BIENNIAL TRANSPORTATION PLAN ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
FA RTE. 4	86-B 86-D 86-E	CASS SCHUYLER	31 19 35	1
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	U-264 (1)(2)(3)	
	86-F 86-P		41 37	

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS AND BUILDINGS
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED
FEDERAL AID HIGHWAY

SCALES

PLAN	1 INCH	100 FT.
PROFILE, HOR.	1 INCH	100 FT.
PROFILE, VERT.	1 INCH	10 FT.
CROSS-SECTIONS	1 INCH	5 FT.

Federal Aid Route 4, Section 86-B-D-E-F-P.
Project U-264 (1), (2) &(3)
Cass - Schuyler Counties

LOCATION OF SECTION INDICATED THUS:—

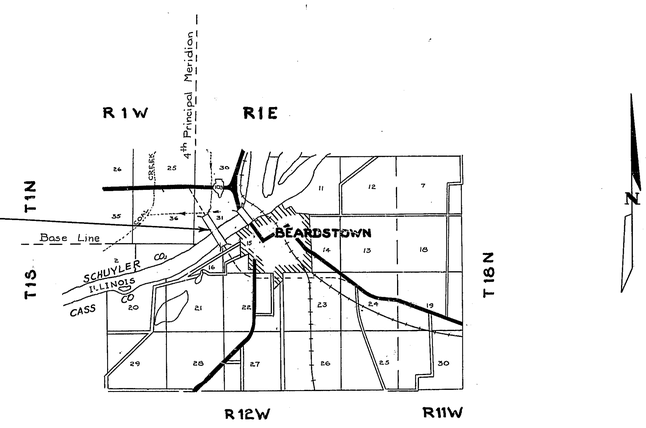
SEC. 86-B
Sec 86-B includes the furnishing of all materials and constructing the piers, abutments, embankments, lighting vault and approach pavement; the furnishing, erecting and painting of pier protection plates and clearance guages; for the substructure of the bridge over the Illinois River at Beardstown.

SEC. 86-D
Sec 86-D includes the furnishing of all material and the complete construction of the reinforced concrete roadway and sidewalk slabs on plate girder approach spans and concrete sidewalks and concrete filling of filled steel floor on truss spans; installing the structural steel sidewalk expansion guards for the deck of the bridge over the Illinois River at Beardstown.

SEC. 86-E
Sec. 86-E includes the unloading and transporting from the unloading point to the bridge site and erecting of all structural steel and cast steel; the furnishing and erecting of the filled type steel floor; the furnishing and erecting of the open steel floor; the furnishing and installing of the navigation lighting system; the furnishing and applying of point for spot painting for the Bridge over the Illinois River at Beardstown.

SEC. 86-F
Sec. 86 F includes the furnishing, fabricating and shop painting of all structural Steel and cast steel and the transporting and delivery of these materials to the unlooding point for the Illinois River bridge at Beardstown.

SEC. 86-P
Sec. 86-P includes the cleaning of metal surfaces and furnishing and applying the field coats of paint for all structural and cast steel and for the exposed metal surfaces of the open and filled steel floors for the superstructure of the bridge over the Illinois River at Beardstown.



LAYOUT
Approximate Scale 1inch = 1mile

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS AND BUILDINGS
DIVISION OF HIGHWAYS

SUBMITTED November 1 1951
C.M. Wahl
DISTRICT ENGINEER

EXAMINED Nov. 5 1951
W.J. Oates
ENGINEER OF ROAD PLANS AND CONTRACTS

PASSED Nov 5 1951
C.T. Shortt
ENGINEER OF DESIGN

APPROVED Nov 5 1951
S.H. Barker
CHIEF HIGHWAY ENGINEER

APPROVED Nov 5 1951
Chas. Peavey
DIRECTOR

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

RECOMMENDED FOR APPROVAL
DISTRICT ENGINEER — DATE

APPROVED
DIVISION ENGINEER — DATE

CASS SCHUYLER COUNTY SECTION 86-B-D E-F-P FA. ROUTE 4

Rev TW Tapes 8-53

Route No.	Sec.	County	Total Sheets	Sheet No.
FA. 4	86-B		31	2
	86-D		16	
	86-E		45	
Fed. Road Dist. 7	Illinois	Project		
	86-F		41	
	86-P		37	

SUMMARY OF QUANTITIES

Sec. 86-B

30,979.1	Cu.Yds.	Class A Concrete
137.1	Cu.Yds.	Class X Concrete
2,825.6	Cu.Yds.	Seal Coat Concrete
367,620	Lbs.	Reinforcement Bars
103,800	Lbs.	Structural Steel
19,140	Lin.Ft.	Furnishing 16" precast Concrete Piles
28,685	Lin.Ft.	Furnishing 18" Precast Concrete Piles
5,960	Lin.Ft.	Driving 16" Precast Concrete Piles 40' long
9,315	Lin.Ft.	Driving 16" Precast Concrete Piles 45' long
400	Lin.Ft.	Driving 16" Precast Concrete Piles 50' long
3,465	Lin.Ft.	Driving 16" Precast Concrete Piles 55' long
2,850	Lin.Ft.	Driving 18" Precast Concrete Piles 30' long
4,480	Lin.Ft.	Driving 18" Precast Concrete Piles 40' long
13,320	Lin.Ft.	Driving 18" Precast Concrete Piles 45' long
500	Lin.Ft.	Driving 18" Precast Concrete Piles 50' long
7,535	Lin.Ft.	Driving 18" Precast Concrete Piles 55' long
8	Each	Test Piles - Concrete 16"
11	Each	Test Piles - Concrete 18"
8,250	Lin.Ft.	Furn.Untreated Piles - up to 30'
8,250	Lin.Ft.	Driving Timber Piles - 30' long
4	Each	Test Piles - Timber
3	Each	Cofferdam (Piers 1-3-16)
1	Each	Cofferdam (Pier 2)
2	Each	Cofferdam (Piers 4-14)
1	Each	Cofferdam (Pier 5)
2	Each	Cofferdam (Pier 6-15)
1	Each	Cofferdam (Pier 7)
1	Each	Cofferdam (Pier 8)
1	Each	Cofferdam (Pier 9)
1	Each	Cofferdam (Pier 10)
1	Each	Cofferdam (Pier 11)
1	Each	Cofferdam (Pier 12)
1	Each	Cofferdam (Pier 13)
13,738	Cu.Yds.	Cofferdam Excavation
~~5320~~	~~Cu.Yds.~~	~~Borrow Excavation~~
~~3200~~	~~Cu.Yds.~~	~~Compaction by Watersoaking~~
2	Each	Name Plates
1	Each	Frame and Cover

Sec. 86-D

1503.2	Cu.Yds.	Class X Concrete
343,820	Lbs.	Reinforcement Bars
2,720	Lbs.	Structural Steel
44,046	Sq.Ft.	Concrete Filling (Steel Floor)

Sec. 86-E

7,050,760	lbs.	Structural Steel (Carbon)
1,280,190	lbs.	Structural Steel (A-242)
81,920	lbs.	Cast Steel
9,788	sq.ft.	Open steel Floor
44,046	sq.ft.	Filled Steel Floor
Lump Sum		Navigation Lighting System

Sec. 86-F

7,053,480	lbs.	Structural Steel (Carbon)
1,280,190	lbs.	Structural Steel (A-242)
81,920	lbs.	Cast Steel

Sec. 86-P

8,415,590	lbs.	Painting Structural Steel
9,788	sq.ft.	Painting Open Steel Floor
44,046	sq.ft.	Painting Filled Steel Floor

INDEX OF SHEETS

Section B

Sheet No. 1 Title Sheet
Sheet No. 2 Index of Sheet & Summary of Quantities
Sheet No. 3-30 Special Bridge Design
Sheets 1 to 24 (of 63 sheets)
Sheets 37 & 38 (of 63 sheets)
Sheets 62 & 63 (of 63 sheets)
Sheet No. 31 Standard ~~1861~~ 1882

Section D

~~Sheet No. 1 Title Sheet~~
~~Sheet No. 2 Index of Sheet & Summary of Quantities~~
Sheet No. 3-16 Special Bridge Design
~~Sheet No. 1 (of 63 sheets)~~
~~Sheet 4 & 5 (of 63 sheets)~~
~~Sheet 22 & 27 (of 63 sheets)~~
~~Sheet 33-36 (of 63 sheets)~~
~~Sheet 46-47 (of 63 sheets)~~
~~Sheet 49 (of 63 sheets)~~
~~Sheet 60-61 (of 63 sheets)~~

Section E

Sheet No. 1 Title Sheet
Sheet No. 2 Index of Sheets & Summary of Quantities
Sheet No. 3-45 Special Bridge Design
Sheets 1 to 3 (of 63 sheets)
Sheets 23 to 32 (of 63 sheets)
Sheets 34 to 63 (of 63 sheets)
Sheet No. 44A ERECTION DETAIL

Section F

Sheet No. 1 Title Sheet
Sheet No. 2 Index of Sheet & Summary of Quantities
Sheet No. 3-41 Special Bridge Design
Sheet No. 1 (of 63 sheets)
Sheet No. 23-32 (of 63 sheets)
Sheet No. 34-59 (of 63 sheets)
Sheet No. 62 & 63 (of 63 sheets)
Sheet 44A ERECTION DETAIL

Section P

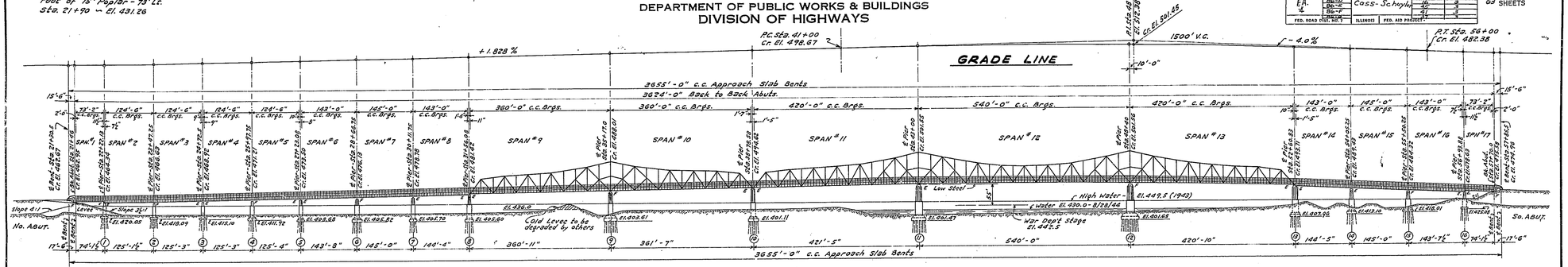
Sheet No. 1 Title Sheet
Sheet No. 2 Index of Sheets & Summary of Quantities
Sheet No. 3-37 Special Bridge Design
Sheet No. 1 (of 63 sheets)
Sheet No. 23-32 (of 63 sheets)
Sheet No. 34-38 (of 63 sheets)
Sheet No. 40 (of 63 sheets)
Sheet No. 42-59 (of 63 sheets)

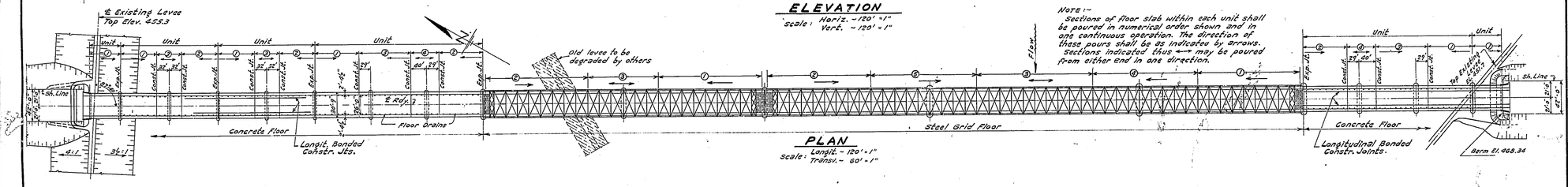
B.M.-3A - 60d spike & washer in root of 18" Poplar - 73' Lt. Sta. 21+90 - El. 431.26

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	A-B		31	1
FA.	B-C	Cass- Schuyler	16	2
&	B-D		19	3
	B-F		17	4
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	

SHEET NO. 1
63 SHEETS





TOTAL BILL OF MATERIAL

Item		Superstructure	Substructure	Totals - Sec. B	Totals - Sec. D	Totals - Sec. E	Totals - Sec. F	Totals - Sec. P
Class A Concrete	Cu. Yds.		10,979.1	10,979.1				
Class X Concrete	Cu. Yds.	1303.2	131.1	131.1	1503.2			
Seal Coat Concrete	Cu. Yds.		2825.6	2825.6				
Precast Concrete Piling (16") - (40'-0" long)	Lin. Ft.		3760	3760				
" " " (16") - (45'-0" ")	" "		9315	9315				
" " " (16") - (50'-0" ")	" "		400	400				
Precast Concrete Piling (18") - (55'-0" long)	Lin. Ft.		3465	3465				
Precast Concrete Piling (18") - (60'-0" ")	Lin. Ft.		23850	23850				
" " " (18") - (40'-0" ")	" "		4480	4480				
" " " (18") - (45'-0" ")	" "		13320	13320				
" " " (18") - (50'-0" ")	" "		500	500				
Precast Concrete Piling (18") - (55'-0" long)	Lin. Ft.		7535	7535				
Untreated Piling - (35'-0" long)	Lin. Ft.		8550	8550				
Concrete Test Piles (16")	Each		8	8				
Concrete Test Piles (18")	Each		11	11				
Timber Test Piles	Each		4	4				
Cofferdam (Piers-1-3-16)	Each		3	3				
" (Pier-2)	Each		1	1				
" (Piers-4-14)	"		2	2				
" (Pier-5)	"		1	1				
" (Piers-6-15)	"		2	2				
" (Pier-7)	"		1	1				
" (Pier-8)	"		1	1				
" (Pier-9)	"		1	1				
" (Pier-10)	"		1	1				
" (Pier-11)	"		1	1				
" (Pier-12)	"		1	1				
" (Pier-13)	Each		1	1				
Cofferdam Excavation	Cu. Yds.		13,738	13,738				
Borrow Excavation	Cu. Yds.		28,320	28,320				
Structural Steel - Carbon	Lbs.	7,053,480	103,800	103,800	2,720	7,050,760	7,053,480	7,053,480
Structural Steel - A 242	Lbs.	1,280,190				1,280,190	1,280,190	1,280,190
Cast Steel	Lbs.	81,920				81,920	81,920	81,920
Reinforcement Bars	Lbs.	343,820	567,620	567,620	343,820			
Name Plate	Each		2	2				
Compaction by Watersoaking	Cu. Yds.		23,600	23,600				
Frame & Cover	Each		1	1				
Navigation Lighting System						Lump Sum		
Open Steel Floor	Sq. Ft.	9788				9788		9788
Filled Steel Floor	Sq. Ft.	44046				44046		44046
Concrete Filling (Steel Floor)	Sq. Ft.	44046			44046			

DESIGNED R.W.H.
CHECKED R.B.M.
DRAWN R.W.H.
CHECKED R.B.M.

EXAMINED Oct 20, 1951
W. E. Hamann, BRIDGE ENGINEER
PASSED
Chief Engineer of Design
APPROVED F. H. Baker, CHIEF HIGHWAY ENGINEER

NOTE:- The bridge work on this Project is divided into the following Contracts:
Sec. B ---------- Substructure
Sec. D -- Concrete Floor & Sidewalks & Cont. Fill in Steel Floor
Sec. E ---------- Erection
Sec. F ---------- Fabrication
Sec. P ---------- Painting

~GENERAL NOTES~

CONCRETE:
Class "A" concrete shall be used in Piers.
Class "X" concrete shall be used in abuts, floor slab and sidewalks.
The concrete floor slab shall be finished in accordance with Art. 51.18(B) of the Standard Specifications.
The concrete floor slab shall be poured in one continuous operation between joints shown on the plans.

MATERIAL:
All steel shall be structural carbon steel conforming to A.S.T.M. designation A7 except that the main material in all members marked thus ®, shall be Structural low-alloy steel, A.S.T.M. - A 242.
Where copper bearing steel is called for, it shall conform to A.S.T.M. designation A7 with 0.2 % copper added.
Steel castings shall conform to A.S.T.M. designation A27, Grade B-1.

RIVETS:
Spans 1 and 17 - ⅞" ℄ rivets throughout.
Spans 2 to 8 incl. and 14 to 16 inclusive - ⅞" ℄ rivets thruout except as noted.
Spans 9 to 13 incl. - ⅞" ℄ rivets throughout, except as noted.

PUNCHING & REAMING:
Holes for ⅞" ℄ rivets shall be punched 15/16" and holes for ⅞" ℄ rivets shall be punched 13/16" except as noted or as follows: Field and shop splices for all plate girder spans and all main truss connections (both shop and field) shall be punched 11/16" ℄ and reamed to proper size with all material assembled in the shop in its proper position. Leave assembled for inspection.

PILING:
See Sheet No. 22 for details of Precast Concrete Piling.
Test Piles shall be driven in permanent locations, as directed by the Engineer, before ordering or casting Piles.

EXPANSION DEVICE:
Copper bearing steel shall be used in such members as noted on the plans.
Where flame cutting is called for, it shall be done using an automatic machine.
Expansion devices shall be assembled in the shop in their proper position and left assembled for inspection.

WELDING:
All welding shall comply with Art. 55.6(36) of the Standard Specifications.

INSPECTION:
Inspection by the Illinois Division of Highways before painting.

SHOP PAINTING:
The Contractor for Sec. F shall furnish and apply one shop coat of red lead paint to all "Structural Steel" and "cast Steel" in accordance with the Standard Specifications.
Paint applied to the pipe members of the hand rail and the open steel grid floor shall be by dipping. For painting of steel floor - concrete filled-see Special Provisions.

EXPANSION DEVICE:
The Contractor for Sec. F shall apply one shop coat of red lead paint to all surfaces of the expansion devices, except there shall be no paint applied to anchor straps. Surfaces inaccessible after erection shall be painted two shop coats. All paint for shop coats shall be furnished by the Contr. for Sec. F.

FIELD PAINTING:
The Contractor for Sec. E shall furnish and apply red lead paint for spot painting "Structural Steel" after erection. The Contractor for Sec. P shall furnish and apply two field coats of aluminum paint to all "Structural Steel" and "cast Steel."

STRESSES

Superstructure		Carbon	Low Alloy
Axial Tension - Str. Steel =		18,000 #/in²	21,000 #/in²
Axial Compression - Str. Steel =		15,000 - ½(l/r)²	17,500 - 0.35(l/r)²
Reinforcement Bars -	f_s =	20,000 #/in²	
Concrete -	f_c =	1,200 #/in²	
	n =	10	

Substructure	
Reinf. Bars -	f_s = 20,000 #/in²
Concrete -	f_c = 1,200 #/in²
	n = 10

Allowable stresses increased 25% when D.L., L.L. & I stresses are combined with Wind Stresses.

LOADING H20-S16

ILLINOIS RIVER BRIDGE AT BEARDSTOWN

PROJECT U-264 (1)(2)(3)
F.A. ROUTE 4 [redacted]
SECTION 86-B-D-E-F-P
CASS-SCHUYLER CO.'S.
STA. 39 + 58

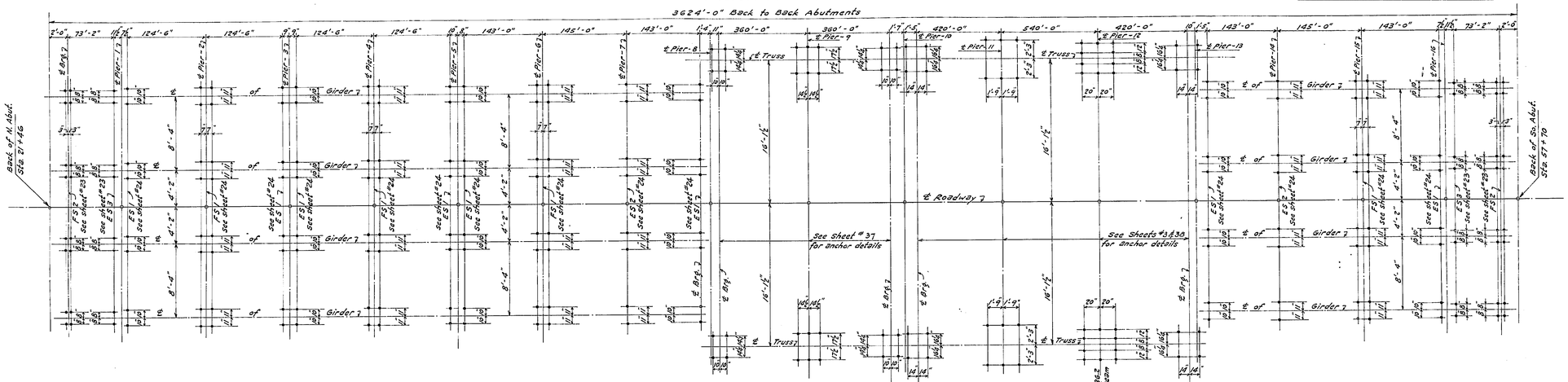
Rev. 9-5-51 - J.S.M. Art. reference for slab finishing
Revised. 4-26-54 - R.B.M.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

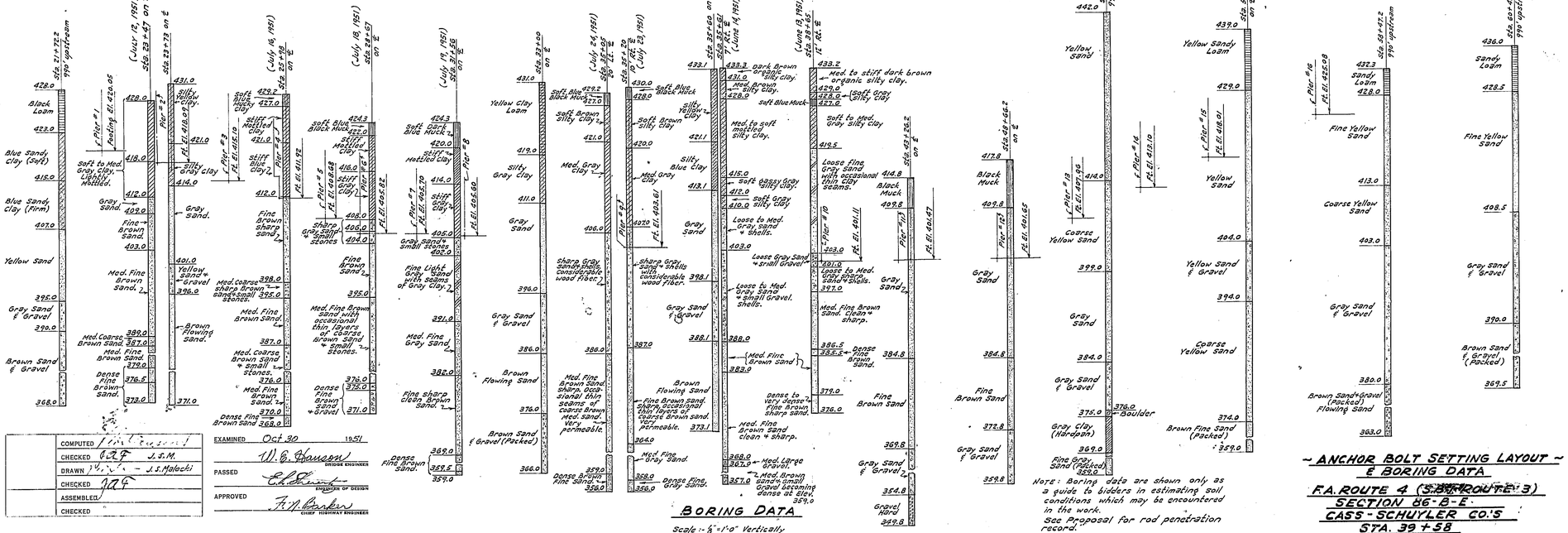
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	B6-B	Coss-Schuyler	31	4
	B6-E		45	4
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 2
63 SHEETS

3624'-0" Back to Back Abutments



ANCHOR BOLT SETTING LAYOUT



COMPUTED	[illegible]	EXAMINED	Oct 30 1951
CHECKED	GAF J.S.M.		W. E. Hansen BRIDGE ENGINEER
DRAWN	J.S.Malecki	PASSED	[signature] DIVISION OF DESIGN
CHECKED	JAF	APPROVED	[signature] CHIEF HIGHWAY ENGINEER
ASSEMBLED			
CHECKED			

Rev. Boring Data - 9-5-51 - J.S.M.

BORING DATA

Scale :- 1" = 1'-0" Vertically

Note: Boring data are shown only as a guide to bidders in estimating soil conditions which may be encountered in the work. See Proposal for rod penetration record.

- ANCHOR BOLT SETTING LAYOUT - & BORING DATA

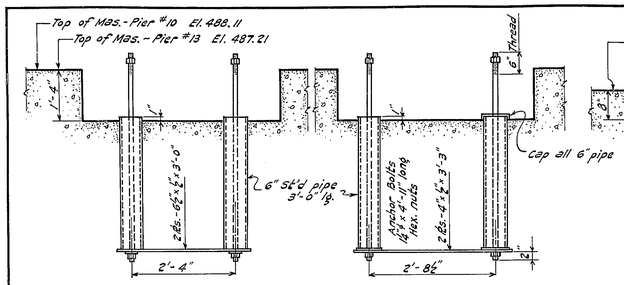
F.A. ROUTE 4 (S.B. ROUTE 3)
SECTION 86-B-E
CASS - SCHUYLER CO.'S
STA. 39 + 58

EUGENE DIETZGEN CO.

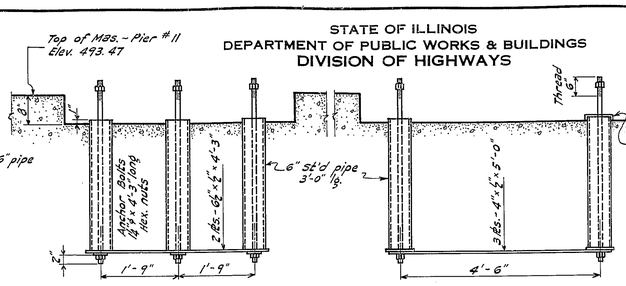
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86B		31	5
F.A. 4	86-E	Cass-Schuyler	45	5
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

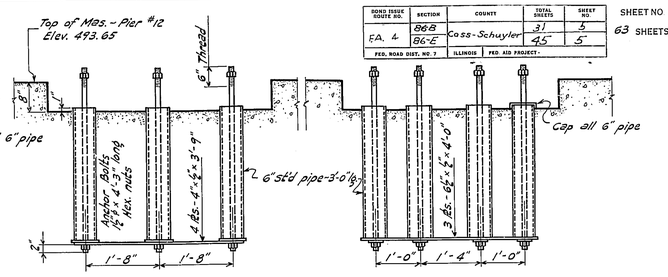
SHEET NO 3
63 SHEETS



ANCHOR BOLT ASSEMBLY ~ PIERS 10 & 13
3-Span Truss Unit
4-Assemblies Req'd



ANCHOR BOLT ASSEMBLY ~ PIER-11
3-Span Truss Unit
2-Assemblies Req'd



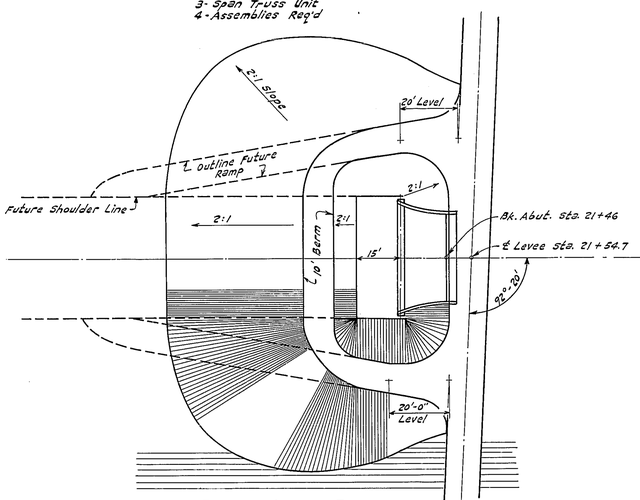
ANCHOR BOLT ASSEMBLY ~ PIER-12
3-Span Truss Unit
2-Assemblies Req'd

Note:- For anchor bolt assemblies for Truss Spans at Piers 8 & 13, See Sheet #37.

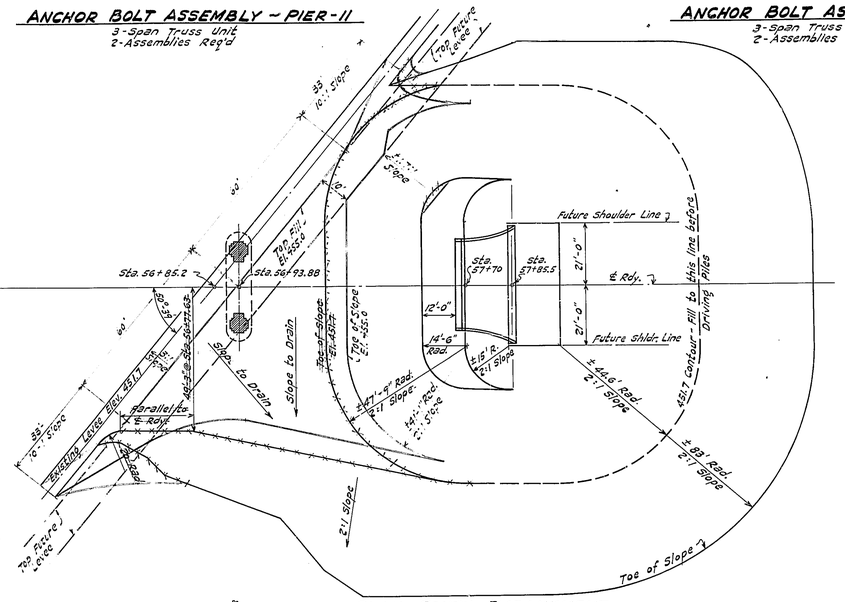
BILL OF MATERIAL

	ITEM		SEC. 86-B
*	Structural Steel	Lbs.	5210

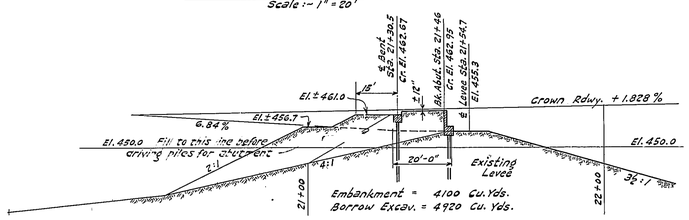
* Anchor Bolt Assemblies



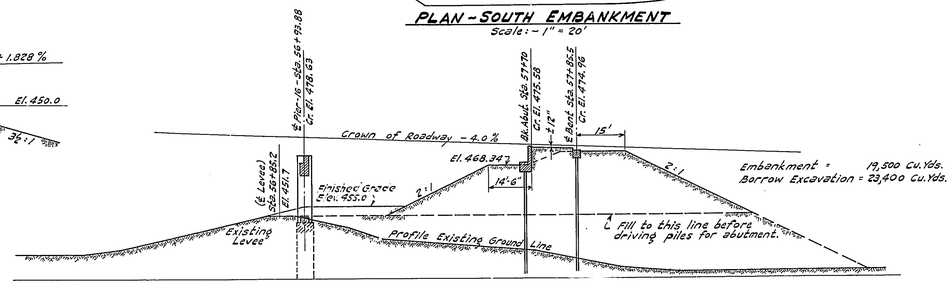
PLAN NORTH EMBANKMENT
Scale:- 1" = 20'



PLAN - SOUTH EMBANKMENT
Scale:- 1" = 20'



SECTION AT ℄ NORTH ABUTMENT
Scale:- 1" = 20'



SECTION ALONG ℄ SOUTH ABUTMENT
Scale:- 1" = 20'

~NOTES~

In addition to mechanical compaction the embankment shall be compacted by water soaking in accordance with Section 16 of the Standard Specifications.

Preliminary fill at Pier 16 shall be made to Elev. 455.0 before work is commenced on the pier. The extent of the fill, riverside slope, and slopes and minimum width of crown of levee shall be as shown on plan view.

DESIGNED	Jorge P. Morales	Oct 30	1951
CHECKED	J. S. Malecki	EXAMINED	W. G. Hawsey, BRIDGE ENGINEER
DRAWN	J. S. M.	PASSED	E. L. Hurst, ENGINEER OF DESIGN
CHECKED		APPROVED	F. N. Barker, CHIEF HIGHWAY ENGINEER

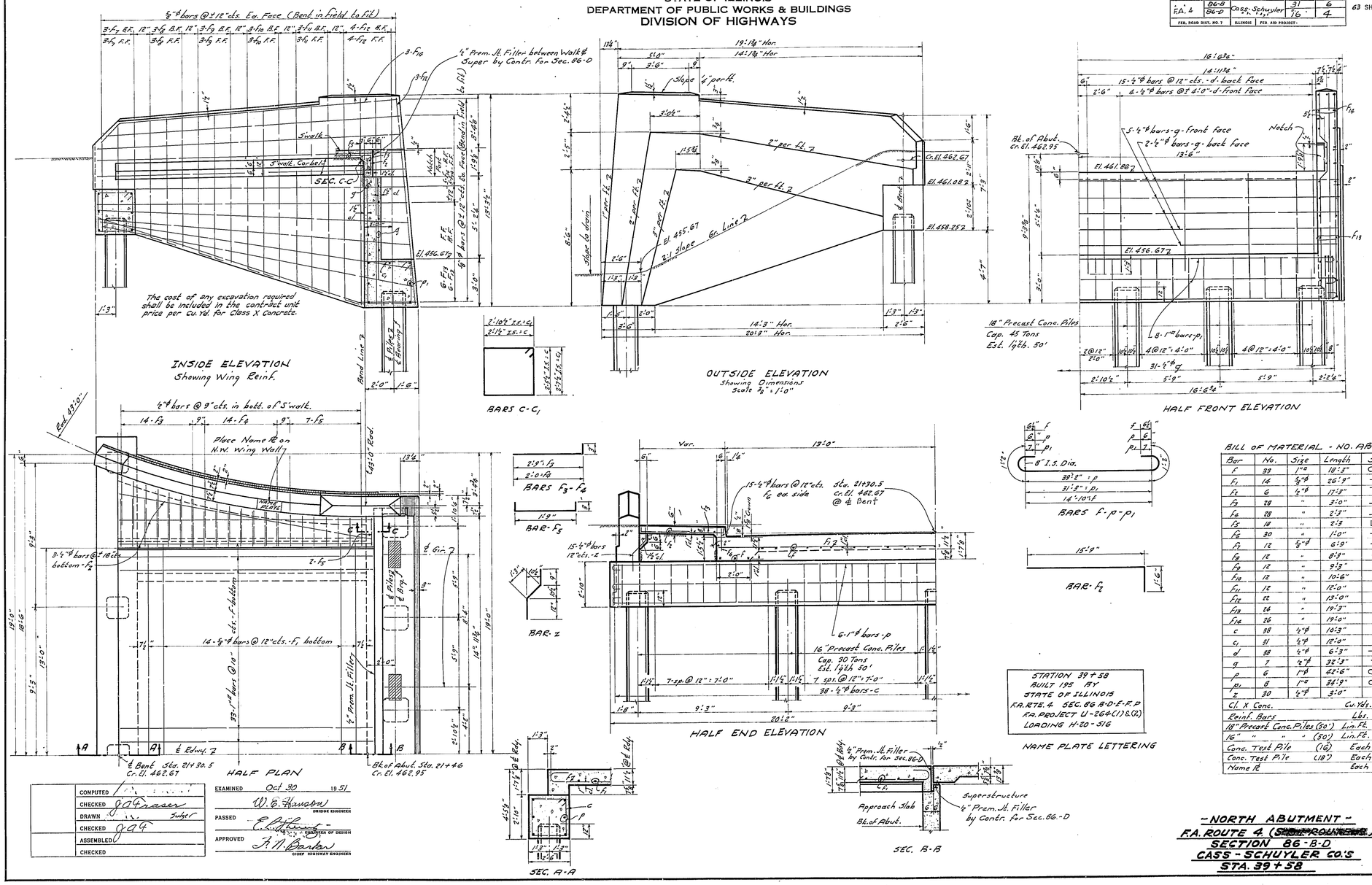
Rev. See Levee Elev. to 455.0 G.T.A. 5:52
Added Note for fill at Pier 16 - 5-20-52

ANCHOR BOLT ASSEMBLIES & ABUT. EMBANKMENTS
F.A. ROUTE 4 (S.B.I. ROUTE 3)
SECTION 86-B-E
CASS - SCHUYLER CO.'S
STA. 39+58

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass-Schuyler	31	6
	86-D		16	4
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 4
63 SHEETS



BILL OF MATERIAL - NO. ABUT.

Bar	No.	Size	Length	Shape
f	33	1"	18'-3"	
f1	14	5/8"	26'-9"	
f2	6	1/2"	17'-3"	
f3	28	"	3'-0"	
f4	28	"	2'-3"	
f5	18	"	2'-3"	
f6	30	"	1'-0"	
f7	12	5/8"	6'-9"	
f8	12	"	8'-3"	
f9	12	"	9'-3"	
f10	12	"	10'-6"	
f11	12	"	12'-0"	
f12	22	"	13'-0"	
f13	24	"	19'-3"	
f14	26	"	19'-0"	
c	38	1/2"	10'-3"	
c1	31	1/2"	12'-0"	
d	38	1/2"	6'-3"	
g	7	1/2"	32'-3"	
p	6	1"	42'-6"	
p1	8	1"	34'-9"	
z	30	1/2"	3'-0"	
Cl. X Conc.			Cu. Yds.	67.1
Reinf. Bars			Lbs.	7040
18" Precast Conc. Piles (50')			Lin. Ft.	250
16" " " " (50')			Lin. Ft.	200
Conc. Test Pile	(16')		Each	1
Conc. Test Pile	(18')		Each	1
Name Pl.			Each	1

COMPUTED		EXAMINED	Oct 30 19 51
CHECKED	J.A.F.		W.E. Hawley BRIDGE ENGINEER
DRAWN	Sukef	PASSED	E.P. Howard ENGINEER OF DESIGN
CHECKED	J.A.F.	APPROVED	F.H. Baker CHIEF HIGHWAY ENGINEER
ASSEMBLED			
CHECKED			

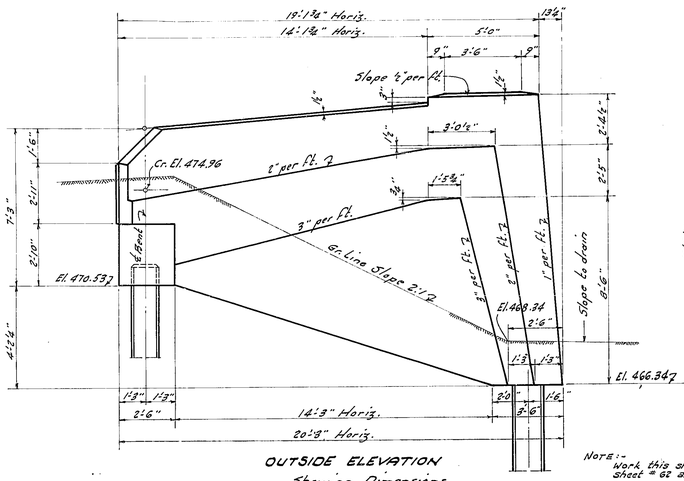
-NORTH ABUTMENT-
F.A. ROUTE 4 (~~SCHUYLER~~)
SECTION 86-B-D
CASS-SCHUYLER CO.'S
STA. 39+58

EUGENE DIETZGEN CO.

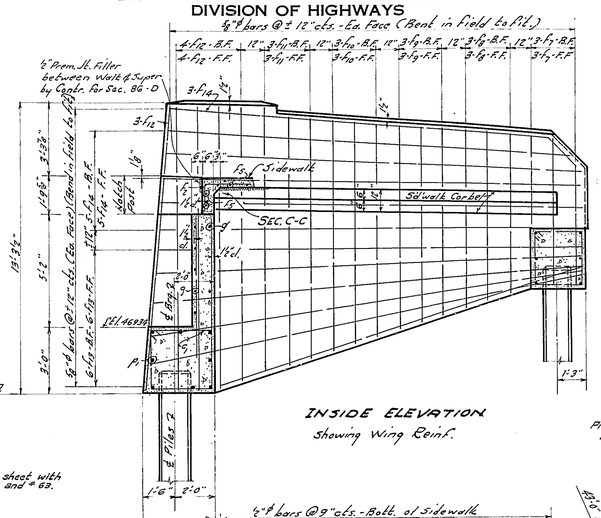
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass-Schuyler	31	7
	86-D		16	5
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

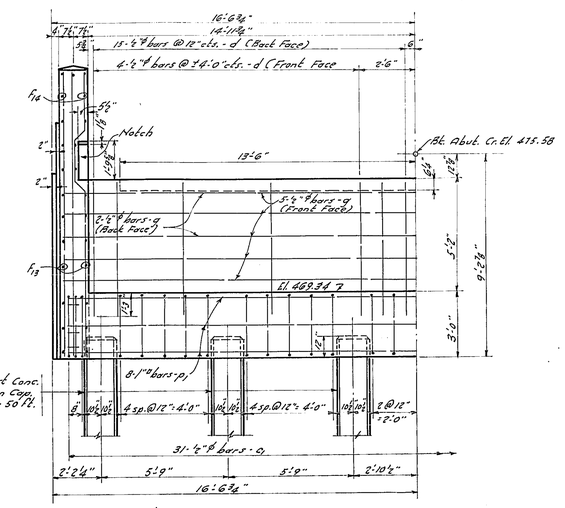
SHEET NO. 5
63 SHEETS



OUTSIDE ELEVATION
Showing Dimensions
Scale ⅜" = 1'-0"

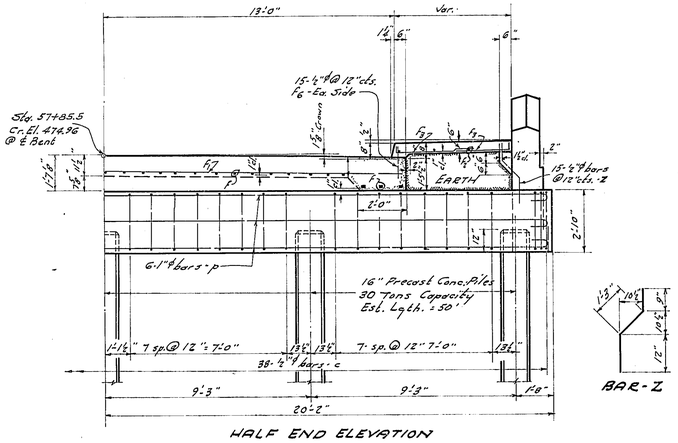


INSIDE ELEVATION
Showing Wing Reinf.

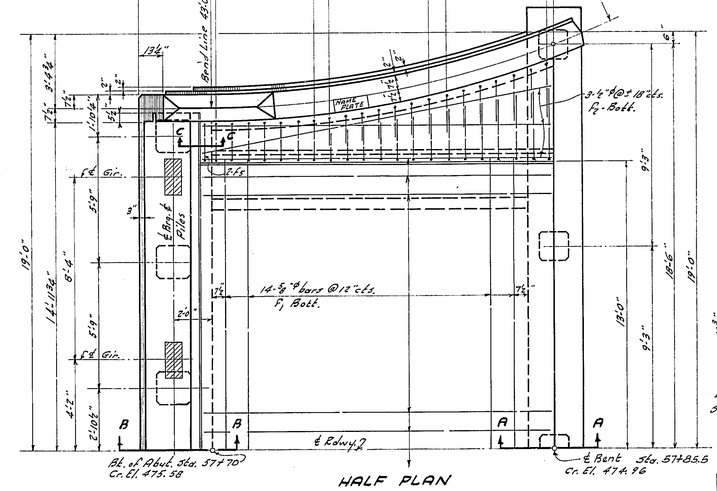


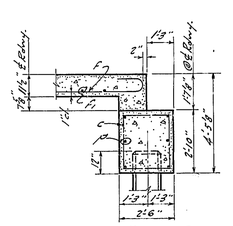
HALF FRONT ELEVATION

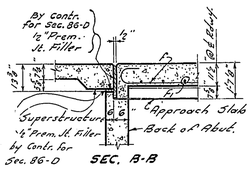
Note:- Work this sheet with Sheet # 62 and # 63.



HALF END ELEVATION





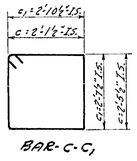


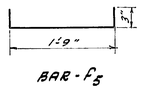
BILL OF MATERIAL - 50. ABUT.

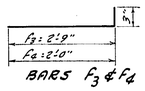
Bar	No.	Size	Length	Shape
f	33	1" ϕ	18'-3"	
f1	14	⅞" ϕ	26'-9"	
f2	6	¾" ϕ	17'-3"	
f3	28	"	3'-0"	
f4	28	"	2'-3"	
f5	18	"	2'-3"	
f6	30	"	1'-0"	
f7	12	⅝" ϕ	6'-9"	
f8	12	"	8'-3"	
f9	12	"	9'-3"	
f10	12	"	10'-6"	
f11	12	"	12'-0"	
f12	22	"	13'-0"	
f13	24	"	13'-3"	
f14	26	"	13'-0"	
c	38	¾" ϕ	10'-3"	
c1	31	¾" ϕ	12'-0"	
d	38	¾" ϕ	6'-3"	
q	7	¾" ϕ	32'-3"	
p	6	1" ϕ	42'-6"	
p1	8	1 ¼" ϕ	34'-9"	
z	30	½" ϕ	3'-0"	

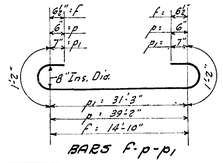
Cl. X Conc.	Cu. Yds.	67.1
Reinf. Bars	Lbs.	7040
18" Precast Conc. Piles (50 Ft.)	Lin. Ft.	250
16" " " " (50 Ft.)	Lin. Ft.	200
Concrete Test Pile (16")	Each	1
Concrete Test Pile (18)	Each	1
Name Pl.	Each	1

COMPUTED	[illegible]	EXAMINED	Oct 30 1951
CHECKED	J.G. Fraser		BRIDGE ENGINEER
DRAWN	[illegible] Jaeger	PASSED	C.L. Hurst
CHECKED	J.G.F.		ENGINEER OF DESIGN
ASSEMBLED		APPROVED	F.N. Barber
CHECKED			CHIEF HIGHWAY ENGINEER









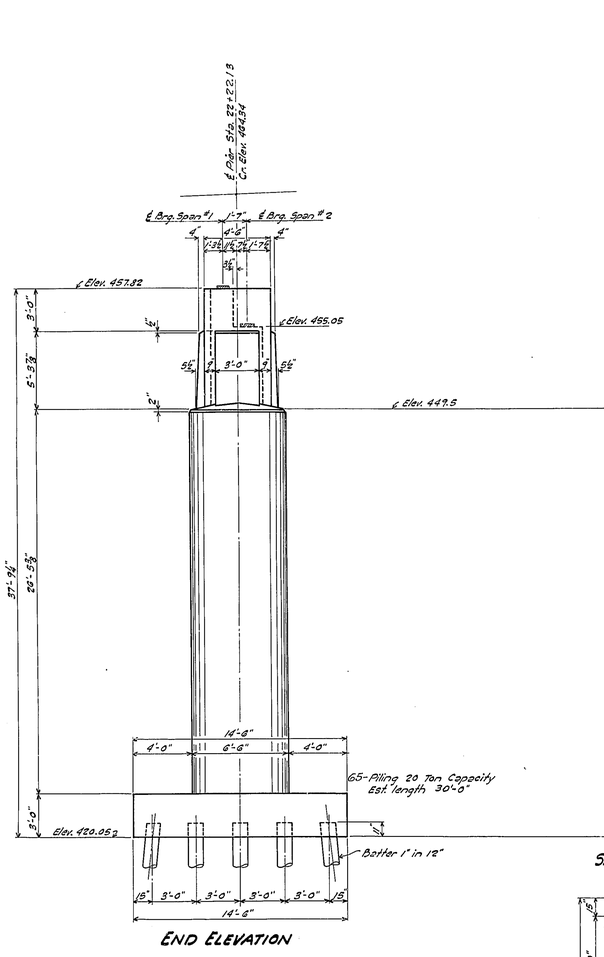
~ 50. ABUTMENT ~
F.A. ROUTE 4 (Sect. 86-B-D)
SECTION 86-B-D
CASS-SCHUYLER CO'S.
STA. 39+58

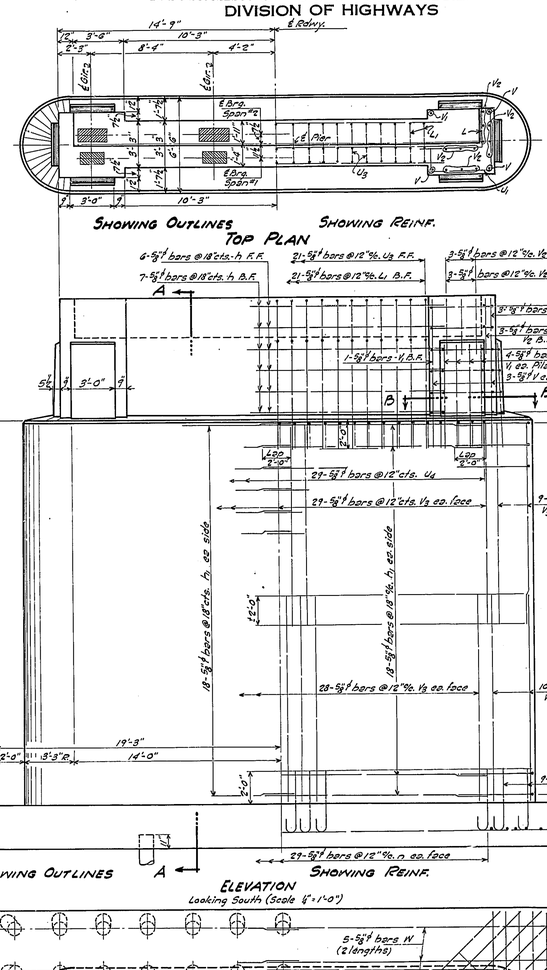
EUGENE DIETZGEN CO.

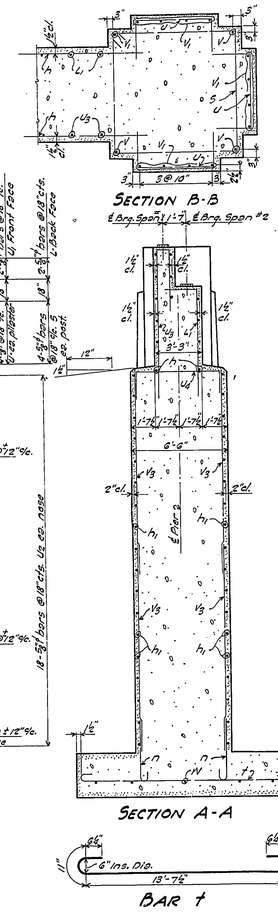
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

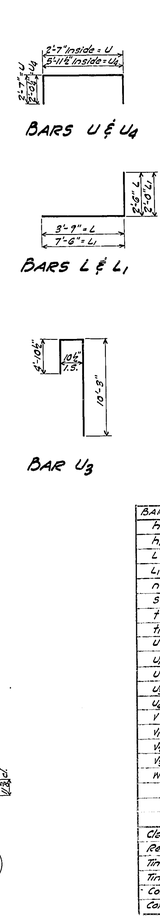
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass-Schuyler	31	8
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

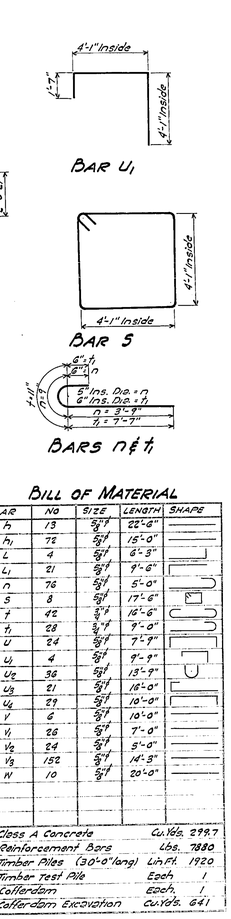
SHEET NO. 6
63 SHEETS











BILL OF MATERIAL

BAR	NO	SIZE	LENGTH	SHAPE
h	13	⅝ϕ	22'-0"	
h_1	72	⅝ϕ	15'-0"	
L	4	⅝ϕ	6'-3"	
L_1	21	⅝ϕ	7'-6"	
n	76	⅝ϕ	5'-0"	
S	8	⅝ϕ	17'-6"	
t	42	⅝ϕ	12'-6"	
t_1	28	⅝ϕ	9'-0"	
U	24	⅝ϕ	7'-9"	
U_1	4	⅝ϕ	9'-9"	
U_2	38	⅝ϕ	13'-9"	
U_3	21	⅝ϕ	16'-0"	
U_4	29	⅝ϕ	10'-0"	
V	6	⅝ϕ	10'-0"	
V_1	28	⅝ϕ	7'-0"	
V_2	24	⅝ϕ	5'-0"	
V_3	152	⅝ϕ	14'-3"	
W	10	⅝ϕ	20'-0"	

Class A Concrete	Cu.Yds.	299.7
Reinforcement Bars	Lbs.	7880
Timber Piles (30'-0" long)	Lin.Ft.	1920
Timber Test Pile	Each	1
Cofferdam	Each	1
Cofferdam Excavation	Cu.Yds.	641

	COMPUTED	Kirk & Lawrence	EXAMINED Oct 30 19 51
	CHECKED	M. G. Peter	W. P. Hyman BRIDGE ENGINEER
	DRAWN	Fisher - Oehmke	PASSED E. E. Hurst DIVISION OF DESIGN
	CHECKED	Will. G. V.	APPROVED K. N. Baker CHIEF HIGHWAY ENGINEER
	ASSEMBLED		
	CHECKED		

Rev. Pile Lengths - 9-5-51 - J.S.M.

