

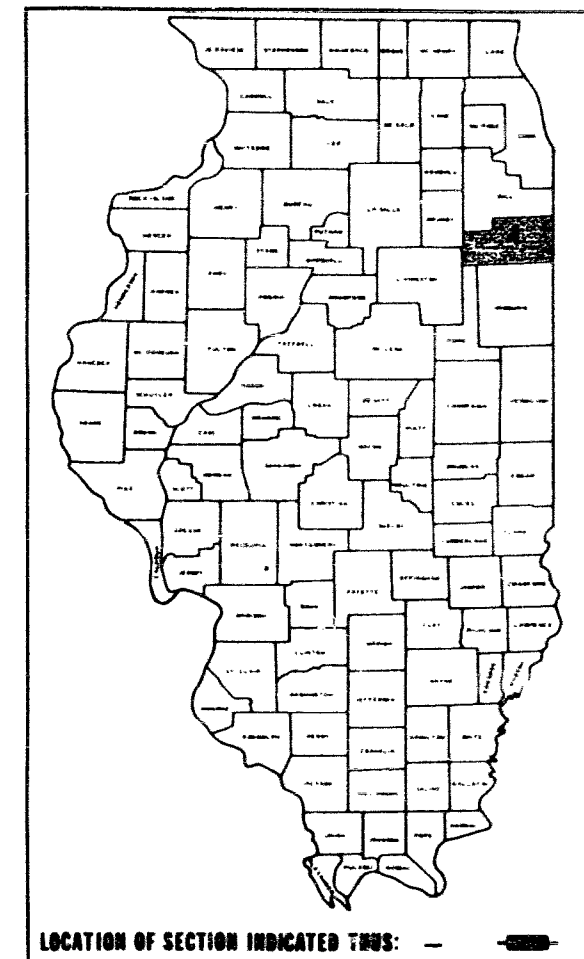
**FOR  
INFORMATION  
ONLY**

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

**PLANS FOR PROPOSED  
FEDERAL AID INTERSTATE HIGHWAY**

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS
57	*	KANKAKEE BR	7
* 139VBR, 139HBR-3, 139BR-2			

P. 93-045-85



LOCATION OF SECTION INDICATED THIS: —

**INDEX OF SHEETS**

1. COVER SHEET
2. TYPICAL CROSS SECTIONS AND GENERAL NOTES
- 3A,3B,3C. SUMMARY OF QUANTITIES
- 4.-5. SCHEDULE OF QUANTITIES
6. TEMPORARY CROSSOVER NOS. 1 & 3
7. TEMPORARY CROSSOVER NOS. 2 & 4
8. STANDARD 2317 (SPECIAL) SOUTHBOUND LANE CLOSED
9. STANDARD 2317 (SPECIAL) NORTHBOUND LANE CLOSED
10. MISCELLANEOUS DETAILS
11. POLE STANDARDS
12. CONTROL INSTALLATION PHOTOCCELL RELAY
- 13.-16. PLAN AND PROFILE
- 17.-27. BRIDGE PLANS -- SECTION 139 BR-2
- 28.-46. BRIDGE PLANS -- SECTION 139 HBR-3
- 47.-69A. BRIDGE PLANS -- SECTION 139 VBR
- 70.-73. CROSSOVER CROSS SECTIONS
- 74.-82. SHOULDER TAPER CROSS SECTIONS

SCALES { PLAN 1"=100'  
PROFILE HOR. 1"=100'  
PROFILE VERT. 1"=10'  
CROSS-SECTIONS 1"=5'

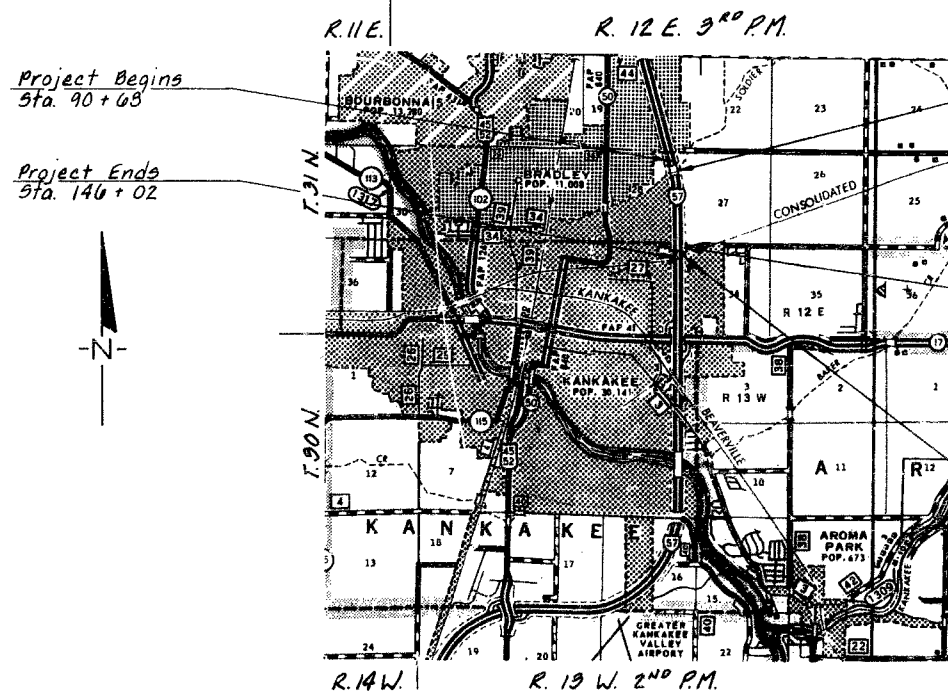
**F.A.I. ROUTE 57  
SECTION 139 VBR, 139 HBR-3, 139 BR-2**

**KANKAKEE COUNTY  
PROJECT IR-57-6(150)313**

C-93-004-88

**STANDARDS**

- |         |   |
|---------|---|
| 1686-4  | SYMBOLS AND ABBREVIATIONS                                 |
| 2113-2  | NAME PLATE FOR BRIDGES                                    |
| 2135    | PERMANENT SURVEY MARKERS                                  |
| 2228-4  | METAL END SECTION FOR PIPE CULVERTS                       |
| 2230-15 | STEEL PLATE BEAM GUARDRAIL                                |
| 2240-5  | FLUSH INLET BOX FOR MEDIAN                                |
| 2298-7  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES            |
| 2299-10 | DESIGN OF TRAFFIC CONTROL DEVICES                         |
| 2300-3  | FLAGMAN TRAFFIC CONTROL SIGN                              |
| 2302-5  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES            |
|         | TWO-LANE, TWO-WAY, RURAL, DAY OR NIGHT                    |
| 2303-6  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES            |
|         | TWO-LANE, TWO-WAY, RURAL, DAY                             |
| 2305-5  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES            |
|         | RURAL, MOVING OPERATION, DAY                              |
| 2307-6  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES            |
|         | SHORT-TIME OPERATION, DAY OR NIGHT                        |
| 2308-5  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES            |
|         | (CASE VIII), RURAL, MOVING OPERATION, MULTILANE DIV., DAY |
| 2313-5  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES            |
|         | MULTILANE DIV. AND UNDIV., RURAL, DAY OR NIGHT            |
| 2314-5  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES            |
|         | MULTILANE DIV. AND UNDIV., RURAL, DAY OR NIGHT            |
| 2315-7  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES            |
|         | MULTILANE DIV. AND UNDIV., RURAL, DAY                     |
| 2316-11 | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES            |
|         | MULTILANE DIV. AND UNDIV., RURAL, OVER ONE DAY            |
| 2323-10 | PAVEMENT JOINTS   |
| 2324-6  | BRIDGE APPROACH SHOULDER PAVEMENT                         |
| 2336-4  | TRAFFIC BARRIER TERMINAL, TYPE 1 AND 1A                   |
| 2340-4  | TRAFFIC BARRIER TERMINAL, TYPE 5 & 5A                     |
| 2341-1  | TRAFFIC BARRIER TERMINAL, TYPE 6                          |
| 2344-1  | TRAFFIC BARRIER TERMINAL, TYPE 7                          |
| 2317-6  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES            |
|         | MULTILANE DIV., RURAL, DAY OR NIGHT.                      |



Project Begins Sta. 90+63

Project Ends Sta. 146+02



0 0.5 1 2 3 Miles  
APPROXIMATE SCALE

GROSS LENGTH OF PROJECT = 5,534.00 FEET = 1.048 MILES

Net Length of Section  
139 BR-2 - 277.00 Feet - 0.052 Miles  
139 HBR-3 - 320.00 Feet - 0.061 Miles  
139 VBR - 400.00 Feet - 0.087 Miles  
Net Length of Project = 1,057.00 Feet = 0.200 Miles

Section 139 BR-2 is a dual three span R.C. Slab bridge widening carrying F.A.I. 57 over Soldier Creek Sta. 91+07.00 to Sta. 92+45.24 (L.-76'-7")

Section 139 HBR-3 is a dual three span W.F. Beam bridge widening carrying F.A.I. 57 over Grinnell Road Sta. 138+30.00 to Sta. 139+51.04 (L.-120'-2")

Section 139 VBR is a dual five span W.F. Beam bridge widening carrying F.A.I. 57 over Conrail R.R. Sta. 142+42.19 to Sta. 145+01.86 (L.-259'-8")

MICROFILMED \_\_\_\_\_  
REEL NUMBER \_\_\_\_\_  
AWARDED \_\_\_\_\_  
RESIDENT ENGINEER \_\_\_\_\_  
AS BUILT CHANGES WERE MADE ON THE FOLLOWING SHEETS \_\_\_\_\_

**DESIGN DESIGNATION**  
2800 (04) TRUNK 91.5 (COMPOSITE-20)

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

SUBMITTED: 12/5/88  
PREPARED BY: R. G. P. (Signature)  
DESIGNED BY: R. G. P. (Signature)  
CHECKED BY: R. G. P. (Signature)  
APPROVED BY: R. G. P. (Signature)  
DATE: 12-30-88

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: \_\_\_\_\_  
UTILITY LOCATING INFORMATION  
Call J.U.L.I.E. 1-800-992-0129  
(KANKAKEE TOWNSHIP)  
(BOURBONNAIS TOWNSHIP)

CONTRACT NO. 42818

PROJECT ENGR. A. ELIAS

KANKAKEE COUNTY SECTION 139 BR-2, 139 HBR-3, 139 VBR F.A.I. ROUTE 57

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA.157	#	KANKAKEE	82	2
FED. ROAD DIST. NO. 7		ILLINOIS PROJECT		

# 139 BR-2, 139 HBR-3, 139 JBR

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DISTRICT THREE

BY: *[Signature]*  
DISTRICT ENGINEER OF DESIGN

EXAMINED BY: *[Signature]*  
DISTRICT ENGINEER OF CONSTRUCTION

*[Signature]*  
DISTRICT ENGINEER OF MAINTENANCE

*[Signature]*  
DISTRICT ENGINEER OF MATERIALS

*[Signature]*  
DISTRICT ENGINEER OF TRAFFIC

*[Signature]*  
DISTRICT ENGINEER OF PLANNING

GENERAL NOTES

THE THICKNESS OF BITUMINOUS MIXTURES SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE BITUMINOUS MIXTURE IS PLACED.

WHERE SECTION OR SUB-SECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL MONUMENTS UNTIL AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR HAVING AN AUTHORIZED SURVEYOR RE-ESTABLISH ANY SECTION OR SUB-SECTION MONUMENTS DESTROYED BY HIS OPERATIONS.

THE PROJECT IS LOCATED IN KANKAKEE AND BOURBONNAIS TOWNSHIPS. SEE COVER SHEET FOR EXACT LOCATION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING UTILITY PROPERTY FROM CONSTRUCTION OPERATIONS AS OUTLINED IN ARTICLE 107.26 OF THE STANDARD SPECIFICATIONS. THE J.U.L.I.E. NUMBER IS 800-892-0123. THE FOLLOWING UTILITIES LOCATED WITHIN THE LIMITS OF THIS IMPROVEMENT ARE MEMBERS OF J.U.L.I.E.:

COMMONWEALTH EDISON COMPANY  
ILLINOIS BELL TELEPHONE COMPANY

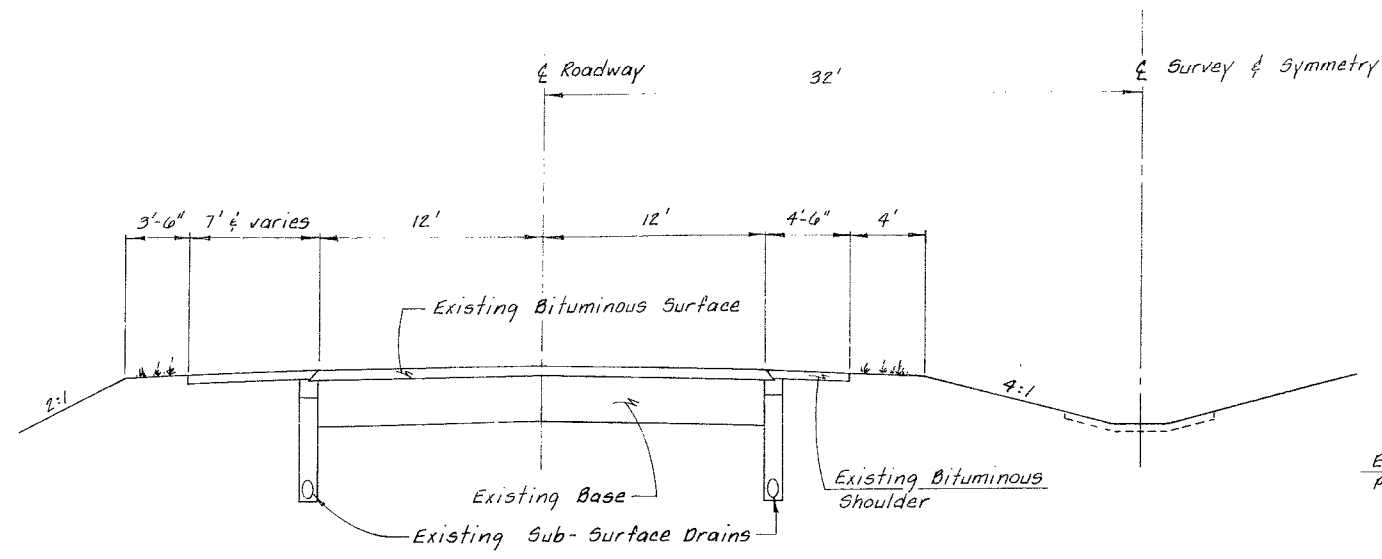
A MINIMUM OF FORTY-EIGHT HOURS ADVANCE NOTICE IS REQUIRED FOR NONEMERGENCY WORK.

ANY REFERENCE TO A STANDARD IN THESE PLANS SHALL BE INTERPRETED TO MEAN THE EDITION AS INDICATED BY THE SUB-NUMBER LISTED IN THE INDEX OF SHEETS OR THE COPY OF THE STANDARD INCLUDED IN THESE PLANS.

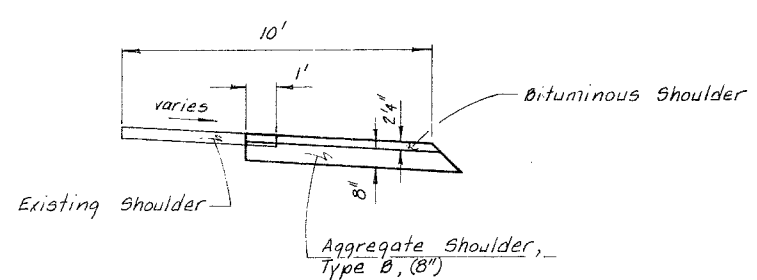
THE FOLLOWING RATES OF APPLICATION HAVE BEEN ASSUMED IN CALCULATING PLAN QUANTITIES:

BITUMINOUS CONCRETE	112 LBS./INCH <sup>2</sup> SQ. YD.
BITUMINOUS MATERIALS PRIME COAT	0.075 OR 0.375 GAL./SQ. YD.
GRANULAR MATERIALS	2.05 TONS/CU. YD.
NITROGEN FERTILIZER NUTRIENT	80 LBS./ACRE
PHOSPHORUS FERTILIZER NUTRIENT	160 LBS./ACRE
POTASSIUM FERTILIZER NUTRIENT	80 LBS./ACRE
MULCH BINDER	160 LBS./ACRE
PAVEMENT MARKING TAPE	4"/40' PER APPLICATION
CALCIUM CHLORIDE APPLIED	5 LBS./SQ. YD. PER APPLICATION
MULCH	2 TONS/ACRE

THE QUANTITY OF CALCIUM CHLORIDE APPLIED IS FOR USE ON THE 6" AGGREGATE SHOULDERS, TYPE B AT LOCATIONS OF TEMPORARY CROSS OVERS.

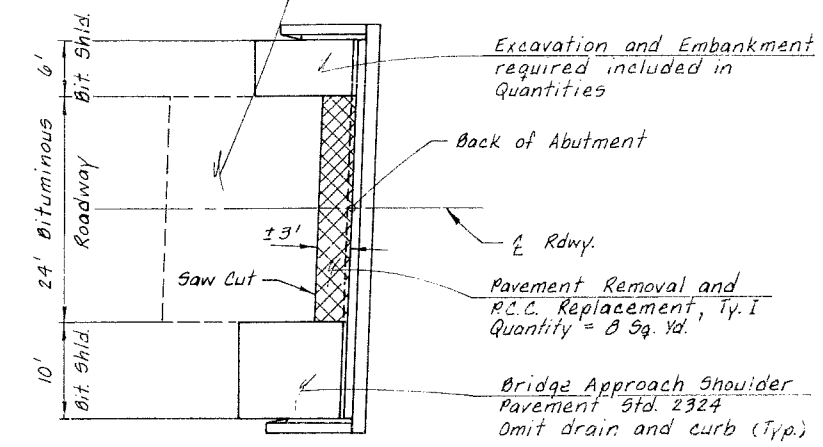


EXISTING TYPICAL CROSS-SECTION



SHOULDER WIDENING DETAIL

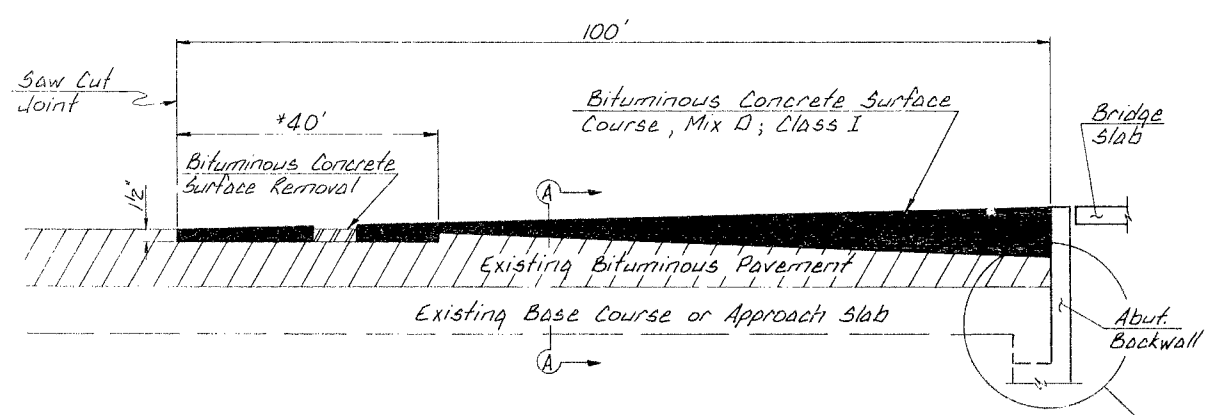
See Schedule for Quantities  
The bituminous shoulders shall be constructed using bituminous surface course.



PAVEMENT REMOVAL AND P.C.C. REPLACEMENT, TYPE I DETAIL

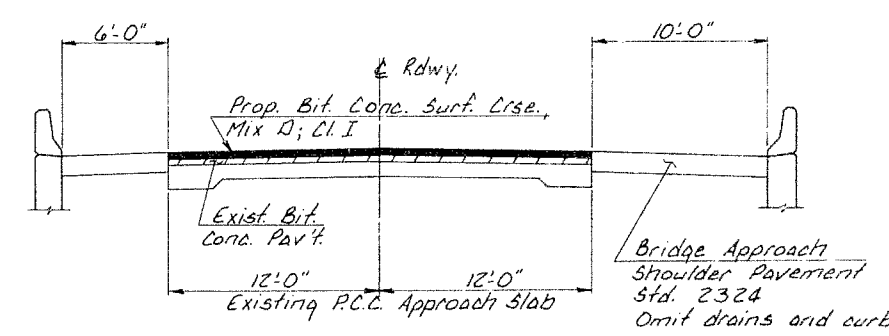
At N.E. Abutment, Grinell Road Only

Note: Clean and extend existing reinforcement into new concrete. Incidental to Pavement Removal and P.C.C. Replacement.



SURFACE TAPER DETAIL

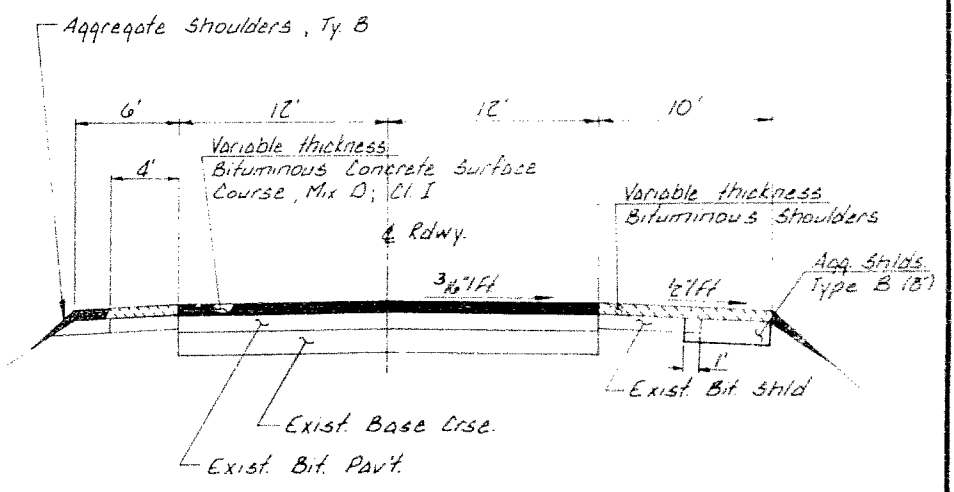
\*Note: Bituminous concrete surface removal to extend for full width of pavement and shoulder area.



PROPOSED SECTION AT BRIDGES

(Looking with Traffic)

See Schedule for Quantities and Location



SECTION A-A

Note: The bituminous shoulders shall be constructed using bituminous surface course.

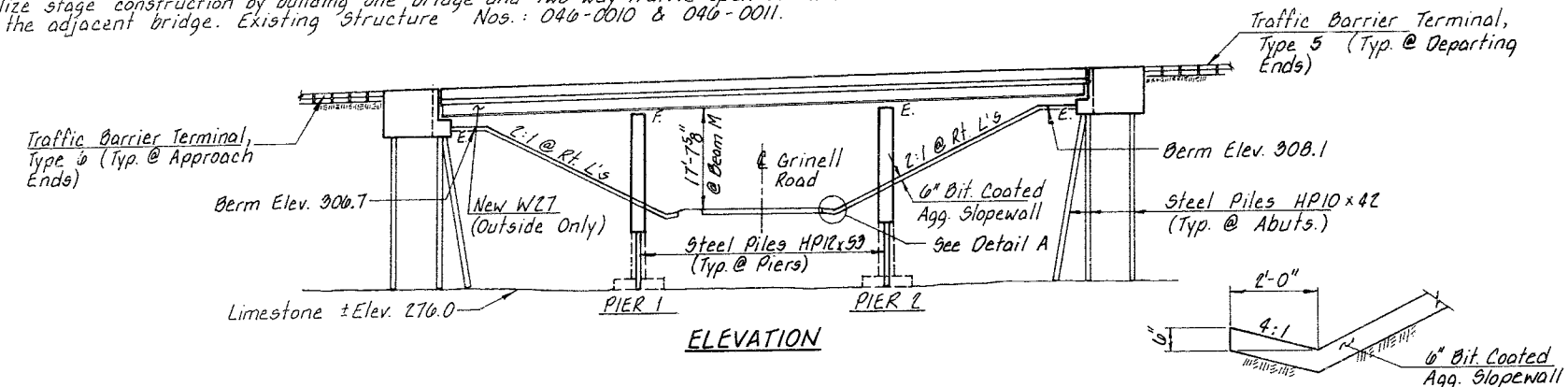
GENERAL NOTES,  
TYPICAL EXISTING CROSS-SECTION,  
TAPER AND SHOULDER DETAILS

N.E. ABUTMENT  
GRINELL ROAD

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 57	199 HBR-3	KANKAKEE	02	02
FED ROAD DIST NO 7	ILLINOIS PROJECT			

Sheet 1 of 19

Benchmark ~ Sta 138+31, Chiseled "D" on top of Retaining Wall, N. Abut. Elev. 311.44  
 Existing Structures: Sta. 138+90.90 built in 1955 as F.A. Rte. 20, Sec. 139-HBR-3  
 Existing deck to be replaced and widened utilizing additional girder as shown.  
 Widen and repair existing substructure. Utilize existing beams with minor repairs.  
 Utilize stage construction by building one bridge and two way traffic open at all times on the adjacent bridge. Existing Structure Nos.: 046-0010 & 046-0011.



ELEVATION

DETAIL A

STATION 138 + 90.90  
 REBUILT 198- BY  
 STATE OF ILLINOIS  
 F.A.I. ROUTE 57 SEC. 139 HBR-3  
 F.A. PROJ. 1R-57-6(150)  
 LOADING H20 & ALT.  
 STR. NO. 046-0011

LETTERING FOR NAME PLATE  
 SOUTHBOUND BRIDGE  
 See Std. 2113

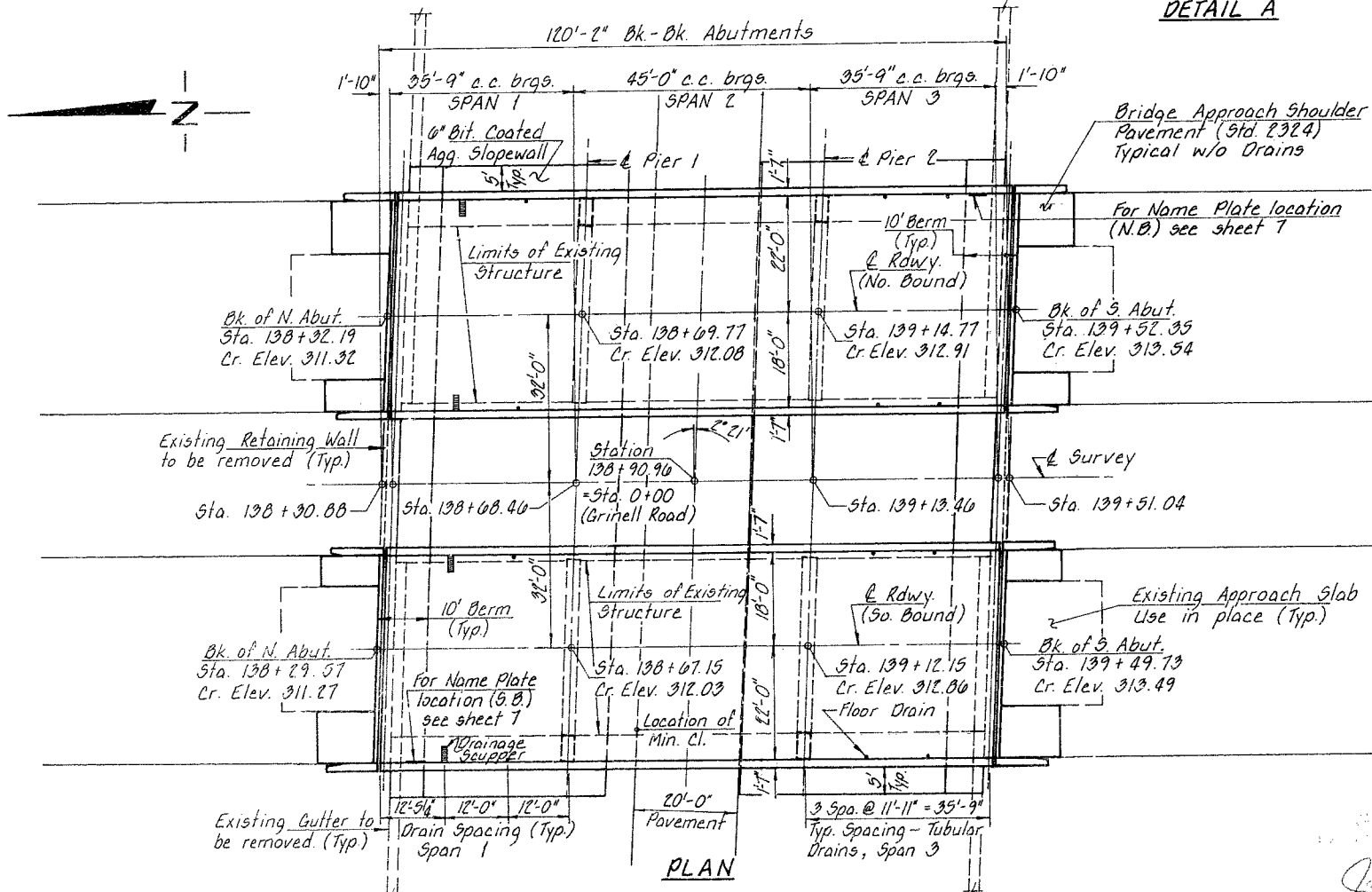
STATION 138 + 90.90  
 REBUILT 198- BY  
 STATE OF ILLINOIS  
 F.A.I. ROUTE 57 SEC. 139 HBR-3  
 F.A. PROJ. 1R-57-6(150)  
 LOADING H20 & ALT.  
 STR. NO. 046-0010

LETTERING FOR NAME PLATE  
 NORTHBOUND BRIDGE  
 See Std. 2113

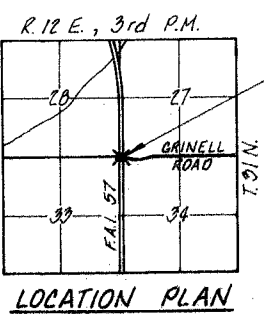
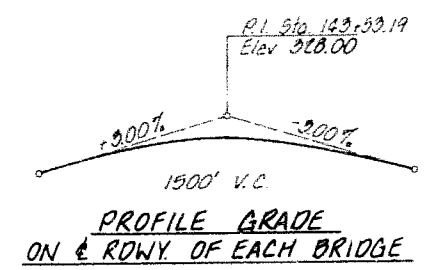
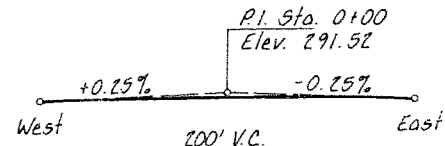
Note: Existing name plates shall be cleaned and relocated next to new name plates. Cost shall be incidental to Name Plates. See sheet 7 for details.

INDEX OF SHEETS

1. GENERAL PLAN & ELEVATION
2. GENERAL NOTES & BILL OF MATERIALS
- 3-5. SLAB ELEVATIONS
- 6-7. SUPERSTRUCTURE
- 8-9. DRAINAGE DETAILS
10. STRUCTURAL STEEL
- 11-12. BEARING DETAILS & EXPANSION DEVICES
13. ANCHOR BOLT DETAILS
- 14-18. ABUTMENT DETAILS
19. PIER DETAILS



PLAN



LOCATION PLAN

James J. Rayburn



DESIGN STRESSES  
 $f_c = 3,500$  psi.  
 $f_y = 60,000$  psi. (Reinforcement)  
 $f_s = 20,000$  psi. (Structural Steel - New)  
 $f_s = 18,000$  psi. (Structural Steel - Exist.)  
 $f_s = 14,000$  psi. Super, 800 psi. Sub (Exist.)  
 $f_s = 20,000$  psi. (Reinf. Bars - Exist.)  
 LOADING H20-44 & Alt. Military Loading  
 Design Specifications: 1983 AASHTO, 1984 thru 1995 Interims  
 25% 99th included in dead load for future wearing surface.

James K. Klein  
 Illinois Structural No. 4624

GENERAL PLAN & ELEVATION  
 FAI ROUTE 57 OVER GRINELL ROAD  
 SECTION 199 HBR-3  
 KANKAKEE COUNTY  
 STATION 138+90.90

COLLINS AND RICE  
 CONSULTING ENGINEERS  
 DESIGNED J.K.K. CHECKED Z.B.U.  
 DRAWN J.B. & M.G. DATE 1-20-00 NO. 1006

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Concrete Removal	Cu. Yd.		43.3	43.3
Expansion Bolts 3/4" x 12"	Each		124	124
Class X Concrete	Cu. Yd.		113.0	113.0
* Protective Coat	Sq. Yd.	1,240	32	1,272
Reinforcement Bars	Pound		13,170	13,170
Reinforcement Bars (Epoxy Coated)	Pound	65,840		65,840
Structural Steel	L. Sum	0.230		0.230
Cleaning and Painting Steel Bridge No. 1	L. Sum	1		1
Floor Drains	Each	12		12
Drainage Scuppers	Each	4		4
Steel Piles HPI0x42	Lin. Ft.		434	434
Steel Piles HPI2x53	Lin. Ft.		88	88
Test Pile Steel HPI0x42	Each		2	2
Name Plates	Each	2		2
Removing Existing Concrete Deck No. 1	L. Sum	1		1
Preformed Joint Seal 2 1/2"	Lin. Ft.	172		172
Elastomeric Bearing Assembly, Type I	Each	10		10
Elastomeric Bearing Assembly, Type II	Each	14		14
Bituminous Coated Aggregate Slopewall	Sq. Yd.		1,280	1,280
Jacking and Shoring Existing Beams	Each	24		24
Buffer Removal	Lin. Ft.		308	308
Class X Concrete Superstructure	Cu. Yd.	329.3		329.3
Concrete Retaining Wall Removal	Lin. Ft.		61	61
Rivet Removal	Each	2,160		2,160
Structure Excavation	Cu. Yd.		138.8	138.8
Structural Steel Repair	Lbs.	4,415		4,415

\* Includes Deck Surface

**GENERAL NOTES**

Fasteners shall be high strength bolts. Bolts 3/4", open holes 13/16", unless otherwise noted.

Calculated weight of new Structural Steel = 38,600 Pounds.

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 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 and all splice plate material.

Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42 or M-53 Grade 60.

Plan dimensions and details relative to the 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 the work, however, the contractor will be paid for the quantity actually furnished at the unit price bid for the work.

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 1/2" 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 width by flange width shall be provided and placed as detailed.

Burning of rivet heads in removing existing rivets is not permitted.

Expansion bolts shall consist of approved expansion anchors, providing minimum certified proof load = 4,080 lbs., and 3/4" x 12" hooked bolts extending 9" into new concrete.

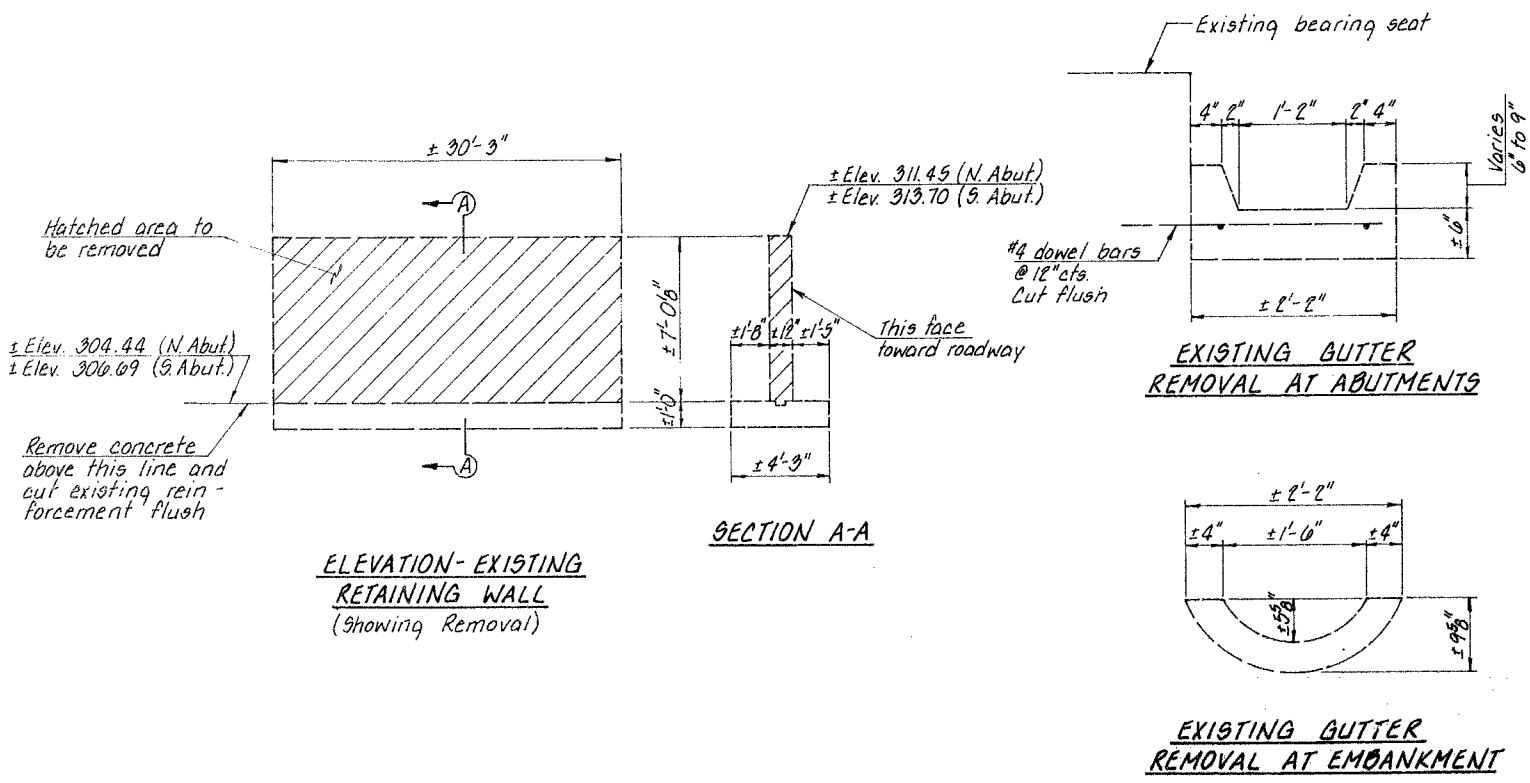
All existing top flange surfaces which shall be in contact with new concrete shall be cleaned to satisfy Article 509.06 (b) Method II. Cost of this work is incidental to Removal of Existing Concrete Deck. All other existing structural steel shall be cleaned by Method I, cost included in "Cleaning and Painting Steel Bridge No. 1."

All contact surface areas of new & existing structural steel shall be free of paint or loquer.

"The three coat lead and chromate free alkyd paint system shall be used for field painting of Existing Structural Steel. The color of the final finish coat shall be Interstate Green."

"The three coat lead and chromate free alkyd paint system shall be used for shop and field painting of New Structural Steel. The color of the final finish coat shall be Interstate Green."

The contractor shall drive one steel test pile in a permanent location at the North Abutment of the Northbound Bridge and one steel test pile in a permanent location at the South Abutment of the Southbound Bridge as directed by the Engineer before ordering the remainder of piles.



**GENERAL NOTES & BILL OF MATERIAL**  
 FAI ROUTE 57  
 SECTION 139 HOR-3  
 KANKAKEE COUNTY  
 STATION 138+90.96

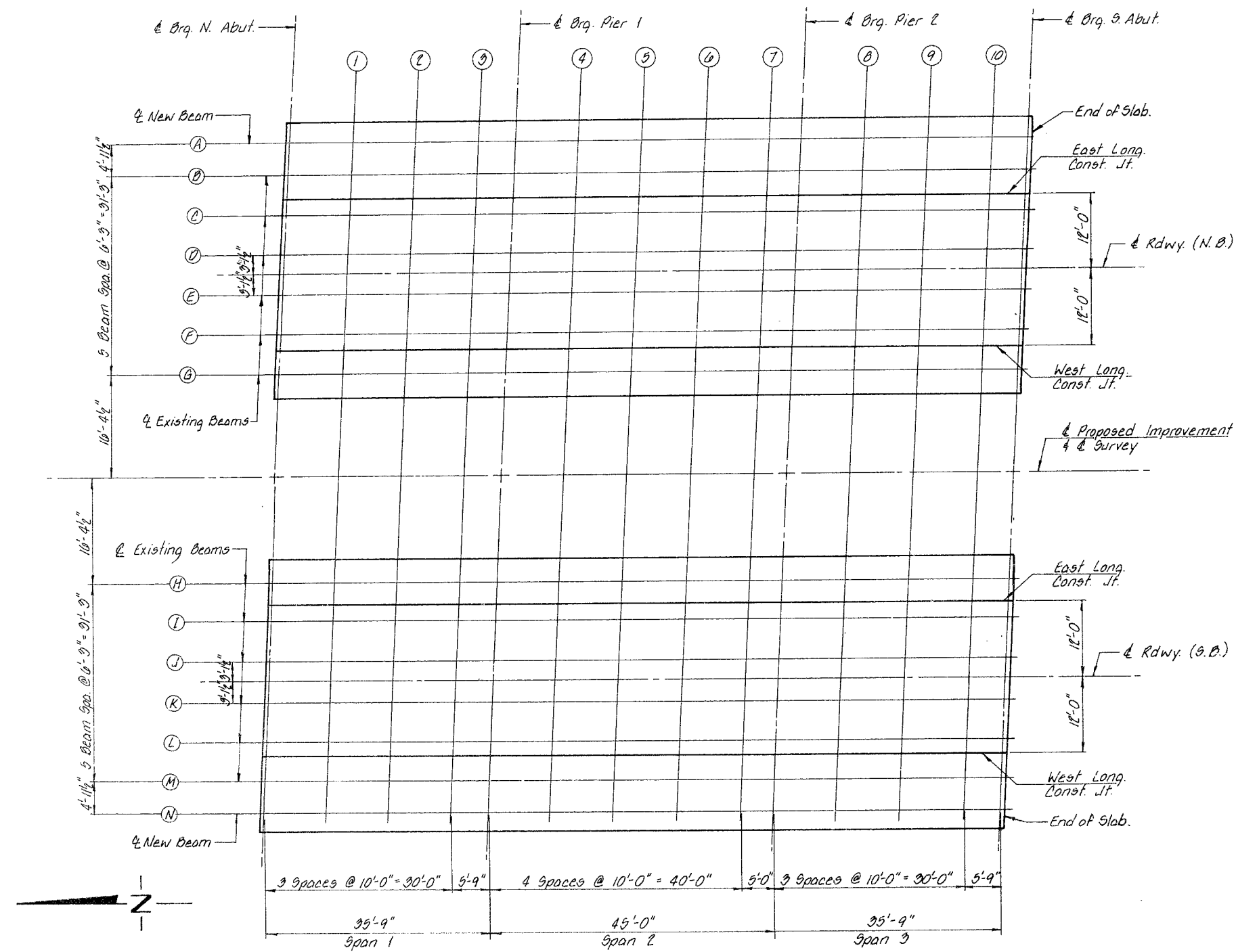
**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED Z.B.U. CHECKED J.K.K.  
 DRAWN M.G. DATE 2-20-88 NO. 2006

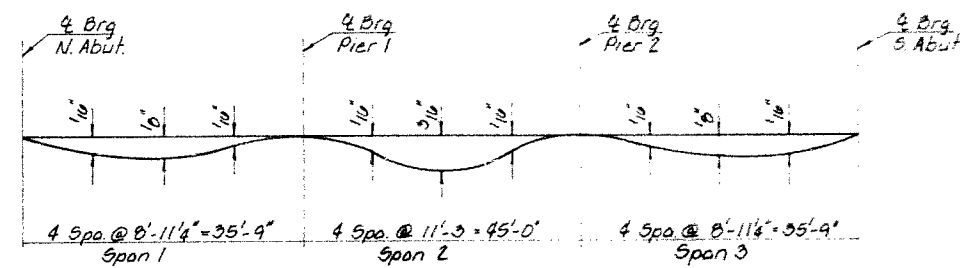
△ Rivet Removal and Replacement has been changed to "Rivet Removal" 1-19-89

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 57	199 HR-3	KANKAKEE	02	30
FED. ROAD DIST. NO. 7	ILLINOIS PROJECT			

Sheet 3 of 19



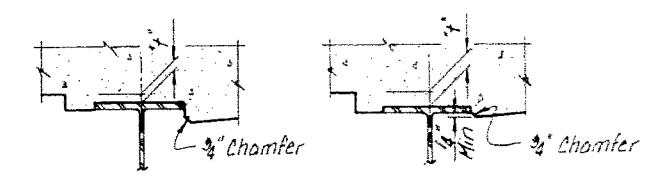
PLAN



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only)

The above deflections are not for use in field if the Engineer is working from the theoretical grade elevations adjusted for dead load deflections shown on sheets 4 & 5.



FILLET HEIGHT "f"

To determine "f": After all structural steel has been erected, elevations of the top flanges of beams shall be taken at intervals shown. These elevations, subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets 4 & 5, minus slab thickness, equals the fillet height "f" above top flange of beams.

SLAB ELEVATIONS FAI ROUTE 57 SECTION 199 HR-3 KANKAKEE COUNTY STATION 138 + 90.96	
COLLINS AND RICE CONSULTING ENGINEERS	
DESIGNED J.K.K. DRAWN M.G.	CHECKED E.B.U. DATE 2-10-86 NO. 1000

TABLE OF ELEVATIONS ~ NORTHBOUND

LOCATION		Ok. of N. Abut.	E. Brq. N. Abut.	SPAN 1			E. Brq. Pier 1	SPAN 2				E. Brq. Pier 2	SPAN 3			E. Brq. S. Abut.	Ok. of S. Abut.
				1	2	3		4	5	6	7		8	9	10		
BEAM A	T	310.972	311.010	1.216	1.417	1.614	311.726	1.917	2.104	2.287	2.466	312.554	2.727	2.896	3.061	313.154	313.184
	Adj.	310.972	311.010	1.224	1.425	1.616	311.726	1.923	2.116	2.297	2.468	312.554	2.732	2.905	3.066	313.154	313.184
BEAM B	T	311.072	311.110	1.315	1.516	1.714	311.825	2.017	2.204	2.387	2.566	312.654	2.827	2.996	3.161	313.254	313.284
	Adj.	311.072	311.110	1.323	1.524	1.716	311.825	2.023	2.216	2.397	2.568	312.654	2.832	3.005	3.166	313.254	313.284
E. LONG. CONGT. JT.	T	311.144	311.182	1.387	1.589	1.786	311.898	2.089	2.276	2.460	2.639	312.727	2.900	3.069	3.234	313.328	313.357
	Adj.	311.144	311.182	1.395	1.597	1.788	311.898	2.095	2.288	2.470	2.641	312.727	2.905	3.078	3.239	313.328	313.357
BEAM C	T	311.183	311.221	1.426	1.628	1.825	311.937	2.128	2.315	2.499	2.678	312.766	2.939	3.108	3.274	313.367	313.396
	Adj.	311.183	311.221	1.434	1.636	1.827	311.937	2.134	2.327	2.509	2.680	312.766	2.944	3.117	3.279	313.367	313.396
BEAM D	T	311.275	311.313	1.519	1.720	1.918	312.030	2.221	2.408	2.592	2.771	312.859	3.033	3.202	3.367	313.460	313.490
	Adj.	311.275	311.313	1.527	1.728	1.920	312.030	2.227	2.420	2.602	2.773	312.859	3.038	3.211	3.372	313.460	313.490
RDWY.	T	311.321	311.359	1.565	1.767	1.964	312.076	2.267	2.455	2.638	2.818	312.906	3.079	3.248	3.414	313.507	313.537
	Adj.	311.321	311.359	1.573	1.775	1.966	312.076	2.273	2.467	2.648	2.820	312.906	3.084	3.257	3.419	313.507	313.537
BEAM E	T	311.270	311.308	1.514	1.715	1.913	312.025	2.216	2.404	2.587	2.776	312.855	3.028	3.198	3.363	313.456	313.486
	Adj.	311.270	311.308	1.522	1.723	1.915	312.025	2.222	2.416	2.597	2.768	312.855	3.033	3.207	3.368	313.456	313.486
BEAM F	T	311.167	311.205	1.411	1.612	1.810	311.922	2.114	2.301	2.485	2.664	312.753	2.926	3.096	3.261	313.354	313.384
	Adj.	311.167	311.205	1.419	1.620	1.812	311.922	2.120	2.313	2.495	2.666	312.753	2.931	3.105	3.266	313.354	313.384
W. LONG. CONGT. JT.	T	311.123	311.162	1.367	1.569	1.767	311.879	2.071	2.258	2.442	2.621	312.710	2.883	3.053	3.218	313.312	313.341
	Adj.	311.123	311.162	1.375	1.577	1.769	311.879	2.077	2.270	2.452	2.623	312.710	2.888	3.062	3.223	313.312	313.341
BEAM G	T	311.045	311.083	1.289	1.491	1.689	311.801	1.992	2.180	2.364	2.543	312.632	2.805	2.975	3.140	313.234	313.263
	Adj.	311.045	311.083	1.297	1.499	1.691	311.801	1.998	2.192	2.374	2.545	312.632	2.810	2.984	3.145	313.234	313.263

T ~ Theoretical elevation of top of slab.  
Adj. ~ T adjusted for dead load deflection

Work this sheet with sheet 3

<b>SLAB ELEVATIONS</b> F.A.I. ROUTE 51 SECTION 139HR-3 KANKAKEE COUNTY STATION 138 + 90.96	
<b>COLLINS AND RICE</b> CONSULTING ENGINEERS	
DESIGNED J.K.K.	CHECKED Z.O.U.
DRAWN M.G.	DATE 2-20-86 NO. 2006

TABLE OF ELEVATIONS - SOUTHBOUND

LOCATION		Bk. of N. Abut.	E. Brg. N. Abut.	SPAN 1			E. Brg. Pier 1	SPAN 2				E. Brg. Pier 2	SPAN 3			E. Brg. S. Abut.	Bk. of S. Abut.
				1	2	3		4	5	6	7		8	9	10		
BEAM H	T	311.017	311.055	1.262	1.464	1.662	311.775	1.967	2.155	2.339	2.519	312.608	2.782	2.952	3.118	313.212	313.242
	Adj.	311.017	311.055	1.270	1.472	1.664	311.775	1.973	2.167	2.349	2.521	312.608	2.787	2.961	3.123	313.212	313.242
E. LONG CONST. JT.	T	311.089	311.127	1.334	1.537	1.735	311.847	2.040	2.228	2.412	2.592	312.681	2.855	3.025	3.192	313.285	313.315
	Adj.	311.089	311.127	1.342	1.545	1.737	311.847	2.046	2.240	2.422	2.594	312.681	2.860	3.034	3.197	313.285	313.315
BEAM I	T	311.128	311.166	1.373	1.575	1.774	311.886	2.079	2.267	2.451	2.631	312.720	2.894	3.064	3.231	313.325	313.354
	Adj.	311.128	311.166	1.381	1.583	1.776	311.886	2.085	2.279	2.461	2.633	312.720	2.899	3.073	3.236	313.325	313.354
BEAM J	T	311.220	311.259	1.465	1.668	1.867	311.979	2.171	2.360	2.544	2.724	312.813	2.988	3.158	3.324	313.418	313.448
	Adj.	311.220	311.259	1.473	1.676	1.869	311.979	2.177	2.372	2.554	2.726	312.813	2.993	3.167	3.329	313.418	313.448
C. ROWY	T	311.266	311.305	1.511	1.714	1.913	312.025	2.218	2.406	2.591	2.771	312.860	3.034	3.205	3.371	313.465	313.494
	Adj.	311.266	311.305	1.519	1.722	1.915	312.025	2.224	2.418	2.601	2.773	312.860	3.039	3.214	3.376	313.465	313.494
BEAM K	T	311.215	311.253	1.460	1.663	1.862	311.974	2.166	2.355	2.539	2.720	312.809	2.983	3.154	3.320	313.414	313.444
	Adj.	311.215	311.253	1.468	1.671	1.864	311.974	2.172	2.367	2.549	2.722	312.809	2.988	3.163	3.325	313.414	313.444
BEAM L	T	311.712	311.750	1.357	1.560	1.759	311.871	2.064	2.252	2.437	2.618	312.706	2.881	3.052	3.218	313.312	313.342
	Adj.	311.712	311.750	1.365	1.568	1.761	311.871	2.070	2.264	2.447	2.620	312.706	2.886	3.061	3.223	313.312	313.342
W. LONG CONST. JT.	T	311.069	311.107	1.314	1.517	1.716	311.828	2.021	2.209	2.394	2.575	312.663	2.838	3.009	3.175	313.269	313.299
	Adj.	311.069	311.107	1.322	1.525	1.718	311.828	2.027	2.221	2.404	2.577	312.663	2.843	3.018	3.180	313.269	313.299
BEAM M	T	310.990	311.028	1.235	1.438	1.637	311.750	1.943	2.131	2.316	2.497	312.585	2.760	2.931	3.097	313.191	313.221
	Adj.	310.990	311.028	1.243	1.446	1.639	311.750	1.949	2.143	2.326	2.499	312.585	2.765	2.940	3.102	313.191	313.221
BEAM N	T	310.882	310.921	1.128	1.331	1.530	311.643	1.835	2.024	2.209	2.390	312.478	2.653	2.824	2.991	313.085	313.114
	Adj.	310.882	310.921	1.136	1.339	1.532	311.643	1.841	2.036	2.219	2.392	312.478	2.658	2.833	2.996	313.085	313.114

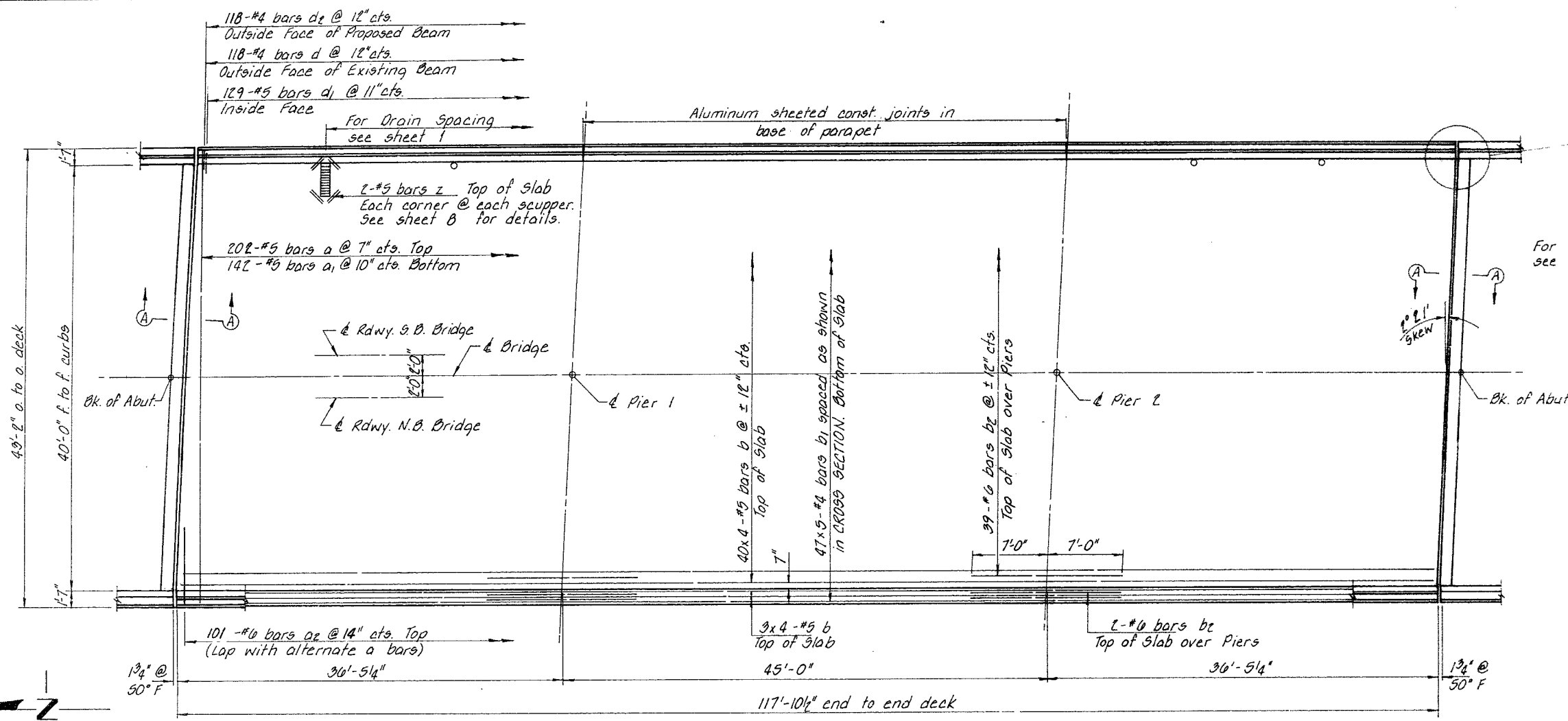
T ~ Theoretical elevation of top of slab.  
Adj. ~ T adjusted for dead load deflection.

