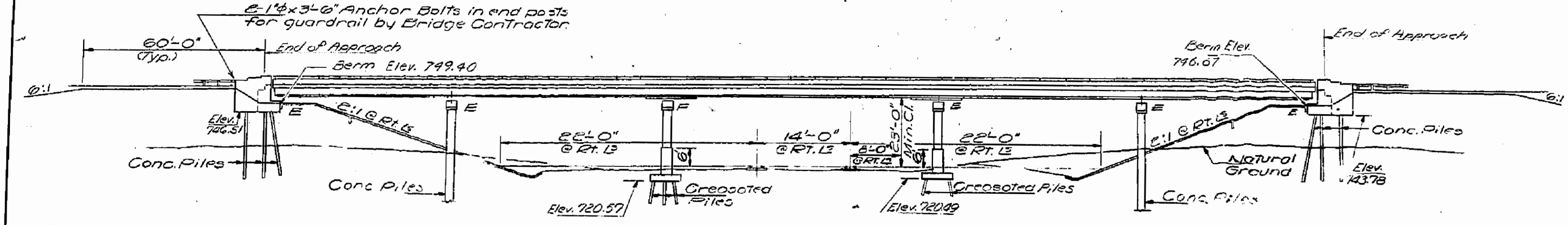
B.M.: U.S.C.&G.S. Monument Std. Brass Cap in Conc. base stamped Sta. "OVER" 1959 57' Lt. Sta. 76+31 Elev. 741.96
Existing Structure: 3 Plate Girder Spans, R.C. Piers, R.C. Open Abuts, 24' Roadway width. To be removed by Contractor after new structure is completed. No Salvage.

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

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S.B.I. F.A. 19	23VB-1	BUREAU	47	9

SHEET NO. 1
SHEETS 16



ELEVATION

Note:
Those spans which will have railroad signal or communication lines under them, shall have the deck drains spaced to clear the cross arms of those wire signal poles as determined in the field by the Engineer. No deck drains permitted in span over railroad tracks.

Note:
See sheet #4 for Stress Table.

TOP OF RAIL ELEVATIONS

Station	8+00	10+00	12+00
N. Rail N. Track	726.13	726.51	726.79
N. Rail S. Track	726.10	726.49	726.81
S. Rail N. Track	726.14	726.51	726.78
S. Rail S. Track	726.12	726.51	726.84

GENERAL NOTES

All reinforcement bars shall be lapped 24 diameters unless otherwise shown.

Fasteners shall be high strength bolts. Bolts ¾"φ open holes 13/16"φ unless otherwise noted.

Diaphragm connections may be adapted to shop welding subject to approval by the Engineer.

Field welding of construction accessories will not be permitted to the bottom flange of beams or girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.

Anchor bolts shall be set before riveting diaphragms over supports.

Slope wall shall be reinforced with welded wire fabric 6"x6" mesh, weighing 58# per 100 sq. ft.

The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments, and Piers 1&4.

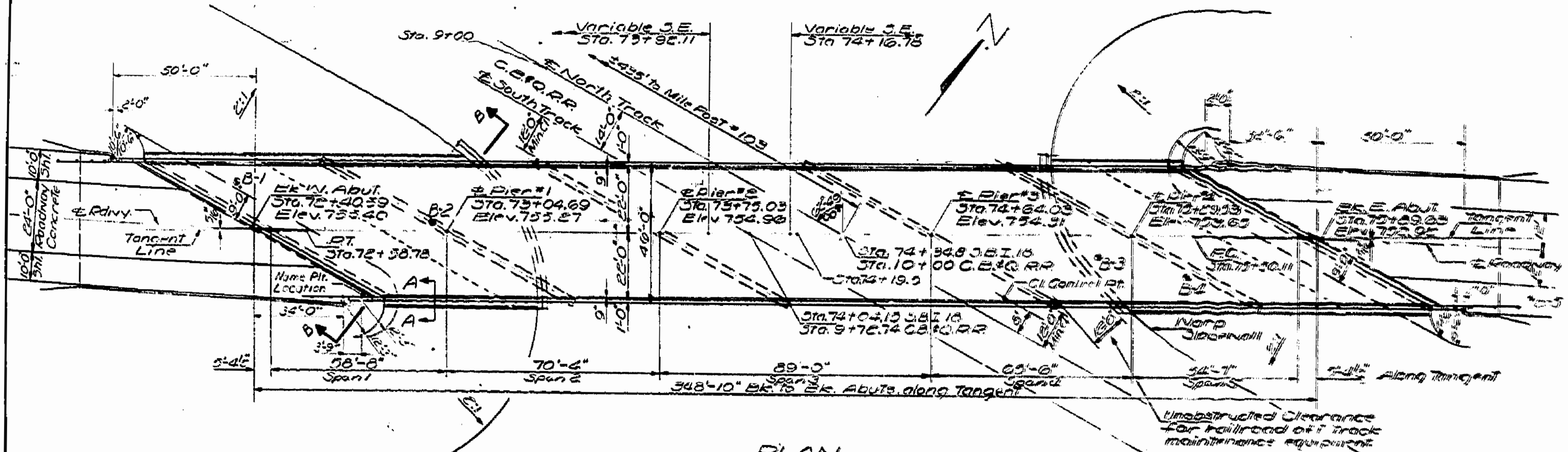
The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Concrete, except the aggregates shall conform to the requirements of Handrail Concrete.

