

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SN 033-0038
ORIGINAL CONST.

F.A. RTE.	SECTION	COUNTY	SYMBOL	SHEET NO.
853	7-BR	HAMILTON	17	1

P-97-012-82

~ INDEX OF SHEETS ~

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2340-3	TRAFFIC BARRIER TERMINAL, TYPE 5 & 5A
2391	TEMPORARY EROSION CONTROL SYSTEM

PLANS FOR PROPOSED
FEDERAL AID HIGHWAY



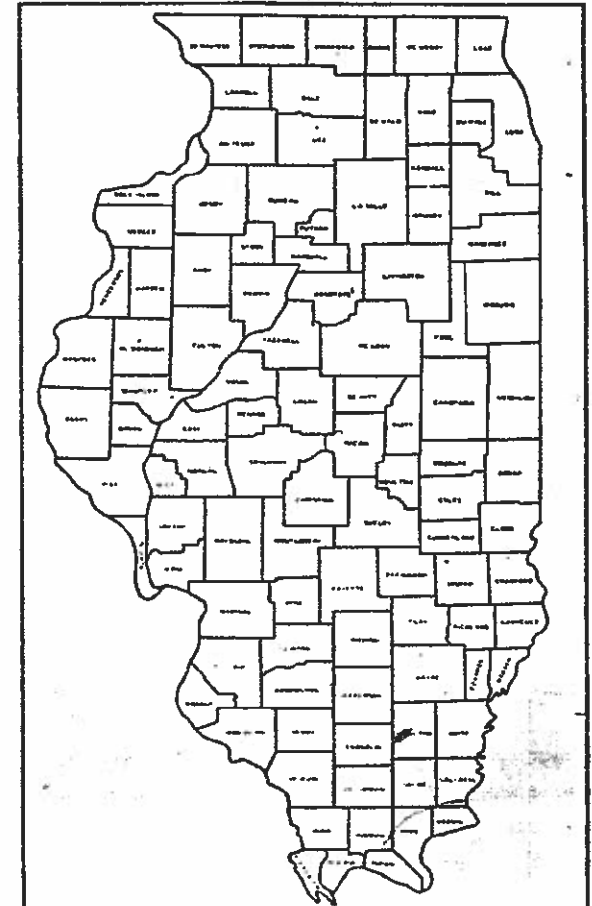
F. A. ROUTE 853 (ILL. RTE. 14)

SECTION 7-BR

PROJECT BRF-853(5)

HAMILTON COUNTY

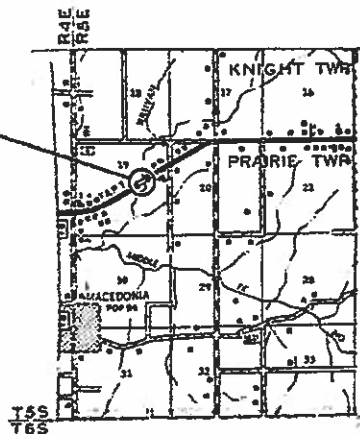
FOR INFORMATION ONLY



LOCATION OF SECTION INDICATED THUS: —

C-97-009-84

LOCATION OF PROJECT
SECTION 7-BR
SULLIVAN BRANCH
BEGINS STA. 697+80
ENDS STA. 703+00



~ LAYOUT MAP ~



NET LENGTH OF PROJECT = 520 FT. = 0.098 MI.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED: Sep 14 1984

EXAMINED: 10-15 1984

PASSED: 10-17 1984

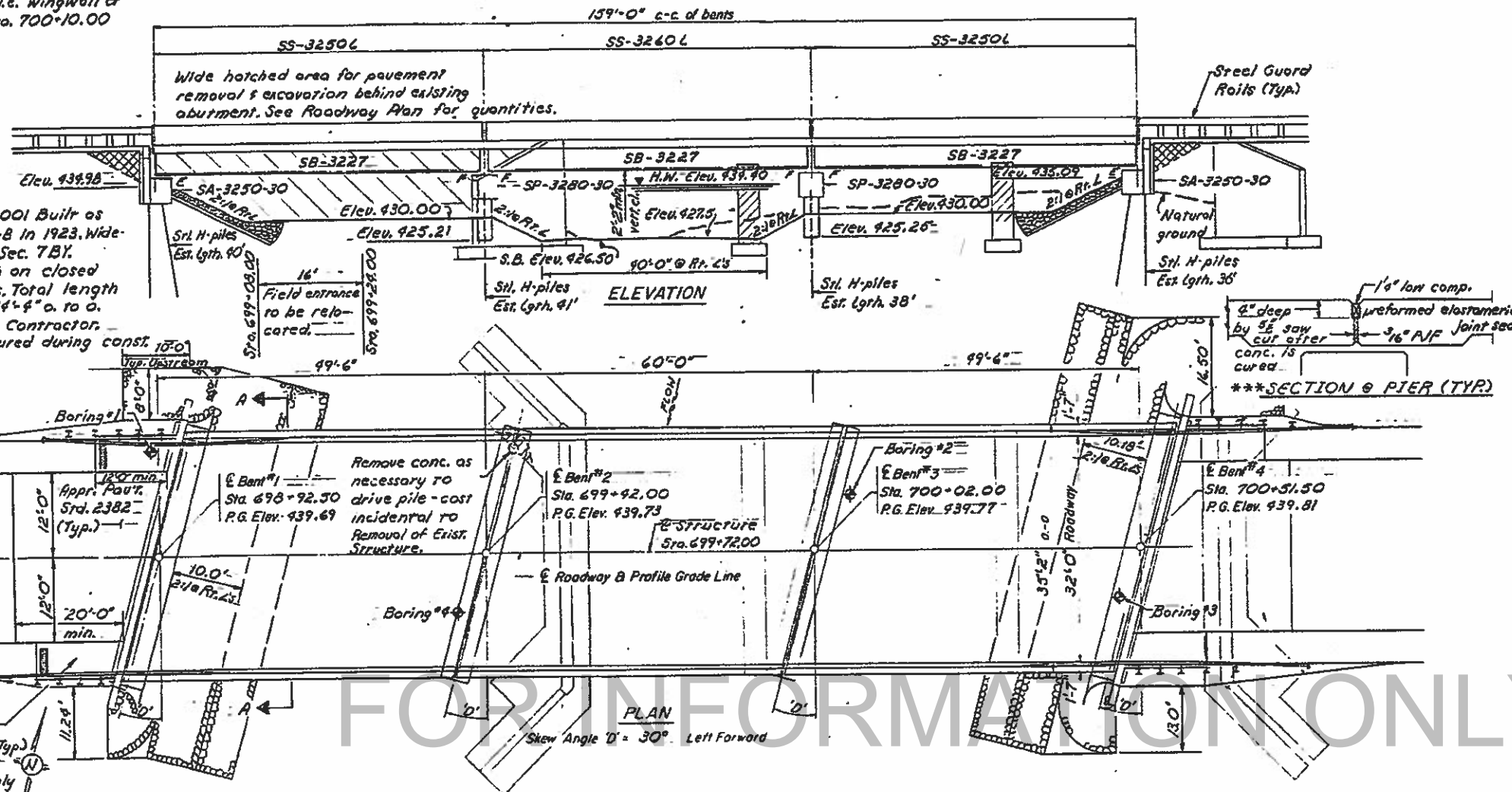
APPROVED: 10-11 1984

DISTRICT ENGINEER
ENGINEER OF PLANS AND CONTRACTS
ENGINEER OF DESIGN
DIRECTOR DIVISION OF HIGHWAYS

C.N. 11694 033-0038
CONTRACT NO. 38546

B.M. - Chiseled "a" on the N.E. wingwall of existing structure Sta. 700+10.00 Elev. 440.20

ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 1
FA 853	7BR	HAMILTON	17	5	10 SHEETS
FED. ROAD DIST. NO. 7		ILLINOIS PROJECT			



Existing Structure - S.N. 033-0001 Built as S.B.I. Pte. 14 Sec. 7-8 in 1923, widened in 1952, under Sec. 7BY. 3-simple spans RCDG on closed abuts. & solid piers. Total length = 114'-0", width = 34'-4" o. to o. To be removed by Contractor. Traffic shall be detoured during const. Salvage - None

GENERAL NOTES

See Special Provisions for boring logs and top of Slab Elevations. Class 'X' Concrete shall be used throughout. Fasteners shall be high strength bolts (AASHTO M169, Type 3). Bolts 3/4", open holes 1/2" unless otherwise noted. All structural steel shall be AASHTO M222 except expansion joint angles and attached bars which shall be AASHTO M183 and shall be shop primed with zinc-silicate primer. AASHTO M222 structural steel shall not be painted except, nor for a distance of three times the depth of the beams (but not exceeding 10 ft.) each way from deck joints, the AASHTO M222 structural steel shall be cleaned, and given one coat of the zinc-silicate primer and a dark maroon vinyl finish coat. Both coats to be applied in the shop with spot painting only in the field. Field welding of construction accessories will be permitted on the top flange of beams only. The structural steel bearing plates of the Elastomeric Bearing Assembly shall conform to the requirements of AASHTO M222. The main beams shall conform to the supplemental requirements for Notch Toughness Zone 2. Anchor bolts shall be set before bolting diaphragms over supports. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53 Grade 60. Layout of riprap may be varied in the field to suit ground conditions as directed by the Engineer. The contractor shall drive one HP10x42 test pile in a permanent location at Bent #2 as directed by the Engineer before ordering the remainder of the piles.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub.	Total
			Piers	Abuts
Removal of Existing Structures	Each			1
Structure Excavation	Cu Yd.		68.1	53.0
Floor Drains	Each	18		18
Protective Coat	Sq. Yd.	703.1		703
Class X Concrete	Cu. Yd.	172.3	32.8	62.8
Preformed Joint Seal 4"	Lin. Ft.	80		80
F&E Struct. Steel	L. Sum	1		1
Stud Shear Connectors	Each	2250		2250
Elast. Bearing Assy T1	Each		10	10
Reinforcement Bars	Lbs.		5,500	5,260
Rein. Bars (Epoxy Ctd)	Lbs.	40,950		40,950
Steel Piles HP10x42	Lin. Ft.		670	532
Channel Excavation	Cu. Yd.			970
Test Pile (Steel HP10x42)	Each		1	1
Class X Concrete Encasement	Cu. Yd.		31.6	31.6
Name Plates	Each			1
Stone Riprap	Sq. Yd.			325

*All Rebars in the deck STDs: SS-3250L & SS-3260L are Epoxy coated.

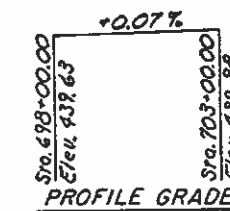
BEARING CAP ELEVATION DATA

Bent - CE	Bm. #1		Bm. #2		Bm. #3		Bm. #4		Bm. #5	
	BE ₁	E ₁	BE ₂	E ₂	BE ₃	E ₃	BE ₄	E ₄	BE ₅	E ₅
#1	435.98	436.12	436.23	3"	436.34	44"	436.22	2 3/8"	436.10	1 1/2"
#2	436.21	436.35	436.46	3"	436.57	44"	436.45	2 3/8"	436.34	1 1/2"
#3	436.25	436.39	436.50	3"	436.61	44"	436.49	2 3/8"	436.38	1 1/2"
#4	436.09	436.23	436.34	3"	436.45	44"	436.33	2 3/8"	436.21	1 1/2"

WATERWAY INFORMATION

Drainage Area = 11.87 sq. mi. Low Grade Elev. = 437.81 -- At Sta. 699+00

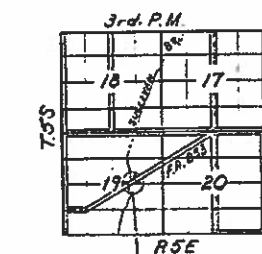
Flood	Freq. Yr.	Q C.F.S.	Opening Sq Ft	Natural HWE	Head-Ft. Exist.	Headwater El. Prop.
Design	50	3115	371	434.4	3.24	0.88
Base	100	3580	403	434.7	3.63	1.06
Overlapping						
Max Calc.	500	4660		435.1	1.56	436.64



PROFILE GRADE

PILE DATA

Bent	#1	#2	#3	#4
Type	HP10x42	HP10x42	HP10x42	HP10x42
Capacity - Ton	45	35	35	45
Estimated Length - Feet	40	41	38	36
Number Required	7	8	9	7
Test Piles		1		



PROPOSED BRIDGE LOCATION SKETCH

DESIGN SPECIFICATIONS

1977 AASHTO & 1978, 1979 & 1980 Interims HS 20-44 Loading. Load Factor Design.

CALCULATED WEIGHT OF STRUCTURAL STEEL

Standard SB 3227	85,292.0 lbs
Standard SD 3201	2,692.0 lbs
Standard SD 3202	3,120.0 lbs
Total	91,104.0 lbs

