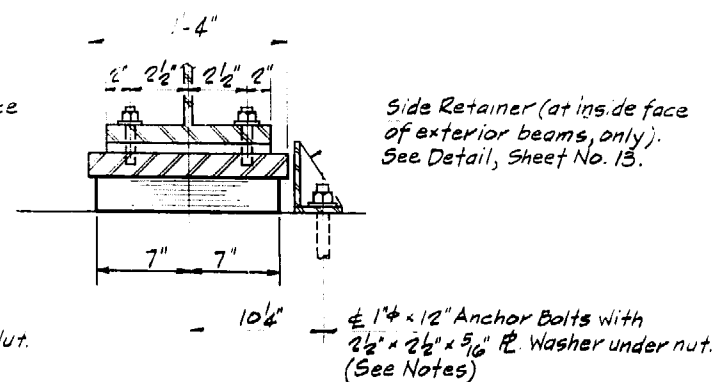
(Looking North)



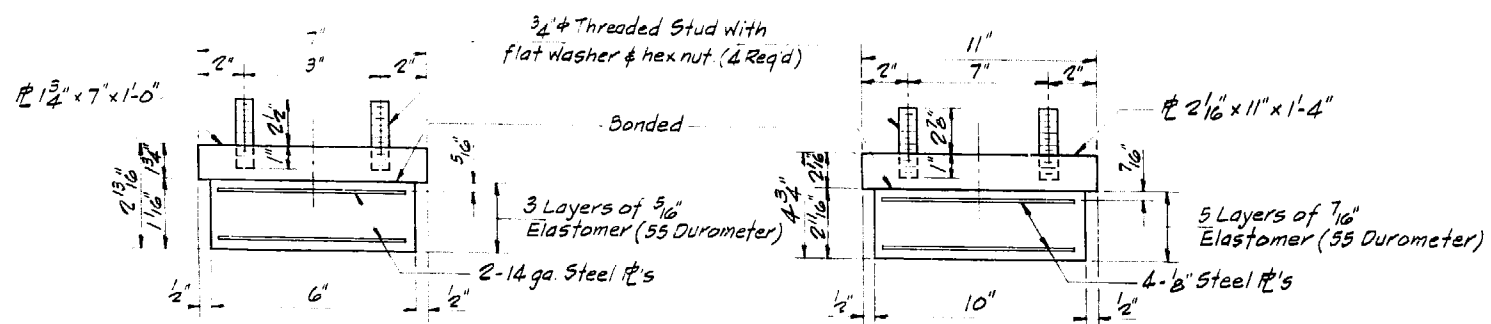
ELEVATION AT PIER 1



SECTION A-A



SECTION B-B



EAST ABUT. BEARING ASSEMBLY

PIER 1 BEARING ASSEMBLY

TYPE I ELASTOMERIC EXPANSION BRG.

- Notes:
1. See Sheet No. 21 for Anchor Bolt Details.
  2. Shim Plates shall not be placed under Bearing Assembly.

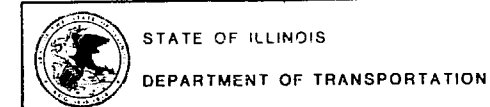


DESIGNED	P. Wood
CHECKED	R. ZEMAITAITIS
DRAWN	J. Chaliki's
CHECKED	P. Wood

BILL OF MATERIAL

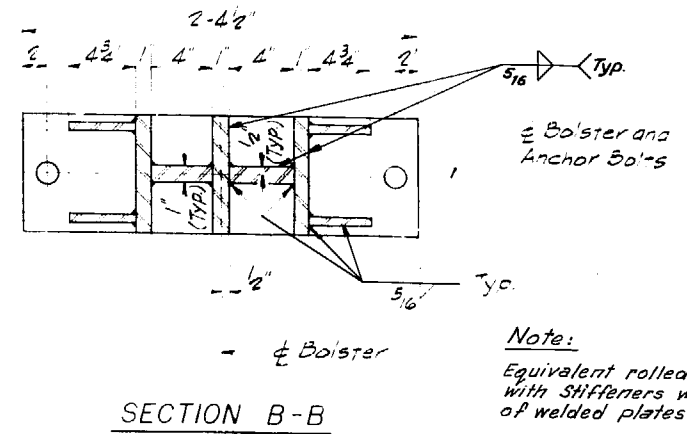
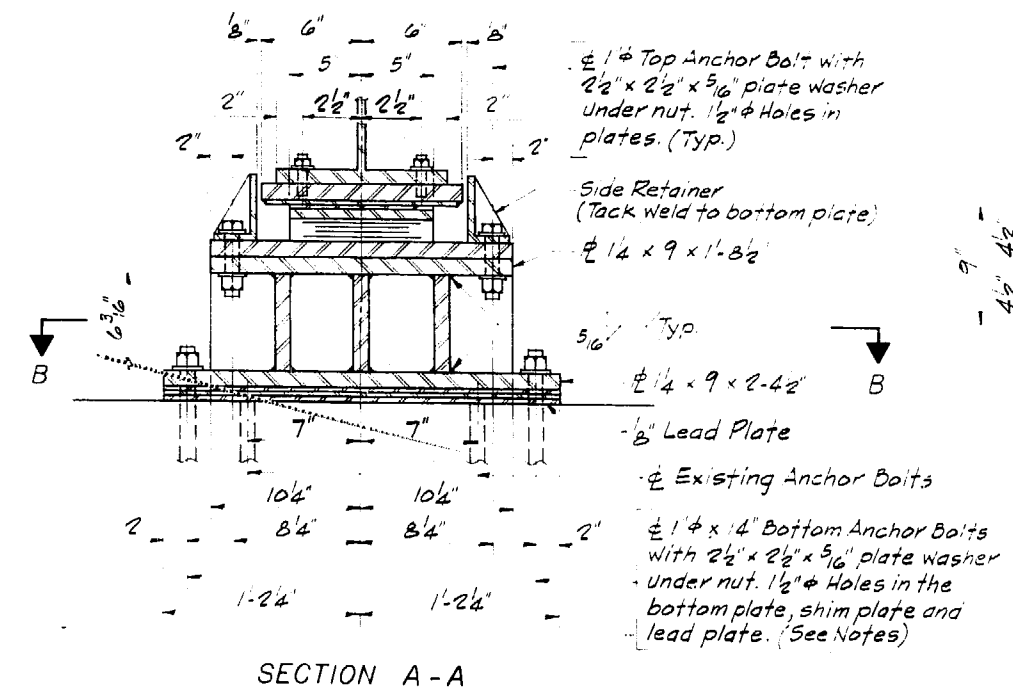
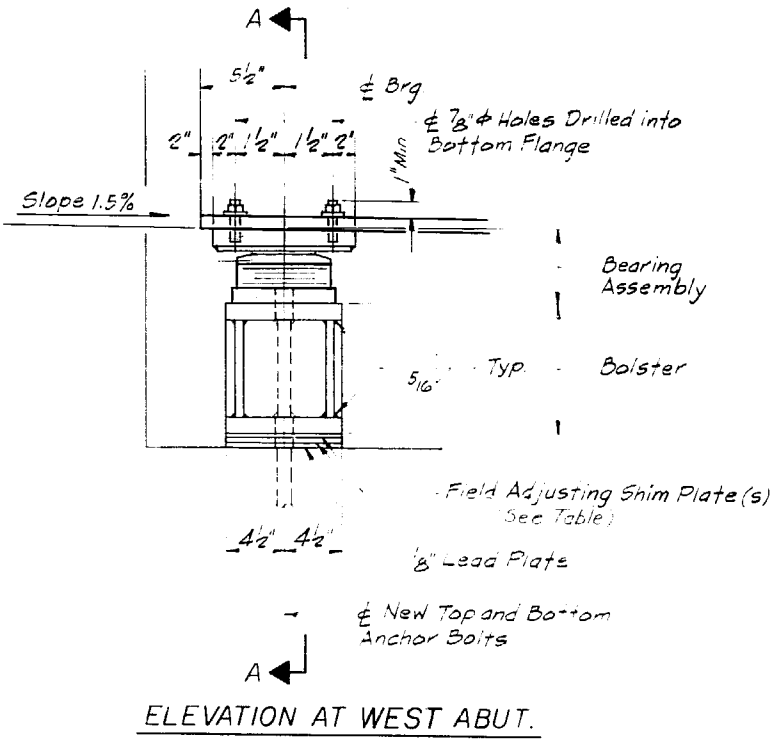
Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	4

REVISIONS	
NAME	DATE

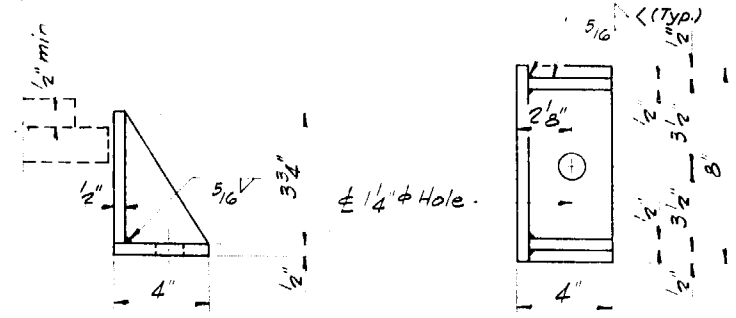
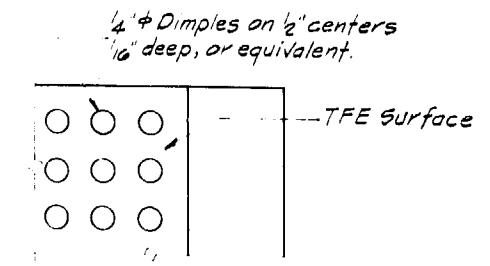
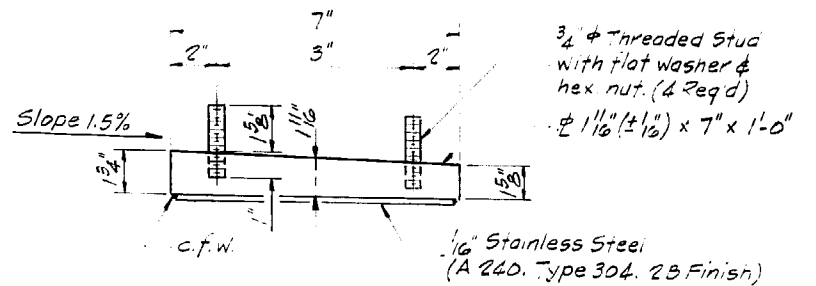


NEW BEARING DETAILS  
EAST ABUTMENT & PIER 1

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION BR-B-1 (86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016 - 0217



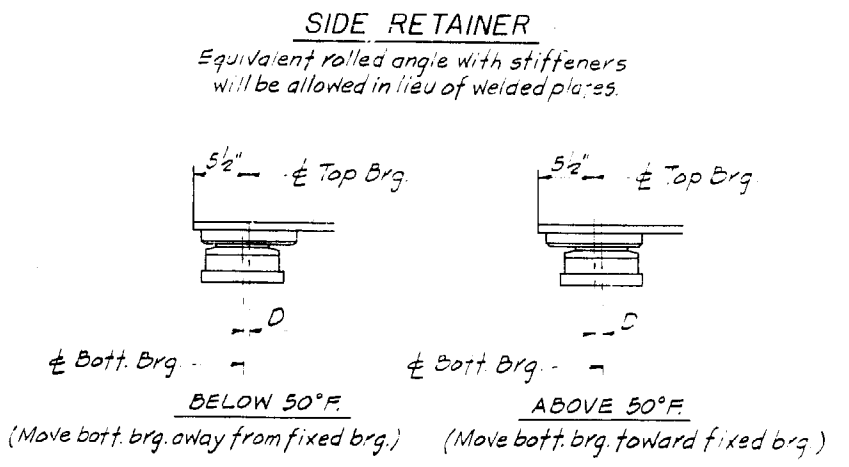
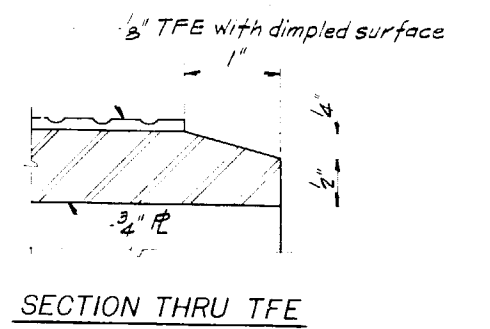
**Note:**  
Equivalent rolled structural Shapes with stiffeners will be allowed in lieu of welded plates.