The Contractor shall drive 1 concrete test pile in a permanent location, at the east abutment as directed by the Engineer before ordering the remainder of piles. Also the contractor shall drive 1 creosoted test pile in a permanent location at pier 2 as directed by the Engineer before ordering the remainder of piles.

Class A Excavation for structures includes excavation for slope wall.

The Basic Lead Silico Chromate paint system shall be used for shop and field painting of structural steel.

Concrete piles at abutments shall be driven in holes prebored through the embankment in accordance with Article 512.09(c) of Standard Specifications.



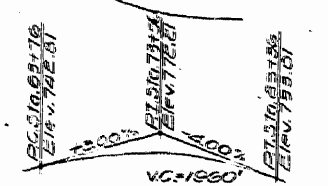
PLAN

CURVE DATA

P.I. Sta. 67+04.89	P.I. Sta. 60+08.76
Δ = 11°-06'-30"	Δ = 5°-11'-40"
D = 1°-00'-00"	D = 0°-34'-00"
R = 5729.58'	R = 10111.00'
T = 557.44'	T = 458.65'
L = 1111.39'	L = 916.67'
E = 27.05'	E = 10.40'
S = 0.088'/'	S = 0.016'/'
Super. attained & Crown reduced to zero Sta. 60+14.06 - Sta. 62+14.06 Sta. 73+92.11 - Sta. 71+92.11	Super. attained & crown reduced to zero Sta. 74+16.78 - Sta. 76+16.78 Sta. 65+92.46 - Sta. 64+00.09

STA. 74+19.5
BUILT 197_ BY
STATE OF ILLINOIS
S.B.I. RT. 18 SEC. 23VB-1
LOADING HS20

NAME PLATE
See Std. 2113-1



PROFILE-S.B.I. 18

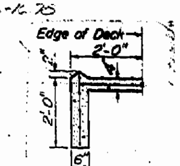
BILL OF MATERIAL

Item	Unit	Sub	Super	Total
Class A Exc. Struct.	Cu. Yds.	700		700
Class X Concrete	Cu. Yds.	652.5	490.7	1143.2
Reinforcement Bars	Lbs.	38880	155230	194110
Structural Steel	L. Sum		L. Sum	L. Sum
Aluminum Railing	Lin. Ft.		684	684
Slope Wall 4"	Sq. Yds.	1440		1440
Name Plates	Each		1	1
Creosoted piles 20' to 35'	Lin. Ft.	2930		2930
Test Piles (Creosoted)	Ea.	1		1
Test Piles (Concrete)	Ea.	1		1
Protective Coat	Sq. Yds.		1890	1890
Concrete Piles	Lin. Ft.	3405		3405
Bridge Seat Sealant	L. Sum	L. Sum		L. Sum
Stud Shear Connectors ⅞"	Each		1026	1026
Removal of Existing Structures	Ea.			1

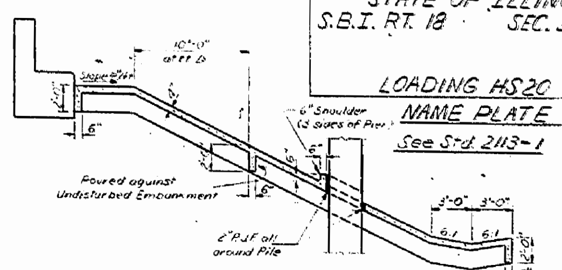
Note:
Calculated net weight of Structural Steel - 478,170 Lbs.

DESIGNED	
CHECKED	
DRAWN	J. Sutherland
CHECKED	

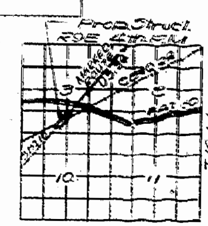
EXAMINED December 22 1962
ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER



SECTION A-A



SECTION B-B



LOCATION SKETCH

DESIGN STRESSES

Fc = 1200 psi. — Deck Slab
Fc = 1400 psi. — Curb, Parapet, Sub.
Fs = 20,000 psi. — Reinf.
Fs = 20,000 psi. — Struct.
Vc = 75 psi — Piles
n = 10
Allowable 24 Tons Non Comp. Tess Comp.
Allowable P.J. W.S. 25#/Sq. Ft.
LOADING HS20-44