Work this sheet with sheet 5

SLAB ELEVATIONS  
FA 1 ROUTE 57  
SECTION 139HBR-3  
KANKAKEE COUNTY  
STATION 138+9096

COLLINS AND RICE  
CONSULTING ENGINEERS

DESIGNED J.K.K. CHECKED E.A.U.  
DRAWN G.D. DATE 1-10-86 NO. E006



PLAN

Note: Bars indicated thus 40 x 4 - #5 etc. indicates 40 lines of bars with 4 lengths per line.

MIN. BAR LAPS

#4	1'-5"
#5	1'-9"
#6	1'-6"

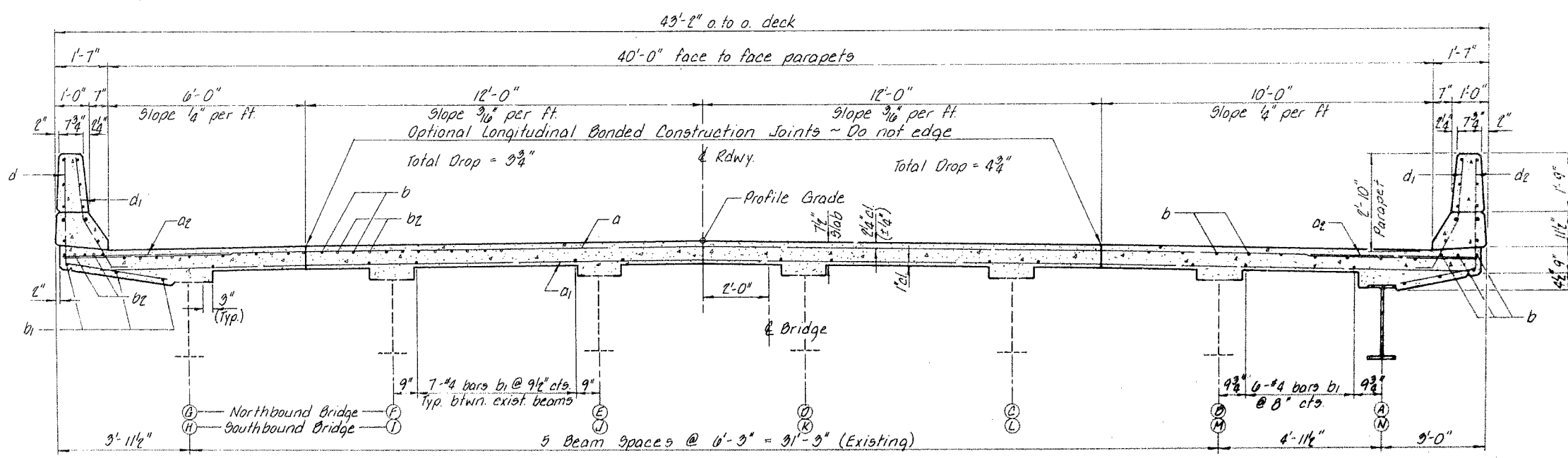
BILL OF MATERIAL-2 SUPERSTRUCTURES

BAR	NO	SIZE	LENGTH	SHAPE
a	204	#5	42'-0"	—
a1	142	#5	40'-0"	—
a2	404	#6	5'-10"	—
b	368	#5	30'-9"	—
b1	470	#4	24'-8"	—
b2	172	#6	16'-0"	—
b3	16	#8	29'-8"	—
b4	16	#5	29'-3"	—
b5	16	#5	36'-3"	—
b6	16	#8	36'-3"	—
d	236	#4	6'-2"	L
d1	516	#5	9'-11"	L
d2	236	#4	5'-2"	L
e	72	#4	14'-9"	—
e1	96	#4	18'-0"	—
z	32	#5	2'-0"	—

Class X Concrete	Sq Yd	320.3
Reinf. Bars (Epoxy Coated)	Pounds	65,840
Name Plates	Each	2
Protective Coat	Sq Yd	1,240

All reinforcement bars used in the superstructure shall be epoxy coated



CROSS SECTION

LOOKING SOUTH ~ SOUTHBOUND BRIDGE  
LOOKING NORTH ~ NORTHBOUND BRIDGE

Work this sheet with sheet 7.

**SUPERSTRUCTURE**  
 F.A.I. ROUTE 57  
 SECTION 139 HBR-3  
 KANKAKEE COUNTY  
 STATION 138+90.96

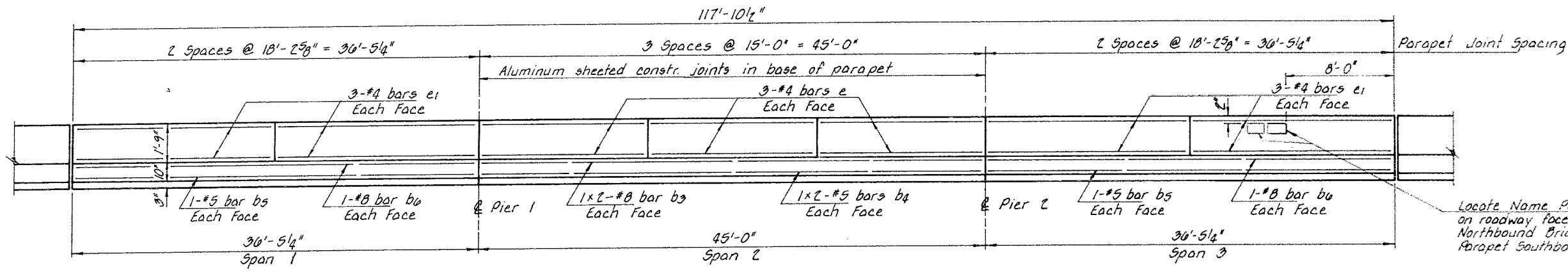
**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED T.B.U. CHECKED J.K.K.  
 DRAWN H.G. DATE 2-20-06 NO. 2006



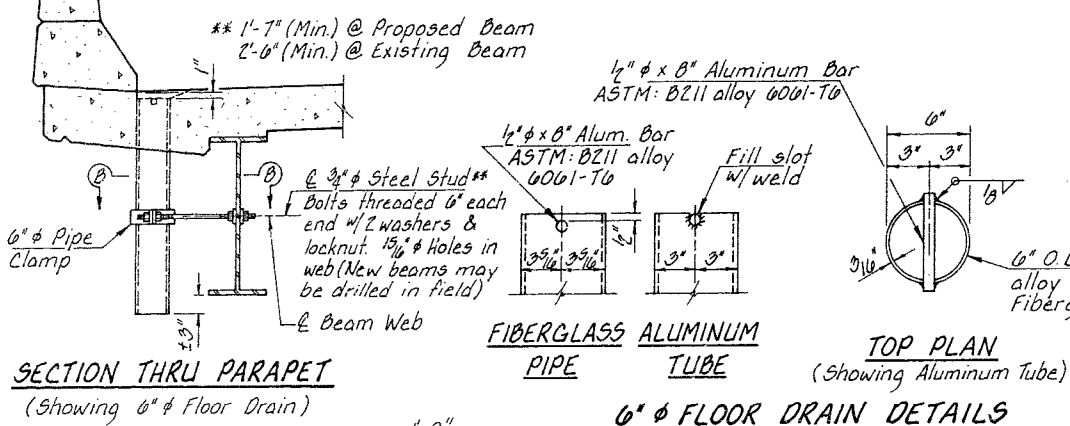
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 57139 HOR-3		KANKAKEE	02	34
FED. ROAD DIST. NO. 7	ILLINOIS PROJECT			

Sheet 7 of 19

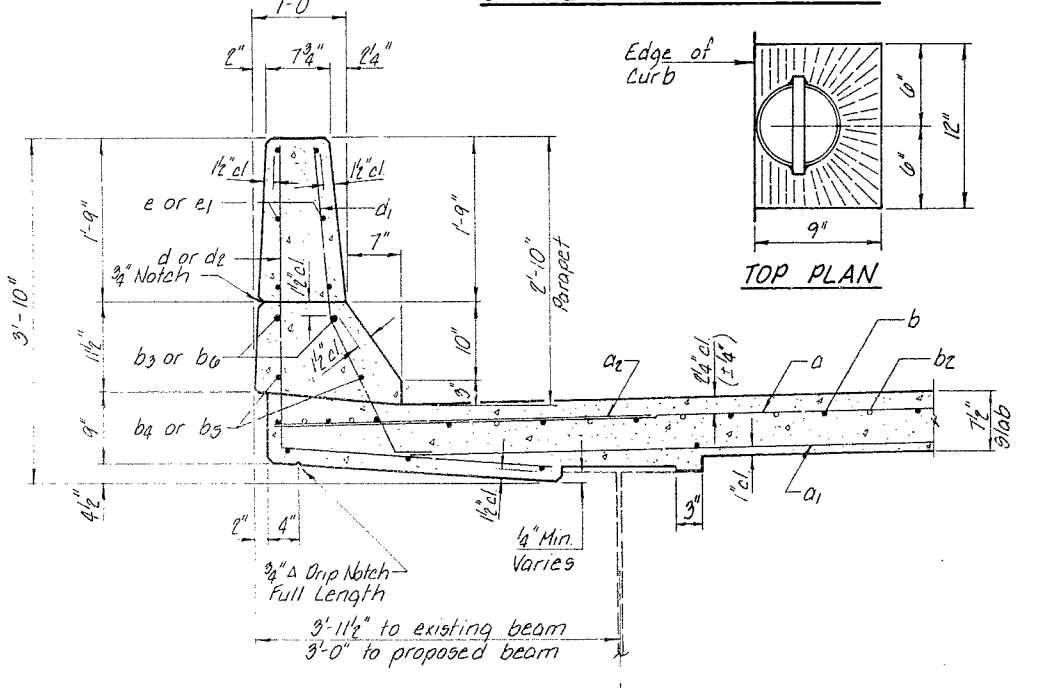
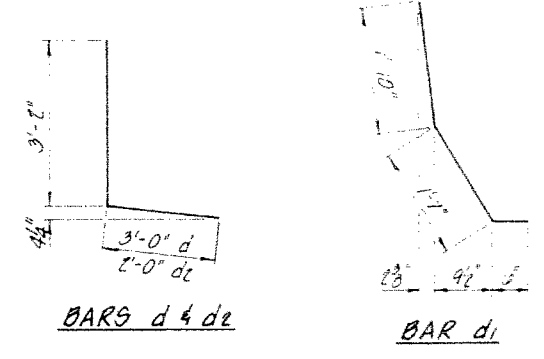


Locate Name Plates (New & Old) on roadway face of East Parapet Northbound Bridge and West Parapet Southbound Bridge.

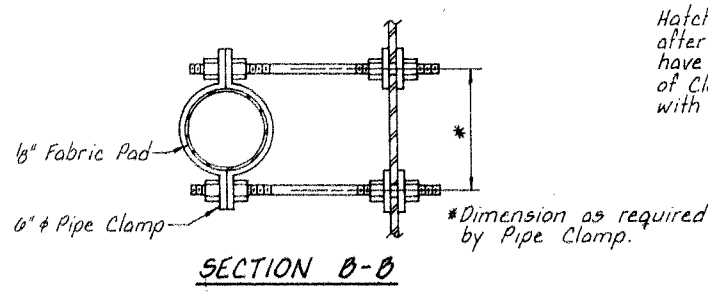
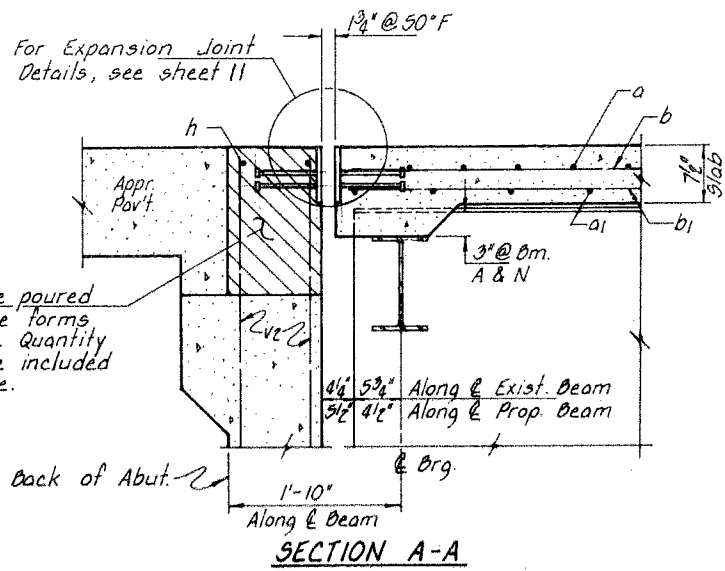
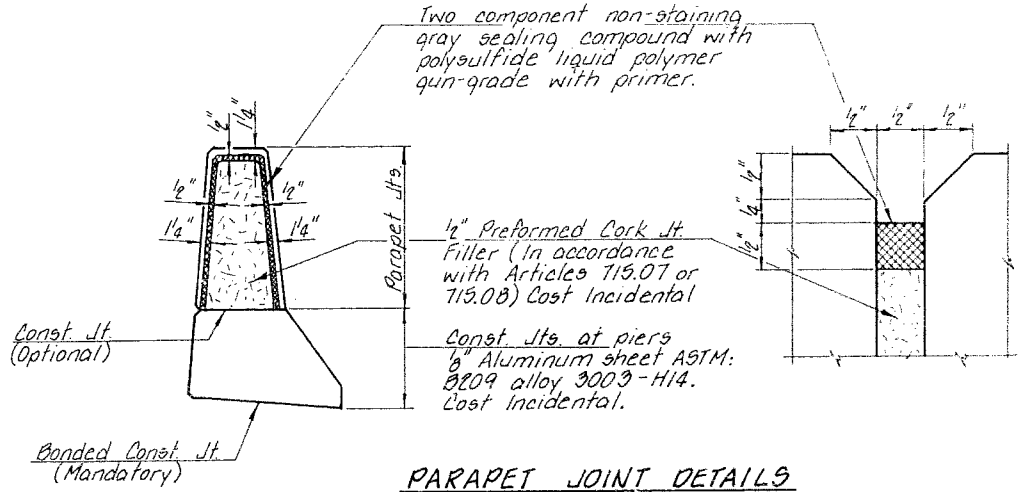
**INSIDE ELEVATION OF PARAPET**



Notes:  
Fiberglass pipe shall conform to ASTM: D2996, 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.  
The exterior surfaces of the floor drain shall be painted with the painting 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 Spec. SSPC-SP1 & SSPC-Point 27 prior to painting.



**SECTION THRU PARAPET**



Work this sheet with sheet 6

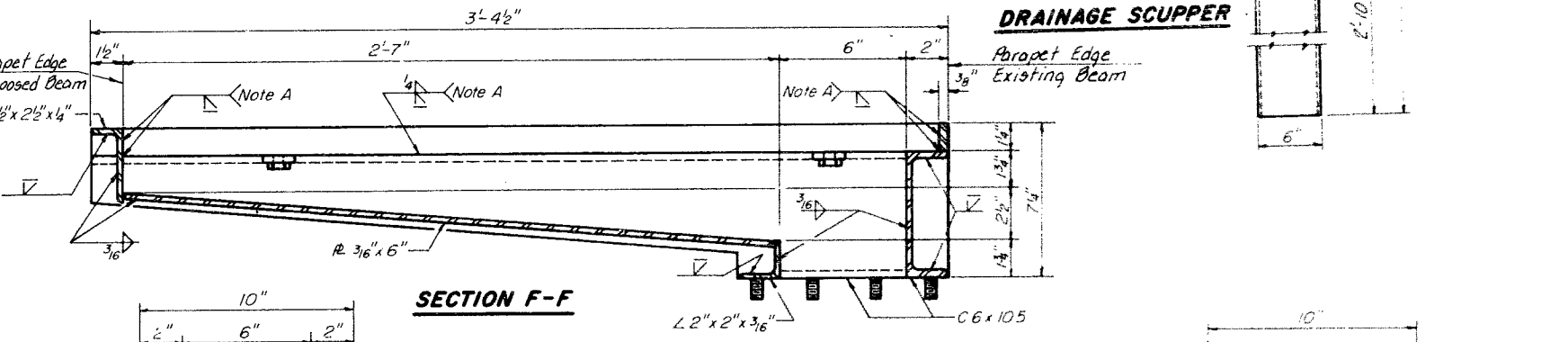
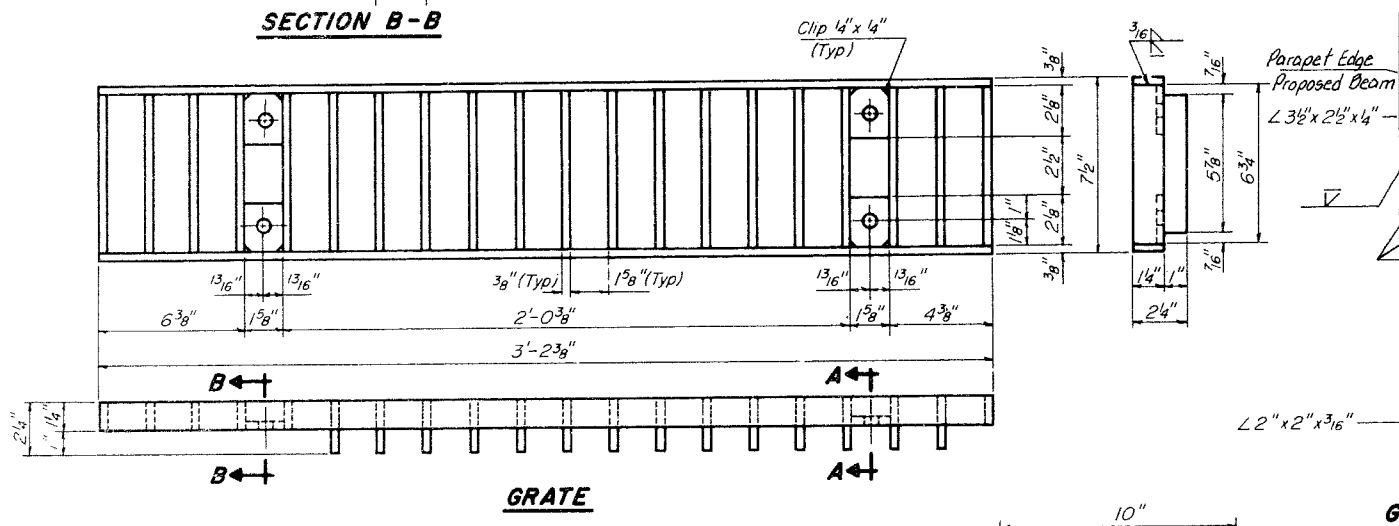
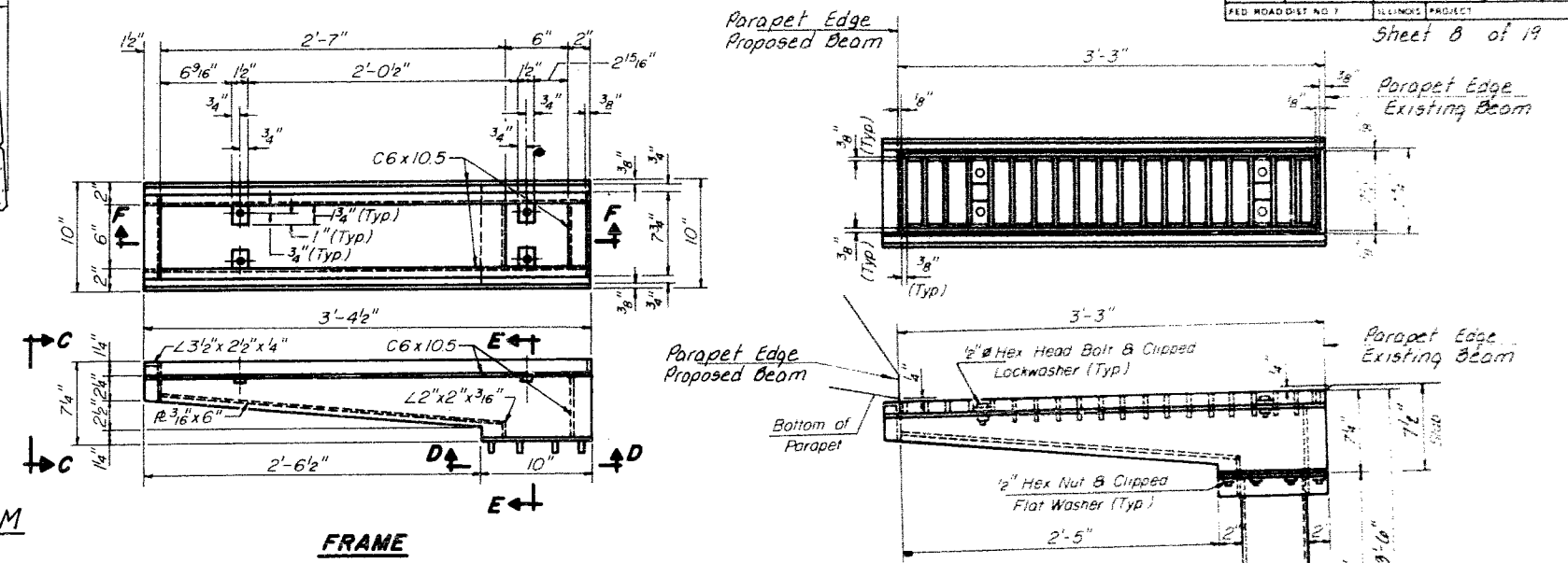
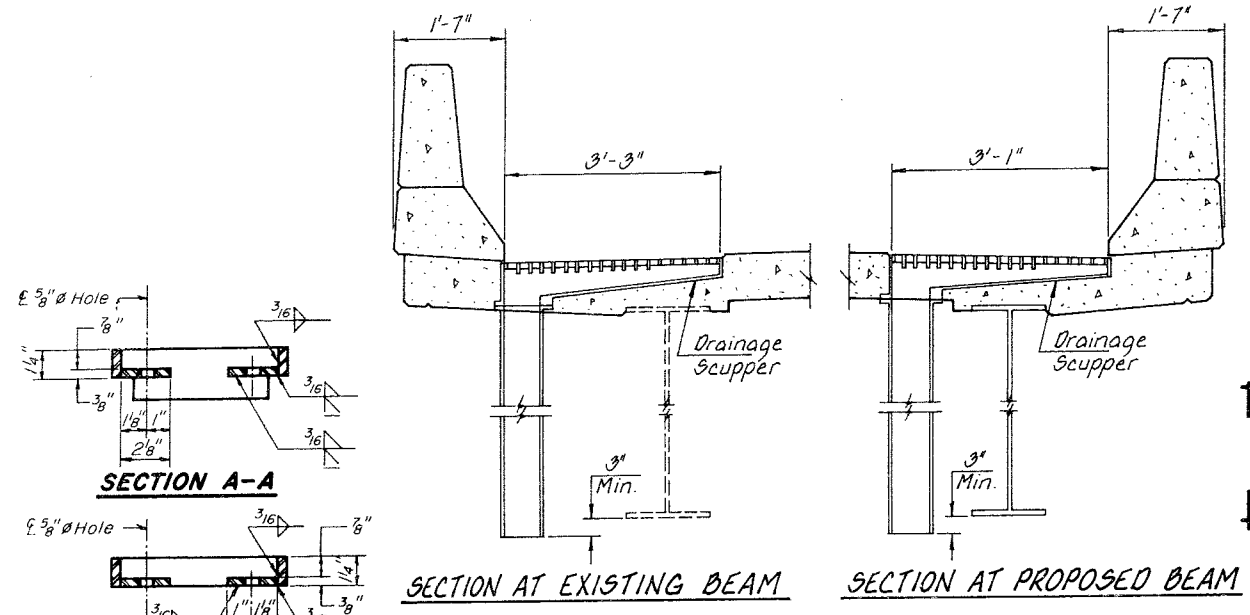
**SUPERSTRUCTURE DETAILS**  
FAI ROUTE 57  
SECTION 139 HOR-3  
KANKAKEE COUNTY  
STATION 138+90.96

**COLLINS AND RICE**  
CONSULTING ENGINEERS

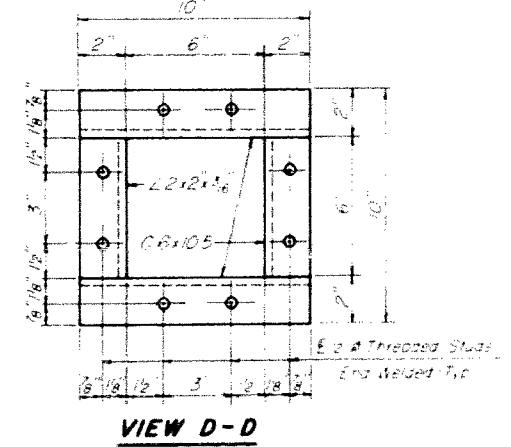
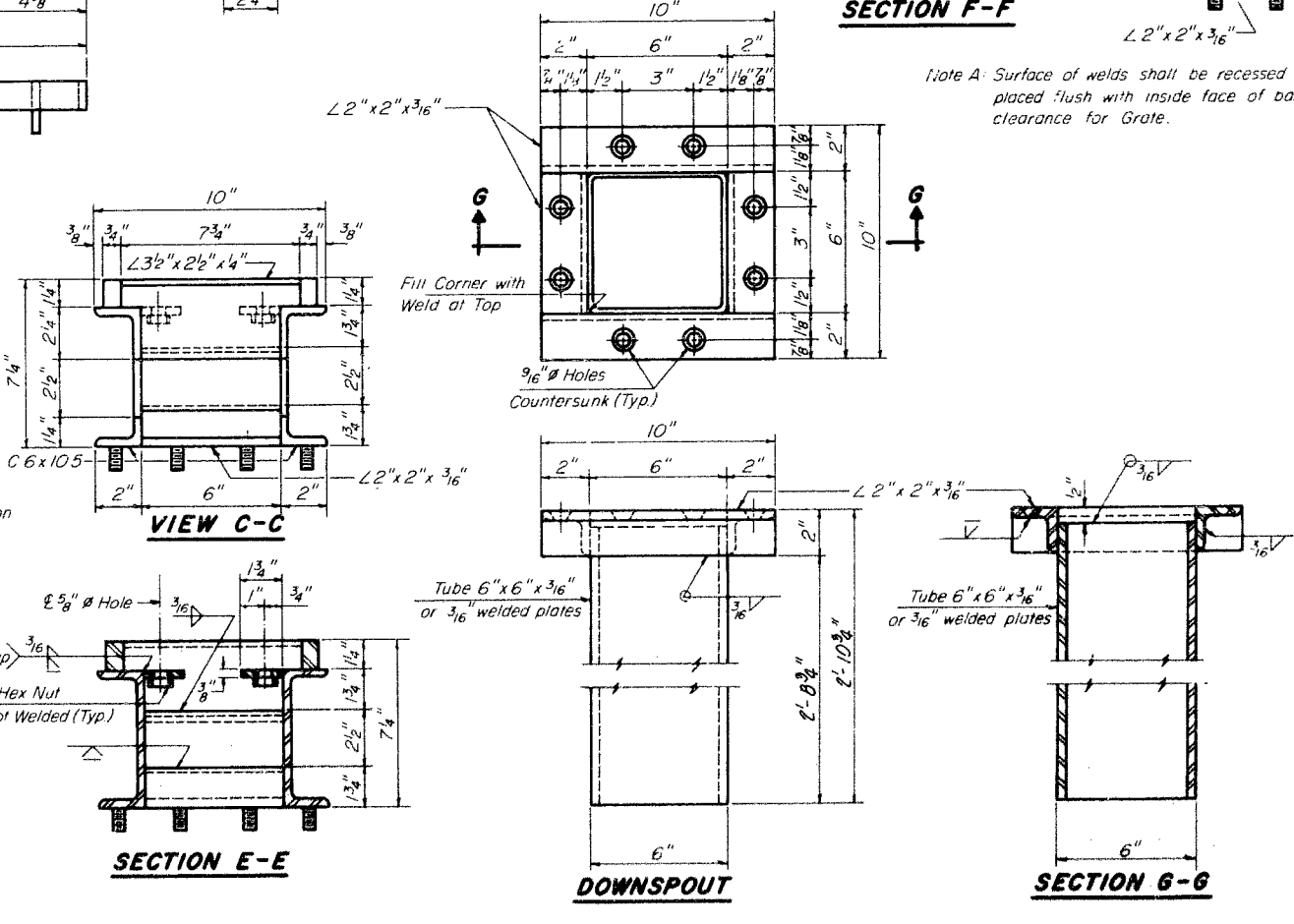
DESIGNED I.B.U. CHECKED J.K.K.  
DRAWN J.B. DATE 2-20-86

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 57	139 HDR-3	KANKAKEE	08	35
FED. ROAD DIST. NO. 7	ILLINOIS PROJECT			

Sheet 8 of 19



Notes  
 Hollow structural steel tubing shall conform to the requirements of ASTM designation A-500 Grade B, or A-501 Structural Steel Tubing  
 All other shapes, plates and bars shall conform to the requirements of AASHTO M 183.  
 Bolts, studs, washers and nuts shall conform to the requirements of ASTM A-307.  
 The Grate, Frame, and Downspout shall be galvanized after shop fabrication in accordance with AASHTO M-111 & ASTM A-385  
 All bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232  
 Cost of the Grate, Frame, Downspout, Bolts, Washers and Nuts including complete installation of Scupper shall be paid for at the unit bid price for "DRAINAGE SCUPPERS"



See sheet 1 for location  
**STEEL DRAINAGE SCUPPER**  
 FAI ROUTE 57  
 SECTION 139 HDR-3  
 KANKAKEE COUNTY  
 STATION 198+90.96

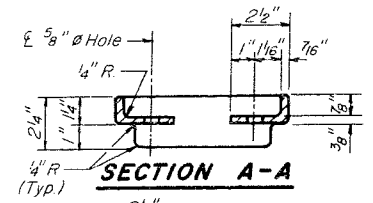
**COLLINS AND RICE**  
 CONSULTING ENGINEERS  
 DESIGNED I.B.U. CHECKED J.K.K.  
 DRAWN J.B. DATE 2-10-00 NO 2006

GRINELL ROAD 8/19

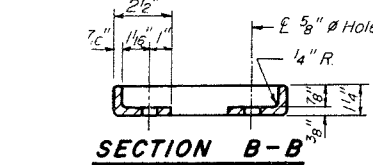
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 57	199 HOR-3	KANKAKEE	02	36
FED. ROAD DIST. NO. 7	ILLINOIS PROJECT			

Sheet 9 of 19

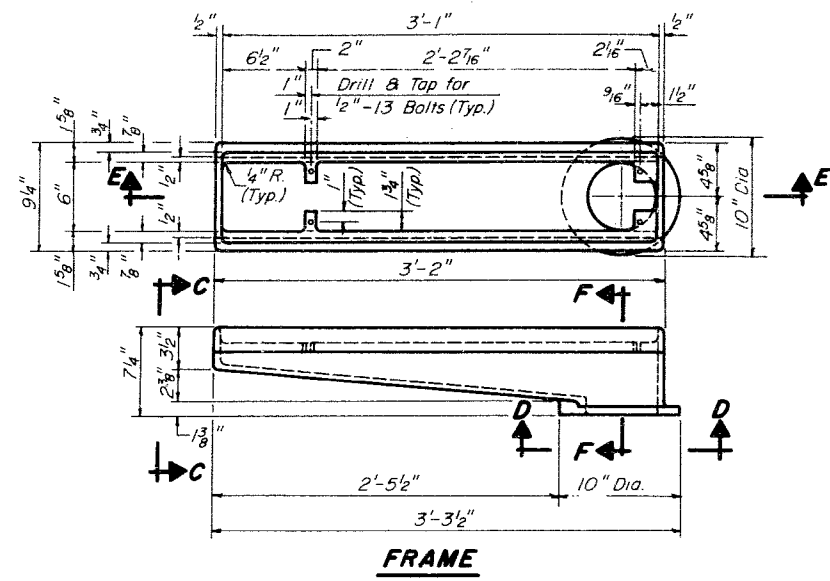
Parapet Edge Proposed Beam  
Parapet Edge Existing Beam



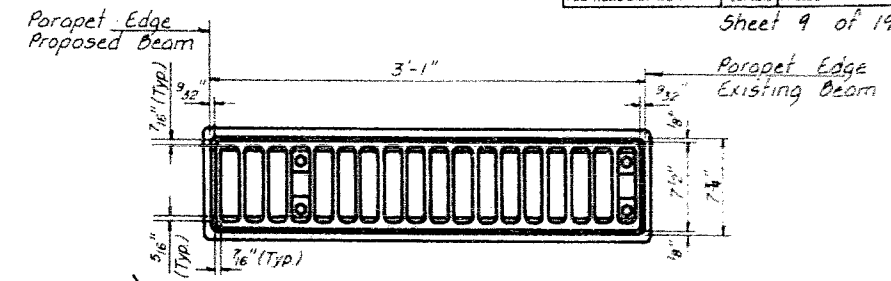
**SECTION A-A**



**SECTION B-B**



**FRAME**

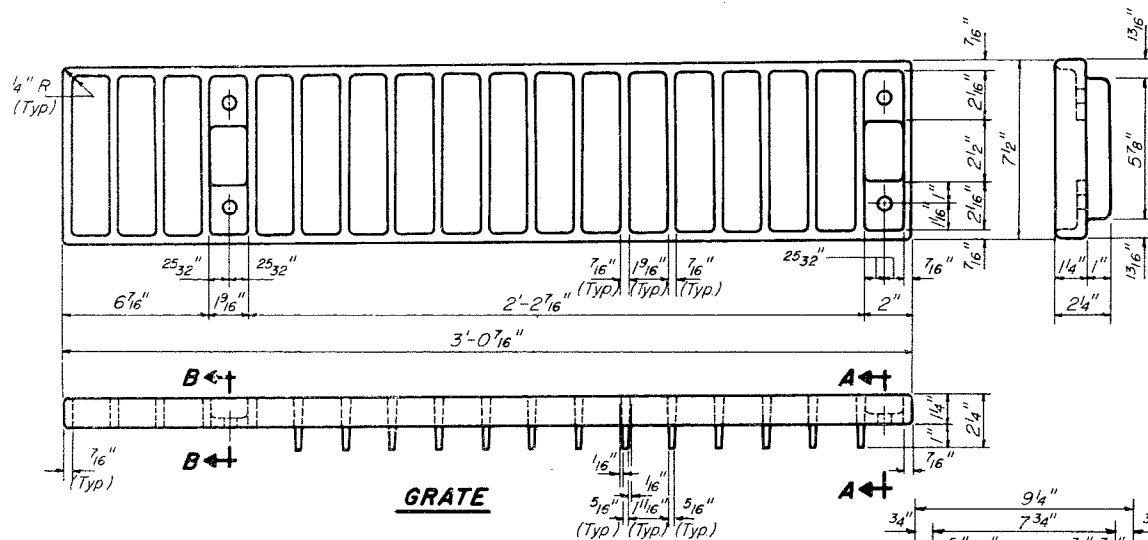


Parapet Edge Proposed Beam

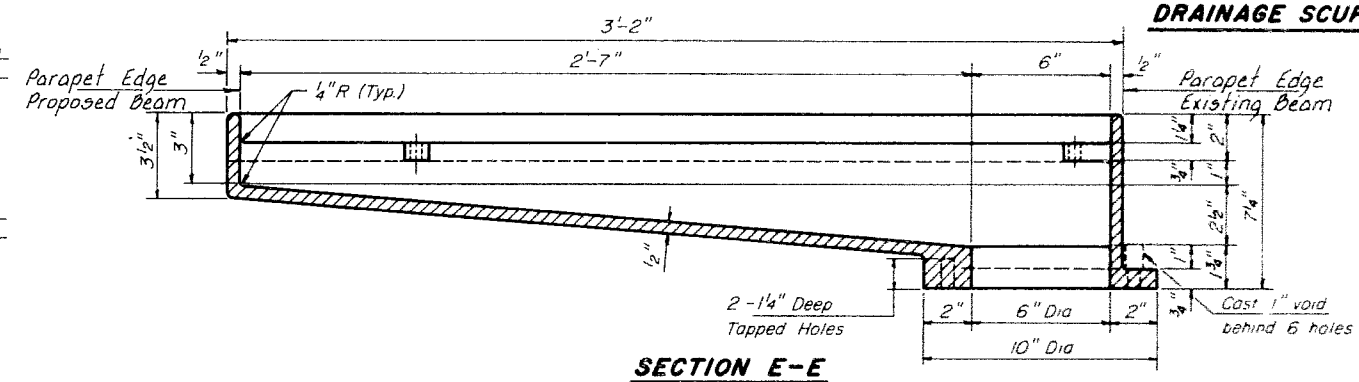
Parapet Edge Existing Beam

Bottom of Parapet

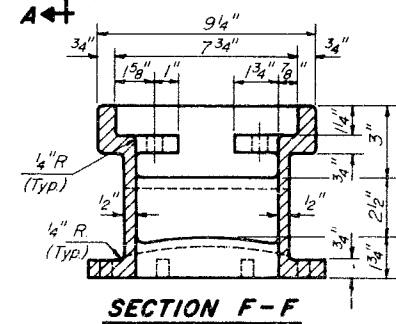
**DRAINAGE SCUPPER**



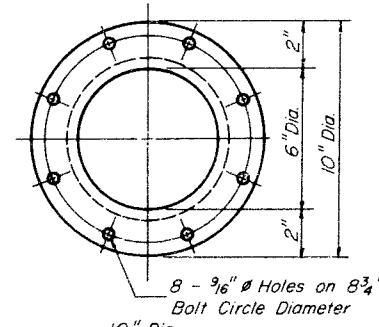
**GRATE**



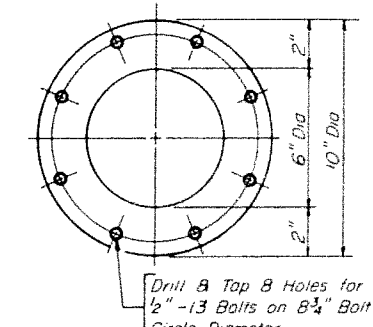
**SECTION E-E**



**SECTION F-F**

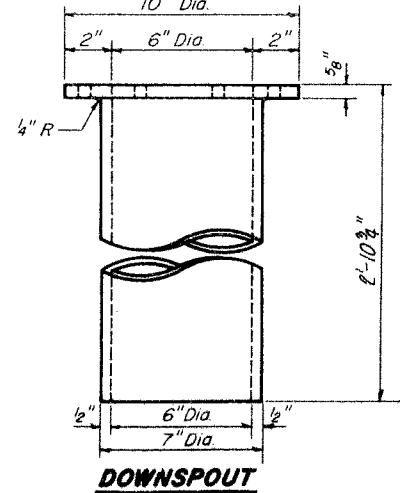


8 - 3/16"  $\phi$  Holes on 8 3/4" Bolt Circle Diameter

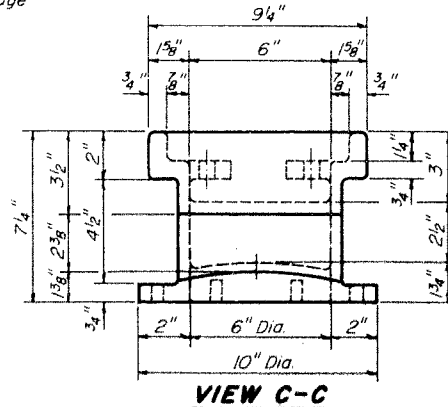


**VIEW D-D**

Drill & Tap 8 Holes for 1/2" - 13 Bolts on 8 3/4" Bolt Circle Diameter



**DOWNSPOUT**



**VIEW C-C**

Notes

- All cast iron parts shall be gray iron conforming to the requirements of AASHTO M-105, Class 30
- Bolts and washers shall conform to the requirements of A.S.T.M.: A-307.
- All bolts and washers shall be galvanized in accordance with A.S.H.T.O.: M-232.
- As an alternate bolts and washers may be stainless steel conforming to the requirements of A.S.T.M.: A-193 Type 304.
- Cost of the Grate, Frame, Downspout, bolts and washers including complete installation of Scupper shall be paid for at the unit bid price for "DRAINAGE SCUPPERS"
- The Contractor may use at his option steel drainage scuppers or cast iron drainage scuppers

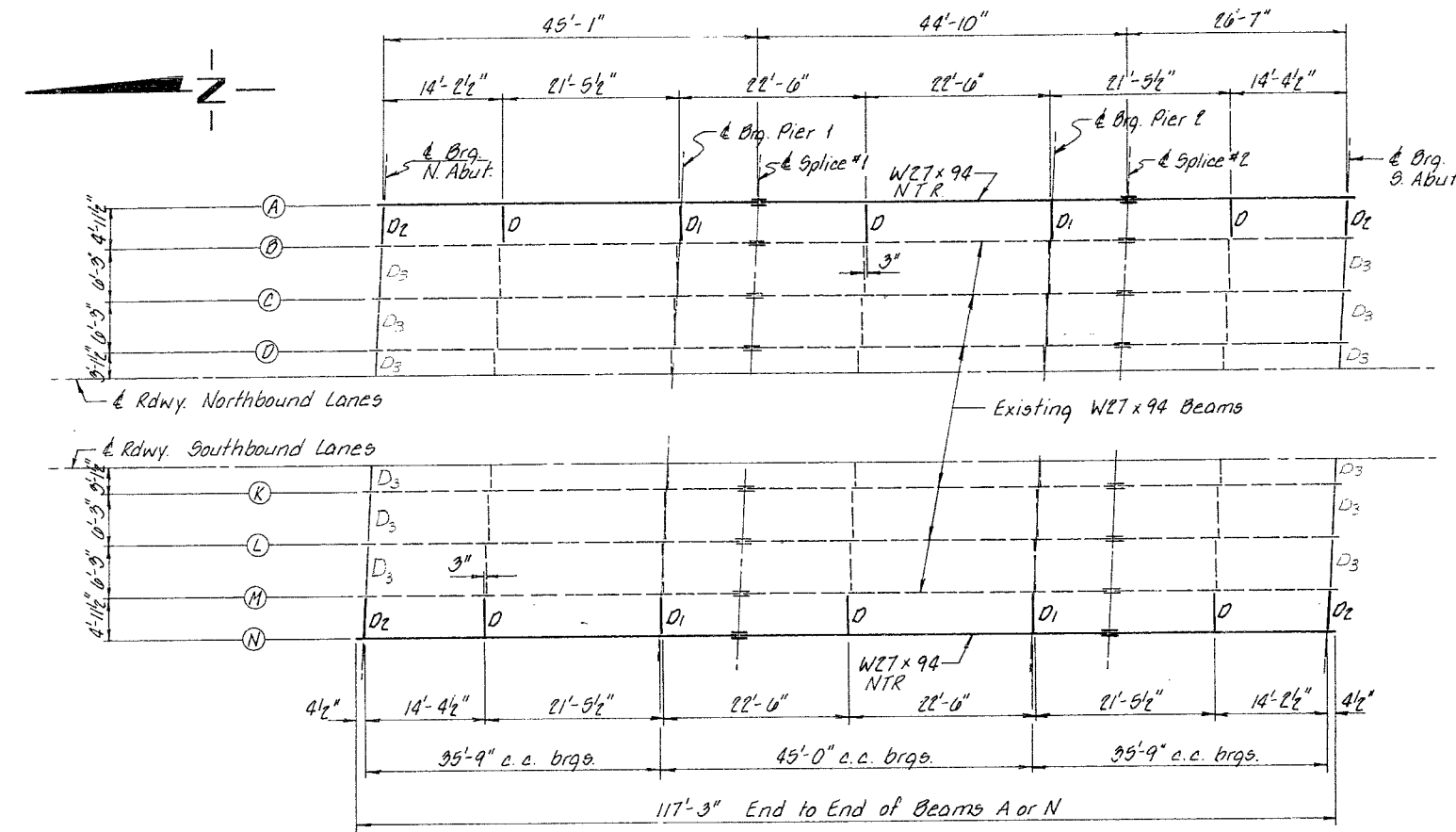
See sheet 1 for location.  
See sheet 8 for Section at Beams.

**ALTERNATE - CAST IRON  
DRAINAGE SCUPPER**  
FAI ROUTE 57  
SECTION 199 HOR-3  
KANKAKEE COUNTY  
STATION 198+90.90

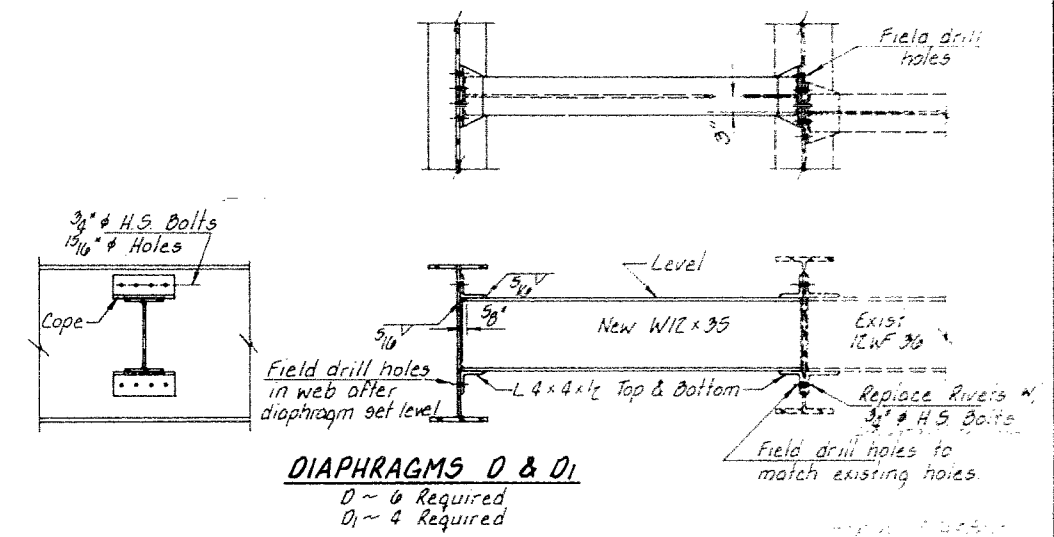
**COLLINS AND RICE  
CONSULTING ENGINEERS**

DESIGNED I.O.U. CHECKED J.K.K.  
DRAWN J.B. DATE 2-20-06 NO. E006

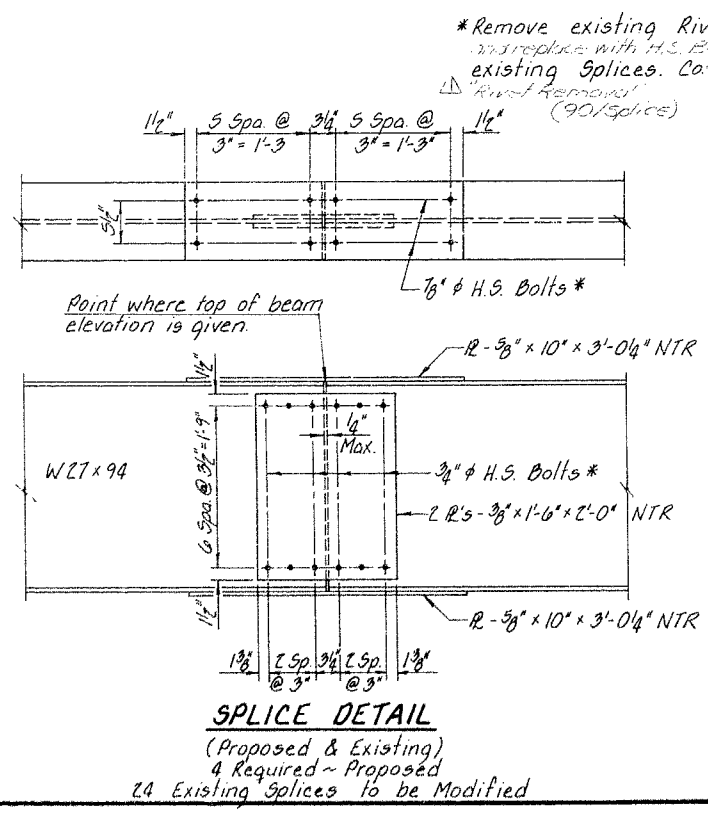
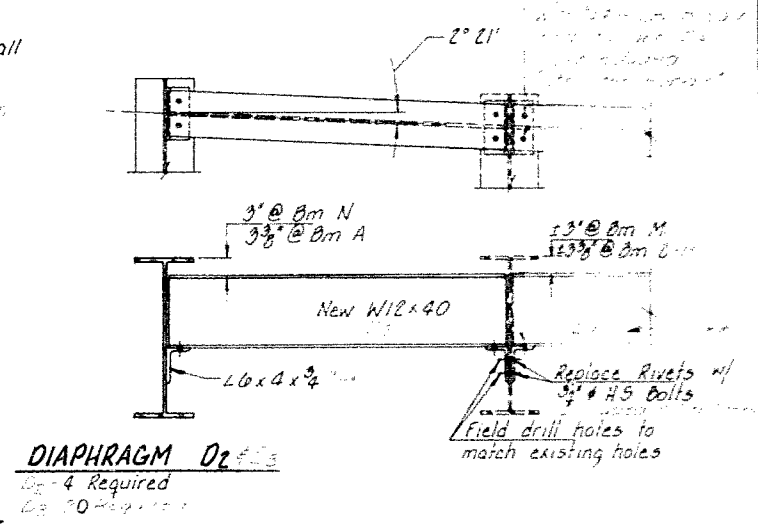
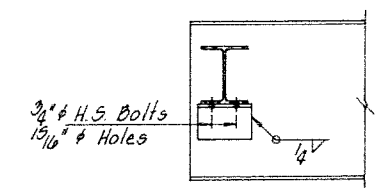
**GRINELL ROAD 9/19**



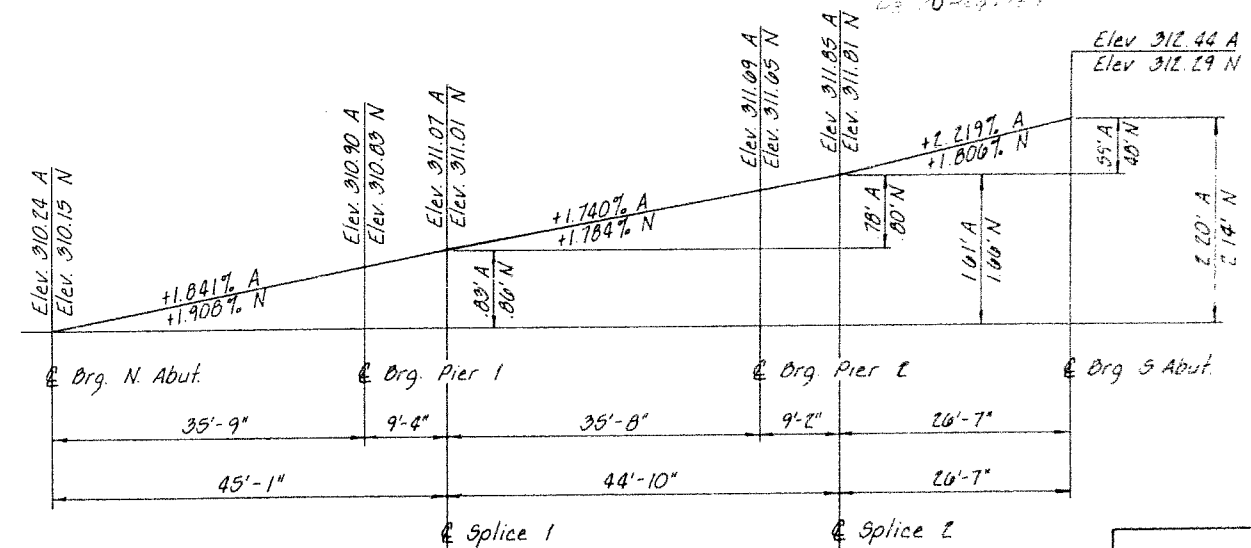
**PARTIAL FRAMING PLAN**  
 All dimensions are horizontal dimensions  
 NTR denotes Notch Toughness Requirements.