INDEX OF SHEETS

- 1 General Plan & Elevation
- *2 Standard SS-3250L
- *3 Standard SS-3260L
- 4 Standard SB-3227
- **5 Standard SD-3201
- **6 Standard SD-3202
- 7 Standard SA-3250-30
- 8 Standard SP-3280-30
- 9 Standard SE-3200
- 10 Anchor Bolt Details for Bearings

** See sheet #10 for anchor bolt details.

STANDARD BRIDGE STEEL BEAMS-32' ROADWAY
GENERAL PLAN & ELEVATION
ILLINOIS ROUTE 14
OVER SULLIVAN BRANCH

RT. F.A. 853 SEC. 7BR
HAMILTON COUNTY
STATION 699+72.00

RIPRAP ANCHOR DETAIL

SGP-3L(7-1-B) AFS K.H.O. M.C. DJR

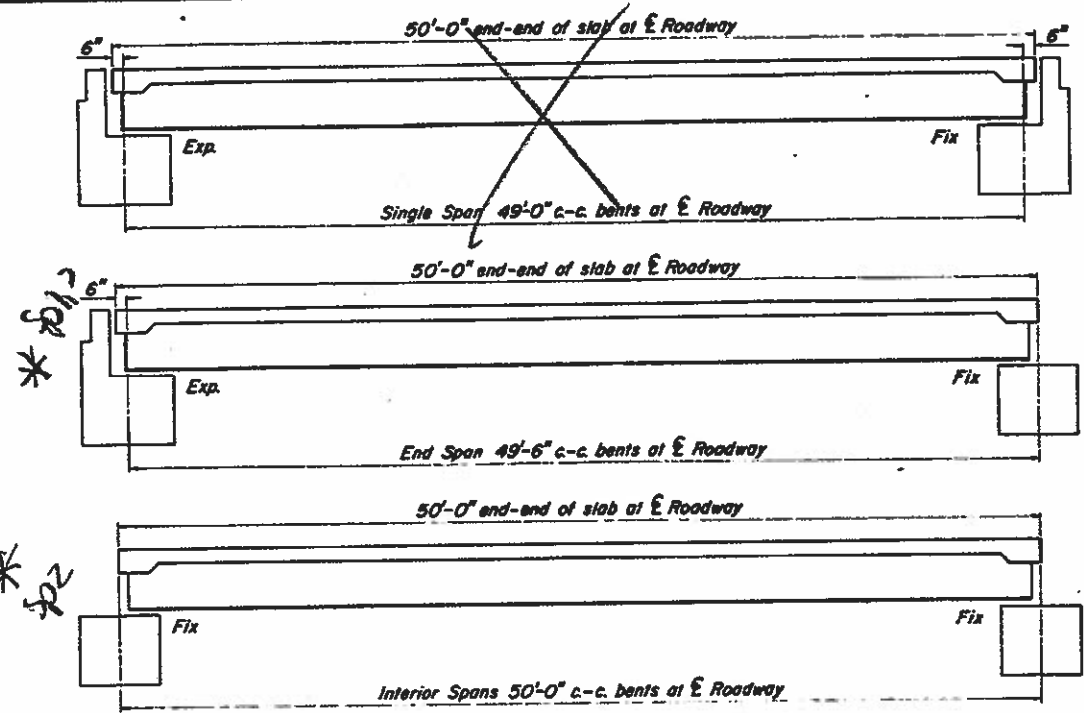
Illinois Department of Transportation
September 30, 1984
APPROVED [Signature]
Engineer of Bridges and Structures

STATION 699+72
BUILT 198 BY
STATE OF ILLINOIS
F.A. RT. 853 SEC. 7BR
F.A. PROJ. BR-853(5)

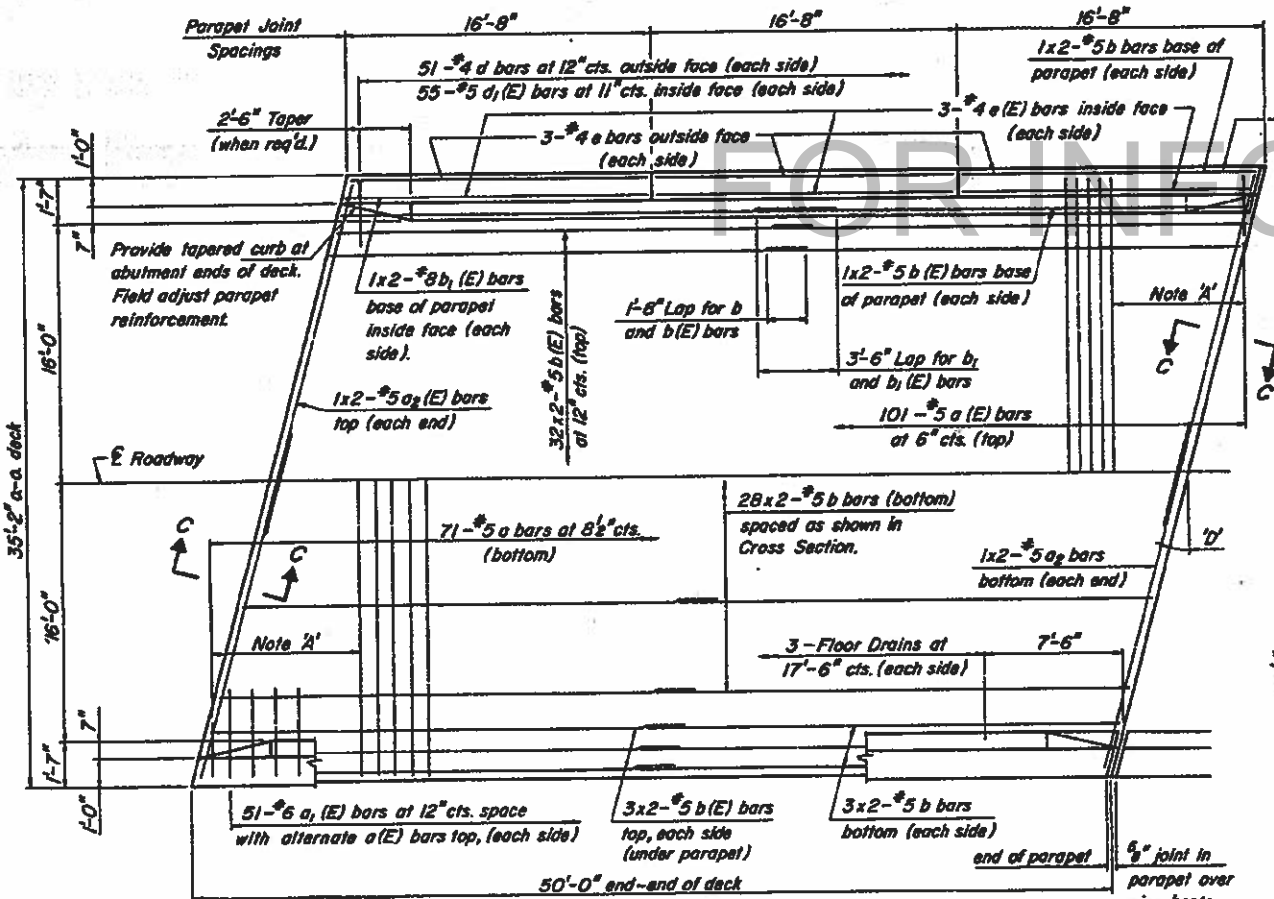
LOADING HS20
STR. NO. 033-0038

LETTERING FOR NAME PLATE

Locate Name Plate at
Corner of Bridge (See Standard 2113)



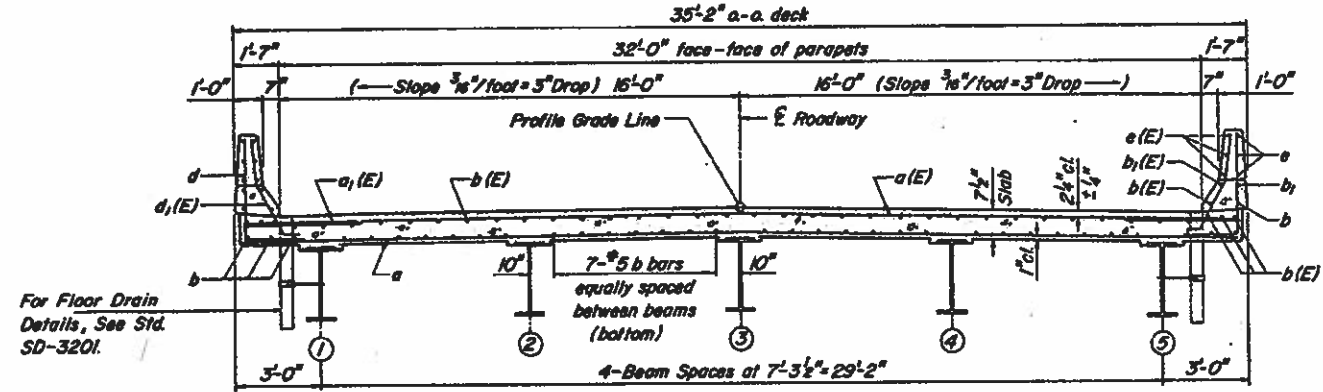
TYPICAL ELEVATIONS



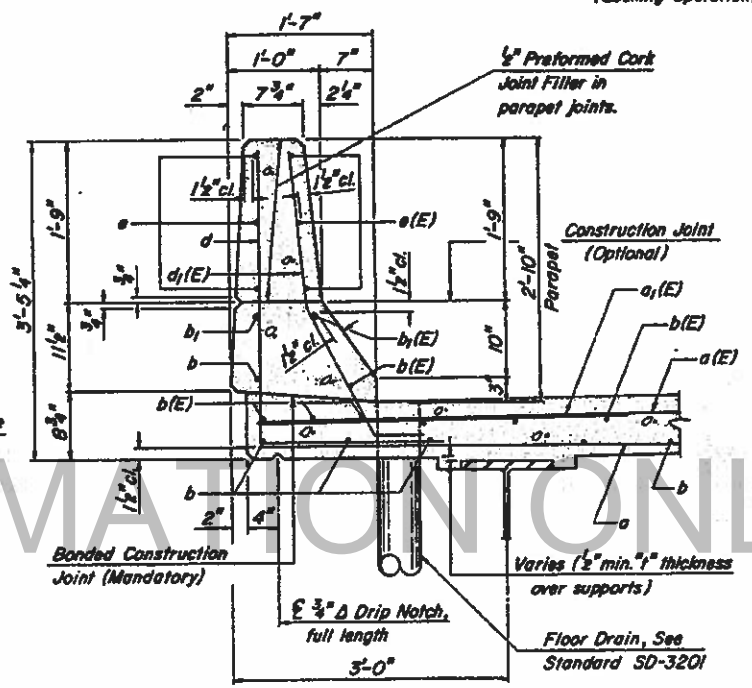
PLAN
(*D=Designated Skew Angle)

Bars indicated thus;
28 x 2-#5 etc. indicates
28 lines of bars with 2
lengths per line.

Note A':
Field cut a and a(E) bars to fit
skew and use remainder of bars
in opposite end. See Special
Provisions for treatment of field
cut epoxy coated bars.

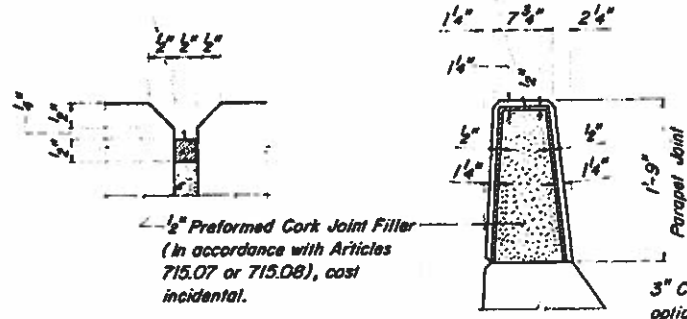


CROSS SECTION
(Looking Upstation)



PARAPET SECTION

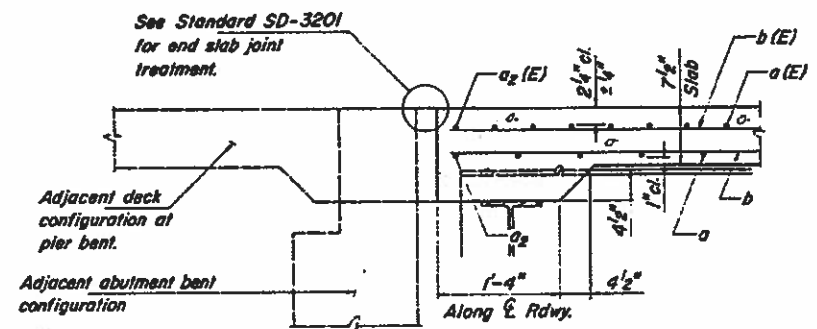
Two component non-staining gray
sealing compound with polysulfide
liquid polymers - gun grade with
primer.