**TABLE OF SHIM PLATES**

Beam Location	2	3	4	5	6	7	8	9	10	11	12	13
West Abutment	0	0	0	0	0	0	1/4"	1/2"	1/2"	5/8"	3/4"	7/8"

- Notes:**
- See Sheet No. 21 for Anchor Bolt Details
  - The 3" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium modulus epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces. Bonding of 3" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.
  - Contractor shall verify dimensions of existing Bearings before ordering and ordering of new Bearings, or fabrication of Bolsters.
  - Cost of Structural Steel for Bolsters is included in unit price for Bearings and Erecting Structure. See...



**SETTING ANCHOR BOLTS AT EXP. BRG.**  
D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

**BILL OF MATERIAL**

Item	Unit	Total
Elastomeric Bearing Assembly, Type II	Each	12

**REVISIONS**

NAME	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

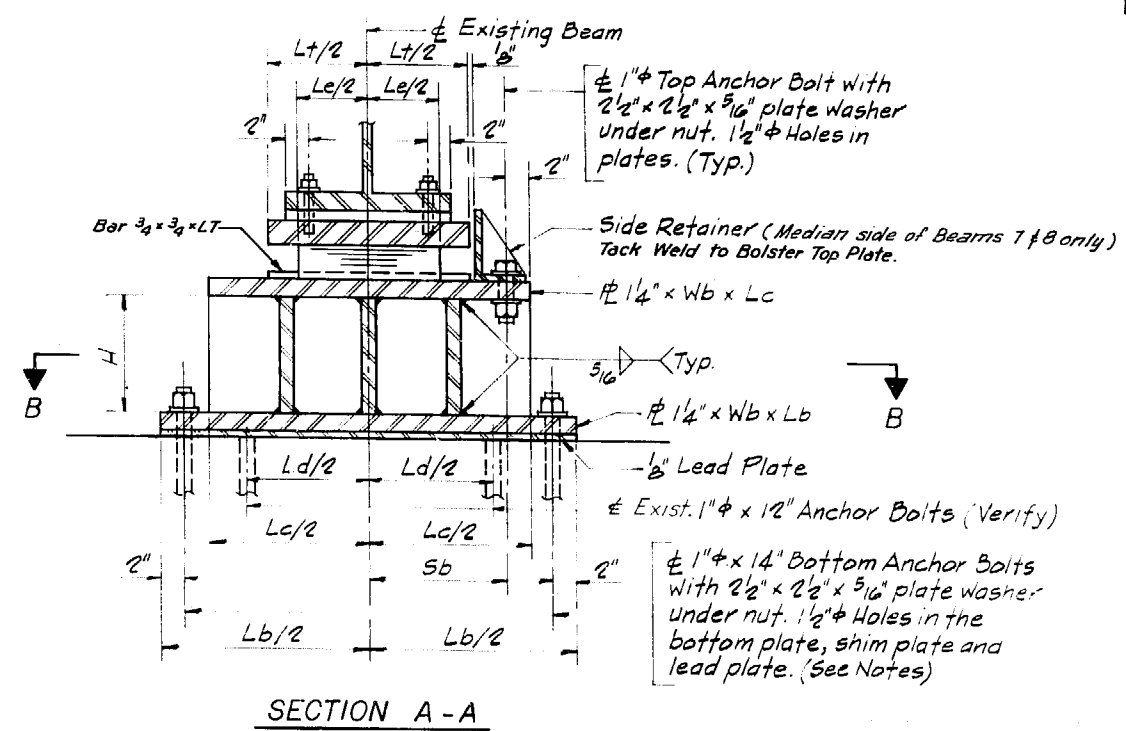
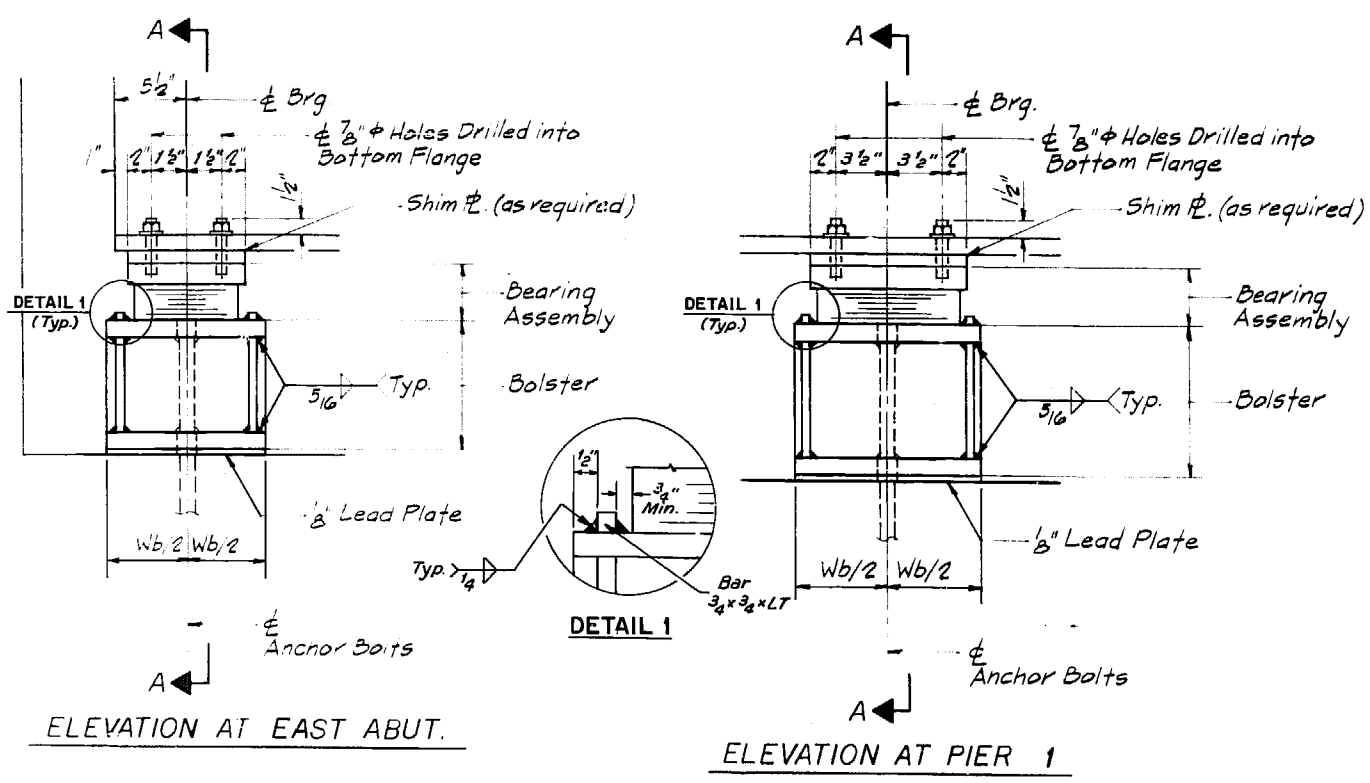
**REPLACEMENT BEARING DETAILS  
WEST ABUTMENT**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION BR-B-1 (86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016 - 0217

**Baker Engineers**  
Baker Engineering, Inc.

DESIGNED: P. Wood  
CHECKED: R. ZEMAITAITIS  
DRAWN: J. Chalikis  
CHECKED: P. Wood

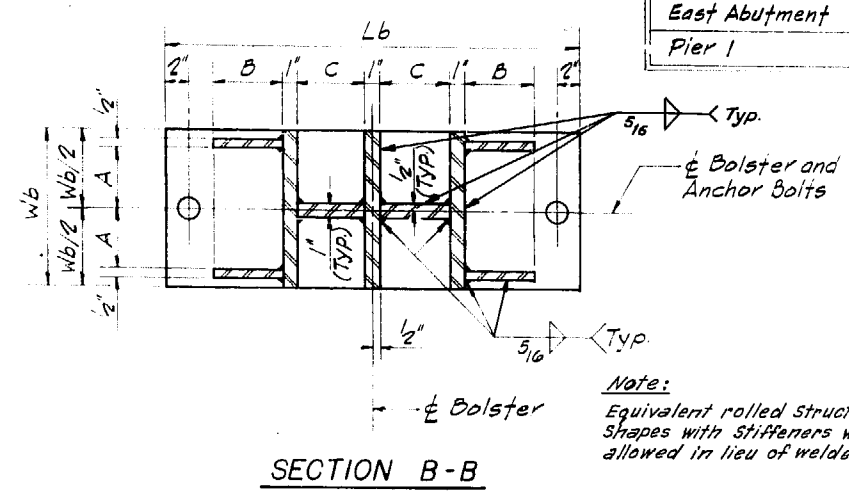
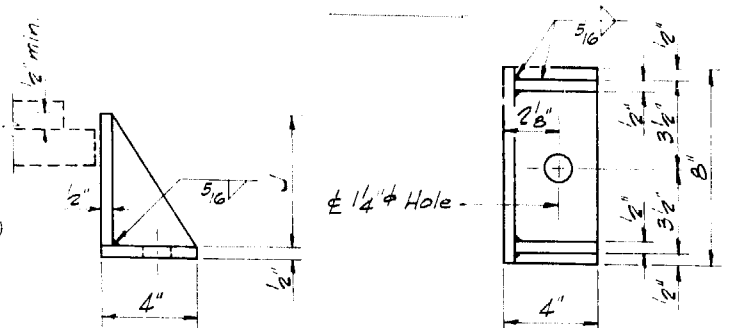
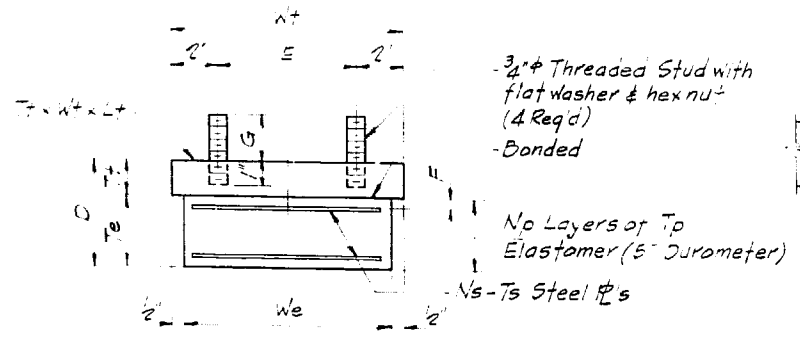




TYPE I ELASTOMERIC EXPANSION BRG. WITH BOLSTER

TABLE OF SHIM PLATES

Beam Location	2	3	4	5	6	7	8	9	10	11	12	13
East Abutment	0	3/4"	0	3/4"	0	0	1/8"	3/4"	3/8"	0	1/4"	0
Pier 1	0	0	0	0	0	0	1/4"	1/4"	1/8"	1/8"	1/8"	0



- Notes:**
- See Standard Sheet for Anchor Bolt Details.
  - Contractor shall verify dimensions of existing Bearings before removal and ordering of new Bearings, or fabrication of Bolsters.
  - Cost of Structural Steel for Bolsters and Structural Steel for Fixed Bearing at Pier 1 is included for payment with "Furnishing and Erecting Structural Steel".