~Note~  
 Hardened washers shall be required over holes (2/Bolt) in diaphragm connections



Note: Any additional rivets not detailed on this sheet which are found existing and/or need to be replaced shall be cost incidental to "Rivet Removal"



**FRAMING PLAN**  
 FAI ROUTE 57  
 SECTION 199 HR-3  
 KANKAKEE COUNTY  
 STATION 138 + 90.90

**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED Z.O.U.  
 DRAWN J.O.

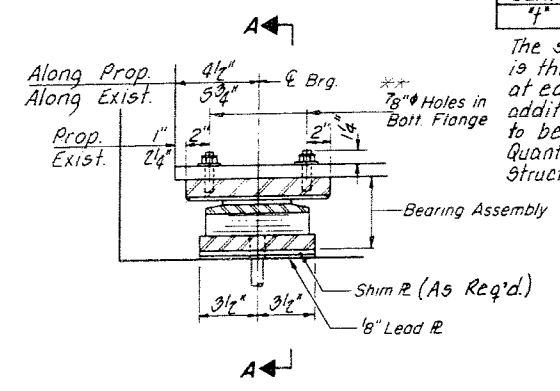
CHECKED J.K.K.  
 DATE 2-20-86 NO. E006

**SHIM PLATES - S. ABUT.**

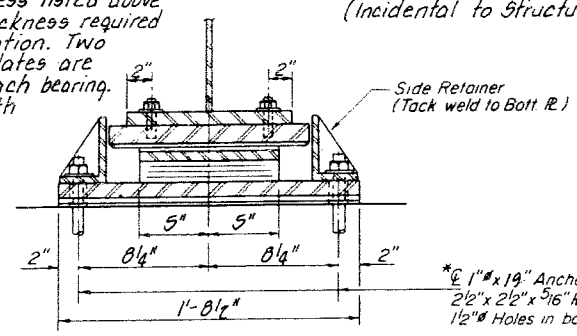
BEAM	A	B	C-G	H	I-M	N
4"	0"	5 1/4"	4 1/8"	5 1/4"	4 1/8"	0"

The shim plate thickness listed above is the estimated thickness required at each bearing location. Two additional 1/8" shim plates are to be provided for each bearing. Quantities included with Structural Steel.

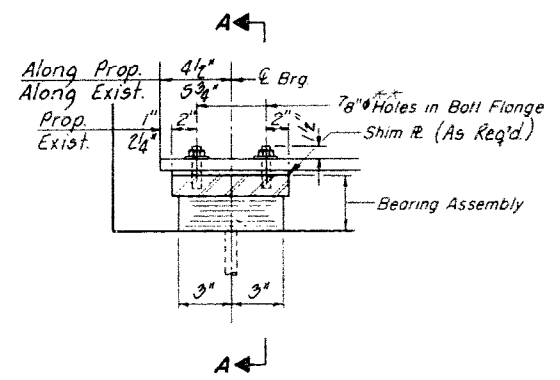
\*\*Note: At existing beams, the 1/2" roller top plate shall be left in place. 3/8" holes to be drilled thru bottom flange of existing beam and roller top plate for attachment to top bearing assembly. (Incidental to Structural Steel)



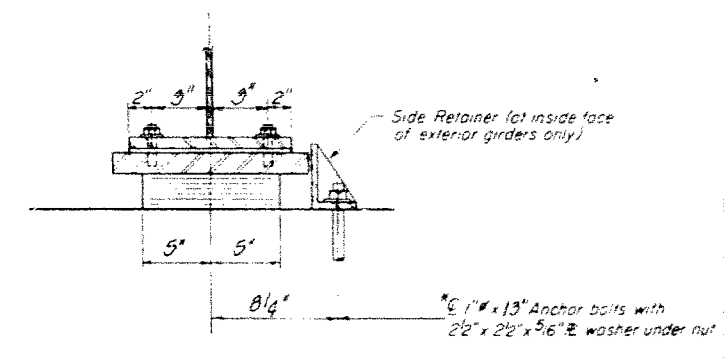
SECTION AT S. ABUT.



SECTION A-A



SECTION AT N. ABUT.



SECTION A-A

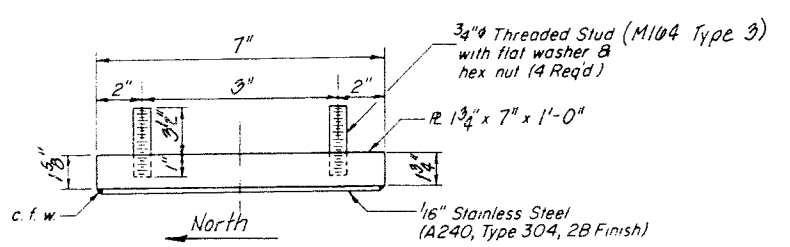
**TYPE II TFE ELASTOMERIC EXP. BRG.**

14 Required

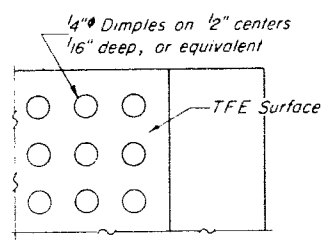
\*Note: After girders have been erected holes at expansion bearings shall be drilled and anchor bolts grouted in place. Anchor bolts at fixed bearings may be built into the masonry. See sheet 19 for Anchor Bolt details

**TYPE I ELASTOMERIC EXP. BRG.**

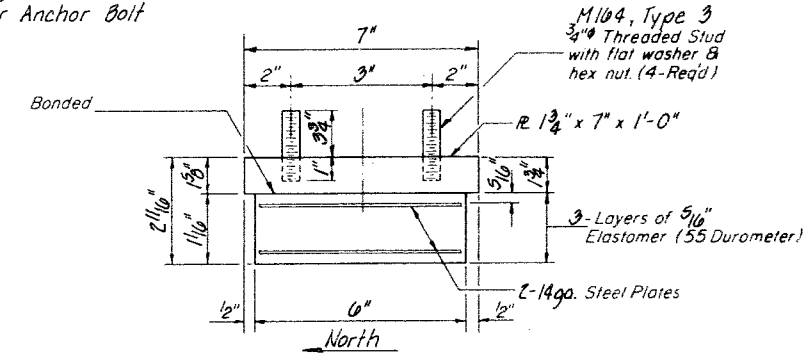
14 Required



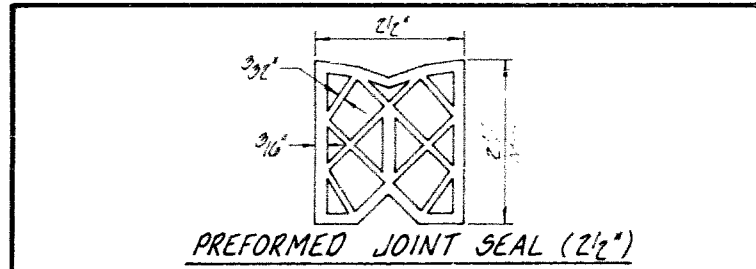
TOP BEARING ASSEMBLY



PLAN-TFE SURFACE



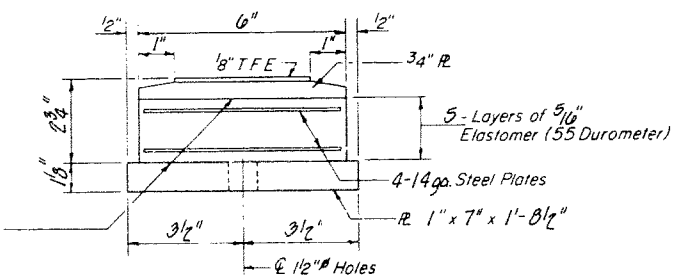
BEARING ASSEMBLY



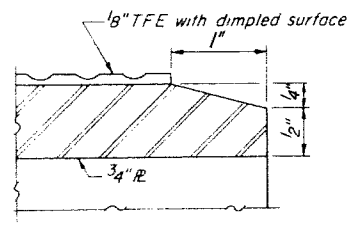
PREFORMED JOINT SEAL (2 1/2")

Note: After fabrication all surfaces of the steel plates shall be given one shop coat of paint specified for structural steel.

1/4" holes @ 12" cts. for 3/8" bolts. All bolts shall be burned, sawed or chipped off flush with back of angles after forms are removed.



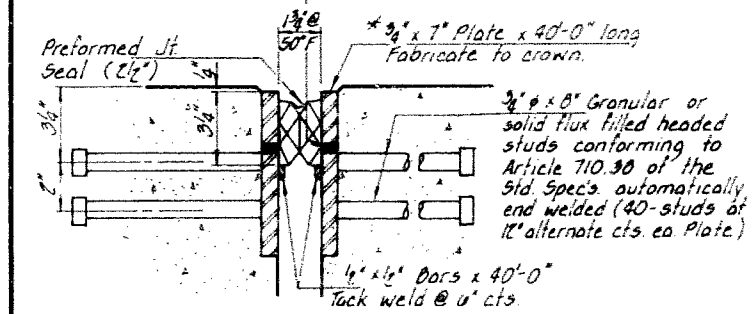
BOTTOM BEARING ASSEMBLY



SECTION THRU TFE

Note: Shim plates shall not be placed under Bearing Assembly.

\*Furnish in segments of 20' maximum length. Maximum space between installed segments shall be 3/16". Seal space with Silicone Sealant suitable for structural steel.



CROSS SECTION

**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Preformed Joint Seal (2 1/2")	Lin. Ft.	172
Structural Steel	Pound	6,410

**BEARINGS & EXPANSION JOINT DETAILS**

FAI ROUTE 57  
SECTION 139 HDR-3  
KANKAKEE COUNTY  
STATION 138 + 90.90

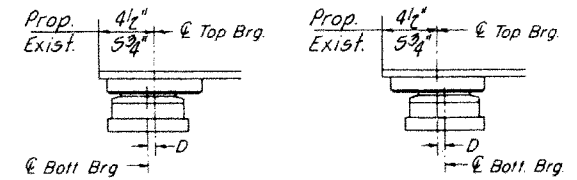
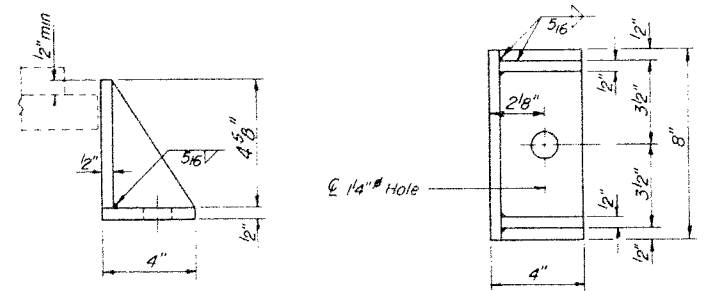
COLLINS AND RICE  
CONSULTING ENGINEERS

DESIGNED Z.B.U. CHECKED J.K.K.  
DRAWN J.B. DATE 2-20-86 NO. 2006

GRINELL ROAD 11/19

**SIDE RETAINER**

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. 28 Required. Included w/ Structural Steel.



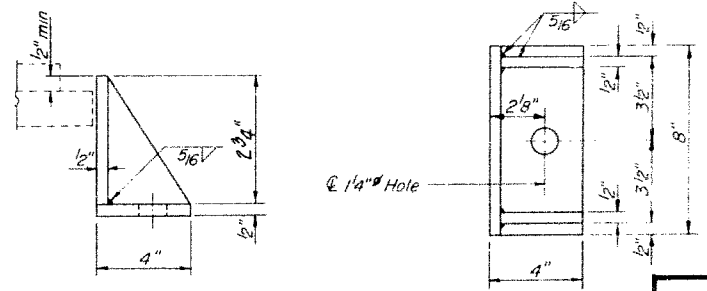
BELOW 50°F (Move bott. brg. away from fixed brg.) ABOVE 50°F (Move bott. brg. toward fixed brg.)

**SETTING ANCHOR BOLTS AT EXP. BRG. - 90. ABUT.**

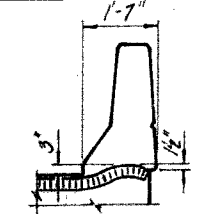
D = 1/8" per each 100' of expansion for every 15° temp change from the normal temp of 50°F

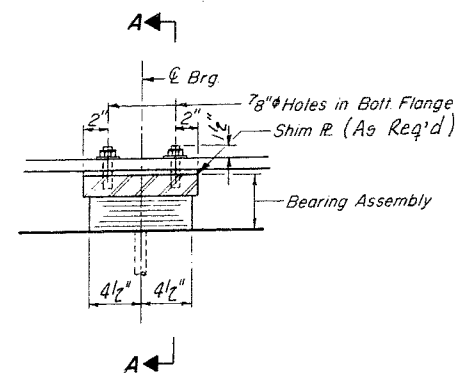
**SIDE RETAINER**

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. 4 Required. Included w/ Structural Steel.

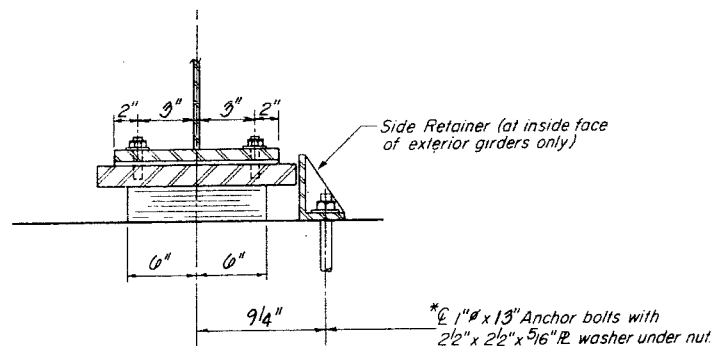


**TYPICAL END OF SEAL TREATMENT**

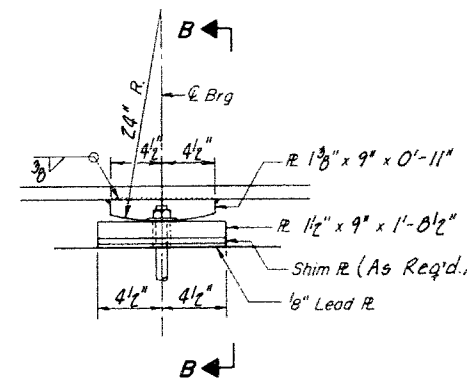




SECTION AT PIER 2

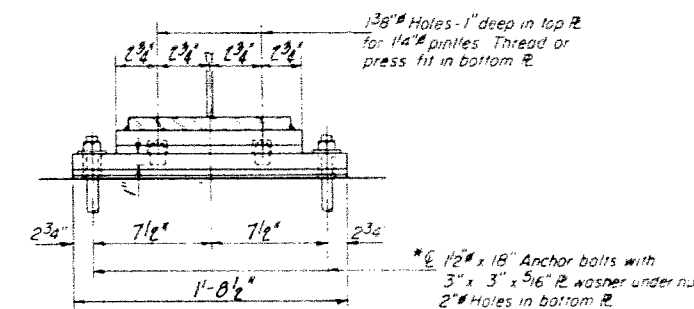


SECTION A-A

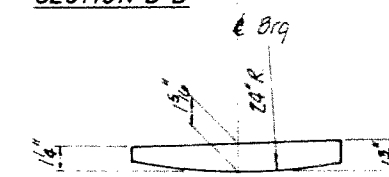


ELEVATION AT PIER 1

FIXED BEARING  
(2 Required)

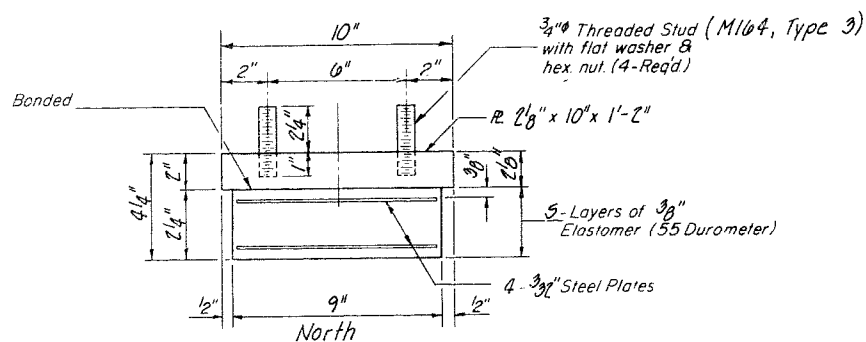


SECTION B-B



TOP PLATE

TYPE I ELASTOMERIC EXP. BRG.  
(2 Required)



BEARING ASSEMBLY

Note: Shim plates shall not be placed under Bearing Assembly.

\*Note: After girders have been erected holes at expansion bearings shall be drilled and anchor bolts grouted in place. Anchor bolts at fixed bearings may be built into the masonry. See sheet 13 for Anchor Bolt details.

EXISTING BEAMS

INTERIOR BEAM MOMENT TABLE

		0.4 Span 1, 0.6 Span 3	Pier 1 or 2	0.5 Span 2
I	(in <sup>4</sup> )	3,270	3,270	3,270
S	(in <sup>3</sup> )	243	243	243
R	(k/ft)	980	980	980
M <sub>D</sub>	(ft-k)	85.4	102.3	85.7
M <sub>L</sub>	(ft-k)	171.6	142.1	133.4
M <sub>IMP</sub>	(ft-k)	51.5	42.6	53.9
M <sub>TOTAL</sub>	(ft-k)	308.5	347.0	323.0
R <sub>S</sub>	(k.s.i.)	15.2	17.1	16.0

INTERIOR BEAM REACTION TABLE

		ABUTMENTS	PIERS
R <sub>D</sub>	(k)	13.0	44.1
R <sub>L</sub>	(k)	28.5	30.8
R <sub>IMP</sub>	(k)	8.5	11.0
R <sub>TOTAL</sub>	(k)	50.0	91.9

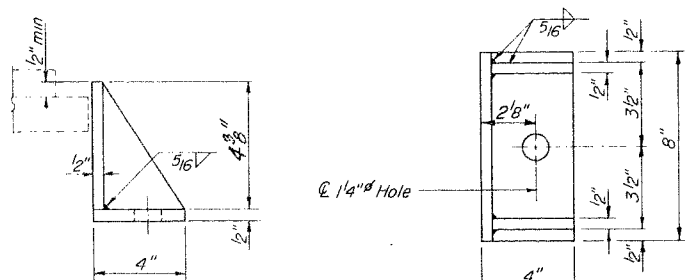
PROPOSED BEAMS

EXTERIOR BEAM MOMENT TABLE

		0.4 Span 1, 0.6 Span 3	Pier 1 or 2	0.5 Span 2
I	(in <sup>4</sup> )	3,270	3,270	3,270
S	(in <sup>3</sup> )	243	243	243
R	(k/ft)	980	980	980
M <sub>D</sub>	(ft-k)	85.4	102.3	85.7
M <sub>L</sub>	(ft-k)	136.1	112.7	145.4
M <sub>IMP</sub>	(ft-k)	40.8	33.8	42.8
M <sub>TOTAL</sub>	(ft-k)	262.3	308.8	273.9
R <sub>S</sub>	(k.s.i.)	13.0	15.2	13.5

EXTERIOR BEAM REACTION TABLE

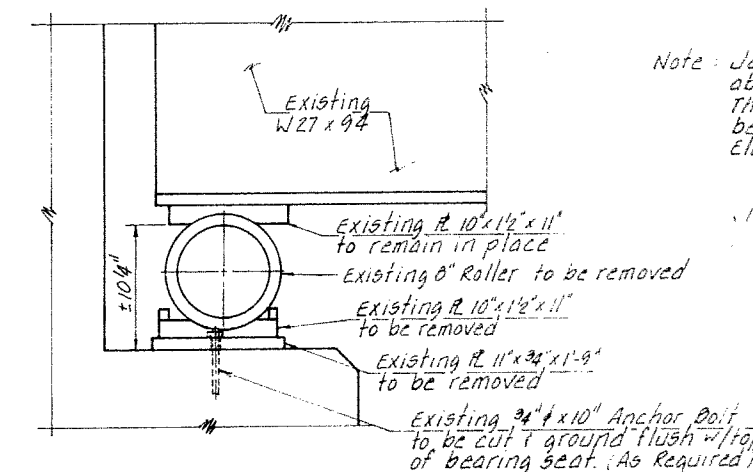
		ABUTMENTS	PIERS
R <sub>D</sub>	(k)	13.0	44.1
R <sub>L</sub>	(k)	22.6	29.2
R <sub>IMP</sub>	(k)	6.8	8.8
R <sub>TOTAL</sub>	(k)	42.4	82.1



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. 2 Required. Included w/Structural Steel.

I - Moment of Inertia  
S - Section Modulus  
M<sub>D</sub> - Moment due to dead loads  
M<sub>L</sub> - Moment due to live loads  
M<sub>IMP</sub> - Moment due to impact.



EXISTING BEARINGS AT ABUTMENTS

Existing to be replaced as to only

Note: Jacking Load per beam & abutments is 1,500 LBS. The cost of removal of existing bearing shall be incidental to Elastomeric Bearing Assembly.

After deck is removed, all existing infrastructure shall be maintained.

JACKING / SHORING EXISTING BEAMS

Quantity = 24 Each

BEARING DETAILS

FAI ROUTE 57  
SECTION 139 HBR-3  
KANKAKEE COUNTY  
STATION 138+90.96

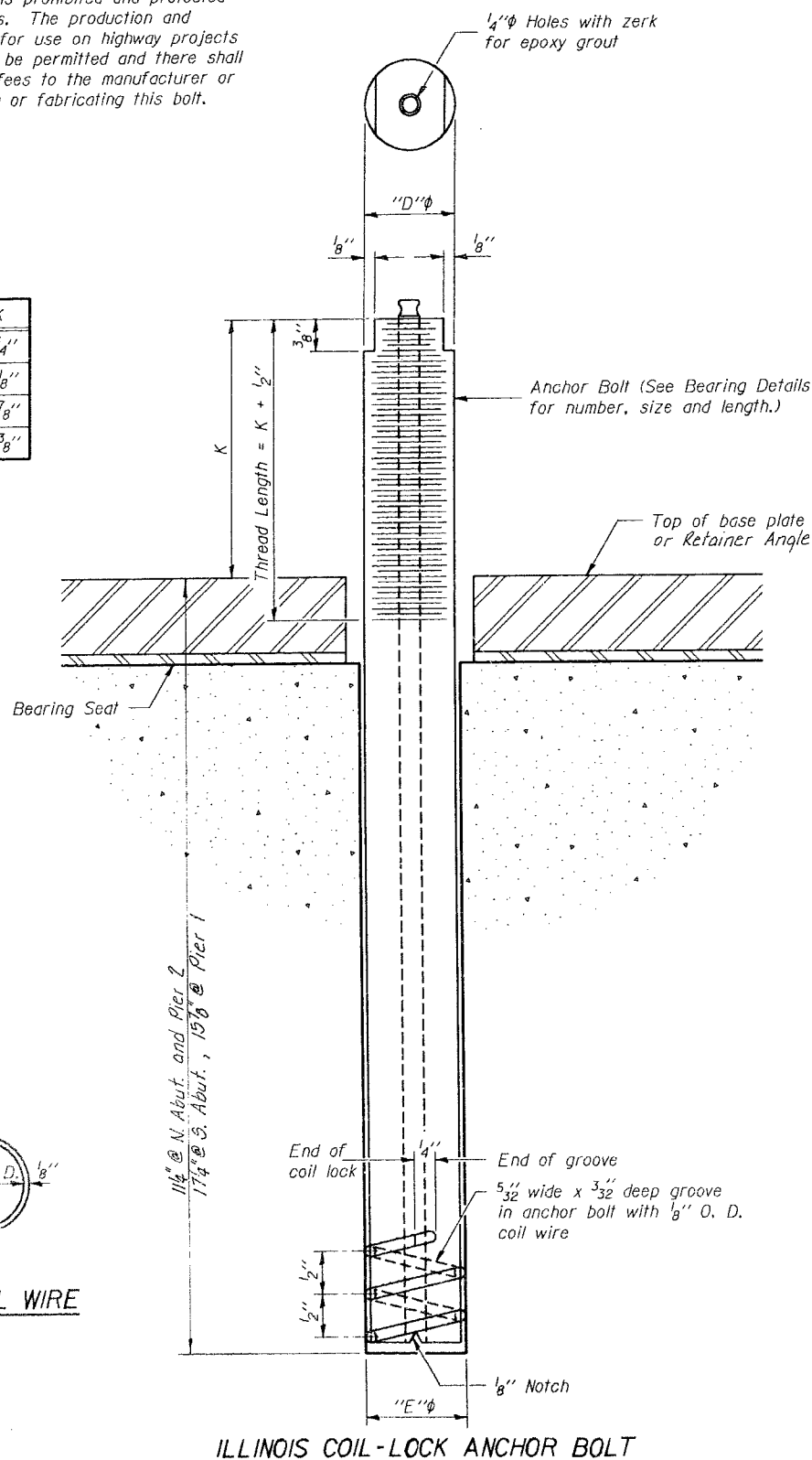
COLLINS AND RICE  
CONSULTING ENGINEERS

DESIGNED J.O.U. CHECKED J.K.K.  
DRAWN J.O. DATE 1-10-86 NO 1006

GRINELL ROAD 12/19

The Illinois Coil-Lock Anchor Bolt is a proprietary item which is the property of the Illinois Department of Transportation. Use, reproduction or disclosure without express written permission is prohibited and protected under Federal copyright laws. The production and the fabrication of this bolt for use on highway projects in the State of Illinois shall be permitted and there shall be no incurred charges or fees to the manufacturer or the fabricator for producing or fabricating this bolt.

D	E	H	K
1"	1 1/8"	1 3/16"	1 3/4"
1 1/2"	1 5/8"	1 5/16"	2 1/8"
2"	2 1/8"	1 3/16"	2 7/8"
2 1/2"	2 5/8"	2 5/16"	3 3/8"



### MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A519, Grade 1026 and supplied with hexagonal nuts and cut washers.  
 The coil wire shall be made of any suitable soft steel wire.  
 The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed.  
 The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C881, Type I, Grade I and of a Class suitable for the temperature at installation.

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

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

### ALTERNATE ANCHOR BOLTS

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes in accordance with the manufacturer's recommendations and procedures.

The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:

1. A threaded rod stud with nut and washer conforming to ASTM A307.
2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

### GENERAL NOTES

Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or in accordance with the manufacturer's recommendation after beams or girders have been erected and adjusted.  
 Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming.  
 The anchor bolts, furnished and installed and including the epoxy grout or capsules shall not be paid for separately but shall be included in the unit bid price for "Furnishing and Erecting Structural Steel".

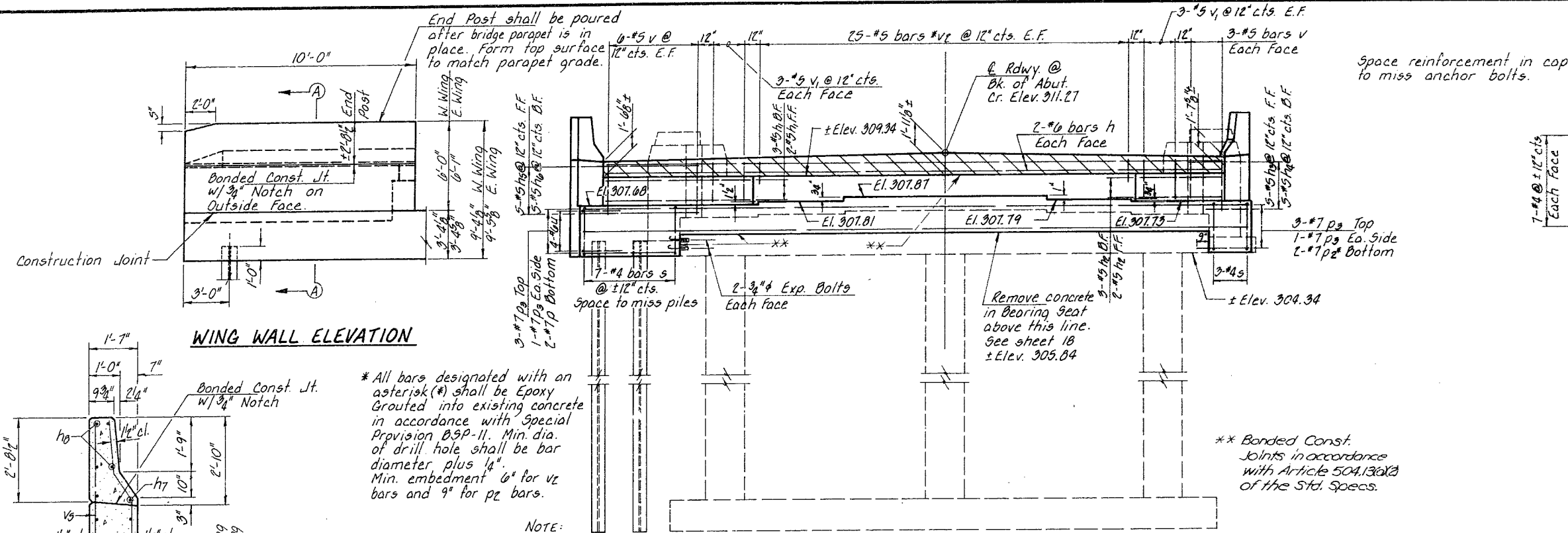
Anchor bolts, nuts and washers shall be completely coated by either the hot-dipped process conforming with AASHTO M232 or the mechanical plating method conforming to ASTM B695, Class 50. Zinc coated nuts shall be tapped oversize in accordance with the requirements of AASHTO M291 and shall meet the supplementary requirements SI.1 thru SI.2.1 of the same specifications for lubricant and testing.

ANCHOR BOLT DETAILS  
 FAI ROUTE 57  
 SECTION 199 HDR-3  
 KANKAKEE COUNTY  
 STATION 198+90.96

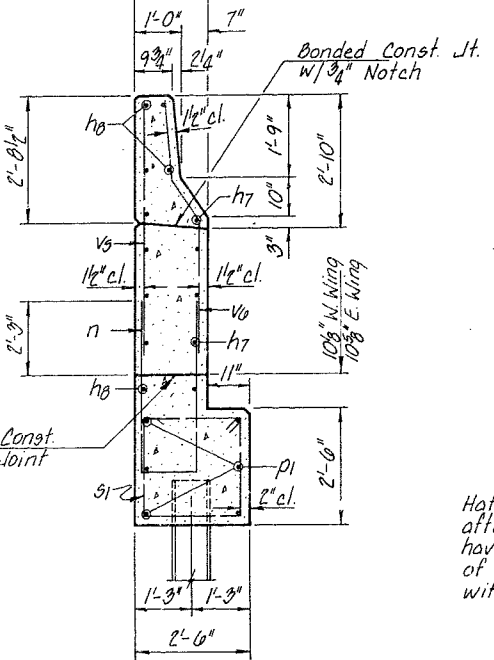
COLLINS AND RICE  
 CONSULTING ENGINEERS

DESIGNED: J.B.L. CHECKED: J.K.K.  
 DRAWN: J.B. DATE: 2-10-86 NO: 2006

GRINELL ROAD 13/19



WING WALL ELEVATION

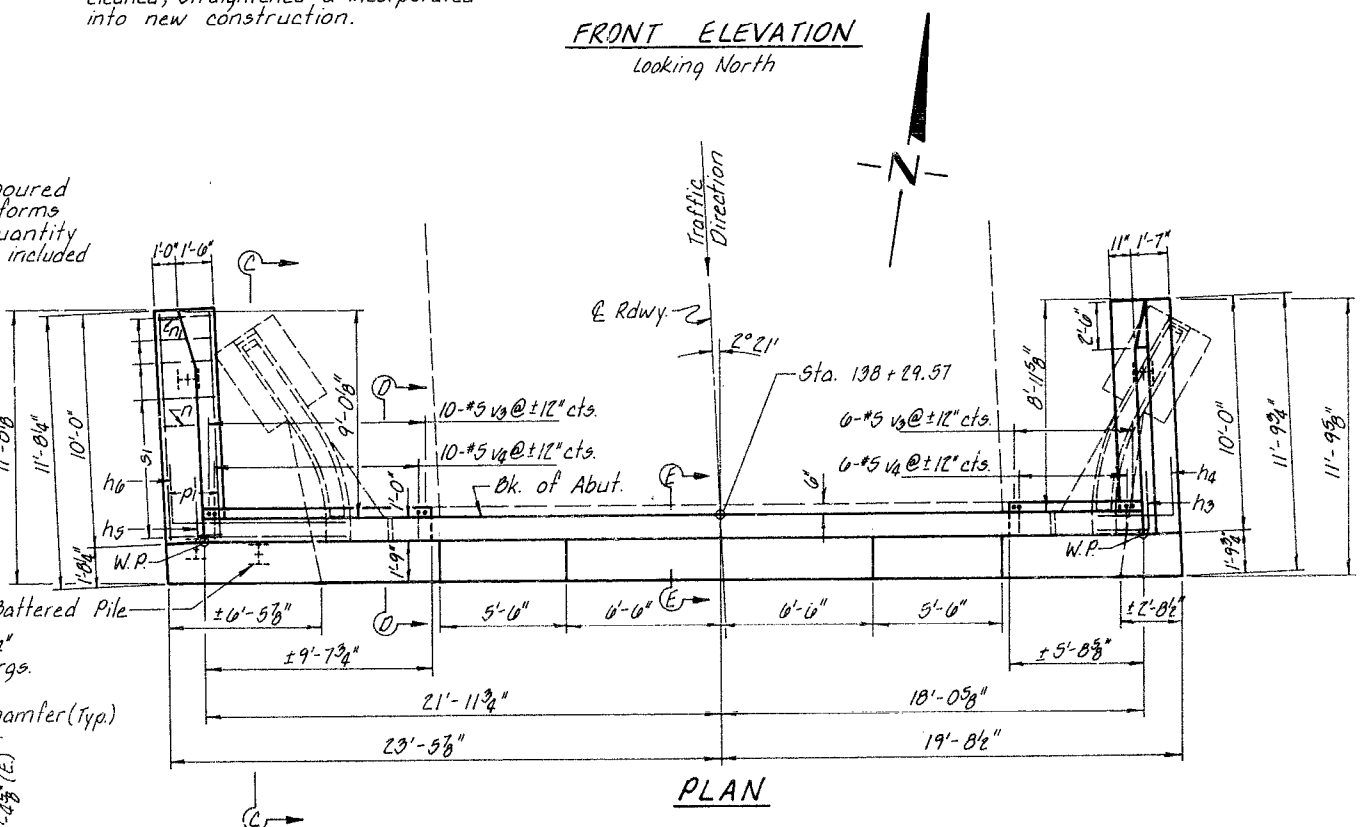


\* All bars designated with an asterisk (\*) shall be Epoxy Grouted into existing concrete in accordance with Special Provision SSP-11. Min. dia. of drill hole shall be bar diameter plus 1/4\"/>

Hatched area to be poured after superstructure forms have been removed. Quantity of Class X Concrete included with Superstructure.

SECTION A-A

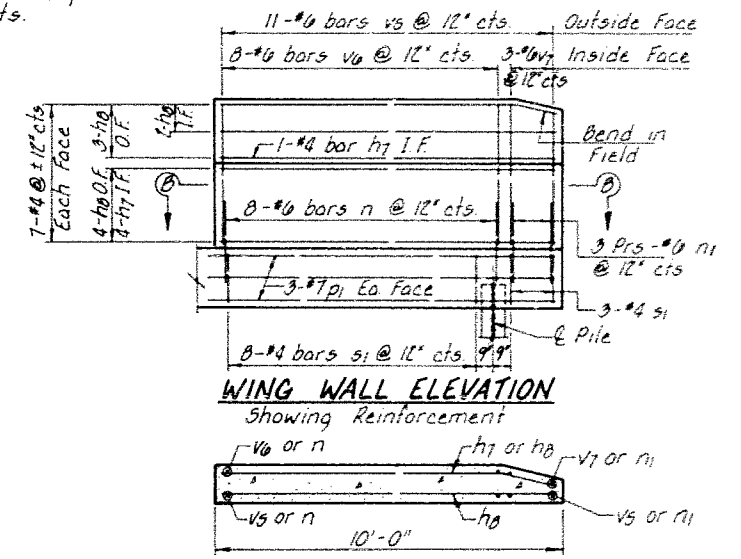
FRONT ELEVATION  
Looking North



PLAN

**PILE DATA**

Type: Steel HP10x42  
 No. Req'd: 10  
 Capacity: Drive to Refusal  
 Est. Length: 30 Feet/Pile  
 \*\* Includes one test pile to be driven in a permanent location.



WING WALL ELEVATION  
Showing Reinforcement

SECTION B-B

Work this sheet with sheet 18.

**BILL OF MATERIAL - N.W. ABUT.**

BAR	NO. REQ'D	SIZE	LENGTH	SHAPE
h	4	#6	39'-9"	—
h1	5	#5	9'-5"	—
h2	5	#5	5'-5"	—
h3	5	#5	4'-9"	└
h4	5	#5	6'-0"	└
h5	5	#5	8'-9"	└
h6	5	#5	10'-0"	└
h7	10	#4	9'-9"	—
h8	18	#4	9'-9"	—
n	10	#6	9'-4"	—
n1	12	#6	4'-8"	—
p	2	#7	6'-0"	—
p1	12	#7	11'-4"	—
p2*	2	#7	2'-10"	—
p3	5	#7	42'-10"	—
s	10	#4	11'-7"	□
s1	22	#4	9'-5"	□
u	4	#6	9'-6"	—
v	18	#5	4'-6"	—
v1	12	#5	3'-0"	—
v2*	50	#5	2'-0"	—
v3	10	#5	7'-9"	—
v4	10	#5	5'-8"	□
v5	22	#6	5'-10"	—
v6	10	#6	6'-0"	—
v7	6	#6	5'-10"	—
Class X Concrete			Cu Yd	19.7
Reinforcement Bars			Pound	2,730
Expansion Bolts 3/4" x 12"			Each	4
Steel Piles HP10x42			Lin. Ft	90
Test Pile Steel HP10x42			Each	1
Protective Coat			Sq. Yd	8

SECTION D-D  
(Thru Existing Cap)

SECTION C-C  
(Thru Proposed Cap)

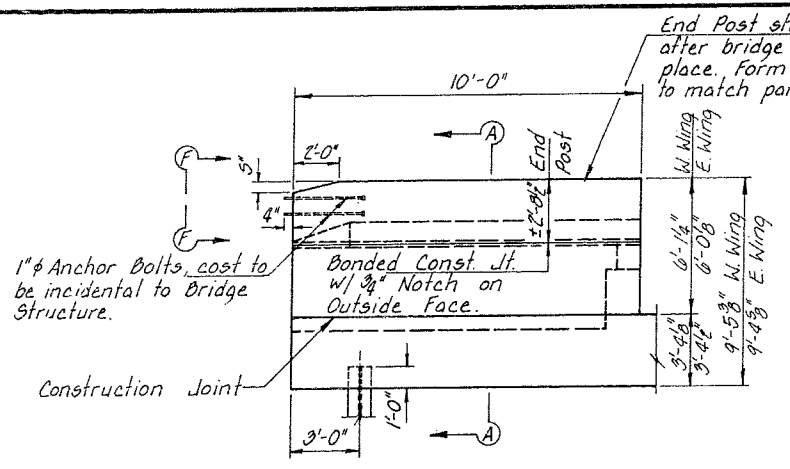
SECTION E-E

**NORTHWEST ABUTMENT**  
 F.A.I. ROUTE 57  
 SECTION 194 HOR-3  
 KANKAKEE COUNTY  
 STATION 138 + 90.90

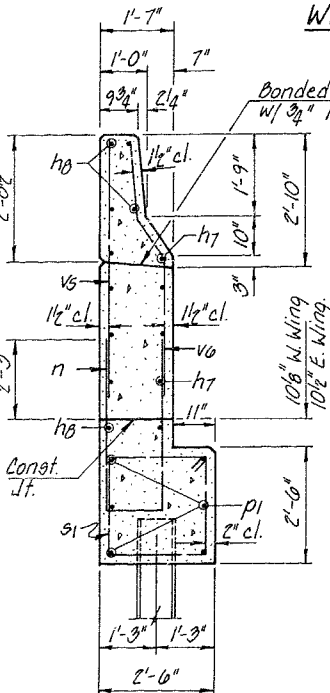
**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED Z.B.U. DRAWN J.B. CHECKED J.K.K. DATE 1-20-66 NO. 1000

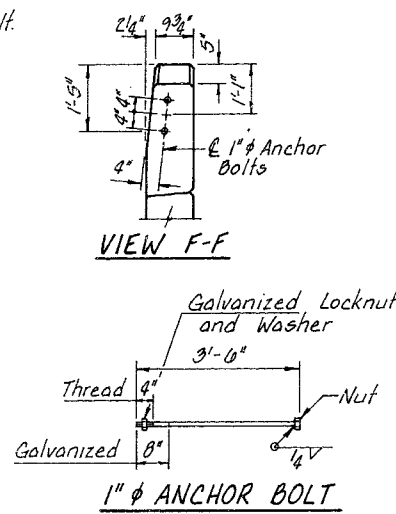




WING WALL ELEVATION

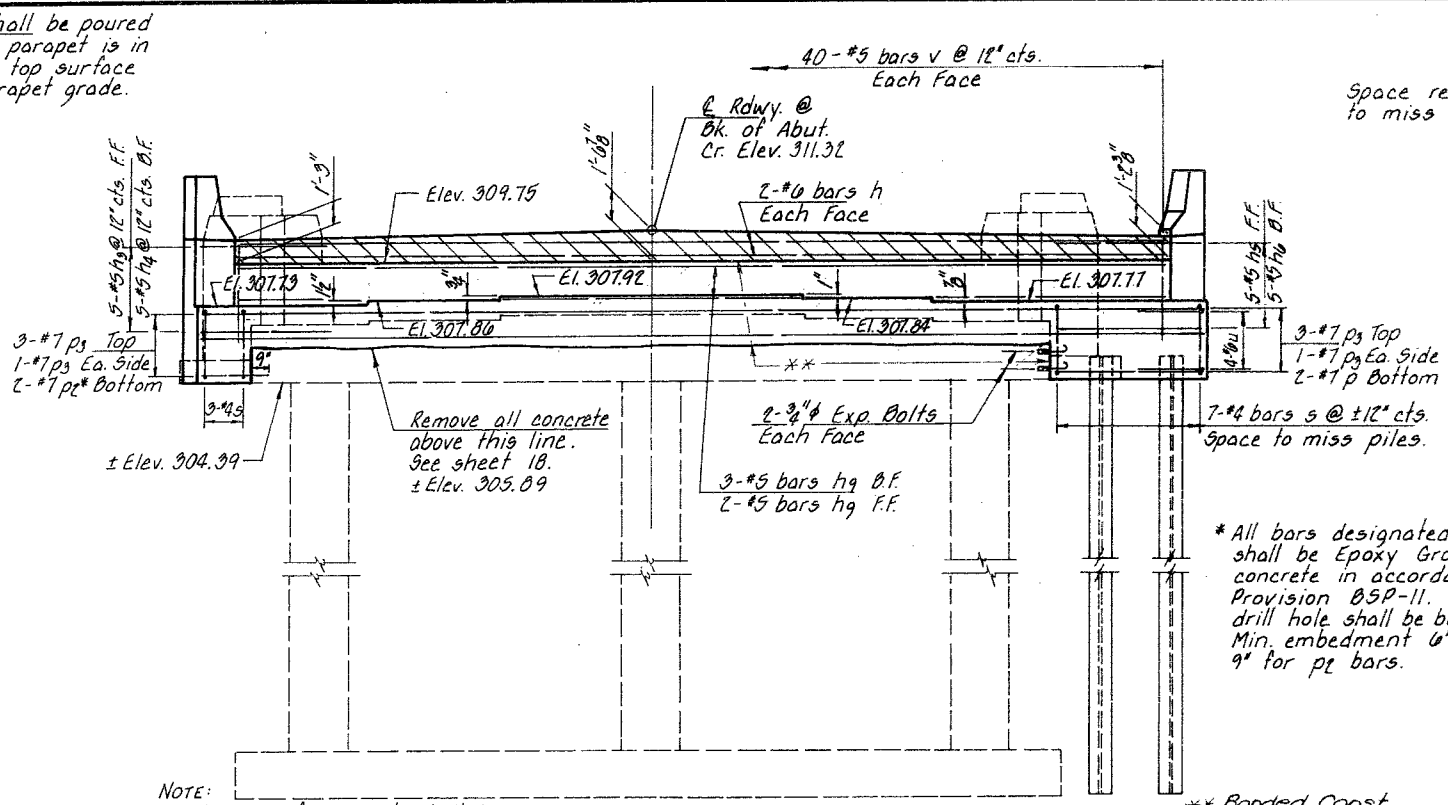


SECTION A-A



1" ANCHOR BOLT

Hatched area to be poured after superstructure forms have been removed. Quantity of Class X Concrete is included with Superstructure.

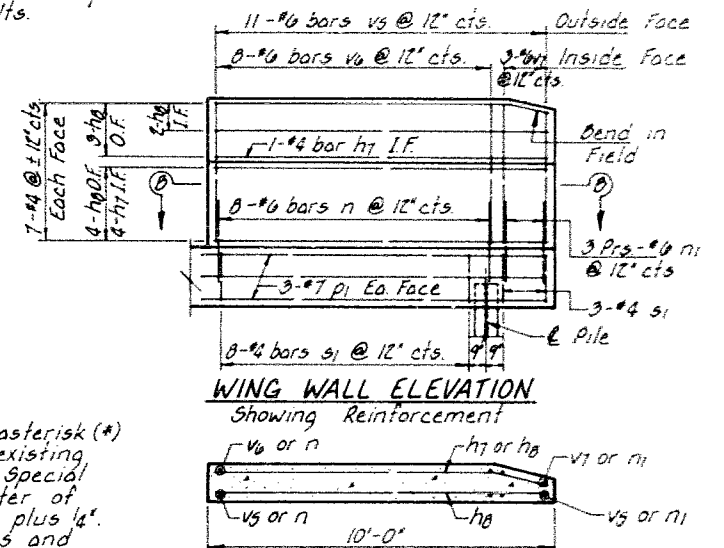


FRONT ELEVATION  
Looking North

NOTE:  
Existing reinforcement shall be cleaned, straightened & incorporated into new construction.

\* All bars designated with an asterisk (\*) shall be Epoxy Grouted into existing concrete in accordance with Special Provision 05P-11. Min diameter of drill hole shall be bar diameter plus 1/4". Min. embedment 6" for 1/2 bars and 9" for ps bars.

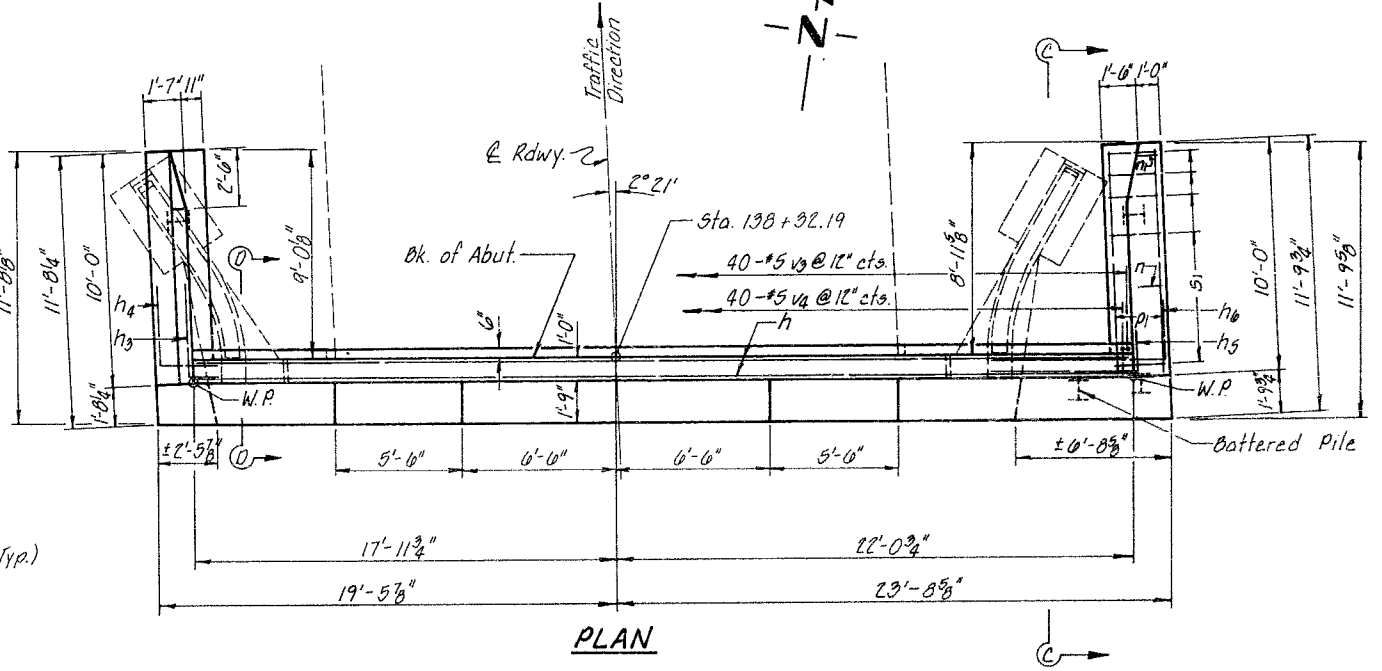
\*\* Bonded Const. Joints in accordance with Article 504.136(X) of the Std. Specs.



SECTION B-B

Work this sheet with sheet 18  
BILL OF MATERIAL - N.E. ABUT.