PARAPET JOINT DETAILS

METHOD FOR DETERMINING FILLET HEIGHT "f"

After all structural steel has been erected, elevations of the top flanges of each beam shall be taken at intervals not to exceed 10 feet. From these elevations, subtract the increment of deflection for these points determined from the "Dead Load Deflection Diagram". The elevation so obtained subtracted from the theoretical top of slab elevations over each beam minus the slab thickness equals the fillet height "f" above the top of the beam.



SECTION C-C

BAR LIST FOR ONE SPAN

Bar	No.	Size	Length	Shape
a	71	#5	34'-7"	—
a(E)	101	#5	34'-7"	—
a1(E)	102	#6	4'-0"	—
a2	4	#5	20'-8"	—
a2(E)	4	#5	20'-8"	—
b	72	#5	25'-8"	—
b(E)	80	#5	25'-8"	—
b1	4	#8	26'-7"	—
b1(E)	4	#8	26'-7"	—
d	102	#4	5'-2"	L
d1(E)	110	#5	3'-11"	L
e	18	#4	16'-4"	—
e(E)	18	#4	16'-4"	—

Reinforcement bars designated (E) shall be epoxy coated. See Special Provisions.

QUANTITIES FOR ONE SPAN

Class 'X' Concrete	53.7	Cu. Yds.
Reinforcement Bars	5410	Lbs.
Rein Bars (Epoxy Coated)	7410	Lbs.
Floor Drains	6	Each
Protective Coat	219.8	Sq. Yds.

DESIGN STRESSES

fc = 3,500 psi
fy = 60,000 psi

STEEL BEAM BRIDGES
SUPERSTRUCTURE

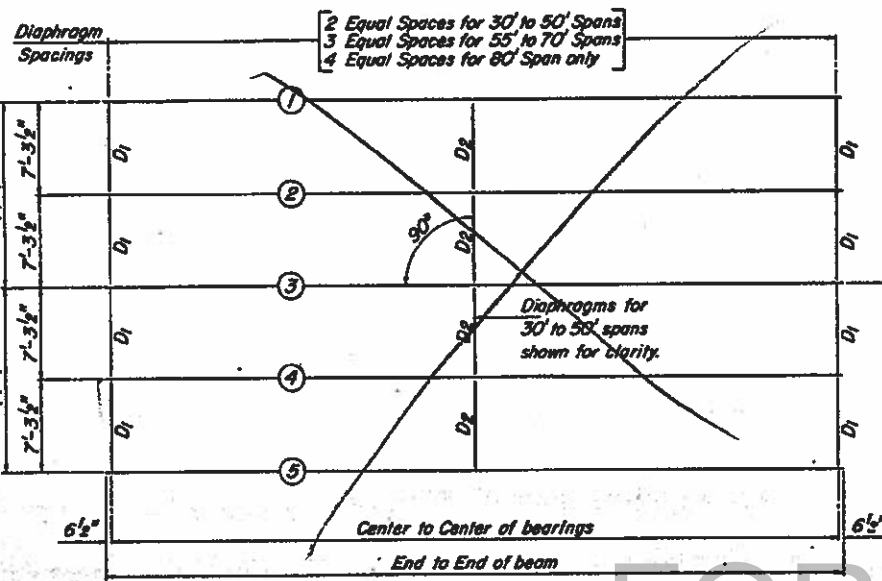
32' RDWY.	50' SPAN	LEFT
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STANDARD SS-3250-L

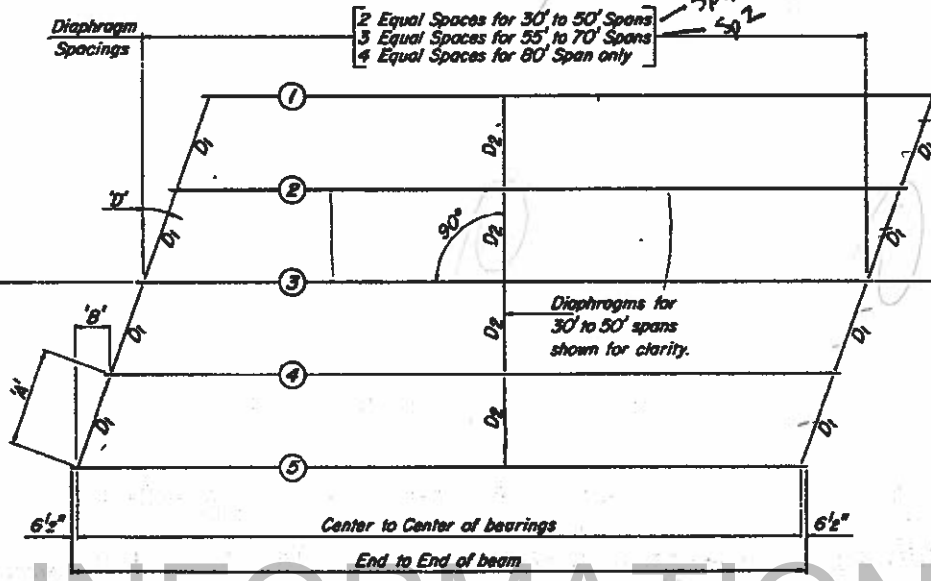
Illinois Department of Transportation
APPROVED JULY 1, 1981
Engineer of Bridges and Structures
APPROVED JULY 1, 1981
Engineer of Design

Span	Beam Size	Values for 'SD'		Chr. - Chr. Bearings	End-End Beam	No. of Diaphragms	Stud Shear Connector Spacings					Studs Per Line	Total Studs	Deflections			Calculated Weight by 'D'						Bearing Type		
		Exp.	Fixed				a	b	c	d	e			1/4 Pl.	1/2 Pl.	3/4 Pl.	0°	5°	10°	15°	20°	25°	30°	Exp.	Fixed
30'	W27x84	3.357	3.112	38'-0"	38'-1"	8	NON-COMPOSITE							.008'	.013'	.008'	15163	15171	15192	15229	15284	15357	15453	EX-I	FX-III
55'	W27x84	3.357	3.112	33'-0"	34'-1"	8	NON-COMPOSITE							.017'	.023'	.017'	17263	17271	17292	17329	17384	17457	17553	EX-I	FX-III
40'	W27x84	3.357	3.112	38'-0"	39'-1"	8	12 - Spaces at 7"	12 - Spaces at 8"	12 - Spaces at 8"	12 - Spaces at 8"	12 - Spaces at 7"	2	610	.027'	.037'	.027'	19363	19371	19392	19429	19484	19557	19653	EX-II	FX-III
45'	W27x84	3.357	3.112	43'-0"	44'-1"	8	9 - Spaces at 6"	9 - Spaces at 8"	28 - Spaces at 10"	8 - Spaces at 8"	9 - Spaces at 6"	2	630	.043'	.060'	.043'	21463	21471	21492	21529	21584	21657	21753	EX-II	FX-III
50'	W27x84	3.357	3.112	48'-0"	49'-1"	8	12 - Spaces at 6"	15 - Spaces at 8"	16 - Spaces at 12"	15 - Spaces at 8"	12 - Spaces at 6"	2	710	.067'	.094'	.067'	23563	23571	23592	23629	23684	23757	23853	EX-III	FX-III
55'	W27x102	3.357	3.112	53'-0"	54'-1"	8	12 - Spaces at 6"	12 - Spaces at 8"	30 - Spaces at 10"	8 - Spaces at 8"	12 - Spaces at 6"	2	790	.079'	.110'	.079'	31204	31211	31233	31270	31324	31397	31493	EX-III	FX-III
60'	W27x114	3.405	3.160	58'-0"	59'-1"	8	18 - Spaces at 7"	18 - Spaces at 9"	30 - Spaces at 10"	8 - Spaces at 9"	18 - Spaces at 7"	2	830	.101'	.140'	.101'	37297	37305	37326	37363	37417	37491	37586	EX-III	FX-III
70'	W27x148	3.413	3.168	66'-0"	67'-1"	8	21 - Spaces at 7"	17 - Spaces at 9"	18 - Spaces at 12"	17 - Spaces at 9"	21 - Spaces at 7"	2	950	.139'	.195'	.139'	54051	54058	54080	54117	54171	54244	54340	EX-V	FX-V
80'	W27x178	3.449	3.204	76'-0"	77'-1"	8	21 - Spaces at 7"	19 - Spaces at 9"	25 - Spaces at 12"	19 - Spaces at 9"	21 - Spaces at 7"	2	1060	.196'	.274'	.196'	74674	74681	74703	74740	74793	74867	74962	EX-VI	FX-V

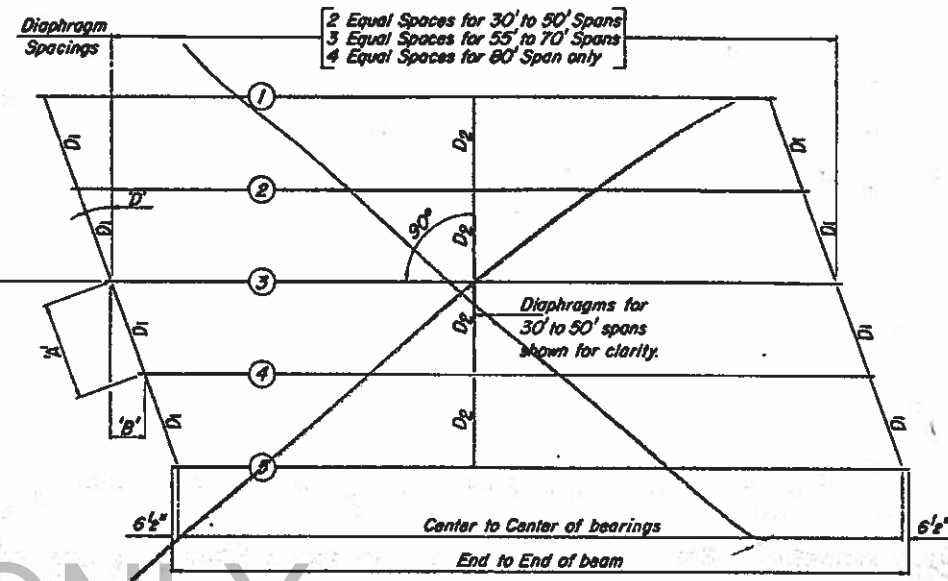
5p1,3
5p2



FRAMING PLAN (0° SKEW)



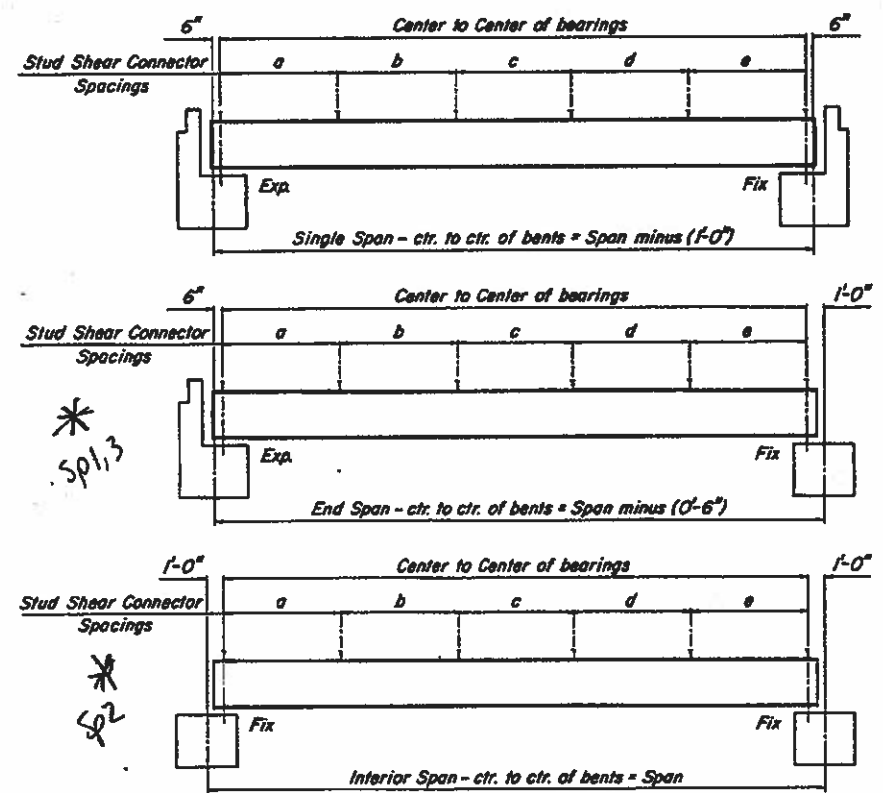
FRAMING PLAN (Lt. Fwd. Skew)
(U = Designated Skew Angle)



