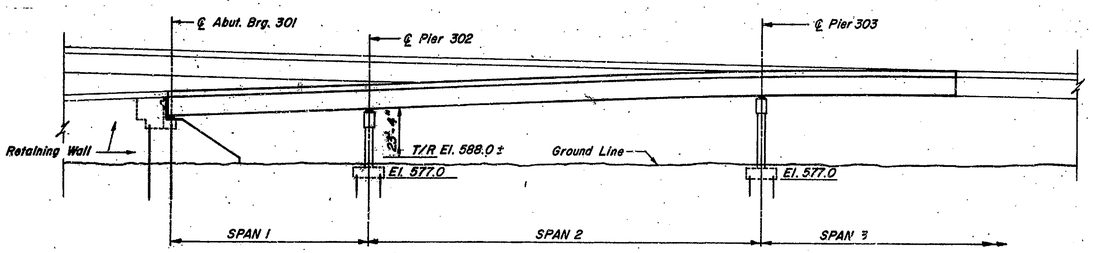
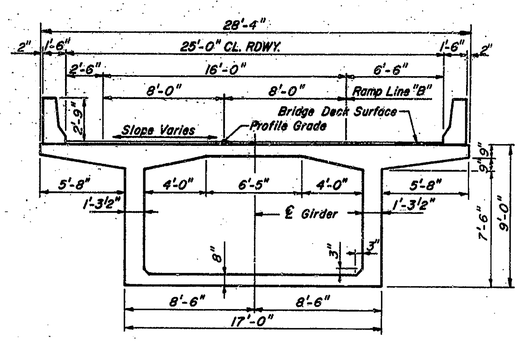
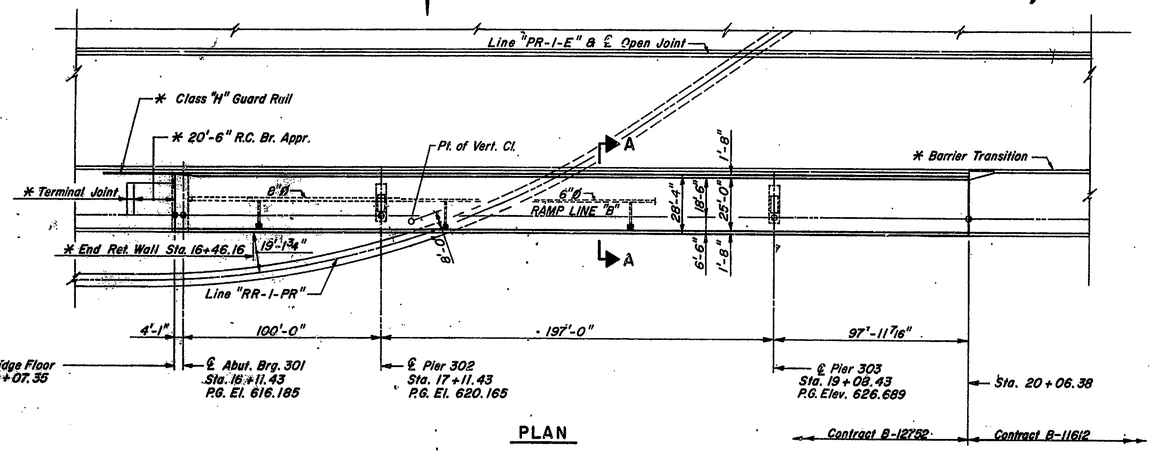


ELEVATION

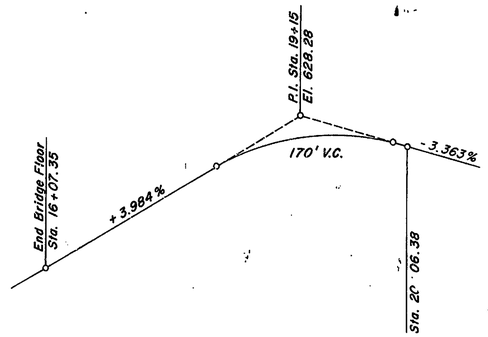


SECTION A-A

SCALE: 1/4" = 1'-0"



PLAN



VERTICAL CURVE DATA

(*) Indicates items not included in this contract.

DESIGNED MM CHKD MM
DRAWN RT. CHKD GR
TRACED RT. CHKD GR

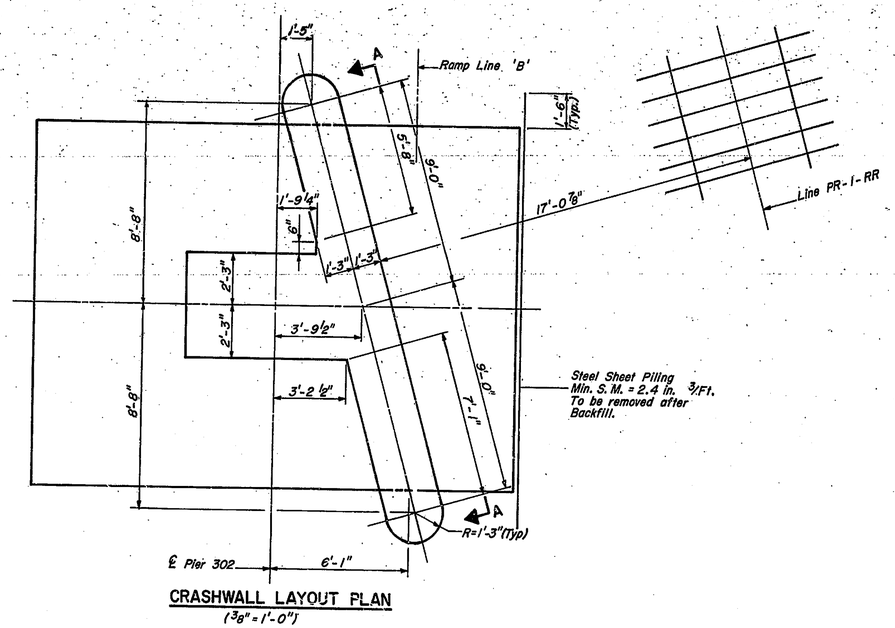
APPROVED FOR CONSTR
W. B. ABBOTT
Assistant Engineer of Bridge Design 11-2-81

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

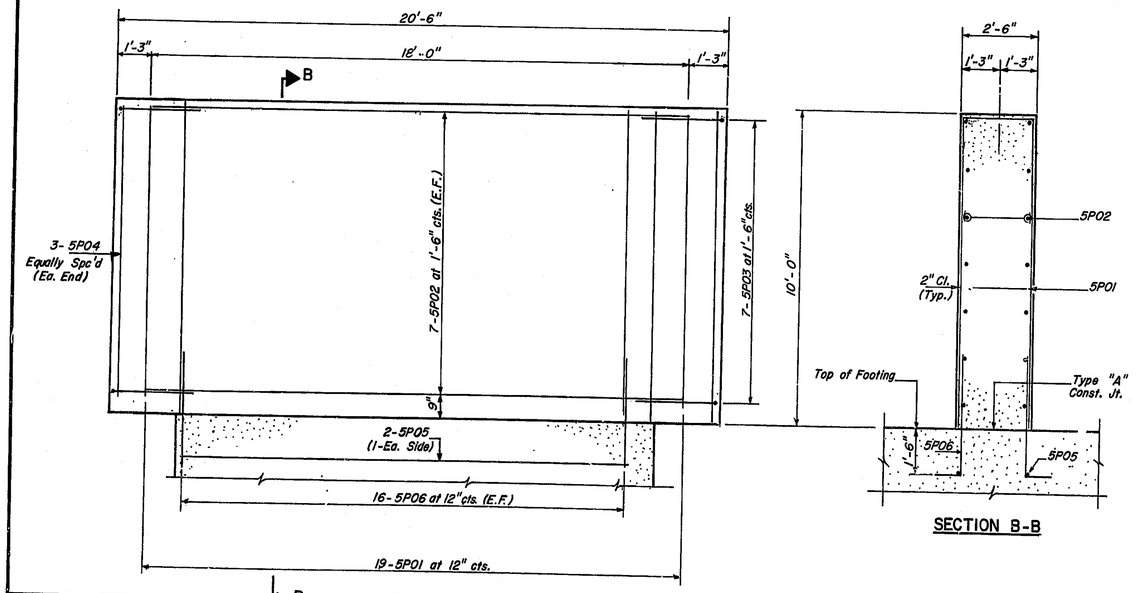
GENERAL PLAN & ELEVATION - RAMP B

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- 1"=30'-0" UNLESS SHOWN DATE:- July 29, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg Jr.
DRAWING:- OF SHEETS:- 300 OF
PROJECT:- MM220-1 (8)
CONTRACT NO. B-12752.
BRIDGE FILE:- 912-45-2546 RWN



CRASHWALL LAYOUT PLAN
($^3/_8$" = 1'-0")



VIEW A-A
($^1/_2$" = 1'-0")

SECTION B-B

DESIGNED	M.M.	C'K'D	M. M.
DRAWN	R.M.B.	C'K'D	G.P.
TRACED	R.M.B.	C'K'D	G.P.

APPROVED FOR CONSTRUCTION
W. B. ABBOTT
Assistant Engineer of Bridge Design 9-17-81

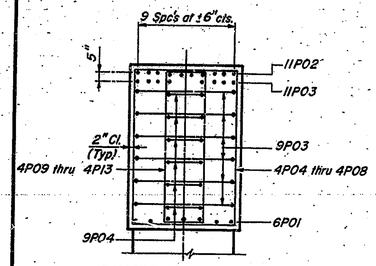
Figg and Muller Engineers Inc.
Consulting Engineers
Tallahassee Florida 32301

CRASHWALL DETAILS - PIER 302

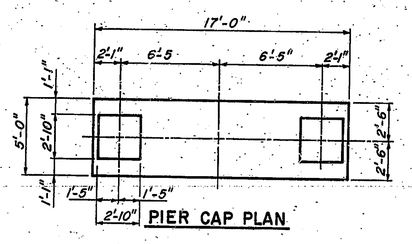
INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY- RAMP:- B SECTION:-
SCALE:- AS NOTED DATE:- July 21, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg Jr.
DRAWING:- OF SHEET:- 321 OF
PROJECT:- M220-1(8)
CONTRACT NO. B-12752
BRIDGE FILE:- 912-45-2546 RWN

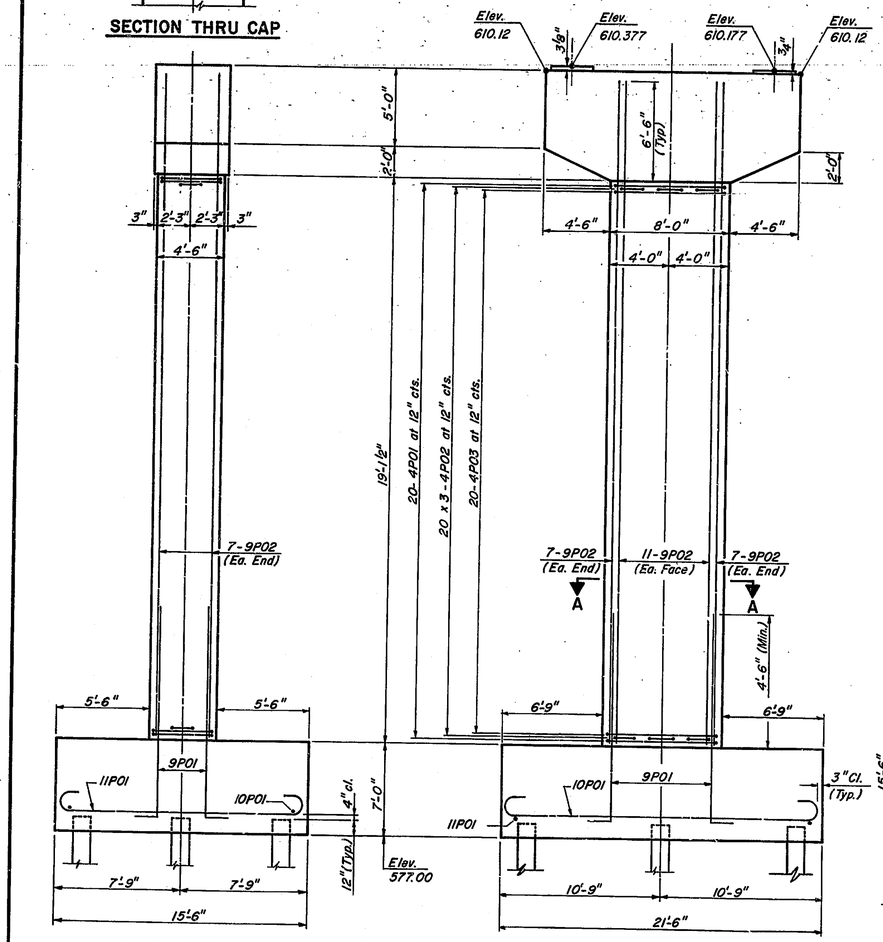
EUGENE C. FIGG JR. REGISTERED NO. 10543 STATE OF INDIANA PROFESSIONAL ENGINEER



SECTION THRU CAP



PIER CAP PLAN

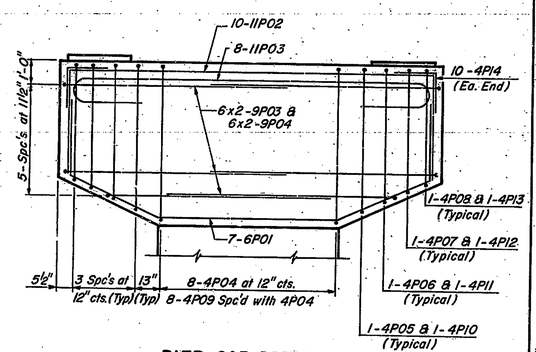


SIDE VIEW

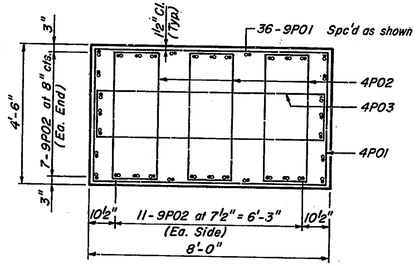
ELEVATION (Looking Up Station)

PILE DATA

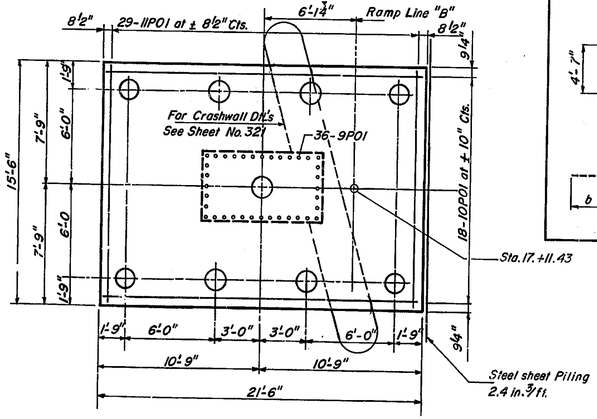
TYPE: High Capacity (14" Ø Steel Encased Conc.)
ESTIMATED LENGTH: 85'
NUMBER REQUIRED: 9



PIER CAP DETAIL



SECTION A-A

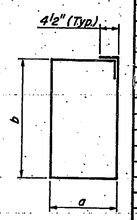


FOOTING PLAN

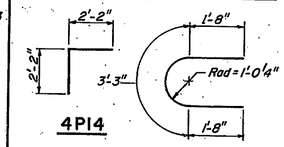
BAR BENDING DIAGRAMS

NOTES: Number preceding letter denotes bar size.
All dimension are out to out.
All bar bending dia. diameters shall be in accordance with A.C.I. Standards.

Bar	a	b
4P01	4'-3"	7'-9"
4P02	1'-6"	4'-3"
4P03	1'-7"	7'-3"
4P04	4'-8"	6'-9"
4P05	4'-8"	6'-2¾"
4P06	4'-8"	5'-9½"
4P07	4'-8"	5'-4"
4P08	4'-6"	4'-10¾"
4P09	2'-1"	6'-9"
4P10	2'-1"	6'-3"
4P11	2'-1"	5'-9¾"
4P12	2'-1"	5'-4¼"
4P13	2'-1"	4'-11"

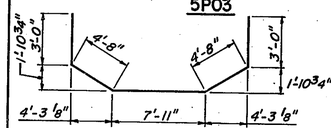


4P01 thru 4P13

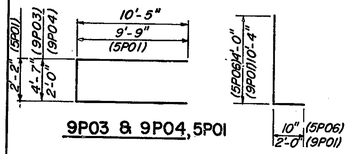


4P14

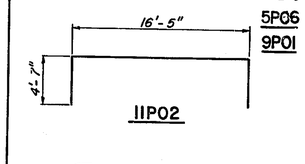
5P03



6P01



9P03 & 9P04, 5P01



5P06
9P01

11P02

10P01, 11P01, 11P03

Bar	a	b
10P01	21'-0"	1'-5"
11P01	15'-0"	1'-7"
11P03	16'-5"	4'-4"

BILL OF MATERIAL

Bar	No.	Length	Bent	Str.
4P01	20	24'-9"	●	
4P02	60	12'-3"	●	
4P03	20	19'-5"	●	
4P04	8	23'-7"	●	
4P05	2	22'-7"	●	
4P06	2	21'-8"	●	
4P07	2	20'-9"	●	
4P08	2	19'-11"	●	
4P09	8	18'-5"	●	
4P10	2	17'-5"	●	
4P11	2	16'-7"	●	
4P12	2	15'-8"	●	
4P13	2	14'-9"	●	
4P14	20	4'-4"	●	
5P01	38	21'-6"	●	
5P02	14	18'-0"		●
5P03	14	6'-7"	●	
5P04	6	9'-8"		●
5P05	2	15'-9"		●
5P06	32	4'-10"		●
6P01	7	23'-3"	●	
9P01	36	12'-4"	●	
9P02	36	25'-8"		●
9P03	12	25'-5"	●	
9P04	12	22'-10"	●	
10P01	18	23'-10"	●	
11P01	29	18'-2"	●	
11P02	10	25'-7"	●	
11P03	8	25'-1"	●	

ESTIMATED QUANTITIES

Item	Unit	Total
Reinforcing Steel	Lb.	1696995
Substructure Conc.	Cu. Yd.	61.85
Footing Conc.	Cu. Yd.	86.40
High Capacity Piles	Lin. ft.	765.0
Steel Sheet Piling	Sq. ft.	222.0

All reinforcement bar shall conform to the requirement of A.S.T.M., Grade 60. The minimum compressive strength of both Footing & Substructure concrete shall be 4000 p.s.i.

