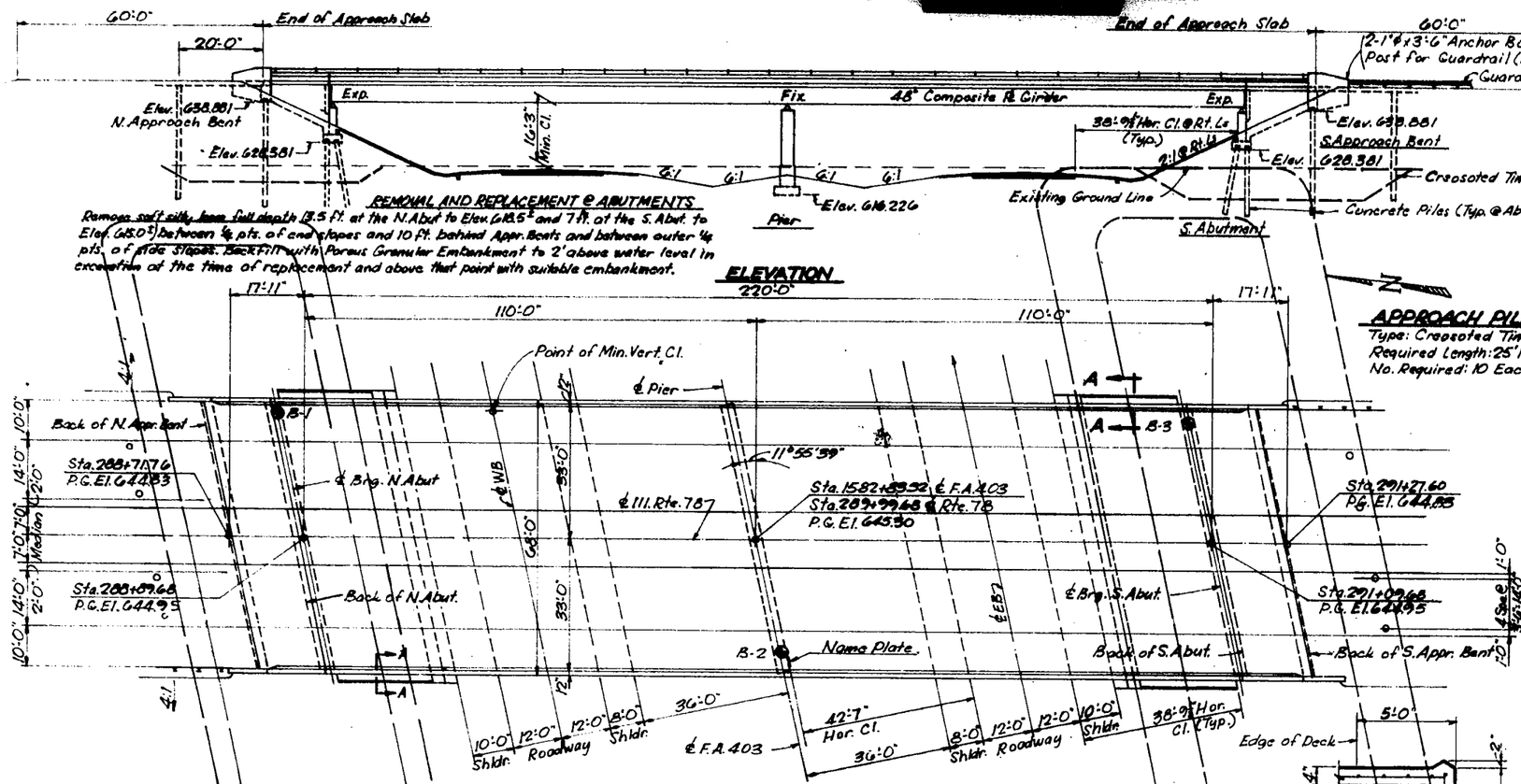
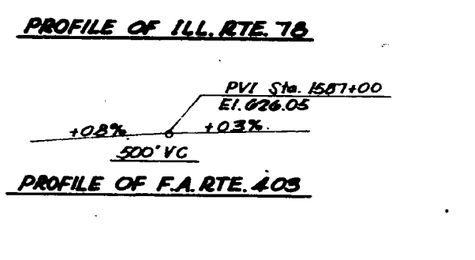
098-0065

STATE OF ILLINOIS [redacted]

ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
S.B.I.	195-2H3	WHITESIDE	480	98
F.A. 403				
FED. ROAD DIST. NO. 7	ILLINOIS	F.A. PROJ.		

SHEET NO. 1
12 SHEETS



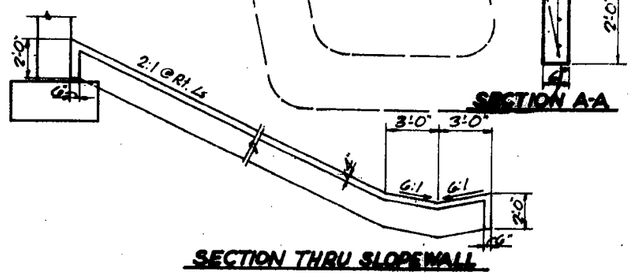


PROFILE OF ILL. RTE. 78

PROFILE OF F.A. RTE. 403

STATION 1582+89.52
BUILT IN '97 BY
STATE OF ILLINOIS
F.A. RTE. 403 SEC. [redacted]
F.A. PROJ. [redacted]
LOADING H S 20

NAME PLATE
(See Std. 2113)



SECTION THRU SLOPEWALL

SECTION A-A

GENERAL NOTES

All reinforcement bars shall be lapped 24 diameters unless otherwise shown.
Fasteners shall be high strength bolts. Bolts ⅞" ϕ, open holes 15/16" ϕ unless otherwise noted.
Calculated weight of Structural Steel = 542,368 lbs.
The basic lead silico chromate paint system shall be used for shop and field painting of Structural Steel.
Field welding of construction accessories will not be permitted to bottom at flange of 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 bolting diaphragms over supports.
Slope wall shall be reinforced with welded wire fabric 6" x 6" mesh, weighing 58# per 100 sq. ft.
The contractor shall drive one concrete test pile at each abutment in a permanent location as directed by the Engineer before ordering the remainder of piles.
Concrete piles at abutments shall be driven in holes precored through the embankment in accordance with Article 513.09(c) of the Standard Specifications.
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.
Protective Coat shall not be applied to the surfaces to which Coal Tar Interlayer Protective Coat.
The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of ± ⅛ inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two ⅛" adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.

APPROACH PILE DATA

Type: Creosoted Timber
Required Length: 25' N. Appr., 28' S. Appr.
No. Required: 10 Each Appr.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub	Total
Structure Excavation	Cu. Yds.	——	609	609
Class X Concrete	Cu. Yds.	622.0	387.7	1009.7
Structural Steel	Lump Sum	1	——	1
Reinforcement Bars	Lbs.	140,360	41,210	181,570
Concrete Piles	Lin. Ft.	——	1994	1994
Test Piles, Concrete	Ea.	——	2	2
Slope Wall 4"	Sq. Yds.	——	517	517
Bit. Surf. Class I	Tons	120	——	120
Coal Tar Inter. Prot. Coat*	Sq. Yds.	1444	——	1444
Aluminum Railing	Lin. Ft.	501	——	501
Cork Formed Joint Sealer	Lin. Ft.	139	——	139
Stud Shear Connectors ¾"	Ea.	8402	——	8402
Name Plate	Ea.	——	1	1
Protective Coat	Sq. Yds.	628	——	628
[illegible] Fill	Cu. Yds.	948	——	948
Creosoted Timber Piles (Test Pile)	Lin. Ft.	——	530	530
[illegible]	Sq. Yds.	——	4193	4193
Porous Granular Embankment	Cu. Yds.	——	4193	4193

*See Special Provisions

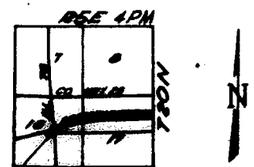
DESIGNED	C.D.C.
CHECKED	H.M.W.
DRAWN	C.D.C.
CHECKED	S.M.K.

19
EXAMINED
PASSED
APPROVED

LOADING: HS 20-44

DESIGN STRESSES

f_c = 1200 psi Deck Slab
f_c = 1400 psi Curb, Parapet, & Substructure
V_c = 75 psi (Ftgs.)
n = 10
f_s = 20,000 psi Reinf.
f_s = 20,000 psi Struct.
Allowable ℄ Deflection = L/1000
Design Specifications 1969 AASHO (as applicable)
Allow 25# per Sq. Ft. for future wearing surface



LOCATION SKETCH

GENERAL PLAN & ELEVATION
PROJECT F.A. 403
ILL. RTE. 78 OVER F.A. 403
F.A. RTE. [redacted] SEC. [redacted]
[redacted] COUNTY
STATION 1582+[redacted]

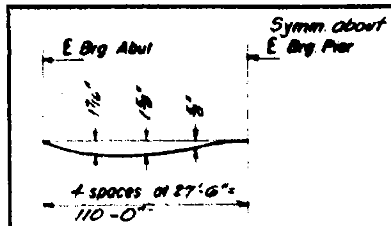
PLANS PREPARED BY MACKIE ENGINEERING CO.
Rev. 9-29-76

STATE OF ILLINOIS

[redacted]

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. Rte. 403	195-2HB	WHITESIDE	486	99

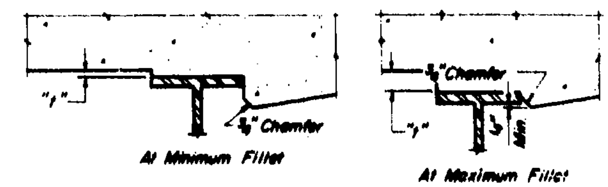
SHEET NO. 2
12 SHEETS



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only)

