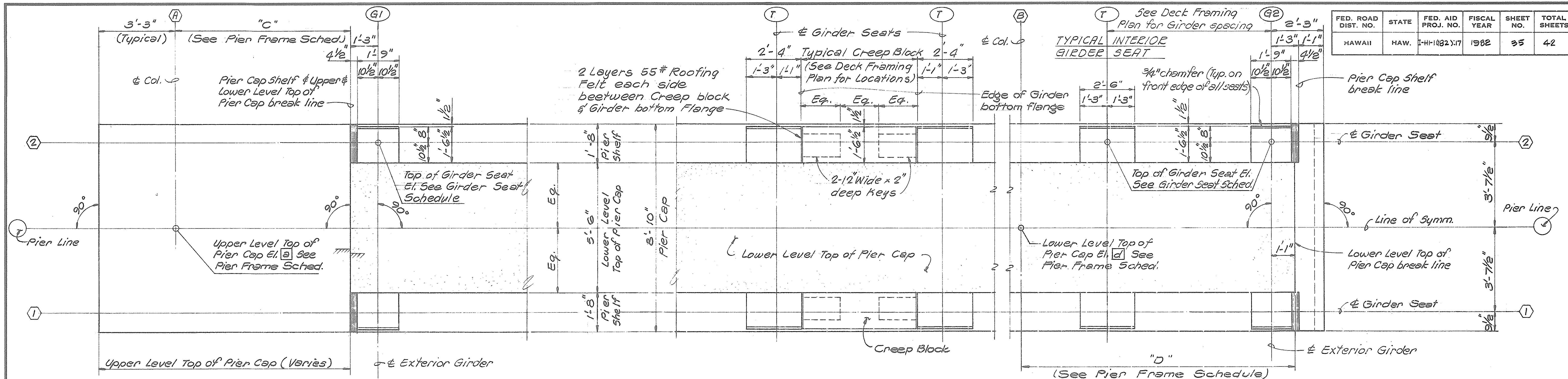
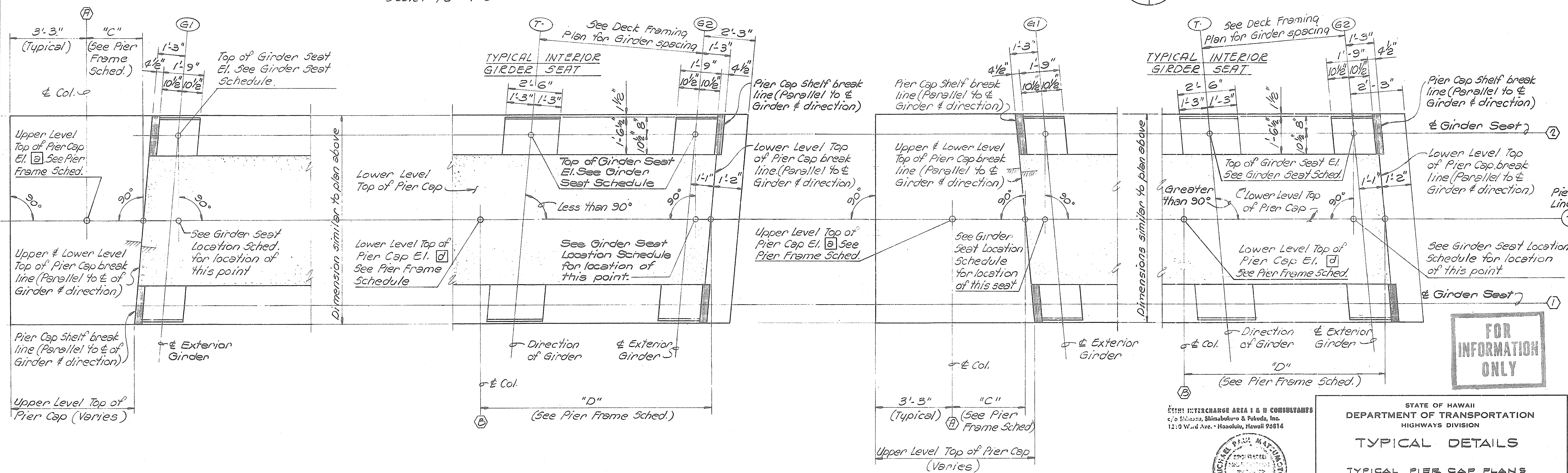


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(82):17	1982	35	42



PARTIAL PLAN - TYPICAL PIER CAP NORMAL TO GIRDER
Scale: 1/2" = 1'-0"



PARTIAL PLANS ~ TYPICAL PIER CAP NOT NORMAL TO GIRDERS
Scale: 1/2" = 1'-0"

FOR
INFORMATION
ONLY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS

TYPICAL PIER CAP PLANS

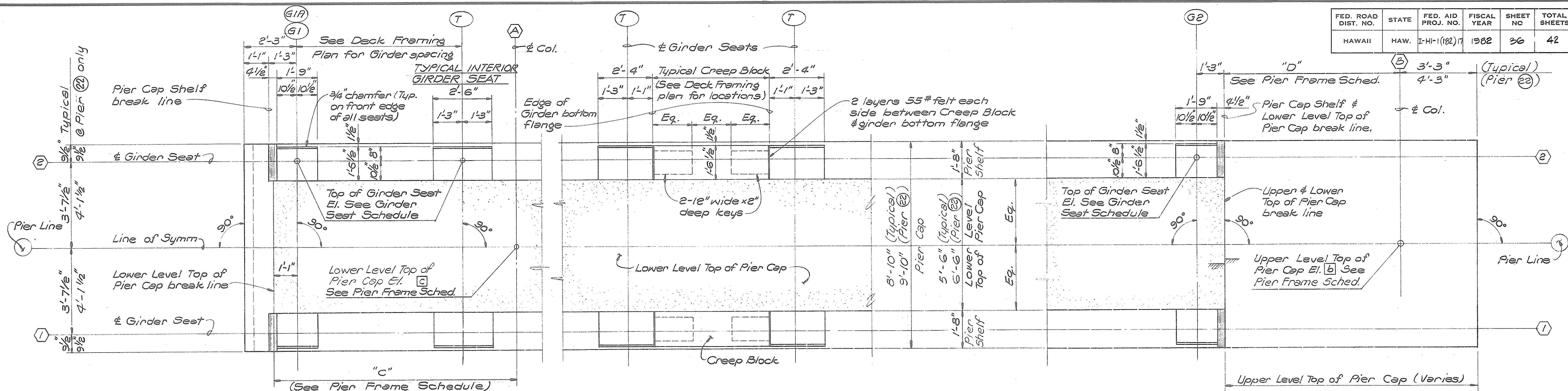
KMH: INTERCHANGE
F.A.I. PROJ. NO. I-41-1 (82):17