TABLE OF VARIABLES FOR TYPE I EXPANSION BEARINGS WITH BOLSTERS

LOCATION	VARIABLE																							
	Te	We	Le	Np	Tp	Ns	Ts	Tt	Wt	Lt	Wb	Lb	Lc	Sb	Ld	A	B	C	D	E	F	G	H	J
East Abutment	1 1/8"	6"	10"	3	5/16"	2	1 1/4"	1 3/4"	7"	1'-0"	10"	2'-4 1/2"	1'-8 1/2"	8 1/4"	1'-2"	4"	4 3/4"	4"	2 13/16"	3"	5 1/16"	2 1/2"	8 3/16"	2 7/8"
Pier 1	2 1/16"	10"	1'-2"	5	7/16"	4	1 1/8"	2 1/16"	11"	1'-4"	1'-2"	2'-8 1/2"	2'-0 1/2"	10 1/4"	1'-2"	6"	5 3/4"	5"	4 3/4"	7"	7 1/16"	2 1/2"	0 5/8"	4 3/4"

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	24

REVISIONS	
NAME	DATE

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

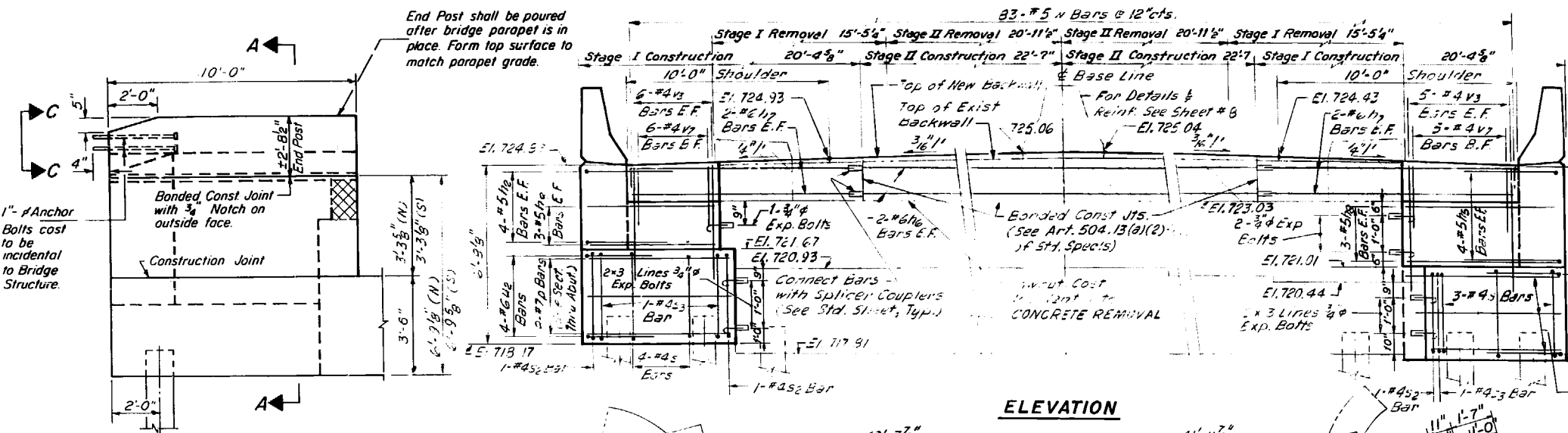
**REPLACEMENT BEARING DETAILS  
EAST ABUTMENT & PIER 1**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION BR-B-1(86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016 - 0217

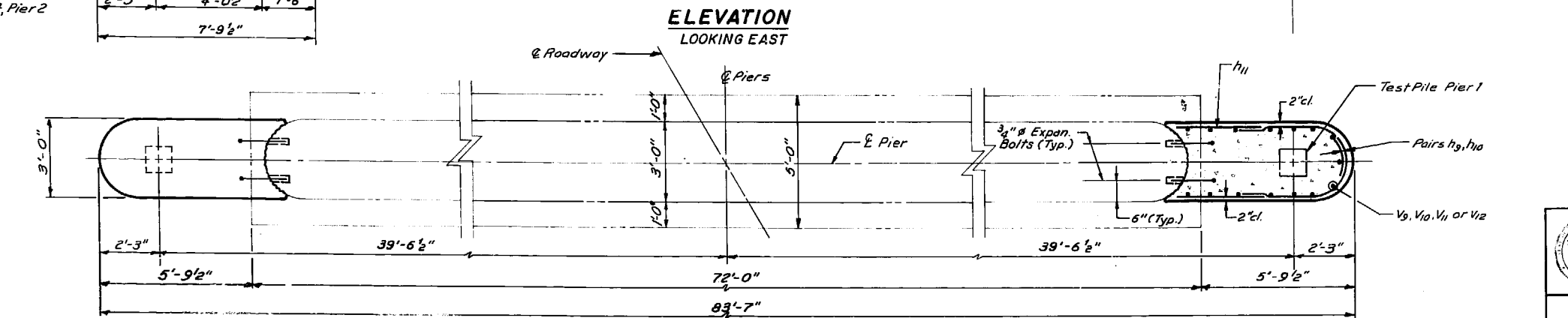
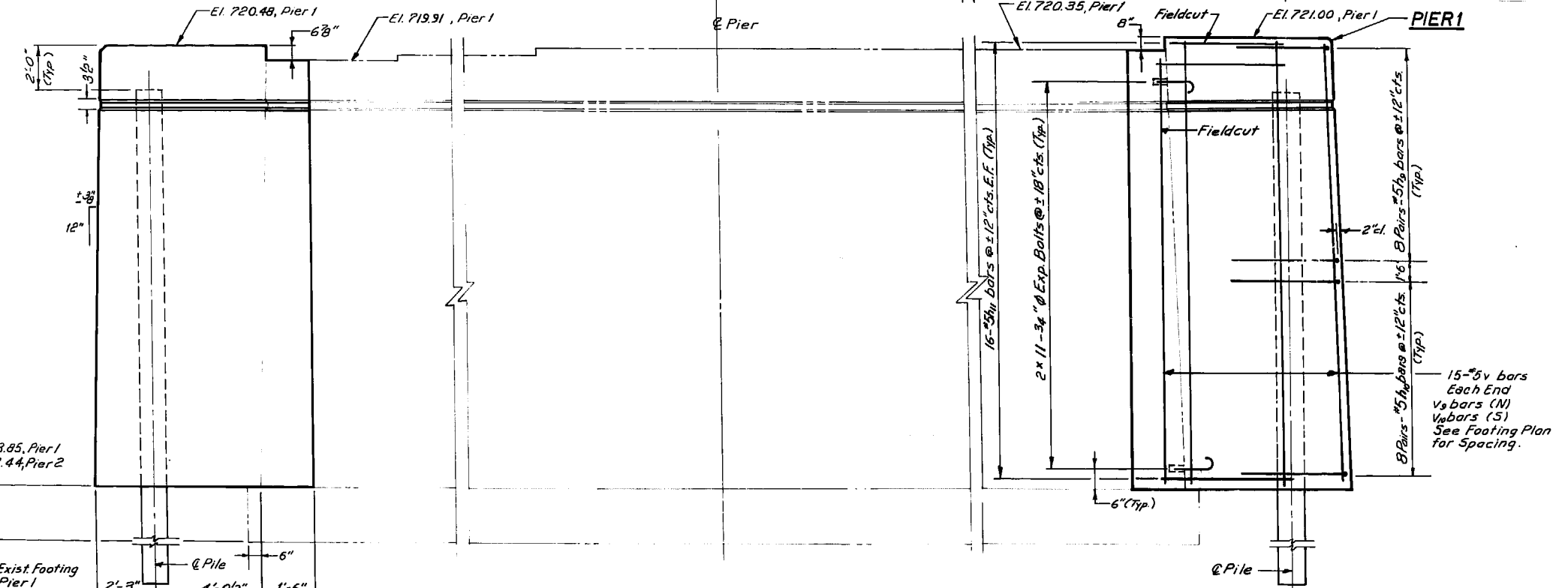
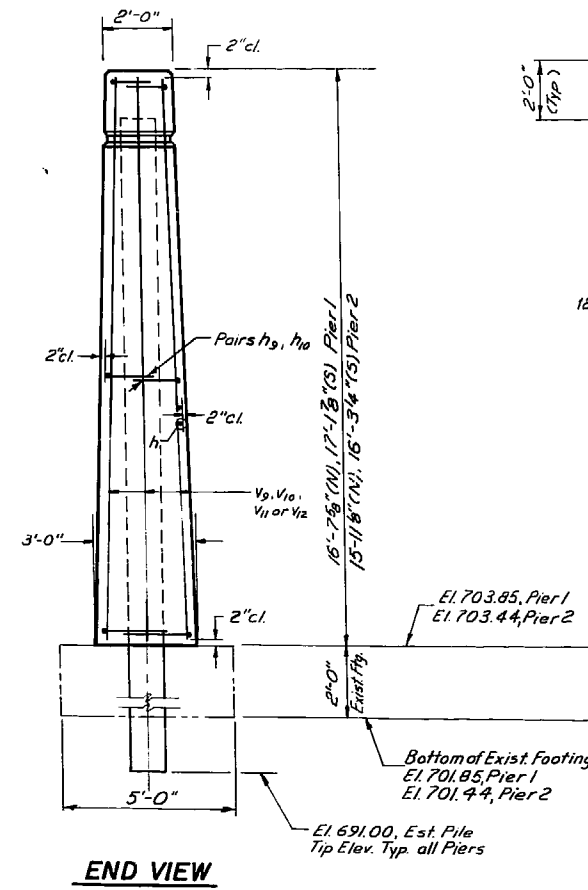
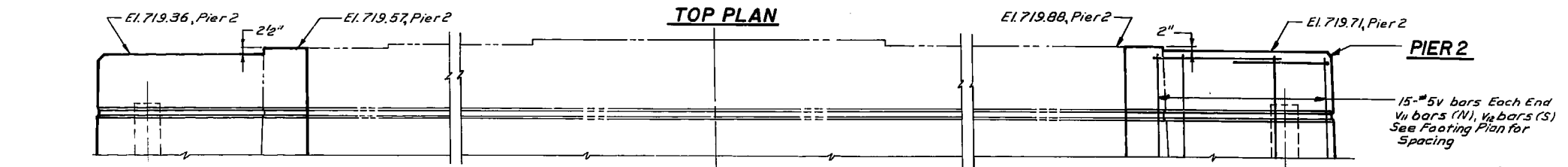
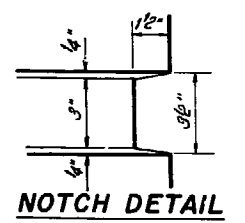
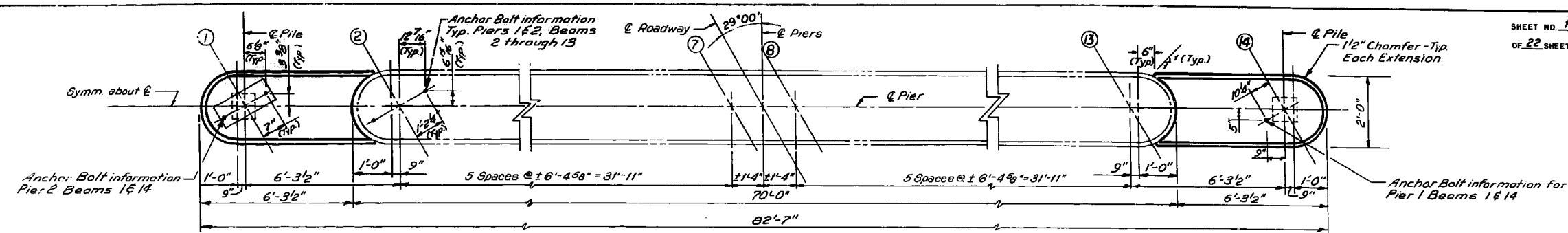
**Baker Engineers**  
Baker Engineering, Inc.

