

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED
FEDERAL AID PRIMARY HIGHWAY
CONSTRUCTION PLANS**

F.A. ROUTE 412

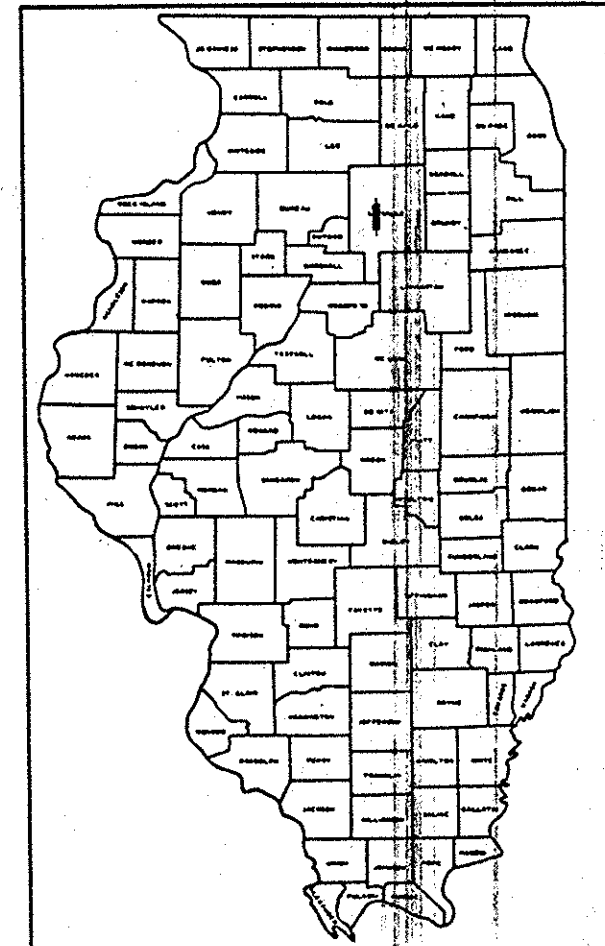
SECTION 50-4B(F&E)

LA SALLE COUNTY

PROJECT BR-F-412-4(42)
C-93-081-93

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA 412	50-4B(F&E)	LA SALLE	26	1

P-93-021-74



LOCATION OF SECTION INDICATED THUS: —

LA SALLE (099)
50-4B (F & E)
FA 412
3
36626
C-93-081-83
BRF-412-4 (42)

INDEX OF SHEETS

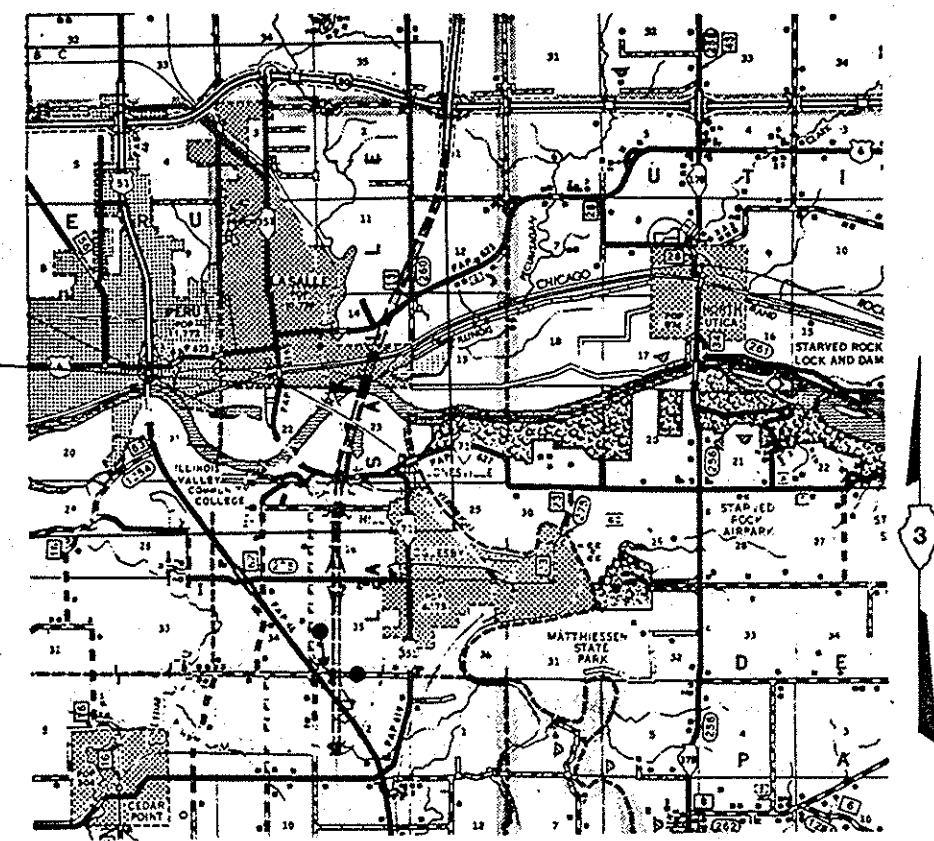
- SHEET 1 COVER SHEET
- SHEET 2 PLAN AND PROFILE
- SHEET 3 THRU 26 STRUCTURE 50-4B(F&E)

X034-2B SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	QUANTITY
507001	FURNISHING AND ERECTING STRUCTURAL STEEL	L.SUM	1
X04474	MAINTAINING ENGINEER'S FIELD OFFICE	CAL.MO.	24
X04748	MOBILIZATION	L.SUM	1
* Z10527	TRAINEES	HOUR	1,000

* *Constr. Type Code Y080*
SECTION 50-4B(F&E) INCLUDES
THE FURNISHING, FABRICATING, TRANSPORTING AND ERECTING OF ALL STRUCTURAL STEEL AND OTHER ITEMS FOR TIED ARCH SPAN.

STRUCTURE 50-4B(F&E)
TIED ARCH
LENGTH: 620.50 FT.
BEGINNING STATION 860+05.75
END STATION 866+26.25



LAYOUT

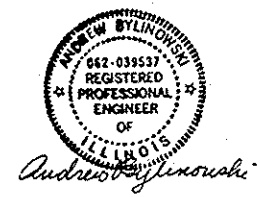
TOTAL LENGTH OF SECTION = 620.50 FEET = .12 MILES

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

SUBMITTED: 7-11 1983
EXAMINED: 9-15 1983
PASSED: 9-15 1983
APPROVED: 9-15 1983

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

APPROVED _____ DATE _____



CONTRACT NO. 36626
DESIGN DESIGNATION

FA 412 13,000(2005) SUPPLEMENTAL FREEWAY (TRUNK HIGHWAY)

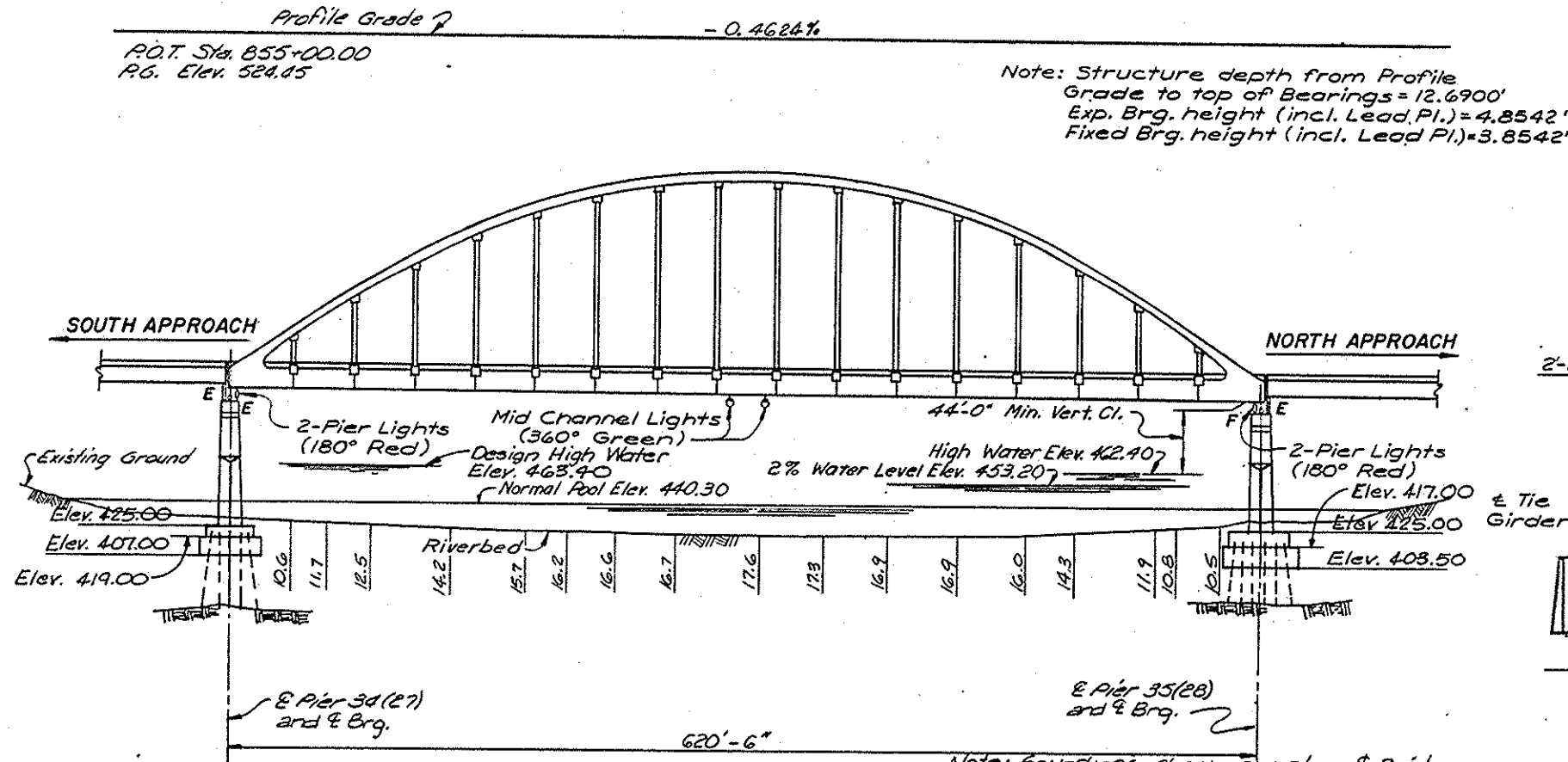
PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA-412	50-4B (F&E)	LASALLE	26	3
FED. ROAD DIST. NO.	ILLINOIS PROJECT EBF-412-4(6)			

WATERWAY INFORMATION

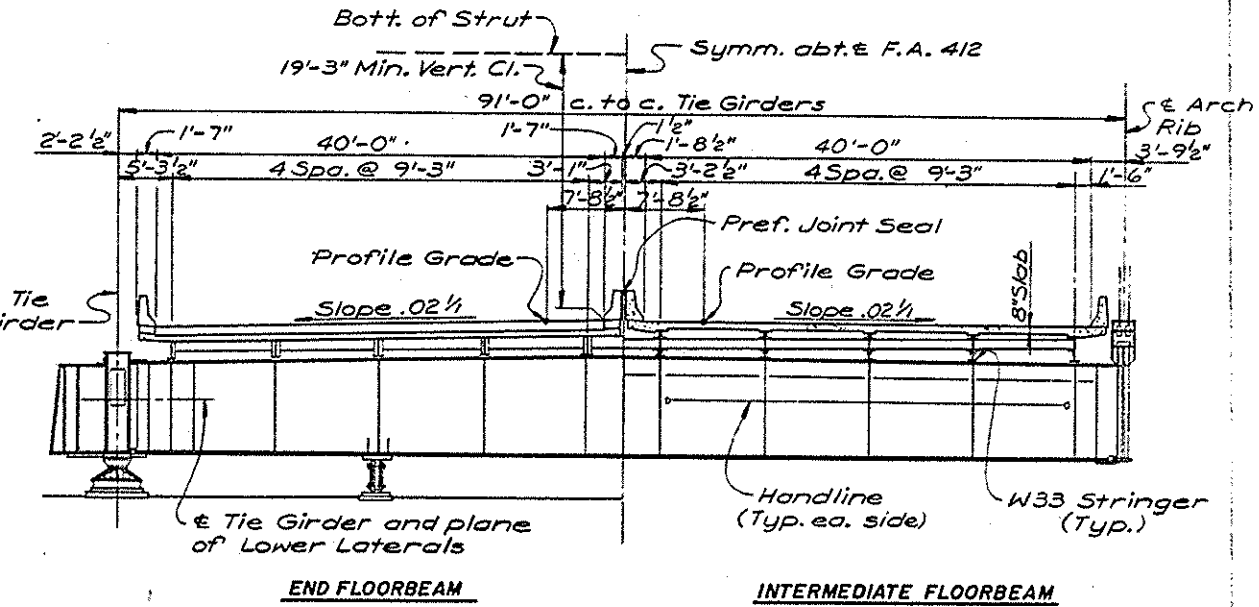
Flood	Freq. Yr.	Opening Sq. Ft.		Not. Head - Ft.		Headwater Elev.	
		Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Design	50	86,000	70,585	462.4	-	-	463.4
Base	100	92,800	77,185	464.9	-	-	464.9
Overtopping							
Max. Calc.	500						

* Gross waterway opening (Includes Piers)

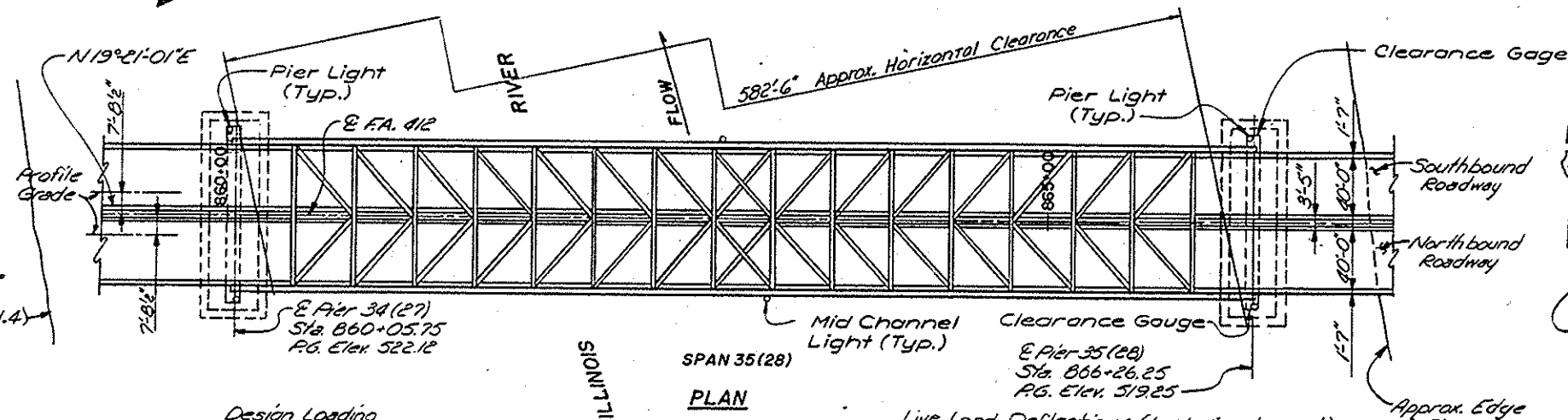


Note: Structure depth from Profile Grade to top of Bearings = 12.6900'
Exp. Brg. height (incl. Lead Pl.) = 4.8542'
Fixed Brg. height (incl. Lead Pl.) = 3.8542'

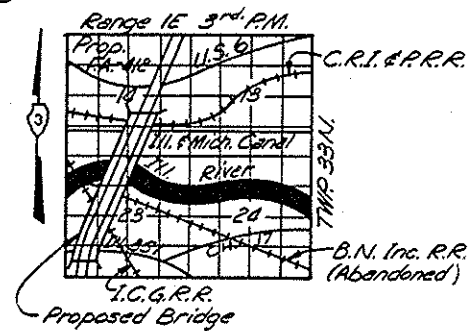
ELEVATION



TYPICAL CROSS SECTION



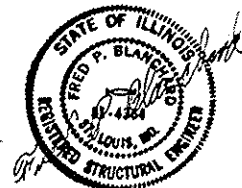
PLAN



LOCATION PLAN

Bridge Grounding Note:
Ground cables have been installed in the up-stream column of Pier 34 (27) and the down-stream column of Pier 35 (28) by others. Include in this Contract fastening of ground cables to Tied Arch Span steel with compression lugs bolted and brazed to steel members.

APPROVED
[Signature]



BENCH MARK
B.M. #23 - Railroad Spike in north base of 20' Willow tree 150'± right of & Sta. 867+67. Elev. 448.76

TIED ARCH SPAN

GENERAL PLAN AND ELEVATION
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B(F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

Design Loading
Live Load-HS20-44 with alternate Military Loading.
Dead load includes 25 lbs./sq. ft. of roadway for future wearing surface.
Earthquake in accordance with Article 1.2.20 of AASHTO Spec. for Zone I.

Design Stresses
Load Factor Design - Stringers and Floorbeams.
 $f_y = 36,000$ psi - M1183 & 50,000 psi - M1222 & M1223 (Grade 50) Structural Steel.
Working Stress Design - Tied Arches (including Hangers),
 $f_s = 20,000$ psi - M1183 & 27,000 psi - M1222 & M1223 (Grade 50).
Bridge Strand (f_s) = 65,000 pounds per sq. in. (based on F.S. = 3.0).

Live Load Deflections (Including Impact)
Tied Arch, stringers, and floorbeams = $\frac{L_s}{1000}$
Cantilever Arm of Stringers = $\frac{L_s}{300}$
 L_s is the distance between center of supports.
 L_c is the length of cantilever arm.

Pier Numbering
Pier 34 and 35 for Structural Steel Approaches
Pier (27) and (28) for Post-Tensioned Concrete Approaches

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

6692
825392

C. Wieczorek
DESIGNED
G. J. Roufa
CHECKED
D. T. Smithpeters
DRAWN
C. Wieczorek
CHECKED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 412	50-4B (F&E)	LASALLE	26	4
FED. ROAD DIST. NO.		ILLINOIS PROJECT EBF-412-4(6)		

GENERAL NOTES

DESIGN SPECIFICATIONS: IN ACCORDANCE WITH AASHTO 1977 EDITION AND 1978, 1979, 1980, 1981, AND 1982 INTERIM SPECIFICATIONS.

SUPERSTRUCTURE - STRUCTURAL STEEL:

ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M-183 UNLESS OTHERWISE NOTED. STEEL INDICATED M-223 SHALL BE GRADE 50.

CALCULATED WEIGHT OF STRUCTURAL STEEL:

2,255,500 Lbs. M-183
4,064,590 Lbs. M-223, GRADE 50 & M-222
68,290 Lbs. M-192, GRADE 90

ALL SHOP AND FIELD CONNECTIONS, OTHER THAN WELDED SHALL BE MADE WITH 7/8" Ø HIGH STRENGTH BOLTS AND 15/16" Ø HOLES AND CONFORM TO AASHTO M-164 UNLESS OTHERWISE NOTED. SHOP BOLTS ARE SHOWN ON THE PLANS BY THE SYMBOL (+), AND FIELD BOLTS BY (+). SHOP AND FIELD CONNECTIONS MAY BE INTERCHANGED AT THE OPTION OF THE CONTRACTOR.

FRACTURE CRITICAL MEMBER REQUIREMENTS ARE MANDATORY FOR TIE GIRDERS, KNUCKLES. THESE COMPONENTS ARE NOTED F.C.M. ON THE PLANS. SEE SPECIAL PROVISIONS.

SUPPLEMENTAL NOTCH TOUGHNESS REQUIREMENTS (ZONE 2) ARE MANDATORY FOR ALL STRINGERS, LINK BARS, SPLICE PLATES, AND BOTTOM FLANGES AND WEBS OF ALL FLOORBEAMS. THESE COMPONENTS ARE NOTED N.T.R. ON PLANS. SEE SPECIAL PROVISIONS.

PROVISIONS HAVE BEEN MADE FOR JACKING THE TOTAL DEAD LOAD ONLY, OF THE ARCH SPAN AT BOTH PIERS.

A COMPLETE PENETRATION GROOVE WELD SHALL BE USED WHENEVER THE TERM "GROOVE WELD" IS USED ON THE PLANS. FIELD WELDING OF CONSTRUCTION ACCESSORIES WILL NOT BE PERMITTED TO ANY PART OF THE ARCH TIES, THE BOTTOM FLANGES AND WEBS OF FLOORBEAMS AND STRINGERS OR TO THE TOP FLANGE OF STRINGERS FOR A DISTANCE EQUAL TO ONE-FOURTH THE SPAN LENGTH EACH WAY FROM THE CENTER OF SUPPORT OVER WHICH THE MEMBER IS CONTINUOUS. FIELD WELDING IN OTHER AREAS WILL BE PERMITTED ONLY WHEN APPROVED BY THE ENGINEER.

ARCH SPAN SHALL BE FABRICATED TO THE FINAL GEOMETRIC SHAPE UNDER FULL DEAD LOAD EXCLUDING FUTURE WEARING SURFACE. A FABRICATION ALLOWANCE SHALL BE MADE FOR SHORTENING OF THE ARCH RIB AND LENGTHENING OF THE TIE GIRDER AND HANGERS UNDER FULL DEAD LOAD EXCLUDING FUTURE WEARING SURFACE. SEE SPECIAL PROVISIONS.

HANGERS SHALL CONSIST OF MULTIPLE-WIRE BRIDGE STRAND CONFORMING TO ASTM A586 AND SHALL BE ZINC COATED. ZINC COATING SHALL BE CLASS C ON OUTER WIRES AND CLASS A ON INNER WIRES. MINIMUM METALLIC AREA OF EACH STRAND SHALL BE 1.59 SQUARE INCHES AND HAVE A MINIMUM BREAKING STRENGTH (EACH STRAND) OF 310 KIIPS. MODULUS OF ELASTICITY AFTER PRESTRESSING SHALL BE 24,000 KSI. SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER COMPLETE PLANS OF PROPOSED ERECTION SCHEMES FOR THE WORK SHOWING ERECTION LOAD STRESSES. ANY MATERIAL ORDERED PRIOR TO THE REVIEW OF THE ERECTION SCHEME BY THE ENGINEER SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ERECTION STRESSES SHALL BE COMPOSED OF THE STEEL DEAD LOAD OF THE STRUCTURE AND ERECTION EQUIPMENT PLUS THE STRESS FROM WIND OF 45 POUNDS PER SQUARE FOOT ON THE STRUCTURE AND ERECTION EQUIPMENT IN ELEVATION. ERECTION STRESSES SHALL NOT EXCEED NORMAL UNIT STRESS BY MORE THAN 33-1/3 PERCENT. NO PAYMENT WILL BE MADE FOR ANY EXTRA MATERIAL REQUIRED DUE TO ERECTION CONDITIONS. REVIEW OF THE ERECTION PLANS SHALL NOT RELIEVE THE CONTRACTOR FROM HIS FULL RESPONSIBILITY FOR THE SAFETY OF THE ERECTION SCHEMES.

SEE SPECIAL PROVISIONS FOR NAVIGATIONAL CONSIDERATIONS AND CONSTRUCTION IN NAVIGABLE WATERS.

THE ZINC-SILICATE AND VINYL PAINT SYSTEM SHALL BE USED FOR SHOP PAINTING AND FIELD PAINTING OF STRUCTURAL STEEL. SEE SPECIAL PROVISIONS.

ALL CONTACT SURFACES OF JOINTS WITH FRICTION TYPE BOLTS SHALL BE FREE OF PAINT OR LACQUER.

ALL LENGTHS SHOWN ON PLANS ARE AT A NORMAL TEMPERATURE OF 50° F. UNDER TOTAL DEAD LOAD EXCLUDING FWS, EXCEPT AS NOTED

IN THE APPLICATION OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS AND THE SUPPLEMENTARY REQUIREMENTS STATED HEREIN, THE FOLLOWING STRUCTURAL PARTS SHALL BE CLASSIFIED AS MAIN MEMBERS: STRINGERS, FLOORBEAMS, ARCH MEMBERS (TIES, HANGERS, AND RIBS), UPPER BRACING BETWEEN THE ARCH RIBS AND THE COMPONENTS OF THE LOWER LATERAL BRACING SYSTEM.

INDEX

- 1 GENERAL PLAN AND ELEVATION
- 2 GENERAL NOTES, ANCHOR BOLT PLAN AND QUANTITIES
- 3 ARCH GEOMETRY
- 4 STRESS SHEET
- 5 ARCH GEOMETRY AND STRESS SHEET
- 6 FLOOR SYSTEM AND STRINGER DETAILS
- 7 FLOOR SYSTEM AND STRINGER DETAILS
- 8 END FLOORBEAMS AND LIVE LOAD SUPPORTS
- 9 INTERMEDIATE FLOORBEAMS
- 10 ARCH RIB AND TIE GIRDER AT T
- 11 ARCH RIB AND TIE GIRDER DETAILS
- 12 ARCH RIB AND TIE GIRDER SPLICES
- 13 ARCH RIB AND TIE GIRDER AT T17 AND DIAPHRAGMS
- 14 HANGERS AND ACCESSORIES
- 15 LOWER LATERALS
- 16 UPPER LATERALS
- 17 EXPANSION BEARINGS
- 18 FIXED BEARINGS
- 19 NAVIGATION LIGHT ACCESS AT MID-CHANNEL
- 20 NAVIGATION LIGHT ACCESS AT PIERS
- 21 TOP OF SLAB ELEVATIONS
- 22 TOP OF SLAB ELEVATIONS
- 23 TOP OF SLAB ELEVATIONS
- 24 TOP OF SLAB ELEVATIONS

TOTAL BILL OF MATERIAL SUPERSTRUCTURE - STRUCTURAL STEEL		
ITEM	UNIT	QUANTITY
Furnishing and Erecting Structural Steel	L.SUM	1
Maintaining Engineer's Field Office	QAL.MO	24

NOTES

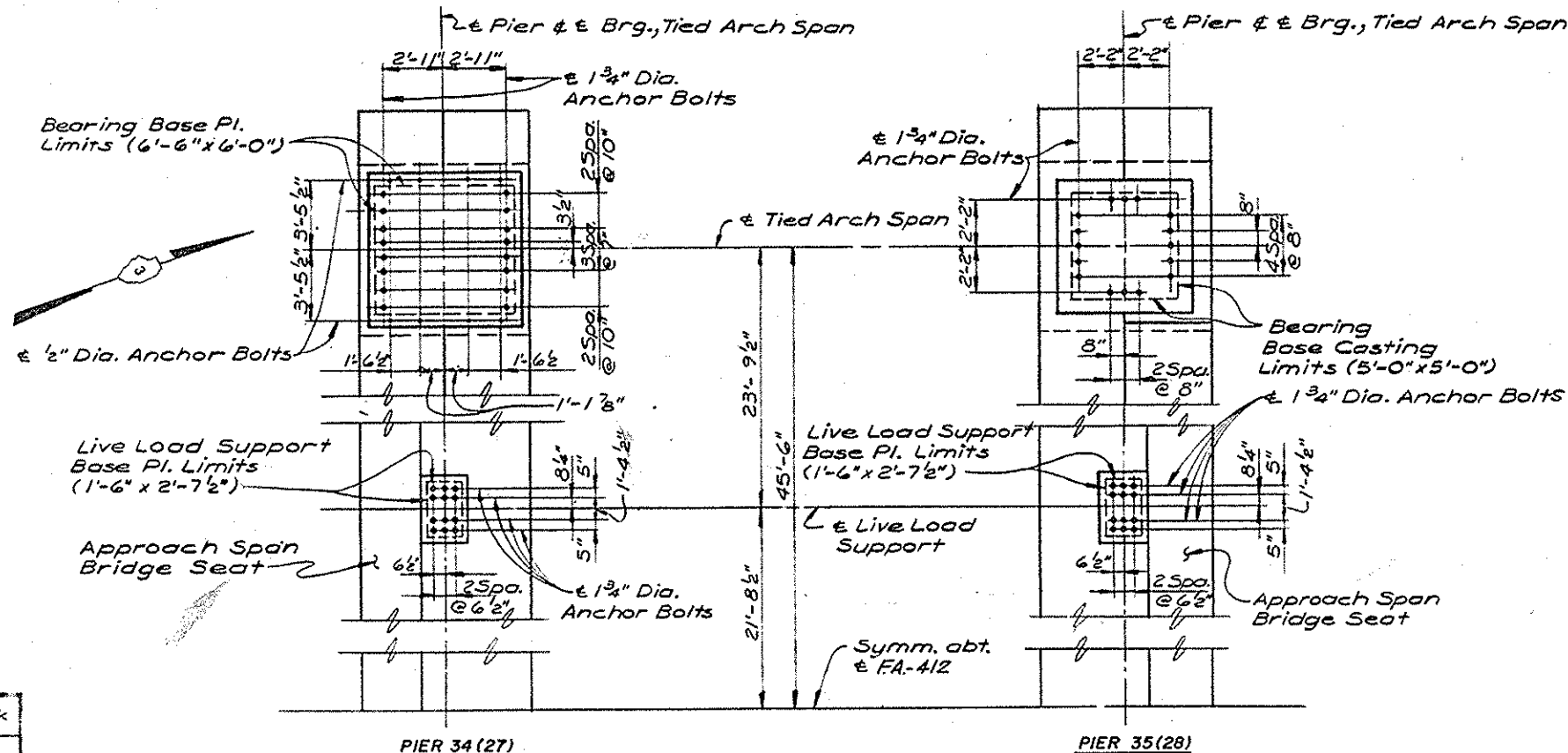
For Anchor Bolt Details, see Sheet 10 of 24.