Scale : As Shown Date : 4/21/83

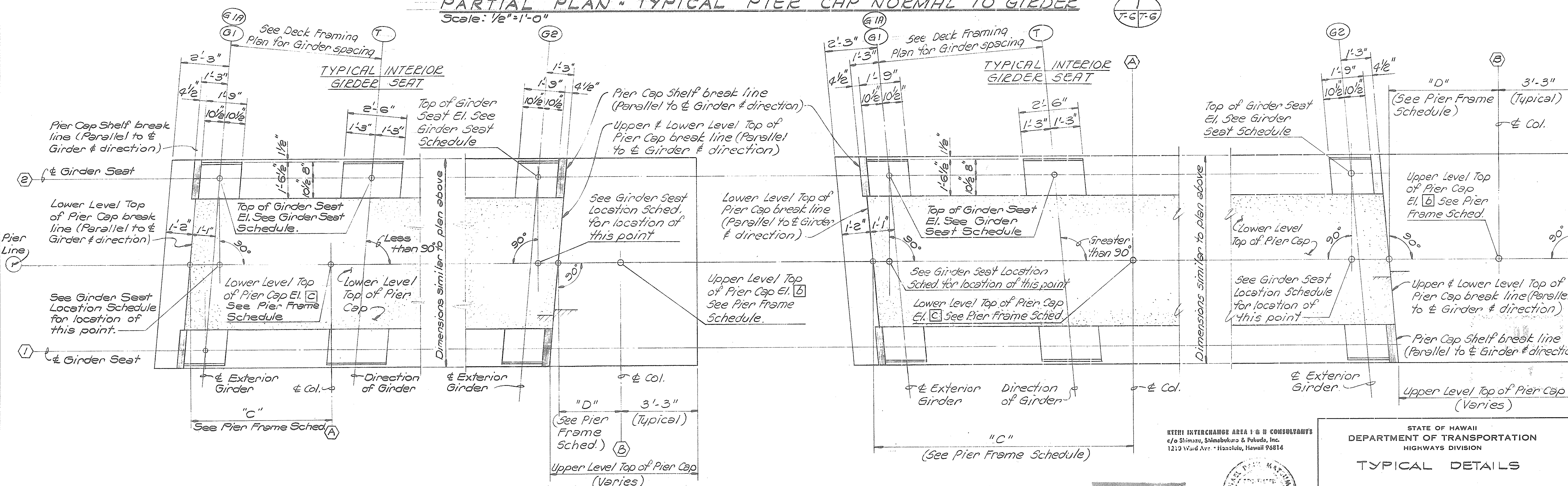
SHEET NO. T-5 OF 16 SHEETS

35

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(182)17	1982	36	42



PARTIAL PLAN - TYPICAL PIER CAP NORMAL TO GIRDER
Scale: 1/2" = 1'-0"



PARTIAL PLANS - TYPICAL PIER CAP NOT NORMAL TO GIRDER
Scale: 1/2" = 1'-0"

DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
CHECKED BY: _____
NOTE BOOK NO. _____

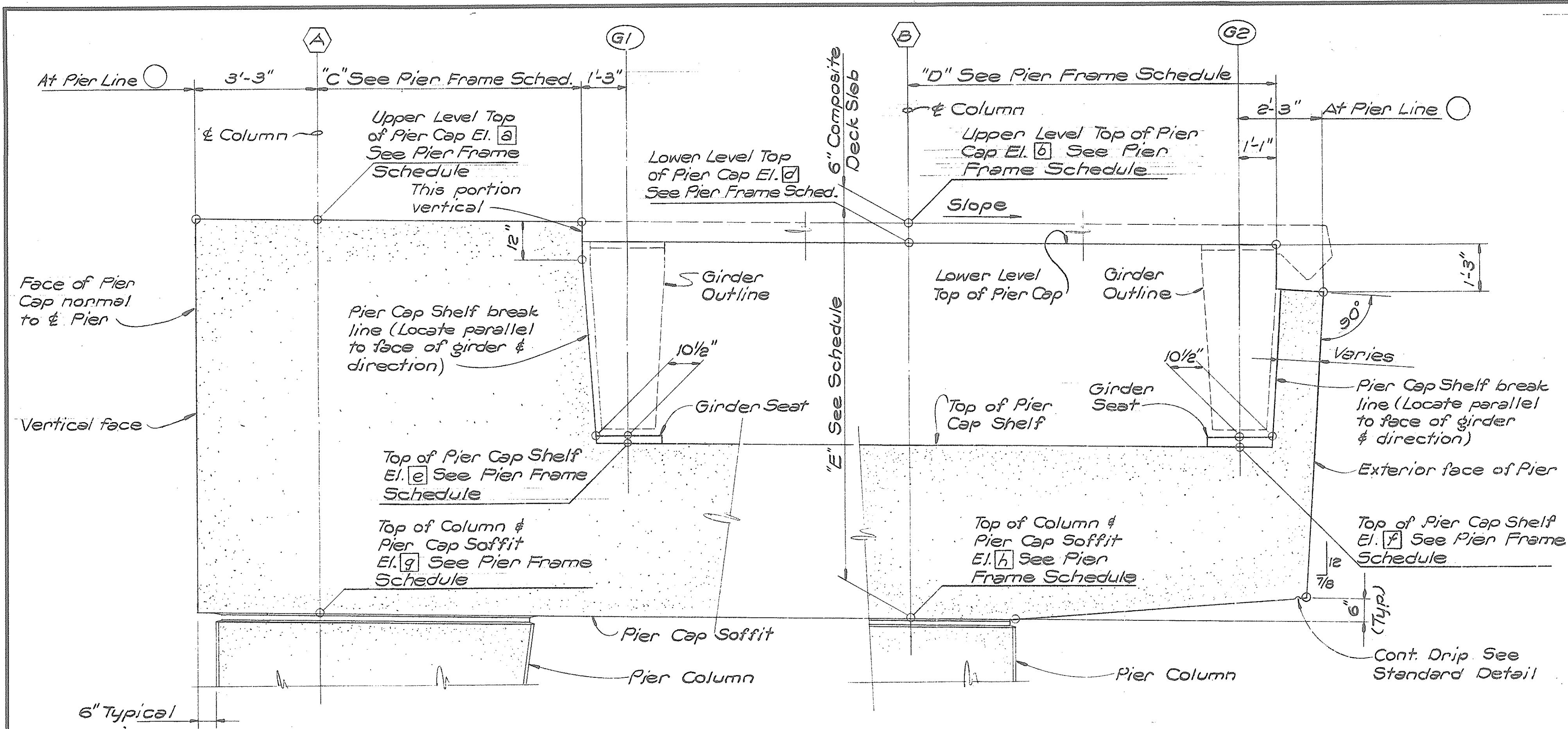
KEEHI INTERCHANGE AREA 1 & 2 CONSULTANTS
c/o Shimizu, Shimabukuro & Fukuda, Inc.
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS
TYPICAL PIER CAP PLANS
KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(182)17
Scale: As Shown Date: 4/21/83
SHEET NO. T-6 OF 16 SHEETS