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



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

FILLET HEIGHTS

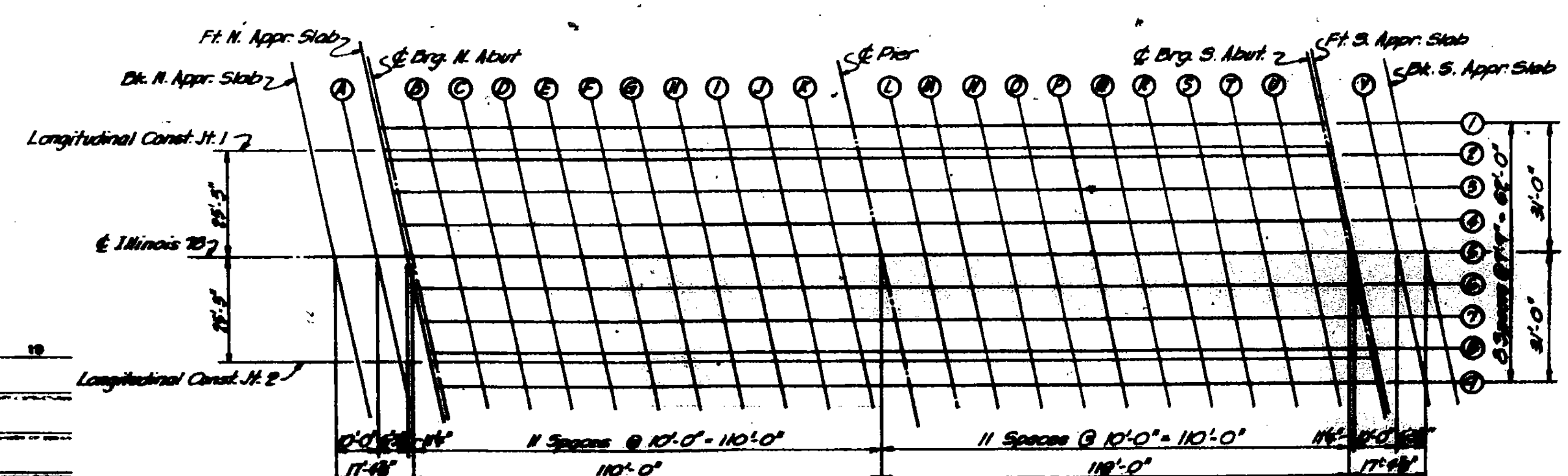
NOTE: Elevations are to top of concrete slab.

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of N. Appr. Slab	℄	280+72.270	0	644.849	644.849
A	℄	280+82.270	0	644.920	644.920
Front of N. Appr. Slab	℄	280+86.710	0	644.962	644.962

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
℄ Brg. N. Abut.	1	280+83.130	31.000	644.579	644.949
	Jt. 1	[illegible]	25.250	644.927	644.927
	2	[illegible]	23.250	644.572	644.572
	3	[illegible]	15.500	644.705	644.705
	4	[illegible]	7.750	644.836	644.836
	5	[illegible]	0	644.968	644.968
	6	[illegible]	7.750	644.837	644.837
	7	[illegible]	15.500	644.706	644.706
	8	[illegible]	23.250	644.634	644.634
	Jt. 2	[illegible]	25.250	644.995	644.995
	9	[illegible]	31.000	[illegible]	644.484
B	1	[illegible]	31.000	[illegible]	644.616
	Jt. 1	[illegible]	25.250	[illegible]	644.643
	2	[illegible]	23.250	[illegible]	644.687
	3	280+96.410	15.500	644.767	644.819
	4	280+98.010	7.750	644.897	644.949
	5	280+99.660	0	645.028	645.080
	6	281+01.310	7.750	644.916	644.968
	7	281+02.910	15.500	644.804	644.856
	8	281+04.510	23.250	644.691	644.743
	Jt. 2	281+06.000	25.250	644.652	644.704
	9	281+06.230	31.000	644.585	644.590
C	1	281+03.130	31.000	644.522	644.618
	Jt. 1	281+01.380	25.250	644.645	644.744
	2	281+04.770	23.250	644.692	644.780
	3	281+05.410	15.500	644.823	644.919
	4	281+08.010	7.750	644.956	645.049
	5	281+09.660	0	645.085	645.179
	6	281+11.310	7.750	[illegible]	645.066
	7	281+12.910	15.500	[illegible]	[illegible]
	8	281+14.510	23.250	[illegible]	[illegible]
	Jt. 2	281+15.000	25.250	[illegible]	644.779
	9	281+16.230	31.000	[illegible]	644.686

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
D	1	281+13.130	31.000	644.574	644.702
	Jt. 1	281+14.380	25.250	644.670	644.798
	2	281+14.770	23.250	644.744	644.872
	3	281+16.410	15.500	644.874	645.002
	4	281+18.010	7.750	645.008	645.131
	5	281+19.660	0	645.131	645.259
	6	281+21.310	7.750	645.018	645.146
	7	281+22.910	15.500	644.904	645.032
	8	[illegible]	23.250	644.789	644.917
	Jt. 2	[illegible]	25.250	644.749	644.877
	9	[illegible]	31.000	[illegible]	644.762
E	1	[illegible]	31.000	[illegible]	644.764
	Jt. 1	[illegible]	25.250	[illegible]	[illegible]
	2	281+24.770	23.250	[illegible]	644.932
	3	281+26.410	15.500	644.919	645.062
	4	281+28.010	7.750	645.047	645.190
	5	281+29.660	0	645.174	645.317
	6	281+31.310	7.750	645.060	645.203
	7	281+32.910	15.500	[illegible]	645.088
	8	281+34.510	23.250	[illegible]	644.973
	Jt. 2	281+36.000	25.250	[illegible]	644.932
	9	281+36.230	31.000	[illegible]	644.817
F	1	281+33.130	31.000	[illegible]	644.803
	Jt. 1	281+34.380	25.250	[illegible]	644.927
	2	281+34.770	23.250	[illegible]	644.971
	3	281+36.410	15.500	[illegible]	645.099
	4	281+38.010	7.750	[illegible]	645.226
	5	281+39.660	0	[illegible]	645.353
	6	[illegible]	7.750	[illegible]	645.237
	7	[illegible]	15.500	[illegible]	645.122
	8	[illegible]	23.250	[illegible]	645.004
	Jt. 2	[illegible]	25.250	[illegible]	644.964
	9	[illegible]	31.000	[illegible]	[illegible]

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
G	1	281+43.130	31.000	644.697	644.822
	Jt. 1	281+44.380	25.250	644.821	644.946
	2	281+44.770	23.250	644.864	644.989
	3	281+46.410	15.500	644.991	645.116
	4	281+48.010	7.750	645.117	645.242
	5	281+49.660	0	645.243	645.368
	6	281+51.310	7.750	645.127	645.252
	7	281+52.910	15.500	645.010	645.135
	8	281+54.510	23.250	644.892	645.017
	Jt. 2	281+56.000	25.250	644.852	644.977
	9	281+56.230	31.000	644.735	644.860
H	1	281+53.130	31.000	644.727	644.824
	Jt. 1	281+54.380	25.250	644.850	644.947
	2	281+54.770	23.250	644.893	644.990
	3	281+56.410	15.500	645.019	645.116
	4	281+58.010	7.750	645.144	645.241
	5	281+59.660	0	645.269	645.366
	6	281+61.310	7.750	645.152	645.249
	7	281+62.910	15.500	645.034	645.131
	8	281+64.510	23.250	644.916	645.012
	Jt. 2	281+66.000	25.250	644.875	644.972
	9	281+66.230	31.000	644.757	644.854
I	1	281+63.130	31.000	644.751	644.813
	Jt. 1	281+64.380	25.250	644.873	644.935
	2	281+64.770	23.250	644.916	644.978
	3	281+66.410	15.500	645.041	645.103
	4	281+68.010	7.750	645.165	645.227
	5	281+69.660	0	645.289	645.351
	6	281+71.310	7.750	645.171	645.233
	7	281+72.910	15.500	645.053	645.115
	8	281+74.510	23.250	644.933	644.995
	Jt. 2	281+76.000	25.250	644.892	644.954
	9	281+76.230	31.000	644.774	644.836
J	1	281+73.130	31.000	644.759	644.797
	Jt. 1	[illegible]	25.250	644.881	644.919
	2	281+74.770	23.250	644.923	644.961
	3	[illegible]	15.500	645.048	645.086
	4	[illegible]	7.750	645.181	645.209
	5	281+79.660	0	645.304	645.332
	6	[illegible]	7.750	645.185	645.213
	7	[illegible]	15.500	645.065	645.098
	8	281+84.510	23.250	644.944	644.972
	Jt. 2	281+86.000	25.250	644.903	644.931
	9	281+86.230	31.000	644.784	644.812



DESIGNED G.D.C.	EXAMINED	19
CHECKED S. McK.	PASSED	
DRAWN P.G. Barnett & L.R.	APPROVED	
CHECKED S. McK.		