GENERAL PLAN & ELEVATION
S.B.I. 18 OVER C.B.&Q.R.R.
S.B.I. RT. 18 SEC. 23VB-1
BUREAU COUNTY
STATION 74+19.5

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

	74	23VB-1	BUREAU	47	12

SHEET NO. 4
SHEETS 6

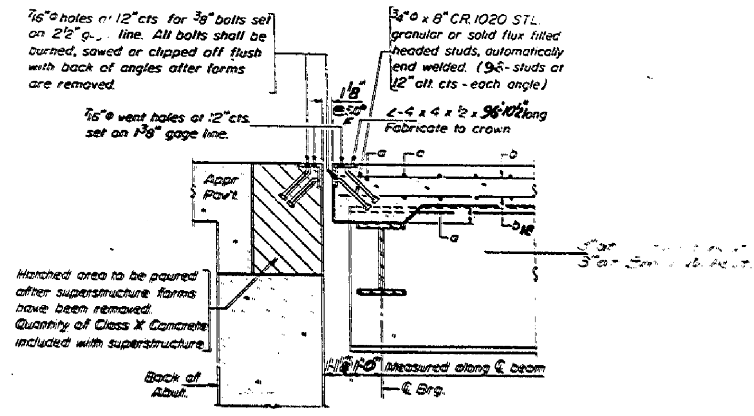
Table of Moments & Reactions - Interior Beam															
	Moments									Reactions					
	.4 Sp. 1	Pier 1	.5 Sp. 2	Pier 2	.5 Sp. 3	Pier 3	.5 Sp. 4	Pier 4	.4 Sp. 5	W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	E. Abut.
D.L.	260.9	384.7	133.5	650.3	405.6	623.4	94.3	317.2	249.5	24.32	70.69	87.95	85.70	64.35	22.92
S.D.L.	84.8	127.9	52.0	175.1	155.8	164.9	40.4	107.2	74.7	7.47	22.73	27.00	26.16	20.84	7.01
L.L.	456.8	376.0	438.0	466.2	676.0	450.0	400.0	340.0	414.0	42.20	54.82	61.29	60.37	52.64	41.49
IMP.	124.3	99.8	112.0	116.0	159.1	110.0	107.0	91.5	115.2	11.48	14.47	15.02	15.33	14.22	11.53
Total	946.8	988.4	735.5	1407.6	1396.5	1348.3	641.7	855.9	853.4	85.47	162.71	191.26	187.58	152.05	82.95
				VR = 64.33											

Note:
[illegible]

Properties	
Steel Section	
Is	12103.4
STs	663.6
SBs	663.6
Composite Section	
Ic	27379.4
STc	4325.3
SBc	908.1
Cover Pl. Section	
Is	16835.8
STs	892.5
SBs	892.5

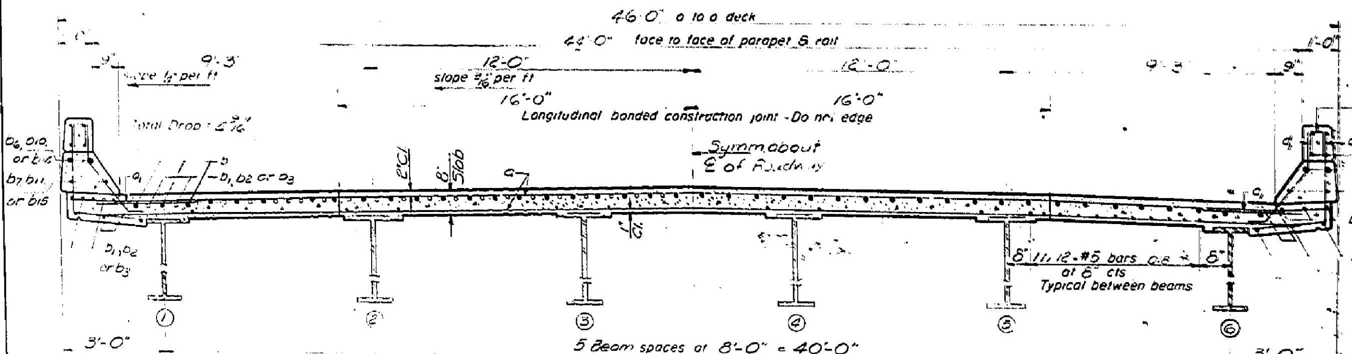
D.L. = Dead load
S.D.L. = Superimposed dead load
L.L. = Live load
Imp = Impact
Is = Moment of inertia steel sec.
STs = Sec. Mod. bott. steel section
SBs = Sec. Mod. bott. steel section
Ic = Moment of inertia comp. sec.
STc = Sec. Mod. top comp. sec.
SBc = Sec. Mod. bottom comp. sec.

STRESS TABLES



7/16"ø holes at 12" cts for 3/8" bolts set on 2 1/2" g... line. All bolts shall be burned, sawed or clipped off flush with back of angles after forms are removed.
3/4"ø x 8" C.R. 1020 STL. granular or solid flux filled headed studs, automatically end welded. (96 - studs at 12" alt. cts - each angle)
7/16"ø vent holes at 12" cts. set on 1 3/8" gage line.
Fabricate to crown
Appr Pav't
Hatched area to be poured after superstructure forms have been removed. Quantity of Class X Concrete included with superstructure
Back of Abut.
Measured along ℄ beam
℄ Brg.