DESIGNED: P. Wood  
CHECKED: R. ZEMAITAITIS  
DRAWN: J. Chaliki  
CHECKED: P. Wood

**NOTES:**  
 Hatched Area Indicates Concrete Removal. Reinforcement Extending Into Removed Area Shall Be Cleaned And Incorporated Into The New Construction. Cross Hatched Area To Be Poured After Superstructure Is In Place. Quantity Of Class X Concrete Included With Superstructure.  
 Space Reinforcement In Cap To Miss Anchor Bolts. Expansion Bolts Shall Be Anchored In Sound Concrete.  
 EL. 724.13 Pour Steps Monolithically With Cap.  
 Designations:  
 (N) Denotes North Wingwall.  
 (S) Denotes South Wingwall.  
 I.F. Denotes Inside Face.  
 O.F. Denotes Outside Face.  
 E.F. Denotes Each Face.  
 N.F. Denotes Near Face.  
 B.F. Denotes Back Face.  
 Cost of Bar Splicers incidental to REINFORCEMENT BARS.







**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h9	64	#5	5'-3"	
h10	64	#5	5'-11"	
h11	128	#5	4'-5"	
v9	15	#5	16'-3"	
v10	15	#5	16'-9"	
v11	15	#5	15'-7"	
v12	15	#5	15'-11"	

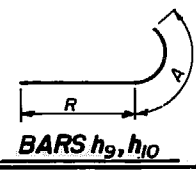
  

ITEM	UNIT	QUANTITY
Class "X" Concrete	Cu.Yd.	41.5
Reinforcement Bars	Pound	2,347
Expansion Bolts 3/4" Ø	Each	88
Concrete Piles	Lin.Ft.	72
Test Pile	Each	1

**NOTES:**  
 Contractor to encase piles with concrete pier extensions as shown. Remove streambed soil material to top of exist. footings prior to placing reinforcement and concrete.

**PILE DATA**  
 TYPE: CONCRETE  
 CAPACITY: 45 TONS  
 EST. LENGTH: 24 FT.  
 NO. REQ'D: 3  
 TEST PILES: 1

**Baker Engineers**  
 Baker Engineering, Inc.  
 DESIGNED: J. Owen  
 CHECKED: P. Wood  
 DRAWN: K. Dytkowski  
 CHECKED: J. Owen



**R & A DIMENSIONS**

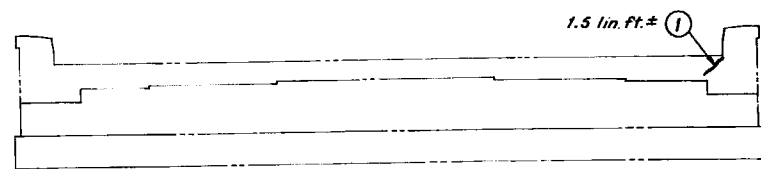
BAR	R	A
h9	2'-9"	2'-6"
h10	3'-0"	2'-11"

**REVISIONS**

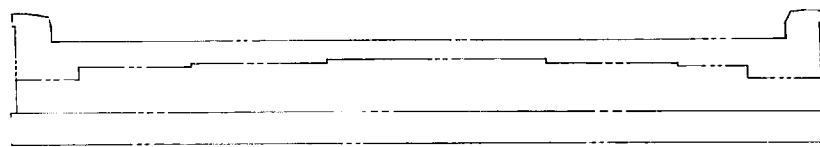
NAME	DATE

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
**PIERS**  
 U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
 POPLAR CREEK  
 SECTION BR-B-1(86)  
 COOK COUNTY  
 STATION 240 + 83.50  
 STRUCTURE No. 016 - 0217

SHEET NO. 18	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
OF 22 SHEETS	426 BR-B-1 (86)	COOK	209	175
STA	TO STA			
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

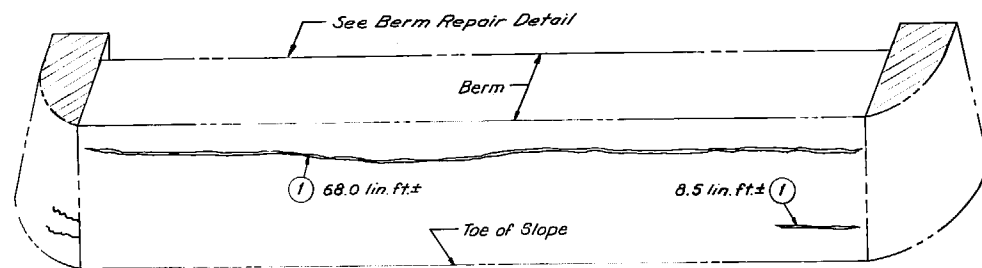


**EAST ABUTMENT ELEVATION**

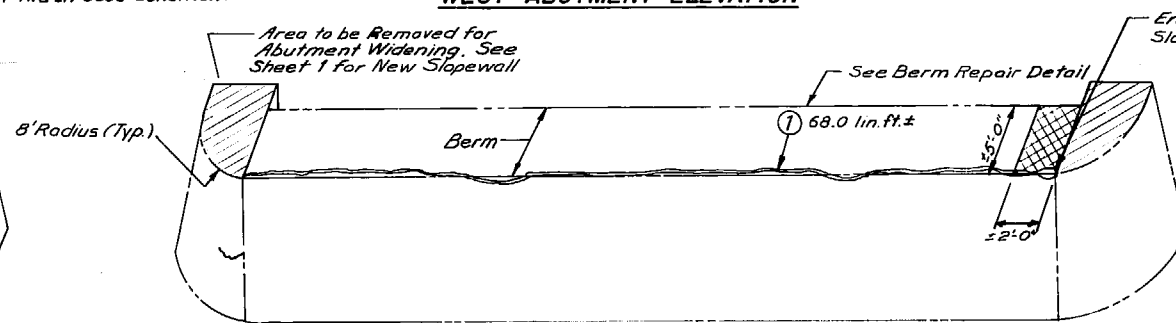


**WEST ABUTMENT ELEVATION**

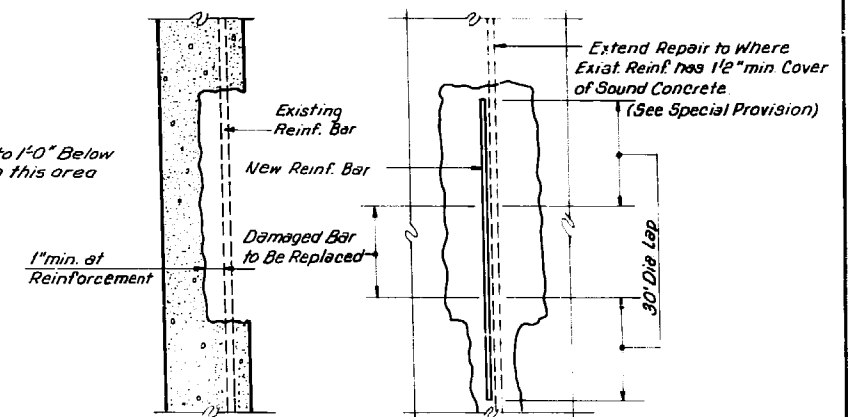
NOTE: Except As Noted East and West Abutment Are In Good Condition.