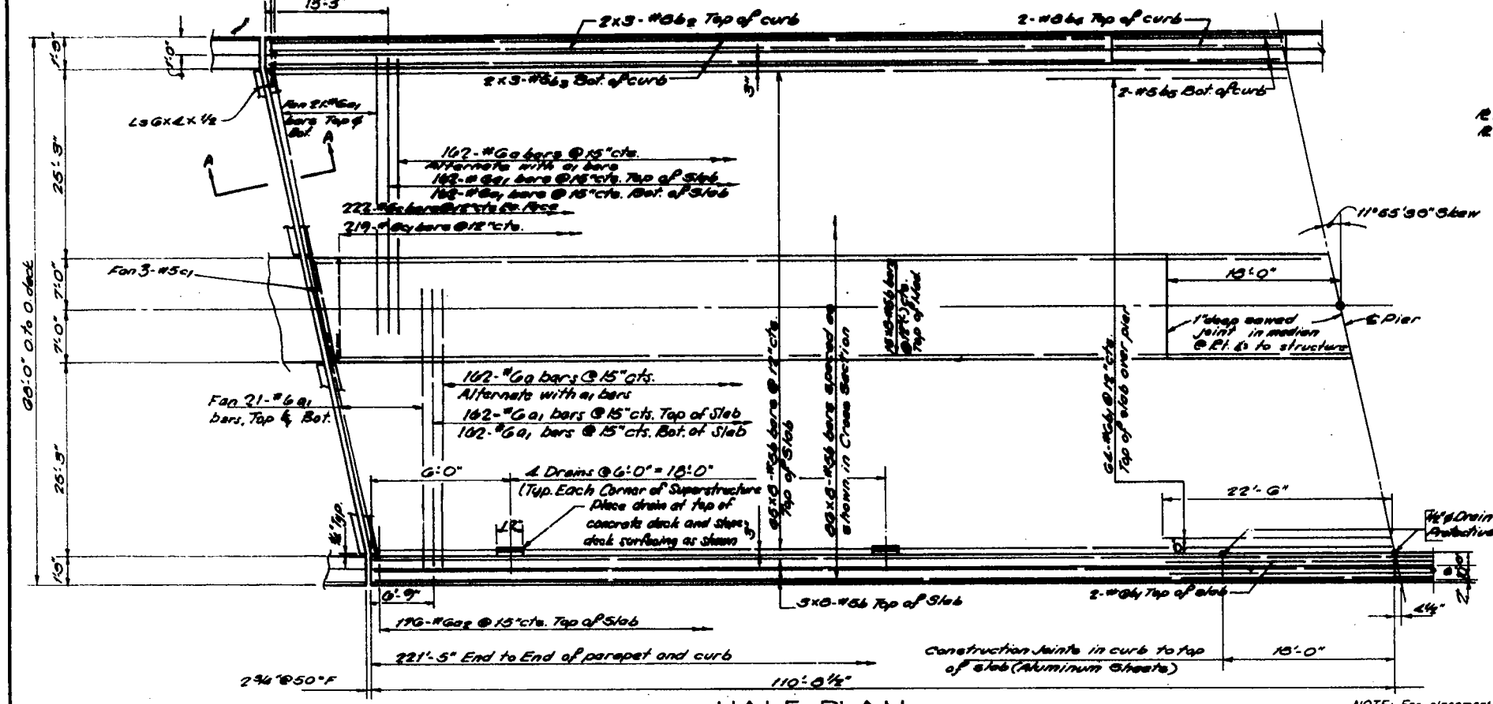
E-S 8-1-65

ELEVATIONS

F.A. RTE. 403 SEC. 195-2HB
WHITESIDE COUNTY
STATION 1582+83.52

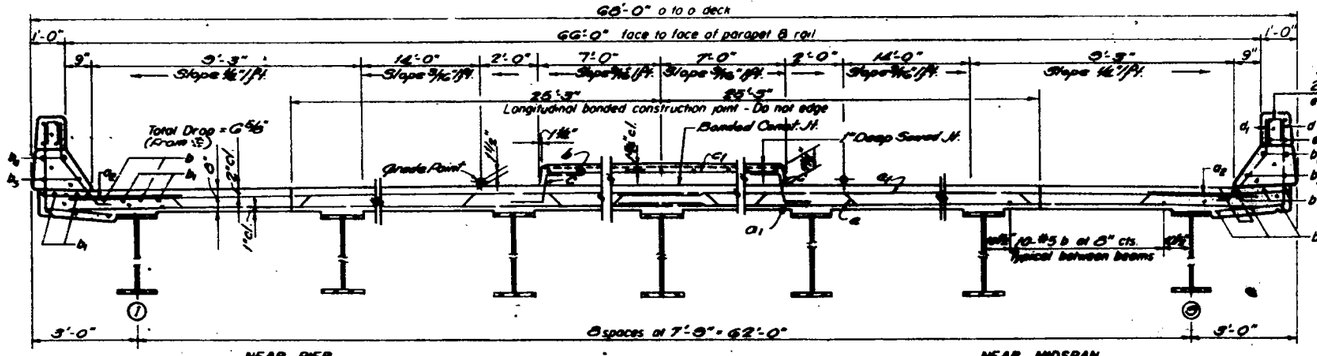
NOTE
Bars indicated thus 20 - x 3 - @ 5 etc indicates 20 lines of bars with 3 lengths per line
Min bar laps = 24 dia

222 - #4 d bars @ 12" cts. Outside face
222 - #5 d1 bars @ 12" cts. Inside face



HALF PLAN

NOTE: For placement of bars d_3 and e_1 thru e_2 see sheet #6

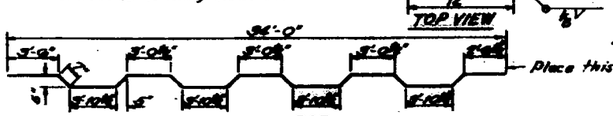


NEAR PIER

NEAR MIDSPAN

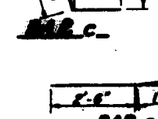
CROSS SECTION

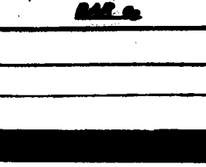
3/16 Aluminum Sheets welded A.S.T.M. B209 alloy 6061-T6 or Aluminum Extrusions A.S.T.M. B221 alloy 6061-T6

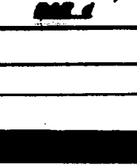


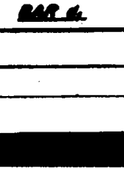
BAR a

DRAIN DETAIL









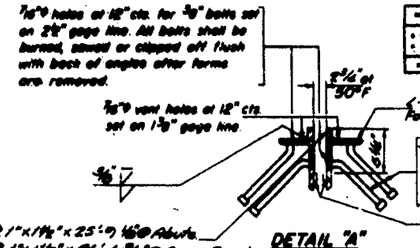
DESIGNED	C.DC.
CHECKED	S.M^ck.
DRAWN	C.D.C.
CHECKED	S.M^ck.

EXAMINED
PASSED
APPROVED

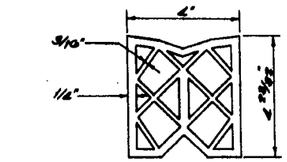
S-586-R(315) 4-22-68, 12-3-69

7/8"ϕ holes at 12" cts. for 3/4" bolts set on 2 1/2" gage line. All bolts shall be burned, sawed or clipped off flush with back of angles after forms are removed.

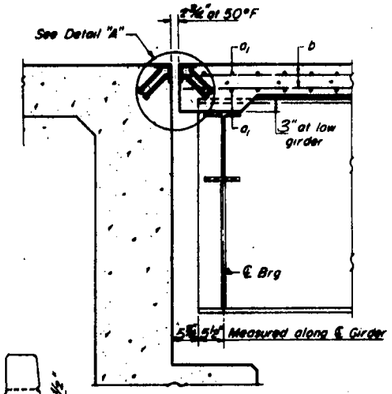
7/8"ϕ vent holes at 12" cts. set on 1 3/8" gage line.



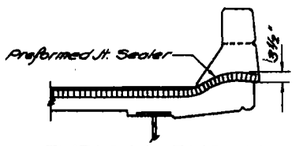
DETAIL "A"



PREFORMED JOINT SEALER (4")



SECTION A-A



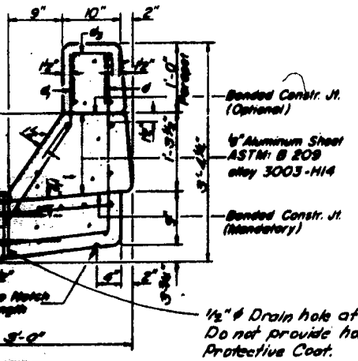
TYPICAL END OF SEALER TREATMENT

SHEET NO. 4
12 SHEETS

COUNTY NO.	SECTION	ROUTE	STATE PROJECT NO.	FED. AID PROJECT NO.
403	195 2HB	WHITESIDE	486	101
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a	324	#4	35'-4"	
a1	316	#4	34'-0"	
a2	352	#6	6'-0"	
b	1978	#5	20'-0"	
b1	90	#6	45'-0"	
b2	24	#8	92'-2"	
b3	24	#8	91'-0"	
b4	8	#8	17'-9"	
b5	8	#5	17'-9"	
c	444	#5	9'-4"	
c1	225	#5	19'-6"	
d	444	#4	2'-7"	
e	444	#5	5'-5"	
Reinforcement Bars			Lbs.	117750
Class X Concrete			Cu. Yds.	405.2