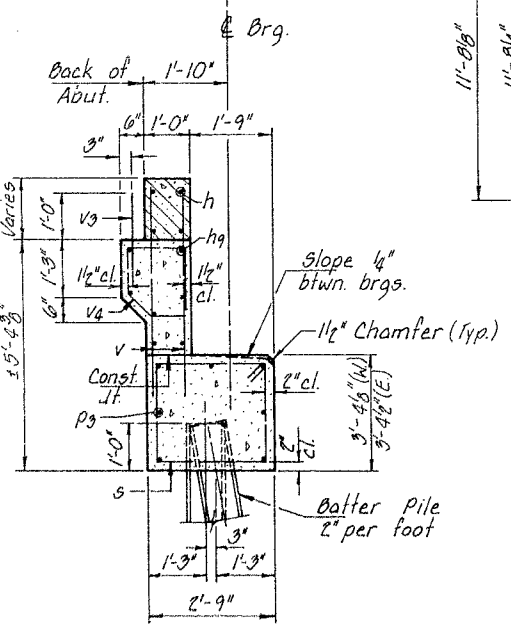
BAR	No. Req'd	SIZE	LENGTH	SHAPE
h	4	#6	39'-9"	
h3	5	#5	4'-9"	J
h4	5	#5	6'-0"	J
h5	5	#5	8'-9"	J
h6	5	#5	10'-0"	J
h7	10	#4	9'-9"	J
h8	10	#4	9'-9"	J
h9	5	#5	39'-9"	J
n	10	#6	9'-4"	J
n1	12	#6	4'-0"	J
p	2	#7	6'-0"	J
p1	12	#7	11'-4"	J
ps*	2	#7	2'-10"	J
ps	5	#7	42'-10"	J
s	10	#4	11'-7"	J
s1	22	#4	9'-5"	J
u	4	#6	9'-6"	J
v	80	#5	8'-6"	J
v3	40	#5	2'-3"	J
v4	40	#5	5'-2"	J
v5	22	#6	5'-10"	J
v6	10	#6	6'-0"	J
v7	6	#6	5'-10"	J
Class X Concrete		Cu Yd	25.2	
Reinforcement Bars		Pound	3,190	
Expansion Bolts 1/2" x 12"		Each	4	
Steel Piles HPI0 x 42		Lin. Ft.	120	
Protective Coat		Sq Yd	8	



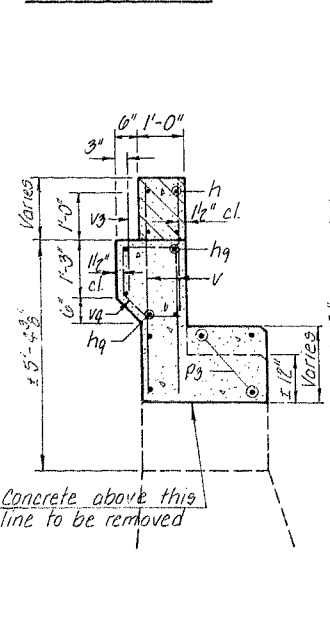
PLAN

PILE DATA

Type \_\_\_\_\_ Steel HPI0 x 42  
No. Req'd \_\_\_\_\_ 4  
Capacity \_\_\_\_\_ Drive to Refusal  
Est. Length \_\_\_\_\_ 30 Feet / Pile



SECTION C-C  
(Thru Proposed Cap)



SECTION D-D  
(Thru Existing Cap)

**NORTHEAST ABUTMENT**  
FAI ROUTE 57  
SECTION 199 HOR-3  
KANKAKEE COUNTY  
STATION 138 + 90.90

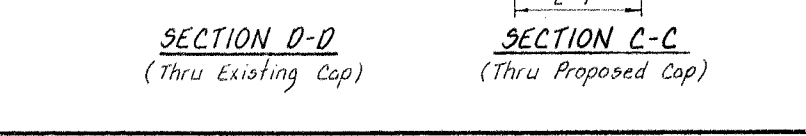
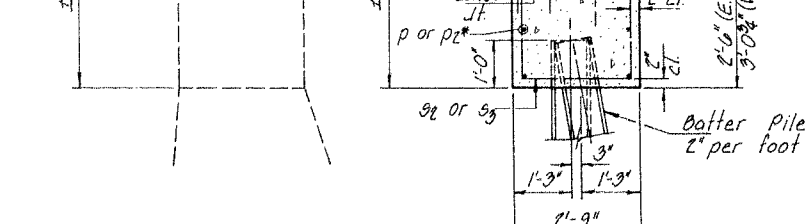
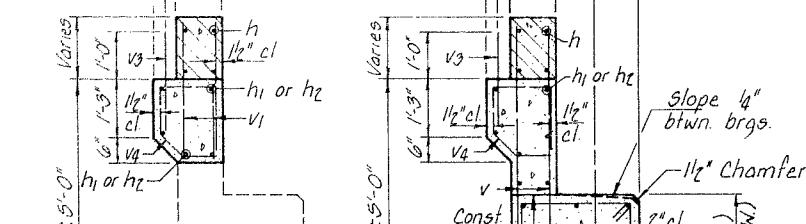
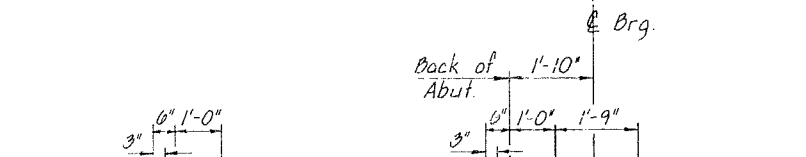
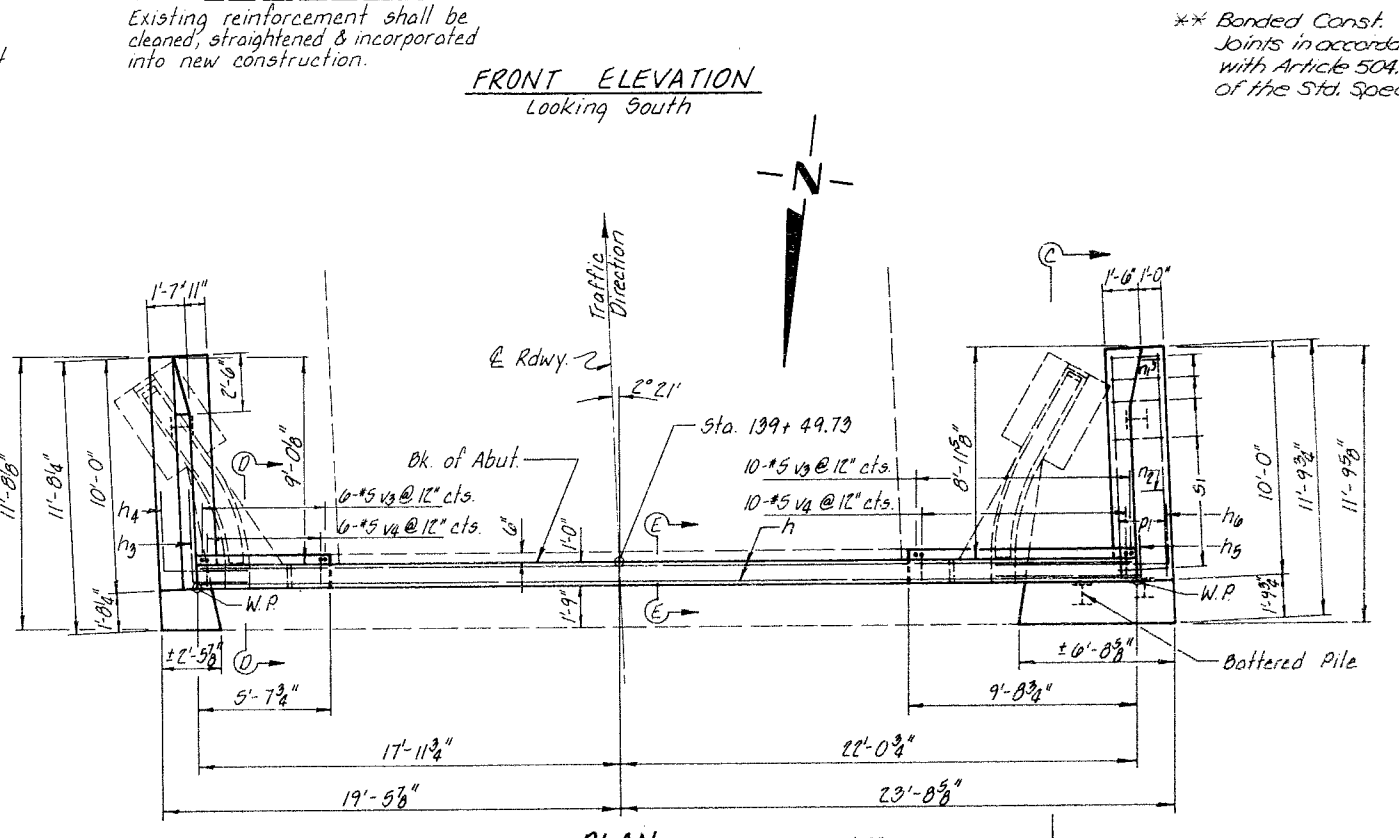
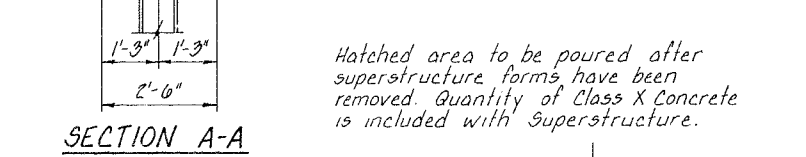
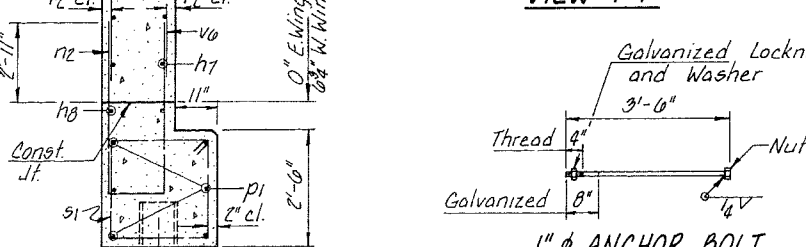
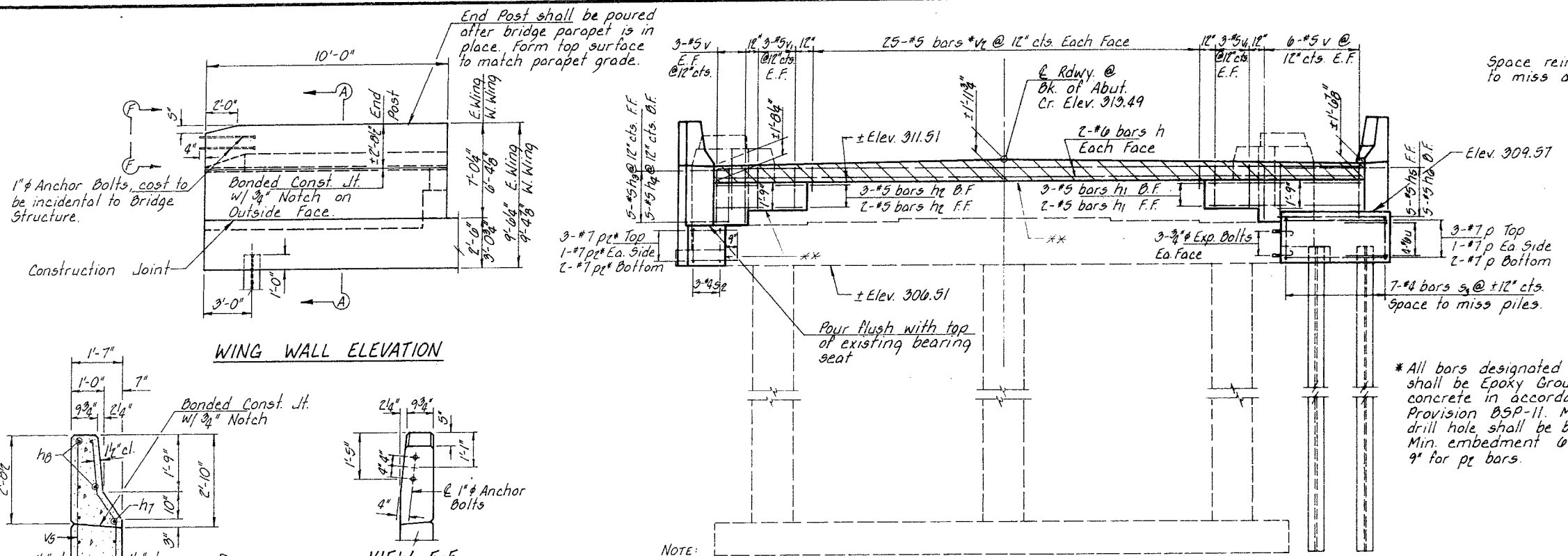
**COLLINS AND RICE**  
CONSULTING ENGINEERS

DESIGNED I.O.U. CHECKED J.R.K.  
DRAWN J.O. DATE 2-20-00 NO. E006

**GRINELL ROAD 75/19**

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 57	199 HOR-3	KANKAKEE	02	43

Sheet 10 of 19



PILE DATA

Type \_\_\_\_\_ Steel HP10x42

No. Req'd \_\_\_\_\_ 4\*\*

Capacity \_\_\_\_\_ Drive to Refusal

Est. Length \_\_\_\_\_ 32 Feet/Pile

\*\* Includes one test pile to be driven in a permanent location.

SOUTHWEST ABUTMENT

FAI ROUTE 57

SECTION 199 HOR-3

KANKAKEE COUNTY

STATION 198 + 90.90

COLLINS AND RICE CONSULTING ENGINEERS

DESIGNED Z.B.L.

CHECKED J.K.K.

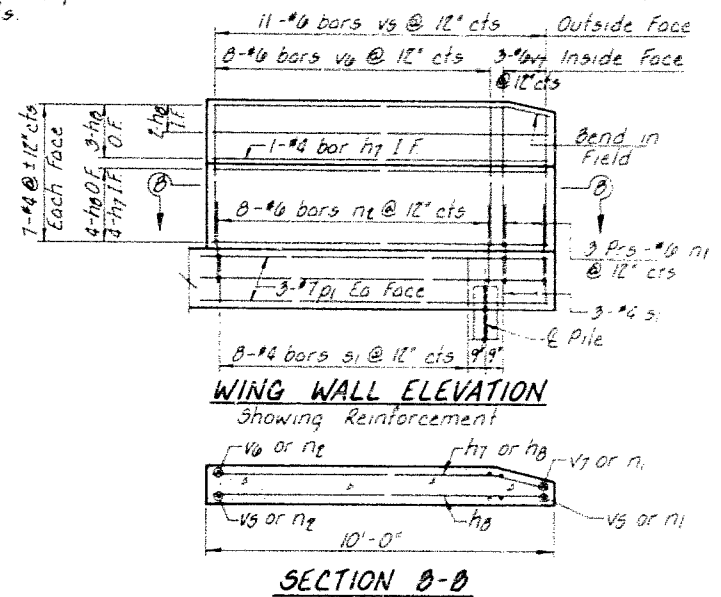
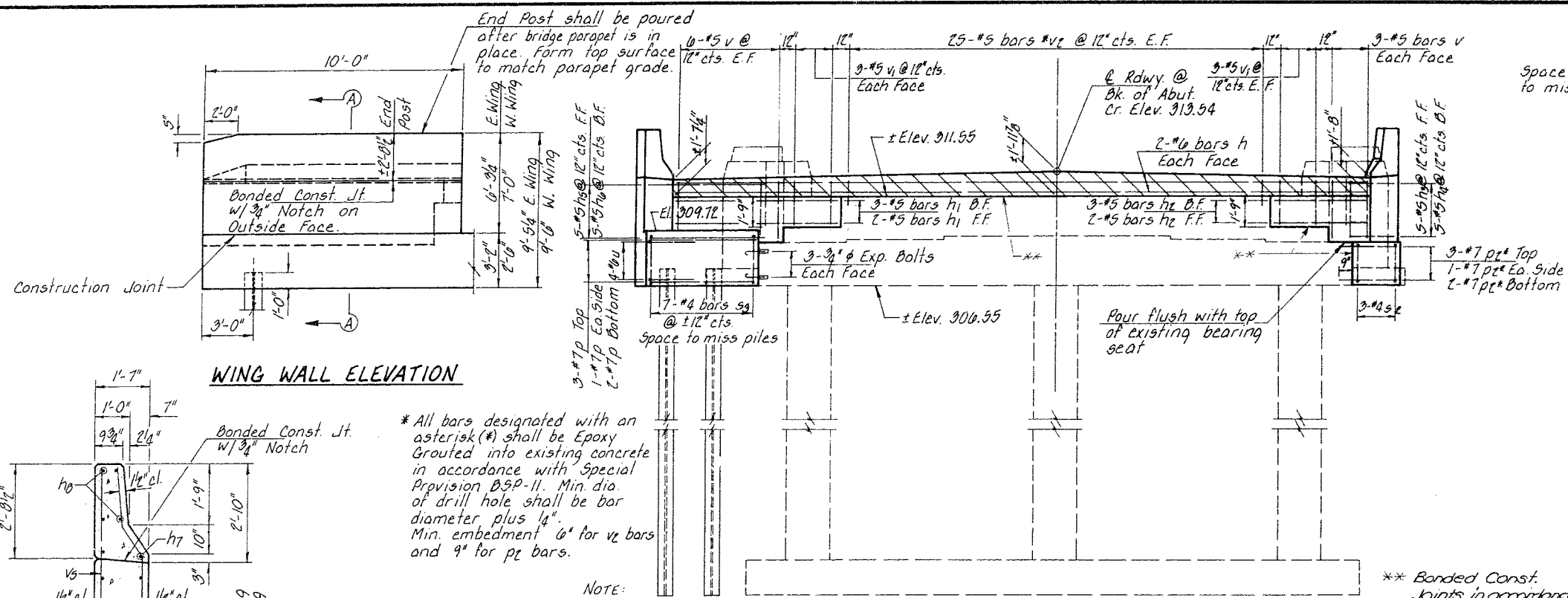
DRAWN J.B.

DATE 2-20-86

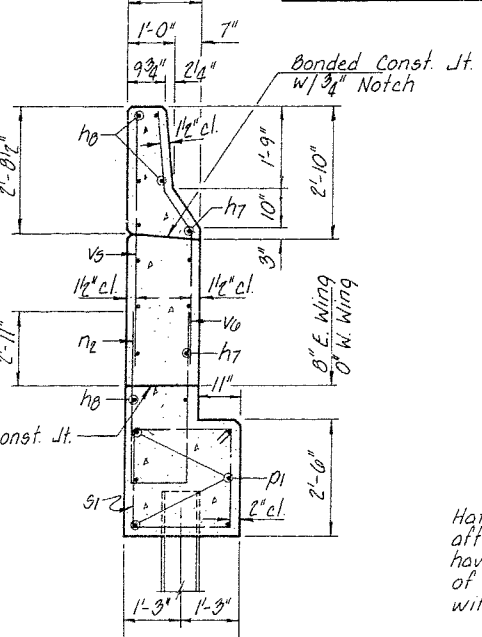
NO. 2006

GRINELL ROAD 16/19

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 57	199 HOR-3	KANKAKEE	02	44
PROJECT TITLE				
Sheet 17 of 19				

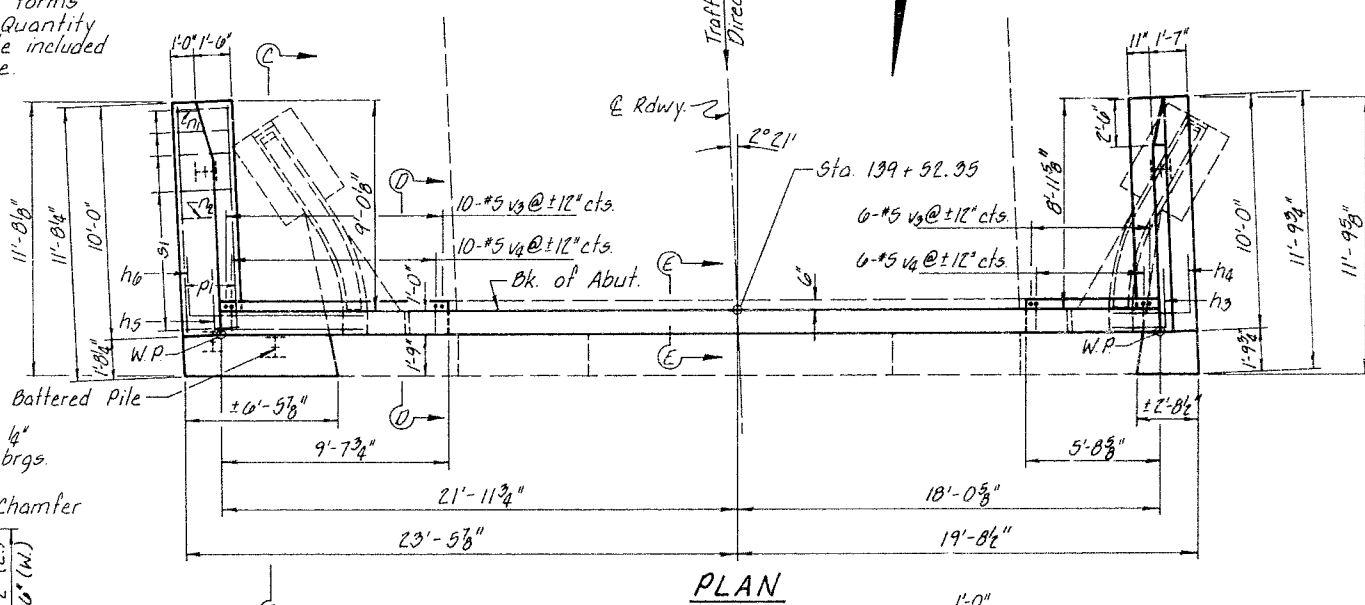


**WING WALL ELEVATION**



SECTION A-A

Hatched area to be poured after superstructure forms have been removed. Quantity of Class X Concrete included with Superstructure.



PLAN

**PILE DATA**

Type \_\_\_\_\_ Steel HPI0x42  
 No. Req'd \_\_\_\_\_ 4  
 Capacity \_\_\_\_\_ Drive to Refusal  
 Est. Length \_\_\_\_\_ 32 Feet/Pile

SECTION E-E

**BILL OF MATERIAL ~ S.E. ABUT.**

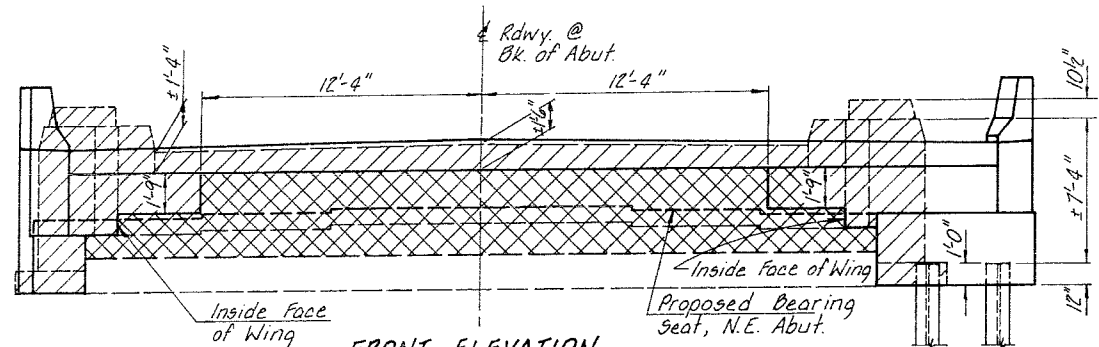
BAR	NO REQ'D	SIZE	LENGTH	SHAPE	
h	4	#5	39'-9"	---	
h1	5	#5	9'-5"	---	
h2	5	#5	5'-5"	---	
h3	5	#5	4'-9"	---	
h4	5	#5	8'-0"	---	
h5	5	#5	8'-9"	---	
h6	5	#5	10'-0"	---	
h7	10	#4	9'-9"	---	
h8	13	#3	9'-9"	---	
n1	12	#6	4'-8"	C	
n2	16	#6	10'-8"	---	
p	7	#7	6'-0"	---	
p1	12	#7	11'-6"	---	
p2	1	#7	2'-10"	---	
s1	22	#4	9'-5"	□	
s2	3	#4	9'-11"	□	
s3	7	#3	15'-11"	□	
v	4	#6	9'-6"	---	
v1	10	#5	4'-6"	---	
v2	12	#5	3'-0"	---	
v3	50	#5	2'-0"	---	
v4	10	#5	5'-3"	---	
v5	10	#5	5'-1"	---	
v6	22	#6	6'-1"	---	
v7	10	#6	6'-3"	---	
v8	6	#6	6'-1"	---	
Class X Concrete				Cu Yd	15.2
Reinforcement Bars				Pound	2,420
Expansion Bolts 3/4" x 12"				Each	0
Steel Piles HPI0x42				Lin Ft	128
Protective Coat				Sq Yd	8

**SOUTHEAST ABUTMENT**  
 FAI ROUTE 57  
 SECTION 199 HOR-3  
 KANKAKEE COUNTY  
 STATION 138+40.90

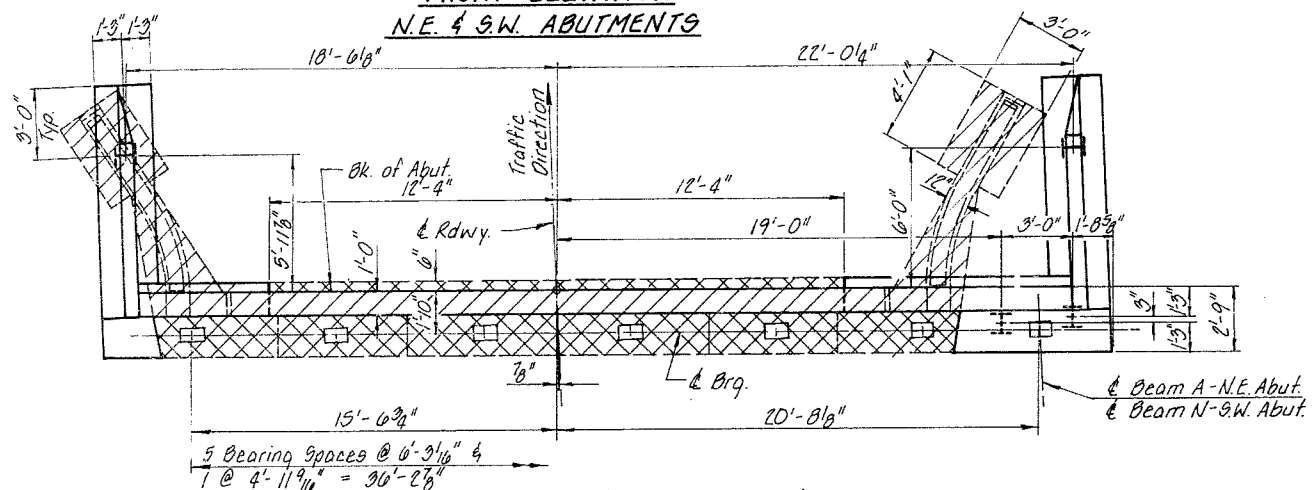
**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED J.O.U. CHECKED J.K.K.  
 DRAWN J.O. DATE 2-20-86 NO. 1000

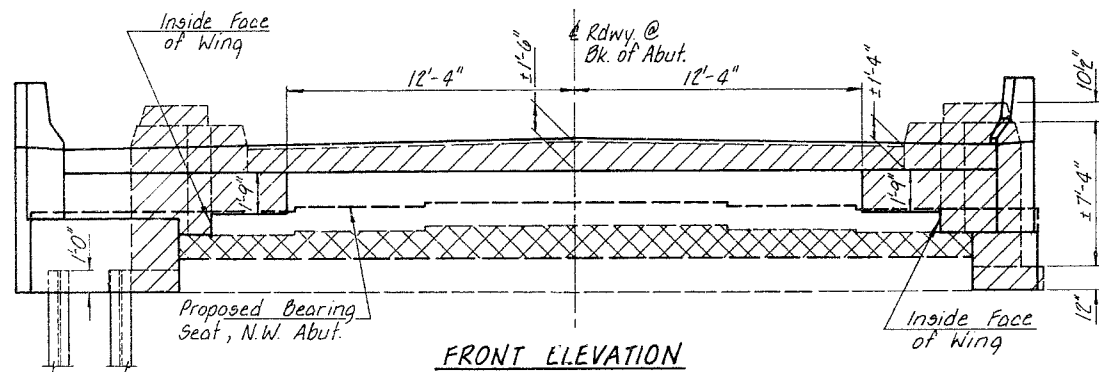
**GRINELL ROAD 17/19**



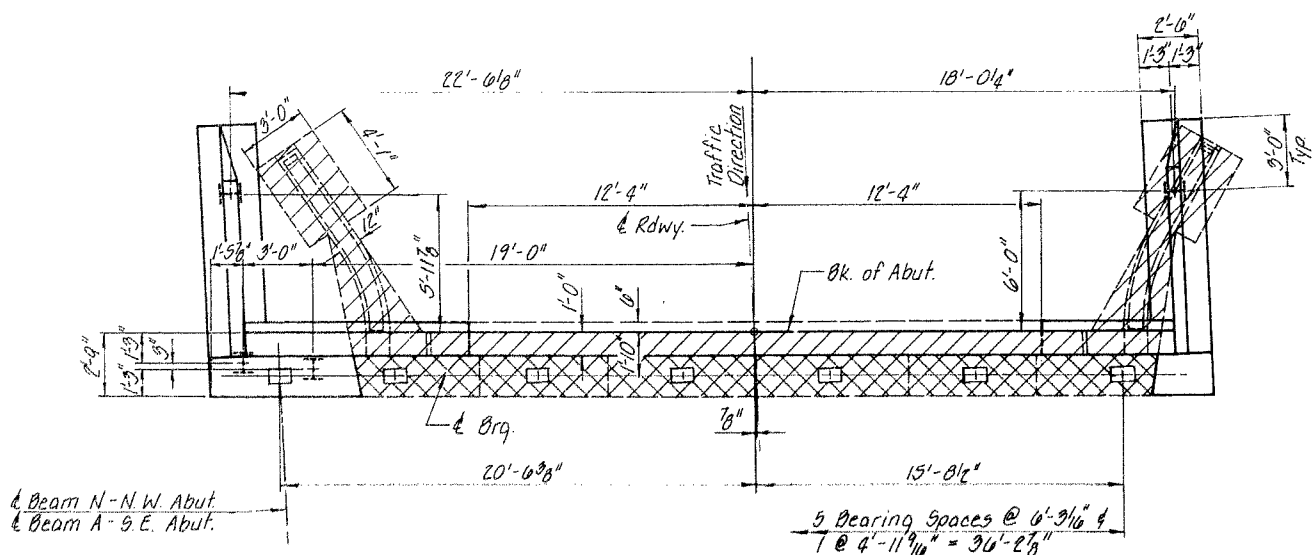
**FRONT ELEVATION  
N.E. & S.W. ABUTMENTS**



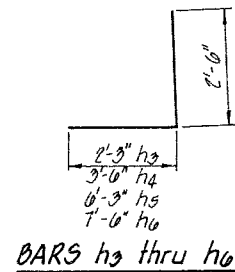
**PLAN - N.E. & S.W. ABUTMENTS**



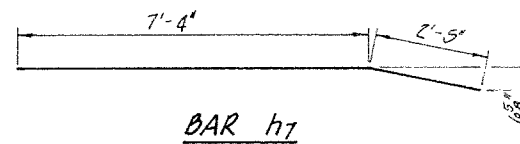
**FRONT ELEVATION  
N.W. & S.E. ABUTMENTS**



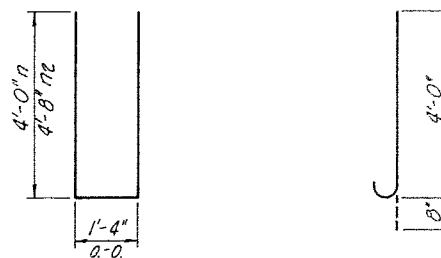
**PLAN - N.W. & S.E. ABUTMENTS**



**BARS h3 thru h6**

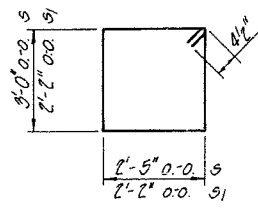


**BAR h7**

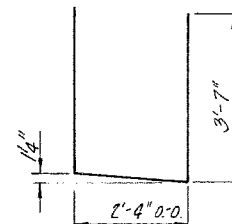


**BARS n4 & n2**

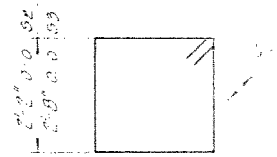
**BAR n1**



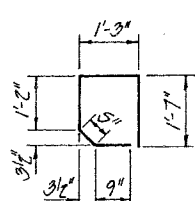
**BARS s8 & s1**



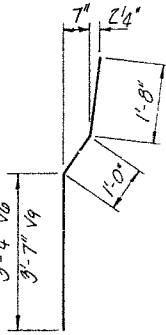
**BAR u**



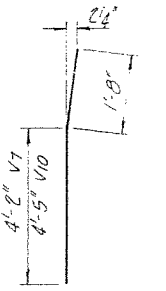
**BARS s2 & s3**



**BAR v4**



**BARS v6 & v9**



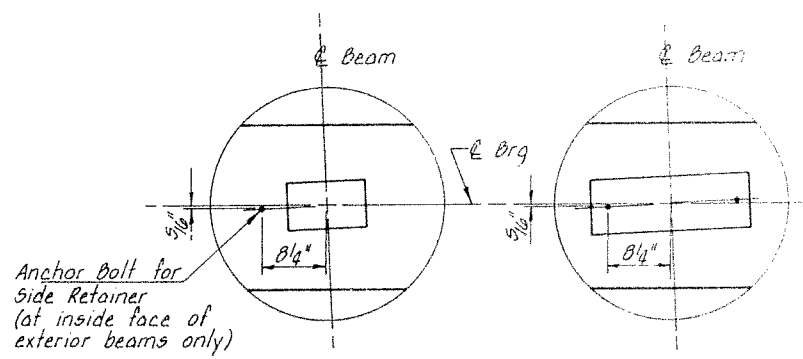
**BARS v7 & v10**

NOTE  
Hatched areas indicate Concrete Removal at both abutments shown.

Cross-hatched areas indicate Concrete Removal at north abutment only.

Approximate Quantities

N.W. Abutment	= 110 cu yds
N.E. Abutment	= 150
S.W. Abutment	= 85
S.E. Abutment	= 95
<b>Total</b>	<b>= 440 cu yds</b>

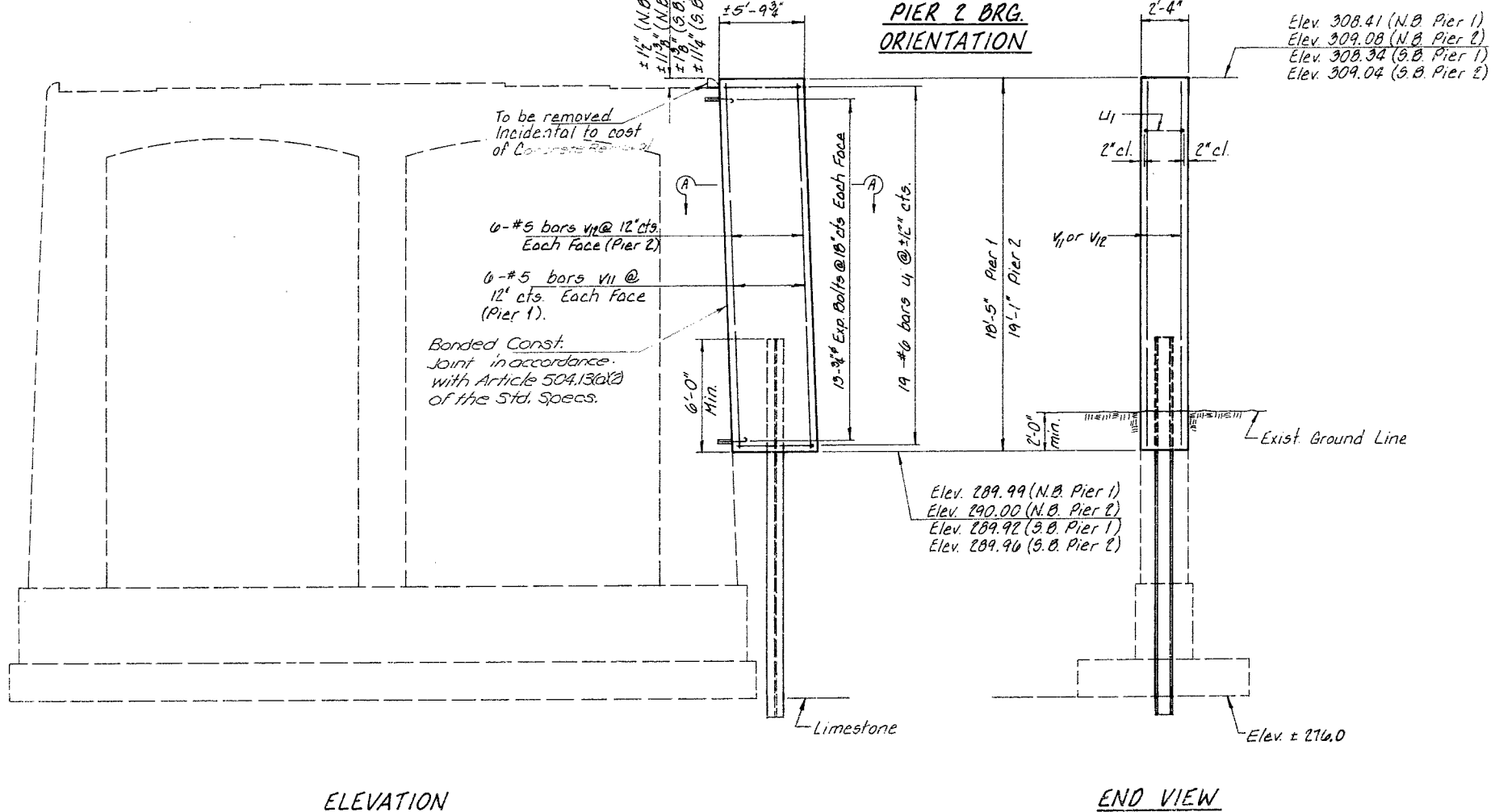
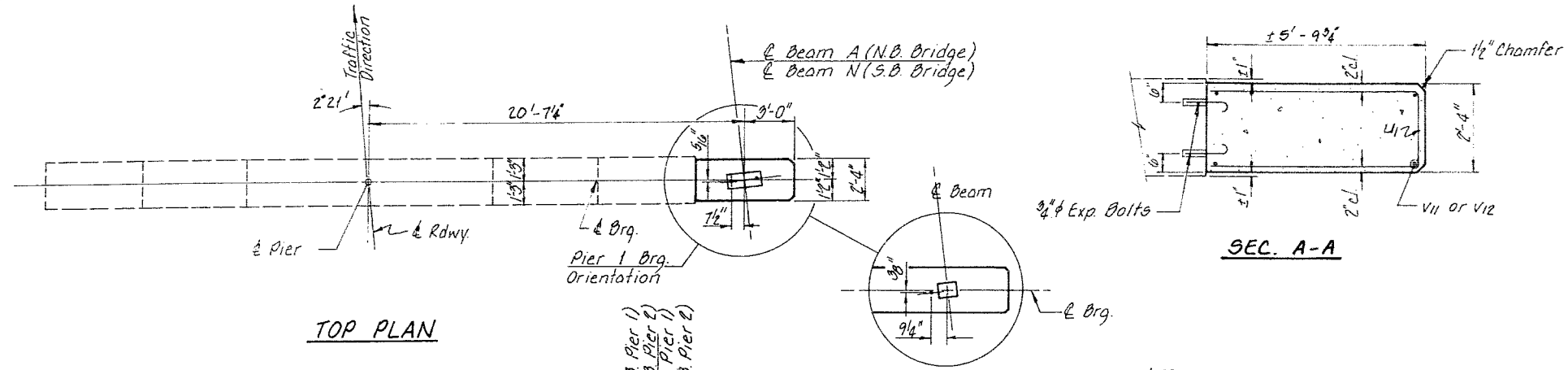


**N. ABUT. ORG. ORIENTATION**

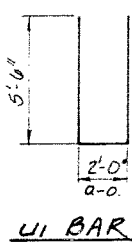
**S. ABUT. ORG. ORIENTATION**

Anchor Bolt for Side Retainer (at inside face of exterior beams only)

<b>ABUTMENT DETAILS</b>	
FAI ROUTE 57 SECTION 139 H&R-3 KANKAKEE COUNTY STATION 138+90.96	
COLLINS AND RICE CONSULTING ENGINEERS	
DESIGNED: EBL	CHECKED: JKK
DRAWN: JB	DATE: 2-20-84 NO. 1006

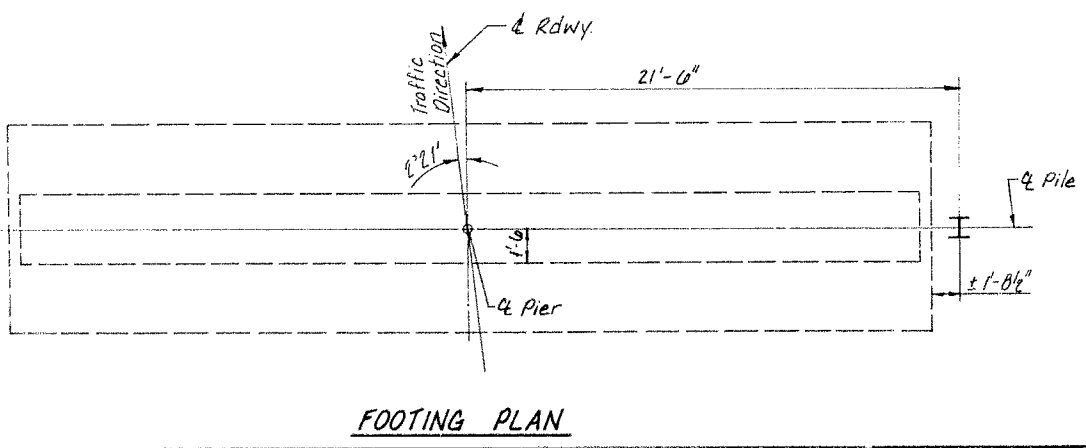


At Pier 1 bearings, any existing anchor bolts which are loose shall be removed. Any anchor bolts which are missing or those removed which are deemed by the Engineer to be unusable shall be replaced with new 1" anchor bolts. The anchor bolt shall then be epoxy grouted into its original location and depth in accordance with Special Provision B 9011. Cost incidental to Structural Steel.



**BILL OF MATERIAL - PIERS 1 & 2**

BAR	No. Req'd	SIZE	LENGTH	SHAPE
U1	70	#6	13'-0"	□
V11	24	#5	10'-3"	—
V12	24	#5	10'-11"	—
Class X Concrete		Cu Yd	97.7	
Reinforcement Bars		Pound	6,410	
Expansion Bolts 1" x 12"		Each	104	
Steel Piles HPI 2 x 53		Lin. Ft.	88	



**PILE DATA**

Type	Steel HPI 2 x 53
No. Req'd	4
Capacity	Drive to Refusal
Est. Length	22 Ft./Pile

**PIERS 1 & 2**  
 FAI ROUTE 57  
 SECTION 199 HDR-3  
 KANKAKEE COUNTY  
 STATION 198+90.96

**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED J.D.U. CHECKED J.K.K.  
 DRAWN K.G. DATE 2-20-86 NO. E006

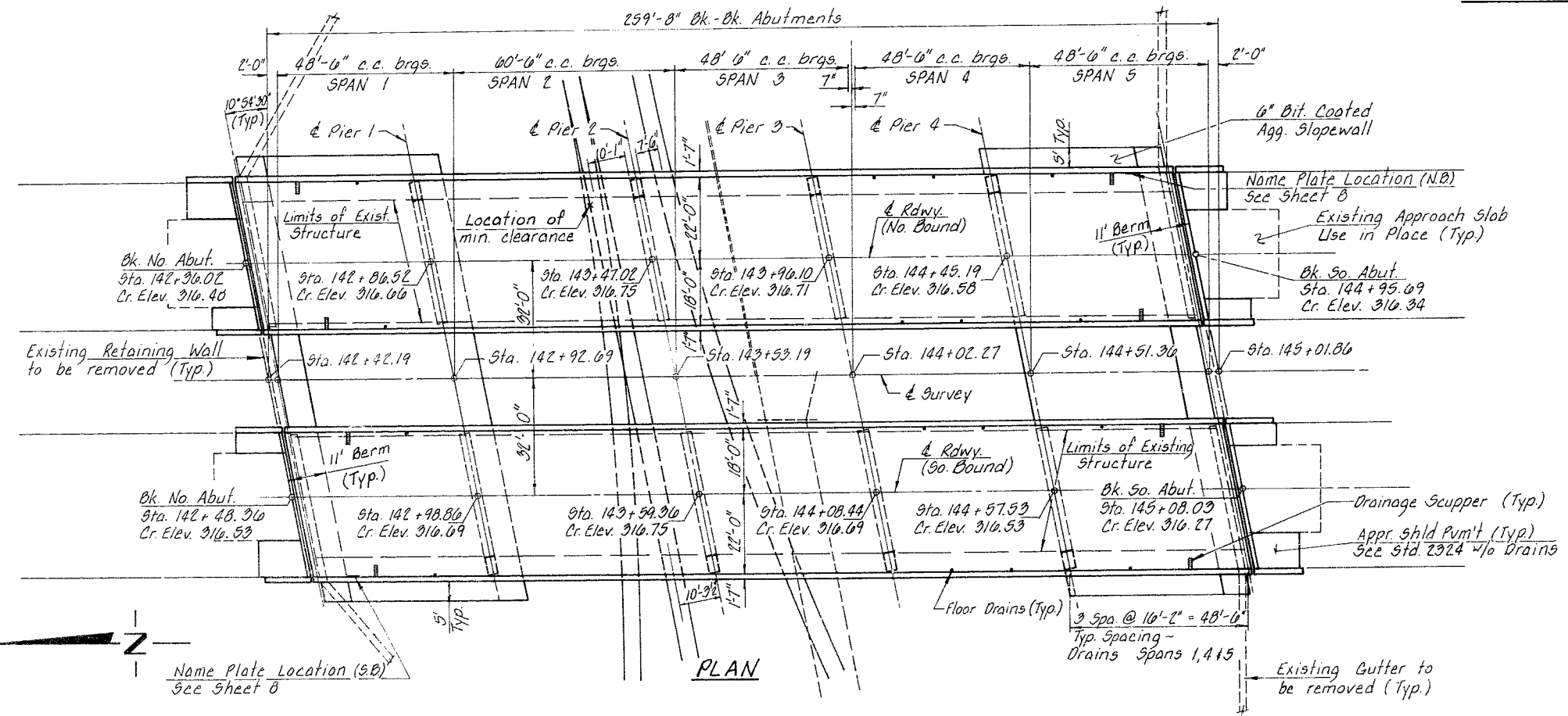
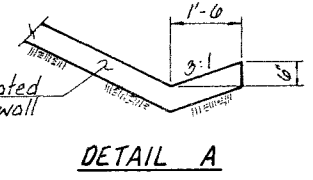
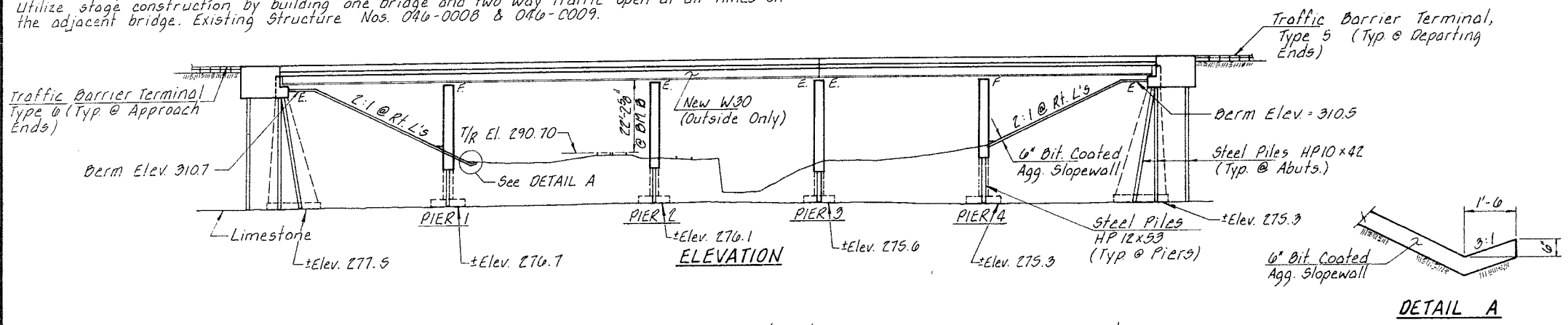
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 57	19AVBR	KANKAKEE	02	47
FED. ROAD DIST. NO. 7			ILLINOIS PROJECT	

Sheet 1 of 23

Benchmark ~ @ Sta. 142+43, Chiseled "□" on top of Retaining Wall, N. Abut. Elev. 316.39  
 Existing Structures: Sta. 143+72.02 built in 1955 as F.A. Rte. 20, Sec. 139-VB-VF.  
 Existing deck to be replaced and widened utilizing additional exterior girder as shown.  
 Widen and repair existing substructure. Utilize existing beams with minor repairs.  
 Utilize stage construction by building one bridge and two way traffic open at all times on the adjacent bridge. Existing Structure Nos. 046-0008 & 046-0009.

### INDEX OF SHEETS

- 1 GENERAL PLAN & ELEVATION
- 2 GENERAL NOTES & BILL OF MATERIAL
- 3-5 SLAB ELEVATIONS
- 6-8 SUPERSTRUCTURE
- 9-10 DRAINAGE DETAILS
- 11-12 STRUCTURAL STEEL
- 13-15 BEARING DETAILS & EXPANSION DEVICES
- 16 ANCHOR BOLT DETAILS
- 17-21 ABUTMENT DETAILS
- 22-23 PIER DETAILS



STATION 143+72  
 REBUILT 198- BY  
 STATE OF ILLINOIS  
 F.A. RT. 57 SEC. 19AVBR  
 F.A. PROJ. 1R-57-6(150)  
 LOADING H320 & ALT.  
 STR. NO. 046-0009

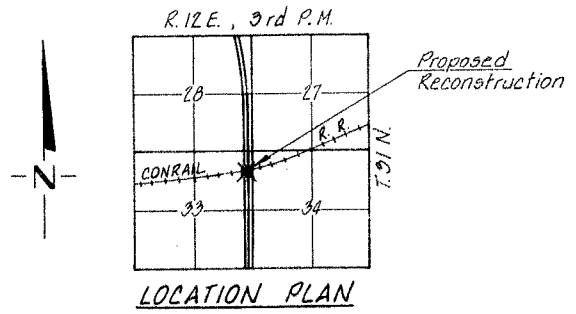
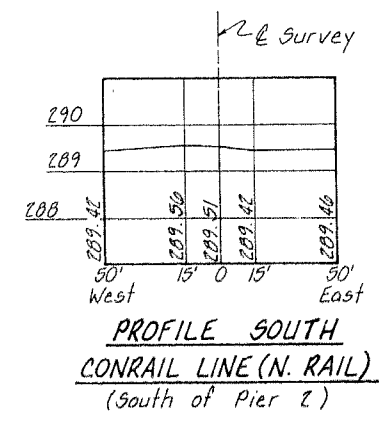
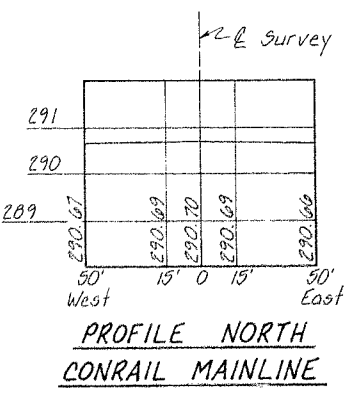
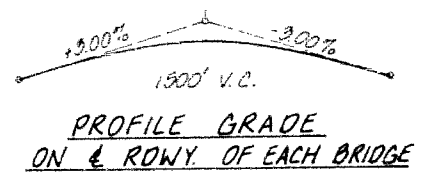
**LETTERING FOR NAME PLATE  
 SOUTHBOUND BRIDGE**  
 See Std. 2113

STATION 143+72  
 REBUILT 198- BY  
 STATE OF ILLINOIS  
 F.A. RT. 57 SEC. 19AVBR  
 F.A. PROJ. 1R-57-6(150)  
 LOADING H320 & ALT.  
 STR. NO. 046-0008

**LETTERING FOR NAME PLATE  
 NORTHBOUND BRIDGE**  
 See Std. 2113

Note: Existing name plates shall be cleaned and relocated next to new name plates. Cost shall be incidental to Name Plates. See sheet 8 for details.