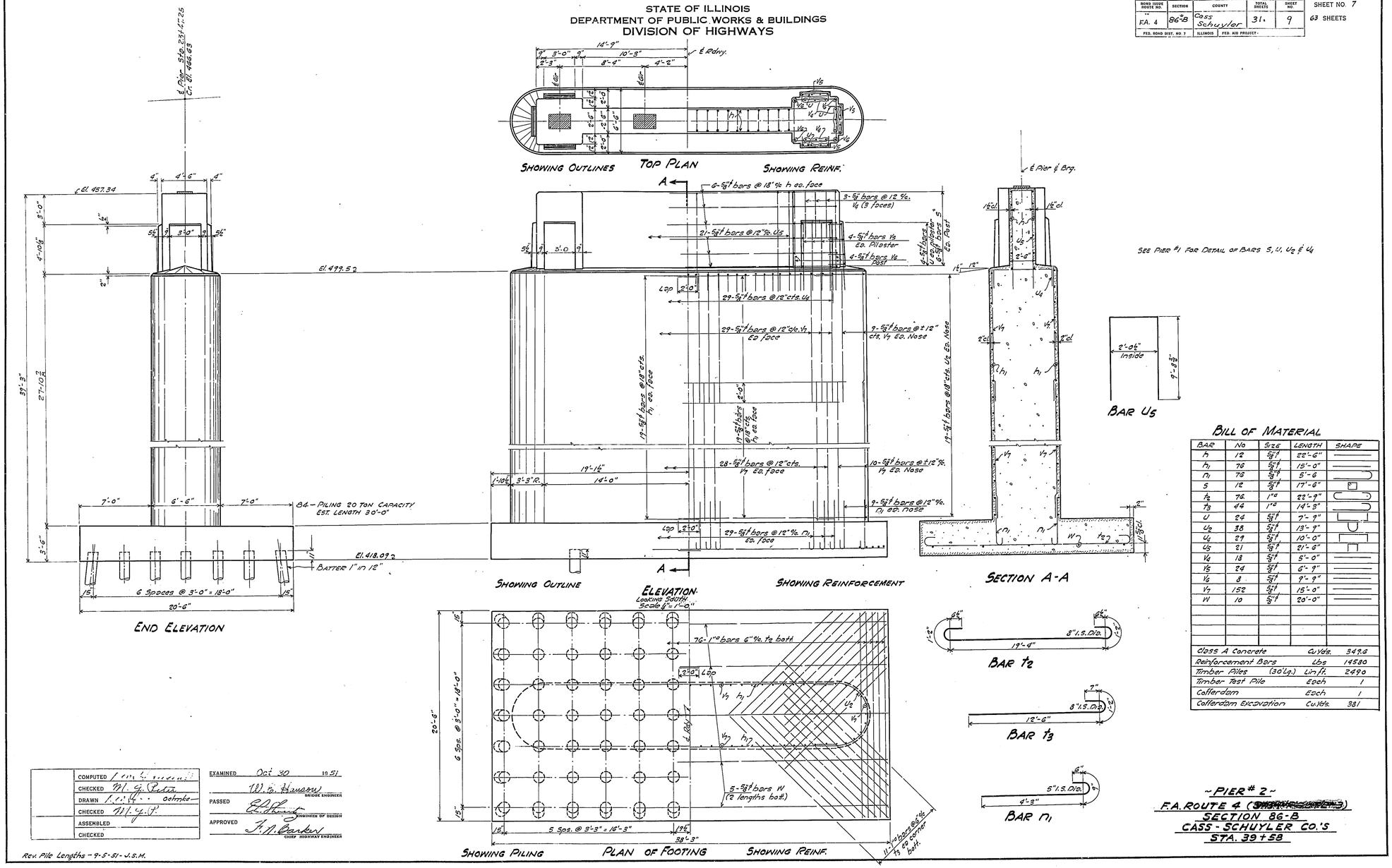
- PIER #1 -
F.A. ROUTE 4 (Alternate Route)
SECTION 86-B
CASS-SCHUYLER CO.'S
STA. 39+58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BORD ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
** FA. 4	86-B	Cass Schuyler	31.	9
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 7
63 SHEETS



BILL OF MATERIAL

BAR	No	Size	LENGTH	SHAPE
h	12	5/8"	22'-6"	
h1	76	5/8"	15'-0"	
n1	76	5/8"	5'-6	
S	12	5/8"	17'-6"	
t2	76	1" ø	22'-9"	
t3	44	1" ø	14'-3"	
U	24	5/8"	7'-9"	
U2	38	5/8"	13'-9"	
U4	29	5/8"	10'-0"	
U5	21	5/8"	21'-6"	
V2	18	5/8"	5'-0"	
V3	24	5/8"	6'-9"	
V6	8	5/8"	9'-9"	
V7	152	5/8"	15'-0"	
W	10	3/4"	20'-0"	

Class A Concrete	Cu Yds.	349.8
Reinforcement Bars	Lbs	14580
Timber Piles (30' Lg.)	Lin Ft.	2490
Timber Test Pile	Each	1
Cofferdam	Each	1
Cofferdam Excavation	Cu Yds.	381

COMPUTED	[illegible]	
CHECKED	M. G. Peters	
DRAWN	[illegible] Ostmke	
CHECKED	M. G. P.	
ASSEMBLED		
CHECKED		

EXAMINED Oct 30 1951
W. S. Hawarn — DIVISION ENGINEER
PASSED
E. L. Shurtz — ENGINEER OF DESIGN
APPROVED
F. M. Barker — CHIEF HIGHWAY ENGINEER

Rev. Pile Lengths - 9-5-51 - J.S.H.

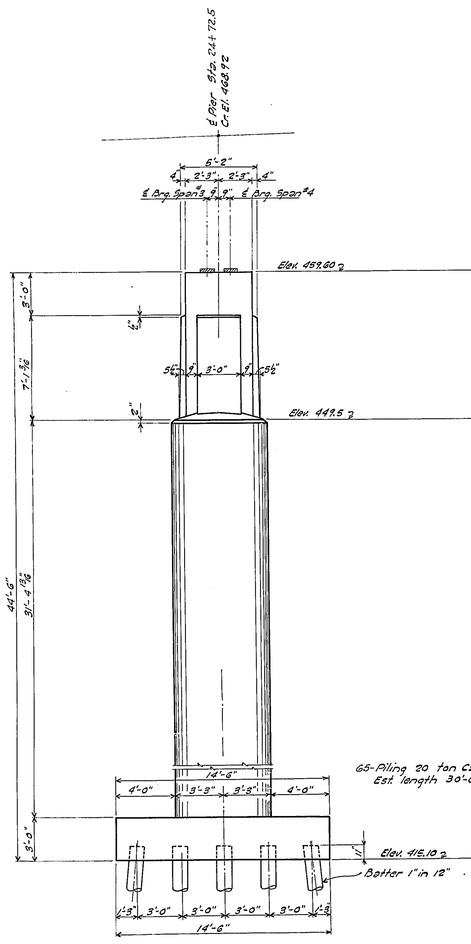
~PIER # 2~
F.A. ROUTE 4 (~~SECTION 86-B~~)
SECTION 86-B
CASS - SCHUYLER CO.'S
STA. 39+58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

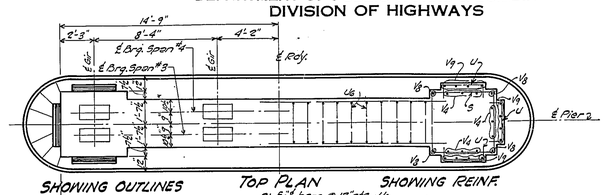
ROAD ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass - Schuyler	31	10
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

SHEET NO. 8
63 SHEETS

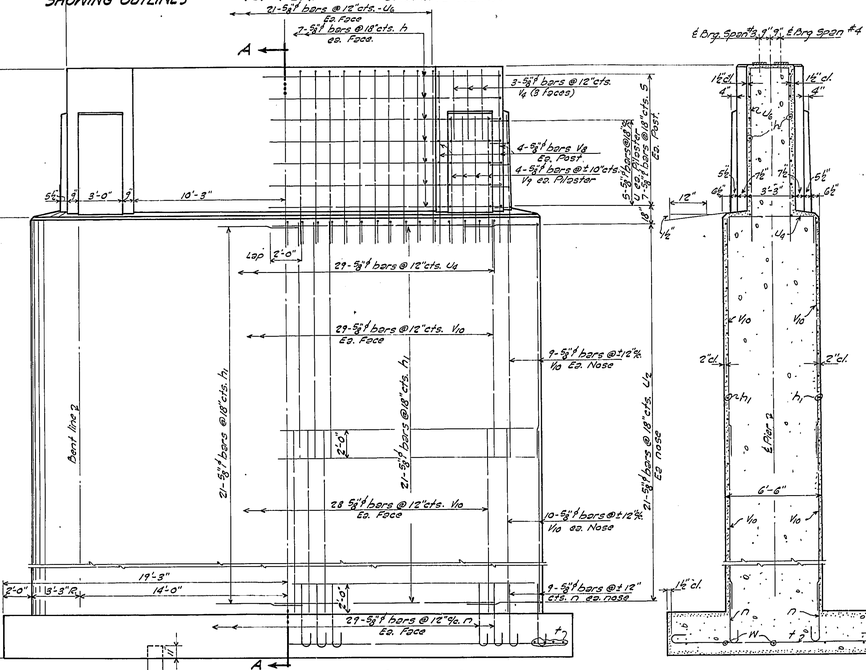


65-Piling 20 ton Capacity
Est. length 30'-0"

END ELEVATION



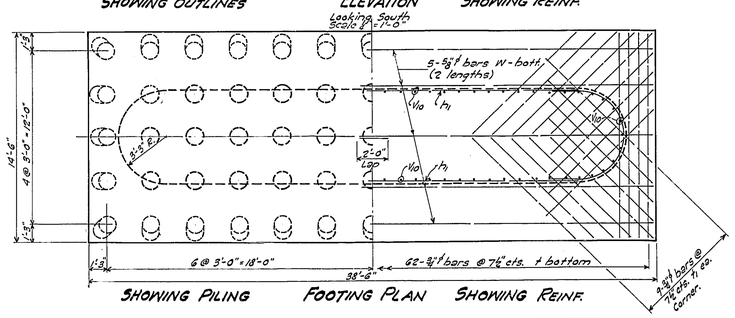
SHOWING OUTLINES TOP PLAN SHOWING REINF.



SHOWING OUTLINES ELEVATION SHOWING REINF.

SECTION A-A

See Pier No. 1 for detail of bars
f-h-s-n-u-U2-U4



SHOWING PILING FOOTING PLAN SHOWING REINF.

BILL OF MATERIAL PIER #3

BAR	No.	SIZE	LENGTH	SHAPE
h	14	5/8" sq.	22'-6"	
h1	84	5/8" sq.	15'-0"	
n	76	5/8" sq.	5'-0"	
s	14	5/8" sq.	17'-6"	
t	62	3/4" sq.	16'-6"	
t1	36	3/4" sq.	9'-0"	
U	30	5/8" sq.	7'-7"	
U2	42	5/8" sq.	13'-7"	
U4	29	5/8" sq.	10'-0"	
U6	21	5/8" sq.	26'-6"	
V4	18	5/8" sq.	5'-0"	
V8	8	5/8" sq.	12'-0"	
V9	24	5/8" sq.	9'-0"	
V10	152	5/8" sq.	16'-6"	
W	10	5/8" sq.	20'-0"	

Class A Concrete	Cu.Yds.	352.6
Reinforcement Bars	Lbs.	9290
Timber Piles (30'-0" lg.)	Lin.Ft.	1920
Timber Test Piles	Ea.	1
Cofferdam	Ea.	1
Cofferdam Excavation	Cu.Yds.	376

COMPUTED	[illegible]	EXAMINED	Oct 30 19 51
CHECKED	M. J. Peter		W. G. Hamsher BRIDGE ENGINEER
DRAWN	[illegible] - Oehmke	PASSED	Ed Kennedy ENGINEER OF DESIGN
CHECKED	M. J. P.	APPROVED	F. N. Barber CHIEF HIGHWAY ENGINEER
ASSEMBLED			
CHECKED			

Rev. Pile Lengths - 9-5-51 - J.S.M.

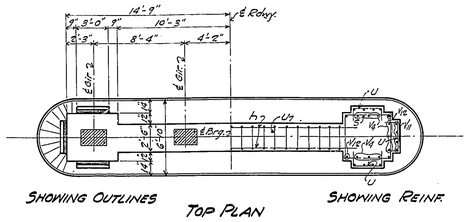
-PIER # 3-
F.A. ROUTE 4 ([redacted])
SECTION 86-B
CASS-SCHUYLER CO.'S
STA. 397+58

EUGENE DIETZGEN CO.

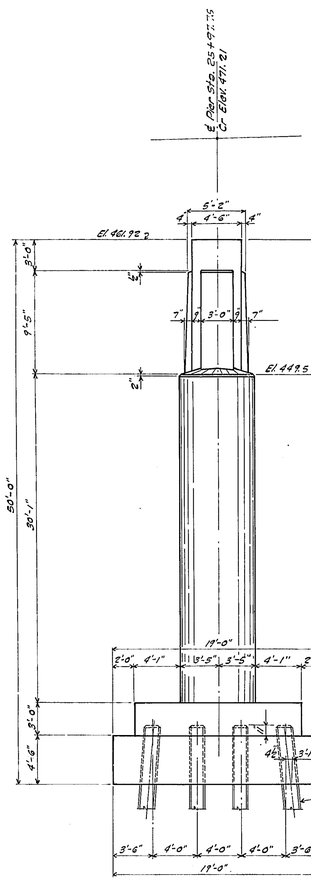
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 4	96-B	Cass-Schuyler	31	11
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 9
63 SHEETS

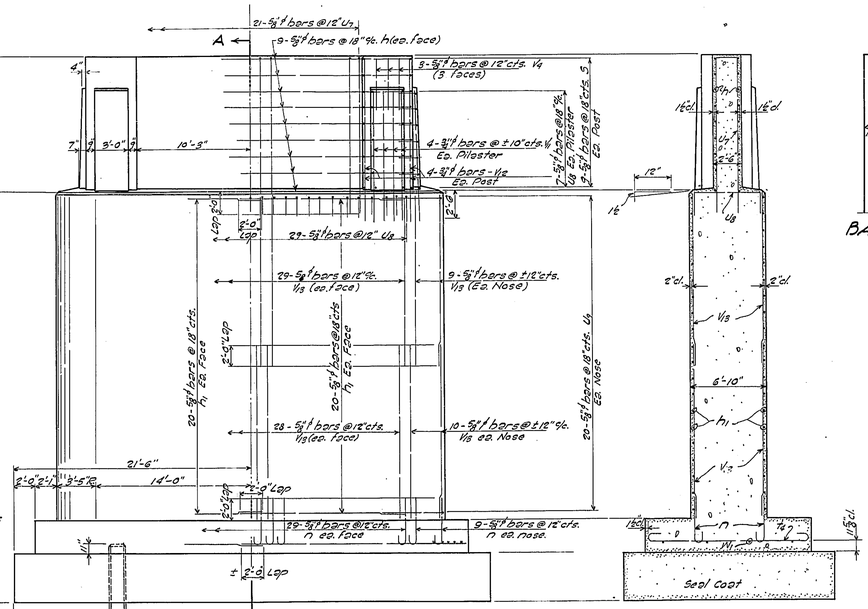


TOP PLAN

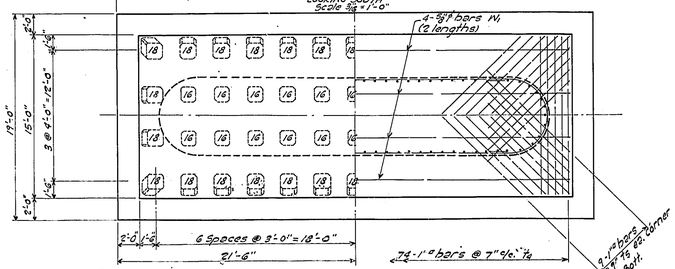


(18) 30-18"ø Precast Concrete piles
45 Ton capacity
Est. Length 45'

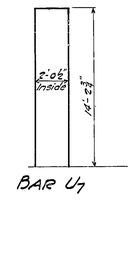
(16) 22-16"ø Precast concrete piles
35 Ton Capacity
Est. length 45'



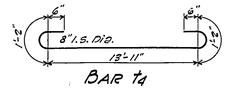
SECTION A-A



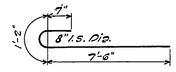
BAR U8



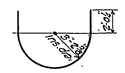
BAR U7



BAR t4



BAR t5



BAR U9

BILL OF MATERIAL

BAR	No	SIZE	LENGTH	SHAPE
h	18	5/8" ø	22'-6"	
h1	80	5/8" ø	15'-0"	
n	76	5/8" ø	5'-0"	
s	18	5/8" ø	17'-6"	
t4	74	1" ø	17'-3"	
t5	36	1" ø	9'-3"	
U	42	5/8" ø	7'-9"	
U9	40	5/8" ø	14'-3"	
U7	21	5/8" ø	30'-6"	
U8	29	5/8" ø	10'-3"	
V8	18	5/8" ø	5'-0"	
V11	24	5/8" ø	11'-9"	
V12	8	5/8" ø	14'-9"	
V13	152	5/8" ø	16'-0"	
W1	8	5/8" ø	20'-6"	

Class A Concrete	Cu. Yds. 360.1
Reinforcement Bars	Lbs 13190
Seal Coat Concrete	Cu. Yds. 118.5
18" Precast Concrete Piles (45') Lin. Ft.	1305
16" Precast Concrete Piles (45') Lin. Ft.	945
Concrete test Pile (16")	Each 1
Cofferdam	Each 1
Cofferdam Excavation	Cu. Yds. 487
Concrete Test Pile (18")	Each 1

See Pier 1 for Detail of Bars n, s & U

COMPUTED	[illegible]
CHECKED	M. G. Peter
DRAWN	[illegible] Oehmke
CHECKED	M. G. P.
ASSEMBLED	
CHECKED	

EXAMINED Oct 20 1951
W. E. Hanson
BRIDGE ENGINEER
PASSED E. L. Kurtz
ENGINEER OF DESIGN
APPROVED F. N. Barker
CHIEF HIGHWAY ENGINEER

Rev. Pile Lengths - 9-5-51 - J.S.M.

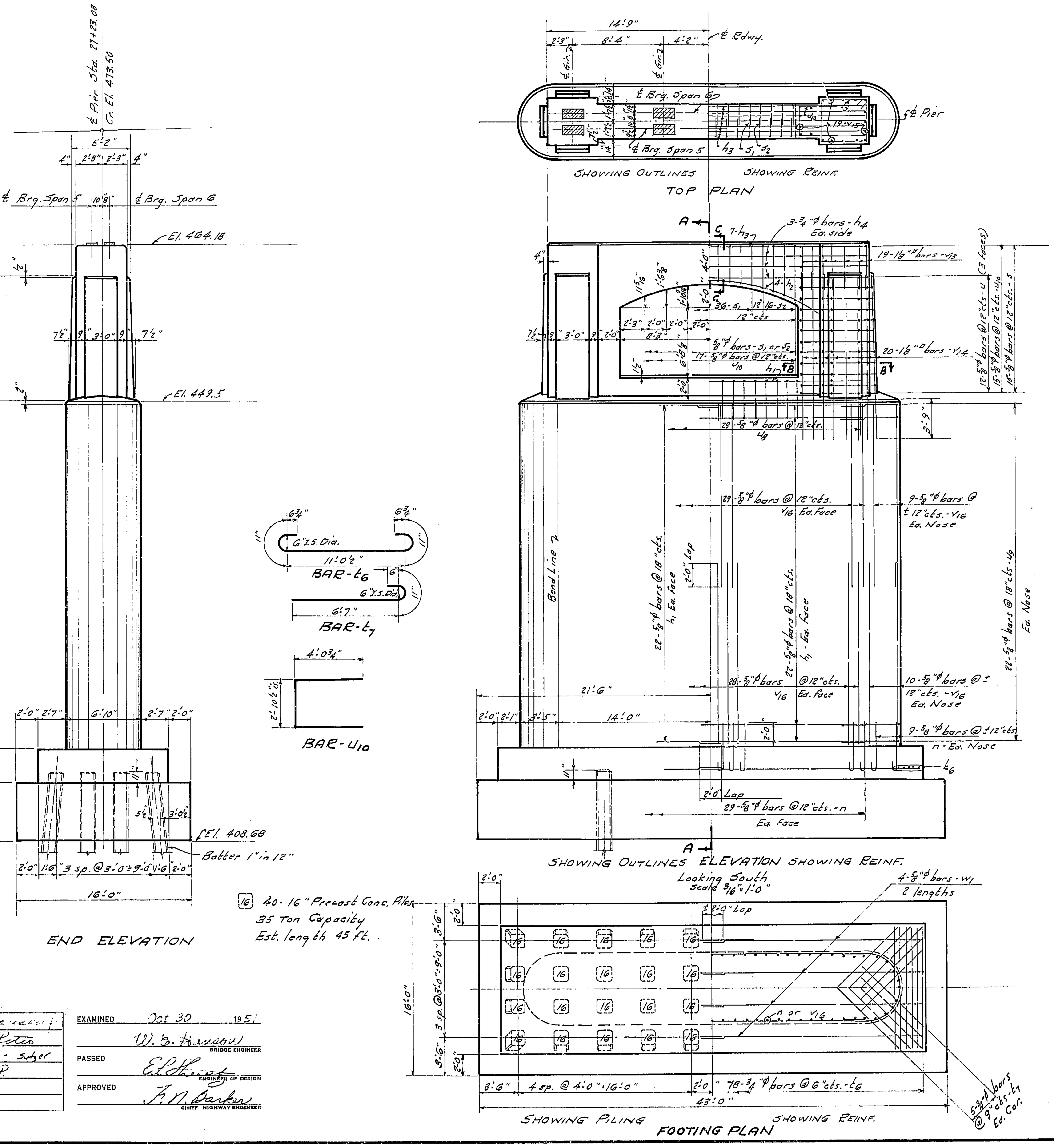
EUGENE DIETZGEN CO.

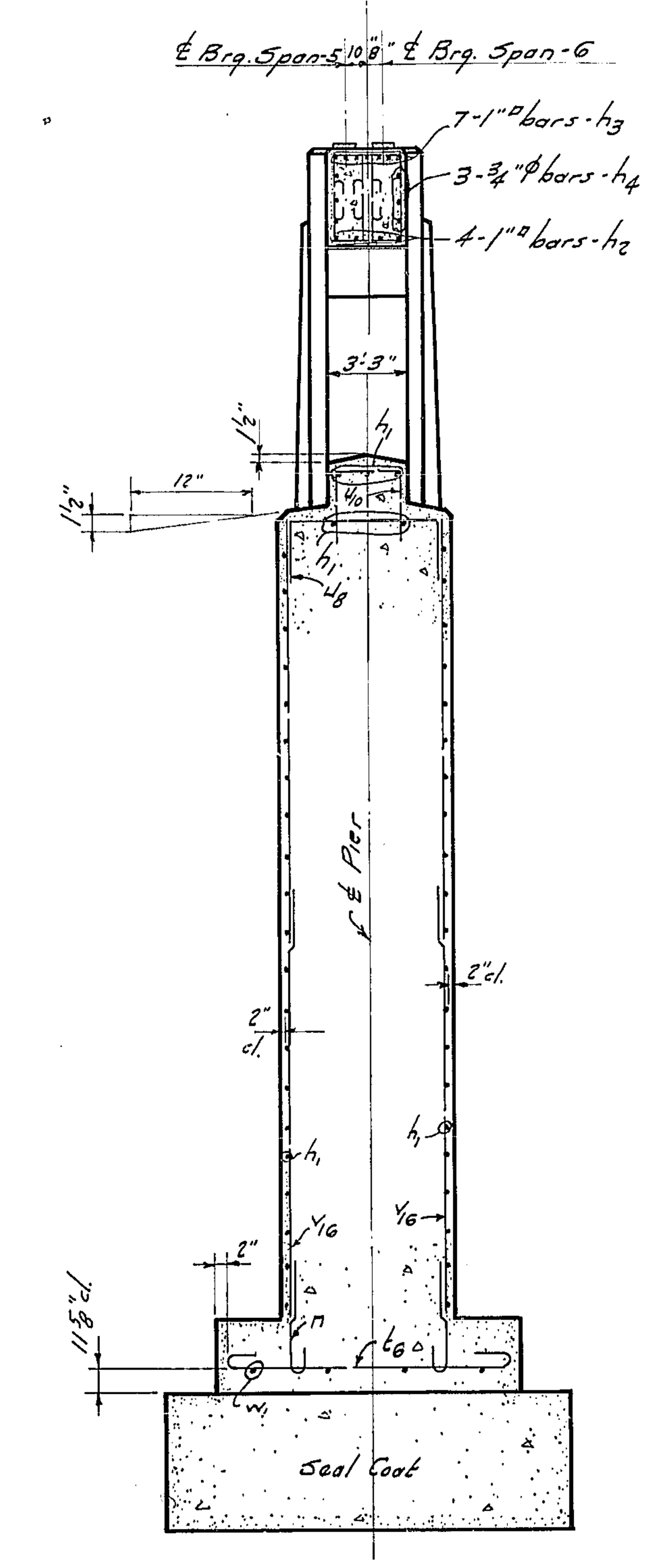
- PIER NO. 4 -
F.A. ROUTE 4 (~~SOUTH BOUND~~)
SECTION 86-B
CASS-SCHUYLER CO.'S
STA. 39+58

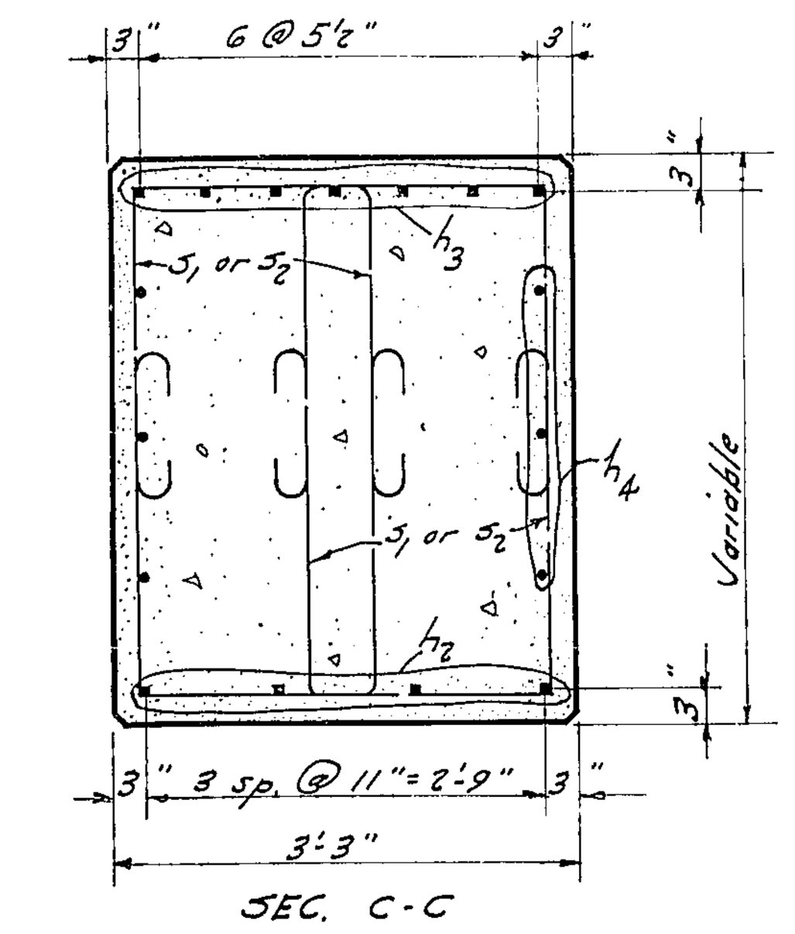
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

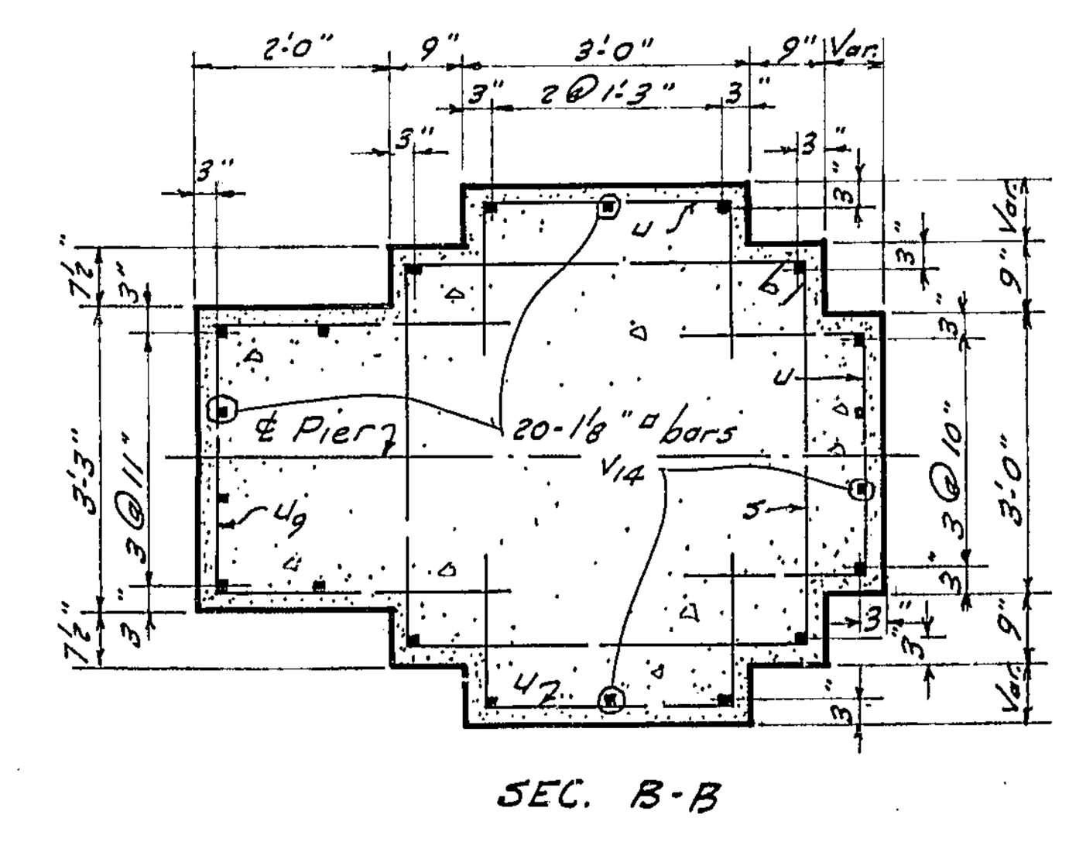
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass - Schuyler	31	12
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 10
63 SHEETS









BILL OF MATERIAL · PIER #5

Bar	No.	Size	Length	Shape
h_1	98	⅝"φ	15'-0"	
h_2	4	1"□	21'-9"	
h_3	7	1"□	36'-0"	
h_4	6	¾"φ	20'-6"	
n	76	⅝"φ	5'-0"	
s	30	⅝"φ	17'-6"	
s_1	36	⅝"φ	9'-9"	
s_2	32	⅝"φ	10'-9"	
t_6	78	¾"φ	14'-0"	
t_7	20	¾"φ	8'-0"	
u	72	⅝"φ	7'-9"	
u_9	44	⅝"φ	14'-3"	
u_8	29	⅝"φ	10'-3"	
u_{10}	47	⅝"φ	11'-0"	
v_{14}	40	1⅛"□	15'-3"	
v_{15}	38	1⅛"□	6'-6"	
v_{16}	152	⅝"φ	17'-0"	
w_1	8	⅝"φ	20'-6"	

Class A Conc.	Cu. Yds.	368.2
Reinf. Bars	Lbs.	15060
16" Precast Conc. Piles (45' lg.)	Lin. Ft.	1800
Seal Coat Concrete	Cu. Yds.	125.7
Cofferdam	Ea.	1
Cofferdam Excavation	Cu. Yds.	495

See Pier #1 for detail of bars n, s, u
See Pier #4 " " " " u_8, u_9
See Pier #6 " " " " h_2, h_3, s_1, s_2

- PIER NO. 5 -
F.A. ROUTE 4 ([redacted])
SECTION 86-B
CASS - SCHUYLER CO'S
STA. 39 + 58

COMPUTED	[illegible]
CHECKED	M. G. Peter
DRAWN	[illegible] - Sutzer
CHECKED	M. G. P.
ASSEMBLED	
CHECKED	

EXAMINED Oct 30 1951
W. E. Hanson BRIDGE ENGINEER
PASSED E. L. [illegible] ENGINEER OF DESIGN
APPROVED F. N. Barker CHIEF HIGHWAY ENGINEER

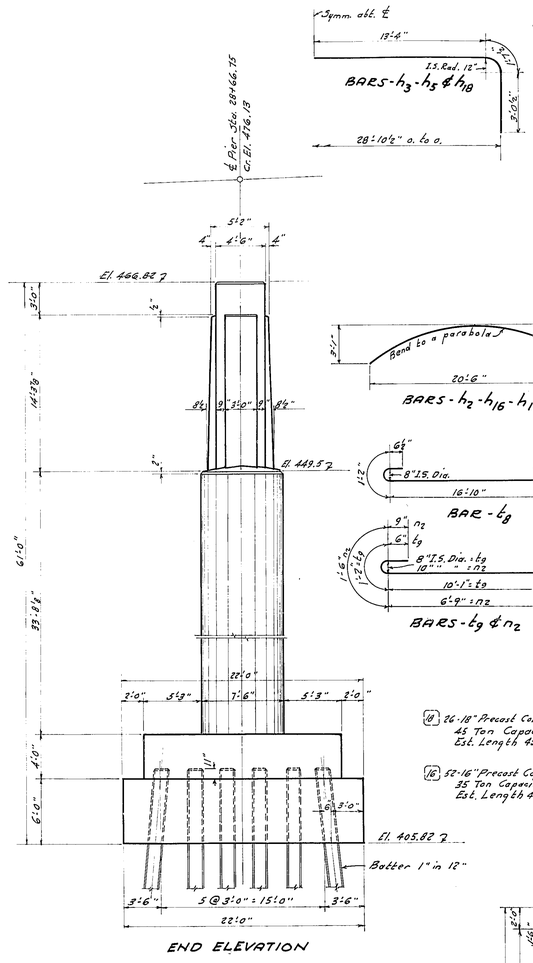
Rev. Pile Lengths - 9-5-51 - J.S.M.

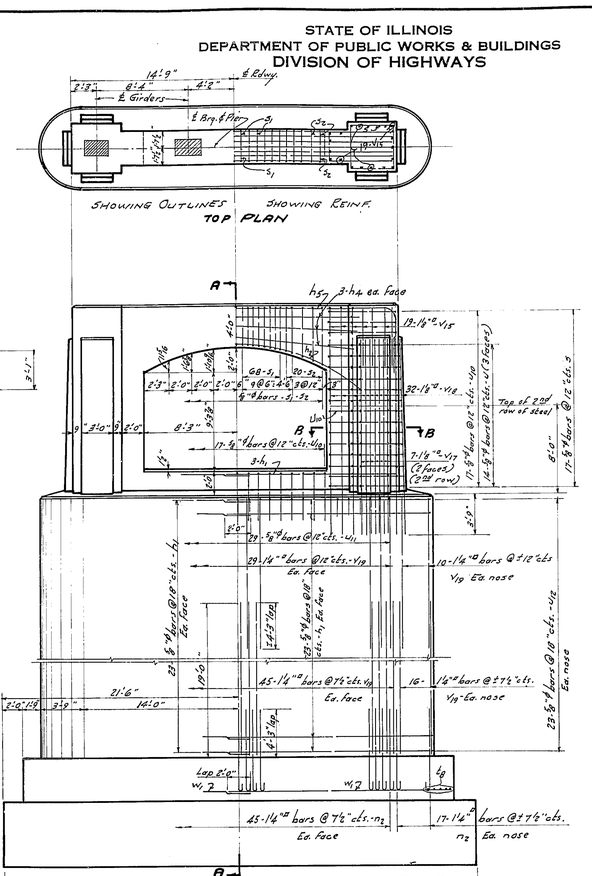
EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.4	86-B	Cass - Schuyler	31	13
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

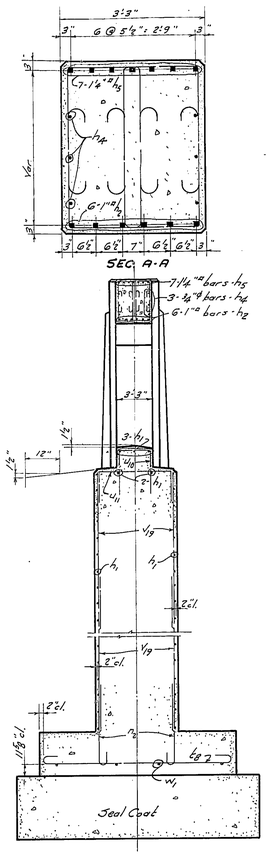
SHEET NO. 11
63 SHEETS

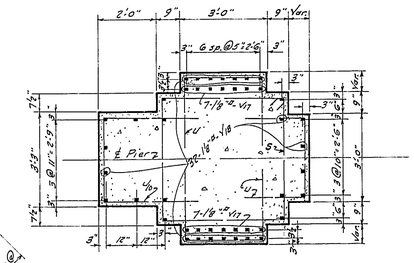




(18) 26-18" Precast Conc. Piles
45 Ton Capacity
Est. Length 45 ft.

(16) 52-16" Precast Conc. Piles
35 Ton Capacity
Est. Length 43 ft.





BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h1	102	⅞"ø	15'-0"	
h2	6	1"ø	21'-9"	
h4	6	⅞"ø	20'-6"	
h5	7	1¼"ø	36'-0"	
n2	124	1¼"ø	9'-0"	
S	34	⅝"ø	17'-6"	
S1	68	⅝"ø	9'-9"	
S2	40	⅝"ø	10'-9"	
tg	85	1"ø	20'-3"	
tg	44	1"ø	11'-9"	
U	84	⅝"ø	7'-9"	
U10	51	⅝"ø	11'-0"	
U11	29	⅝"ø	11'-0	
U12	46	"	15'-3	U
V15	38	1⅛"ø	6'-6"	
V17	28	1⅛"ø	11'-9"	
V18	64	1⅛"ø	17'-9"	
V19	200	1¼"ø	19'-0"	
W1	8	⅝"ø	20'-6"	

Class "A" Concrete	Cu.Yds.	468.4
Reinf. Bars	Lbs.	48920
Seal Coat Conc.	Cu.Yds	176.9
18" Precast Conc. Piles (45 Ft)	Lin. Ft.	1125
16" " " " (45 ft)	Lin. Ft.	2295
Cofferdam	Ea.	1
Cofferdam Excavation	Cu.Yds.	777
Concrete Test Pile (18")	Each	1
Concrete Test Pile (16")	Each	1

See Pier #1 for details of bars 3 & 4
See Pier #5 for detail of bar U10

COMPUTED	L.U.S. Hammond	EXAMINED	Jan 30 1951
CHECKED	W.G.P.		W. G. Hammond BRIDGE ENGINEER
DRAWN	[illegible]	PASSED	E. C. Shurtleff DIVISION OF DESIGN
CHECKED	M.G.P.	APPROVED	A. M. Barker CHIEF HIGHWAY ENGINEER
ASSEMBLED			
CHECKED			

Rev. Pile Lengths - 9-5-51 - J.S.M.

- PIER No. 6 -
F.A. ROUTE 4 (SECTION 86-B)
SECTION 86-B
CASS - SCHUYLER CO.'S
STA. 39+58

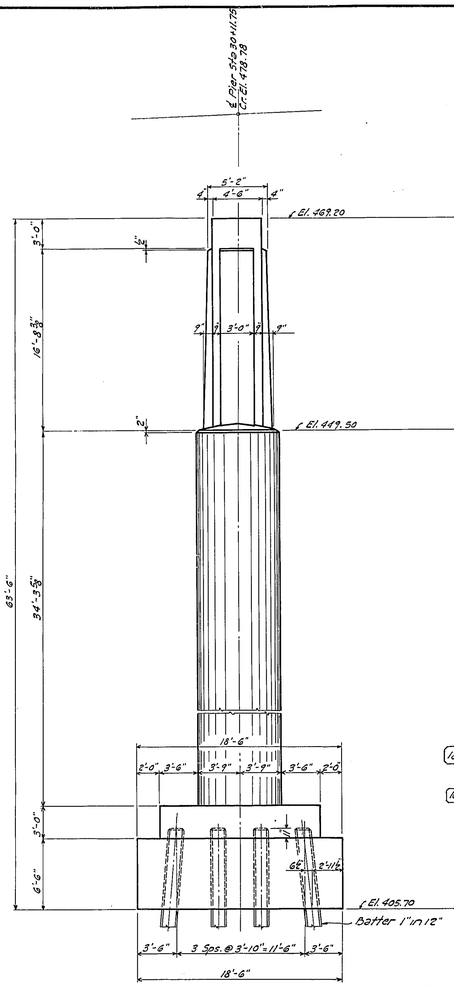
EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

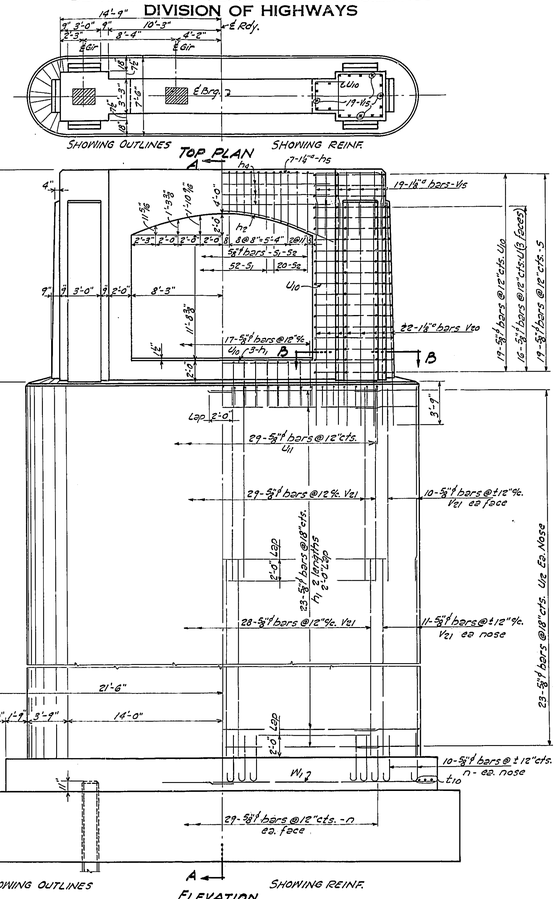
DIST.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass Schuyler	31	14
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 12
63 SHEETS

℄ Pier Sta 39+11.75
C.F. El. 418.78



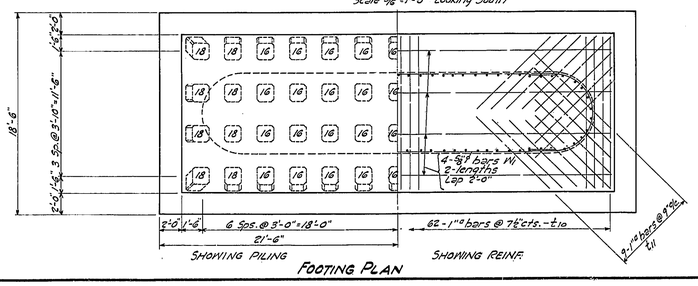
END ELEVATION



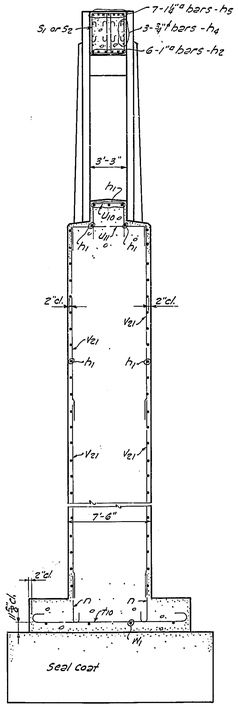
ELEVATION
Scale 3/16" = 1'-0" Looking South

(18) 16-18" Precast Conc. Piles
45 Ton Capacity
Est. Length 45 ft.

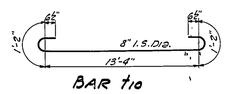
(16) 36-16" Precast Conc. Piles
35 Ton Capacity
Est. Length 45 ft.



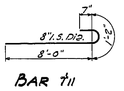
FOOTING PLAN



SECTION A-A



BAR t10



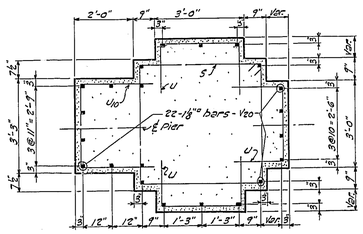
BAR t11

BILL OF MATERIAL - PIER #7

BAR	No	SIZE	LENGTH	SHAPE
h1	102	5/8"	15'-0"	
h2	6	1"	21'-9"	
h4	6	7/8"	20'-6"	
h5	7	1⅛"	36'-0"	
n	78	5/8"	5'-0"	
S	38	5/8"	17'-6"	
S1	52	5/8"	9'-9"	
S2	40	5/8"	10'-9"	
t10	62	1"	16'-9"	
t11	36	1"	9'-9"	
U	96	5/8"	7'-9"	
U10	55	5/8"	11'-0"	
U11	29	5/8"	11'-0"	
U12	46	5/8"	15'-3"	
V15	38	1⅛"	6'-6"	
V20	44	1⅛"	20'-3"	
V21	156	5/8"	18'-0"	
W1	8	5/8"	20'-6"	

Class A Concrete	Cu.Yds.	441.2
Reinforcement Bars	Lbs.	20830
Seal Coat Concrete	Cu.Yds.	167.5
18" Precast Conc. Piles (45' lg.)	Lin.Ft.	720
16" Precast Conc. Piles (43' lg.)	Lin.Ft.	1620
Cofferdam	Each	1
Cofferdam Excavation	Cu.Yds.	687

See Pier #1 for detail of n, S, & U bar
" " #5 " " " U10 bar
" " #6 " " " h2, h5, S, S2, U11 & U12



SECTION B-B

~ PIER No. 7 ~
F.A. ROUTE 4 (SCHUYLERVILLE)
SECTION 86-B
CASS-SCHUYLER CO'S
STA. 39+58

COMPUTED	Eb Hansen Jr.	EXAMINED	Oct 30 19 51
CHECKED	M. G. Peter GEORGE		W. P. Hinners BRIDGE ENGINEER
DRAWN	Kurt L.	PASSED	E. L. Stahl ENGINEER OF DESIGN
CHECKED	M. G. P.	APPROVED	F. M. Barker CHIEF HIGHWAY ENGINEER
ASSEMBLED			
CHECKED			

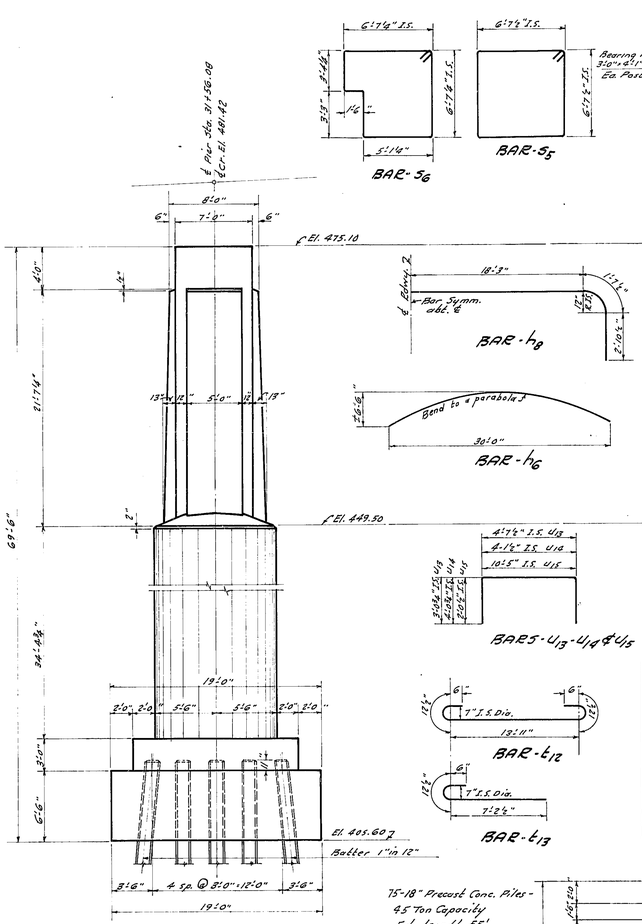
Rev. Pile Lengths - 9-5-51 - J.S.M.

EUGENE DIETZGEN CO.

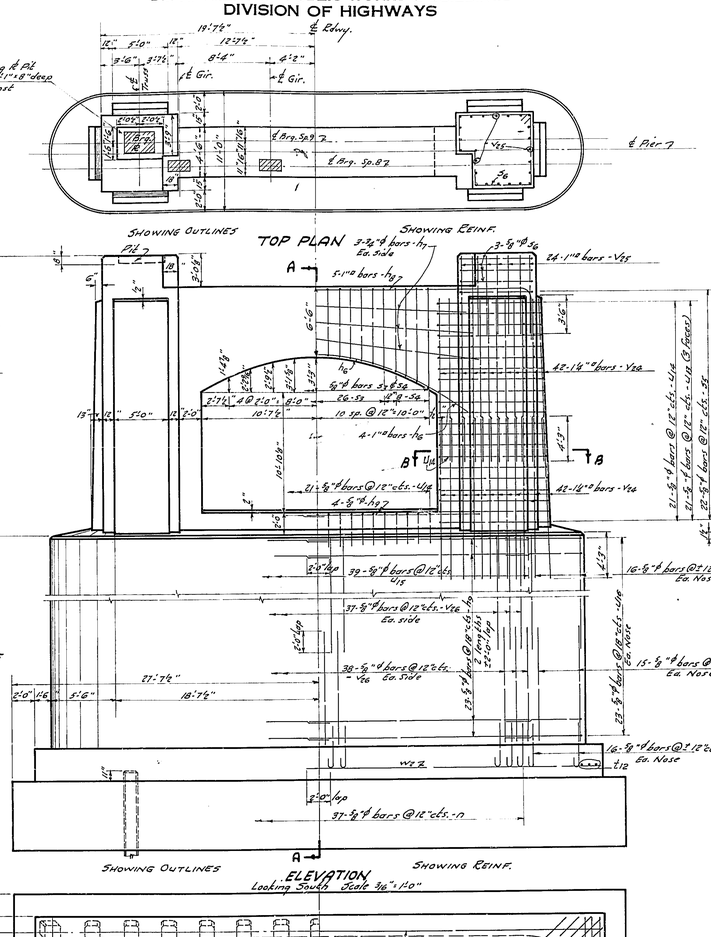
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

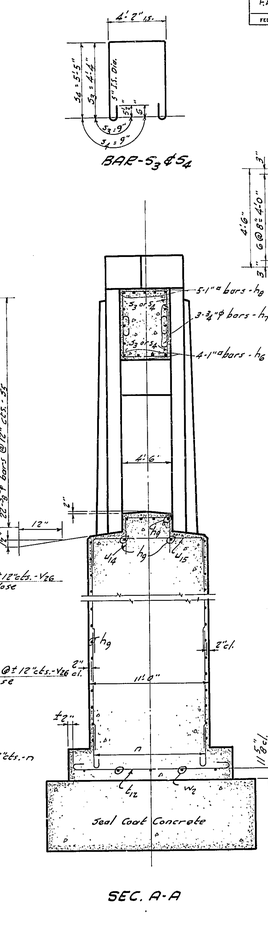
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass Schuyler	31	15
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

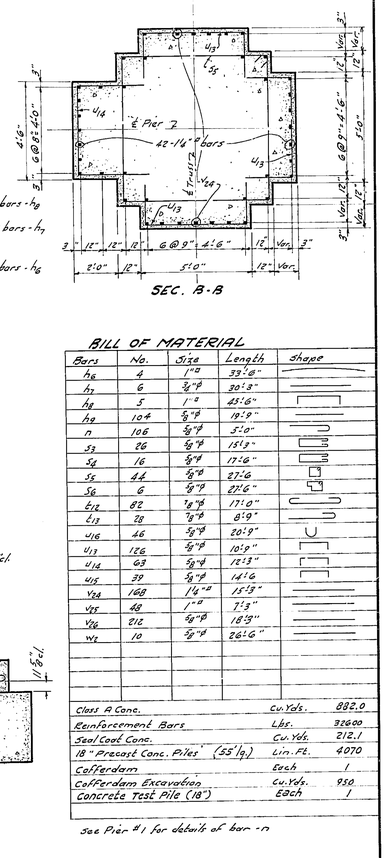
SHEET NO. 13
63 SHEETS

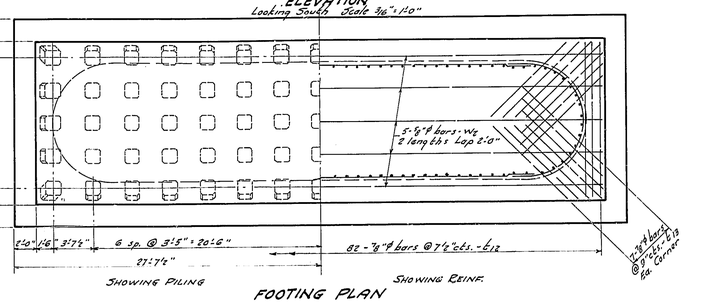


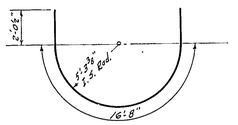
END ELEVATION











SEC. A-A

BILL OF MATERIAL

Bars	No.	Size	Length	Shape
h6	4	1" ℄	33'-8"	
h7	6	3/4" ℄	30'-3"	
h8	5	1" ℄	45'-6"	
h9	104	5/8" ℄	19'-9"	
n	106	5/8" ℄	5'-0"	
s3	26	5/8" ℄	15'-3"	
s4	16	5/8" ℄	17'-6"	
s5	44	5/8" ℄	27'-6"	
s6	6	5/8" ℄	27'-6"	
L12	82	7/8" ℄	17'-0"	
L13	78	5/8" ℄	8'-9"	
U16	46	5/8" ℄	20'-9"	
U13	126	5/8" ℄	10'-9"	
U14	63	5/8" ℄	12'-3"	
U15	39	5/8" ℄	14'-6"	
V26	168	1 1/4" ℄	15'-9"	
V25	48	1" ℄	7'-3"	
V24	212	5/8" ℄	18'-9"	
W2	10	5/8" ℄	26'-6"	

Class A Conc.	Cu. Yds.	832.0
Reinforcement Bars	Lbs.	32600
Seal Coat Conc.	Cu. Yds.	212.1
18" Precast Conc. Piles (55'/ea)	Lin. Ft.	4070
Cofferdam	Each	1
Cofferdam Excavation	Cu. Yds.	950
Concrete Test Pile (18")	Each	1

See Pier #1 for details of bar -n

COMPUTED		
CHECKED	Harry P. Graham	
DRAWN	Suber	
CHECKED	APJr.	
ASSEMBLED		
CHECKED		

EXAMINED Dec 12, 1951
W. C. Hunsaker
BRIDGE ENGINEER
PASSED
E. P. Brentzinger
ENGINEER OF DESIGN
APPROVED
A. P. Bourbon
CHIEF HIGHWAY ENGINEER

Rev. Pile Lengths - 9-5-51 - J.S.M.

EUGENE DIETZGEN CO.

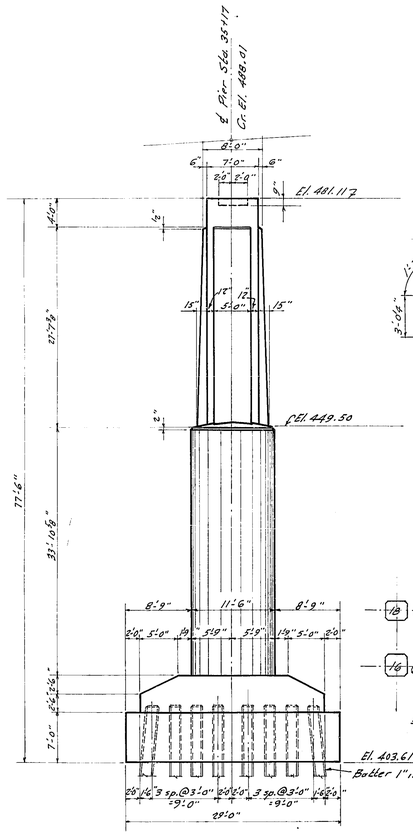
- PIER No. 8 -

F.A. ROUTE 4 (~~Alternate~~ 3)
SECTION 86-B
CASS-SCHUYLER CO.'S
STA. 39 + 58

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass Schuyler	31	16
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 14
63 SHEETS

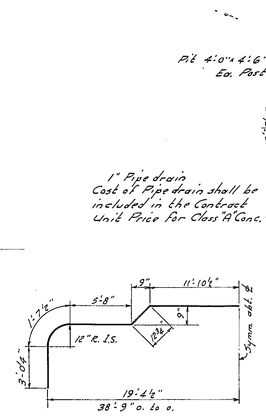


END ELEVATION

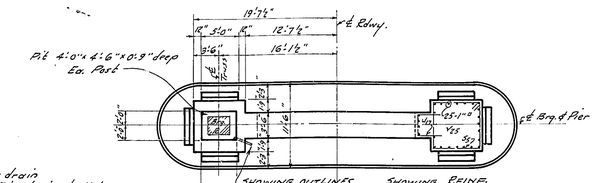
(18) 64-18" Precast Conc. Piles 45 Ton Capacity Est. Lgth 55'

(16) 64-16" Precast Conc. Piles 35-Ton Capacity Est. Lgth 55'

NOTE:- All piles in this Pier shall be driven to minimum Elev. 356.0

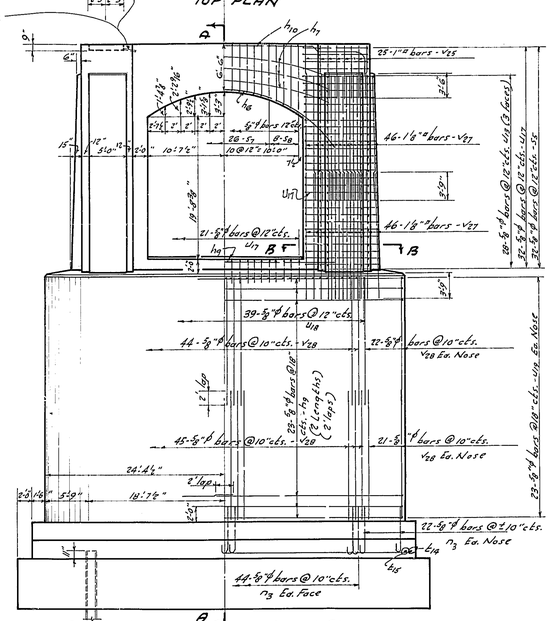


BAR - h_{10}

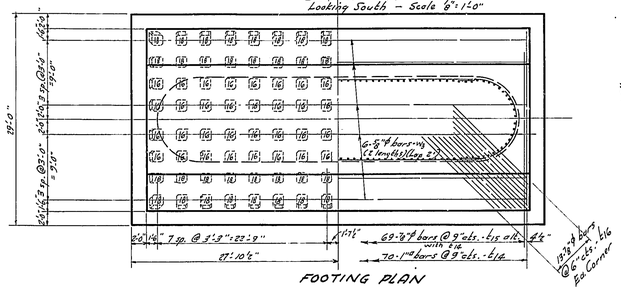


TOP PLAN

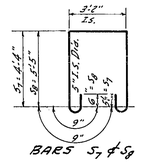
1" Pipe drain Cost of Pipe drain shall be included in the Contract Unit Price for Class "A" Conc.