State of Illinois
Department of Transportation
District Three

Reviewed By: *Ralph J. Chisholm*
District Engineer of Design

Date: 7-11-83

Examined By: *Charles J. Deane*
District Engineer of Construction
V.M. Gustafson
District Engineer of Maintenance
Nathan H. Jones
District Engineer of Materials
John J. Kistner
District Engineer of Traffic
John Kistner
District Engineer of Planning

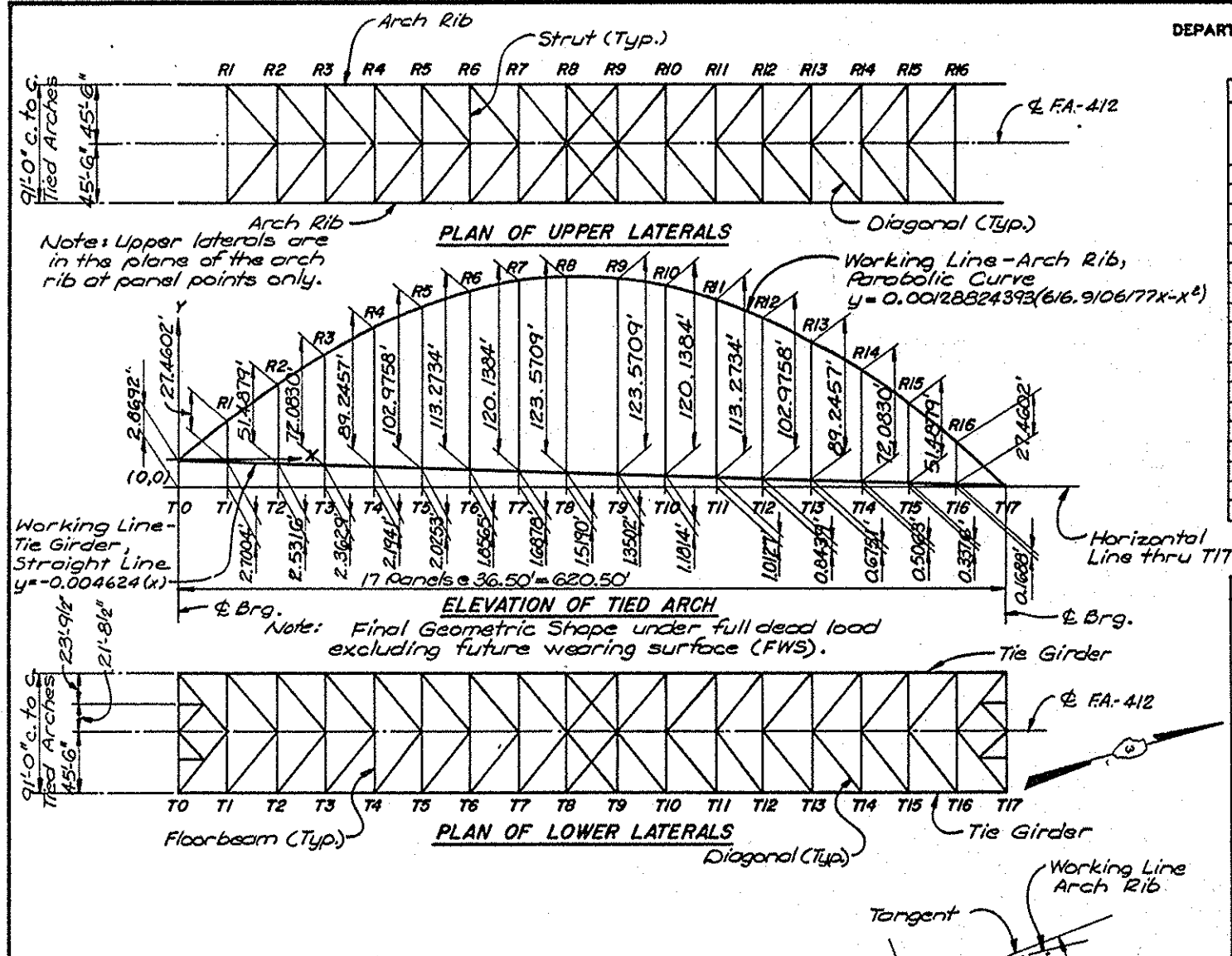


ANCHOR BOLT PLAN

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

TIED ARCH SPAN
GENERAL NOTES, ANCHOR BOLT PLAN,
QUANTITIES AND INDEX
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B (F&E) PROJECT EBF-412-4 (6)
STA. 863+1600 (FA-412) LASALLE CO.



ARCH GEOMETRY - TOTAL DEAD LOAD (EXCLUDING FWS)

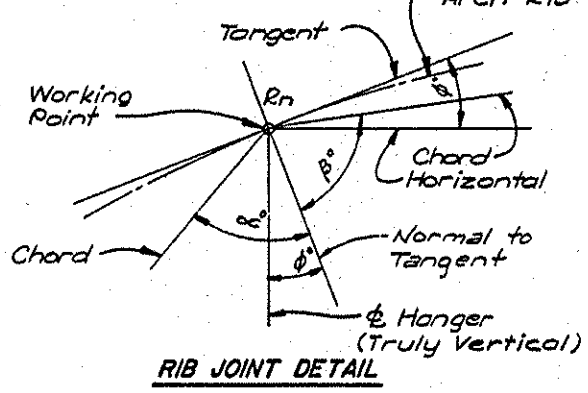
WORKING POINT	HORIZ. DIST. FROM COORD. CENTER (FT.)	ELEVATION OF RIB W.P. (FT.)	ANGLE α°	ANGLE β°	ANGLE ϕ°	MEMBER	CHORD LENGTH (FT.)	WORKING POINT	HORIZ. DIST. FROM COORD. CENTER (FT.)	ELEV. OF TIE W.P. (FT.)	MEMBER	LENGTH (FT.)
T0	0.0	515.187	--	88.3105	38.4753	T0 - R1	45.575	T0	0.0	515.187		
RT1	36.5	542.478	88.2327	88.1529	35.0185	R1 - R2	43.606	T1	36.5	515.018	T1 - R1	27.460
RT2	73.0	566.337	88.0716	87.9896	31.2430	R2 - R3	41.827	T2	73.0	514.849	T2 - R2	51.488
RT3	109.5	586.763	87.9073	87.8261	27.1399	R3 - R4	40.262	T3	109.5	514.680	T3 - R3	72.083
RT4	146.0	603.757	87.7464	87.6698	22.7124	R4 - R5	38.938	T4	146.0	514.512	T4 - R4	89.246
RT5	182.5	617.319	87.5972	87.5300	17.9794	R5 - R6	37.879	T5	182.5	514.343	T5 - R5	102.976
RT6	219.0	627.447	87.4695	87.4170	12.9789	R6 - R7	37.109	T6	219.0	514.174	T6 - R6	113.273
RT7	255.5	634.144	87.3735	87.3402	7.7694	R7 - R8	36.646	T7	255.5	514.005	T7 - R7	120.138
RT8	292.0	637.407	87.3181	87.3073	2.4277	--	--	T8	292.0	513.846	T8 - R8	123.571
RT9	328.5	637.239	87.3086	87.3215	2.9564	R8 - R9	36.500	T9	328.5	513.663	T9 - R9	123.571
RT10	365.0	633.637	87.3460	87.3815	8.2889	R9 - R10	36.677	T10	365.0	513.499	T10 - R10	120.138
RT11	401.5	626.604	87.4264	87.4807	13.4810	R10 - R11	37.172	T11	401.5	513.330	T11 - R11	113.273
RT12	438.0	616.137	87.5428	87.6111	18.4575	R11 - R12	37.971	T12	438.0	513.161	T12 - R12	102.976
RT13	474.5	602.238	87.6846	87.7618	23.1618	R12 - R13	39.057	T13	474.5	512.993	T13 - R13	89.246
RT14	511.0	584.907	87.8420	87.9237	27.5580	R13 - R14	40.406	T14	511.0	512.824	T14 - R14	72.083
RT15	547.5	564.143	88.0056	88.0876	31.6287	R14 - R15	41.993	T15	547.5	512.655	T15 - R15	51.488
RT16	584.0	539.947	88.1687	88.2482	35.3724	R15 - R16	43.792	T16	584.0	512.486	T16 - R16	27.460
T17	620.5	512.318	88.3256	--	38.7986	R16 - T17	45.778	T17	620.5	512.318		

ARCH GEOMETRY - FOR FABRICATION

WORKING POINT	ANGLE α°	ANGLE β°	ANGLE ϕ°	MEMBER	CHORD LENGTH (FT.)	MEMBER	LENGTH (FT.)	PANEL POINT	STRAND LENGTH (FT.)
T0	--	88.3124	38.4753	T0 - R1	45.597	T0 - T1	36.487		
R1	88.2308	88.1551	35.0185	R1 - R2	43.627	T1 - T2	36.487	1	15.173
R2	88.0694	87.9916	31.2430	R2 - R3	41.846	T2 - T3	36.488	2	39.318
R3	87.9053	87.8279	27.1399	R3 - R4	40.280	T3 - T4	36.489	3	60.122
R4	87.7446	87.6711	22.7124	R4 - R5	38.955	T4 - T5	36.489	4	77.418
R5	87.5959	87.5310	17.9794	R5 - R6	37.895	T5 - T6	36.489	5	91.287
R6	87.4685	87.4176	12.9789	R6 - R7	37.126	T6 - T7	36.488	6	101.727
R7	87.3729	87.3407	7.7694	R7 - R8	36.662	T7 - T8	36.487	7	108.745
R8	87.3176	87.3073	2.4277	--	--	--	--	8	112.171
R9	87.3086	87.3206	2.9564	R8 - R9	36.517	T8 - T9	36.487	9	112.171
R10	87.3469	87.3803	8.2889	R9 - R10	36.694	T9 - T10	36.487	10	108.745
R11	87.4276	87.4796	13.4810	R10 - R11	37.188	T10 - T11	36.488	11	101.727
R12	87.5439	87.6093	18.4575	R11 - R12	37.987	T11 - T12	36.489	12	91.287
R13	87.6864	87.7598	23.1618	R12 - R13	39.074	T12 - T13	36.489	13	77.418
R14	87.8440	87.9212	27.5580	R13 - R14	40.424	T13 - T14	36.489	14	60.122
R15	88.0081	88.0852	31.6287	R14 - R15	42.012	T14 - T15	36.488	15	39.318
R16	88.1711	88.2461	35.3724	R15 - R16	43.812	T15 - T16	36.487	16	15.173
T17	88.3277	--	38.7986	R16 - T17	45.800	T16 - T17	36.487		

RIB CHORD OFFSETS - FOR FABRICATION

CHORD	OFFSET TO CHORD (FT.)					
	POINT 1		POINT 2		POINT 3	
	DIST.	OFFSET	DIST.	OFFSET	DIST.	OFFSET
T0 - R1	11.592	0.258	23.056	0.344	34.391	0.258
R1 - R2	11.083	0.269	22.048	0.359	32.896	0.270
R2 - R3	10.619	0.281	21.133	0.375	31.542	0.281
R3 - R4	10.206	0.292	20.321	0.389	30.346	0.292
R4 - R5	9.851	0.302	19.627	0.402	29.328	0.302
R5 - R6	9.560	0.310	19.062	0.414	28.508	0.310
R6 - R7	9.339	0.317	18.640	0.422	27.902	0.317
R7 - R8	9.194	0.321	18.369	0.428	27.525	0.321
R8 - R9	9.128	0.322	18.256	0.430	27.386	0.322
R9 - R10	9.142	0.320	18.305	0.427	27.489	0.321
R10 - R11	9.236	0.316	18.513	0.422	27.831	0.316
R11 - R12	9.408	0.309	18.875	0.413	28.491	0.309
R12 - R13	9.654	0.301	19.384	0.401	29.191	0.301
R13 - R14	9.963	0.291	20.028	0.388	30.180	0.291
R14 - R15	10.344	0.280	20.794	0.373	31.359	0.280
R15 - R16	10.775	0.268	21.669	0.358	32.681	0.268
R16 - T17	11.256	0.257	22.641	0.342	34.156	0.257

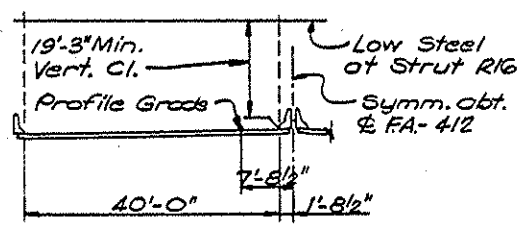
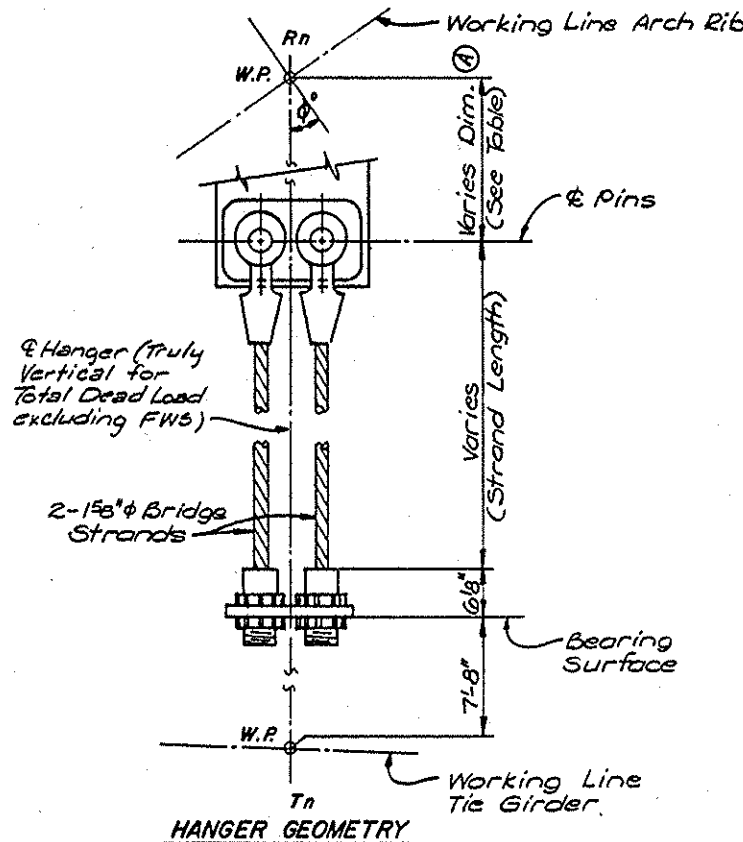


HANGER ASSEMBLIES

PANEL POINT	RIB TIE DIST. (FT.)	STRAND ASSEMBLIES		STRAND ELONGATION (FT.)	
		LENGTH (FT.)	STEEL CONC.	STEEL CONC.	TOTAL
1	27.460	15.200	0.007	0.020	0.027
2	51.488	39.394	0.024	0.052	0.076
3	72.083	60.239	0.038	0.079	0.117
4	89.246	77.569	0.051	0.100	0.151
5	102.976	91.466	0.061	0.118	0.179
6	113.273	101.929	0.070	0.132	0.202
7	120.138	108.961	0.076	0.140	0.216
8	123.571	112.394	0.079	0.144	0.223

PANEL POINT DIMENSION

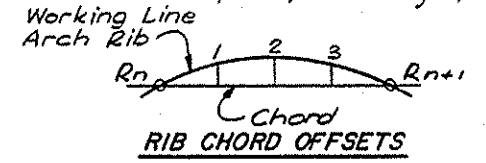
PANEL POINT	DIMENSION
R1	4' - 1"
R2	3' - 11"
R3	3' - 8"
R4	3' - 6"
R5	3' - 4"
R6	3' - 2"
R7	3' - 0"
R8	3' - 0"
R9	3' - 0"
R10	3' - 0"
R11	3' - 2"
R12	3' - 4"
R13	3' - 6"
R14	3' - 8"
R15	3' - 11"
R16	4' - 1"



OVERHEAD CLEARANCE DIAGRAM
Note: Other overhead bracing provides equal or greater vertical clearance.

Note: Distances shown in table are measured along chord between panel points.
* Indicates location of bolted splice, excluding splice C.

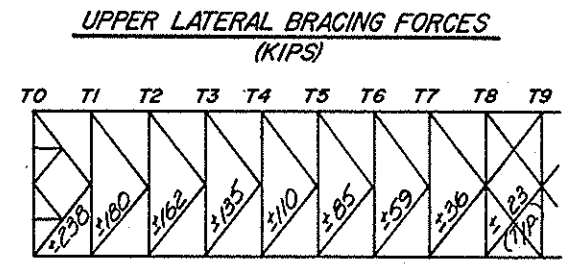
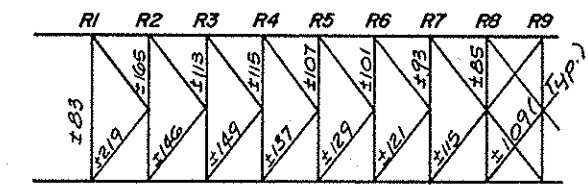
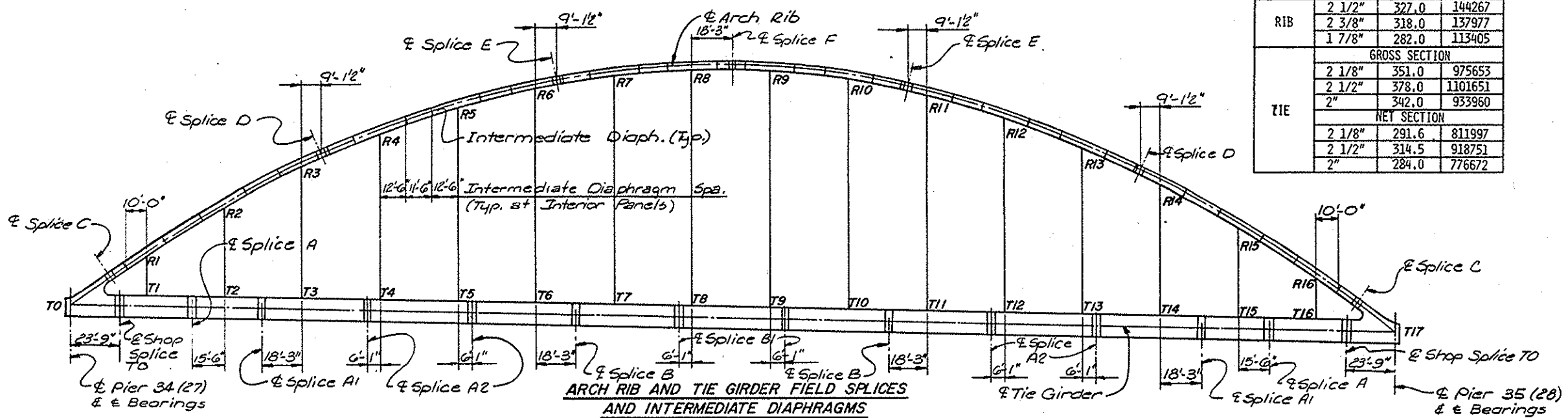
DESIGNED: C. WIECZOREK
CHECKED: G. J. ROUFA
DRAWN: G. J. DEE
CHECKED: C. WIECZOREK



ARCH SECTION PROPERTIES

	FLANGE "T"	A (IN ⁴)	I (IN ⁴)
RIB	2 1/2"	327.0	144267
	2 3/8"	318.0	137977
	1 7/8"	282.0	113405
TIE	GROSS SECTION		
	2 1/8"	351.0	975653
	2 1/2"	378.0	1101651
	2"	342.0	933960
NET SECTION			
2 1/8"	291.6	811997	
2 1/2"	314.5	918751	
2"	284.0	776672	

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA-412	50-4B (F&E)	LASALLE	26	6



MEMBER FORCES OF TIE GIRDER

JT.	TOTAL DL W/O FWS		FWS		MAXIMUM AXIAL FORCE				MAXIMUM MOMENT				MINIMUM MOMENT									
	AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	LIVE LOAD		IMPACT		TOTAL DL + LL + I		LIVE LOAD		IMPACT		TOTAL DL+LL+I							
					AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT						
T0	+3788	-1048	+384	-314	+627	-517	+48	-39	+4847	-1918	+142	-112	+28	-22	+3788	-1048	+627	-517	+48	-39	+4847	-1918
T1	+3788	+475	+384	+128	+627	-259	+48	-20	+4847	+324	+143	+5066	+28	+986	+4343	+6655	+433	-4387	+49	-498	+4270	-4410
T2	+3788	+271	+384	+194	+627	-204	+48	-16	+4847	+245	+150	+8355	+29	+1627	+4351	+10447	+433	-7312	+49	-831	+4270	-7872
T3	+3788	+537	+384	+293	+627	-98	+48	-8	+4847	+724	+205	+10387	+35	+1761	+4412	+12978	+434	-8987	+49	-1021	+4271	-9471
T4	+3788	+118	+384	+283	+627	+110	+48	+8	+4847	+519	+263	+10864	+40	+1638	+4475	+12903	+377	-9387	+47	-1160	+4212	-10429
T5	+3788	+281	+384	+387	+627	+422	+48	+32	+4847	+1122	+269	+10233	+40	+1543	+4481	+12444	+377	-8820	+47	-1090	+4212	-9629
T6	+3788	+21	+384	+427	+627	+834	+48	+64	+4847	+1346	+326	+8770	+45	+1196	+4543	+10414	+323	-7356	+44	-1003	+4155	-8338
T7	+3788	-660	+384	+385	+627	+1360	+48	+104	+4847	+1189	+373	+6733	+51	+918	+4596	+7376	+263	-5282	+40	-796	+4091	-6738
T8	+3788	-420	+384	+454	+627	+2036	+48	+156	+4847	+2226	+340	+5383	+58	+913	+4570	+6330	+307	-3873	+35	-440	+4130	-4733
T9	+3788	-421	+384	+454	+627	+2036	+48	+156	+4847	+2225	+341	+5383	+58	+913	+4571	+6329	+307	-3872	+35	-440	+4130	-4733
T10	+3788	-661	+384	+385	+627	+1360	+48	+104	+4847	+1188	+374	+6732	+51	+918	+4597	+7374	+262	-5280	+40	-796	+4090	-6737
T11	+3788	+21	+384	+427	+627	+834	+48	+64	+4847	+1346	+327	+8770	+45	+1196	+4544	+10414	+322	-7356	+44	-1003	+4154	-8338
T12	+3788	+281	+384	+387	+627	+422	+48	+32	+4847	+1122	+269	+10234	+40	+1543	+4481	+12445	+377	-8821	+47	-1090	+4212	-9630
T13	+3788	+119	+384	+283	+627	+110	+48	+8	+4847	+520	+263	+10867	+40	+1638	+4475	+12907	+377	-9389	+47	-1160	+4212	-10430
T14	+3788	+537	+384	+293	+627	-98	+48	-8	+4847	+724	+205	+10389	+35	+1762	+4412	+12981	+434	-8989	+49	-1021	+4271	-9473
T15	+3788	+271	+384	+194	+627	-203	+48	-15	+4847	+247	+150	+8358	+29	+1628	+4351	+10451	+434	-7315	+49	-831	+4271	-7875
T16	+3788	+477	+384	+128	+627	-258	+48	-20	+4847	+327	+142	+5068	+28	+987	+4342	+6660	+434	-4388	+49	-498	+4271	-9409
T17	+3788	-1050	+384	-315	+626	-517	+48	-40	+4846	-1922	+141	-112	+28	-22	+3788	-1050	+626	-517	+48	-40	+4846	-1922

SIGN CONVENTION: AXIAL LOADS IN KIPS, POS. = TENSION, NEG. = COMPRESSION.
BENDING MOMENT IN FT. -KIPS., POS. = TENSION IN BOTTOM OF SECTION,
NEG. = COMPRESSION IN BOTTOM OF SECTION.

INTERIOR STRINGER MOMENT TABLE

W33x118 (I1-183)	MAX. POS. 0.4 SP.1	MAX. NEG. FB.1
I (IN ⁴)	5900	5900
S (IN ³)	359	359
Z (IN ³)	415	415
Fy (KSI)	36.0	36.0
0.55Fy (KSI)	20.0	20.0
DL (K/1)	1.462	1.462
MDL (K)	151.1	206.7
MLL (K)	264.9	192.1
MI (K)	79.5	57.6
I TOTAL UNFACTORED	495.5	456.4
(K) FACTORED	944.1	810.8
f (KSI)	16.6	15.3
f _f (KSI)	31.6	27.1

INTERIOR STRINGER REACTION TABLE

	MAX. R		
	END FB.	FB.1	PI IN SP.5
RDL (K)	21.0	60.7	19.2
RL (K)	52.4	66.5	46.2
RI (K)	15.7	19.9	13.8
R TOTAL (K)	89.1	147.1	79.2

NOTE:
STRENGTH DESIGN METHOD (NON-COMPOSITE)
LOAD FACTOR 1.30 [DL+(5/3)(LL+I)] IS USED
IN COMPUTING MOMENTS AND STRESSES.
COMPACT SECTION Mu=FyZ
(LL + I) DEFLECTION GOVERNS DESIGN.
FOR EXTERIOR STRINGER MULTIPLY DEAD LOAD
VALUES BY 0.90 AND LIVE LOAD VALUES BY 0.87.

FLOORBEAM MOMENT TABLE

HIGH STRENGTH LOW-ALLOY STEEL (M-223 GRADE 50)	INT. FB.**) END FB.**)		
	MAX. POS. 0.5 SP.	MAX. POS. 0.5 SP.	MAX. NEG. (JACKING)
I (IN ⁴)	275852	228445	180559
S (IN ³)	4926	4125	3604
Fy (KSI)	50.0	50.0	50.0
0.55Fy (KSI)	27.0	27.0	27.0
MDL (K)	7503.6	2981.7	10221.3
MLL (K)	3907.4	3018.8	-
MI (K)	898.7	694.3	-
I TOTAL UNFACTORED	12309.7	6694.8	10221.3
(K) FACTORED	20167.9	11921.3	13287.7
f (KSI)	30.0	19.5	34.0
f _f (KSI)	49.1	34.7	44.2
REDUCTION FACTOR	-	0.98	0.88

NOTE:
STRENGTH DESIGN METHOD
LOAD FACTOR 1.30 [DL+(5/3)(LL+I)]
IS USED IN COMPUTING MOMENTS
AND STRESSES.
**) BRACED NON-COMPACT SECTION Mu=FyS
**) UNBRACED SECTION Mu=FyS*(REDUCTION FACTOR)

$$\text{REDUCTION FACTOR} = \left[1 - \frac{3 F_y (L_b)^2}{4 \pi^2 E (I_b)^2} \right]$$

TIED ARCH SPAN
STRESS SHEET

FA-412 OVER ILLINOIS RIVER
SECTION 50-4B(F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

TIED ARCH REACTION TABLE

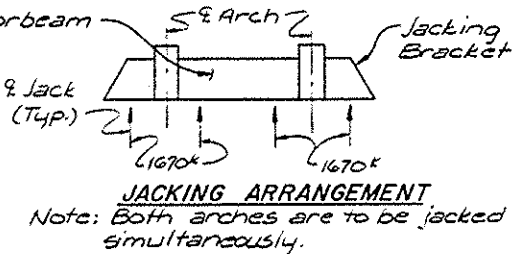
	TO
RDL (K)	1384.7
CONCRETE	1640.0
FWS	310.0
TOTAL	3334.7
R(LL+I)	519.2
IMPACT	34.8
TOTAL	554.0
R TOTAL DL+LL+I(K)	3888.7

PANEL POINT LOADS (KIPS)

PANEL PT.	0	1	2	3	4	5	6	7	8
RIB LOAD	27.3	69.4	65.5	63.6	61.3	60.2	58.3	54.6	57.8
TIE LOAD	61.2	101.3	95.9	105.1	100.7	104.2	104.6	93.8	99.9
TOTAL	76.0	219.6	182.7	206.7	174.7	200.5	203.2	175.2	201.4
FWS	14.4	41.5	34.5	39.1	35.0	37.9	38.4	33.1	38.1
TIE TOTAL	151.6	362.4	313.1	350.9	308.4	342.6	346.2	302.1	339.4
RIB-TIE TOTAL DEAD LOAD	178.9	431.8	378.6	414.5	369.7	402.8	404.5	356.7	397.2

HANGER FORCES (KIPS)

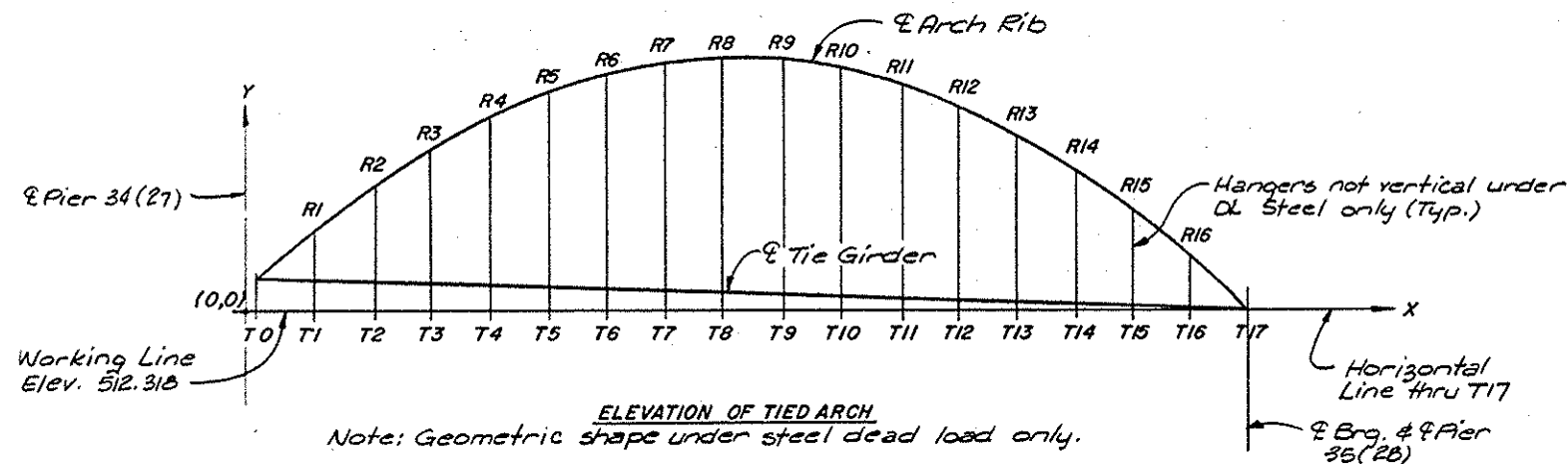
HANGER	STEEL DL	DL W/O FWS	TOTAL DL	LL	I	TOTAL DL+LL+I
T1-R1	75.2	275.2	306.5	51.2	3.6	361.3
T2-R2	92.8	295.3	330.6	57.9	4.1	392.6
T3-R3	97.6	296.9	333.0	59.3	4.2	396.5
T4-R4	100.0	297.0	333.1	60.0	4.3	397.4
T5-R5	102.0	299.7	335.9	60.4	4.3	400.6
T6-R6	104.3	302.7	338.9	60.7	4.3	403.9
T7-R7	106.0	302.9	339.0	61.1	4.3	404.4
T8-R8	106.9	302.9	339.1	61.2	4.3	404.6
T9-R9	106.9	302.9	339.1	61.2	4.3	404.6
T10-R10	106.0	302.9	339.0	61.1	4.3	404.4
T11-R11	104.3	302.7	338.9	60.7	4.3	403.9
T12-R12	102.0	299.7	335.9	60.4	4.3	400.6
T13-R13	100.0	297.0	333.1	60.0	4.2	397.3
T14-R14	97.6	296.9	333.0	59.3	4.2	396.5
T15-R15	92.8	295.4	330.7	57.9	4.1	392.7
T16-R16	75.0	275.1	306.4	51.1	3.6	361.1



- ① INCLUDES WEIGHT OF RIB, RIB BRACING & HANGERS.
- ② INCLUDES WEIGHT OF TIE, TIE BRACING, FLOORBEAMS & STRINGERS.

