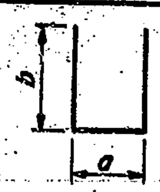
BAR BENDING DIAGRAMS

NOTE: Number preceding letter denotes bar size.
All dimensions are out to out.
All bar bending pin diameters shall be in accordance with A.C.I. Standards.

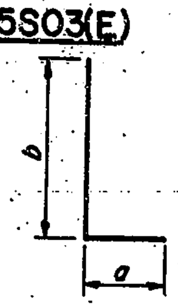
TYPICAL SECTION REINFORCEMENT

Bar	a	b
3S03	1'-1½"	6"
4S13	6"	3'-4"
4S25(E)	2'-3"	1'-8"
5S01	1'-1½"	7'-4"
5S03(E)	1'-1½"	3'-5"

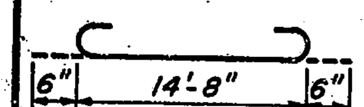


3S03, 4S13, 4S25(E), 5S01, 5S03(E)

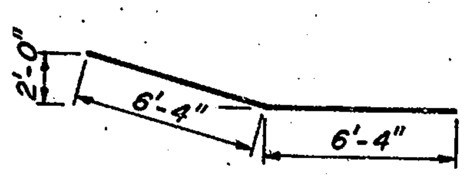
Bar	a	b
4S09	8"	2'-8"
6S04	2'-1"	7'-5"
6S05	6'-1"	7'-5"



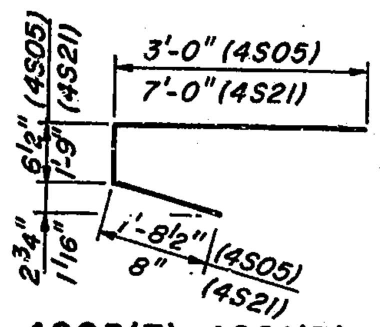
4S09, 6S04, 6S05



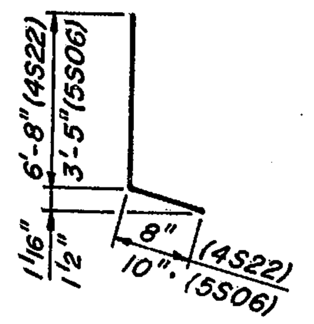
4S02



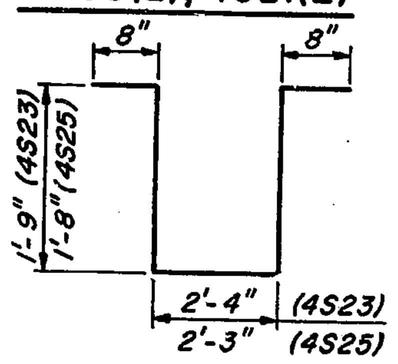
4S03(E)



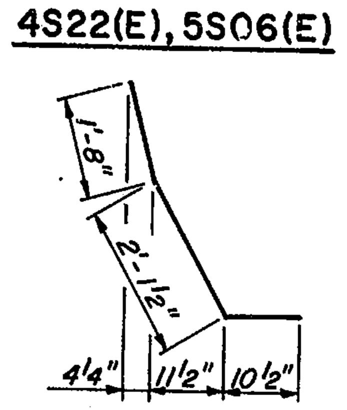
4S05(E), 4S21(E)



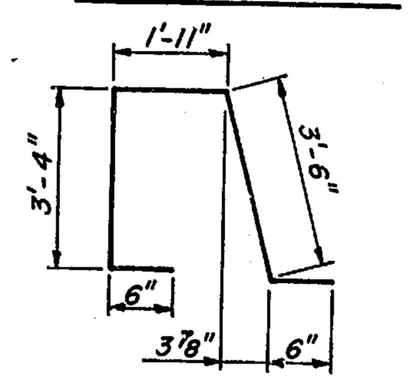
4S22(E), 5S06(E)



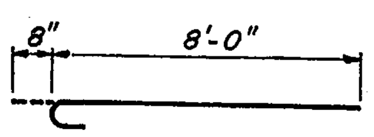
4S23(E), 4S25(E)



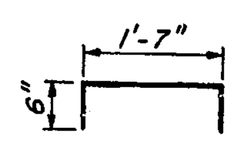
5S07(E)



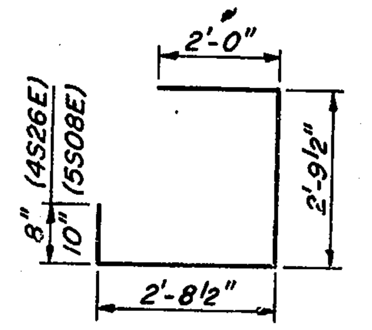
6S06(E)



6S07(E)



3S04



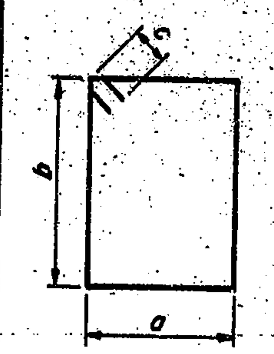
4S26(E), 5S08(E)

7-30-81

DESIGNED M.M.	C'K'D. M.M.
DRAWN R.E.T.	C'K'D. G.R.
TRACED T.D.S.	C'K'D. R.E.T.