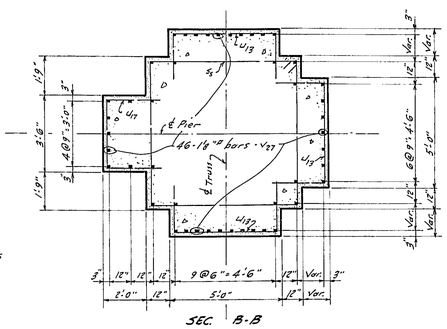
ELEVATION
Looking South - Scale ⅜"=1'-0"

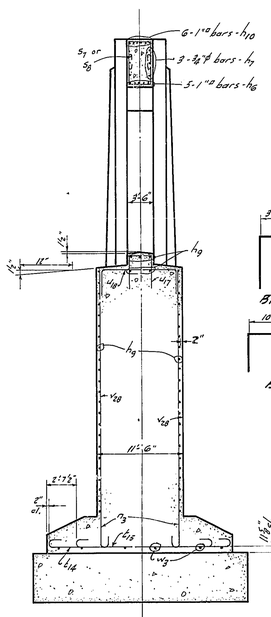


FOOTING PLAN

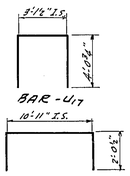


BARS S_7 & S_8

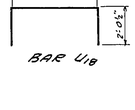




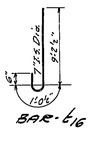
SEC. A-A



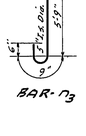
BAR - U_{17}



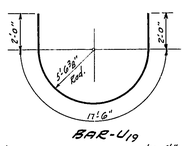
BAR U_{18}



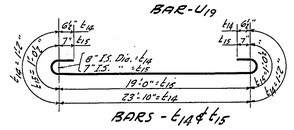
BAR - L_{16}



BAR - n_3



BAR - U_{19}



BARS - L_{14} & L_{15}

BILL OF MATERIAL

Bars	No.	Size	Length	Shape
h_6	5	1" □	33'-6"	
h_7	6	¾" ◊	30'-3"	
h_9	102	⅝" ◊	19'-9"	
h_{10}	6	1" □	46'-6"	
n_3	132	⅝" ◊	7'-0"	
S_5	64	⅝" ◊	87'-6"	
S_7	26	⅝" ◊	14'-3"	
S_8	16	⅝" ◊	16'-6"	
L_{14}	70	1" □	27'-3"	
L_{15}	69	⅞" ◊	22'-3"	
L_{16}	52	⅞" ◊	10'-9"	
U_{17}	168	⅝" ◊	10'-9"	
U_{19}	66	⅝" ◊	21'-6"	
U_{21}	65	⅝" ◊	11'-3"	
U_{18}	39	⅝" ◊	15'-0"	
V_{25}	50	1" □	7'-3"	
V_{27}	184	1⅛" □	17'-6"	
V_{28}	264	⅝" ◊	18'-0"	
W_3	12	⅝" ◊	26'-9"	
Class "A" Concrete			Cu.Yds.	1060.0
Reinf. Bars			Lbs.	43020
Seal Coat Concrete			Cu.Yds.	352.4
18" Precast Conc. Piles	(55'-0" lg.)		Lin. Ft.	3465
16" Precast Conc. Piles	(55'-0" lg.)		Lin. Ft.	3465
Concrete Test Pile	(16)		Ea.	1
Concrete Test Pile	(18)		Ea.	1
Cofferdam			Ea.	1
Cofferdam Excavation			Cu.Yds.	1700

See Pier #8 for details of bars - h_6 - S_5 - U_{13}

COMPUTED	R.C.T. - J.S.M.
CHECKED	Harry P. Graham
DRAWN	C.M.S. - Sutter
CHECKED	H.P.H.
ASSEMBLED	
CHECKED	

EXAMINED Oct. 30 195.
W. P. Hennessy
BRIDGE ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

Rev. Pile Lengths - 9-5-51 - J.S.M.

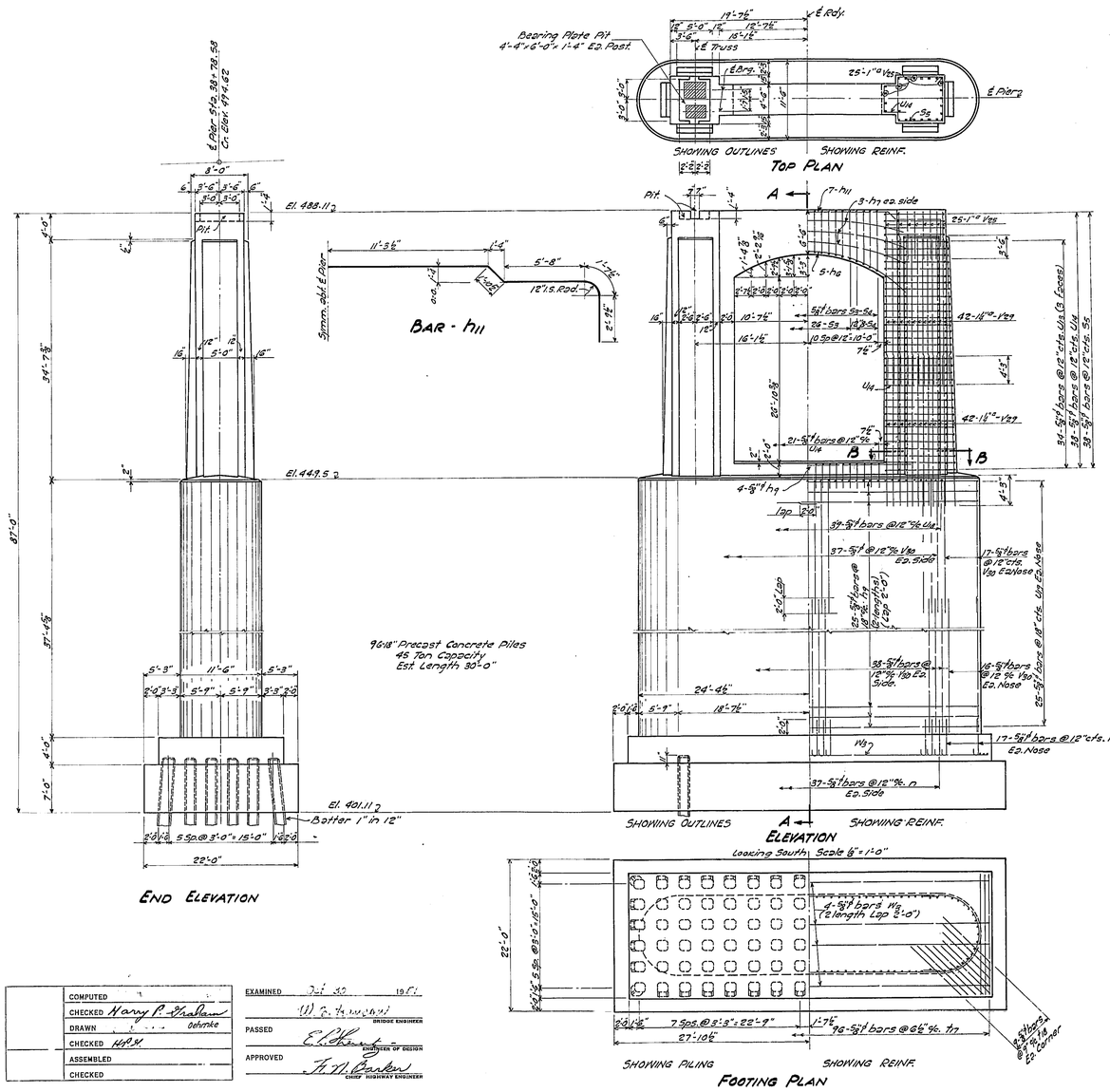
- PIER No. 9 -
F.A. ROUTE 4 (Shawneetown)
SECTION 86-B
CASS-SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
F.A.4.	86-B	Cass Schuyler	31	17
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

SHEET NO. 15
63 SHEETS



BILL OF MATERIAL

BARS	NO	SIZE	LENGTH	SHAPE
h6	5	1"ø	33'-6"	
h7	6	⅞"ø	30'-3"	
h9	112	⅝"ø	19'-9"	
h11	7	1"ø	46'-6"	
n	108	⅝"ø	5'-0"	
S3	26	⅝"ø	15'-3"	
S4	16	⅝"ø	17'-6"	
S5	76	⅝"ø	27'-6"	
h17	96	⅝"ø	19'-6"	
h18	36	⅝"ø	8'-9"	
U13	204	⅝"ø	10'-9"	
U14	97	⅝"ø	12'-3"	
U19	50	⅝"ø	21'-6"	
U18	39	⅝"ø	15'-0"	
V25	50	1"ø	7'-3"	
V29	168	1⅛"ø	21'-6"	
V30	216	⅝"ø	19'-6"	
W3	8	⅝"ø	26'-9"	

Class "A" Concrete	Cu.Yds.	1103.3
Reinforcement Bars	Lbs.	40290
Seal Coat Concrete	Cu.Yds	281.9
18" Precast Concrete Piles (30'-Lg.)	Lin.Ft.	2850
Cofferdam	Each	1
Cofferdam Excavation	Cu.Yds.	1443
Concrete Test Pile (18")	Each	1

See Pier #1 for detail of Bar n
See Pier #3 for detail of Bars h6 - S3-S4-U13-U14
See Pier #9 for detail of Bars U13 - U19

COMPUTED		
CHECKED	Harry P. Graham	
DRAWN	Oehmke	
CHECKED	HPG	
ASSEMBLED		
CHECKED		

EXAMINED Dec 30 1951
W. C. Hamilton
BRIDGE ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

Rev. Pile Capacity - 9-5-51 - H.L.O.

- PIER NO. 10 -
F.A. ROUTE 4 (~~SHOWN AS ROUTE 3~~)
SECTION 86-B
CASS-SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

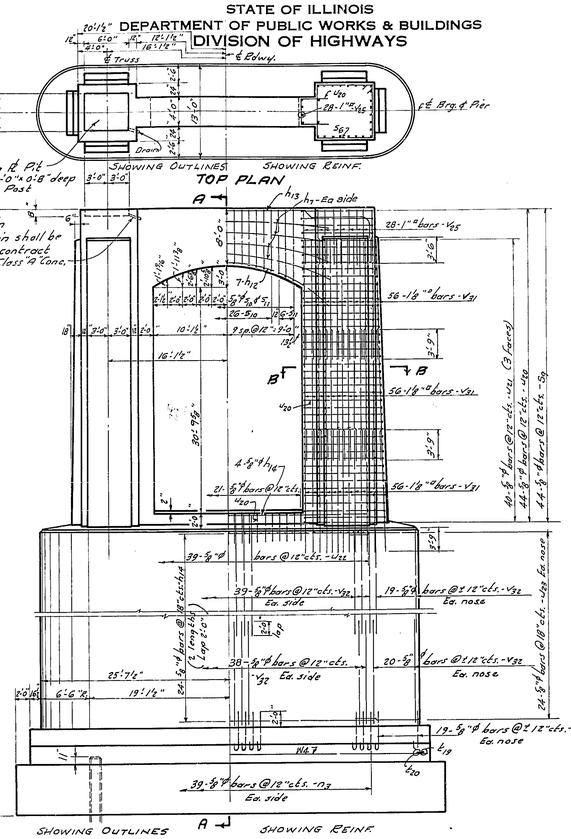
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

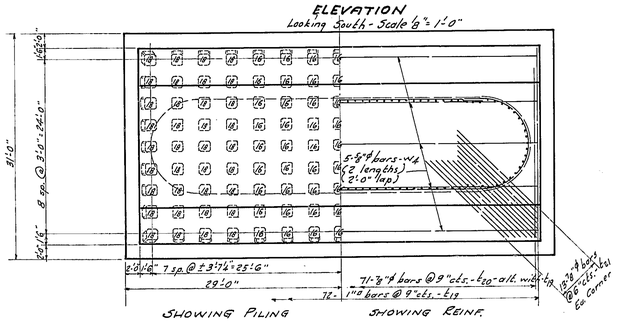
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass Schuyler	31	18
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

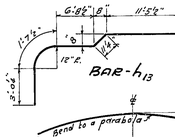
SHEET NO. 18
63 SHEETS

(18) 72'-18" Precast Conc. Piles
45 Ton Capacity
40 Ft. Est. length

(16) 63'-16" Precast Conc. Piles
35 Ton Capacity
40 Ft. Est. length



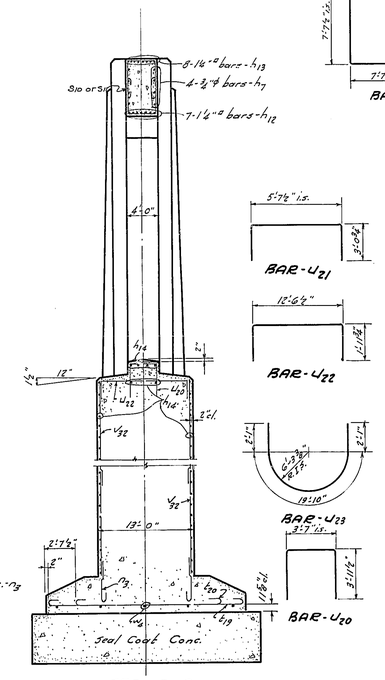


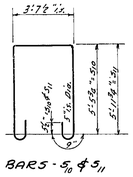


COMPUTED	
CHECKED	Harry P. Graham
DRAWN	Surgor
CHECKED	H.P.G.
ASSEMBLED	
CHECKED	

EXAMINED 1951
W.S. Kinnally
BRIDGE ENGINEER
PASSED
E.E. Gibbs
ENGINEER OF DESIGN
APPROVED
F.H. Bakes
CHIEF HIGHWAY ENGINEER

Revised { Pile Lengths & Lowered Pier top 2' for larger diameter roller H.P.G. 9-5-51



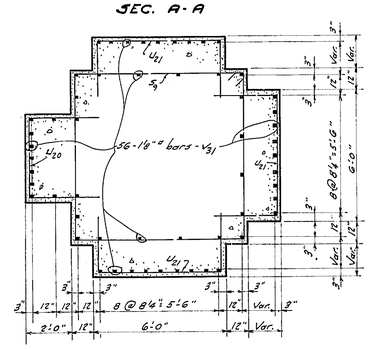


BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h_7	8	¾"ᵠ	30'-3"	
h_{12}	7	1¼"ᵃ	34'-0"	
h_{13}	8	"	47'-6"	
h_{16}	108	⅝"ᵠ	20'-3"	
n_3	116	⅝"ᵠ	7'-9"	
s_9	88	⅝"ᵠ	31'-9"	
s_{10}	26	"	17'-0"	
s_{11}	12	"	18'-0"	
t_{19}	72	1"ᵃ	89'-3"	
t_{20}	71	⅞"ᵠ	24'-0"	
t_{21}	52	"	13'-6"	
u_{23}	48	⅝"ᵠ	24'-0"	
u_{20}	108	"	11'-6"	
u_{21}	240	"	11'-9"	
u_{22}	39	"	16'-6"	
v_{25}	56	1"ᵃ	7'-9"	
v_{31}	336	1½"ᵃ	17'-0"	
v_{32}	232	⅝"ᵠ	19'-0"	
w_4	10	⅝"ᵠ	28'-0"	

Class "A" Conc.	Cu.Yds.	13963
Reinforcement Bars	Lbs.	59420
Seal Coat Conc.	Cu.Yds.	395.3
18" Precast Conc. Piles (40'lg.)	Lin.Ft.	2840
16" Precast Conc. Piles (40'lg.)	Lin.Ft.	2480
Conc. Test Pile (18")	Ea.	1
Conc. Test Pile (16")	Ea.	1
Cofferdam	Ea.	1
Cofferdam Excavation	Cu.Yds.	920

See Pier # 9 for details of bar - n_3



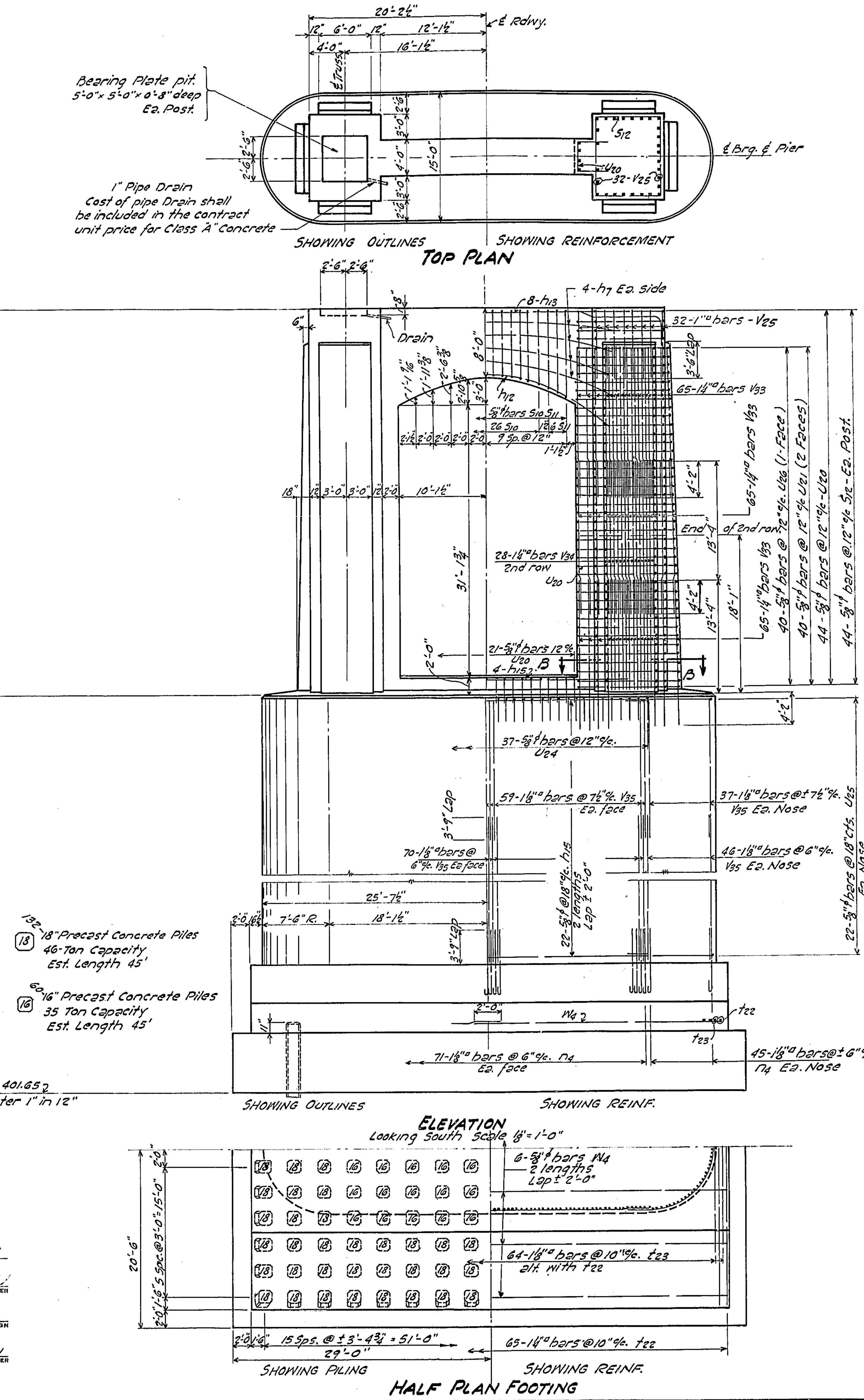
- PIER NO. 11 -
F.A. ROUTE 4 (ALTERNATE)
SECTION 86-B
CASS - SCHUYLER CO'S
STA. 39+58

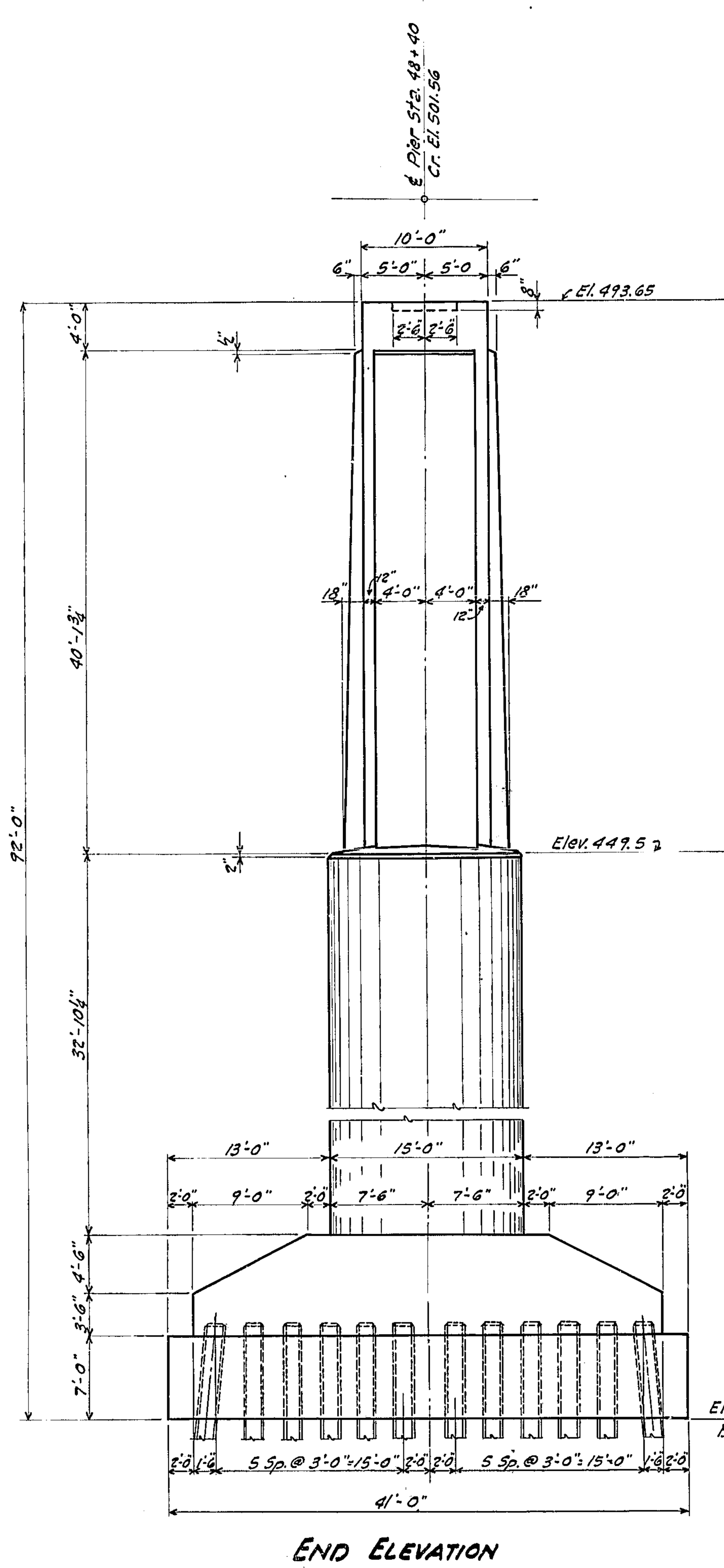
EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass-Schuyler	31	19
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT -	

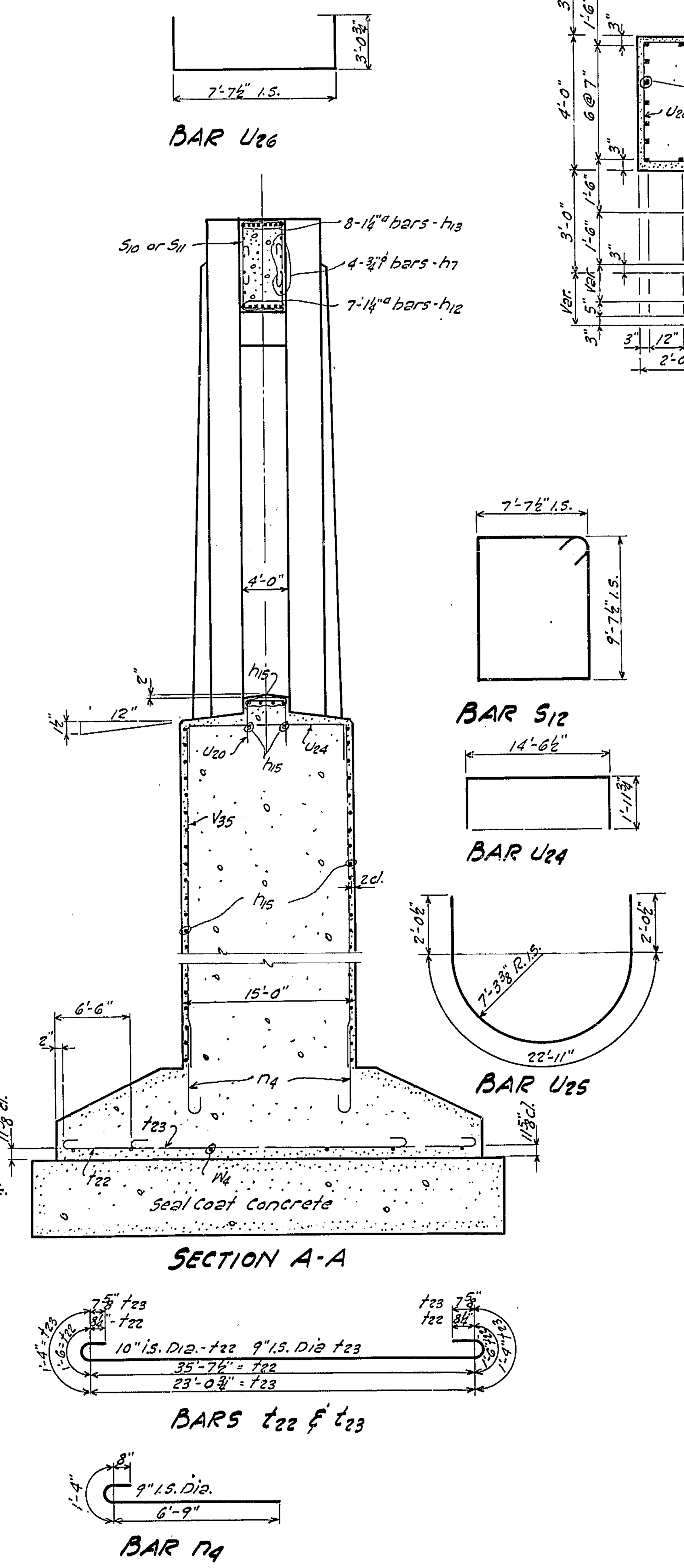
SHEET NO. 17
63 SHEETS

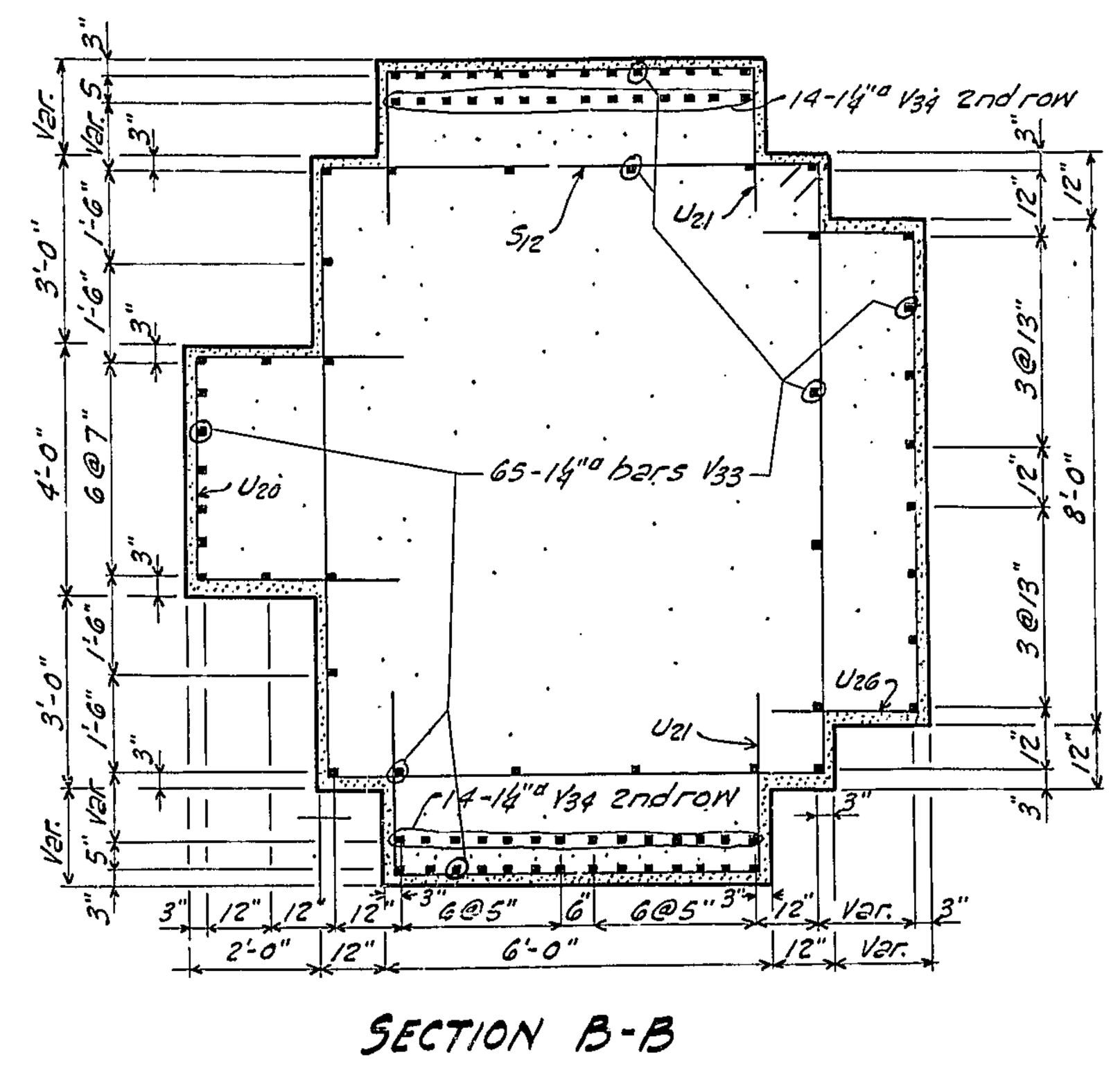




132 - 18" Precast Concrete Piles 46-Ton Capacity Est. Length 45'

60 - 16" Precast Concrete Piles 35 Ton Capacity Est. Length 45'





BILL OF MATERIAL

BAR	No	SIZE	LENGTH	SHAPE
h_7	8	¾"	30'-3"	
h_{12}	7	1¼"	34'-0"	
h_{13}	8	1¼"	47'-6"	
h_{15}	100	⅝"	19'-3	
n_4	232	1⅛"	8'-9"	
S_{10}	26	⅝"	17'-0"	
S_{11}	12	⅝"	18'-0"	
S_{12}	88	⅝"	35'-6	
t_{22}	65	1¼"	40'-0"	
t_{23}	64	1⅛"	27'-0"	
U_{20}	109	⅝"	11'-6"	
U_{21}	160	⅝"	11'-9"	
U_{26}	80	⅝"	13'-9"	
U_{24}	37	⅝"	18'-6	
U_{25}	44	⅝"	27'-0"	
V_{25}	64	1"	7'-3"	
V_{33}	390	1¼"	17'-6"	
V_{34}	56	1¼"	22'-3"	
V_{35}	424	1⅛"	18'-3"	
W_4	12	⅝"	28'-0"	

Class A Concrete	Cu Yds.	1754.0
Reinforcement Bars	Lbs.	124060
Seal Coat Concrete	Cu.Yds.	512
18" Precast Conc. Piles (45' lg.)	Lin.Ft.	5895
16 Precast Conc. Piles (45' lg.)	Lin.Ft.	2655
Cofferdam	Ea.	1
Cofferdam Excavation	Cu.Yds.	1483
Concrete Test Pile (18")	Each	1
Concrete Test Pile (16")	Each	1

See Pier #11 for detail of Bars h_{12}-h_{13}-S_{10}-S_{11}-U_{20}-U_{21}

COMPUTED	[signature]
CHECKED	Harry R. Graham
DRAWN	[signature] Oehmke
CHECKED	H.P.G.
ASSEMBLED	
CHECKED	

EXAMINED Oct. 30 1951
W. E. Hanson, BRIDGE ENGINEER
PASSED E. L. [signature], ENGINEER OF DESIGN
APPROVED F. N. Barker, CHIEF HIGHWAY ENGINEER

Rev. Pile Lengths - 9-5-51 - J.S.M.

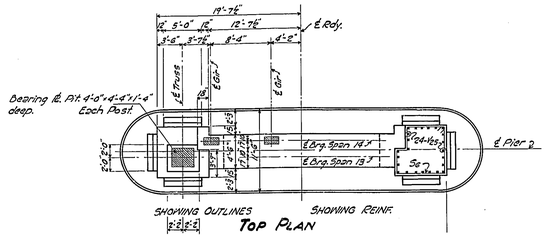
- PIER NO. 12 -
F.A. ROUTE 4 ([redacted])
SECTION 86-B
CASS-SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass-Schuyler	31	20
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

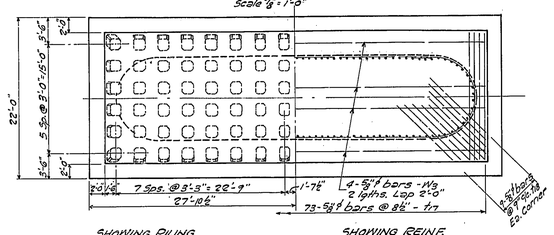
SHEET NO. 18
63 SHEETS



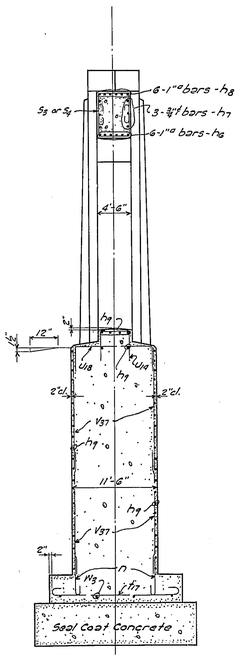
TOP PLAN

END ELEVATION

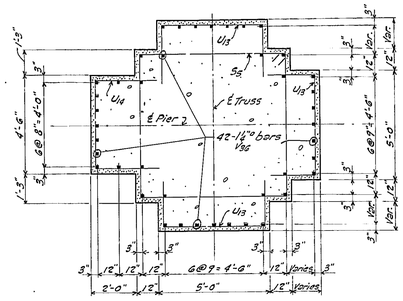
ELEVATION
Looking South
Scale ⅜"=1'-0"



FOOTING PLAN



SECTION A-A



SECTION B-B

BILL OF MATERIAL

BAR	No	SIZE	LENGTH	SHAPE
h6	6	1"ø	33'-6"	
h7	6	⅝" ø	30'-8"	
h8	6	1"ø	46'-6"	
h9	96	5/8" ø	19'-9"	
n	108	5/8" ø	5'-0"	
S3	26	5/8" ø	15'-3"	
S4	16	5/8" ø	17'-6"	
S5	68	5/8" ø	27'-6"	
S6	6	5/8" ø	27'-6"	
U7	73	5/8" ø	19'-6"	
U8	36	5/8" ø	8'-7"	
U13	198	5/8" ø	10'-7"	
U14	87	5/8" ø	12'-3"	
U17	42	5/8" ø	21'-6"	
U18	37	5/8" ø	15'-0"	
V25	48	1"ø	7'-3"	
V36	168	1¼"ø	21'-3"	
V37	216	5/8" ø	16'-9"	
W3	8	5/8" ø	28'-9"	
Class "A" Concrete			Cu. Yds.	979.8
Reinforcement Bars			Lbs.	38100
Seal Coat Concrete			Cu. Yds.	224.6
18" Precast Concrete Piles (45' lg.)			Lin. Ft.	4275
Cofferdam			Ea.	1
Cofferdam Excavation			Cu. Yds.	1863
Concrete Test Pile (18")			Each	1

See Pier #8 for detail of bars h6-h8-S3-S4-S5-S6-U13-U14
See Pier #10 for detail of bars U7-U8
See Pier #1 for detail of bars n
See Pier #9 for detail of bars U18-U19

	COMPUTED	
	CHECKED Harry, Ed Graham	
	DRAWN Oehmke	
	CHECKED V.P.G.	
	ASSEMBLED	
	CHECKED	

EXAMINED Jan 29 19 51
O. B. Finnan
BRIDGE ENGINEER
PASSED E. L. Ring
ENGINEER OF DESIGN
APPROVED T. M. Barker
CHIEF HIGHWAY ENGINEER

Rev. Pile Lengths & Cap. - 9-5-51 - J.S.M.

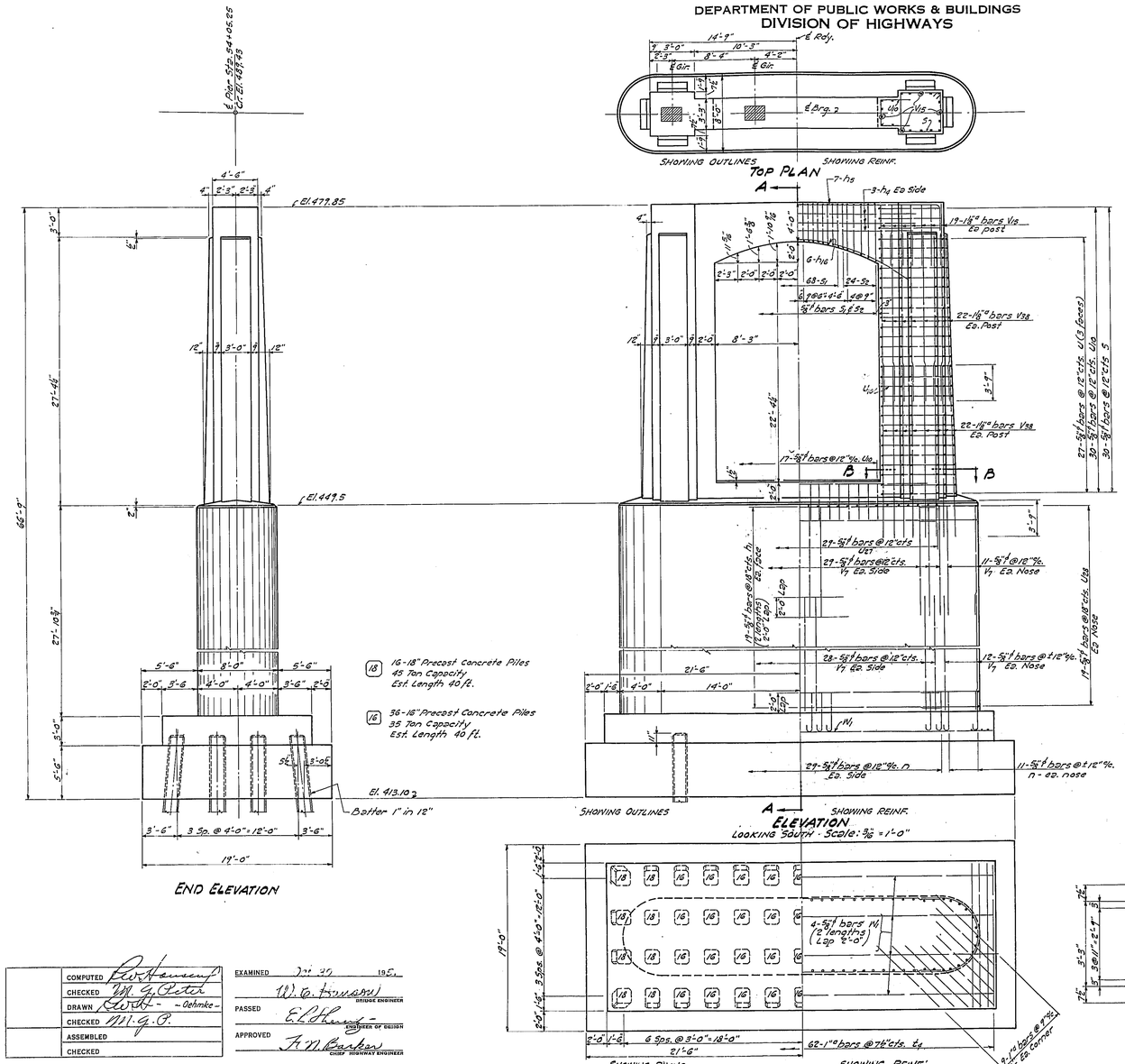
- PIER No. 13 -
F.A. ROUTE 4 (SECTION 86-B)
SECTION 86-B
CASS - SCHUYLER CO.'S
STA. 39 + 58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 4	86-B	Cass Schuyler	31	21
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

SHEET NO. 19
63 SHEETS



	COMPUTED	R.W. Hemenway
	CHECKED	M. G. Peter
	DRAWN	W.H.T. - Oehmke -
	CHECKED	M.G.P.
	ASSEMBLED	
	CHECKED	

EXAMINED Jan. 29 19 E.
W. E. Symons BRIDGE ENGINEER
PASSED E. L. Shaw DIVISION OF DESIGN
APPROVED F. M. Barker CHIEF HIGHWAY ENGINEER

Rev. Pile Lengths - 9-5-51 - J.S.M.

BILL OF MATERIAL PIER #14

BAR	No	SIZE	LENGTH	SHAPE
h_1	86	⅞"	15'-0"	
h_4	6	⅞"	20'-6"	
h_5	7	1⅛"	36'-0"	
h_{16}	6	1⅛"	21'-9"	
n	80	⅝"	5'-0"	
S	60	⅝"	17'-6"	
S_1	63	⅝"	9'-9"	
S_2	48	⅝"	10'-9"	
t_4	62	1"	17'-3"	
t_5	36	1"	9'-3"	
U	162	⅝"	7'-9"	
U_{10}	77	⅝"	11'-0"	
U_{27}	29	⅝"	11'-6"	
U_{28}	38	⅝"	16'-0"	
V_{15}	38	1⅛"	6'-6"	
V_{38}	88	1⅛"	17'-6"	
V_1	160	⅝"	15'-0"	
W_1	8	⅝"	20-6"	

Class A Concrete	Cu.Yds.	430.5
Reinforcement Bars	Lbs.	24610
Seal Coat Concrete	Cu.Yds.	146.1
18" Precast Conc. Piles (40'lg.)	Lin.Ft.	640
16" Precast Conc. Piles (40'lg.)	Lin.Ft.	1440
Cofferdam	Each	1
Cofferdam Excavation	Cu.Yds.	542.0

See Pier #1 for detail of bars n-S-U
" " #5 " " " " U_{10}
" " 6 " " " " h_5-h_{16}-S_1-S_2

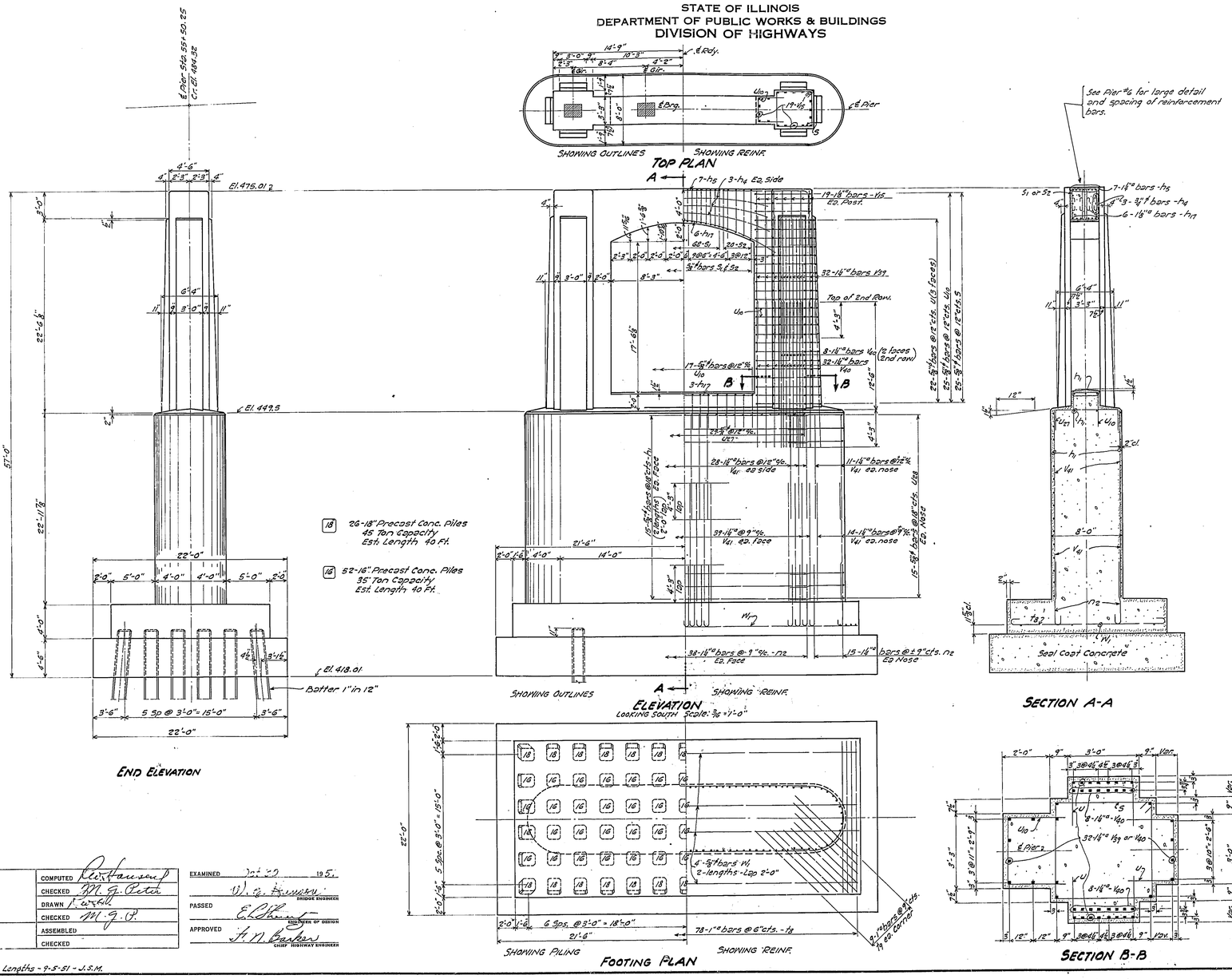
- PIER NO. 14 -
F.A. ROUTE 4 (~~RECOMMONE-3~~)
SECTION 86-B
CASS-SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass Schuyler	31	22
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

SHEET NO. 20
63 SHEETS



BILL OF MATERIALS PIER #15

BAR	No	SIZE	LENGTH	SHAPE
h_1	70	$\frac{5}{8}$"	15'-0"	
h_4	6	$\frac{3}{4}$"	20'-6"	
h_5	7	1⅛"	36'-0"	
h_{17}	6	1⅜"	21'-9"	
n_2	106	1⅜"	9'-0"	
S	50	$\frac{5}{8}$"	17'-6"	
S_1	68	$\frac{5}{8}$"	9'-9"	
S_2	40	$\frac{5}{8}$"	10'-9"	
t_8	78	1"	20'-3"	
t_9	36	1"	11'-9"	
U	132	$\frac{5}{8}$"	7'-9"	
U_{10}	67	$\frac{5}{8}$"	11'-0"	
U_{27}	29	$\frac{5}{8}$"	11'-6"	
U_{28}	30	$\frac{5}{8}$"	16'-0"	
V_{16}	38	1⅛"	6'-6"	
V_{37}	64	1⅜"	14'-3"	
V_{40}	96	1⅜"	16'-9"	
V_{41}	184	1⅜"	13'-6"	
H_1	8	$\frac{5}{8}$"	20'-6"	

Class "A" Concrete	Cu.Yds.	405.7
Reinforcement Bars	Lbs.	47620
Seal Coat Concrete	Cu.Yds.	132.6
18" Precast Conc. Piles (40'lg)	Lin.Ft.	1000
16" Precast Conc. Piles (40'lg.)	Lin.Ft.	2040
Cofferdam	Each	1
Cofferdam Excavation	Cu.Yds.	526
Concrete Test Pile (18")	Each	1
Concrete Test Pile (16")	Each	1

See Pier #1 for detail of bars S - U
" " #5 " " " " U_{10}
" " #6 " " " " $h_5 - h_{17} - n_2 - S_1 - S_2 - t_8 - t_9$
" " #14 " " " " $U_{27} - U_{28}$

COMPUTED	R.C. Hansen	EXAMINED	Jan 29 19 51
CHECKED	M. G. Beck		V. E. Bunsen BRIDGE ENGINEER
DRAWN	L. Wall	PASSED	E. C. Shaw ENGINEER OF DESIGN
CHECKED	M. G. B.	APPROVED	F. N. Barker CHIEF HIGHWAY ENGINEER
ASSEMBLED			
CHECKED			

Rev. Pile Lengths - 9-5-51 - J.S.M.

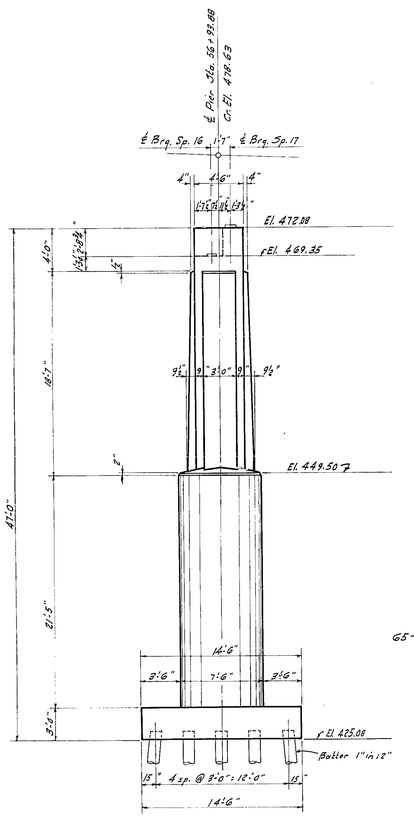
- PIER No. 15 -
F.A. ROUTE 4 (~~BLOOMINGTON - J~~)
SECTION 86-B
CASS - SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

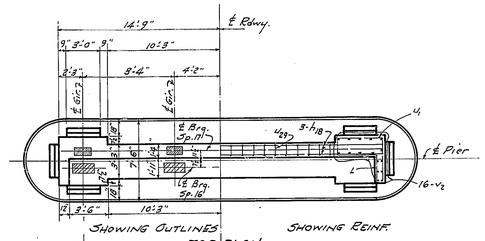
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAA	86-B	Cass-Schuyler	31	23
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 21
63 SHEETS

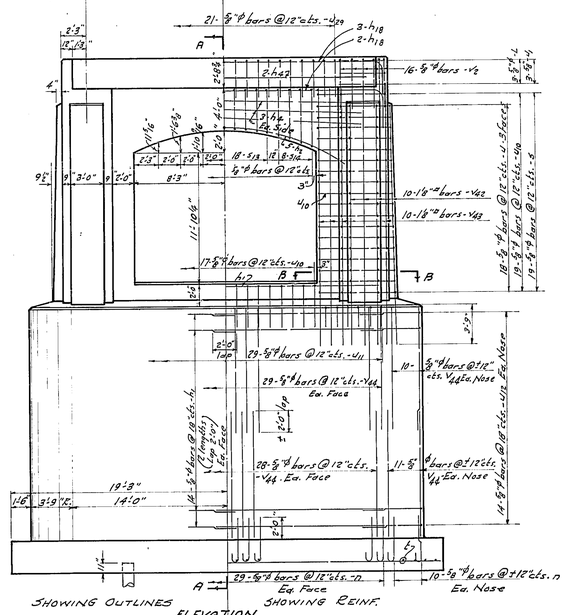


END ELEVATION

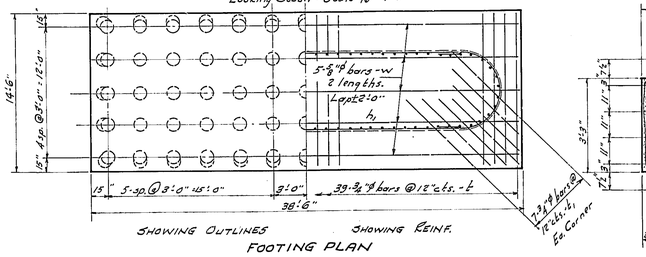
65-Piling 20 Ton Capacity
Estimated length 30'-0"



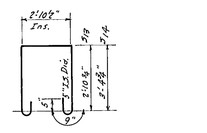
TOP PLAN



ELEVATION
Looking South · Scale 3/16" = 1'-0"

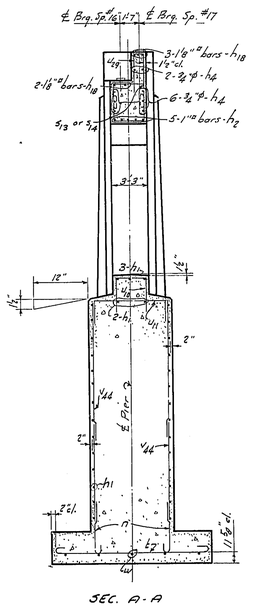


FOOTING PLAN

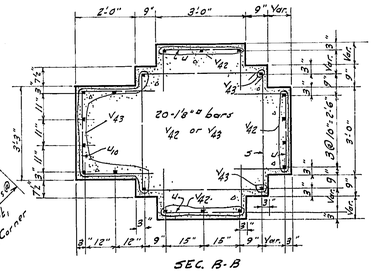


BARS S_{13} - S_{14}

BAR - U_{29}



SEC. A-A



SEC. B-B

BILL OF MATERIALS

Bar	No.	Size	Length	Shape
h_1	66	⅝"ϕ	15'-0"	
h_2	5	1"ϕ	21'-9"	
h_4	8	¼"ϕ	20'-6"	
h_{18}	5	1⅛"ϕ	36'-0"	
L	6	⅝"ϕ	6'-9"	
n	78	⅝"ϕ	5'-0"	
s	38	⅝"ϕ	17'-6"	
S_{13}	18	⅝"ϕ	11'-0"	
S_{14}	16	⅝"ϕ	12'-0"	
t	39	¾"ϕ	16'-6"	
t_1	28	¾"ϕ	9'-0"	
u	108	⅝"ϕ	7'-9"	
U_{10}	55	"	11'-0"	
U_{12}	28	"	15'-9"	
U_{11}	29	"	11'-0"	
U_{29}	21	"	10'-6"	
V_2	32	⅝"ϕ	5'-0"	
V_{42}	20	1⅛"ϕ	22'-8"	
V_{43}	20	1⅛"ϕ	23'-6"	
V_{44}	156	⅝"ϕ	11'-6"	
w	10	⅝"ϕ	20'-0"	
U_1	6	⅝"ϕ	9'-9"	
Class "A" Conc.			Cu. Yds.	326.6
Reinf. Bars			Lbs.	14070
Timber Piles (30'-0" lg.)			Lin. Ft.	1920
Timber Test Pile			Each	1
Cofferdam			Each	1
Cofferdam Excavation			Cu. Yds.	667

See Pier #1 for detail of bars n-L-s-t-t_1-u-U_1
" " #5 " " " " U_{10}
" " #6 - " " " h_2 - h_{18} - U_{12} - U_{11}

	COMPUTED	Leo Hanneup
	CHECKED	Harry P. Hallam
	DRAWN	R.S.H. - Sutter
	CHECKED	W.P.G.
	ASSEMBLED	
	CHECKED	

EXAMINED 7-1-50 19 5.
W. B. Hawkins
BRIDGE ENGINEER
PASSED E. L. Hurst
ENGINEER OF DESIGN
APPROVED F. M. Barker
CHIEF HIGHWAY ENGINEER

Rev. Pile Lengths - 9-5-51 - J.S.M.