DESIGNED: C. Wiczorek
CHECKED: G. J. Roufo
DRAWN: G. J. Dee
CHECKED: C. Wiczorek

662
SIS+33



POINT	ELEV. OF C. RIB (FT.)	C. RIB COORDINATES (FT.)		POINT	ELEV. OF C. TIE GIRDER (FT.)	C. TIE GIRDER COORDINATES (FT.)	
		X	Y			X	Y
T0	515.187	.118	2.869	T0	515.187	.118	2.869
R1	542.542	36.586	30.224	T1	515.100	36.611	2.782
R2	566.448	73.068	54.130	T2	515.010	73.104	2.692
R3	586.919	109.555	74.601	T3	514.914	109.598	2.596
R4	603.955	146.046	91.637	T4	514.809	146.091	2.491
R5	617.554	182.542	105.236	T5	514.695	182.585	2.377
R6	627.714	219.042	115.396	T6	514.570	219.079	2.252
R7	634.433	255.547	122.115	T7	514.432	255.572	2.114
R8	637.708	292.055	125.390	T8	514.280	292.065	1.962
R9	637.539	328.565	125.221	T9	514.111	328.557	1.793
R10	633.926	365.073	121.608	T10	513.926	365.050	1.608
R11	626.870	401.577	114.552	T11	513.726	401.543	1.408
R12	616.373	438.078	104.055	T12	513.514	438.036	1.196
R13	602.436	474.573	90.118	T13	513.290	474.529	.972
R14	585.063	511.064	72.745	T14	513.057	511.023	.739
R15	564.254	547.550	51.936	T15	512.816	547.515	.498
R16	540.010	584.033	27.692	T16	512.568	584.008	.250
T17	512.318	620.500	0.000	T17	512.318	620.500	0.000

ARCH GEOMETRY (CONT'D)
Continued from Sheet 3 of 24.

MEMBER	JT.	TOTAL DL W/O FWS		FWS		MAXIMUM AXIAL FORCE						MAXIMUM MOMENT						MINIMUM MOMENT					
		AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	LIVE LOAD		IMPACT		TOTAL DL + LL + I		LIVE LOAD		IMPACT		TOTAL DL + LL + I		LIVE LOAD		IMPACT		TOTAL DL + LL + I	
						AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT	AXIAL FORCE	MOMENT
T0-R1	T0	-4736	+1048	-476	+314	-777	+517	-59	+39	-6048	+1918	-777	+517	-59	+39	-6048	+1918	-172	+112	-33	+22	-4736	+1048
T0-R1	R1	-4712	+765	-476	+124	-777	+158	-59	+12	-6024	+1059	-256	+664	-43	+113	-5487	+1666	-528	-409	-60	-46	-5300	+310
R1-R2	R2	-4516	+924	-458	+102	-748	+99	-57	+8	-5779	+1133	-243	+1051	-41	+178	-5258	+2255	-512	-807	-58	-92	-5086	+25
R2-R3	R3	-4331	+970	-440	+110	-718	+114	-55	+9	-5544	+1203	-238	+1233	-40	+209	-5049	+2522	-495	-973	-56	-111	-4882	-114
R3-R4	R4	-4169	+940	-423	+117	-692	+146	-53	+11	-5337	+1214	-292	+1311	-44	+198	-4928	+2566	-415	-1039	-51	-128	-4635	-227
R4-R5	R5	-4033	+934	-409	+125	-669	+191	-51	+15	-5162	+1265	-286	+1255	-43	+189	-4771	+2503	-344	-978	-47	-133	-4424	-177
R5-R6	R6	-3925	+908	-398	+132	-651	+254	-50	+19	-5024	+1313	-339	+1104	-46	+150	-4708	+2294	-335	-832	-46	-113	-4306	-37
R6-R7	R7	-3846	+842	-390	+136	-637	+321	-49	+24	-4922	+1323	-379	+882	-52	+120	-4667	+1980	-268	-602	-40	-91	-4154	+149
R7-R8	R8	-3800	+863	-385	+139	-629	+355	-48	+27	-4862	+1384	-342	+720	-58	+122	-4585	+1844	-308	-427	-35	-49	-4143	+387
R8-R9	R9	-3803	+864	-386	+139	-630	+355	-48	+27	-4867	+1385	-342	+720	-58	+122	-4589	+1845	-308	-427	-35	-49	-4146	+388
R9-R10	R9	-3803	+864	-386	+139	-630	+355	-48	+27	-4867	+1385	-342	+720	-58	+122	-4589	+1845	-308	-427	-35	-49	-4146	+388
R10-R11	R10	-3853	+843	-391	+136	-638	+321	-49	+24	-4931	+1324	-379	+881	-52	+120	-4675	+1980	-269	-600	-40	-91	-4162	+152
R11-R12	R11	-3934	+908	-399	+132	-652	+254	-50	+19	-5035	+1313	-340	+1102	-46	+150	-4719	+2292	-336	-830	-46	-113	-4316	-35
R12-R13	R12	-4046	+934	-411	+125	-671	+191	-51	+15	-5179	+1265	-287	+1252	-43	+189	-4787	+2500	-345	-975	-47	-133	-4438	-174
R13-R14	R13	-4184	+940	-425	+117	-694	+146	-53	+11	-5356	+1214	-293	+1308	-44	+197	-4946	+2562	-417	-1036	-51	-128	-4652	-224
R14-R15	R14	-4348	+969	-442	+110	-721	+114	-55	+9	-5566	+1202	-239	+1229	-40	+209	-5069	+2517	-497	-971	-56	-110	-4901	-112
R15-R16	R15	-4535	+925	-460	+102	-751	+99	-57	+8	-5803	+1134	-244	+1047	-41	+178	-5280	+2252	-514	-805	-58	-91	-5107	+29
R16-T17	T16	-4733	+763	-478	+124	-779	+158	-60	+12	-6050	+1057	-257	+662	-44	+112	-5512	+1661	-531	-407	-60	-46	-5324	+310
R16-T17	T17	-4757	+1050	-478	+315	-779	+517	-60	+40	-6074	+1922	-779	+517	-60	+40	-6074	+1922	-172	+112	-34	+22	-4757	+1050

SIGN CONVENTION: AXIAL LOADS IN KIPS, POS. = TENSION, NEG. = COMPRESSION.
BENDING MOMENT IN FT. - KIPS., POS. = TENSION IN BOTTOM OF SECTION,
NEG. = COMPRESSION IN BOTTOM OF SECTION.

STRESS SHEET (CONT'D)
Continued from Sheet 4 of 24.

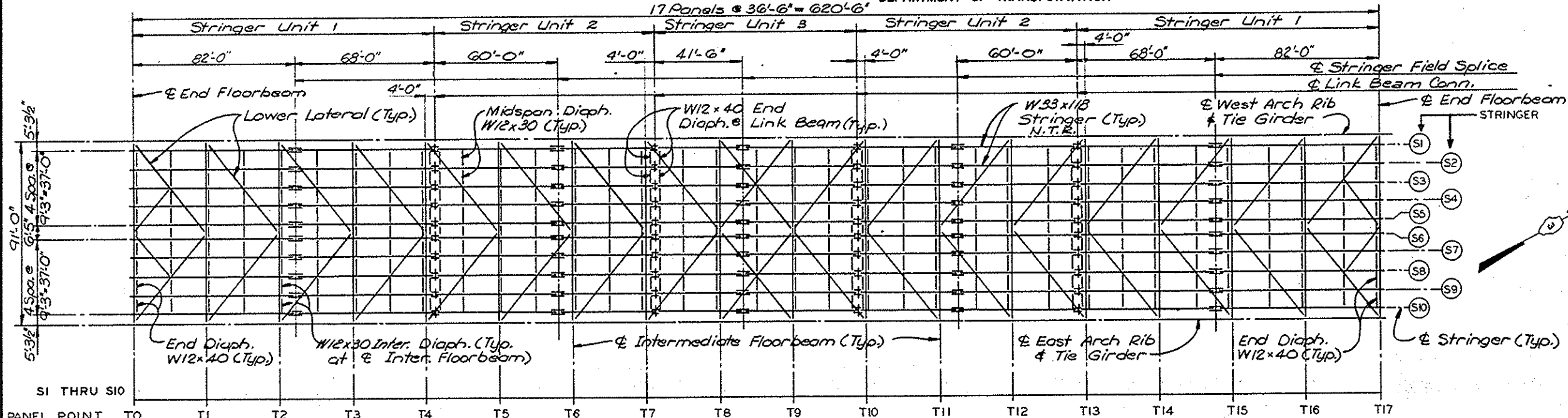
C. WIELCZOREK
DESIGNED
G. ROUFA
CHECKED
S. STEGMAN
DRAWN
G. ROUFA
CHECKED

PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

TIED ARCH SPAN
ARCH GEOMETRY
AND
STRESS SHEET
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B (F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

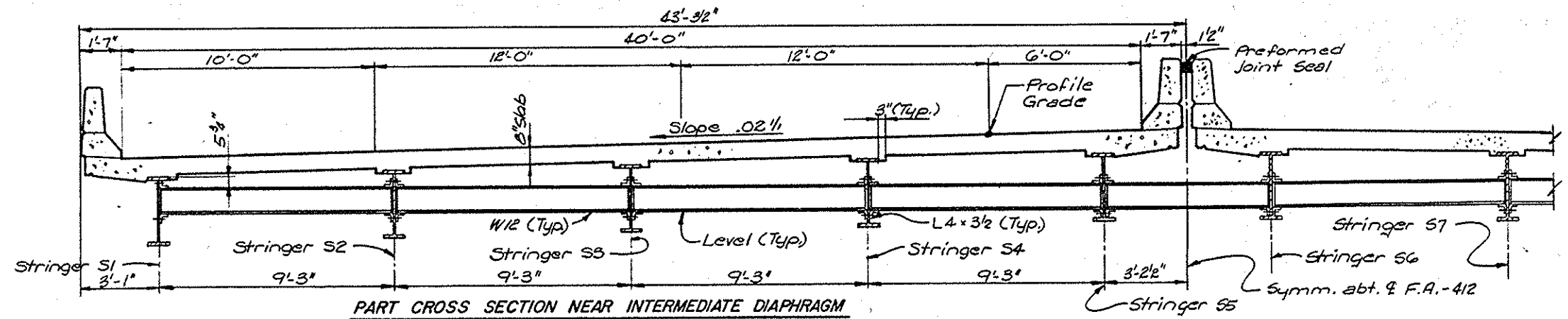
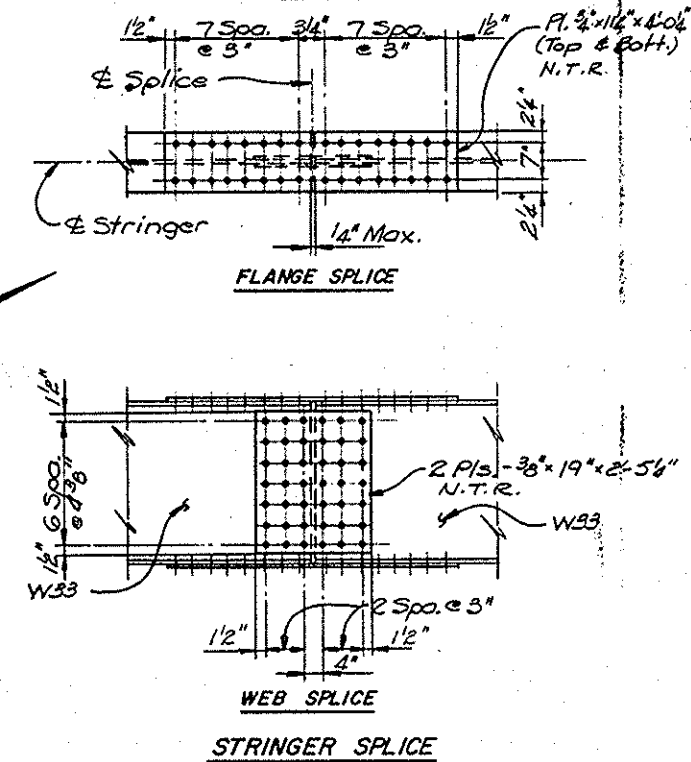
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

ROUTE NO. SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 412 50-4B (F&E)	LASALLE	26	8
FED. ROAD DIST. NO.	ILLINOIS PROJECT EBF-412-4(6)		



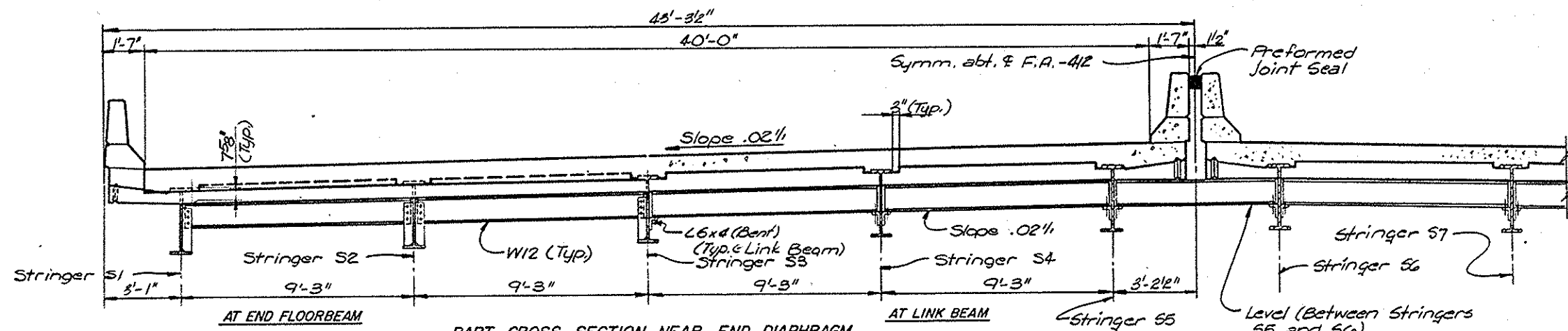
FRAMING PLAN

Note: All stringer seats are fixed in the final condition.



PART CROSS SECTION NEAR INTERMEDIATE DIAPHRAGM AND MIDSPAN DIAPHRAGM

Note: Southbound Lanes shown. Northbound Lanes opposite hand.



PART CROSS SECTION NEAR END DIAPHRAGM

Note: Southbound Lanes shown. Northbound Lanes opposite hand.

NOTES
For General Notes, see Sheet 2 of 24.
N.T.R. Indicates Notch Toughness Requirements.

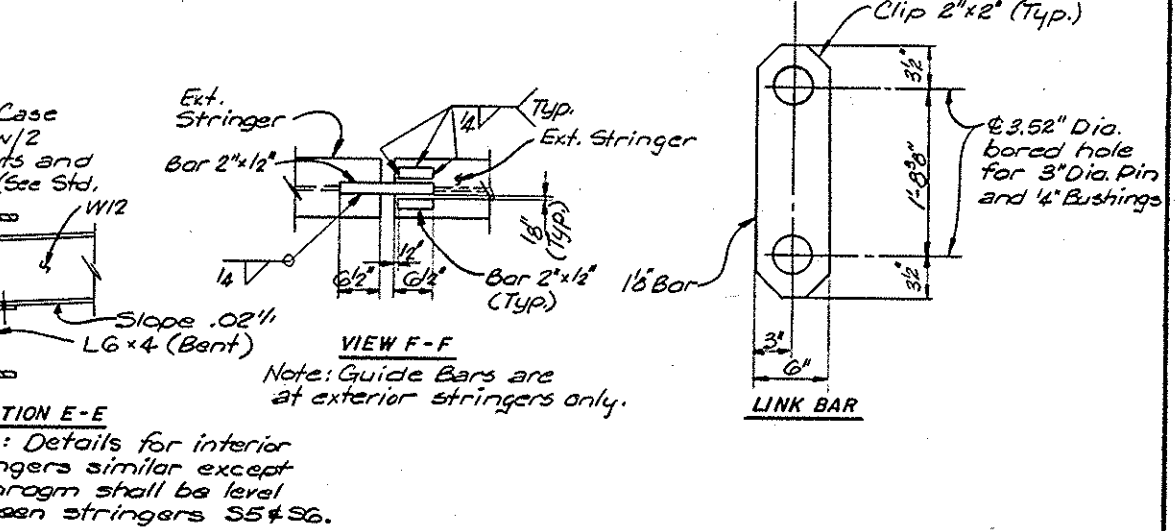
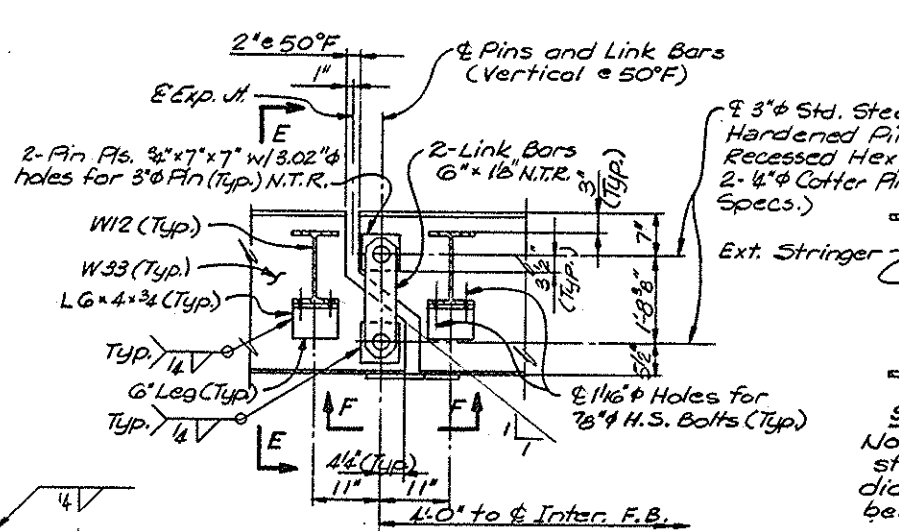
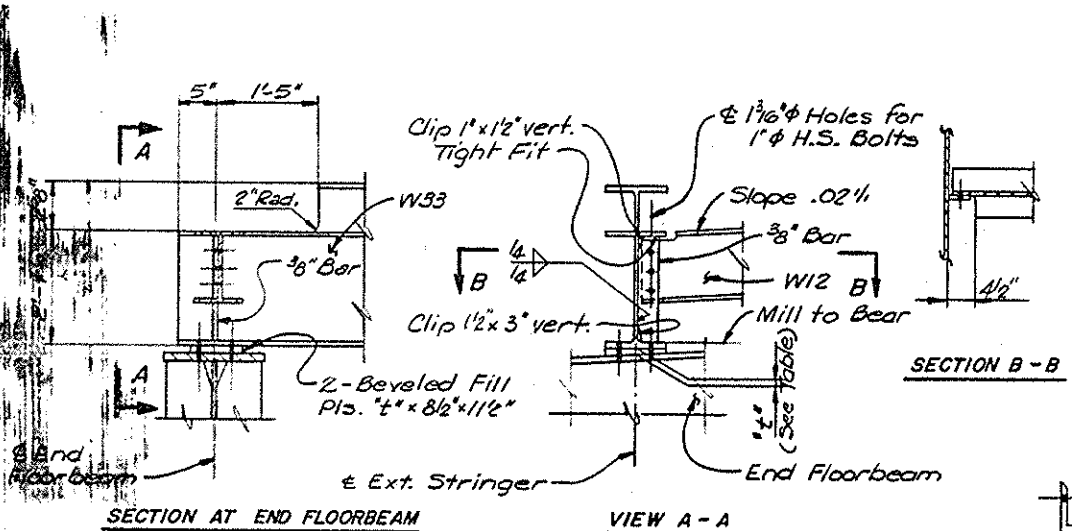
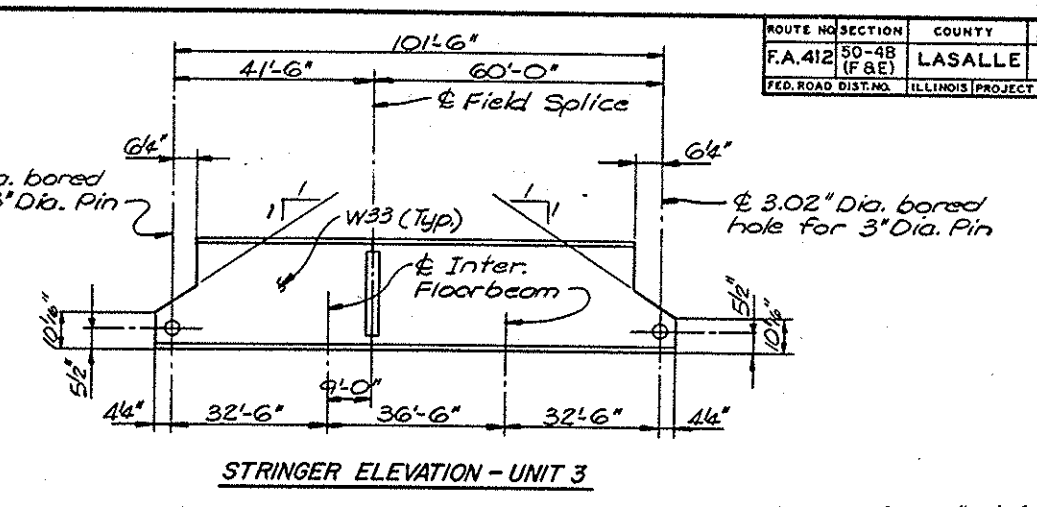
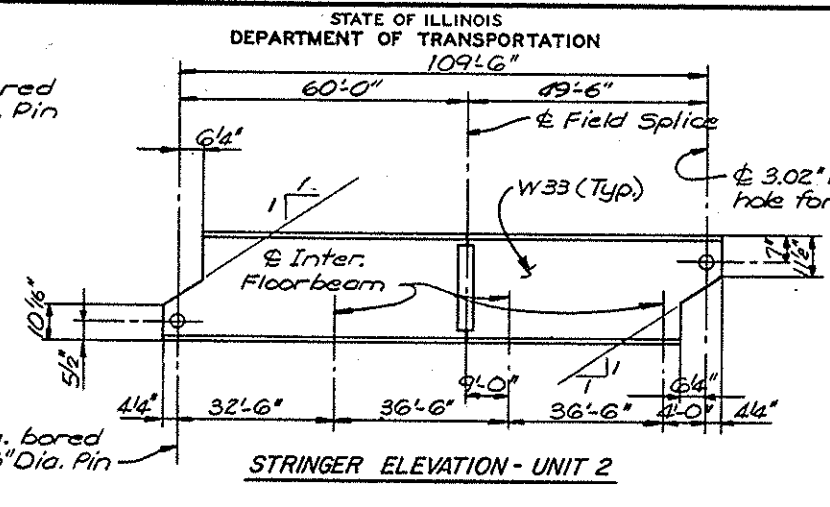
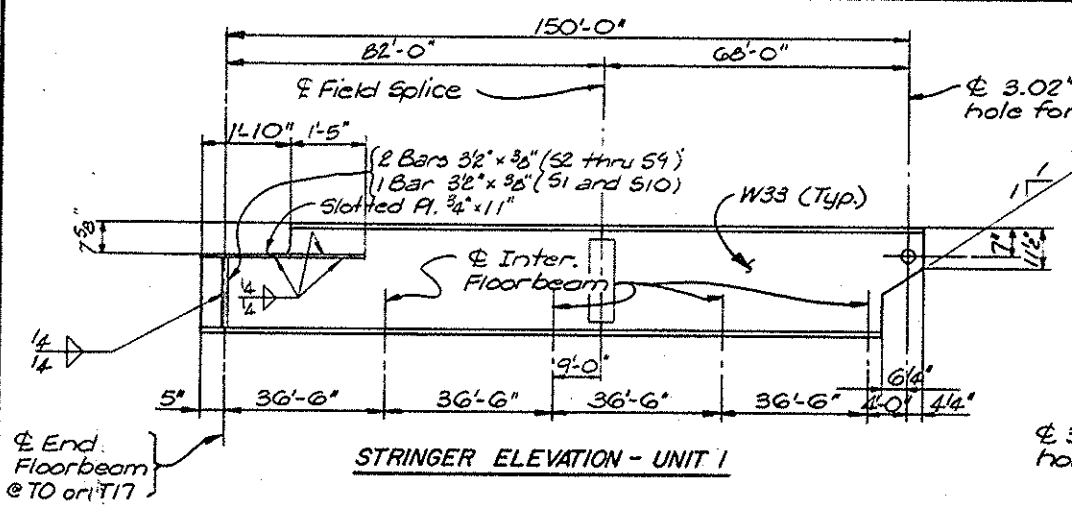
TIED ARCH SPAN FLOOR SYSTEM AND STRINGER DETAILS
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B (F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

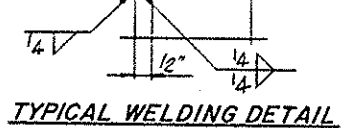
DESIGNED: C. Wiczorek
CHECKED: G. J. Roufa
DRAWN: G. J. Dee
CHECKED: C. Wiczorek

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

ROUTE NO. SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 412 50-4B (F&E)	LASALLE	26	9
FED. ROAD DIST. NO.	ILLINOIS PROJECT EBF-412-4(G)		

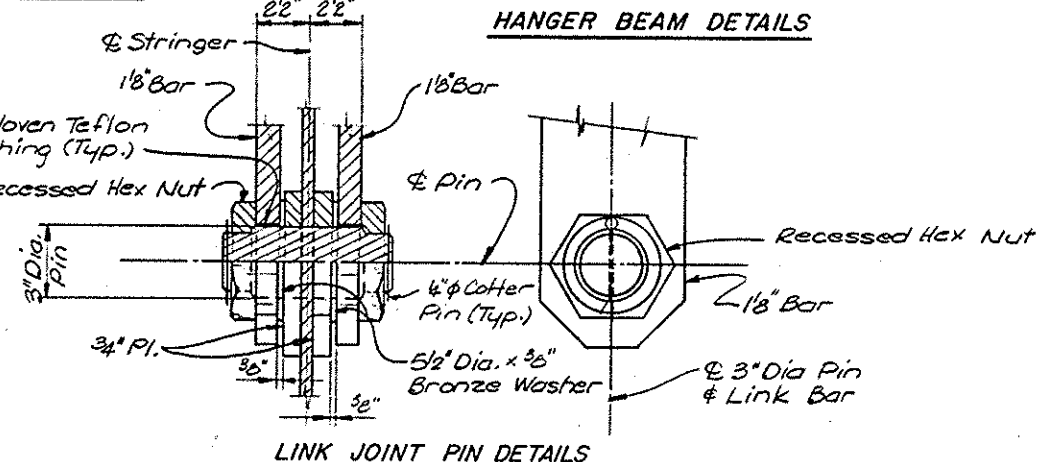
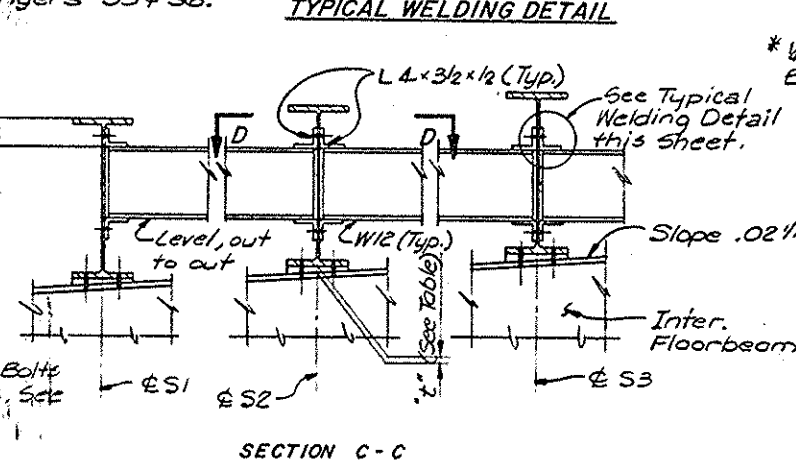
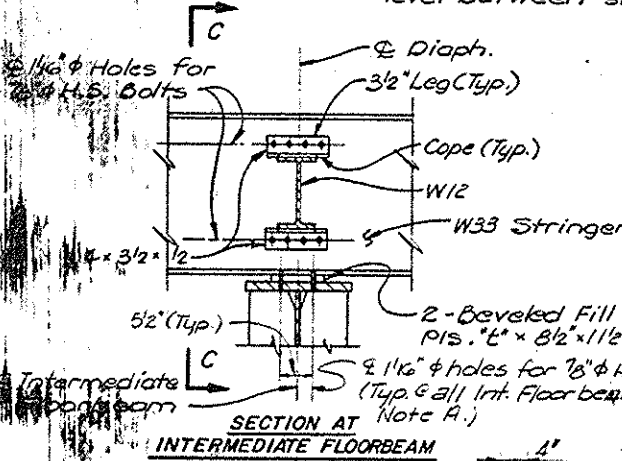


END DIAPHRAGM AND STRINGER SEAT DETAILS
Note: Details for interior stringers similar except diaphragm shall be level between stringers S5 & S6.