SECTION A-A

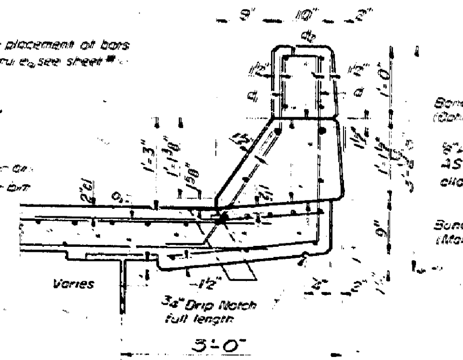


46'-0" o to o deck
44'-0" face to face of parapet & rail
slope 1/4" per ft
slope 3/16" per ft
Total Drop 2 7/16"
12'-0"
16'-0"
Longitudinal bonded construction joint - Do not edge
Symm about ℄ of Roadway
2-#4 d2 at ea rail post
Note: For placement of bars d2 & e1 thru e8 see sheet
11, 12 - #5 bars at 6" cts Typical between beams
5 Beam spaces at 8'-0" = 40'-0"
3'-0"

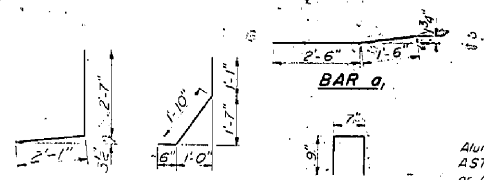
NEAR PIER

NEAR MIDSPAN

CROSS SECTION
LOOKING EAST
From Sta. 73+92.11 to Sta. 74+16.78
Super Elevation Transition
From Sta. 72+40.59 to Sta. 73+92.11
From Sta. 74+16.78 to Sta. 75+89.63



CURB SECTION
Cost of Aluminum Drains and Sheets shall be incidental to Class X Concrete



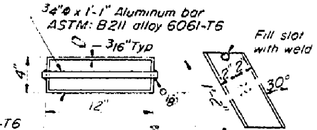
BAR d

BAR d1

BAR d2

BAR a1

Aluminum Sheets Welded ASTM: B209 alloy 6061-T6 or Aluminum Extrusions ASTM: B221 alloy 6061-T6