**EAST ABUTMENT SLOPEWALL**



**WEST ABUTMENT SLOPEWALL**

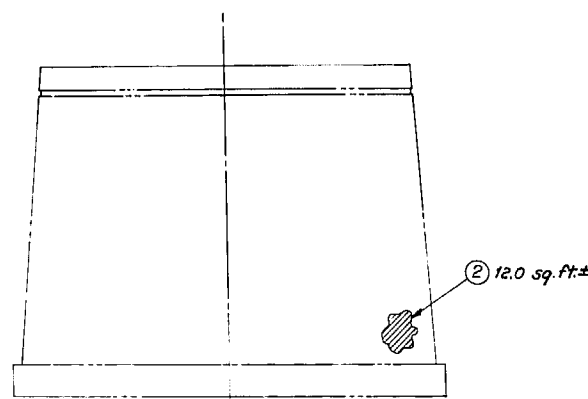


**EPOXY MORTAR REPAIR DETAILS**

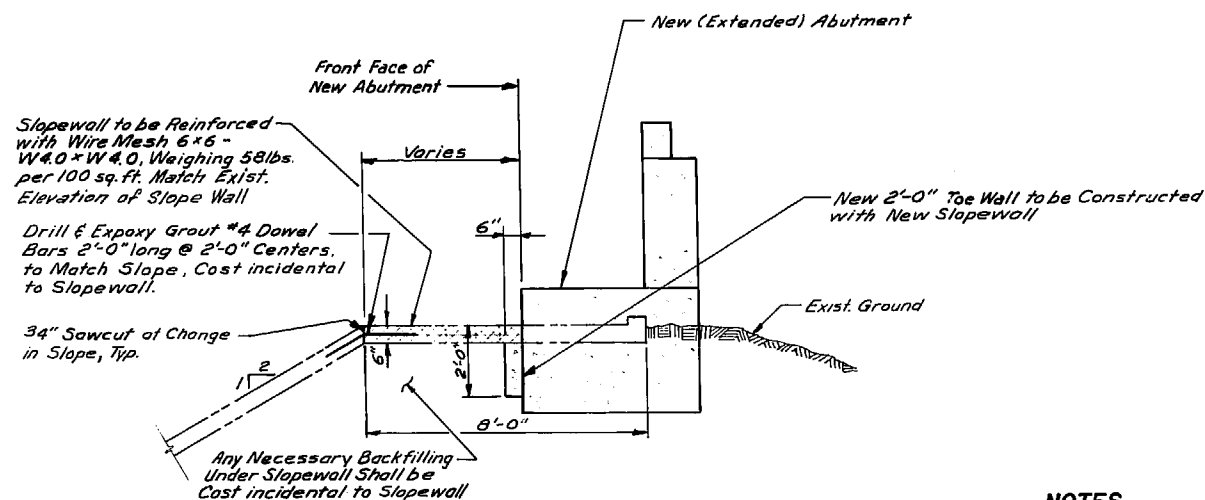
Detail Applies Where Existing Reinforcement Is Exposed As a Result of Removing Unsound Concrete. Existing Reinforcement having 25% or more of Cross Sectional Area Lost Due to Corrosion or Damage During Concrete Removal Shall be Replaced By New Reinforcement Lapped As Shown. Payment for Added Reinforcement Steel Shall be at the Unit Price for Reinf. Bars.

**BILL OF MATERIAL**

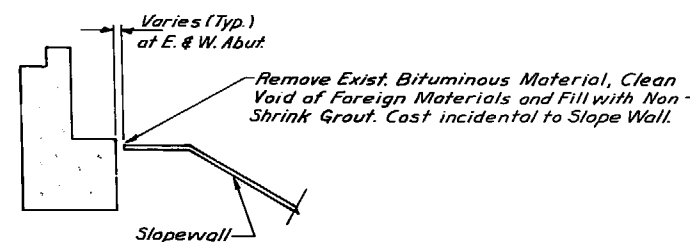
ITEM	UNIT	QUANTITY
Epoxy Crack Sealing	Lin. Ft.	146
Epoxy Mortar Repair	Cu. Ft.	3



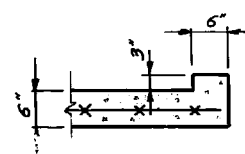
**PIER 1 WEST FACE**



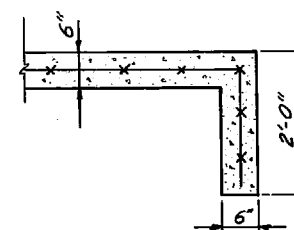
**SECTION A-A (TYPICAL)**



**BERM REPAIR DETAIL**



**SECTION B-B (EXISTING)**



**SECTION B-B (NEW)**

**NOTES**

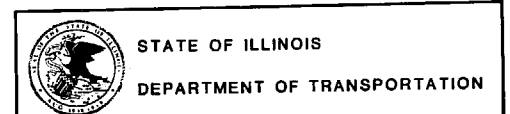
1. Except as noted, Piers are in good condition
2. See Sheet 1 for location of sections A-A and B-B
3. Areas of Settlement in the Slope Wall are to be Removed (Slopewall Removal) and to be Replaced (Slopewall, 6 inch)

**LEGEND**

- ① Denotes Epoxy Crack Sealing
- ② Denotes Epoxy Mortar Repair
- ▨ Denotes Slapewall Removal
- ▩ Denotes Slapewall Area to be Removed and New Slapewall Constructed.
- Denotes tight Crack that does not Require Sealing



DESIGNED	P. Wood
CHECKED	J. Owen
DRAWN	K. Dykowski
CHECKED	P. Wood



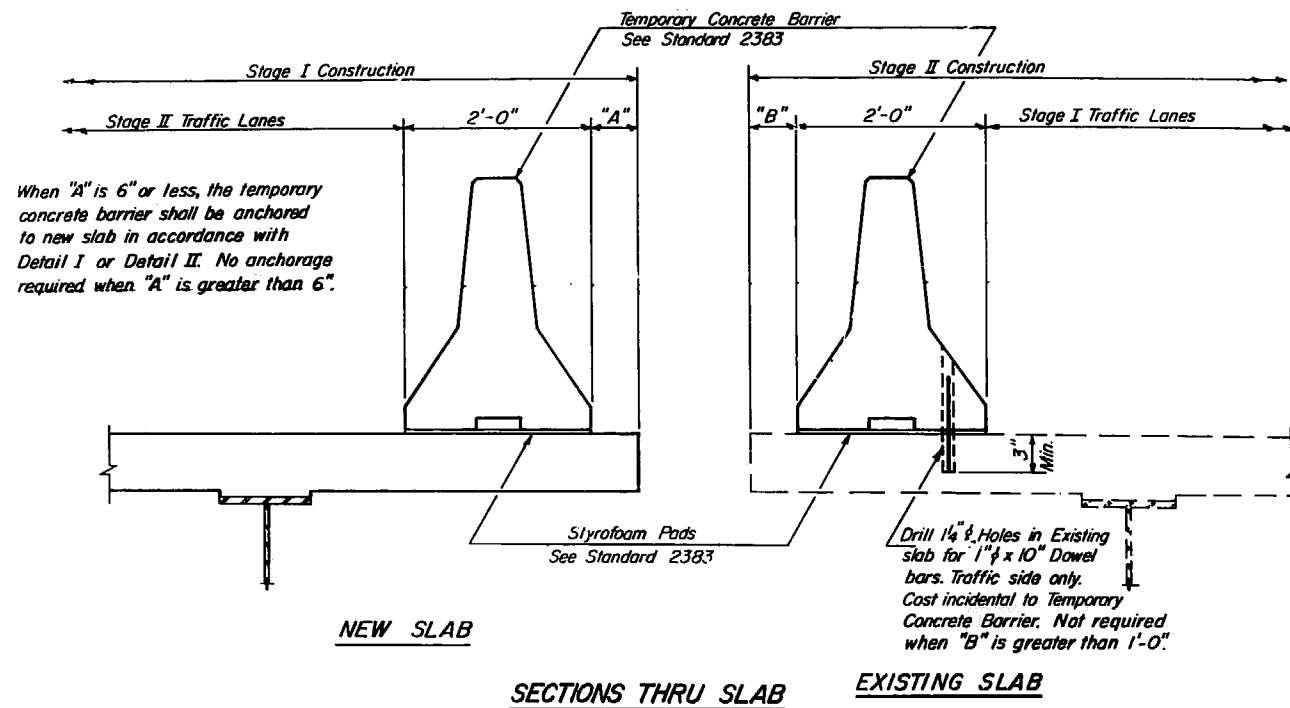
**EXISTING SUBSTRUCTURE REPAIRS**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
 POPLAR CREEK  
 SECTION BR-B-1 (86)  
 COOK COUNTY  
 STATION 240 + 83.50  
 STRUCTURE No. 016 - 0217

REVISIONS	
NAME	DATE

ROUTE NO.	DISTRICT	GROUP	SHEET NO.	SHEET
F.A. 426	8R-B-1 (86)	COOK	209	176
DESIGNED BY		DRAWN BY		CHECKED BY
ILLINOIS		ILLINOIS		ILLINOIS

SHEET NO. 19  
OF 22 SHEETS

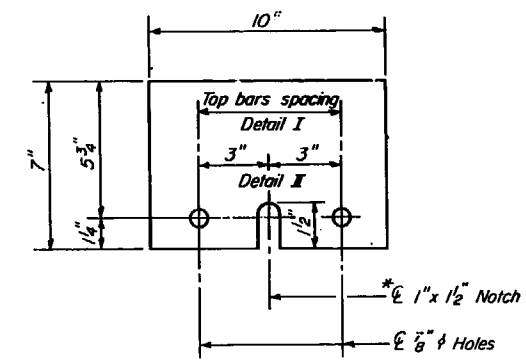
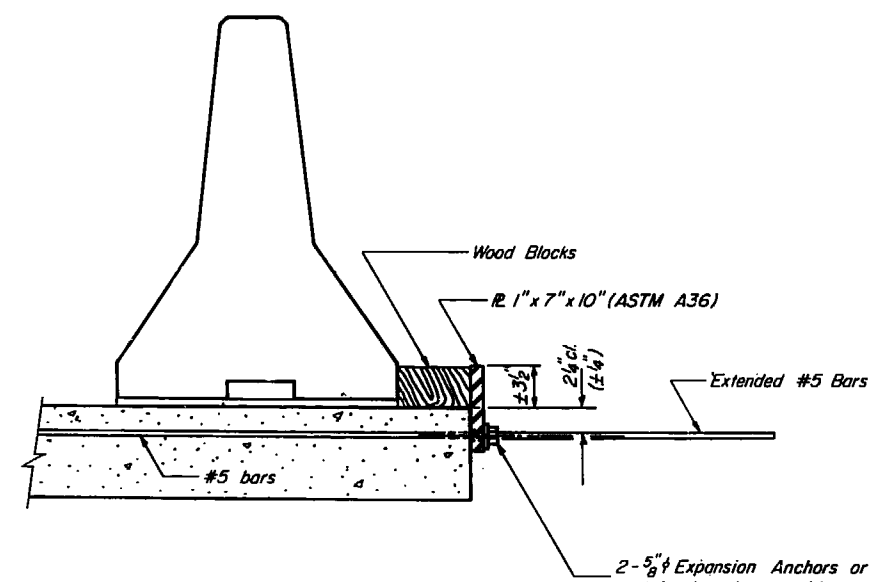
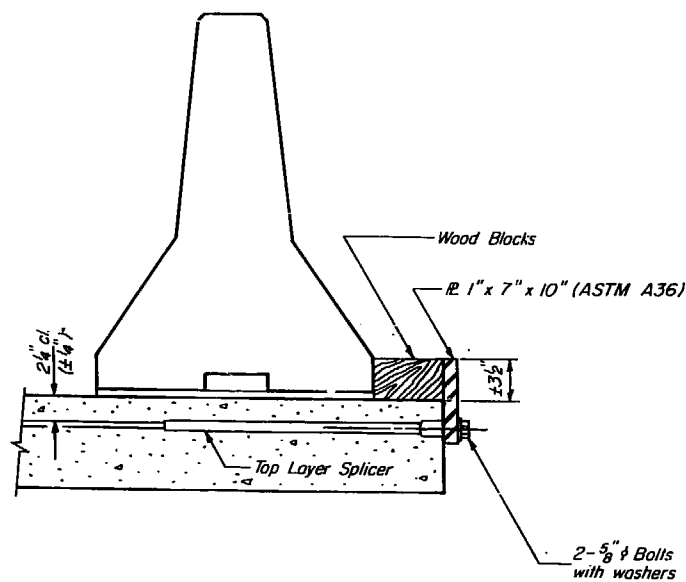


**NOTES**

*Detail I - With Bar Splicer or Couplers:*  
Connect one (1) 1" x 7" x 10" steel  $\mathbb{R}$  to the top layer of couplers with 2- $\frac{5}{8}$ "  $\phi$  bolts screwed to coupler at approximate  $\mathbb{C}$  of each 10'-0" barrier panel.