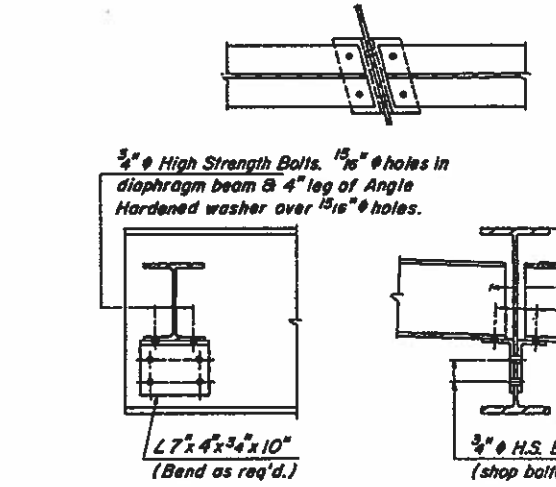
FRAMING PLAN (Rt. Fwd. Skew)
(U = Designated Skew Angle)

DIMENSION 'A' & 'B'

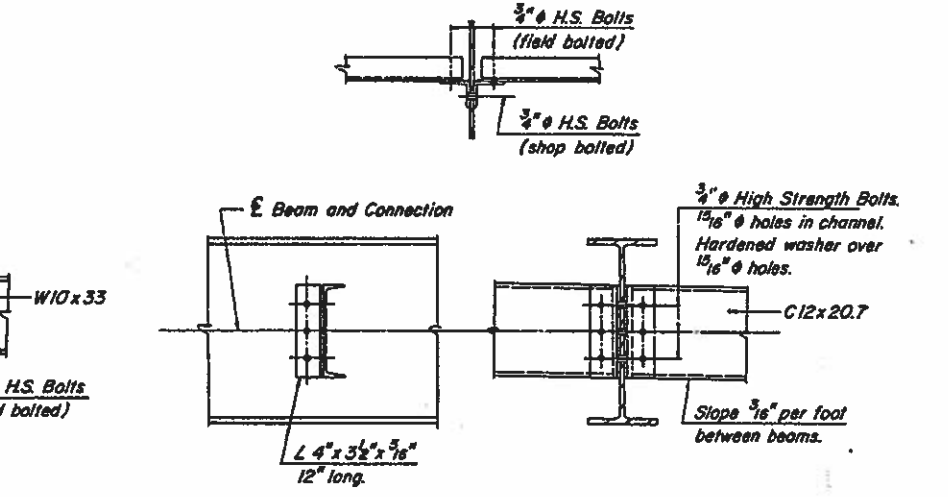
'D'	'A'	'B'
5'	7'-3 1/16"	7'-6"
10'	7'-4 1/8"	1'-3 7/16"
15'	7'-6 9/16"	1'-11 7/16"
20'	7'-9"	2'-7 7/8"
25'	8'-0 9/16"	3'-4 13/16"
30'	8'-5 1/8"	4'-2 1/2"



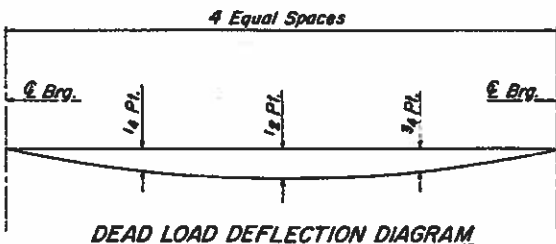
TYPICAL ELEVATIONS



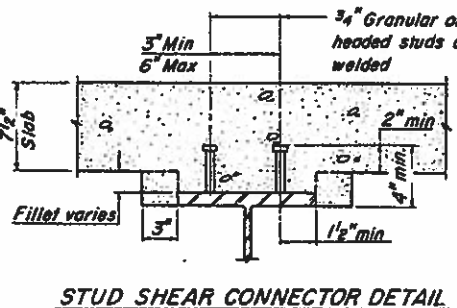
END DIAPHRAGM D1



INTERIOR DIAPHRAGM D2



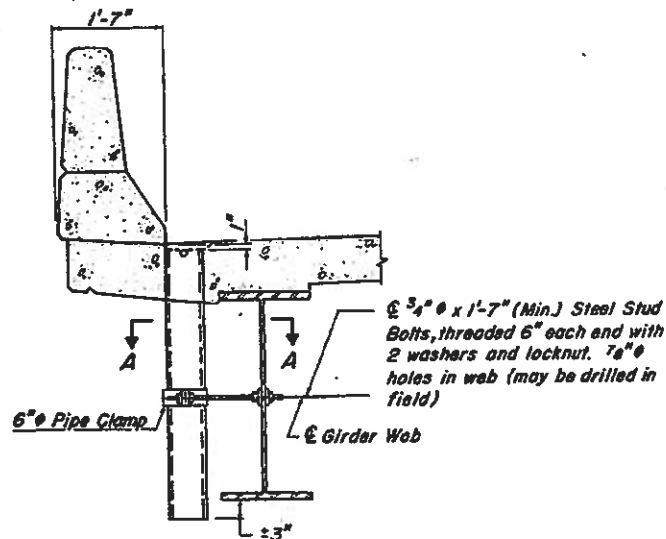
DEAD LOAD DEFLECTION DIAGRAM



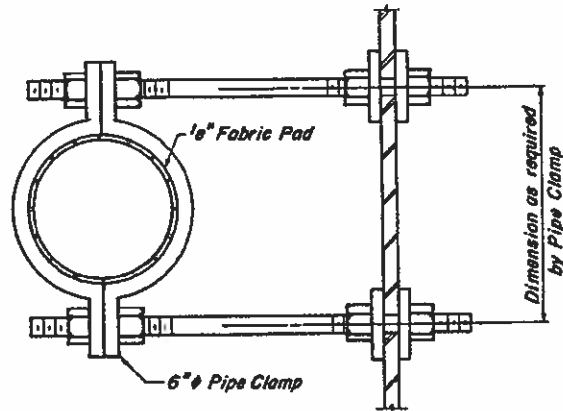
STUD SHEAR CONNECTOR DETAIL

STEEL BEAM BRIDGES STEEL BEAM DETAILS	
32' ROADWAY	W27 BEAMS
STANDARD SB-3227	

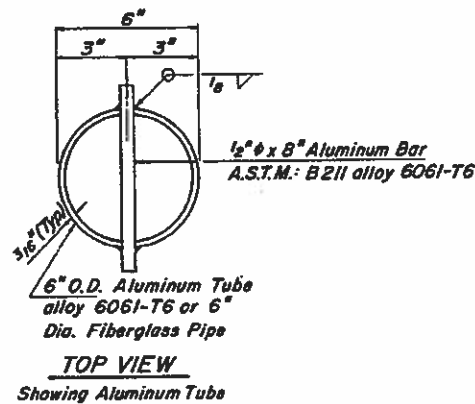
Illinois Department of Transportation
APPROVED JULY 1, 1981
Engineer of Bridges and Structures
APPROVED JULY 1, 1981
Engineer of Design



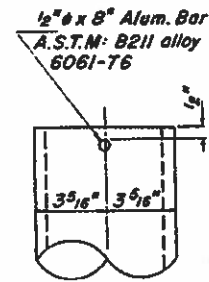
SECTION AT PARAPET



SECTION A-A

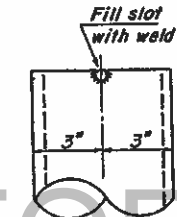


TOP VIEW
Showing Aluminum Tube

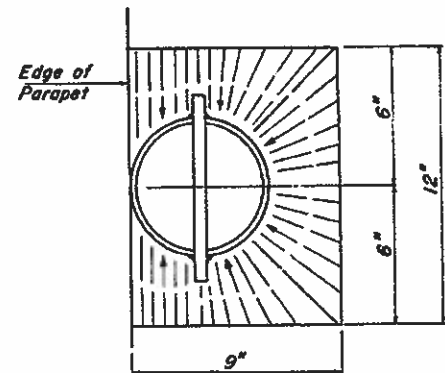


1/2" x 8" Alum. Bar
A.S.T.M.: B211 alloy
6061-T6

FIBERGLASS PIPE
Note: The surface of the Fiberglass pipe shall be free of bond inhibiting agents.



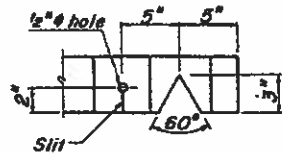
ALUMINUM TUBE



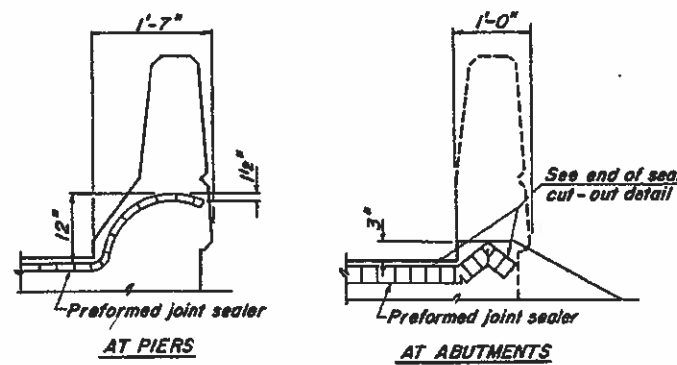
DECK DRAIN PLAN
(Slope to Drain)

NOTE

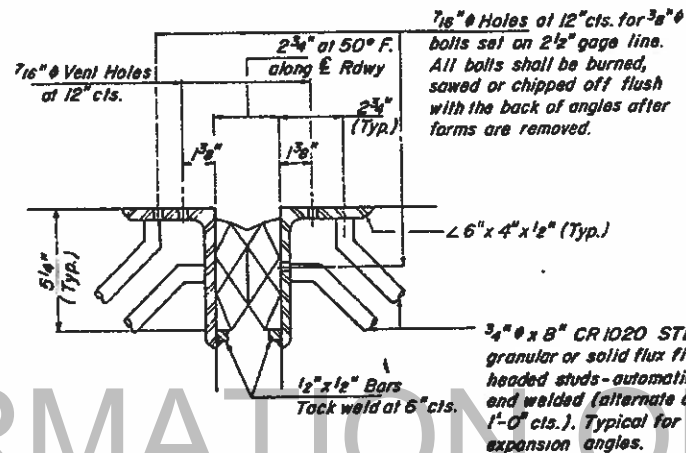
Fiberglass pipe shall conform to ASTM D2996, Designation Code RTRP-IIAE-5112. Pipes with Class C or F liner are acceptable. The exterior surfaces of all Floor Drains, including Clamp Brackets, shall be painted with the Basic Lead Silico Chromate painting specified for Structural Steel. The exterior surfaces of the Aluminum pipe shall be cleaned and given a washcoat pretreatment in accordance with Steel Structural Painting Council's Spec. SSPC-SPI & SSPC-PT3 prior to painting.



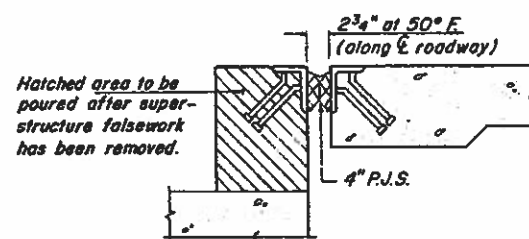
SEAL CUT-OUT



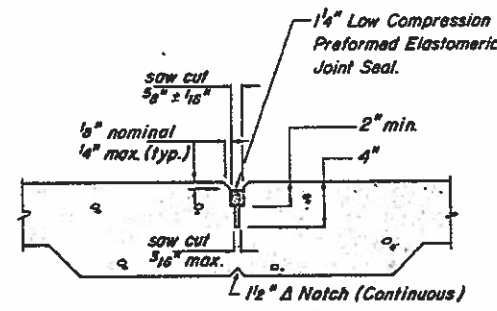
TYPICAL END TREATMENTS



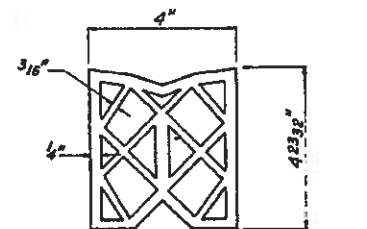
TYPICAL EXPANSION JOINT DETAIL



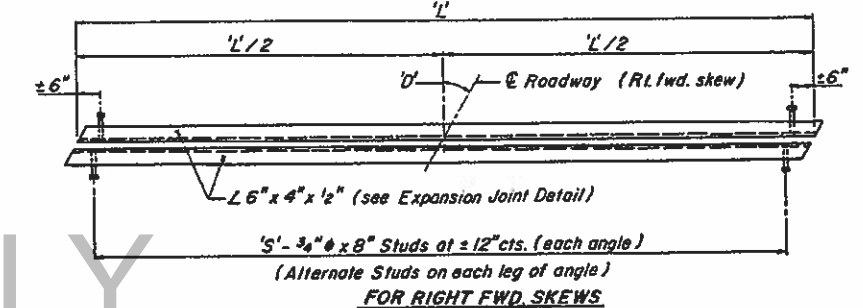
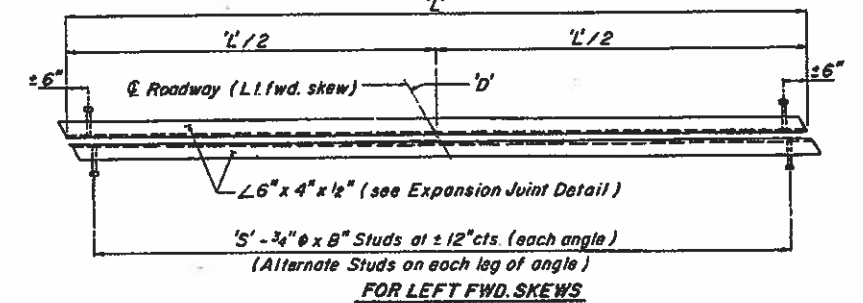
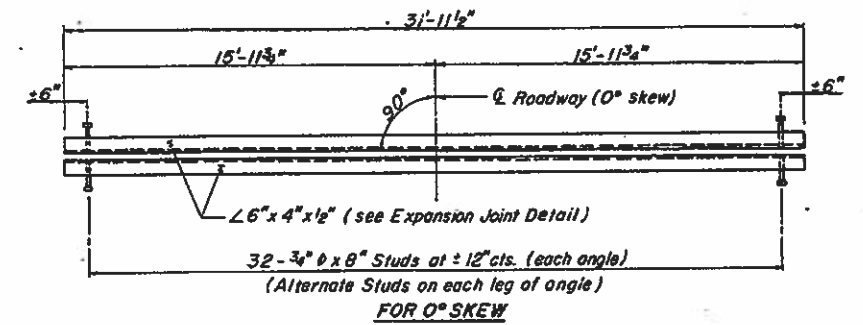
SECTION AT ABUTMENTS
(Fixed or Expansion Bearing)