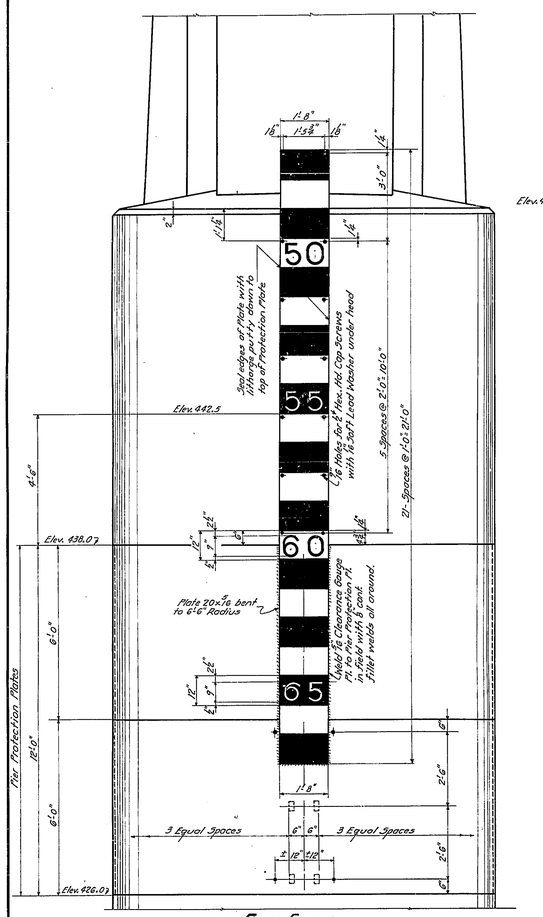
-PIER No. 16-
F.A. ROUTE 4 (~~SECONDARY~~)
SECTION 86-B
CASS-SCHUYLER CO'S
STA. 39+58

SUBARU MIRRORED CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

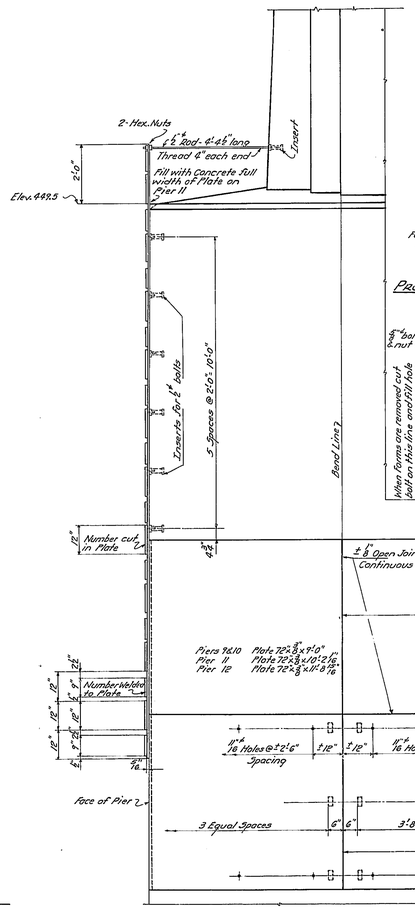
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass-Schuyler	31	24
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO 22
63 SHEETS



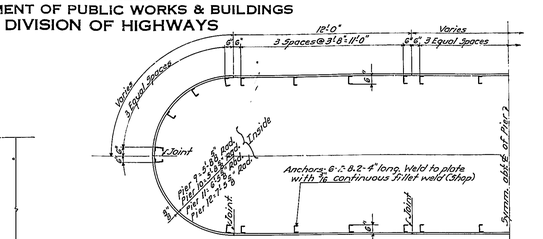
End Elevation

Showing details of Pier Protection Pls. and Clearance Gauge



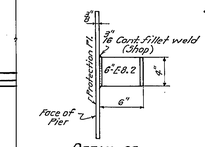
Part Side Elevation

Showing details of Pier Protection Plates & Clearance Gauge.
Note: A clearance gauge to be provided for each end of Pier 11 only.

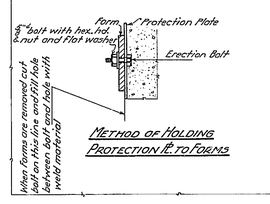


Half Plan of Pier Protection Plates

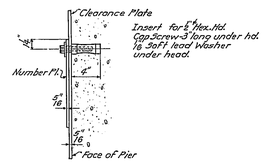
Showing Joint locations, position of anchors and radius of bends.



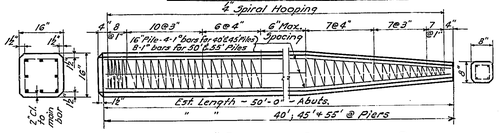
Detail of Protection Plate Anchor



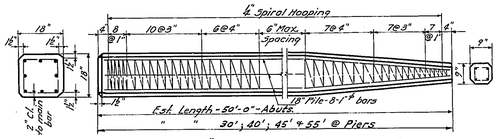
Method of Holding Protection Pl. to Forms



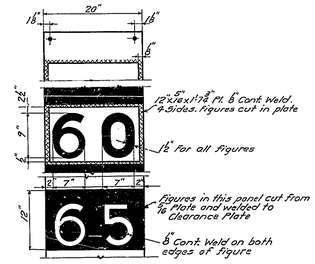
Method for Anchoring Clearance Pl. to Pier



Detail of 16" Precast Concrete Piles



Detail of 18" Precast Concrete Piles



Notes

All material for pier protection plate and clearance gauges except inserts, 6 - ⊏ - 8.2" anchors and as otherwise noted, shall be wrought iron A.S.T.M. Designation A42. Weight of wrought iron is included in Bill of Material as "Structural Steel". See Special Provisions for alternate material.
All metal in contact with concrete shall not be painted. Exterior surfaces shall be thoroughly sand blasted and painted as described in the Special Provisions.

Bill of Material - Section 86 B

ITEM		
Structural Steel	Lbs.	91,010

COMPUTED	F.T. Tiffany	EXAMINED	Oct 30 1951
CHECKED	J.A. Fraser		W. E. Hussey BRIDGE ENGINEER
DRAWN	W. M. Miller	PASSED	E. L. Shurtz ENGINEER OF DESIGN
CHECKED	J.A. Fraser	APPROVED	F. M. Barker CHIEF HIGHWAY ENGINEER
ASSEMBLED			
CHECKED			

Revised 9-5-51 - Pile Reinf. & Lengths - J.S.M.

Details of Concrete Piles and - Pier Protection Plates - F.A. Route 4 (Corrected) Section 86 B Cass-Schuyler Co's Sta. 39+58

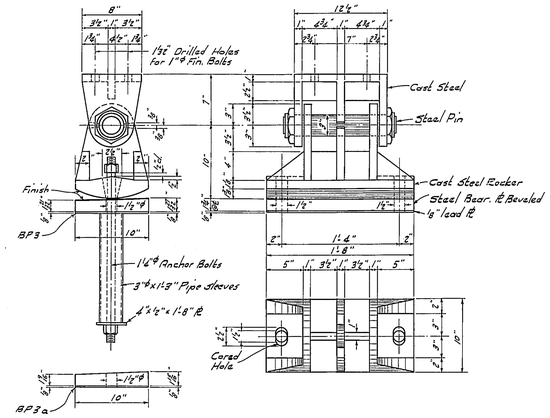
EDWARD BRUNNER & SON

FA Rte 4

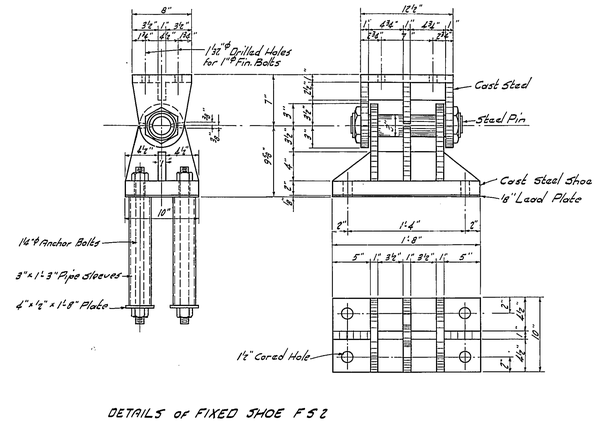
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA.4	86-B 86-E 86-F 86-P	Cass Schuyler	21 23 3 3	23 6 3 3
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 23
63 SHEETS



DETAILS OF EXPANSION SHOE E53

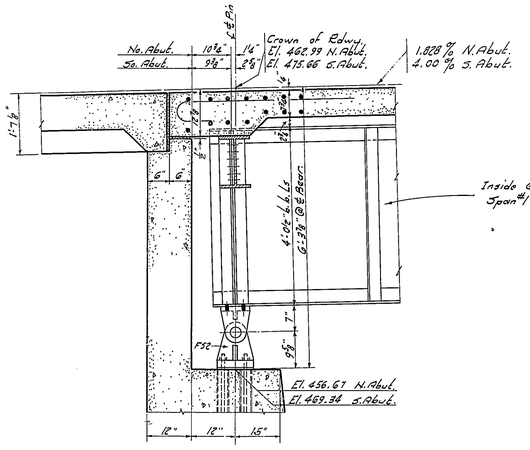


DETAILS OF FIXED SHOE FS2

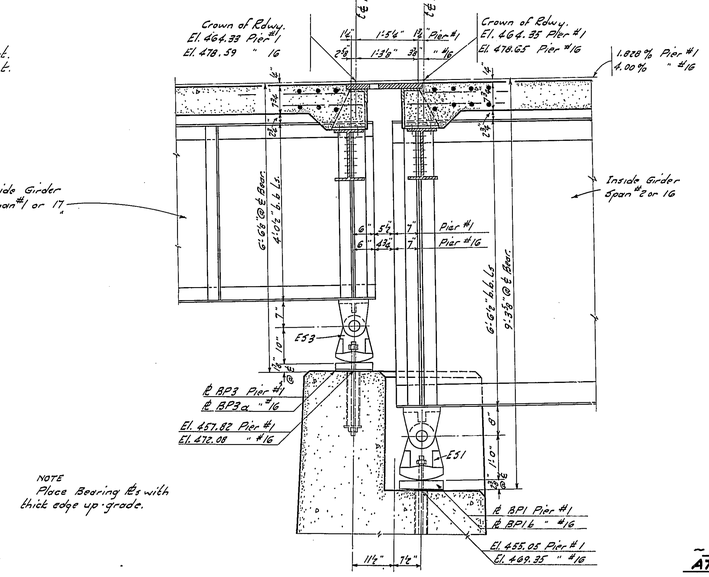
BILL OF MATERIAL FOR SPANS - 1 TO 8 & 14 TO 17 INCL.

	ITEM		SEC. 86-B	SEC. 86-E	SEC. 86-F	SEC. 86-P
*	Structural Steel	Lbs.	4740 ø	2,524,080	2,524,080	2,524,080
	Cast Steel	Lbs.	0	43,250	43,250	43,250

* Does not include Expansion Devices.
ø Anchor Bolt Assemblies.



SECTION AT ABUTMENTS



SECTION AT PIERS #1 & 16

NOTE
Place Bearing ℄s with thick edge up grade.

	COMPUTED	C. C. Wood
	CHECKED	J. A. Fraser
	DRAWN	E. C. W. Suiter
	CHECKED	J. A. F.

EXAMINED Jul 20 19 52.
W. S. Hinson
BRIDGE ENGINEER
PASSED E. C. Wood
ENGINEER OF DESIGN
APPROVED J. M. Bruhn
CHIEF HIGHWAY ENGINEER

~ BEARING DETAILS ~ AT ABUTS. & PIERS - 1 & 16

F.A. ROUTE 4 (~~SECONDARY~~) SECTION 86-B-E-F-P CASS - SCHUYLER CO'S STA. 39 + 58

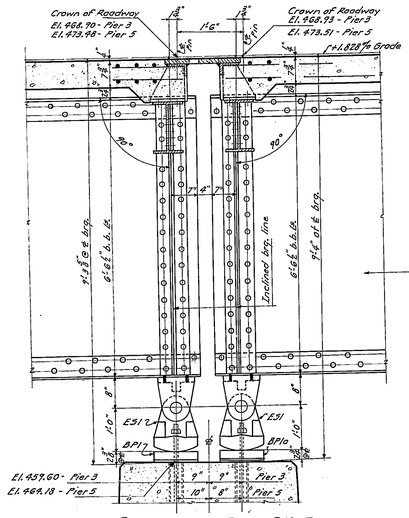
EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

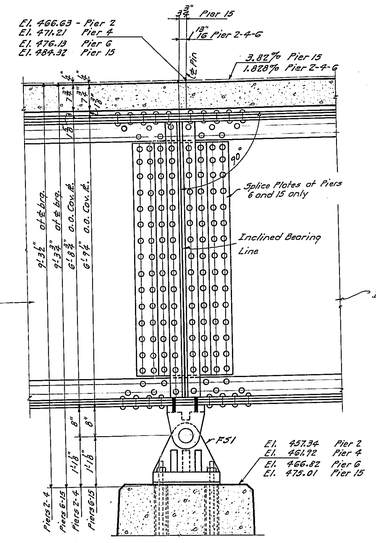
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86C-B		51	20
	86C-C	Cass	78	6
F.A. 4	86C-D	Schuyler	80	4
	86C-E		71	5
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		2

SHEET NO. 24
63 SHEETS

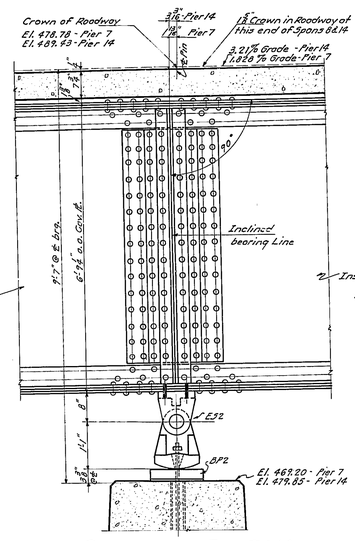
Note
During final adjustment if end of Span 9 or 13 is raised or lowered from normal position make the same adjustment in the elevation of the Concrete Slab on the end of Span 8 or 14 by varying height of Concrete Fillets. Make transition from ¾" crown to 1⅞" crown within a distance of 30'-0" from end of Girder.



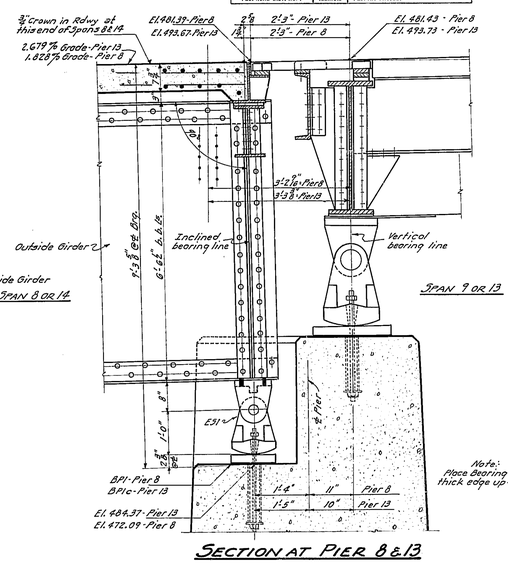
SECTION AT PIER 3 & 5



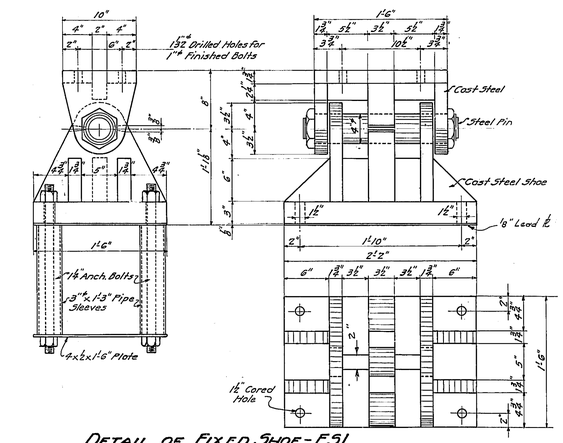
SECTION AT PIER 2-4-6 & 15



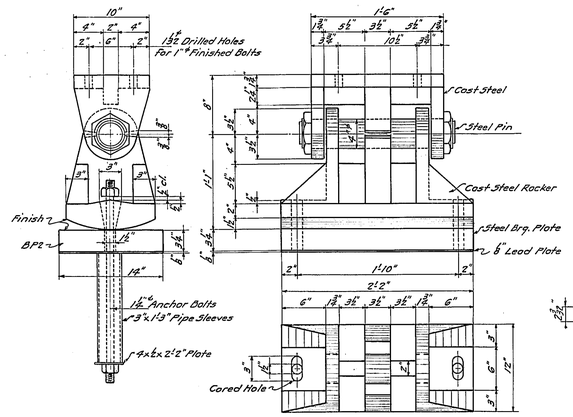
SECTION AT PIER 7 & 14



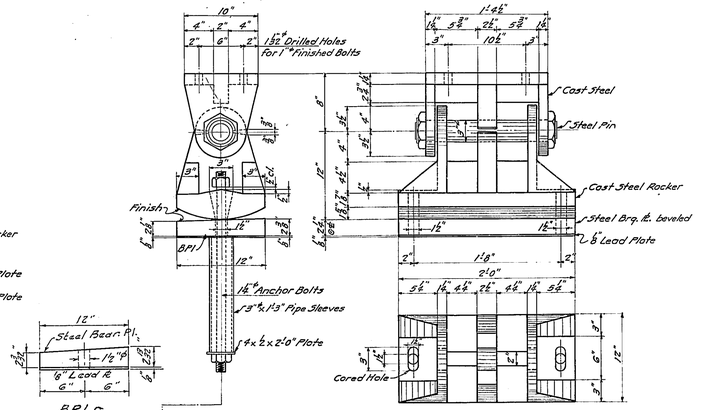
SECTION AT PIER 8 & 13



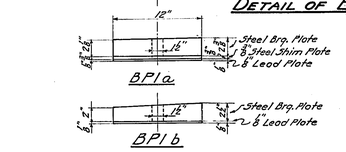
DETAIL OF FIXED SHOE - F51



DETAIL OF INTER. EXPANSION SHOE - E32



DETAIL OF END EXPANSION SHOE - E31



COMPUTED	C. C. Wood
CHECKED	J. A. Fraser
DRAWN	E. C. W. H. Hiller
CHECKED	J. A. F.

EXAMINED Dec 22 1958
U. E. Hawkins
BRIDGE ENGINEER
PASSED
DIRECTOR OF DEPT.
APPROVED
CHIEF HIGHWAY ENGINEER

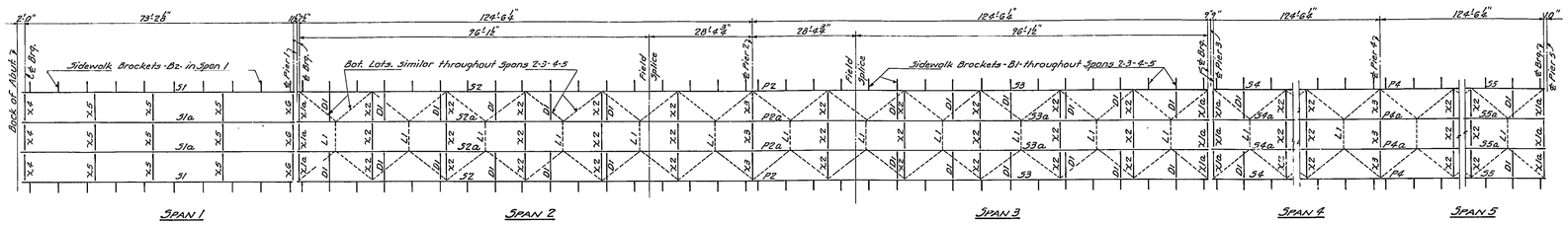
- BEARING DETAILS -
AT PIERS 2 TO 8; 13 TO 15
F.A. ROUTE 4 (SECTION 5)
SECTION 86-B-E-F-P-D
CASS - SCHUYLER CO'S
STA. 39+58

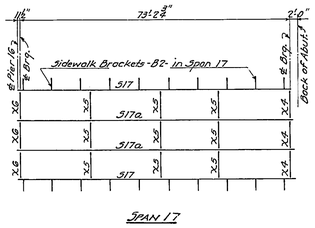
KUEHNE DIFFORM CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

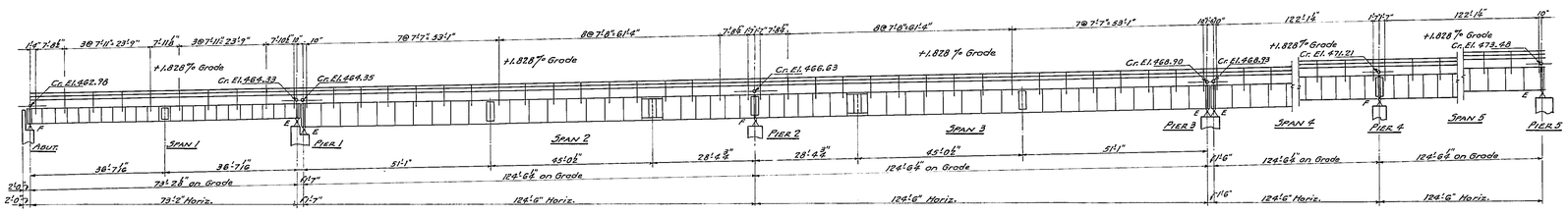
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86-E	Cass	45	19
F.A. 4	86-F	Schuyler	21	6
	86-P		37	6
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 25
63 SHEETS

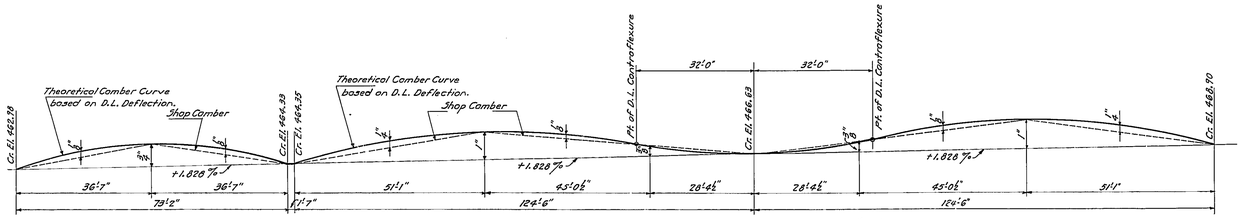




LAYOUT PLAN



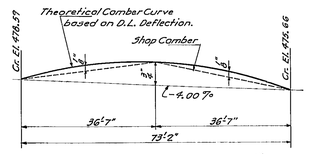
ELEVATION



CAMBER DIAGRAM SPAN # 1

CAMBER DIAGRAM SPANS # 2-3

SPANS # 4-# 5 SIMILAR



CAMBER DIAGRAM SPAN # 17

NOTE

Camber Girders in accordance with theoretical camber curve so that control points of bearings and splices will follow true grade line after dead load deflection occurs.

For Spans # 2-3-4-5 dead load deflections are calculated on the following basis for one Girder:-

Concrete Floor Slab	810 Lbs. per lin. Ft.
Structural Steel Girder	370 Lbs. per lin. Ft.
Total Dead Load per Girder	1180 Lbs. per lin. Ft.

On this basis about 31% of the dead load deflection should take place before the Concrete floor is poured.

For Spans # 1 and # 17 dead load deflections are calculated on the following basis for one Girder:-

Concrete Floor Slab	810 Lbs. per lin. Ft.
Structural Steel Girder	260 Lbs. per lin. Ft.
Total Dead Load per Girder	1070 Lbs. per lin. Ft.

On this basis about 24% of the dead load deflection should take place before the Concrete floor is poured.

COMPUTED	C. C. Wood	
CHECKED	J. A. Fraser	
DRAWN	E. C. W.	H. Miller
CHECKED	J. A. F.	

EXAMINED 2-20 1951
W. S. Brown
BRIDGE ENGINEER

PASSED 2-21-51
ENGINEER OF DESIGN

APPROVED
CHIEF HIGHWAY ENGINEER

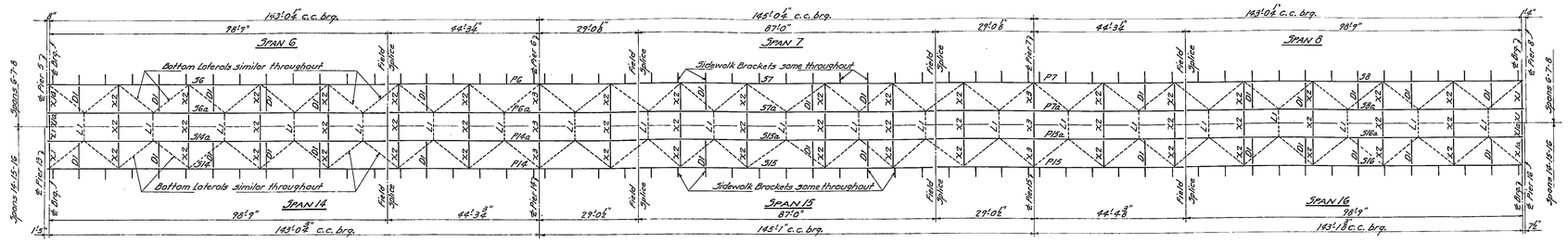
~ LAYOUT OF SPANS ~
1 TO 5 & 17

F.A. ROUTE 4 (~~SHEETROUTE 3~~)
SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39+58

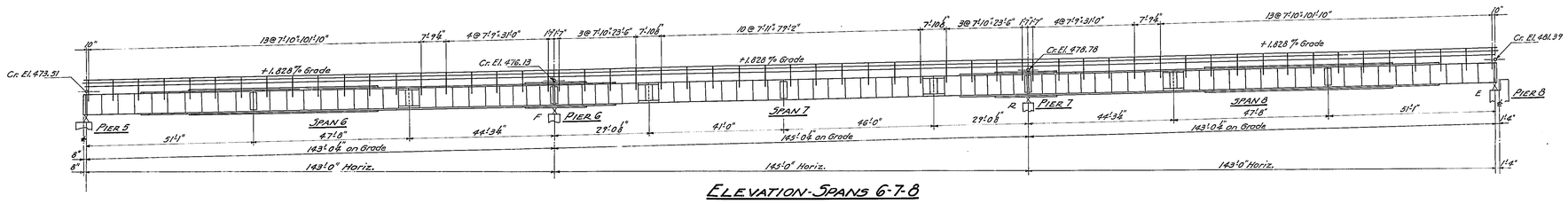
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	86-E	Cass	95	9
FA. 4	86-F	Schuyler	41	7
	86-P		17	7
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

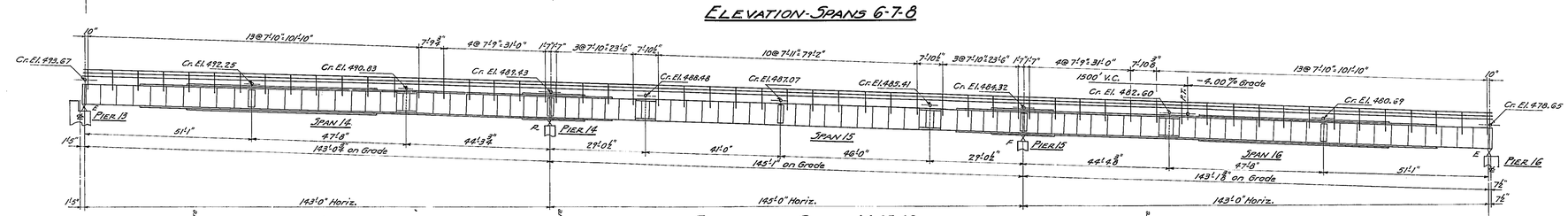
SHEET NO. 26
63 SHEETS



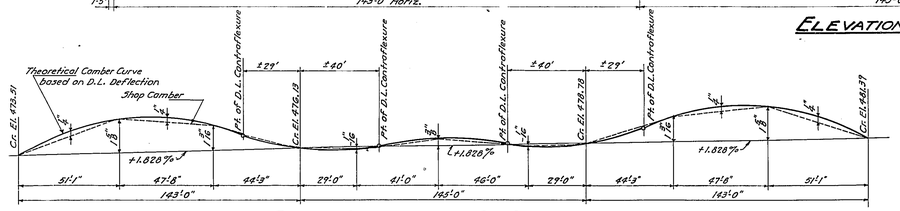
LAYOUT PLAN



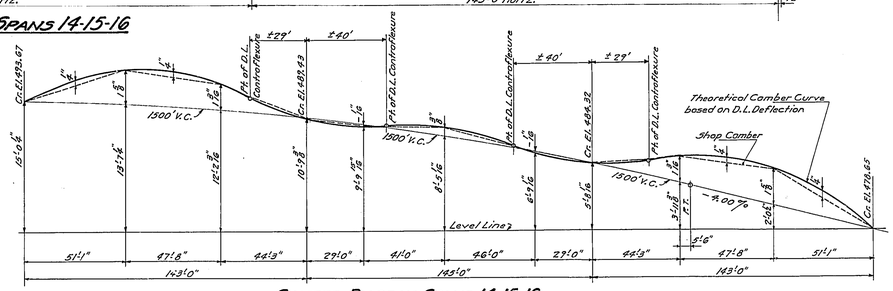
ELEVATION-SPANS 6-7-8



ELEVATION-SPANS 14-15-16



CAMBER DIAGRAM SPANS 6-7-8



CAMBER DIAGRAM SPANS 14-15-16

	COMPUTED	C.C. Wood	
	CHECKED	J.A. Fraser	
	DRAWN	C.C.W.	M. Miller
	CHECKED	J.A.F.	

EXAMINED Dec. 1, 1955
U. W. Hurley
BRIDGE ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

NOTE

Camber Girders in accordance with Theoretical Camber Curve and gradient curve so that central points of bearings and splices will follow true grade line after dead load deflection occurs.

Dead Load deflections are calculated on the following basis for one girder:-

Concrete Floor Slab	810 Lbs. per lin. Ft.
Structural Steel Girder	420 Lbs. per lin. Ft.
Total Dead Load per Girder	1230 Lbs. per lin. Ft.

On this basis about one third of the dead load deflection should take place before the concrete floor is poured.

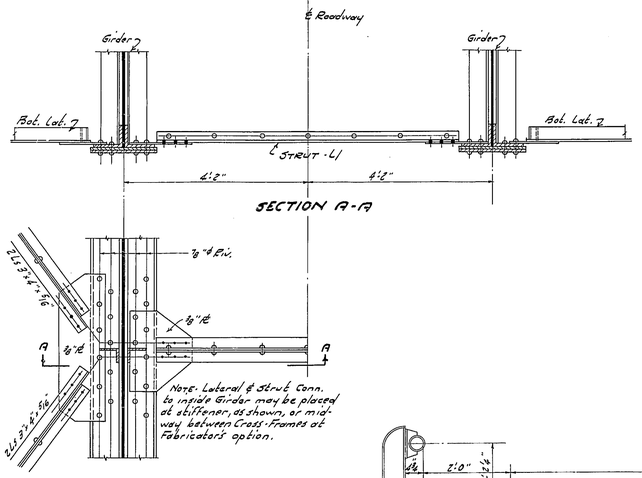
- LAYOUT OF SPANS -
6 TO 8 & 14 TO 16

F.A. ROUTE 4 (~~SECTION 86-E~~)
SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39+58

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

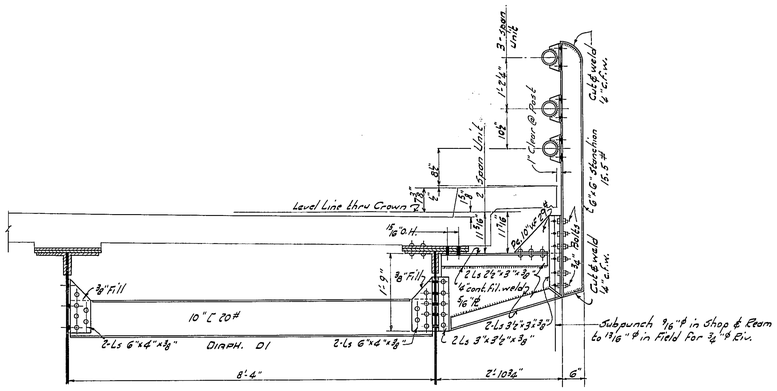
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86-E		16	1
	86-F		46	16
FA. 4	86-P	Cass Schuyler	47	37
	86-D		37	8
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT.		

SHEET NO 27
63 SHEETS

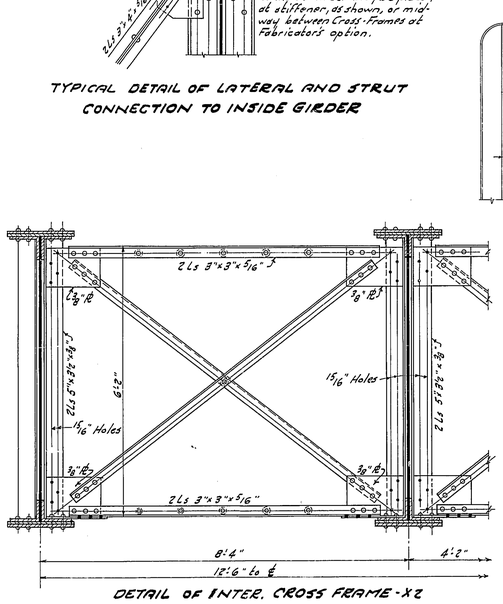


SECTION A-A

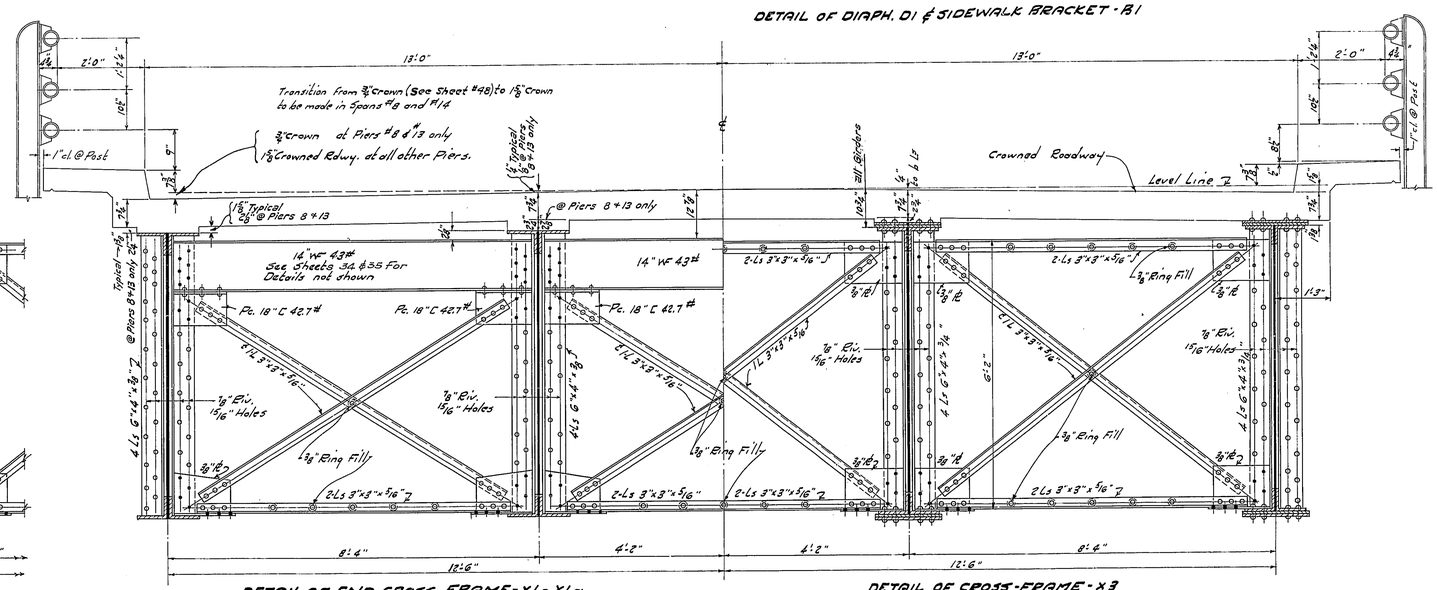
TYPICAL DETAIL OF LATERAL AND STRUT CONNECTION TO INSIDE GIRDER



DETAIL OF DIAPH. D1 & SIDEWALK BRACKET - B1



DETAIL OF INTER. CROSS FRAME - X2



DETAIL OF END CROSS-FRAME - X1 - X1a
AT PIERS #1, #3, #5 & #8, #13 & 16

DETAIL OF CROSS-FRAME - X3
AT PIERS #2, 4, 6, 7, 14, 15

COMPUTED	C. C. Wood
CHECKED	J.A. Fraser
DRAWN	C.C.W. Jr.
CHECKED	J.A.F.

EXAMINED Dec. 20, 1951
H. E. Kenney BRIDGE ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED
Frank M. Thompson CHIEF HIGHWAY ENGINEER

Note. Rivets 3/4" ϕ, Open Holes 13/16" ϕ, unless noted.

Revised for 9" curb 9-5-51 H.P.G.

~ CROSS FRAME, BRACKET ~
AND LATERAL DETAILS

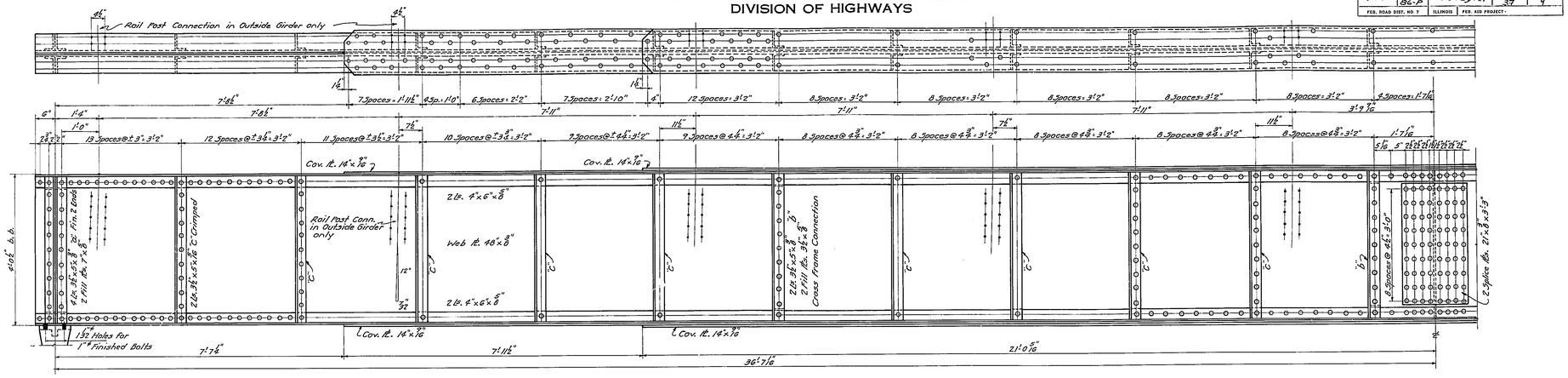
F.A. ROUTE 4 (S.B.I. ROUTE 3)
SECTION 86-E-F-P-D
CASS-SCHUYLER CO'S
STA. 39 + 58

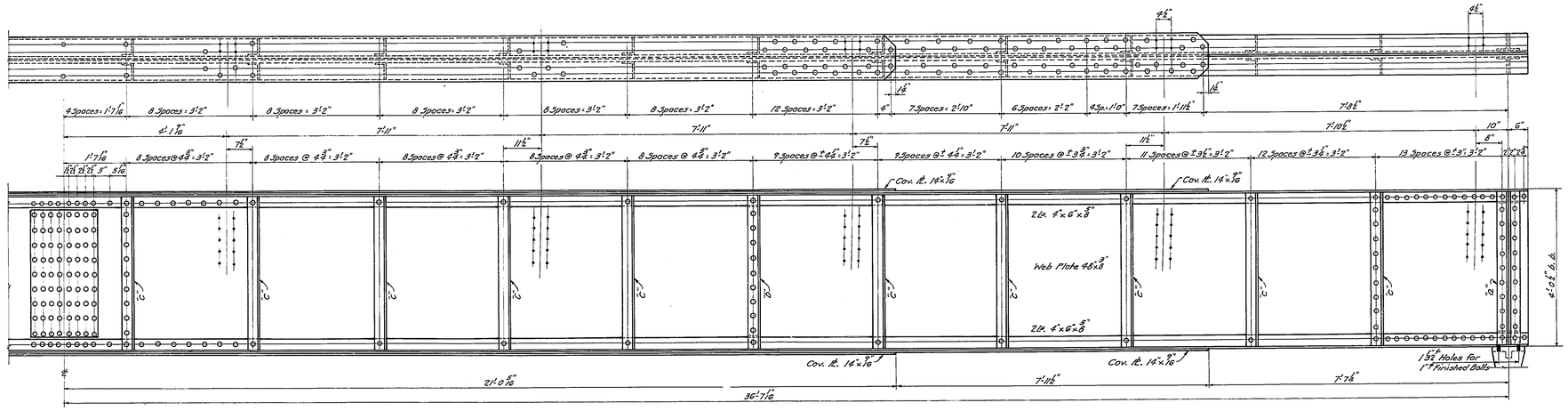
RUGGLES-DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86-E	Cass -	45	11
FA. 4	86-F	Schuyler	41	9
	86-P		37	9
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 28
63 SHEETS





DETAIL OF GIRDER S1

GIRDER S17 IS SIMILAR

COMPUTED	C. C. Wood	EXAMINED	Dec. 20 19 51
CHECKED	J.A. Fraser		W. B. Bruce
DRAWN	C.C.W. M. Miller	PASSED	BRIDGE ENGINEER
CHECKED	J.A.F.		ENGINEER OF DESIGN
		APPROVED	CHIEF HIGHWAY ENGINEER

Note
Rivet spacing in Bottom Flange same as in Top Flange except for Bracket Connections.

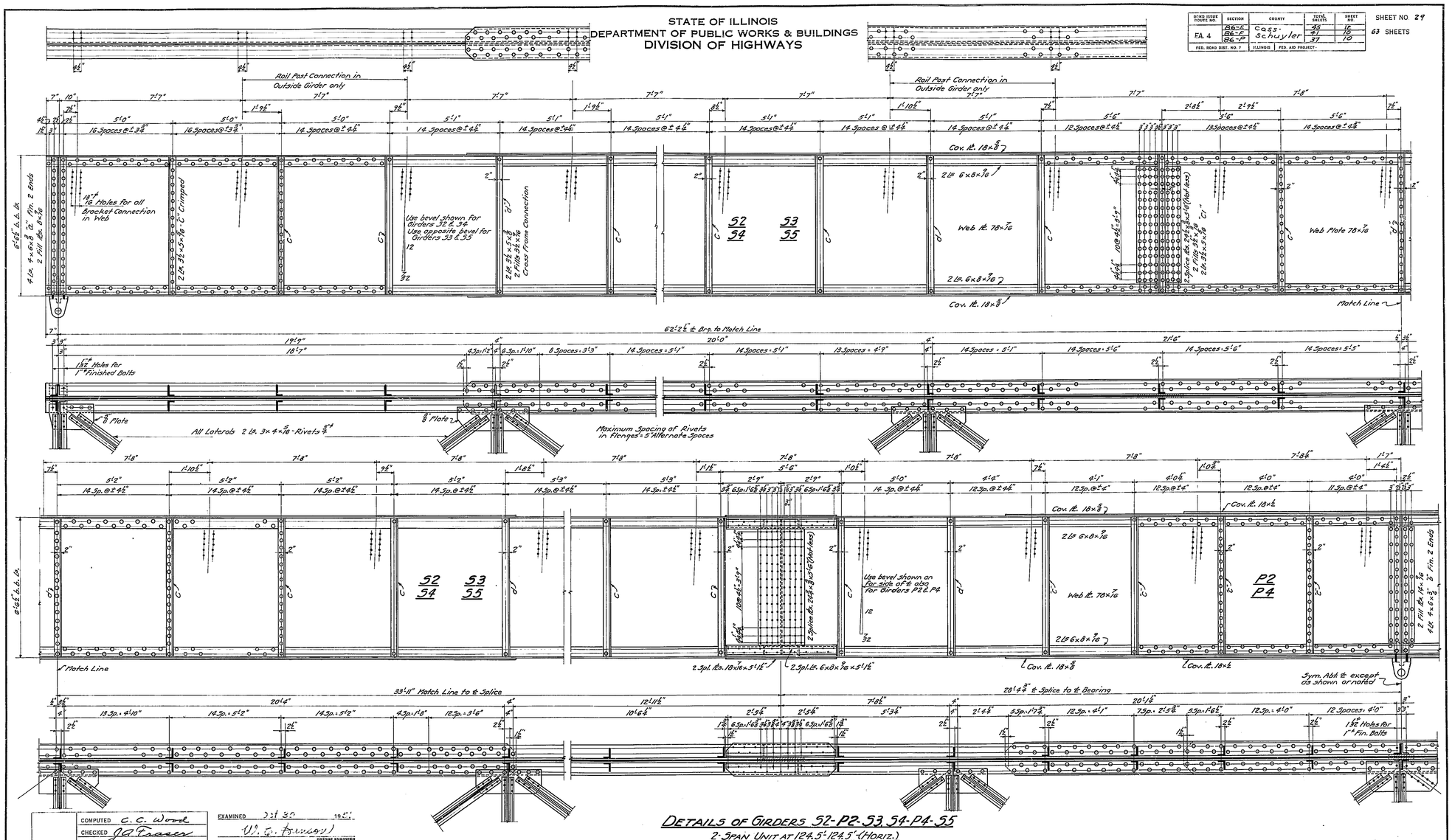
Rivets 7/8" Open Holes 7/8" unless noted.

- GIRDER DETAILS -
SPANS-1 & 17
F.A. ROUTE 4 (ALSO ROUTE 3)
SECTION 86-E-F-P
CASS - SCHUYLER CO'S
STA. 39+58

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

D'ND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86-E	Cass	25	15
FA. 4	86-F	Schuyler	21	16
	86-P		17	10
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT.		

SHEET NO. 27
63 SHEETS



DETAILS OF GIRDERS 52-P2-53-54-P4-55
2-SPAN UNIT AT 124.5'-124.5' (HORIZ.)

COMPUTED	C. C. Wood
CHECKED	J.A. Fraser
DRAWN	C. C. W. H. Miller
CHECKED	J.A.F.

EXAMINED Jan 30 1935
U. S. Bureau
BRIDGE ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

7/8" Rivets, 15/16" Holes except as noted.

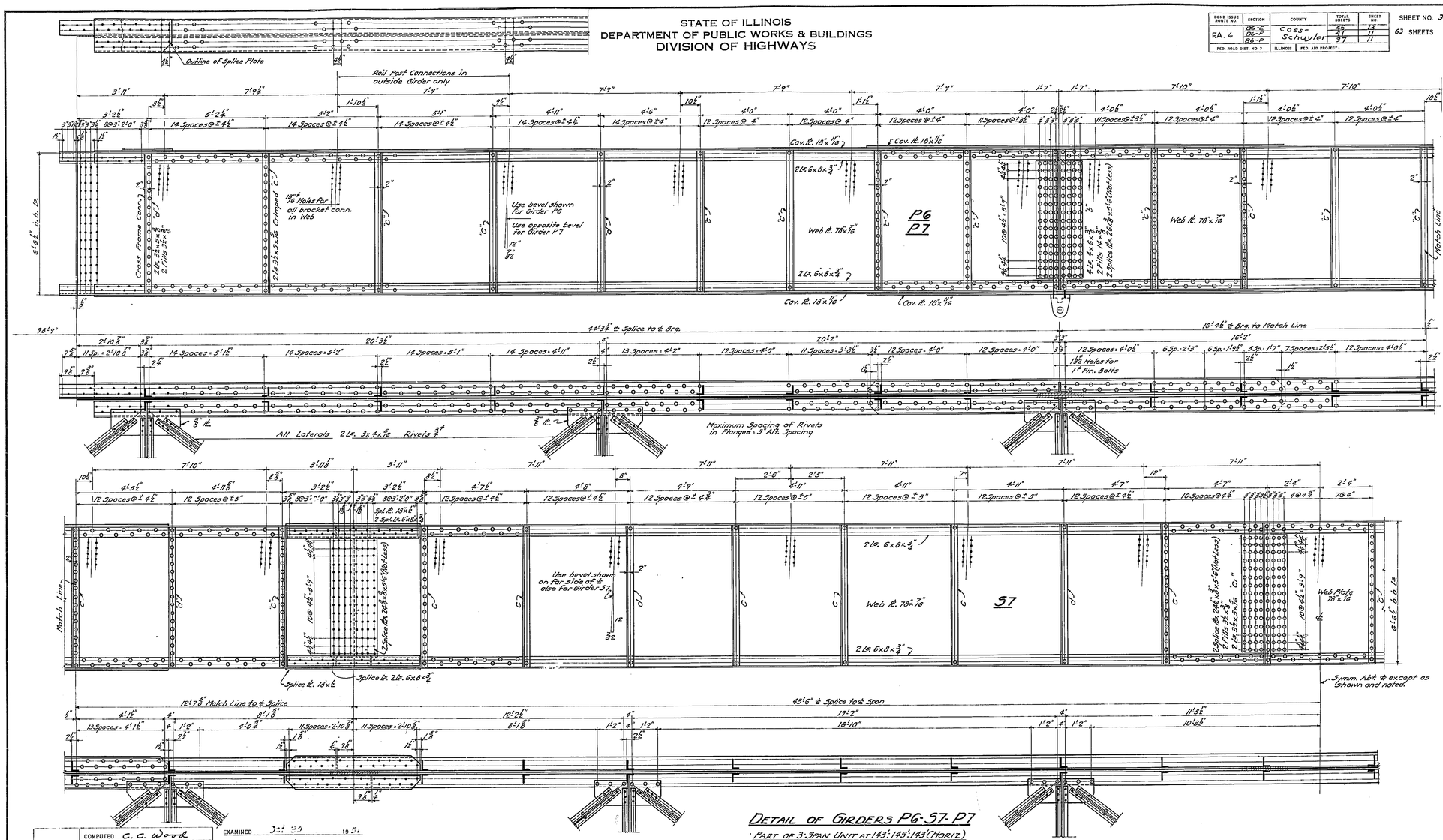
~ GIRDER DETAILS ~ 2-SPAN UNIT ~
F.A. ROUTE 4 (S.B. ROUTE 3)
SECTION 86-E-F-P
CASS - SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86-E		46	13
FA. 4	86-F	Cass-Schuyler	41	11
	86-P		37	11
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 30
63 SHEETS



COMPUTED	C. C. Wood
CHECKED	J. A. Fraser
DRAWN	E. C. W. H. Miller
CHECKED	J. A. F.

EXAMINED Dec 29 19 51
W. E. Hamm
BRIDGE ENGINEER
PASSED E. E. Hedges
ENGINEER OF DESIGN
APPROVED F. H. Bowman
CHIEF HIGHWAY ENGINEER

DETAIL OF GIRDERS P6-57-P7

(PART OF 3-SPAN UNIT AT 143'-145'-143' (HORIZ.)
GIRDERS P14-S15-P15 ARE SIMILAR.

Rivets 7/8" ℄ Open Holes 1 1/16" ℄ unless noted.

~GIRDER DETAILS~ 3-SPAN UNIT ~

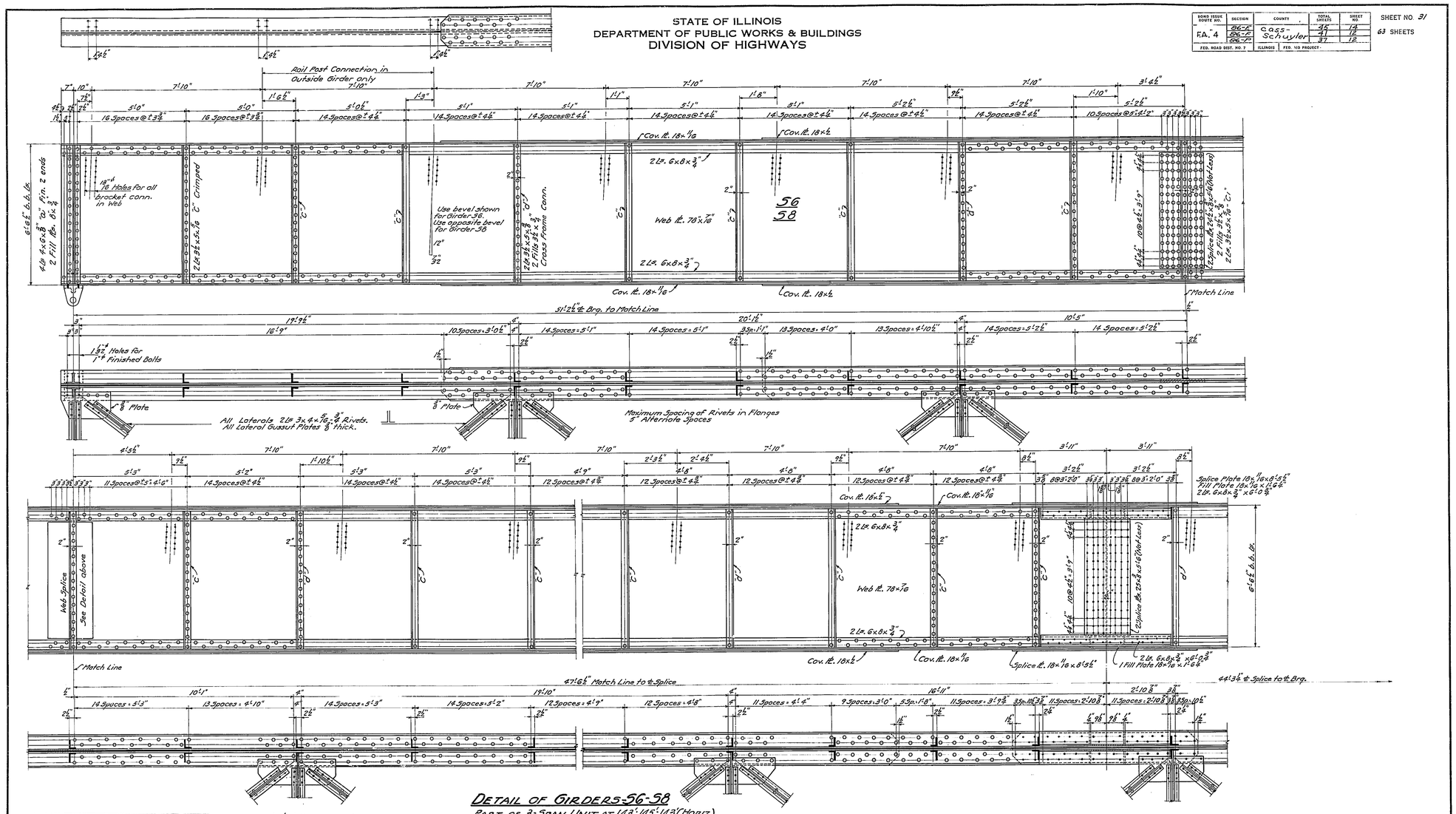
F.A. ROUTE 4 (~~SEC. ROUTE 3~~)
SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-E	Cass-Schuyler	45	14
	86-F		41	12
	86-P		37	12
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 31
63 SHEETS



COMPUTED	C. C. Wood
CHECKED	J.A. Fraser
DRAWN	C. C. W. M. Miller
CHECKED	J.A.F.

EXAMINED Oct. [illegible] 19[illegible]
W. G. Hawley, BRIDGE ENGINEER
PASSED [illegible], ENGINEER OF DESIGN
APPROVED [illegible], CHIEF HIGHWAY ENGINEER

DETAIL OF GIRDERS 56-58

PART OF 3-SPAN UNIT AT 143'-145'-143' (HORIZ.)
GIRDERS 514-516 ARE SIMILAR

Rivets ⅞" Open Holes 15/16", unless noted.

~ GIRDER DETAILS - 3-SPAN UNIT ~
F.A. ROUTE 4 (~~ALT. ROUTE~~)
SECTION 86-E-F-P
CASS - SCHUYLER CO'S
STA. 39 + 58

EUGENE DIETZGEN CO.