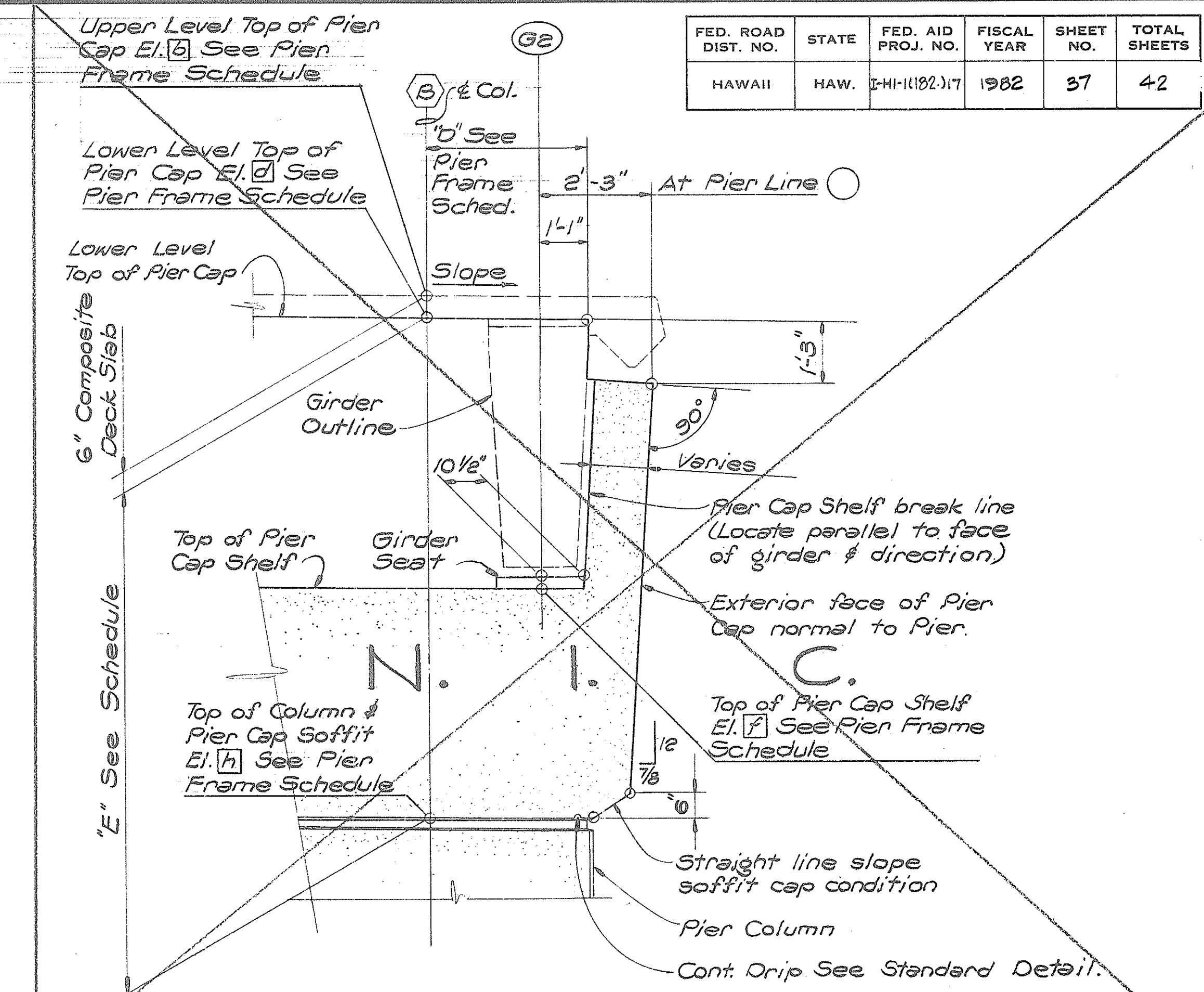
FOR INFORMATION ONLY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-11(182):17	1982	37	42