Pi Sta. 143+53.19  
 Elev. 316.00



**DESIGN STRESSES**

$f'_c = 3,500$  psi.  
 $f_y = 60,000$  psi. (Reinforcement)  
 $f_s = 20,000$  psi. (Structural Steel - New)  
 $f_s = 18,000$  psi. (Structural Steel - Exist.)  
 $f_s = 1,400$  psi. Super; 800 psi. Sub (Exist.)  
 $f_s = 20,000$  psi. (Reinf. Bars - Exist.)

LOADING H320-44 & ALT. Military Loading  
 Design Specifications: 1983 AASHTO, 1984 Interims  
 25' sq. Ft. included in dead load for future wearing surface.



James K. Klein  
 Illinois Structural No. 4624

**GENERAL PLAN & ELEVATION**  
 FAI ROUTE 57 OVER CONRAIL R.R.  
 SECTION 19AVBR  
 KANKAKEE COUNTY  
 STATION 143+72

**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED Z.B.U.  
 DRAWN M.G.

CHECKED J.K.K.  
 DATE 2-20-86 NO. 8006

**GENERAL NOTES**

Fasteners shall be high strength bolts. Bolts  $\frac{3}{4}$ "  $\phi$ , open holes  $\frac{1}{16}$ "  $\phi$ , unless otherwise noted.

Calculated weight of new Structural Steel = 128,960 Pounds.

See Proposal for boring piles

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 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 new wide flange beams, all new splice plate material and new cover plates.

Reinforcement bars shall conform to the requirements of AASHTO M-53 Grade 60.

Plan dimensions and details relative to the 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 the work, however, the contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of  $\frac{1}{8}$  inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two  $\frac{1}{2}$ " 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 width by flange width shall be provided and placed as detailed.

Burning of rivet heads in removing existing rivets is not permitted.

Expansion bolts shall consist of approved expansion anchors, providing minimum certified proof load = 4,080 lbs, and  $\frac{3}{4}$ "  $\phi$  x 12" hooked bolts extending 9" into new concrete.

All existing top flange surfaces which shall be in contact with new concrete shall be cleaned to satisfy Article 509.06 (b) Method II. Cost of this work is incidental to Removal of Existing Concrete Deck. All other existing Structural Steel shall be cleaned by method I, cost included in "Cleaning and Painting Steel Bridge No. 2."

All contact surface areas of new and existing structural steel shall be free of paint or lacquer.

"The three coat lead and chromate free alkyd paint system shall be used for field painting of Existing Structural Steel. The color of the final finish coat shall be Interstate Green."

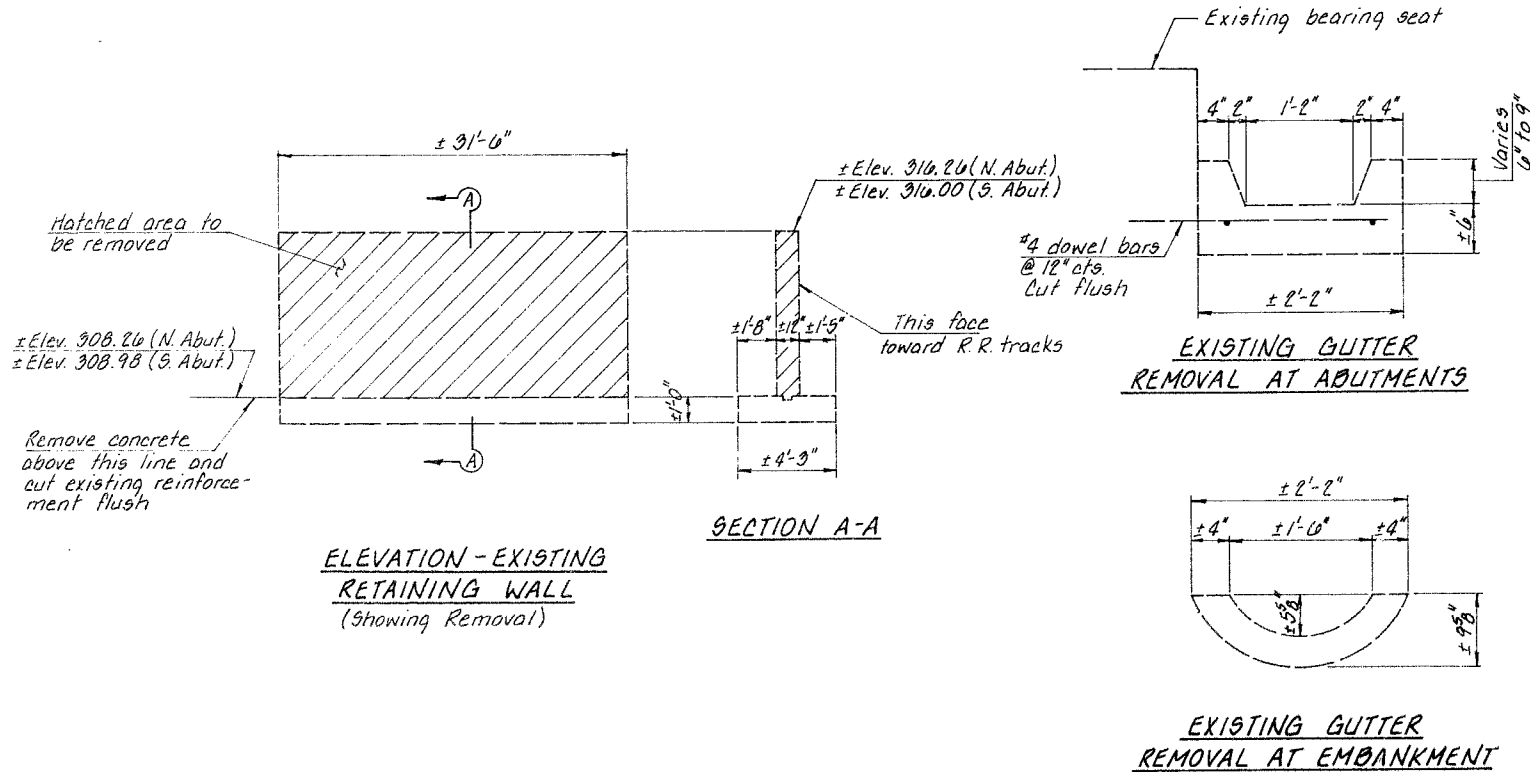
"The three coat lead and chromate free alkyd paint system shall be used for shop and field painting of New Structural Steel. The color of the final finish coat shall be Interstate Green."

The contractor shall drive one steel test pile in a permanent location at the North Abutment of the Southbound Bridge and one steel test pile in a permanent location at the South Abutment of the Northbound Bridge as directed by the Engineer before ordering the remainder of piles.

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	910	TOTAL
Concrete Removal	Cu. Yd.		54.1	54.1
Expansion Bolts $\frac{3}{4}$ " $\phi$ x 12"	Each		286	286
Class X Concrete	Cu. Yd.		225.7	225.7
Protective Coat	Sq. Yd.	2,700	40	2,740
Reinforcement Bars	Pound		20,920	20,920
Reinforcement Bars (Epoxy Coated)	Pound	160,020		160,020
Structural Steel	L. Sum	0.770		0.770
Cleaning and Painting Steel Bridge No. 2	L. Sum	1		1
Floor Drains	Each	10		10
Drainage Sumpers	Each	0		0
Steel Piles HPI0x42	Lin. Ft.		489	489
Steel Piles HPI2x59	Lin. Ft.		144	144
Test Pile Steel HPI0x42	Each		2	2
Remove Existing Concrete Deck No. 2	L. Sum	1		1
Neoprene Expansion Joint 2"	Lin. Ft.	80		80
Preformed Joint Seal 2"	Lin. Ft.	170		170
Elastomeric Bearing Assembly, Type I	Each	44		44
Elastomeric Bearing Assembly, Type II	Each	14		14
Bituminous Coated Aggregate Slope Wall	Sq. Yd.		1,540	1,540
Name Plates	Each	2		2
Repair Concrete Structures	Sq. Ft.		68	68
Jacking and Shoring Existing Beams	Each	48		48
Gutter Removal	Lin. Ft.		425	425
Class X Concrete Superstructure	Cu. Yd.	721.8		721.8
Concrete Retaining Wall Removal	Lin. Ft.		63	63
Structure Excavation	Cu. Yd.		160.4	160.4
Rivet Removal	Each		4032	4032
Structural Steel Repair	Lbs.	11,000		11,000

\* Includes Deck Surface.



**GENERAL NOTES & BILL OF MATERIAL**  
 FAI. ROUTE 57  
 SECTION 139VBR  
 KANKAKEE COUNTY  
 STATION 143+72

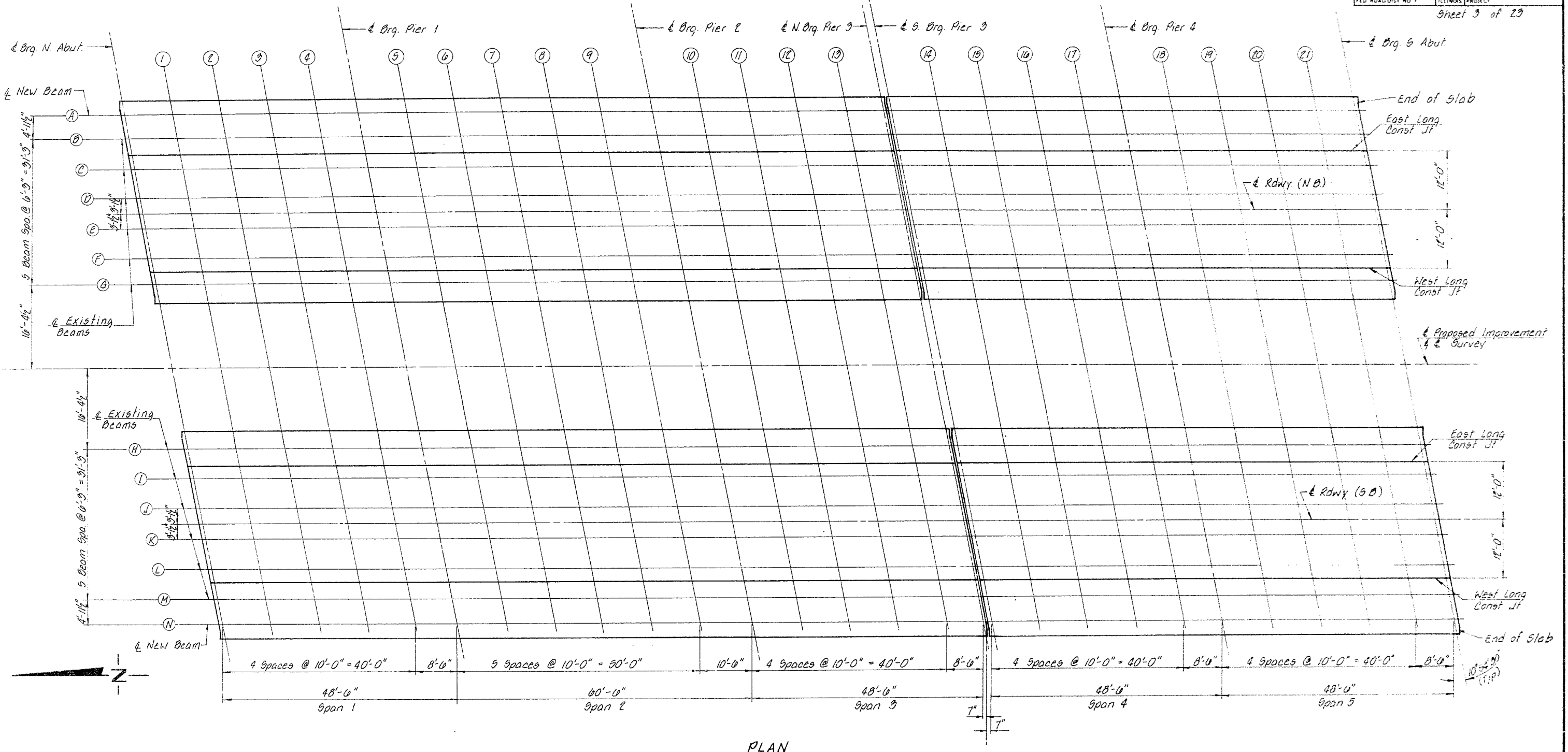
**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED: J.O.U.      CHECKED: J.K.K.  
 DRAWN: H.G.      DATE: 2-20-86 NO. 2006

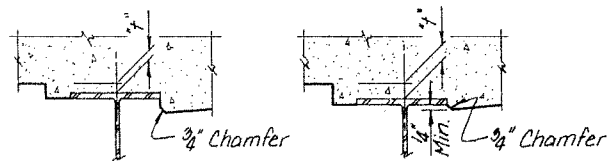
See Boring Note added from "River Removal and Replacement" has been changed to "River Removal" 1-19-89

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
FAI. 57	139VBR	KANKAKEE	82	49
FED ROAD DIST NO 1	ILLINOIS PROJECT			

Sheet 3 of 23



PLAN



At Minimum Fillet      At Maximum Fillet  
FILLET HEIGHT "f"

To determine "f": After all structural steel has been erected, elevations of the top flanges of beams shall be taken at intervals shown. These elevations, subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets 415, minus slab thickness, equals the fillet heights "f" above top flange of beams.

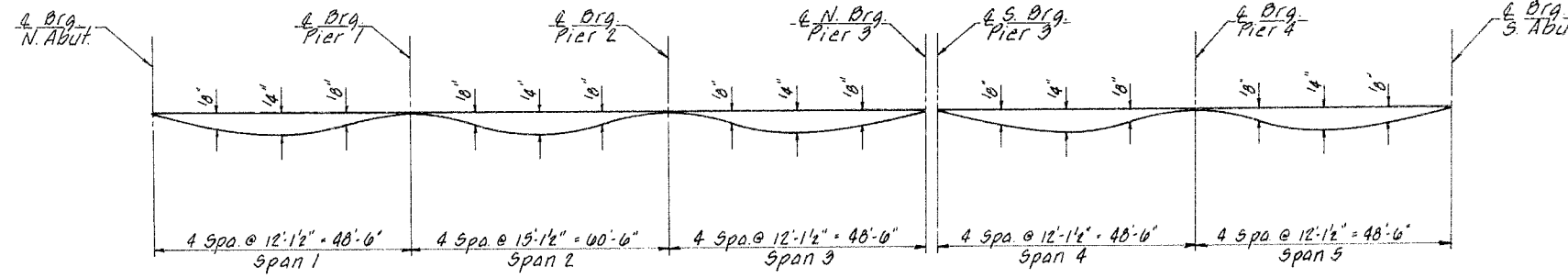
<b>SLAB ELEVATIONS</b> F.A.I. ROUTE 57 SECTION 139VBR KANKAKEE COUNTY STATION 143+72	
<b>COLLINS AND RICE</b> CONSULTING ENGINEERS	
DESIGNED ZBU DRAWN MG	CHECKED J.K.K. DATE 2-20-86 NO 2006



TABLE OF ELEVATIONS - NORTHBOUND

LOCATION	Bk. of N. Abut.	E. Brg. N. Abut.	SPAN 1				E. Brg. Pier 1	SPAN 2				E. Brg. Pier 2	SPAN 3				E. N. Brg. Pier 3	E. S. Brg. Pier 3	SPAN 4				E. Brg. Pier 4	SPAN 5				E. Brg. S. Abut.	Bk. of S. Abut.		
			1	2	3	4		5	6	7	8		9	10	11	12			13	14	15	16		17	18	19	20			21	
BEAM A	T	316.090	316.100	6.145	6.187	6.225	6.258	316.284	6.310	6.332	6.351	6.365	6.375	316.382	6.384	6.392	6.376	6.368	316.354	316.352	6.335	6.313	6.287	6.257	316.229	6.191	6.150	6.105	6.054	316.011	316.000
	Adj.	316.090	316.100	6.158	6.205	6.239	6.262	316.284	6.316	6.348	6.371	6.381	6.381	316.382	6.389	6.397	6.394	6.377	316.354	316.352	6.348	6.331	6.301	6.261	316.229	6.197	6.165	6.123	6.068	316.011	316.000

T - Theoretical elevation of top of slab.  
 Adj. - T adjusted for dead load deflection.



DEAD LOAD DEFLECTION DIAGRAM  
 (Includes weight of concrete only)

The above deflections are not for use in the field if the Engineer is working from the theoretical grade elevations adjusted for dead load deflections shown on this sheet and sheet 5.

Work this sheet with sheet 3

**SLAB ELEVATIONS**  
 F.A.I. ROUTE 57  
 SECTION 139VOR  
 KANKAKEE COUNTY  
 STATION 149+72

**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED: L.B.U.      CHECKED: J.R.K.  
 DRAWN: M.G.              DATE: 2-20-06 NO: 2006

TABLE OF ELEVATIONS ~ SOUTHBOUND

LOCATION	Bk. of N. Abut.	E Brg. N. Abut.	SPAN 1				E Brg. Pier 1	SPAN 2					E Brg. Pier 2	SPAN 3				E N. Brg. Pier 3	E S. Brg. Pier 3	SPAN 4				E Brg. Pier 4	SPAN 5				E Brg. S. Abut.	Bk. of S. Abut.	
			1	2	3	4		5	6	7	8	9		10	11	12	13			14	15	16	17		18	19	20	21			
BEAM H	T	316.254	316.263	6.303	6.340	6.372	6.400	316.421	6.442	6.459	6.472	6.481	6.486	316.487	6.484	6.476	6.465	6.450	316.434	316.431	6.408	6.381	6.350	6.315	316.282	6.239	6.193	6.142	6.088	316.038	316.026
	Adj.	316.254	316.263	6.316	6.358	6.386	6.404	316.421	6.448	6.475	6.492	6.497	6.492	316.487	6.489	6.491	6.483	6.461	316.434	316.431	6.421	6.399	6.364	6.319	316.282	6.245	6.208	6.160	6.100	316.038	316.026
BEAM I	T	316.376	316.385	6.424	6.460	6.492	6.520	316.540	6.561	6.577	6.590	6.598	6.603	316.603	6.599	6.592	6.580	6.564	316.548	316.545	6.521	6.494	6.462	6.427	316.393	6.350	6.303	6.252	6.197	316.147	316.135
	Adj.	316.376	316.385	6.437	6.478	6.506	6.524	316.540	6.567	6.593	6.610	6.614	6.609	316.603	6.604	6.607	6.598	6.575	316.548	316.545	6.534	6.512	6.476	6.431	316.393	6.356	6.318	6.270	6.209	316.147	316.135
BEAM J	T	316.479	316.487	6.527	6.562	6.593	6.621	316.641	6.661	6.677	6.689	6.697	6.701	316.701	6.696	6.688	6.676	6.660	316.643	316.640	6.616	6.588	6.556	6.520	316.486	6.442	6.395	6.343	6.288	316.238	316.225
	Adj.	316.479	316.487	6.540	6.580	6.607	6.625	316.641	6.667	6.693	6.709	6.713	6.707	316.701	6.701	6.703	6.694	6.671	316.643	316.640	6.629	6.606	6.570	6.524	316.486	6.448	6.410	6.361	6.300	316.238	316.225
BEAM K	T	316.530	316.539	6.578	6.613	6.644	6.671	316.691	6.711	6.726	6.738	6.746	6.750	316.749	6.745	6.736	6.724	6.707	316.690	316.688	6.663	6.635	6.603	6.566	316.532	6.489	6.441	6.389	6.333	316.283	316.270
	Adj.	316.530	316.539	6.591	6.631	6.658	6.675	316.691	6.717	6.742	6.758	6.762	6.756	316.749	6.750	6.751	6.742	6.718	316.690	316.688	6.676	6.653	6.617	6.570	316.532	6.495	6.456	6.407	6.345	316.283	316.270
BEAM L	T	316.391	316.399	6.438	6.472	6.503	6.529	316.548	6.567	6.582	6.593	6.600	6.603	316.602	6.597	6.588	6.575	6.557	316.540	316.537	6.512	6.483	6.450	6.413	316.378	6.334	6.285	6.233	6.176	316.125	316.113
	Adj.	316.391	316.399	6.451	6.490	6.517	6.533	316.548	6.573	6.598	6.613	6.616	6.609	316.602	6.602	6.603	6.593	6.568	316.540	316.537	6.525	6.501	6.464	6.417	316.378	6.340	6.300	6.251	6.188	316.125	316.113
BEAM M	T	316.280	316.288	6.326	6.360	6.390	6.415	316.434	6.453	6.467	6.478	6.484	6.487	316.485	6.480	6.470	6.456	6.439	316.420	316.418	6.392	6.363	6.329	6.292	316.257	6.212	6.163	6.110	6.053	316.001	315.989
	Adj.	316.280	316.288	6.339	6.378	6.404	6.419	316.434	6.459	6.483	6.498	6.500	6.493	316.485	6.485	6.485	6.474	6.450	316.420	316.418	6.405	6.381	6.343	6.296	316.257	6.218	6.178	6.128	6.065	316.001	315.989
BEAM N	T	316.180	316.188	6.226	6.259	6.289	6.314	316.333	6.351	6.365	6.375	6.382	6.384	316.382	6.376	6.366	6.351	6.333	316.315	316.312	6.286	6.256	6.222	6.184	316.149	6.104	6.054	6.001	5.944	315.892	315.879
	Adj.	316.180	316.188	6.239	6.277	6.303	6.318	316.333	6.357	6.381	6.395	6.398	6.390	316.382	6.381	6.381	6.369	6.344	316.315	316.312	6.299	6.274	6.236	6.188	316.149	6.110	6.069	6.019	5.956	315.892	315.879

T ~ Theoretical elevation of top of slab.  
Adj ~ T adjusted for dead load deflection.

Work this sheet with sheet 3

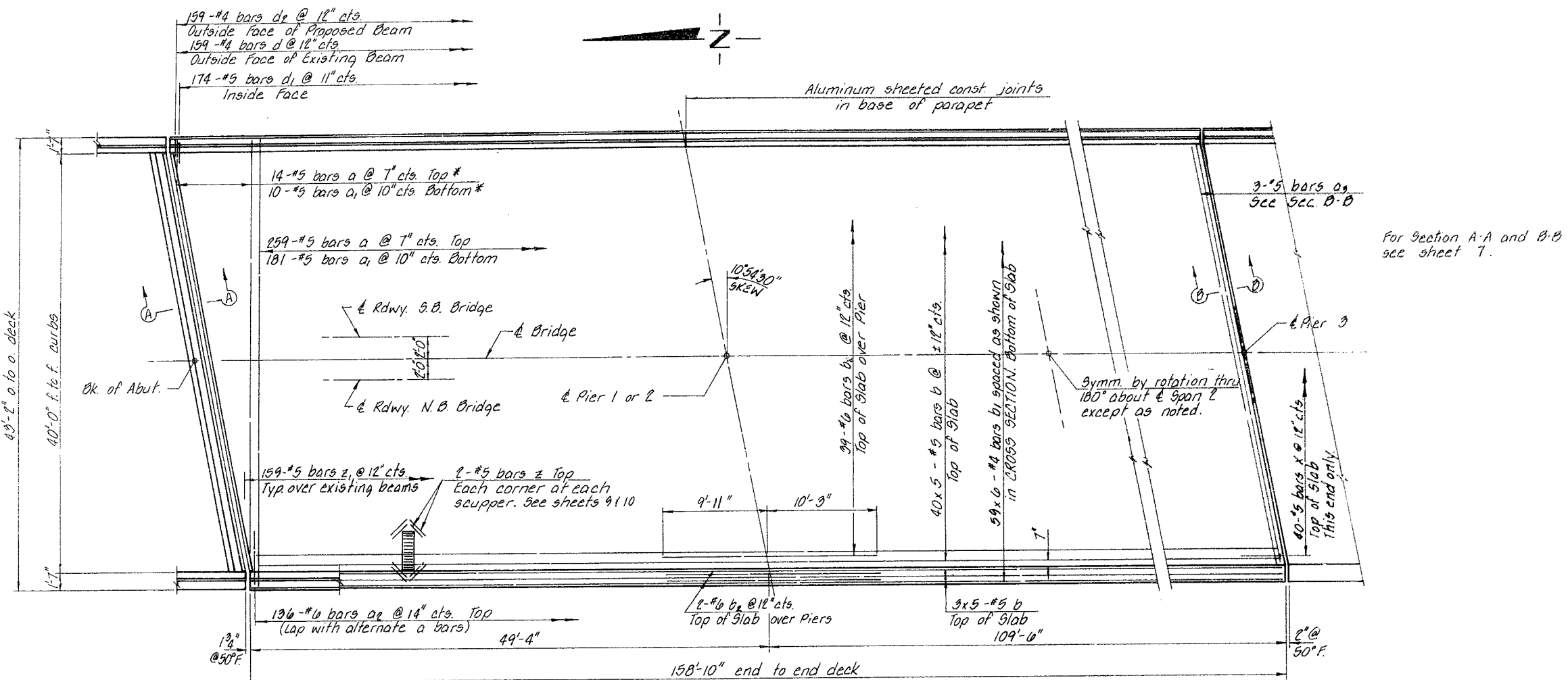
SLAB ELEVATIONS  
F.A.I. ROUTE 57  
SECTION 139VBR  
KANKAKEE COUNTY  
STATION 143+72

COLLINS AND RICE  
CONSULTING ENGINEERS

DESIGNED ZOU  
DRAWN MG

CHECKED JKK  
DATE 2-20-86 NO 1004

CONRAIL R.R.D. 5/23



HALF PLAN ~ UNIT I

\* Order a & a1 bars full length. Cut to fit skew and use remainder of bars in opposite end.

Note: Bars indicated thus 40 x 5 #5 etc indicates 40 lines of bars with 5 lengths per line.

MIN BAR LAPS

#4	1'-5"
#5	1'-9"
#8	2'-6"

BILL OF MATERIAL ~ SUPERSTRUCTURE

BAR	NO	SIZE	LENGTH	SHAPE
a	884	#5	41'-6"	
a1	820	#5	50'-0"	
a2	884	#5	5'-10"	
a3	12	#5	43'-3"	
b	736	#5	33'-10"	
b1	1180	#5	27'-8"	
b2	172	#5	20'-2"	
b3	80	#5	19'-8"	
b4	48	#5	7'-7"	
b5	48	#5	7'-7"	
b6	44	#5	21'-10"	
b7	44	#5	21'-0"	
b8	10	#5	23'-4"	
b9	10	#5	23'-0"	
d	516	#4	8'-8"	
d1	1,120	#5	3'-11"	
d2	516	#4	8'-8"	
e	144	#4	7'-7"	
e1	288	#4	13'-5"	
e2	72	#4	14'-6"	
x	160	#5	4'-1"	
z	64	#5	2'-0"	
z1	3,084	#5	3'-1"	

Class X Concrete  $W_c = 150$  lb/cu ft 721.8  
 Reinf Bars (Epoxy Coated) Pound 100,020  
 Name Plates Each 2  
 Protective Coat Sq. ft 2,100

All reinforcement bars used in the superstructure shall be epoxy coated

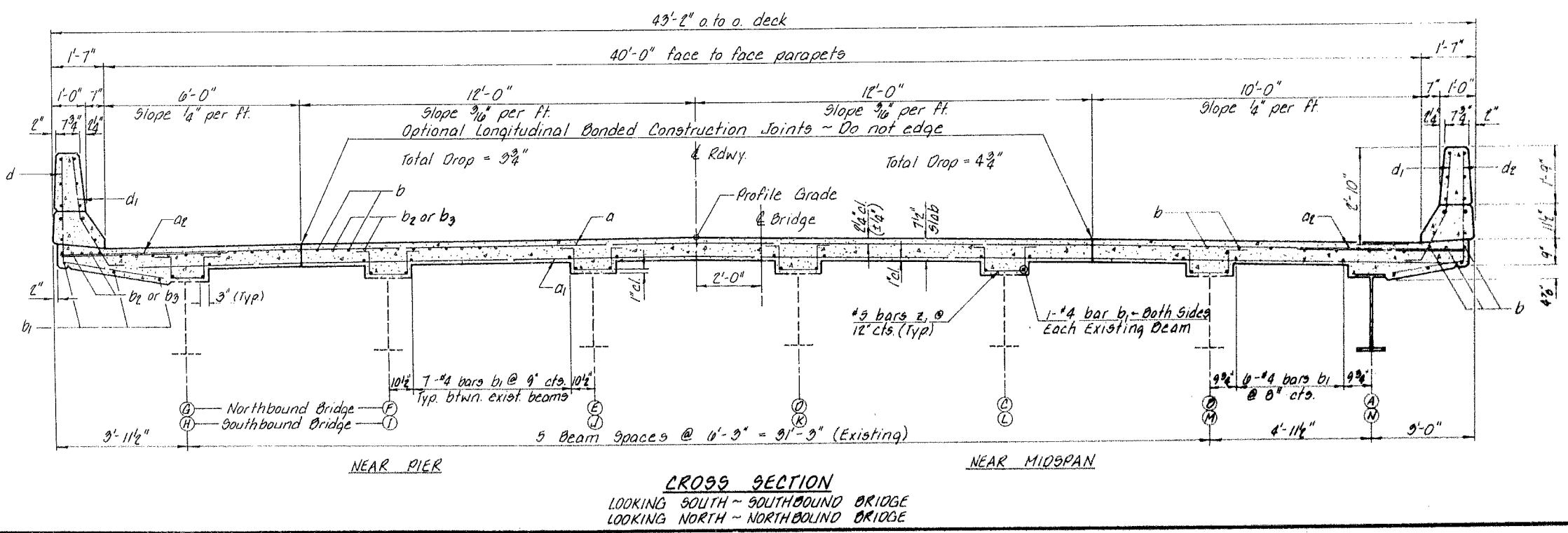
Work this sheet with sheets 7 & 8

**SUPERSTRUCTURE**  
 F.A.I. ROUTE 57  
 SECTION 139 VOR  
 KANKAKEE COUNTY  
 STATION 143+72

COLLINS AND RICE  
 CONSULTING ENGINEERS

DESIGNED ZOU CHECKED JKK  
 DRAWN H.G. DATE 1-20-06 NO 1006

CONRAIL R.R.D. 6/23

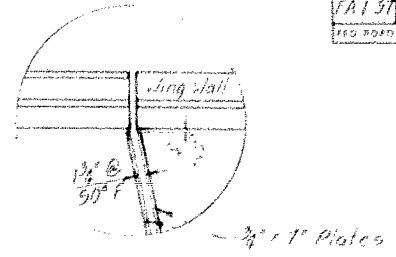
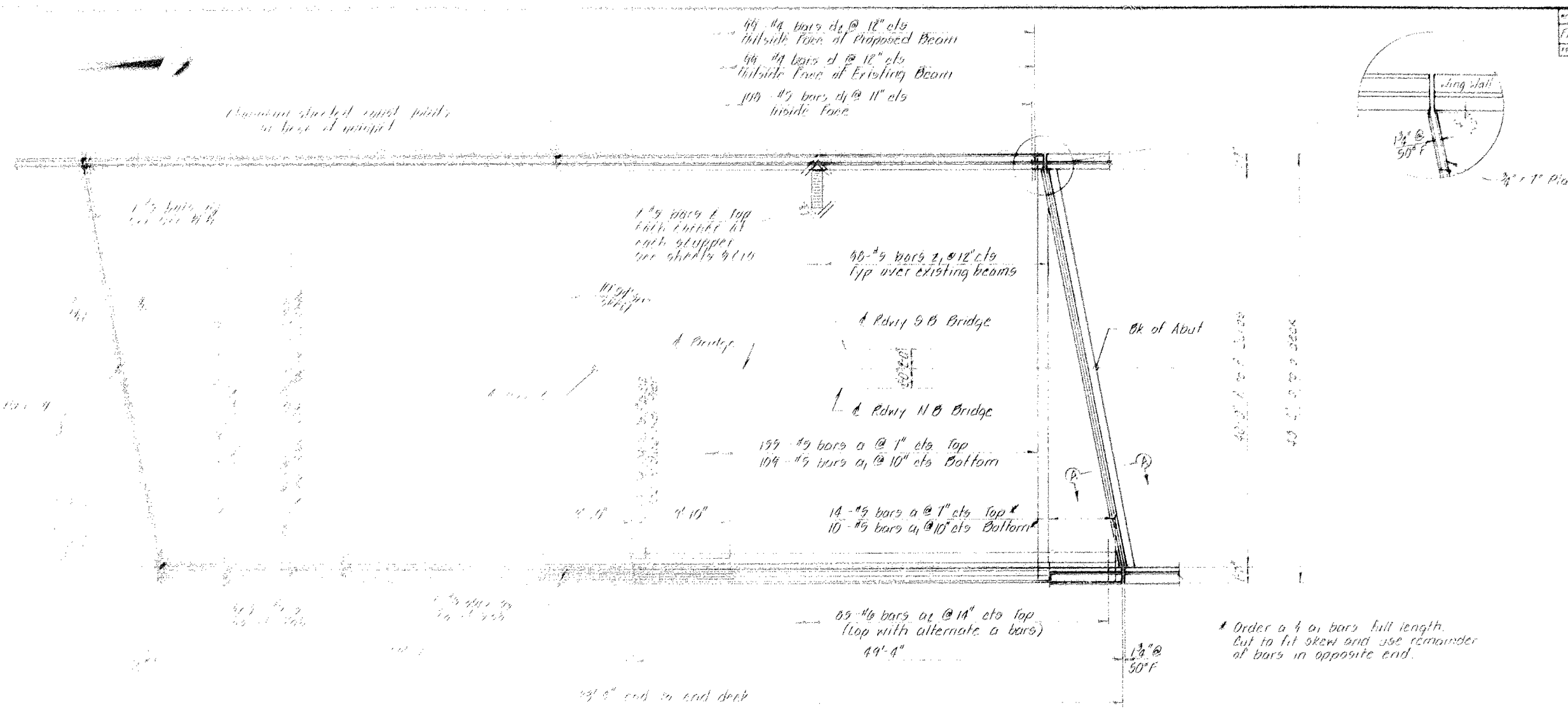


CROSS SECTION

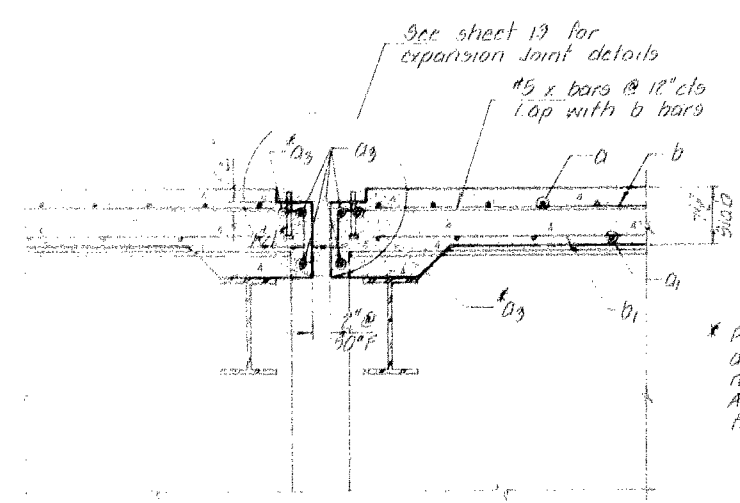
LOOKING SOUTH - SOUTHBOUND BRIDGE  
 LOOKING NORTH - NORTHBOUND BRIDGE

SHEET NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 5T 199VBR		KANKAKEE	02	22
I&S ROAD DIST. NO. 1		ST. NO. 143+72		

Sheet 7 of 22



PLAN - UNIT II



SECTION 0-0

Note: Bars indicated thus 40 x #9 etc indicates 40 lines of bars with 9 lengths per line.

\* Place a3 bars in back of anchor bolts as shown if required to maintain 1" (±0.5") Anchor bolts should be tied to a3 bars.

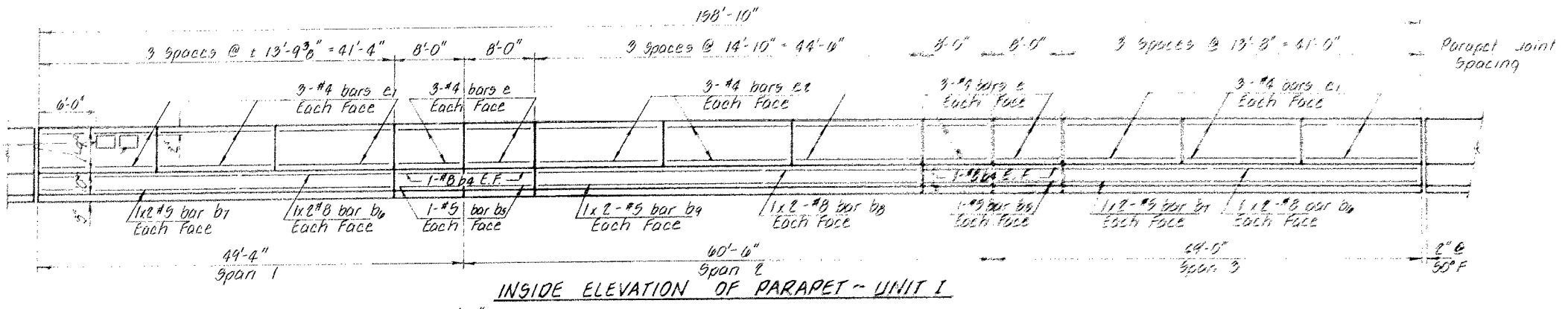
Work this sheet with sheets 6 & 8

**SUPERSTRUCTURE**  
 FAI ROUTE 5T  
 SECTION 199VBR  
 KANKAKEE COUNTY  
 STATION 143+72

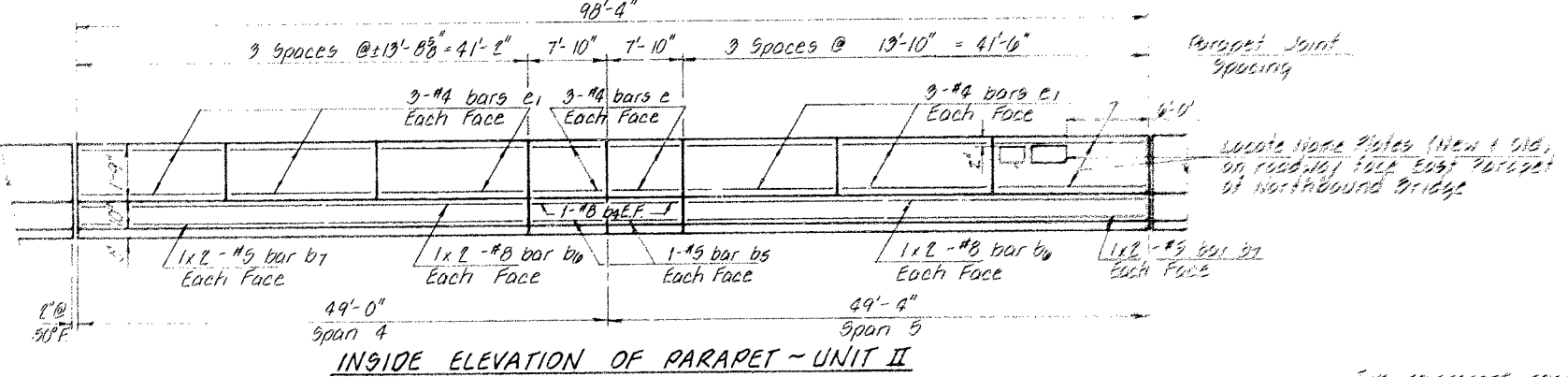
**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DRAWN: Z.B.U. CHECKED: J.K.K.  
 DATE: 2-20-86

Locate Name Plates (New & Old) on Roadway Face of West Parapet Southbound Bridge



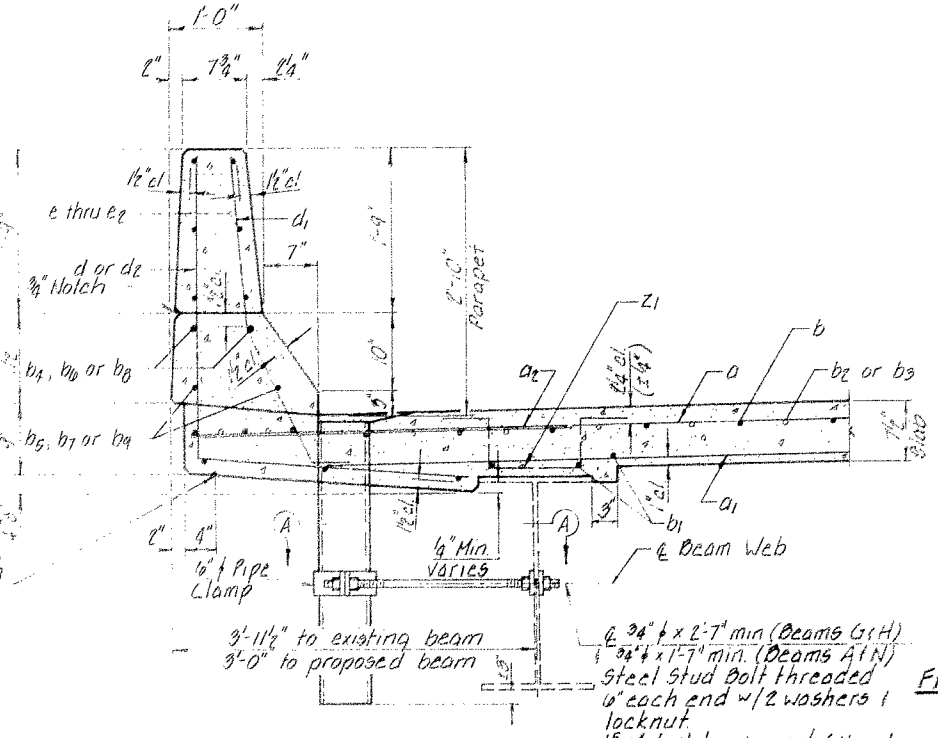
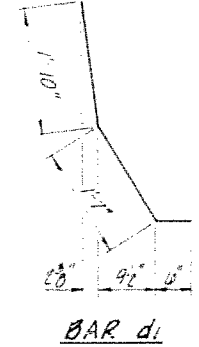
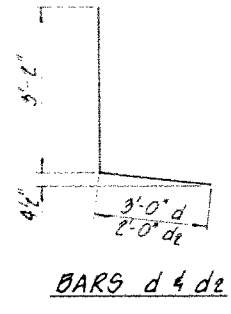
INSIDE ELEVATION OF PARAPET - UNIT I



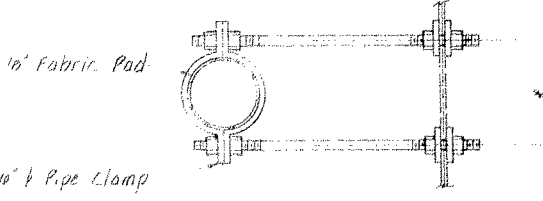
INSIDE ELEVATION OF PARAPET - UNIT II

MIN BAR LAP

#5	1'-8"
#3	2'-4"

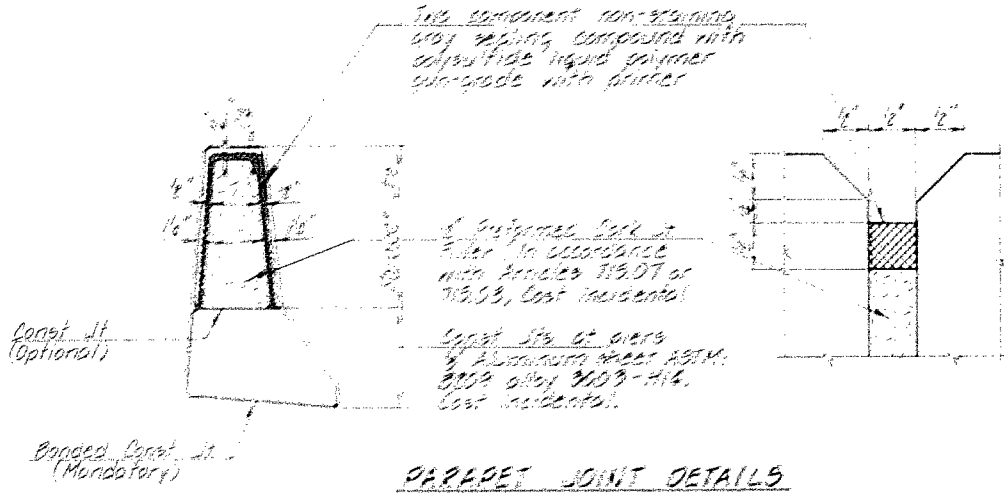


SECTION THRU PARAPET



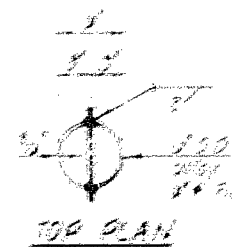
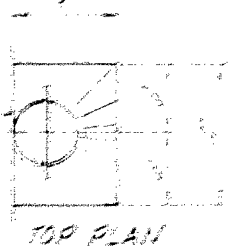
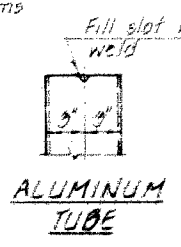
SECTION A-A

\* Dimension as required by Pipe Clamp

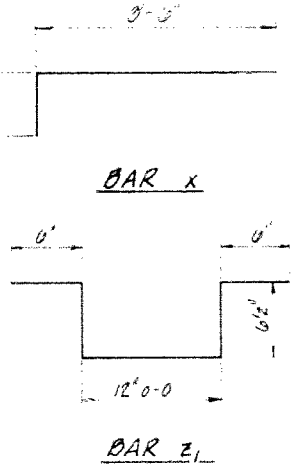


PARAPET JOINT DETAILS

1/2" x 3" Aluminum Bar  
ASTM: B211 alloy  
4041-T6



Notes:  
Fiberglass pipe shall conform to ASTM: D2996, with short-time rupture strength hoop tensile stress of 30000 psi minimum. The surface of the fiberglass pipe shall be free of bond inhibiting agents.  
The exterior surfaces of the Floor Drains shall be painted with the painting 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 Spec SSPC-SP1 & SSPC-PAINT 27 prior to painting.

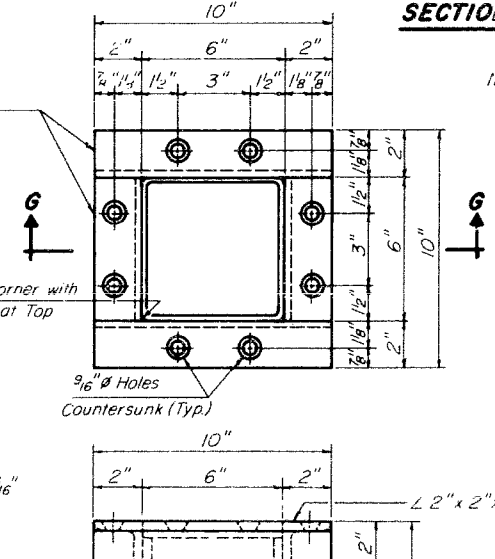
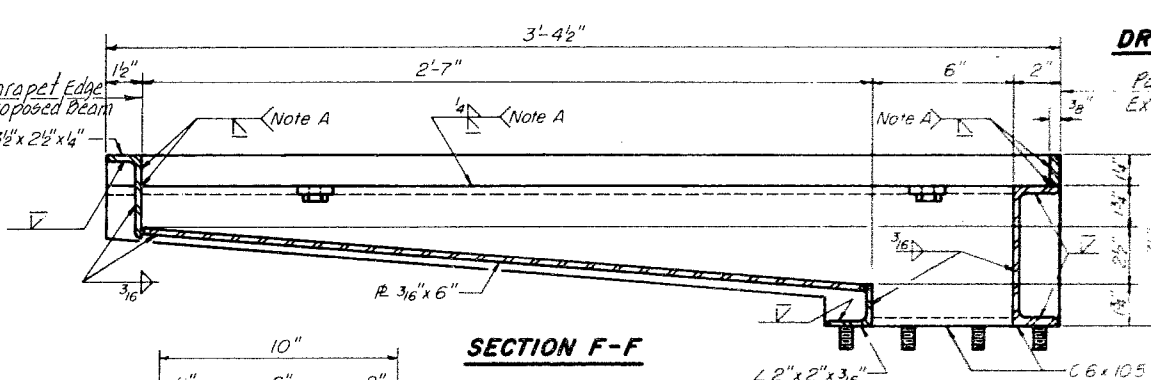
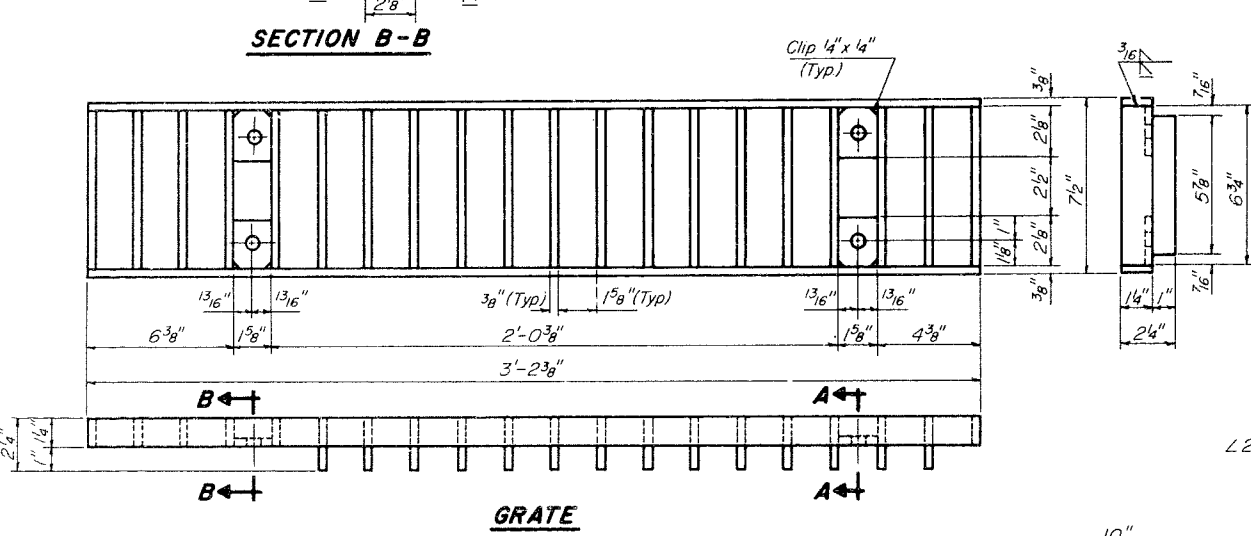
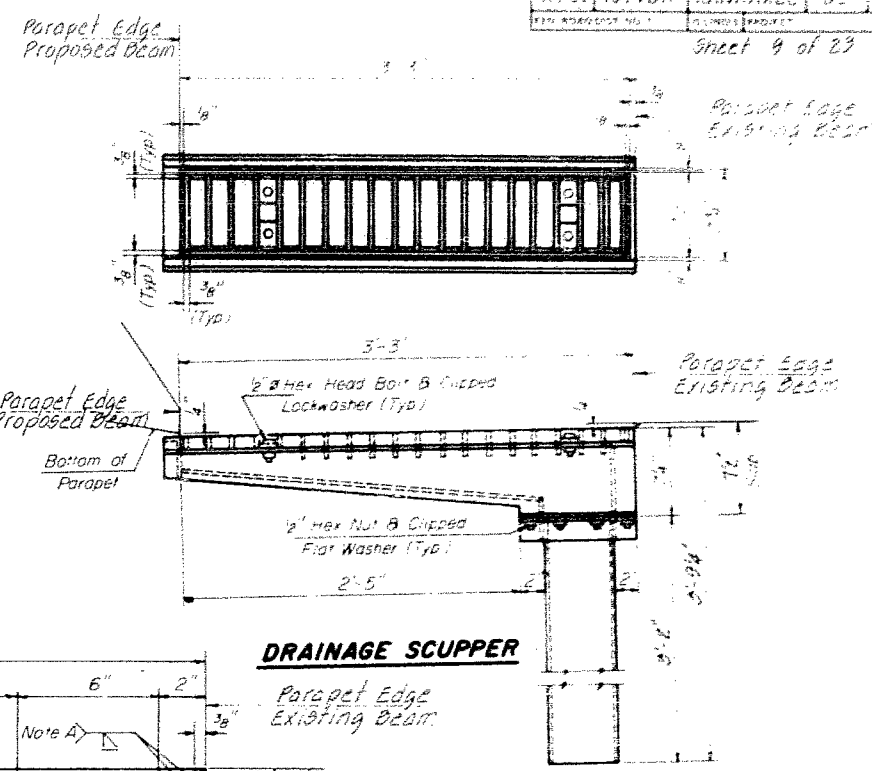
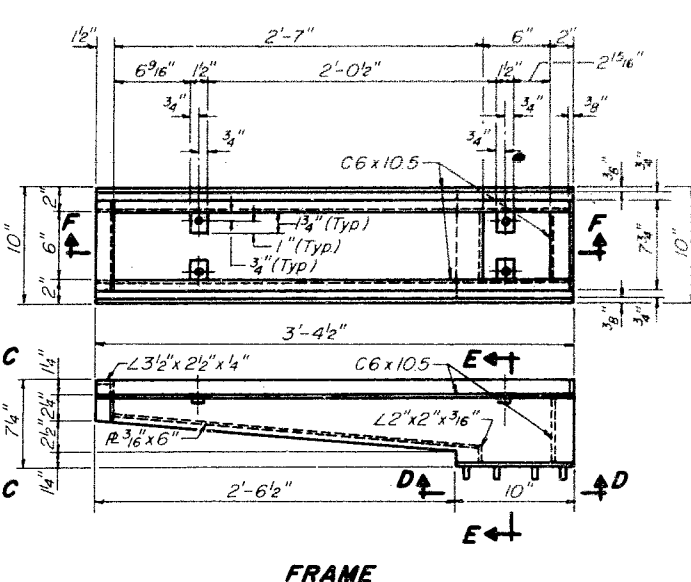
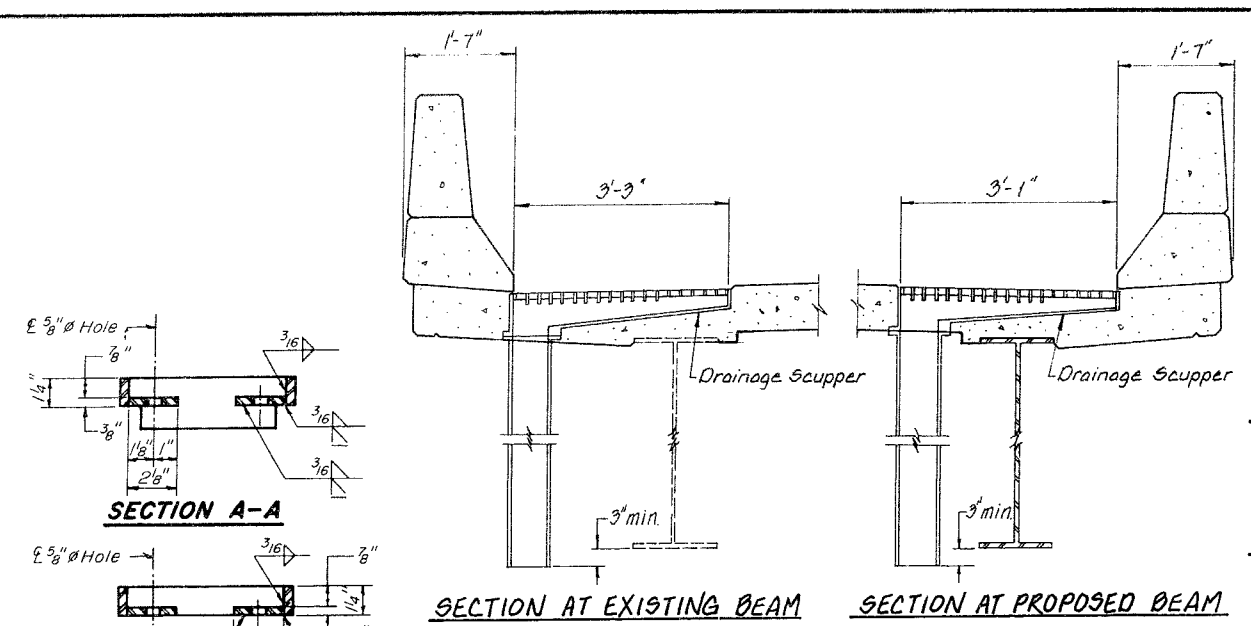


All reinforcement bars on this sheet shall be epoxy coated  
Work this sheet with sheets 6 & 7.