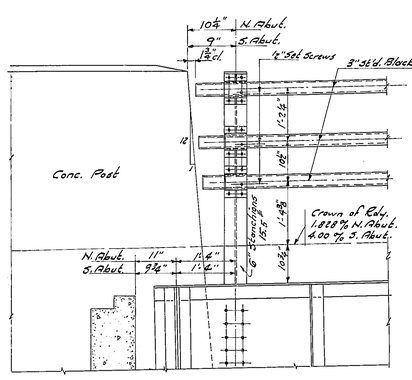
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
FA. 4	86-E	Cass-	45	12
	86-F	Schuyler	41	13
	86-P		37	13

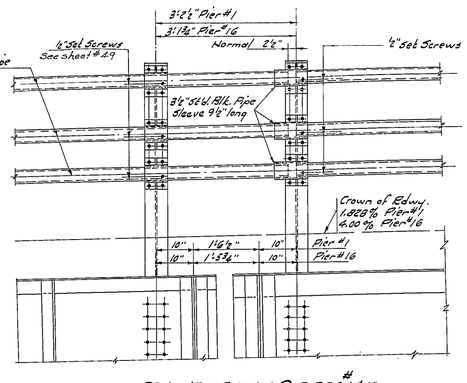
FED. ROAD DIST. NO. 7 — ILLINOIS — FED. AID PROJECT —

SHEET NO 32
63 SHEETS

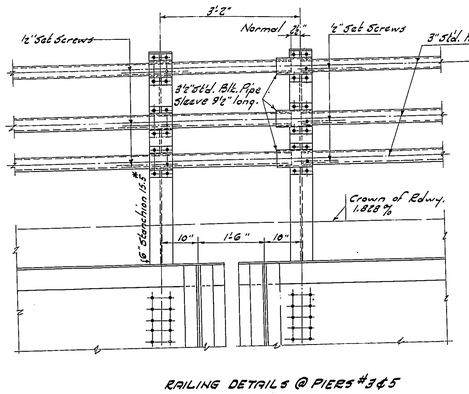
Note: For Details not shown see Sheets 25 & 26



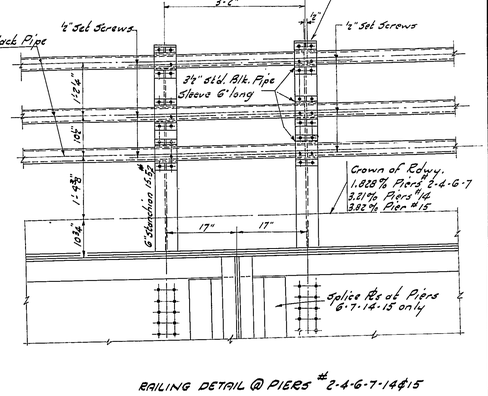
RAILING DETAILS @ ABUTMENTS



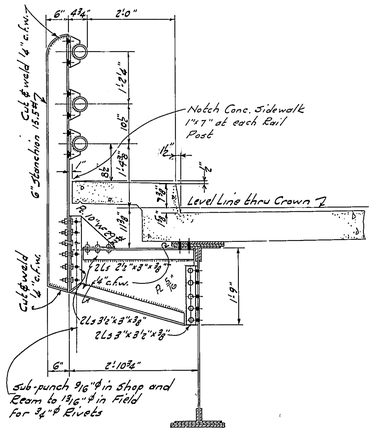
RAILING DETAILS @ PIERS #1 & 16



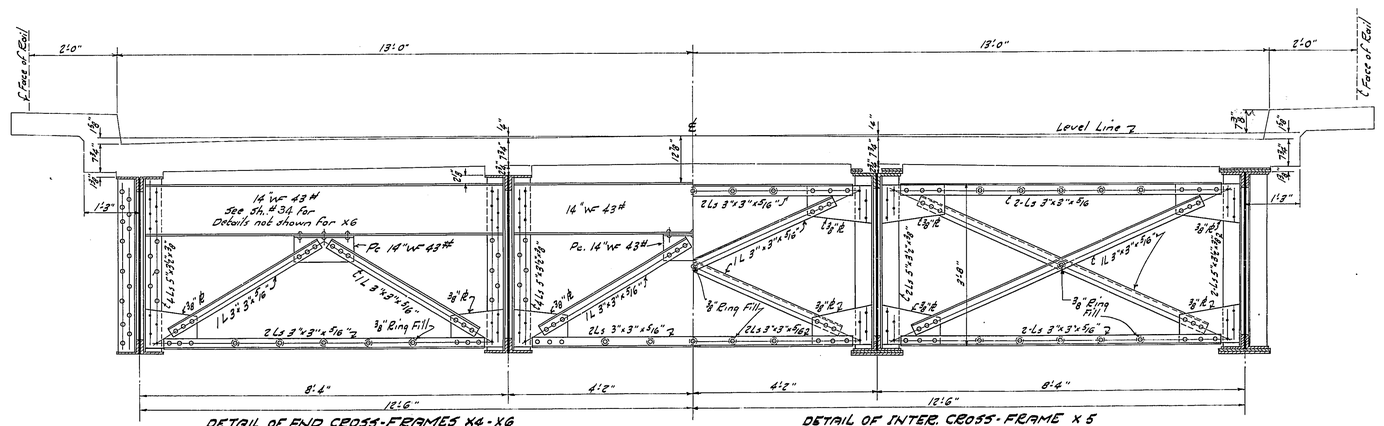
RAILING DETAILS @ PIERS #3 & 5



RAILING DETAIL @ PIERS #2-4-6-7-14 & 15



DETAIL OF SIDEWALK BRACKET B 2
SPANS #1 & 17



DETAIL OF END CROSS-FRAMES X4-X6
SPANS #1 & 17

DETAIL OF INTER. CROSS-FRAME X 5
SPANS #1 & 17

COMPUTED	C. C. Wood	
CHECKED	J. A. Fraser	
DRAWN	C. C. W.	Sulzer
CHECKED	JAF	

EXAMINED Oct. 20 19 51
W. B. Fawcett
BRIDGE ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

Revised for 9' curb H.P.G. 9-5-51

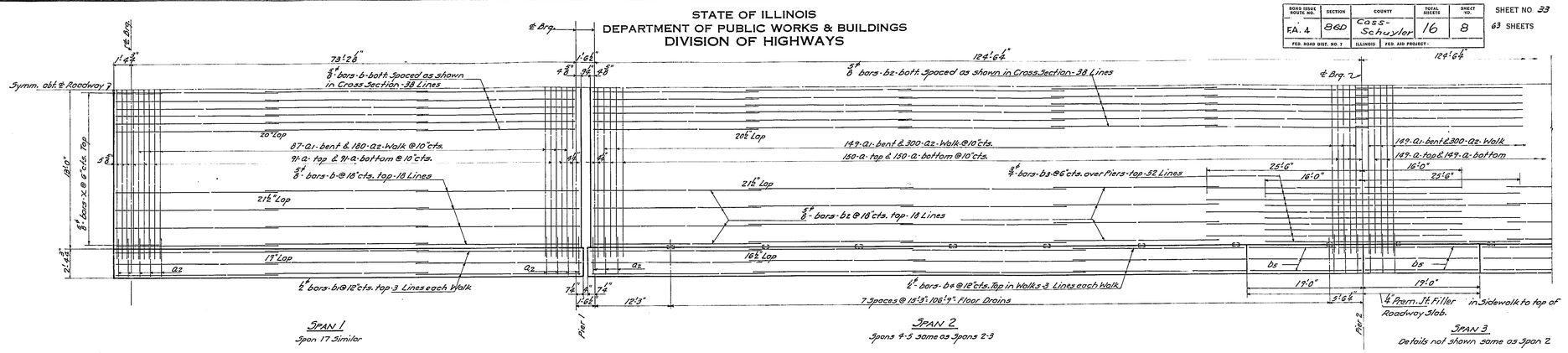
~ DETAILS OF RAILING, CROSS FRAMES ~ AND BRACKET
F.A. ROUTE 4 (SECT'N ROUTE NO.)
SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39 + 58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 4	86D	Cass-Schuyler	16	8
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

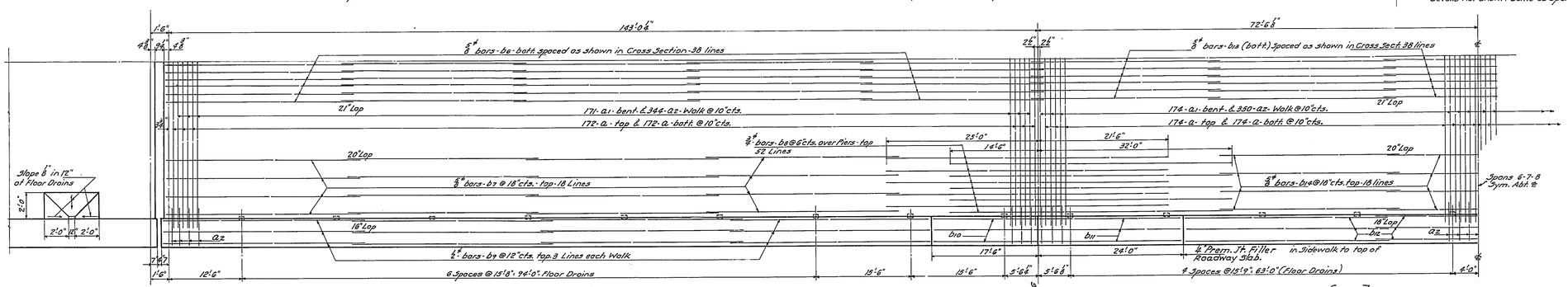
SHEET NO. 33
63 SHEETS



SPAN 1
Span 17 Similar

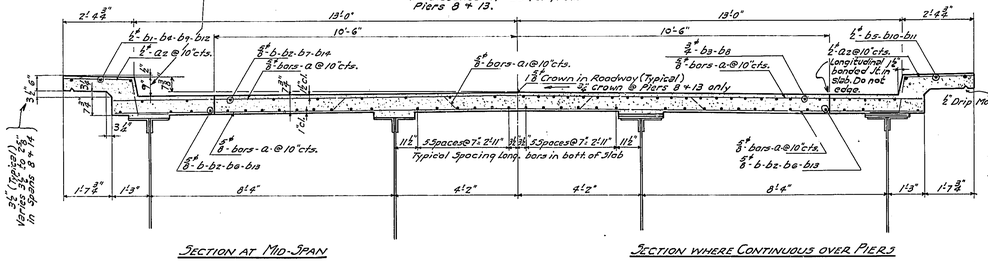
SPAN 2
Spans 4-5 same as Spans 2-3

SPAN 3
Details not shown same as Span 2

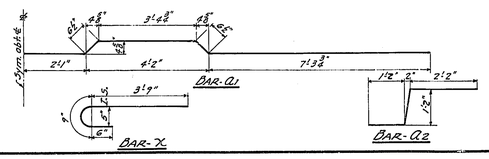


SPAN 6
Span 8 Similar

SPAN 7
Spans 14-15-16 Similar to Spans 6-7-8



SECTION AT MID-SPAN



SECTION WHERE CONTINUOUS OVER PIER 3

NUMBER OF BARS									
BAR	SPAN 1	SPAN 17	SPAN 2-3	SPAN 4-5	SPAN 6-7-8	SP. 14-15-16	TOTAL	SIZE	LENGTH	SHAPE
a	182	182	598	598	1036	1036	3632	⅝"	27'3"	
a1	87	87	278	278	516	516	1802	⅝"	27'9"	
a2	180	180	600	600	1038	1038	3636	½"	61'6"	
X	52	52					104	⅝"	5'0"	
b	168	168					336	⅝"	26'0"	
b1	18	18					36	½"	26'0"	
b2			524	524			1048	⅝"	26'6"	
b3			52	52			104	⅝"	41'6"	
b4			48	48			96	½"	27'6"	
b5			12	12			24	½"	18'9"	
b6					380	380	760	⅝"	30'3"	
b7					144	144	288	⅝"	31'3"	
b8					104	104	208	⅝"	66'6"	
b9					48	48	96	½"	32'6"	
b10					12	12	24	½"	17'3"	
b11					12	12	24	½"	23'9"	
b12					18	18	36	½"	33'3"	
b13					190	190	380	⅝"	30'9"	
b14					54	54	108	⅝"	24'9"	

	SPAN 1	SPAN 17	SPAN 2-3	SPAN 4-5	SP. 6-7-8	SP. 14-15-16	TOTAL
Class X Concrete Cu.Yd.	39.9	39.9	179.9	179.9	342.8	342.8	1130.2
Reinforcement Bars Lbs.	13,370	13,370	46,180	46,180	80,760	80,760	280,620

DETAIL OF FORMED DRAIN

NOTE:- Floor drains shall be spaced in the floor slab so as to miss Cross Frames and Piers.

COMPUTED	C. C. Wood
CHECKED	J.A. Fraser
DRAWN	E.C.W. H. Miller
CHECKED	J.A.F.

EXAMINED Oct 30 1951
(W. J. Hamesen) BRIDGE ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

Rev. Curb & Drain - 9-5-51 - H.L.O.

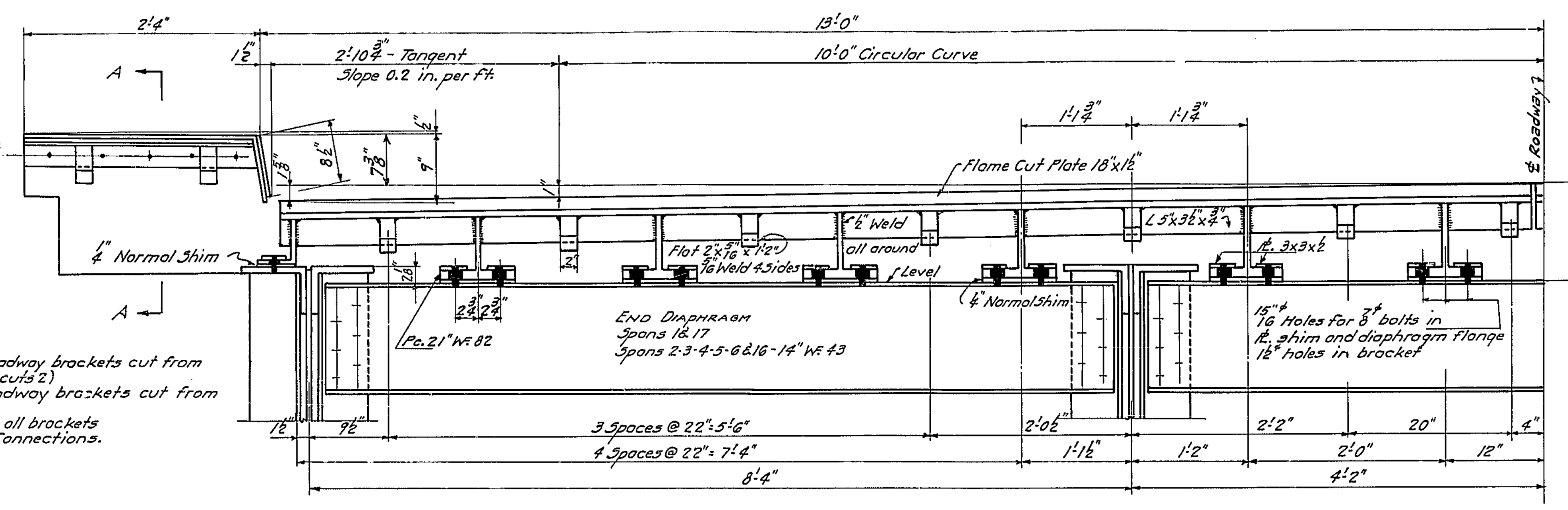
½" Prem. Jt. Filler added in transverse joints in S.W. 4-26-54-R.B.M.

~ SLAB DETAILS ~
F.A. ROUTE 4 (~~S.B.I. ROUTE 3~~)
SECTION 86-D
CASS-SCHUYLER CO'S
STA. 39+58

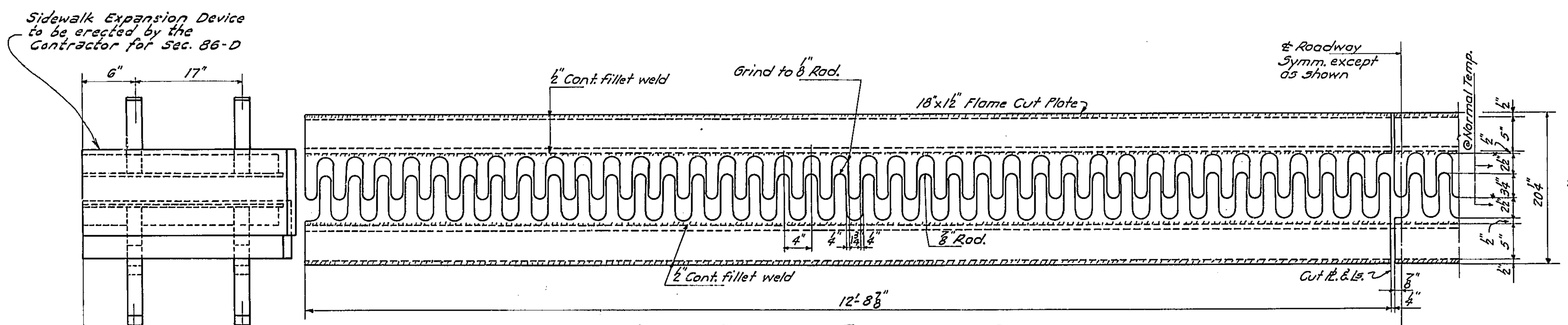
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-D	Cass-Schuyler	16	9
	86-E		95	72
	86-F		41	14
	86-P		37	14
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

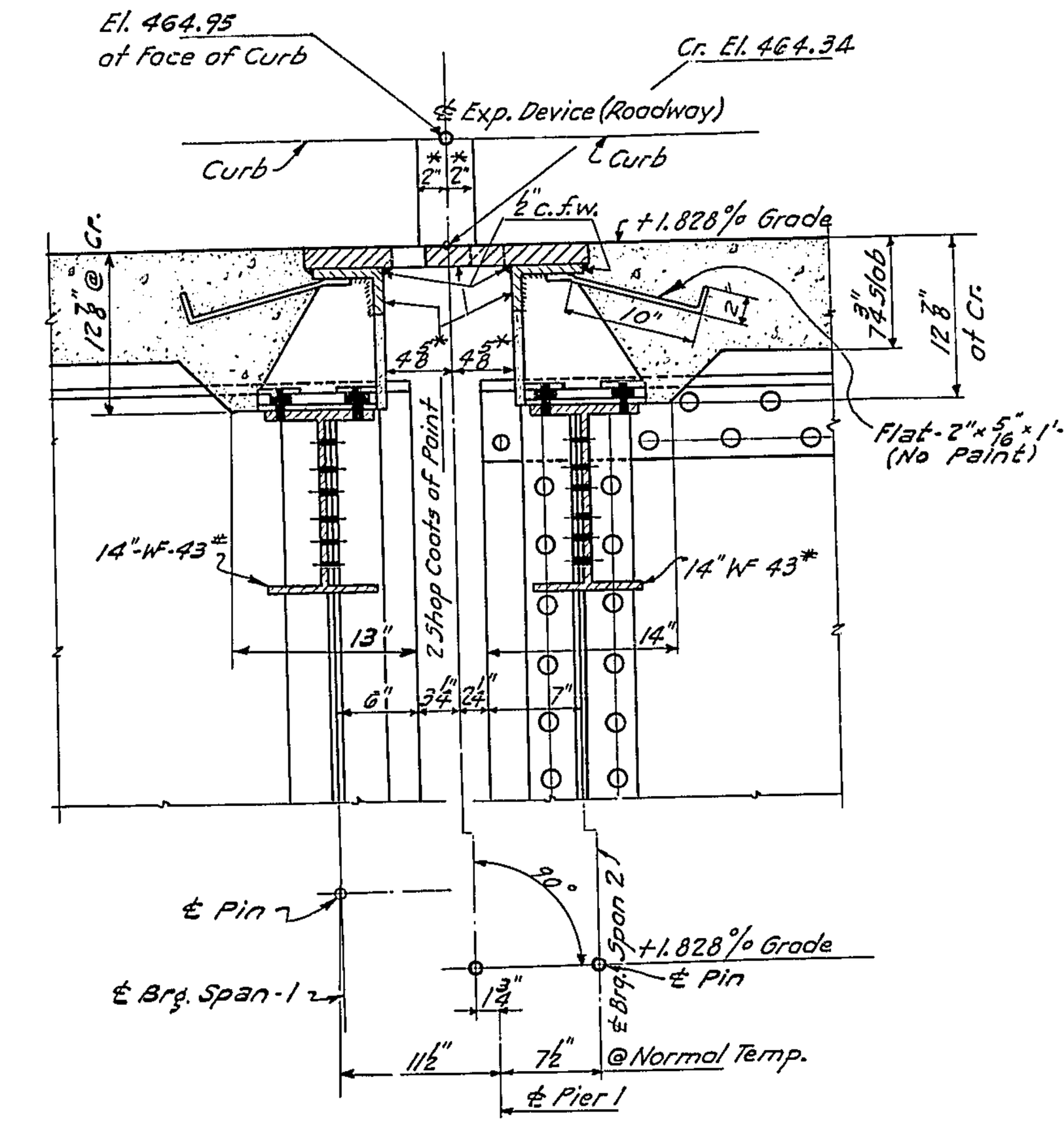
SHEET NO. 34
63 SHEETS



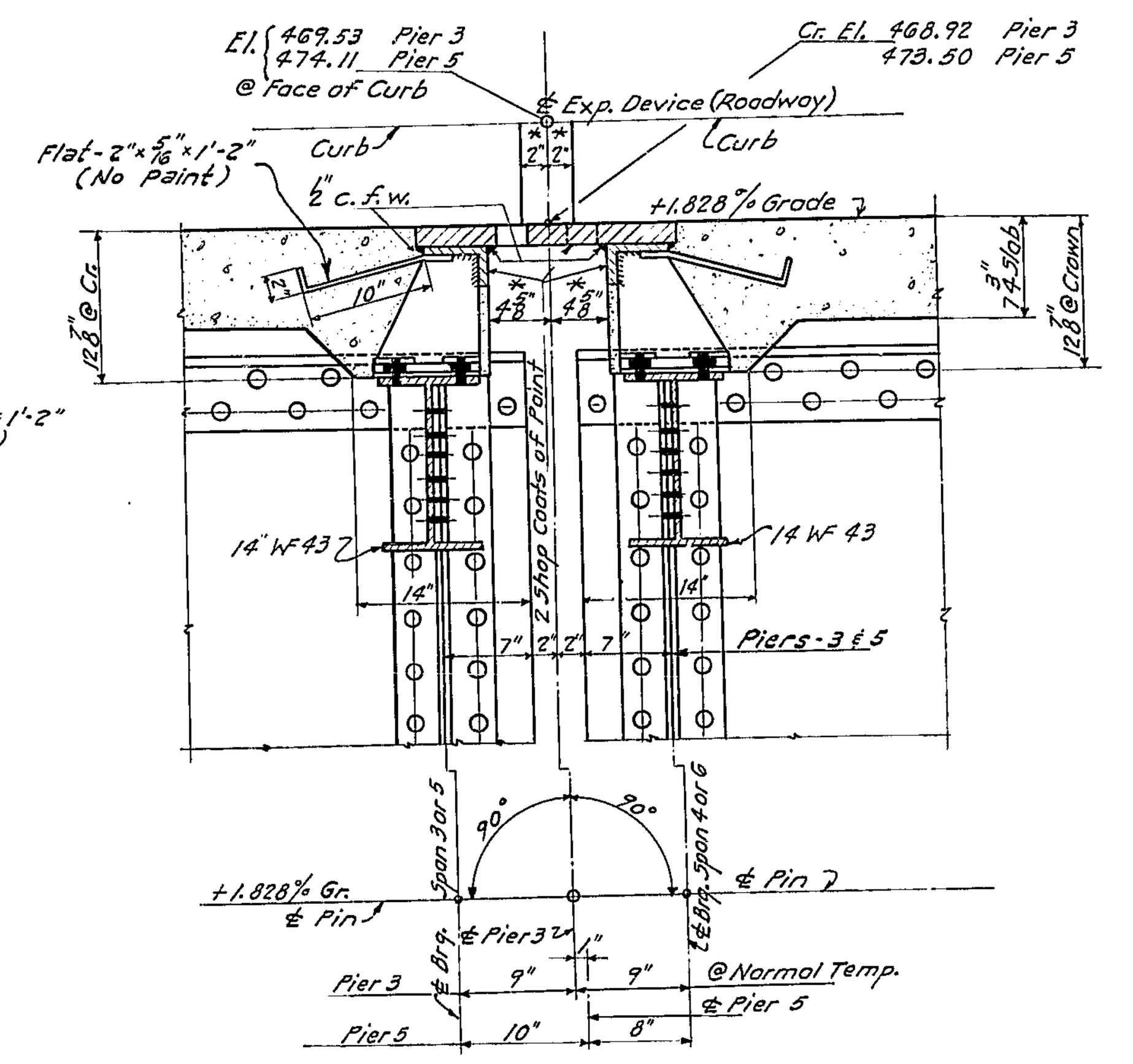
HALF ELEVATION OF EXPANSION DEVICE



HALF PLAN OF EXPANSION DEVICE

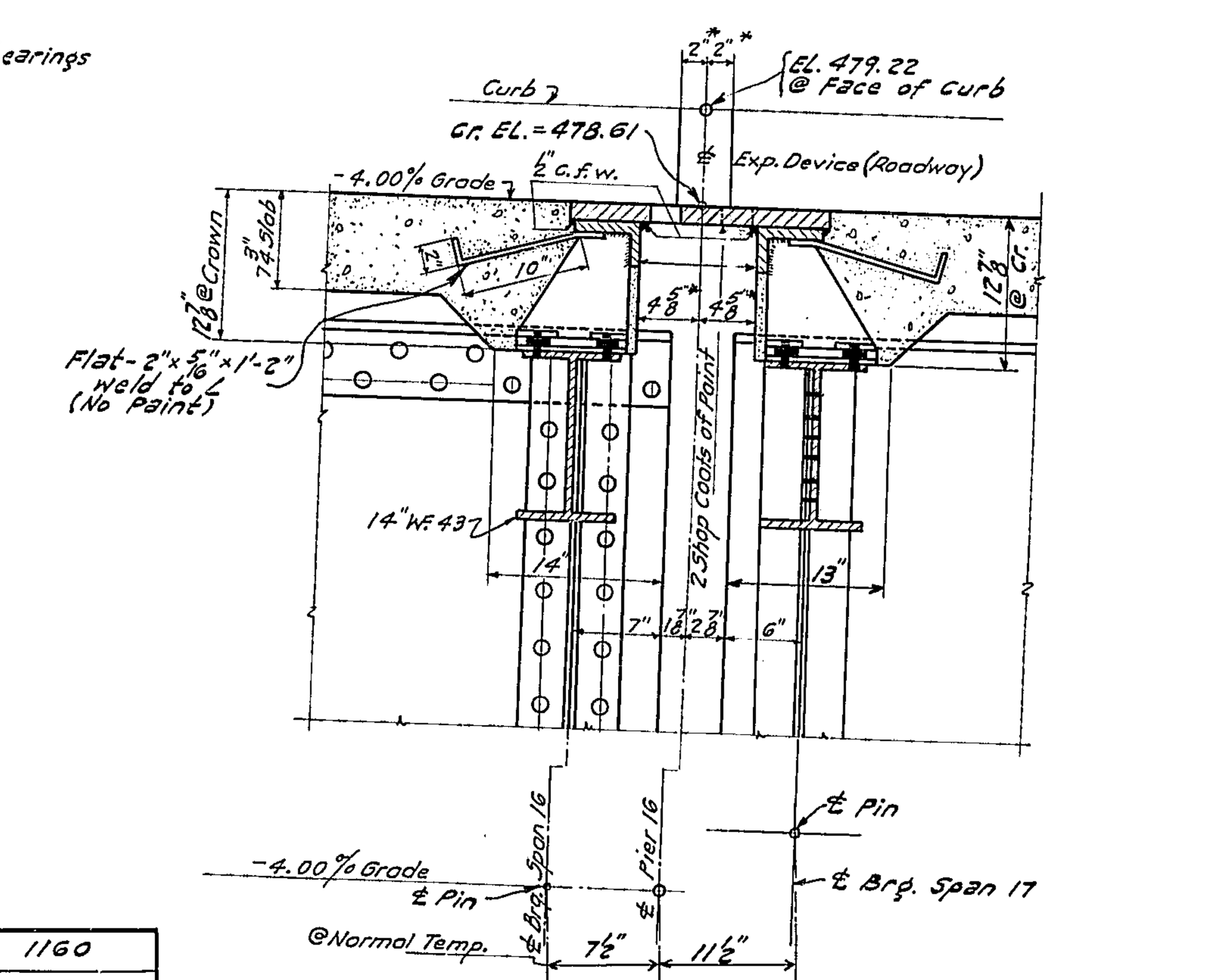


CROSS SECTION OF ROADWAY EXP. DEVICE AT PIER 1

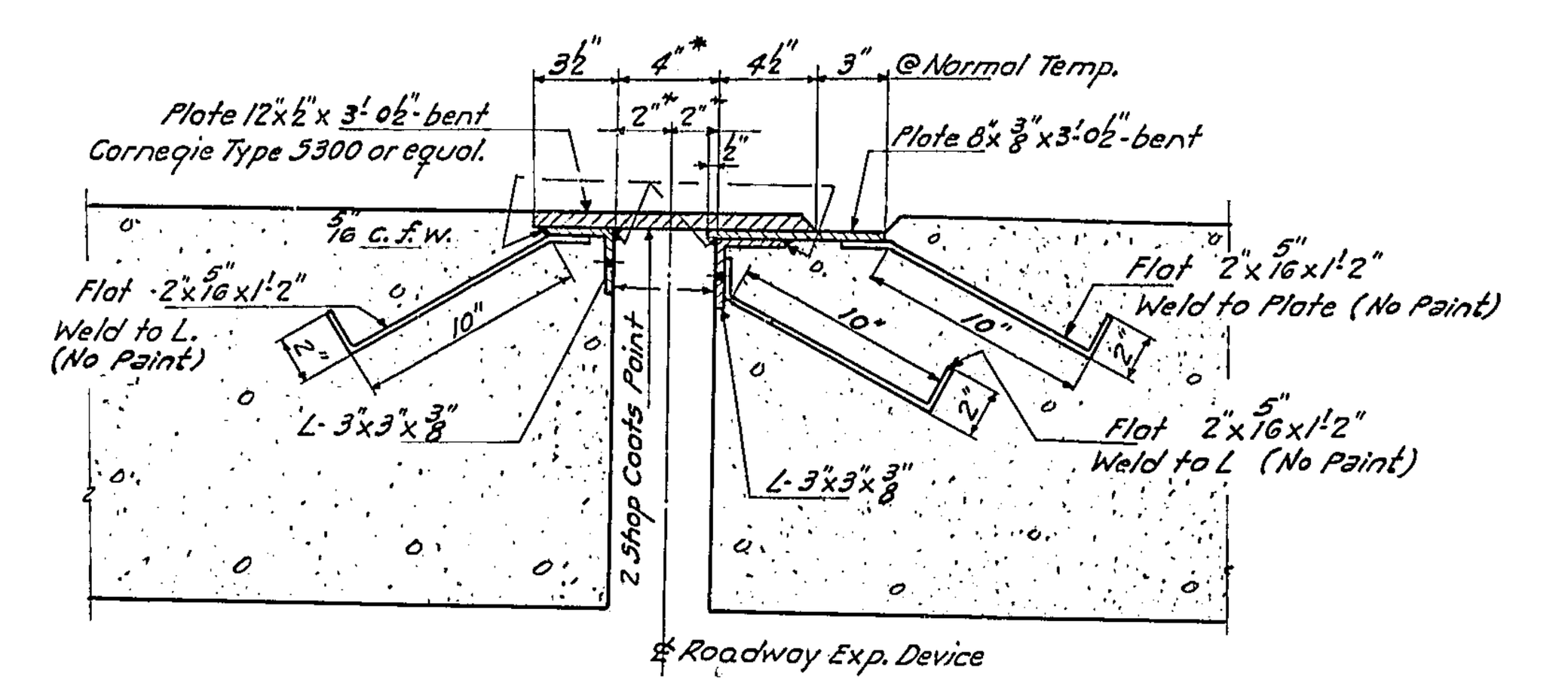


CROSS SECTION OF ROADWAY EXP. DEVICE AT PIERS 3 & 5

Note to Erector
* Decrease this dimension by ⅛" per 100' of bridge between fixed bearings for each 15° rise in temperature above a normal temperature of 50°. Increase this dimension by the same amount for each 15° drop in temperature below normal.



CROSS SECTION OF ROADWAY EXP. DEVICE AT PIER - 16



SECTION A-A

NOTES

Copper bearing steel shall be used in the following members of expansion devices:
18"x1½" Roadway Expansion Plates.
5"x3½"x¾" Roadway Angles.

The Roadway Expansion devices shall be in two pieces and shall be fabricated to fit the crown of the roadway.

The Roadway Expansion devices shall be assembled in the shop in their proper positions with the two adjacent spans in place and shall be left assembled for shop inspection.

Roadway expansion plates shall be flame cut ¼" and all turns shall be ⅞" radius.

The exposed surface of underside of roadway and sidewalk expansion plates and the inside vertical surface of angles shall be given two shop coats of red lead paint. Other surfaces shall be given one shop coat of red lead paint. Field paint same as for "Structural Steel."

Roadway expansion devices shall be fabricated with ¼" normal shims between brackets and end diaphragm or girder. Normal shims shall be made up of 1-⅛" and 2-1/16" plates.

Use Anco Lock Nuts or equal on all bolts.

BILL OF MATERIAL

Sec. 86-D	Structural Steel	Lbs.	1160
Sec. 86-E	Structural Steel	Lbs.	19,220
Sec. 86-F-P	Structural Steel	Lbs.	20,380

COMPUTED	[signature]
CHECKED	R.L. Smith
DRAWN	R.L.S. — M. Miller
CHECKED	[signature]
ASSEMBLED	
CHECKED	

EXAMINED Oct 30 195.
[signature] BRIDGE ENGINEER
PASSED [signature] ENGINEER OF DESIGN
APPROVED [signature] CHIEF HIGHWAY ENGINEER

~ EXPANSION DEVICES ~
AT PIERS-1-3-5 & 16
F.A. ROUTE 4 (~~S.B.I. ROUTE~~ 3)
SECTION 86-D-E-F-P
CASS-SCHUYLER CO'S
STA. 39+58

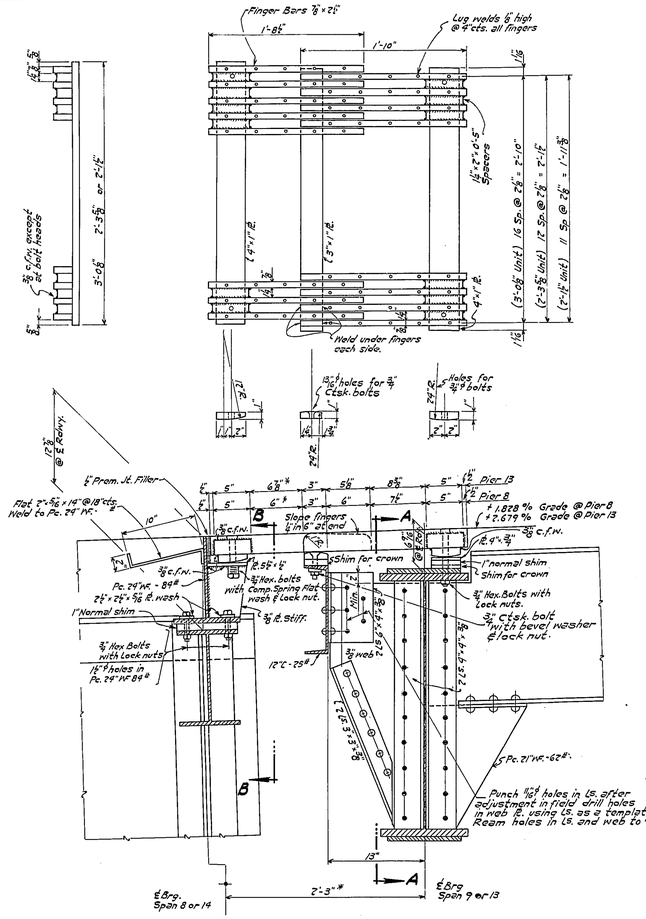
Rev. for 9" Curb - 9-5-51 - H.L.O.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

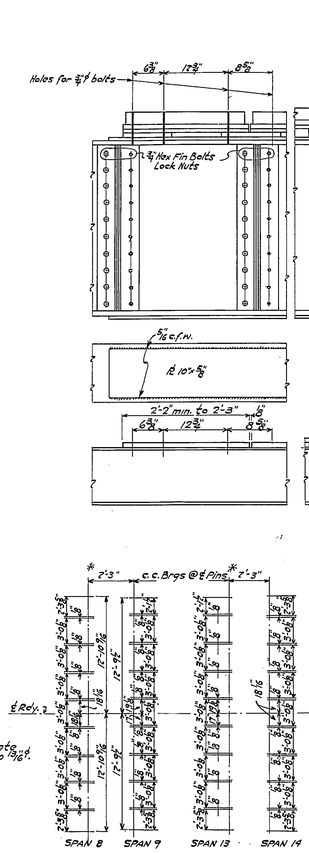
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86 D 86 E 86 F-P	Cass - Schuyler	16 41 37	10 12 10
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

SHEET NO 35
63 SHEETS



EXPANSION GUARD DETAILS

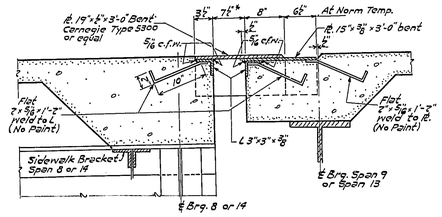
* At normal temperature 50° F. Decrease this dimension by 7/16 for each 15° rise in temperature above normal. Increase this dimension by 7/16 for each drop of 15° in temperature below normal.



LAYOUT FOR ROADWAY EXPANSION UNITS

All finger bars, spacer bars, 3"x1"ℓs, 4"x1"ℓs, 9"x⅜" ℓs. and 5½"x½" ℓs. shall be copper bearing steel.
All ¾" bolts, nuts washers and springs shall be sherardized.
All copper bearing steel and sherardized material shall be included for payment as Structural Steel. (Carbon)
Holes for connecting finger bar units shall be punched or drilled 1/16 and reamed to 15/16" in the shop with all units ℄ supports assembled in their proper positions. Matchmark and leave assembled for inspection.
1" normal shims shall be composed of 1-½", 1-¼", 1-⅛", and 2-1/16 plates.
¾" rivets shall be used except as shown.
Lock nuts shall be Anco or equal
Paint same as for Structural Steel.

VIEW B-B



SECTION THRU SIDEWALK EXPANSION DEVICE

STRUCTURAL STEEL IN EXPANSION GUARDS AT PIERS 8 & 13

Sec. 86 D	860 Lbs.
Sec. 86 E	17100 Lbs.
Sec. 86 F-P	17960 Lbs.

DESIGNED		
CHECKED	R. L. Smith	
DRAWN	J. H. Owen	K. Oehmke
CHECKED	Harry P. Graham	

Oct 30 1951

EXAMINED W. E. Hansen BRIDGE ENGINEER

PASSED ENGINEER OF DESIGN

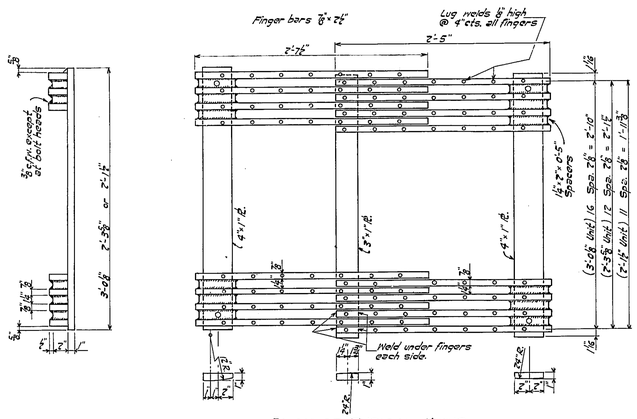
APPROVED CHIEF HIGHWAY ENGINEER

EXPANSION GUARDS AT PIERS 8 & 13
F.A.R.T. 4 Sec. 86 D.E.F.P
CASS SCHUYLER Co's.
STA. 39+58

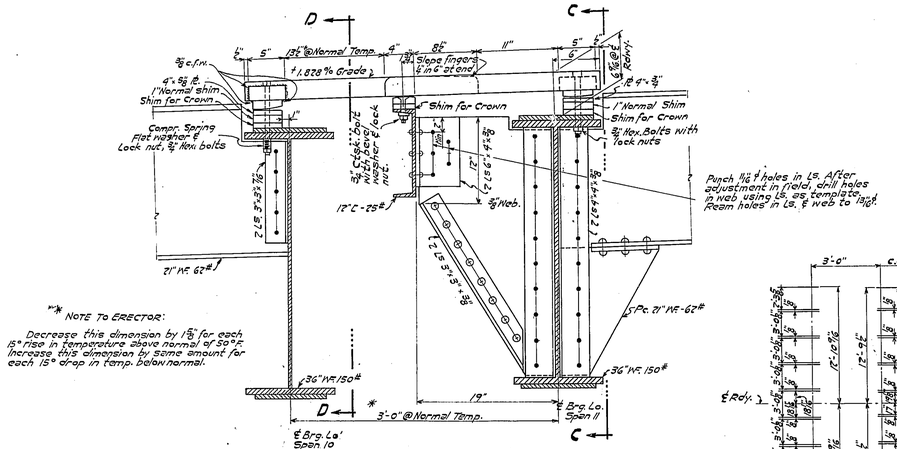
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

ROAD DESIGN ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 4	86-D 86-E 86-F 86-P	Cass- Schuyler	75 57 68 37	15 16 18 16
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO 36
63 SHEETS

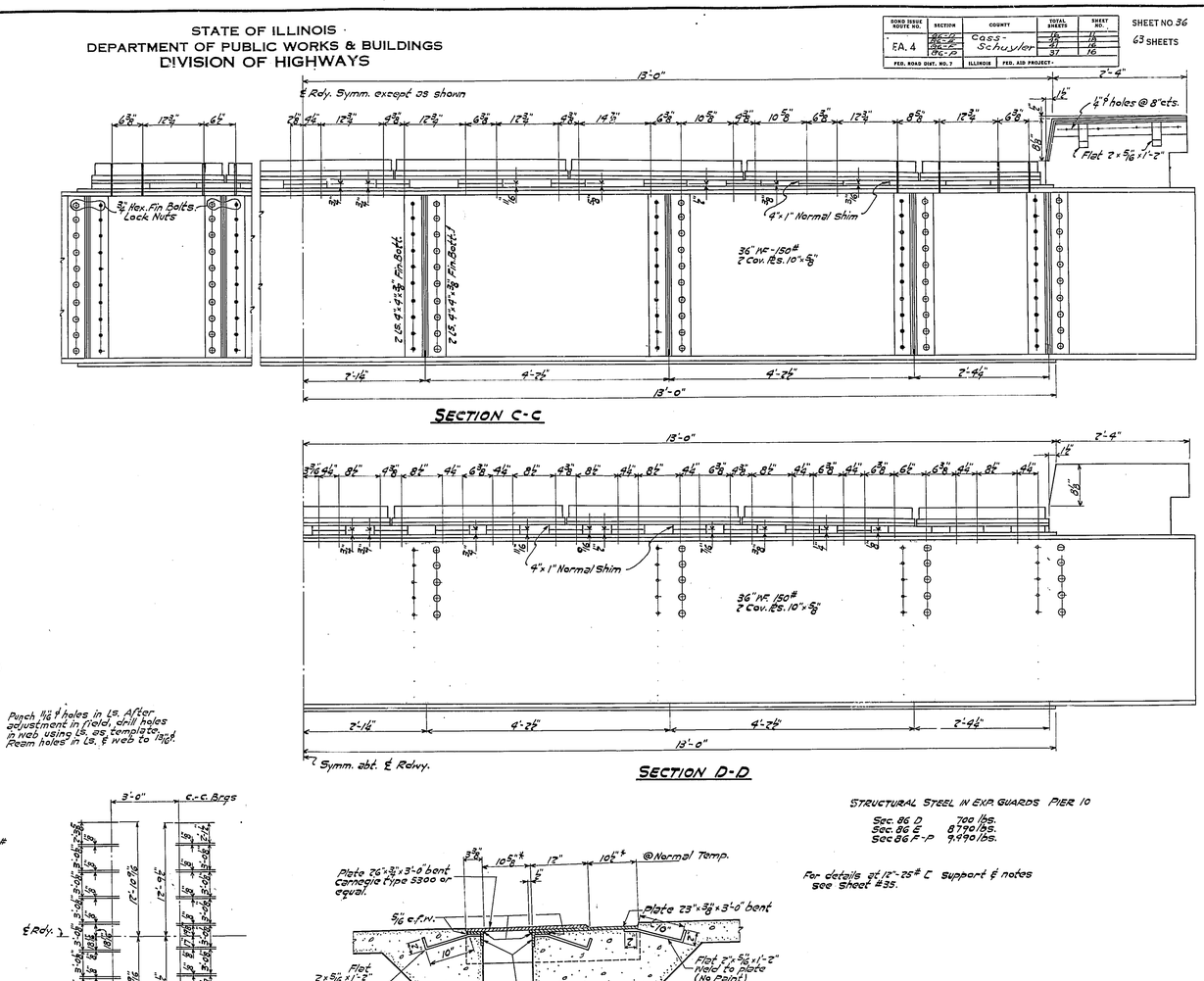


PLAN OF TYPICAL UNITS



**NOTE TO ERECTOR:
Decrease this dimension by 1 5/8" for each 15° rise in temperature above normal of 50° F. Increase this dimension by same amount for each 15° drop in temp. below normal.

SECTION THRU EXPANSION JT. AT PIER 10



SECTION C-C

SECTION D-D

LAYOUT FOR ROADWAY EXP. UNITS

SECTION @ SIDEWALK EXPANSION UNIT

STRUCTURAL STEEL IN EXP. GUARDS PIER 10

Sec. 86 D	700 lbs.
Sec. 86 E	8790 lbs.
Sec 86 F-P	9490 lbs.

For details of 12"-25# C Support & notes see Sheet #35.

DESIGNED		
CHECKED	R.L. Smith	
DRAWN	H.F.O. K.Oehmke	
CHECKED	H.P. Graham	

Oct 30 19 55

EXAMINED W. G. Brumley
BRIDGE ENGINEER

PASSED
ENGINEER OF DESIGN

APPROVED
CHIEF HIGHWAY ENGINEER

EXPANSION DEVICE AT PIER 10
F.A. ROUTE 4 (~~ROUTE 5~~)
SECTION 86-D-E-F-P
CASS SCHUYLER CO'S
STA. 39+58

KEUFFEL & ESSER CO. NO. 358 IMPERIAL

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

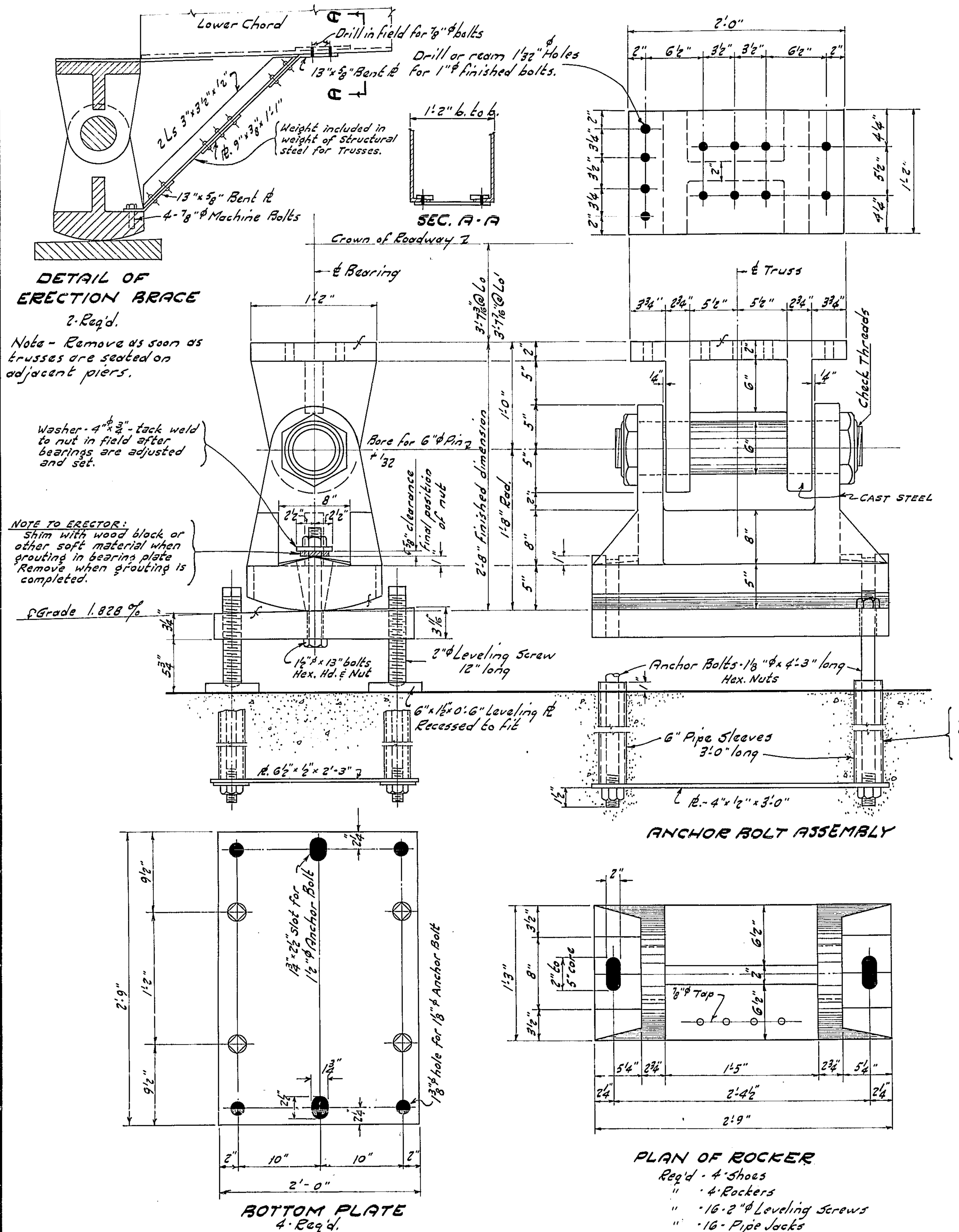
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B 86-E 86-F 86-P	Cass-Schuyler	31 45 41 37	27 19 17 17
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

SHEET NO. 37
63 SHEETS

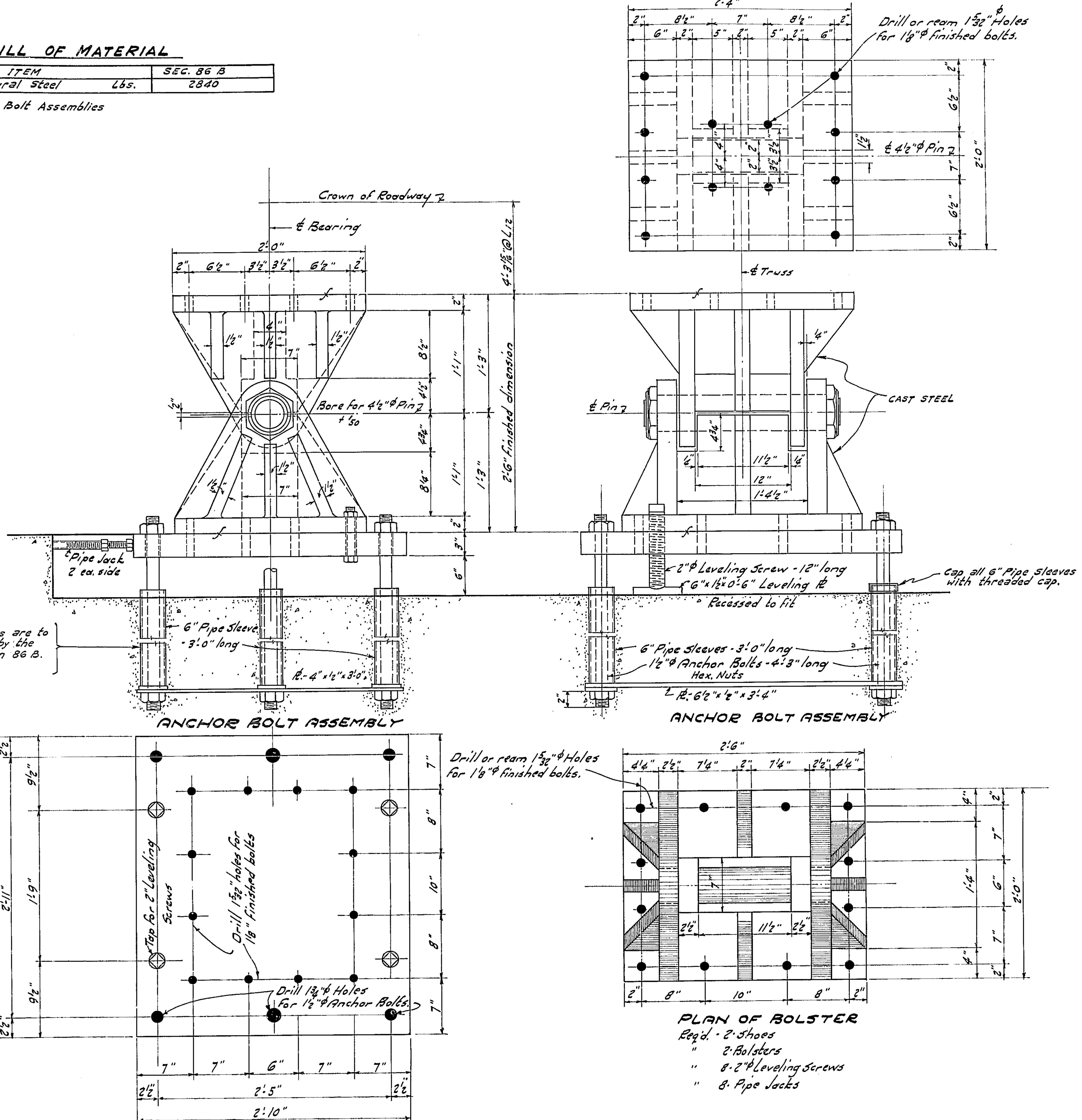
BILL OF MATERIAL

ITEM		SEC. 86 B
* Structural Steel	Lbs.	2840

* Anchor Bolt Assemblies



Anchor Bolt assemblies are to be furnished and set by the Contractor for Section 86 B.



BOTTOM PLATE
2-Req'd
make from 3/4"x3"x3'-4" Pl.

BILL OF MATERIAL

ITEM		SEC. 86 E-F-P
Structural Steel	Lbs.	7560
Cast Steel	Lbs.	11430

Note:-
All material is Structural Steel except as noted.
For detail of Pipe Jacks See sheet #38

COMPUTED	[signature]
CHECKED	J.A. Fraser
DRAWN	[signature] Sutzer
CHECKED	JAF
ASSEMBLED	
CHECKED	

EXAMINED Oct 30 1951
W.E. Hanson — BRIDGE ENGINEER
PASSED [signature] — ENGINEER OF DESIGN
APPROVED [signature] — CHIEF HIGHWAY ENGINEER

- BEARING DETAILS - SPAN 9 & 10 -
F.A. ROUTE 4 ([struck out])
SECTION 86-E-F-B-P
CASS - SCHUYLER CO'S
STA. 39 + 58

Rev. Brg. Pl. Thickness - 9-5-51 - H.L.O.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	86-B		31	28
FA. 4	86-E	CASS - Schuyler	31	29
	86-F		31	1/8
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT -	

SHEET NO. 38
63 SHEETS

Sub-drill 11/16" ϕ Ream to 1 5/16" ϕ for 1 1/4" ϕ fin. bolts with Top Shoe assembled in correct position with lower chord section & End Fl. Bm.

Drill in field for 7/8" ϕ bolts.

ERECTION BRACES AT L_0 & L_{0A}

(To be removed after erecting end span)

Note to erector: Ship with wood block on other side with wedge to open bearing plate. Remove when grouting is completed.

CAST STEEL SHOE

CAST STEEL ROCKER

4½" ϕ x 2" ℓ. weld to nut

Steel ℓ 32" x 6½" x 2'-1" (Finish top to Grade)

1⅞" ϕ x 8" Bolt Hex. Hd. & Nut

Leveling Screws 2-1¼"x1'-8"

6"x1½"x0'-6" ℓs (Recessed)

Anchor Bolt Assembly See Sh. #3

DETAIL OF EXP. BEARING AT L_0 & L_{0A} PIERS 10 & 13

4 Assemblies Req'd.

Drill & Tap for 7/8" ϕ x 2¼" Mach. Bolts.

Slot at Top

FULL SIZE SECTION AT GUIDE BAR

To housed in lower Brg. ℓ. of Rollers. Similar guide to be made in casting above Rollers by making finished projection.

BOTTOM ℓ. - 4 Req'd

ERECTION BRACES AT L_{12} & L_{14}

Drill & Tap for 2½" ϕ Leveling Screws

Remove or burn off leveling screws flush with top of plates after final adjustment & concreting

DETAIL OF SEGMENTAL ROLLERS, TOOTH BARS & LOCK ℓs

Lock ℓs to be welded together in the field after rockers have been set properly for erection. Flame cut after closure of span.