FLOOR DRAIN

DESIGNED	
CHECKED	
DRAWN	A. Barroza
CHECKED	

EXAMINED Dec 22 1969

PASSED

APPROVED

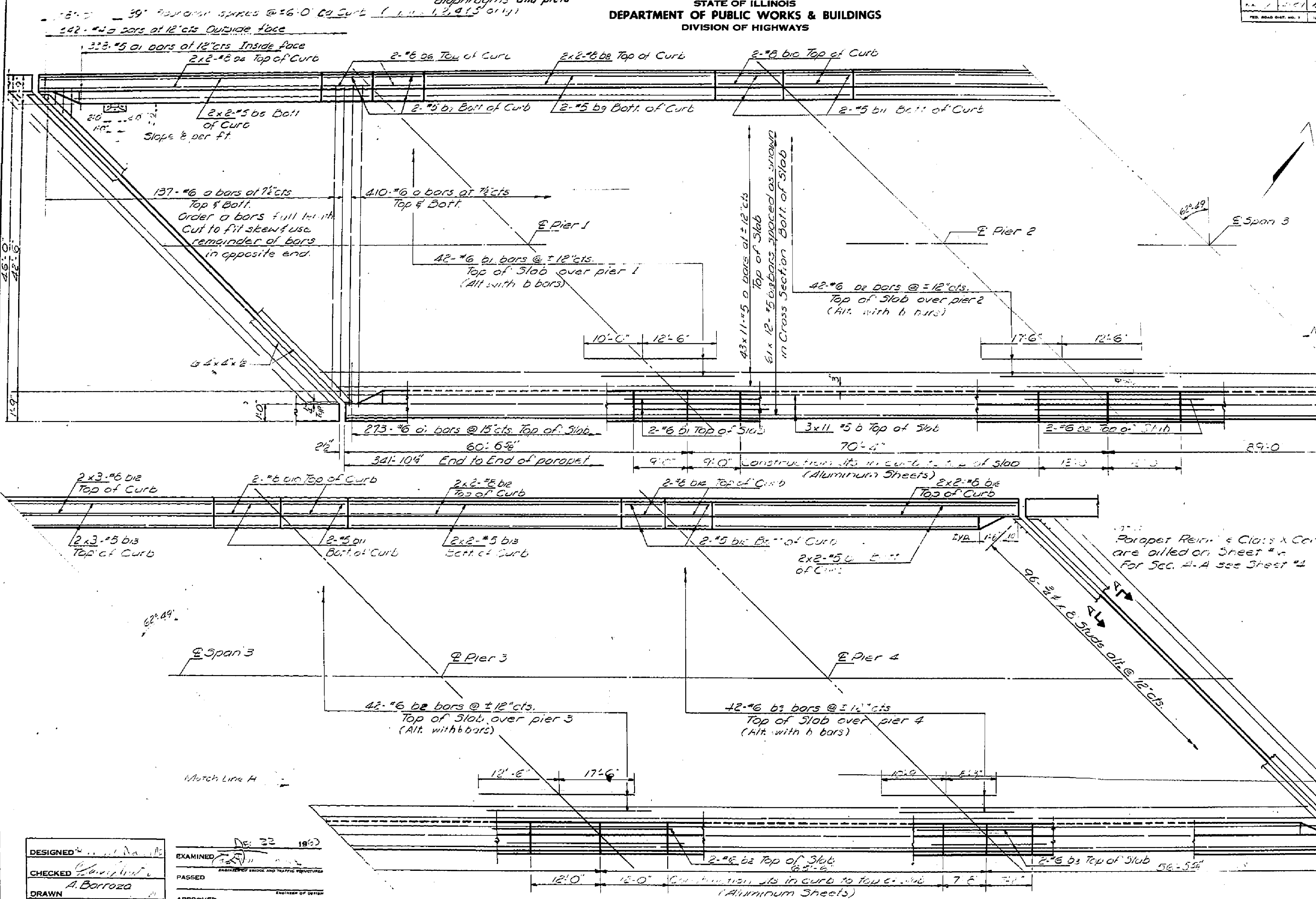
SUPERSTRUCTURE DETAILS
S.B.I. RTE. 18 SEC. 23VB-1
BUREAU COUNTY
STA. 74+19.5

I-4 to 6 3-1-68

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

SHEET NO. 5
SHEETS 16

* Space drains to miss diaphragms and piers



39" floor drain spaces @ 6'-0" Cs Curb
42 - #4 a bars at 12" cts Outside face
3 - #5 a1 bars at 12" cts Inside face
2x2-#6 b4 Top of Curb
2x2-#5 b5 Bott of Curb
Slope ⅛ per ft.
2-#6 b6 Top of Curb
2-#5 b7 Bott of Curb
2x2-#6 b8 Top of Curb
2-#5 b9 Bott. of Curb
2-#6 b10 Top of Curb
2-#5 b11 Bott. of Curb
137-#6 a bars at 7½" cts Top & Bott. Order a bars full length Cut to fit skew & use remainder of bars in opposite end.
410-#6 a bars at 7½" cts Top & Bott.
℄ Pier 1
42-#6 b1 bars @ ± 12" cts. Top of Slab over pier 1 (Alt. with b bars)
43x11-#5 a bars at ± 12" cts Top of Slab
61x12-#5 b bars spaced as shown in Cross Section Bott. of Slab
℄ Pier 2
42-#6 b2 bars @ ± 12" cts. Top of Slab over pier 2 (Alt. with b bars)
℄ Span 3
62°49'
10'-0"
12'-6"
17'-6"
12'-6"
46'-0"
42'-6"
1'-9"
1'-0"
273-#6 a1 bars @ 15" cts. Top of Slab
2-#6 b1 Top of Slab
3x11 #5 b Top of Slab
2-#6 b2 Top of Slab
2½"
60'-6⅝"
70'-4"
89'-0
341'-10¼" End to End of parapet
9'-0"
9'-0"
Construction jts in curb to top of slab (Aluminum Sheets)
2x3-#6 b12 Top of Curb
2x3-#5 b13 Top of Curb
2-#6 b14 Top of Curb
2-#5 b11 Bott. of Curb
2x2-#6 b16 Top of Curb
2x2-#5 b13 Bott. of Curb
2-#6 b16 Top of Curb
2-#5 b16 Bott. of Curb
2x2-#6 b16 Top of Curb
2x2-#5 b Bott of Curb
Parapet Reinf. & Class X Conc. are billed on Sheet #
For Sec. A-A see Sheet #4
96-¾" ⌀ Studs alt. @ 12" cts.
62°49'
℄ Span 3
℄ Pier 3
℄ Pier 4
42-#6 b2 bars @ ± 12" cts. Top of Slab over pier 3 (Alt. with b bars)
42-#6 b3 bars @ ± 12" cts Top of Slab over pier 4 (Alt. with b bars)
Match Line A
12'-6"
17'-6"
2-#6 b2 Top of Slab
2-#6 b3 Top of Slab
56'-5⅝"
2½"
12'-0"
12'-0"
Construction jts in curb to top of slab (Aluminum Sheets)
7'-6"