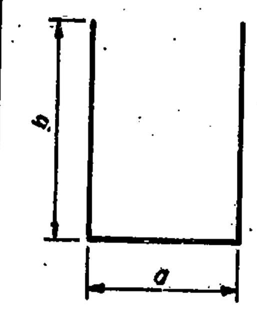
PIER DIAPHRAGM REINFORCEMENT

Bar	a	b	c
4S31	3'-3"	2'-4"	4½"
4S32	4'-0¼"	2'-4"	4½"
4S33	4'-10"	2'-4"	4½"
4S34	5'-7¾"	2'-4"	4½"
4S35	6'-5½"	2'-4"	4½"
4S36	7'-3¼"	2'-4"	4½"
4S39(E)	2'-3"	2'-4½"	4½"
4S40(E)	2'-3"	1'-6"	4½"
5S40	3'-3"	4'-10"	5½"

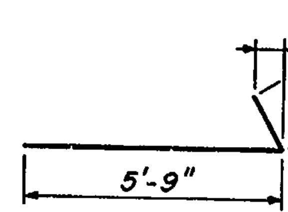


4S31 thru 4S36, 4S39(E), 4S40(E), 5S40

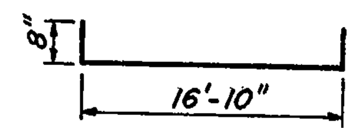
Bar	a	b
4S37(E)	4'-8½"	3'-0"
4S38(E)	2'-3"	3'-0"
4S41	2'-3"	2'-3"
4S42	2'-3"	3'-6"
4S43	2'-3"	4'-8"
4S44	2'-3"	5'-11"
4S48	4'-8½"	7'-3"
4S49	3'-1½"	7'-3"
4S50(E)	3'-1½"	3'-0"
5S41	6"	3'-4"
11S40	2'-2½"	4'-10"



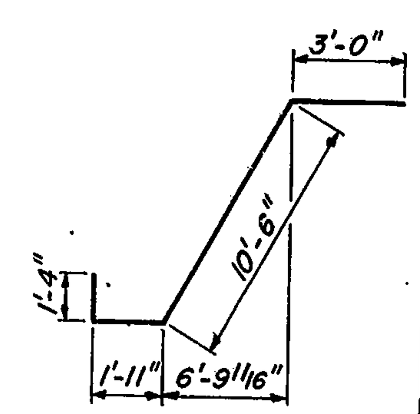
4S37(E), 4S38(E), 4S41 thru 4S44, 4S48, 4S49, 4S50(E), 5S41, 11S40



4S45(E)



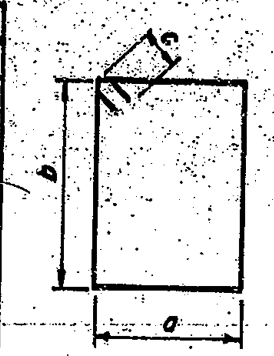
4S46



8S40

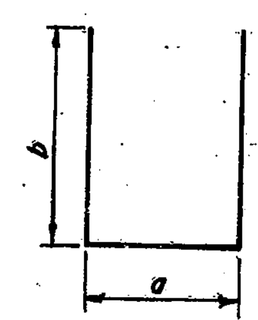
EXPANSION JOINT REINFORCEMENT

Bar	a	b	c
4S62(E)	3'-8"	9"	4½"
4S63(E)	1'-7"	2'-3"	4½"
4S64(E)	10"	2'-9½"	4½"
4S65(E)	3'-2½"	2'-9½"	4½"
4S66(E)	3'-2½"	4'-3½"	4½"
4S67(E)	10"	4'-3½"	4½"
5S63	4'-10"	11½"	5½"
5S65	8'-6"	11½"	5½"
7S60	8'-6"	11½"	7½"