APPROVED FOR CONSTRUCTION
M. L. ABBOTT
Assistant Engineer of Bridge Design
9-17-81

DESIGNED	M.M.	C'K'D.	M.M.
DRAWN	RET	C'K'D.	GR
TRACED	M.B.	C'K'D.	GR

10-20-81 Revision: Estimate of Quantities

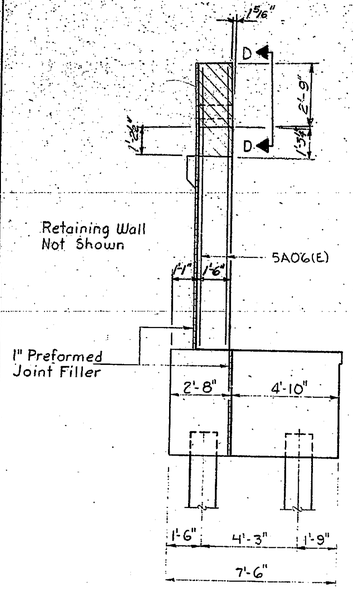
Figg and Muller Engineers Inc.
4284 Shamrock South
Tallahassee Florida 32308

PIER 302 DETAILS

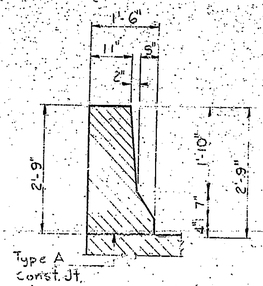
INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- N.T.S.
DATE:- July 21, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg Jr.
DRAWING:- OF SHEET:- 320 OF
PROJECT:- MM 220-1(8)
CONTRACT NO. B-12750
BRIDGE FILE:- 912-45-2546 RWN

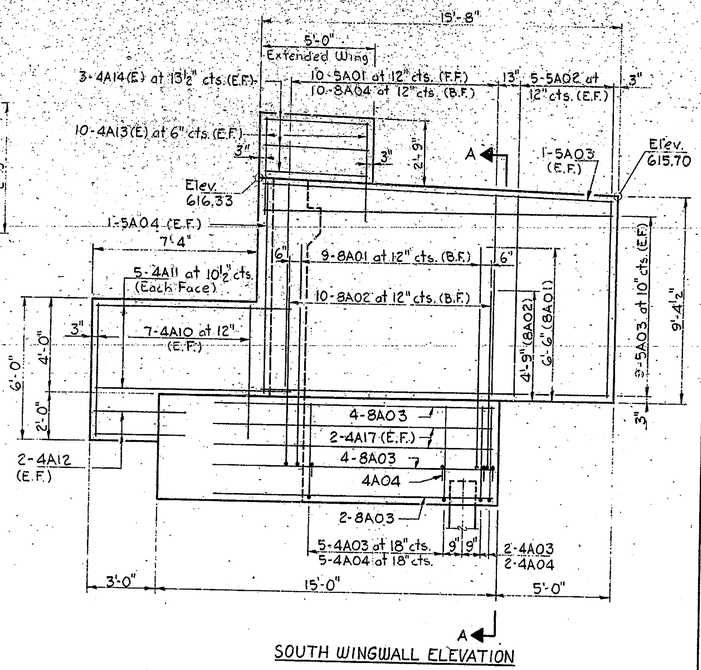
EUGENE C. FIGG, JR. REGISTERED 10559 STATE OF INDIANA PROFESSIONAL ENGINEER



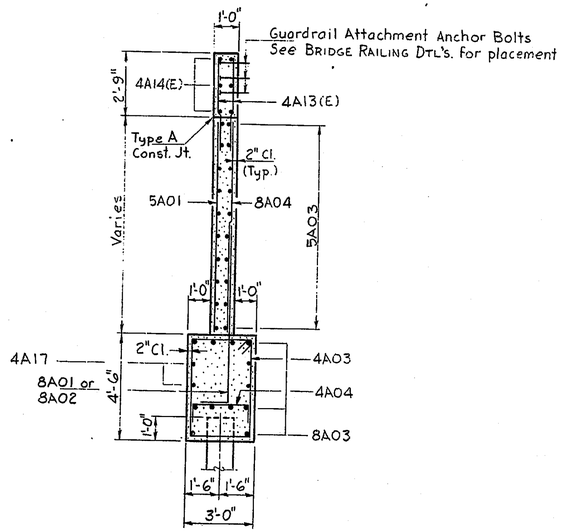
VIEW C-C



VIEW D-D



SOUTH WINGWALL ELEVATION



SECTION A-A

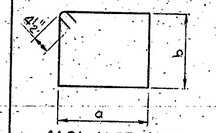
PILE DATA

TYPE: High Capacity (14" ø Steel Encased Concrete)
ESTIMATED LENGTH: 110'
NUMBER REQUIRED: 6
6-Steel Pipe Sleeves required to Elevation 520.

Notes:
Abutment backwall shall not be constructed until superstructure Post-Tensioning has been completed.
All reinforcement bars shall conform to the requirement of ASTM, Grade 60.
Minimum compressive strength of Substructure Concrete shall be 4,000 p.s.i.

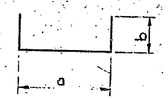
BAR BENDING DIAGRAMS

Notes:
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.
(E)-Designates epoxy coated bars.



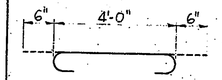
4A01, 4A03, 4A18

Bar	a	b
4A01	6'-1"	4'-2"
4A03	2'-8"	4'-2"
4A18	7'-2"	4'-2"

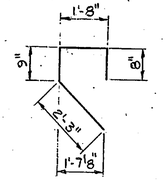


4A02, 4A04
4A09(E), 4A19, 4A20

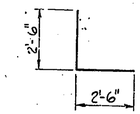
Bar	a	b
4A02	6'-1"	8"
4A04	2'-8"	8"
4A09(E)	1'-2"	8"
4A19	7'-2"	8"
4A20	4'-5"	2'-7"



4A07(E)



4A08(E)



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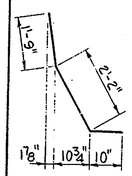
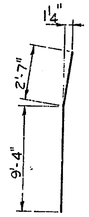
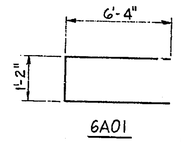


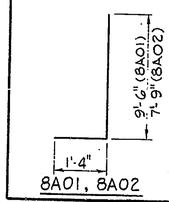
5A05(E)



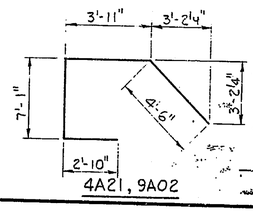
5A06(E)



6A01



8A01, 8A02



4A21, 9A02

BILL OF MATERIAL

Bar	No.	Length	Bent	Str.
4A01	19	21'-3"	●	
4A02	19	7'-5"	●	
4A03	7	14'-5"	●	
4A04	7	4'-0"	●	
4A05(E)	16	28'-0"		●
4A06(E)	8	5'-0"	●	
4A07(E)	8	5'-0"	●	
4A08(E)	27	5'-4"	●	
4A09(E)	29	2'-6"	●	
4A10	14	5'-8"		●
4A11	10	9'-3"		●
4A12	4	31-9"		●
4A13(E)	20	3'-9"		●
4A14(E)	6	4'-9"		●
4A15	27	3'-0"		●
4A16	4	27'-10"		●
4A17	4	12'-6"		●
4A18	4	23'-5"	●	
4A19	4	8'-6"	●	
4A20	5	9'-7"	●	
4A21	2	18'-4"	●	
4A22(E)	2	26'-6"		●
5A01	10	9'-2"		●
5A02	10	9'-0"		●
5A03	20	15'-4"		●
5A04	2	9'-8"		●
5A05(E)	2	4'-9"	●	
5A06(E)	2	11'-11"		●
6A01	27	13'-10"	●	
6A02(E)	56	9'-2"		●
8A01	9	10'-10"	●	
8A02	10	9'-1"	●	
8A03	10	12'-6"		●
8A04	10	9'-2"		●
9A01	21	27'-10"		●
9A02	3	18'-4"	●	
9A03	3	6'-0"		●

ESTIMATED QUANTITIES

ITEM	UNIT	TOTAL
Reinforcing Steel	Lb.	5285.76
Epoxy Coated Reinforcing Steel	Lb.	1407.66
Substructure Concrete	Cu.Yd.	59.12
Class 'C' Concrete	Cu.Yd.	0.7
High Capacity Piles	Lin.Ft.	660.0
Steel Pipe Sleeves	Lin.Ft.	163.05

10-20-81 Revision Estimate of Quantities.

APPROVED FOR CONSTRUCTION

M.B. Abbott
ABBOTT
Assistant Engineer of Bridge Design
9-17-81

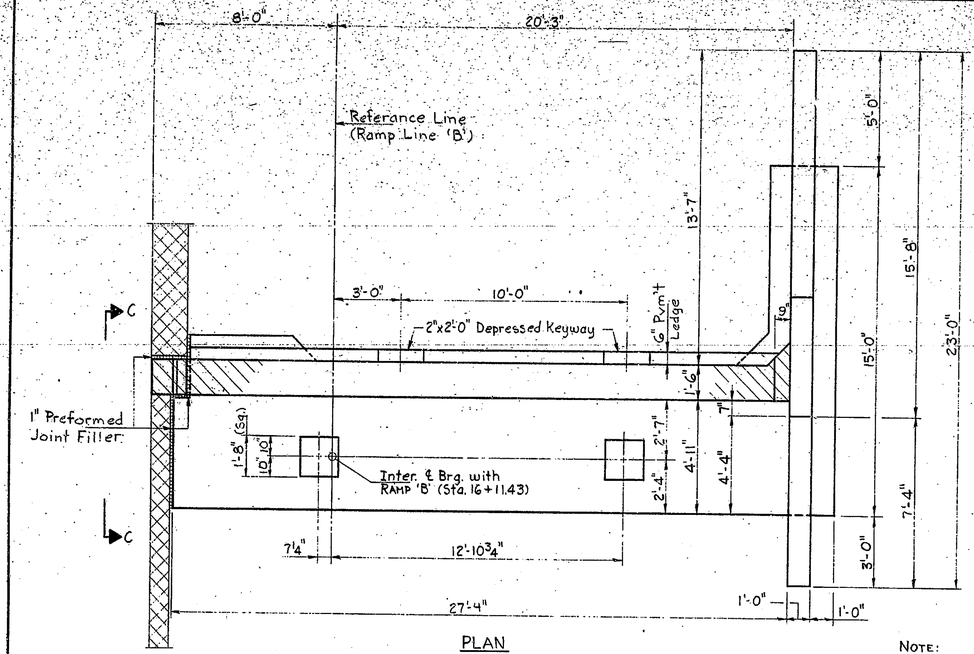
DESIGNED	M.M.	C'K'D.	D.D.
DRAWN	G.R.	C'K'D.	D.D.
TRACED	G.R.	C'K'D.	D.D.

Figg and Muller Engineers Inc.
4284 Shamrock South
Tallahassee Florida 32301

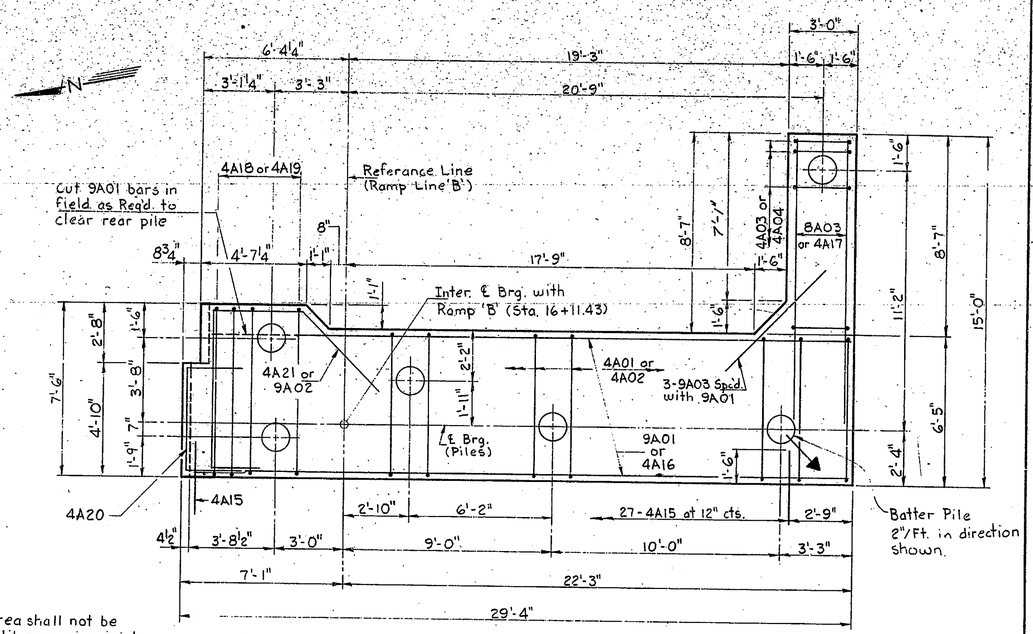
ABUTMENT 301 DETAILS & BILL OF MATERIAL

INDIANA STATE HIGHWAY COMMISSION

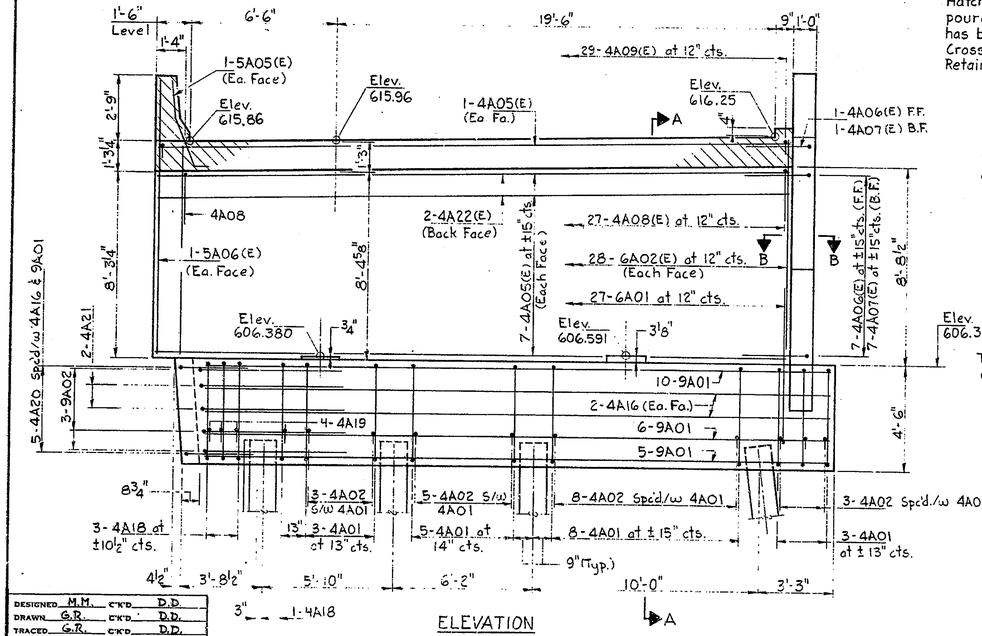
LAKE COUNTY-RAMP:-B SECTION:-
SCALE:- ⅜"=1'-0"
DATE:- July 21, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg Jr.
DRAWING:- OF SHEET:- 319 OF
PROJECT:- MM 220-1(8)
CONTRACT NO. B-12752
BRIDGE FILE:- 912-45-2546 RWN



PLAN

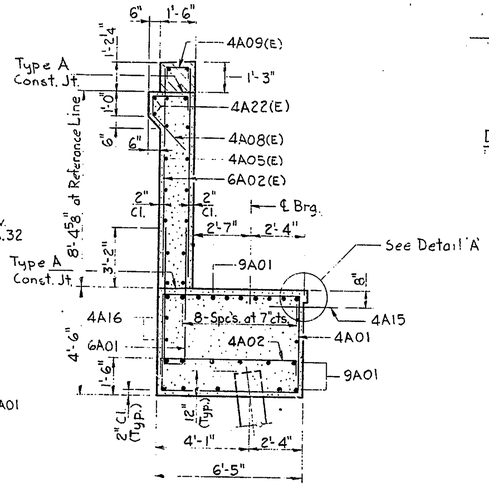


PLAN - PILE CAP

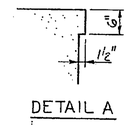


ELEVATION

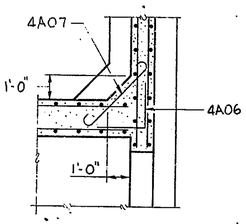
NOTE:
Hatched area shall not be poured until expansion joint has been set.
Cross Hatched area indicates Retaining Wall No. 12.



SECTION A-A



DETAIL A



SECTION B-B

APPROVED FOR CONSTRUCTION

W. B. Abbott
W. B. ABBOTT
Assistant Engineer of Bridge Design 9-17-81

DESIGNED	M.M.	C'K'D.	D.D.
DRAWN	G.R.	C'K'D.	D.D.
TRACED	G.R.	C'K'D.	D.D.

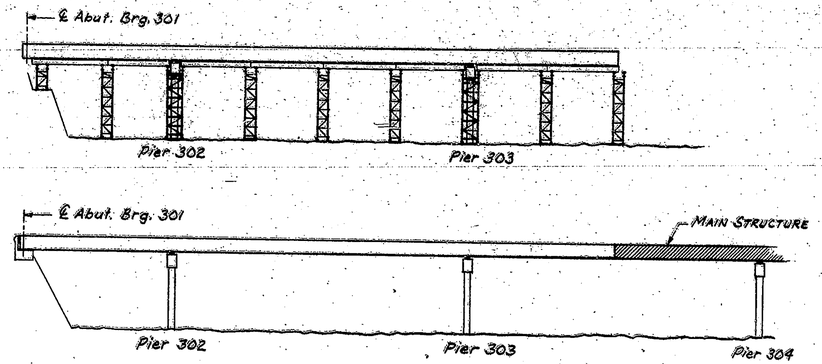
Flag and Muller Engineers Inc. 424 North Calhoun Street Tallahassee Florida 32301

ABUTMENT 301 DETAILS

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- ⅜"=1'-0" DATE:- July 21, 1981
SUBMITTED FOR APPROVAL Eugene C. Muller Jr.
DRAWING:- OF SHEET:- 3/8 OF
PROJECT:- MM 220-1(8)
CONTRACT NO. 8-12752
BRIDGE FILE:- 912-45-2546 RWN

REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION OF RAMP "B":

1. Erect scaffolding and forms.
2. Place rebar and post-tensioning tendons in bottom slab and webs.
3. Pour bottom slab and webs.
4. Place rebar in top slab.
5. Pour top slab: pour from center of spans between the towers towards the towers.
6. When the concrete has reached a strength of 4,000 p.s.i. in the bottom slab and the webs, and 3,500 p.s.i. in the top slab, stress the post-tensioning tendons (See stressing sequence table).
7. Remove forms and scaffolding.

CONSTRUCTION OF RAMP "B" TO MAIN STRUCTURE:

1. Erect segment 6 of main structure on scaffolding.
2. Stress continuity tendon.
3. Remove forms and scaffolding.

APPROVED FOR CONSTRUCTION

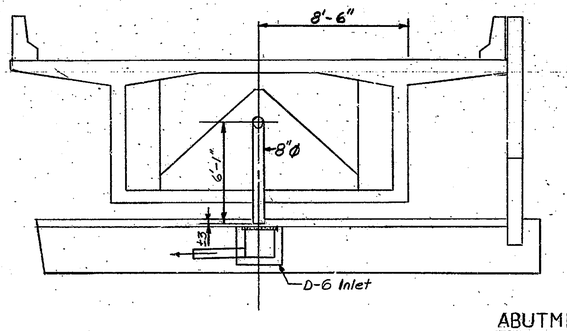
W. B. ABBOTT
Assistant Engineer of Bridge Design 11-2-81

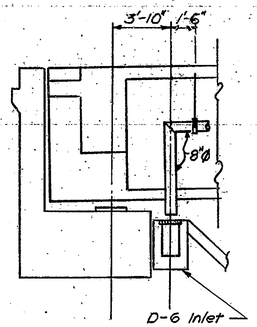
Figg and Muller Engineers Inc.
Consulting Engineers
Tallahassee, Florida

ERECTION SEQUENCES

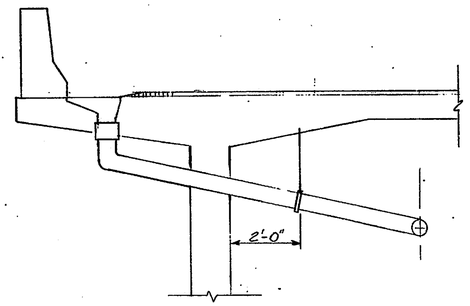
INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP: B SECTION:
SCALE: N.T.S. DATE: July 29, 1981
SUBMITTED FOR APPROVAL
DRAWING: OF SHEET: 27 OF
PROJECT: NM 220-1(9)
CONTRACT NO. B-
BRIDGE FILE:

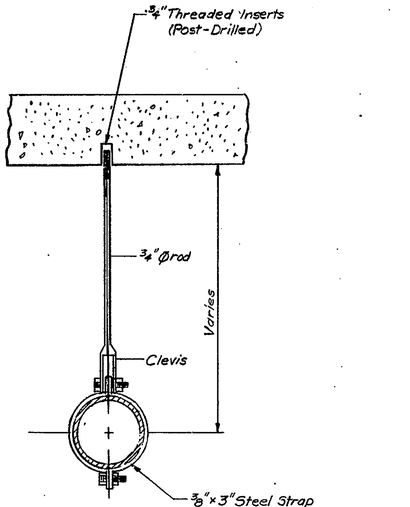




ABUTMENT DETAIL 301

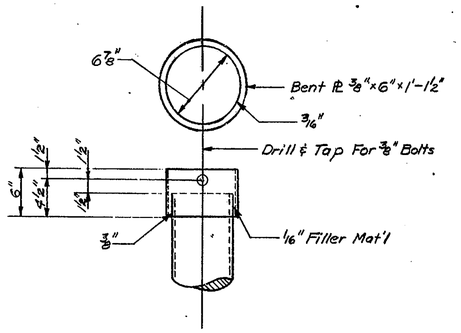


TYPICAL SECTION AT RDWY. DRAIN



Note: Hangers to be spaced at 10'-0" max.