CURB SECTION

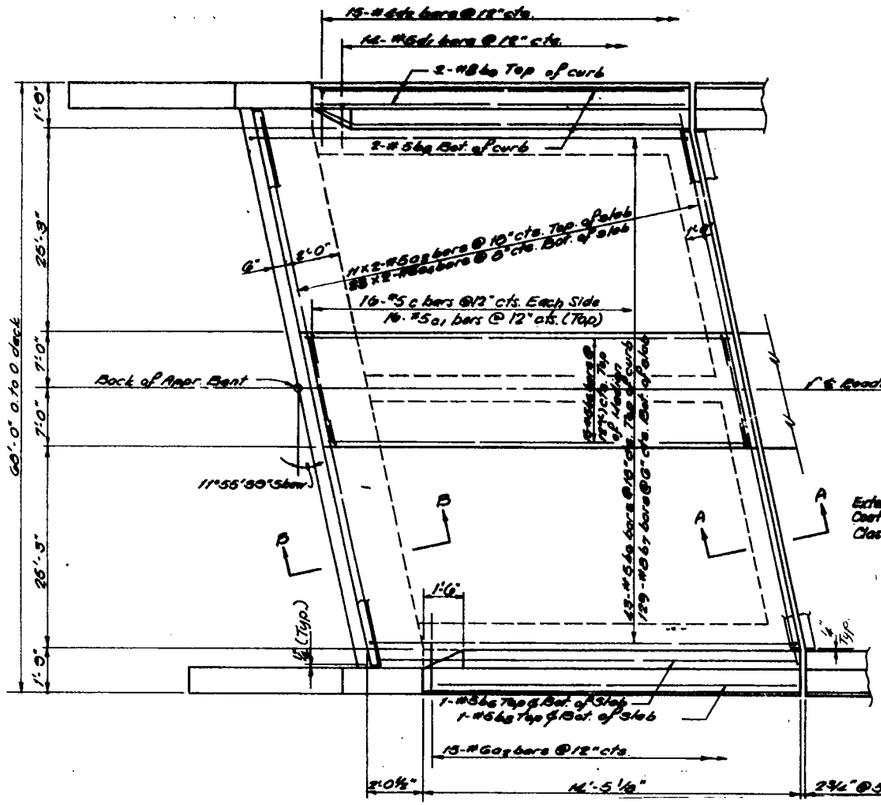
Cost of Aluminum Sheets and Drains shall be incidental to Class X Concrete.

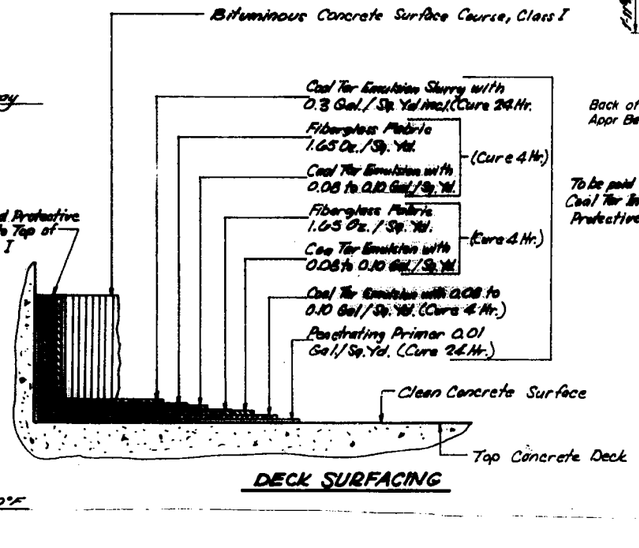
Parapet Reinforcement and Class X Concrete are billed on sheet #6.

SUPERSTRUCTURE
F.A.RTE. 403 SEC. 195-2HB
WHITESIDE COUNTY
STATION 1882+83.52

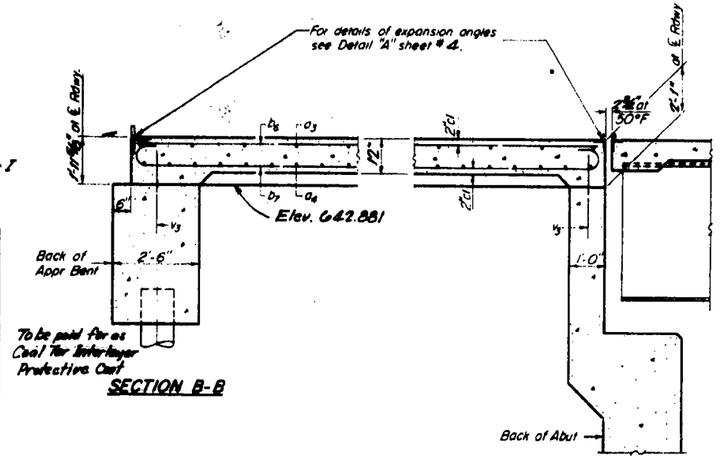
Route No.	Section	County	Total Sheets	Sheet No.
F.A. 403	195-2H8	WHITESIDE	486	102

SHEET NO. 5
12 SHEETS



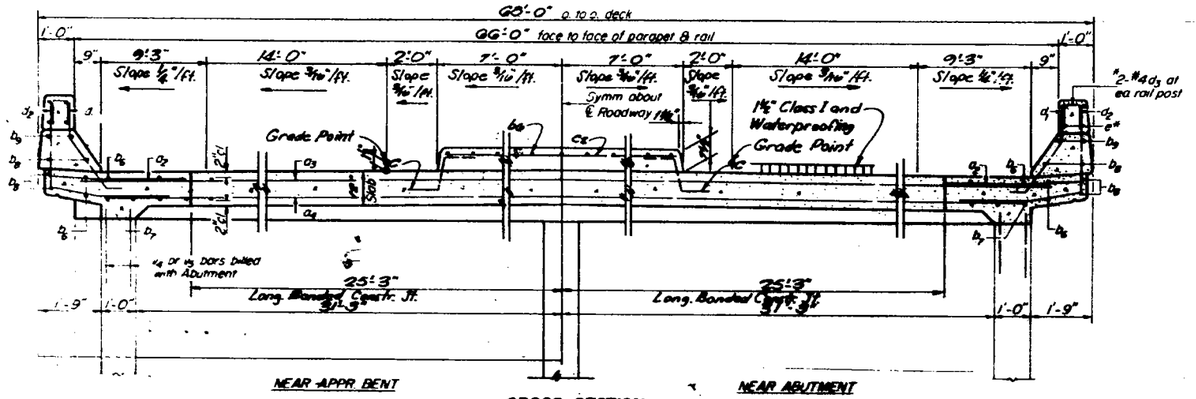


DECK SURFACING



SECTION B-B

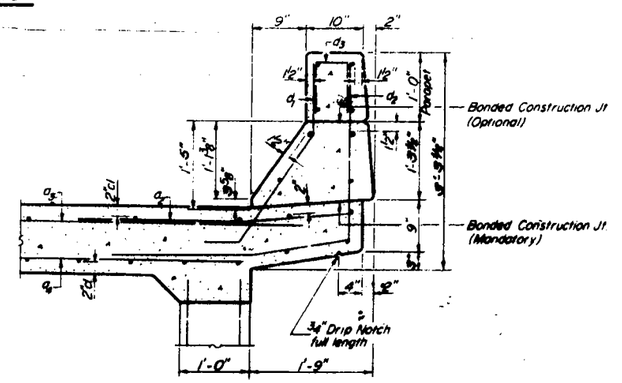
SECTION A-A



NEAR APPR BENT

NEAR ABUTMENT

CROSS SECTION

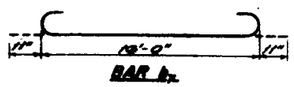


CURB SECTION

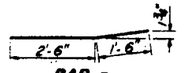
TWO APPR. SLABS
BILL OF MATERIAL

Bar	No	Size	Length	Shape
a_2	60	#6	4'-0"	—
a_3	44	#5	24'-3"	—
a_4	92	#6	33'-5"	—
b_4	174	#5	13'-0"	—
b_7	232	#8	17'-10"	⌐
b_8	10	#5	14'-1"	—
b_9	8	#8	14'-1"	—
c	94	#6	5'-4"	—
c_2	92	#6	13'-10"	—
a_1	56	#5	3'-5"	⌐
a_5	60	#4	0'-1"	⌐
Reinforcement Bars			Lbs.	21150
Class X Concrete			Cu. Yds.	106.6

*Parapet Reinforcement and Class X Concrete are billed on sheet # 6.

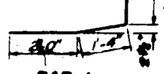


BAR b_2



BAR a_2

BAR a_3



BAR a_2

DESIGNED	C.D.C.
CHECKED	S.McK.
DRAWN	C.D.C.
CHECKED	S.McK.