ELEVATION AT LINK BEAM

HANGER BEAM DETAILS



NOTES

Two hardened washers shall be required where oversized holes are noted.
Work this sheet with Sheet 6 of 24. For General Notes, see Sheet 2 of 24.
All dimensions are under full dead load w/o future wearing surface.
N.T.R. Indicates Notch Toughness Requirements.
Bronze washers shall conform to AASHTO M107, Copper Alloy No. 863.

1" AT E STRINGERS

	S1	S2	S3	S4	S5
END F.B.	11/16"	12"	9/16"	12"	3/8"
INTER. F.B.	5/8"	3/4"	3/4"	11/16"	1/2"

Note: Dimension "1" = Top of Floorbeam to Bottom of Stringer.

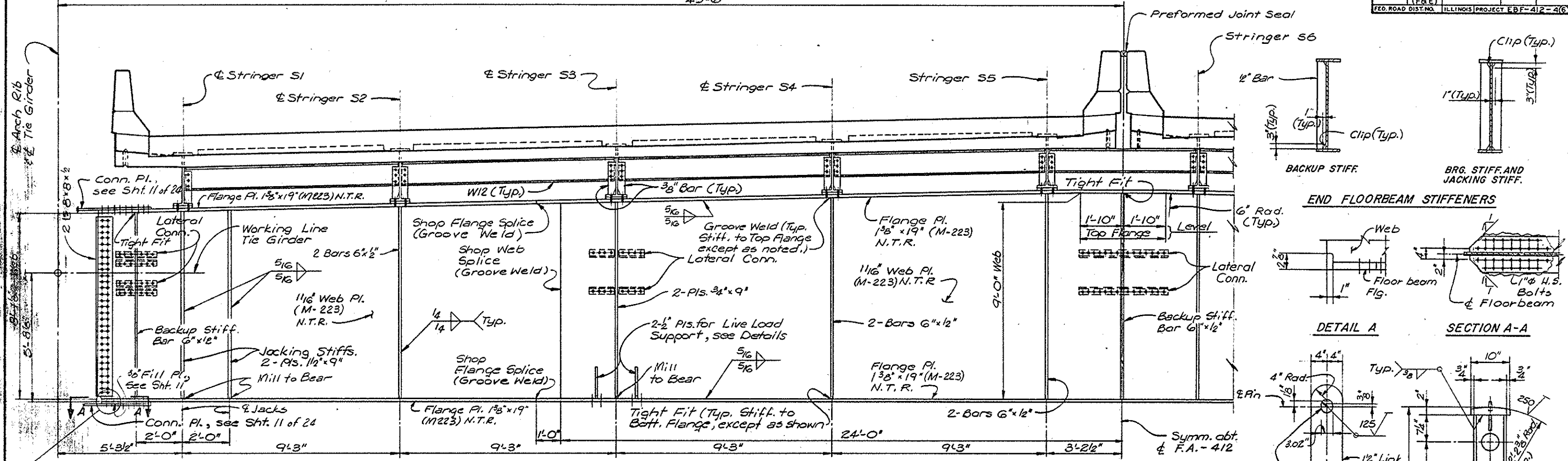
INTERMEDIATE DIAPHRAGM AND STRINGER SEAT DETAILS
Note: If stringers are installed before closure of the Arch, 1/8" H.S. bolts shall be tightened "Finger-Tight" only. After closure but before pouring of concrete, the H.S. bolts shall be tightened to specifications.

C. Mazorek
G. J. DeE
C. Mazorek

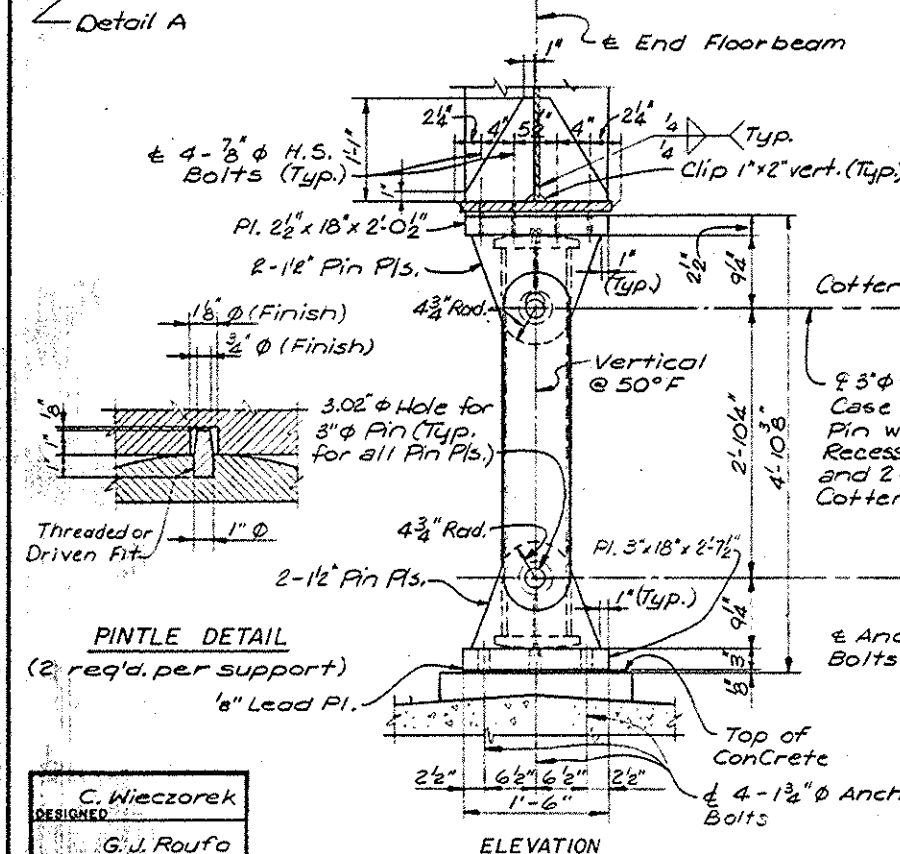
PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

**TIED ARCH SPAN
FLOOR SYSTEM AND
STRINGER DETAILS**
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B(F&E) PROJECT EBF-412-4(G)
STA. 863+16.00 (FA-412) LASALLE CO.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.



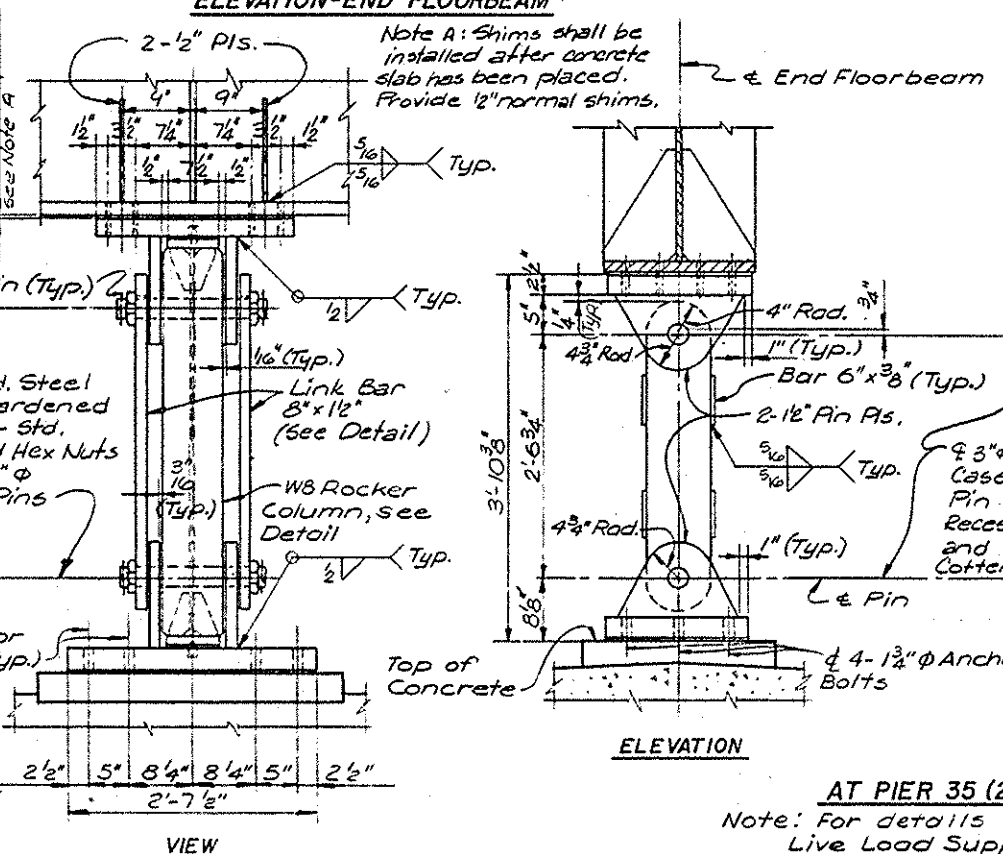
ELEVATION-END FLOORBEAM



PINTLE DETAIL

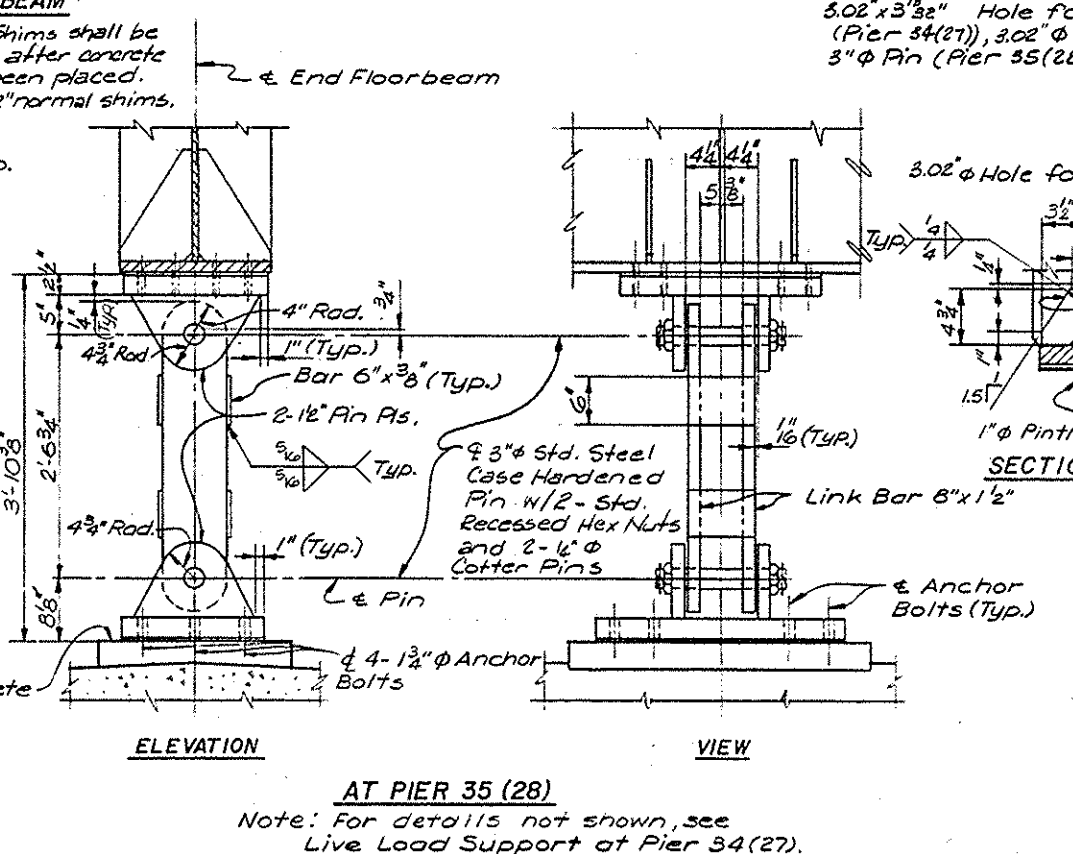
AT PIER 34 (27)

Note: Material for Live Load Supports to be AASHTO M-222 and M-223 Gr. 50 except pins to be SAE 8620 (See Std. Specs.)



LIVE LOAD SUPPORTS

(4 req'd.)

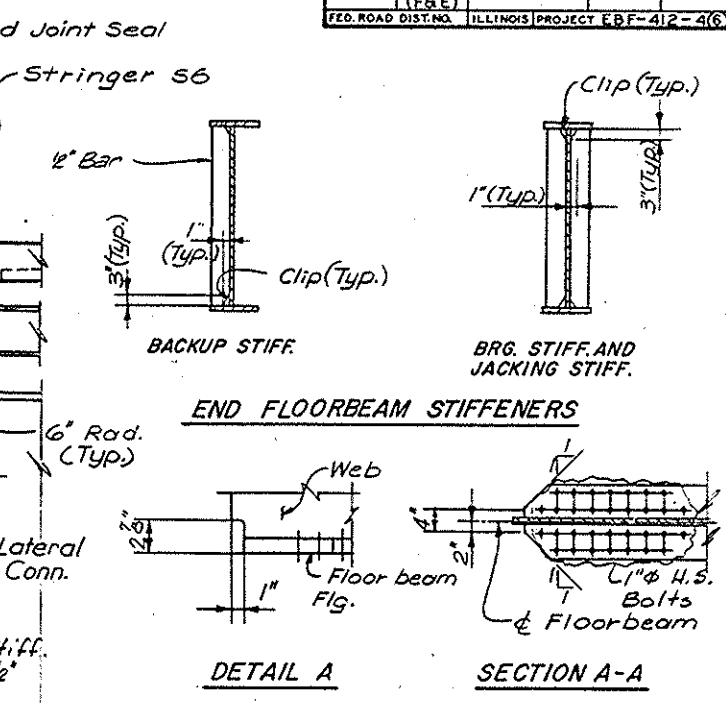


ELEVATION

VIEW

AT PIER 35 (28)

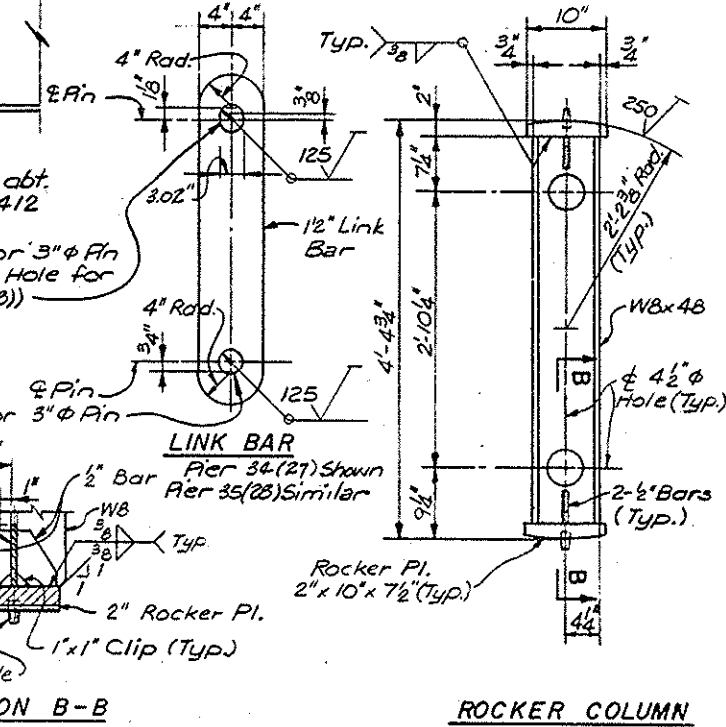
Note: For details not shown, see Live Load Support at Pier 34 (27).



END FLOORBEAM STIFFENERS

DETAIL A

SECTION A-A



LINK BAR

ROCKER COLUMN

NOTES

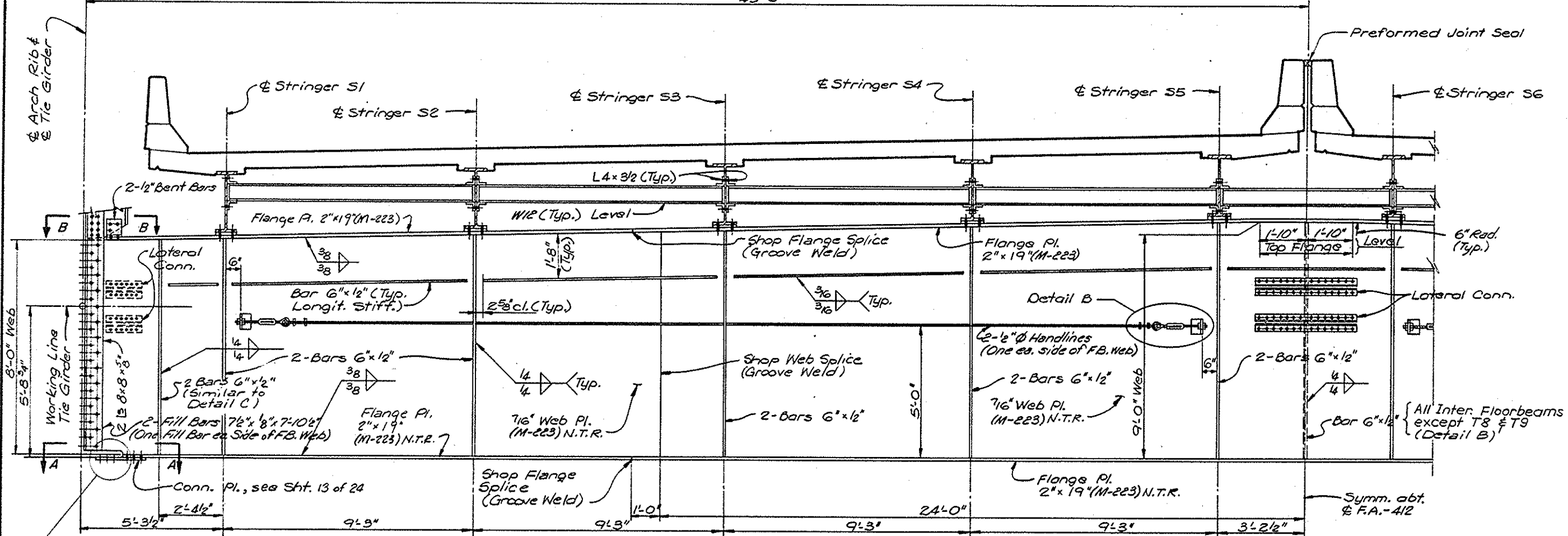
For Floorbeam bevel diagram, see Sht. 9 of 24.
For General Notes, see Sht. 2 of 24.
For Lateral Connections, see Sht. 15 of 24.
For Anchor Bolt details, see Sht. 15 of 24.

DESIGNED	C. WIECZOREK
CHECKED	G. J. ROUFO
DRAWN	G. J. DEE
CHECKED	C. WIECZOREK

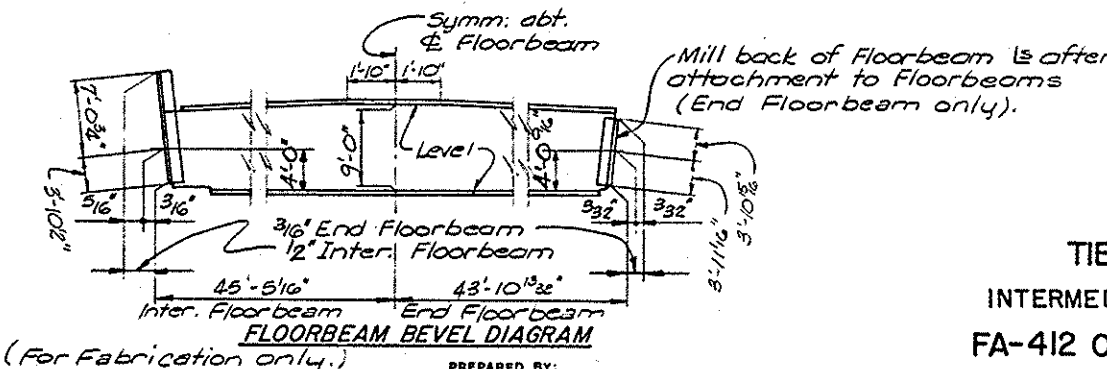
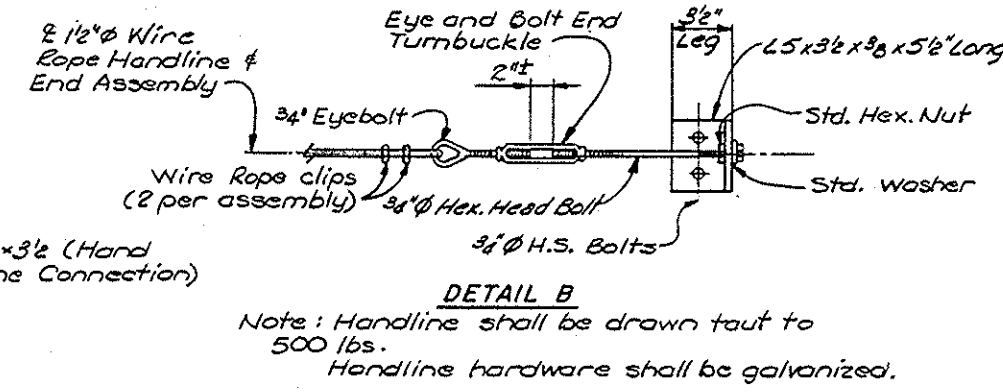
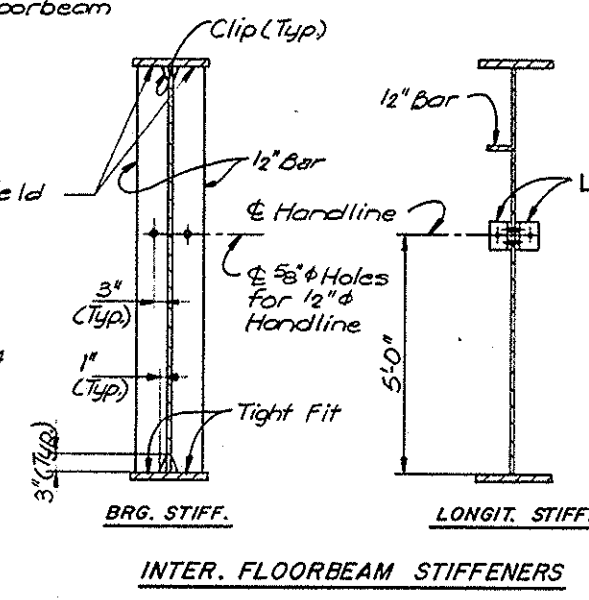
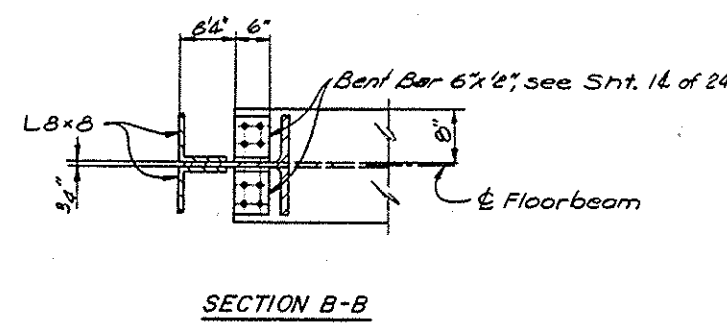
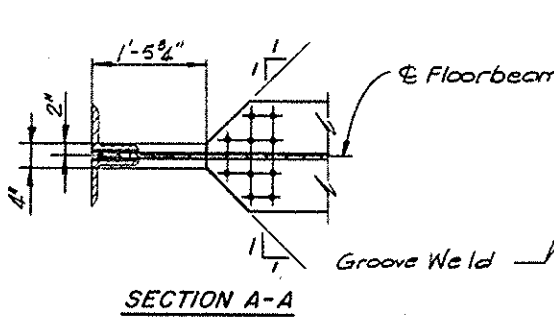
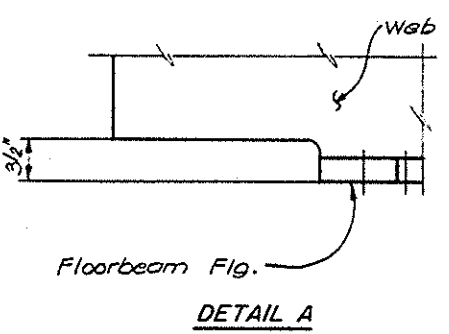
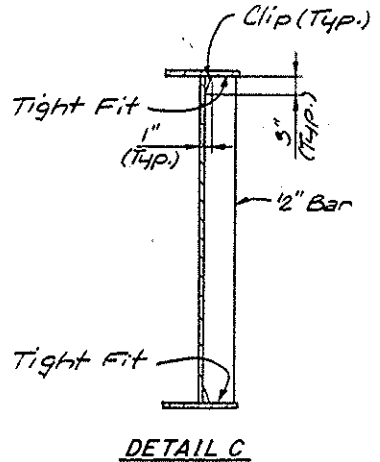
PREPARED BY:
SVDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

TIED ARCH SPAN
END FLOORBEAMS AND
LIVE LOAD SUPPORTS
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B (F&E) PROJECT EBF 412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.412	50-4B (F&E)	LASALLE	26	11
FED. ROAD DIST. NO.	ILLINOIS PROJECT		EBF-412-4(6)	



ELEVATION - INTERMEDIATE FLOORBEAM
Note: Lateral Conn. shown at T1(T16) & T2(T15)



NOTES
For General Notes, see Sheet 2 of 24.
For Lateral Conn., see Sheet 15 of 24.
N.T.R. Indicates Notch Toughness Requirements.

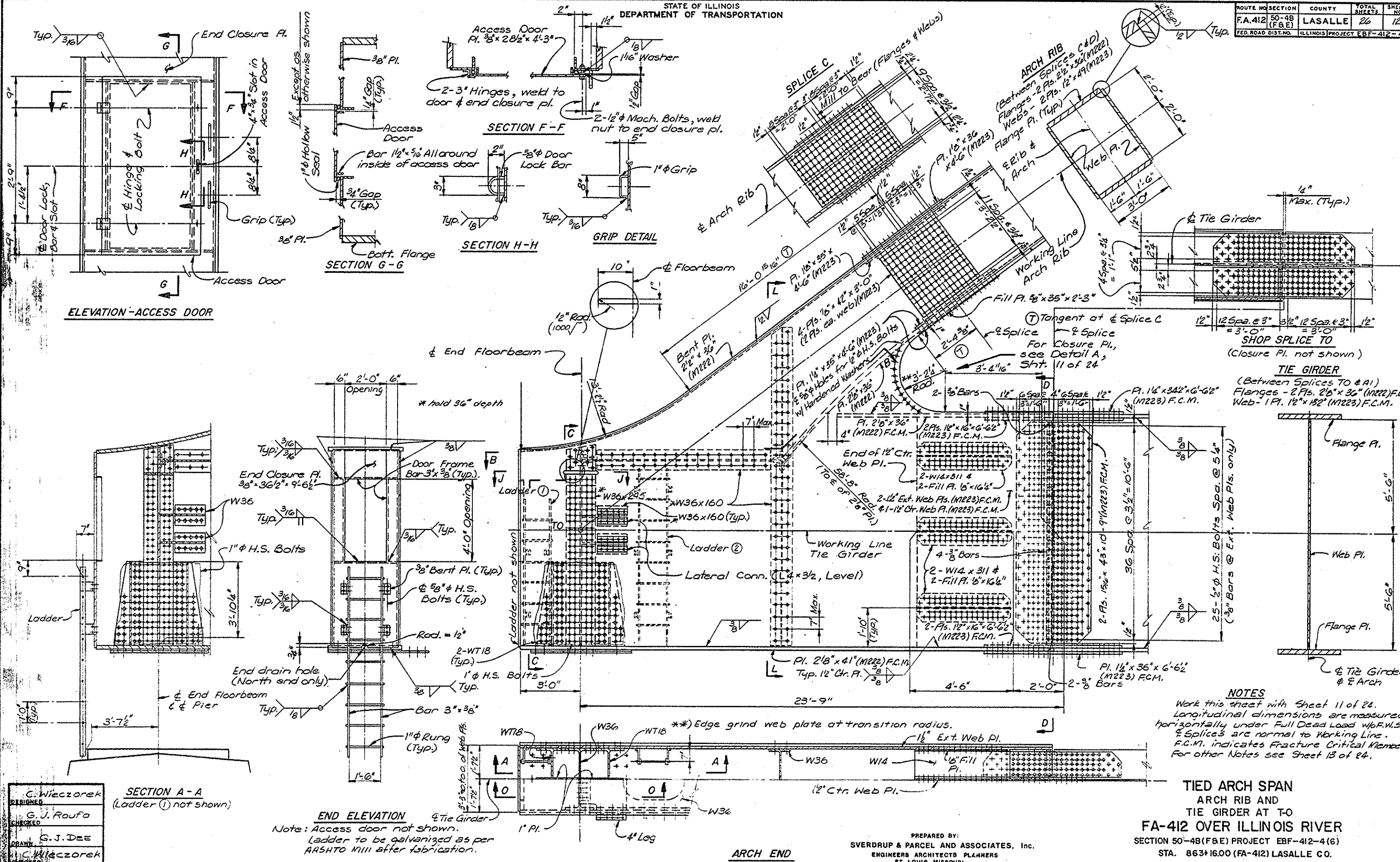
C. Wiczorek
DESIGNED
G. J. Roufa
CHECKED
G. J. Dee
DRAWN
C. Wiczorek
CHECKED

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

TIED ARCH SPAN
INTERMEDIATE FLOORBEAMS
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B(F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.412	50-4B (F&E)	LASALLE	26	12
FED. ROAD DIST. NO.		ILLINOIS PROJECT EBF-412-4(6)		



NOTES
Work this sheet with Sheet 11 of 24.
Longitudinal dimensions are measured horizontally under Full Dead Load w/F.W.S.
Splices are normal to Working Line.
F.C.M. indicates Fracture Critical Member.
For other Notes see Sheet 13 of 24.