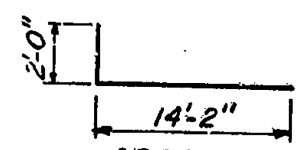


4S62(E) thru 4S67(E), 5S63, 5S65, 7S60

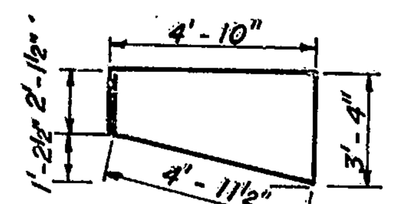
Bar	a	b
4S68(E)	10"	4'-0"
4S69	10"	6'-5"
4S70(E)	2'-9"	3'-0"
4S71	2'-9"	7'-5½"
4S72(E)	2'-6½"	3'-0"
4S73	2'-6½"	7'-5½"
4S74(E)	2'-4½"	3'-0"
4S75	2'-4½"	7'-5½"
4S76(E)	2'-1½"	3'-0"
4S77	2'-1½"	7'-5½"
5S67(E)	2'-1½"	3'-6"
5S68	2'-1½"	6'-11½"
6S60(E)	2'-1½"	3'-6"
6S61	2'-1½"	6'-11½"
6S62	1'-10"	1'-0"



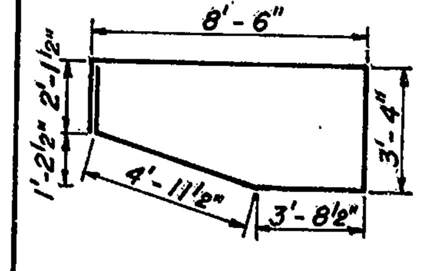
4S68(E) thru 4S77, 5S67(E), 5S68, 6S60(E), 6S61, 6S62



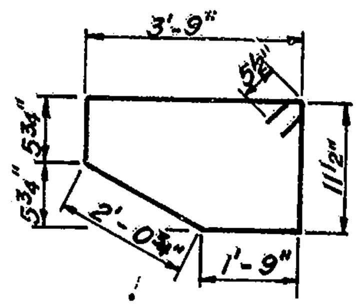
4S81



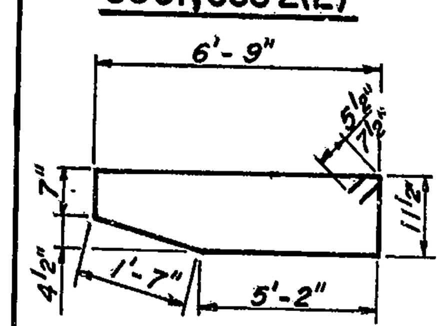
5S60



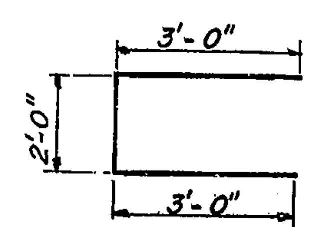
5S61, 5S62(E)



5S64



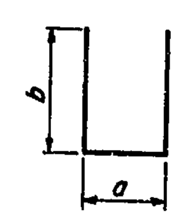
5S66, 7S61



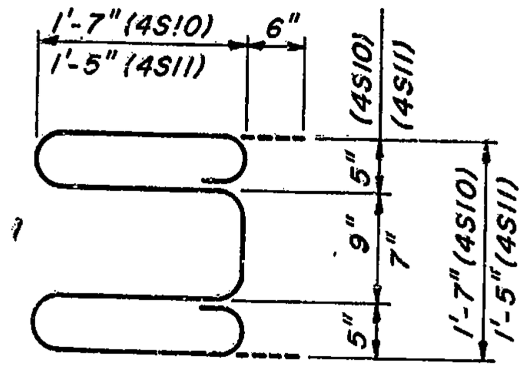
5S69

CONSTRUCTION JOINT REINFORCEMENT

Bar	a	b
5S02	1'-10"	7'-4"
5S08(E)	1'-10"	3'-7"



5S02, 5S08(E)



4S10, 4S11(E)