19
EXAMINED
PASSED
APPROVED

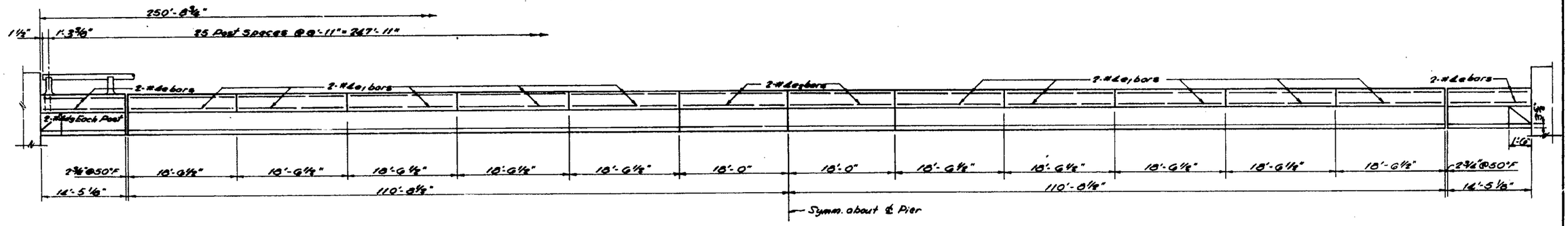
SAS-L (F30") 3-1-69

APPROACH SLABS
F.A. RTE. 403 SEC. 195-2H8
WHITESIDE COUNTY
STATION N62+85.62

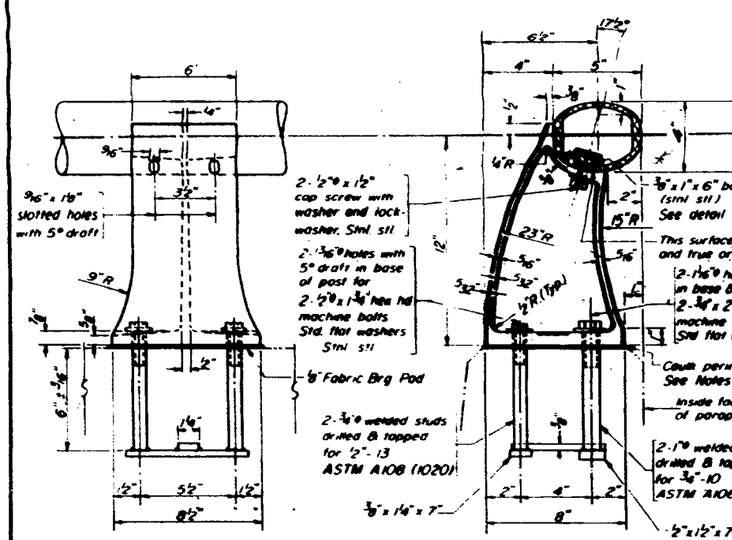
STATE OF ILLINOIS

403	195 7HB	WHITESIDE	486	103

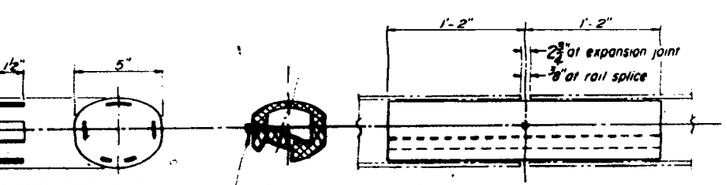
SHEET NO. 6
12 SHEETS



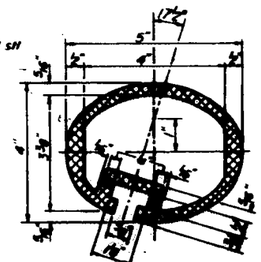
ELEVATION



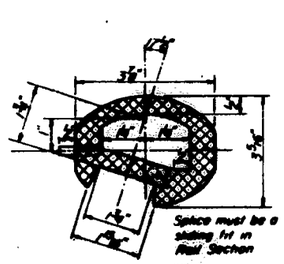
RAIL POST DETAILS



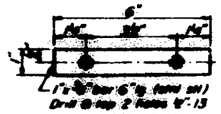
RAIL SPLICE



SEC. THRU ELLIPTICAL RAIL SECTION



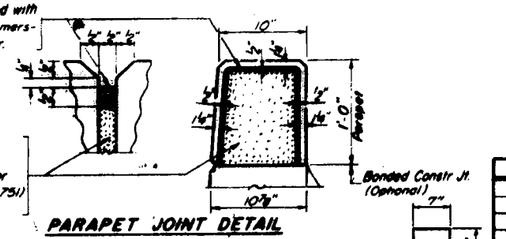
SEC. THRU SPLICE



CLAMP BAR

Two component non-staining gray sealing compound with polysulfide liquid polymers-gun grade with primer.

½" Preformed Cork Asphalt Joint Filler. (meets qualifications for ASTM: Designation D 1751) Cost incidental



PARAPET JOINT DETAIL

NOTES:

All Aluminum Alloy Extruded Rail shall be supported in modular lengths of 30 feet, except at the end of bridge or over open joints in bridge deck where the rail shall be attached to a minimum of 2 posts. If the rail is on a horizontal curve of 2300 feet radius or less, the modular lengths may be reduced but shall be attached to a minimum of 2 posts.

All joints in rail shall be spliced per detail.

Provide 1 - ⅛" and 2 - ⅜" Aluminum Shims for 25% of the Posts. Rail elevation shall be parallel to Grade - high spots shall be ground and low spots shimmed.

Seal perimeter of base of post to parapet with two component non-staining gray sealing compound with polysulfide liquid polymers, gun grade with primer. Fabric Bearing Pad shall have same dimensions as base of post.

Aluminum alloy rail shall conform to ASTM B221 alloy 6061-T6 or 6351-T5 with min. yield 35 ksi, min. tensile 38 ksi, and elongation of 10% in 2 inches.

PARAPETS & RAILS BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a	10	#4	12'-2"	
a1	20	#4	18'-3"	
a2	10	#4	17'-8"	
d9	104	#4	2'-1"	
Reinforcement Bars		Lbs.	1460	
Class 'A' Concrete *		Cu. Yds.	5.12	
Aluminum Railing		Lin. Ft.	601	

* Includes Curbs and Parapets.

ALUMINUM RAILING
F.A. RTE. 409 SEC. 195-7HB
WHITESIDE COUNTY
STATION 1652+63.52

DESIGNED	C.D.C.
CHECKED	S.M.K.
DRAWN	C.D.C.
CHECKED	S.M.K.

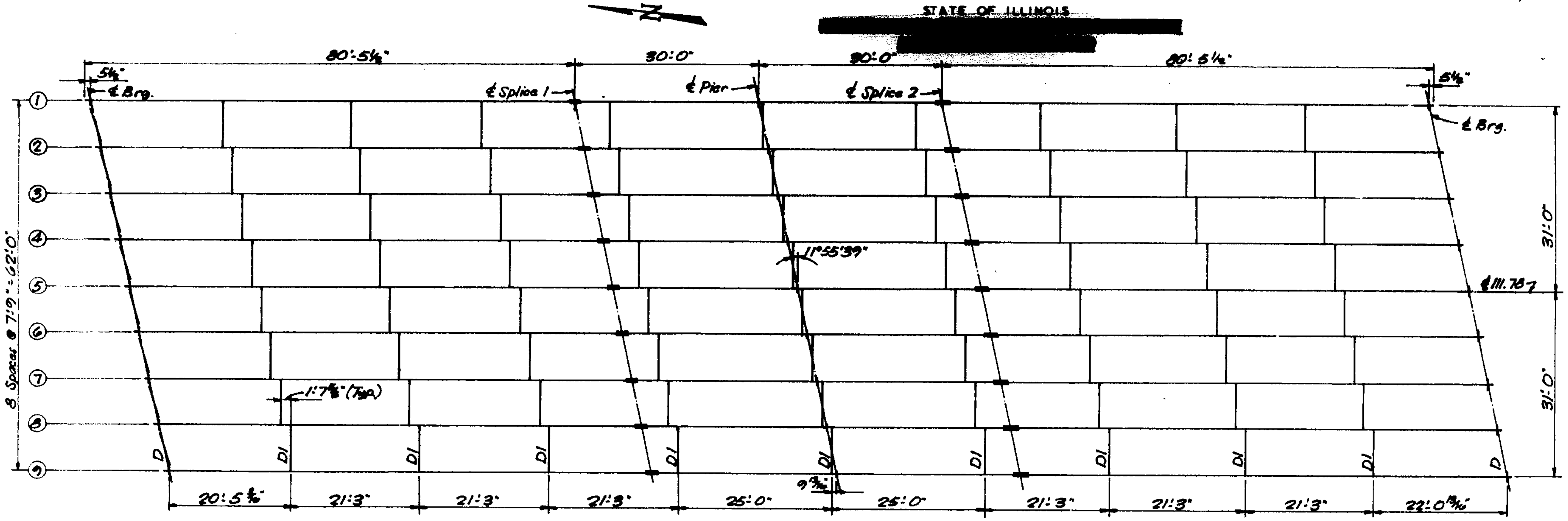
19
EXAMINED
PASSED
APPROVED

R-17 4-22-68 9-18-69

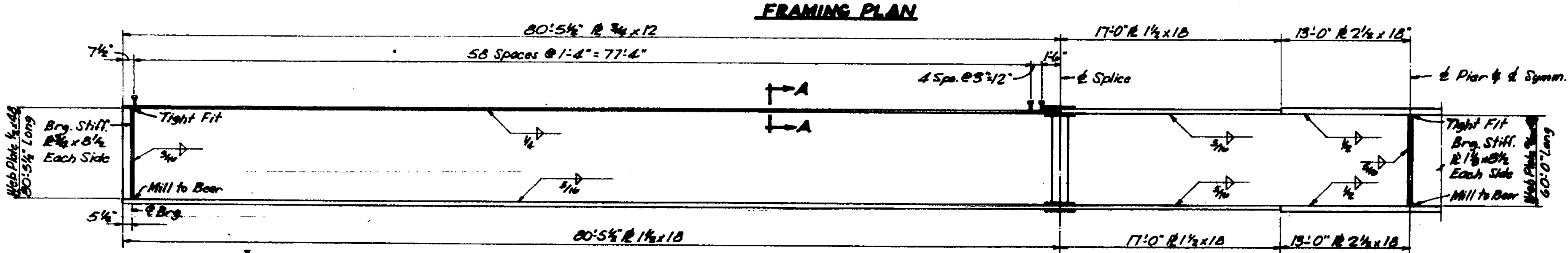
ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
S.B.I. F.A. 403	195-2HB	WHITESIDE	486	104
FED. ROAD DIST. NO. 7	ILLINOIS	F.A. PROJ.		