*Detail II - With Extended Reinforcement Bars:*  
Connect one (1) 1" x 7" x 10" steel  $\mathbb{R}$  to the concrete slab with 2- $\frac{5}{8}$ "  $\phi$  Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate  $\mathbb{C}$  of each 10'-0" barrier panel.

Cost of anchorage is incidental to Temporary Concrete Barrier.



**1" x 7" x 10"**  
\* Required only with Detail II

**DETAIL I**  
The 1" x 7" x 10" Plate shall not be removed until Stage II Construction forms and reinforcement bars are in place.

**DETAIL II**  
The 1" x 7" x 10" Plate shall not be removed until Stage II Construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

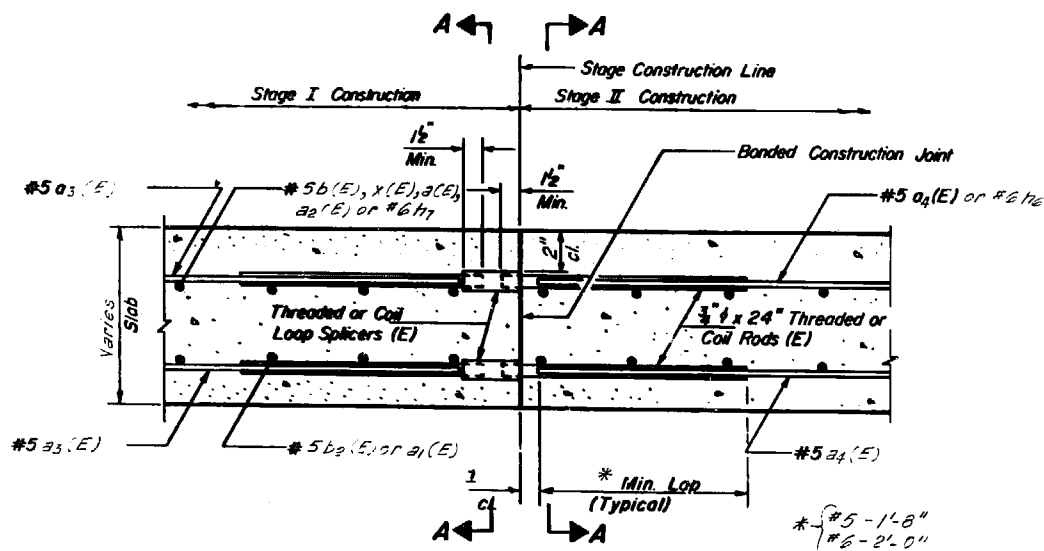
DESIGNED
CHECKED
DRAWN
CHECKED

REVISIONS	
NAME	DATE

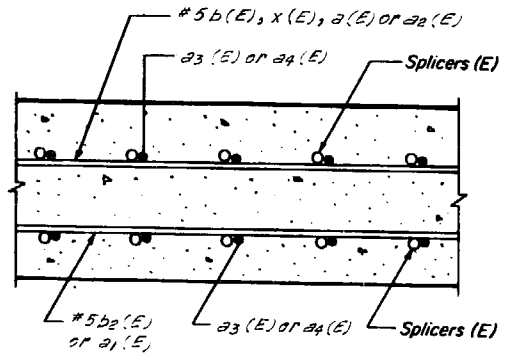
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION 8R-B-1 (86)  
COOK COUNTY  
STATION 240 ± 83.50  
STRUCTURE No. 016-0217



SECTION THRU SLAB



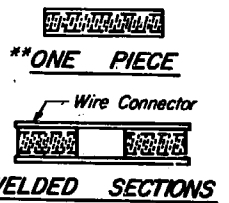
SECTION A-A

SPLICER DETAILS  
(No. Reqd. 40)

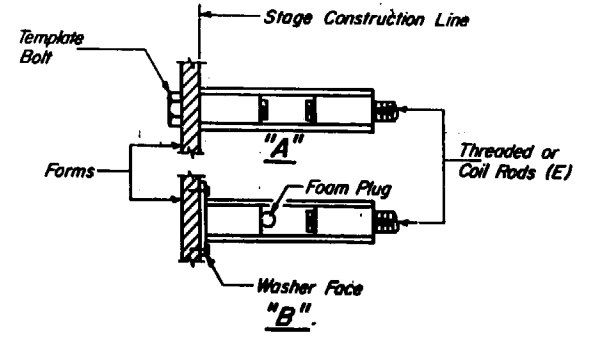
Cost incidental to reinforcement bars (Epoxy Coated).



Rolled Thread Dowel Bar



SPLICER ALTERNATIVES  
\*\* Heavy Hex Nuts conforming to ASTM A 563; Grade C, D or DH may be used.



INSTALLATION AND SETTING METHODS

"A": Set splicer by means of a template bolt.  
"B": Set splicer by nailing to wood forms or cementing to steel forms.  
(E): Indicates epoxy coating.

NOTES

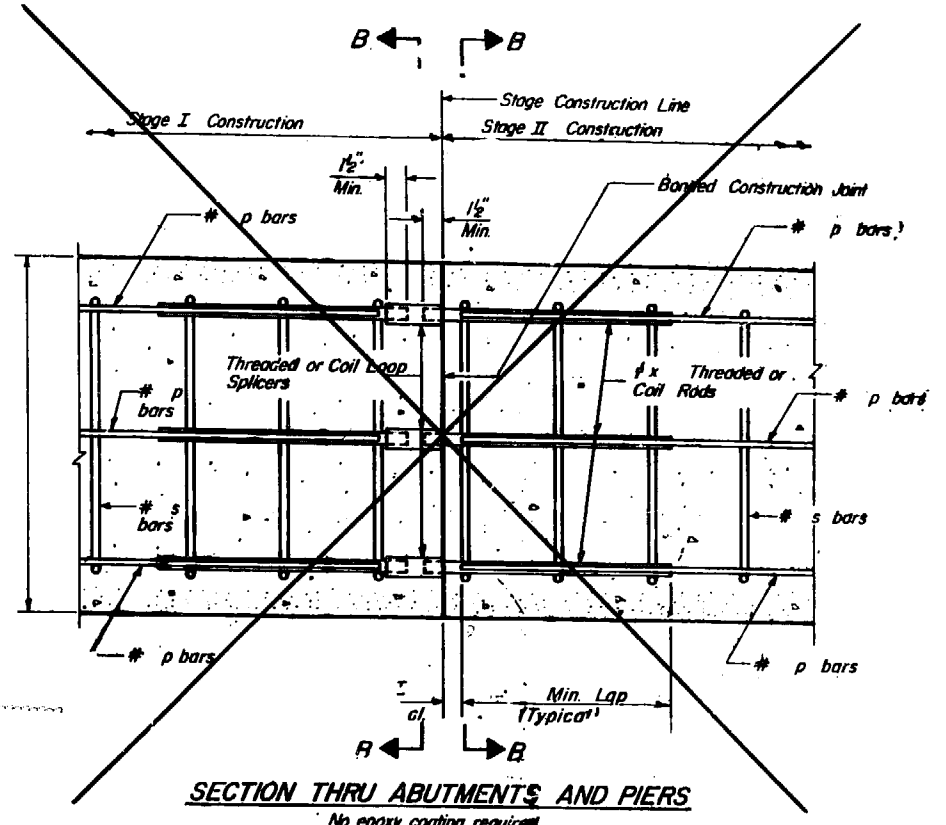
Steel Splicer (Coupler) assembly shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.  
Steel Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length and have effective tensile stress area equal or greater than that of the lapped reinforcement bars.  
Splicer rods shall extend minimum 1 1/2 inches into the couplers.  
All reinforcement bars shall be lapped and tied to the splicer rods.  
Splicer (coupler) assembly in the slab shall be epoxy coated in accordance with the requirements for reinforcement bars.  
Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed splicer (coupler) assembly satisfies the following requirements:

- Minimum Capacity =  $1.25 \times f_y \times A_t$   
(Tension in kips)
- Minimum Pull-out Strength =  $1.25 \times f_{s,allow} \times A_t$   
(Tension in kips)

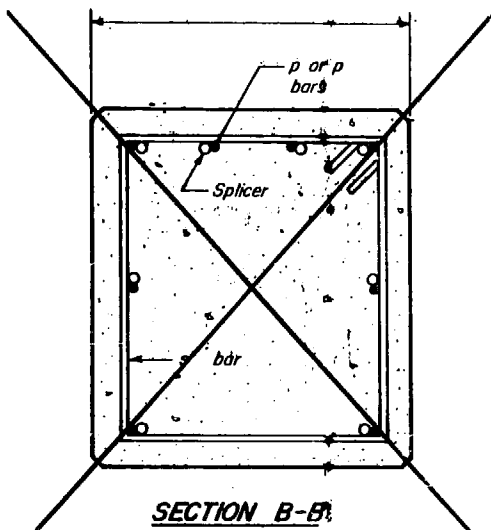
Where  $f_y$  = Yield strength of lapped reinforcement bars in k.s.i.  
 $f_{s,allow}$  = Allowable tensile stress in lapped reinforcement bars in k.s.i. (Service Load)  
 $A_t$  = Tensile stress area of lapped reinforcement bars.  
\* 28 day concrete

Typical Splicer (Coupler) Assembly Sizes:

In Slabs	#5 bar lap with 3/4" Splicer (Coupler) x 2'-0" Splicer Rods	Minimum Capacity = 23.0 kips-tension
		Minimum Pull-out Strength = 2 kips-tension
In Sub-structures	#7 bar lap with 1" Splicer (Coupler) x 3'-5" Splicer Rods	Minimum Capacity = 45.1 kips-tension
		Minimum Pull-out Strength = 18.0 kips-tension
	#8 bar lap with 1 1/4" Splicer (Coupler) x 4'-6" Splicer Rods	Minimum Capacity = 58.9 kips-tension
		Minimum Pull-out Strength = 23.6 kips-tension



SECTION THRU ABUTMENTS AND PIERS  
No epoxy coating required.

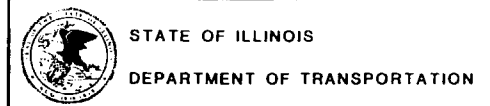


SECTION B-B

SPLICER DETAILS  
(No. Reqd.)

Cost incidental to reinforcement bars.

DESIGNED	
CHECKED	
DRAWN	
CHECKED	



BAR SPLICER (COUPLER) DETAILS AT STAGE CONSTRUCTION

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION 8R-B-1 (86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016-0217

REVISIONS	
NAME	DATE

**MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT**

The anchor bolt shall be fabricated from a grade of steel as specified in the material schedule. The material shall be furnished in a form suitable for the intended use. The anchor bolt shall be furnished in a form suitable for the intended use. The anchor bolt shall be furnished in a form suitable for the intended use.