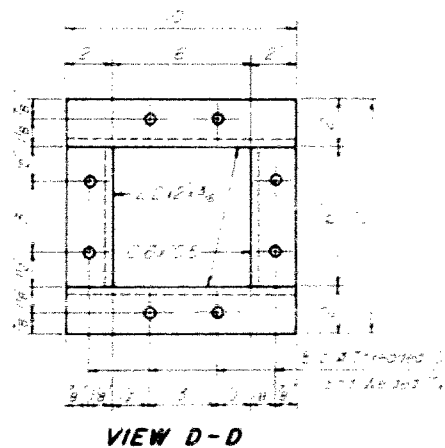
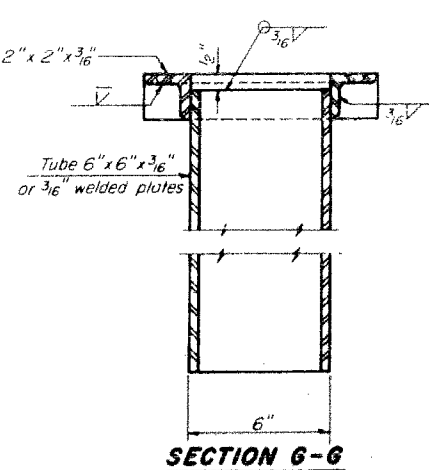
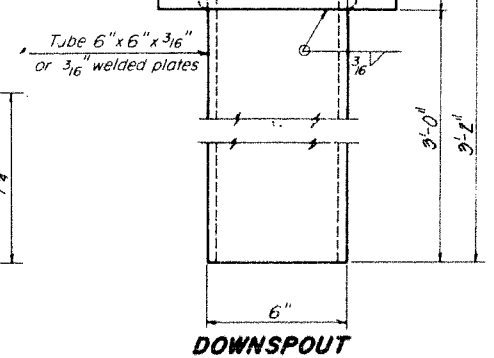
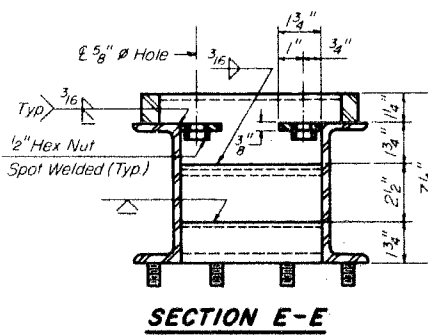
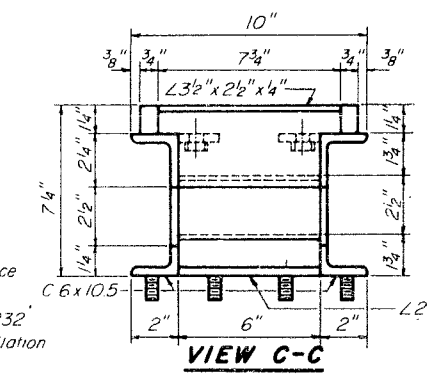
**SUPERSTRUCTURE DETAILS**  
FAI ROUTE 57  
SECTION 139 VOR  
KANKAKEE COUNTY  
STATION 149+72

**COLLINS AND RICE**  
CONSULTING ENGINEERS

DESIGNED Z.B.U. CHECKED J.K.K.  
DRAWN M.G. DATE 2-20-86 NO 1006



Notes  
 Hollow structural steel tubing shall conform to the requirements of ASTM designation A-500 Grade B, or A-501 Structural Steel Tubing  
 All other shapes, plates and bars shall conform to the requirements of AASHTO M 183.  
 Bolts, studs, washers and nuts shall conform to the requirements of ASTM A-307.  
 The Grate, Frame, and Downspout shall be galvanized after shop fabrication in accordance with AASHTO M-111 & ASTM A-385  
 All bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232.  
 Cost of the Grate, Frame, Downspout, Bolts, Washers and Nuts including complete installation of Scupper shall be paid for at the unit bid price for "DRAINAGE SCUPPERS"

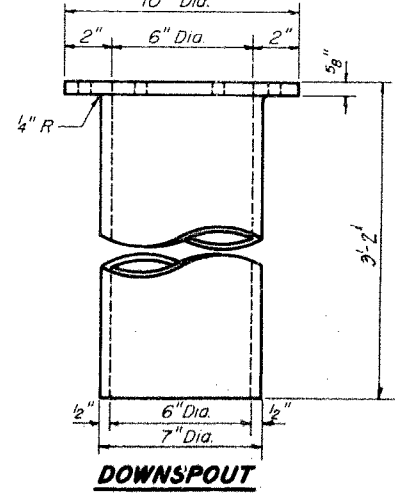
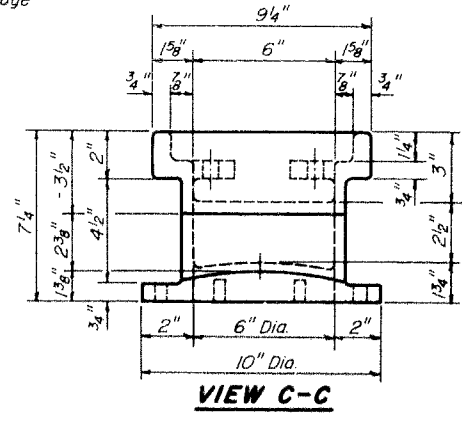
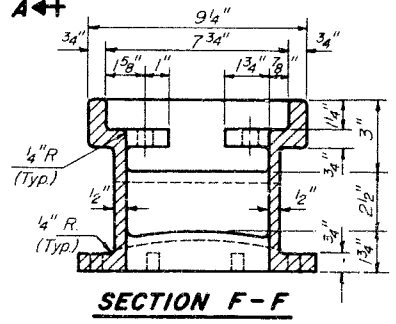
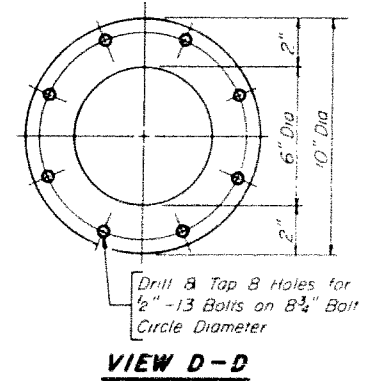
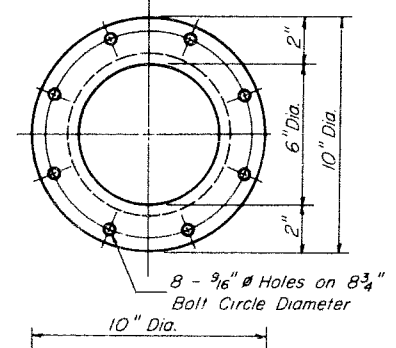
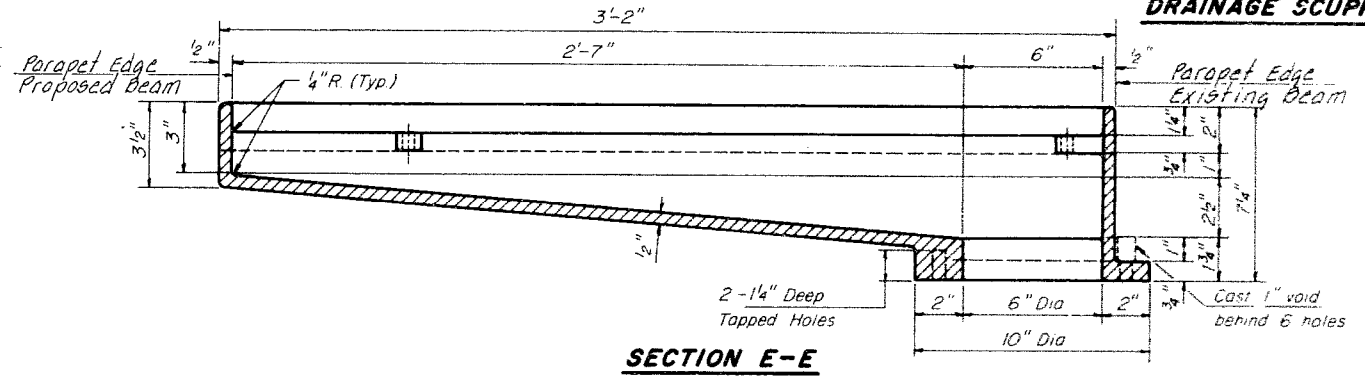
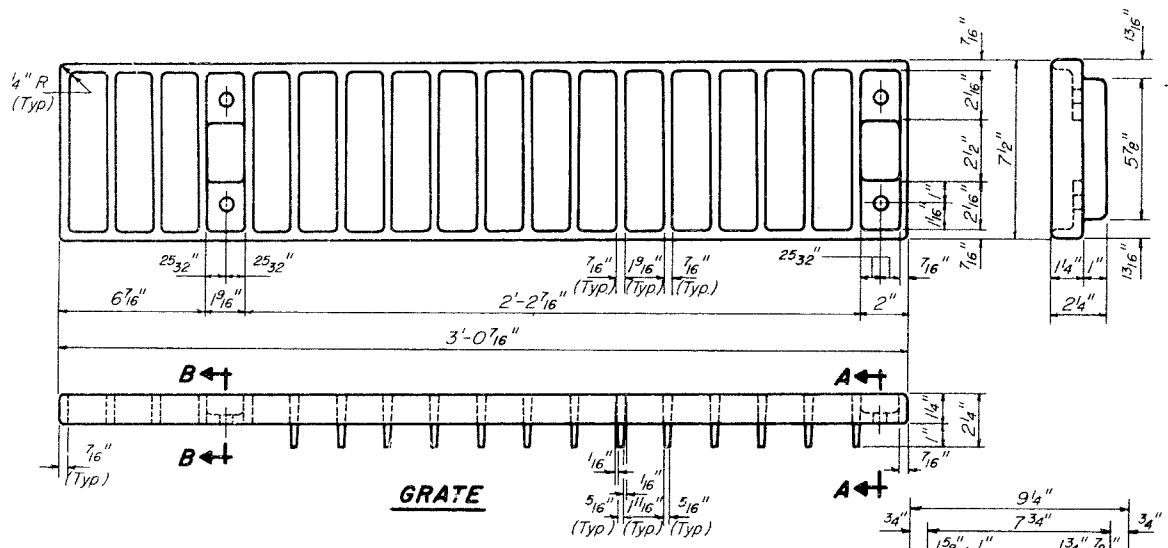
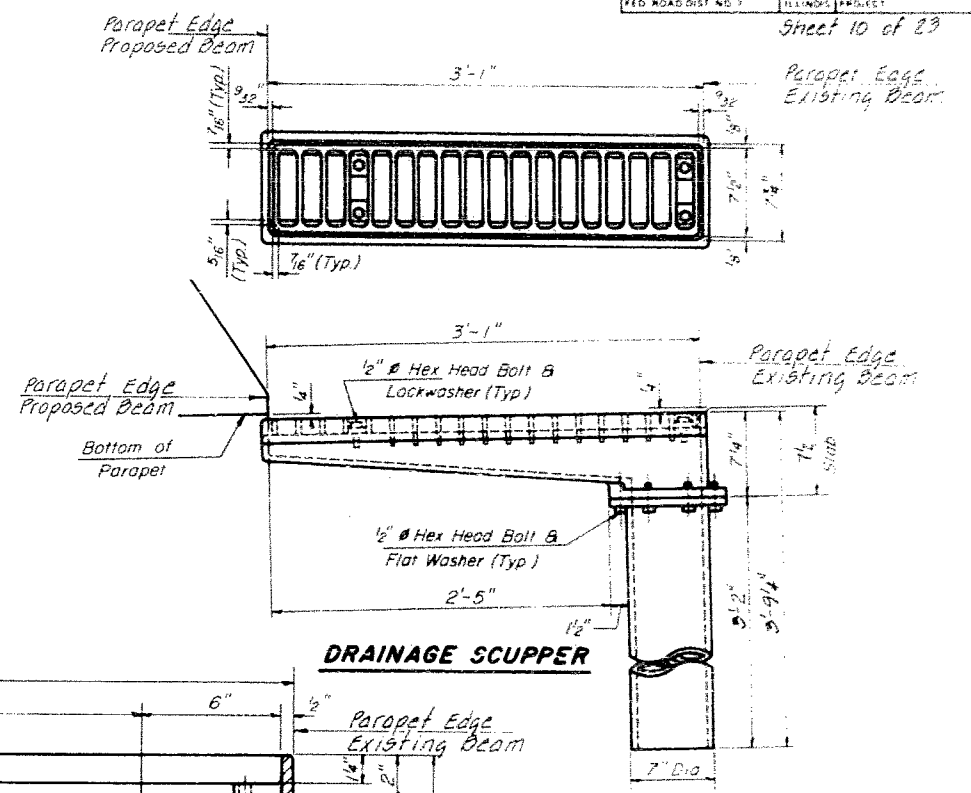
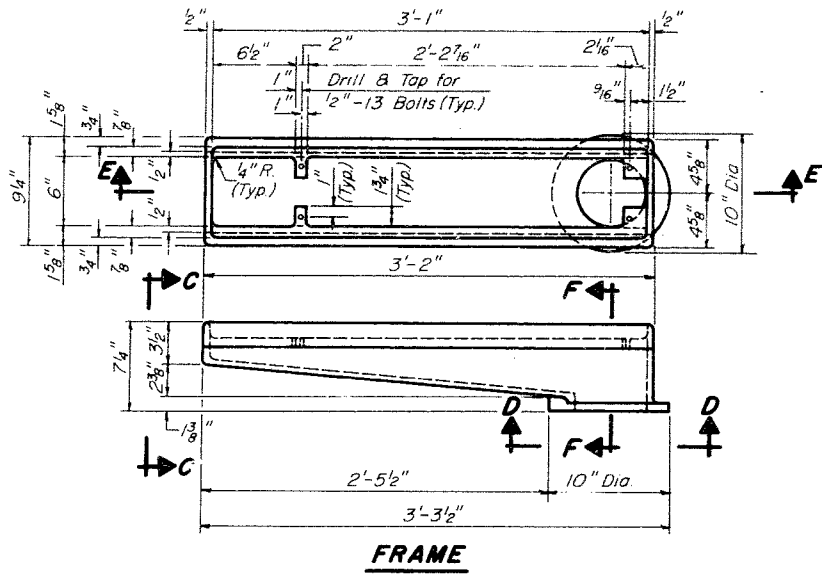
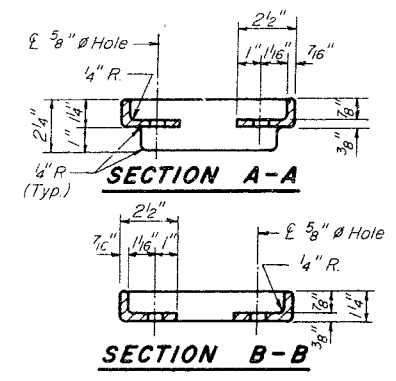


See sheet 1 for locations

**STEEL DRAINAGE SCUPPER**  
 FAI ROUTE 57  
 SECTION 139VOR  
 KANKAKEE COUNTY  
 STATION 143+72

**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED L.B.U. CHECKED J.K.K.  
 DRAWN M.G. DATE 2-20-86 BY 2006



Notes

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M-105, Class 30

Bolts and washers shall conform to the requirements of A.S.T.M.: A-307.

All bolts and washers shall be galvanized in accordance with A.A.S.H.T.O.: M-232.

As an alternate bolts and washers may be stainless steel conforming to the requirements of A.S.T.M.: A-193, Type 304.

Cost of the Grate, Frame, Downspout, bolts and washers including complete installation of Scupper shall be paid for at the unit bid price for "DRAINAGE SCUPPERS"

The Contractor may use at his option steel drainage scuppers or cast iron drainage scuppers

See sheet 9 for Section of Beams  
See sheet 1 for location.

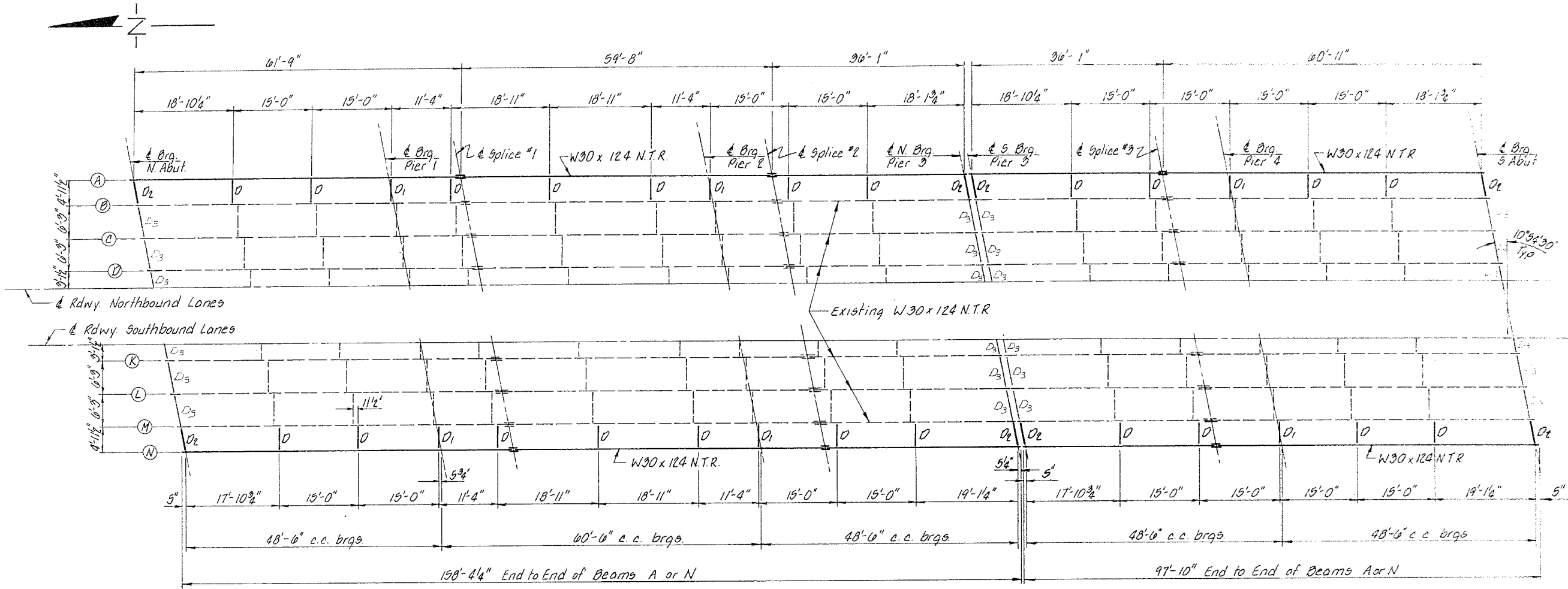
**ALTERNATE - CAST IRON DRAINAGE SCUPPER**

FAI ROUTE 57  
SECTION 19AVB  
KANKAKEE COUNTY  
STATION 183+72

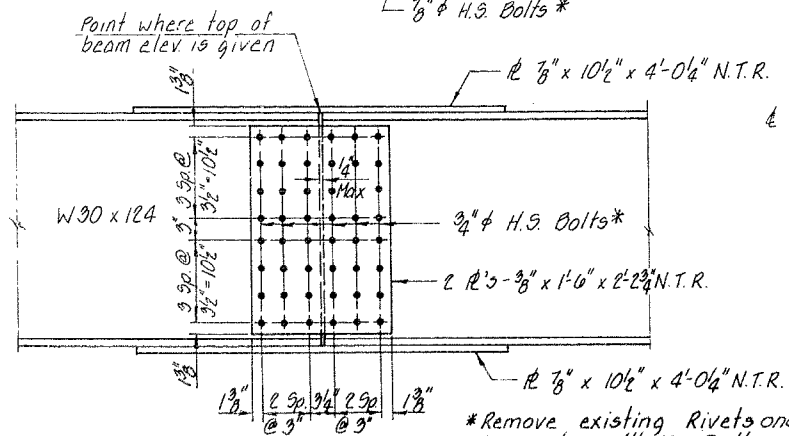
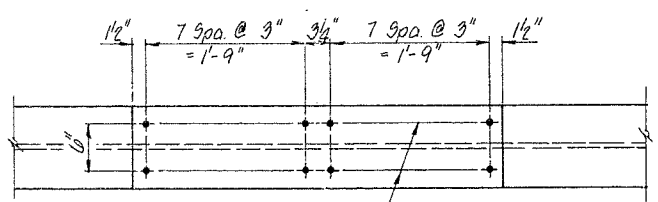
**COLLINS AND RICE**  
CONSULTING ENGINEERS

DESIGNED EDU  
DRAWN M.G.

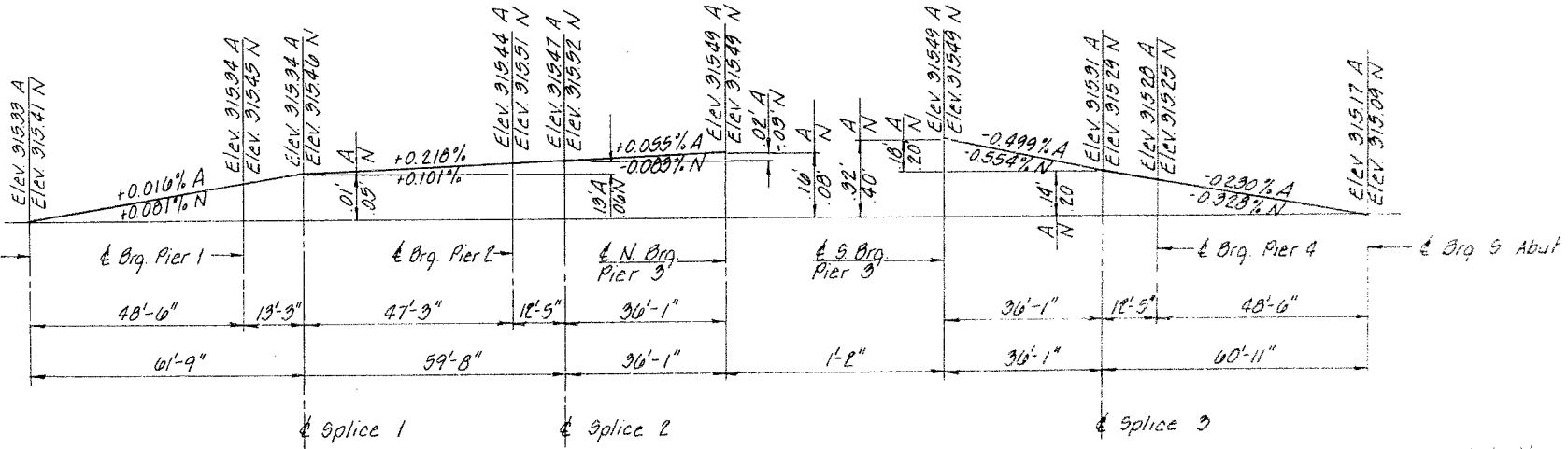
CHECKED J.K.K.  
DATE 2-20-80 NO 1006



**PARTIAL FRAMING PLAN**  
All dimensions are horizontal dimensions.  
N.T.R. denotes Notch Toughness Requirements.



**SPlice DETAIL**  
(Proposed & Existing)  
to Required - Proposed  
\*3/8 Existing Splices to be modified



**FABRICATION DIAGRAM FOR BEAMS A & N**  
Showing top of beam elevations.

Note: Any additional rivets not detailed in these plans which are found to be missing and/or need to be replaced shall be cost incidental to "Rivet Removal" Δ

Work this sheet with sheet 12

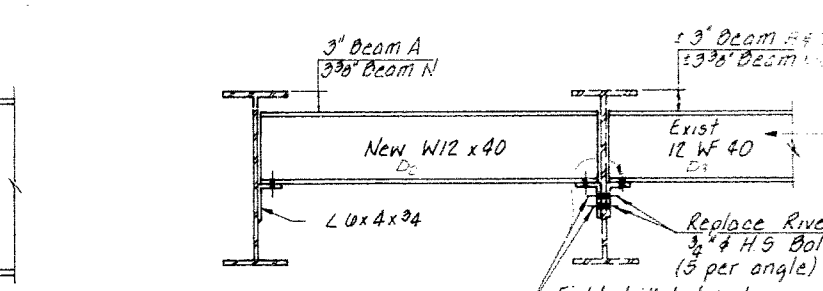
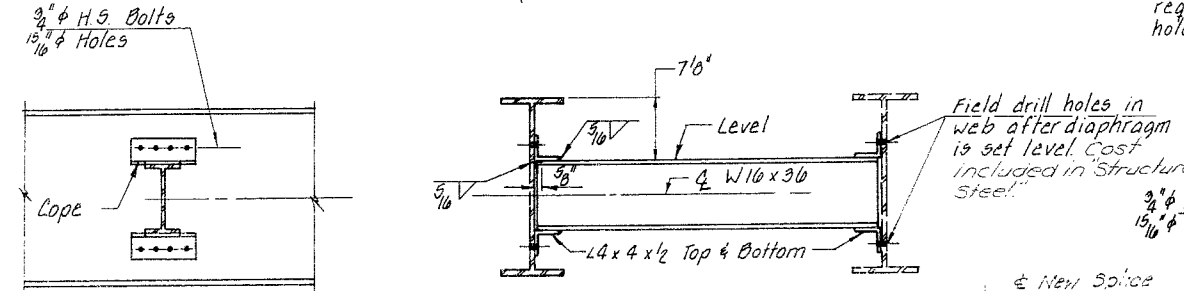
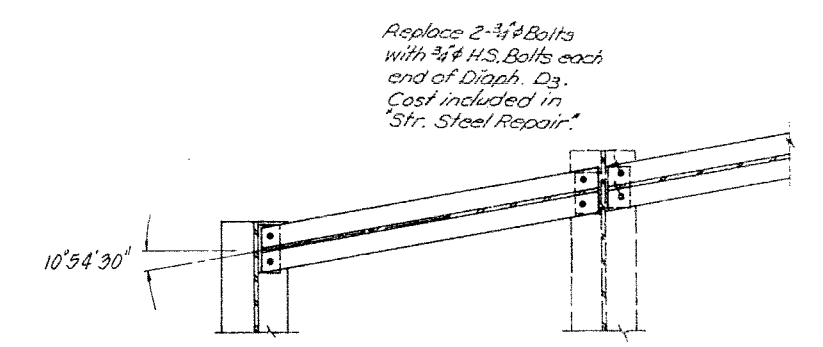
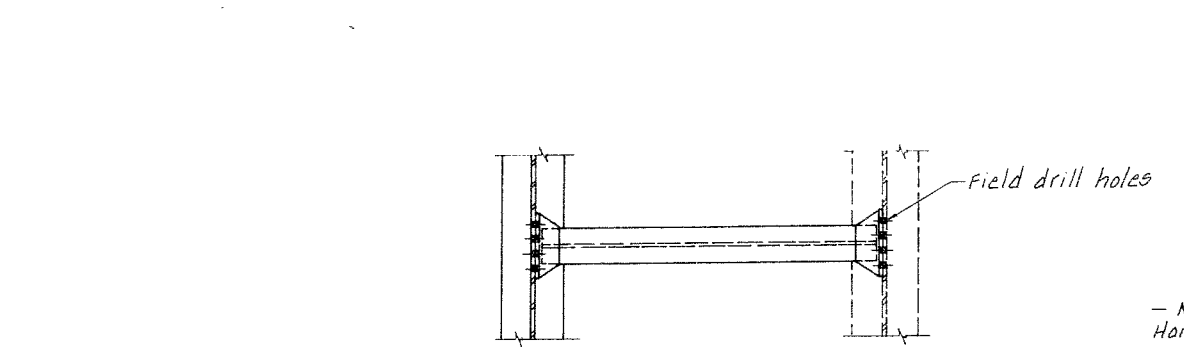
**FRAMING PLAN**  
FAI ROUTE 57  
SECTION 194VBR  
KANKAKEE COUNTY  
STATION 143 + 72

**COLLINS AND RICE**  
CONSULTING ENGINEERS

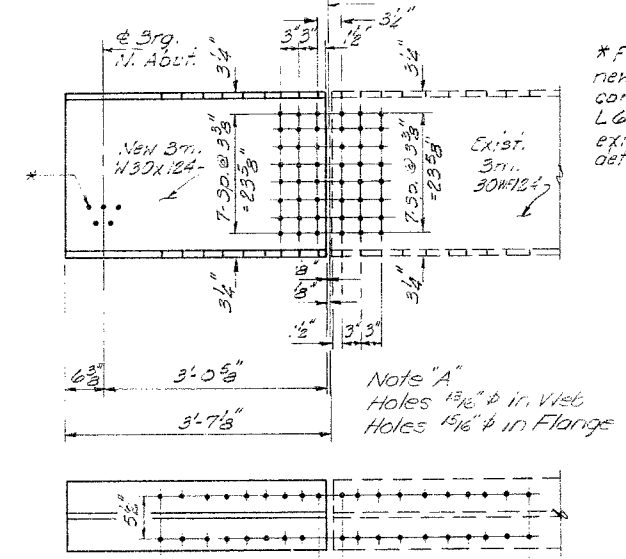
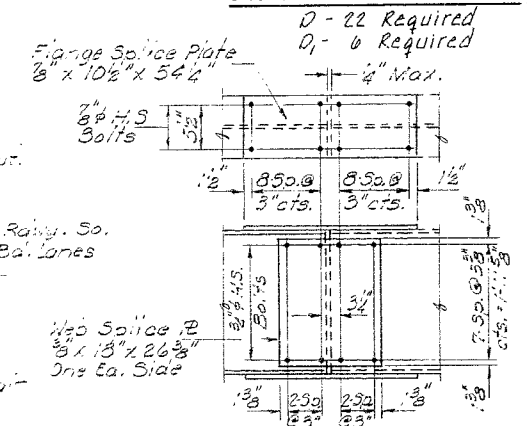
DESIGNED: Z.B.U.      CHECKED: J.K.K.  
DRAWN: M.G.          DATE: 8-20-86      NO: 2006

Δ. Rivet Removal and Replacement has been changed to "Rivet Removal" 1-19-89





**DIAPHRAGMS D1 & D2**

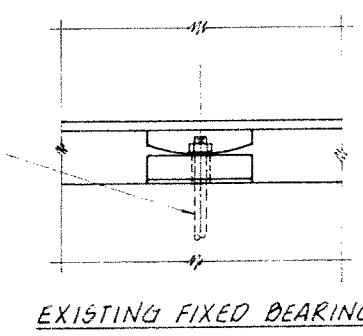


\* Field drill 1 1/2" holes in new beam end for diaphragm connection. Use existing L 6 x 4 x 3/4 as template. Reuse existing L 6 x 4 x 3/4. See detail for diaphragm D3.

**DIAPHRAGM D2 & D3**

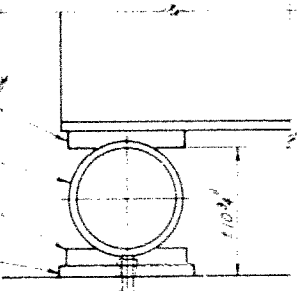
D2 8 Required  
D3 40 Required

At Pier #4 bearings, any existing anchor bolts which are loose shall be removed. Any anchor bolts which are missing or those removed which are deemed by the Engineer to be unusable shall be replaced with new 1" anchor bolts. Those deemed reusable shall be cleaned. The anchor bolt shall then be epoxy grouted into its original location and depth in accordance with Special Provision B 9 P 11. Cost incidental to "Structural Steel Repair."



Existing # 10 x 1 1/2 x 11 1/2 to remain in place  
Existing 8" Roller to be removed  
Existing # 10 1/2 x 1 1/2 x 11 1/2 to be removed  
Existing # 1 1/2 x 3/4 x 1-9/16 to be removed

Note Jacking Load per beam & supports at Pier 3 is 2,700 lbs. The cost of removal of existing bearings shall be incidental to Elastomeric Bearing Assembly.



EXISTING BEARINGS AT ABUTMENTS (PIERS)  
To be removed at the pier & T & T

JACKING & SHORING EXISTING BEAMS  
Quantity = 48 Each

Work this sheet with sheet 11

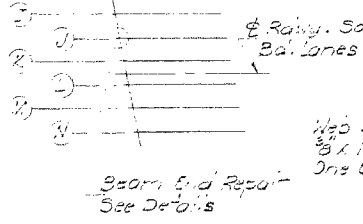
**STRUCTURAL STEEL**  
FAI ROUTE 57  
SECTION 199VBR  
KANKAKEE COUNTY  
STATION 143+72

**COLLINS AND RICE**  
CONSULTING ENGINEERS

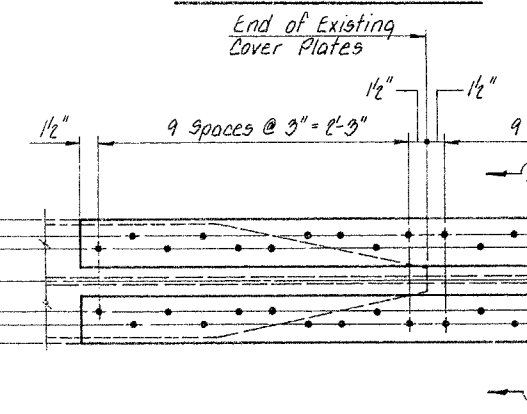
DESIGNED Z.O.U. CHECKED J.K.K.  
DRAWN M.G. DATE 2-20-86 NO. 1006

**CONRAIL R.R. 12/23**

**BEAM END REPAIR LOCATION**



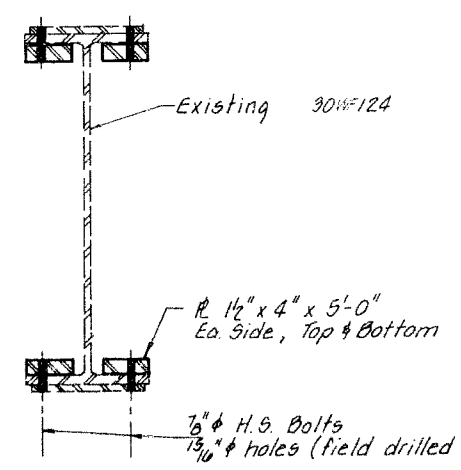
**DETAIL OF SPLICE**



**COVER PLATE DETAIL**

144 Required  
Top and Bottom, Each Side  
at Piers 1, 2 and 4

**SECTION A-A**



Joint Size	"C" at 50°F	"D" at 50°F
2	2"	1½" min.
2½	2½"	1¾" min.
4	3"	2½" min.

### INSTALLATION NOTES

Use anchor blocks and continuous seal as anchor bolt location templates.

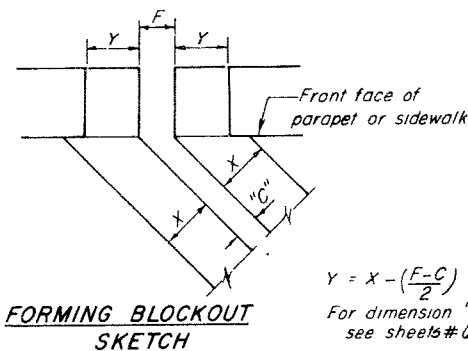
- 1 Install sponge mandrels into positions shown to form flap convolution.
- 2 Install parapet or sidewalk piece (trim roadway flap to fit before applying epoxy).
- 3 Install continuous seal in roadway.
- 4 Install anchor blocks as indicated.

NOTE A - Maximum spacing of anchor bolts shall be 12" centers

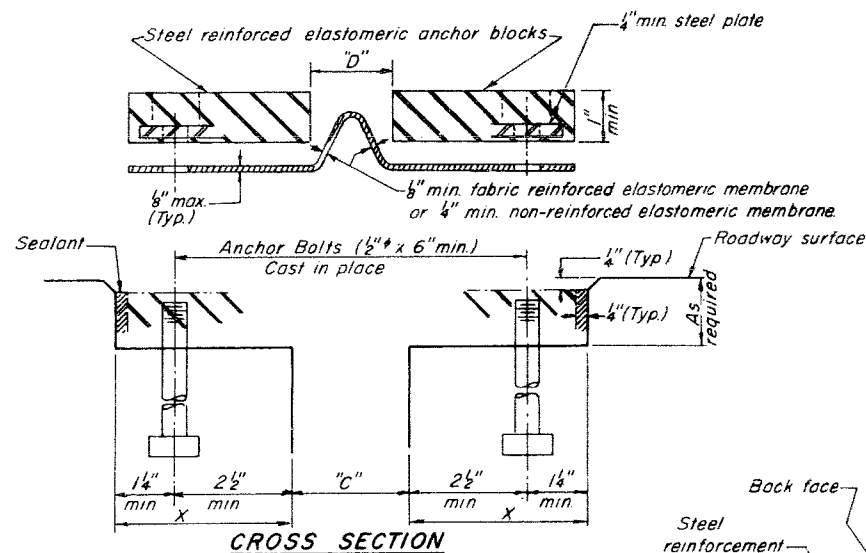
### SKEW LIMITATIONS

The details of the anchor blocks and the elastomeric membrane in the parapet, as shown, are for up to 50° skews.

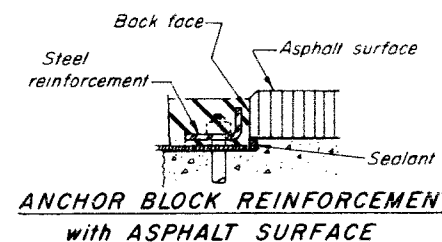
For skews greater than 50°, the anchor blocks and the elastomeric membrane, installed in accordance with dimension "D", might require modifications to insure a minimum clearance of 1½" from centerline of anchor studs to edge of parapet opening. The anchor blocks and the elastomeric membrane shall also be installed to the top of the parapet with the anchor studs spaced at ±12" cts.



FORMING BLOCKOUT SKETCH



CROSS SECTION



ANCHOR BLOCK REINFORCEMENT with ASPHALT SURFACE

### GENERAL NOTES

Continuous Seal Neoprene Expansion Joint shall consist of molded anchor blocks of elastomer and steel, field assembled over continuous lengths of elastomeric membrane. See Special Provisions.

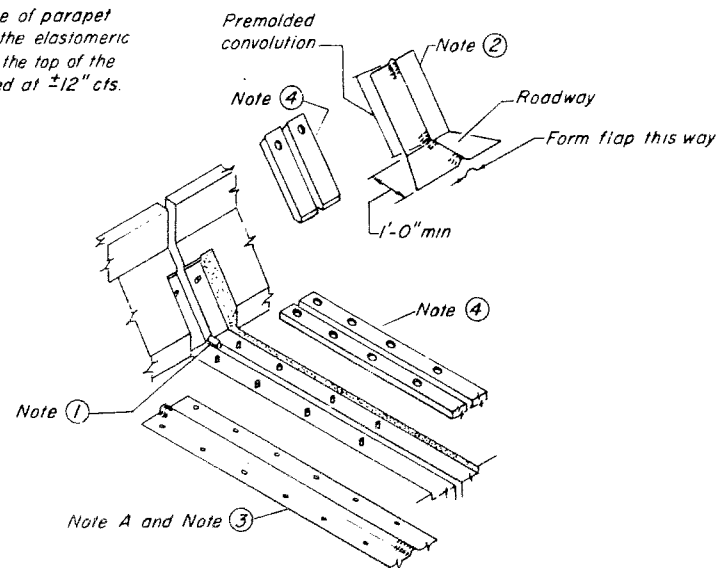
The elastomeric membrane shall be premolded with a single or a double upward convolution that will have a "memory" to return to its molded position upon joint closure.

The steel reinforcement must extend up the back face of anchor blocks when asphalt surfaces are used but is optional in concrete blockout.

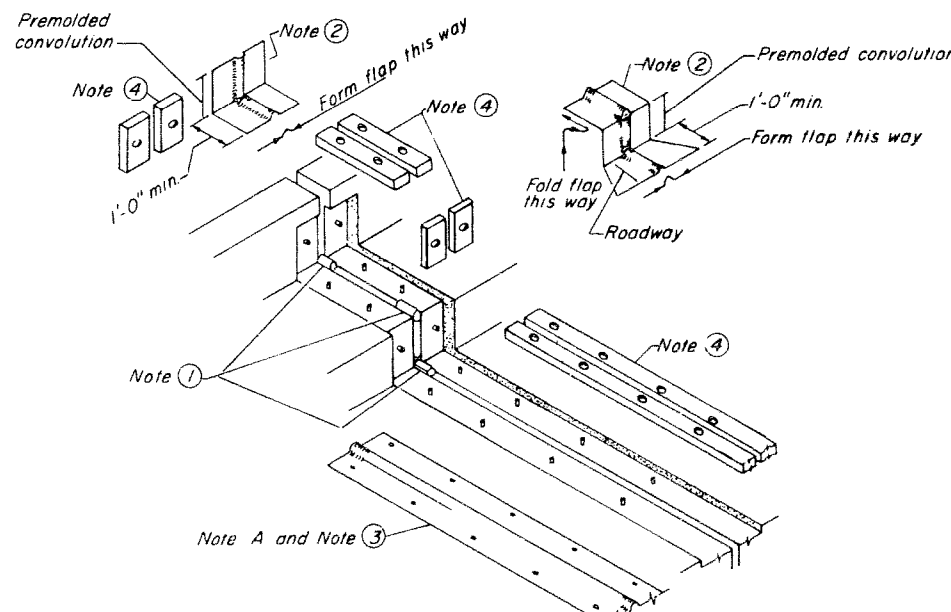
The convolution length shall be such that the extended length will not be greater than the manufactured length when the joint is fully expanded in its design range and will not protrude above the anchor blocks when the joint is fully compressed.

Joint openings shall be adjusted in accordance with Article 50307(a) of the Standard Specifications when the deck is poured at an ambient temperature other than 50°F.

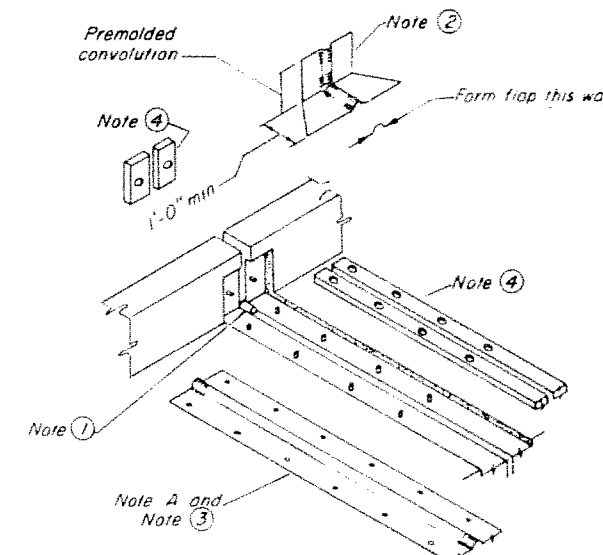
The parapet and sidewalk flaps may be furnished factory vulcanized to the roadway membrane provided the centerline of the convolution is maintained and the process and method meet the approval of the Engineer.



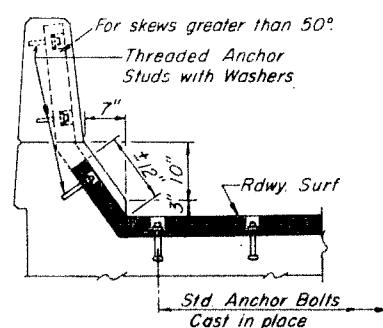
AT PARAPET



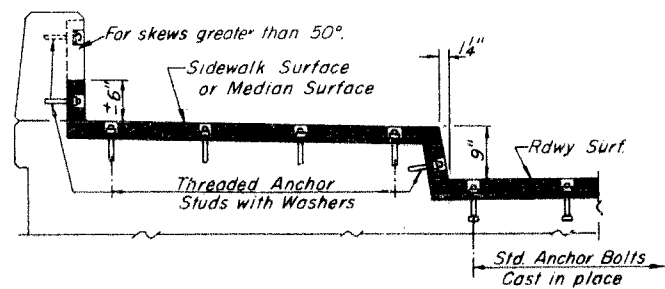
AT SIDEWALK or MEDIAN



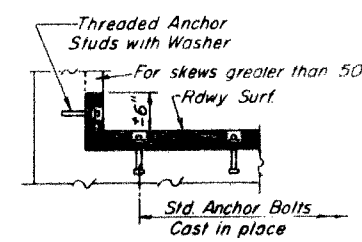
AT WALL



AT PARAPET



AT SIDEWALK or MEDIAN



AT WALL

TYPICAL END TREATMENTS

### BILL OF MATERIAL

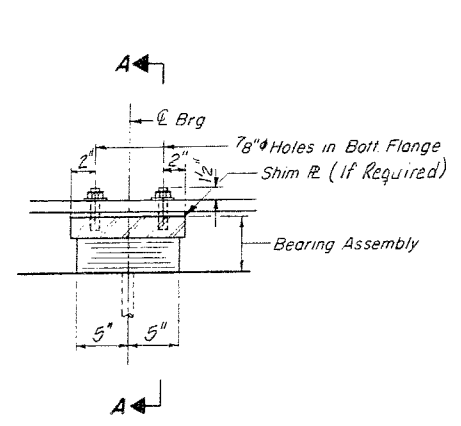
ITEM	UNIT	QUANTITY
Neoprene Expansion Jt 2'	Lin Ft	82

EXPANSION DEVICE - PIER 3  
 FA1 ROUTE 57  
 SECTION 139 VBR  
 KANKAKEE COUNTY  
 STATION 143+72

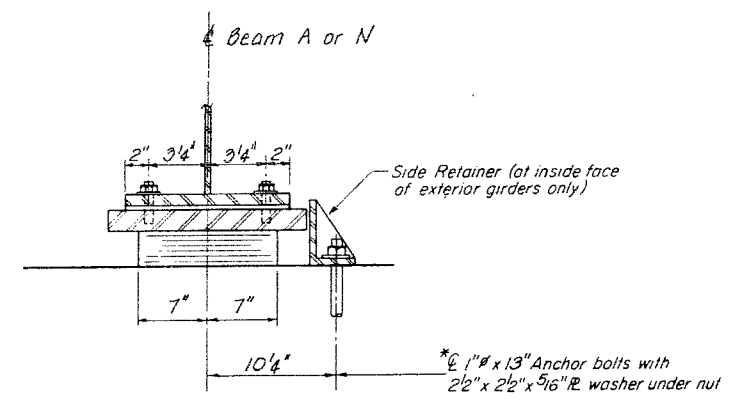
COLLINS AND RICE  
 CONSULTING ENGINEERS

DESIGNED Z.B.U. CHECKED J.K.K.  
 DRAWN M.E.R. DATE 2-20-86 NO. 2006

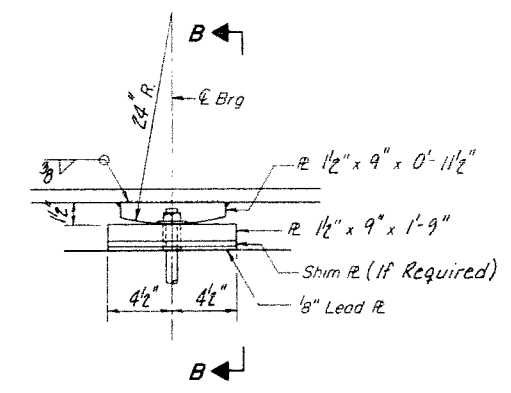
CONRAIL R.R.D. 13/23



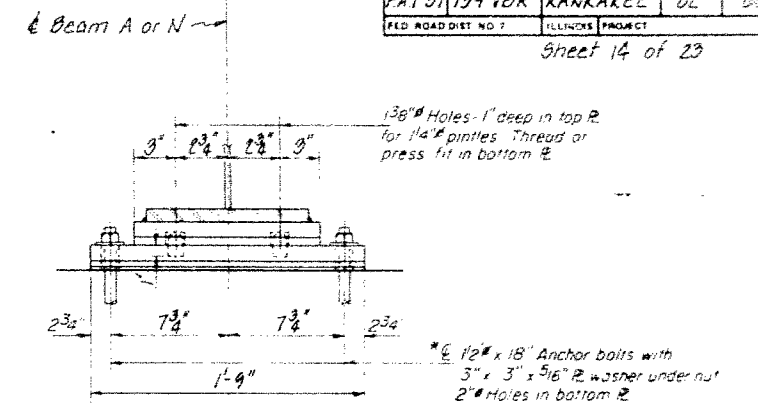
SECTION AT PIER 2



SECTION A-A



ELEVATION AT PIERS 1 & 4



SECTION B-B

FIXED BEARING  
4 Required

TYPE I ELASTOMERIC EXP. BRG.  
2 Required

\*Note: After girders have been erected holes at expansion bearings shall be drilled and anchor bolts grouted in place. Anchor bolts at fixed bearings may be built into the masonry. See sheet 16 for Anchor Bolt installation.