PIPE HANGER DETAIL (TYP)



COLLAR DETAIL (TYP)

APPROVED FOR CONSTRUCTION

W. B. Abbott
W. B. ABBOTT
Assistant Engineer of Bridge Design 11-2-81

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

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

SUPERSTRUCTURE DRAINAGE DETAIL

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-

SCALE:- N.T.S DATE:- July 29, 1981

SUBMITTED FOR APPROVAL Eugene C. Figg Jr.

DRAWING:- OF SHEET:- 316 OF

PROJECT:- MM 220-1(8)

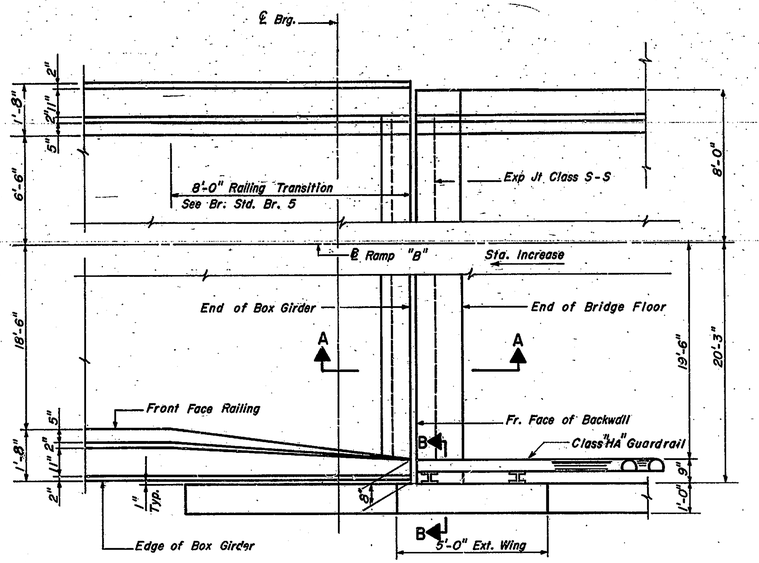
CONTRACT NO. B-12752

BRIDGE FILE:- 912-45-2546 RWN

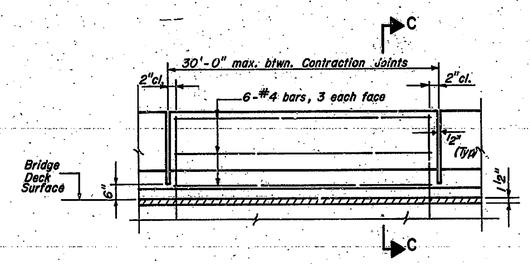
EUGENE C. FIGG, JR. REGISTERED NO. 10543 STATE OF INDIANA PROFESSIONAL ENGINEER

BAR LIST				
Bars	No.	Length	Str.	Bent
4R01(E)	48	25'-3	•	
4R02(E)	84	27'-10"	•	
4R03(E)	48	24'-1"	•	

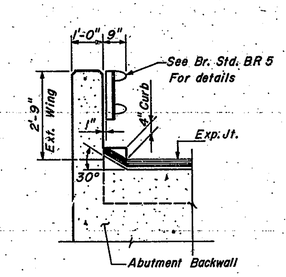
ESTIMATED QUANTITIES		
Item	Unit	Total
Superstructure Concrete		96.33
Reinforcing Steel (Epoxy Coated)	Lbs.	3133.61



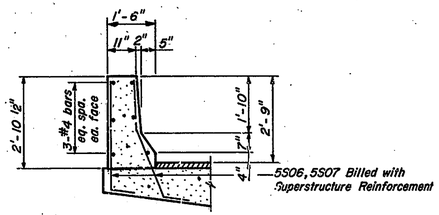
PLAN AT ABUTMENT



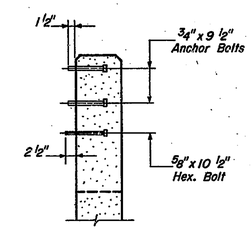
ELEVATION RAILING (TYP.)



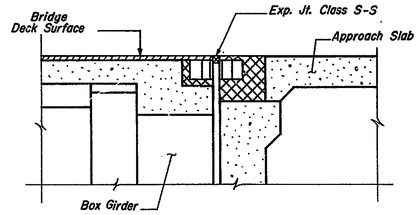
SECTION B-B



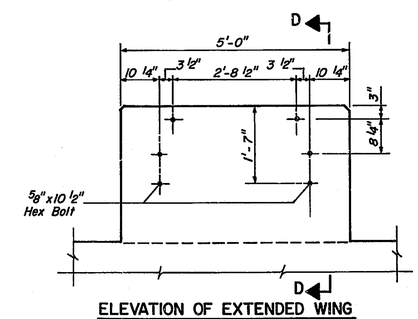
SECTION C-C



SECTION D-D

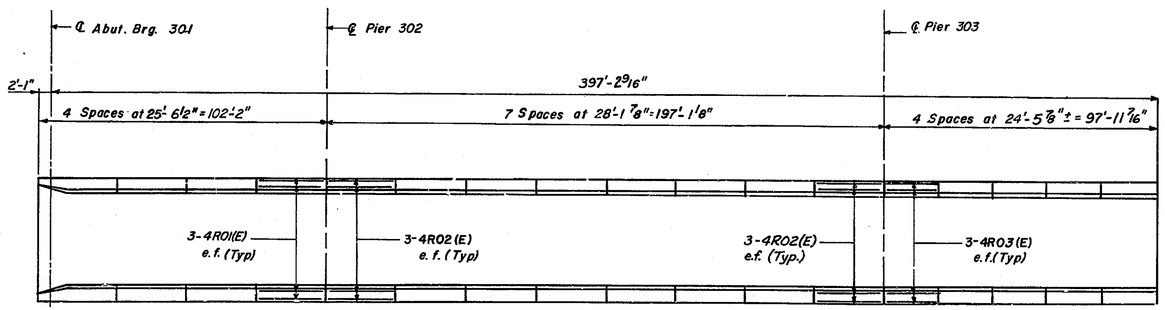


SECTION A-A



ELEVATION OF EXTENDED WING

(Scale : 3/4" = 1'-0")



RAILING PLAN

(Not to scale)

DESIGNED	M.M.	C'K'D	M.M.
DRAWN	R.M.B.	C'K'D	G.R.
TRACED	R.M.B.	C'K'D	G.R.

Engineer of Bridge Design 11-2-81

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

BRIDGE RAILING DIMENSIONS & REINFORCEMENT DETAILS

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-

SCALE:- 1/2" = 1'-0" Unless Shown DATE:- July 29, 1981

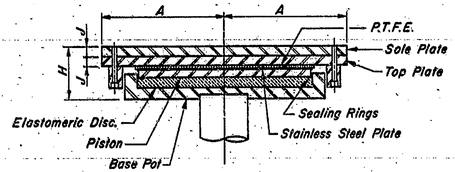
SUBMITTED FOR APPROVAL Eugene C. Figg, Jr.

DRAWING:- OF SHEET:- 315 OF

PROJECT:- MM220-1(8)

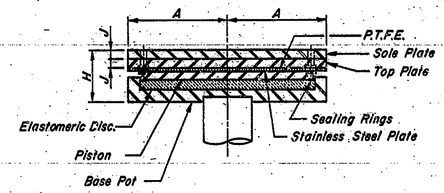
CONTRACT NO. B-12752

BRIDGE FILE:- 912-45-2546 RWN



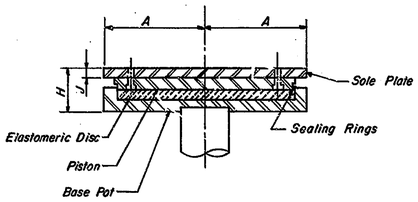
GUIDED EXPANSION BEARING DETAIL

LOCATION	CAPACITY	No. Req'd	TRANSVERSE LOAD	A	B	H	J	DISPLACEMENT
ABUT. 301	150 TON	1	15.00 TON	8.38	7.25	3.94	.75	$2\frac{3}{8}$"
PIER 302	600 TON	1	42.00 TON	15.56	12.44	6.25	1.13	1¼"
PIER 303	700 TON	1	48.00TON.	16.50	13.28	6.35	1.13	N/A



NON-GUIDED EXPANSION BEARING DETAIL

LOCATION	CAPACITY	No. Req'd	A	B	H	J	DISPLACEMENT
ABUT. 301	1110 TON	1	7.25	7.25	3.94	.75	$2\frac{3}{8}$"
PIER 302	600 TON	1	12.44	12.44	6.25	1.13	1¼"

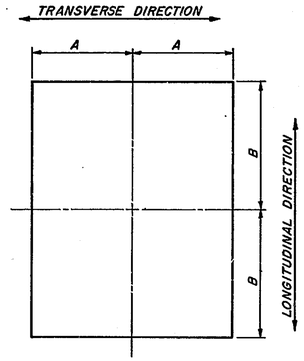


FIXED POT BEARING DETAIL

LOCATION	CAPACITY	No. Req'd	TRANSVERSE LOAD	A	H	J
PIER 303	700 TON	1	71.00 TON	13.34	5.57	1.38

LOCATION	TYPE	EXPANSION	CONTRACTION
Abut. 301	SS	$3\frac{5}{8}$"	1"

EXPANSION JOINT MOVEMENT



TOP PLAN OF GUIDED AND NON-GUIDED EXPANSION BEARINGS

APPROVED FOR CONSTRUCTION
W. B. ABBOTT
Assistant Engineer - Services Division
11-2-81

DESIGNED MM C'K'D MM
DRAWN MLB C'K'D GR
TRACED MLB C'K'D GR

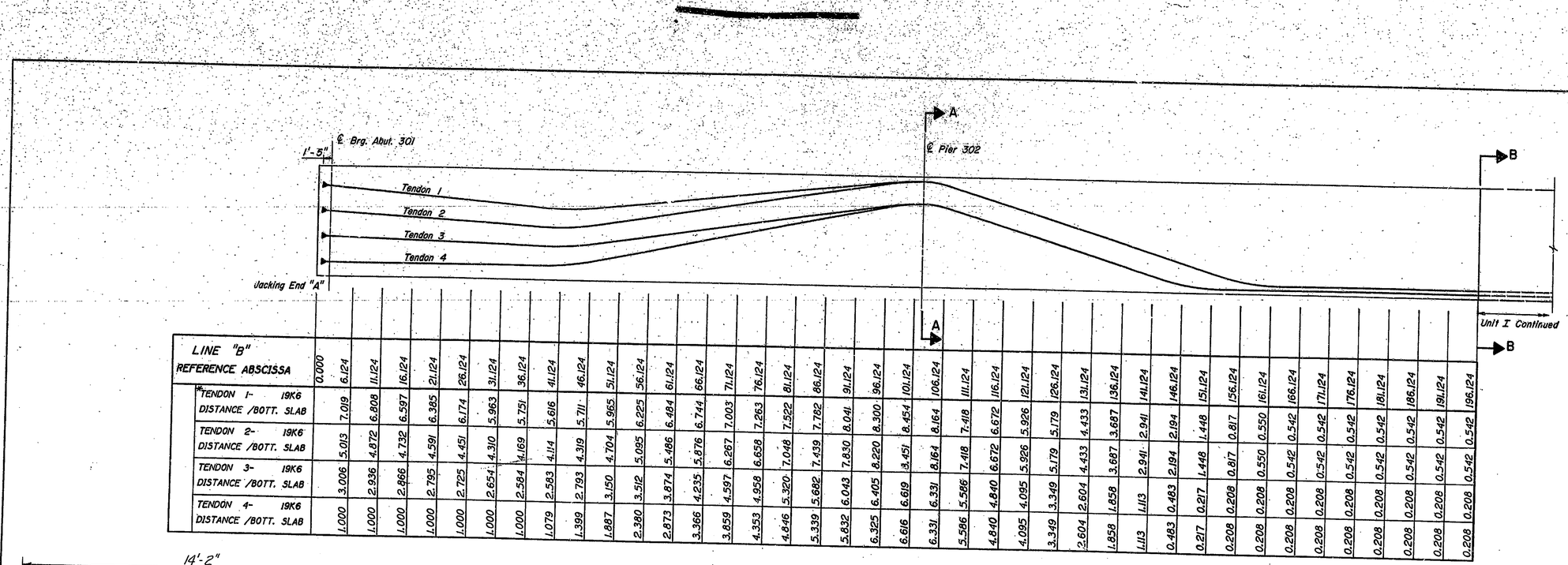
Figg and Muller Engineers Inc.
426 North Calhoun Street
Tallahassee Florida 32301

BEARING DETAILS

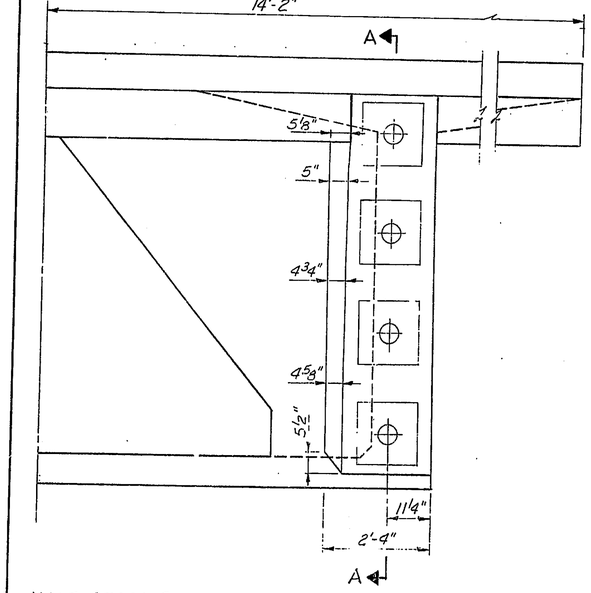
INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- N.T.S. DATE:- July 29, 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 RWN

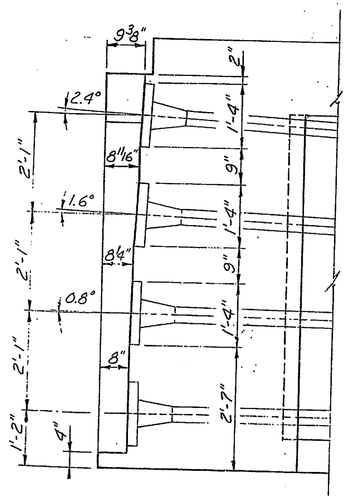
EUGENE C. FIGG JR. REGISTERED ENGINEER STATE OF FLORIDA



LINE "B" REFERENCE ABSCISSA	0.000	6.124	11.124	16.124	21.124	26.124	31.124	36.124	41.124	46.124	51.124	56.124	61.124	66.124	71.124	76.124	81.124	86.124	91.124	96.124	101.124	106.124	111.124	116.124	121.124	126.124	131.124	136.124	141.124	146.124	151.124	156.124	161.124	166.124	171.124	176.124	181.124	186.124	191.124	196.124
TENDON 1- 19K6 DISTANCE /BOTT. SLAB		7.019	6.808	6.597	6.385	6.174	5.963	5.751	5.616	5.711	5.965	6.225	6.484	6.744	7.003	7.263	7.522	7.782	8.041	8.300	8.454	8.164	7.418	6.672	5.926	5.179	4.433	3.687	2.941	2.194	1.448	0.817	0.550	0.542	0.542	0.542	0.542	0.542	0.542	0.542
TENDON 2- 19K6 DISTANCE /BOTT. SLAB		5.013	4.872	4.732	4.591	4.451	4.310	4.169	4.114	4.319	4.704	5.095	5.486	5.876	6.267	6.658	7.048	7.439	7.830	8.220	8.451	8.164	7.418	6.672	5.926	5.179	4.433	3.687	2.941	2.194	1.448	0.817	0.550	0.542	0.542	0.542	0.542	0.542	0.542	0.542
TENDON 3- 19K6 DISTANCE /BOTT. SLAB		3.006	2.936	2.866	2.795	2.725	2.654	2.584	2.583	2.793	3.150	3.512	3.874	4.235	4.597	4.958	5.320	5.682	6.043	6.405	6.619	6.331	5.586	4.840	4.095	3.349	2.604	1.858	1.113	0.483	0.217	0.208	0.208	0.208	0.208	0.208	0.208	0.208	0.208	0.208
TENDON 4- 19K6 DISTANCE /BOTT. SLAB		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.079	1.399	1.887	2.380	2.873	3.366	3.859	4.353	4.846	5.339	5.832	6.325	6.616	6.331	5.586	4.840	4.095	3.349	2.604	1.858	1.113	0.483	0.217	0.208	0.208	0.208	0.208	0.208	0.208	0.208	0.208	0.208



HALF CROSS SECTION AT ABUTMENT DIAPHRAGM



SECTION A-A

TENDON PROFILE ELEVATION

(Scale : Vert. 1/4"=1'-0", Horiz. 1/8"=1'-0")

*Distances given are from bottom of slab to bottom of tendon duct.

TENDON NO.	ELONGATION JACKING END A	ELONGATION JACKING END B
1	2.300'	0.255'
2	2.154'	0.228'
3	2.154'	0.226'
4	2.025'	0.182'

STRESSING SEQUENCE	TENDON NO.	NO. OF TENDONS	TYPE	JACKING FORCE	ELONGATION	LENGTH
1st	1	2	19K6	828	2.555'	380.23'
2nd	2	2	19K6	828	2.382'	354.20'
3rd	3	2	19K6	828	2.380'	354.159'
4th	4	2	19K6	828	2.207'	330.226'
5th	6	2	19K6	850	0.941'	134.106'
6th	5	2	12K6	542	0.765'	107.898'
7th	7	2	19K6	861	0.409'	56.469'
8th	8	2	19K6	861	0.412'	56.650'

Notes:
These tendon lengths and elongations are from anchor plate to anchor plate.
Dimensions are on grade.
Tendon elevations are perpendicular to grade.
Tendons are stressed from jacking end as indicated by ⟵◀
Elongations are based on a steel modulus of elasticity of 26.5×10^6 p.s.i.