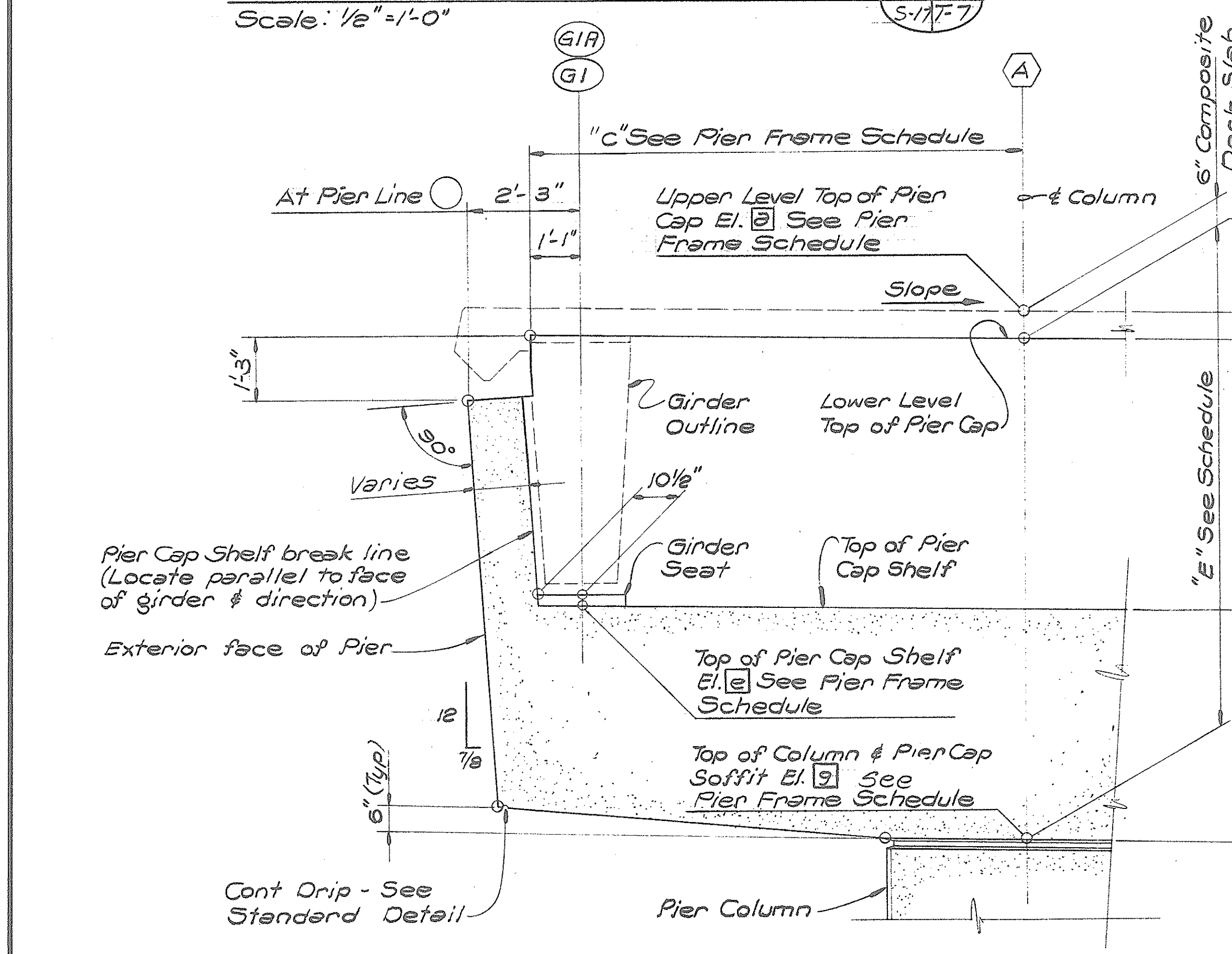


PARTIAL ELEVATION 1
Scale: 1/2" = 1'-0"
5-17/8 & 19-7-7

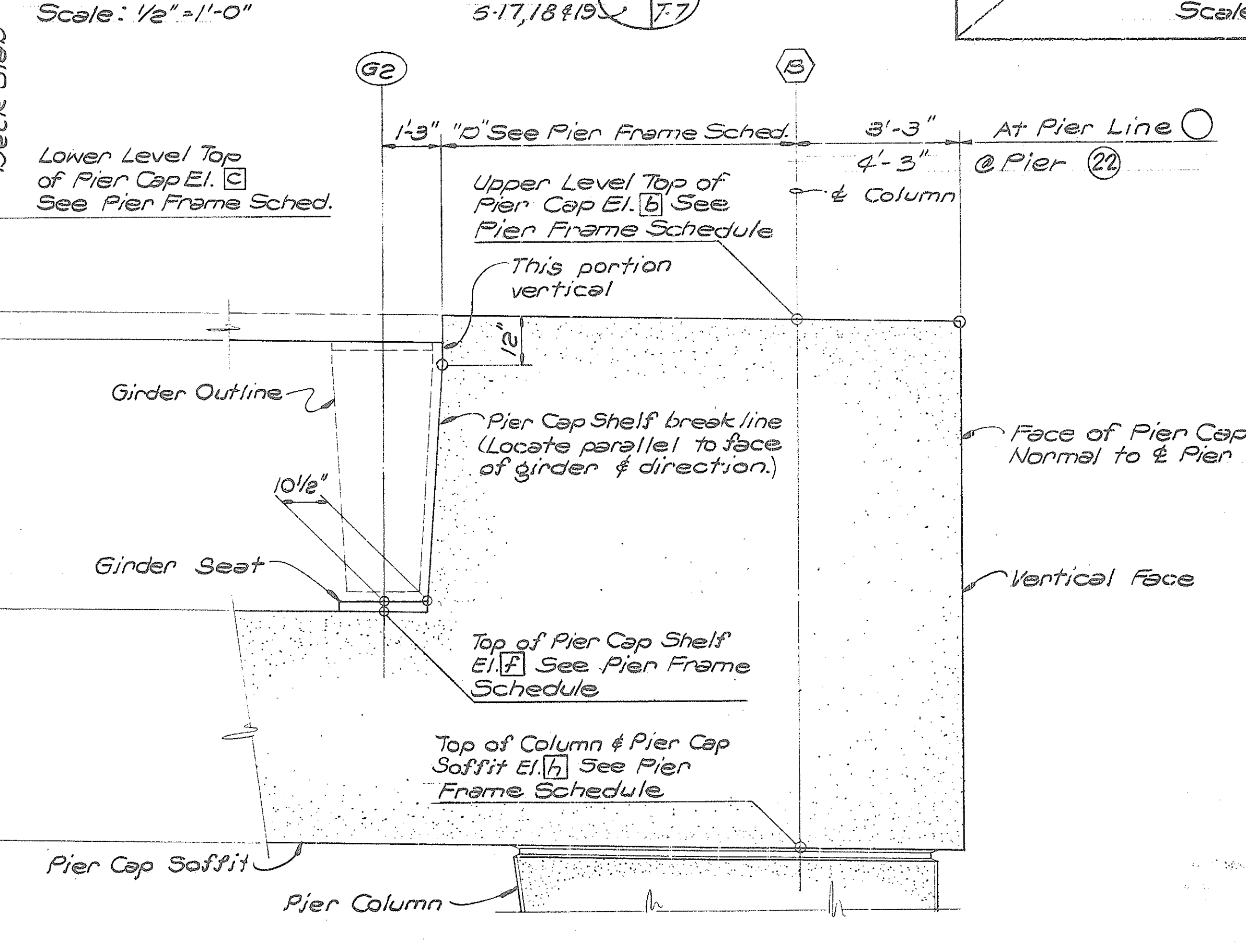
PARTIAL ELEVATION 2
Scale: 1/2" = 1'-0"
5-17/8 & 19-7-7



PARTIAL ELEVATION 3
Scale: 1/2" = 1'-0"
5-17/8 & 19-7-7



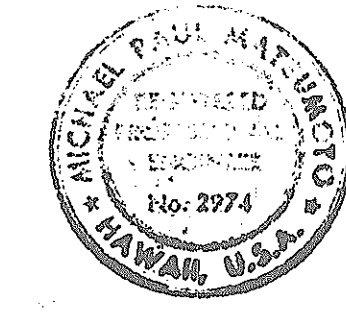
PARTIAL ELEVATION 4
Scale: 1/2" = 1'-0"
5-17/8 & 19-7-7



PARTIAL ELEVATION 5
Scale: 1/2" = 1'-0"
5-17/8 & 19-7-7

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This work was prepared by
Michael J. Marmorek

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

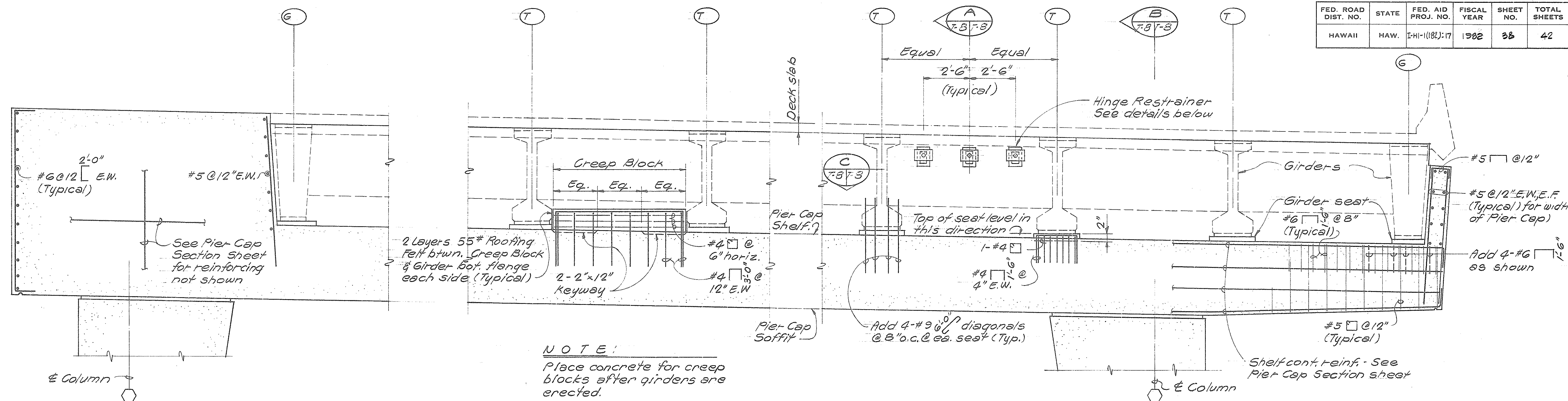
TYPICAL DETAILS

PIER CAP DETAILS
(ELEVATIONS)

KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI-1 (182):17

Scale: As Shown Date: 4/21/83
SHEET NO. T-7 OF 16 SHEETS

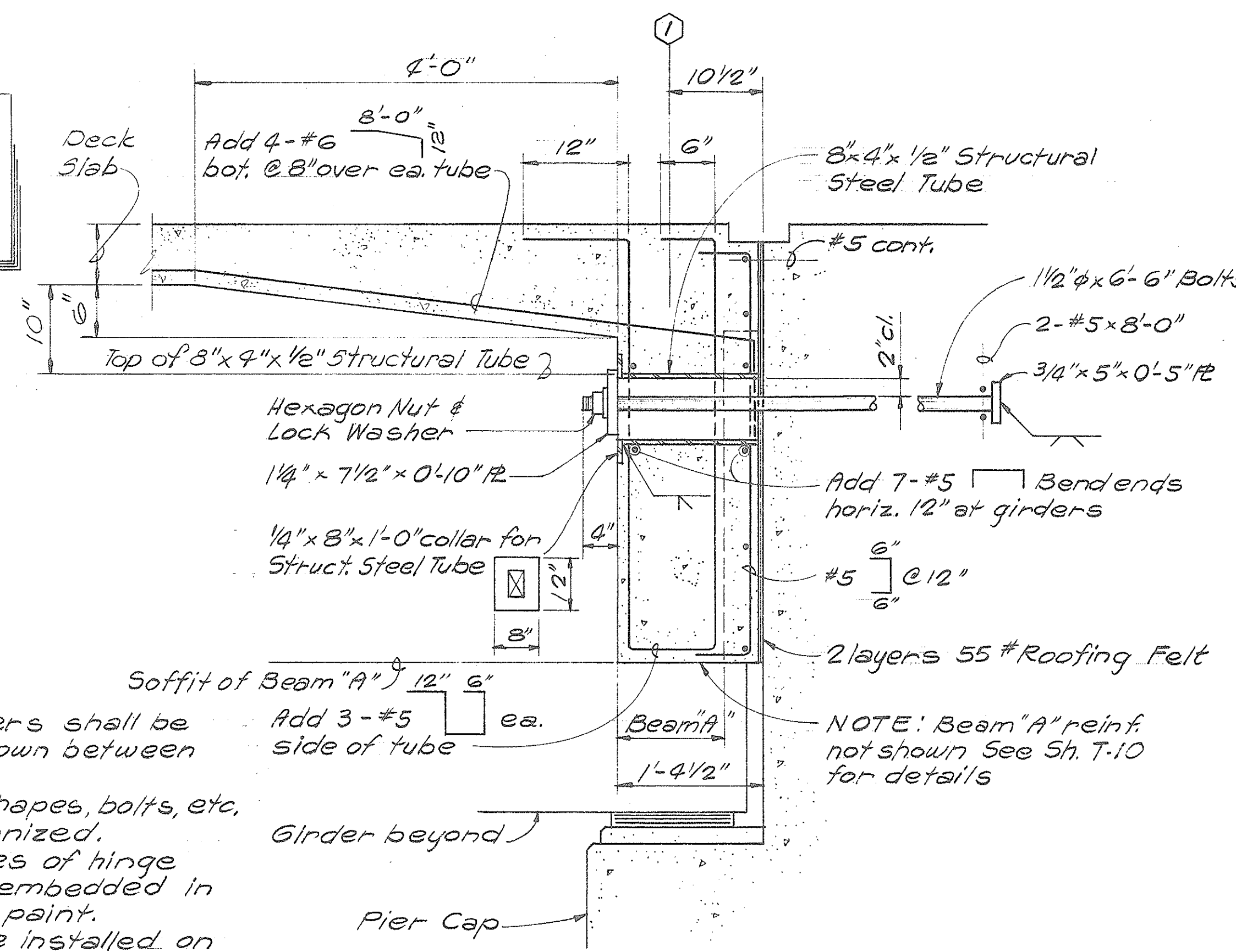
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(182):17	1982	38	42



PARTIAL PIER CAP ELEVATION SHOWING END, SHELF, GIRDER SEAT, & CREEP BLOCK REINFORCING

Scale: 3/8"=1'-0"

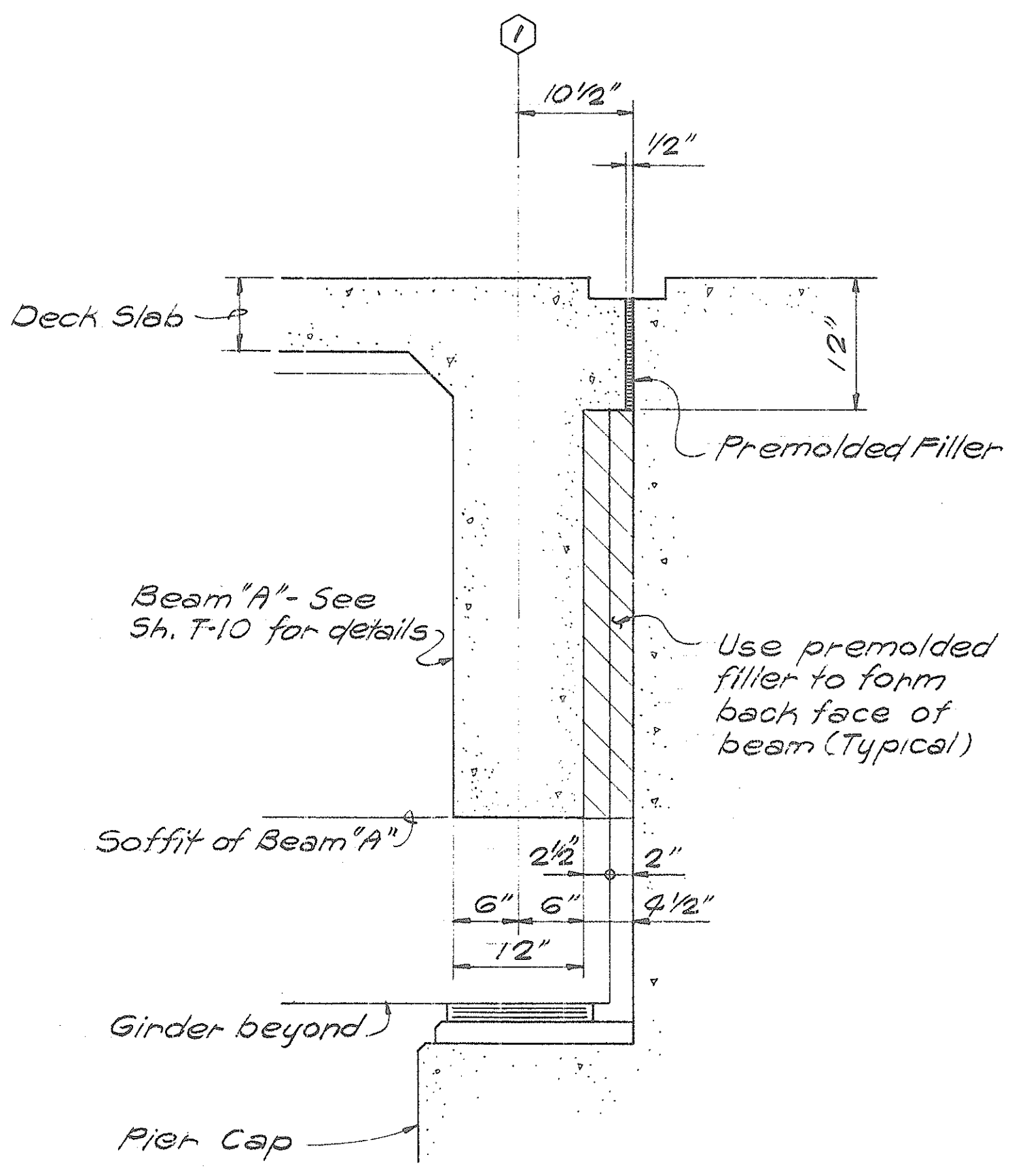
SPECIAL NOTE
The hinge restrainer detail develops the hinge support behavior of one end of the prestressed girders.