SECTION AT PIERS
(Bearing Fixed Both Sides of Joint)



PREFORMED JOINT SEALER 4"
(AT ABUTMENTS)



TYPICAL PLANS - EXPANSION ANGLES

CALCULATED WEIGHT

D'	Lbs.
0°	2331
5°	2340
10°	2369
15°	2412
20°	2480
25°	2570
30°	2692

(Two abutments - 4 angles)
(including studs)

STUD NUMBER 'S'

D'	S'
5°	32
10°	33
15°	33
20°	34
25°	35
30°	37

(One angle only)

DIMENSION 'L'

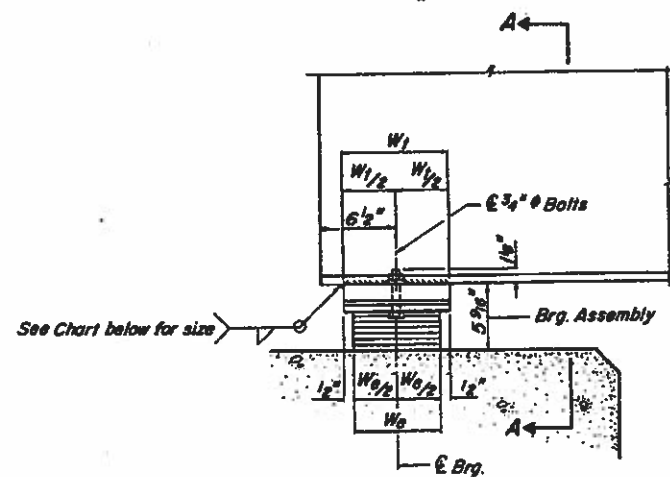
D'	L'
5°	32'-1"
10°	32'-5 3/8"
15°	33'-1"
20°	34'-0 1/8"
25°	35'-3 1/8"
30°	36'-10 7/8"

QUANTITIES FOR ONE EXP JOINT (BY SKEW)

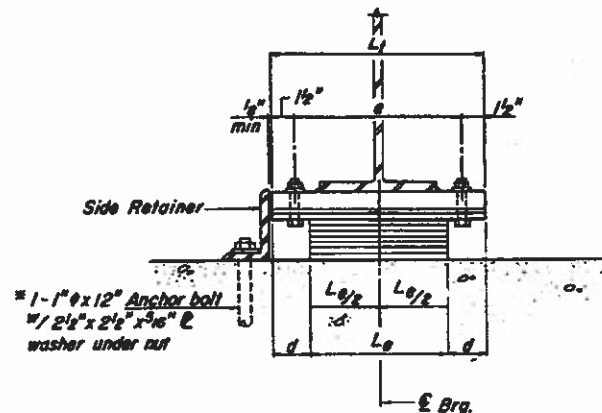
D'	Preformed Joint Seal 4"	35 Lin. Ft.
5°	Preformed Joint Seal 4"	35 Lin. Ft.
10°	Preformed Joint Seal 4"	36 Lin. Ft.
15°	Preformed Joint Seal 4"	36 Lin. Ft.
20°	Preformed Joint Seal 4"	37 Lin. Ft.
25°	Preformed Joint Seal 4"	39 Lin. Ft.
30°	Preformed Joint Seal 4"	40 Lin. Ft.

NOTES

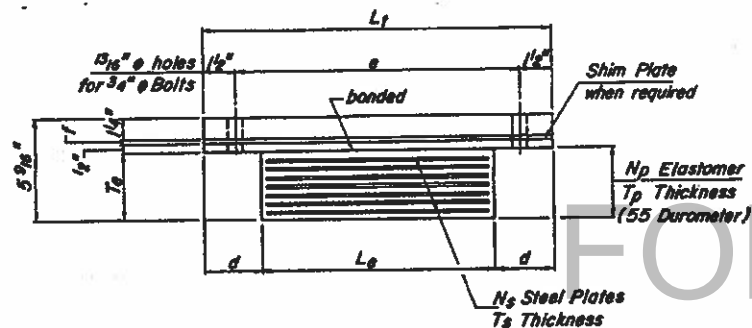
The L 6"x4"x1/2" shall be fabricated to fit crown of roadway.
The Preformed Joint Sealer shall be paid for by the Unit Price per Lin. Ft.
Cost of 1/4" Low Compression Preformed Elastomeric Joint Seal is incidental to cost of Class 'X' Concrete.



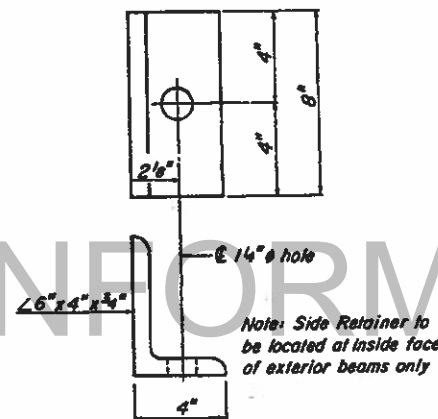
ELEVATION



SECTION A-A



BEARING ASSEMBLY



SIDE RETAINER

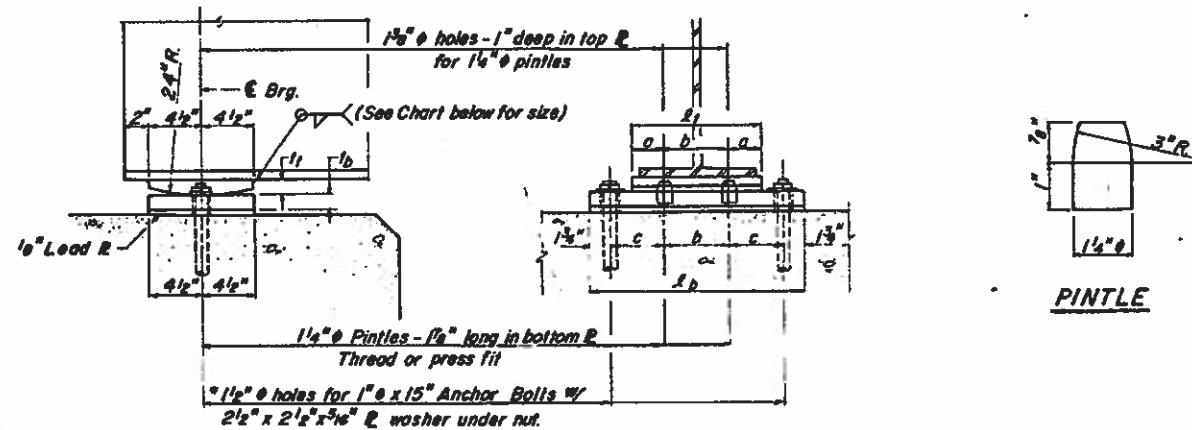
Brg. Type	L ₂	W ₀	L ₁	W ₁	P ₁	T _P	N _P	T _S	N _S	T _B	d	e	f	Stl. Wt.	Tapered Top P ₁
EX-I	10"	7"	18"	8"	3/16"	3/8"	8	14 ga.	7	3 1/2"	4"	15"	3/16"	66 lbs.	Grades > 4.0%
EX-II	12"	7"	18"	8"	3/16"	3/8"	8	14 ga.	7	3 1/2"	3"	15"	3/16"	66 lbs.	Grades > 4.0%
EX-III	12"	9"	18"	10"	3/16"	3/8"	8	3/32"	7	3 3/8"	3"	15"	3/16"	76 lbs.	Grades > 2.5%
EX-IV	12"	9"	19"	10"	3/16"	3/8"	8	3/32"	7	3 5/8"	3 1/2"	16"	3/16"	80 lbs.	Grades > 2.5%
EX-V	12"	9"	21"	10"	3/8"	3/8"	8	3/32"	7	3 3/8"	4 1/2"	18"	3/16"	89 lbs.	Grades > 2.5%
EX-VI	14"	10"	21"	11"	3/8"	7/16"	7	1/8"	6	3 13/16"	3 1/2"	18"	-	85 lbs.	Grades > 2.0%

* Note: After beams have been erected, holes for Side Retainers shall be drilled and Anchor Bolts grouted in place.

TYPE EX EXPANSION BEARINGS

NOTES

The calculated Stl. Wt., for the 1/4" plate and Shim P₁ (when req'd.), is to be included with the calculated weight of Structural Steel.
 Provide Side Retainers, Plate washers, and Anchor Bolts at Expansion Abutments only. Cost is incidental.
 For grades greater than shown in table, the top plate of the brg. shall be tapered to match grade. Maintain 1/4" thickness at E of brg.



ELEVATION

SECTION

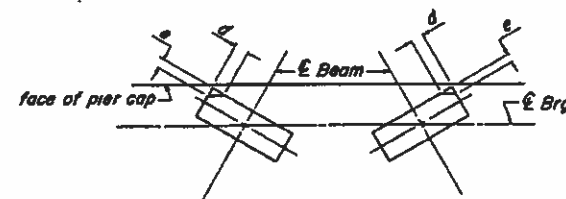
PINDLE

Brg. Type	L ₁	L ₂	P ₁	L ₁	L ₂	a	b	c	Tot. Weight**
FX-I	8"	15 1/2"	5/16"	1 1/4"	1 1/4"	2"	4"	4"	94 Lbs.
FX-II	10"	17 1/2"	5/8"	1 1/4"	1 1/4"	2 1/2"	5"	4 1/2"	108 Lbs.
FX-III	11 1/2"	19"	5/8"	1 1/4"	1 1/4"	3"	5 1/2"	5"	118 Lbs.
FX-IV	13"	20 1/2"	3/8"	1 1/4"	1 1/4"	3 1/4"	6 1/2"	5 1/4"	129 Lbs.
FX-V	16"	23 1/2"	3/8"	1 1/4"	1 1/4"	4"	8"	6"	149 Lbs.

**Total weight of one assembly includes Top Plate, Bottom Plate, Anchor Bolts, Plate Washers, and Lead Plate.

NOTE: Anchor Bolts at fixed Brgs. may be built into the masonry or drilled and grouted into place after beams are set.