Sub-drill to 1 1/16" ϕ & ream to 1 5/16" ϕ for 1¼" ϕ Fin. bolts with Top Shoe assembled in correct position with joint L_{14} & Floor Beam at L_{14}. Same for joint L_{14A}.

DETAIL OF EXPANSION BEARING AT L_{14} - PIER 11

Two Assemblies Req'd.

5⅝" ϕ x ½" Boss Fin. all over

Fill inside spaces with concrete to this line.

Tack weld 1½" ϕ bolts to bottom of plate in field before erecting

Steel ℓ 47"x3"x4'-11"

Anchor Bolt Assembly See Sh. #3

DETAIL - STEEL COLLAR

8 Req'd. at Piers 11 & 12

PIPE JACK

112 Req'd for Spans 9-13 Incl.

Note: Anchor bolt assemblies are to be furnished and set by the Contractor for Sec. 86-B. Weight not included on this sheet. See details Sheet No. 3

Top Casting same as at Pier 11

Steel Collar to be used as shown for Pier 11

Fill inside spaces with concrete to bolt. of cored holes.

12-1⅛" ϕ Fin. Bolts

Fin. bolt of casting

Steel ℓ 45"x3"x3'-9"

DETAIL OF FIXED BEARING AT L_{14A} - PIER 12

Two Assemblies Req'd.

Drill & Tap for 2½" ϕ Leveling Screws

Drill for 1⅛" ϕ Fin. bolts

BILL OF MATERIAL - SEC. 86 E-F-P

Structural Steel	- Lbs	37,550
Cast Steel	- Lbs	27,240

COMPUTED	R.P.M.	
CHECKED	H.H.S.	
DRAWN	R.P.M.	Suber
CHECKED	H.H.S.	
ASSEMBLED		
CHECKED		

EXAMINED Oct 30 1951 — W.B. Hanson, BRIDGE ENGINEER
PASSED — ENGINEER OF DESIGN
APPROVED — CHIEF HIGHWAY ENGINEER

Revised Pin size & depth of roller @ Pier 11 9-5-51-H.R.G.

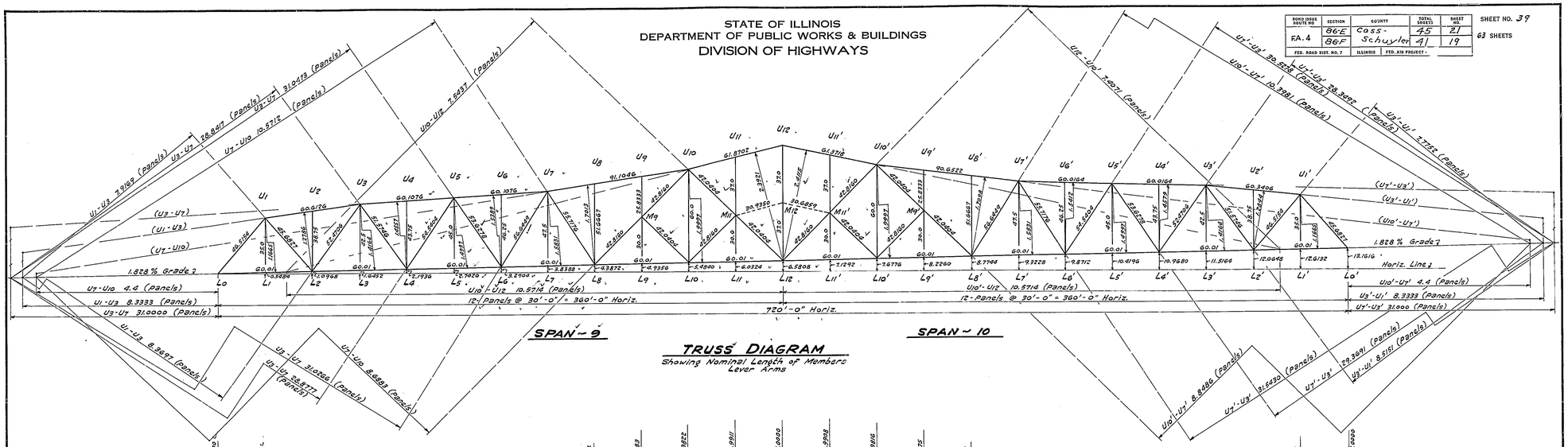
- BEARING DETAILS - AT PIERS 10-11-12 & 13

F.A. ROUTE 4 (SECONDARY)
SECTION 86-E-F-B-P
CASS - SCHUYLER CO'S
STA. 39 + 58

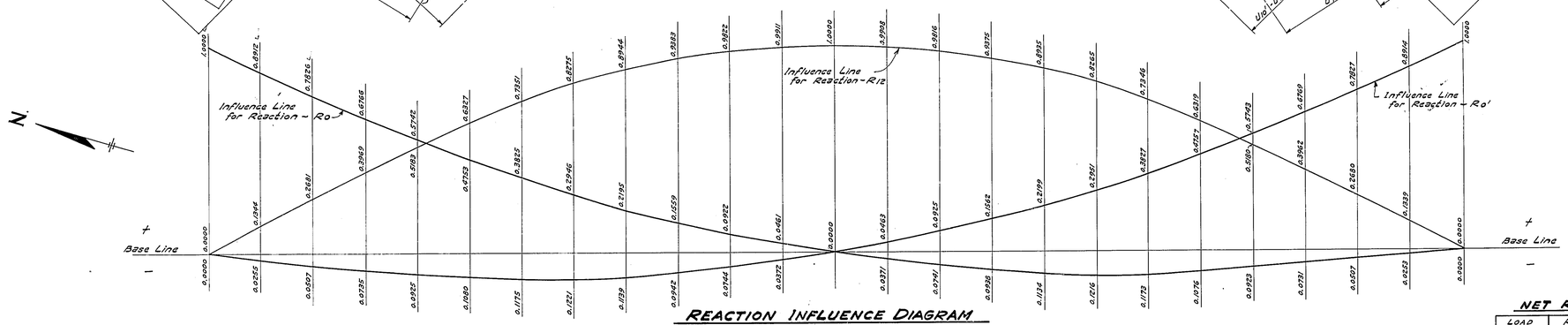
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

ROAD DISTRICT NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 4	86-E	Cass-	45	21
	86F	Schuyler	41	19
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

SHEET NO. 39
63 SHEETS



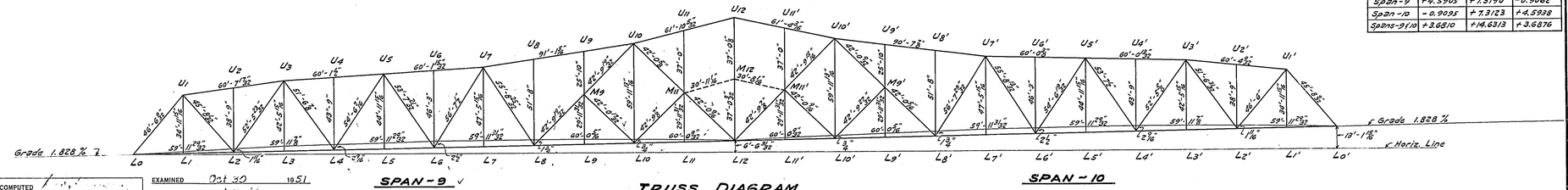
TRUSS DIAGRAM
Showing Nominal Length of Members
Lever Arms



REACTION INFLUENCE DIAGRAM

NET REACTIONS

LOAD	Ro	R12	Ro'
Span-9	+4.5905	+7.3190	-0.9062
Span-10	-0.9035	+7.3123	+4.5938
Spans-9&10	+3.6870	+14.6313	+3.6876



TRUSS DIAGRAM
Showing Full D.L. Camber & Fabricated Lengths
c. to c. Joints

	COMPUTED	EXAMINED	Oct 30 1951
	CHECKED E. Mittelstaedt		W. C. Thomson BRIDGE ENGINEER
	DRAWN J.S. Halecki	PASSED	ENGINEER OF DESIGN
	CHECKED	APPROVED	CHIEF HIGHWAY ENGINEER
	ASSEMBLED		
	CHECKED		

Rev. for Increased D.L. - 9-5-51 - H.L.O.

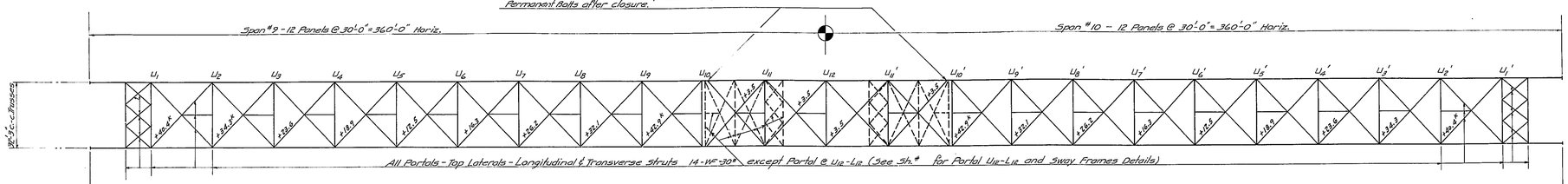
-LEVER ARMS-REACTION LINE-
D.L. CAMBER-SPANS 9&10
F.A. ROUTE 4 (Section 86-E-F)
SECTION 86-E-F
CASS-SCHUYLER CO'S
STA. 39+58

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 4	86-E	Coss-	45	22
	86-F	Schuyler	41	18
	186.72		37	14
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

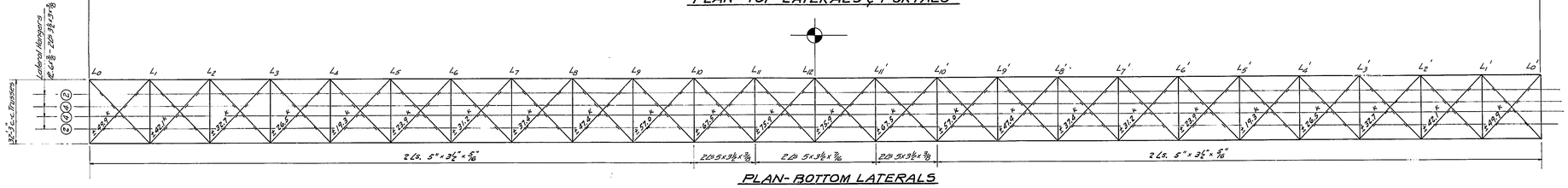
SHEET NO. 40
63 SHEETS

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

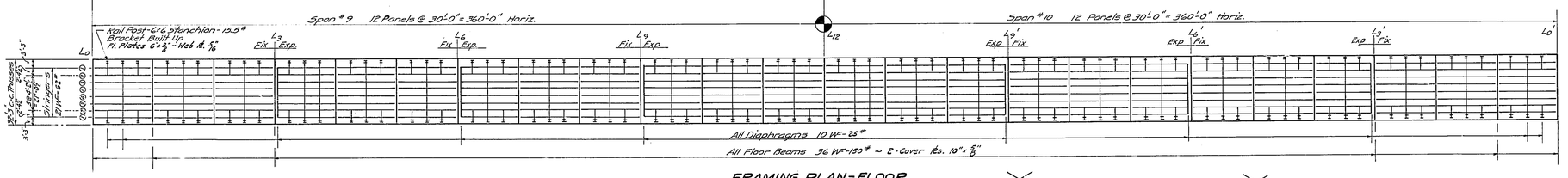
NOTE TO ERECTOR: Connect U_{10} & U_{10}' ends of Laterals in Panels U_{10}-U_{11} & U_{11}-U_{10}' with ⅞" Finished Bolts during Erection. Replace with ⅞" Permanent Bolts after closure.



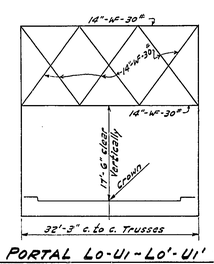
PLAN - TOP LATERALS & PORTALS



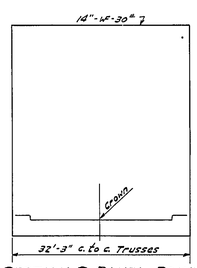
PLAN - BOTTOM LATERALS



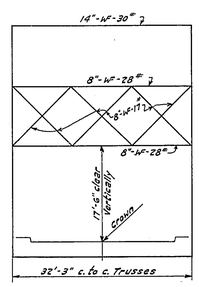
FRAMING PLAN - FLOOR



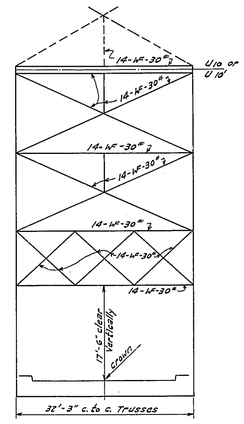
PORTAL L0-U1 - L0'-U1'



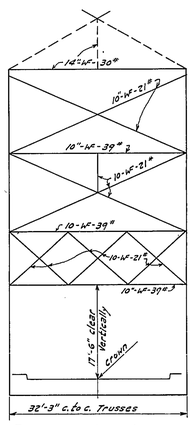
SECTION @ PANEL POINTS
2-4-6-8-10-11-11'-10'-8'-6'-4'-2'



SECTION @ PANEL POINTS
3-5-7-9-9'-7'-5'-3'



PORTAL U10-L12 - U10'-L12



PORTAL U12 - L12

BILL OF MATERIAL - SPANS 9 & 10

ITEM	SEC. 86-E-F-P
* Structural Steel (Carbon) Lbs.	1,406,680
Structural Steel (A-242) Lbs.	387,430

* Does not include Bearings and Expansion Guards. See Sheets No. 35, 36 & 37.

	COMPUTED	[illegible]
	CHECKED	R.B. Murphy
	DRAWN	[illegible]
	CHECKED	R.B.M.
	ASSEMBLED	
	CHECKED	

EXAMINED Oct 20 19 51
W. A. Bruce
BRIDGE ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

Rev. Stringer Spec. & Fl. Bm. - 9-5-51 - H.L.O.

- FRAMING PLAN -
SPANS 9 & 10
F.A. ROUTE 4 ([redacted] ROUTE 3)
SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39+58

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
—	86-E	Cass	45	23
FA. 4	86-F	Schuyler	41	21
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 41

63 SHEETS

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

STRESS TABLE SPANS 9 & 10

E = 29,000 Kips per sq. inch

Member	Section	Unsupported length c-c Feet	rx	ry	L/r Max.	Area sq. in. Gross	Net	Stresses - Kips Dead Load D	Live Load L	Impact I	Wind Stress - Kips 300#/□ft W₁	50#/□ft W₂	Σ Stresses - Kips D+L+I A	D+L+I+W₁ B	D+L+I+W₂ C	Unit Stress Lbs per sq. in. A	B	C	Allowed Unit Stress Lbs. per sq. in. A	B & C	Dead Load Deformation - Camber: Effective Area A'	Deformation Ft. One Inch	Fabricated Length Ft.-Inches	Adjustment in Length-Ft. Fabr. Length - Nonlength	Member
⊗ L_0-U_1	2-15"Cs-33.9# 2 side Rs 16'-1½"	41.46.5156 41.25.584	6.2	6.46	90.0	54.49	50.74	-284.4	-162.8	-18.1	±239.0 / 180.0 IK	±39.8 / 232.8 IK	-465.3	-284.3 / 182.0 IK	-291.3 / 235.8 IK	9170	16520	16300	14660	10330	52.86	-.0083	40'-6 9/32	-.0080	L_0-U_1
U_1-U_3	2-15"Cs-31.8# 2-8"Cs-11.5#	30.3063	6.81	6.07	60.0	38.49	34.74	-291.1	-160.6	-17.8	±26.7	±38.1	-469.3	-496.0	-325.2	13510	14280	9480	14100	17620	36.86	-.0160	60'-7 3/32	-.0150	U_1-U_3
U_3-U_5	2-15"Cs-33.9# 2 side Rs 16'-5⅞"	30.0538	6.56	6.33	57.0	43.09	39.34	-354.6	-211.5	-23.5	± 46.5	± 67.2	-589.6	-636.1	-421.8	14980	16170	10720	16360	20460	41.46	-.0171	60'-1½"	-.0174	U_3-U_5 ⊗
⊗ L_5-U_5	2-15"Cs-33.9# 2-8"Cs-11.5#	30.0538	6.81	6.07	59.4	38.49	34.74	-274.6	-202.2	-22.5	± 46.8	± 68.2	-499.3	-546.1	-342.8	14370	15730	9870	16260	20320	36.86	-.0149	60'-1 15/32	-.0148	L_5-U_5 ⊗
U_1-U_3	2-8"Rs-17'-4½" 2-8"Rs-17'-4½"	30.3682	7.06	6.02	60.6	39.09	35.34	-294.0 / 22.48.7	-168.0 / 92.8.7	-18.5 / 11.1.0	± 39.4	± 51.6	-499.4 / 510.7	-534.0 / 545.8	-385.0 / 396.8	6810 c. / 7410 T.	8780 c. / 9480 T.	3830 c. / 4430 T.	14080 C. / 18000 T.	11610 C. / 15300 T.	31.46	-.0053	91'-1 5/16"	-.0048	U_1-U_3
⊗ U_{10}-U_{12}	2-15"Cs-51.9# 2-8"Rs-16'-1½"	30.9951	——	——	——	46.36	39.46	+547.2	+191.8	+21.3	——	——	+ 760.3	+760.3	+547.2	19270	19270	13860	21000	26250	46.36	+.0243	61'-10 3/32	+.0238	U_{10}-U_{12} ⊗
⊗ U_{12}-U_8	Same as (U_{10}-U_{12})	30.6859	——	——	——	46.36	39.46	+543.6	+190.1	+21.1	——	——	+ 754.8	+ 754.8	+ 543.6	19130	19130	13770	21000	26250	46.36	+.0240	61'-4 26/32	+.0238	U_{12}-U_8 ⊗
U_1'-U_3'	" " (U_3-U_5)	30.2174	7.06	6.02	60.4	39.09	35.34	- 54.4	+196.1 / ± 38.6	- 6.5 / ± 5.1.2	± 39.6	± 57.6	+ 139.8 / ± 32.5	- 238.4 / ± 38.8	- 113.2 / ± 51.9	6790 c. / 8410 T.	8720 c. / 9130 T.	3830 c. / ——	14090 C. / 18090 T.	11610 C. / 15300 T.	31.46	-.0052	90'-7 9/16"	-.0041	U_1'-U_3'
⊗ U_3'-U_5'	" (U_5-U_7)	30.0082	6.81	6.07	59.4	38.49	34.74	-274.2	-202.2	-22.5	± 46.8	± 68.2	-498.9	-545.7	- 342.4	14360	15700	9860	16260	20320	36.86	-.0149	60'-0 3/32	-.0149	U_3'-U_5'
⊗ L_5'-U_5'	" (L_5-U_7)	30.0082	6.56	6.33	57.0	43.09	39.34	-354.1	-211.3	-23.5	± 46.5	± 67.2	-588.9	- 635.4	- 421.3	14970	16150	10710	16360	20460	41.46	-.0171	60'-0 13/32	-.0175	L_5'-U_5'
U_1'-U_3'	" " (U_1-U_3)	30.1702	6.81	6.07	59.7	38.49	34.74	-290.0	-159.7	-17.8	± 26.7	± 38.1	-467.5	-494.2	-328.1	13450	14230	9450	14110	17640	36.86	-.0158	60'-4 1/32	-.0162	U_1'-U_3'
⊗ L_0'-U_1'	" " (L_{12}-U_1)	41.45.0827 41.27.65	6.2	6.46	88.4	54.49	50.74	-279.3	-160.0	-17.8	± 31.1 / ± 174.8 IK	± 34.5 / ± 232.5 IK	-457.1	- 490.6 / 189.2 IK	- 313.5 / 232.5 IK	9010	16270	16050	14770	18450	52.86	-.0080	45'-8 9/32	-.0074	L_0'-U_1' ⊗
⊗ L_0-L_2	2-15"Cs-33.9#	30.005	——	——	——	19.80	15.10	+183.4	+105.0	+11.7	± 27.6	± 118.4	+ 300.1	+377.5	+301.8	19110	24040	19220	21000	26250	19.80	+.0185	59'-11 29/32	+.0178	L_0-L_2 ⊗
⊗ L_2-L_4	2-15"Cs-40.8#	"	——	——	——	33.90	27.82	+335.0	+190.0	+11.1	± 28.8	± 200.2	+ 546.1	+674.9	+535.2	19630	24250	19230	21000	26250	33.90	+.0198	59'-11 5/32	+.0204	L_2-L_4 ⊗
⊗ L_4-L_6	2-15"Cs-40.8#	"	——	——	——	35.65	29.92	+332.9	+216.5	+28.8	± 43.0	± 224.2	+571.2	+714.2	+557.1	19470	24360	19000	21000	26250	35.65	+.0187	59'-11 29/32	+.0178	L_4-L_6 ⊗
L_6-L_8	2-15"Cs-50.0#	"	——	——	——	29.28	23.92	+181.6	+175.1	+19.5	± 120.9	± 189.3	+376.2	+497.1	+370.9	15730	20780	15500	18000	22500	29.28	+.0124	59'-11 31/32	+.0126	L_6-L_8
⊗ L_8-L_{10}	2-15"Cs-50.0# 2-8"Rs-15'-1½"	"	——	6.04	6.04	59.6	27.93	-210.8	-116.5	-13.0	± 81.9	± 128.0	-340.3	-422.2	-338.8	14070	17450	14010	16260	20320	26.30	-.0160	60'-0 5/16	-.0160	L_8-L_{10} ⊗
L_{10}-L_{12}	2-15"Cs-40.8# 2-8"Rs-12'-7⅛"	"	——	5.85	6.09	61.6	31.53	27.78	-200.6	-116.5	-13.0	± 150.9	± 236.3	-330.1	-481.0	-436.9	11880	17310	15720	14050	17560	29.90	-.0134	60'-0 3/32	-.0134	L_{10}-L_{12}
L_{10}-L_{12}	Same as (L_{10}-L_{12})	"	——	5.85	6.09	61.6	31.53	27.78	-200.7	-116.7	-13.0	± 150.9	± 236.4	-330.4	-481.3	-437.1	11890	17320	15730	14050	17560	29.90	-.0134	60'-0 3/32	-.0134	L_{10}-L_{12}
⊗ L_8'-L_{10}'	" " (L_8-L_{10})	"	——	6.04	6.04	59.6	27.93	-210.9	-116.7	-13.0	± 81.9	± 128.1	-340.6	-422.5	-339.0	14060	17440	13990	16260	20320	26.30	-.0160	60'-0 5/16	-.0160	L_8'-L_{10}' ⊗
L_6'-L_8'	" " (L_6-L_8)	"	——	——	——	29.28	23.92	+181.6	+116.5	+19.5	± 120.9	± 189.4	+376.6	+497.1	+371.0	15750	20800	15510	18000	22500	29.28	+.0124	59'-11 31/32	+.0126	L_6'-L_8'
⊗ L_4'-L_6'	" " (L_4-L_6)	"	——	——	——	35.65	29.92	+332.8	+216.6	+28.9	± 143.0	± 224.3	+571.3	+714.3	+557.1	19470	24360	19000	21000	26250	35.65	+.0187	59'-11 29/32	+.0178	L_4'-L_6' ⊗
⊗ L_2'-L_4'	" " (L_2-L_4)	"	——	——	——	33.90	27.82	+394.9	+190.1	+21.1	± 128.8	± 200.3	+546.1	+ 674.9	+535.2	19630	24250	19230	21000	26250	33.90	+.0198	59'-11 5/32	+.0204	L_2'-L_4' ⊗
⊗ L_0'-L_2'	" " (L_0-L_2)	"	——	——	——	19.80	15.10	+183.4	+105.0	+11.7	± 77.4	± 116.5	+300.1	+ 377.5	+301.9	19110	24040	19220	21000	26250	19.80	+.0185	59'-11 29/32	+.0178	L_0'-L_2' ⊗
U_1-L_2	2-12"Cs-30.0#	45.6827	4.28	6.32	128.0	17.58	15.54	+159.6	+106.6	+11.9	——	——	+278.1	——	——	17950	——	——	18000	——	17.58	+.0138	45'-8 5/32	+.0134	U_1-L_2
L_2-U_3	2-15"Cs-33.9#	52.4706	5.62	6.21	112.1	19.80	19.80	——	——	-9.1	——	——	- 172.8	——	——	8690	——	——	11850	——	19.80	-.0072	52'-5 23/32	-.0060	L_2-U_3
U_3-L_4	2-15"Cs-33.9#	51.57 66	5.62	6.21	110.0	19.80	16.10 T. / 19.80 C.	+32.7	+18.5 / +56.5	+7.8 / +7.8	——	——	+110.9 / + 56.8	——	——	7889 T. / 11370 C.	——	——	18000 T. / 11370 C.	——	19.80	+.0028	51'-6 7/8	+.0017	U_3-L_4
L_4-U_5	2-15"Cs-33.9#	54.5404	5.62	6.21	116.4	19.80	16.10 T. / 19.80 C.	+38.3	+20.3 / +56.5	+7.8 / +7.8	——	——	+116.6 / + 52.6	——	——	8178 T. / 11810 C.	——	——	18000 T. / 11810 C.	——	19.80	+.0035	54'-6 7/16	+.0039	L_4-U_5
U_5-L_6	2-15"Cs-33.9#	53.6270	5.62	6.21	114.5	19.80	19.80	-105.1	-67.7 / +37.7	-9.3 / +6.2	——	——	-198.1	——	——	10010	——	——	11720	——	19.80	-.0095	53'-7 21/32	-.0088	U_5-L_6
L_6-U_7	2-12"Cs-30.0#	56.6469	4.28	6.32	158.8	17.58	15.54	+174.7	+106.0	+11.6	——	——	+290.3	——	——	18680	——	——	18000	——	17.58	+.0188	56'-7 1/32	+.0199	L_6-U_7
⊗ U_7-L_8	2-18"Cs-51.9#	55.7176	6.40	6.16	108.5	30.36	30.36	-236.8	-118.3	-13.2	——	——	- 368.3	——	——	12130	——	——	13380	——	30.36	-.0145	55'-8 25/32	-.0142	U_7-L_8 ⊗
L_8-M_9	2-18"Cs-58.0#	42.8160	6.29	6.14	89.7	33.96	28.66	+371.3	+175.0	+19.5	——	——	+565.8	——	——	19740	——	——	21000	——	33.96	+.0156	42'-9 13/16	+.0165	L_8-M_9
⊗ M_9-U_{10}	2-18"Cs-58.0#	42.8160	6.29	6.14	89.7	33.96	31.16	+415.2	+187.1	+20.8	——	——	+623.1	——	——	20000	——	——	21000	——	33.96	+.0175	42'-9 13/16	+.0165	M_9-U_{10} ⊗
⊗ U_{10}-M_{11}	2-14"Wf-99.5# 2-8"Rs-18'-5⅝"	41.46.8160 41.30.868	7.54	5.98	67.0	48.70	44.20	-411.7	-172.3	-19.1	± 63.4	± 97.6	- 603.1	- 666.5	-509.3	13640	15080	11520	15930	19900	46.90	-.0125	42'-0 5/8	-.0117	U_{10}-M_{11} ⊗
M_{11}-L_{12}	2-14"Wf-87.5# 2-8"Rs-18'-5⅝" 2-8"Rs-12'-7⅛"	41.46.8160 41.30.868 41.27.6905 41.25.584	6.32	6.26	79.8	86.70	80.20	-462.7	-190.4	-21.2	± 85.5 IK / 286.5 IK	± 97.6 / 350.8 IK	- 674.3	- 737.4 / 286.5 IK	- 560.3 / 351.8 IK	8410	15750	16930	15270	19090	82.90	-.0078	42'-0 7/16	-.0065	M_{11}-L_{12} ⊗
M_9-L_{11}	2-12"Cs-20.7#	42.0404	4.61	6.28	109.4	12.06	12.06	- 43.1	-53.0	-5.9	——	——	- 102.0	——	——	8450	——	——	12000	——	12.06	-.0030	42'-0 3/32	-.0039	M_9-L_{10}
L_{10}-M_{11}	2-12"Cs-20.7#	42.8160	4.61	6.28	111.4	12.06	12.06	- 51.8	-56.0	-6.0	——	——	- 111.8	——	——	9260	——	——	11890	——	12.06	-.0061	42'-9 7/8	-.0069	L_{10}-M_{11}
L_{10}-M_{11}'	Same as (L_{10}-M_{11})	42.0404	4.61	6.28	109.4	12.06	12.06	- 50.9	-53.0	-5.9	——	——	- 109.8	——	——	9100	——	——	12000	——	12.06	-.0059	42'-0 1/16	-.0065	L_{10}-M_{11}'
M_9-L_{11}'	" " (M_9-L_{11})	42.8160	4.61	6.28	111.4	12.06	12.06	- 43.9	-56.0	-6.0	——	——	- 103.9	——	——	8610	——	——	11890	——	12.06	-.0052	42'-9 23/32	-.0043	M_9-L_{11}'
⊗ M_{11}-L_{12}	" " (M_{11}-L_{12})	41.46.8160 41.30.868	6.32	6.26	81.3	86.70	80.20	-471.1	-199.9	-21.6	± 86.6 / 286.5 IK	± 97.6 / 350.8 IK	- 686.6	- 751.5 / 286.5 IK	- 570.4 / 350.8 IK	8560	15920	17280	15190	18980	82.90	-.0081	42'-0 7/8	-.0069	M_{11}-L_{12} ⊗
⊗ U_{10}-M_{11}'	" " (U_{10}-M_{11})	41.46.8160 41.30.868	7.54	5.98	88.1	48.70	44.20	-419.3	-175.6	-19.5	± 64.6	± 99.3	- 614.2	- 678.8	- 518.6	13900	15350	11750	15870	19850	46.90	-.0128	42'-9 15/16"	-.0121	U_{10}-M_{11}' ⊗
⊗ M_9-U_{10}'	" " (M_9-U_{10})	42.0404	6.29	6.14	82.2	33.96	31.16	+407.7	+183.7	+20.4	——	——	+611.8	——	——	19630	——	——	21000	——	33.96	+.0168	42'-0 3/32	+.0170	M_9-U_{10}' ⊗
⊗ L_8'-M_9'	" " (L_8-M_9)	42.0404	6.29	6.14	82.2	33.96	28.66	+364.6	+171.8	+19.1	——	——	+535.5	——	——	19380	——	——	21000	——	33.96	+.0151	42'-0 7/16	+.0144	L_8'-M_9' ⊗
⊗ U_7'-L_8'	" " (U_7-L_8)	56.6469	6.40	6.16	110.4	30.36	30.36	-240.9	-120.3	-13.4	——	——	-374.6	——	——	12340	——	——	13240	——	30.36	-.0130	56'-7 7/32	-.0139	U_7'-L_8' ⊗
L_6'-U_7'	" " (L_6-L_8)	55.7176	6.28	6.32	156.2	17.58	15.54	+171.8	+102.4 / +29.6	+11.6 / +6.5	——	——	+285.6	——	——	18380	——	——	18000	——	17.58	+.0182	55'-8 13/32	+.0171	L_6'-U_7'
U_5'-L_6'	" " (U_5-L_6)	54.5404	5.62	6.21	116.4	19.80	19.80	-106.9	-67.7 / +39.6	-9.5 / +6.5	——	——	- 201.5	——	——	10180	——	——	11610	——	19.80	-.0098	54'-6 17/32	-.0091	U_5'-L_6'
L_4'-U_5'	" " (L_4-U_5)	53.6278	5.62	6.21	114.5	19.80	16.10 T. / 19.80 C.	+37.6	+19.9 / +56.5	+7.7 / +7.8	——	——	+ 114.8 / - 21.7	——	——	8130 T. / 11730 C.	——	——	18000 T. / 11730 C.	——	19.80	+.0034	53'-7 1/2	+.0028	L_4'-U_5'
U_3'-L_4'	" " (U_3-L_4)	52.6706	5.62	6.21	112.1	19.80	16.10 T. / 19.80 C.	+33.2	+19.0 / +56.6	+7.8 / +7.8	——	——	+ 112.5 / - 21.7	——	——	8000 T. / 1380 C.	——	——	18000 T. / 11860 C.	——	19.80	+.0029	52'-5 5/8"	+.0018	U_3'-L_4'
L_2-U_3'	" (L_2-U_3)	51.5746	5.62	6.21	110.0	19.80	19.80	-80.6	-80.5	- 9.0	——	——	-168.9	——	——	8580	——	——	11970	——	19.80	-.0070	51'-6 21/32	-.0061	L_2-U_3'
U_1'-L_2'	" "(U_1-L_2)	46.5154	4.28	6.32	130.6	17.59	15.54	+162.4	+108.6	+12.1	——	——	+278.1	——	——	17900	——	——	18000	——	17.58	+.0143	46'-6"	+.0154	U_1'-L_2'
U_1-L_1	2-12"Cs-20.7#	35.0000	4.61	6.28	91.2	12.06	8.63	+ 43.5	+58.9	+25.2	——	——	+127.6	——	——	14790	——	——	18000	——	12.06	+.0042	34'-11 15/16	+.0052	U_1-L_1
U_2-L_2	" " "	38.7500	4.61	6.28	100.8	12.06	12.06	-8.5	——	——	——	——	- 8.5	——	——	705	——	——	12450	——	12.06	-.0009	38'-9"	-.0000	U_2-L_2
U_3-L_3	" " "	42.5000	4.61	6.28	110.7	12.06	8.63	+46.9	+58.9	+25.2	——	——	+131.0	——	——	15190	——	——	18000	——	12.06	+.0055	42'-5 15/16	+.0052	U_3-L_3
U_4-L_4	" " "	42.7500	4.61	6.28	113.9	12.06	12.06	-9.5	——	——	——	——	- 9.5	——	——	788	——	——	11750	——	12.06	-.0012	43'-9"	-.0000	U_4-L_4
U_5-L_5	" " "	45.0000	4.61	6.28	117.1	12.06	8.63	+45.9	+58.9	+25.2	——	——	+130.0	——	——	15060	——	——	18000	——	12.06	+.0057	44'-11 15/16	+.0052	U_5-L_5
U_6-L_6	" " "	46.2500	4.61	6.28	120.4	12.06	12.06	-8.8	——	——	——	——	- 8.8	——	——	730	——	——	11370	——	12.06	-.0011	46'-3"	-.0000	U_6-L_6
U_7-L_7	" " "	47.5000	4.61	6.28	123.7	12.06	8.63	+45.1	+58.9	+25.2	——	——	+129.2	——	——	14970	——	——	18000	——	12.06	+.0059	47'-5 15/16	+.0052	U_7-L_7
U_8-L_8	" " "	51.6667	4.61	6.28	134.6	12.06	12.06	-8.6	——	——	——	——	- 8.6	——	——	713	——	——	10470	——	12.06	-.0012	51'-8"	-.0000	U_8-L_8
U_9-M_9	" " "	25.8333	4.61	6.28	67.3	12.06	12.06	- 9.1	——	——	——	——	- 9.1	——	——	755	——	——	13870	——	12.06	-.0007	25'-10"	-.0000	U_9-M_9
M_9-L_9	" " "	30.0000	4.61	6.28	78.1	12.06	8.63	+45.6	+58.9	+25.2	——	——	+129.7	——	——	15040	——	——	18000	——	12.06	+.0038	29'-11 13/16	+.0026	M_9-L_9
⊗ L_{10}-L_{12}	2-12"Cs-25.0#	60.0000	4.43	6.32	162.5	14.64	11.84	+116.2	+82.6	+20.6	——	——	+219.4	——	——	19350	——	——	21000	——	14.64	+.0134	59'-11 13/16	+.0156	L_{10}-L_{12} ⊗
U_{11}-M_{11}	2-12"Cs-20.7#	37.0000	4.61	6.28	96.4	12.06	12.06	- 9.5	——	——	——	——	- 9.5	——	——	788	——	——	12680	——	12.06	-.0010	37'-0"	-.0000	U_{11}-M_{11}
M_{11}-L_{11}	"	30.0000	4.61	6.28	78.1	12.06	8.63	+45.4	+58.9	+25.2	——	——	+129.5	——	——	15000	——	——	18000	——	12.06	+.0038	29'-11 13/16	+.0026	M_{11}-L_{11}
U_{12}-L_{12}	2-15"Cs-45.0# 2-8"Rs-13'-4⅝"	41.37.0000 41.20.720	7.05	5.96	83.0	36.51	32.01	-272.0	-86.8	- 9.6	± 29.5 / 80.8 IK	± 35.7 / 103.3 IK	-368.4	- 397.6 / 80.8 IK	- 307.1 / 103.3 IK	11500	18350	17190	14010	18200	34.56	-.0194	74'-10 3/32	-.0182	U_{12}-L_{12}

⊗ The main material in all members marked thus, shall be Structural low-alloy steel, A.S.T.M. - A 242

△ W_1 - Minimum requirements of 150#/lin. Ft. (Top chord) - 300#/lin. Ft. (Bottom chord) used at panels where these conditions govern.

COMPUTED	Louis Lawrence	
CHECKED	R.K. Hoppenjans	
DRAWN	W.E.C.	
CHECKED	R.E.H.	
ASSEMBLED		
CHECKED		

EXAMINED Oct 22 1951
W.D. Hinson, BRIDGE ENGINEER

PASSED
ENGINEER OF DESIGN

APPROVED
CHIEF HIGHWAY ENGINEER

Rev. for proposed D.L. - 9-5-51 - H.L.O.

DEAD LOAD PANEL LOADS - KIPS

Point	Stringer	Floor	Steel	Totals
L_0 or L_0'	4.3	8.3	16.8	29.4
L_1 - L_1'	8.6	16.5	31.2	56.3
L_2 - L_2'	8.6	16.5	30.9	56.0
L_3 - L_3'	8.6	16.5	35.7	60.8
L_4 - L_4'	8.6	16.5	33.3	58.4
L_5 - L_5'	8.6	16.5	34.7	59.8
L_6 - L_6'	8.6	16.5	33.4	58.5
L_7 - L_7'	8.6	16.5	34.3	59.4
L_8 - L_8'	8.6	16.5	33.1	58.2
L_9 - L_9'	8.6	16.5	36.6	61.7
L_{10} - L_{10}'	8.6	16.5	41.0	66.1
L_{11} - L_{11}'	8.6	16.5	45.4	70.5
L_{12}	8.6	16.5	59.1	84.2
R_0 (Net)	31.68	60.76	121.70	214.14
R_{12} (Net)	125.83	241.42	535.80	903.05
R_0 (Net)	31.68	60.76	121.70	214.14

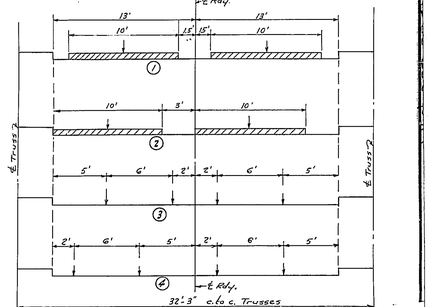
LIVE LOAD PANEL LOADS - KIPS

Type	Load	Impact	Totals
Uniform Load	19.2	1.9	21.1
Concentrated Loading	32.0	3.2	35.2
" " (D)	40.0	4.0	44.0

STRESS TABLE - STRINGERS & FLOOR BEAMS

Member	Moment - Ft. Kips D	L+I	Totals	Reaction - Kips D	L+I	Total	Section
Int. Stringer	30.5	154.5	185.0	4.1	27.2	31.3	21"-wf-62#
Int. Fl. Bm.	280.7	772.0	1052.7	35.2	82.3	117.5	36"-WF-150# & 2-Cov. PL. 16"x⅞"
Fl. Bm. Spacing Steel only	407.0	——	407.0	131.0 #	——	131.0 #	"
" " Including Full DL.	702.3	——	702.3	233.9 #	——	233.9 #	"

Reaction for computing stress in Floor Bm. due to jacking.



POSITION OF LOADS
A.A.S.H.O. (1941)

① = Equiv. Loading - Design of - All main truss members
② = " " " " Vert. hangers & Int. Fl. Bm. Reactions
③ = Truck " " " Floor Bms. - Bending
④ = " " " " End Floor Beam Reactions

~ STRESS TABLE - SPANS 9 & 10
F.A. ROUTE 4 (~~SECTION~~ ROUTE 3)
SECTION 86-E-F
CASS - SCHUYLER CO.
STA. 39 + 58.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86-E	Cass-	45	24
RA. 4	86-F	Schuyler	41	25
	86-P		37	20
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 42
63 SHEETS

TYPICAL DETAIL OF TOP LATERALS STRUTS & PORTAL MEMBERS

DETAIL OF HAND HOLES TOP & BOTT. COVER PLS.

Lo-U1⊗
2-18"-Cs-51.4#
2-Pls-18"×⅝ Cover Pls.
2-Pls-16"×⅝ Side Pls.

U1-U3
2-18-Cs.-51.9#
2-Pls.-13"×⅝ Cov. Pls.

U3-U5⊗
2-18-Cs 42.7#
2-Pls-13"×⅝ Cov. Pls.
2-Pls-16"×⅝ Side Pls.

U1-L2
2-12"-Cs-30#
End Stay Pls-13"×⅝×1'-4
Int. Stay Pls-13"×⅝×0'-9

L2-U2
2-12"-Cs-20.7#
End Stay Pls-13"×⅝×1'-4
Int. Stay Pls-13"×⅝×0'-9

L2-U3
2-15"-Cs-33.9#
End Stay Pls-13"×⅝×1'-4
Int. Stay Pls-13"×⅝ at 60°

L3-U3
2-12"-Cs-20.7#
End Stay Pls-13"×⅝×1'-3½
Int. Stay Pls-13"×⅝ at 60°

U3-L4
2-15"-Cs-33.9#
End Stay Pls-13"×⅝×1'-4
Int. Stay Pls-13"×⅝×0'-9

L1-U1
2-12"-Cs-20.7#
End Stay Pls-13"×⅝×1'-3½
Int. Stay Pls-13"×⅝×0'-9

Lo-L2⊗
2-15"-Cs-39.9#
End Stay Pls-13"×⅝×1'-4
Int. Stay Pls-13"×⅝×0'-9

L2-L4⊗
2-15"-Cs-40#-2 Pls.14"×⅜ (Sides)
End Stay Pls-13"×⅝×1'-4
Int. Stay Pls-13"×⅝×0'-9

COMPUTED	R.W. Hansen	EXAMINED	Oct 30 1951
CHECKED	R.C. Murphy		W. G. Hansen BRIDGE ENGINEER
DRAWN	Kuta – J.S. Malecki	PASSED	ENGINEER OF DESIGN
CHECKED	T.C.M.	APPROVED	CHIEF HIGHWAY ENGINEER
ASSEMBLED			
CHECKED			

Rev. for Increased D.L. - 9-5-51 - H.L.O.

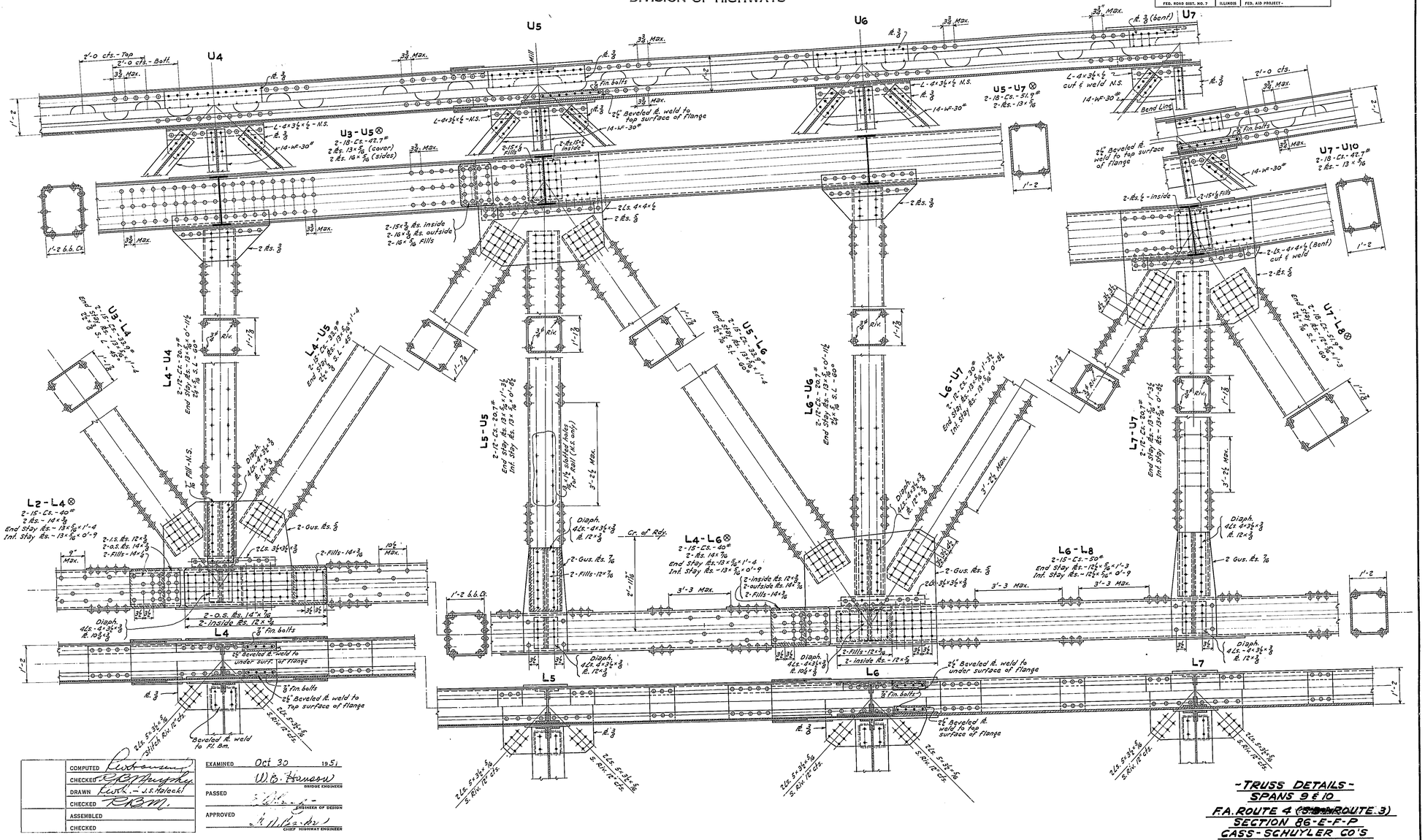
- TRUSS DETAILS -
SPANS 9 & 10
F.A. ROUTE 4 (ILL. ROUTE 3)
SECTION: 86-E-F-P
CASS - SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO. NO 111

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 4	86-E	Cass-Schuyler	45	25
	86-F		41	23
	86-P		37	21
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 43
63 SHEETS

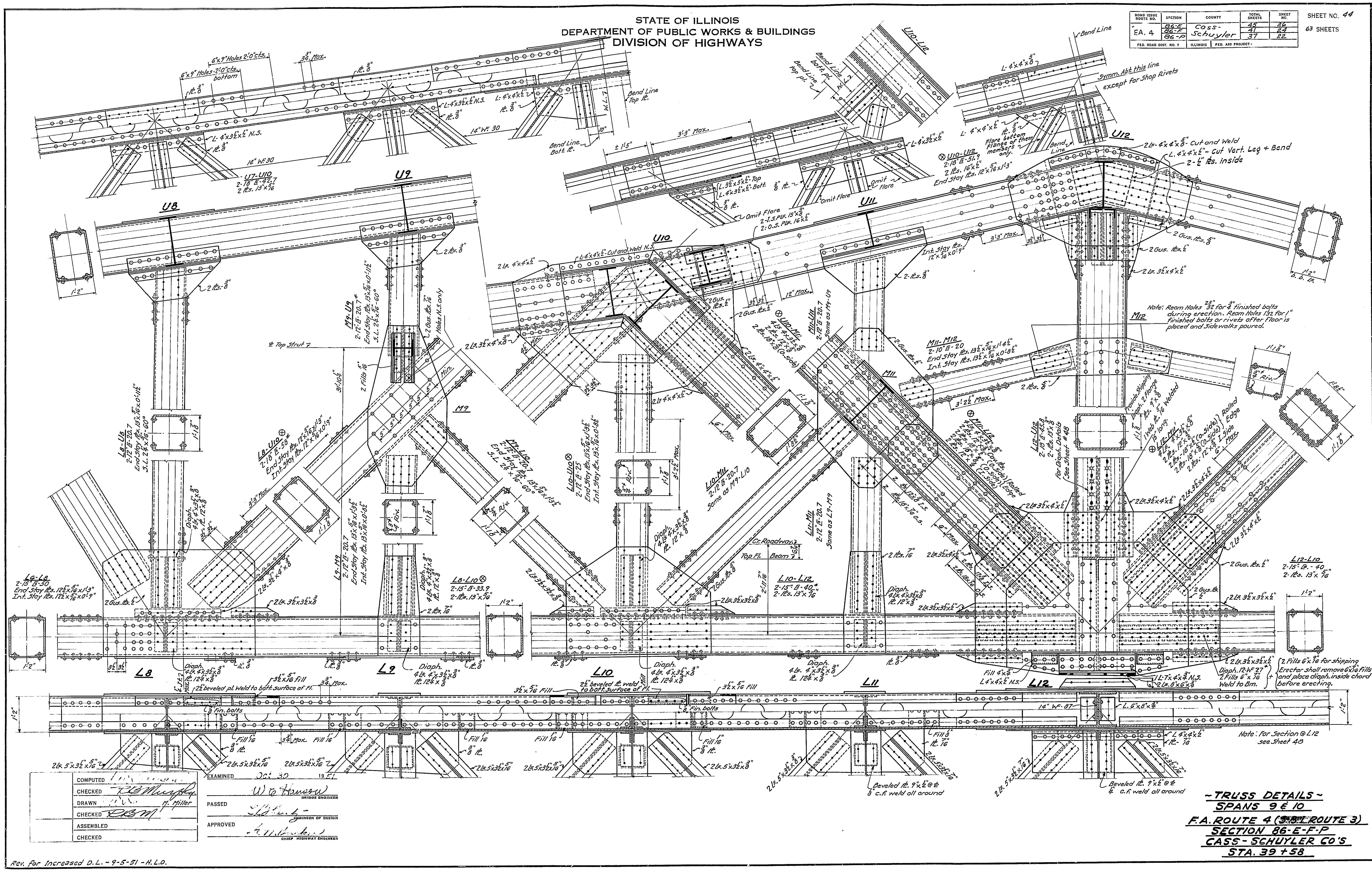


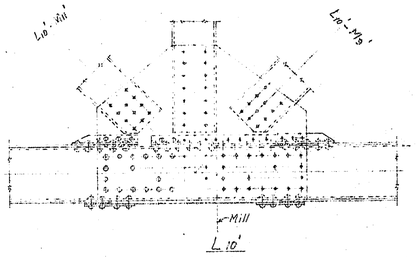
	COMPUTED	Eastman	EXAMINED Oct 30 19.51
	CHECKED	C.R.T. Murphy	W.B. Hansen BRIDGE ENGINEER
	DRAWN	Eastman - J.S. Halecki	PASSED — ENGINEER OF DESIGN
	CHECKED	R.B.M.	APPROVED — CHIEF HIGHWAY ENGINEER
	ASSEMBLED		
	CHECKED		

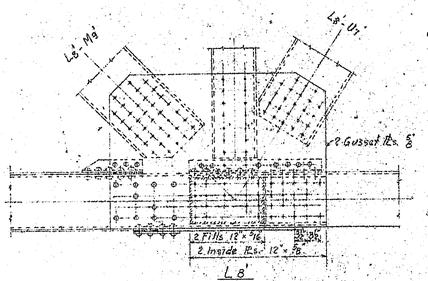
Rev. for Increased D.L. - 9-5-51 - H.L.O.

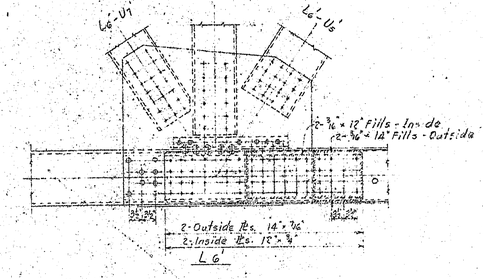
-TRUSS DETAILS-
SPANS 9 & 10
F.A. ROUTE 4 (~~STATE~~ ROUTE 3)
SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39+58

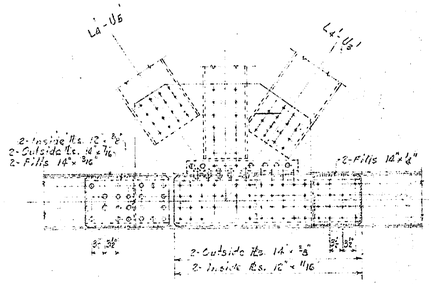
EUGENE DIETZGEN CO. NO. 111

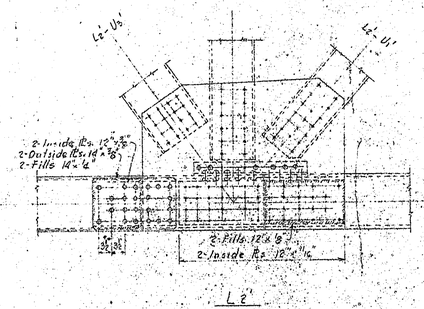

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS
BOND ISSUE ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO.
F.A. 4 | 86-E 86-F 86-P | Cass-Schuyler | 45 41 37 | 26 24 22
FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT-
SHEET NO. 44
63 SHEETS
U7-U10
2-18" [-42.7
2 Pls. 13"x5/16"
U8
U9
U10
U11
U12
U10-L12
⊗ U10-U12
2-18" [-51.9
2 Pls. 16"x1/2"
End Stay Pls. 12"x5/16"x1'-3"
2 Ls-4"x4"x5/8"- Cut and Weld
L.4"x4"x1/2"- Cut Vert. Leg + Bend
2-1/2" Pls. inside
Symm. Abt. this line except for Shop Rivets
Note: Ream Holes 25/32 for 3/4" finished bolts during erection. Ream Holes 1 1/32 for 1" finished bolts or rivets after Floor is placed and Sidewalks poured.
M9-U9
2-12" [-20.7*
End Stay Pls. 13"x5/16"x0'-11 1/2"
S.L. 24"x5/16"-60°
L8-U8
2-12" [-20.7
End Stay Pls. 13"x5/16"x0'-11 1/2"
S.L. 24"x5/16"-60°
L8-U10 ⊕
2-18" [-58*
End Stay Pls. 12"x5/16"x1'-3"
Int. Stay Pls. 12"x5/16"x0'-9"
M9-L10
2-12" [-20.7
End Stay Pls. 13 1/2"x5/16"x1'-3 1/2"
S.L. 24"x5/16"-60°
L10-U10 ⊗
2-12" [-25
End Stay Pls. 13 1/2"x5/16"x1'-3 1/2"
Int. Stay Pls. 13 1/2"x5/16"x0'-8 1/2"
L9-M9
2-12" [-20.7
End Stay Pls. 13"x5/16"x1'-3 1/2"
Int. Stay Pls. 13"x5/16"x0'-8 1/2"
⊗ U10-M11
4 Ls 4"x3 1/2"x5/8"
2 Pls. 12"x3/8"
2 Pls. 18"x3/8" (O. Side)
M11-U11
2-12" [-20.7
Same as M9-U9
L10-M11
2-12" [-20.7
Same as M9-L10
L11-M11
2-12" [-20.7
Same as L9-M9
M11-M12
2-10" [-20
End Stay Pls. 13 1/2"x5/16"x1'-4 1/2"
Int. Stay Pls. 13 1/2"x5/16"x0'-8 1/2"
⊕ M11-L12
4 Ls. 4"x3 1/2"x5/8"
2 Pls. 12"x3/8" Cov. Pls.
2 Pls. 18"x5/16" (O. Side) Rolled Edge
2 Pls. 12"x3/8" (I. Side)
L12-U12
2-18" [-45.8
2-Pls. 13"x3/8"
For Diaph. Details See Sheet #48
⊕ L12-M11
4 Ls. 4"x3 1/2"x5/8"
2 Pls. 12"x3/8"
2 Pls.-18"x1/2" (O. Side)
2 Pls.-18"x5/8" (O. Side) Rolled Edge
2 Pls. 12"x3/4" I. Side
Provide Shipping Diaph. 2 Flange Pls. 9"x3/8" 1 Web Pl. 5/16" Welded 15" long.
L6-L8
2-15" [-50
End Stay Pls. 12 1/2"x5/16"x1'-3"
Int. Stay Pls. 12 1/2"x5/16"x0'-9"
L8-L10 ⊗
2-15" [-33.9
2-Pls. 13"x5/16"
L10-L12
2-15" [-40*
2-Pls. 13"x5/16"
L12-L10
2-15" [-40
2-Pls. 13"x5/16"
L8
L9
L10
L11
L12
M9
M11
M12
Cr. Roadway
Top Fl. Beam
14" W.F. 30
14" W.F.-87
Diaph. 12-W.F. 27
2 Fills 6"x7/16" Weld to Bm.
2 Fills 6"x9/16" for shipping. Erector shall remove 6"x9/16" Fills and place diaph. inside chord before erecting.
Beveled Pl. 9"x1/2" @ ℄ 1/4" c.f. weld all around
Note: For Section @ L12 see Sheet 48
COMPUTED
CHECKED R.B. Murphy
DRAWN M. Miller
CHECKED RBM
ASSEMBLED
CHECKED
EXAMINED Oct 30 1951
W. E. Hanson BRIDGE ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER
Rev. for Increased D.L. - 9-5-51 - H.L.O.
~TRUSS DETAILS~
SPANS 9 & 10
F.A. ROUTE 4 (S.B.I. ROUTE 3)
SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39+58











Note
Details not shown are similar to those of respective joints on other side of L12.