SECTION AT HINGE RESTRAINERS

Scale: 1"=1'-0"

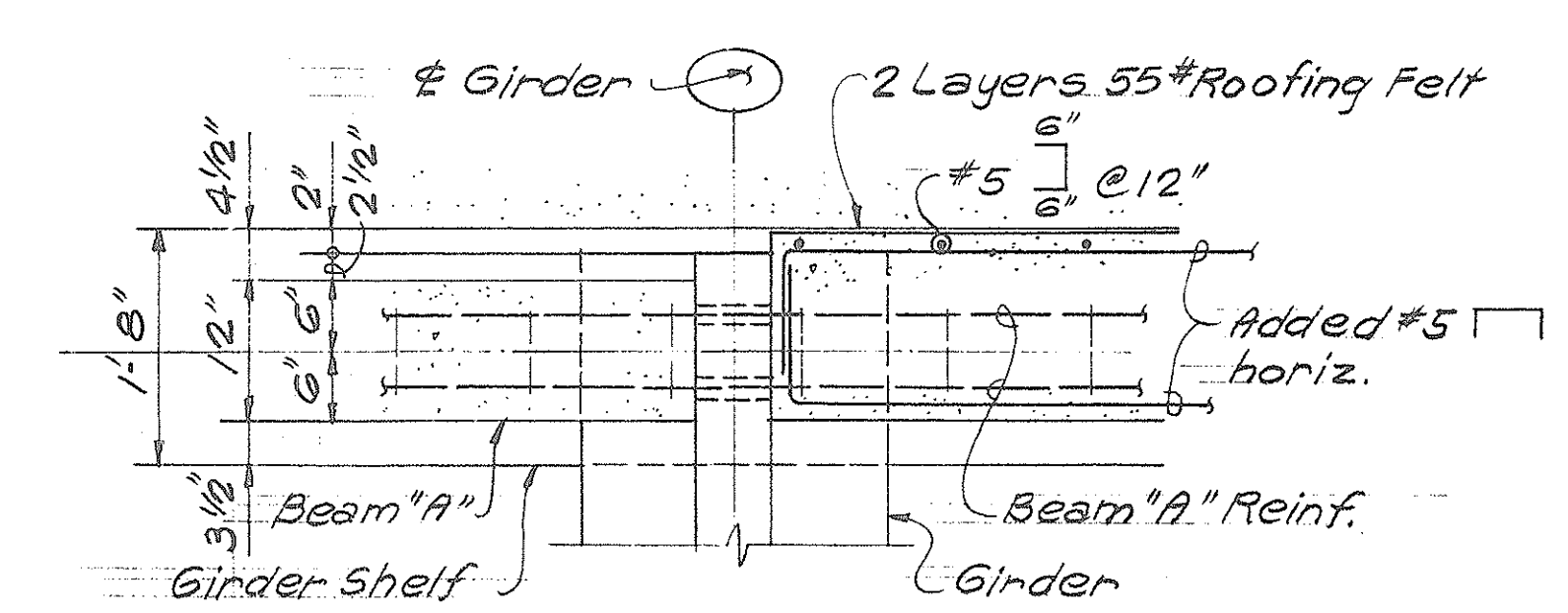
HINGE RESTRAINER DETAILS



TYPICAL SECTION BETWEEN GIRDERS

Scale: 1"=1'-0"

SECTION B

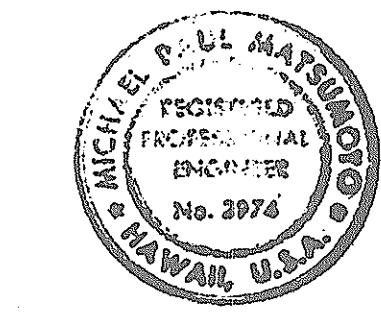


SECTION C

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

REFERENCE NOTE:
1. See Deck Framing Plan for girder locations.

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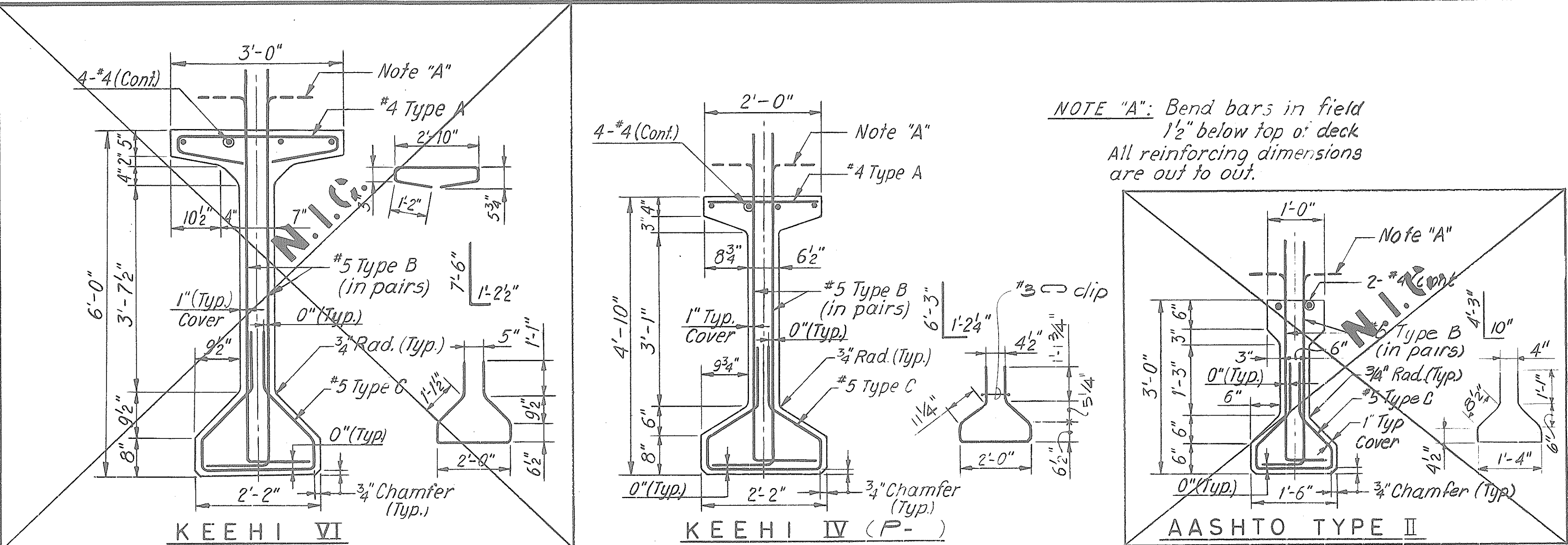
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS
PIER CAP END SHELF, GIRDER SEAT & CREEP BLOCK REINF. & HINGE RESTRAINER DETAILS
KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(182):17
Scale: As Shown Date: 4/21/83
SHEET NO. T-8 OF 16 SHEETS