BILL OF MATERIAL

Bar	No.	Length	Bent	Str.
3S03	308	2'-2"	●	
3S04	5	2'-7"	●	
4S01	312	16'-10"		●
4S02	305	15'-8"	●	
4S03(E)	466	12'-8"	●	
4S04(E)	319	28'-2"		●
4S05(E)	638	5'-3"	●	
4S09	580	3'-4"	●	
4S10	48	9'-0"	●	
4S11(E)	12	8'-1"	●	
4S12(E)	161	10'-8"		●
4S13	108	7'-2"	●	
4S15	220	60'-0"		●
4S15(E)	232	60'-0"		●
4S16	62	20'-1"		●
4S17	62	27'-11"		●
4S18(E)	58	35'-6"		●
4S19	17	46'-8"		●
4S20	62	40'-0"		●
4S21(E)	6	9'-5"	●	
4S22(E)	6	7'-4"	●	
4S23(E)	21	7'-2"	●	
4S24(E)	3	5'-7"	●	
4S25(E)	4	6'-11"	●	
4S26(E)	16	8'-2"	●	
4S30(E)	28	12'-6"		●
4S31	8	11'-11"	●	
4S32	4	13'-6"	●	
4S33	4	15'-1"	●	
4S34	4	15'-9"	●	
4S35	4	18'-4"	●	
4S36	4	20'-0"	●	
4S37(E)	6	10'-9"	●	
4S38(E)	8	8'-3"	●	
4S39(E)	2	10'-0"	●	
4S40(E)	1	8'-3"	●	
4S41	2	6'-9"	●	
4S42	2	9'-3"	●	
4S43	2	11'-7"	●	
4S44	2	14'-1"	●	
4S45(E)	340	6'-5"	●	
4S46	7	18'-2"	●	
4S47	62	5'-6"		●
4S48	10	19'-3"	●	
4S49	4	17'-8"	●	
4S50(E)	4	9'-2"	●	

Bar	No.	Length	Bent	Str.
4S60(E)	3	28'-2"		●
4S61	4	28'-2"		●
4S62(E)	46	9'-7"	●	
4S63(E)	23	8'-5"	●	
4S64(E)	12	8'-0"	●	
4S65(E)	6	12'-9"	●	
4S66(E)	4	15'-9"	●	
4S67(E)	8	11'-0"	●	
4S68(E)	16	8'-10"	●	
4S69	16	13'-8"	●	
4S70(E)	2	8'-9"	●	
4S71	2	17'-8"	●	
4S72(E)	2	8'-7"	●	
4S73	2	17'-6"	●	
4S74(E)	2	8'-5"	●	
4S75	2	17'-4"	●	
4S76(E)	2	8'-2"	●	
4S77	2	17'-1"	●	
4S78(E)	29	6'-6"		●
4S79(E)	29	4'-8"		●
4S80	34	4'-10"		●
4S81	16	16'-2"	●	
5S01	572	15'-10"	●	
5S02	8	16'-6"	●	
5S03(E)	572	8'-0"	●	
5S04(E)	161	10'-8"		●
5S05(E)	638	8'-0"		●
5S06(E)	638	4'-3"	●	
5S07(E)	638	4'-8"	●	
5S08(E)	26	8'-4"	●	
5S40	28	17'-1"	●	
5S60	8	17'-5"	●	
5S61	6	24'-9"	●	
5S62(E)	2	24'-9"	●	
5S63	8	12'-5"	●	
5S64	8	9'-0"	●	
5S65	2	19'-10"	●	
5S66	2	16'-0"	●	
5S67(E)	28	9'-2"	●	
5S68	28	16'-1"	●	
5S69	14	8'-0"	●	
6S01(E)	10	12'-0"		●
6S06(E)	4	9'-9"	●	

Bar	No.	Length	Bent	Str.
6S07(E)	6	8'-8"	●	
6S08	48	17'-0"		●
6S60(E)	28	9'-2"	●	
6S61	28	16'-1"	●	
6S62	48	3'-10"	●	
7S60	8	20'-1"	●	
7S61	8	16'-3"	●	
7S62(E)	4	28'-2"		●
7S63	12	16'-10"		●
8S40	8	16'-9"	●	
9S60(E)	4	28'-2"		●
9S61	8	10'-6"		●
11S40	2	11'-11"	●	
11S41(E)	4	24'-8"		●
11S42	2	16'-9"		●
11S60(E)	24	8'-9"		●

ESTIMATED QUANTITIES

Item	Unit	Total
Superstructure Concrete	Cu. Yd.	608.5
Reinforcing Steel	Lb.	39,267
Reinforcing Steel (Epoxy Coated)	Lb.	48,549

NOTES: All reinforcement bars shall conform to the requirements of ASTM Grade 60.
Minimum compressive strength of Superstructure Conc. shall be 5,500 p.s.i.

Figg and Muller Engineers Inc.
424 North Calhoun Street
Tallahassee Florida 32301

BAR BENDING DIAGRAMS & BILL OF MATERIAL - UNIT V

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- C SECTION:-

SCALE:- N.T.S. DATE:- MAY 26, 1981

SUBMITTED FOR APPROVAL Eugene C. Figg, Jr.

DRAWING:- OF SHEET:- 314 OF

PROJECT:- MM 220-1 (8)

CONTRACT NO. B-12752

BRIDGE FILE:- 912-45-2546 REN

EUGENE C. FIGG III REGISTERED No. 18543 STATE OF INDIANA PROFESSIONAL ENGINEER