LEGEND
Dead End
Jacking End

11-2-81

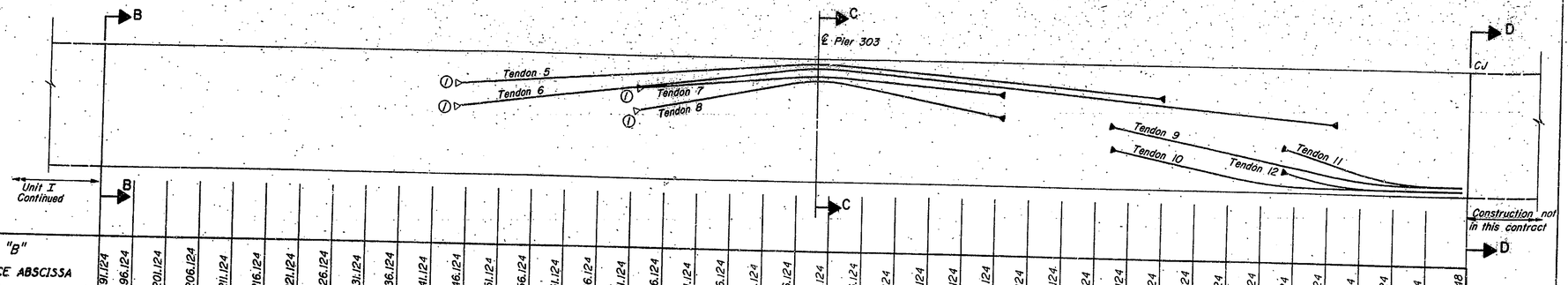
Figg and Muller Engineers Inc.
Consulting Engineers
Tallahassee, Florida 32301

POST-TENSIONING LAYOUT - UNIT I

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- AS NOTED DATE:- July 29,1981
SUBMITTED FOR APPROVAL Eugene C. Figg, Jr.
DRAWING:- OF SHEET:- 313 OF
PROJECT:- MM220-1(8)
CONTRACT NO. B-12752
BRIDGE FILE:- 912-45-2546 RWN

EUGENE C. FIGG, JR. REGISTERED ENGINEER PE 10563 STATE OF INDIANA PROFESSIONAL ENGINEER



LINE "B" REFERENCE ABSCISSA	191.124	196.124	201.124	206.124	211.124	216.124	221.124	226.124	231.124	236.124	241.124	246.124	251.124	256.124	261.124	266.124	271.124	276.124	281.124	286.124	291.124	296.124	301.124	306.124	311.124	316.124	321.124	326.124	331.124	336.124	341.124	346.124	351.124	356.124	361.124	366.124	371.124	376.124	381.124	386.124	391.124	397.248
*TENDON 5- 12K6 DISTANCE /BOTT. SLAB												6.519	6.712	6.905	7.097	7.290	7.482	7.675	7.867	8.060	8.253	8.442	8.472	8.292	8.087	7.883	7.679	7.475	7.271	7.067	6.863	6.659	6.454								
TENDON 6- 19K6 DISTANCE /BOTT. SLAB												4.868	5.186	5.505	5.823	6.141	6.460	6.778	7.096	7.415	7.733	8.046	8.106	7.910	7.688	7.466	7.244	7.022	6.800	6.578	6.356	6.134	5.912	5.690	5.468	5.246	5.024	4.802			
TENDON 7- 19K6 DISTANCE /BOTT. SLAB																		6.626	6.843	7.059	7.275	7.488	7.523	7.332	7.115	6.899	6.683	6.467													
TENDON 8- 19K6 DISTANCE /BOTT. SLAB																		5.208	5.681	6.153	6.626	7.091	7.168	6.749	6.271	5.804	5.331	4.859													
TENDON 9- 19K6 DISTANCE /BOTT. SLAB																															2.387	1.895	1.404	0.912	0.492	0.259	0.208	0.208	0.208	0.208	0.208
TENDON 10- 19K6 DISTANCE /BOTT. SLAB																															4.053	3.562	3.070	2.579	2.087	1.596	1.107	0.739	0.560	0.542	0.542
TENDON 11- 19K6 DISTANCE /BOTT. SLAB																																					2.722	1.970	1.241	0.750	0.547	0.542
TENDON 12- 19K6 DISTANCE /BOTT. SLAB																																					1.061	0.504	0.235	0.208	0.208	0.208

*Distances are given from bottom of slab to bottom of tendon duct.

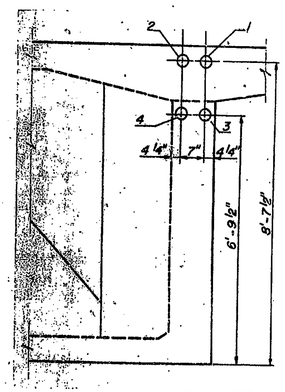
TENDON PROFILE ELEVATION

(Scale: Vert. 1/4"=1'-0", Horiz. 1/8"=1'-0")

LEGEND
- Jacking End
- Dead End

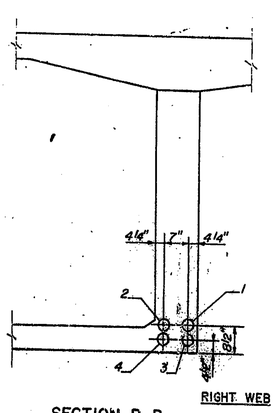
CJ denotes Construction Joint.

Notes:
- These tendon lengths and elongations are from anchor plate to anchor plate.
- Dimensions are on grade.
- Tendon elevations are perpendicular to grade.
- Tendons are stressed from jacking end as indicated by ——►
- Elongations are based on a steel modulus of elasticity of 26.5×10^6 psi.
- Tendon no. 9,10,11,12 are to be provided and stressed Under Contract B-11612.



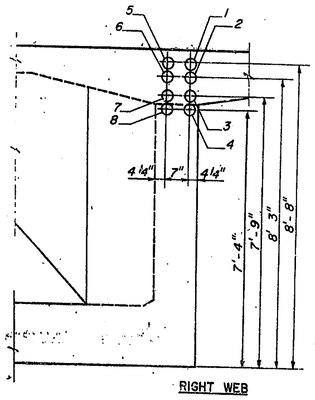
RIGHT WEB

SECTION A-A
(Looking up Station)



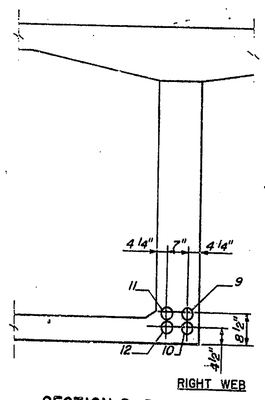
RIGHT WEB

SECTION B-B
(Looking up Station)



RIGHT WEB

SECTION C-C
(Looking up Station)



RIGHT WEB

SECTION D-D
(Looking up Station)

①Revised 1-31-88

Figg and Muller Engineers Inc.
Consulting Engineers
Tallahassee, Florida 32301

POST-TENSIONING LAYOUT - UNIT I

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-

SCALE:- AS NOTED DATE:- July 29, 1981

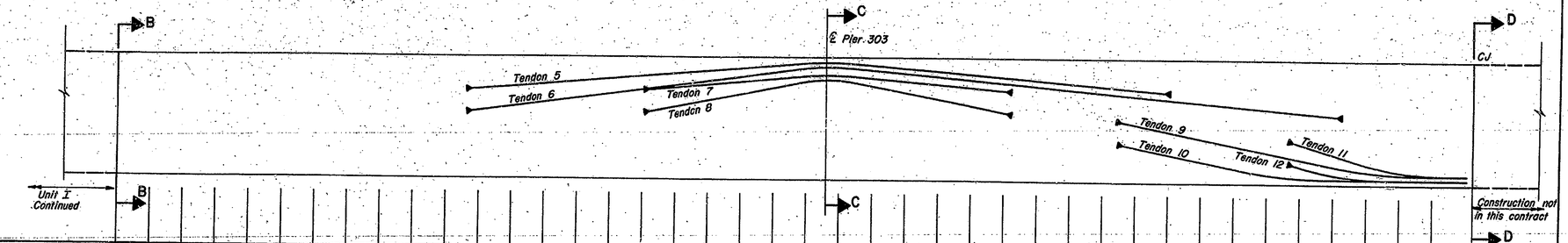
SUBMITTED FOR APPROVAL Eugene C. Figg Jr.

DRAWING:- OF SHEET:- 312A OF

PROJECT:- MM220-1(8)

CONTRACT NO. B-12752

BRIDGE FILE:- 912-45-2546 RWN



LINE "B" REFERENCE ABSCISSA	191.124	196.124	201.124	206.124	211.124	216.124	221.124	226.124	231.124	236.124	241.124	246.124	251.124	256.124	261.124	266.124	271.124	276.124	281.124	286.124	291.124	296.124	301.124	306.124	311.124	316.124	321.124	326.124	331.124	336.124	341.124	346.124	351.124	356.124	361.124	366.124	371.124	376.124	381.124	386.124	391.124	397.248
*TENDON 5- 12K6 DISTANCE /BOTT. SLAB												6.519	6.712	6.905	7.097	7.290	7.482	7.675	7.867	8.060	8.253	8.442	8.472	8.292	8.087	7.883	7.679	7.475	7.271	7.067	6.863	6.659	6.454									
TENDON 6- 19K6 DISTANCE /BOTT. SLAB												4.868	5.186	5.505	5.823	6.141	6.460	6.778	7.096	7.415	7.733	8.046	8.106	7.910	7.688	7.466	7.244	7.022	6.800	6.578	6.356	6.134	5.912	5.690	5.468	5.246	5.024	4.802				
TENDON 7- 19K6 DISTANCE /BOTT. SLAB																		6.626	6.843	7.059	7.275	7.488	7.523	7.332	7.115	6.899	6.683	6.467				4.053	3.562	3.070	2.579	2.087	1.596	1.107	0.739	0.560	0.542	0.542
TENDON 8- 19K6 DISTANCE /BOTT. SLAB																		5.208	5.681	6.153	6.626	7.091	7.168	6.749	6.277	5.804	5.331	4.859				2.387	1.895	1.404	0.912	0.492	0.259	0.208	0.208	0.208	0.208	0.208
TENDON 9- 19K6 DISTANCE /BOTT. SLAB																																				2.722	1.970	1.241	0.750	0.547	0.542	0.542
TENDON 10- 19K6 DISTANCE /BOTT. SLAB																																				1.061	0.504	0.235	0.208	0.208	0.208	0.208
TENDON 11- 19K6 DISTANCE /BOTT. SLAB																																										
TENDON 12- 19K6 DISTANCE /BOTT. SLAB																																										

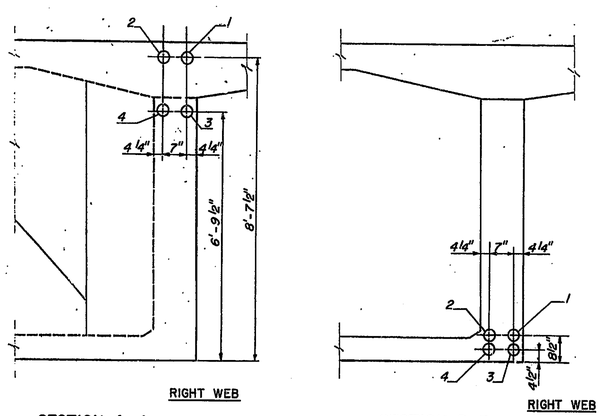
*Distances are given from bottom of slab to bottom of tendon duct.

TENDON PROFILE ELEVATION

(Scale: Vert. 1/4"=1'-0", Horiz. 1/8"=1'-0")

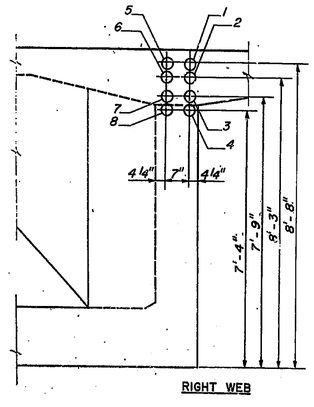
LEGEND
Jacking End
Dead End

CJ denotes Construction Joint.

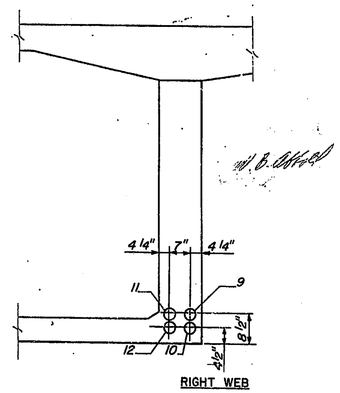


SECTION A-A
(Looking up Station)

SECTION B-B
(Looking up Station)



SECTION C-C
(Looking up Station)



SECTION D-D
(Looking up Station)

11-2-81

Notes:
These tendon lengths and elongations are from anchor plate to anchor plate.
Dimensions are on grade.
Tendon elevations are perpendicular to grade.
Tendons are stressed from jacking end as indicated by ——◀
Elongations are based on a steel modulus of elasticity of 26.5×10^6 psi.
Tendon no. 9,10,11,12 are to be provided and stressed Under Contract B-11612.

Flagg and Muller Engineers Inc.
624 North Capitol Street
Indianapolis, Indiana 46204

POST-TENSIONING LAYOUT - UNIT I

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-

SCALE:- AS NOTED DATE:- July 29, 1981

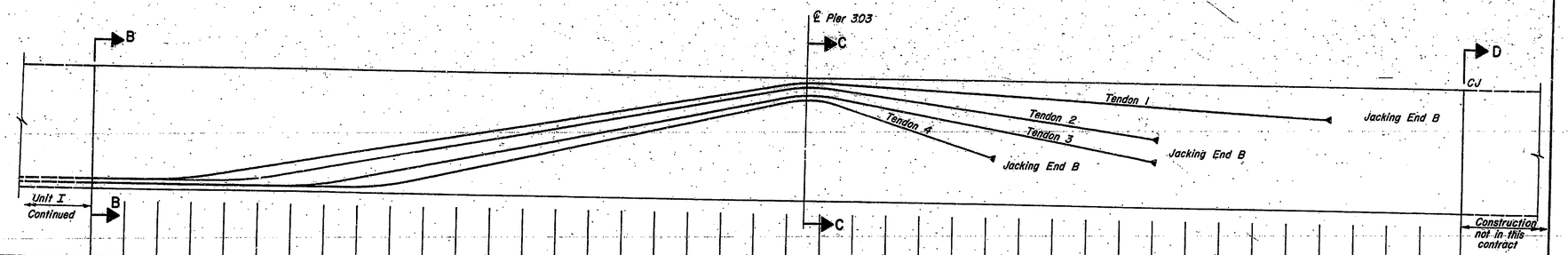
SUBMITTED FOR APPROVAL Eugene C. Flagg Jr.

DRAWING:- OF SHEET:- 312 OF

PROJECT:- MM 220-1(8)

CONTRACT NO. B-12752

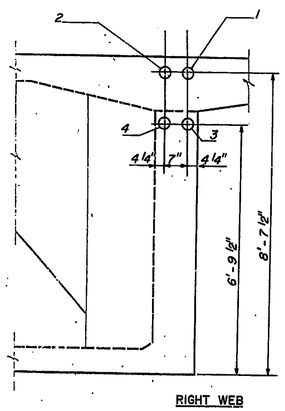
BRIDGE FILE:- 912-45-2546 RWN



LINE "B" REFERENCE ABSCISSA	191.124	196.124	201.124	206.124	211.124	216.124	221.124	226.124	231.124	236.124	241.124	246.124	251.124	256.124	261.124	266.124	271.124	276.124	281.124	286.124	291.124	296.124	301.124	306.124	311.124	316.124	321.124	326.124	331.124	336.124	341.124	346.124	351.124	356.124	361.124	366.124	371.124	376.124	381.124	386.124	391.124	397.248
*TENDON 1- 19K6 DISTANCE /BOTT. SLAB	0.542	0.542	0.557	0.743	1.126	1.552	1.977	2.403	2.828	3.254	3.679	4.105	4.530	4.956	5.381	5.807	6.232	6.658	7.083	7.509	7.934	8.352	8.447	8.328	8.194	8.059	7.925	7.791	7.657	7.522	7.388	7.254	7.119	6.985	6.851	6.717	6.582	6.448				
TENDON 2- 19K6 DISTANCE /BOTT. SLAB	0.542	0.542	0.542	0.542	0.558	0.757	1.168	1.625	2.082	2.539	2.995	3.452	3.909	4.365	4.822	5.279	5.736	6.192	6.649	7.106	7.563	8.011	8.096	7.797	7.460	7.123	6.785	6.448	6.110	5.773	5.435	5.098	4.761									
TENDON 3- 19K6 DISTANCE /BOTT. SLAB	0.208	0.208	0.208	0.208	0.208	0.208	0.226	0.445	0.897	1.399	1.901	2.403	2.906	3.408	3.910	4.412	4.914	5.416	5.919	6.421	6.923	7.416	7.503	7.109	6.663	6.217	5.772	5.326	4.880	4.434	3.989	3.543	3.097									
TENDON 4- 19K6 DISTANCE /BOTT. SLAB	0.208	0.208	0.208	0.208	0.208	0.208	0.208	0.208	0.228	0.469	0.970	1.525	2.080	2.636	3.191	3.747	4.302	4.858	5.413	5.969	6.524	7.070	7.140	6.437	5.644	4.851	4.058	3.265														

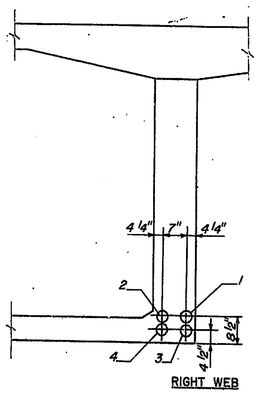
*Distances given are from bottom of slab to bottom of duct.

TENDON PROFILE ELEVATION
(Scale: Vert. 1/4"=1'-0", Horiz. 1/8"=1'-0")



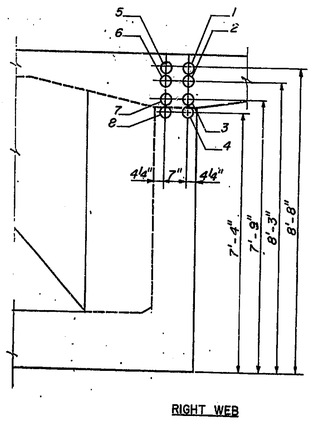
RIGHT WEB

SECTION A-A
(Looking up Station)



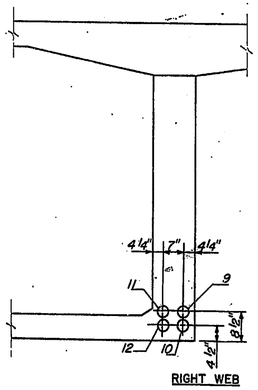
RIGHT WEB

SECTION B-B
(Looking up Station)



RIGHT WEB

SECTION C-C
(Looking up Station)



RIGHT WEB

SECTION D-D
(Looking up Station)

LEGEND

Dead End

Jacking End

CJ: Denotes Construction Joint

For notes and Tendon Data see sheet no. 313

11-2-81

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

POST - TENSIONING LAYOUT - UNIT I

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-

SCALE:- AS NOTED DATE:- July 29, 1981

SUBMITTED FOR APPROVAL Eugene C. Figg, Jr.