SHEET NO. 7
12 SHEETS

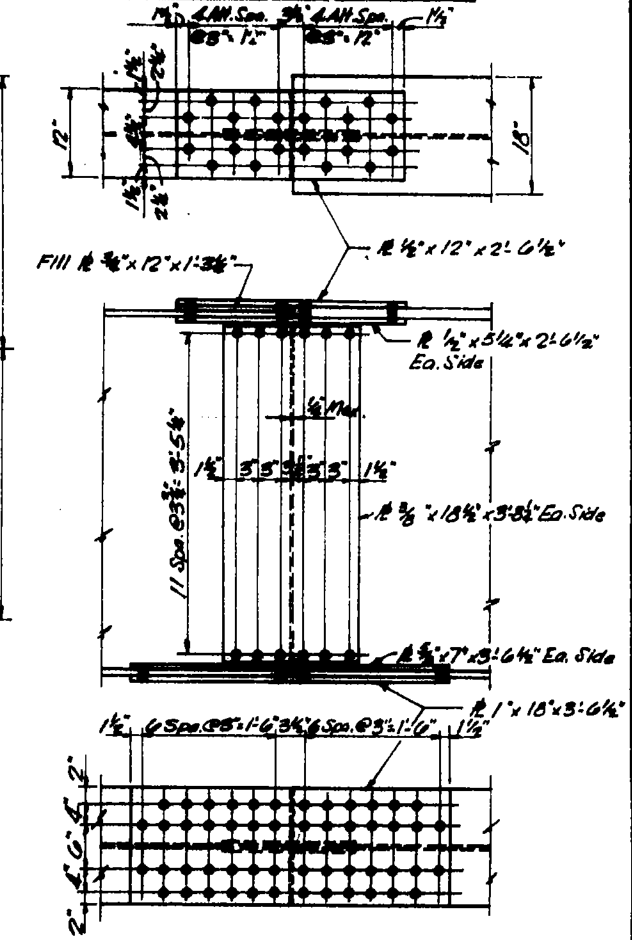
STATE OF ILLINOIS
[redacted]



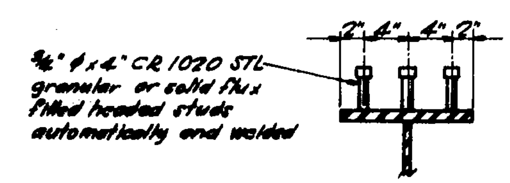
FRAMING PLAN



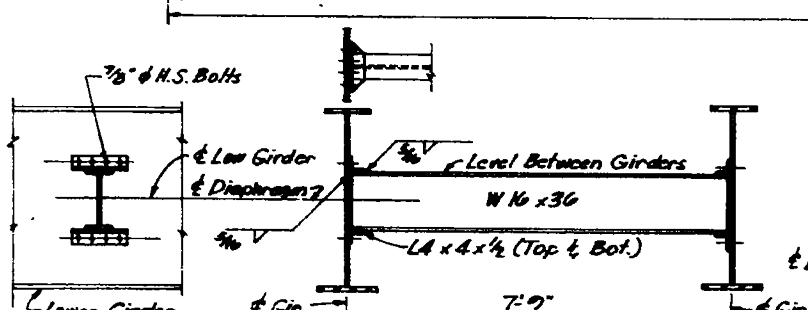
HALF GIRDER ELEVATION



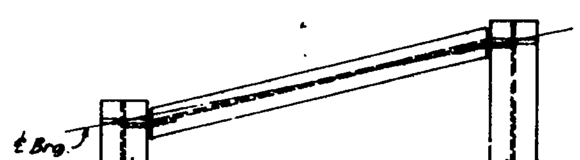
SPLICE DETAILS
(All Bolts ⅞" H.S.)



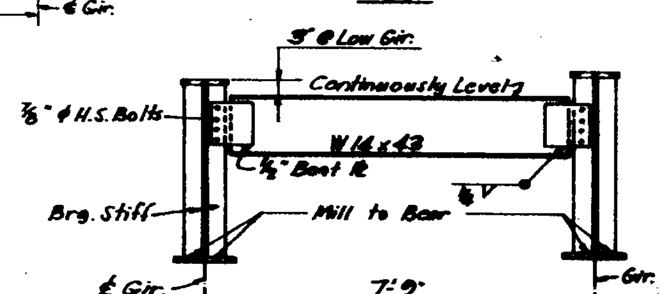
SECTION A-A
(878 Studs per Girder)



DIAPHRAGM D1
72 Required



PLAN



ELEVATION

DIAPHRAGM D
16 Required

MOMENT & SHEAR TABLE

	0.4 Sp. 1	Pier
I_s (in⁴)	24086	61989
S_s (in³)	1297	2339
DL (k/ft)	1.010	1.016
M_{DL} (k-ft)	713	1654
f_s DL (ksi)	6.60	9.51
I_c (n=30) (in⁴)	24661	—
S_c (in³)	1668	—
SDL (k/ft)	.577	.577
M_{SDL} (k-ft)	440	778
f_s SDL (ksi)	3.16	3.99
I_c (n=10) (in⁴)	71869	—
S_c (in³)	1916	—
M_{LL} (k-ft)	1001	845
M_{Imp} (k-ft)	273	180
M_{LL+Imp} (k-ft)	1274	1025
$f_{s\,LL}$ (ksi)	8.02	4.24
$f_{s\,total}$ (ksi)	17.78	18.76
VR	59.2	—

I_s and S_s are the moment of inertia and section modulus of the steel section.
I_c and S_c are the moment of inertia and section modulus of the composite section used in computing f_s.
VR is the maximum LL + impact shear range in span.

REACTION TABLE

	Abut.	Pier
R_{DL} (k)	[illegible]	214.7
R_{LL} (k)	50.2	[illegible]
Imp (k)	10.7	17.8
R TOTAL (k)	120.6	309.9

TOP OF WEB ELEVATIONS *

	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6	Girder 7	Girder 8	Girder 9
℄ Brg. N. Abut.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
℄ Splice 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
℄ Pier	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
℄ Splice 2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
℄ Brg. S. Abut.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* For fabrication only.

DESIGNED	A.K.C.
CHECKED	S. McK.
DRAWN	C.D.C.
CHECKED	S. McK.

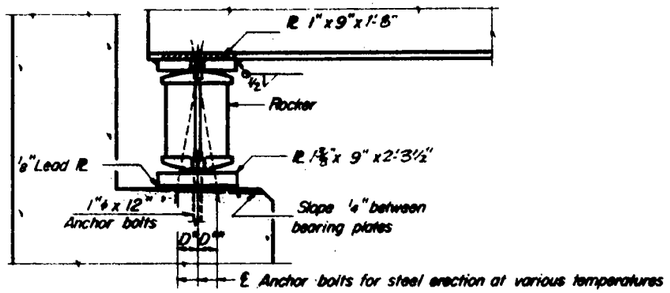
EXAMINED
PASSED
APPROVED
19

STRUCTURAL STEEL

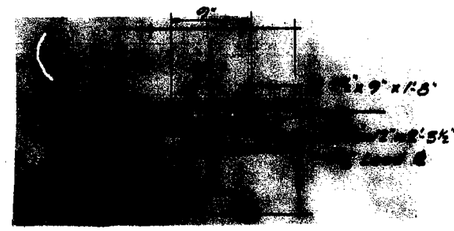
F.A. RTE. 403 ~ SEC. 195-2HB
WHITESIDE COUNTY
STATION 1582+88.82

STATE OF ILLINOIS

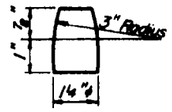
	195-2HB	WHITESIDE	486	105	SHEET NO. 8 12 SHEETS



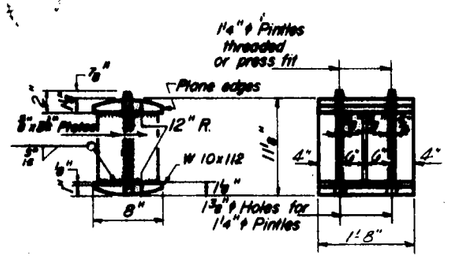
SECTION



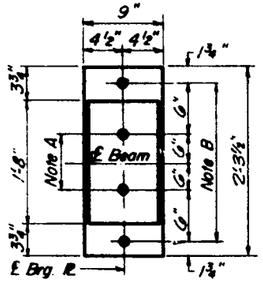
ELEVATION



PINTLE



ROCKER

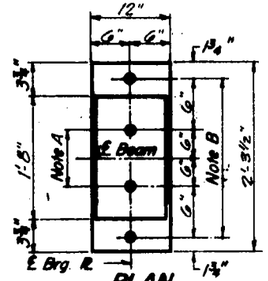


PLAN

AT ABUTMENT

NOTE A

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



PLAN

AT PIER

NOTE B

1½"ϕ Holes for 1" ϕ anchor bolts. ⌀8" x 2½" x 2½" PL. Washers under nut.

NOTE C

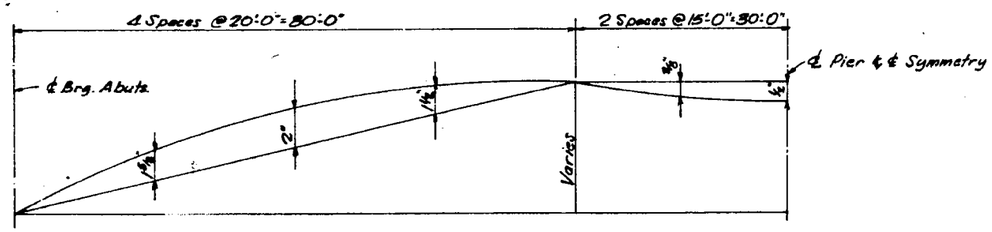
1⅜"ϕ Holes 1" deep in top PL only for 1¼"ϕ pintles.

NOTES ON SETTING OF ANCHOR BOLTS AT EXP. BRGS.

a) D* (Side of brg away from fixed brg)
D*= 1/8" per each 100' of expansion for every 15° fall below the normal temp. of 50°F
D** (Side of brg toward fixed brg)
D**= 1/8" 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.