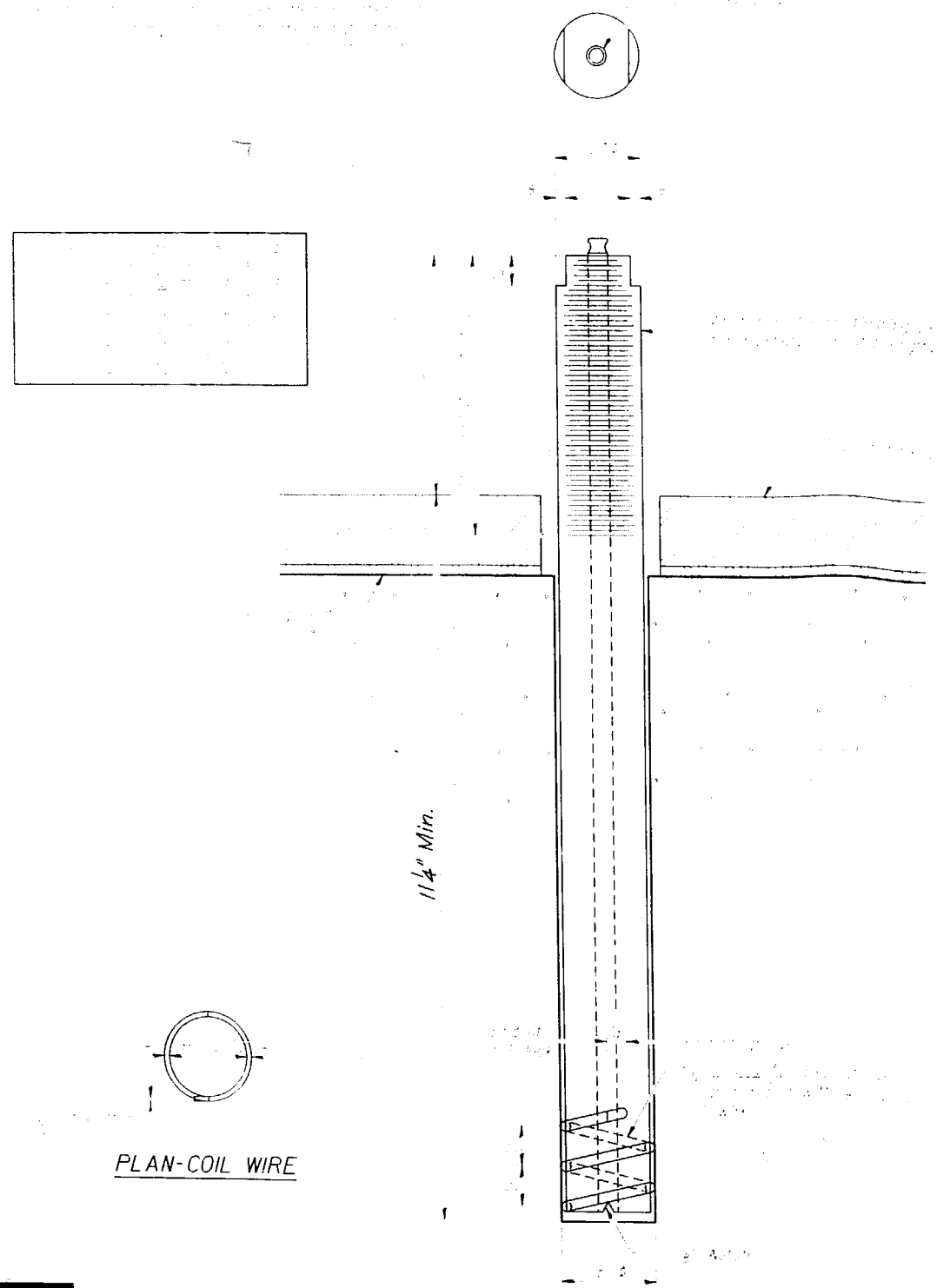
**NOTES**

**INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT**

With the coil wire in place, the bolt shall be inserted into the hole in the concrete. The bolt shall be inserted into the hole in the concrete. The bolt shall be inserted into the hole in the concrete.

**ALTERNATE ANCHOR BOLTS**

The contractor may use, if a option, the capsule or the capsule of the anchor bolt. The contractor may use, if a option, the capsule or the capsule of the anchor bolt. The contractor may use, if a option, the capsule or the capsule of the anchor bolt.



PLAN-COIL WIRE

ILLINOIS COIL-LOCK ANCHOR BOLT



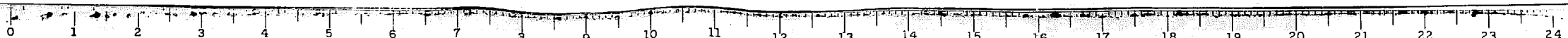
DESIGNED	
CHECKED	
DRAWN	
CHECKED	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**ANCHOR BOLT DETAILS FOR BEARINGS**

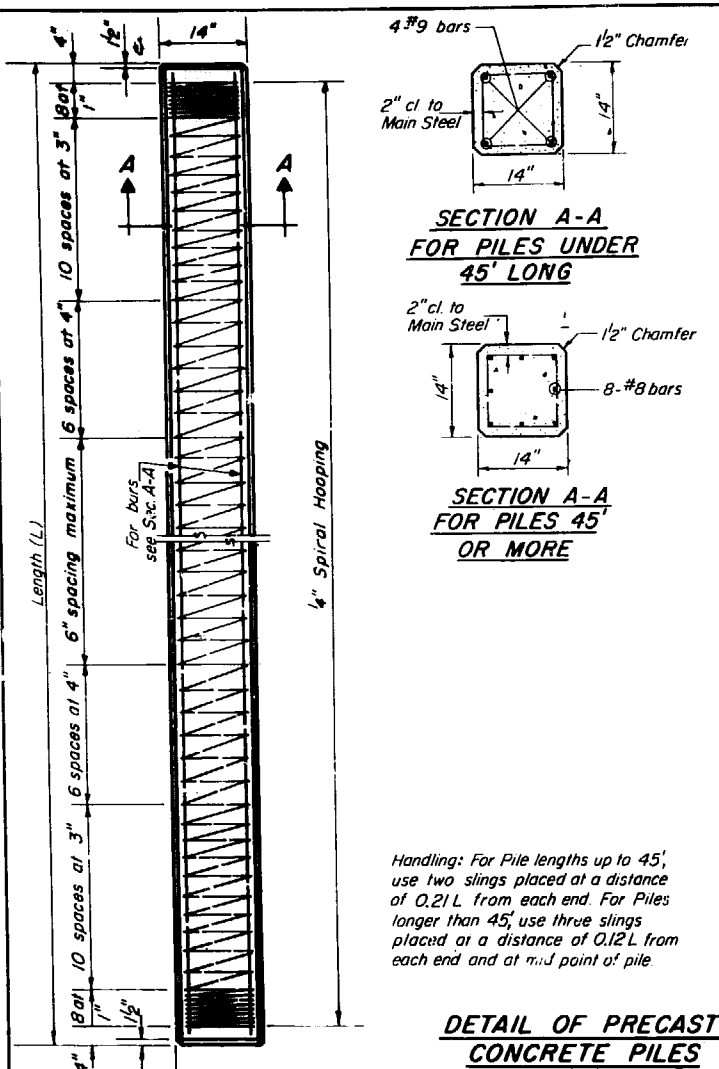
U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION BR-B-1(86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016-0217