EXISTING BEAMS

INTERIOR BEAM MOMENT TABLE

	0.4 Span 1, 0.6 Span 3	PIER 1 or PIER 2	0.5 Span 2	0.4 Span 4, 0.6 Span 5	PIER 4
I (in <sup>4</sup> )	5,360	7,594	5,360	5,360	7,594
S (in <sup>3</sup> )	355	487	355	355	487
Q (k/ft)	1.020	1.020	1.020	1.020	1.020
M <sub>D</sub> (Ft.-K)	158.7	323.1	143.5	159.5	321.1
M <sub>L</sub> (Ft.-K)	269.7	238.5	273.3	267.8	216.7
M <sub>IMP</sub> (Ft.-K)	77.7	66.5	73.8	77.1	62.4
M <sub>TOTAL</sub> (Ft.-K)	506.0	628.2	490.6	504.4	600.2
P <sub>0</sub> (k.s.i.)	17.1	15.5	16.6	17.1	14.8

INTERIOR BEAM REACTION TABLE

	N. ABUT. I. N. BRG. P. 3	PIER 1 or PIER 2	PIER 4	S. ABUT. I. S. BRG. P. 3
R <sub>D</sub> (K)	18.1	62.2	62.7	18.1
R <sub>L</sub> (K)	31.3	38.7	38.6	31.3
R <sub>IMP</sub> (K)	9.0	10.8	11.1	9.0
R <sub>TOTAL</sub> (K)	58.4	111.7	112.4	58.4

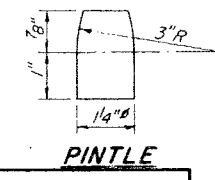
PROPOSED BEAMS

EXTERIOR BEAM MOMENT TABLE

	0.4 Span 1, 0.6 Span 3	PIER 1 or PIER 2	0.5 Span 2	0.4 Span 4, 0.6 Span 5	PIER 4
I (in <sup>4</sup> )	5,360	5,360	5,360	5,360	5,360
S (in <sup>3</sup> )	355	355	355	355	355
Q (k/ft)	1.020	1.020	1.020	1.020	1.020
M <sub>D</sub> (Ft.-K)	158.7	323.1	143.5	159.5	321.1
M <sub>L</sub> (Ft.-K)	214.1	189.4	217.0	212.6	172.1
M <sub>IMP</sub> (Ft.-K)	61.7	52.8	58.6	61.2	49.6
M <sub>TOTAL</sub> (Ft.-K)	434.5	565.3	419.1	433.3	542.8
P <sub>0</sub> (k.s.i.)	14.7	19.1	14.2	14.6	18.3

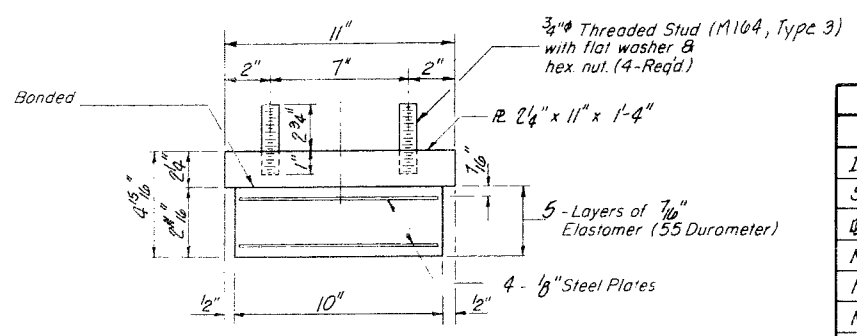
EXTERIOR BEAM REACTION TABLE

	N. ABUT. I. N. BRG. P. 3	PIER 1 or PIER 2	PIER 4	S. ABUT. I. S. BRG. P. 3
R <sub>D</sub> (K)	18.1	62.2	62.7	18.1
R <sub>L</sub> (K)	24.9	30.7	30.6	24.9
R <sub>IMP</sub> (K)	7.1	8.6	8.8	7.1
R <sub>TOTAL</sub> (K)	50.1	101.5	102.1	50.1



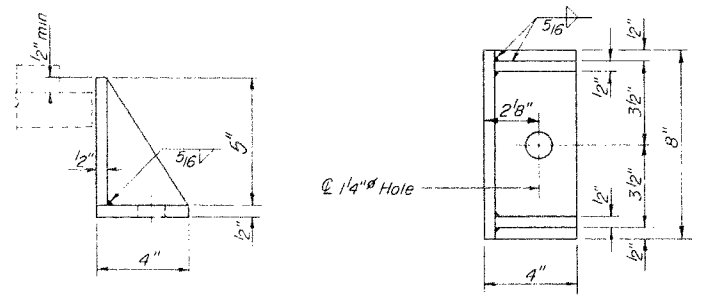
PINTLE

I ~ Moment of Inertia  
S ~ Section Modulus  
M<sub>D</sub> ~ Moment due to dead loads  
M<sub>L</sub> ~ Moment due to live loads  
M<sub>IMP</sub> ~ Moment due to impact



BEARING ASSEMBLY

Note: Shim plates shall not be placed under Bearing Assembly.

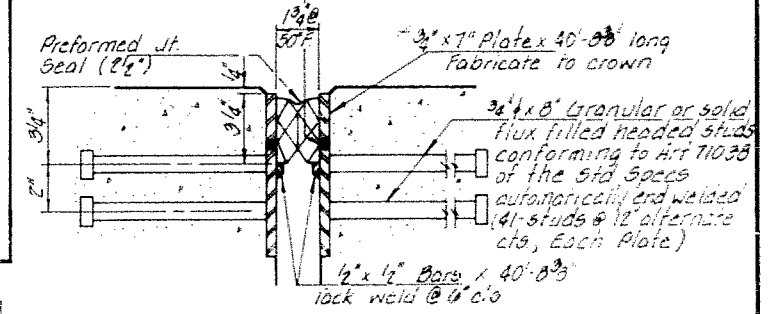
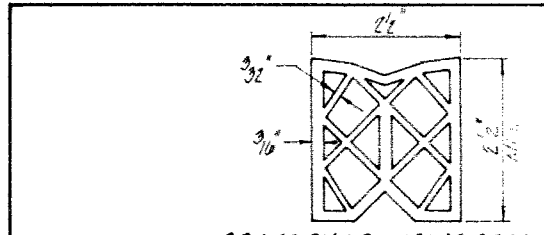


SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.  
2 Required  
Included w/Structural Steel

Note: After fabrication all surfaces of the steel plates shall be given one shop coat of paint specified for Structural Steel.

PREFORMED JOINT SEAL (2 1/2")

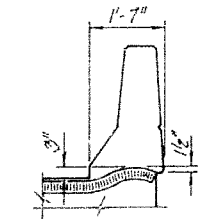


CROSS SECTION

BILL OF MATERIAL

ITEM	UNIT	Quantity
Preformed Joint Seal (2 1/2")	Lin. Ft.	176
Structural Steel	Pounds	6,925

TYPICAL END OF SEAL TREATMENT



\*Furnish in segments of 20' maximum length. Maximum space between installed segments shall be 3/16". Seal space with Silicone Sealant suitable for structural steel.

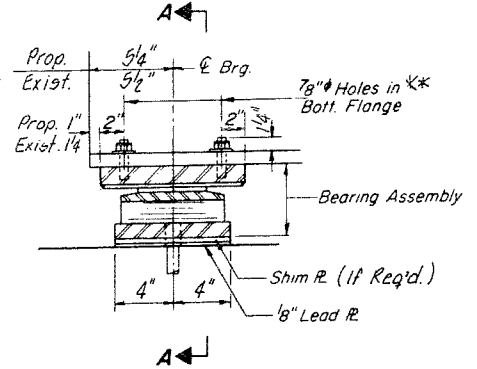
BEARINGS &  
EXPANSION JOINT DETAILS  
F.A.I. ROUTE 57  
SECTION 199 VOR  
KANKAKEE COUNTY  
STATION 143 + 72

COLLINS AND RICE  
CONSULTING ENGINEERS

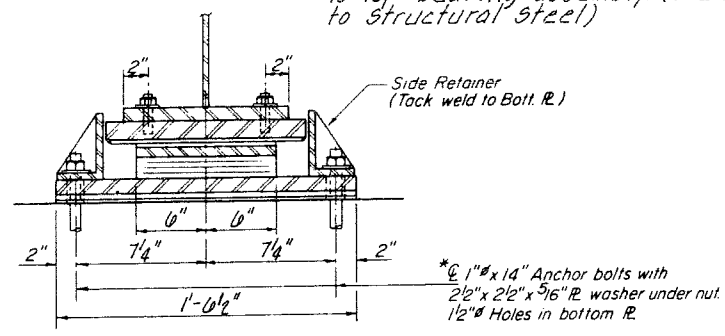
DESIGNED E.B.U. CHECKED J.K.K.  
DRAWN M.B. DATE 2-20-86 NO. 2006

CONRAIL R.R.D. 14/23

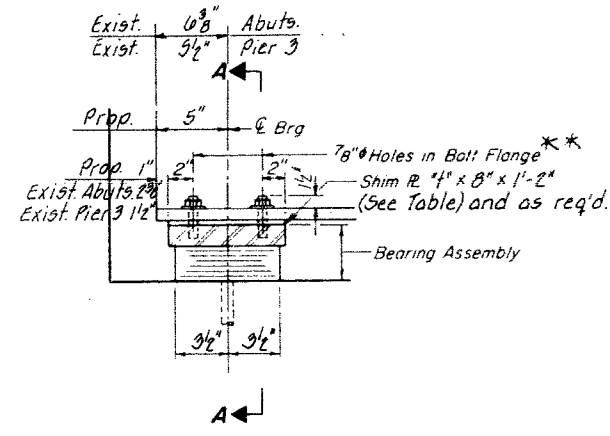
**\*\*Note:** At existing beams at the abutments and Pier 3, the 1/2" roller top plate shall be left in place. 3/8" holes to be drilled thru bottom flange of existing beam and roller top plate for attachment to top bearing assembly. (Incidental to structural steel)



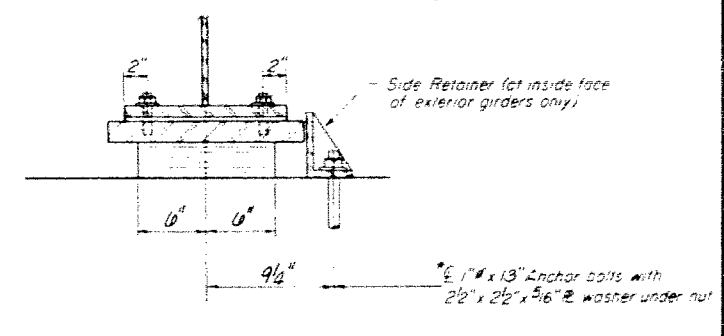
**SECTION AT PIER 3 (UNIT I)**



**SECTION A-A**

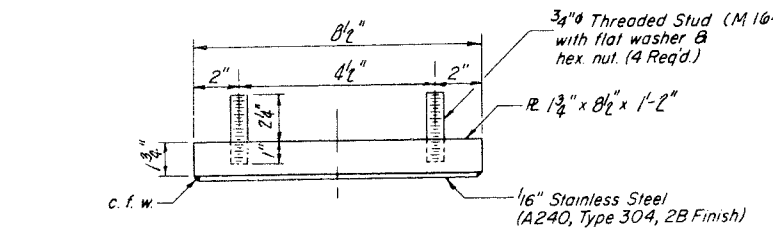


**SECTION AT ABUTMENTS & PIER 3 (UNIT II)**

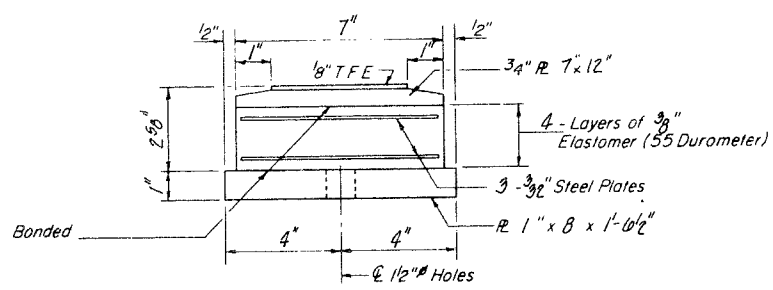


**SECTION A-A**

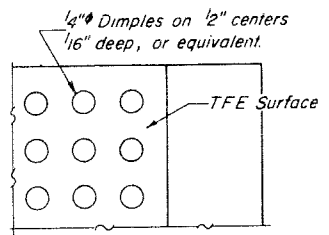
**TYPE II TFE ELASTOMERIC EXP. BRG.**  
14 Required



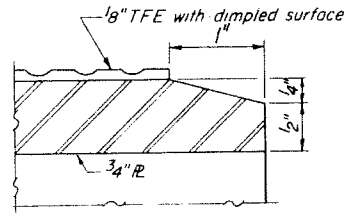
**TOP BEARING ASSEMBLY**



**BOTTOM BEARING ASSEMBLY**



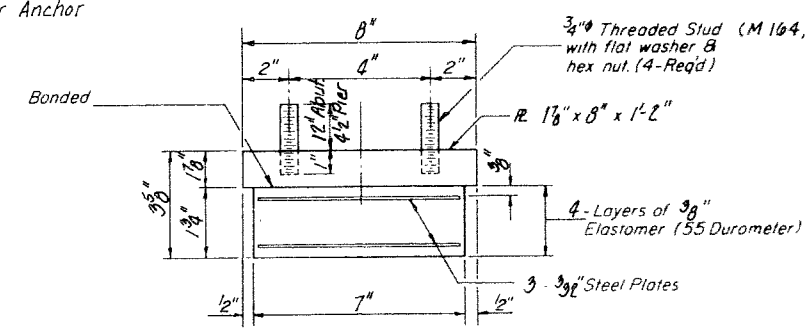
**PLAN-TFE SURFACE**



**SECTION THRU TFE**

**\*Note:** After girders have been erected holes at expansion bearings shall be drilled and anchor bolts grouted in place. Anchor bolts at fixed bearings may be built into the masonry. See sheet 16 for Anchor Bolt details.

**TYPE I ELASTOMERIC EXP. BRG.**  
14 Required @  
Each Abut. & Pier 3



**BEARING ASSEMBLY**

Note: Shim plates shall not be placed under Bearing Assembly.

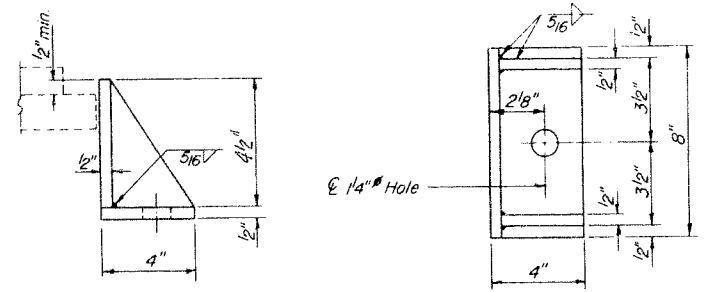
**SHIM PLATE THICKNESS - 1"**

Beams	B-F	G	H	I-L	M	A1 N
N. Abut.	7 3/4"	8"	7 1/2"	7 1/2"	8"	---
S. Abut.	8"	8"	8"	7 1/2"	7 1/2"	---
Pier 3, Unit II	1 1/2 1/2"	1 1/2 1/2"	1 1/2 1/2"	1 1/2 1/2"	1 1/2 1/2"	1 1/2 1/2"

The shim plate thickness listed above is the estimated thickness required at each bearing location. Two additional 1" shim plates are to be provided for each bearing. Quantities included with structural steel.

Note: The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity 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.

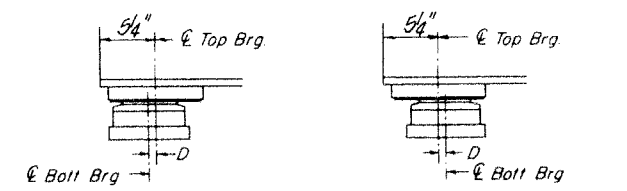
Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.



**SIDE RETAINER**

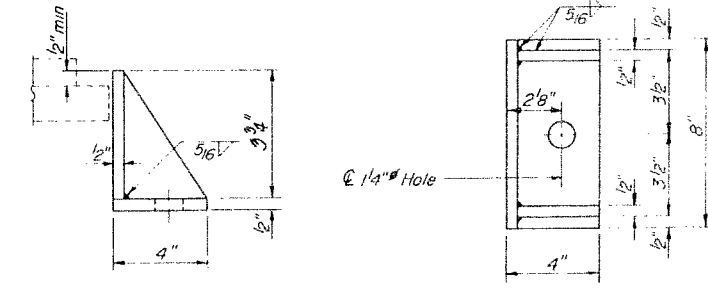
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

2B Required  
Included w/ structural steel



**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



**SIDE RETAINER**

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

12 Required  
Included w/ structural steel

**BEARING DETAILS**  
F.A.I. ROUTE 57  
SECTION 139 VOR  
KANKAKEE COUNTY  
STATION 143+72

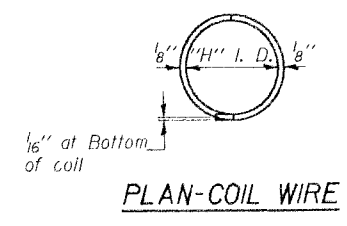
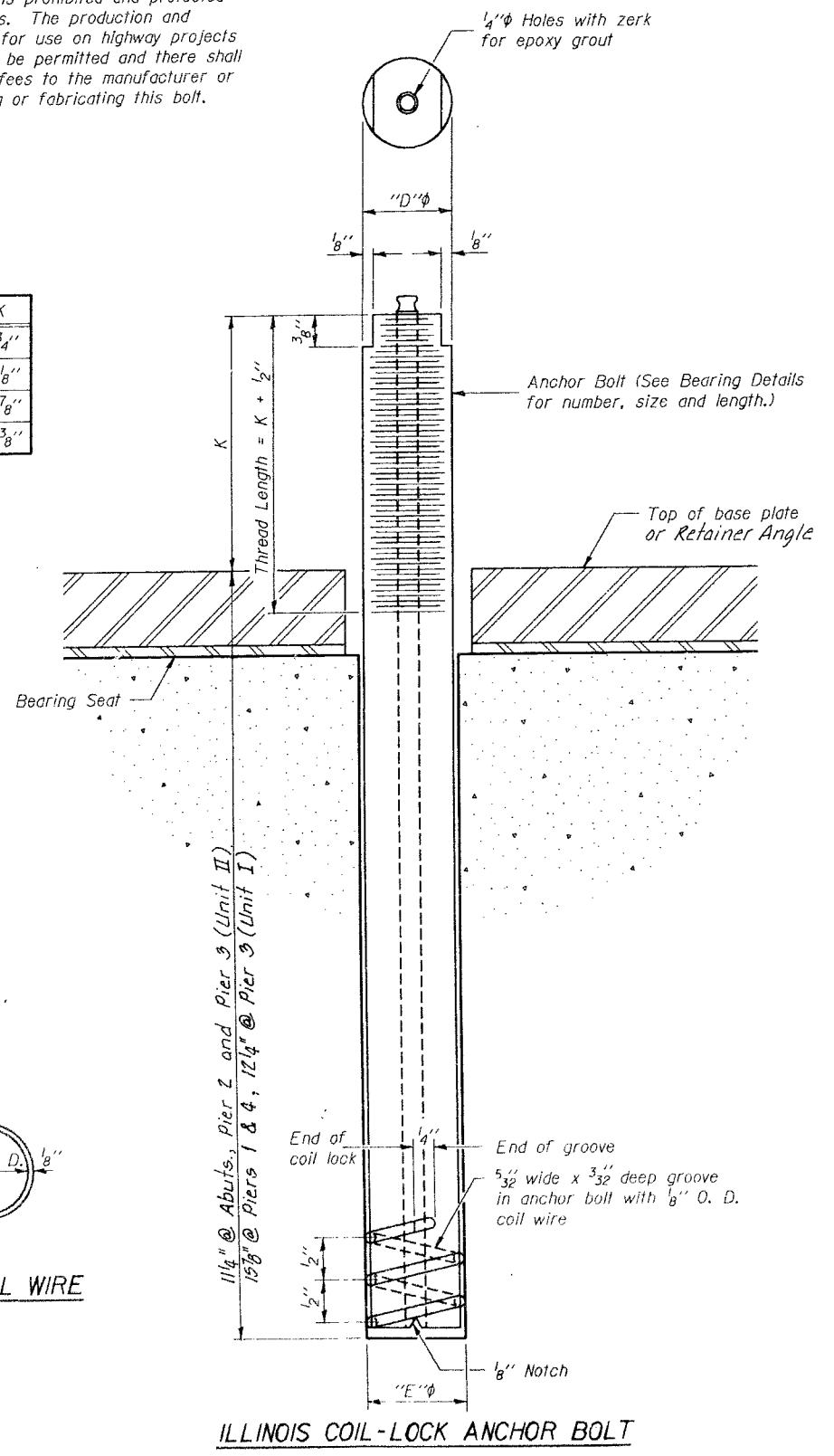
**COLLINS AND RICE**  
CONSULTING ENGINEERS

DESIGNED Z.O.U.  
DRAWN M.G.

CHECKED J.K.K.  
DATE 2-20-86 NO. 2006

The Illinois Coil-Lock Anchor Bolt is a proprietary item which is the property of the Illinois Department of Transportation. Use, reproduction or disclosure without express written permission is prohibited and protected under Federal copyright laws. The production and the fabrication of this bolt for use on highway projects in the State of Illinois shall be permitted and there shall be no incurred charges or fees to the manufacturer or the fabricator for producing or fabricating this bolt.

D	E	H	K
1"	1 1/8"	1 3/16"	1 3/4"
1 1/2"	1 5/8"	1 5/16"	2 1/8"
2"	2 1/8"	1 3/16"	2 7/8"
2 1/2"	2 5/8"	2 5/16"	3 3/8"



### MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A519, Grade 1026 and supplied with hexagonal nuts and cut washers.  
 The coil wire shall be made of any suitable soft steel wire.  
 The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed.  
 The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C881, Type I, Grade I and of a Class suitable for the temperature at installation.

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

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

### ALTERNATE ANCHOR BOLTS

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes in accordance with the manufacturer's recommendations and procedures.  
 The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:  
 1. A threaded rod stud with nut and washer conforming to ASTM A307.  
 2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

### GENERAL NOTES

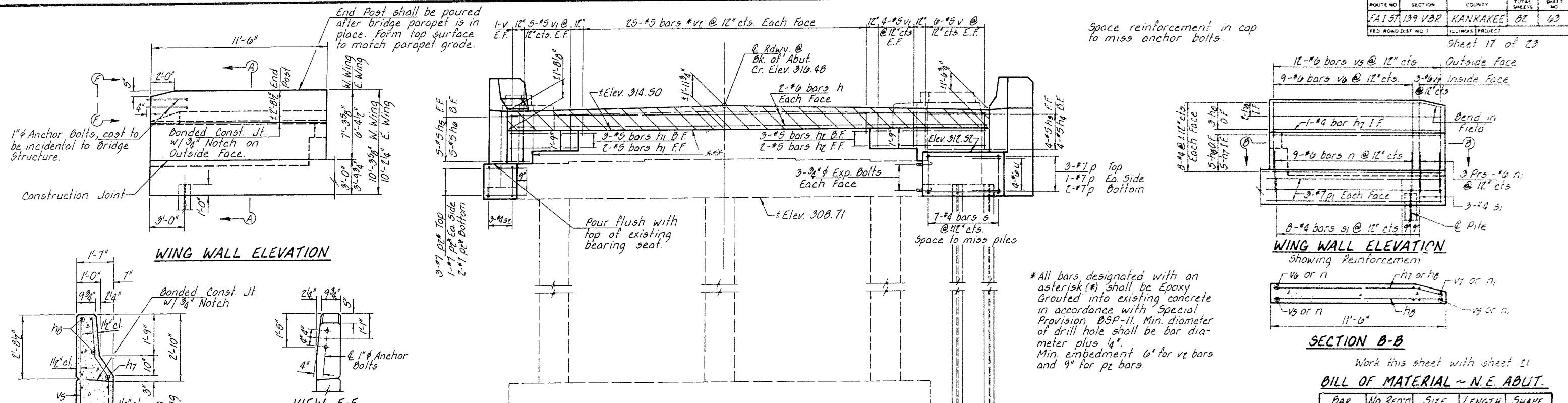
Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or in accordance with the manufacturer's recommendation after beams or girders have been erected and adjusted.  
 Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming.  
 The anchor bolts, furnished and installed and including the epoxy grout or capsules shall not be paid for separately but shall be included in the unit bid price for "Furnishing and Erecting Structural Steel".

Anchor bolts, nuts and washers shall be completely coated by either the hot-dipped process conforming with AASHTO M232 or the mechanical plating method conforming to ASTM B695, Class 50. Zinc coated nuts shall be topped 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.

**ANCHOR BOLT DETAILS**  
 FAI ROUTE 57  
 SECTION 199V08  
 KANKAKEE COUNTY  
 STATION 143+72

**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED *Z.B.U.* CHECKED *J.K.K.*  
 DRAWN *M.G.* DATE *1-20-84* NO *2006*



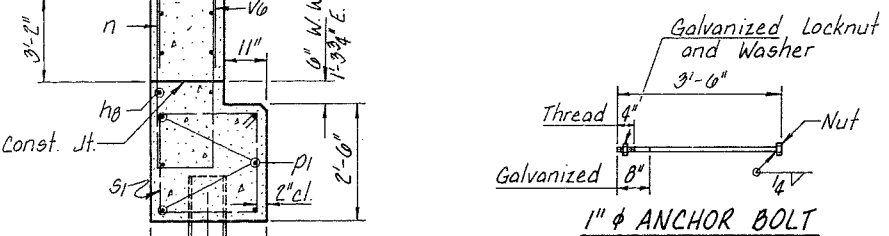
\*All bars designated with an asterisk (\*) shall be Epoxy Grouted into existing concrete in accordance with Special Provision, OSP-11. Min. diameter of drill hole shall be bar diameter plus  $\frac{1}{4}$ ". Min. embedment 6" for  $v_2$  bars and 9" for  $p_2$  bars.

NOTE: Existing reinforcement shall be cleaned, straightened & incorporated into new construction.

\*\*\* Bonded Const. Joints in accordance with Article 504.136 of the Std. Specs.

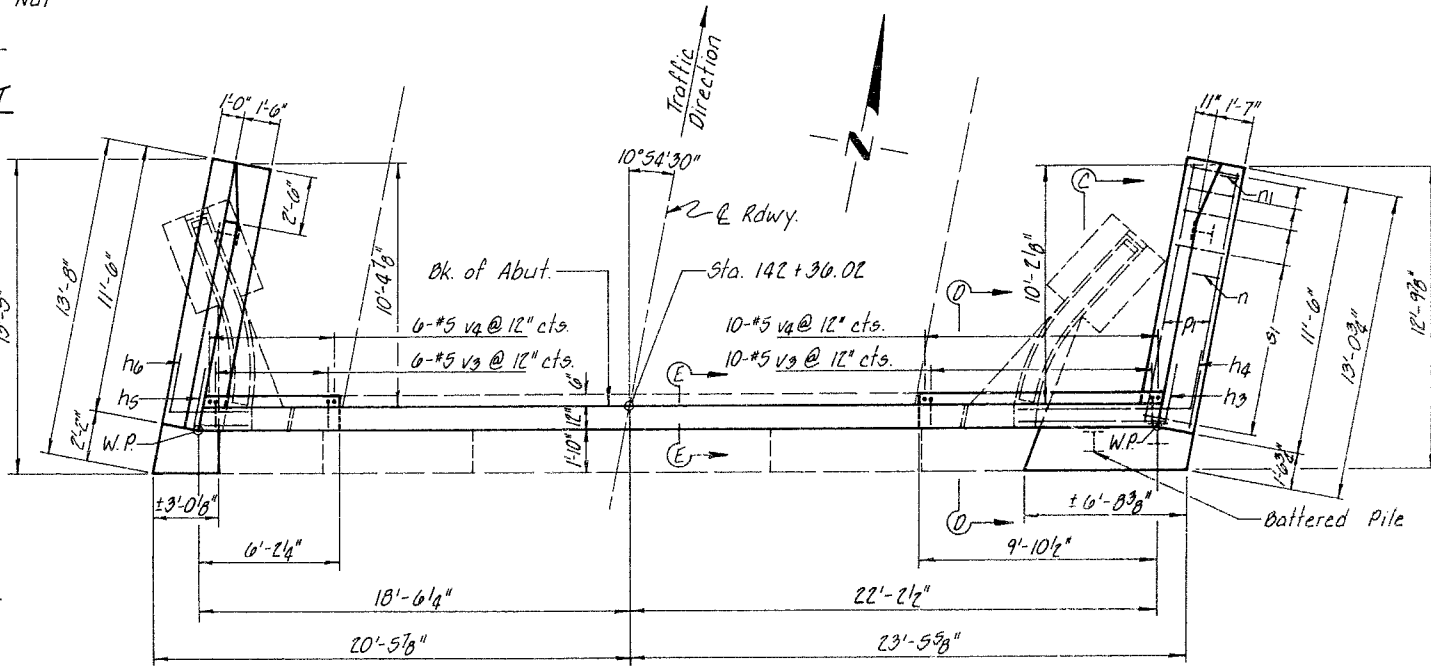
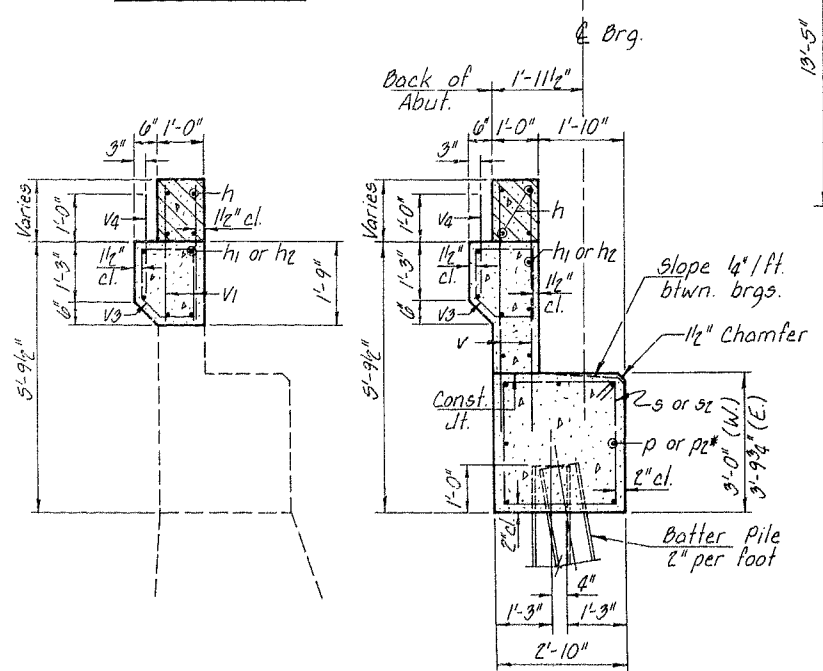
Work this sheet with sheet 21  
**BILL OF MATERIAL - N.E. ABUT.**

BAR	NO. REQ'D	SIZE	LENGTH	SHAPE
h	4	#6	40'-6"	
h1	5	#5	5'-8"	
h2	5	#5	9'-9"	
h3	4	#5	8'-9"	
h4	4	#5	10'-0"	
h5	5	#5	4'-9"	
h6	5	#5	6'-0"	
h7	12	#4	11'-3"	
h8	20	#4	11'-3"	
n	18	#6	11'-2"	
n1	12	#6	4'-8"	
p	7	#7	6'-0"	
p1	12	#7	12'-9"	
p2*	7	#7	3'-0"	
s	7	#4	12'-9"	
s1	22	#4	9'-5"	
s2	3	#4	11'-1"	
u	4	#6	9'-7"	
v	18	#5	5'-3"	
v1	14	#5	3'-2"	
v2*	30	#5	2'-0"	
v3	16	#5	5'-2"	
v4	16	#5	2'-3"	
v5	24	#6	6'-3"	
v6	18	#6	6'-5"	
v7	6	#6	6'-3"	
Class X Concrete			Cu Yd	18.8
Reinforcement Bars			Pound	2,630
Expansion Bolts $\frac{3}{4}$ " x 12"			Each	6
Steel Piles HP10 x 42			Lin. Ft	132
Protective Coat			Sq Yd	10

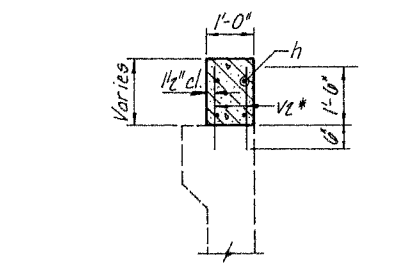


**SECTION A-A**

Hatched area to be poured after superstructure forms have been removed. Quantity of Class X Concrete is included with Superstructure.



**PLAN**



**SECTION E-E**

**PILE DATA**

Type \_\_\_\_\_ Steel HP10 x 42  
 No. Required \_\_\_\_\_ 4  
 Capacity \_\_\_\_\_ Drive to Refusal  
 Est. Length \_\_\_\_\_ 33 Feet/Pile

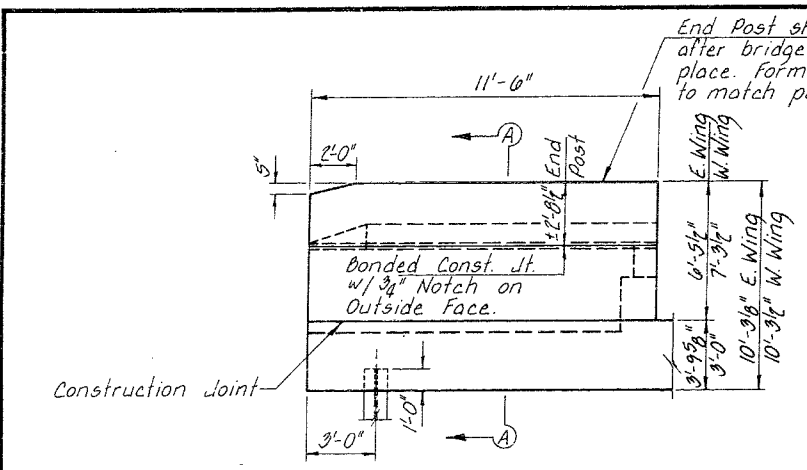
**NORTHEAST ABUTMENT**

FAI ROUTE 57  
 SECTION 139 VBR  
 KANKAKEE COUNTY  
 STATION 143 + 72

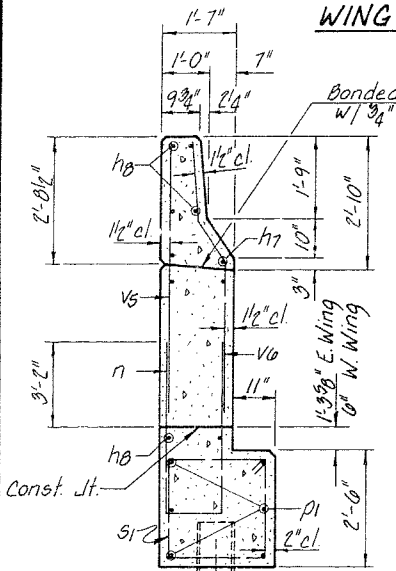
COLLINS AND RICE  
 CONSULTING ENGINEERS

DESIGNED Z.O.U. CHECKED J.K.K.  
 DRAWN J.B. DATE 2-20-86 NO. 2006



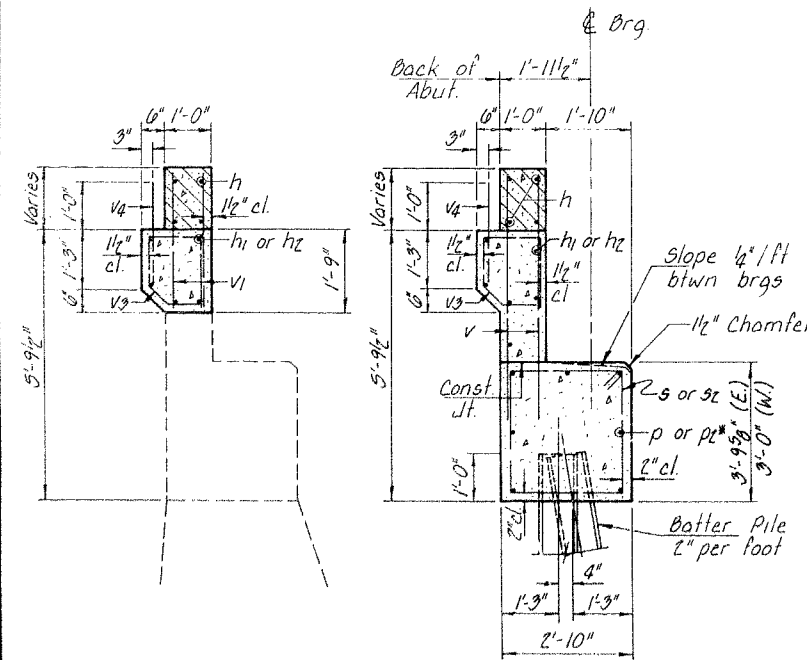


WING WALL ELEVATION



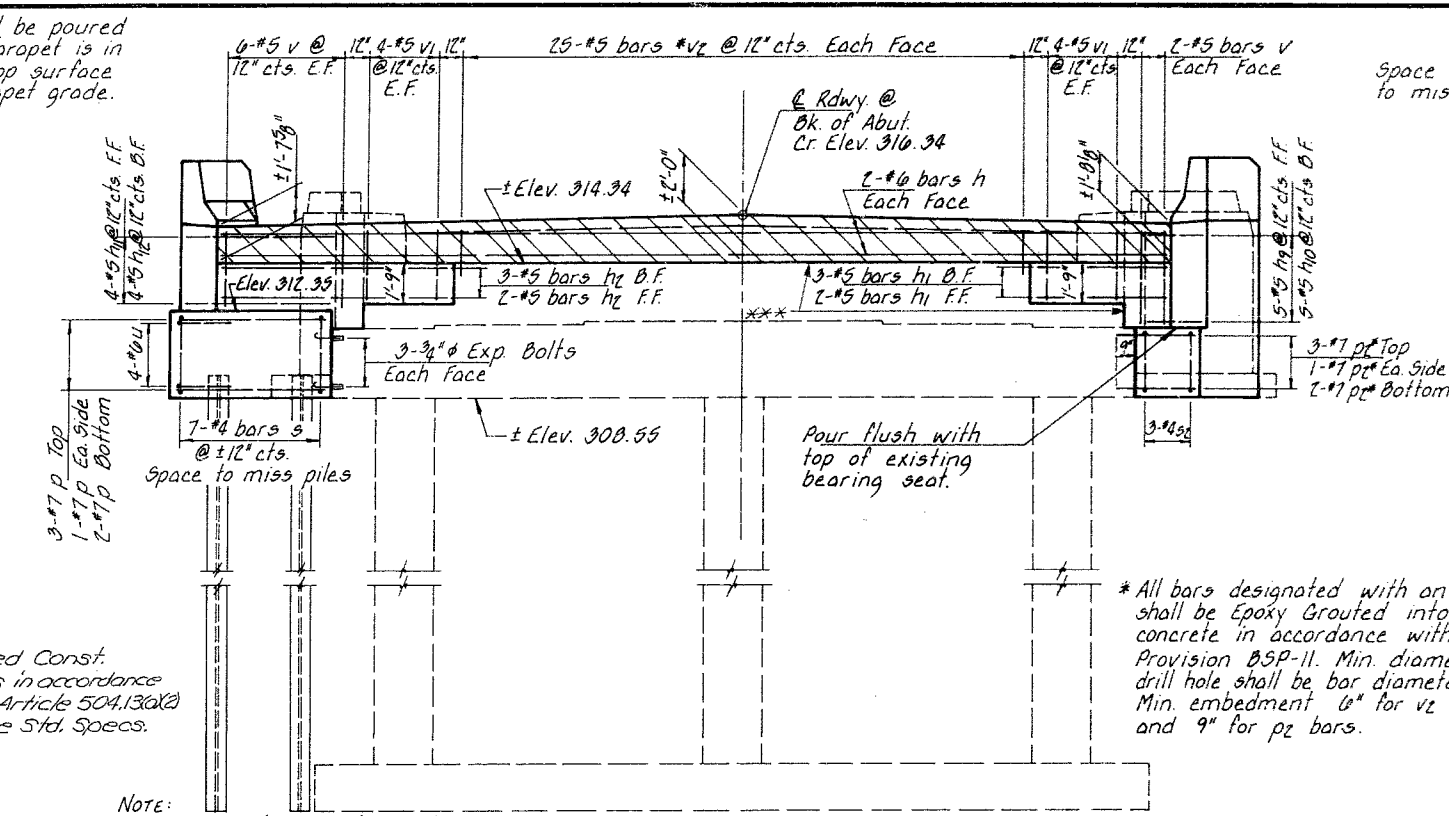
SECTION A-A

Hatched area to be poured after superstructure forms have been removed. Quantity of Class X Concrete is included with Superstructure.



SECTION D-D (Thru Existing Cap)

SECTION C-C (Thru Proposed Cap)

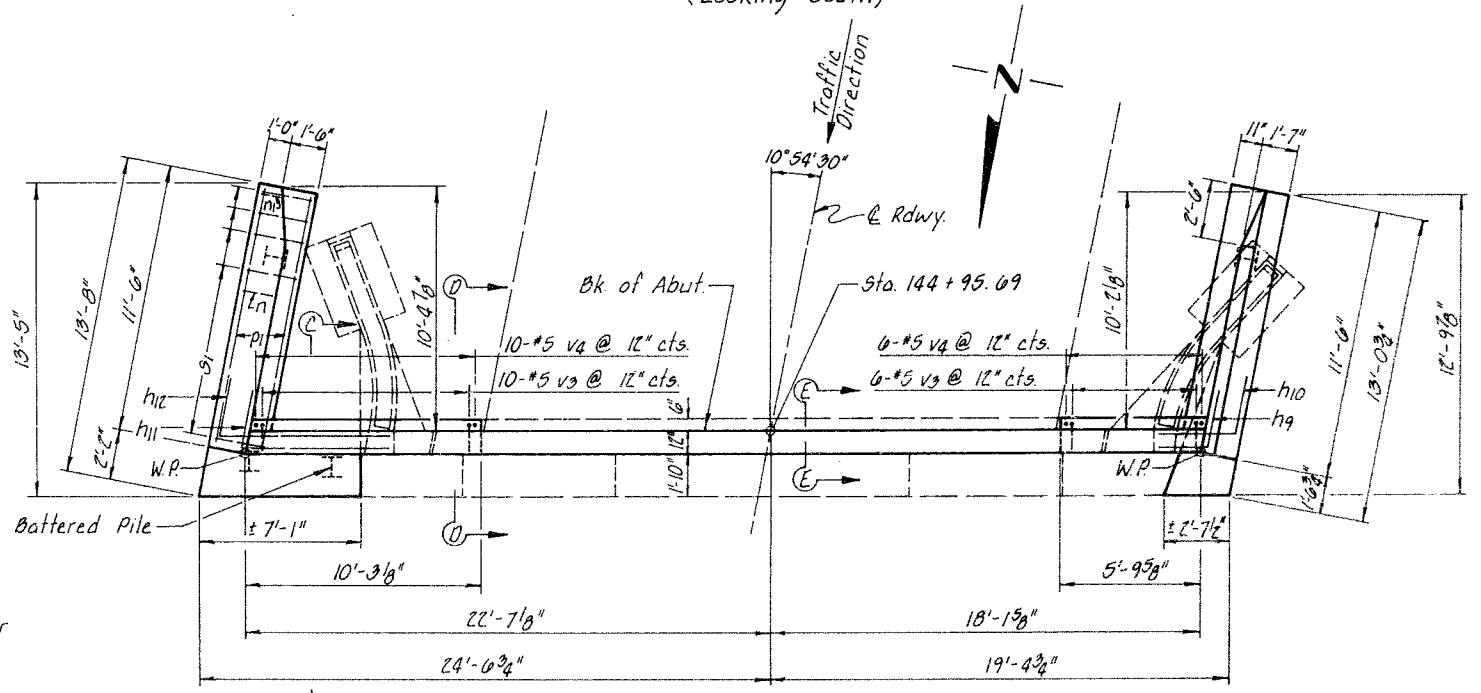


FRONT ELEVATION (Looking South)

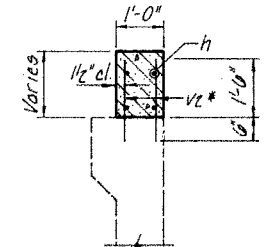
\*\*\* Bonded Const. Joints in accordance with Article 504.136(2) of the Std. Specs.

Note: Existing reinforcement shall be cleaned, straightened & incorporated into new construction.

\* All bars designated with an asterisk (\*) shall be Epoxy Grouted into existing concrete in accordance with Special Provision 05P-11. Min diameter of drill hole shall be bar diameter plus 1/4". Min embedment 6" for v2 bars and 9" for pz bars.

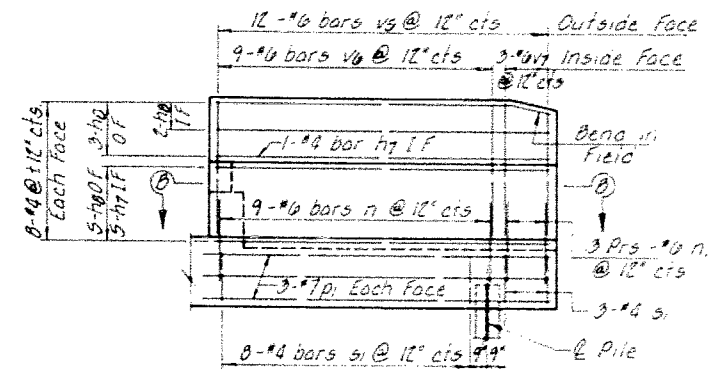


PLAN



SECTION E-E

**PILE DATA**  
 Type: Steel HPI0x42  
 No. Required: 4\*\*  
 Capacity: Drive to Refusal  
 Est Length: 30 feet / Pile  
 \*\*Includes one test pile to be driven in a permanent location.



WING WALL ELEVATION Showing Reinforcement

SECTION B-B

Work this sheet with sheet 21  
**BILL OF MATERIAL - S.E. ABUT.**

BAR	NO REQ'D	SIZE	LENGTH	SHAPE
n	4	#6	40'-0"	---
n1	5	#5	5'-8"	---
n2	5	#5	9'-9"	---
n7	12	#4	11'-3"	---
n8	20	#4	11'-3"	---
n9	5	#5	4'-9"	---
n10	5	#5	6'-0"	---
n11	4	#5	8'-9"	---
n12	4	#5	10'-0"	---
n	18	#6	11'-2"	---
n1	12	#6	4'-8"	---
p	7	#7	6'-0"	---
p1	12	#7	12'-9"	---
p2*	7	#7	3'-0"	---
s	7	#8	12'-9"	---
s1	22	#4	9'-5"	---
s2	3	#2	11'-1"	---
u	4	#6	4'-7"	---
v	10	#5	5'-3"	---
v1	10	#5	3'-2"	---
v2*	50	#5	2'-0"	---
v3	10	#5	5'-2"	---
v4	10	#5	2'-3"	---
v5	24	#6	6'-3"	---
v6	18	#6	6'-5"	---
v7	0	#6	6'-3"	---
Class X Concrete		Cu Yd	108	
Reinforcement Bars		Pound	1,620	
Expansion Bolts 3/4" x 12"		Each	6	
Steel Piles HPI0x42		Lin Ft	108	
Test Pile Steel HPI0x42		Each	1	
Protective Coat		Sq Yd	10	