BEARING ASSEMBLY DETAILS



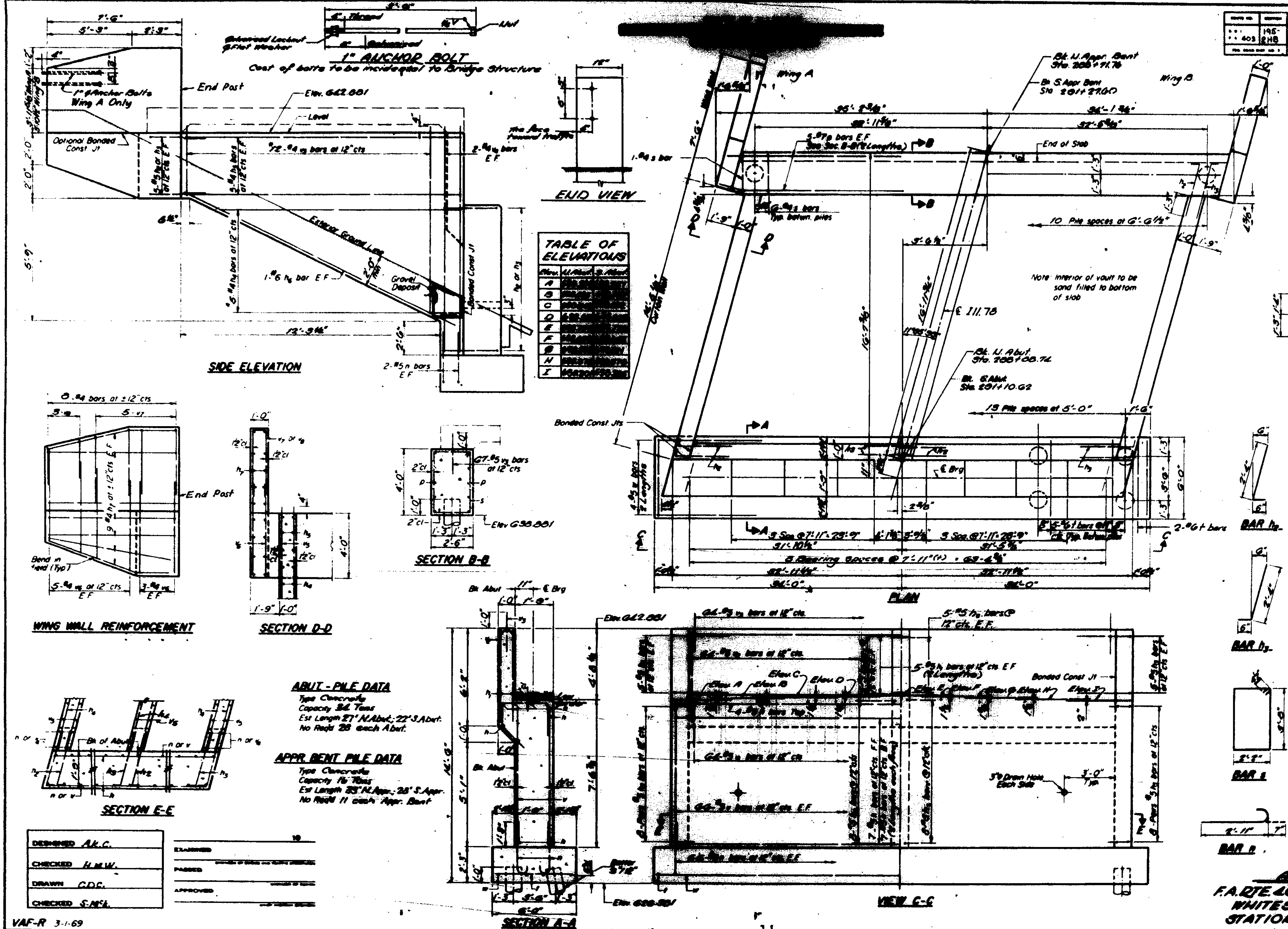
HALF CAMBER DIAGRAM

(Includes allowance for Vertical Curvature of Rdwy.)

DESIGNED	S. McK.
CHECKED	C.D.C.
	P.G. Bennett & Co.

19
EXAMINED
PASSED

SHOES



403	195-2HB	WHITESIDE	486	106

SHEET NO. 9
12 SHEETS

TWO ABUTMENTS
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h	72	#5	33'-9"	
h₁	40	#5	31'-1"	
h₂	108	#5	2'-10"	
h₃	108	#5	2'-10"	
h₄	30	#4	15'-1"	
h₅	60	#4	14'-2"	
h₆	12	#6	15'-3"	
h₇	72	#4	7'-3"	
n	208	#5	3'-6"	
p	40	#7	35'-5"	
s	124	#4	12'-5"	
t	136	#6	6'-8"	
v	204	#5	7'-5"	
v₁	128	#5	7'-7"	
v₂	128	#5	12'-3"	
v₃	262	#5	2'-3"	
v₄	24	#4	12'-7"	
v₅	72	#4	14'-1"	
v₆	64	#4	5'-6"	
v₇	20	#4	9'-0"	
v₈	12	#4	6'-5"	
w	10	#5	34'-5"	
Reinforcement Bars			Lbs.	19280
Class X Concrete			Cu. Yds.	240.5
Concrete Piles			Lin. Ft.	[illegible]
Test Pile, Concrete			Ea.	2

ABUTMENTS
F.A. RTE. 403 SEC. 195-2HB
WHITESIDE COUNTY
STATION 1582+63.52

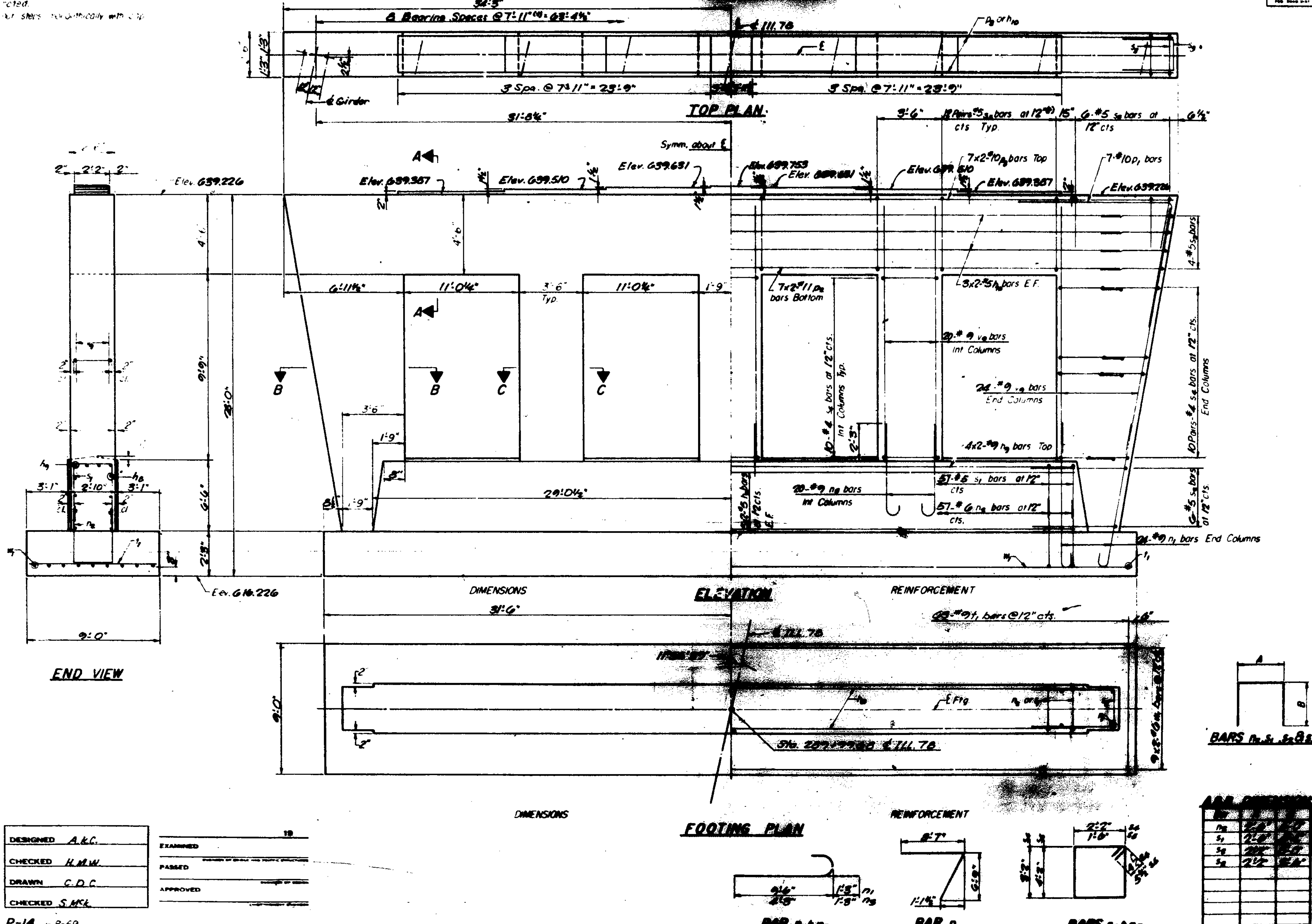
NOTES:

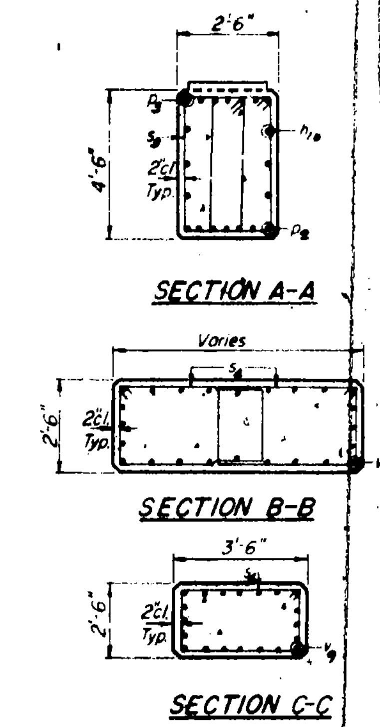
Spare reinforcement in cap to miss anchor bolts.
All edges shall have standard ¾" chamfers except as noted.
... steps ... with cap.