FOR INFORMATION ONLY

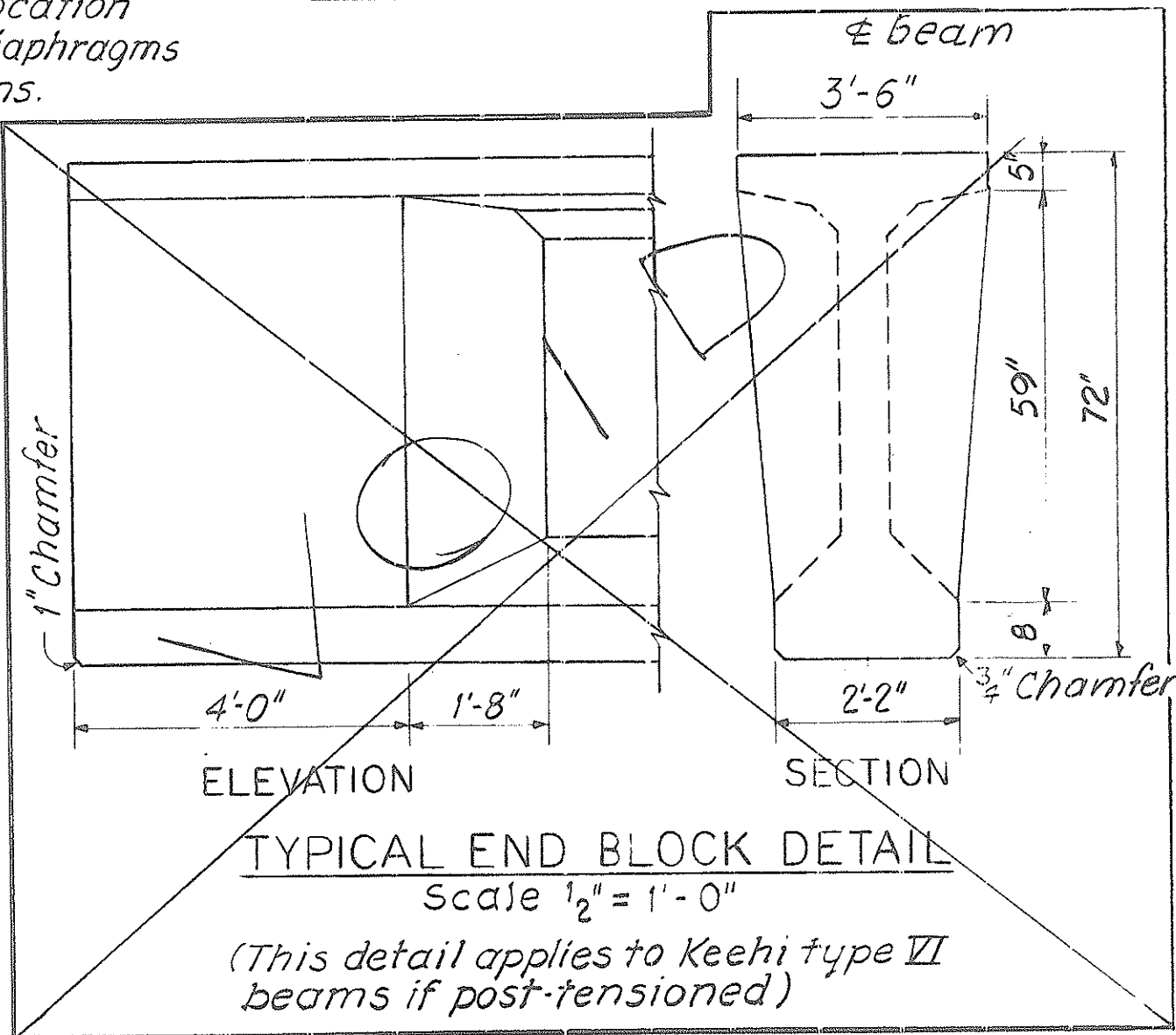
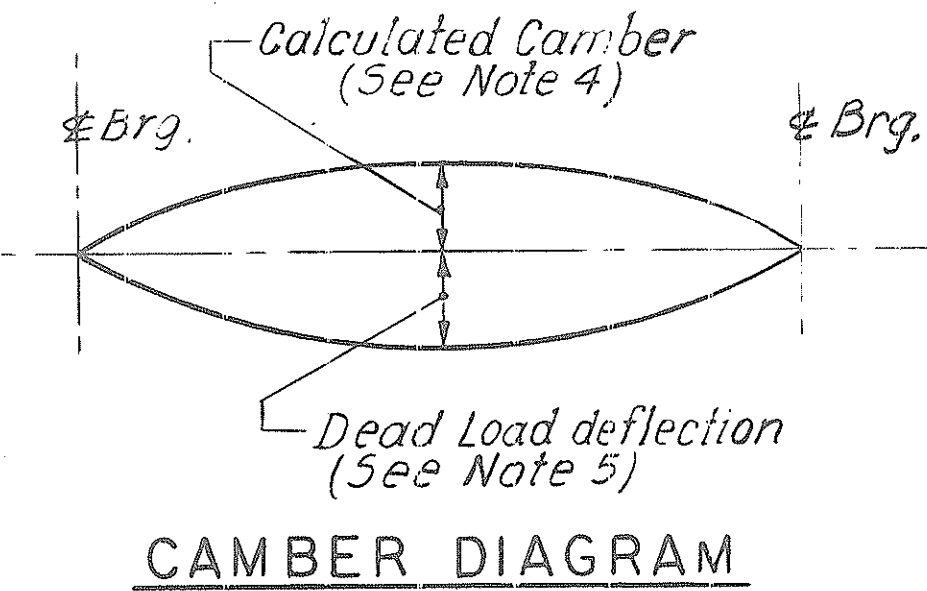
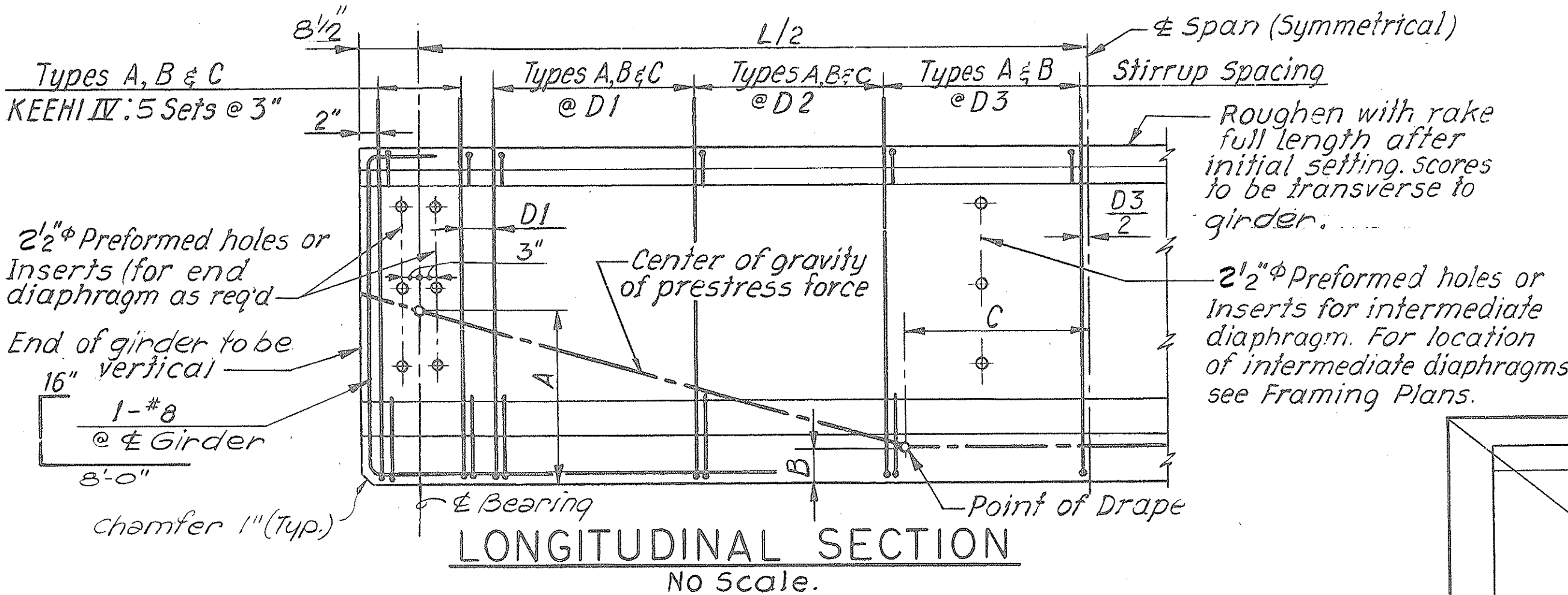
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET	TOTAL SHEETS
HAWAII	HAW.	1-HI-1082	1982	39	42