PLAN

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
a	1074	#6	22'-0"	
a1	546	#6	4'-0"	—
b	539	#5	32'-3"	—
b1	46	#6	22'-6"	—
b2	92	#6	30'-0"	—
b3	46	#6	19'-0"	—
b4	6	#6	26'-9"	—
b5	6	#5	26'-6"	
b6	6	#6	8'-9"	—
b7	6	#5	8'-9"	—
b8	8	#6	25'-0"	—
b9	8	#5	25'-3"	—
b10	16	#6	11'-9"	
b11	16	#5	11'-9"	
b12	20	#6	23'-9"	
b13	20	#5	23'-6"	—
b14	6	#6	7'-3"	—
b15	6	#5	7'-3"	—
b16	8	#6	25'-6"	—
b17	8	#5	25'-0"	—
b18	732	#5	29'-9"	—
d	664	#4	4'-8"	
d1	676	#5	3'-5"	
Class X Conc.			Cu Yds.	464.5
Reinf. Bars			Lbs.	133,21

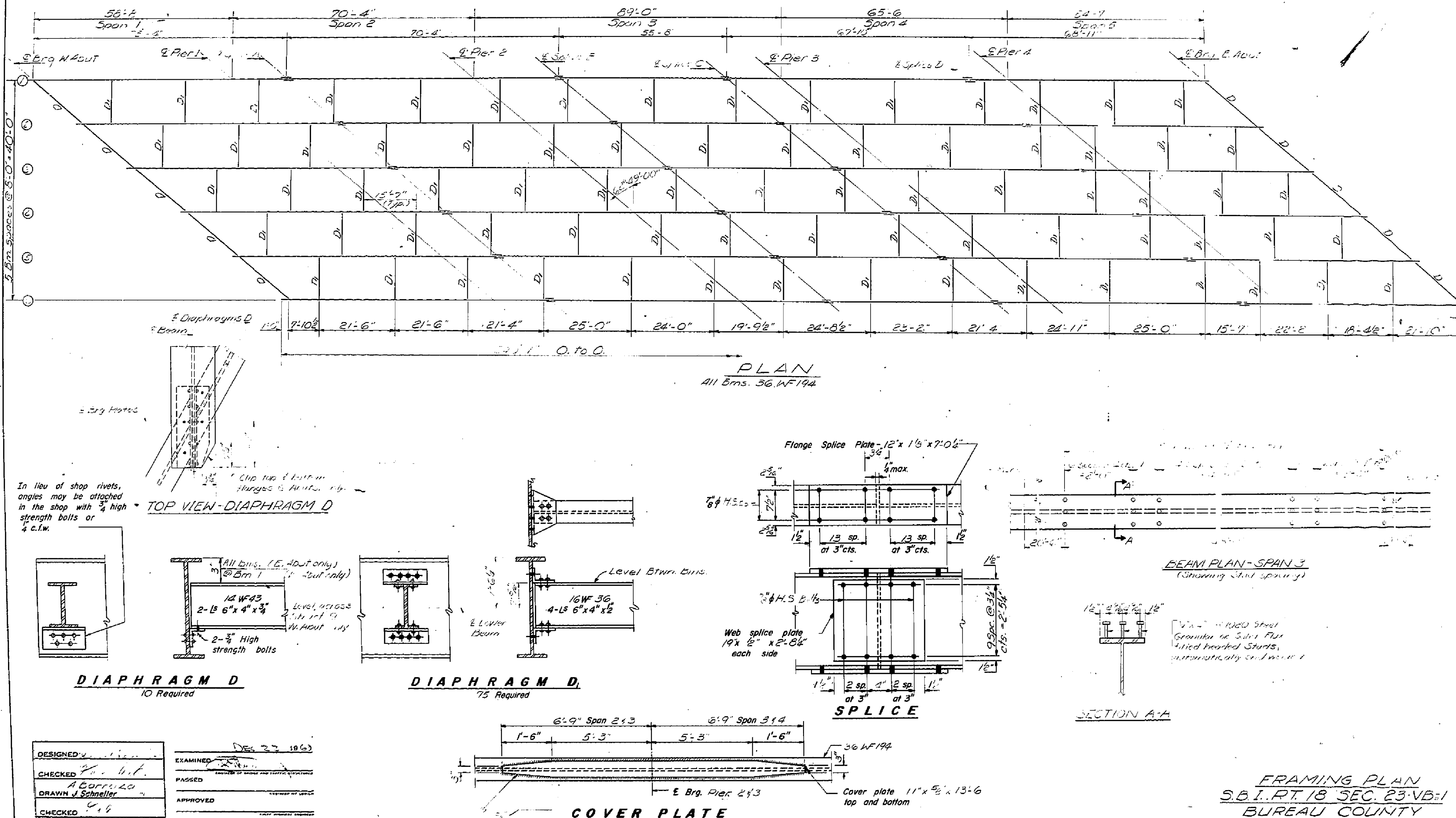
DESIGNED	
CHECKED	
DRAWN	A. Borroza
CHECKED	