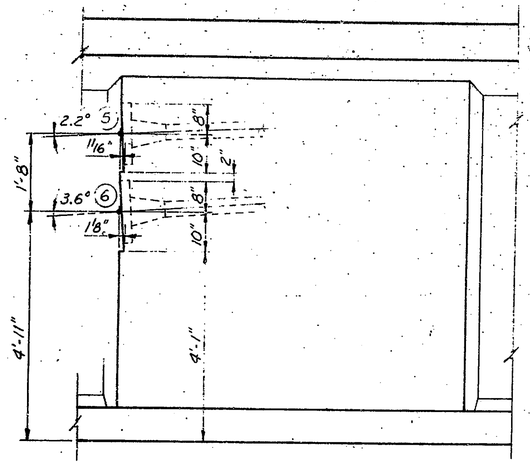
DRAWING:- OF SHEET:- 311 OF

PROJECT:- MM220-1(8)

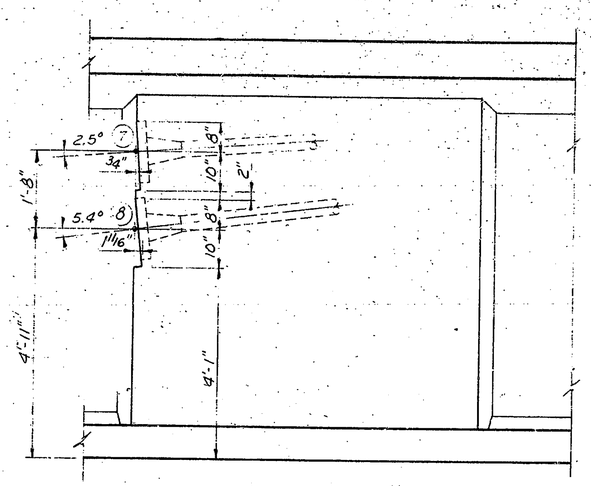
CONTRACT NO. B-12752

BRIDGE FILE:- 912-45-2546 RWN

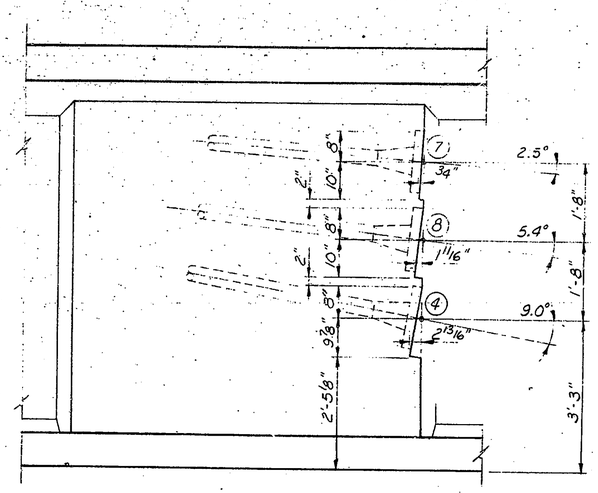
EUGENE C. FIGG, REGISTERED No. 18841 STATE OF INDIANA PROFESSIONAL ENGINEER



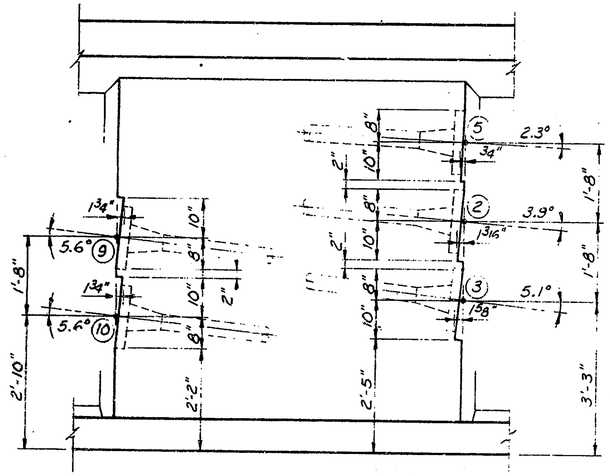
BLISTER B-1



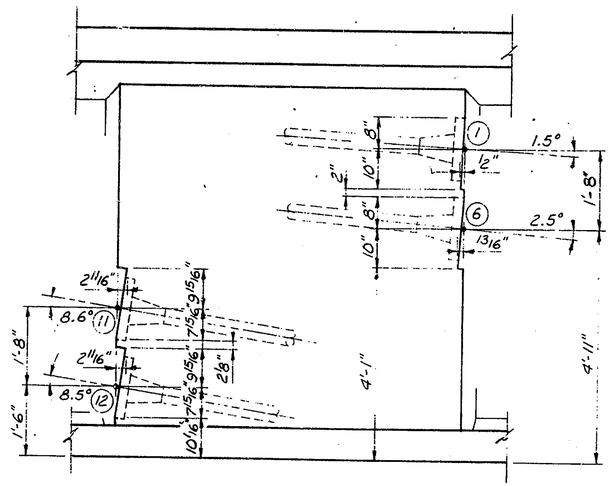
BLISTER B-2



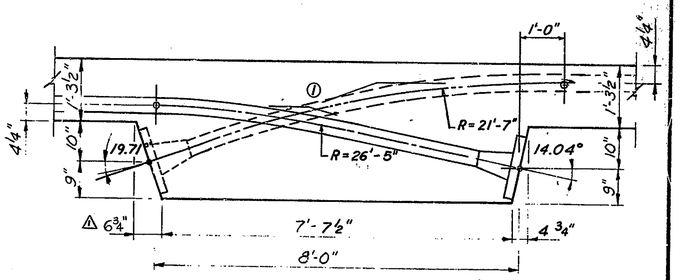
BLISTER B-3



BLISTER B-4



BLISTER B-5



TYPICAL PLAN DEVIATION DETAIL

NOTE: Dimensions are at right angles to face of tendon anchorages.

① Revised 11/9/82

APPROVED FOR CONSTRUCTION

F. L. Derthick
F. L. DERTHICK
Engineer of Bridge Plans MAR 30 1983

△ Revised March, 1983

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

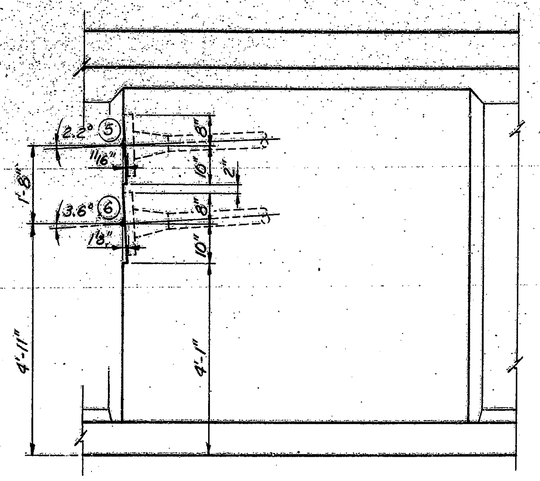
POST TENSIONING BLISTER DETAILS

INDIANA STATE HIGHWAY COMMISSION

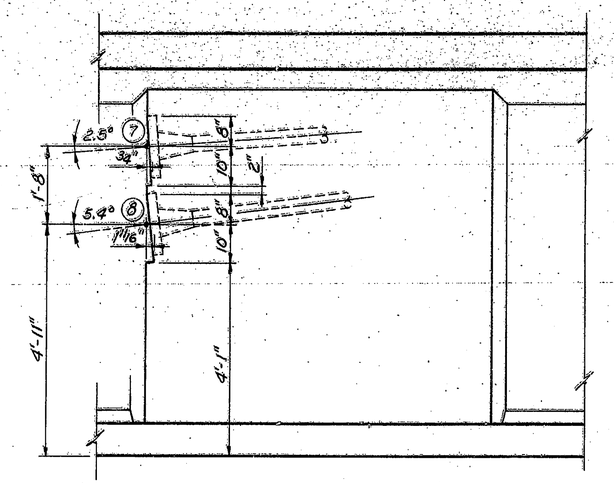
LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- 3/4" = 1'-0" DATE:- July 29, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg, Jr.
DRAWING:- OF SHEET:- 310 OF
PROJECT:- MM 220-1(8)
CONTRACT NO. B-12752
BRIDGE FILE:- 912-45-2546 RWN

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

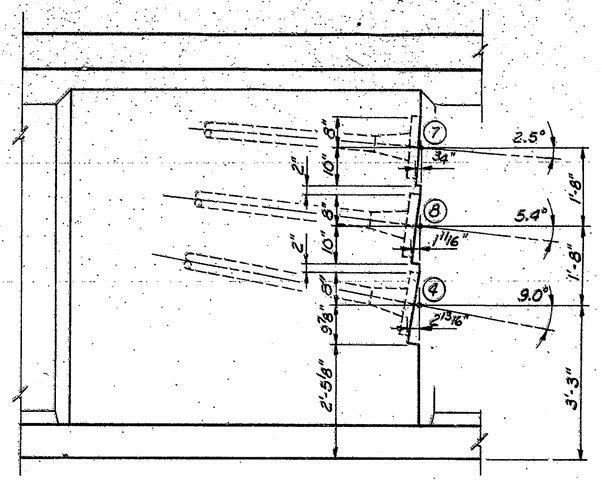
DESIGNED D.D. CK'D D.D.
DRAWN R.E.T. CK'D D.D.
TRACED CK'D



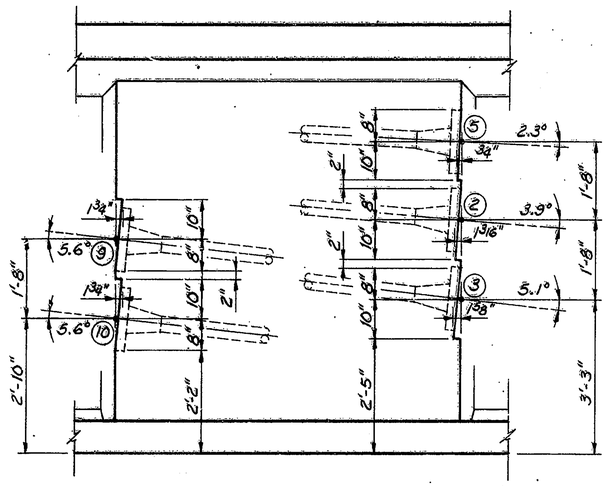
BLISTER B-1



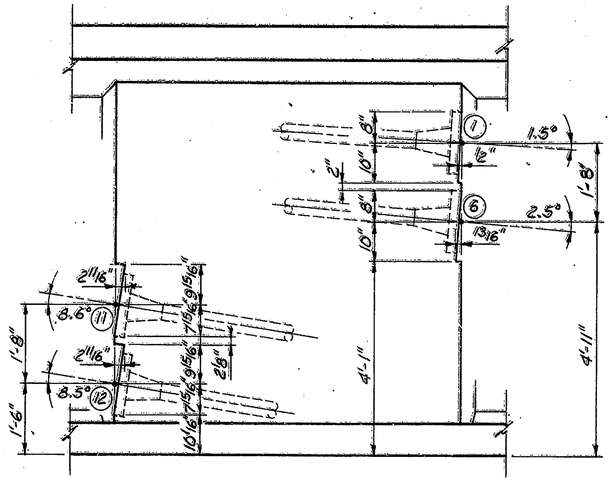
BLISTER B-2



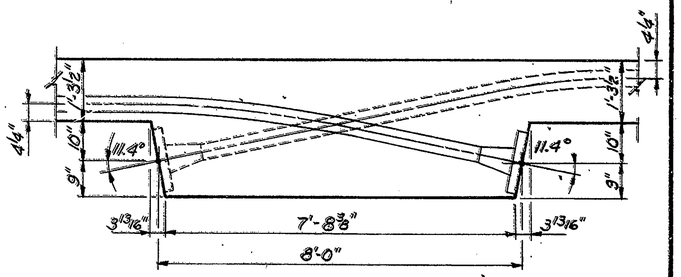
BLISTER B-3



BLISTER B-4



BLISTER B-5



TYPICAL PLAN DEVIATION DETAIL

NOTE: Dimensions are at right angles to face of tendon anchorages.

APPROVED FOR CONSTRUCTION

W. B. Abbott
W. B. ABBOTT
Assistant Engineer of Bridge Design 11-9-81

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

POST TENSIONING BLISTER DETAILS

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-

SCALE:- 3/4" = 1'-0" DATE:- July 29, 1981

SUBMITTED FOR APPROVAL Eugene C. Figg Jr.

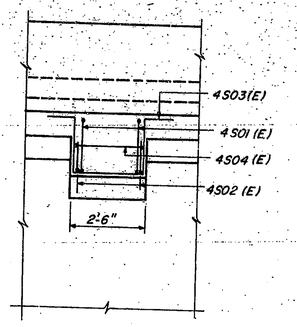
DRAWING:- OF SHEET:- 310 OF

PROJECT:- MM 220-1(8)

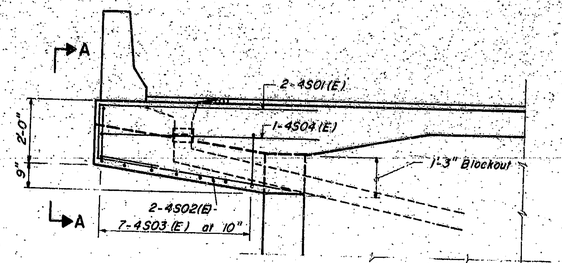
CONTRACT NO. B-12752

BRIDGE FILE:- 912-45-2546 RWN

DESIGNED D.D. CK'D D.D.
DRAWN R.E.T. CK'D D.D.
TRACED CK'D

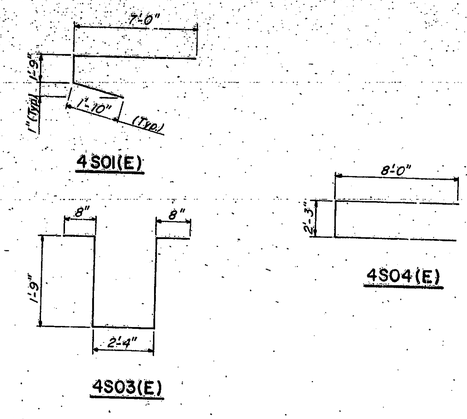


VIEW A-A



CROSS SECTION AT ROADWAY DRAIN

BAR BENDING DIAGRAMS

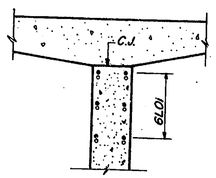


BILL OF MATERIAL

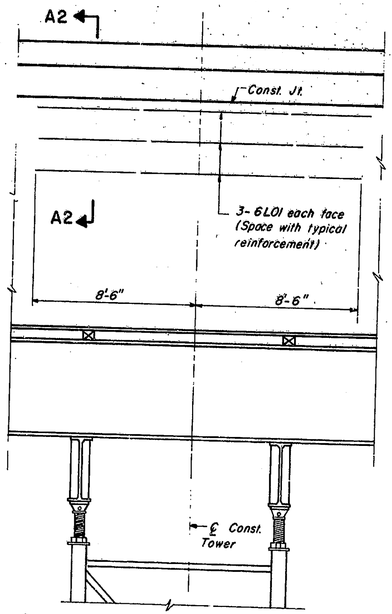
BARS	NO.	LENGTH	BENT	STR.
4S01(E)	6	10'-7"	•	
4S02(E)	6	4'-1"		•
4S03(E)	21	7'-2"	•	
4S04(E)	3	18'-3"	•	

TOTAL ESTIMATED QUANTITIES

ITEM	UNIT	TOTAL
Reinforcing Steel (Epoxy Coating)	Lb.	195.89



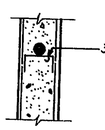
SECTION A2-A2



ELEVATION
(AT CONSTRUCTION TOWER)

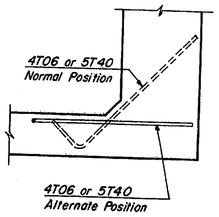
Notes:

All reinforcement bars shall conform to the requirements of ASTM, Grade 60.
Number preceeding letter denotes bar size.
All dimensions are out to out.
Bar bending pin diameters shall be in accordance with A.C.I. standards.
Concrete quantities for drain are billed with superstructure concrete per unit.



Note: Quantities billed with Unit Bill of Material.

TENDON SUPPORT DETAILS



BAR ADJUSTMENT DETAIL

Note:
Bars 4T06 & 5T40 to be adjusted between the normal and alternate position only when in conflict with post tensioning tendons.

11-2-81

DESIGNED	MM	C'K'D.	MM
DRAWN	RMB	C'K'D.	GR
TRACED	MLB	C'K'D	GR

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

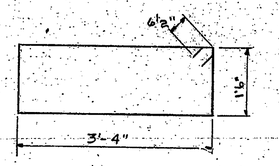
MISCELLANEOUS SUPERSTRUCTURE DETAILS

INDIANA STATE HIGHWAY COMMISSION

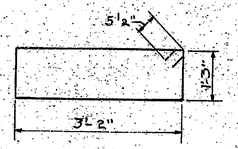
LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- N.T.S. DATE:- July 29, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg Jr.
DRAWING - OF SHEET:- 309 OF
PROJECT:- MM220-1(8)
CONTRACT NO. B-12752
BRIDGE FILE:- 912-45-2546 RWN

BAR BENDING DIAGRAMS
ABUTMENT DIAPHRAGM REINFORCEMENT

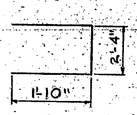
Note:- Number preceding letter denotes bar size.
All dimension are out to out.
All bar bending pin diameters shall be in accordance with A.S.T.M. Standards.



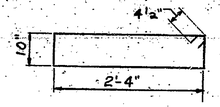
6A08



5A04

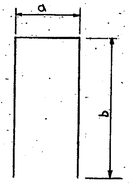


4A13(E)

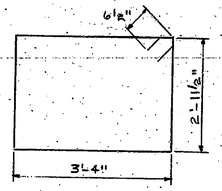


4A01(E)

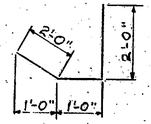
Bar	a	b
10A01(E)	1'-2"	5'-6"
10A02	1'-2"	7'-3"
10A03(E)	3'-1"	5'-6"
10A04	3'-1"	7'-3"



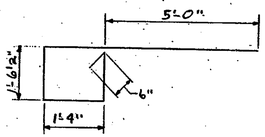
10A01(E) Thru 10A04



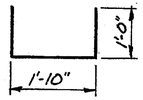
6A01(E)



4A14(E)

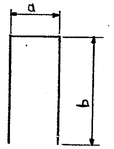


4A02(E)

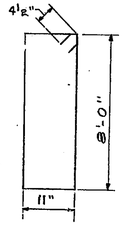


6A10(E)

Bar	a	b
6A02(E)	3'-1"	4'-0"
6A03	3'-1"	7'-3"
6A04(E)	1'-2"	4'-0"
6A05	1'-2"	7'-3"

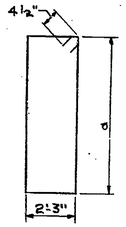


6A02(E) Thru 6A05

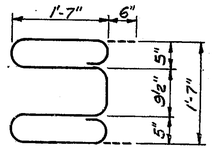


4A15(E)

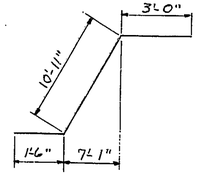
Bar	a
4A03(E)	6'4"
4A04(E)	5'-2"
4A05(E)	4'-0"
4A06(E)	2'-10¾"
4A07(E)	1'-8½"



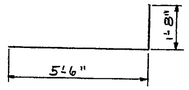
4A03(E) Thru 4A07(E)



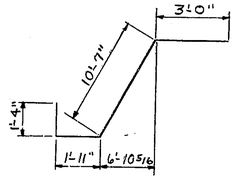
4A16(E)



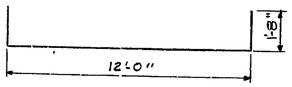
6A06(E)



5A01(E)

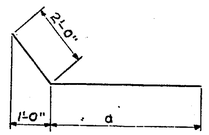


6A07(E)



5A02(E)

Bar	a
4A08(E)	5'-2"
4A09(E)	4'-3"
4A10(E)	3'-5"
4A11(E)	2'-7"
4A12(E)	1'-9"



4A08(E) Thru 4A12(E)

BILL OF MATERIAL

Bar	No.	Length	Bend	Str.
4A01(E)	29	7'-1"	•	
4A02(E)	34	17'-11"	•	
4A03(E)	2	17'-11"	•	
4A04(E)	2	15'-7"	•	
4A05(E)	2	13'-3"	•	
4A06(E)	2	11'-11"	•	
4A07(E)	2	8'-8"	•	
4A08(E)	2	7'-2"	•	
4A09(E)	2	6'-3"	•	
4A10(E)	2	5'-5"	•	
4A11(E)	2	4'-7"	•	
4A12(E)	2	3'-9"	•	
4A13(E)	10	6'-0"	•	
4A14(E)	4	5'-0"	•	
4A15(E)	2	18'-7"	•	
4A16(E)	98	9'-0"	•	
5A01(E)	4	7'-2"	•	
5A02(E)	2	15'-4"	•	
5A03(E)	4	28'-2"		•
5A04	4	91'-8"	•	
6A01(E)	14	13'-8"	•	
6A02(E)	6	11'-1"	•	
6A03	6	17'-7"	•	
6A04(E)	2	9'-2"	•	
6A05	2	15'-8"	•	
6A06(E)	4	15'-5"	•	
6A07(E)	6	16'-10"	•	
6A08	14	10'-9"	•	
6A09	24	16'-10"		•
6A10(E)	98	3'-10"	•	
8A01(E)	3	28'-2"		•
10A01(E)	2	12'-2"	•	
10A02	2	15'-8"	•	
10A03(E)	2	14'-1"	•	
10A04	2	17'-7"	•	

ESTIMATED QUANTITIES

Item	Unit	Total
Reinforcing Steel	Lb.	1061.64
Epoxy Coated Reinforcing Steel	Lb.	2424.95

Note: All reinforcement bar shall conform to the requirement of A.S.T.M. Grade 60.
Concrete Quantities included in Bill of Material Sheet 305

DESIGNED M.M. C'K'D. M.M.
DRAWN T.F. C'K'D. G.R.
TRACED M.B. C'K'D. G.R.