**TIED ARCH SPAN
ARCH RIB AND
TIE GIRDER AT TO
FA-412 OVER ILLINOIS RIVER**
SECTION 50-4B (F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

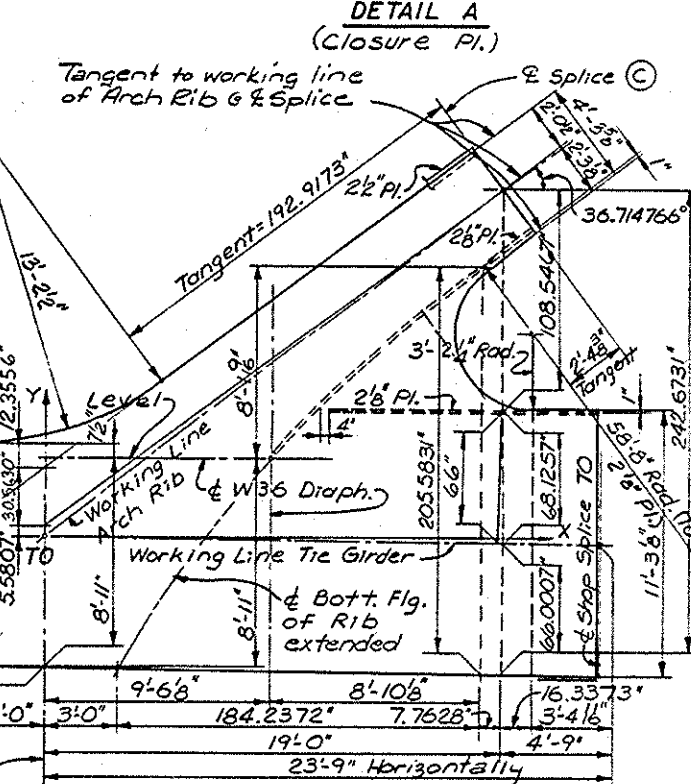
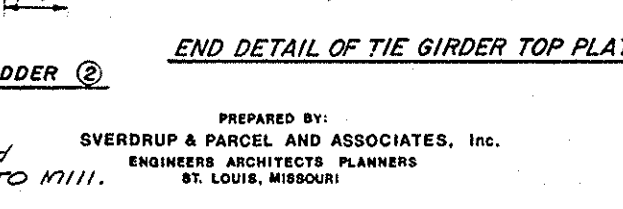
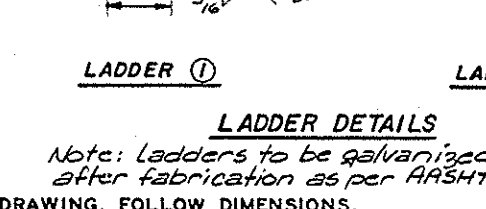
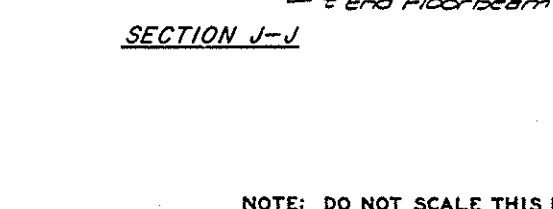
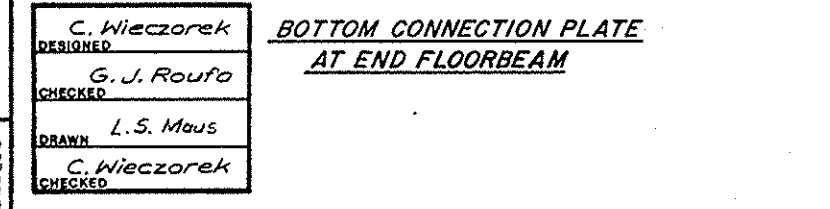
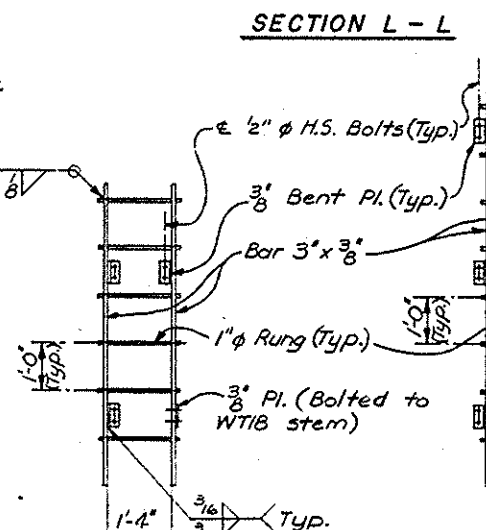
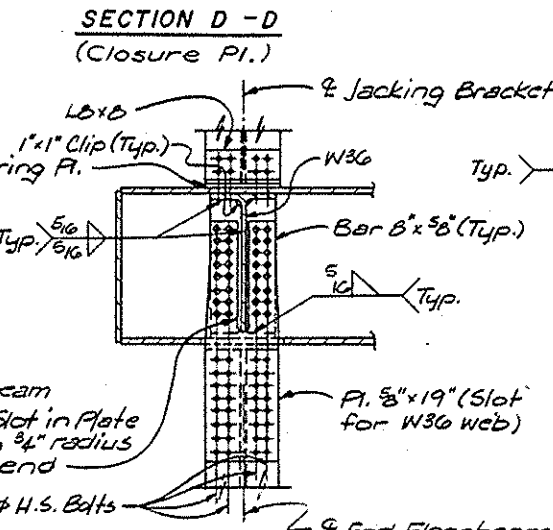
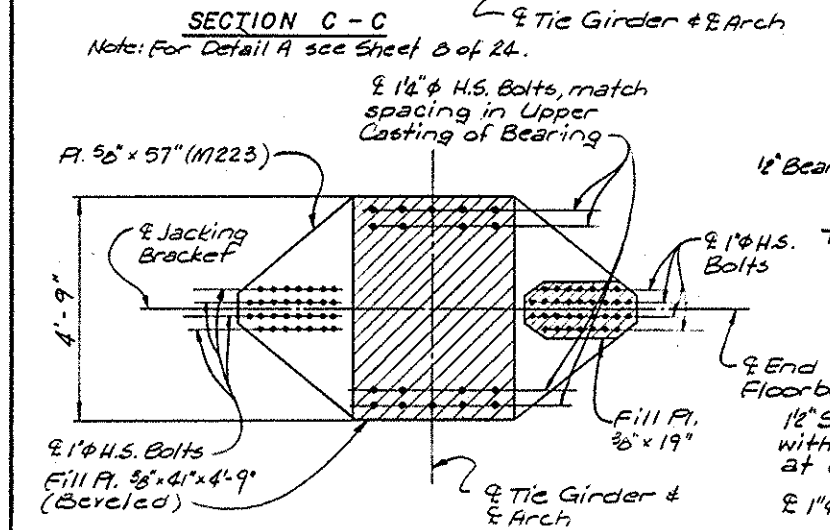
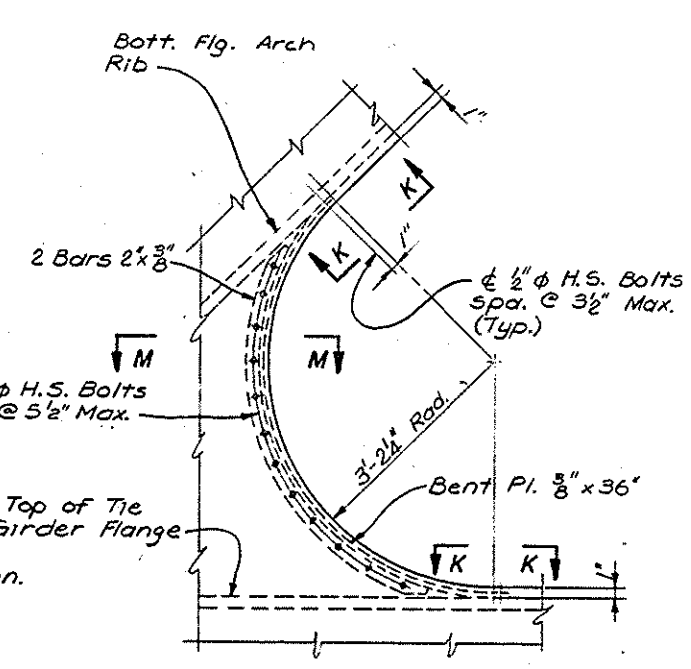
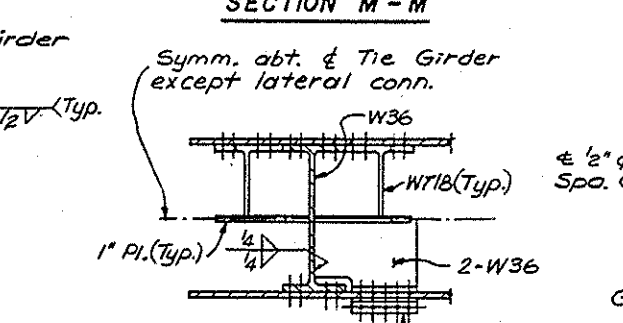
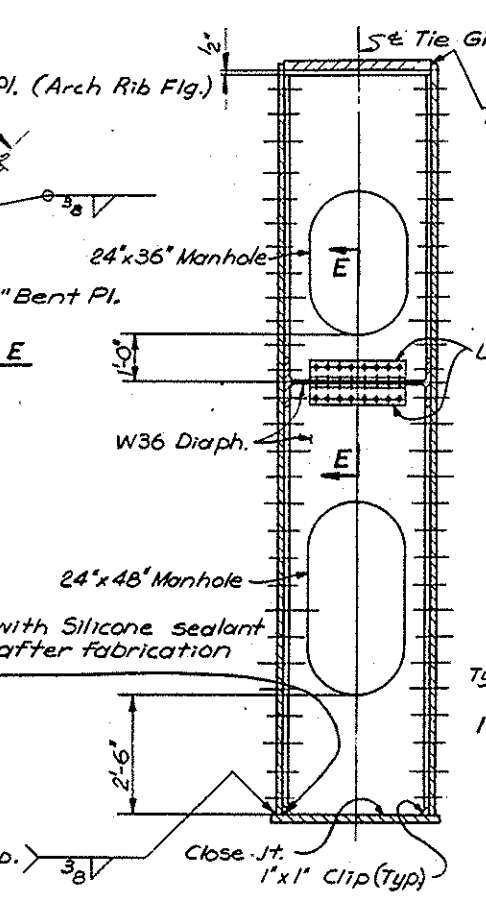
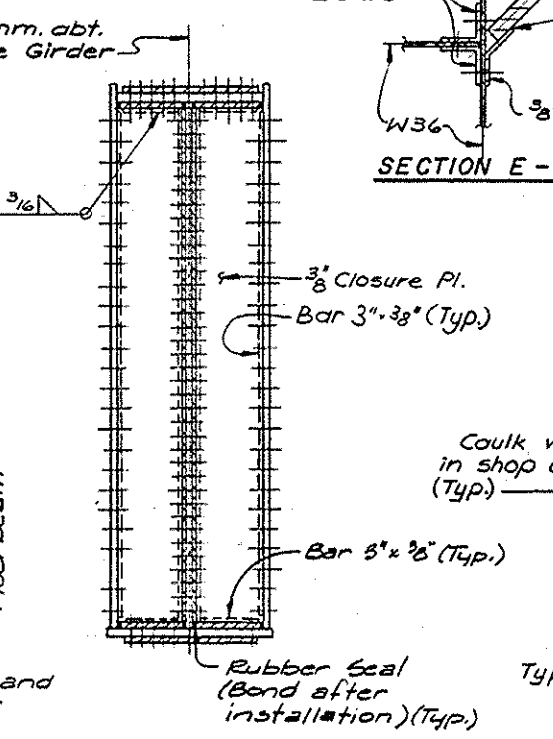
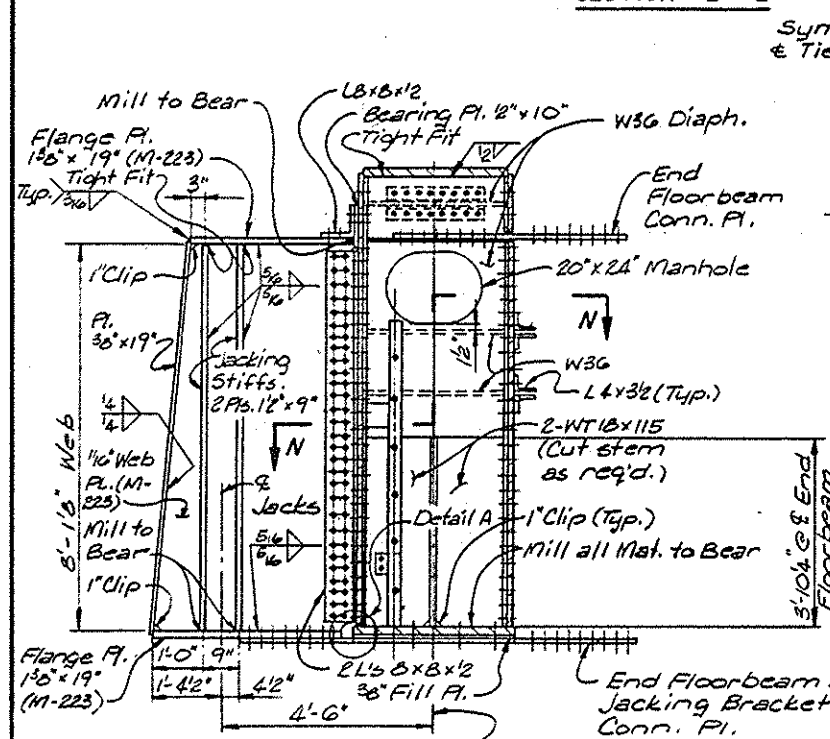
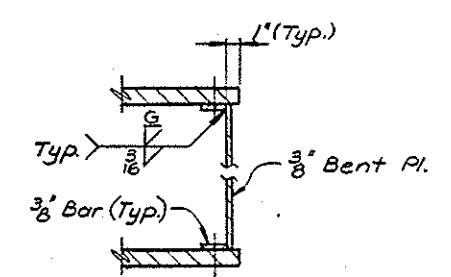
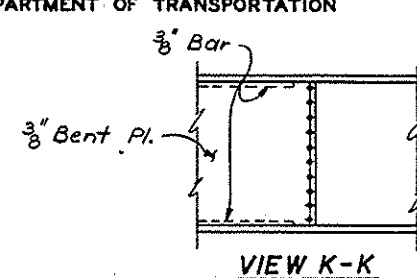
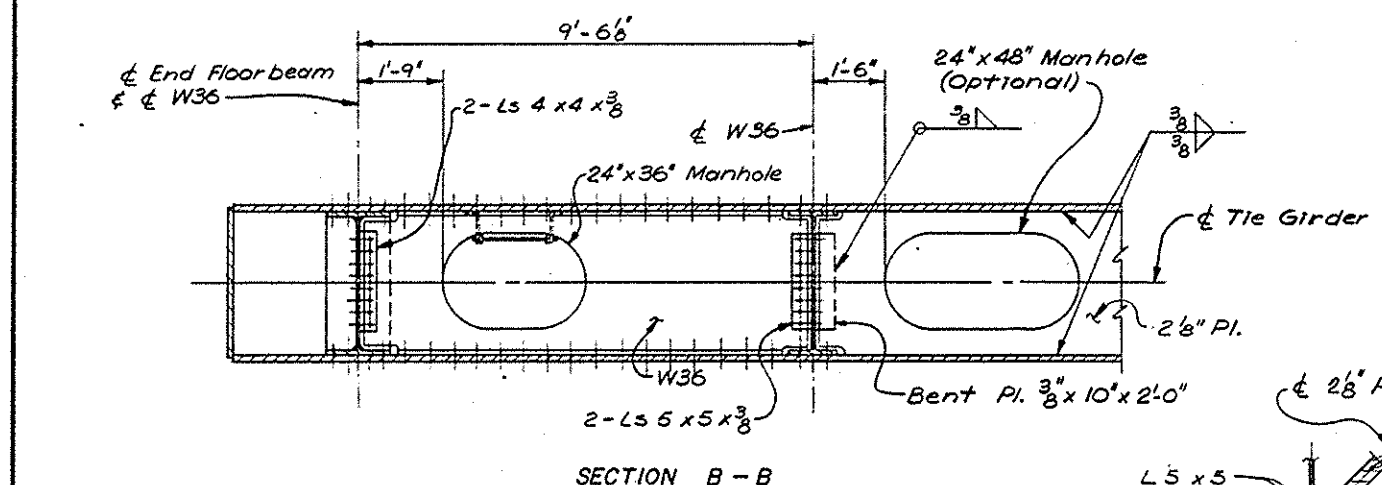
PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

DESIGNED BY
C. Wiczorek
CHECKED BY
G. J. Roufo
DRAWN BY
G. J. Dee
CHECKED BY
C. Wiczorek

END ELEVATION
Note: Access door not shown.
Ladder to be galvanized as per AASHTO M111 after fabrication.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
FA-412	50-4B (F&E)	LASALLE	26	13
FED. ROAD DIST. NO.	ILLINOIS PROJECT	EBF-412-4(6)		



C. Wiczorek
DESIGNED
G. J. Roufo
CHECKED
L. S. Maus
DRAWN
C. Wiczorek
CHECKED

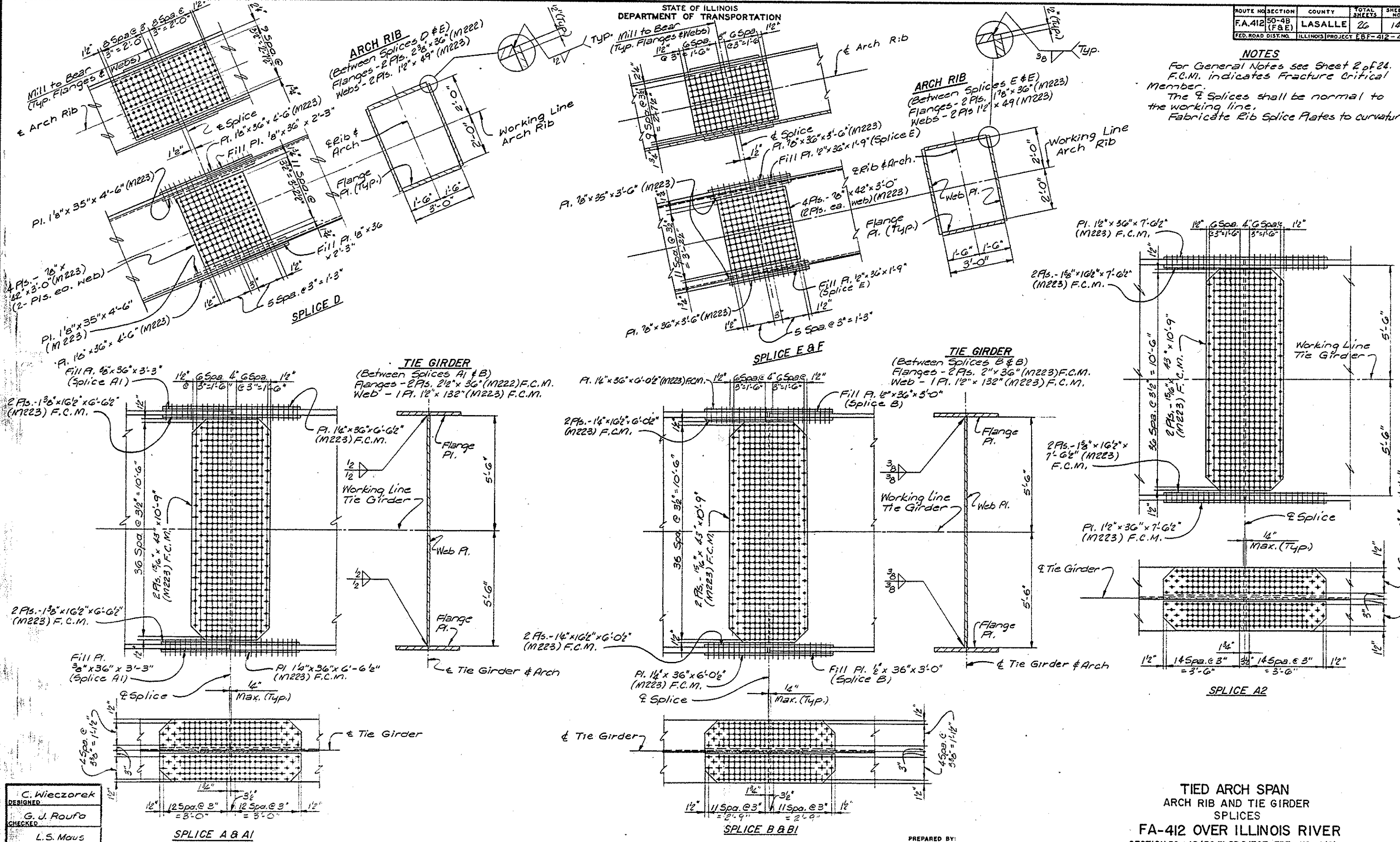
PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

TIED ARCH SPAN
ARCH RIB AND
TIE GIRDER DETAILS
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B(F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

ROUTE NO. SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA-412 50-4B (F&E)	LASALLE	26	14
FED. ROAD DIST. NO.	ILLINOIS PROJECT	EBF-412-4(6)	

NOTES
For General Notes see Sheet 2 of 24.
F.C.M. indicates Fracture Critical Member.
The \perp Splices shall be normal to the working line.
Fabricate Rib Splice Plates to curvature.

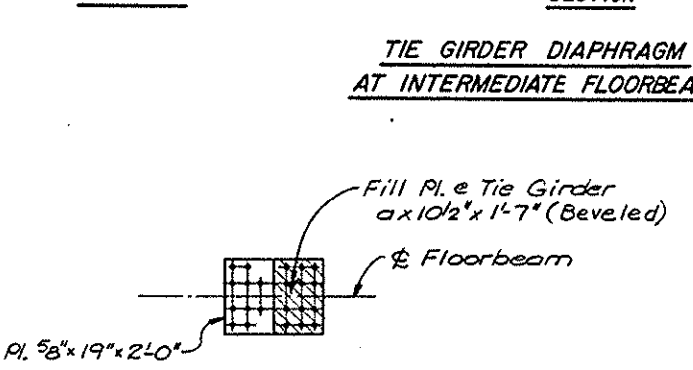
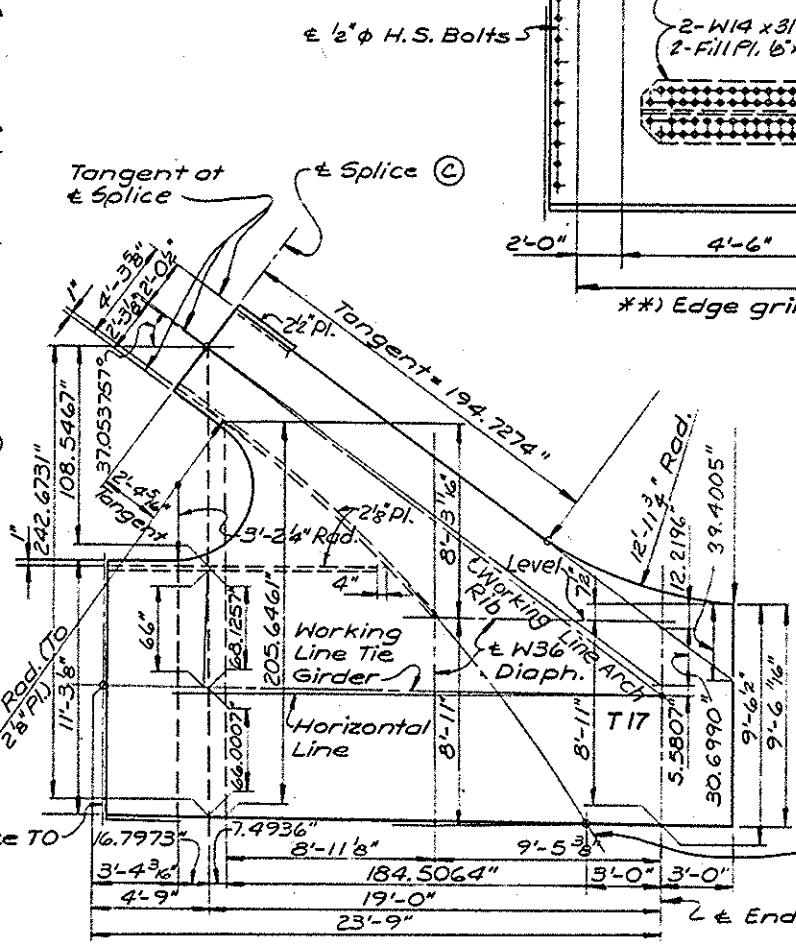
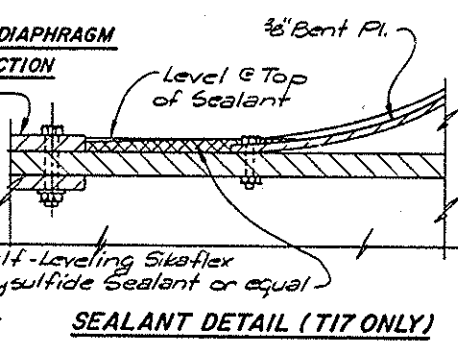
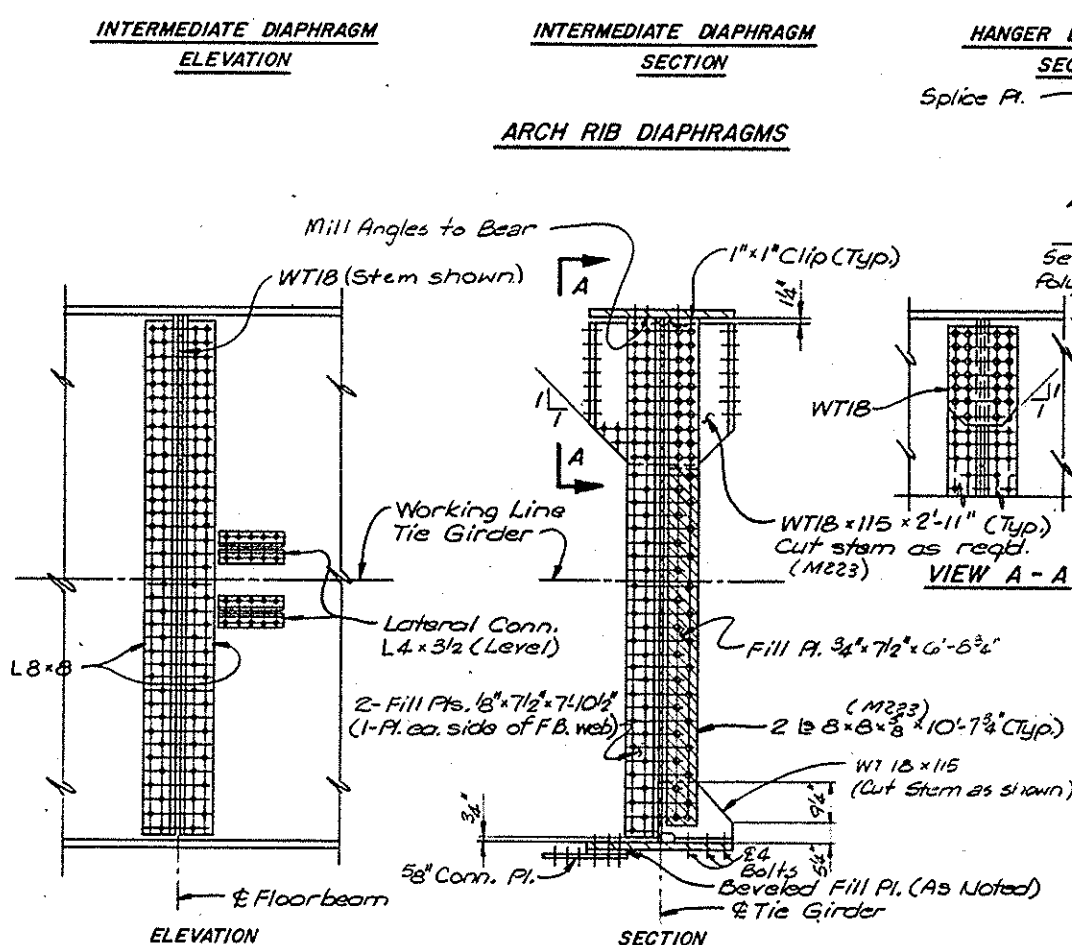
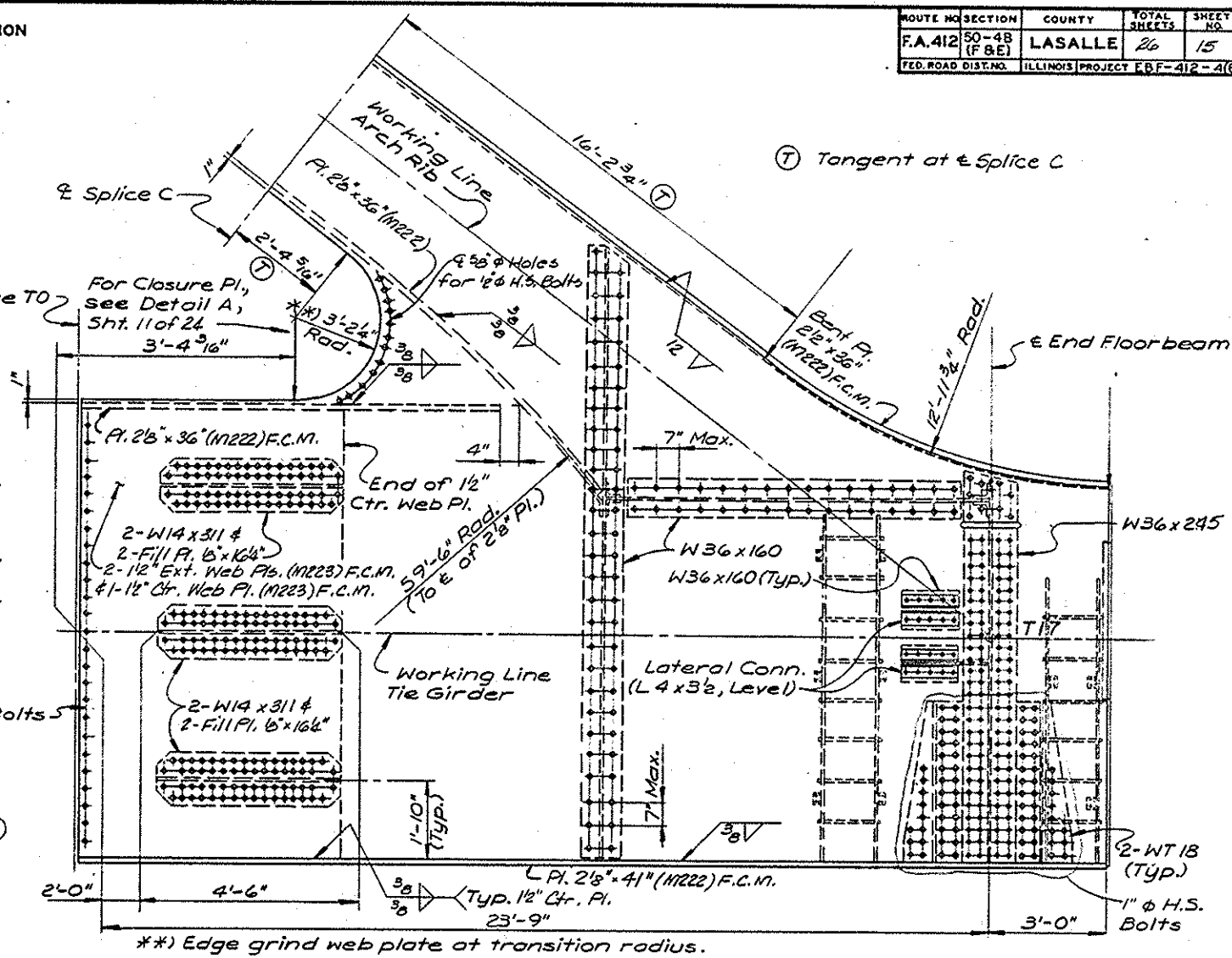
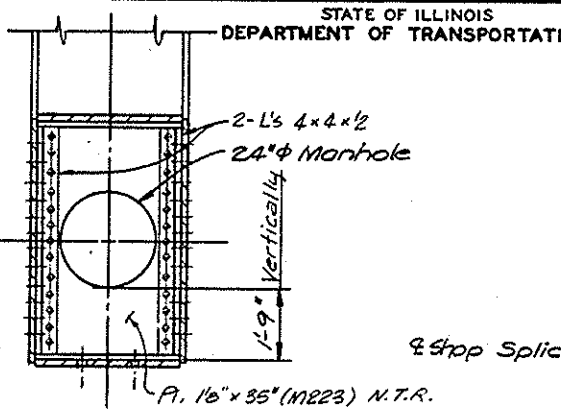
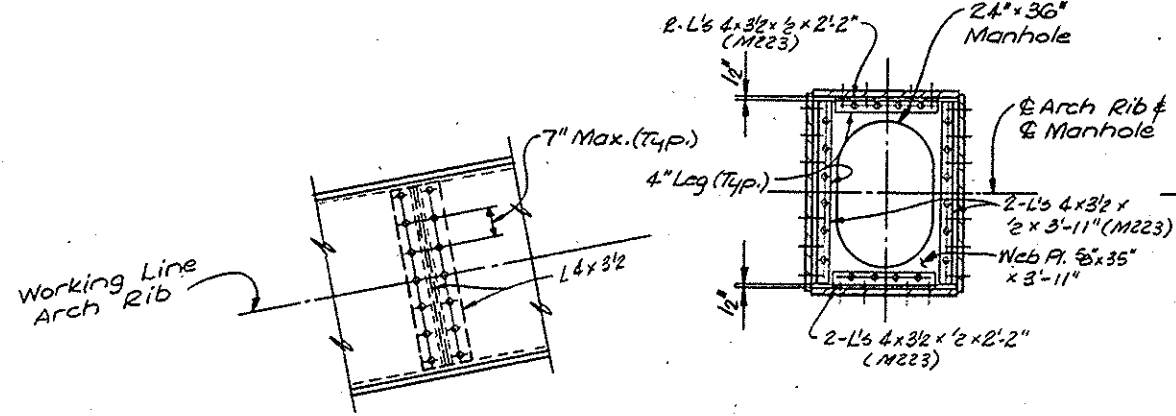