EXAMINED Dec 22 1960
ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

SUPERSTRUCTURE
S.B.I. RT. 18 SEC. 23VB-1
BUREAU COUNTY
STA. 74+19.5

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

SHEET NO. 7



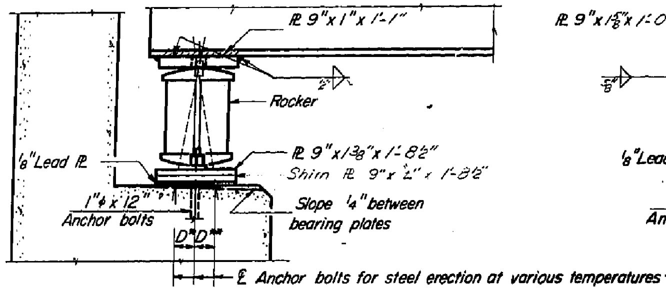
Span 1
70'-4" Span 2
89'-0" Span 3
65'-6 Span 4
Span 5
℄ Brg. W. Abut.
℄ Pier 1
℄ Pier 2
℄ Splice B
℄ Splice C
℄ Pier 3
℄ Splice D
℄ Pier 4
℄ Brg. E. Abut.
5 Bm. Spaces @ 8'-0" = 40'-0"
D
D1
62°49'00"
13'-7" (Typ.)
℄ Diaphragms D
℄ Beam
7'-10½" 21'-6" 21'-6" 21'-4" 25'-0" 24'-0" 19'-9½" 24'-8½" 23'-2" 21'-4 24'-11" 25'-0" 15'-7" 22'-2 18'-4½" 21'-10"
O. to O.
PLAN
All Bms. 36 WF194
℄ Brg. Plates
Clip top & bottom flanges @ Abuts. only
TOP VIEW - DIAPHRAGM D
In lieu of shop rivets, angles may be attached in the shop with ¾" high strength bolts or 1" ¼ c.f.w.
All Bms. (E. Abut only) @ Bm. 1 (W. Abut only)
14 WF43
2-Ls 6"x4"x¾"
Level across
2-¾" High strength bolts
DIAPHRAGM D
10 Required
Level Btwn. Bms.
16 WF 36
4-Ls 6"x4"x½"
℄ Lower Beam
DIAPHRAGM D1
75 Required
Flange Splice Plate - 12"x 1⅛"x 7'-0½"
¼" max.
7/8"φ H.S. Bolts
13 sp. at 3" cts.
13 sp. at 3" cts.
Web splice plate 19"x ½" x 2'-8¼" each side
9 Spc. @ 3¼" cts. = 2'-5¼"
2 sp. at 3"
2 sp. at 3"
SPLICE
BEAM PLAN - SPAN 3
(Showing Stud spacing)
SECTION A-A
Granular or Sub. Flux filled headed Studs, automatically end welded
6'-9" Span 2 & 3
6'-9" Span 3 & 4
1'-6" 5'-3" 5'-3" 1'-6"
36 WF194
℄ Brg. Pier 2 & 3
Cover plate 11" x ⅝" x 13'-6 top and bottom
COVER PLATE

DESIGNED
CHECKED
DRAWN A. Barroza / J. Schneller
CHECKED
EXAMINED Dec. 27, 1963
PASSED
APPROVED

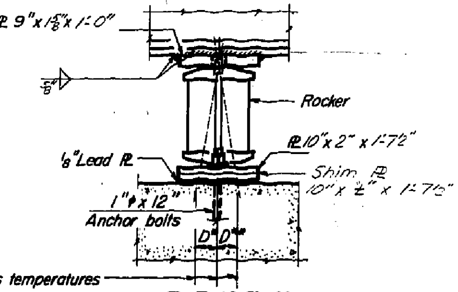
I-2-CD 9-1-65

FRAMING PLAN
S.B.I. RT. 18 SEC. 23-VB-1
BUREAU COUNTY
STA. 74+19.5

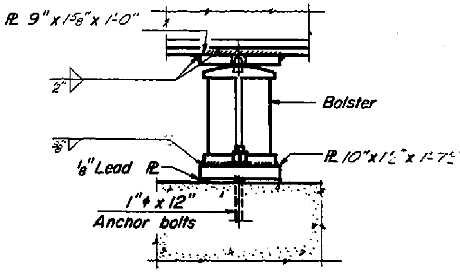
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S.B.I. 19	1318-1	BUREAU	47	16