DESIGNED	H.L. OWEN
CHECKED	H.C. GRAHAM

EXAMINED Dec 8 1952
W.E. Hanson
ENGINEER OF BRIDGE & TRAFFIC STRUCTURES

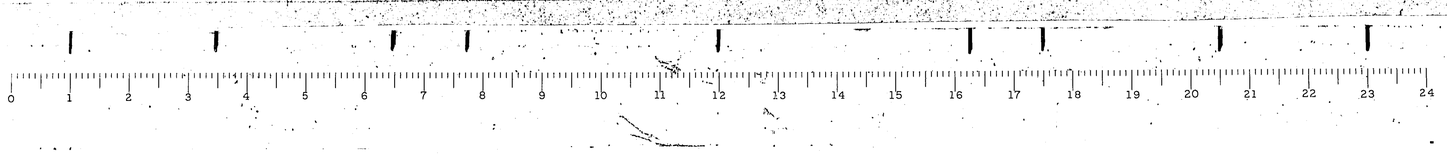
PASSED
ENGINEER OF DESIGN

APPROVED F.N. Barker
CHIEF HIGHWAY ENGINEER

SPANS 9 AND 10

SUPPLEMENTARY DETAILS FOR LOWER CHORD

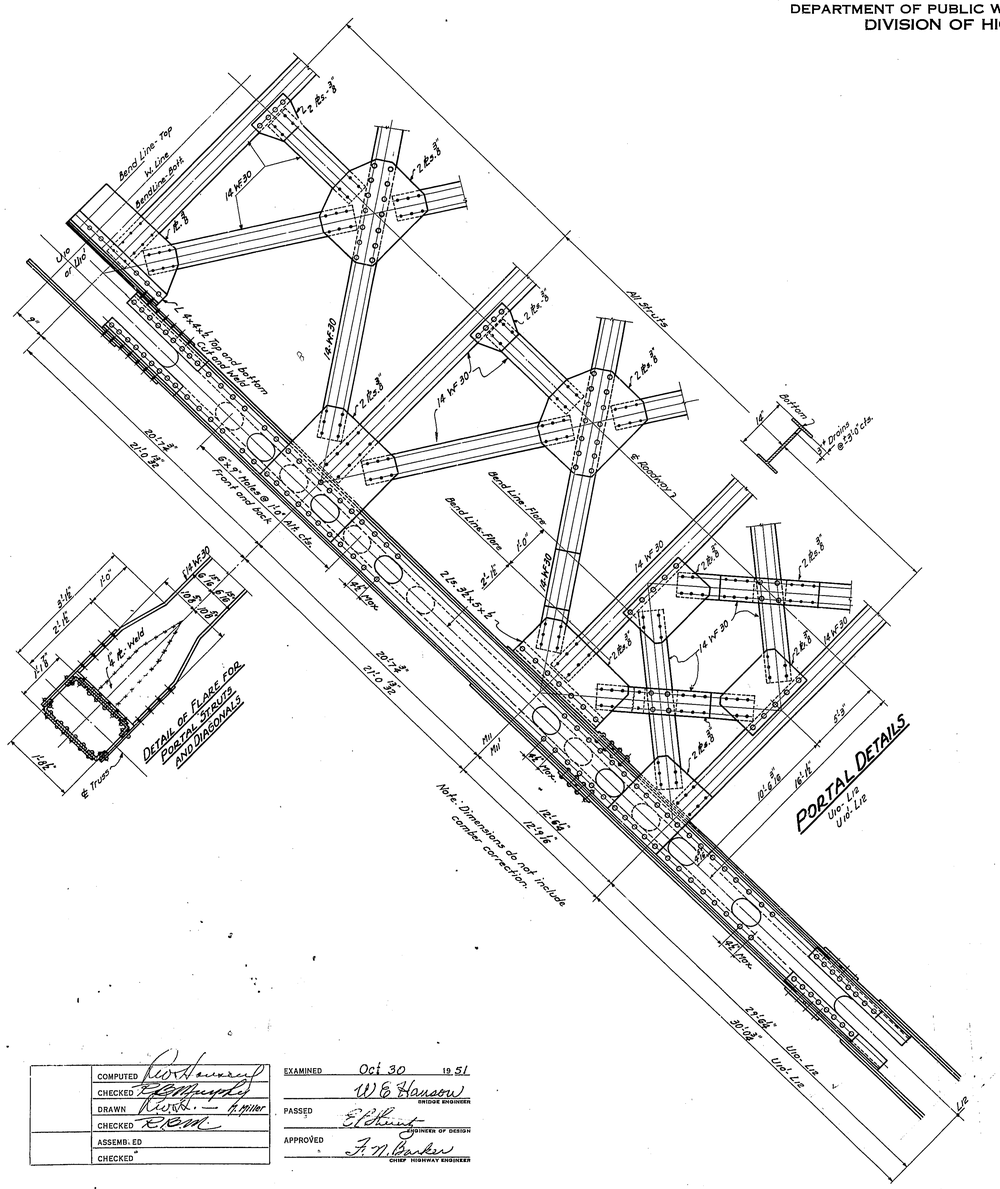
ILLINOIS RIVER BRIDGE AT BEARDSTOWN
F.A. ROUTE 4 SECTION 86-F-E
CASS-SCHUYLER CO'S.
STA. 89 + 58.

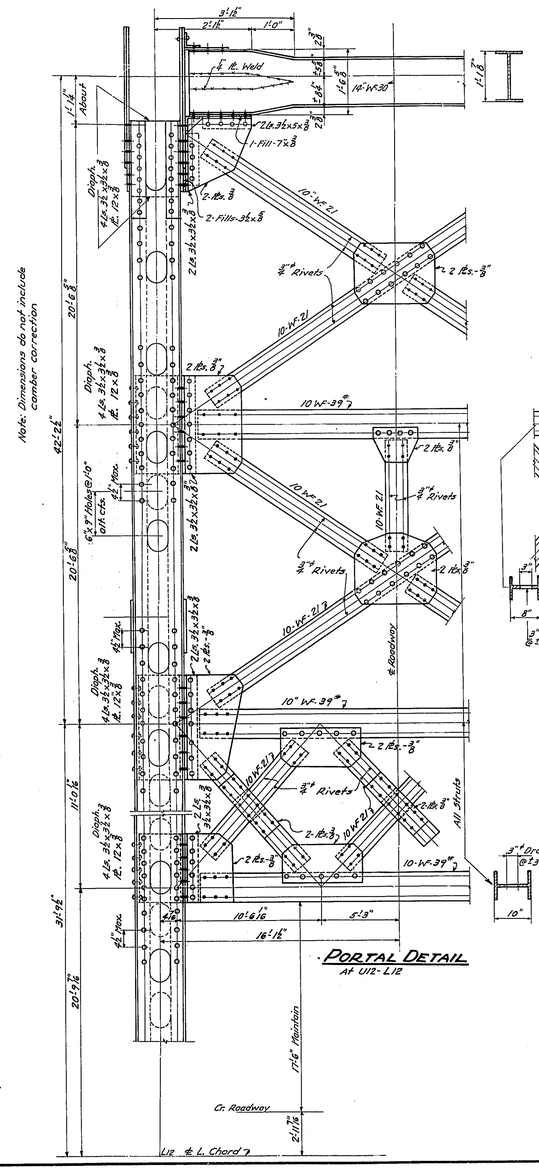


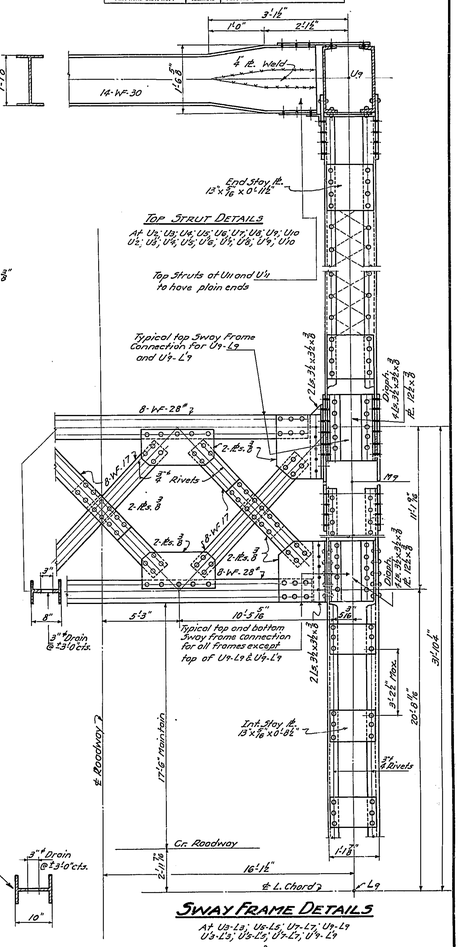
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-E	Cass - Schuyler	45	17
	86-F		41	25
	86-P		37	29
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT:	

SHEET NO. 45
63 SHEETS







COMPUTED	W.E.H.	EXAMINED	Oct 30 19 51
CHECKED	R.E.M.		W.E. Hanson BRIDGE ENGINEER
DRAWN	R.M.M. — H. Miller	PASSED	E.C. Hurst ENGINEER OF DESIGN
CHECKED	R.B.M.	APPROVED	F.N. Barker CHIEF HIGHWAY ENGINEER
ASSEMB. ED			
CHECKED			

EUGENE DIETZGEN CO.

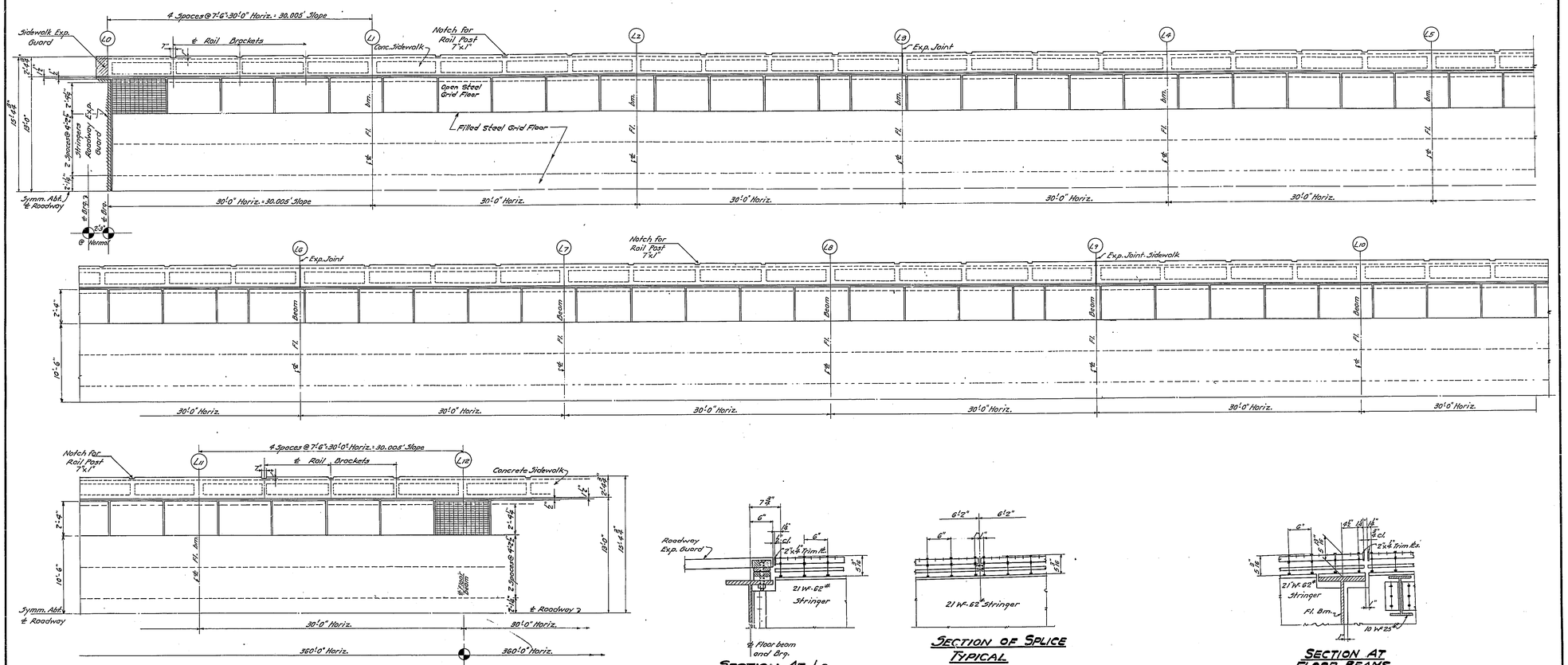
- PORTAL DETAILS - SPANS 9 & 10

F.A. ROUTE 4 (Now Illinois Route 5)
SECTION 86-E-F-P
CASS - SCHUYLER CO'S
STA. 39 + 58

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 4	86-D 86-E 86-F 86-P	Cass- Schuyler	16 40 41 97	16 25 26 24
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 46
63 SHEETS



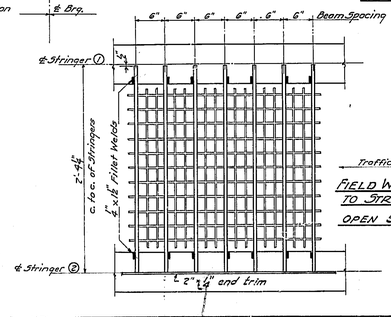
QUARTER PLAN OF FLOOR & SIDEWALK

Length of each unit of open steel grid floor is to be 2'-9"

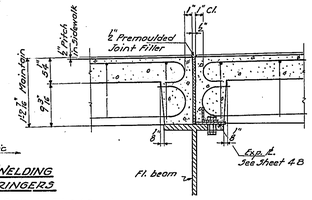
SECTION AT Lo
OPEN STEEL FLOOR

SECTION OF SPLICE TYPICAL
OPEN STEEL FLOOR

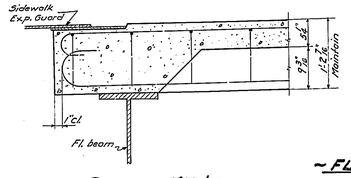
SECTION AT FLOOR BEAMS
WITH SLIP STRINGERS
OPEN STEEL FLOOR



FIELD WELDING TO STRINGERS
OPEN STEEL FLOOR



SECTION
Exp. Joint-Sidewalk at Floor Beams with Slip Stringers



SECTION AT Lo THRU CURB

Details for filled steel grid floor similar to those shown for spans 11-12 & 13. See sheet # 60.

COMPUTED	[illegible]	EXAMINED	Jul 30 1951
CHECKED	C.G. Wood		BRIDGE ENGINEER
DRAWN	R.C.M.— H. Miller	PASSED	
CHECKED	C.C.N.		ENGINEER OF DESIGN
ASSEMBLED		APPROVED	
CHECKED			CHIEF HIGHWAY ENGINEER

Revised (Filled Steel Grid Floor added) 9-5-51 HRG.

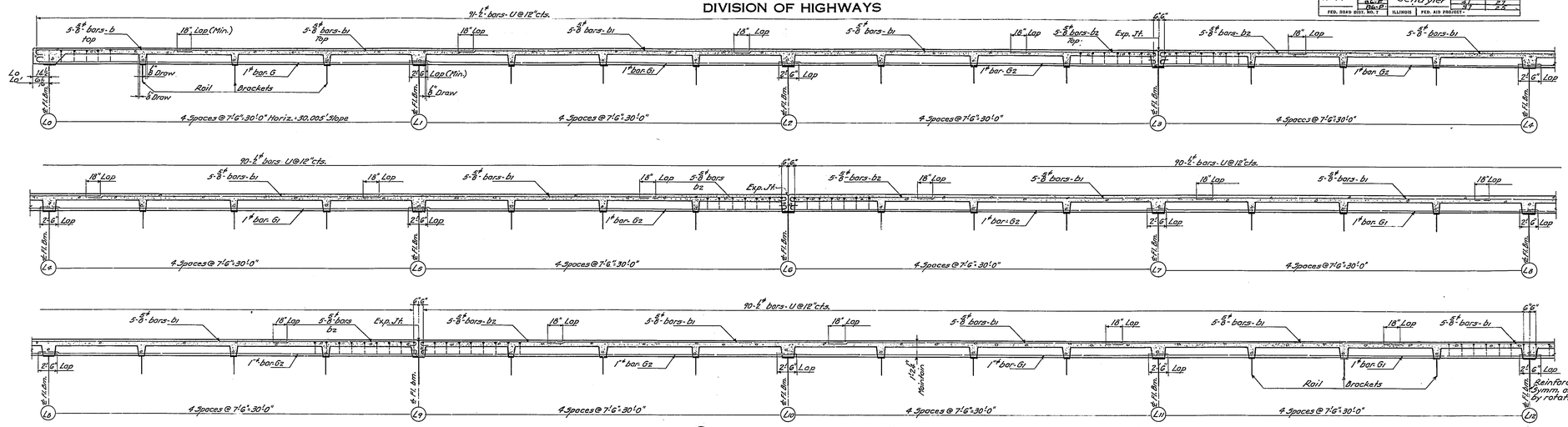
~ FLOOR & SIDEWALK DETAILS ~
SPANS 9 & 10
F.A. ROUTE 4 (Section 86-D-E-F-P)
CASS-SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

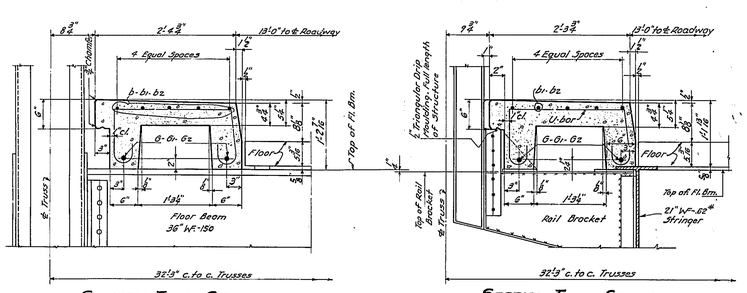
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA 4	B&D	Cass-Schuyler	16	13
	B&E		15	14
	B&F		17	15
	B&P		17	16
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 47
63 SHEETS

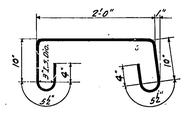


SECTIONAL ELEVATION OF SIDEWALK

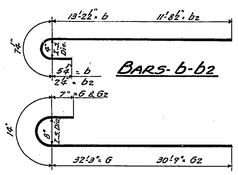


SECTION THRU SIDEWALK NEAR FLOOR BEAM

SECTION THRU SIDEWALK NEAR RAIL BRACKET



BAR U

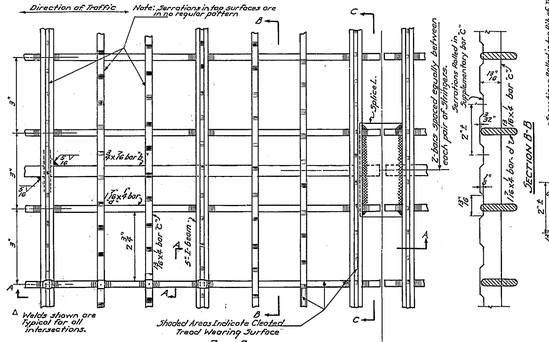


BARS- b-b2

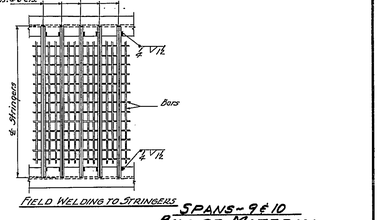
BARS- G-G2

COMPUTED	C.C.W.	EXAMINED	Oct 30 1951
CHECKED	C.C. Wood		W.G. Hanesworth BRIDGE ENGINEER
DRAWN	J.W.K. M. Miller	PASSED	
CHECKED	C.C.W.		ENGINEER OF DESIGN
ASSEMBLED		APPROVED	H.H. Evans CHIEF HIGHWAY ENGINEER
CHECKED			

Revised for 9" curb & Filled Steel Grid Floor - 9-5-51 H.P.G.



TYPICAL DETAILS - OPEN STEEL GRID FLOOR



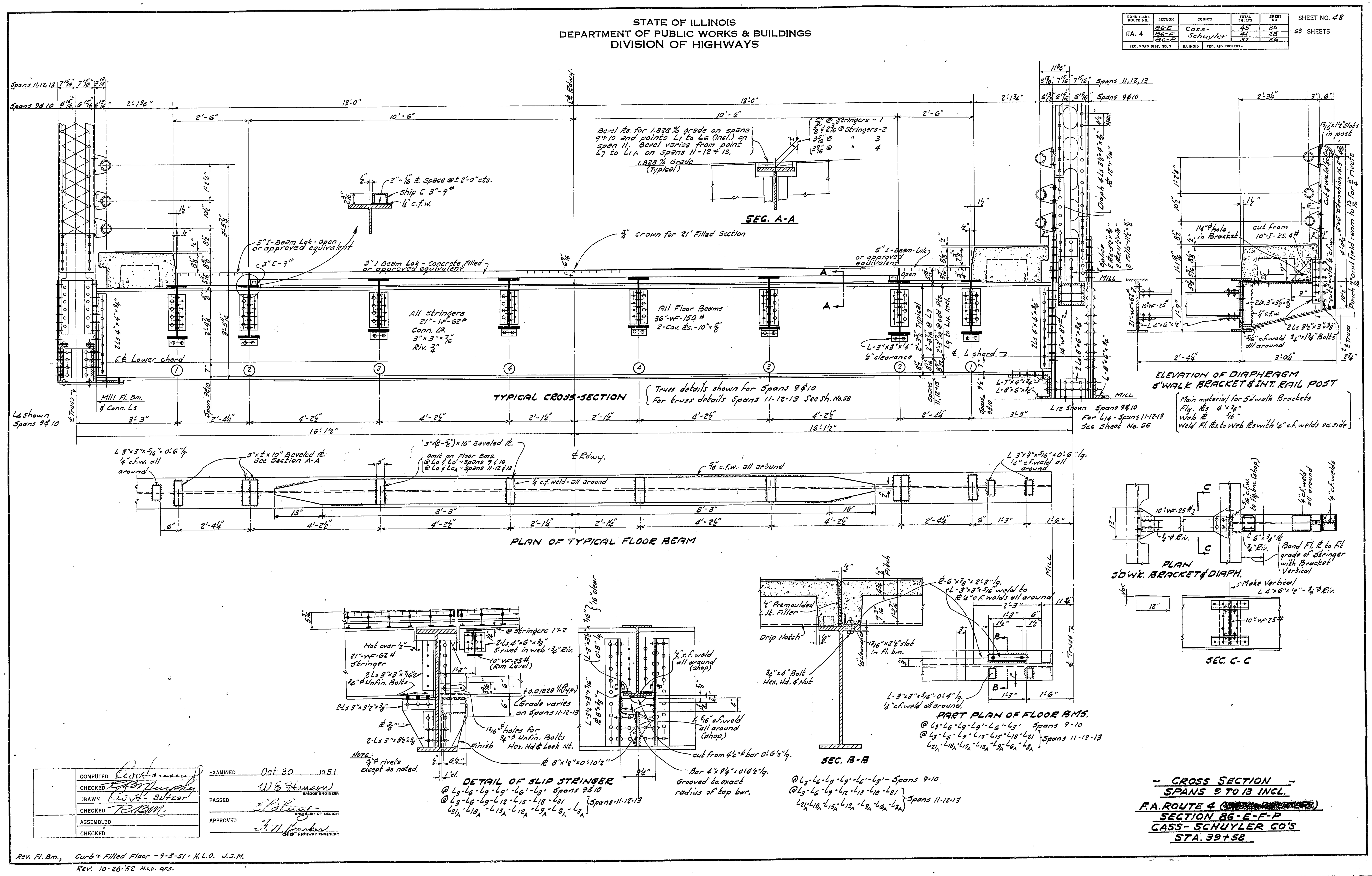
SPANS - 9 & 10
BILL OF MATERIAL

BAR	No.	SIZE	LENGTH	SHAPE
b	20	⅞"	14'-3"	
b1	250	⅞"	24'-0"	
b2	120	⅞"	12'-6"	
G	8	1"	34'-0"	
G1	40	1"	32'-6"	
G2	48	1"	32'-6"	
U	1444	½"	5'-3"	

Class-X Concrete	Cu. Yds.	102.7
Reinforcement Bars	Lbs.	21,650
Open Steel Grid Floor	Sq. Ft.	3385
Filled Steel Grid Floor	Sq. Ft.	15097
Concrete Filling (Steel Floor)	Sq. Ft.	15,097

SPANS 9 & 10
- FLOOR & SIDEWALK DETAILS -
F.A. ROUTE 4 (~~US 24 ILLINOIS 104~~)
SECTION 86-D-E-F-P
CASS-SCHUYLER CO'S
STA. 39 + 58

ELGIN DIETZGEN CO.

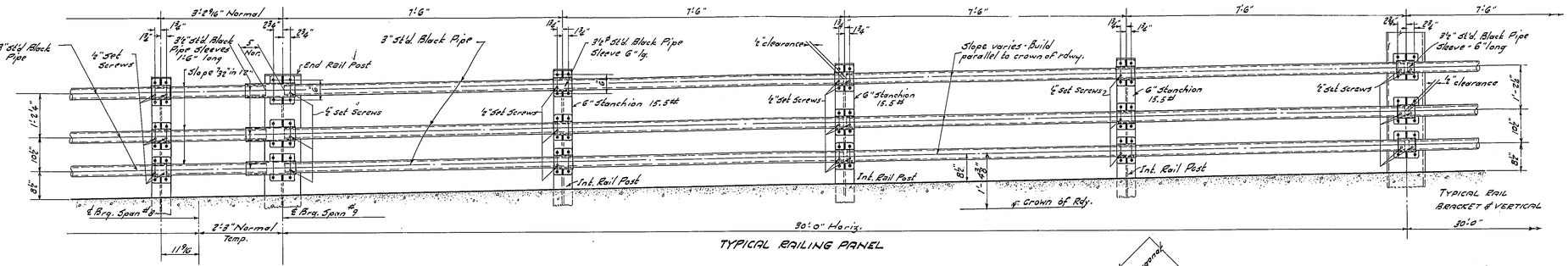


CROSS SECTION
SPANS 9 TO 13 INCL.
F.A. ROUTE 4 ([redacted])
SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39+58

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

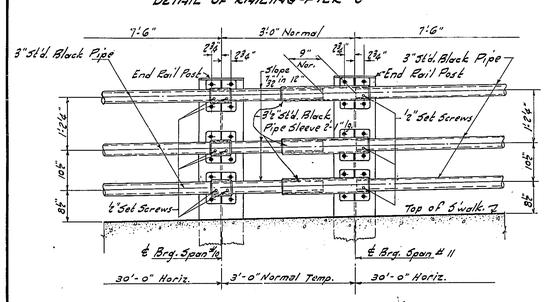
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	26-29		16	13
	30-35	Cass -	20	17
FA. 4	1-24	Schuyler	26	23
	1-24		27	24
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 49
63 SHEETS

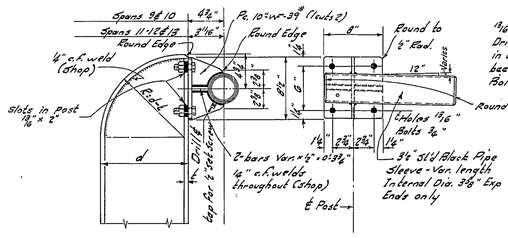


TYPICAL RAILING PANEL

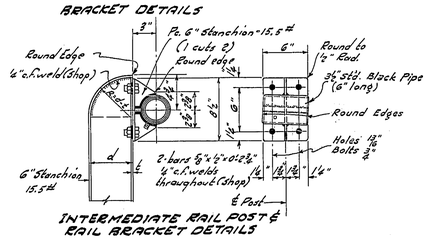
TYPICAL RAIL BRACKET @ VERTICAL



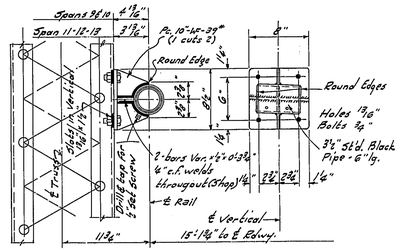
DETAIL OF RAILING - PIER #10



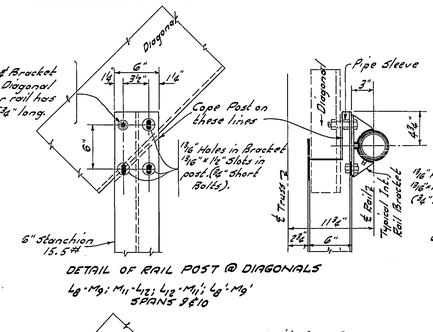
TRUSS END RAIL POST & RAIL BRACKET DETAILS



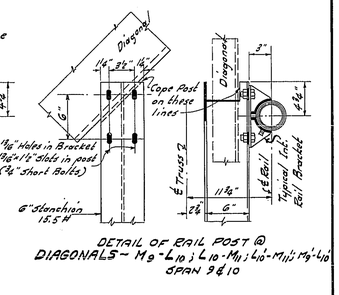
INTERMEDIATE RAIL POST & RAIL BRACKET DETAILS



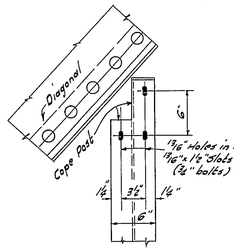
DETAIL OF RAIL BRACKET @ TRUSS VERTICALS

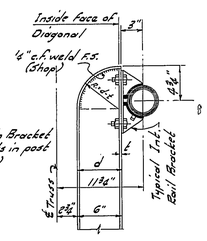


DETAIL OF RAIL POST @ DIAGONALS
Lg - Mg; M11 - L12; L12 - M11; Lg - Mg
SPANS 9 & 10



DETAIL OF RAIL POST @ DIAGONALS - M9 - L10 ; L10 - M11 ; L10' - M11' ; M9' - L10'
SPAN 9 & 10





DETAIL OF RAIL POST @ DIAGONALS - L14 M13, L14 M15 & M17 L18 - SPANS 11-12-13

Note :
Set screw for rail connections shall have square heads & cup points. Bolts for rail connections shall be furnished with hexagon head and hexagon Anco nuts.
Weight of handrail and details included in the item "Structural Steel" for the trusses.

	COMPUTED	Pat Hanrahan	EXAMINED Oct 30 19 51
	CHECKED	C.C. Wood	W B Hanaw BRIDGE ENGINEER
	DRAWN	J.W.S. - Sutzer	PASSED
	CHECKED	C.C.W.	ENGINEER OF DESIGN
	ASSEMBLED		APPROVED F. H. Bowles CHIEF HIGHWAY ENGINEER
	CHECKED		

Revised for 7' Curb 9-5-51 HRG.

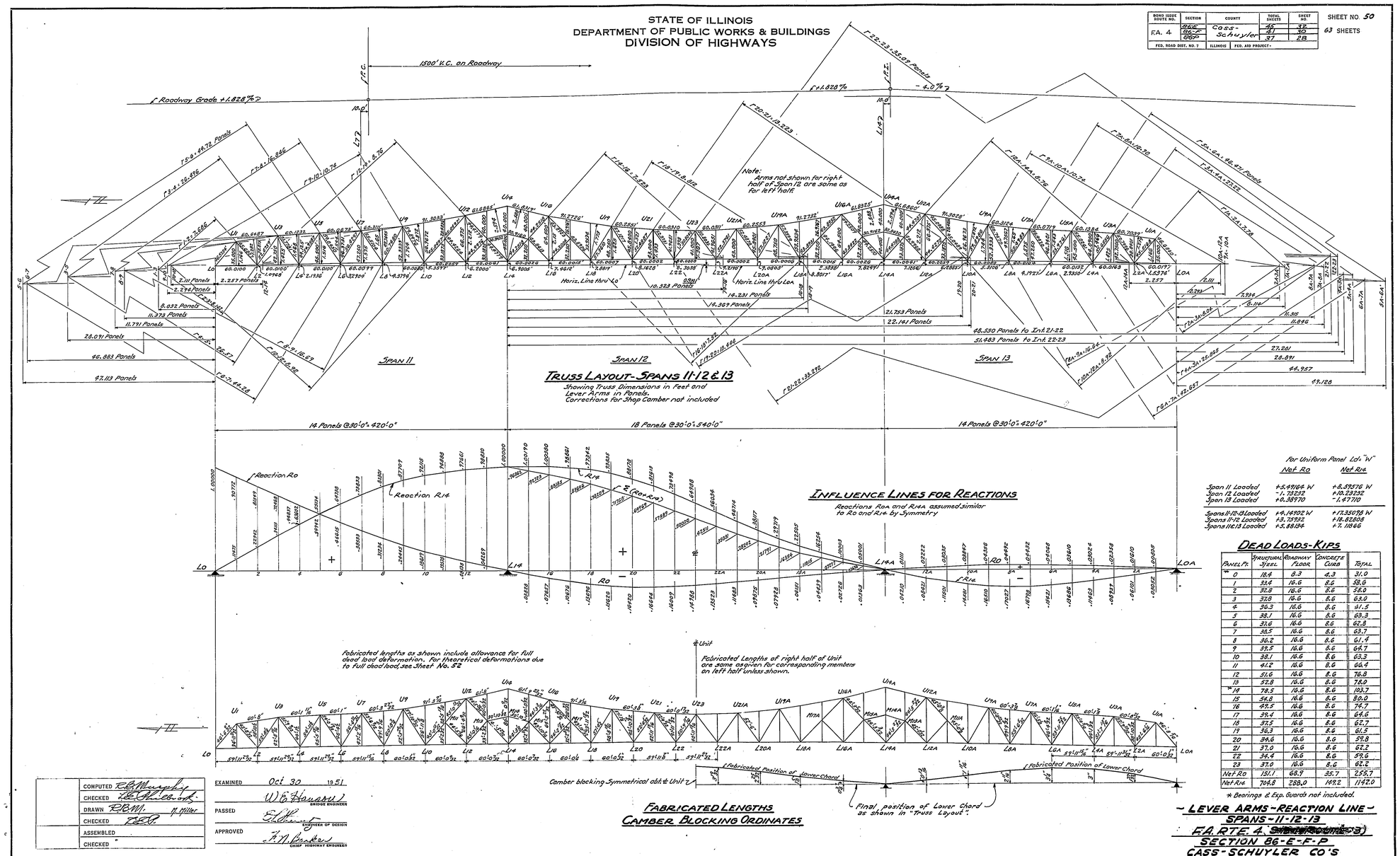
~ HANDRAIL DETAILS ~
SPANS 9-10 & 11-12-13
F.A. ROUTE 4 (Section Columbus)
SECTION 86-D-E-F-P
CASS - SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86E	Cass	40	33
F.A. 4	86F	Schuyler	41	40
	86P		37	28
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 50
63 SHEETS



TRUSS LAYOUT-SPANS 11-12 & 13

Showing Truss Dimensions in Feet and Lever Arms in Panels. Corrections for Shop Camber not included

INFLUENCE LINES FOR REACTIONS

Reactions R0A and R14A assumed similar to Ro and R14 by Symmetry

For Uniform Panel Ldg. "W"

	Net Ro	Net R14
Span 11 Loaded	+.497164 W	+.892776 W
Span 13 Loaded	+.038970	-.147710
Spans 11-12-13 Loaded	+9.141902 W	+12.350978 W
Spans 11-12 Loaded	13.75932	+18.82808
Spans 11&13 Loaded	+.881394	+7.11866

Fabricated lengths as shown include allowance for full dead load deformation. For theoretical deformations due to full dead load, see Sheet No. 52

Fabricated Lengths of right half of Unit are same as given for corresponding members on left half Unless shown.

FABRICATED LENGTHS
CAMBER BLOCKING ORDINATES

DEAD LOADS-KIPS

Panel Pt.	Structural Steel	Roadway Floor	Concrete Curb	Total
* 0	18.4	8.3	4.3	31.0
1	33.4	16.6	8.6	58.6
2	32.8	16.6	8.6	58.0
3	32.8	16.6	8.6	63.0
4	36.3	16.6	8.6	91.5
5	38.1	16.6	8.6	63.3
6	31.6	16.6	8.6	62.8
7	35.5	16.6	8.6	63.7
8	36.2	16.6	8.6	61.4
9	39.5	16.6	8.6	64.7
10	38.1	15.6	8.6	63.3
11	41.2	15.6	8.6	66.4
12	31.6	16.6	8.6	76.8
13	32.8	16.6	8.6	78.0
* 14	78.5	16.6	8.6	103.7
15	56.8	16.6	8.6	80.0
16	49.5	16.6	8.6	74.7
17	39.4	16.6	8.6	64.6
18	31.5	16.6	8.6	62.7
19	36.3	16.6	8.6	61.5
20	34.6	16.6	8.6	59.8
21	37.0	16.6	8.6	62.2
22	34.4	16.6	8.6	59.6
23	37.0	16.6	8.6	62.2
Net Ro	131.1	68.9	35.7	255.7
Net R14	704.8	288.0	149.2	1142.0

* Bearings & Exp. Guards not included.

COMPUTED	R.B. Murphy	
CHECKED	H.E.P. 6-8-51	
DRAWN	R.B.M.	H. Miller
CHECKED	H.E.P.	
ASSEMBLED		
CHECKED		

EXAMINED Oct 30 1951
W. G. Hayward BRIDGE ENGINEER
PASSED E. E. Hoff ENGINEER OF DESIGN
APPROVED F. M. Bonker CHIEF HIGHWAY ENGINEER

Rev. for Increased D.L. 9-5-51 - H.P.G.

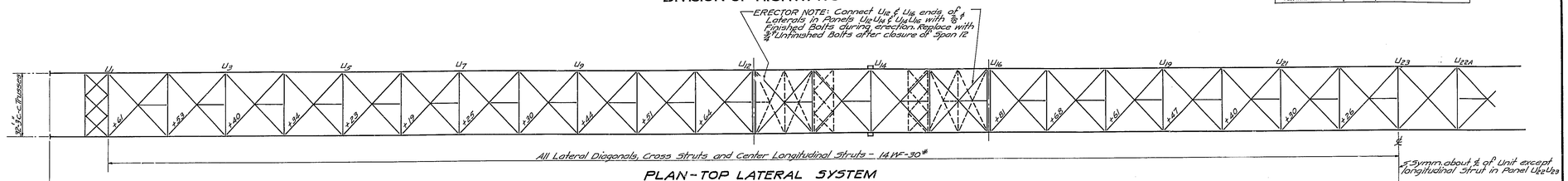
- LEVER ARMS - REACTION LINE -
SPANS - 11-12-13
F.A. RTE. 4 (Section 86-E-F-P)
SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

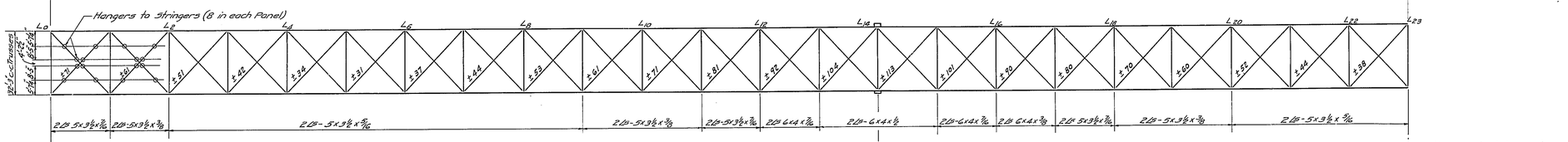
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 4	86-E	Cass-	45	33
	86-F	Schuyler	37	37
	86-P		37	29
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

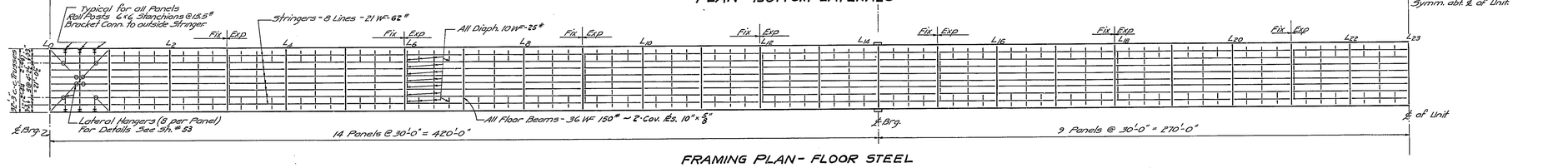
SHEET NO. 51
63 SHEETS



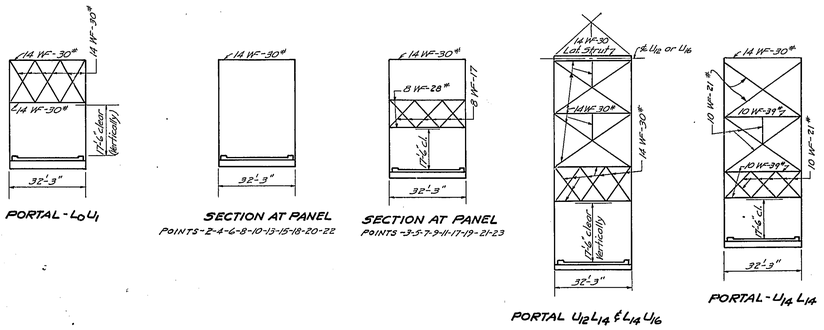
PLAN - TOP LATERAL SYSTEM



PLAN - BOTTOM LATERALS



FRAMING PLAN - FLOOR STEEL



BILL OF MATERIAL - SPANS - 11-12-13

ITEM		SEC. 86-E-F-P
Structural Steel (Carbon)	Lbs.	3,034,780 *
Structural Steel (A-242)	Lbs.	890,760

* Does not include Bearings and Expansion Guards. See Sheet Nos. 35-36 & 38

	COMPUTED	T.P. Murphy
	CHECKED	E.E. Brown
	DRAWN	R.G.M. & W.L.M.
	CHECKED	E.E.B.
	ASSEMBLED	
	CHECKED	

EXAMINED Oct 20 1951
W.G. Hourigan BRIDGE ENGINEER
PASSED C.H. Swift ENGINEER OF DESIGN
APPROVED F.H. Bowman CHIEF HIGHWAY ENGINEER

Rev. Stringer Spc. & Fl. Bm. 9-5-51 - H.L.O.

~FRAMING PLAN - SPANS - 11-12-13
FA. RTE. 4, ~~SECTION 3~~
SECTION 86-E-F-P
CASS - SCHUYLER CO.'S
STA. 394+58

MEMBER	SECTION	MAT. UNIFORMLY DIST. LOAD W lbs/ft	x-x rx	y-y ry	l/r max.	AREA - Sq. In. Gross Ag	Net An	Effective Ae	STRESS - Kips Dead D	Live L	Impact I	WIND STRESS - Kips 300 Lbs/sq.ft. W30	50 Lbs/sq.ft. W30	TOTAL STRESS - Kips D+L+I I	D+W30 II	D+W30 III	D+L+I+W30 IV	ACTUAL UNIT STRESS - #/□" I	II	III	IV	ALLOWABLE UNIT STR.-#/□" I & II (Basic)	III & IV (125% Basic)	DEFORMATION FULL DEAD LOAD (Ft.)	STRESS-STEEL WT. CONTINUOUS Kips	CANTILEVER L=6, TO L=23 (Kips)	MEMBER
Lo U1	4Pl.-9×⅝ 2 L's 7"×7"×⅞ 2 Pl's. 20"×⅜ 2 Pl's. 20"×⅜	46.684	7.35	7.35	76.2	63.0	58.5	61.32	-340.8	-198.9	-19.9	V=32.7K M=-221.1K	V=.60 M=.880K	-559.6	Dir=-372.8 M=-219.1K	Dir=-390.4 M=-236.0K	Dir=-591.8 M=-221.9K	-9560	-13410	-17590	-17140	-15470	-19340			-167.5	Lo U1
U1 U3	4L's 4×4×⅝ - 2 Pl's. 20"×½ - 2 Pl's. 14"×⅜	30.352	7.82	7.02	51.9	41.94	37.44	40.26	-353.9	-202.4	-20.2			-576.5				-15400				-16550		.0086-L0 U1 = .0082-L0 A U0A .0078-U1 U3 = .0078-U1A U3A		-171.0	U1 U3
U3 U5	4L's 4×4×⅝ - 2 Pl's. 20"×⅜ - 2 Pl's. 14"×⅜	30.069		6.98	51.7	35.50	31.00	33.82	-455.5	-285.0	-28.5			-769.0				-15080				-16350		-.0170		-207.2	U3 U5
U5 U7	Same as U3 U5	30.036		6.98	51.6	35.50	31.00	33.82	-410.8	-310.4	-31.0			-752.2				-14750				-16350		-.0153		-186.9	U5 U7
U7 U9	Same as U1 U3	30.156	7.82	7.02	51.6	41.94	37.44	40.26	-210.3	-270.2	-27.0			-507.5				-13550				-14330		-.0105		-18.8	U7 U9
U9 U11	Same as U1 U3	30.434	7.82	7.02	52.1	41.94	37.44 C 38.94 T	40.26	+102.0	-173.4 +228.0	-17.3 +22.8			-311.7 +358.2				-7470 +13520				-7320 +18000		+.0077		+175.1	U9 U11
U11 U14	4 L's. 4×4×⅝ - 4 Pl's. 20"×⅝	30.843				78.44	61.44	78.44	+801.8	+392.7	+39.1			+1145.8				+18650				+21000		+.0210		+376.5	U11 U14
U14 U16	4 L's do 4 Pl's. do	30.716				78.44	61.44	78.44	+803.7	+393.5	+39.4			+1148.6				+18690				+21000		+.0211		+378.0	U14 U16
U16 U19	4 L's. 4×4×⅝ - 2 Pl's. 20"×½	30.424				31.44	24.44	31.44	+174.4	+142.6	+14.3			+331.3				+13560				+18000		+.0169		+267.0	U16 U19
U19 U21	Same as U1 U3	30.128	7.82	7.02	51.5	41.94	37.44 C 38.94 T	40.26	-116.8	-196.5 +272.8	-19.6 +27.3			-333.9 +428.0				-8720 +15820				-14280 +18000		-.0058		+118.0	U19 U21
U21 U23	4 L's 4×4×½ - 2 Pl's. 20"×½ - 2 Pl's. 14"×⅜	30.016	7.93	6.95	51.9	45.50	41.00	43.82	-301.3	-270.2	-27.0			-598.5				-14600				-16560		-.0138		+18.2	U21 U23
Lo L2	2 L's -15"-42.7#	30.010				24.96	20.66	24.96	+219.3	+128.0	+12.8	±105.6		+360.1			+465.7	+7430			+22540	+18000	+22500	±.0176	+127.1	+108.0	Lo L2
L2 L4	2 L's -15"-51.9 - 2 Pl's. 16"×⅞	30.008				44.36	37.70	44.36	+415.4	+246.1	+24.6	±184.3		+686.1			+870.4	+18200			+23070	+21000	+26250	±.0187	+243.7	+196.7	L2 L4
L4 L6	2 L's -15"-51.9 - 2 Pl's. 16"×⅜	30.007				50.36	42.96	50.36	+450.2	+303.8	+30.4	±222.5		+784.4			+1006.9	+18260			+23440	+21000	+26250	±.0179	+266.1	+192.4	L4 L6
L6 L8	2 L's -15"-51.9 - 2 Pl's. 16"×⅞	30.005				44.36	37.70	44.36	+331.7	+300.6	+30.1	±220.7		+662.4			+883.1	+17570			+23420	+21000	+26250	±.0150	+198.9	+198.8	L6 L8
L8 L10	2 L's -15"-45.8	30.004	6.55		55.0	26.76	22.26 T 20.76 C	26.76	+63.4	+226.8 -199.0	+22.7 -19.9	±178.9		+317.9 -158.5			+467.8 -336.8	+11880 +5820			+22220 -15260	+18000 -13340	+22500 -17800	±.0047	+ 42.8	-74.0	L8 L10
L10 L12	2 L's-18-45.8-2 Pl's. 18"×⅜-2 Pl's. 16"×⅜	30.003	6.52		55.2	49.26	44.76	47.58	-415.9	-231.0	-23.1	-146.0		-670.0			-816.0	-14170			-18230	-16430	-20540	-.0175	-238.6	-361.9	L10 L12
L12 L14	2 L's-18-45.8-2 Pl's. 16"×⅜-2 Pl's. 14"×⅜	30.002	6.28		57.4	57.26	52.76	53.58	-416.7	-231.0	-23.1	-250.0		-664.8			-914.8	-12600			-17340	-14180	-17730	-.0148	-233.4	-356.5	L12 L14
L14 L16	Same as L12 L14	30.001	6.28		57.4	57.26	52.76	53.58	-450.1	-213.7	-21.4	-246.0		-685.2	-696.1		-931.2	-12990	-13190		-17650	-14180	-17730	-.0162	-258.8	-400.5	L14 L16
L16 L18	Same as L12 L14	30.001	6.52		55.2	49.26	44.76	47.58	-457.2	-218.7	-21.4	-94.2		-692.3			-786.5	-15470			-17570	-16430	-20540	-.0192	-265.8	-407.8	L16 L18
L18 L20	2 L's-18-42.7	30.000	6.64		54.2	24.96	22.66 T 20.96 C	24.96	-21.6	+133.0 -125.6	+13.3 -12.6	±232.4	± 382.8	+323.1 -284.0	+210.8 -284.0	+381.2 -604.9	+383.1 -390.6	+8040 -6320	+10200 -10180	+17480 -18200	+17250 -15220	+18000 -16270	+22500 -19620	-.0017	- 14.7	-190.0	L18 L20
L20 L22	2 L's-18-42.7 - 2 Pl's. 16"×½	30.000				40.96	34.66	40.96	+230.7	+240.6	+24.1	+282.5		+495.4	+513.2		+777.9	+14290	+14810		+22490	+18000	+22500	±.0113	+130.4	-58.8	L20 L22
L22 L22A	2 L's-18-51.9 - 2 Pl's. 16"×⅞	30.000				48.36	41.21	48.36	+330.9	+286.4	+28.4	+292.6		+643.7			+936.3	+15620			+22720	+18000	+22500	±.0137	+188.0	0.0	L22 L22A
U1 L2	2 L's -15-40	45.683	5.44		112.7	23.40	18.82	23.40	+198.4	+139.9	+13.4			+345.7				+18370				+18000		±.0129		+93.0	U1 L2
L2 U3	2 L's -15-33.9	52.800	5.62		110.2	19.80	17.80	19.80	-115.8	-107.4	-10.7			-233.9				-11810				-11820		-.0103		-68.4	L2 U3
U3 L4	2 L's -15-33.9	51.770	5.62		110.3	19.80	19.70 T 19.80 C	19.80	+67.3	+92.0 -87.1	+9.2 -8.7			+178.0 -168.8				+9240 -8760				+13800 -11820		+.0059		+72.4	U3 L4
L4 U5	2 L's -15-33.9	55.026	5.62		117.5	19.80	19.80 C 19.70 T	19.80	+8.1	+80.0 -85.4	-8.0 +8.5			+96.1 -85.3				+8290 +8230				+11820 +18000		P .0087-L4 U5 P .0068-L4A U5A		+26.2	L4 U5
U5 L6	2 L's -15-33.9	54.043	5.62		115.4	19.80	19.80 c	19.80	-72.0	-92.6	-9.3			-173.9				-8380				-11870		-.0066		-64.4	U5 L6
L6 U7	2 L's -12-30	36.442	4.28			17.58	15.54	17.58	+147.9	+111.0	+11.1			+270.0				+13770				+19000				+107.0	L6 U7
U7 L8	2 L's -18-51.9	55.510	6.4		104.1	30.36	30.36	30.36	-226.5	-122.8	-12.3			-361.6				-11910				-12300				-198.1	U7 L8
L8 U9	2 L's -18-51.9	60.748	6.4			30.36	24.26	30.36	+295.5	+143.9	+14.4			+453.8				+18700				+21000		±.0197 P .0097-L8 U9 P .0053-U9A L8A		+187.6	L8 U9
U9 L10	2 L's -18-50 - 2 Pl's. 14"×⅜	59.899	6.8		105.7	44.46	39.76	42.76	-327.2	-143.9	-16.4			-485.5				-12180				-12200				-197.0	U9 L10
L10 M11	2 L's -18-45.8 - 2 Pl's. 16"×⅝	45.050				42.76	36.26	42.76	+473.7	+200.5	+20.1			+694.3				+19150				+21000		±.0166		+284.0	L10 M11
M11 U12	2 L's -18-45.8 - 2 Pl's. 16"×⅜	45.080				46.76	39.76	46.76	+518.7	+213.0	+21.3			+753.0				+18940				+21000		+.0167		+311.5	M11 U12
U12 M13	4 L's 3½×3½×½ - 2 Pl's. 20"×⅜ - 2 Pl's. 14"×⅜	33.597 (x) 22.597 (y)	7.85	6.85	68.0	52.70	48.20	51.02	-495.5	-276.8	-19.7			-712.0				-14770				-15880		-.0144		-297.6	U12 M13
M13 L14	4 L's 3½×3½×½ - 2 Pl's. 13"×⅜ 2 Pl's. 20"×⅜ 2 Pl's. 16"×⅜	29.979 (x) 28.201 (y)	6.84	7.32	78.1	89.07	84.57	87.39	-547.9	-213.7	-21.4	±185.8 K M=±2061"K	V=1.91 K M=±22"K	-783.0	Dir=-632.9 K M=-822"K	Dir=-688.9 K M=-2482"K	Dir=-868.0 K M=-2561"K	-9260	-13230	-17730	-16430	-15360	-19210	-.0093		-332.3	M13 L14
L14 M15	4 L's 3½×3½×½ - 2 Pl's. 20"×⅝ 2 Pl's. 20"×⅜ 2 Pl's. 16"×⅜	99.223 (x) 28.807 (y)	6.67	7.37	78.6	98.35	94.45	97.27	-486.7	-212.0	-21.2	V=1.05K M=±317"K	V=1.87 K M=±306"K	-719.9	Dir=-591.1 K M=-2317"K	Dir=-653.3 K M=-2508"K	Dir=-884.9 K M=-2317"K	-7620	-12710	-17180	-15190	-15280	-19180	-.0074		-265.4	L14 M15
M15 U16	4 L's 3½×3½×½ - 2 Pl's. 20"×½ - 2 Pl's. 14"×⅜	44.332 (x) 21.772 (y)	7.05	6.83	67.7	52.70	48.2	51.02	-431.8	-196.1	-19.4			-645.3				-13390				-15790		-.0125		-228.6	M15 U16
U16 M17	2 L's -18-45.8 - 2 Pl's. 16"×⅝	43.893				42.76	36.26	42.76	+461.2	+223.2	+22.3			+706.7				+19490				+21000		±.0158		+237.7	U16 M17
M17 L18	2 L's -18-45.8 - 2 Pl's. -16"×⅜	43.893				40.76	34.51	40.76	+417.2	+210.9	+21.1			+649.2				+19810				+21000		±.0150		+211.4	M17 L18
L18 U19	2 L's -18-51.9 - 2 Pl's. -14"×⅜	57.961	6.93		99.4	40.86	36.36	37.18	-287.6	-155.7	-15.6			-458.9				-12620				-12530		-.0140		-140.3	L18 U19
U19 L20	2 L's -18-45.8	57.123	6.55			26.76	21.26	26.76	+262.4	+156.6	+15.7			+434.7				+20450				+21000		±.0187		+138.1	U19 L20
L20 U21	2 L's -18-45.8	52.487	6.55		96.2	26.76	26.76	26.76	-200.1	-136.6	-13.9			-352.6				-13180				-14260		±.0131		-102.6	L20 U21
U21 L22	2 L's -12-30	32.374	4.28			17.58	15.54	17.58	+123.2	+122.8	+12.3			+258.3				+18420				+18000		±.0122		+71.0	U21 L22
L22 U23	2 L's -15-33.9	50.804	5.62		108.5	19.6	19.5 C 14.1 T	19.80	- 50.6	-106.5 + 68.1	-10.5 +6.1			-166.5 + 38.6				-8410 +2740				-12000 +18000		-.0043		-30.8	L22 U23
U1 L1	16 - WF - 58	35.000	6.62	1.88	22.3	17.04	14.96	17.04	+44.8	* +64.8	* +17.4			+125.0				+8920				+18000		±.0031			U1 L1
M11 L11 M13 L13	do	33.108	"	"	21.2	"	"	"	+91.2 +48.1	"	"			+131.4 +133.3				+9190 +9150				"		±.0031			M11 L11 M13 L13
M15 L15 M17 L17	do	32.250	"	"	20.6	"	"	"	+93.3 +67.2	"	"			+139.5 +131.4				+8660 +8460				"		±.0030			M15 L15 M17 L17
U3 L3	2 L's -12-20.7	42.75	4.61		111.3	12.06	9.19	12.06	+48.0	"	"			+192.2				+14390				"		±.0057			U3 L3
U5 L5	do	45.50	"		118.4	"	"	"	+47.5	"	"			+131.7				+14330				"		±.0060			U5 L5
U7 L7	do	47.25	"		123.0	"	"	"	+47.6	"	"			+131.8				+14340				"		±.0062			U7 L7
U9 L9	do	52.333	"		136.2	"	"	"	+46.9	"	"			+131.1				+14270				"		±.0068			U9 L9
U11 L11	do	43.750	"		126.7	"	"	"	+45.5	"	"			+129.7				+14110				"		±.0081			U11 L11
U13 L13	do	43.000	"		112.0	"	"	"	+47.6	"	"			+131.8				+14340				"		±.0057			U13 L13
U23 L23	do	41.000	"		106.7	"	"	"	+47.8	"	"			+132.0				+14360				"		±.0054			U23 L23
U2 L12	2 L's -12-25	66.375	4.43		179.7	14.64	12.21	14.64	+124.7	+85.7	+17.5			+227.9				+18665				±18000		±.0138			U2 L12
U16 L16	do	64.600	4.43		174.6	14.64	12.21	14.64	+121.5	+85.7	"			+224.7				+18400				±18000		±.0178			U16 L16
U4 L14	4 L's 3½×3½×½ - 2 Pl's. 20"×⅜ - 2 Pl's. 14"×⅜	40.0 (x) 23.46 (y)	7.75	6.41	62.0 (x) 40.8 (y)	49.50	45.00	47.82	-412.1	-191.8	-19.2	V=48.2 K M=119.5"K	V= 80.4 K M= 199.3"K	-579.1	Dir=-469.4 K M=-1103.5"K	Dir=-492.5 K M=-1185.3"K	Dir=-627.4 K M=-1513.5"K	-12870	-15270	-19340	-18980	"16150 Fx "16920 Fy	-21150	-.0230		-314.6	U4 L14
U2 L2	2 L's 12-20.7	38.875	4.61		101.2	12.06	12.06	12.06	-9.0	0.0	0.0			- 9.0				- 746				-12440		-.0010			U2 L2
U4 L4	do	44.125	"		114.9	"	"	"	-10.7	"	"			- 10.7				- 887				-11700		-.0013			U4 L4
U6 L6	do	46.373	"		120.7	"	"	"	-10.7	"	"			- 10.7				- 887				-11350		-.0014			U6 L6
U8 L8	do	49.763	"		127.6	"	"	"	-7.6	"	"			- 7.6				- 796				-10800		-.0013			U8 L8
U10 L10	do	36.967	"		148.3	"	"	"	-9.9	"	"			- 9.9				- 821				-9500		-.0016			U10 L10
U18 L18	do	53.393	"		140.5	"	"	"	-8.9	"	"			- 8.9				- 738				-10060		-.0013			U18 L18
U20 L20	do	45.880	"		119.4	"	"	"	-9.3	"	"			- 9.3				- 771				-11440		-.0012			U20 L20
U22 L22	do	41.965	"		107.3	"	"	"	-7.7	"	"			- 7.7				- 804				-12010		-.0011			U22 L22
U11 M11	2 L's -9-15	28.484	3.40		100.5	8.78	8.78	8.78	-9.9	0.0	0.0			- 9.9				- 1127				-12470		-.0011			U11 M11
U13 M13 U15 M15	do	40.0	"		141.0	"	"	"	-12.5	"	"			- 12.5				- 1424				-10030		-.0019			U13 M13 U15 M15
U17 M17	do	26.977	"		95.4	"	"	"	-8.9	"	"			- 8.9				- 1014				-12740		-.0009			U17 M17
M11 L12	2 L's 12-20.7	44.427	4.61		115.6	12.06	12.06	12.06	-44.5	* -43.4	* -13.0			- 100.9				- 8370				-11660		-.0055			M11 L12
L12 M13	do	44.798	"		117.0	"	"	"	-52.8	* -44.0	* -13.2			- 110.0				- 9120				-11580		-.0066			L12 M13
M13 L13	do	43.862	"		114.1	"	"	"	-54.4	* -44.1	* -13.2			- 111.7				- 9260				-11740		-.0056			M13 L13
L13 M17	do	44.200	"		115.0	"	"	"	-44.3	* -44.4	* -13.3			- 102.0				- 8460				-11700		-.0054			L13 M17
M13 M14	2 L's -10-20	30.843	3.66		101.1	11.72	8.86	11.72																0.0			M13 M14
M14 M15	do	30.916	"		101.4	11.72	8.86	11.72																0.0			M14 M15

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHT. TOTAL
FA. 4	86-E	Cass Schuyler	45	56
	86-F		51	63
STA.			37	90
FED. ROAD DIST. NO. 7	ILLINOIS			

* Based on Max. Panel Load due to Lane Loading for Max. Shear Floor Beam. See Sheet No. 41

COMPUTED	R.J. Murphy
CHECKED	[illegible]
DRAWN	R.J.M.
CHECKED	[illegible]
EXAMINED	Oct 30 1951
	W.B. Hansen, BRIDGE ENGINEER
PASSED	[illegible], ENGINEER OF DESIGN
APPROVED	F.M. Barker, CHIEF HIGHWAY ENGINEER

NOTE:-
⊗ The main material in all members marked thus, shall be Structural low-alloy steel, A.S.T.M.-A 242.