DESIGNED
G. J. Roufo
CHECKED
L.S. Mous
DRAWN
C. Wiczorek
CHECKED

PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

TIED ARCH SPAN
ARCH RIB AND TIE GIRDER
SPICES
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B (F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.



C. Wiczorek
DESIGNED
G. J. Roufa
CHECKED
D.T. Smithpeters
DRAWN
C. Wiczorek
CHECKED

INTERMEDIATE FLOORBEAM CONNECTION PLATE
a = 5/8" @ Tie Girder T1, T2, T15 & T16.
a = 1/4" @ Tie Girder T3, T4, T5, T6, T11, T12, T13 & T14.
a = 3/4" @ Tie Girder T7, T8, T9 & T10.
(Dim. a at @ of Floorbeam)

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

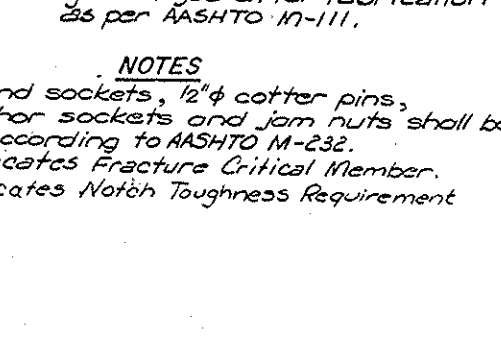
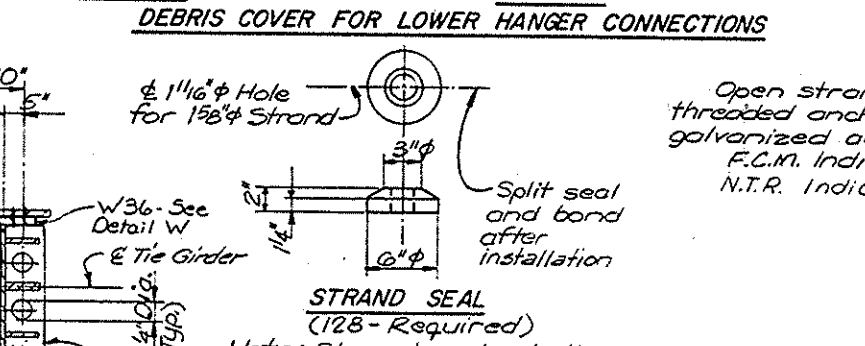
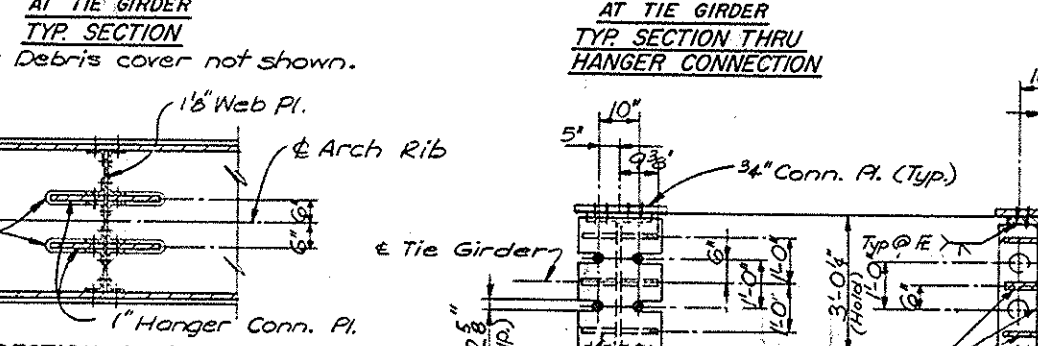
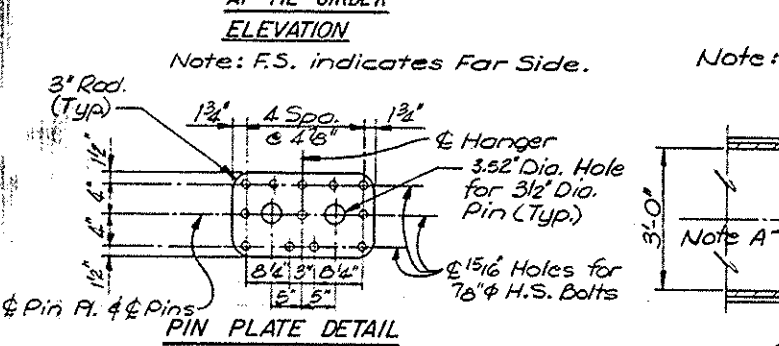
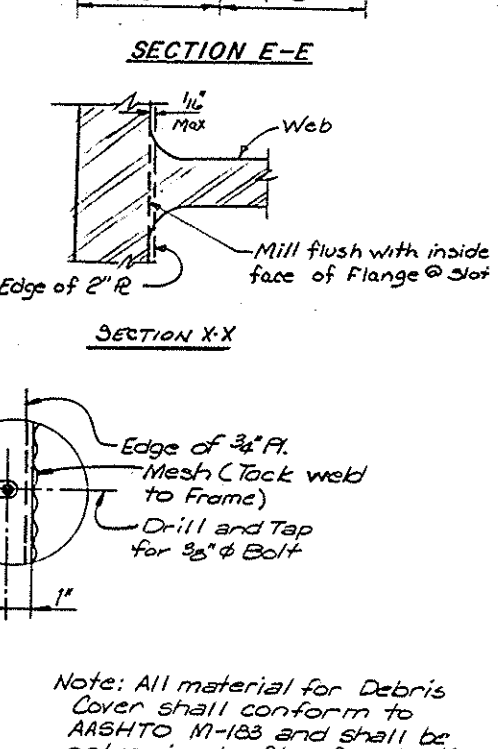
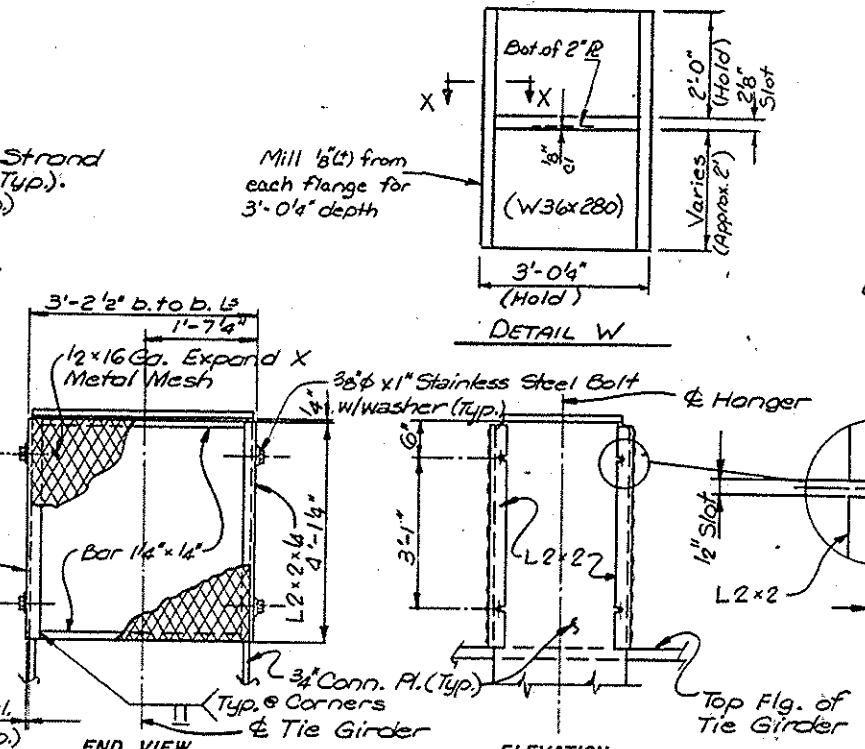
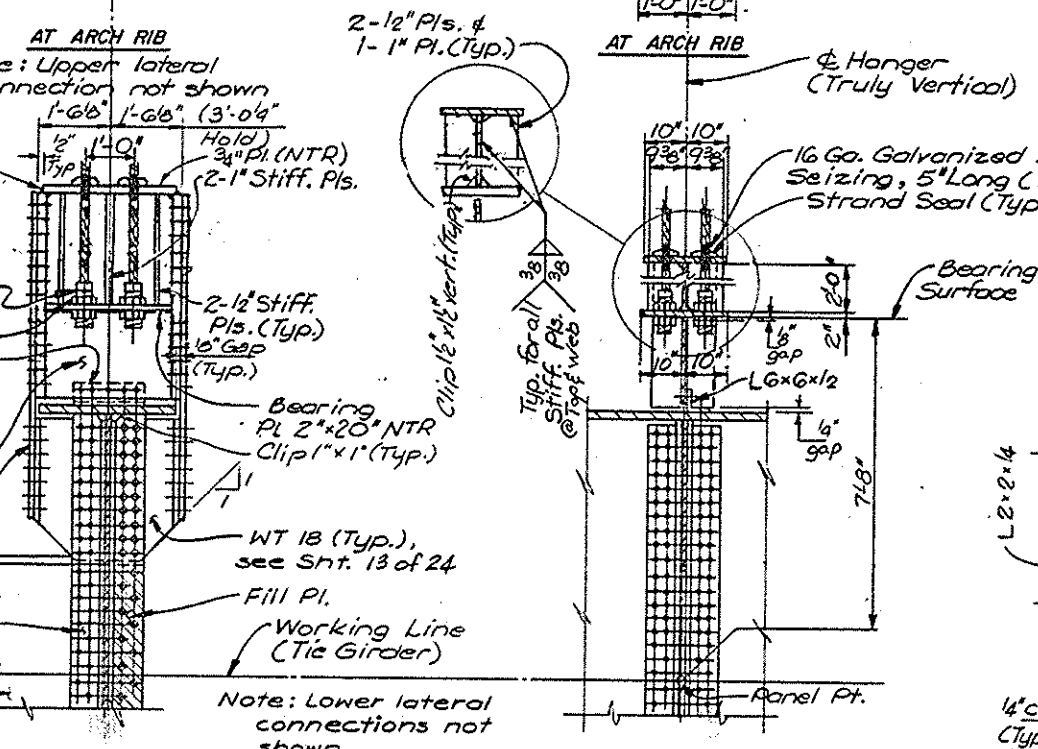
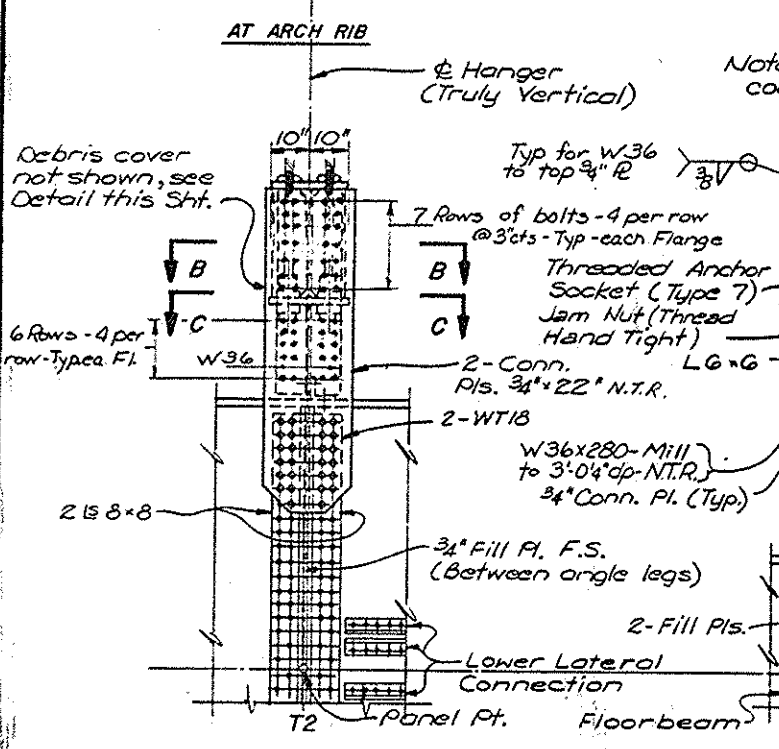
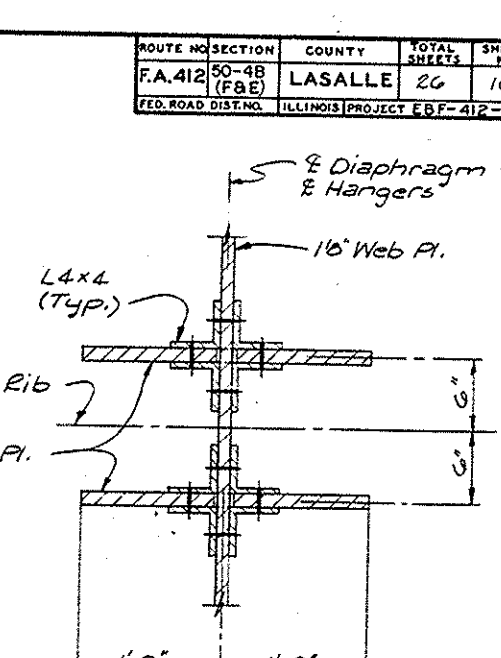
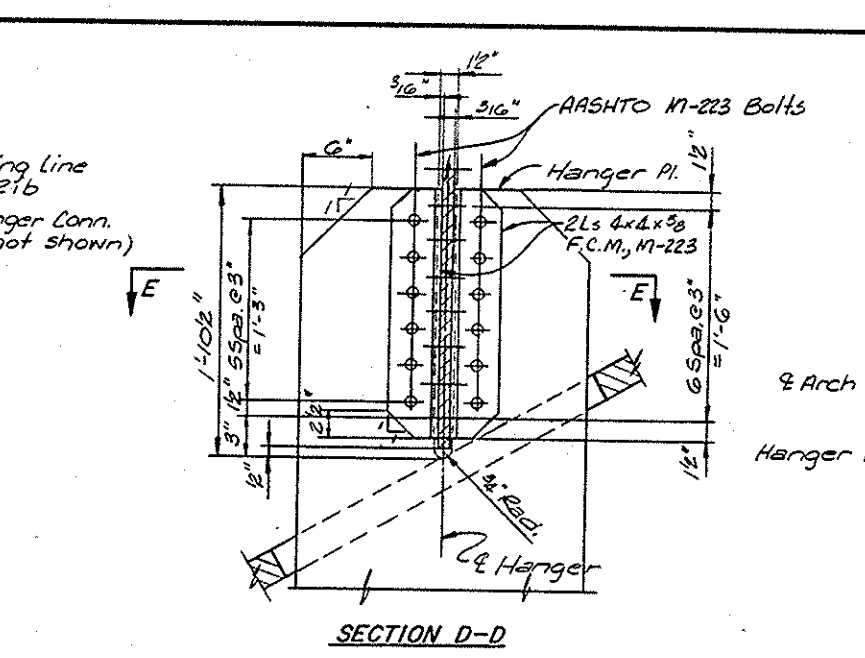
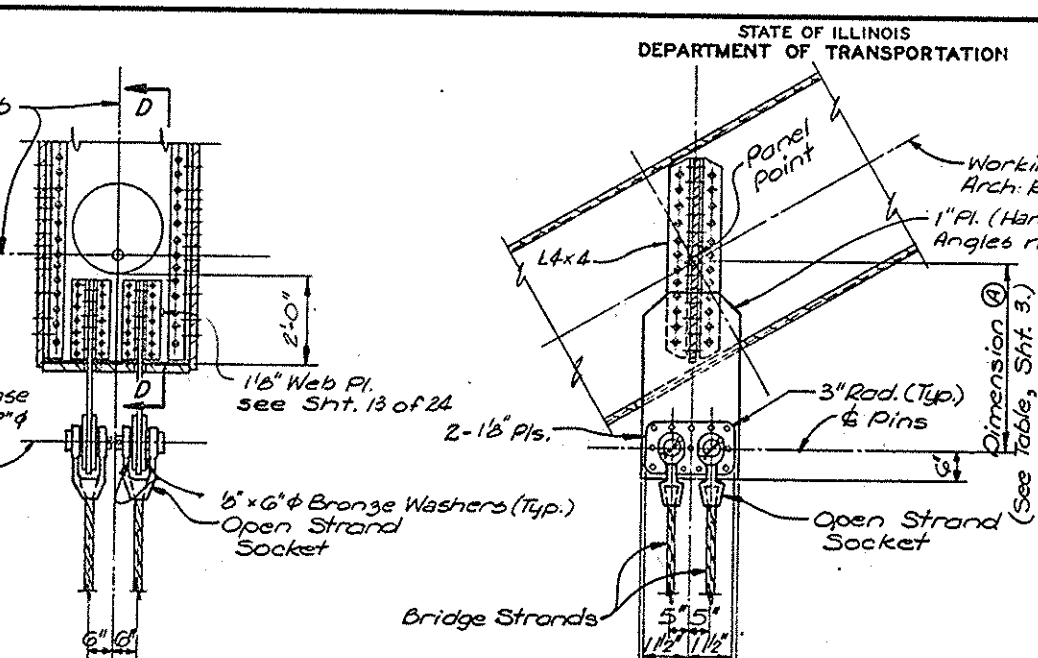
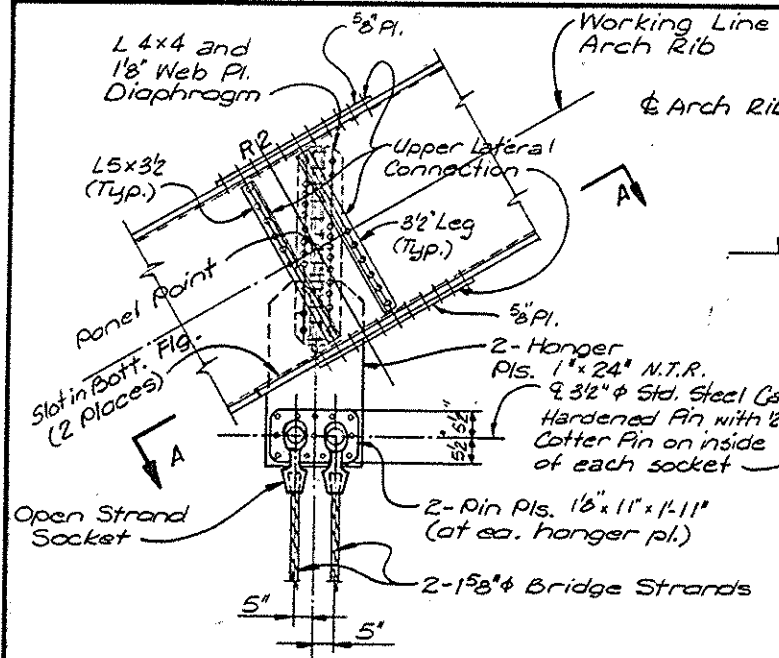
PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

NOTES
For General Notes, see Sheet 2 of 24.
For all W36 diaphragms in the arch ribs and arch ends, and W14 in the arch ends, the outside face of both flanges must be parallel to each other and perpendicular to web.
For Navigation Light Access see Sheets 19 & 20 of 24. Dimensions shown are under Full Dead Load excluding F.W.S.
F.C.M. Indicates Fracture Critical Member.

SEALANT NOTES
The sealant shall be self-leveling, two component system, Sikaflex polysulfide sealant Type 411 SL (limestone gray color) as manufactured by the Sika Chemical Corporation, Lyndhurst, N.J., or approved equal, and shall meet the Federal Specification TT-5-00227 E. The sealant shall be applied according to manufacturer's recommendations and shall be placed directly over the prime (shop) coat of paint on steel.

TIED ARCH SPAN
ARCH RIB AND TIE GIRDER
AT T17 AND DIAPHRAGMS
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B (F.B.E.) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

ROUTE NO. SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 412 50-4B (F&E)	LASALLE	26	16
FED. ROAD DIST. NO.	ILLINOIS PROJECT EBF-412-4		



C. Wieczorek
DESIGNED
G. J. Roufo
CHECKED
G. J. DEE
DRAWN
C. Wieczorek
CHECKED

SECTION A-A
Note A: Slot through bottom flange of arch rib shall provide 1/16" clearance all around with radius at ends of slot.

HANGER DETAILS
Note: Typical hanger details shown for hanger R2-T2, all other hanger connections similar.

SECTION B-B
SECTION C-C

* Verify with Manufacturer.

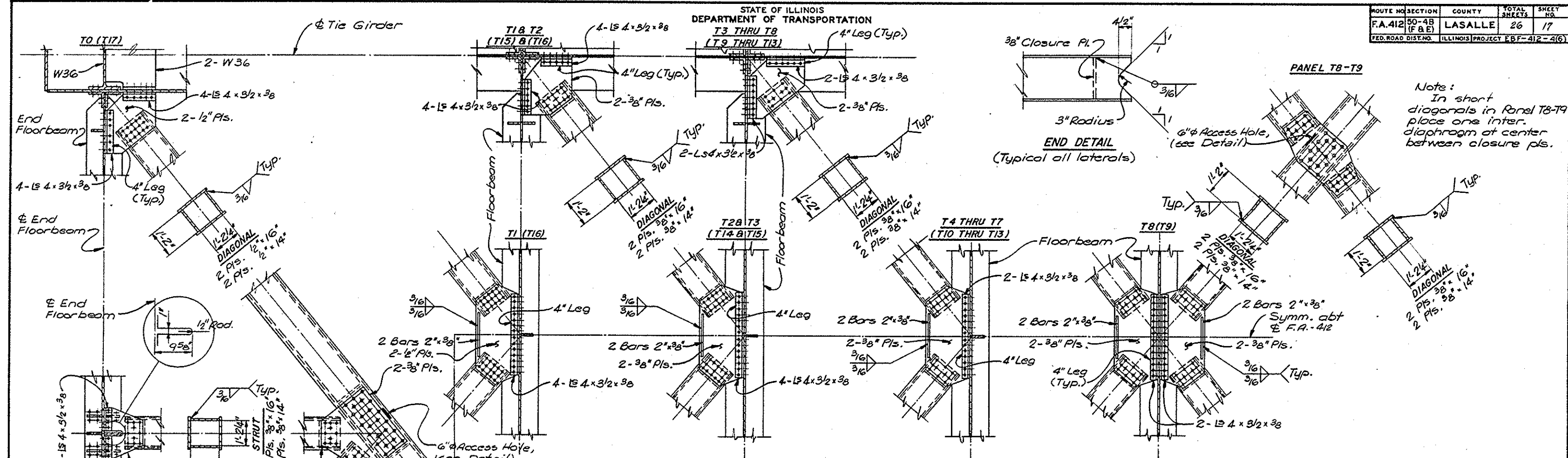
STRAND SEAL
(128-Required)
Note: Strand seals shall be 50+5 duro neoprene. Cost of seals shall be included in price bid for Structural Steel.