TYPE FX FIXED BEARINGS



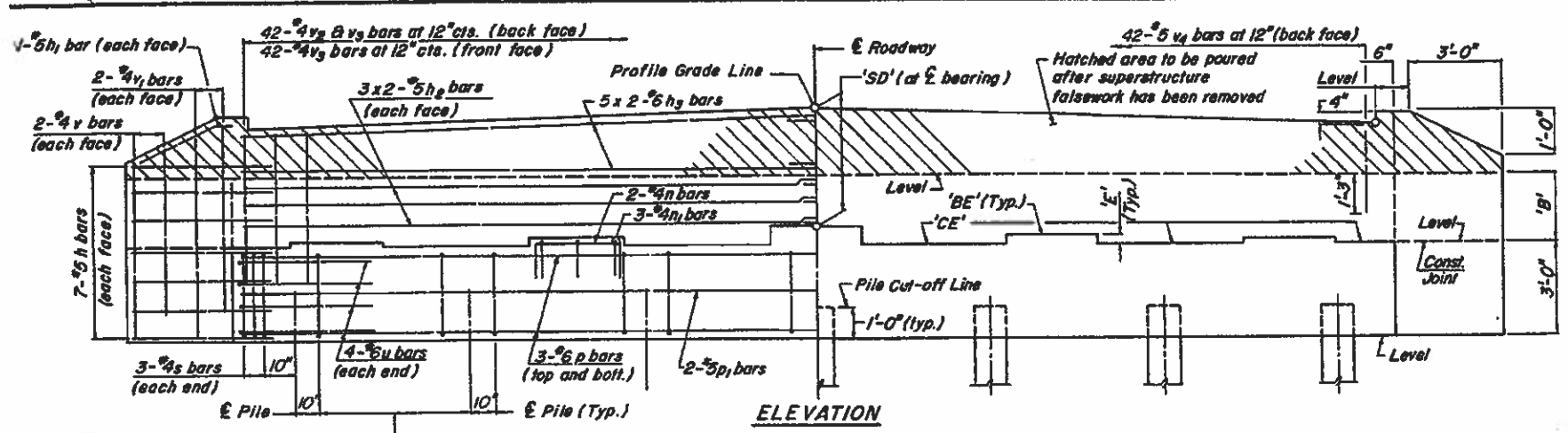
BEARING CLIP DIM. (Bottom Plate)

Bearing	d	e
FX-III	7/8"	1 1/2"
FX-V	2 3/8"	1 3/8"

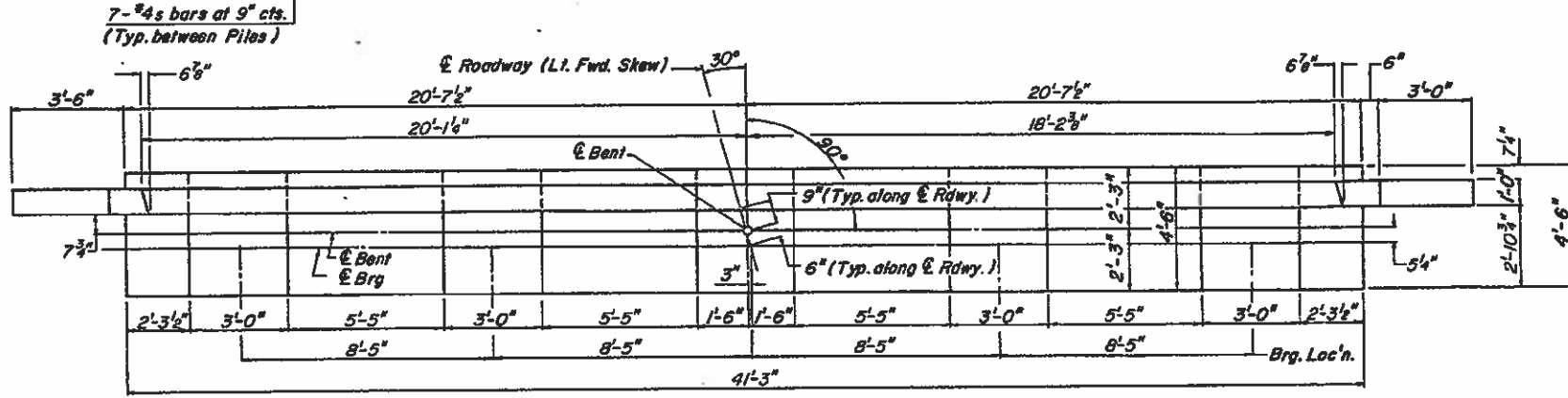
Clip plates for 'D's > 20"

Illinois Department of Transportation
 APPROVED JULY 1, 1981
 Engineer of Bridges and Structures
 APPROVED JULY 1, 1981
 Engineer of Design

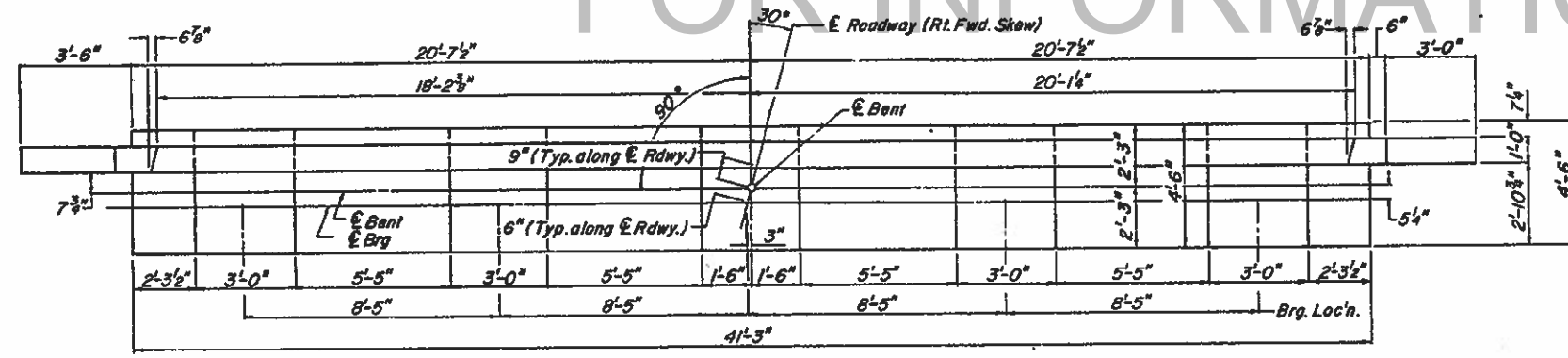
STEEL BEAM BRIDGES
 EXPANSION AND FIXED BEARINGS
 STANDARD SD-3202



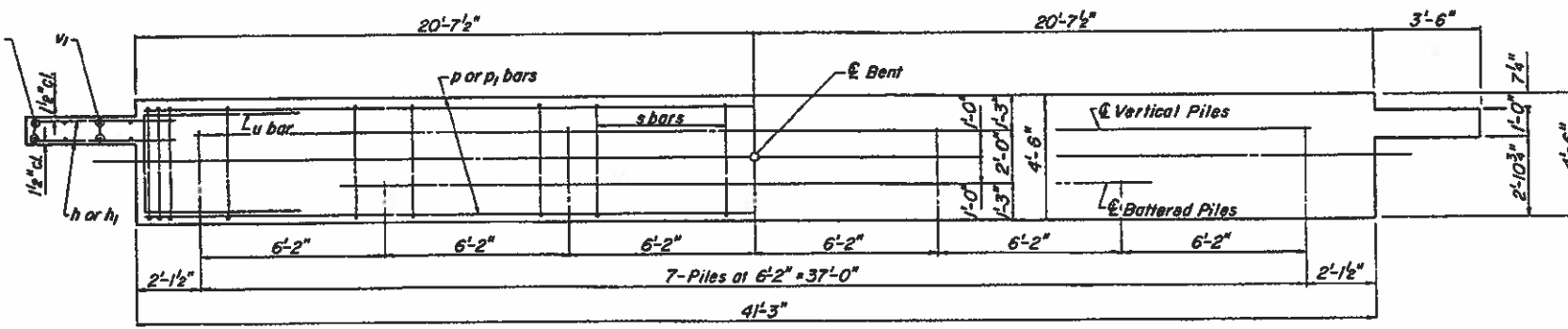
ELEVATION



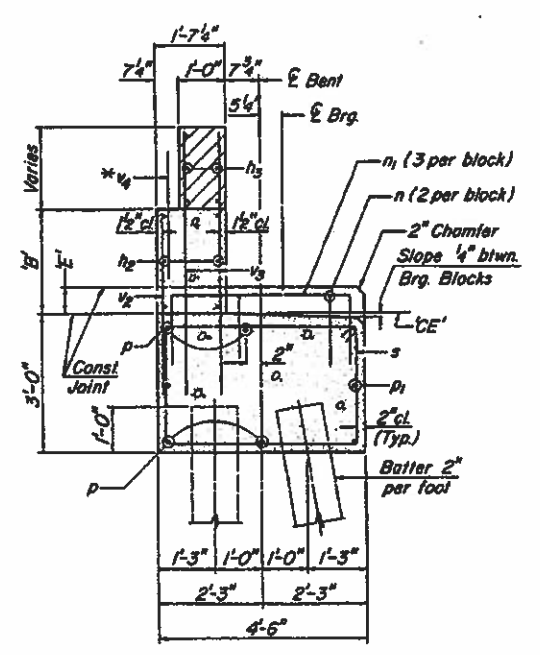
TOP VIEW - LEFT FORWARD SKEW



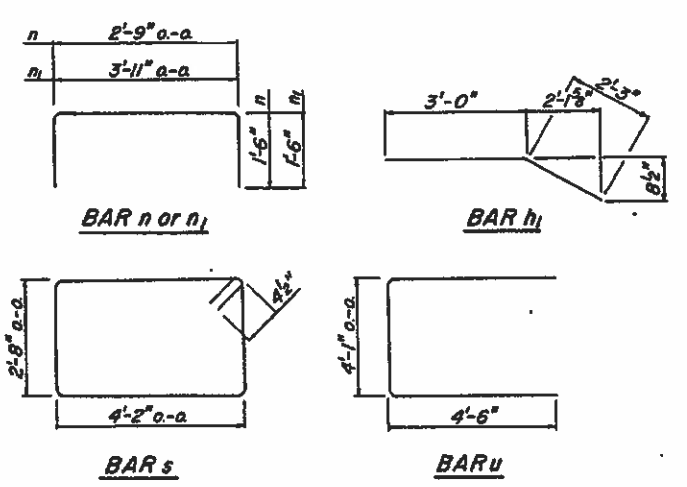
TOP VIEW - RIGHT FORWARD SKEW



PLAN - PILE CAP



SECTION THRU ABUT. (At Right Angles)

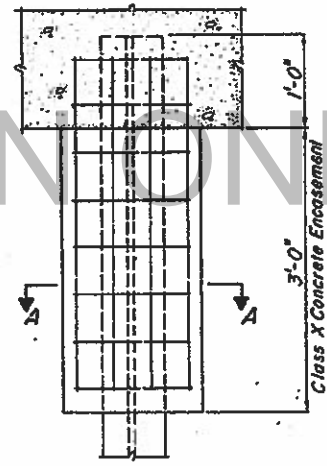


DIMENSION 'B'

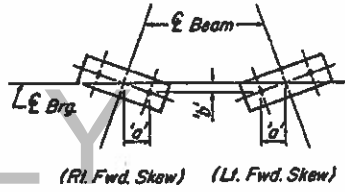
Beam Size	'b'
W24	1'-8"
W27	1'-10"
W30	2'-1"
W33	2'-4"

MAXIMUM PILE LOADS

Span	Tons
30'	41
35'	41
40'	42
45'	43
50'	45



DETAIL OF 'H' PILE ENCASEMENT



ANCHOR BOLT LOCATIONS

Bearing Type	'a'	'b'
FX-I	5 1/8"	3"
FX-II	6 1/8"	3 1/2"
FX-III	6 1/8"	3 3/8"
FX-IV	7 3/8"	4 1/4"
FX-V	8 1/8"	5"

Welded wire fabric 6x6-W40xW40 weighing 58 /100 sq ft
The cost of Class X Concrete Encasement and W.W. Fabric is incidental to the cost of furnishing piles.
Forms for encasement may be omitted when soil conditions will permit.

BAR LIST FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	28	#5	5'-3"	—
h1	4	#5	5'-3"	—
h2	12	#5	21'-4"	—
h3	10	#6	21'-9"	—
n	10	#4	5'-9"	—
n1	15	#4	6'-11"	—
p	6	#6	40'-11"	—
p1	2	#5	40'-11"	—
s	48	#4	14'-5"	—
u	8	#6	13'-1"	—
v	8	#4	6'-11"	—
v1	8	#4	7'-7"	—
v2	42	#4	4'-0"	—
v3	84	#4	6'-4"	—
*v4	42	#5	3'-2"	—

* v4 bars shall be omitted when Non-Rigid approach is used.

QUANTITIES FOR ONE ABUTMENT

Beam Size	Item	Quantity
W24	Class X Concrete	30.8 Cu. Yds.
W27	Class X Concrete	31.4 Cu. Yds.
W30	Class X Concrete	32.1 Cu. Yds.
W33	Class X Concrete	32.7 Cu. Yds.
ALL	Reinforcement Bars	2630 Lbs.