- STRESS SHEET -
SPANS-11-12 & 13
F.A. RTE 4 SECTION 86-E-F-P
CASS - SCHUYLER CO'S
STA. 39+58

H. Miller

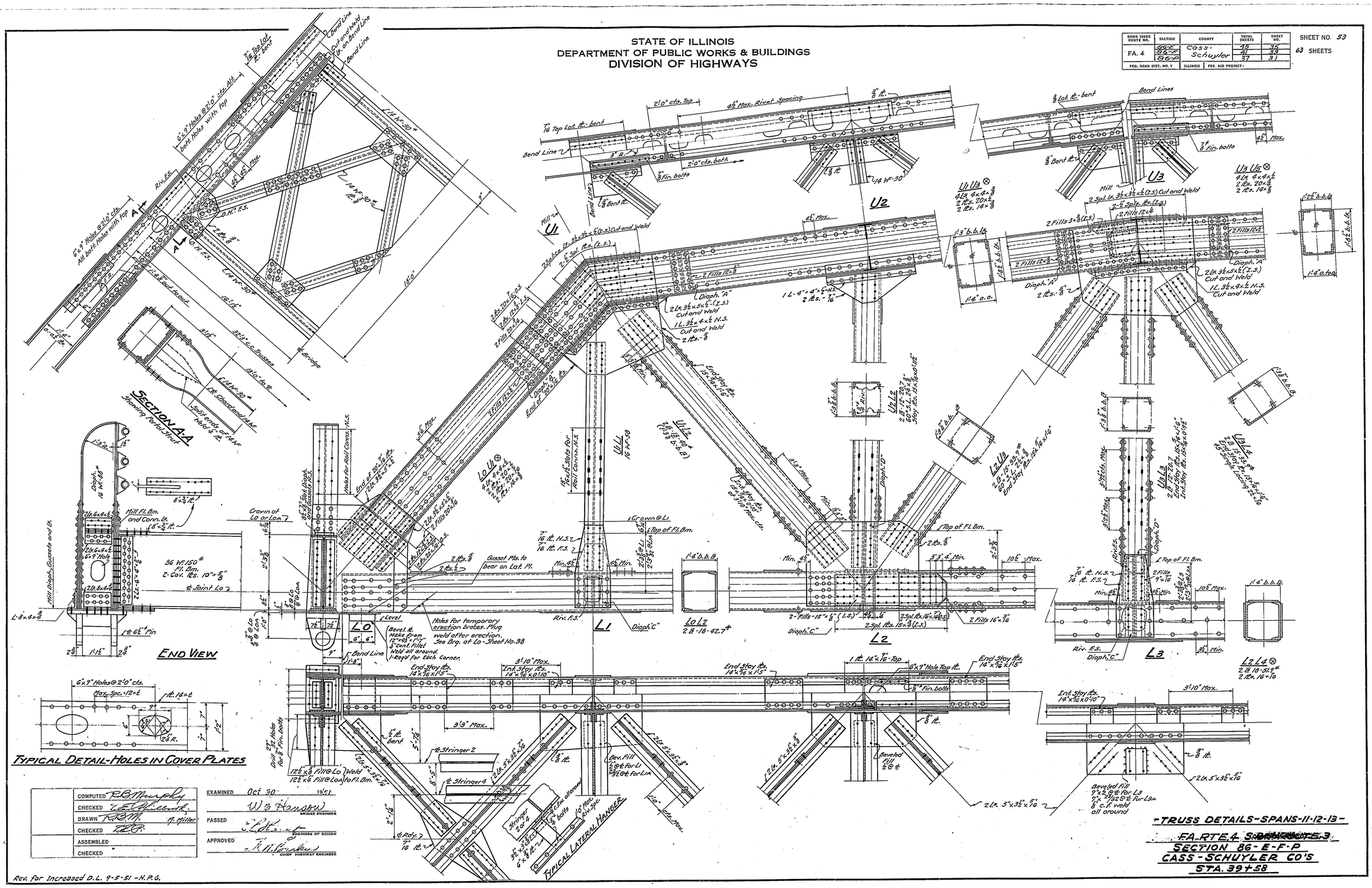
Rev. for Increased D.L. 9-5-51 - H.P.G.

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 4	86C	Cass-	45	35
	86-F	Schuyler	41	33
	196C		37	31
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT:		

SHEET NO. 53
63 SHEETS



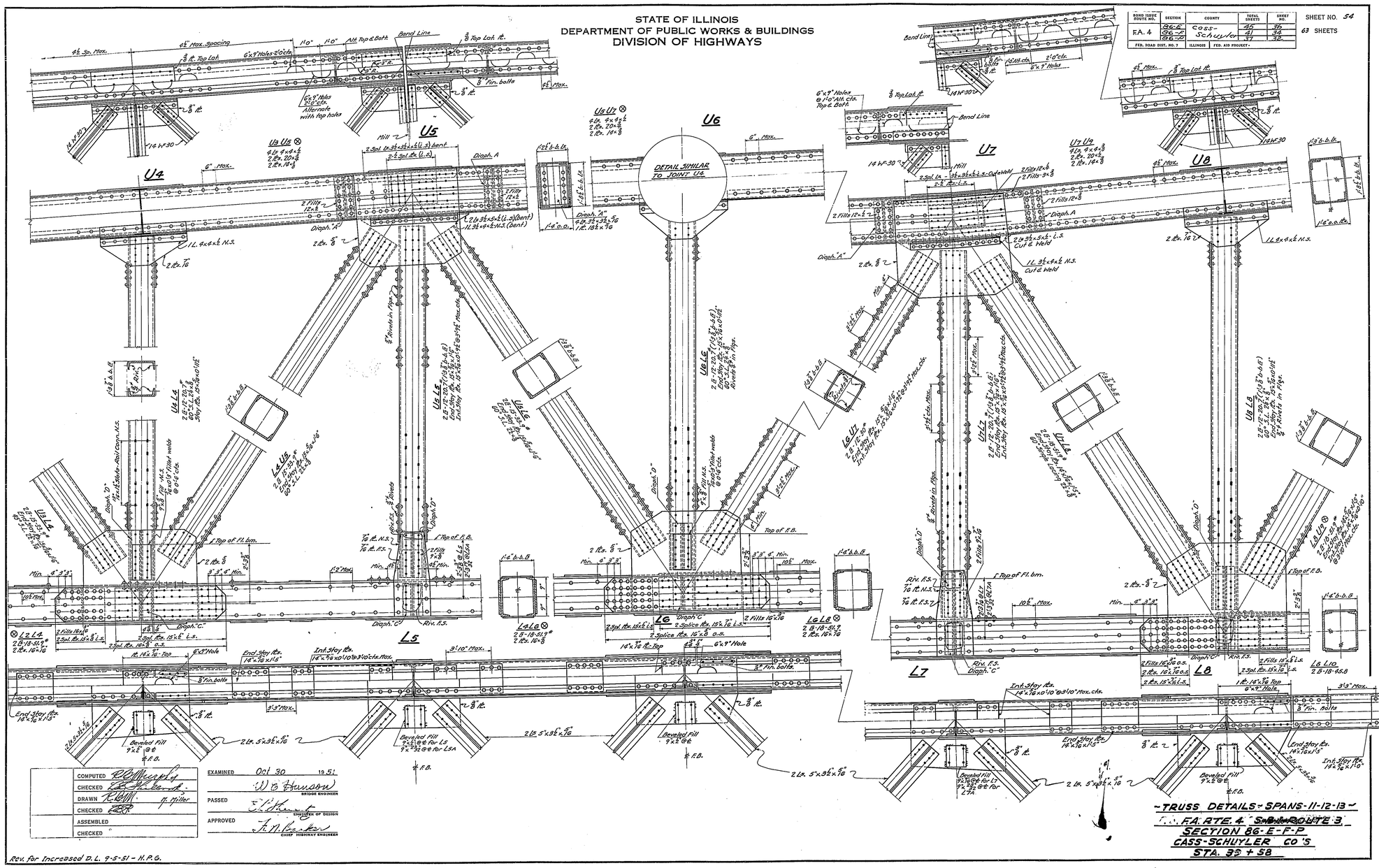
COMPUTED	R.B. Murphy	EXAMINED	Oct 30 19 51
CHECKED	E.H. Schmidt		W. B. Hanson BRIDGE ENGINEER
DRAWN	R.B.M. H. Miller	PASSED	BRIDGE ENGINEER OF DESIGN
CHECKED	E.H.S.	APPROVED	CHIEF HIGHWAY ENGINEER
ASSEMBLED			
CHECKED			

-TRUSS DETAILS-SPANS-11-12-13-
FA. RTE. 4. SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39+58

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86-E	Cass-	54	1/1
F.A. 4	86-F	Schuyler	41	34
	86-P		47	32
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT.		

SHEET NO. 54
63 SHEETS



COMPUTED R.C.M. Murphy
CHECKED L.C.B. Swanson
DRAWN R.C.M. H. Miller
CHECKED E.S.R.
ASSEMBLED
CHECKED

EXAMINED Oct 30 19 51
W.B. Hanson
BRIDGE ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

TRUSS DETAILS - SPANS - 11-12-13
F.A. RTE. 4 SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 32 + 58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	86-E	Cass -	40	37
FA. 4	86-F	Schuyler	41	38
	126-P		27	33
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 55
63 SHEETS

PLAN-TOP FLANGE

HALF BOTT. VIEW U9 U12

TOP VIEW U12 U14

HALF BOTTOM VIEW AT LAT. CONN. U12 U14

TOP VIEW U12 M13

SECTION AT M11 L11
(Showing Sway Frame Conn.)
For Details of Sway Frame See Sh. #59

COMPUTED	R.E. Murphy
CHECKED	E.F. Shimek
DRAWN	E.D.M.
CHECKED	B.E.P.
ASSEMBLED	
CHECKED	

EXAMINED — W. H. Brown, BRIDGE ENGINEER
PASSED — E. F. Shimek, ENGINEER OF DESIGN
APPROVED — H. M. Gerdes, CHIEF HIGHWAY ENGINEER

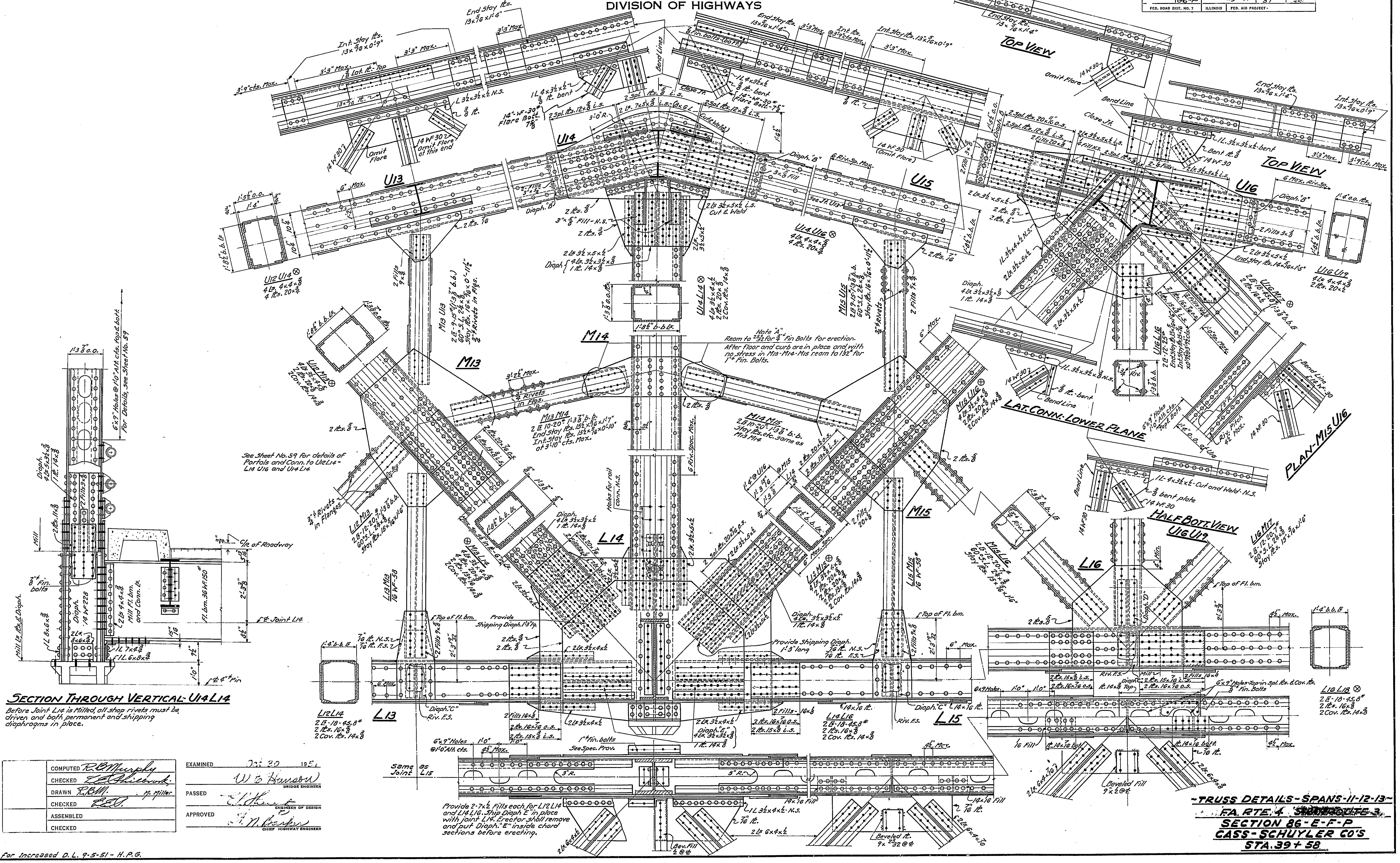
Rev. for Increased D.L. 9-5-51 - H.P.G.

-TRUSS DETAILS-SPANS-11-12-13-
FA. RTE. 4 ~~STORMVILLE-3~~
SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39 + 58

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-E	Cass-	45	38
	86-F	Schuyler	41	36
	86-P		37	34
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 56
63 SHEETS



SECTION THROUGH VERTICAL - U14 L14

Before Joint L14 is Milled, all shop rivets must be driven and both permanent and shipping diaphragms in place.

COMPUTED	R.B. Murphy
CHECKED	E.E. Philbrook
DRAWN	R.B.M. M. Miller
CHECKED	E.E.O.
ASSEMBLED	
CHECKED	

EXAMINED Oct. 30 1951
W. E. Hanson — BRIDGE ENGINEER
PASSED — ENGINEER OF DESIGN
APPROVED — CHIEF HIGHWAY ENGINEER

Rev. for Increased D.L. 9-5-51 - H.P.G.

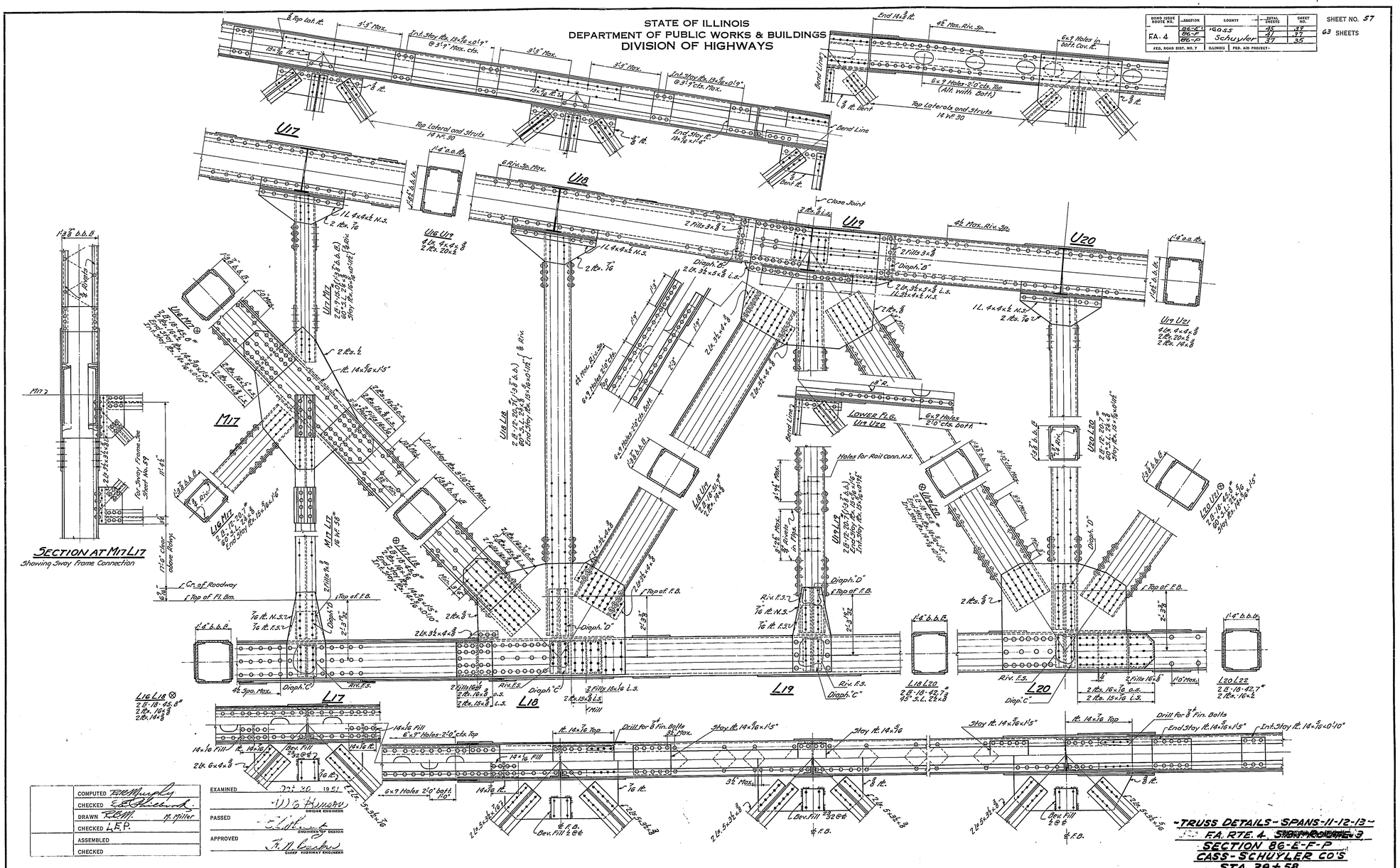
~TRUSS DETAILS - SPANS - 11-12-13~
F.A. RTE. 4 ~~S.B.I. ROUTE 3~~
SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86-E-1	Cass	45	39
FA-4	86-F		41	37
	86-P	Schuyler	37	35
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 57
63 SHEETS



	COMPUTED	F.R. Murphy	EXAMINED Oct. 30 1951
	CHECKED	E.E. Ricard	
	DRAWN	R.E.M. M. Miller	PASSED
	CHECKED	L.E.P.	
	ASSEMBLED		APPROVED
	CHECKED		

BRIDGE ENGINEER
ENGINEER OF DESIGN
CHIEF HIGHWAY ENGINEER

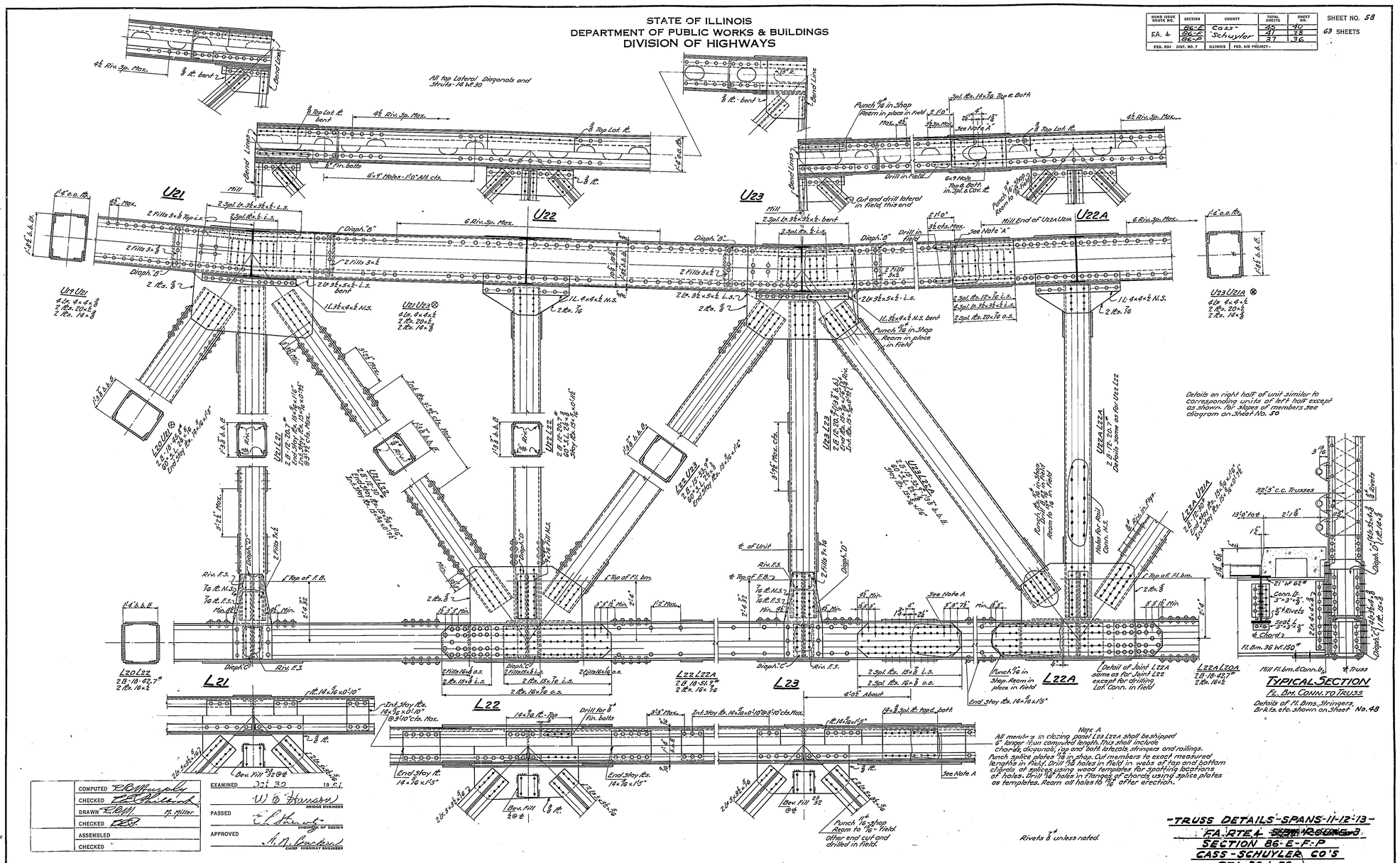
-TRUSS DETAILS - SPANS-11-12-13-
F.A. RTE. 4 SHIP ROUTE-3
SECTION 86-E-F-P
CASS - SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86-E	Cass	66	40
FA. 4	86-F	Schuyler	41	38
	86-P		37	36
FED. ROJ	DIST. NO. 7	ILLINOIS	FED. AID PROJECT -	

SHEET NO. 58
63 SHEETS



COMPUTED	H.P.Murphy	
CHECKED	H.P.Murphy	
DRAWN	H.P.M.	M. Miller
CHECKED	H.P.G.	
ASSEMBLED		
CHECKED		

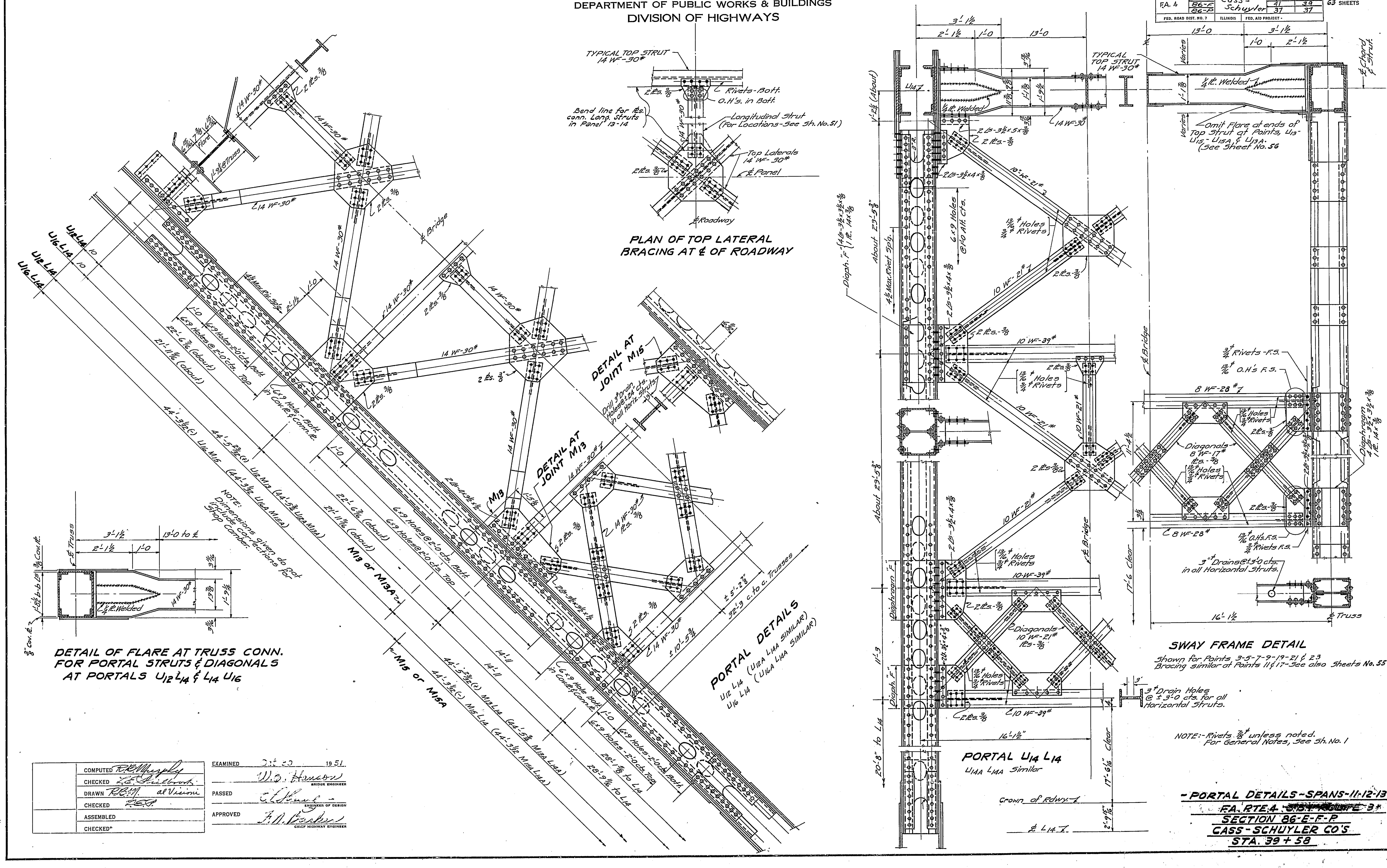
EXAMINED Jul 30 19 51
W. B. Hanson — BRIDGE ENGINEER
PASSED E. L. Stanley — ENGINEER OF DESIGN
APPROVED A. N. Peterson — CHIEF HIGHWAY ENGINEER

"TRUSS DETAILS - SPANS 11-12-13 -
FA. RTE 4 SECTION ROUTE 3
SECTION 86-E-F-P
CASS - SCHUYLER CO'S
STA. 39 + 58

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-E	Cass-Schuyler	45	41
	86-F		41	39
	86-P		37	37
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT -		

SHEET NO. 59
63 SHEETS



SWAY FRAME DETAIL

Shown for Points 3-5-7-9-19-21 & 23
Bracing similar at Points 11 & 17 - See also Sheets No. 55 & 57

NOTE:- Rivets 7/8" unless noted.
For General Notes, See Sh. No. 1

COMPUTED	R.B. Murphy
CHECKED	L.E. Philbrook
DRAWN	R.B.M. al Visioni
CHECKED	R.E.P.
ASSEMBLED	
CHECKED	

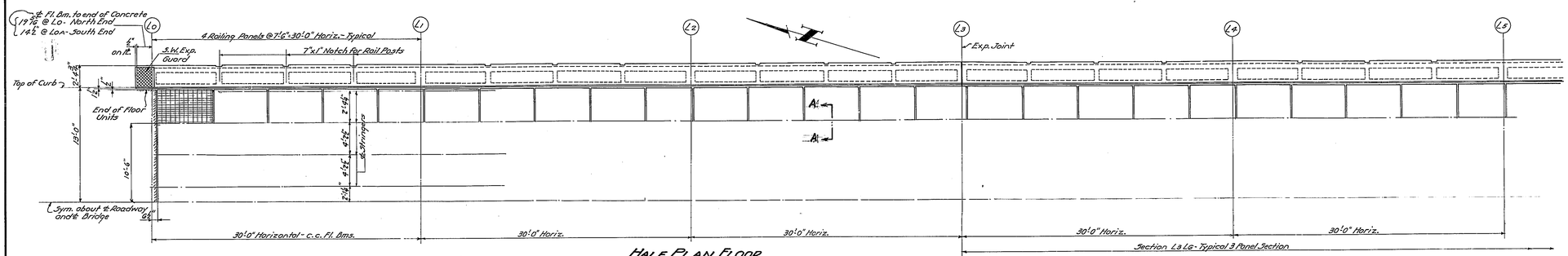
EXAMINED Oct. 30 1951
W.S. Hanson — BRIDGE ENGINEER
PASSED C.L. Street — ENGINEER OF DESIGN
APPROVED F.N. Barker — CHIEF HIGHWAY ENGINEER

- PORTAL DETAILS - SPANS - 11-12-13 -
F.A. RTE. 4 ~~S.B.I. ROUTE 3~~
SECTION 86-E-F-P
CASS-SCHUYLER CO'S
STA. 39 + 58

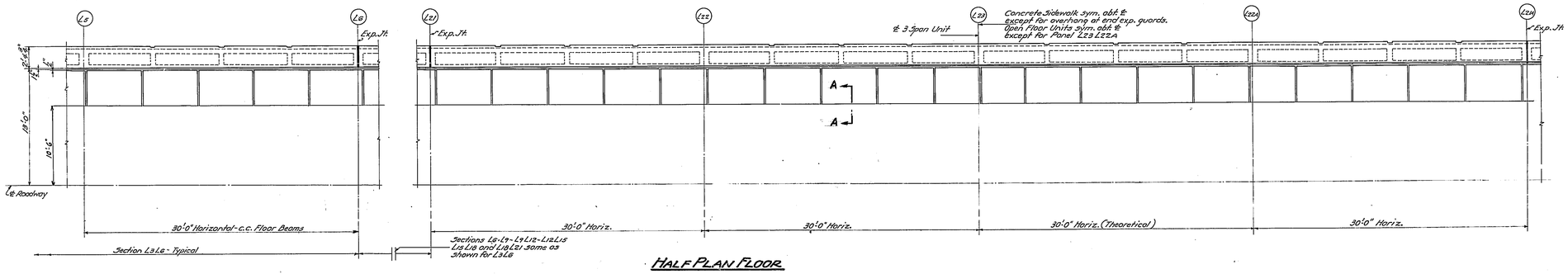
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	86-D	Cass,	76	15
FA. 4	96-E	Schuyler	45	42
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

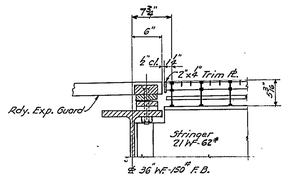
SHEET NO. 60
63 SHEETS



HALF PLAN FLOOR

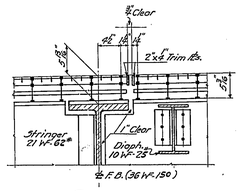


HALF PLAN FLOOR

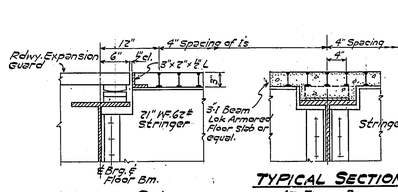


SECTION
At Point Lo
Open Steel Floor

In panel L23 L22A make one floor unit, at each curb 6" wider than the theoretical width and provide a 5⅝" x ½" ℄ to be welded to floor unit in field, after the final position has been determined by measuring the closing panel in the field.
If distance from end beam of unit to outside of 5⅝" ℄ is equal to or less than 1½" eliminate plate and make joint between projected ends of transverse bars same as shown for typical joint between units.
Likewise provide one unit of the 3" filled steel grid floor slab 6" wider than the theoretical width and cut in the field after measuring the length of the closing panel. L23 L22A.

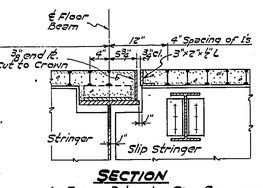


SECTION
At Slip Stringers Open Steel Floor
Points L3-Le-L9-L12-L15-L18-L21



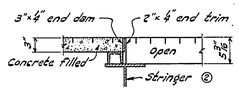
SECTION @ Lo

TYPICAL SECTION
AT FLOOR BEAMS



SECTION
AT FLOOR BMS. WITH SLIP STRINGERS

DETAILS
FILLED STEEL GRID FLOOR SLAB



SECTION A-A

NOTES
For details of Open Steel Floor not shown and for sections through concrete safety walks, see Sheet No. 46 - 47 + 48.
For Material, sizes and dimensions of Floor Units, see Sheet No. 47
For slope length of truss panels, see Truss Layout, Sheet No. 30

Length of 3" steel grid sections is to be 9'-0" including the 3"x ½" end dams.
Length of each unit of open grid steel floor is to be 2'-9" including 2"x ¾" end trim at Stringer ②.

COMPUTED	P.C. Murphy	EXAMINED	20 Jan 49 19 51
CHECKED	C.C. Wood		W. S. Romney BRIDGE ENGINEER
DRAWN	R.C.M. M. Miller	PASSED	E. E. Hurst ENGINEER OF DESIGN
CHECKED	C.C.W.	APPROVED	F. N. Gunter CHIEF HIGHWAY ENGINEER
ASSEMBLED			
CHECKED			

Revised (Filled Steel Grid Floor added) 9-5-51 MAG.

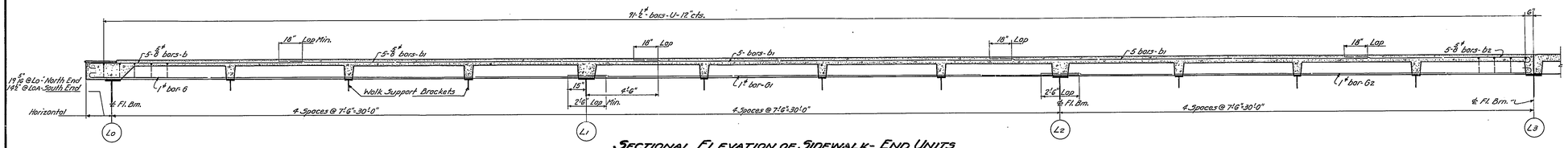
- FLOOR DETAILS - SPANS - 11-12-13 -
FA. RTE. 4 ~~SEC.~~ ROUTE - 3
SECTION 86-D-E
CASS - SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

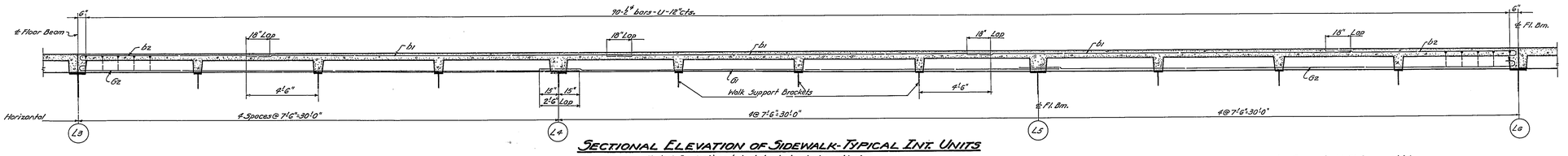
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 4	86-D	Cass-Schuyler	16	16
	86-E		45	43
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 61
63 SHEETS

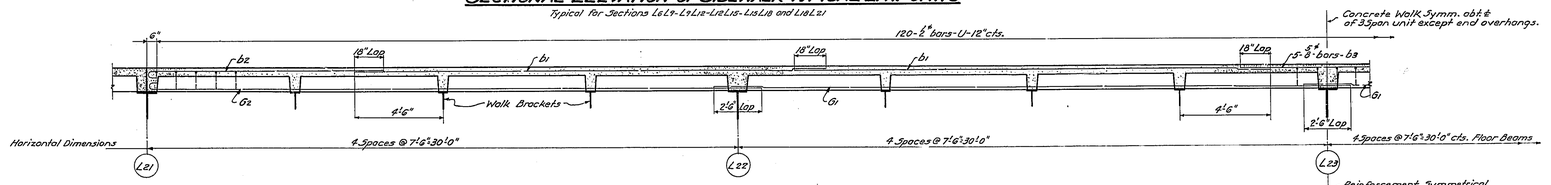


Sectional Elevation of Sidewalk- End Units



Sectional Elevation of Sidewalk-Typical Int. Units

Typical for Sections L6L7-L7L8-L8L9-L9L10-L10L11-L11L12 and L16L17



Half Sectional Elevation of Sidewalk- Center Unit

Note:
For Cross-Section of concrete sidewalk & reinforcement bar details and details of open steel fl. see Sheet No. 47

Floor and Sidewalks-Spans 11-12-13

Bill of Material

Bar	No.	Size	Length	Shape
b	20	7/8"	14'3"	
b1	460	7/8"	24'0"	
b2	280	7/8"	12'6"	
b3	10	7/8"	9'0"	
G	8	1"	34'0"	
G1	64	1"	32'6"	
G2	112	1"	32'6"	
U	2764	5/8"	5'9"	
Class-X Concrete			Cu.Yds.	1958
Reinforcement Bars			Lbs.	41250
Open Steel Grid Floor			Sq.Ft.	6933
Filled Steel Grid Floor			Sq.Ft.	28949
Concrete Filling (steel Floor)			Sq.Ft.	28949

	COMPUTED	R.B.M. Murphy
	CHECKED	C.C. Wood
	DRAWN	R.B.M. M. Miller
	CHECKED	C.C.W.
	ASSEMBLED	
	CHECKED	

EXAMINED Oct 30 1951
W. A. Hansen
BRIDGE ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

Revised Open & Filled Steel Grid Floor 9-5-51 H.R.G.

-SIDEWALK DETAILS-SPANS-11-12-13-

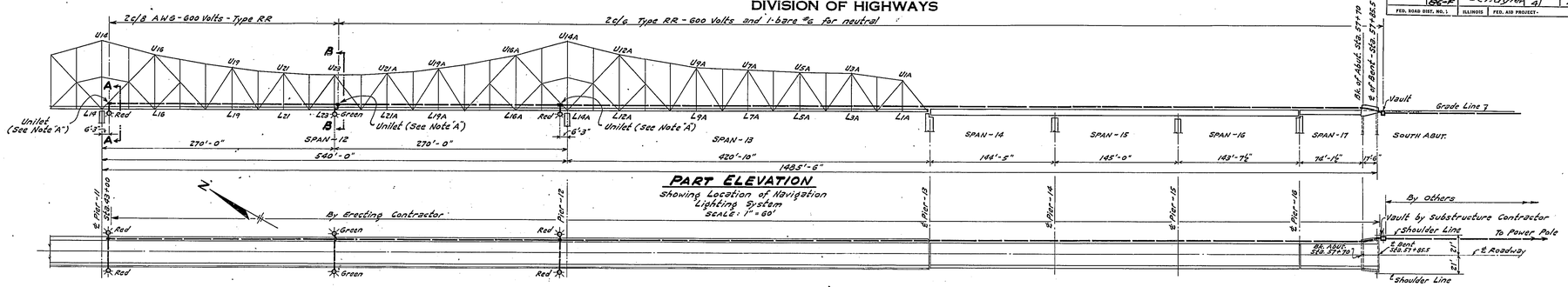
FA. RTE. 4, S.B.I. ROUTE 3)
SECTION 86-D-E
CASS-SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

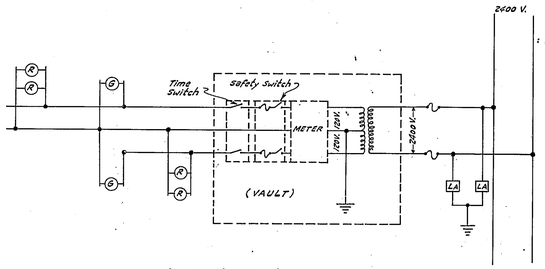
BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 4	86-B	Cass -	37	39
	86-E	Schuyler	41	40
	86-F			
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 62
63 SHEETS

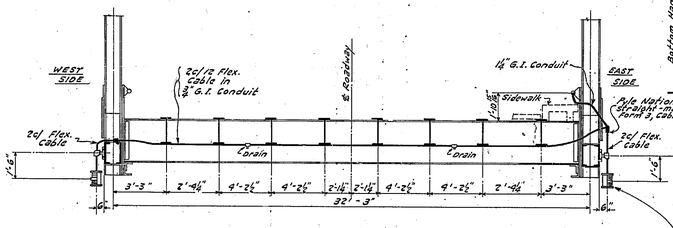


PART ELEVATION
Showing Location of Navigation Lighting System
SCALE: 1" = 60'

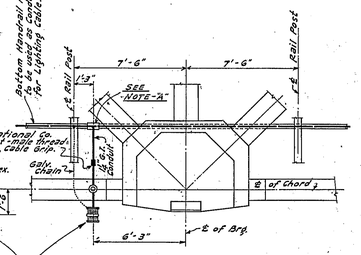
PART PLAN
Showing Location of Navigation Lighting System
SCALE: 1" = 60'



NAVIGATION LIGHTING CIRCUIT



SECTION A-A
SCALE: ½" = 1'-0"

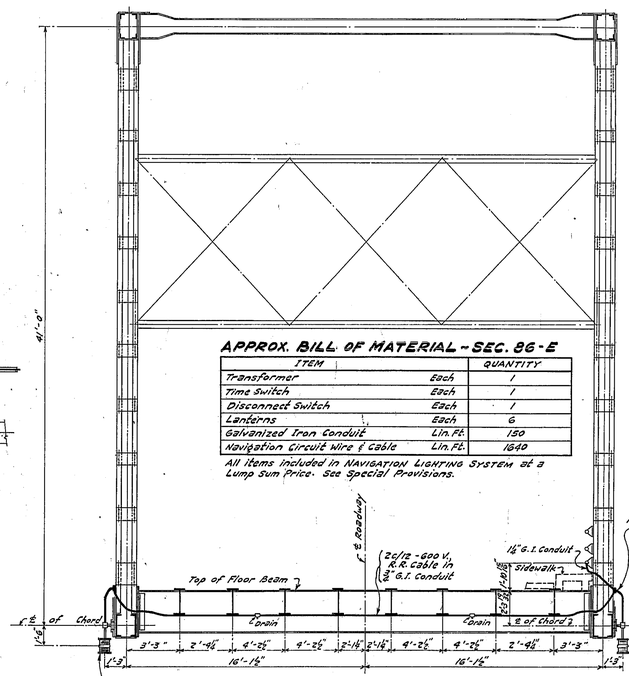


SIDE ELEVATION OF JOINTS L14 OR L14A
SCALE: ½" = 1'-0"

Norwood Noonan - Fig. 1 P. Pivoted Mounting - 8"-180° Red Fresnel Lens 50 W - Clear Vibration Service Lamp. Cast Aluminum Body. Lamp renewed from bottom. 4 - Required

5¾" Bolt Circle 3 - ⅞" o. h's.

BOLT CIRCLE
FOR ALL NAVIGATION LANTERNS



APPROX. BILL OF MATERIAL - SEC. 86-E

ITEM		QUANTITY
Transformer	Each	1
Time Switch	Each	1
Disconnect Switch	Each	1
Lanterns	Each	6
Galvanized Iron Conduit	Lin. Ft.	150
Navigation Circuit Wire & Cable	Lin. Ft.	1640

All items included in NAVIGATION LIGHTING SYSTEM at a Lump Sum Price. See Special Provisions.

Norwood Noonan - Fig. 6 P. Pivoted Mounting - 8"-360° Green Fresnel Lens 50 W - clear Vibration Service Lamp. Cast Aluminum Body. Lamp renewed from bottom. 2 - Required

SECTION B-B - U23-L23

	COMPUTED	
	CHECKED	M.J. Harkness
	DRAWN	R.H.A. - J.S. Malecki
	CHECKED	M.J.H.
	ASSEMBLED	
	CHECKED	

EXAMINED Jan. 20 19 55
W. G. Hennen
BRIDGE ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED F. H. Bardwell
CHIEF HIGHWAY ENGINEER

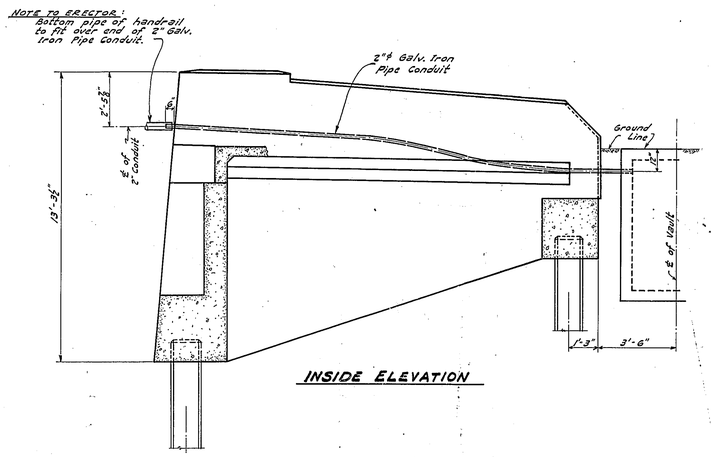
- LIGHTING SYSTEM DETAILS -
F.A. ROUTE 4 [redacted]
SECTION 86-B-F-E
CASS - SCHUYLER CO'S
STA. 39 + 58

EUGENE DIETZGEN CO.

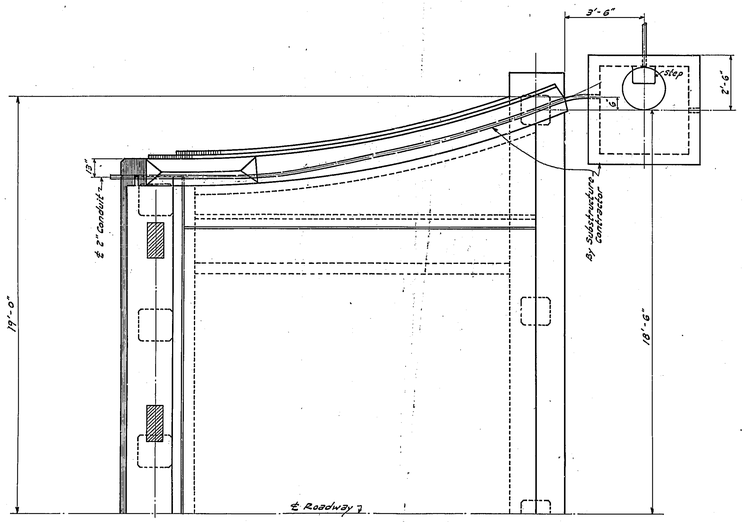
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

BOND ISSUE ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
—	86-B	Cass	31	30
FA. 4	86-A	Schuyler	46	45
	86-F		91	91
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

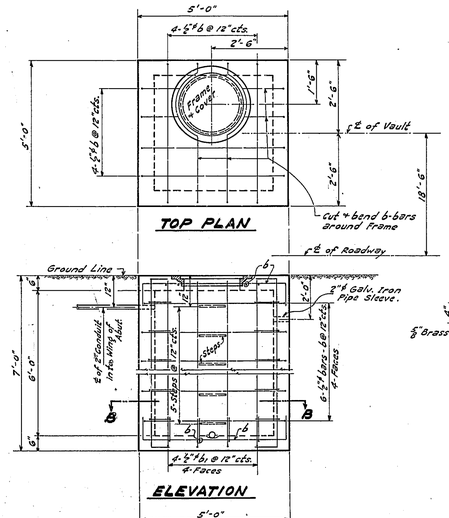
SHEET NO. 63
63 SHEETS

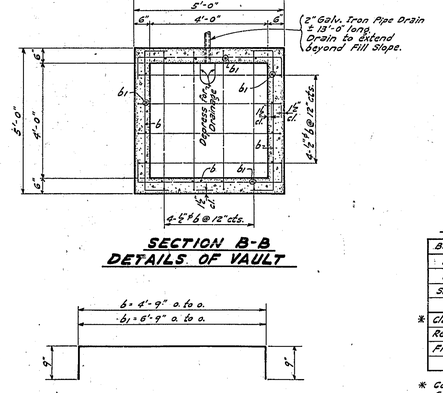


INSIDE ELEVATION



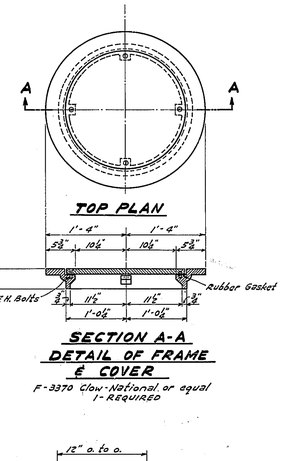
HALF PLAN



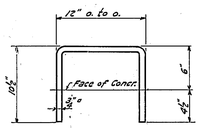


SECTION B-B
DETAILS OF VAULT

BARS - b & b1



SECTION A-A
DETAIL OF FRAME & COVER
F-3370 Clow-National or equal
1-REQUIRED



STEP DETAIL
5-REQ'D
Weight included in weight of reinforcement bars.

BILL OF MATERIALS (SEC. 86-B)

Bar	No.	Size	Length	Shape
b	40	⅝"ϕ	8'-3"	
b1	16	⅝"ϕ	8'-3"	
Steps	5	⅝"ϕ	2'-9"	
* Class "X" Concrete		Cu. Yds.		2.9
Reinforcement Bars		Lbs.		280
Frame & Cover		Each		1

* Cost of all 2" ϕ Galvanized Iron Pipe Conduit shall be included in the Unit price bid for Class "X" Concrete.

COMPUTED	Leo Lawson	
CHECKED	M. J. Thorpe '51	
DRAWN	Roth - J.S. Malecki	
CHECKED	M.J.T.	
ASSEMBLED		
CHECKED		

EXAMINED Oct 30 1951
W. B. Hinds
BRIDGE ENGINEER

PASSED E. E. Johnson
DIRECTOR OF DESIGN

APPROVED A. D. Bradley
CHIEF HIGHWAY ENGINEER

~ LIGHTING SYSTEM DETAILS ~
F.A. ROUTE 4 (ILLINOIS ROUTE 3)
SECTION 86-B-F-E
CASS - SCHUYLER CO'S
STA. 39+58

EUGENE DIETZGEN CO.