NOTES
Open strand sockets, 1/2" cotter pins, threaded anchor sockets and jam nuts shall be galvanized according to AASHTO M-232. F.C.M. Indicates Fracture Critical Member. N.T.R. Indicates Notch Toughness Requirement

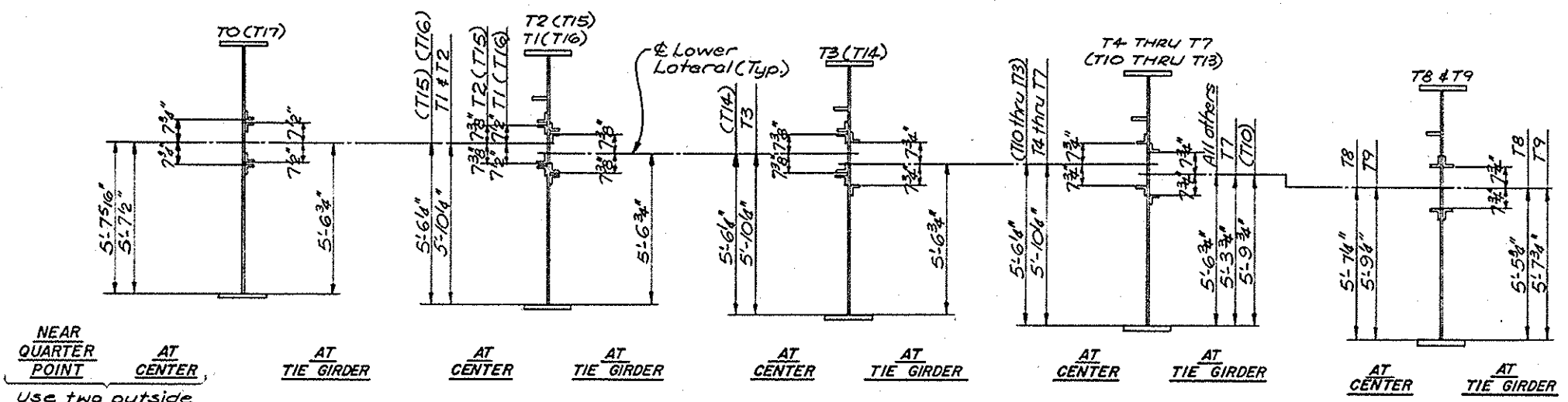
TIED ARCH SPAN
HANGERS AND ACCESSORIES
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B(F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA-412	50-4B (F&E)	LASALLE	26	17
FED. ROAD DIST. NO.	ILLINOIS PROJECT EBF-412-4(6)			

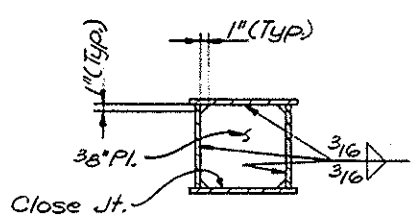


PLAN-LOWER LATERALS

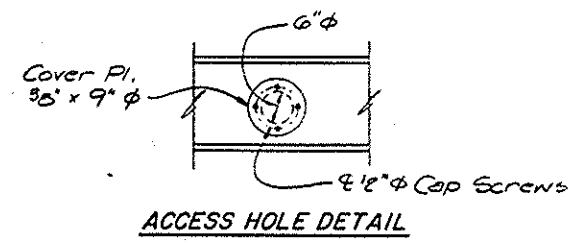


LATERAL CONNECTIONS AT FLOORBEAMS

SECONDARY BRACING
PANEL TO-T1 (T16-T17)
 In secondary struts and secondary diagonals in Panel TO-T1 (T16-T17) place one inter. diaphragm at center between closure pls.

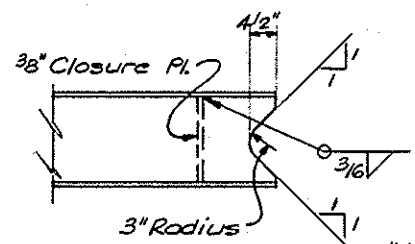


INTERMEDIATE DIAPHRAGM
 Place two diaphragms at equal spaces between closure plates except as noted. (Typ. all main diagonals)



ACCESS HOLE DETAIL

END DETAIL
 (Typical all laterals)



PANEL T8-T9

Note:
 In short diagonals in Panel T8-T9 place one inter. diaphragm at center between closure pls.

DESIGNED	C. Wiczorek
CHECKED	G. J. Roufo
DRAWN	G. J. DEE
CHECKED	C. Wiczorek

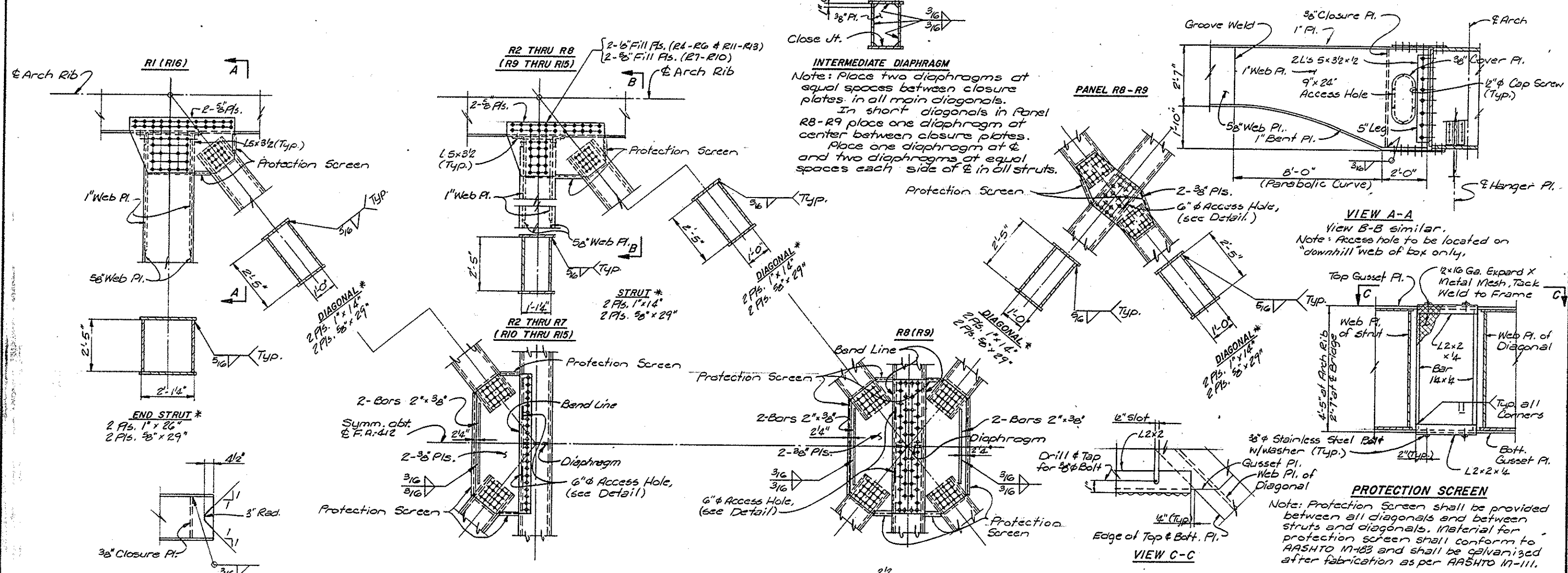
6892
815403

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

PREPARED BY:
 SVERDRUP & PARCEL AND ASSOCIATES, Inc.
 ENGINEERS ARCHITECTS PLANNERS
 ST. LOUIS, MISSOURI

TIED ARCH SPAN
LOWER LATERALS
FA-412 OVER ILLINOIS RIVER
 SECTION 50-4B (F&E) PROJECT EBF-412-4(6)
 STA. 863+16.00 (FA-412) LASALLE CO.

NOTES
 For General Notes, see Sheet 2 of 24
 For Framing Plan, see Sheet 3 of 24



UPPER LATERALS - GEOMETRY

PANEL	Σn (a)	α_n (a)	B_n (a)	T_{n+1} (a)	α_{n+1} (a)	Δ_n (Ft.)	Δ_{n+1} (Ft.)	WP to WP (Ft.)
R1-R2	33.0730	35.0185	1.9455	1.8300	31.2430	.0750	.0705	40.2747
R2-R3	29.1204	31.2430	2.1226	1.9805	27.1399	.0818	.0763	38.4957
R3-R4	24.8594	27.1399	2.3006	2.1270	22.7124	.0887	.0820	36.9315
R4-R5	20.2412	22.7124	2.4712	2.2618	17.9794	.0953	.0872	35.6076
R5-R6	15.3549	17.9794	2.6245	2.3760	12.9789	.1012	.0916	34.5494
R6-R7	10.2302	12.9789	2.7487	2.4608	7.7694	.1060	.0949	33.7796
R7-R8	4.7362	7.7694	2.8332	2.5085	2.4277	.1092	.0967	33.3161
R8-R9	0.4420	2.4277	1.9857	3.3984	-2.9564	.0765	.1310	33.1710
R9-R8	0.0881	2.9564	2.8683	2.5168	-2.4277	.1106	.0770	33.1711
R10-R9	5.4621	8.2889	2.8268	2.5097	2.9564	.1090	.0966	33.3479
R11-R10	10.7427	13.4810	2.7383	2.4538	8.2889	.1056	.0946	33.8420
R12-R11	15.8470	18.4575	2.6105	2.3660	13.4810	.1006	.0912	34.6410
R13-R12	20.7667	23.1618	2.4551	2.2492	18.4575	.0946	.0867	35.7264
R14-R13	25.5249	27.5580	2.2831	2.1131	23.1618	.0880	.0815	37.0750
R15-R14	29.5236	31.6287	2.1051	1.9656	27.5580	.0811	.0758	38.6615
R16-R15	33.4440	35.3724	1.9284	1.8153	31.6287	.0743	.0700	40.4603

Note: All dimensions given are in the plane of the Arch Rib and are Final Geometric shape under Full Dead Load excluding F.W.S.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGNED
C. Wiczorek

CHECKED
G. J. Roufo

DRAWN
G. J. DEE

CHECKED
C. Wiczorek

NOTES

For General Notes, see Sheet 2 of 24
For Framing Plan, see Sheet 3 of 24
For Access Hole Detail, see Sheet 15 of 24
* Uniform depth sections. For variable depth at end sections at arch rib, see Diagonal End Details and View A-A.

**TIED ARCH SPAN
UPPER LATERALS**

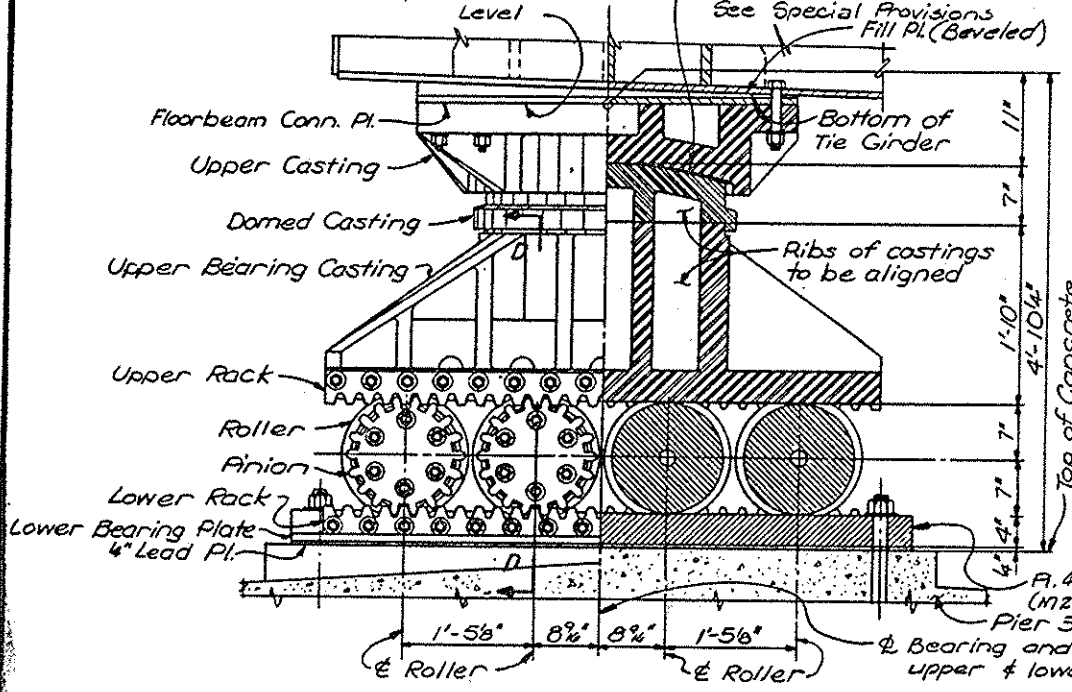
FA-412 OVER ILLINOIS RIVER

SECTION 50-48 (F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

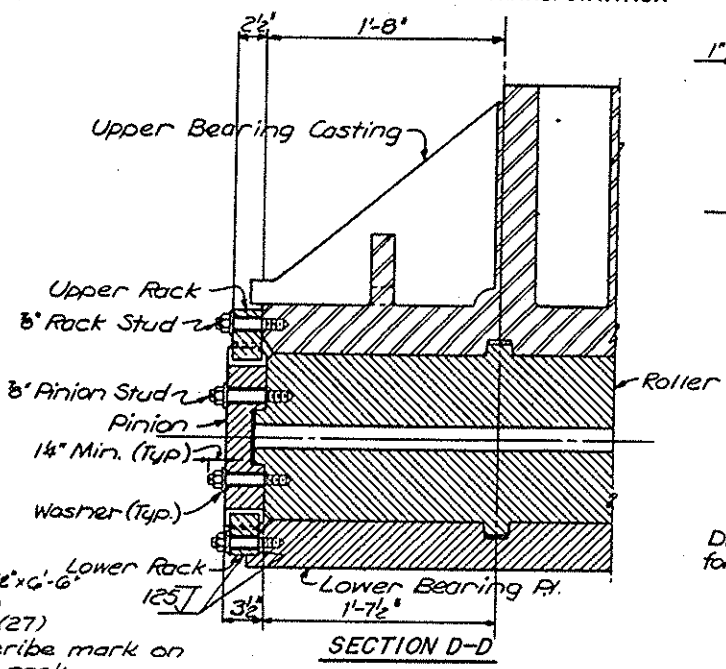
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA-412	50-4B (F&E)	LASALLE	26	19
ILLINOIS PROJECT EBF-412-4(6)				

Note: Shoes shall be shop assembled and match-marked. See Special Provisions.

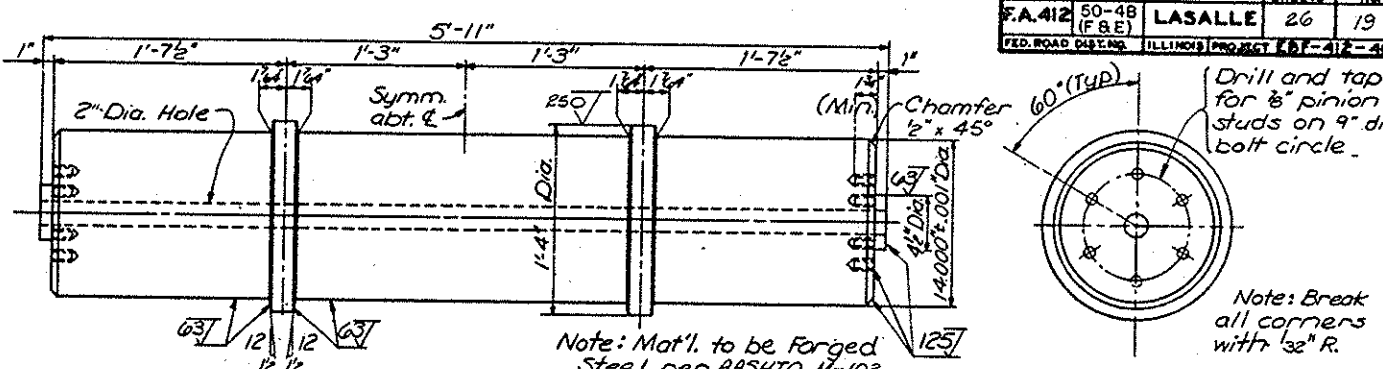
Spherical Brg. Surfaces, both concave and convex, shall be coated with a solid film lubricant. See Special Provisions.



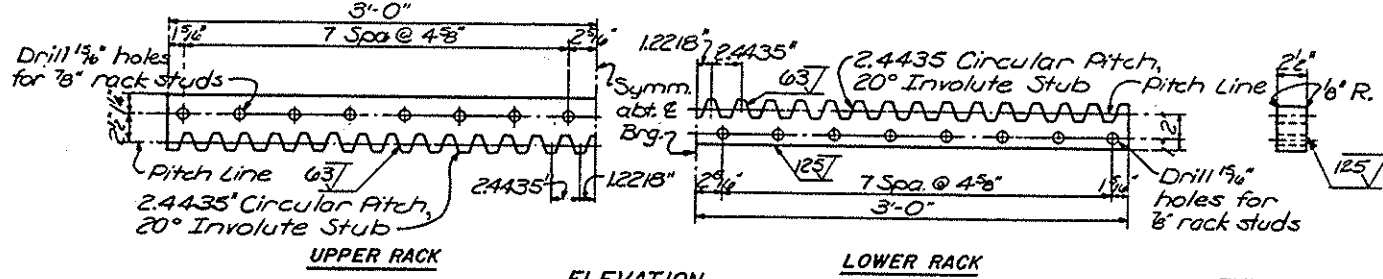
SECTIONAL ELEVATION
EXPANSION SHOE ASSEMBLY FOR PIER 34(27)
(2 Assemblies required)



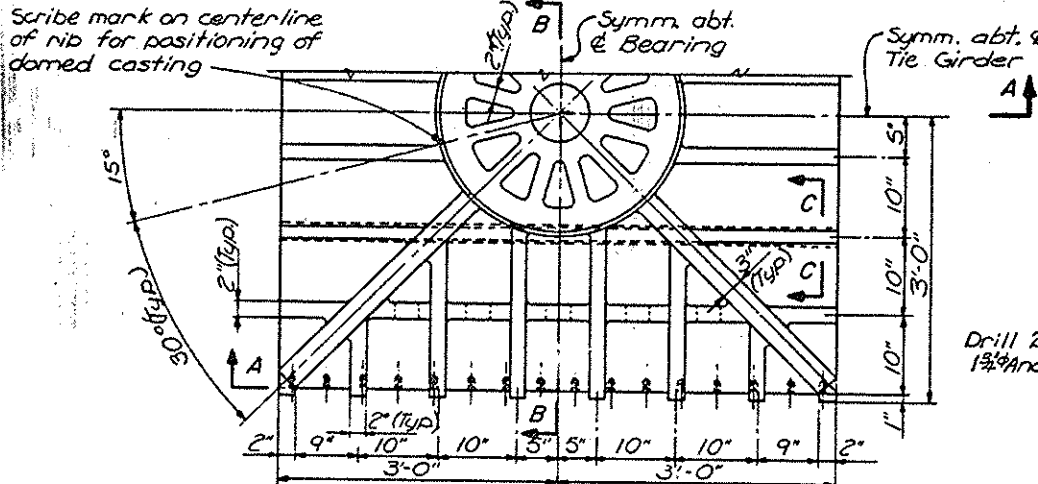
SECTION D-D
Pinions at opposite end of roller must match.



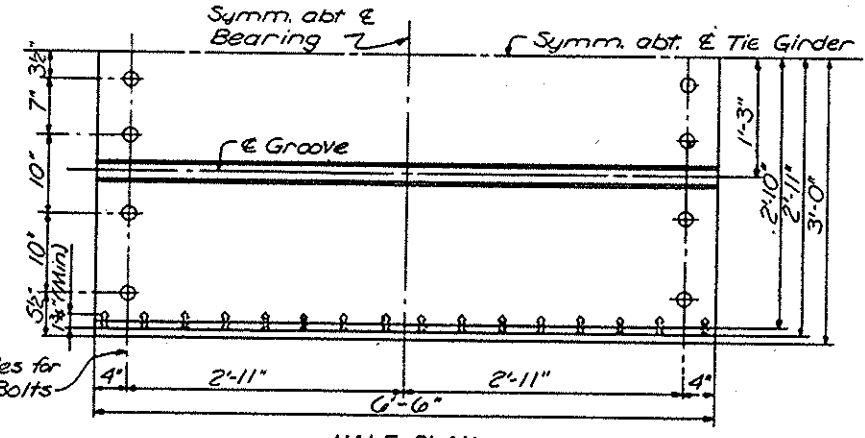
ELEVATION END VIEW
ROLLER FOR EXPANSION SHOES



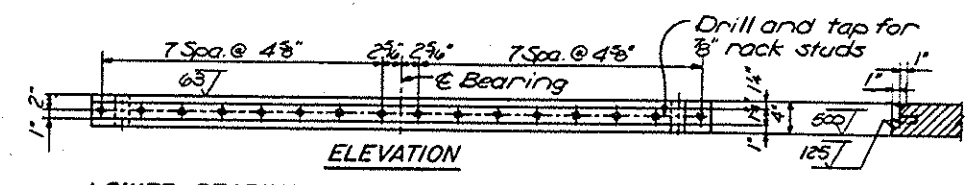
ELEVATION END VIEW
UPPER RACK LOWER RACK
RACK FOR EXPANSION SHOES



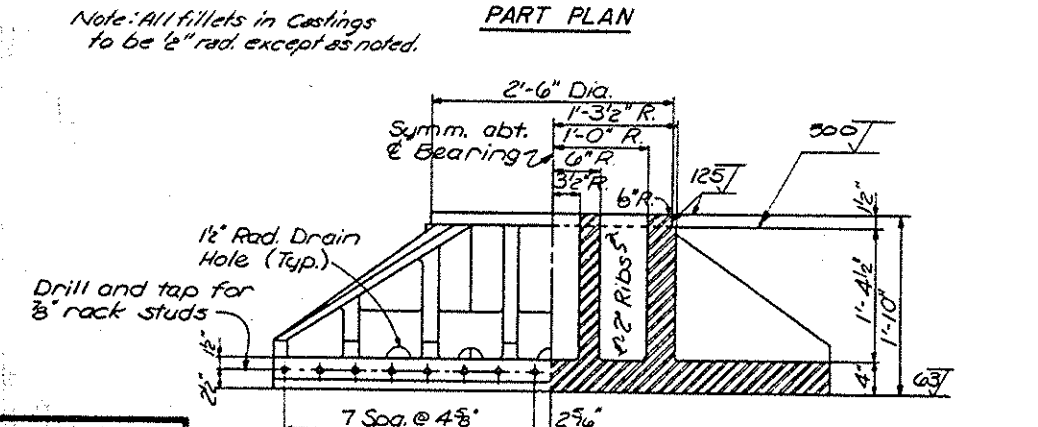
PART PLAN



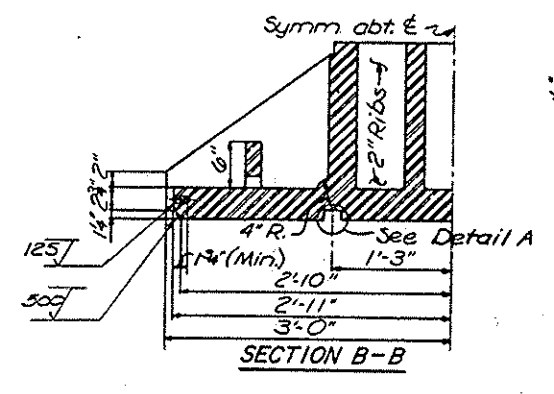
HALF PLAN



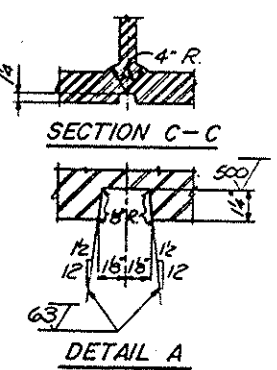
ELEVATION
LOWER BEARING PLATE FOR EXPANSION SHOES



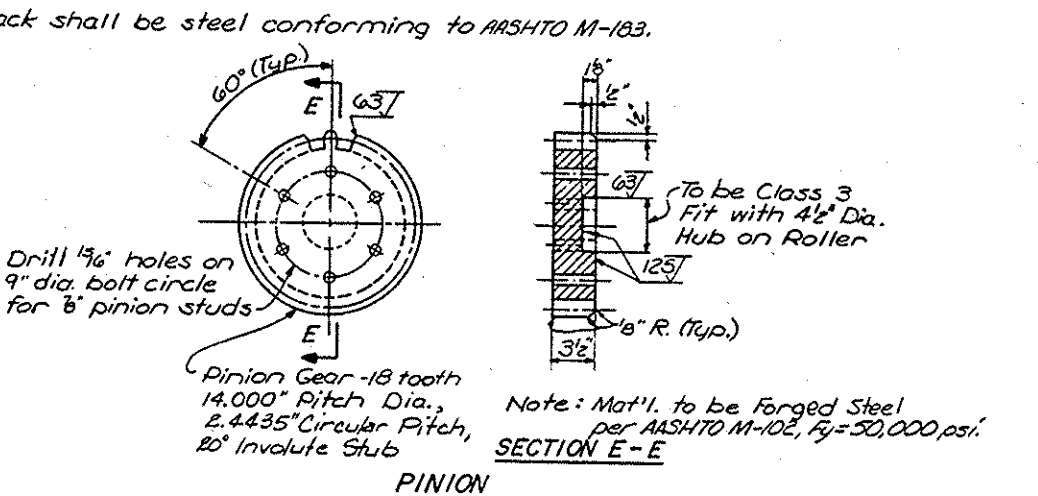
HALF SECTION A-A
UPPER BEARING CASTING FOR EXPANSION SHOES



SECTION B-B



SECTION C-C



ELEVATION END VIEW
PINION

NOTE: Unless otherwise shown, material shall be cast steel conforming to AASHTO M-192, Grade 90, Fy = 60,000 psi. Rack Studs and pinion studs, nuts and washers shall conform to AASHTO M-164. For Details of Anchor Bolts, see Sheet 18 of 24. Set shoes as shown in Bearing Setting Diagram on Sheet 18 of 24. For Details of Upper Casting, Domed Casting and Roller Bearing Cover, See Sheet 18 of 24.

DESIGNED BY	C. Wiczorek
CHECKED BY	G. J. Roufa
DRAWN BY	G. J. Dee
IN CHARGE	C. Wiczorek

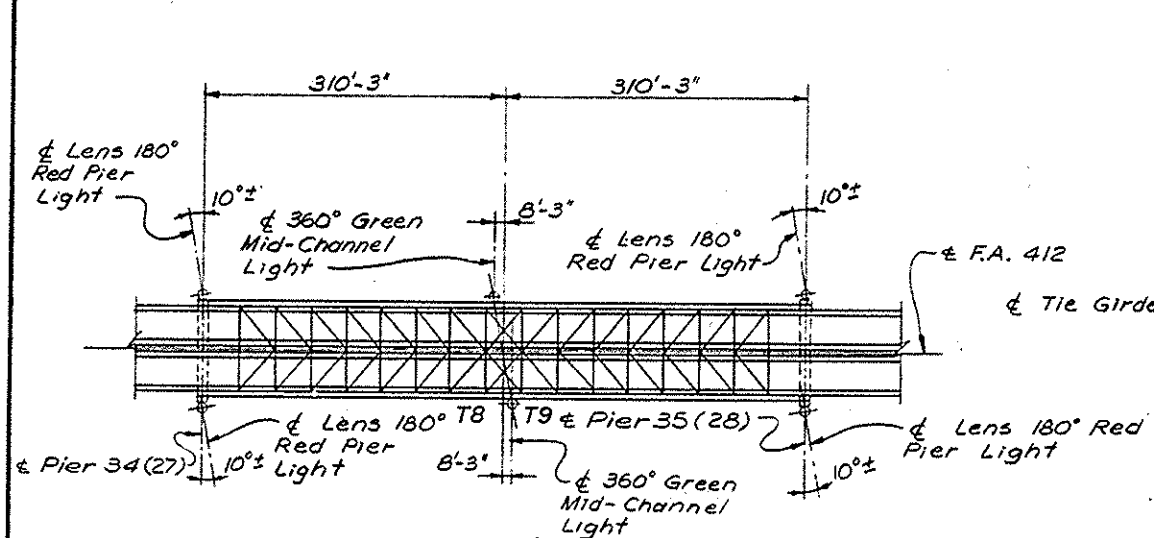
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

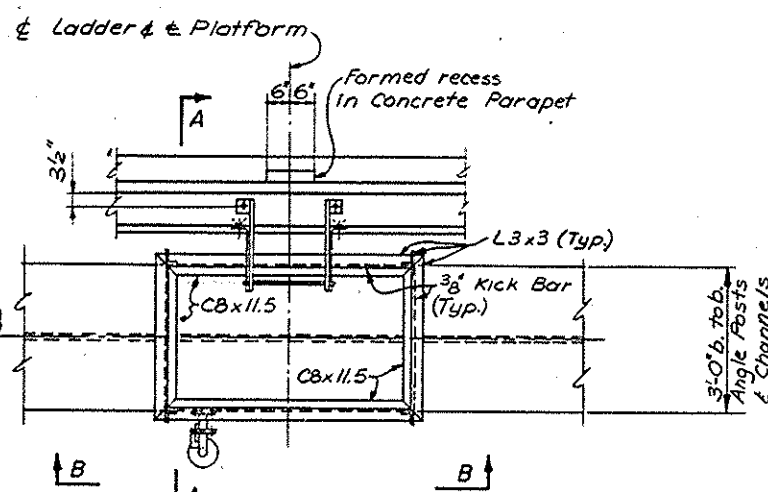
TIED ARCH SPAN
EXPANSION BEARINGS
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B(F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

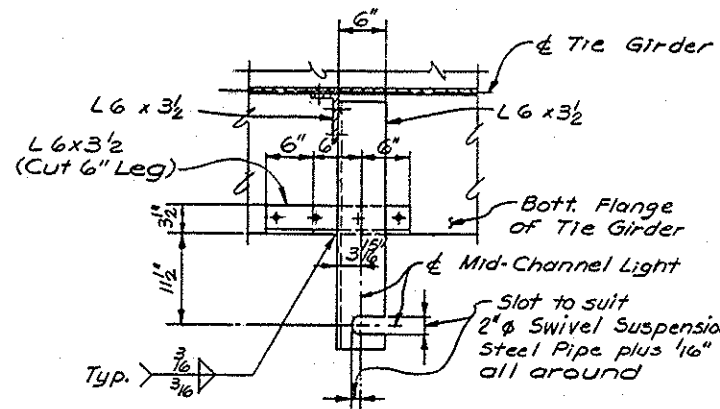
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 412	50-48 (F&E)	LASALLE	26	21
FED. ROAD DIST. NO.	ILLINOIS PROJECT EBF-412-4(6)			



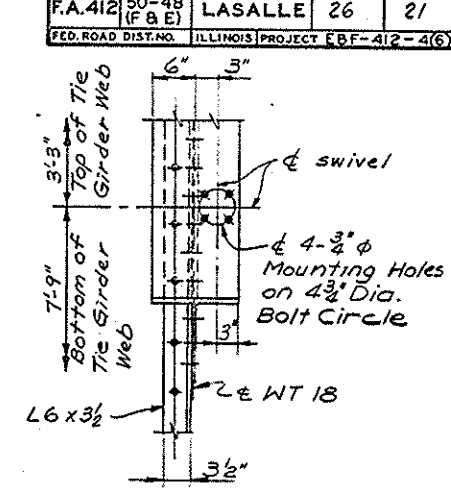
LOCATION PLAN



PLAN
Note: Access Gate not shown.