REVISIONS	
NAME	DATE

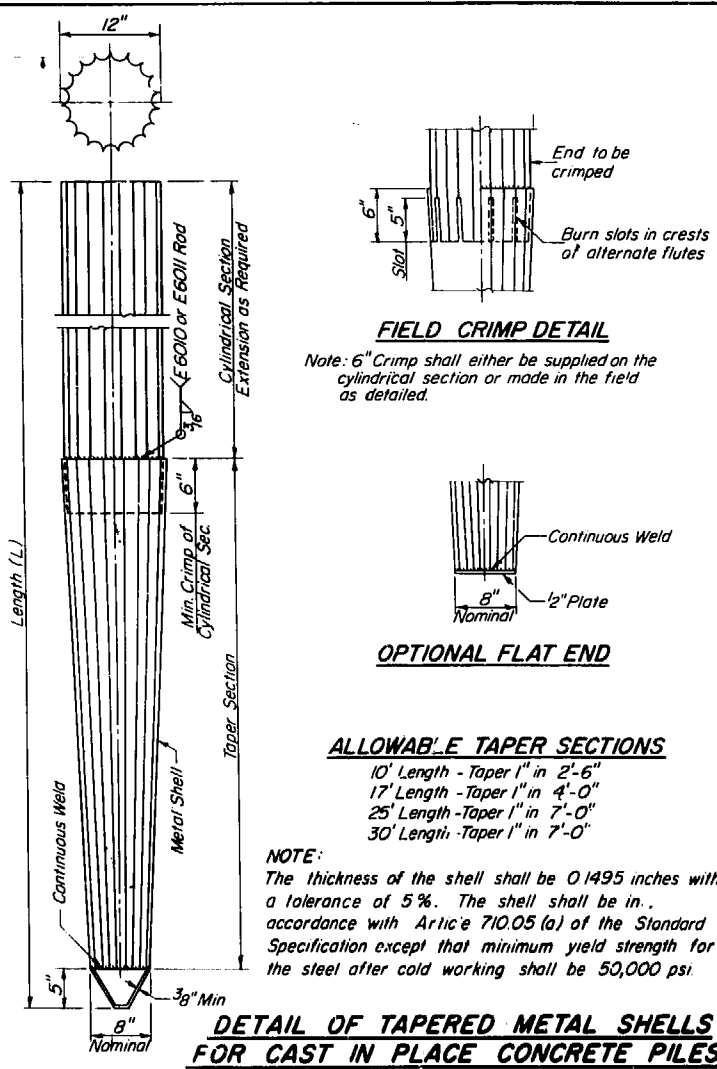




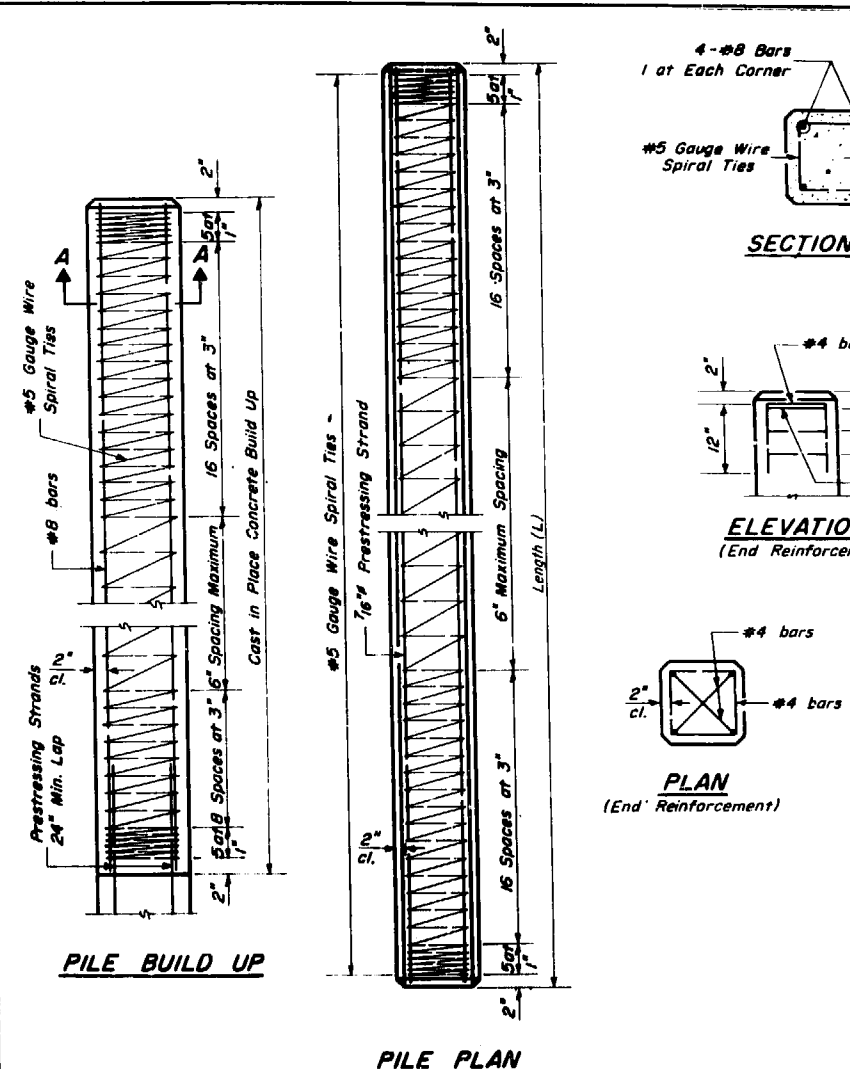
PROJECT NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 426	8R-B-1 (86)	COOK	209	179
PREPARED BY	DATE	DESIGNED BY	CHECKED BY	APPROVED BY



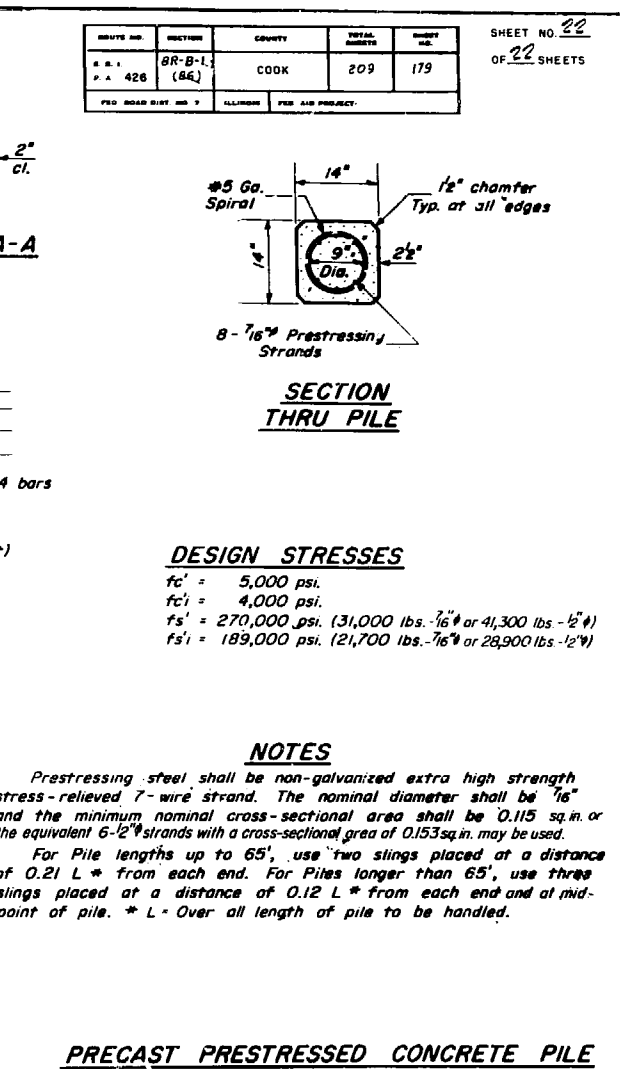
**DETAIL OF PRECAST CONCRETE PILES**



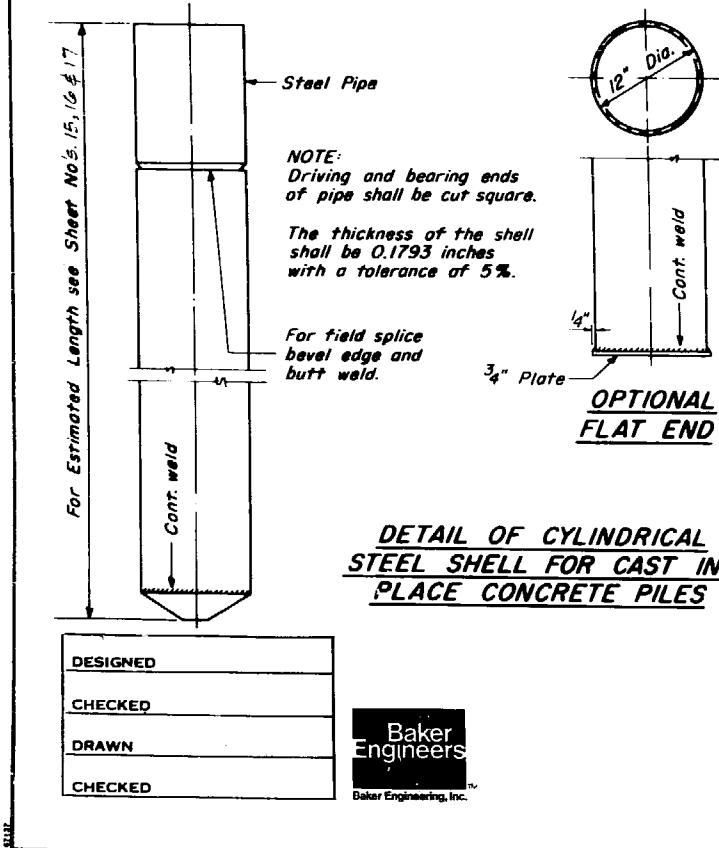
**DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES**



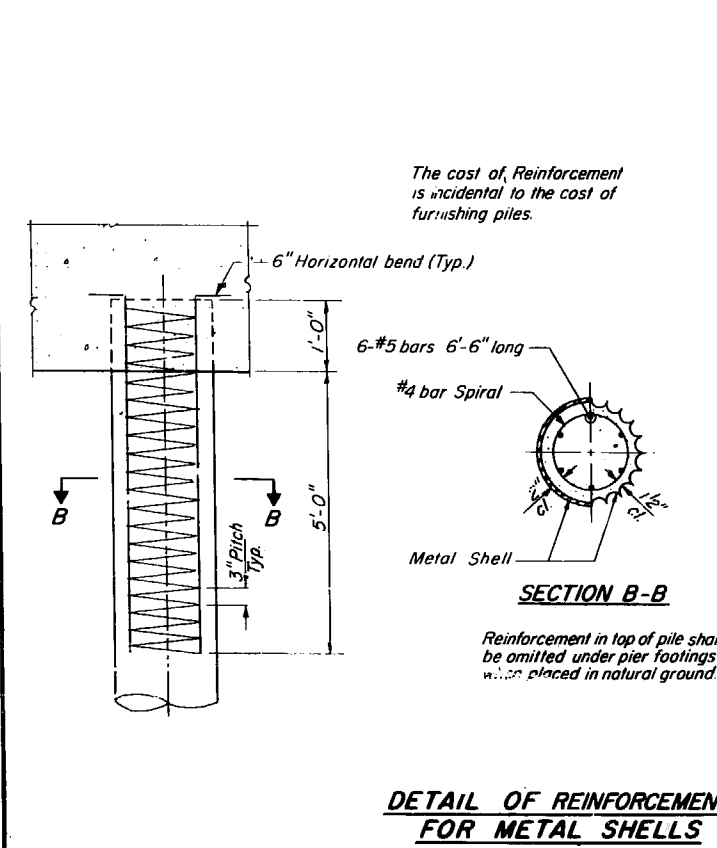
**PILE PLAN**



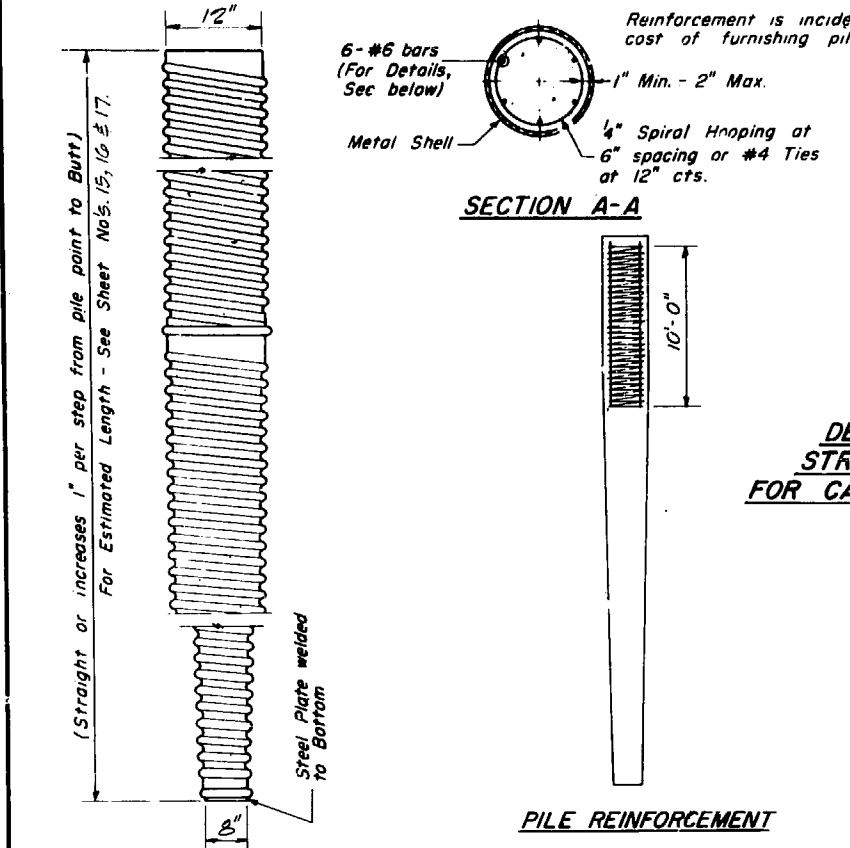
**PRECAST PRESTRESSED CONCRETE PILE**



**DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES**



**DETAIL OF REINFORCEMENT FOR METAL SHELLS**



**PILE REINFORCEMENT**

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**PILE DETAILS**

U.S. ROUTE 20 BY-PASS (F.A.P. 426) OVER  
POPLAR CREEK  
SECTION 8R-B-1 (86)  
COOK COUNTY  
STATION 240 + 83.50  
STRUCTURE No. 016 - 0217

REVISIONS	
NAME	DATE