APPROVED FOR CONSTRUCTION
W. B. ABBOTT
Assistant Engineer of Bridge Design 11-2-81

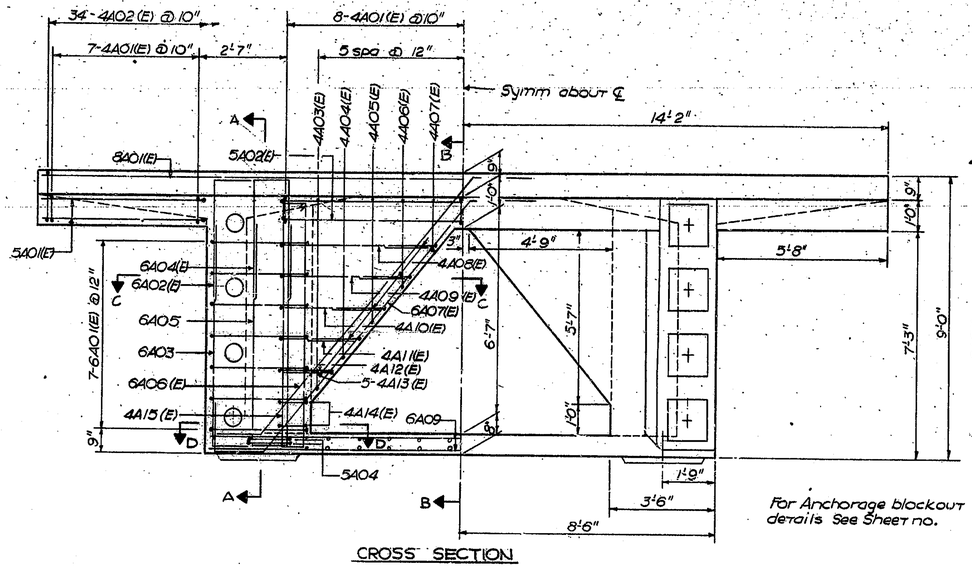
Figg and Muller Engineers Inc.
Tallahassee, Florida 32301

ABUTMENT DIAPHRAGM BILL OF MATERIAL

INDIANA STATE HIGHWAY COMMISSION

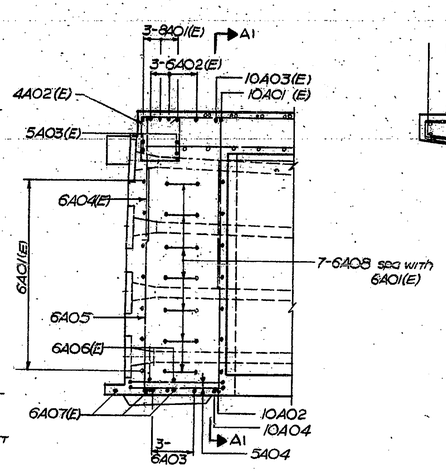
LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- N.T.S. DATE:- July 29, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg Jr.
DRAWING:- OF SHEET:- 308 OF
PROJECT:- MM 220-1(8)
CONTRACT NO. B-12752
BRIDGE FILE:- 912-45-2546 RWN

EUGENE C. FIGG JR. REGISTERED NO. 11543 STATE OF INDIANA PROFESSIONAL ENGINEER

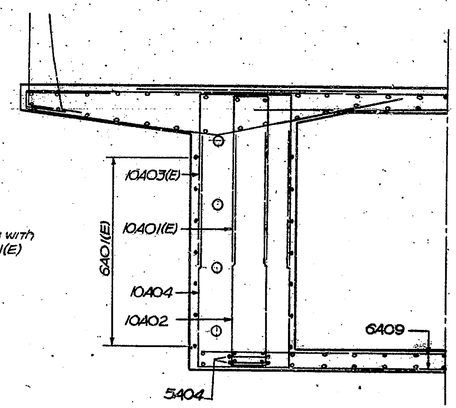


CROSS SECTION

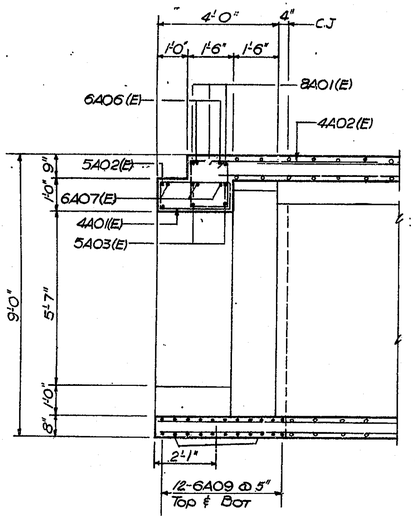
For Anchorage blockout details See Sheet no.



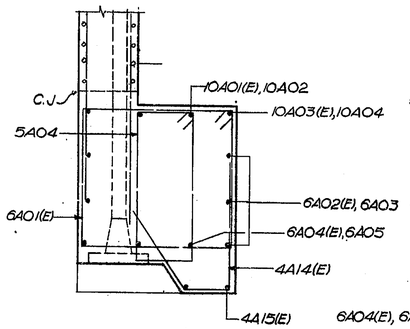
SECTION A-A



SECTION A1-A1



SECTION B-B



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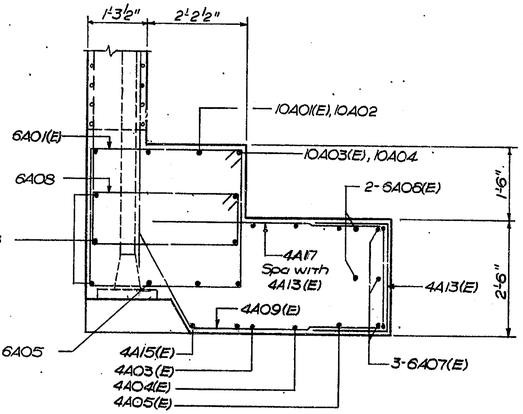
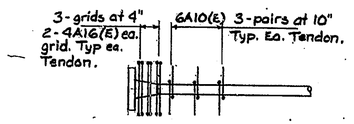


SECTION C-C



ADDITIONAL TENDON REINFORCEMENT

APPROVED FOR CONSTRUCTION

W. B. ABBOTT
Assistant Engineer of Bridges Design
11-2-81

DESIGNED M.M. C'K'D. M.M.
DRAWN T.F. C'K'D. M.M.
TRACED C'K'D.

Flagg and Mueller Engineers Inc.
424 South Calhoun Street
Tallahassee Florida 32301

ABUTMENT DIAPHRAGM RAMP B

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-

SCALE:- 1/2"=1'-0" DATE:- July 29, 1981

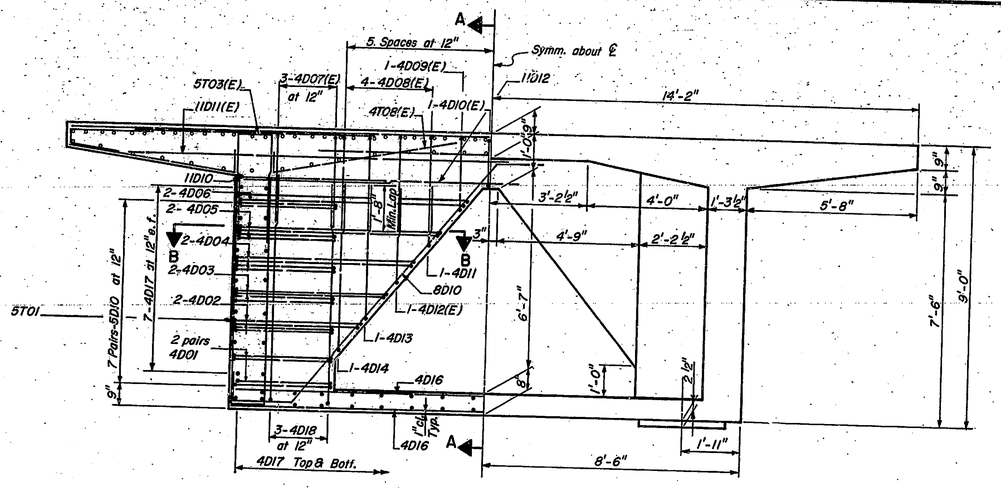
SUBMITTED FOR APPROVAL Eugene C. Hoff

DRAWING:- OF SHEET:- 307 OF

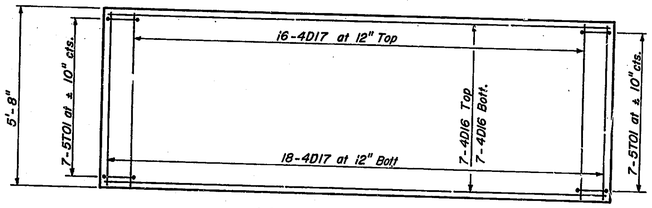
PROJECT:- MM 220-1(8)

CONTRACT NO. 8-12752

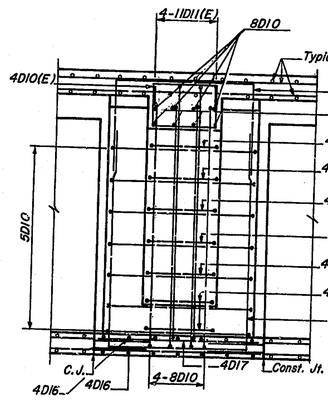
BRIDGE FILE:- 912-40-0346 RWD



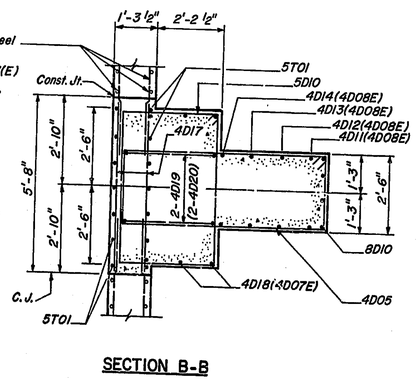
CROSS SECTION AT PIER 302



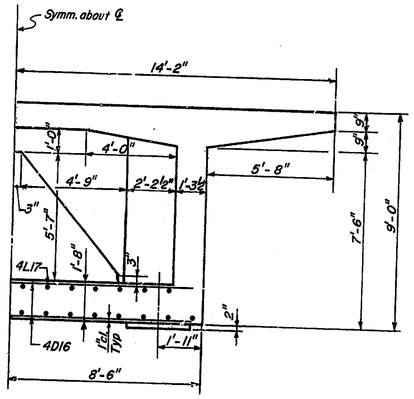
PLAN VIEW-BOTTOM SLAB



SECTION A-A



SECTION B-B

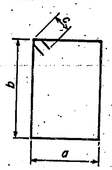


HALF-CROSS SECTION AT PIER 303

BAR BENDING DIAGRAMS

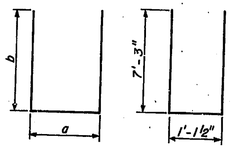
PIER DIAPHRAM REINFORCEMENT

Bar	a	b	c
4D01	3'-3"	2'-4"	4 ½"
4D02	4'-0 ¼"	2'-4"	4 ½"
4D03	4'-10"	2'-4"	4 ½"
4D04	5'-7 ¾"	2'-4"	4 ½"
4D05	6'-5 ½"	2'-4"	4 ½"
4D06	7'-3 ¼"	2'-4"	4 ½"
4D09(E)	2'-3"	2'-4 ½"	4 ½"
4D10(E)	2'-3"	1'-6"	4 ½"
5D10	3'-3"	4'-10"	5½"

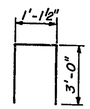


4D01 thru 4D06, 4D09(E), 4D10(E), 5D10

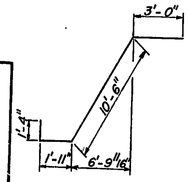
Bar	a	b
4D07(E)	4'-8 ½"	3'-0"
4D08(E)	2'-3"	3'-0"
4D11	2'-3"	2'-3"
4D12	2'-3"	3'-6"
4D13	2'-3"	4'-8"
4D14	2'-3"	5'-11"
4D18	4'-8 ½"	7'-3"
4D19	3'-1 ½"	7'-3"
4D20(E)	3'-1 ½"	3'-0"
11D10	2'-2½"	4'-10"



5T01



5T03(E)



8D10

4D07(E), 4D08(E), 4D11 thru 4D14, 4D18, 4D19, 4D20(E), 11D10

BILL OF MATERIAL (*)

Bar	No.	Length	Bent	Str.
4D01	16	11'-11"	•	
4D02	8	13'-6"	•	
4D03	8	15'-1"	•	
4D04	8	16'-9"	•	
4D05	8	18'-4"	•	
4D06	8	20'-0"	•	
4D07(E)	12	10'-9"	•	
4D08(E)	16	8'-3"	•	
4D09(E)	4	10'-0"	•	
4D10(E)	2	8'-3"	•	
4D11	4	6'-9"	•	
4D12	4	9'-3"	•	
4D13	4	11'-7"	•	
4D14	4	14'-1"	•	
4D16	28	16'-10"		•
4D17	124	5'-6"		•
4D18	12	19'-3"	•	
4D19	8	17'-8"	•	
4D20(E)	8	9'-2"	•	
5D10	56	17'-1"	•	
5T01	28	15'-8"	•	
5T03(E)	28	7'-2"	•	
8D10	16	16'-9"	•	
11D10	4	11'-11"	•	
11D11(E)	8	24'-0"		•
11D12	8	15'-0"		•

ESTIMATED QUANTITIES

Item	Unit	Total
Reinforcing Steel	Lb.	4766.66
Reinforcing Steel (Epoxy Coated)	Lb.	1490.58

(*) Quantities of Reinforcement are for 2 (Two) Pier Diaphragms
Concrete Quantities included in Bill of Material Sheet 305.

APPROVED FOR CONSTRUCTION
M. B. Abbott
M. B. ABBOTT
11-2-81

DESIGNED MM. C'K'D. M.M.
DRAWN T.F. C'K'D. M.M.
TRACED C'K'D.

Figg and Muller Engineers Inc.
Consulting Engineers
Tallahassee Florida 32301

PIER DIAPHRAGM DETAILS

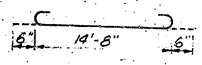
INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- 1/2"=1'-0" DATE:- July 29, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg Jr.
DRAWING:- OF SHEET:- 306 OF
PROJECT:- MM 220-1(8)
CONTRACT NO. B-12752
BRIDGE FILE:- 912-45-2546 RWN

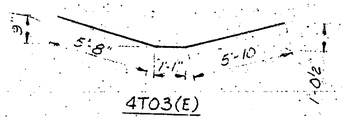
EUGENE C. FIGG, JR. REGISTERED 1958 STATE OF INDIANA PROFESSIONAL ENGINEER

BAR BENDING DIAGRAMS

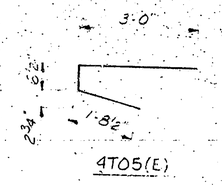
NOTE: Number preceding letter denotes bar size.
All dimensions are out to ~~out~~
All bar bending diagrams shall be in accordance with A.C.I Standards.



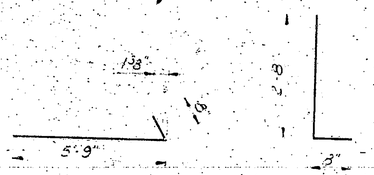
4T02



4T03(E)



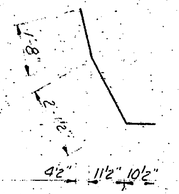
4T05(E)



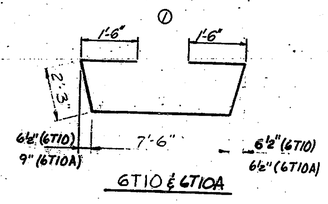
4T08(E)

4T06

5T06(E)

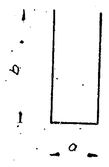


5T07(E)

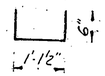


6T10 & 6T10A

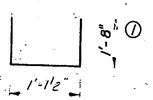
Bar	a	b
4T07	6"	3'-3"
5T01	1'-1½"	7'-4"
5T03(E)	1'-1½"	3'-5"
① 5T08	2'-8"	1'-8"
5T09	1'-6"	3'-0"
①		
①		
⚠ 6T01	2'-8"	1'-10"
9T01	2'-8"	7'-4"
9T02(E)	2'-8"	5'-4"
10T01	2'-8"	7'-4"
10T02(E)	2'-8"	5'-9"
6T05	1'-1½"	7'-4"
6T06(E)	1'-1½"	4'-0"



① 4T07, 5T01, 5T03(E), 5T08, 5T09, 6T01, 9T01, 9T02(E), 10T01, 10T02(E), 6T05, 6T06(E)



3S01



5T10

⚠ NOTE #: See Sheet No. 308 for bar bending diagrams.

BILL OF MATERIAL				
Bar	No	Length	Bent	Str
3S01	730	2'-2"	•	
4T01	537	76'-10"		•
4T02	407	5'-8"	•	
4T03(E)	670	5'-8"	•	
4T04(E)	476	88'-2"		•
4T05(E)	352	5'-3"	•	
⚠ 4T06	734	3'-4"	•	
4T07	58	7'-1"	•	
4T08(E)	1104	6'-5"	•	
4T09(E)	33	2'-8"		•
★ 4T10(E)	96	3'-0"	•	
4L01(E)	20	12'-6"		•
⚠ 4L04	232	65'-0"		•
4L04(E)	344	20'-0"		•
4L05	4	37'-3"		•
4L06	3	40'-3"		•
⚠ 4L07	2	40'-10"		•
4L08	2	9'-7"		•
4L09	2	7'-8"		•
4L11	2	31'-3"		•
4L12	2	7'-0"		•
4L13	2	20'-9"		•
4L14	2	20'-3"		•
4L15(E)	62	46'-3"		•
⚠ 3L17	24	19'-0"		•
5T01	2	5'-3"	•	
5T03(E)	8	3'-0"	•	
5T04(E)	152	10'-8"		•
5T05(E)	352	8'-0"		•
5T06(E)	352	4'-3"	•	
5T07(E)	352	4'-8"	•	
① 5T08	612	6'-0"	•	
5T09	352	7'-6"	•	
① 5T10	96	4'-6"	•	
6L01		17'-0"		•
⚠ 6T01	92	6'-4"	•	
①				
①				
6T04	76	6'-0"		•
6T05	152	15'-10"	•	
6T06(E)	352	3'-9"	•	
② 6T10	28	15'-0"	•	
① 6T11	114	7'-4"	•	
⚠② 6T10A	42	15'-0"	•	
② 9T01	162	17'-4"	•	
① 9T02(E)	162	13'-6"	•	
① 9T03	36	7'-4"		•
10T01	22	7'-4"	•	
10T02(E)	34	14'-4"	•	

NOTES: All reinforcing shall conform to the requirements of A.S.T.M. Grade 60.

Minimum compressive strength of Superstructure Conc. shall be 5,500 psi

ESTIMATED QUANTITIES		
Item	Unit	Total
Superstructure Conc.	Cu Yd	976.9
⚠②① Reinforcing Steel	Lb	66,358.31
① Reinforcing Steel (Epoxy Coated)	Lb	74,527.19

Note: Quantity of Reinforcing Steel changed from 11,446.51 Lbs. to 69,728.16 Lbs. on 11/9/82.
Additional quantity of reinforcement steel due to revision ① = 4433.82 lb.
Additional quantity of reinforcement steel (Epoxy Coated) due to revision ① = 1493.93 lb.
Quantity of reinforcement steel due to revision ② changed from 69,728.16 lbs. to 70,043.58 lbs.

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

APPROVED FOR CONSTRUCTION
F. L. Derthick
F. L. DERTHICK
Engineer of Bridge Plans
MAR 23 1983

⚠ Revised March, 1983
① Revised 11/9/82
② Revised 12/15/82

Figg and Muller Engineers Inc
Florida

BAR BENDING DIAGRAMS & BILL OF MATERIAL

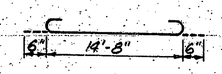
INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- N.T.S. DATE:- July 29, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg
DRAWING:- OF SHEET:- 305 OF
PROJECT:- MM 220-1(8)
CONTRACT NO. B-12752
BRIDGE FILE:- 912-45-2546 RWN

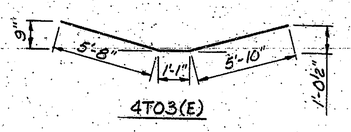
2

BAR BENDING DIAGRAMS

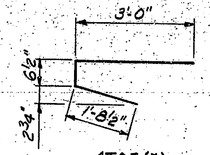
NOTE: Number preceding letter denotes bar size.
All dimensions are out to out.
All bar bending diagrams shall be in accordance with A.C.I. Standards.



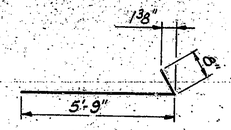
4T02



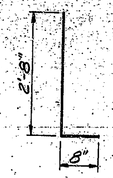
4T03(E)



4T05(E)

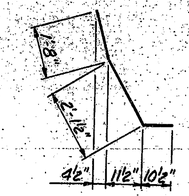


4T08(E)

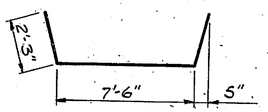


4T06

5T06(E)

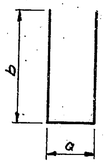


5T07(E)

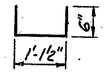


6T10

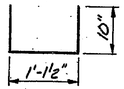
Bar	a	b
4T07	6"	3'-3"
5T01	1'-1½"	7'-4"
5T03(E)	1'-1½"	3'-5"
5T08	2'-8"	10"
5T09	1'-6"	3'-0"
6T01	2'-8"	1'-0"
6T02	2'-8"	7'-4"
6T03(E)	2'-8"	4'-0"
9T01	2'-8"	7'-4"
9T02(E)	2'-8"	5'-4"
10T01	2'-8"	7'-4"
10T02(E)	2'-8"	5'-9"
6T05	1'-1½"	7'-4"
6T06(E)	1'-1½"	4'-0"



4T07, 5T01, 5T03(E), 5T08, 5T09, 6T01
6T02, 6T03(E), 9T01, 9T02(E), 10T01, 10T02(E)
6T05, 6T06(E)



3S01



5T10

NOTE: (*) See Sheet No. 308

NOTES: All reinforcing shall conform to the requirements of ASTM Grade 60.

Minimum compressive strength of Superstructure Conc. shall be 5,500 p.s.i.

BILL OF MATERIAL

Bar	No.	Length	Bent	Str.
3S01	730	2'-2"	•	
4T01	597	16'-10"		•
4T02	907	15'-8"	•	
4T03(E)	670	13'-8"	•	
4T04(E)	476	28'-2"	•	
4T05(E)	952	5'-3"	•	
4T06	814	3'-9"	•	
4T07	105	7'-0"	•	
4T08(E)	364	6'-5"	•	
4T09(E)	238	10'-8"	•	
* 4A16(E)	96	9'-0"	•	
4L01(E)	56	12'-6"		•
4L04	262	60'-0"		•
4L04(E)	348	60'-0"		•
4L05	62	93'-0"		•
4L06	92	40'-3"		•
4L07	46	39'-0"		•
4L08	30	9'-0"		•
4L09	16	21'-8"		•
4L10	16	21'-9"		•
4L11	16	19'-9"		•
4L12	32	21'-0"		•
4L13	16	22'-9"		•
4L14	16	26'-3"		•
4L15(E)	58	46'-0"		•
4L16	28	45'-0"		•
4L17	28	19'-0"		•
5T01	814	15'-10"	•	
5T03(E)	814	3'-0"	•	
5T04(E)	238	10'-8"		•
5T05(E)	952	5'-0"		•
5T06(E)	952	4'-3"	•	
5T07(E)	952	4'-8"	•	
5T08	528	4'-3"	•	
5T09	80	7'-6"	•	
5T10	96	2'-10"	•	
6L01		17'-0"		•
6T01	192	4'-8"	•	
6T02	50	17'-4"	•	
6T03(E)	50	10'-8"	•	
6T04	160	6'-0"		•
6T05	20	15'-10"	•	
6T06(E)	20	3'-2"	•	
6T10	70	12'-0"	•	
9T01	112	17'-4"	•	
9T02(E)	112	13'-6"	•	
10T01	28	17'-4"	•	
10T02(E)	28	14'-4"	•	

ESTIMATED QUANTITIES

Item	Unit	Total
Superstructure Conc.	Cu.Yd.	976.9
Reinforcing Steel	Lb.	7275.97
Reinforcing Steel (Epoxy Coated)	Lb.	73033.26

DESIGNED M.M. CKD. M.M.
DRAWN R.E.T. CKD. M.M.
TRACED CKD.

APPROVED FOR CONSTRUCTION
W. B. ABP
Assistant Engineer of Bridge Design 11-2-81

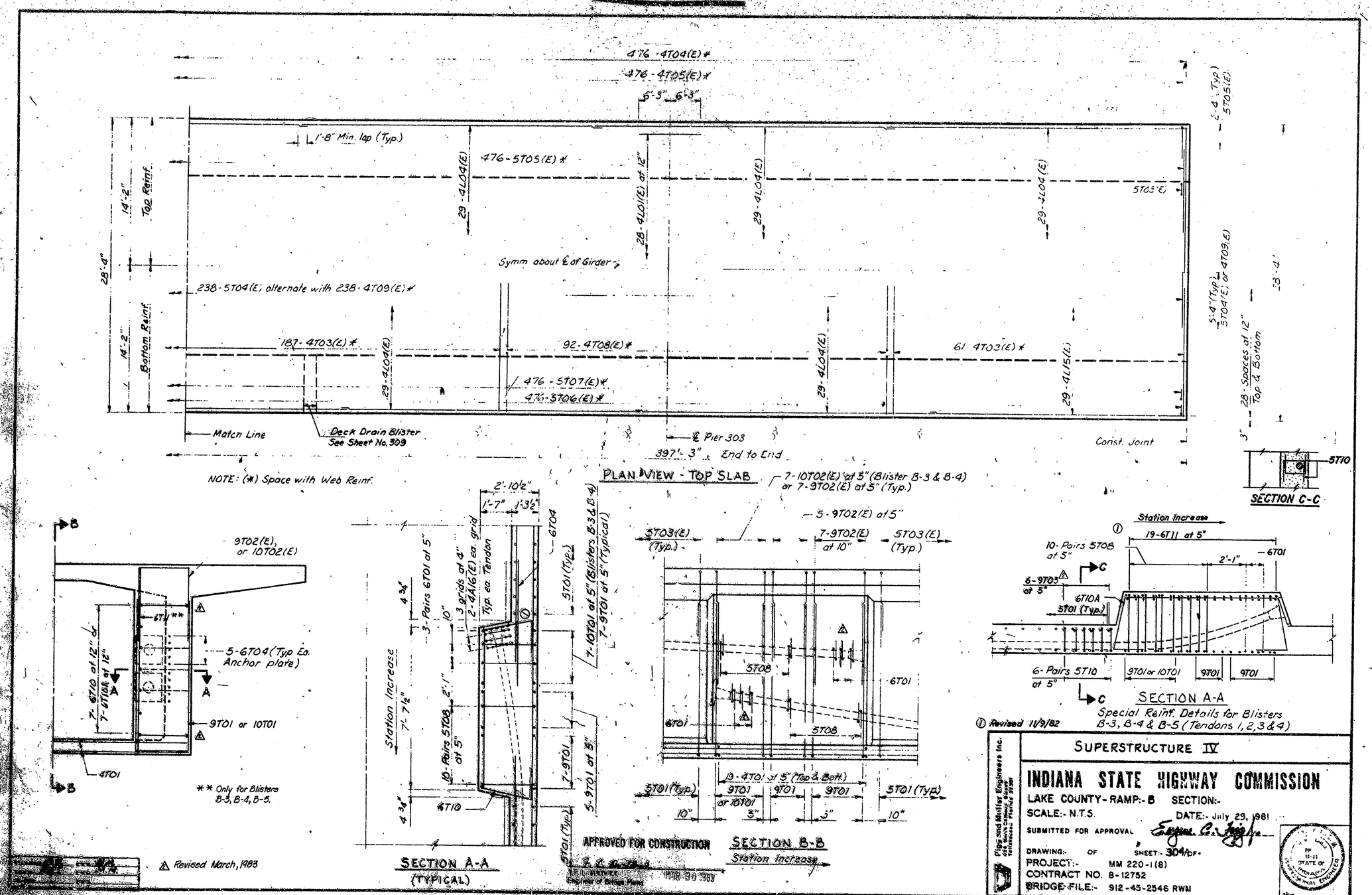
Figg and Muller Engineers Inc.
Tallahassee Florida 32301

BAR BENDING DIAGRAMS & BILL OF MATERIAL

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- N.T.S. DATE:- July 29, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg, Jr.
DRAWING:- OF SHEET:- 305 OF
PROJECT:- MM 220-1(8)
CONTRACT NO. B-12752
BRIDGE FILE:- 912-45-2546 RWN

EUGENE E. FIGG, JR. REGISTERED 19543 STATE OF INDIANA PROFESSIONAL ENGINEER



SUPERSTRUCTURE IV

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-

SCALE:- N.T.S. DATE:- July 29, 1981

SUBMITTED FOR APPROVAL Eugene C. Figg Jr.

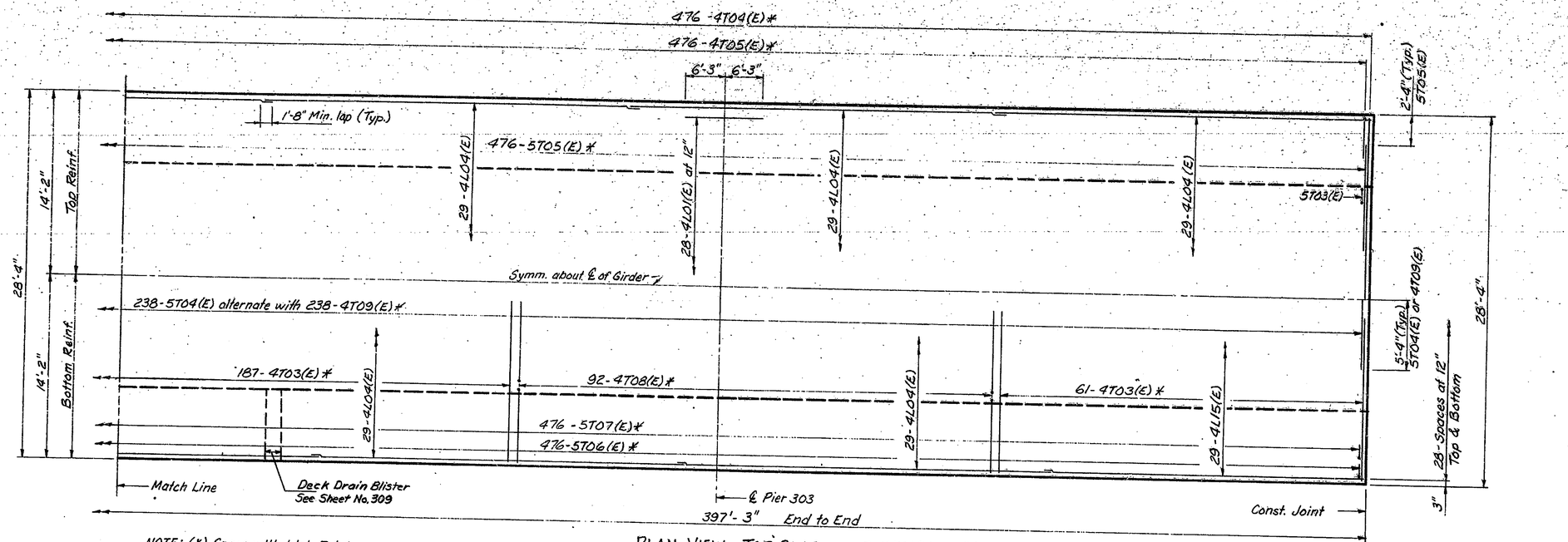
DRAWING:- OF SHEET:- 304 OF

PROJECT:- MM 220-1(8)

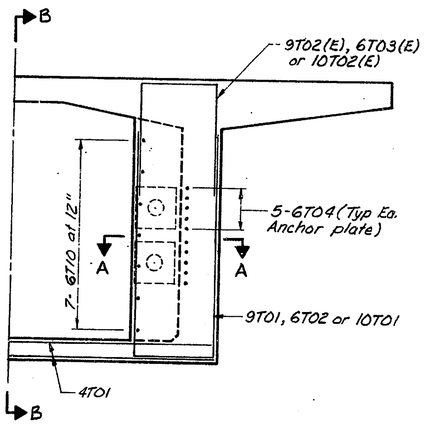
CONTRACT NO. B-12752

BRIDGE FILE:- 912-45-2546 RWN

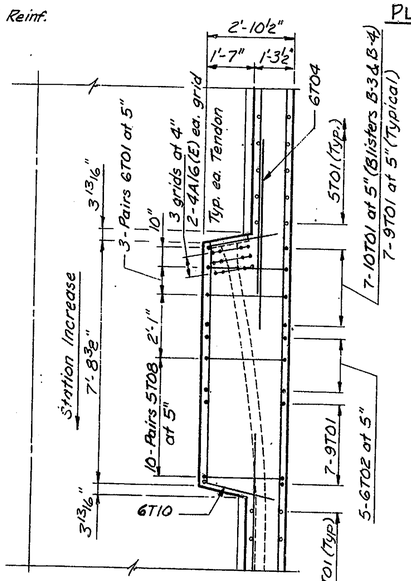
Figg and Muller Engineers Inc.



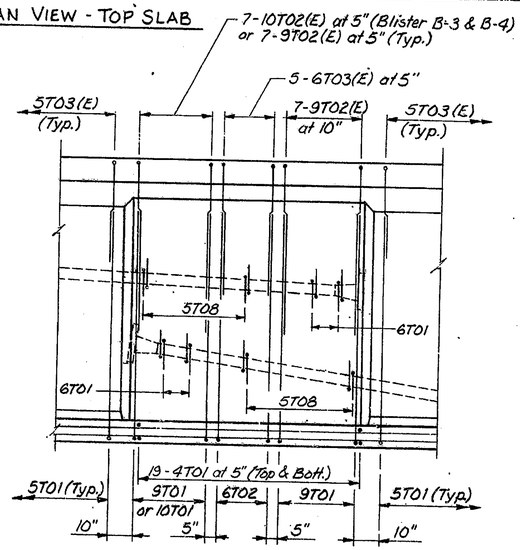
NOTE: (*) Space with Web Reinf.



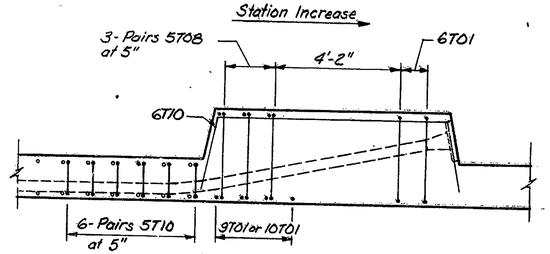
SECTION A-A
(TYPICAL)



PLAN VIEW - TOP SLAB



SECTION B-B
Station Increase



SECTION A-A
Special Reinf. Details for Blisters B-3, B-4 & B-5 (Tendons 1, 2, 3 & 4)

APPROVED FOR CONSTRUCTION
W. B. ABBOTT
Assistant Engineer of Bridge Design 11-2-81

Figg and Muller Engineers Inc.
Consulting Engineers
Tallahassee Florida 32301

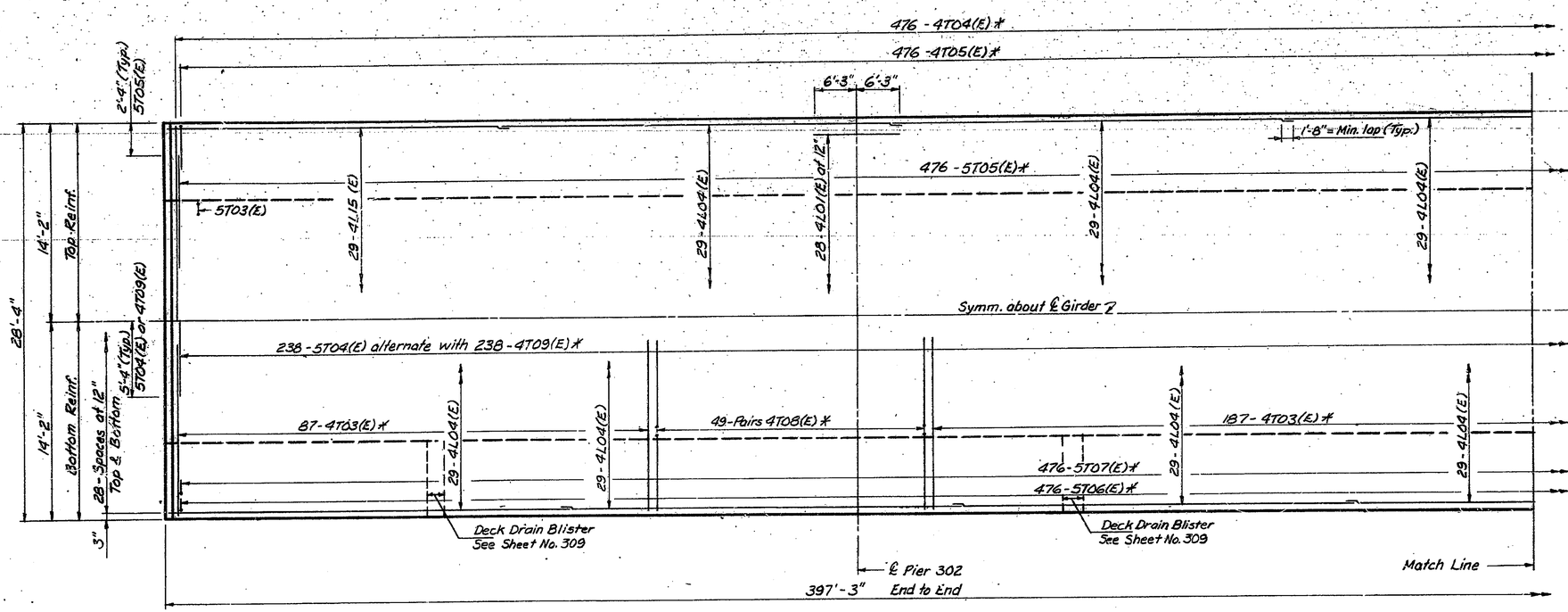
SUPERSTRUCTURE IV

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- N.T.S. DATE:- July 29, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg Jr.
DRAWING:- OF SHEET:- 304 OF-
PROJECT:- MM 220-1(8)
CONTRACT NO. B-12752
BRIDGE FILE:- 912-45-2546 RWN

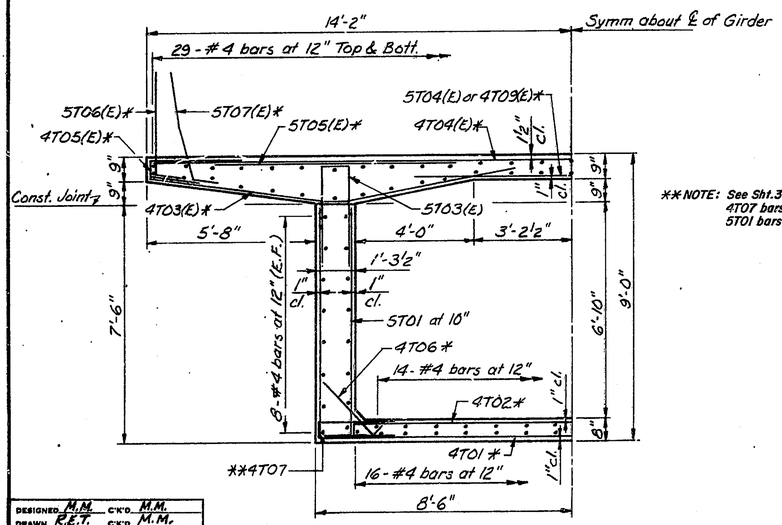
EUGENE C. FIGG JR. REGISTERED No. 1813 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGNED M.M. C'K'D. M.M.
DRAWN E.E.T. C'K'D. M.M.
TRACED C'K'D.

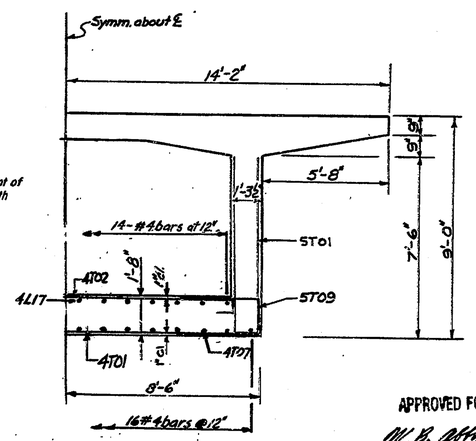


PLAN VIEW - TOP SLAB

NOTE: (*) Space with web reinf.



**NOTE: See Sht. 301 for placement of 4T07 bars to be spaced with 5T01 bars.



BOTTOM SLAB SECTION AT 303
(Sta 18+88.50 to Sta. 19+28.30)

APPROVED FOR CONSTRUCTION
W. B. Abbott
W. B. ABBOTT
Assistant Engineer of Bridge Design
11-2-81

NOTE: All web and top slab reinforcement are typical.

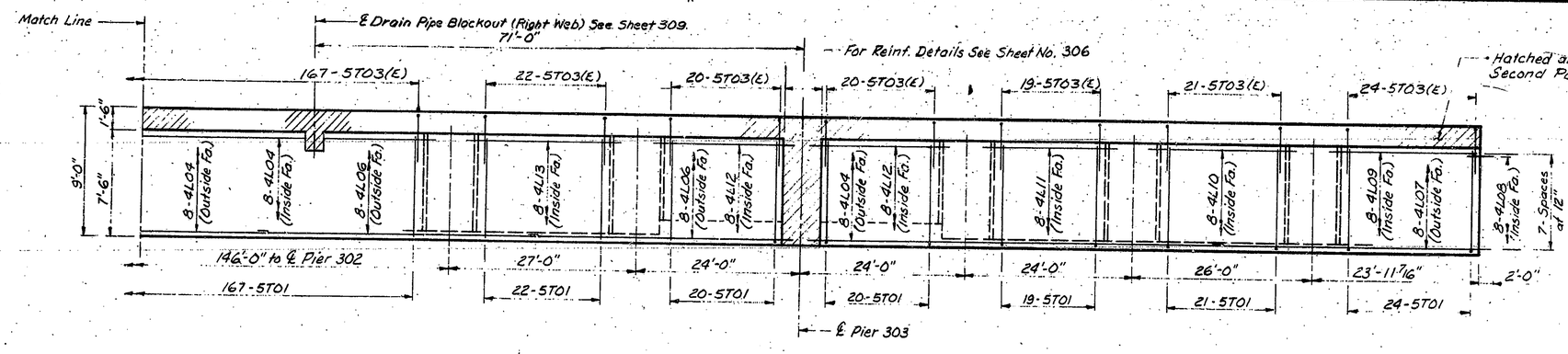
DESIGNED M.M. C'K'D M.M.
DRAWN R.E.T. C'K'D M.M.
TRACED C'K'D

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

SUPERSTRUCTURE III

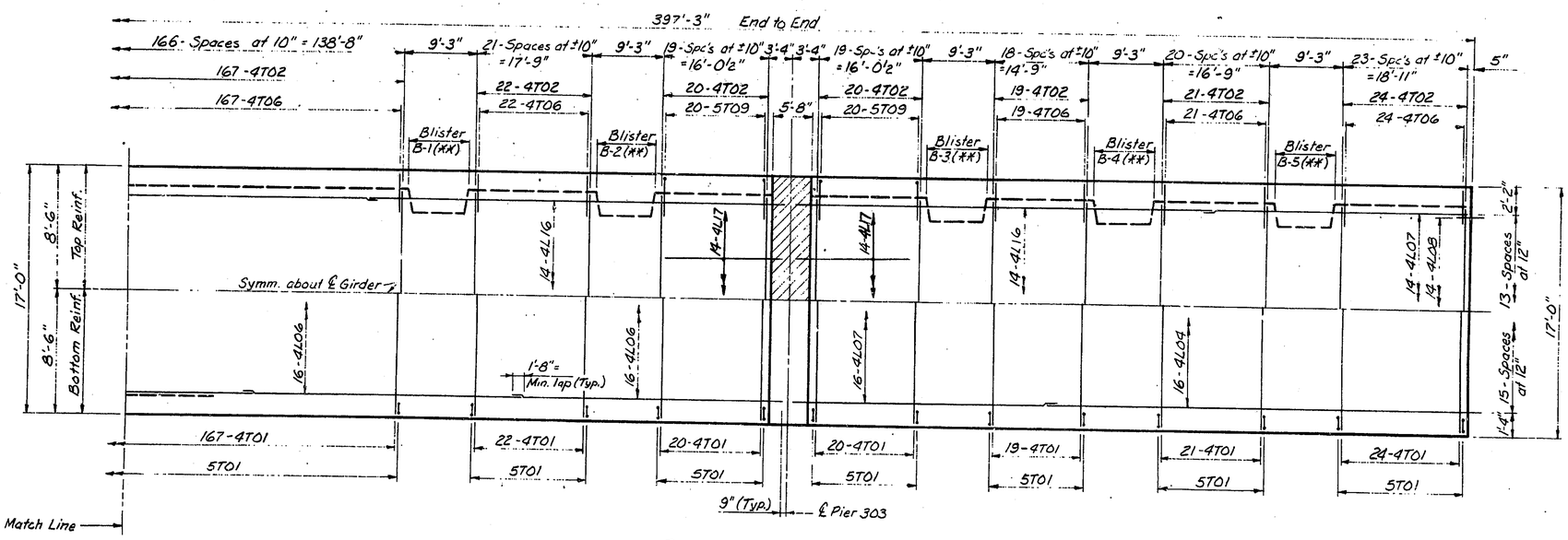
INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- N.T.S. DATE:- July 29, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg Jr.
DRAWING:- OF SHEET:- 303 OF
PROJECT:- MM 220-1(8)
CONTRACT NO. B-12752
BRIDGE FILE:- 912-45-2546 RWN



ELEVATION

NOTE: (XX) See Sheet No. 304



PLAN VIEW - BOTTOM SLAB

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

APPROVED FOR CONSTRUCTION
W. B. ARE
Asst. Chief Engineer
11-2-81

Figg and Muller Engineers Inc.
Tallahassee, Florida 32301

SUPERSTRUCTURE II

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY- RAMP:- B SECTION:-

SCALE:- N.T.S. DATE:- July 29, 1981

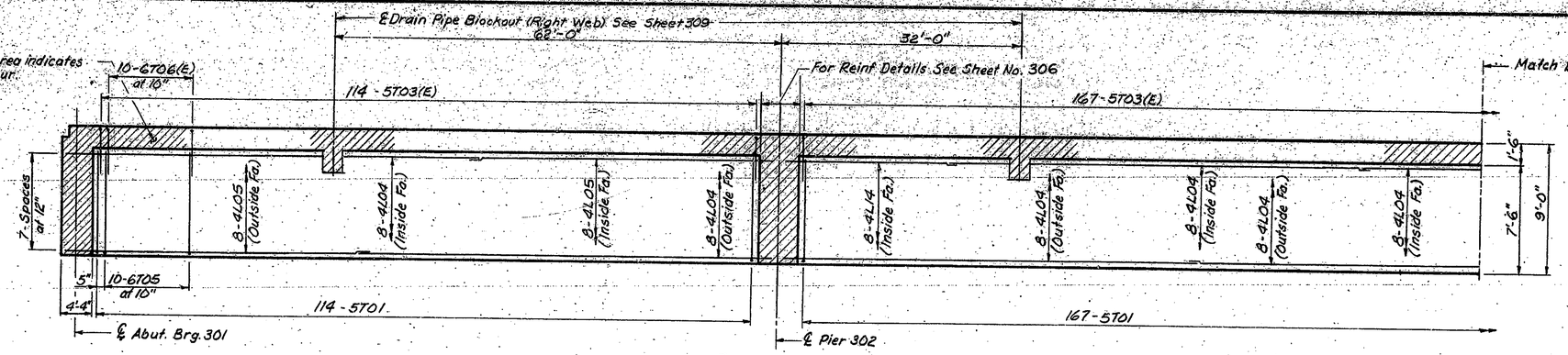
SUBMITTED FOR APPROVAL Eugene C. Figg Jr.

DRAWING:- OF SHEET:- 302 OF

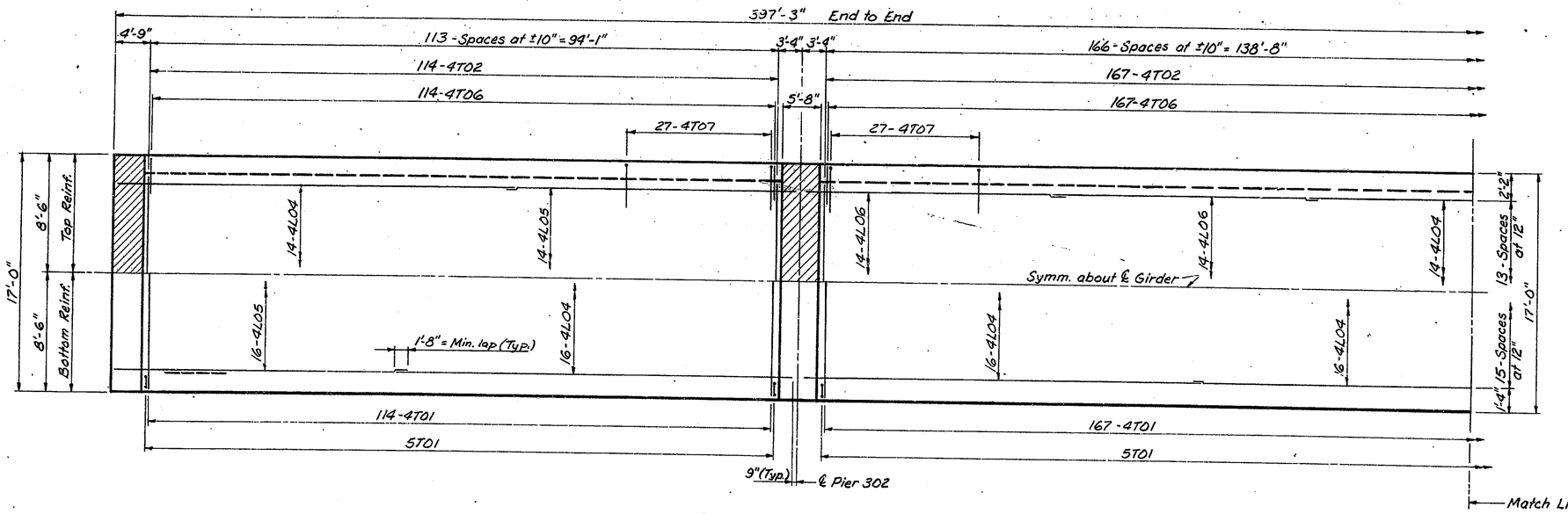
PROJECT:- MM 220-1(8)

CONTRACT NO. B-12752

BRIDGE FILE:- 912-45-2546 RWN



ELEVATION



PLAN VIEW - BOTTOM SLAB

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

APPROVED FOR CONSTRUCTION

W. B. ABBOTT
Assistant Engineer of Bridge Design
11-2-81

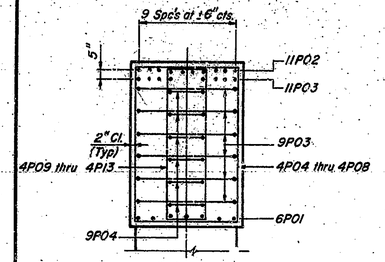
Figg and Muller Engineers Inc.
414 North Calhoun, Suite
Tallahassee Florida 32301

SUPERSTRUCTURE I

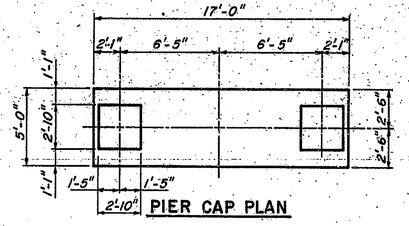
INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- N.T.S. DATE:- July 29, 1981
SUBMITTED FOR APPROVAL Eugene C. Figg, Jr.
DRAWING:- OF SHEET:- 301 OF
PROJECT:- MM 220-1(8)
CONTRACT NO. B-12752
BRIDGE FILE:- 912-45-2546 RWN

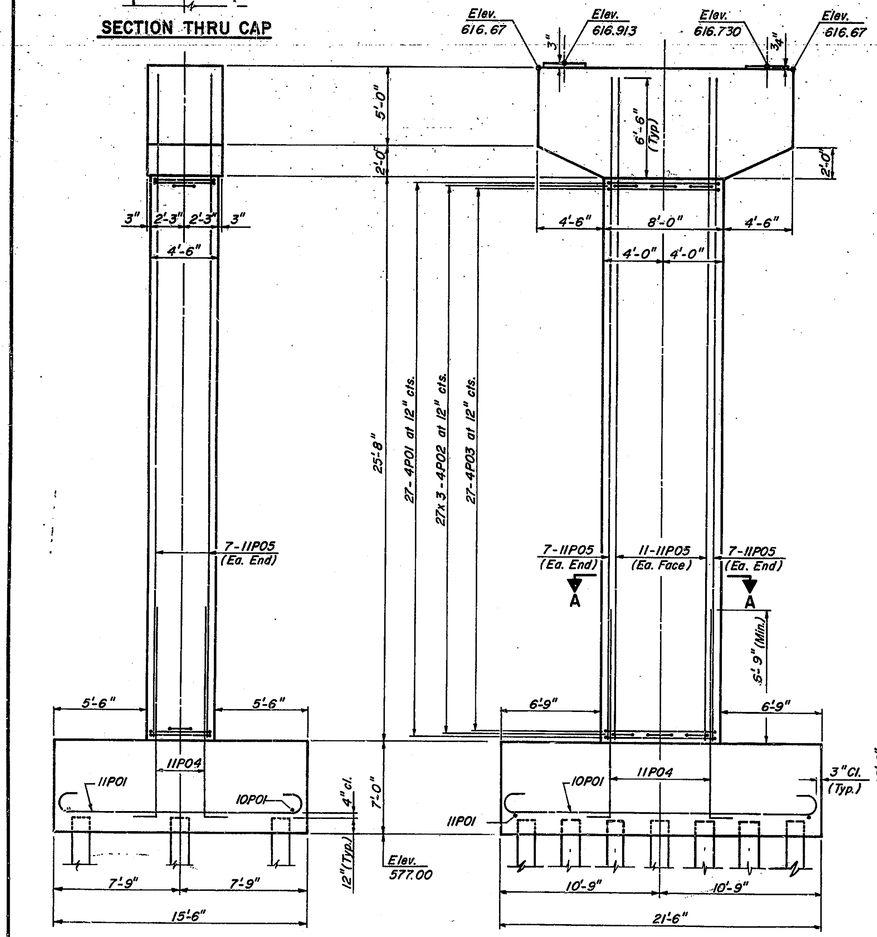
EUGENE C. FIGG, JR. REGISTERED NO. 15548 STATE OF FLORIDA PROFESSIONAL ENGINEER



SECTION THRU CAP



PIER CAP PLAN

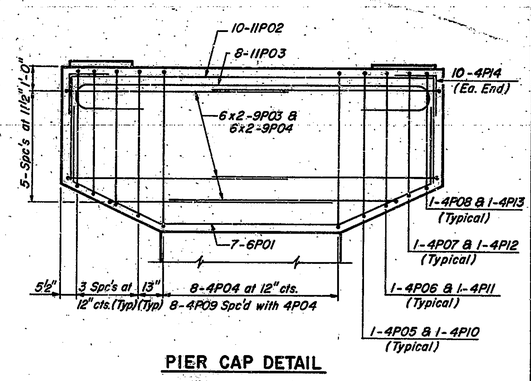


SIDE VIEW

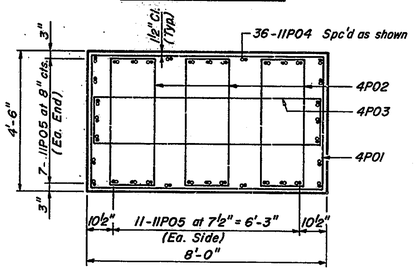
PILE DATA

TYPE: High Capacity (14" Ø Steel Encased Conc.)
ESTIMATED LENTGH: 85'
NUMBER REQUIRED: 11

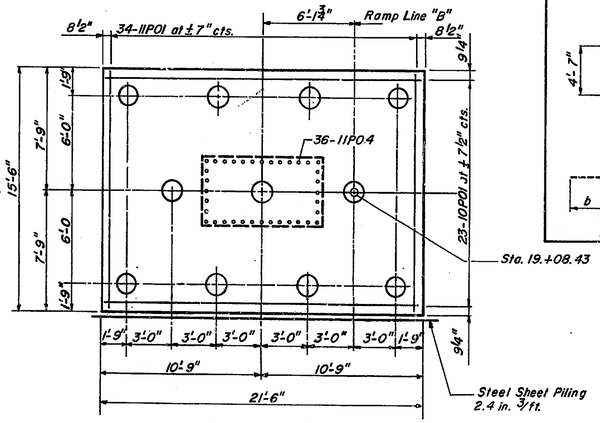
ELEVATION
(Looking Up Station)



PIER CAP DETAIL



SECTION A-A

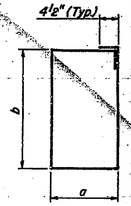


FOOTING PLAN

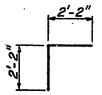
BAR BENDING DIAGRAMS

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

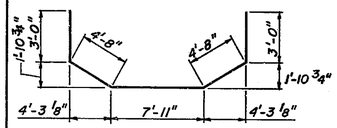
Bar	a	b
4P01	4'-3"	7'-9"
4P02	1'-6"	4'-3"
4P03	1'-7"	7'-9"
4P04	4'-8"	6'-9"
4P05	4'-8"	5'-2¾"
4P06	4'-8"	5'-9½"
4P07	4'-8"	5'-4"
4P08	4'-8"	4'-10⅜"
4P09	2'-1"	6'-9"
4P10	2'-1"	6'-3"
4P11	2'-1"	5'-3¾"
4P12	2'-1"	5'-4⅛"
4P13	2'-1"	4'-1⅛"



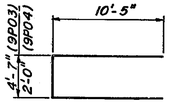
4P01 thru 4P13



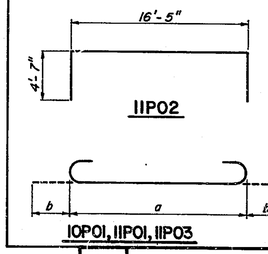
4P14



6P01



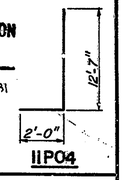
9P03 & 9P04



11P02

10P01, 11P01, 11P03

Bar	a	b
10P01	21'-0"	1'-5"
11P01	15'-0"	1'-7"
11P03	16'-5"	4'-4"



11P04

BILL OF MATERIAL

Bar	No.	Length	Bent	Str.
4P01	27	24'-9"	●	
4P02	81	12'-3"	●	
4P03	27	19'-5"	●	
4P04	8	23'-7"	●	
4P05	2	22'-7"	●	
4P06	2	21'-8"	●	
4P07	2	20'-9"	●	
4P08	2	19"-11"	●	
4P09	8	18'-5"	●	
4P10	2	17'-5"	●	
4P11	2	16'-6"	●	
4P12	2	15'-7"	●	
4P13	2	14'-9"	●	
4P14	20	4'-4"	●	
6P01	7	23'-3"	●	
9P03	12	25'-5"	●	
9P04	12	22'-10"	●	
10P01	23	23'-10"	●	
11P01	34	12'-2"	●	
11P02	10	25'-7"	●	
11P03	8	25'-1"	●	
11P04	36	14'-7"	●	
11P05	36	32'-3"		●

ESTIMATED QUANTITIES

Item	Unit	Total
Reinforcing Steel	Lb.	21177.61
Substructure Conc.	Cu. Yd.	52.75
Footing Conc.	Cu. Yd.	86.40
High Capacity Piles	Lin. ft.	935.0
Steel Sheet Piling	Sq. ft.	343.0

Note: All reinforcement bar shall conform to the requirement of A.S.T.M., Grade 60. The minimum compressive strength of both Footing & Substructure concrete shall be 4,000 p.s.i.

APPROVED FOR CONSTRUCTION

W. E. Abbott
W. E. ABBOTT
Assistant Engineer of Bridge Design 9-17-81

DESIGNED M.M.	C'K'D M.M.
DRAWN RET	C'K'D GR
TRACED M.B.	C'K'D GR

10-20-81 Revision: Estimate of Quantities

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

PIER 303 DETAILS

INDIANA STATE HIGHWAY COMMISSION

LAKE COUNTY - RAMP:- B SECTION:-
SCALE:- N.T.S. DATE:- July 21, 1931
SUBMITTED FOR APPROVAL Eugene C. Figg Jr.
DRAWING:- OF SHEET:- 322 OF
PROJECT:- MM 220-1(8)
CONTRACT NO. B-12750
BRIDGE FILE:- 912-45-2546 RWN

REGISTERED STATE OF INDIANA PROFESSIONAL ENGINEER