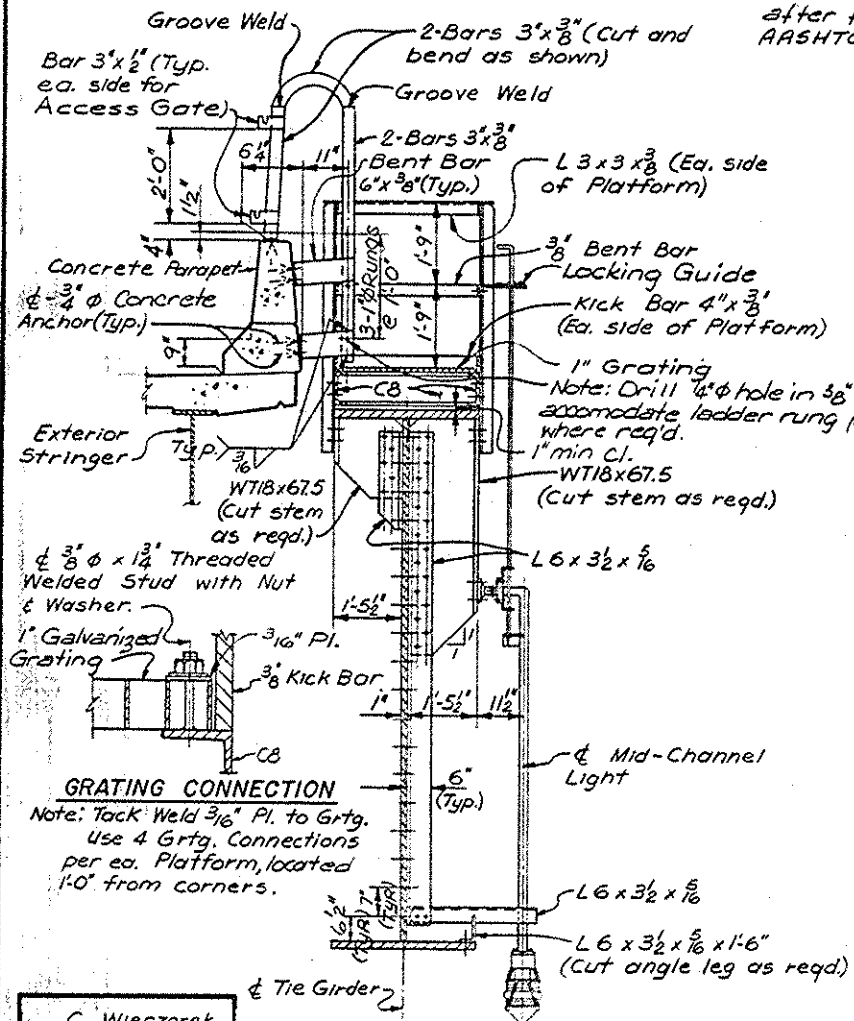


SECTION C-C

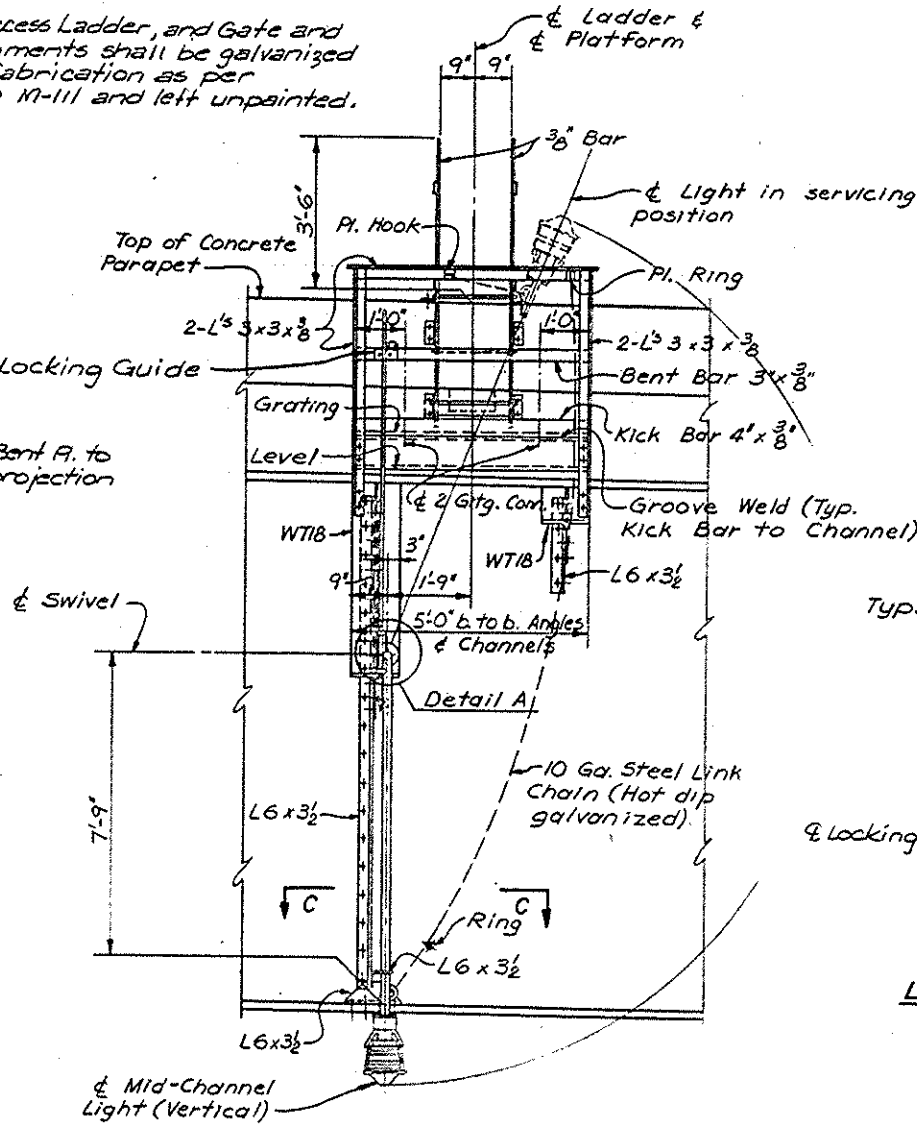


DETAIL A

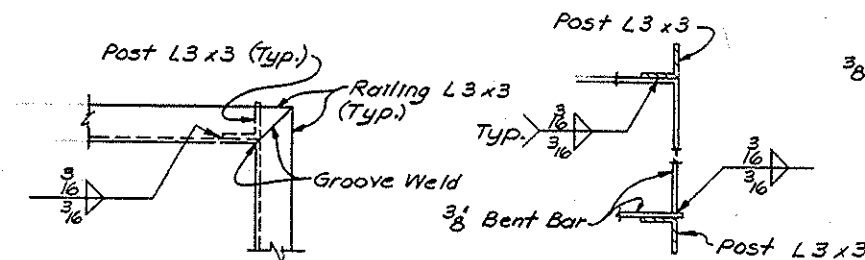
Note: Access Ladder, and Gate and attachments shall be galvanized after fabrication as per AASHTO M-111 and left unpainted.



SECTION A-A



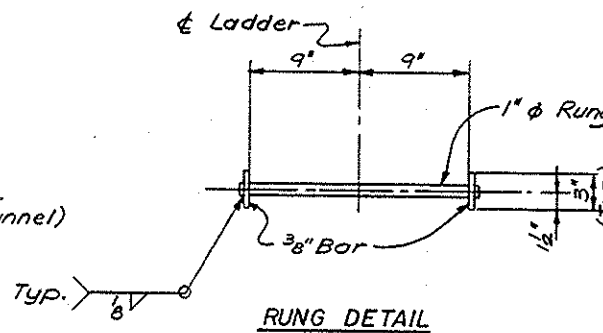
VIEW B-B



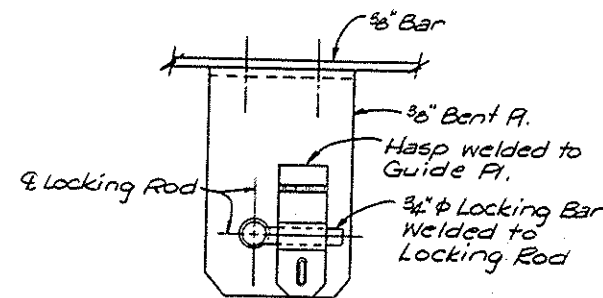
RAILING ANGLE DETAIL

RAILING BAR DETAIL

CHANNEL DETAIL



RUNG DETAIL



LOCKING GUIDE DETAIL

NOTES

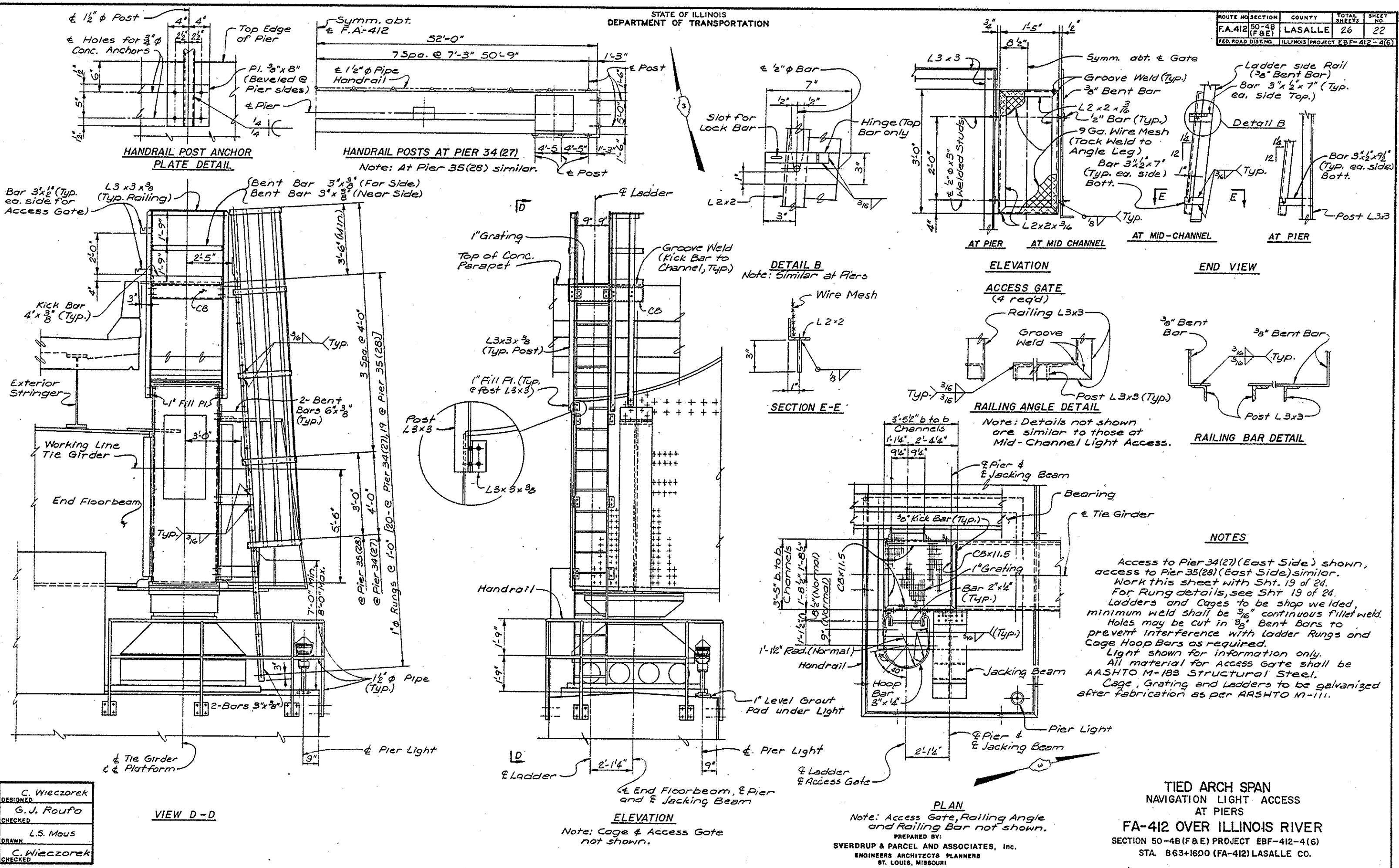
East Mid-Channel Light Access is shown, use similar details for West Mid-Channel Light Access. Ladders shall be furnished and stored under this contract for installation by others. Navigation Lights to be installed by others. For Navigation Light Access at Piers, see Sht. 20 of 24. 3/4" Concrete Anchors may be "cast-in" or expansion type and shall be provided by others. Grating shall be 1"x8" steel bars with main bars at 7 1/8" centers and spacer bars at 4" centers. All material to be AASHTO M-183 Structural Steel. Use 3/4" H.S. Bolts throughout the Navigation Light Access except as noted. For Access Gate details, see Sht. 20 of 24. Swivel Suspension, Lantern, Locking Rod, Locking Guide, Pl. Ring and Pl. Hook are shown for orientation only and shall be provided and installed by others.

DESIGNED	C. Wiczorek
CHECKED	G.J. Roufa
	L.S. Maus
DRAWN	C. Wiczorek
CHECKED	

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

TIED ARCH SPAN
NAVIGATION LIGHT ACCESS
AT MID-CHANNEL
FA-412 OVER ILLINOIS RIVER
SECTION 50-48 (F&E) PROJECT EBF-412-4(6)
STA. 863+1600 (FA-412) LASALLE CO.



HANDRAIL POST ANCHOR PLATE DETAIL

HANDRAIL POSTS AT PIER 34(27)
Note: At Pier 35(28) similar.

ELEVATION

END VIEW

ACCESS GATE
(4 req'd)

RAILING BAR DETAIL

Note: Details not shown are similar to those at Mid-Channel Light Access.

NOTES

Access to Pier 34(27) (East Side) shown, access to Pier 35(28) (East Side) similar. Work this sheet with Sht. 19 of 24. For Rung details, see Sht. 19 of 24. Ladders and Cages to be shop welded, minimum weld shall be 3/16" continuous fillet weld. Holes may be cut in 3/8" Bent Bars to prevent interference with ladder Rungs and Cage Hoop Bars as required. Light shown for information only. All material for Access Gate shall be AASHTO M-183 Structural Steel. Cage, Grating and Ladders to be galvanized after fabrication as per AASHTO M-111.

PLAN

Note: Access Gate, Railing Angle and Railing Bar not shown.
PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

**TIED ARCH SPAN
NAVIGATION LIGHT ACCESS
AT PIERS
FA-412 OVER ILLINOIS RIVER**
SECTION 50-4B (F&E) PROJECT EBF-412-4(6)
STA. 863+1600 (FA-412) LASALLE CO.

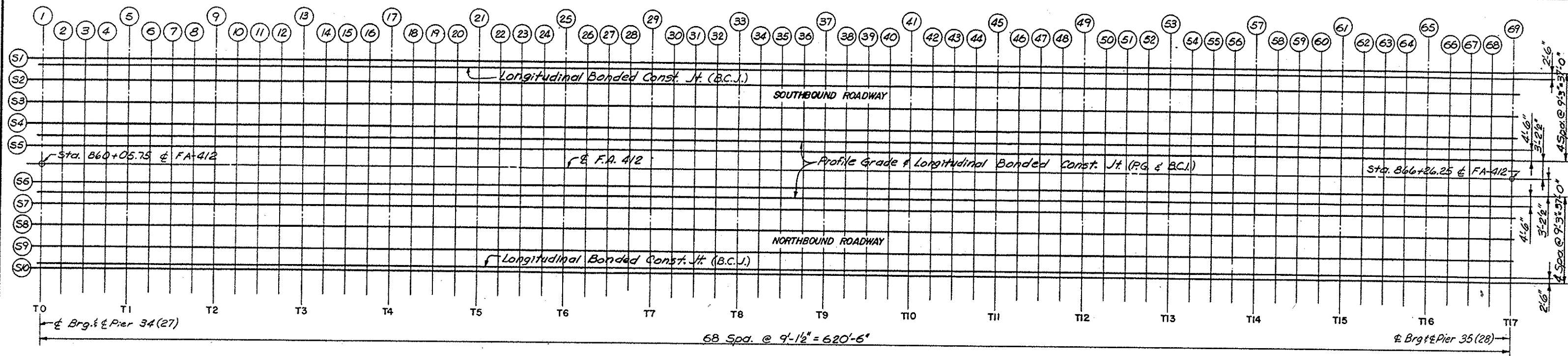
C. Wiczorek
DESIGNED
G. J. Roufo
CHECKED
L. S. Maus
DRAWN
C. Wiczorek
CHECKED

VIEW D-D

ELEVATION

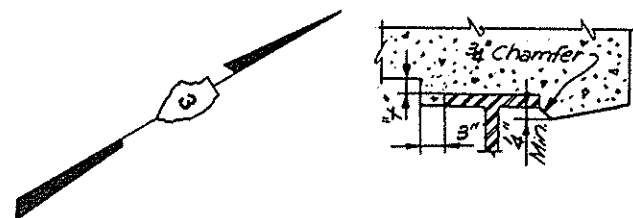
Note: Cage & Access Gate not shown.

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
F.A. 412	50-4B (F&E)	LASALLE	26	23
FED. ROAD DIST. NO.		ILLINOIS PROJECT EBF-412-4(6)		



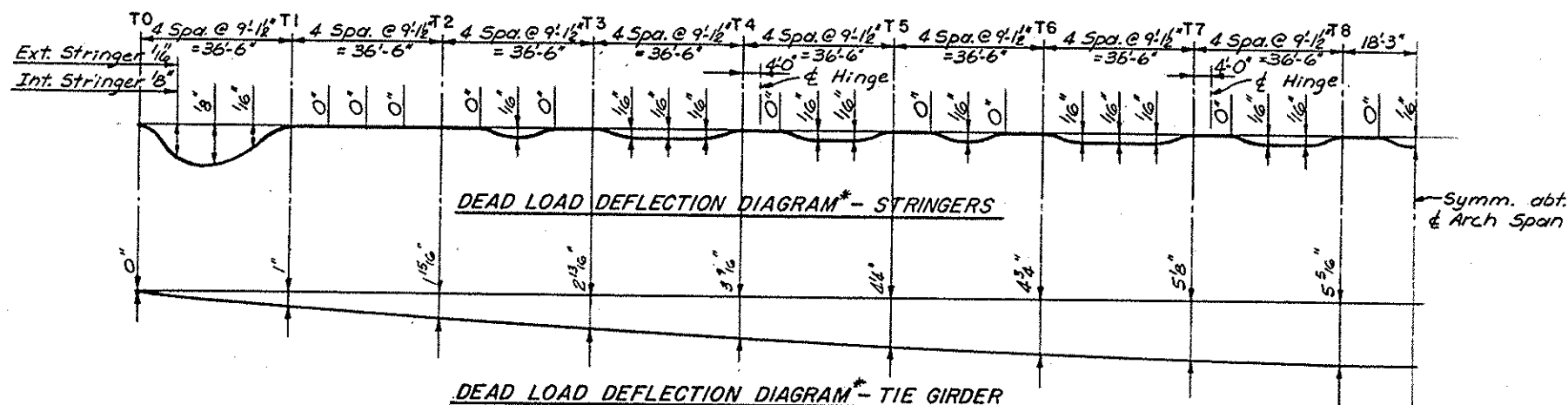
ARCH SPAN

PLAN

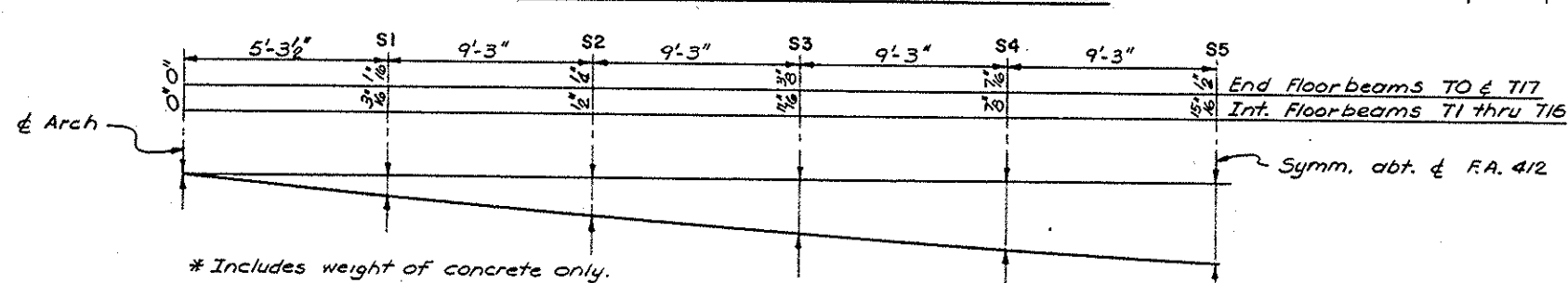


FILLET HEIGHTS

To determine "t": After all Structural Steel has been erected, elevations of the top flanges of the stringers shall be taken at the intervals shown above. These elevations subtracted from the Theoretical Grade Elevation Adjusted for Dead Load Deflections minus Slab thickness, equals the fillet heights "t" above top flange of stringers.



DEAD LOAD DEFLECTION DIAGRAM* - TIE GIRDER



DEAD LOAD DEFLECTION DIAGRAM* - FLOORBEAMS

Note: The Deflections are not to be used in the field if the Engineer is working from the Theoretical Grade Elevations Adjusted for Dead Load Deflections.

PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

TIED ARCH SPAN

TOP OF SLAB ELEVATIONS

FA-412 OVER ILLINOIS RIVER
SECTION 50-4B (F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

DESIGNED	C. Wiczorek
CHECKED	G. J. Roufa
DRAWN	STEGMAN
CHECKED	G. J. Roufa

0692
235027

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
F.A.412	50-4B (F&E)	LASALLE	26	25
FED. ROAD DIST. NO.	ILLINOIS PROJECT		EBF-412-4(6)	

LINE	LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION	LTNE	LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION	LINE	LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
32	S1 & S10	862+88.625	40.208	520.158	520.614	43	S1 & S10	863+89.000	40.208	519.694	520.125	54	S1 & S10	864+89.375	40.208	519.230	519.529
	BCJ	862+88.625	37.708	520.208	520.670		BCJ	863+89.000	37.708	519.744	520.181		BCJ	864+89.375	37.708	519.280	519.586
	S2 & S9	862+88.625	30.958	520.343	520.824		S2 & S9	863+89.000	30.958	519.879	520.334		S2 & S9	864+89.375	30.958	519.415	519.736
	S3 & S8	862+88.625	21.708	520.528	521.028		S3 & S8	863+89.000	21.708	520.064	520.537		S3 & S8	864+89.375	21.708	519.600	519.939
	S4 & S7	862+88.625	12.458	520.713	521.226		S4 & S7	863+89.000	12.458	520.249	520.730		S4 & S7	864+89.375	12.458	519.785	520.137
	PG & BCJ	862+88.625	7.708	520.808	521.323		PG & BCJ	863+89.000	7.708	520.344	520.827		PG & BCJ	864+89.375	7.708	519.880	520.235
S5 & S6	862+88.625	3.208	520.898	521.416	S5 & S6	863+89.000	3.208	520.434	520.919	S5 & S6	864+89.375	3.208	519.970	520.327			

WIECZOREK
DESIGNED
KOLIFA
CHECKED
DRAWN J. Corley
KOLIFA
CHECKED

PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

TIED ARCH SPAN
TOP OF SLAB ELEVATIONS
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B (F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 412	50-4B (F&E)	LASALLE	26	26
FED. ROAD DIST. NO.		ILLINOIS PROJECT EBF-412-4(6)		

LINE	LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEVATION ADJUSTED FOR DEAD LOAD DEFLECTION
60	S1 & S10	865+44.125	40.208	518.977	519.173
	BCJ	865+44.125	37.708	519.027	519.229
	S2 & S9	865+44.125	30.958	519.162	519.380
	S3 & S8	865+44.125	21.708	519.347	519.583
	S4 & S7	865+44.125	12.458	519.532	519.781
	PG & BCJ	865+44.125	7.708	519.627	519.880
S5 & S6	865+44.125	3.208	519.717	519.972	
61	S1 & S10	865+53.250	40.208	518.935	519.110
	BCJ	865+53.250	37.708	518.985	519.166
	S2 & S9	865+53.250	30.958	519.120	519.317
	S3 & S8	865+53.250	21.708	519.305	519.519
	S4 & S7	865+53.250	12.458	519.490	519.717
	PG & BCJ	865+53.250	7.708	519.585	519.815
S5 & S6	865+53.250	3.208	519.675	519.907	
62	S1 & S10	865+62.375	40.208	518.892	519.050
	BCJ	865+62.375	37.708	518.942	519.106
	S2 & S9	865+62.375	30.958	519.077	519.258
	S3 & S8	865+62.375	21.708	519.262	519.461
	S4 & S7	865+62.375	12.458	519.447	519.660
	PG & BCJ	865+62.375	7.708	519.542	519.758
S5 & S6	865+62.375	3.208	519.632	519.850	
63	S1 & S10	865+71.500	40.208	518.850	518.989
	BCJ	865+71.500	37.708	518.900	519.045
	S2 & S9	865+71.500	30.958	519.035	519.199
	S3 & S8	865+71.500	21.708	519.220	519.403
	S4 & S7	865+71.500	12.458	519.405	519.602
	PG & BCJ	865+71.500	7.708	519.500	519.700
S5 & S6	865+71.500	3.208	519.590	519.792	
64	S1 & S10	865+80.625	40.208	518.808	518.926
	BCJ	865+80.625	37.708	518.858	518.983
	S2 & S9	865+80.625	30.958	518.993	519.137
	S3 & S8	865+80.625	21.708	519.178	519.342
	S4 & S7	865+80.625	12.458	519.363	519.542
	PG & BCJ	865+80.625	7.708	519.458	519.641
S5 & S6	865+80.625	3.208	519.548	519.733	
65	S1 & S10	865+89.750	40.208	518.766	518.864
	BCJ	865+89.750	37.708	518.816	518.921
	S2 & S9	865+89.750	30.958	518.951	519.076
	S3 & S8	865+89.750	21.708	519.136	519.282
	S4 & S7	865+89.750	12.458	519.321	519.482
	PG & BCJ	865+89.750	7.708	519.416	519.582
S5 & S6	865+89.750	3.208	519.506	519.674	
66	S1 & S10	865+98.875	40.208	518.724	518.805
	BCJ	865+98.875	37.708	518.774	518.861
	S2 & S9	865+98.875	30.958	518.909	519.014
	S3 & S8	865+98.875	21.708	519.094	519.217
	S4 & S7	865+98.875	12.458	519.279	519.415
	PG & BCJ	865+98.875	7.708	519.374	519.513
S5 & S6	865+98.875	3.208	519.464	519.605	
67	S1 & S10	866+08.000	40.208	518.681	518.742
	BCJ	866+08.000	37.708	518.731	518.797
	S2 & S9	866+08.000	30.958	518.866	518.948
	S3 & S8	866+08.000	21.708	519.051	519.148
	S4 & S7	866+08.000	12.458	519.236	519.344
	PG & BCJ	866+08.000	7.708	519.331	519.442
S5 & S6	866+08.000	3.208	519.421	519.533	
68	S1 & S10	866+17.125	40.208	518.639	518.676
	BCJ	866+17.125	37.708	518.689	518.730
	S2 & S9	866+17.125	30.958	518.824	518.878
	S3 & S8	866+17.125	21.708	519.009	519.075
	S4 & S7	866+17.125	12.458	519.194	519.269
	PG & BCJ	866+17.125	7.708	519.289	519.366
S5 & S6	866+17.125	3.208	519.379	519.457	
69 CL END FB	S1 & S10	866+26.250	40.208	518.597	518.604
	BCJ	866+26.250	37.708	518.647	518.657
	S2 & S9	866+26.250	30.958	518.782	518.802
	S3 & S8	866+26.250	21.708	518.967	518.996
	S4 & S7	866+26.250	12.458	519.152	519.188
	PG & BCJ	866+26.250	7.708	519.247	519.285
S5 & S6	866+26.250	3.208	519.337	519.376	

DESIGNED BY
WIECZOREK
CHECKED BY
CORLEY
DRAWN BY
CORLEY
CHECKED

PREPARED BY:
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS ARCHITECTS PLANNERS
ST. LOUIS, MISSOURI

TIED ARCH SPAN
TOP OF SLAB ELEVATIONS
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B (F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.