NOTES

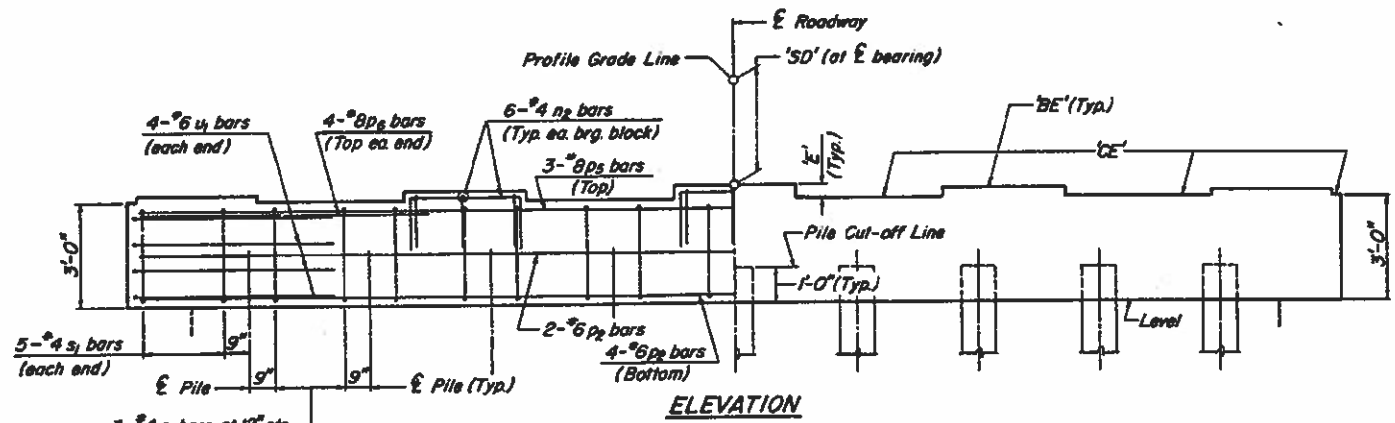
1. Reinforcement bars shall conform to A.A.S.H.T.O. M-31 or M-53 Grade 60.
2. Space reinforcement in cap to miss anchor bolts.
3. The designation "4x2'-5", etc." indicates 4 lines of bars with 2 lengths per line.
4. Pour Brg. Seat Blocks monolithically with cap.
5. For Elevations 'BE' and 'CE', and dimension 'E' See General Plan and Elevation sheet. For dimension 'SD' see Steel Beam Details Standards.

DESIGN STRESSES

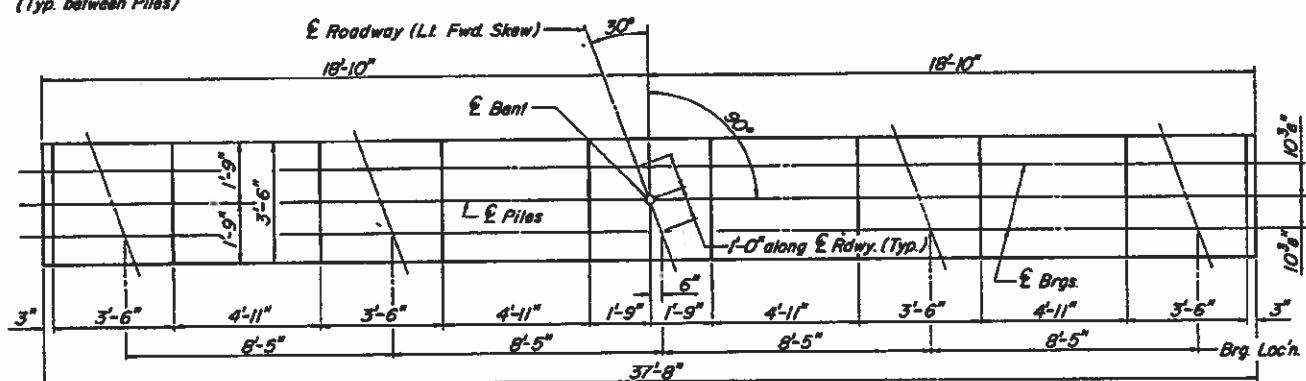
f'c = 3,500 p.s.i.
fy = 60,000 p.s.i.

Illinois Department of Transportation
APPROVED JULY 1, 1981
Engineer of Bridges and Structures
APPROVED JULY 1, 1981
Thomas L. Bright
Engineer of Design

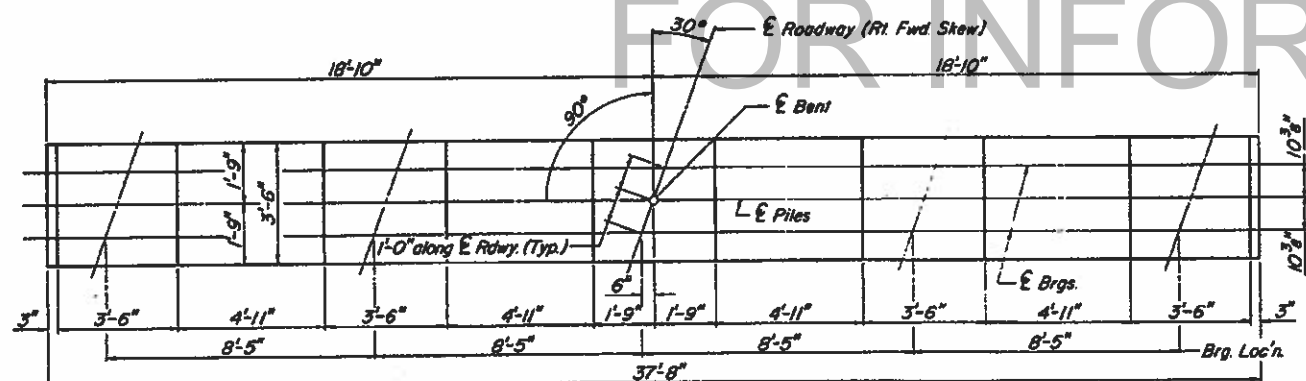
STEEL BEAM BRIDGES
ABUTMENT CAP
32' RDWY. SPANS 30'-50' 'D'=30'
STANDARD SA-3250-30



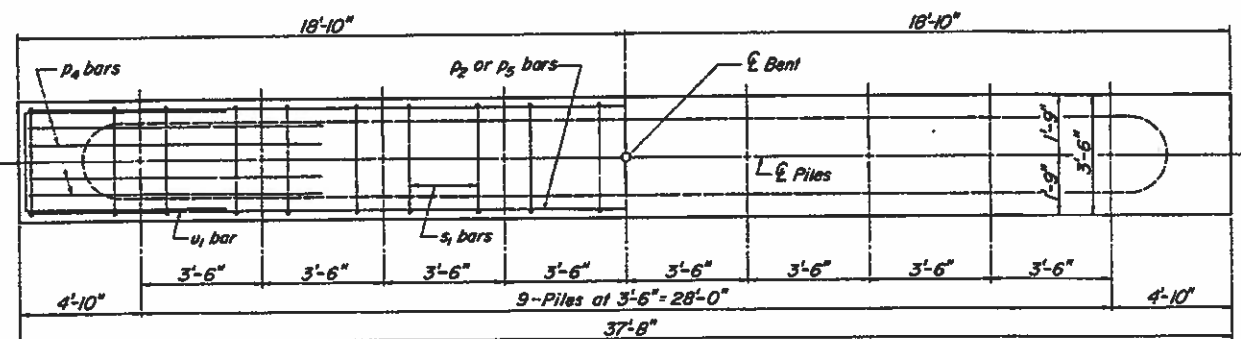
ELEVATION



TOP VIEW - LEFT FORWARD SKEW

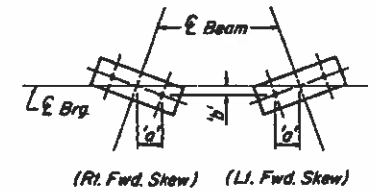


TOP VIEW - RIGHT FORWARD SKEW



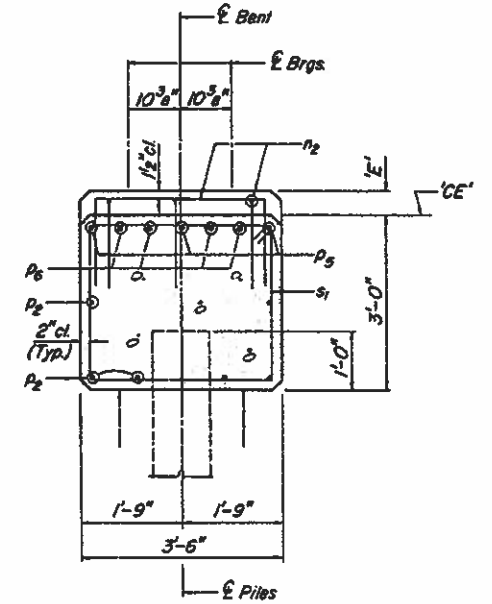
CAP PLAN

Note: When the PIER FOOTING AND STEM standards are used, the piles in the cap shall be omitted and the spacing of the s₁ bars shall remain as shown

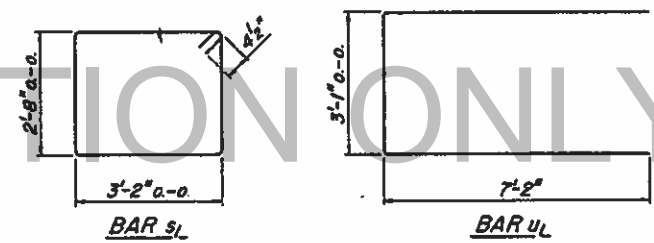


ANCHOR BOLT LOCATIONS

Bearing Type	'a'	'b'
FX-I	5 ³ / ₁₆ "	3"
FX-II	6 ¹ / ₁₆ "	3 ¹ / ₂ "
FX-III	6 ³ / ₁₆ "	3 ³ / ₈ "
FX-IV	7 ³ / ₈ "	4 ¹ / ₄ "
FX-V	8 ¹ / ₁₆ "	5"

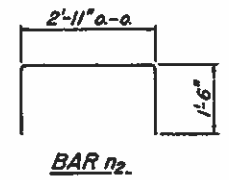


SECTION THRU PIER (At Right Angles)



BAR s₁

BAR u₁



BAR n₂

MAXIMUM PILE LOADS (Tons) *

Span	'E.H.'		
	5'-9'	10'-14'	15'-19'
55'	33	35	37
60'	35	37	39
70'	39	41	43
80'	43	45	45

* 'E.H.' - Encasement Height, see Pile Encasement Wall Standard.

Span - Longest of Either Span Supported by the Pier.

* Maximum Pile Loads apply only for Pile Encasement Wall. For pile loads with Pier footing and stem, see Pier Footing and Stem Standards.

BAR LIST FOR ONE PIER

Bar	No.	Size	Length	Shape
n ₂	30	#4	5'-11"	□
p ₂	6	#6	37'-4"	□
p ₃	3	#8	37'-4"	□
p ₆	8	#8	9'-11"	□
s ₁	34	#4	12'-5"	□
u ₁	8	#6	17'-5"	□

QUANTITIES FOR ONE PIER

Class 'X' Concrete	16.4 Cu. Yds.
Reinforcement Bars	1460 Lbs.

NOTES

1. Reinforcement Bars shall conform to A.A.S.H.T.O. M-31 or M-53, Grade 60.
2. Space reinforcement in cap to miss anchor bolts.
3. All edges shall have standard 3/4" chamfers.
4. Pour Bearing Blocks monolithically with cap.
5. For Elevations 'BE' and 'CE' and dimension 'E' see General Plan and Elevation sheet. For dimension 'SD' see Steel Beam Details Standards.

DESIGN STRESSES

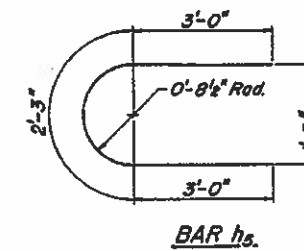
f_c = 3,500 p.s.i.
f_y = 60,000 p.s.i.