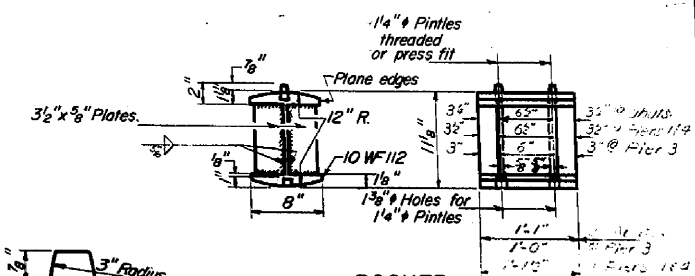
SECTION



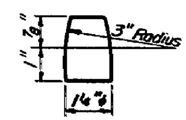
ELEVATION
AT PIER 3



ELEVATION
AT PIER 2



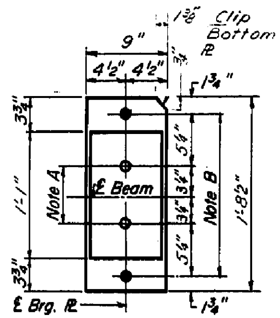
ROCKER



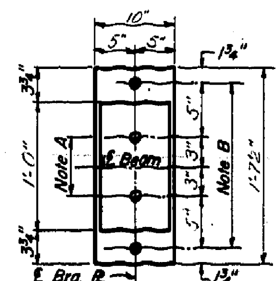
PINTLE

TABLE OF ℄ DIMENSIONS

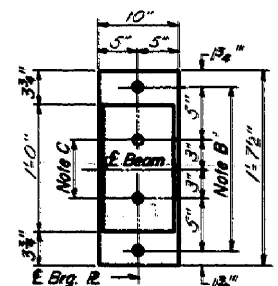
Beam	1	2	3	4	5	6
W. Abut.	0	0	0	0	⅝"	¼"
Pier 1	0	0	0	⅜"	0	0
Pier 3	0	½"	½"	0	0	0
Pier 4	⅝"	0	0	0	0	0



PLAN
AT ABUTMENT



PLAN
AT PIER 3

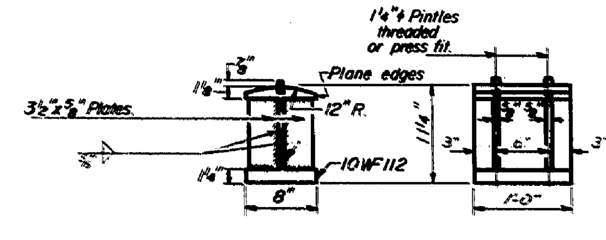


PLAN
AT PIER 2

NOTE A
1⅜"ϕ Holes – 1" deep in top ℞ for pintles. Thread or press fit pintles into bottom ℞.

NOTE B
1½"ϕ Holes for 1"ϕ anchor bolts. 2½"x 2½"x 5/16" ℞. Washers under nut.

NOTE C
1⅜"ϕ Holes 1" deep in top ℞ only for 1¼"ϕ pintles.



BOLSTER
PIER 2

BEARING ASSEMBLY DETAILS

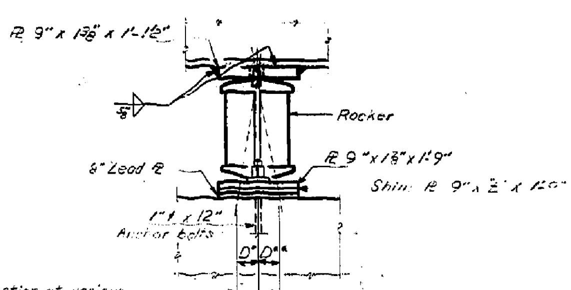
NOTES ON SETTING OF ANCHOR BOLTS AT EXP. BRGS.

a) D* (Side of brg. away from fixed brg.)
D* = ⅛" per each 100' of expansion for every 15° fall below the normal temp. of 50°F.
D** (Side of brg. toward fixed brg.)
D** = ⅛" per each 100' of expansion for every 15° rise above the normal temp. of 50°F.

b) After beams have been erected and dimensions D* or D** determined, holes shall be drilled and anchor bolts shall be grouted in place. All fixed anchor bolts may be built into the masonry.

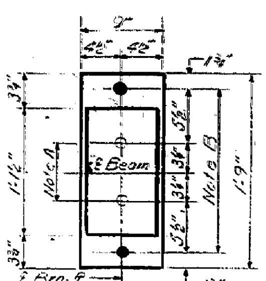
TOP OF BEAM ELEVATIONS
(For Fabrication only)

BEAM	1	2	3	4	5	6
℄ Brg. W. Abut.	[illegible]	754.43	754.63	754.77	[illegible]	[illegible]
Pier 1	[illegible]	754.30	754.46	[illegible]	[illegible]	[illegible]
℄ Splice A	754.10	754.27	754.40	[illegible]	754.29	754.07
Pier 2	753.96	754.09	754.16	754.09	753.89	753.62
℄ Splice B	753.92	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
℄ Splice C	[illegible]	753.70	[illegible]	753.57	753.30	753.00
Pier 3	753.55	753.59	753.56	753.40	753.12	752.82
℄ Splice D	753.29	753.25	753.13	752.90	752.60	752.26
Pier 4	753.21	753.16	753.00	752.75	752.44	752.12
℄ Brg. E. Abut.	752.88	752.70	752.46	752.15	751.81	751.46



℄ Anchor bolts for steel erection at various temperatures

ELEVATION
AT PIERS 1 & 4



PLAN
AT PIERS 1 & 4

BEARING DETAILS
S.B.I. RT. 18 SEC. 23 VB-1
BUREAU COUNTY
STA. 74+19.5

DESIGNED
CHECKED
R. Doty
DRAWN P.G. Barnett
CHECKED
EXAMINED Dec. 22 1969
ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER