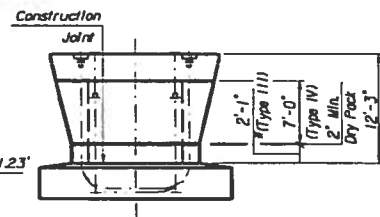
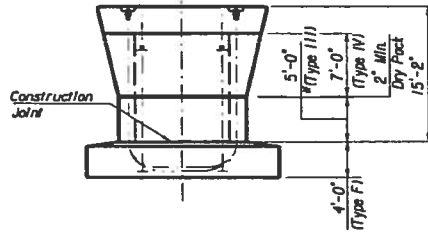


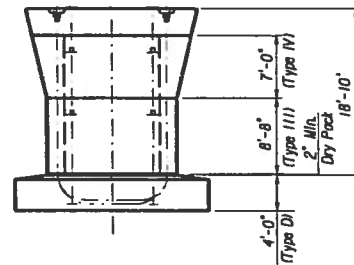
PIER 37 & 72



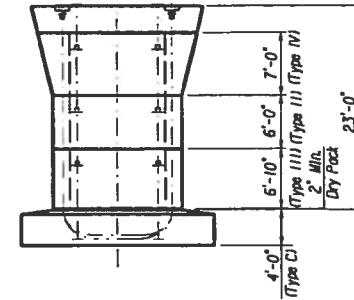
PIER 38 & 71



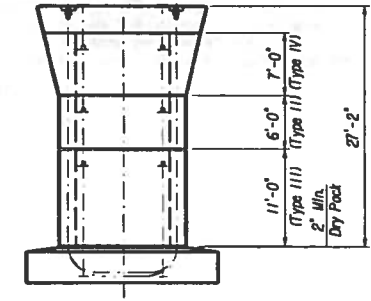
PIER 39 & 70



PIER 40 & 69

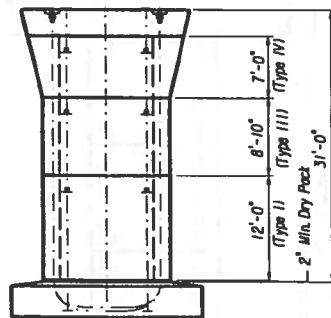


PIER 41 & 68

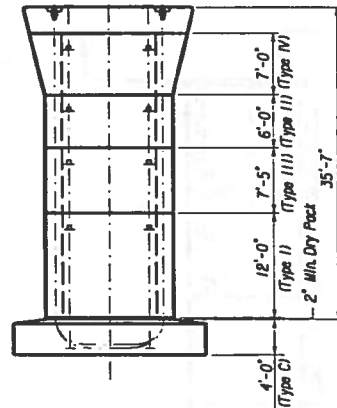


PIER 42 & 67

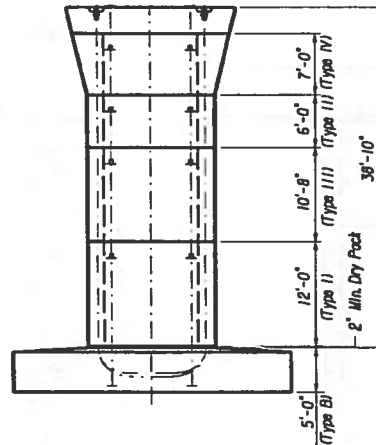
* Type III Segment Is To Be Cast-In-Place. See "Precast Box Pier Type III Segment Dimensions And Reinforcement" And "Type F Dimensions And Reinforcement", Sheet B-36 And B-43 For Details. This Applies To Piers 37, 38, 39, 70, 71 & 72.



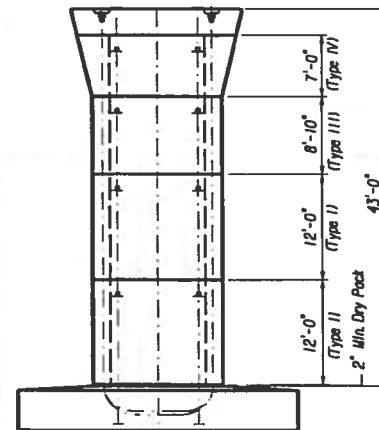
PIER 43 & 66



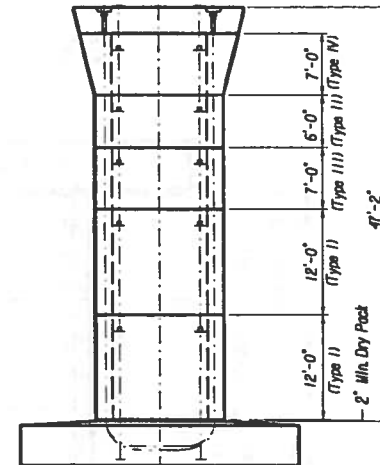
PIER 44 & 65



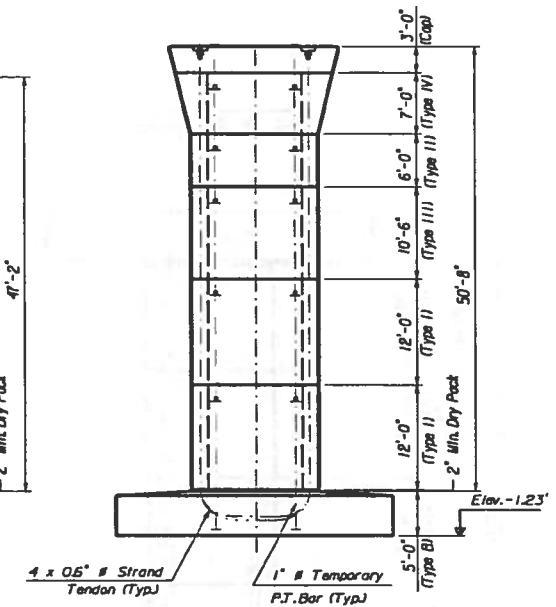
PIER 45 & 64



PIER 46 & 63



PIER 47 & 62



PIER 48 & 61

NOTE:
 1. For Coupling Details, See Sheet No. B-32, B-33, B-34, B-36 and B-46.
 2. For P.J. Quadrilles, See Sheet No. B-47.
 3. For Top Of Pier Elevations, See Sheet No. B-49.

SHEET NO. B-39

NO	DATE	REVISION	BY	CKD

Drawn By: JNH
 Checked By: MMW
 Designed By: EYN
 Approved By: PMH

DATE: 7-94
 7-94
 7-94
 7-94

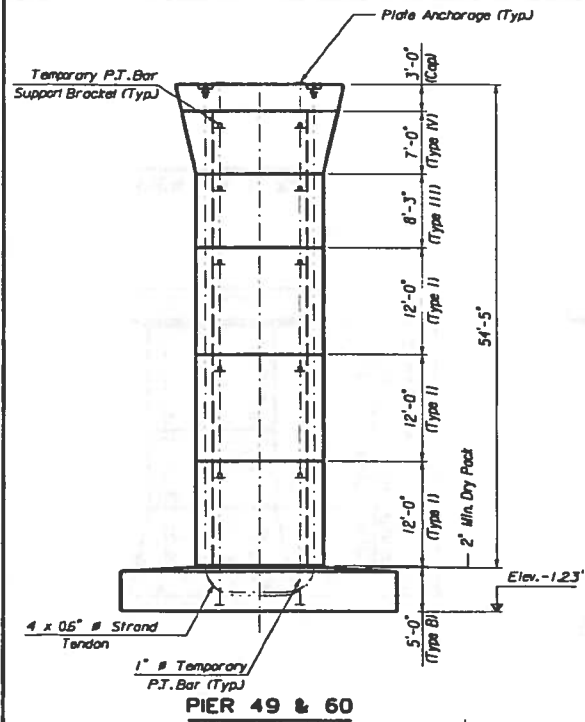
Figg Engineers, Inc.
 424 So. Calhoun Street
 Tallahassee, Florida 32301
 Tallahassee, FL Denver, Co.

CLIENT: SANTA ROSA BAY BRIDGE AUTHORITY

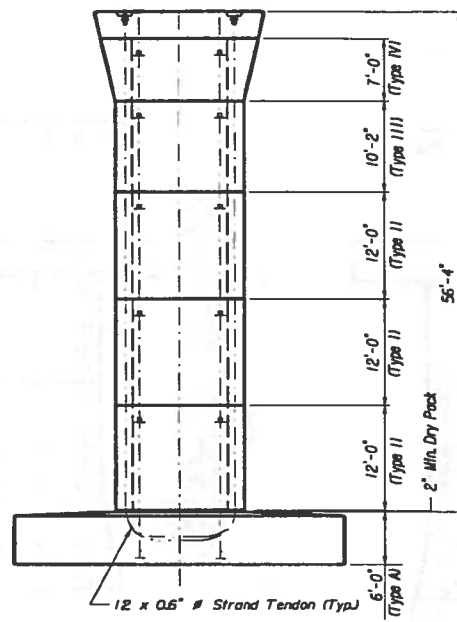
PROJECT: SANTA ROSA BAY BRIDGE

SHEET TITLE: PRECAST BOX PIER DIMENSIONS AND LAYOUT I

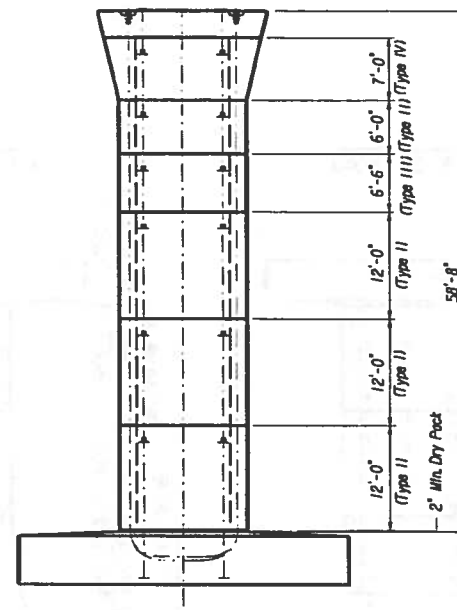
SHEET OF



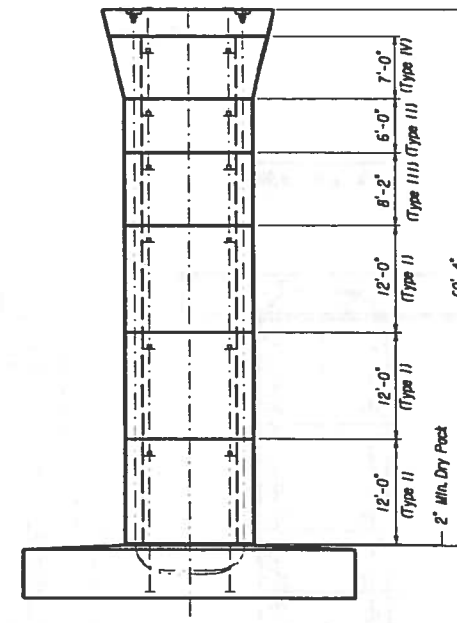
PIER 49 & 60



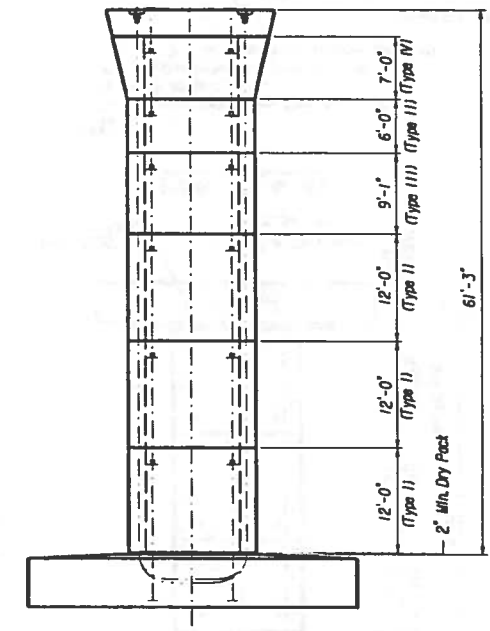
PIER 50 & 59



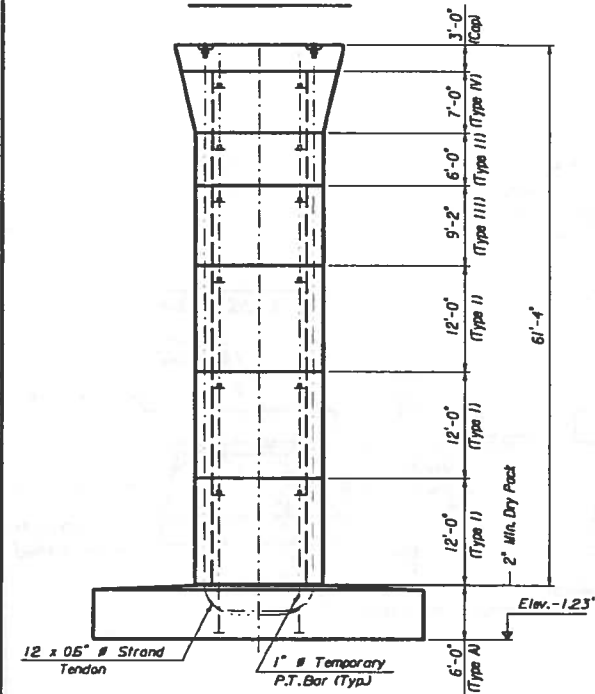
PIER 51 & 58



PIER 52 & 57



PIER 53 & 56



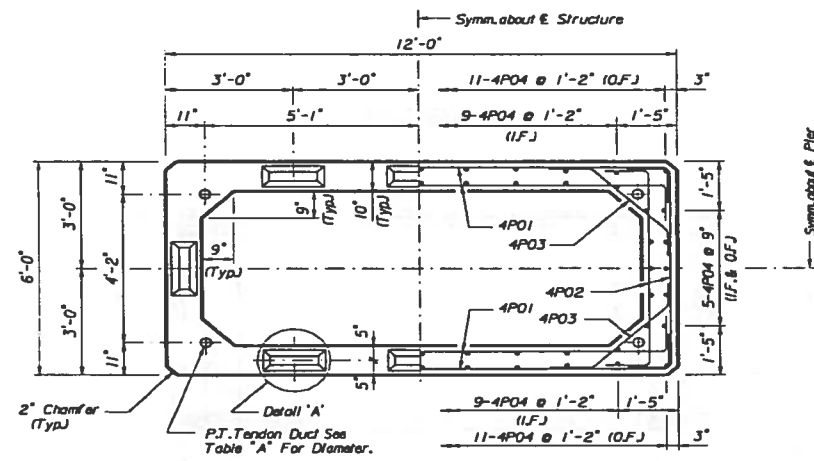
PIER 54 & 55

NOTE:

1. For Coupling Details, See Sheet No. B-31, B-32 and B-46.
2. For P.T. Quantities, See Sheet No. B-47.
3. For Top Of Pier Elevations, See Sheet No. B-49.
4. For Locations Of Ductile Embeds For Fender Access on Piers 54 and 55, See Sheet No. B-107.

SHEET NO. B-40

NO	DATE	REVISION	BY	CKD	Drawn By: <i>JNH</i> Checked By: <i>MWH</i> Designed By: <i>ETN</i> Approved By: <i>PMH</i>	DATE: 7-94 7-94 7-94 7-94	 Figg Engineers, Inc. 124 No. Calhoun Street Tallahassee, Florida 32301 Tallahassee, FL Denver, Co.	CLIENT: SANTA ROSA BAY BRIDGE AUTHORITY	PROJECT: SANTA ROSA BAY BRIDGE	SHEET TITLE: PRECAST BOX PIER DIMENSIONS AND LAYOUT II	SHEET OF
----	------	----------	----	-----	--	------------------------------------	---	--	---------------------------------------	---	----------



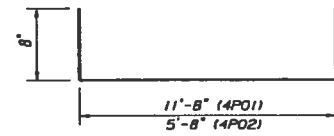
PLAN

TABLE A

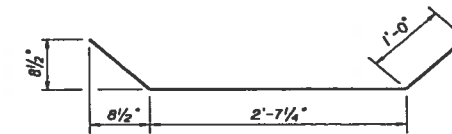
Pier No.	Duct #
37-49,60-72	3 in.
50-59	3 1/2 in.

BAR BENDING DIAGRAMS

(All dimensions are out to out)



4P01 & 4P02



4P03

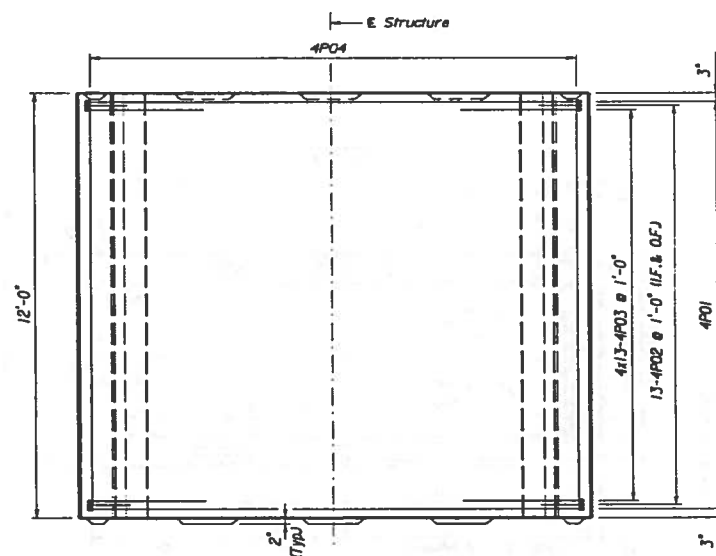
BAR LIST / ONE SEGMENT

# Bar	No.	Length	Bar#	Str.
4P01	52	13'-0"	*	
4P02	52	7'-0"	*	
4P03	52	4'-8"	*	
4P04	60	11'-8"	*	

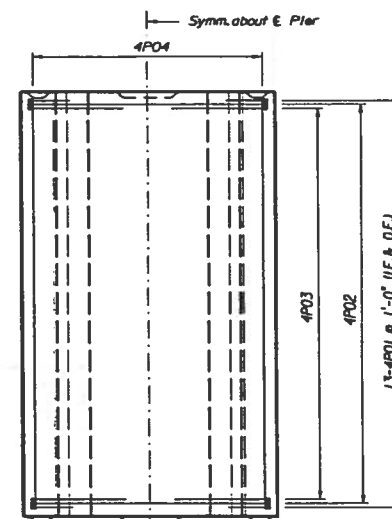
*Number Preceding Letter Denotes Bar Size.

ESTIMATED QUANTITIES / ONE SEGMENT

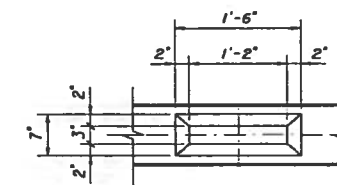
Item	Unit	Quantity
Reinforcing Steel	Lbs.	1324
Class IV Concrete (5500 psi)	Cu.Yds.	125



ELEVATION



END VIEW



DETAIL "A"

NOTE:

1. Minimum Concrete Cover = 2", Unless Otherwise Noted
2. For Anchorage And Coupling Details, See Sheet No. B-46.
3. Delete Shear Keys On The Bottom Face Of The First Precast Segment At Each Pier.

SHEET NO. B-41

NO	DATE	REVISION	BY	CKD	Drawn By: <i>MMH</i> Checked By: <i>MMH</i> Designed By: <i>ETN</i> Approved By: <i>PMH</i>	DATE: 7-54 7-54 7-54 7-54	 Figg Engineers, Inc. 424 No. Calhoun Street Tallahassee, Florida 32301 Tallahassee, FL Denver, Co.	CLIENT: SANTA ROSA BAY BRIDGE AUTHORITY	PROJECT: SANTA ROSA BAY BRIDGE	SHEET TITLE: PRECAST BOX PIER TYPE I SEGMENT DIMENSIONS AND REINFORCEMENT	SHEET OF
----	------	----------	----	-----	--	------------------------------------	---	---	--------------------------------	---	----------

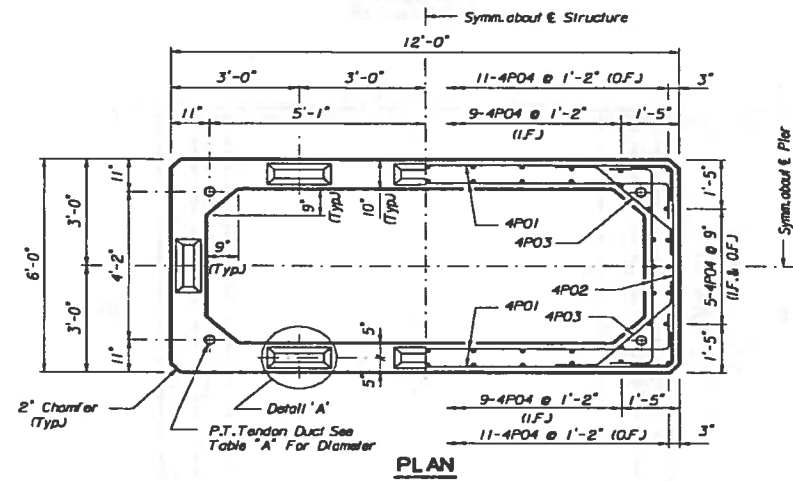
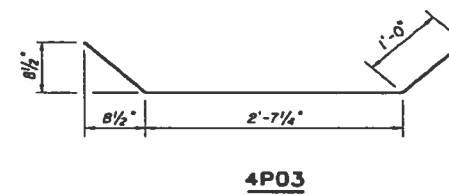
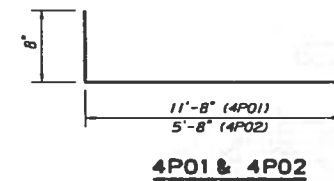


TABLE A

Pier No.	Duct #
37-49,60-72	3 in.
50-59	3 1/2 in.

BAR BENDING DIAGRAMS
(All dimensions are out to out)



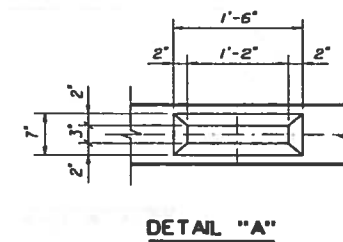
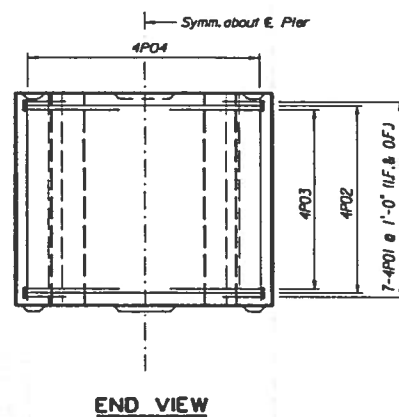
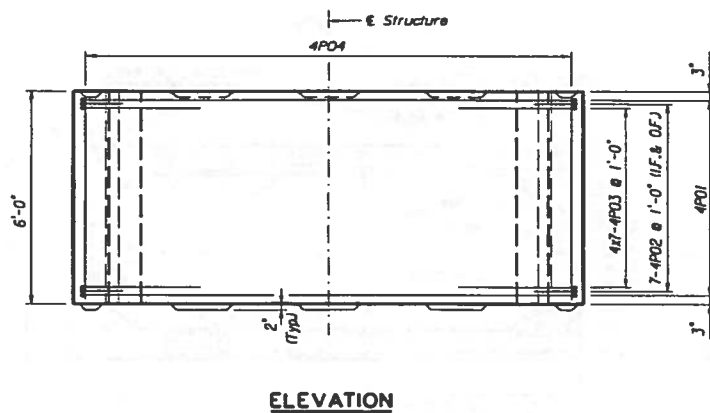
BAR LIST / ONE SEGMENT

# Bar	No.	Length	Bent	Str.
4P01	28	13'-0"	*	
4P02	28	7'-0"	*	
4P03	28	4'-8"	*	
4P04	60	5'-8"	*	

*Number Preceding Letter Denotes Bar Size.

ESTIMATED QUANTITIES / ONE SEGMENT

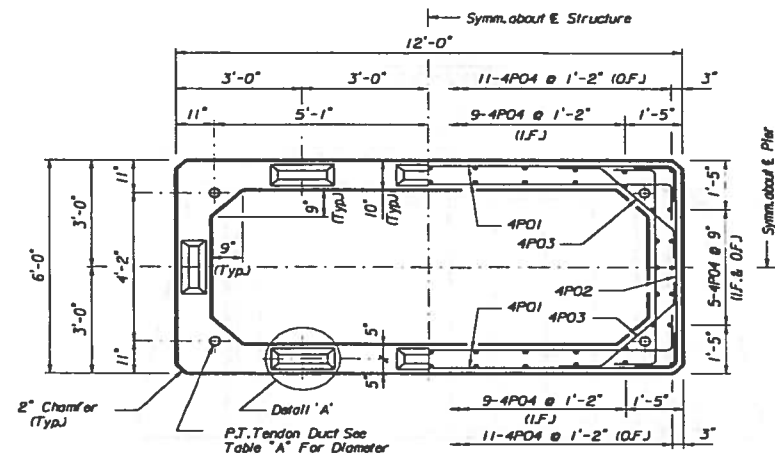
Item	Unit	Quantity
Reinforcing Steel	Lbs.	689
Class IV Concrete (5500 psi)	Cu.Yds.	6.2



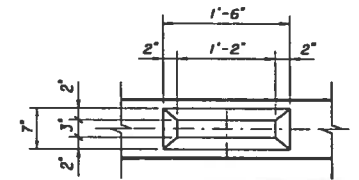
NOTE:
1. Minimum Concrete Cover - 2". Unless Otherwise Noted
2. For Anchorage And Coupling Details, See Sheet No. B-46.

SHEET NO. B-42

NO	DATE	REVISION	BY	CKD	Drawn By: JWH Checked By: NMM Designed By: ETN Approved By: PMH	DATE: 7-94 7-94 7-94 7-94	 Figg Engineers, Inc. 424 So. Colton Street Tallahassee, Florida 32301 Tallahassee, FL Denver, CO	CLIENT: SANTA ROSA BAY BRIDGE AUTHORITY	PROJECT: SANTA ROSA BAY BRIDGE	SHEET TITLE: PRECAST BOX PIER TYPE II SEGMENT DIMENSIONS AND REINFORCEMENT	SHEET OF
----	------	----------	----	-----	--	------------------------------------	---	--	---------------------------------------	---	----------

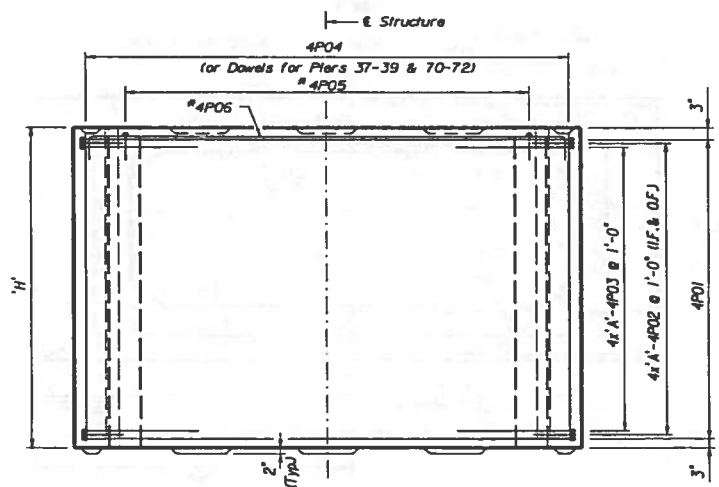


PLAN
(Piers 40-69)

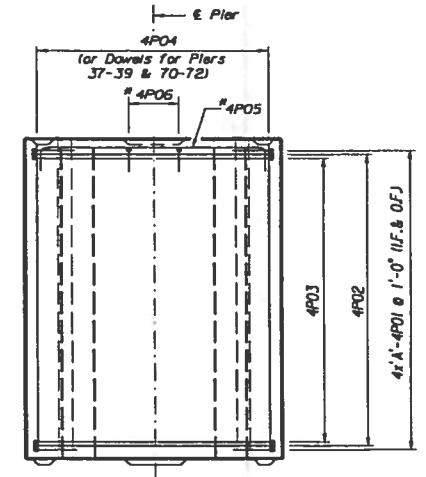


DETAIL "A"

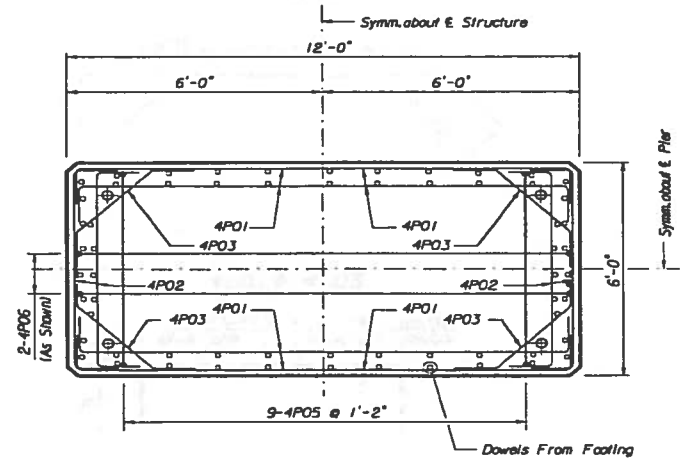
Pier No.	Duct #
37-49, 60-72	3 in.
50-59	3 1/2 in.



ELEVATION
See Note #5



END VIEW
See Note #5



PLAN
(Piers 37-39 & 70-72)

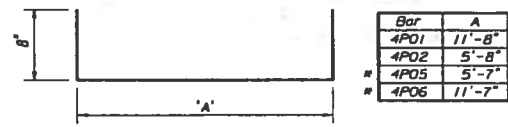
- NOTE:**
1. Minimum Concrete Cover = 2", Unless Otherwise Noted.
 2. For Anchorage and Coupling Details, See Sheet No. B-46.
 3. Delete Shear Keys On The Bottom Face Of The First Precast Segment At Each Pier.
 4. Type III Segment for Piers 37-39 & 70-72 Is to be Cast-In-Place with the Footing and the 4F13 Dowel Bars from the Type F Footing will Replace the 4P04 Bars. The Segment shall be Cast Solid with the Shear Keys Omitted.
 5. Bars 4P05 and 4P06 to be Used with Piers 37-39 and 70-72 Only.

BAR LIST / ONE PIER																									
		Pier 37,72		Pier 38,71		Pier 39,70		Pier 40,69		Pier 41,68		Pier 42,67		Pier 43,66		Pier 44,65		Pier 45,64		Pier 46,63		Pier 47,62			
		10'		9'-1"		8'-0"		8'-8"		6'-10"		11'-0"		8'-10"		7'-5"		10'-8"		8'-10"		7'-0"			
		1		3		6		9		8		12		10		8		11		10		8			
# Bar	Bar	Str.	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	
4P01	*		8	13'-0"	12	13'-0"	24	13'-0"	36	13'-0"	32	13'-0"	48	13'-0"	40	13'-0"	32	13'-0"	44	13'-0"	40	13'-0"	32	13'-0"	
4P02	*		8	7'-0"	12	7'-0"	24	7'-0"	36	7'-0"	32	7'-0"	48	7'-0"	40	7'-0"	32	7'-0"	44	7'-0"	40	7'-0"	32	7'-0"	
4P03	*		8	4'-8"	12	4'-8"	24	4'-8"	36	4'-8"	32	4'-8"	48	4'-8"	40	4'-8"	32	4'-8"	44	4'-8"	40	4'-8"	32	4'-8"	
4P04	*																								
4P05	*		9	6'-11"	9	6'-11"	9	6'-11"																	
4P06	*		2	12'-11"	2	12'-11"	2	12'-11"																	
Reinforcing Steel #		190		257		455		927		788		1218		1000		811		1139		1000		794			
Class IV Concrete #		2.2		5.6		13.3		9.0		7.1		11.4		9.2		7.7		11.1		9.2		7.3			
15500 ps.i Cu.Yds.																									

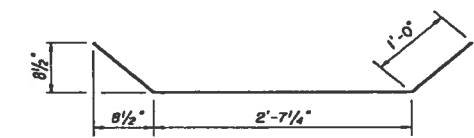
BAR LIST / ONE PIER																	
		Pier 48,61		Pier 49,60		Pier 50,59		Pier 51,58		Pier 52,57		Pier 53,56		Pier 54,55			
		10'-6"		8'-3"		10'-2"		6'-6"		8'-2"		9'-1"		9'-2"			
		11		9		11		7		9		10		10			
# Bar	Bar	Str.	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	
4P01	*		44	13'-0"	36	13'-0"	44	13'-0"	28	13'-0"	36	13'-0"	40	13'-0"	40	13'-0"	
4P02	*		44	7'-0"	36	7'-0"	44	7'-0"	28	7'-0"	36	7'-0"	40	7'-0"	40	7'-0"	
4P03	*		44	4'-8"	36	4'-8"	44	4'-8"	28	4'-8"	36	4'-8"	40	4'-8"	40	4'-8"	
4P04	*		60	10'-2"	60	7'-11"	60	9'-10"	60	6'-2"	60	7'-10"	60	8'-9"	60	8'-10"	
Reinforcing Steel #		1132		910		1119		709		907		1010		1013			
Class IV Concrete #		10.9		8.6		10.6		6.8		8.5		9.5		9.5			
15500 ps.i Cu.Yds.																	

Number Preceding Letter Denotes Bar Size.
Quantities Are For One Segment Only.

BAR BENDING DIAGRAMS
(All dimensions are out to out)

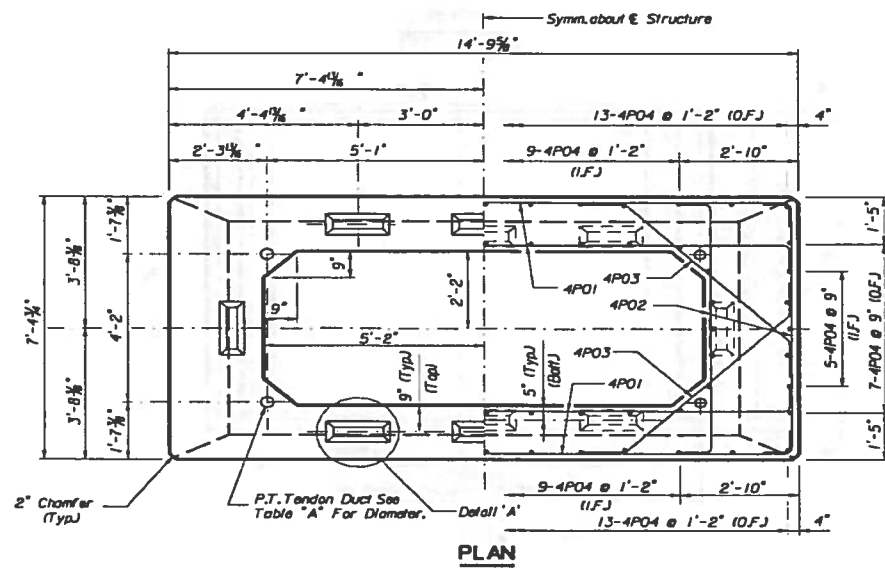


4P01, 4P02, 4P05 & 4P06
See Note #5



4P03

NO	DATE	REVISION	BY	CKD	DATE	Drawn By	Checked By	Designed By	Approved By	CLIENT	SANTA ROSA BAY BRIDGE AUTHORITY	PROJECT	SANTA ROSA BAY BRIDGE	SHEET TITLE	PRECAST BOX PIER TYPE III SEGMENT DIMENSIONS AND REINFORCEMENT	SHEET OF
					7-54	MWH	MWH	ETN	PMH	Figg Engineers, Inc.						



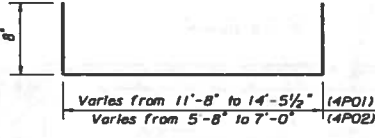
PLAN

TABLE A

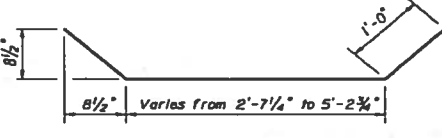
Pier No.	Duct #
37-49,60-72	3 In.
50-59	3 1/2 In.

BAR BENDING DIAGRAMS

(All dimensions are out to out)



4P01 & 4P02



4P03

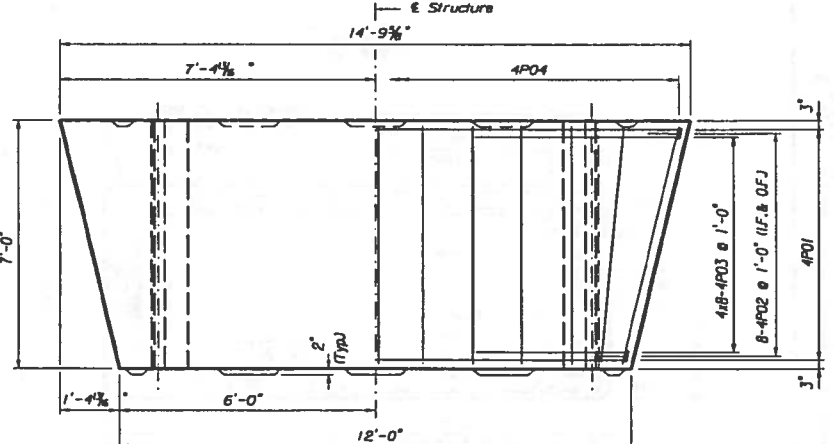
BAR LIST / ONE SEGMENT

# Bar	No.	Length	Bend	Str.
** 4P01	32	14'-5"	*	
** 4P02	32	7'-8"	*	
** 4P03	32	5'-1"	*	
4P04	68	6'-8"	*	

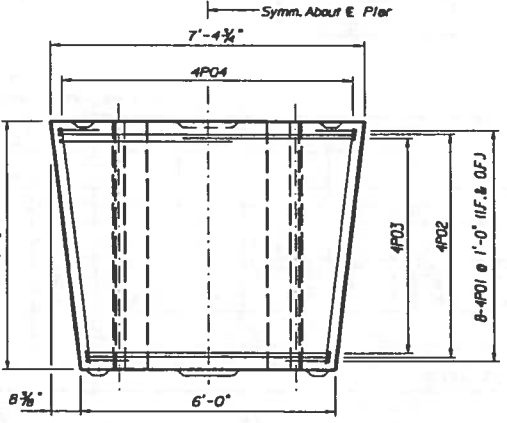
* Number Preceding Letter Denotes Bar Size.
 ** Length Given Is An Average

ESTIMATED QUANTITIES / ONE SEGMENT

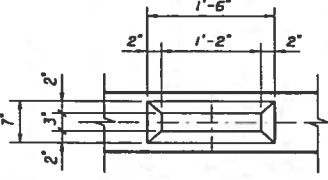
Item	Unit	Quantity
Reinforcing Steel	Lbs.	884
Class IV Concrete (5500 psi)	Cu.Yds.	119



ELEVATION




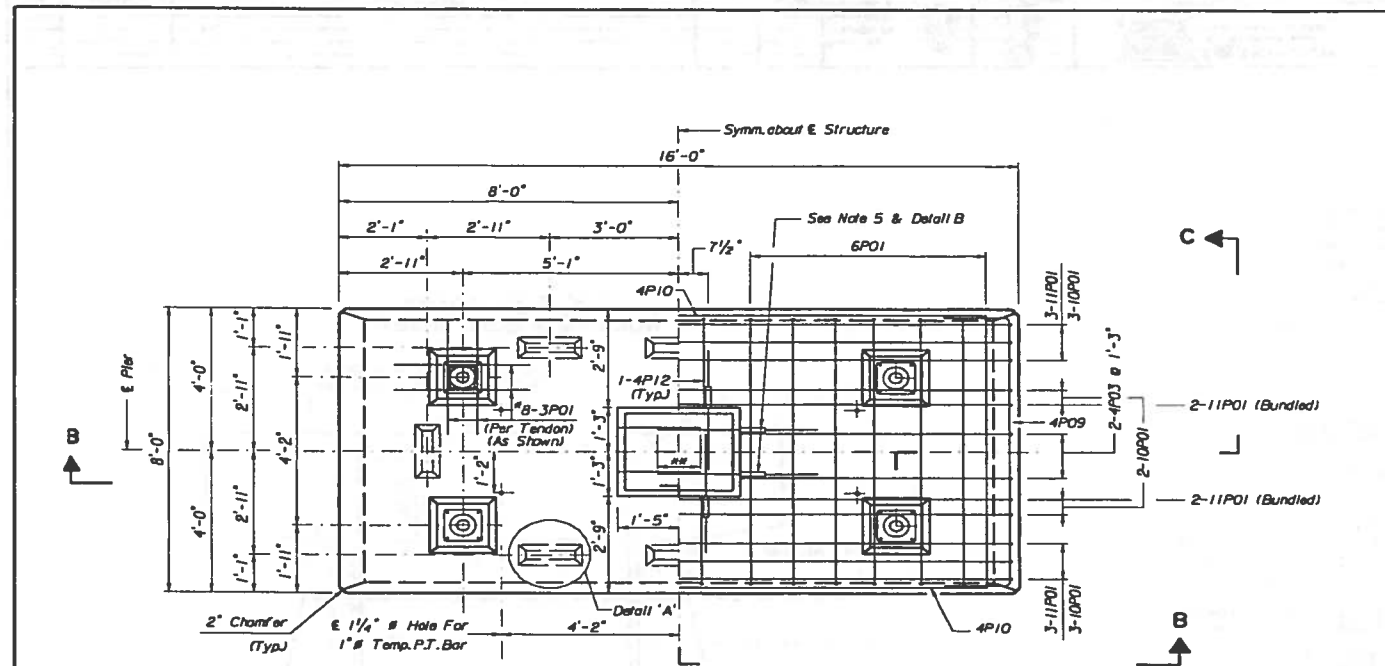
END VIEW



DETAIL "A"

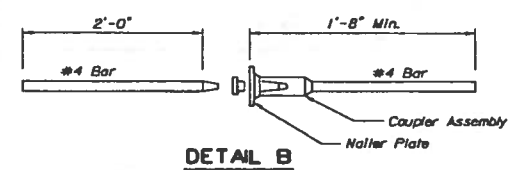
NOTE:
 1. Minimum Concrete Cover - 2", Unless Otherwise Noted
 2. For Anchorage And Coupling Details, See Sheet No. B-46.
 3. Delete Shear Keys On The Bottom Face For Piers 37-39 and 70-72.

NO	DATE	REVISION	BY	CKD	Drawn By	NWH	DATE	7-04	 Figg Engineers, Inc. 424 W. Colman Street Tallahassee, Florida 32301 Tallahassee, FL Denver, CO	CLIENT	SANTA ROSA BAY BRIDGE AUTHORITY	PROJECT	SANTA ROSA BAY BRIDGE	SHEET TITLE	PRECAST BOX PIER TYPE IV SEGMENT DIMENSIONS AND REINFORCEMENT	SHEET OF
					Checked By	MWW	7-04	SANTA ROSA BAY BRIDGE AUTHORITY			PRECAST BOX PIER TYPE IV SEGMENT DIMENSIONS AND REINFORCEMENT					

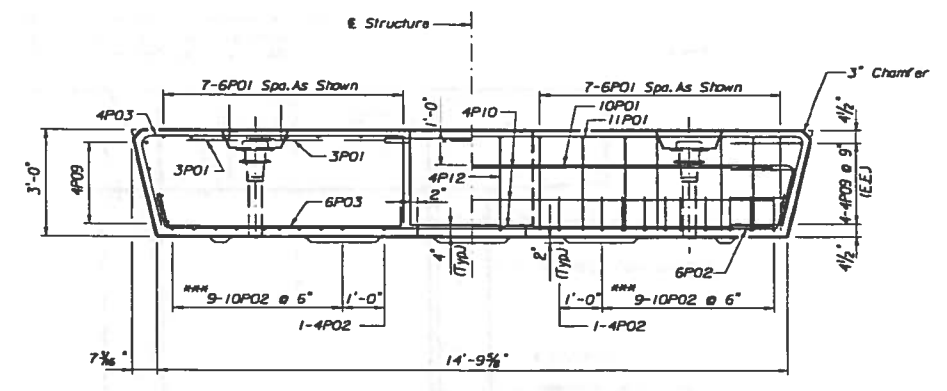


* Shall be Field Bent After Tendon Stressing Operations are Complete.
 ** 1'-0" Min. Lap Length

PLAN



DETAIL B



SECTION B-B

*** Bundle 10PO2 w/ 11PO2 on Caps for Main Span Piers 54 and 55 Only.

BAR BENDING DIAGRAMS

(All dimensions are out to out)

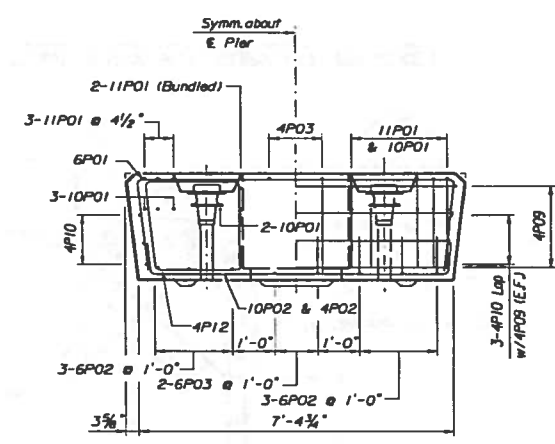
Bar	a	b	c	d
6PO1	7'-6"	2'-5 1/2"	2 3/8"	2'-6"
10PO1	15'-3"	1'-8 3/8"	2 3/8"	1'-10"
11PO1	15'-7"	2'-6 3/8"	4 1/4"	2'-8"

Bar	a	b	c	d
4PO2	7'-0"	1'-0"	1 3/8"	11 3/8"
6PO2	14'-6 1/2"	1'-0"	2 3/8"	11 3/8"
10PO2	7'-0"	2'-0"	2 3/8"	1'-11 1/8"
11PO2	7'-0"	2'-0"	2 3/8"	1'-11 1/8"

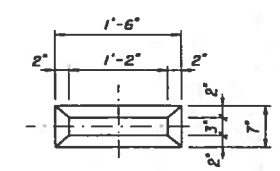
Item	Unit	Quantity
Reinforcing Steel	Lbs.	3420
Class IV Concrete (5500 psi)	Cu.Yds.	12.4

Item	Unit	Quantity
Reinforcing Steel	Lbs.	4472
Class IV Concrete (5500 psi)	Cu.Yds.	12.4

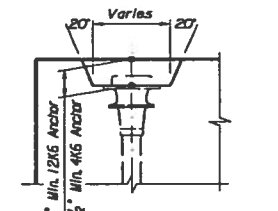
*** Number Preceding Letter Denotes Bar Size.
 *** 4P09 Length Given Is an Average.
 *** 11PO2 for Main Span Piers 54 and 55 Only.



SECTION C-C



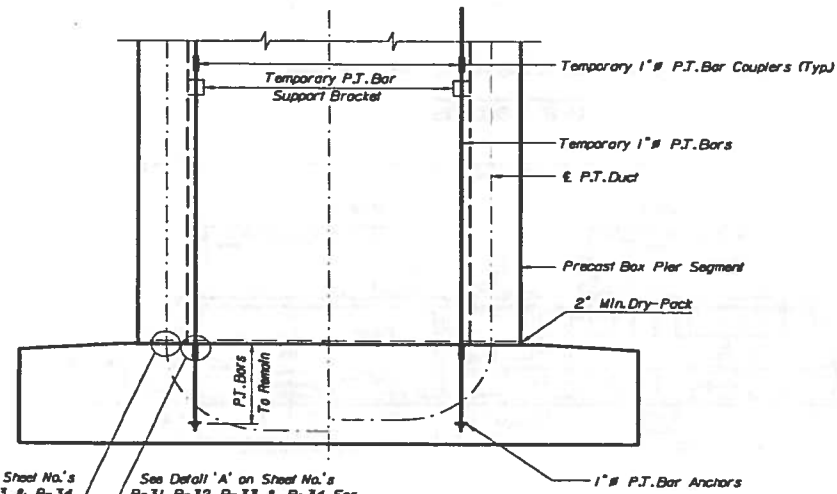
DETAIL 'A'



BLOCK OUT DETAIL
 For Tendon Size, See Sheet No. B-47.

NOTE:
 1. Minimum Concrete Cover - 2", Unless Otherwise Noted
 2. For Anchorage and Coupling Details, See Sheet No. B-46.
 3. For Duct Diameter, See Table "A" on Sheet No. B-44.
 4. For Anchor Size, See Sheet No. B-47.
 5. Coupling Device Shall Develop Full Strength of Bar.
 6. The Cost of the Coupling Device & Related Reinforcement shall be Incidental to the Cost of the Precast Pier Cap Concrete.

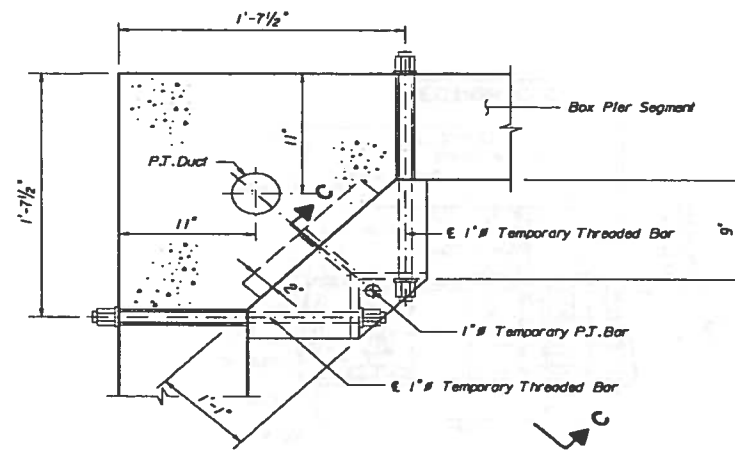
NO		DATE	REVISION	BY	CKD	DATE	Drawn By MWH Checked By MWH Designed By ELN Approved By MWH	DATE	7-94 7-94 7-94	Figg Engineers, Inc. 120 W. Calhoun Street Tallahassee, Florida 32301 Tallahassee, FL Dunwoody, Ga.	CLIENT SANTA ROSA BAY BRIDGE AUTHORITY	PROJECT SANTA ROSA BAY BRIDGE	SHEET TITLE PRECAST BOX PIER CAP DIMENSIONS AND REINFORCEMENT	SHEET OF
----	--	------	----------	----	-----	------	--	------	----------------------	---	--	----------------------------------	---	-------------



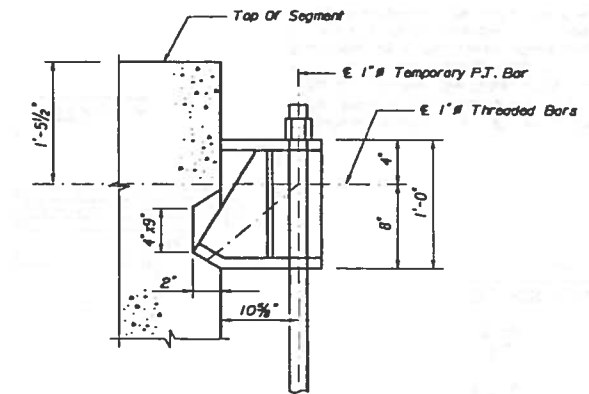
See Detail 'B' on Sheet No.'s B-31, B-32, B-33 & B-34 For Connection Of P.T. Ducts

See Detail 'A' on Sheet No.'s B-31, B-32, B-33 & B-34 For Connection of Temporary P.T. Bars

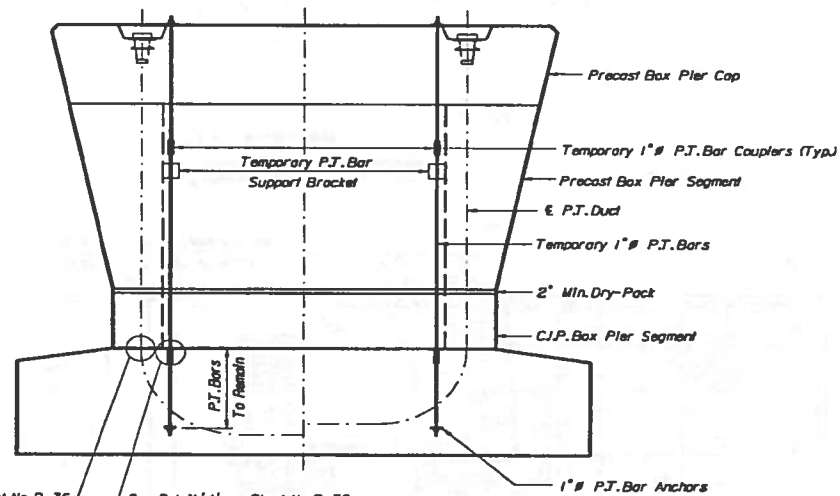
PARTIAL PIER ELEVATION



PLAN OF TEMPORARY P.T. SUPPORT BRACKET



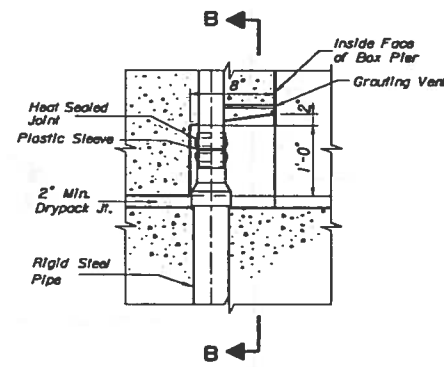
SECTION C-C



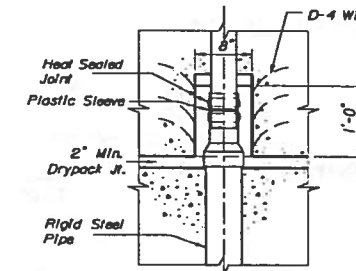
See Detail 'B' on Sheet No. B-36 For Connection Of P.T. Ducts

See Detail 'A' on Sheet No. B-36 Connection of Temporary P.T. Bars

PARTIAL PIER ELEVATION
(For Piers 37-39 & T0-72)



SECTION A-A

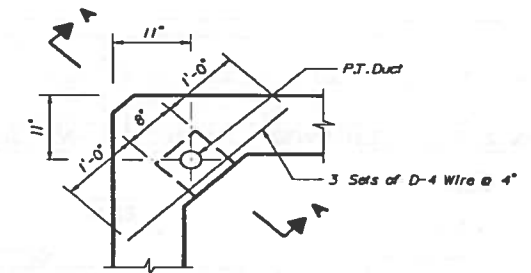


SECTION B-B

BLOCKOUT COUPLING DETAIL
(Bottom Pier Segment Only)

NOTE:

1. The Vertical Sides Of The Recess Shall Be Roughened To An Amplitude Of 1/8".
2. After Stressing, The Bent Wires Shall Be Returned To The Horizontal Position And Tied. Exposed Concrete Surface Shall Be Treated With An Approved Epoxy Bonding Agent, Immediately Prior To Filling The Recess.
3. The Recess Shall Be Filled With A Non-Shrink Mortar Of The Contractor's Design. The Mix Shall Be Approved By The Engineer Prior To Its Use.



PLAN OF BLOCKOUT

After Tendons Are Stressed, Blockout Shall Be Filled In Accordance With The Procedure Detailed In The Notes Below.

NOTE:

1. Temporary 1" P.T. Bars May Be Stressed After The Footing Concrete Has Reached A Compressive Strength Of 3000 psi.
2. Temporary 1" P.T. Bars Shall Be Stressed To 0.5 fpu (64 Kips). Cost of Furnishing and Installing all Material For Temporary P.T. Bars Shall Be Incidental To The Cost Of Post-Tensioning.
3. Temporary Horizontal 1" Threaded Bars Shall Be Stressed To 0.5 fpu (64 Kips) Before Stressing Vertical Bars.
4. All Holes And Recesses For Support Bracket and Temporary P.T. Blockout Shall Be Filled With A Non-Shrink Mortar Of The Contractor's Design after Erection. The Mix Shall be Approved by the Engineer Prior to Its Use. This Work shall be Incidental to the Cost of the Post-Tensioning.
5. Removal & Grouting of Inserts and Support Bracket Shall be Completed Prior to Closing Temp. Access Hole In Pier Cap.
6. Temporary Access Hole In Pier Cap shall be Filled with Class IV Concrete before Erection of Superstructure.
7. See Sheet No. B-104 for No. 4 Ground Wire to be Placed through Access Hole In Pier 55.

SHEET NO. B-46

NO		DATE	REVISION	BY	CKD	<p>Figg Engineers, Inc. 424 W. Calhoun Street Tallahassee, Fla. 32301 Tallahassee, FL Denver, Co.</p>	<p>CLIENT SANTA ROSA BAY BRIDGE AUTHORITY</p>	<p>PROJECT SANTA ROSA BAY BRIDGE</p>	<p>SHEET TITLE PRECAST BOX PIER P.T. DETAILS</p>	<p>SHEET OF</p>		
Drawn By	LSS	DATE	7-94	Checked By	MMW						7-94	Designed By

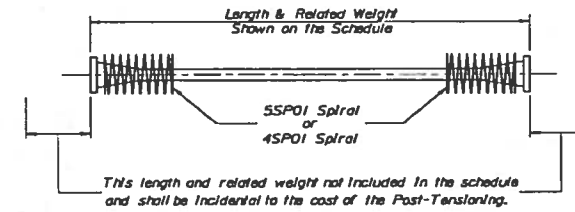
VERTICAL POST-TENSIONING STRAND QUANTITIES						
Pier No.	P.J. Strand Tendons					
	Tendon Type	Tendon Length (ft.)	Tendon Weight (lbs.)	Number Of Tendons/Pier	Total Weight (lbs.)	Stressing Force (Kips)
37	4x0.6"	35.6	105	2	211	187
38		38.1	113	2	226	
39		44.0	130	2	260	
40		51.3	152	2	304	
41		59.6	176	2	353	
42		68.0	201	2	402	
43		75.6	224	2	448	
44		84.8	251	2	502	
45		91.3	270	2	540	
46		99.6	295	2	590	
47		108.0	320	2	639	
48		115.0	340	2	681	
49	4x0.6"	122.5	362	2	725	187
50	12x0.6"	127.2	1129	2	2259	562
51		131.9	1171	2	2342	
52		135.2	1200	2	2401	
53		137.0	1217	2	2433	
54		137.2	1218	2	2436	
55		137.2	1218	2	2436	
56		137.0	1217	2	2433	
57		135.2	1200	2	2401	
58		131.9	1171	2	2342	
59	12x0.6"	127.2	1129	2	2259	562
60	4x0.6"	122.5	362	2	725	187
61		115.0	340	2	681	
62		108.0	320	2	639	
63		99.6	295	2	590	
64		91.3	270	2	540	
65		84.8	251	2	502	
66		75.6	224	2	448	
67		68.0	201	2	402	
68		59.6	176	2	353	
69		51.3	152	2	304	
70		44.0	130	2	260	
71		38.1	113	2	226	
72	4x0.6"	35.6	105	2	211	187
Total					35500	

BAR LIST / ONE ANCHOR

Bar	No.	Length	Bar	Str.
4SP01	#	23'-7"	●	
5SP01	#	34'-3"	●	

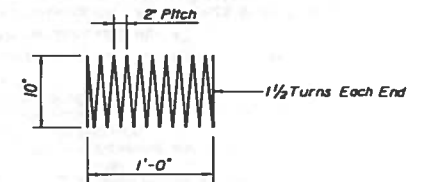
All Bar Bends Shall be in accordance with A.C.I. Standards.

* All Spirals are incidental to cost of Post-Tensioning.



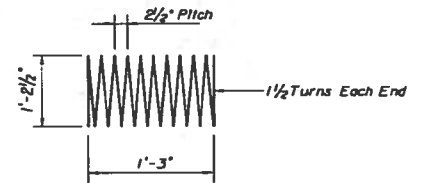
BAR BENDING DIAGRAMS

(All Dimensions are out to out)



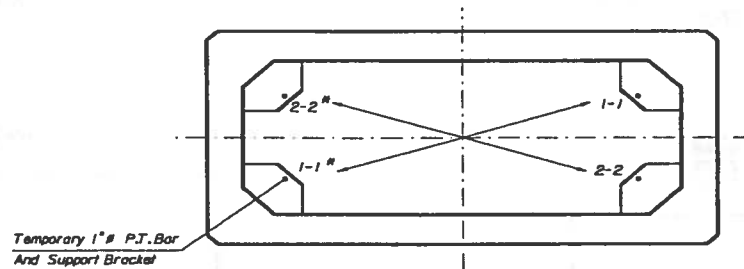
4SP01 SPIRAL

(Use For Piers 37-49, 60-72)



5SP01 SPIRAL

(Use For Piers 50-59)



PLAN

(* Alternately Stress Temporary P.J. Bars 1-1 And 2-2 To 0.5 Fpu)

NOTE:

1. Stressing Force is Prior To Anchor Set.
2. P.J. Strand Tendons Shall Be Stressed From Both Ends Simultaneously.
3. Temporary P.J. Bars Shall Be Stressed Only After The Footing Concrete Has Reached A Compressive Strength Of 3000 psi.
4. Epoxy Shall Be Applied To All Joints Between Precast Substructure Segments.
5. Temporary 1" P.J. Bars Shall Be Stressed To 0.5 Tpu (64 Kips).
6. Cost of Furnishing And Installing all Material for Temporary P.J. Bars Shall Be Incidental To The Cost Of Post-Tensioning.
7. Grouting to be Completed Prior to Closing Temporary Access Hole.
8. Access Hole to be Closed Prior to Placing Superstructure.

SHEET NO. B-47

NO	DATE	REVISION	BY	CKD	Drawn By: <u>LSS</u> 7-94 Checked By: <u>MMH</u> 7-94 Designed By: <u>ETH</u> 7-94 Approved By: <u>PMH</u> 7-94	Figg Engineers, Inc. 424 So. Calhoun Street Tallahassee, Florida 32301 Tallahassee, FL Denver, Co.	CLIENT	SANTA ROSA BAY BRIDGE AUTHORITY	PROJECT	SANTA ROSA BAY BRIDGE	SHEET TITLE	PRECAST BOX PIER P.T. QUANTITIES AND STRESSING SCHEDULE	SHEET OF
----	------	----------	----	-----	--	--	--------	---------------------------------	---------	-----------------------	-------------	---	----------