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APPROVED JULY 1, 1988
Engineer of Bridges and Structures
APPROVED JULY 1, 1988
ISSUED 7-1-88

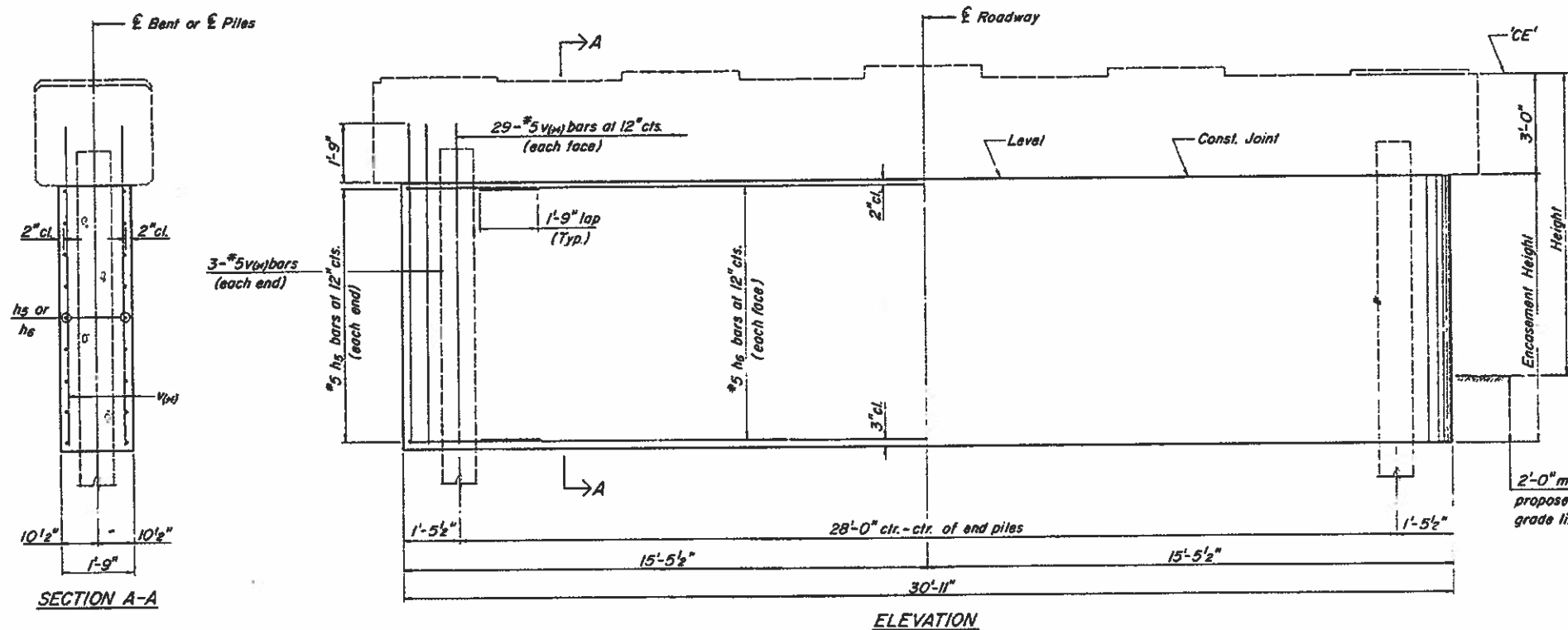
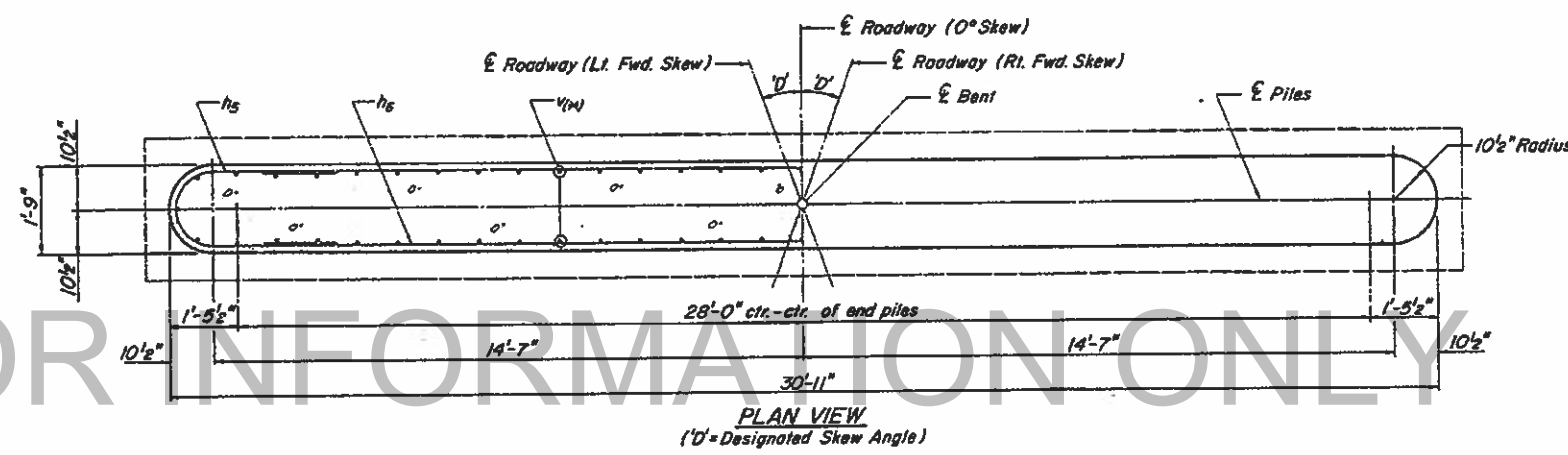
STEEL BEAM BRIDGES
PIER CAP
32' RDWY. SPANS 55'-80' D=30°
STANDARD SP-3280-30

QUANTITIES FOR ONE ENCASEMENT

Height	Encasement Height	h_s BARS			h_e BARS			$v_{(w)}$ BARS			Reinforcement Bars Pounds	Class 'X' Concrete -- Cubic Yards				
		Number	Size	Length	Number	Size	Length	$v_{(w)}$	No.	Size		Length	7-Pile Encasement 'H' Piles	Mil. Shell	9-Pile Encasement 'H' Piles	Mil. Shell
6'	5'	12	#5	8'-3"	12	#5	26'-9"	v_5	64	#5	6'-6"	870	9.9	8.9	9.9	8.6
7'	6'	14	#5	8'-3"	14	#5	26'-9"	v_6	64	#5	7'-6"	1,010	11.9	10.7	11.9	10.3
8'	7'	16	#5	8'-3"	16	#5	26'-9"	v_7	64	#5	8'-6"	1,150	13.9	12.4	13.9	12.0
9'	8'	18	#5	8'-3"	18	#5	26'-9"	v_8	64	#5	9'-6"	1,290	15.8	14.2	15.8	13.7
10'	9'	20	#5	8'-3"	20	#5	26'-9"	v_9	64	#5	10'-6"	1,430	17.8	16.0	17.8	15.5
11'	10'	22	#5	8'-3"	22	#5	26'-9"	v_{10}	64	#5	11'-6"	1,570	19.8	17.8	19.8	17.2
12'	11'	24	#5	8'-3"	24	#5	26'-9"	v_{11}	64	#5	12'-6"	1,710	21.8	19.5	21.8	18.9
13'	12'	26	#5	8'-3"	26	#5	26'-9"	v_{12}	64	#5	13'-6"	1,850	23.8	21.3	23.8	20.6
14'	13'	28	#5	8'-3"	28	#5	26'-9"	v_{13}	64	#5	14'-6"	1,990	25.7	23.1	25.7	22.3
15'	14'	30	#5	8'-3"	30	#5	26'-9"	v_{14}	64	#5	15'-6"	2,130	27.7	24.9	27.7	24.0
16'	15'	32	#5	8'-3"	32	#5	26'-9"	v_{15}	64	#5	16'-6"	2,270	29.7	26.6	29.7	25.8
17'	16'	34	#5	8'-3"	34	#5	26'-9"	v_{16}	64	#5	17'-6"	2,410	31.7	28.4	31.7	27.5
18'	17'	36	#5	8'-3"	36	#5	26'-9"	v_{17}	64	#5	18'-6"	2,550	33.7	30.2	33.7	29.2
19'	18'	38	#5	8'-3"	38	#5	26'-9"	v_{18}	64	#5	19'-6"	2,690	35.6	32.0	35.6	30.9
20'	19'	40	#5	8'-3"	40	#5	26'-9"	v_{19}	64	#5	20'-6"	2,830	37.6	33.7	37.6	32.6



FOR INFORMATION ONLY



NOTE
Reinforcement bars shall conform to A.A.S.H.T.O. M-31 or M-53, Grade 60.

DESIGN STRESSES
 $f_c = 3,500$ p.s.i.
 $f_y = 60,000$ p.s.i.

Illinois Department of Transportation
APPROVED JULY 1, 1981
Engineer of Bridges and Structures
APPROVED JULY 1, 1981
Engineer of Design

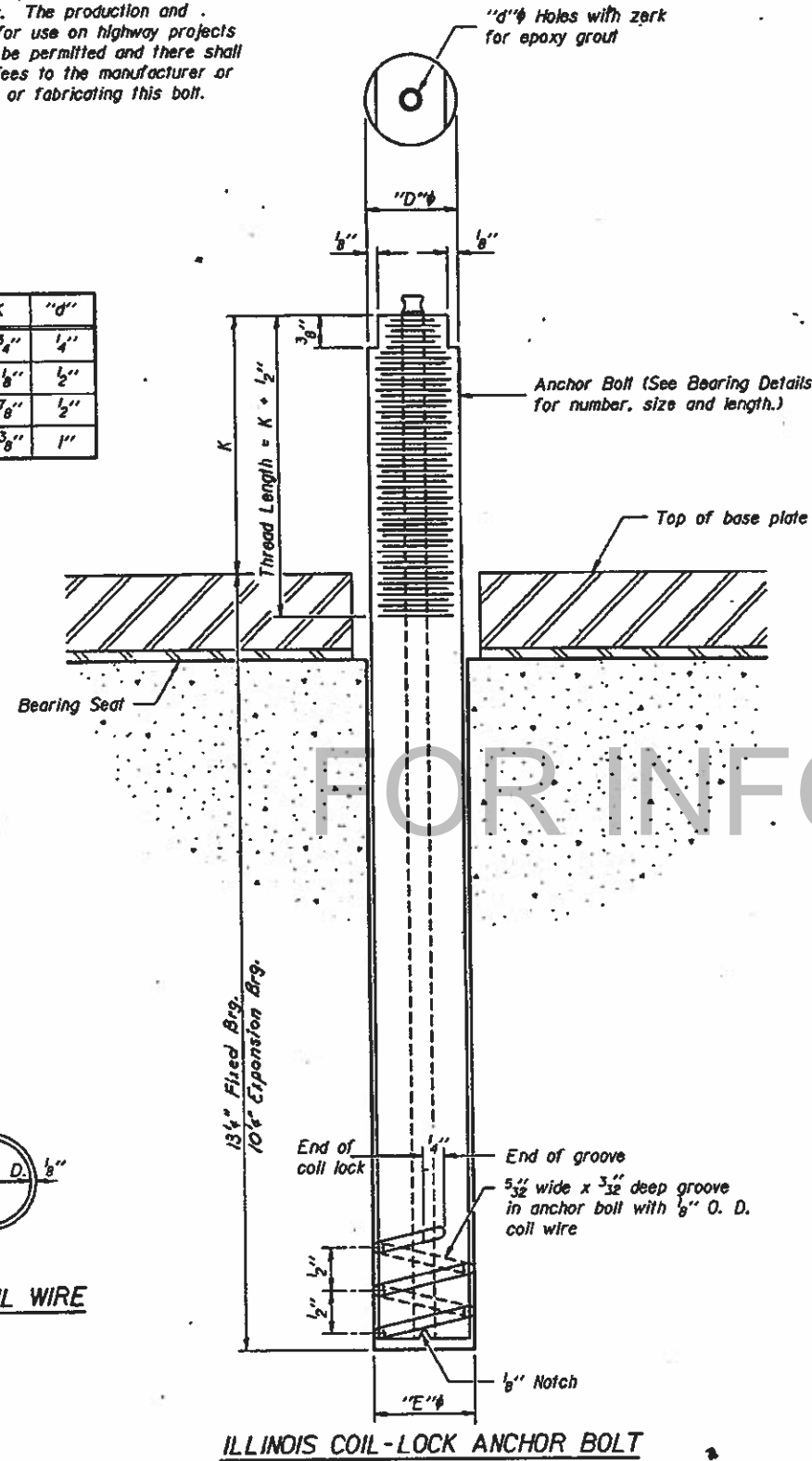
STEEL BEAM BRIDGES
PILE ENCASEMENT WALL
32' RDWY. ALL SKEWS ALL SPANS
STANDARD SE-3200

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	STA.	"E"	SHEET NO. /O
FA-853	7BR	HAMILTON	17	14	/O SHEETS
FED. ROAD DIST. NO. 1		ILLINOIS		FED. AID PROJECT	

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

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



MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT

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

GENERAL NOTES

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

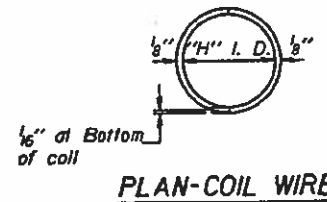
INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT

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

ALTERNATE ANCHOR BOLTS

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

FOR INFORMATION ONLY



PLAN-COIL WIRE

DESIGNED AFS
CHECKED DJR
DRAWN MC
CHECKED DJR
ABB-1 12-1-83

September 20 1984
EXAMINED James J. Reutem
PASSED [Signature]
APPROVED [Signature]
DIRECTOR OF HIGHWAYS

STANDARD BRIDGE
STEEL BEAMS-32' ROADWAY
ANCHOR BOLT DETAILS FOR BEARINGS
ILLINOIS ROUTE 14
OVER SULLIVAN BRANCH
RT. FA. 853 SEC. 7BR
HAMILTON COUNTY
STATION 699+72.00