[redacted]

Route No.	Section	County	Total Sheets	Sheet No.
F.A. 403	195-2HB	WHITESIDE	486	107

SHEET NO. 10
12 SHEETS





BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h_8	20	#5	28'-6"	
h_9	8	#9	29'-0"	
h_{10}	12	#6	32'-2"	
n_1	48	#9	10'-9"	
n_2	57	#6	12'-6"	
n_8	[illegible]	#9	5'-6"	
p_1	14	#10	16'-6"	
p_2	14	#11	[illegible]	
p_8	14	#10	[illegible]	
s_1	[illegible]	[illegible]	11'-2"	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	11'-6"	
[illegible]	[illegible]	[illegible]	[illegible]	
t_1	68	#9	8'-6"	
v_9	108	#9	15'-9"	
w_1	18	#6	32'-1"	
Class X Concrete			Cu. Yds.	158.2
Reinforcement Bars			Lbs.	21950

[illegible] DIMENSIONS

Bar		
n_2	[illegible]	[illegible]
s_1	[illegible]	[illegible]
s_2	[illegible]	[illegible]
s_3	2'-2"	[illegible]

DESIGNED	A.K.C.
CHECKED	H.M.W.
DRAWN	C.D.C.
CHECKED	S.McK.

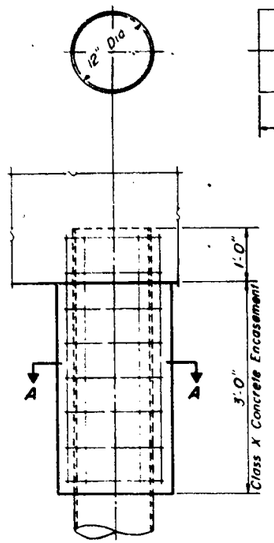
19
EXAMINED
PASSED
APPROVED

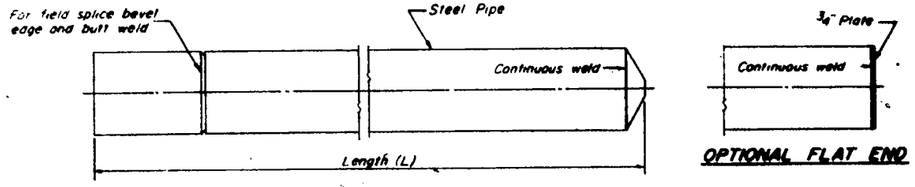
P-14 1-8-69

[illegible]
F.A. RTE. [illegible] - SEC. [illegible]
[illegible]
STATION [illegible]

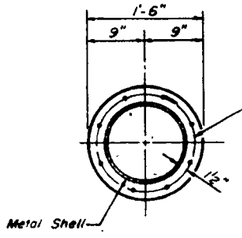
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 403	195-2HB	WHITESIDE	486	109
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 12
12 SHEETS





OPTIONAL FLAT END



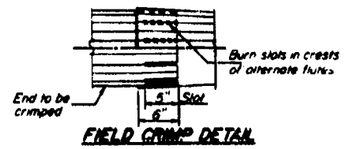
SECTION A-A

Forms for encasement may be omitted when soil conditions will permit.

Welded wire fabric 6"x 6" mesh #4 wire - Wt. 58#/100 sq ft.
The cost of Class X Concrete Encasement and Reinforcement is incidental to the cost of furnishing piles.
The thickness of the shell shall be .1793 inches with a tolerance of 5%.

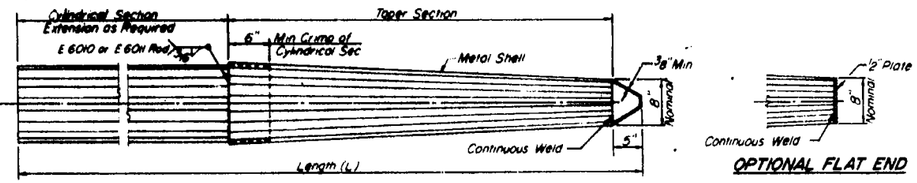
Note: Driving and bearing ends of pipe shall be cut square.

DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES

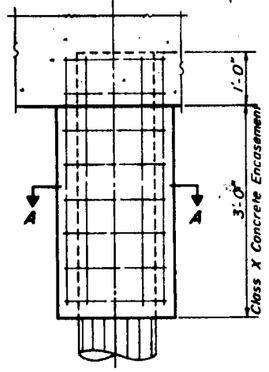


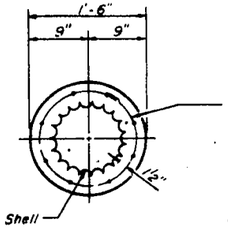
FIELD CRIMP DETAIL

Note 6" Crimp shall either be supplied on the cylindrical section or made in the field as detailed



OPTIONAL FLAT END





SECTION A-A

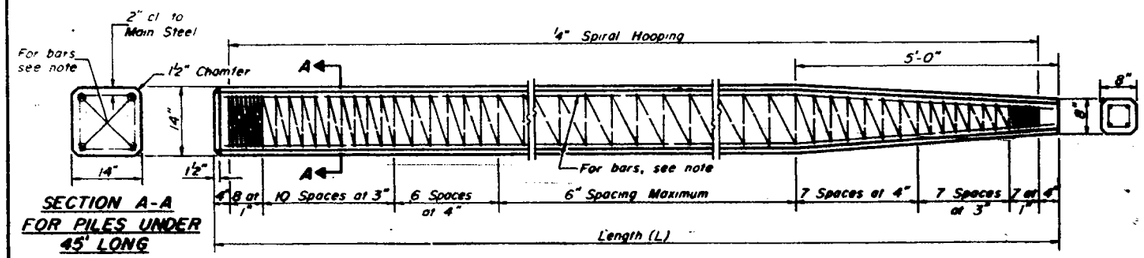
Welded wire fabric 6"x 6" mesh #4 wires - Wt 58#/100 sq. ft.
The cost of Class X Concrete Encasement and Reinforcement is incidental to the cost of furnishing piles.
The thickness of the shell shall be .1793 inches with a tolerance of 5%.

Forms for encasement may be omitted when soil conditions will permit

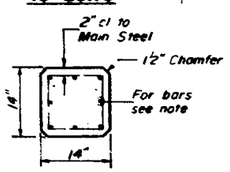
ALLOWABLE TAPER SECTIONS

10' Length - Taper 1" in 2'-6"
17' Length - Taper 1" in 4'-0"
25' Length - Taper 1" in 7'-0"
30' Length - Taper 1" in 7'-0"

DETAIL OF TAPERED METAL SHELL FOR CAST IN PLACE CONCRETE PILES



SECTION A-A FOR PILES UNDER 45' LONG



SECTION A-A FOR PILES 45' OR MORE

Note: For 14" Piles 45' long or more use 8-#8 bars 4 for the full length and 4 to the point of bevel
For 14" Piles under 45' long use 4-#9 bars full length

Handling: For Pile lengths up to 45', use two slings placed at a distance of 0.21 L from each end.
For Piles longer than 45' use three slings placed at a distance of 0.12 L from each end and at mid-point of pile.

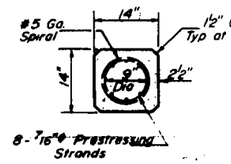
Note: For length of piles (L) see sheet 9.

DESIGNED	
CHECKED	
DRAWN	
CHECKED	

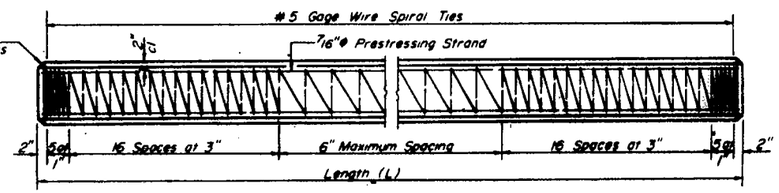
19
EXAMINED
PASSED
APPROVED

X-2 2-14-69

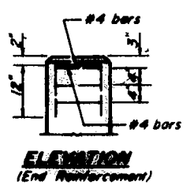
DETAIL OF PRECAST CONCRETE PILES



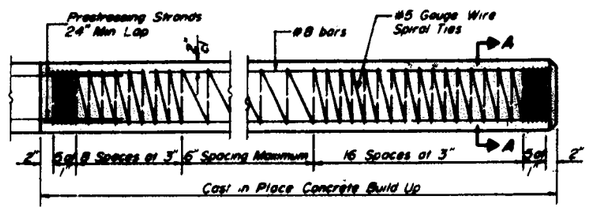
SECTION THRU PILE



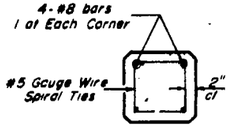
PILE PLAN



ELEVATION (End Reinforcement)



PILE BUILD UP



SECTION A-A

PLAN (End Reinforcement)

DESIGN STRESSES

f'c' = 5,000 psi
f'ci = 4,000 psi
fs' = 268,000 psi (31,000 lbs.)
fsi = 186,000 psi (21,700 lbs.)

Note: Prestressing steel shall be non-galvanized extra high strength stress-relieved 7 wire strand. The nominal diameter shall be 7/16" and the minimum nominal cross-sectional area shall be 0.0556 square inch.

Handling: For pile lengths up to 65', use two slings placed at a distance of 0.21L from each end. For piles longer than 65', use three slings placed at a distance of 0.12 L from each end at midpoint of pile.

PILE DETAILS
F.A. RTE. 403 - SEC. 195-2HB
WHITESIDE COUNTY
STATION 1582+85.52

DETAIL OF PRECAST PRESTRESSED CONCRETE PILES