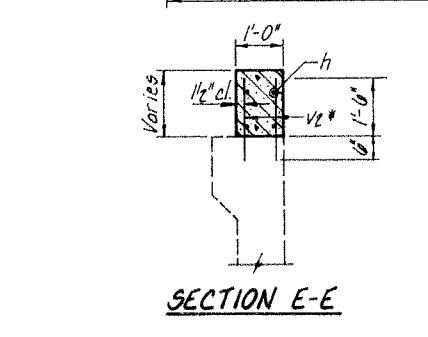
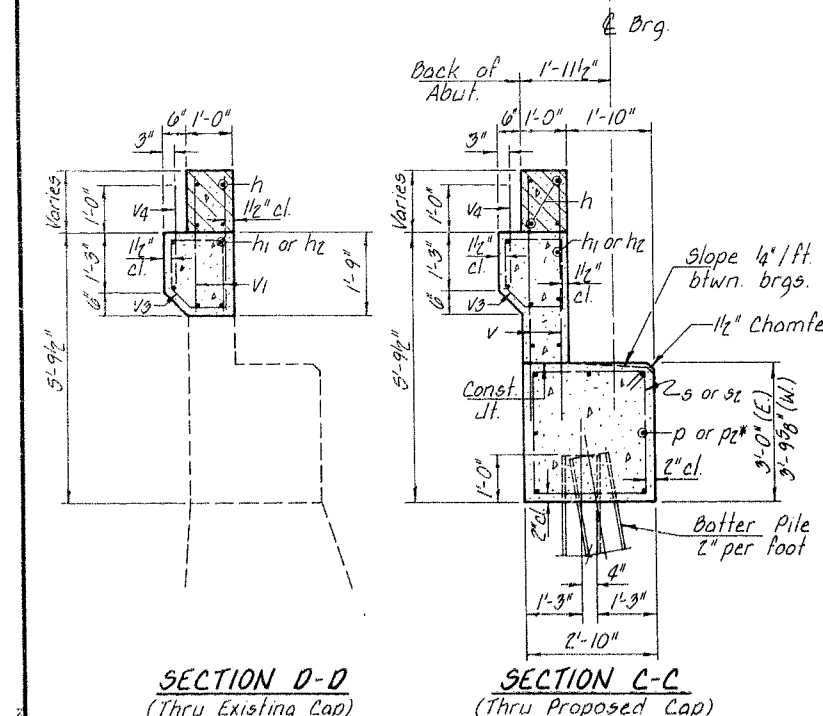
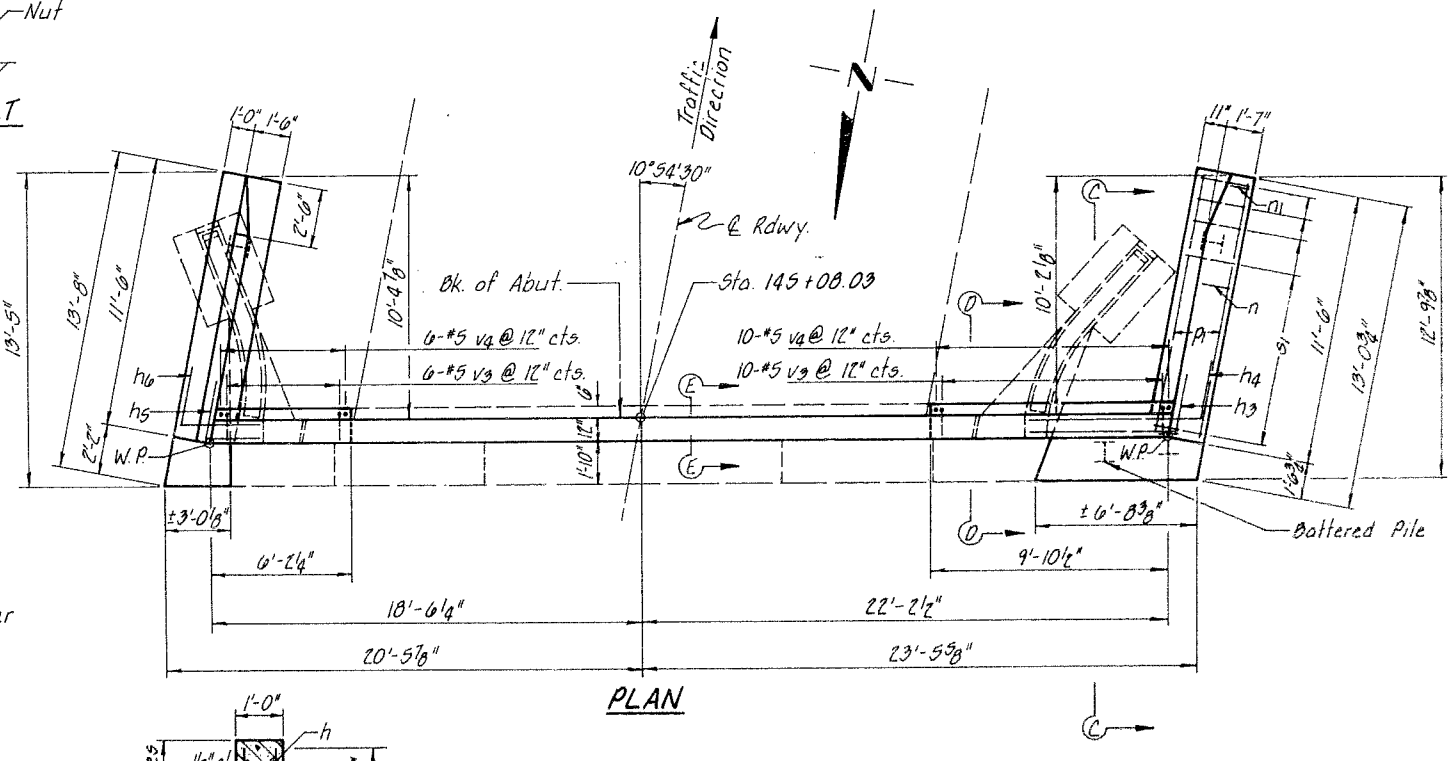
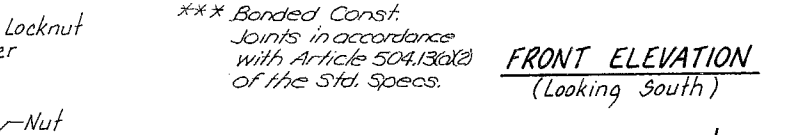
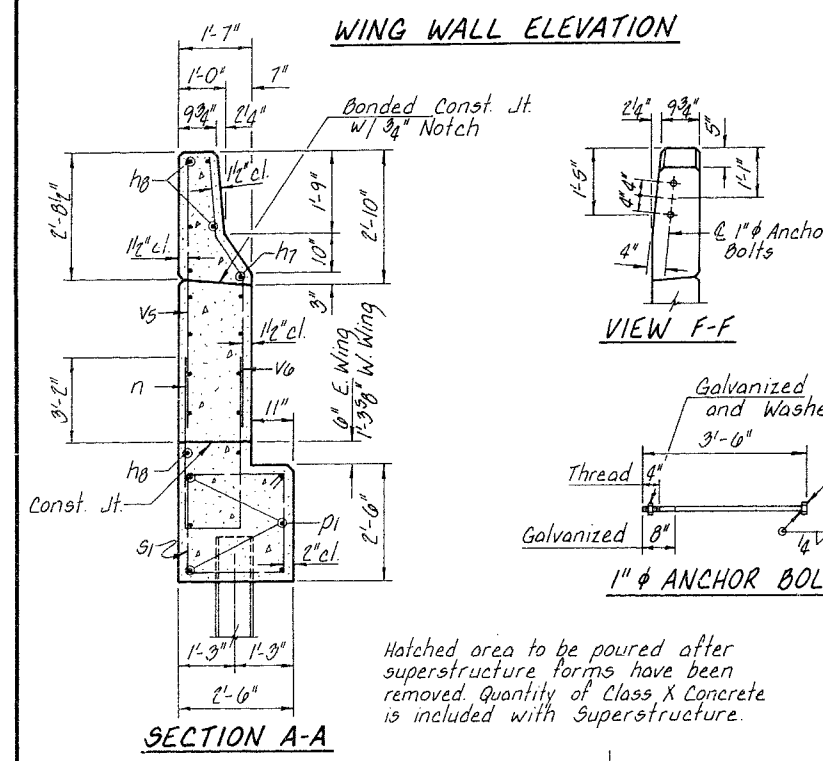
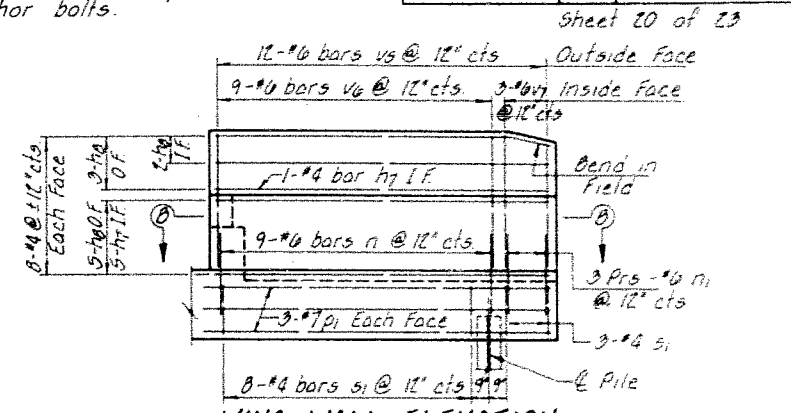
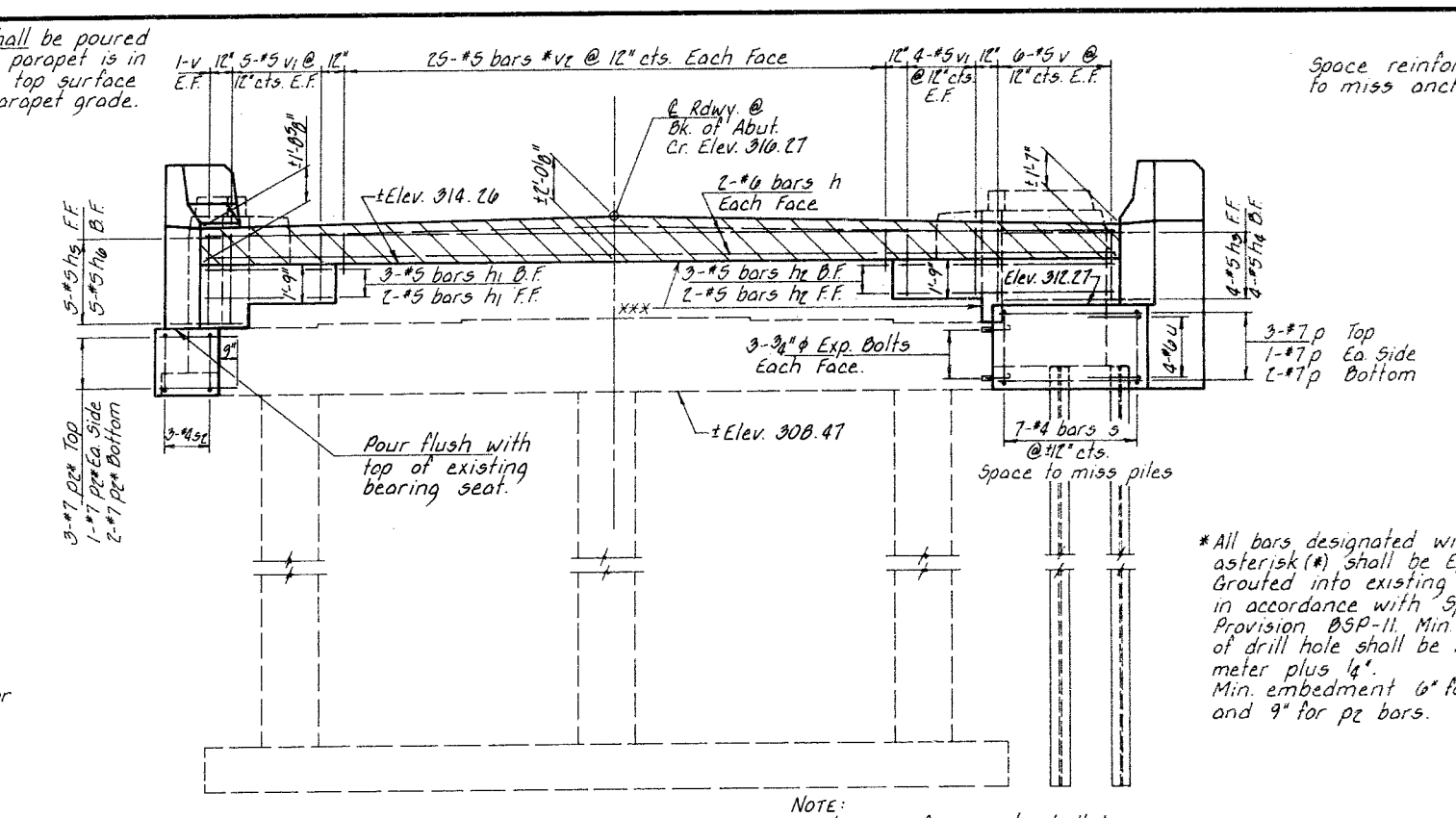
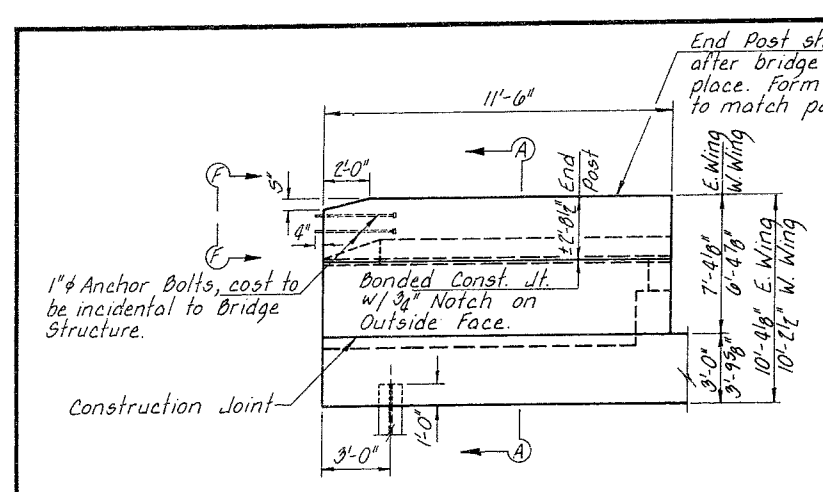
**SOUTHEAST ABUTMENT**

FAI ROUTE 57  
 SECTION 139 VBR  
 KANKAKEE COUNTY  
 STATION 143+72

**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED Z.B.U. CHECKED J.K.K.  
 DRAWN J.B. DATE 2-20-86 NO 1006





\*All bars designated with an asterisk (\*) shall be Epoxy Grouted into existing concrete in accordance with Special Provision BSP-11. Min diameter of drill hole shall be bar diameter plus 1/4". Min. embedment 6" for v<sub>2</sub> bars and 9" for p<sub>2</sub> bars.

NOTE: Existing reinforcement shall be cleaned, straightened & incorporated into new construction.

**SECTION B-B**  
 Work this sheet with sheet 21  
**BILL OF MATERIAL ~ S.W. ABUT.**

BAR	NO REQ'D	SIZE	LENGTH	SHAPE
h	4	#6	40'-0"	—
h1	5	#5	5'-8"	—
h2	5	#5	4'-9"	—
h3	4	#5	3'-9"	—
h4	4	#5	10'-0"	—
h5	5	#5	4'-9"	L
h6	5	#5	6'-0"	L
h7	12	#4	11'-3"	—
h8	20	#4	11'-3"	—
n	18	#6	11'-3"	—
n1	12	#6	4'-8"	L
p	7	#7	6'-0"	—
p1	12	#7	12'-9"	—
p2*	7	#7	3'-0"	—
s	7	#4	12'-9"	□
s1	22	#4	9'-5"	—
s2	3	#4	11'-1"	—
u	4	#6	4'-7"	□
v	18	#5	5'-3"	—
v1	14	#5	3'-2"	—
v2*	50	#5	1'-0"	—
v3	16	#5	5'-2"	□
v4	16	#5	2'-3"	—
v5	28	#4	6'-3"	—
v6	18	#6	6'-3"	L
v7	6	#6	6'-3"	L
Class X Concrete			Cu Yd	10.0
Reinforcement Bars			Pound	2,030
Expansion Bolts 3/8" x 12" Each				6
Steel Piles HPI0 x 4E			Lin Ft	148
Protective Coat			Sq Yd	10

**PILE DATA**  
 Type \_\_\_\_\_ Steel HPI0 x 4E  
 No. Required \_\_\_\_\_ 4  
 Capacity \_\_\_\_\_ Drive to Refusal  
 Est. Length \_\_\_\_\_ 36 Feet/Pile

**SOUTHWEST ABUTMENT**  
 FAI ROUTE 57  
 SECTION 139 VBR  
 KANKAKEE COUNTY  
 STATION 143+72

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COLLINS AND RICE  
 CONSULTING ENGINEERS

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DESIGNED Z.O.U. CHECKED J.K.K.  
 DRAWN J.B. DATE 2-20-86 NO 2006

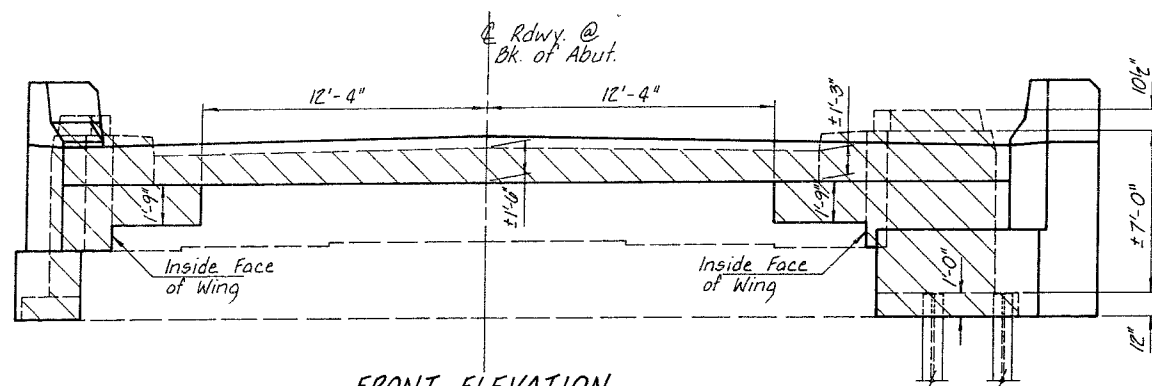
**CONRAIL R.R.D. 20/23**

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 57	139 VBR	KANKAKEE	02	07
FED. ROAD DIST. NO. 7		ILLINOIS PROJECT		

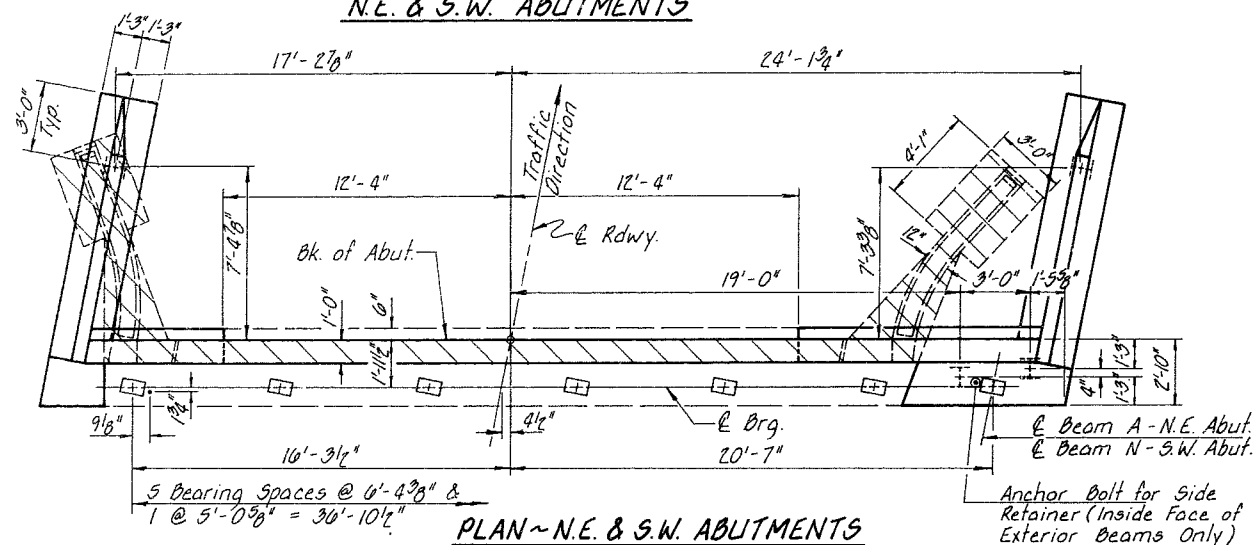
Sheet 21 of 23

NOTE:  
 Hatched areas indicate Concrete Removal  
 Approximate Quantities:  
 N.E. Abutment = 91 Cu. Yds.  
 N.W. Abutment = 91  
 S.E. Abutment = 92  
 S.W. Abutment = 92  
 Total = 366 Cu. Yds.

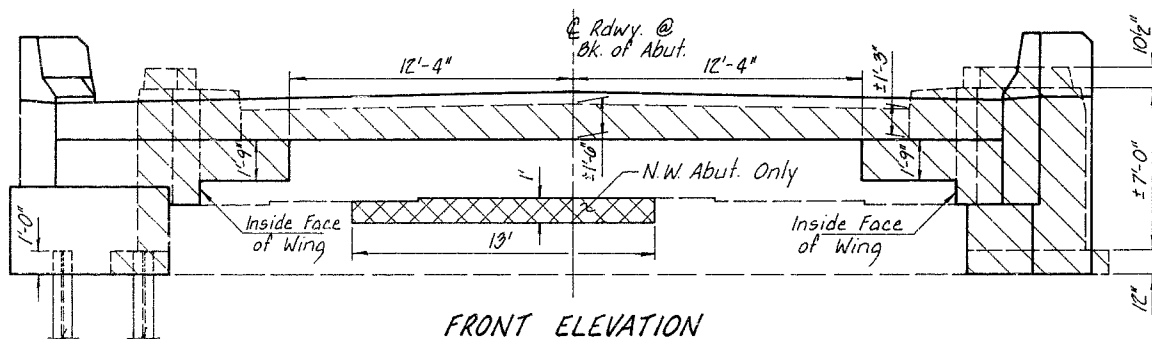
Cross-hatched area indicates Repair Concrete Structures at N.W. Abutment only.  
 Approximate Quantity = 13 Sq. Ft.



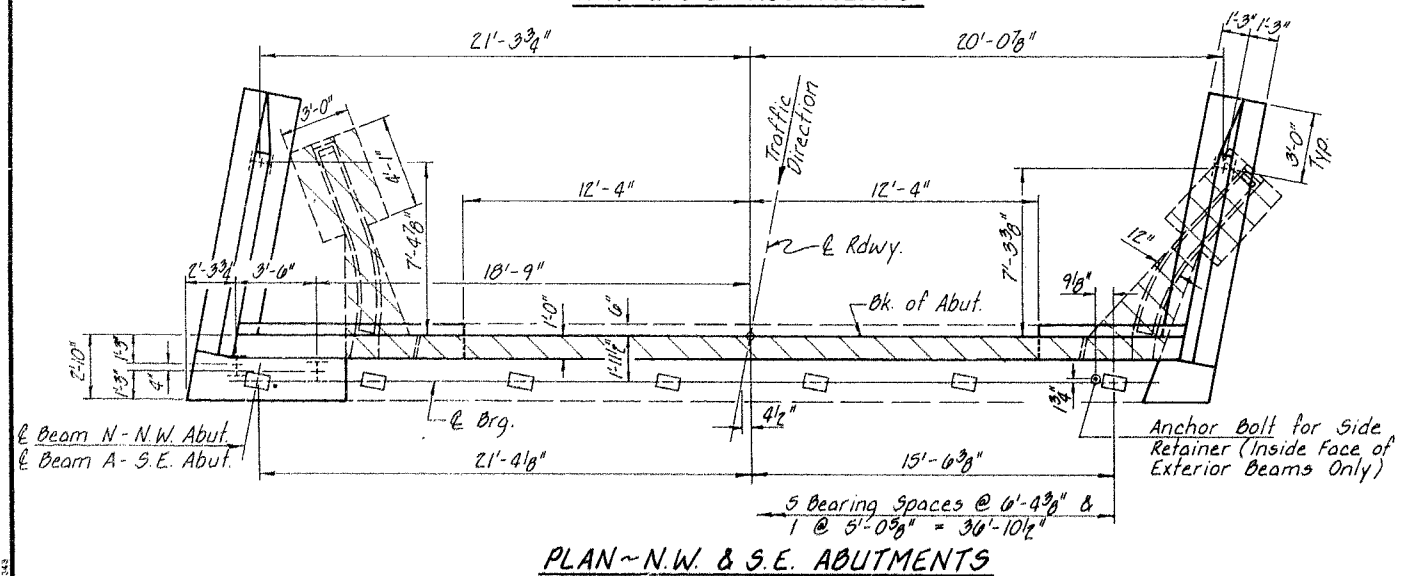
**FRONT ELEVATION  
N.E. & S.W. ABUTMENTS**



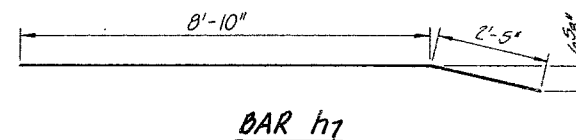
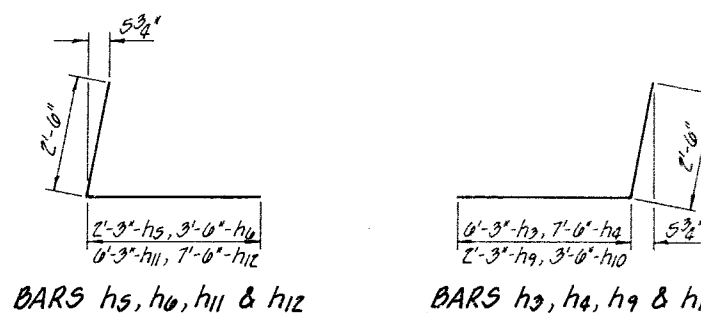
**PLAN ~ N.E. & S.W. ABUTMENTS**



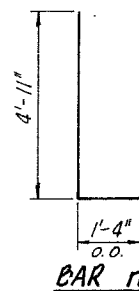
**FRONT ELEVATION  
N.W. & S.E. ABUTMENTS**



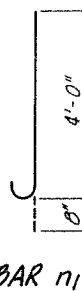
**PLAN ~ N.W. & S.E. ABUTMENTS**



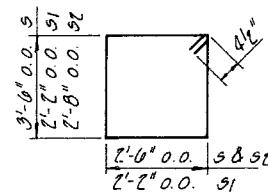
**BAR h7**



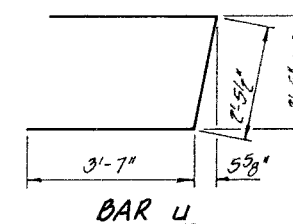
**BAR n**



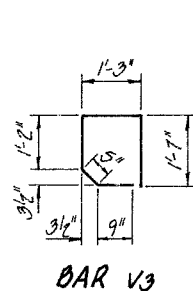
**BAR n1**



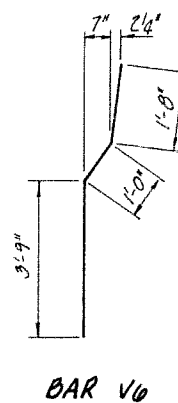
**BARS s, s1 & s2**



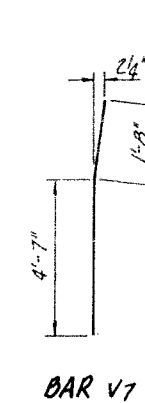
**BAR u**



**BAR v3**



**BAR v6**



**BAR v7**

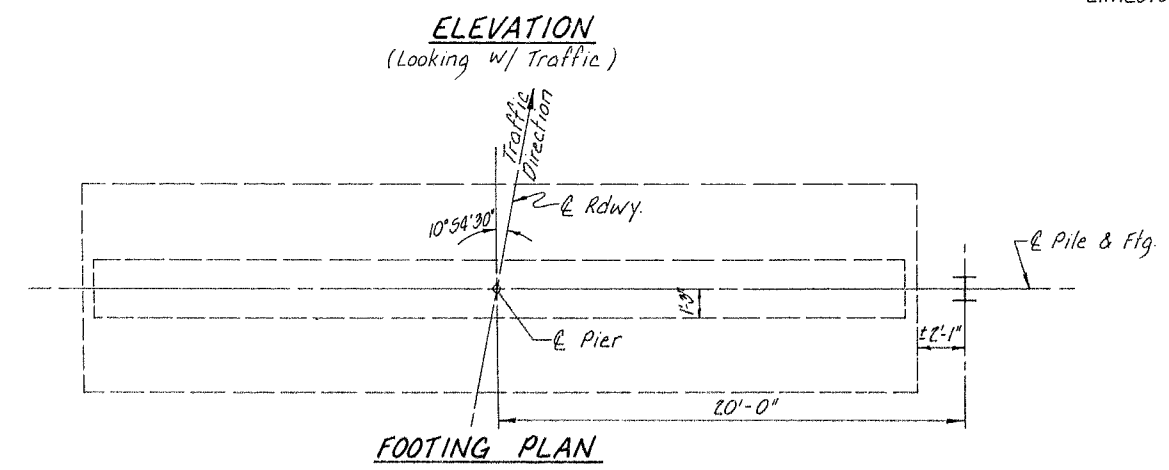
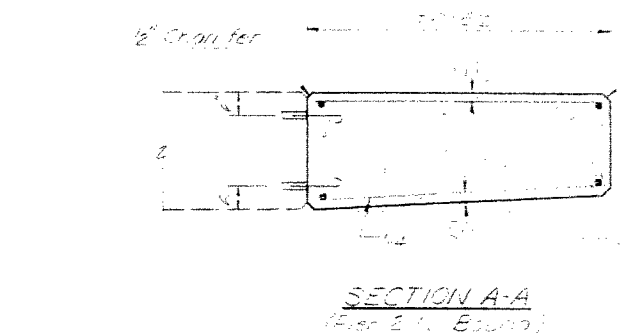
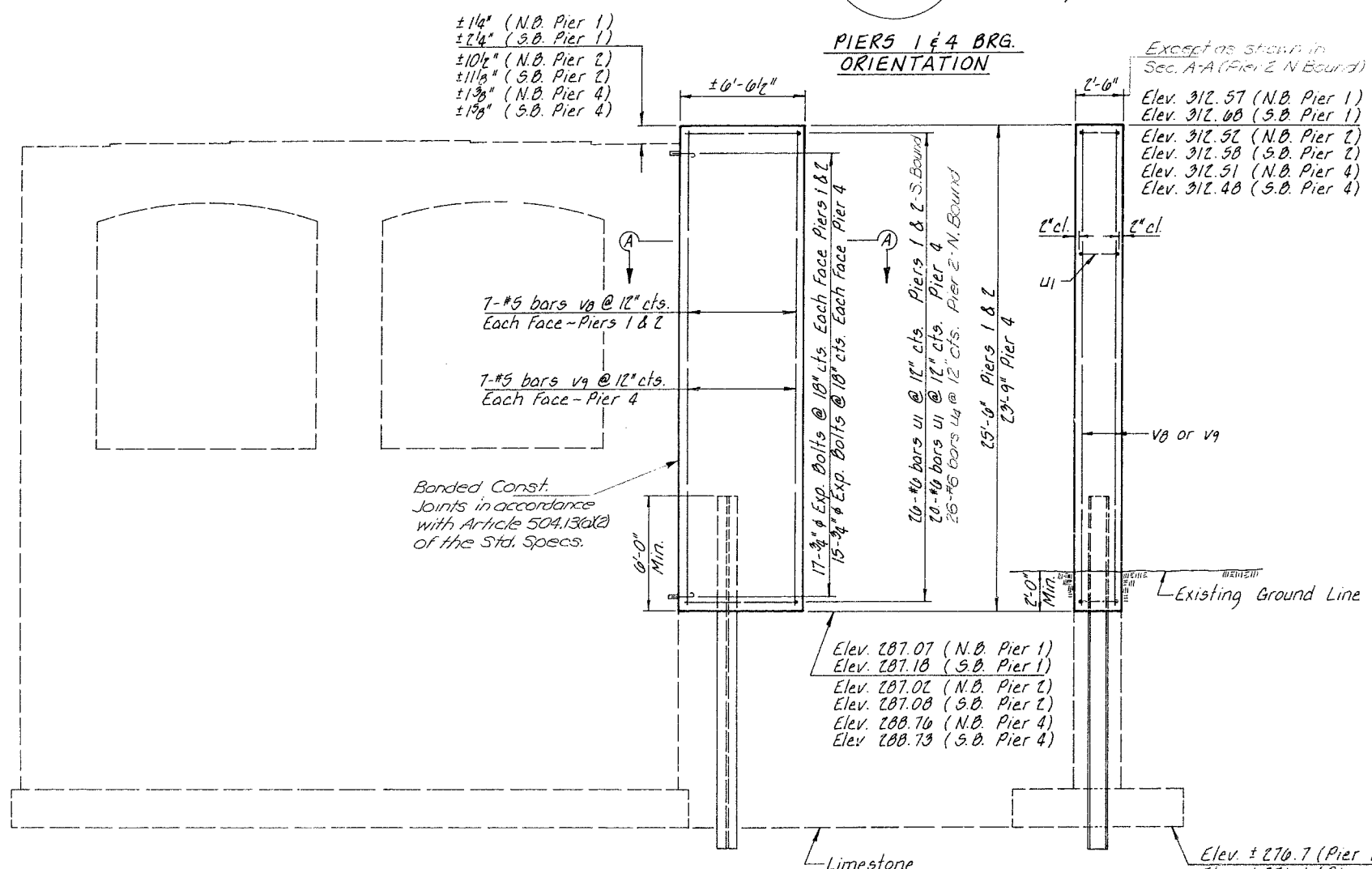
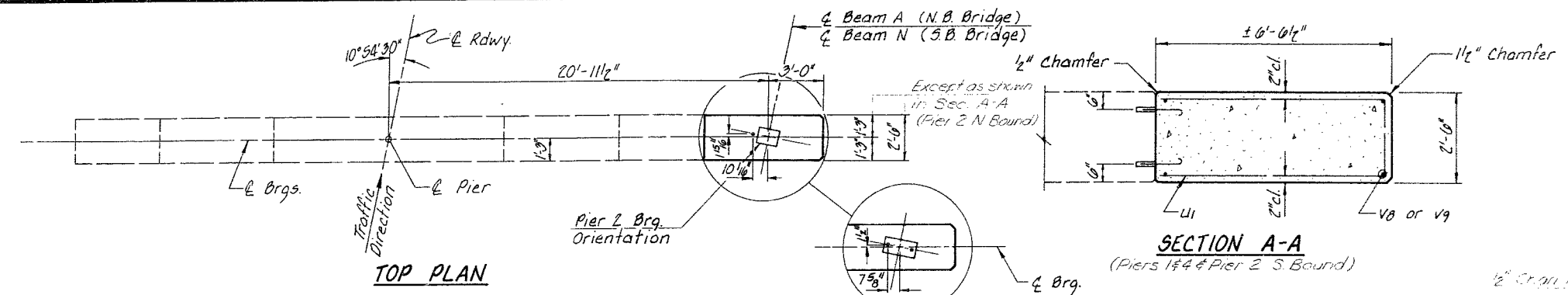
Work this sheet with sheets 17, 18, 19 & 20

**ABUTMENT DETAILS**  
 FAI ROUTE 57  
 SECTION 139 VBR  
 KANKAKEE COUNTY  
 STATION 143+72

**COLLINS AND RICE**  
 CONSULTING ENGINEERS

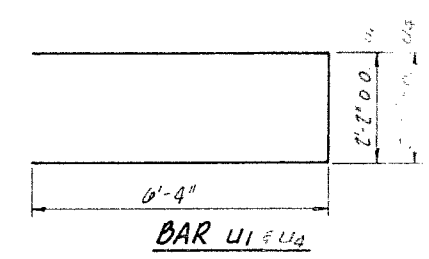
DESIGNED Z.B.U. CHECKED J.R.K.  
 DRAWN J.D. DATE 2-20-86 NO. 2006

**CONRAIL R.R.D. 27/23**



**PILE DATA**

Type	Steel HP12x53
No. Required	6
Capacity	Drive to Refusal
Est. Length	18 Feet/Pile (Pier 1) 18 Feet/Pile (Pier 2) 20 Feet/Pile (Pier 4)



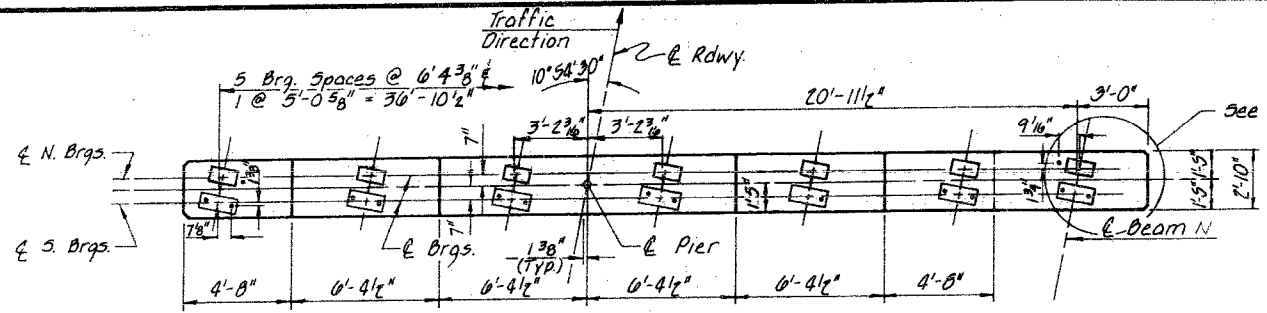
**BILL OF MATERIAL - PIERS 1, 2 & 4**

BAR	No. Req'd	SIZE	LENGTH	SHAPE	
U1	125	#6	18'-10"	□	
U2	26	#6	14'-8"	□	
V8	56	#5	25'-3"	—	
V9	28	#5	25'-6"	—	
Class X Concrete				Cu Yd	90.7
Reinforcement Bars				Pound	5,550
Expansion Bolts 3/4" x 12" Each					196
Steel Piles HP12x53				Lin Ft	112

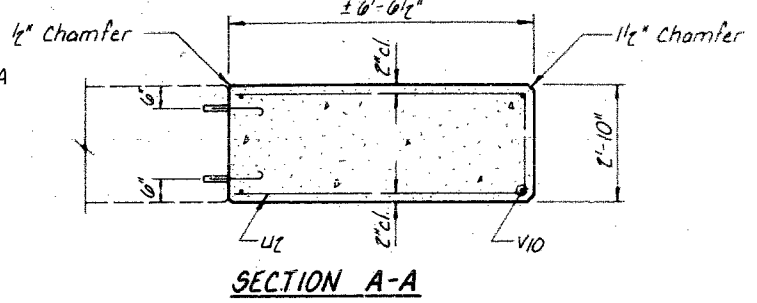
**PIERS 1, 2 & 4**  
 FAI ROUTE 57  
 SECTION 139 VBR  
 KANKAKEE COUNTY  
 STATION 143+72

**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED Z.B.U. CHECKED J.K.K.  
 DRAWN J.B. DATE 2-20-06 NO. 1006

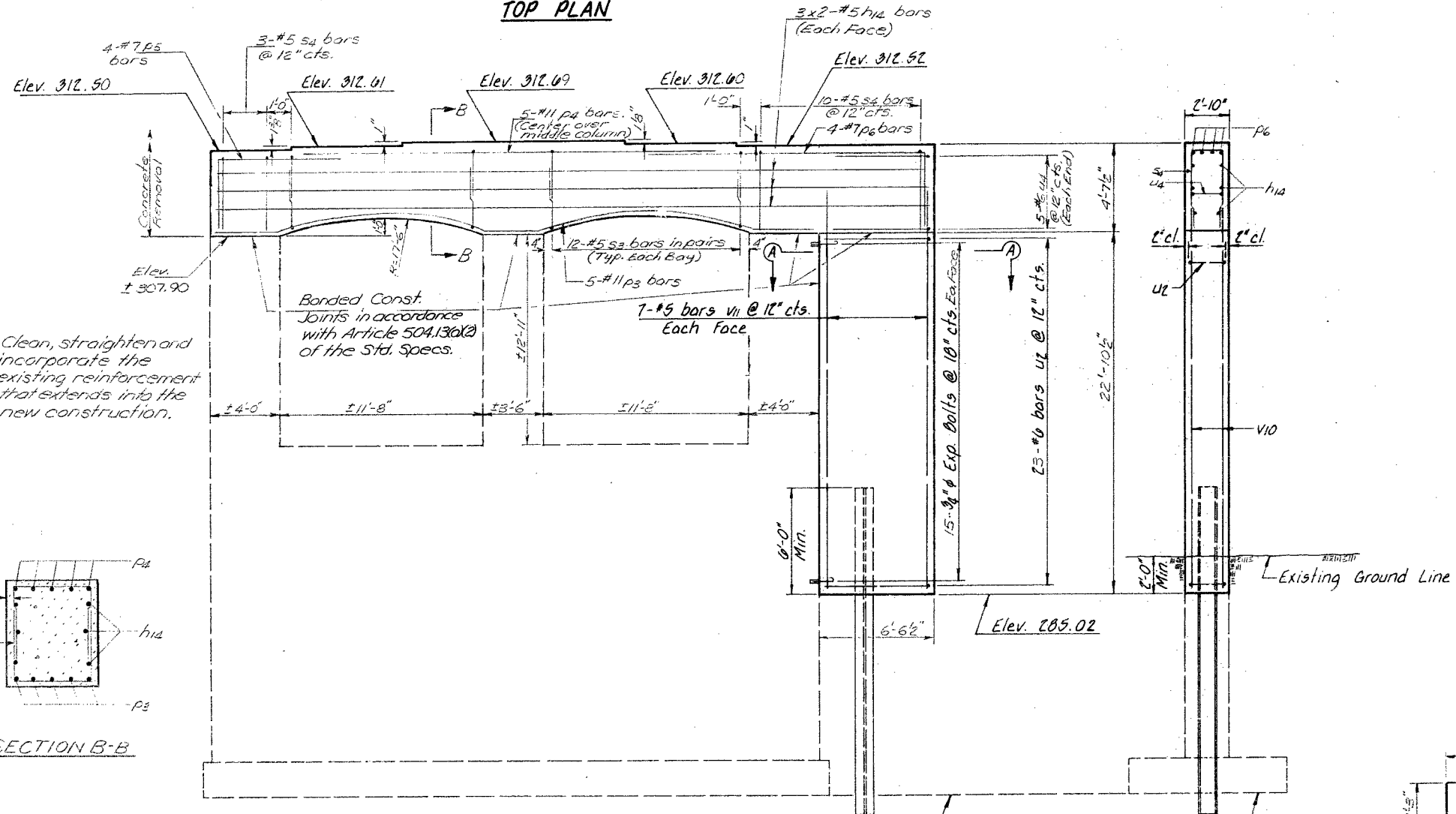


**TOP PLAN**



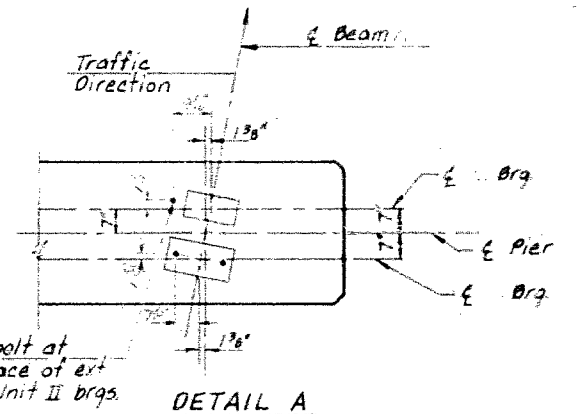
**SECTION A-A**

MIN. BAR LAP  
= 3'-3"



**ELEVATION**  
(Looking W/ Traffic)

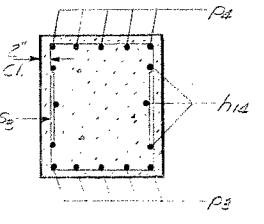
**END VIEW**



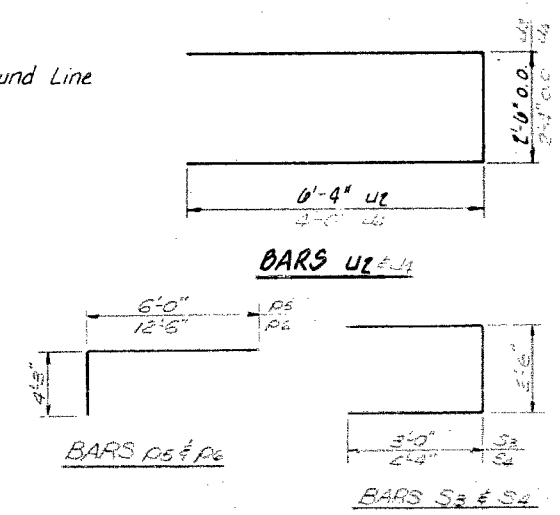
**DETAIL A**

Note: Clean, straighten and incorporate the existing reinforcement that extends into the new construction.

Bonded Const. Joints in accordance with Article 504.130(2) of the Std. Specs.



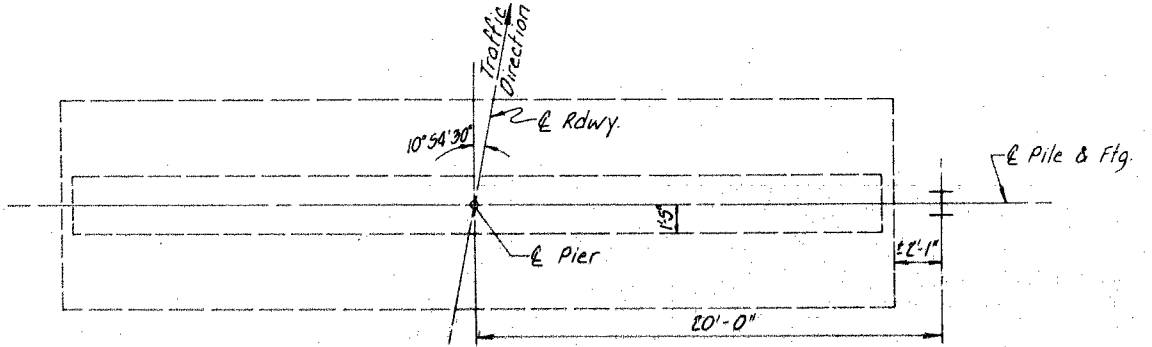
**SECTION B-B**



**BARS U2 & U4**

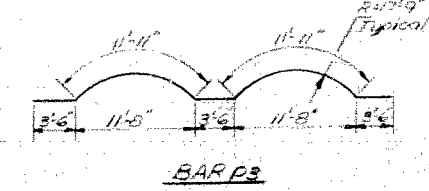
**BARS P5 & P6**

**BARS S2 & S4**



**FOOTING PLAN**

**PILE DATA**  
 Type: Steel HP12x59  
 No. Required: 1  
 Capacity: Drive to Refusal  
 Est. Length: 10 Feet/Pile



**BARS P3**

Bar	No. Req'd	Size	Length	Spaced
P4	12	#5	21'-5"	
P5	5	#7	32'-0"	
P6	2	#7	32'-0"	
P3	4	#5	21'-5"	
S2	12	#5	21'-5"	
S4	13	#5	11'-5"	
U2	10	#5	10'-5"	
U4	12	#5	21'-5"	

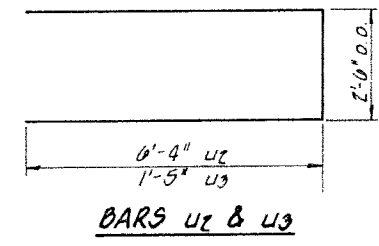
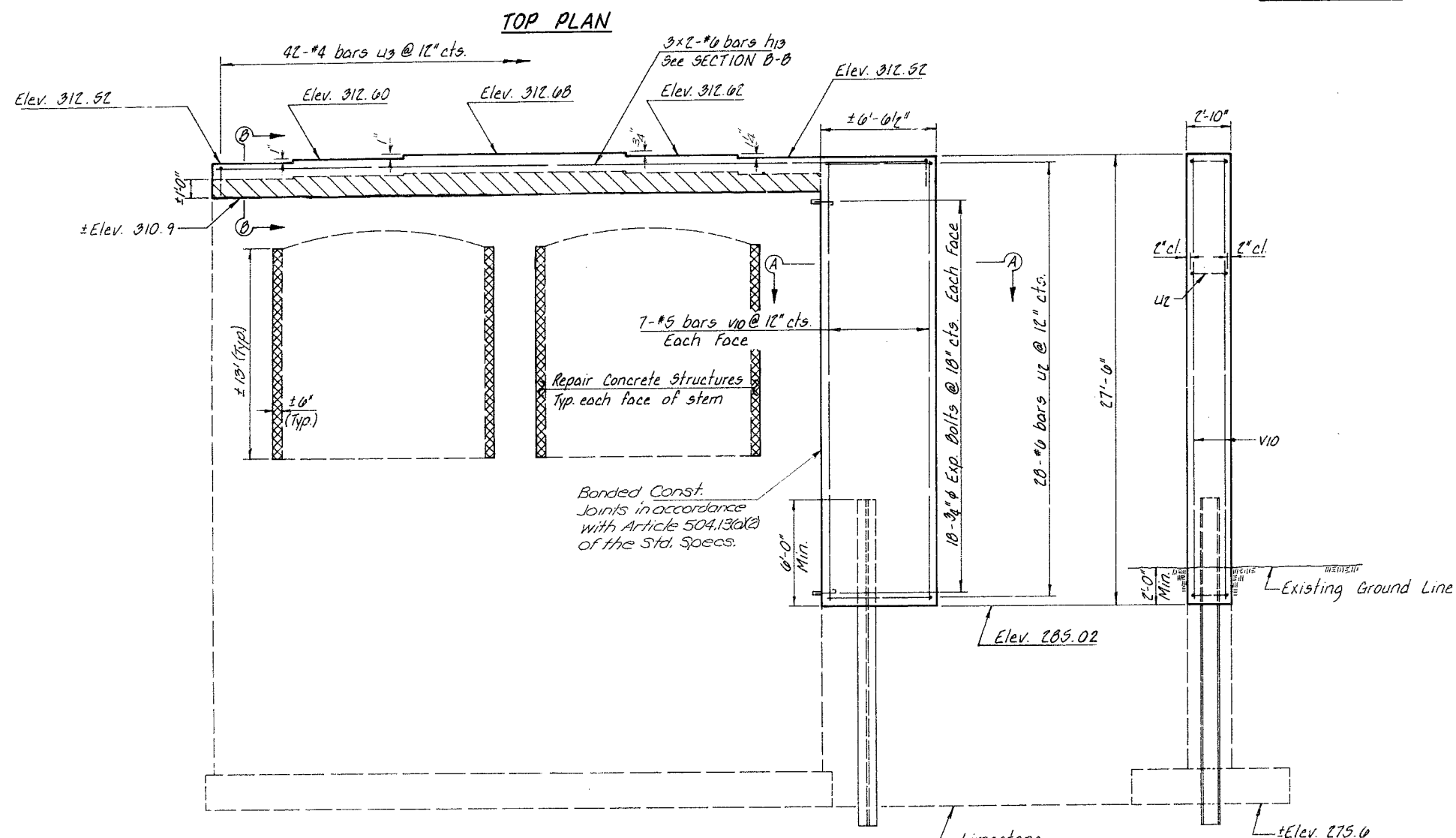
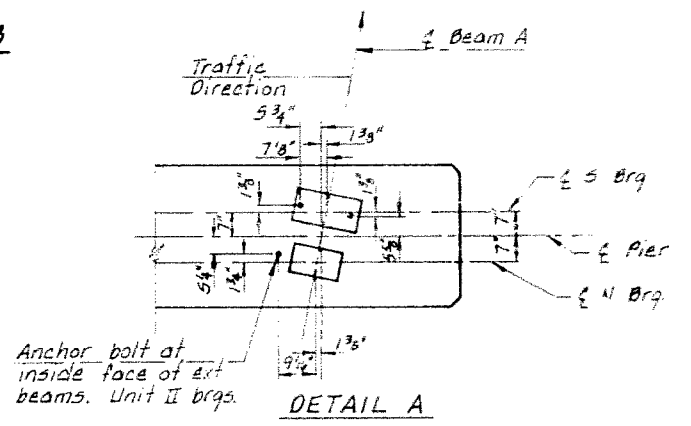
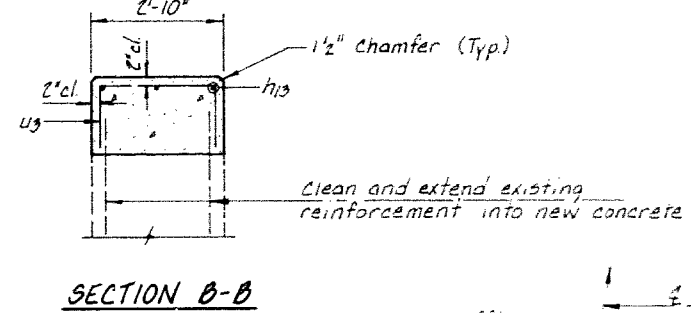
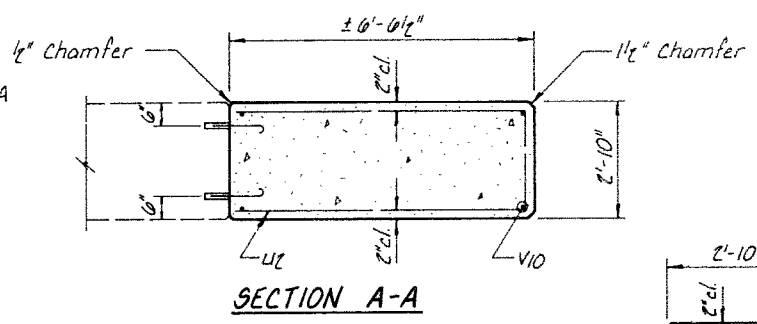
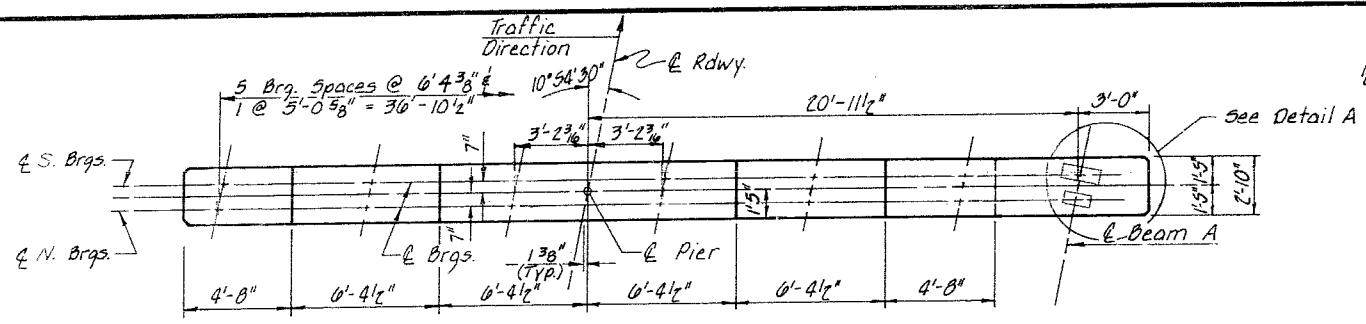
  

Class X Concrete	Cu Yd	1.7
Reinforcement Bars	Pound	5.7
Expansion Bolts 3/4" x 12" Each		
Steel Piles HP12x59	Lin. Ft.	
Concrete Removal	Cu Yd	1.5

NOTE: Bars indicated thus 3x2-#5 etc. indicates 3 lines of bars with 2 lengths per line.

**PIER 9 South Bound**  
 FAI ROUTE 57  
 SECTION 139 VBR  
 KANKAKEE COUNTY  
 STATION 143+72

**COLLINS AND RICE**  
 CONSULTING ENGINEERS  
 DESIGNED: ZOU  
 CHECKED: J.R.K.  
 DATE: 6-20-89  
 NO. 1006



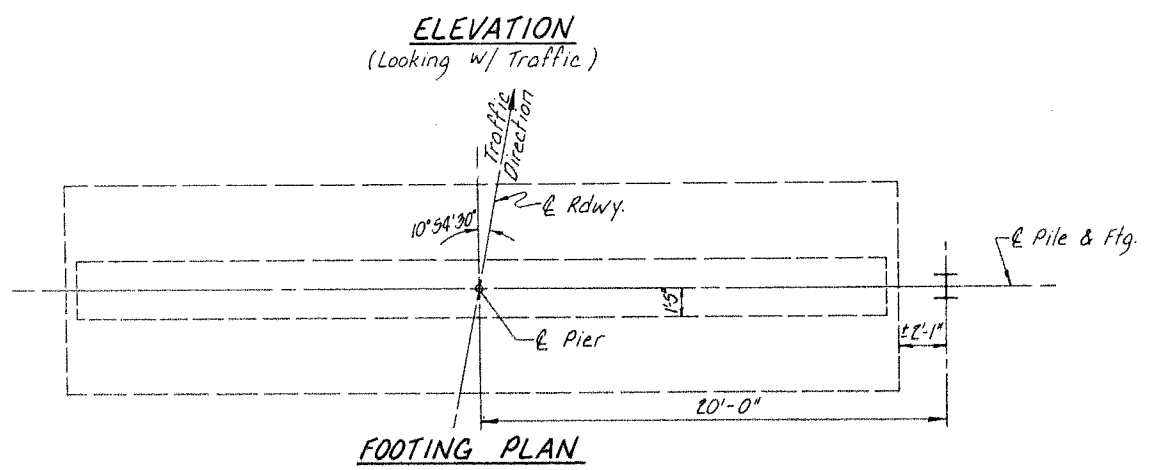
**BILL OF MATERIAL - PIER 3**

BAR	NO REQ'D	SIZE	LENGTH	SHAPE
h13	3	#6	21'-6"	—
U2	2	#6	15'-7"	□
U3	2	#4	5'-4"	□
V10	1	#5	27'-9"	—

Class X Concrete	Cu Yd	—
Reinforcement Bars	Pound	—
Expansion Bolts 3/4" x 12"	Each	—
Steel Piles HP12 x 53	Lin Ft	—
Repair Concrete Structures	Sq. Ft.	—
Concrete Removal	Cu Yd	—

Note: Bars indicated thus 3x2-#6 etc. indicates 3 lines of bars with 2 lengths per line.



**PILE DATA**  
 Type — Steel HP12 x 53  
 No. Required — 1  
 Capacity — Drive to Refusal  
 Est. Length — 10 Feet/Pile

**PIER 3 North Bound**  
 FAI. ROUTE 57  
 SECTION 139 VOR  
 KANKAKEE COUNTY  
 STATION 143+72

**COLLINS AND RICE**  
 CONSULTING ENGINEERS

DESIGNED Z.B.U.      CHECKED J.K.K.  
 DRAWN J.O.              DATE 2-20-86      NO. E006