NOTES FOR PRESTRESSED GIRDERS: PRETENSIONING

- Concrete shall have a minimum 28 day compressive strength of 6000 p.s.i.
- Pretensioned strands in Keehi Girder Type IV and IVF shall be 7 wire 1/2" ϕ stress-relieved steel strands (area = 0.153 in²) with an ultimate strength of 270 ksi. For properties see State Standard Specifications. Total loss due to creep, shrinkage, elastic shortening and relaxation of steel = 45,000 p.s.i.
- Pretensioned strands in prestressed tee and Keehi Girder Type I F shall be 7 wire 7/16" ϕ stress-relieved steel strands (area = .1089 in²) with an ultimate strength of 270 ksi. For properties see State Standard Specifications. Total loss due to creep, shrinkage, elastic shortening and relaxation of steel = 39,000 p.s.i.
- Non-prestressed reinforcing steel shall be Grade 40 unless otherwise noted. For properties see State Standard Specifications.
- The calculated camber includes the effect of the initial prestress force and the weight of the girder after removal from bed. Negative values shown for calculated camber indicate a net upward deflection. Calculated camber values shown do not account for any camber growth of the girder. The actual camber shall not exceed the calculated camber shown on the plans by more than 100% at time of installation.
- The dead load deflection includes the combined effects of the weight of slab, haunch & diaphragm.
- Strand pattern shall be symmetrical about the longitudinal ϵ of the girder.
- Strand release sequence shall not induce any lateral deflection of the girder.
- Contractor shall submit his proposed strand pattern and releasing sequence to the Engineer for approval.
- During curing care shall be taken to avoid any lateral deflection of the girder due to improper orientation.
- Lifting devices shall be placed as close as possible to the center line of bearings of the girder. Detail and locations of lifting devices shall be submitted to the Engineer for approval. Such approval does not relieve the contractor of his responsibilities if girder is damaged due to failure of the lifting device.
- See Framing Plans for location of diaphragms, type, mark number and length of individual girders. Lengths shown do not include effect of elastic shortening.



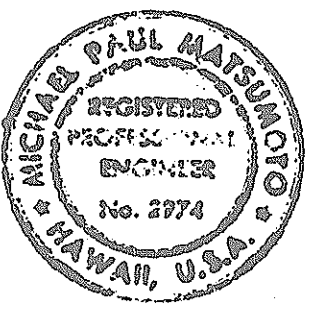
TYPICAL GIRDER SECTIONS
Scale 3/4" = 1'-0"



GIRDER SCHEDULE												
GIRDER TYPE	INITIAL PRESTRESS FORCE (KIPS)	WORKING FORCE (KIPS) (AFTER ALL LOSSES)	CALCULATED CAMBER SEE NOTE 4	DEAD LOAD DEFLECTION SEE NOTE 5	LOCATION OF CENTER OF GRAVITY OF PRESTRESS FORCE			STIRRUPS			REMARKS	
					DIST A	DIST B	DIST. TO PT. OF DRAPE C	NO. OF STIRRUPS @ SPACING D1	NO OF STIRRUPS @ SPACING D2	SPACING D3		
P1	974	752	-1.78"	See Deck Camber Schedule	13.38"	6.73"	4/10	12 @ 8"	15 @ 11"	16"	4000	
P2a	1218	940	-1.35"		16.13"	6.88"	4/10	15 @ 9"	8 @ 12"	16"	4500	
P2b	1218	940	-1.32"		14.38"	7.12"	4/10	13 @ 9"	10 @ 12"	16"	4500	
P2c	1218	940	-1.26"		16.13"	7.50"	4/10	18 @ 8"	9 @ 12"	16"	4500	
P2d	1218	940	-1.16"		13.88"	8.36"	4/10	13 @ 9"	10 @ 12"	16"	4500	
P3	1279	987	-1.38"		15.38"	7.66"	4/10	12 @ 10"	10 @ 12"	16"	4500	
P4	1096	846	-1.07"		17.15"	7.26"	4/10	5 @ 10"	9 @ 12"	16"	4500	

SURVEY PLOTTED BY	DATE
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DESIGNED BY	
CHECKED BY	
NOTE BOOK	
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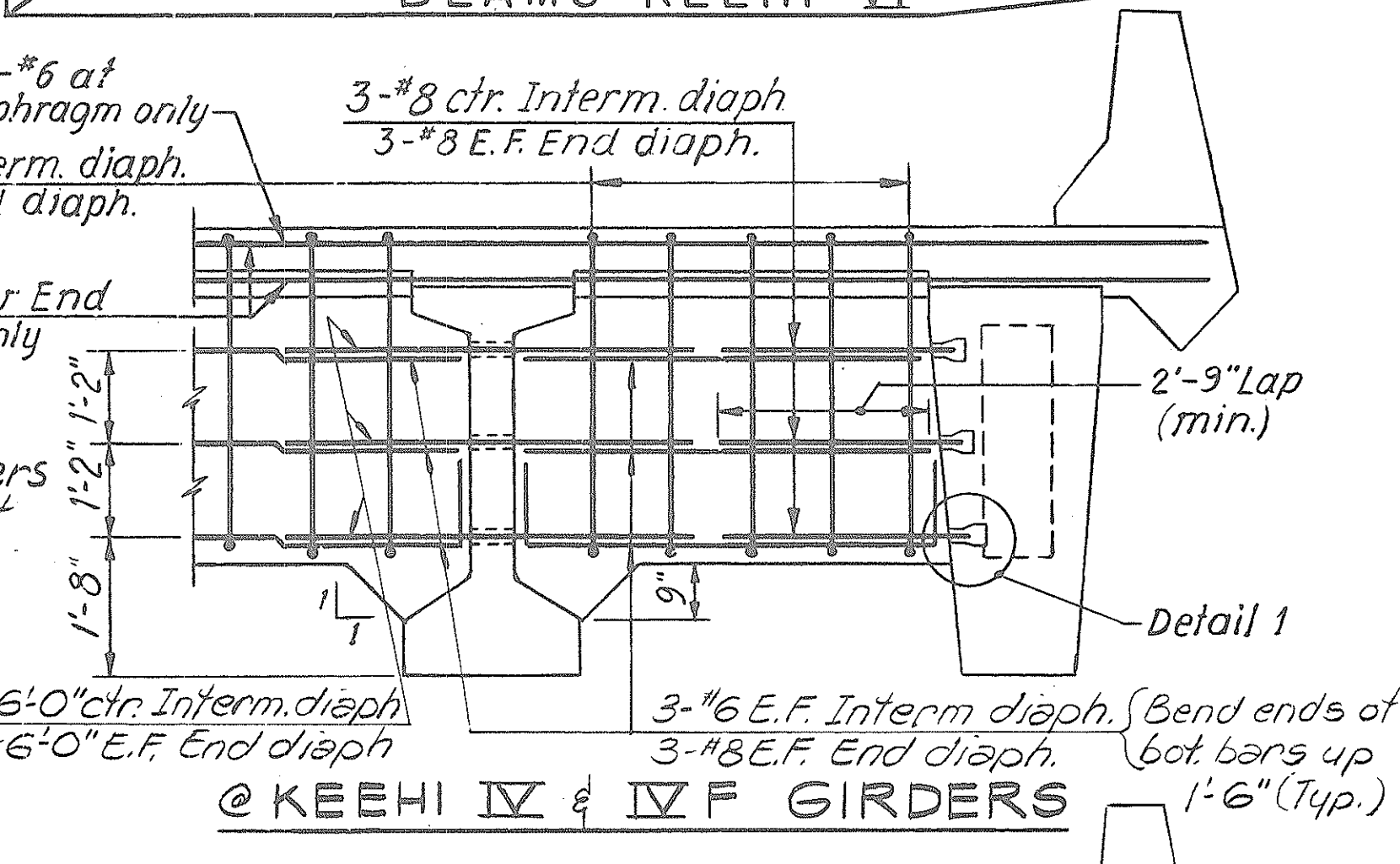
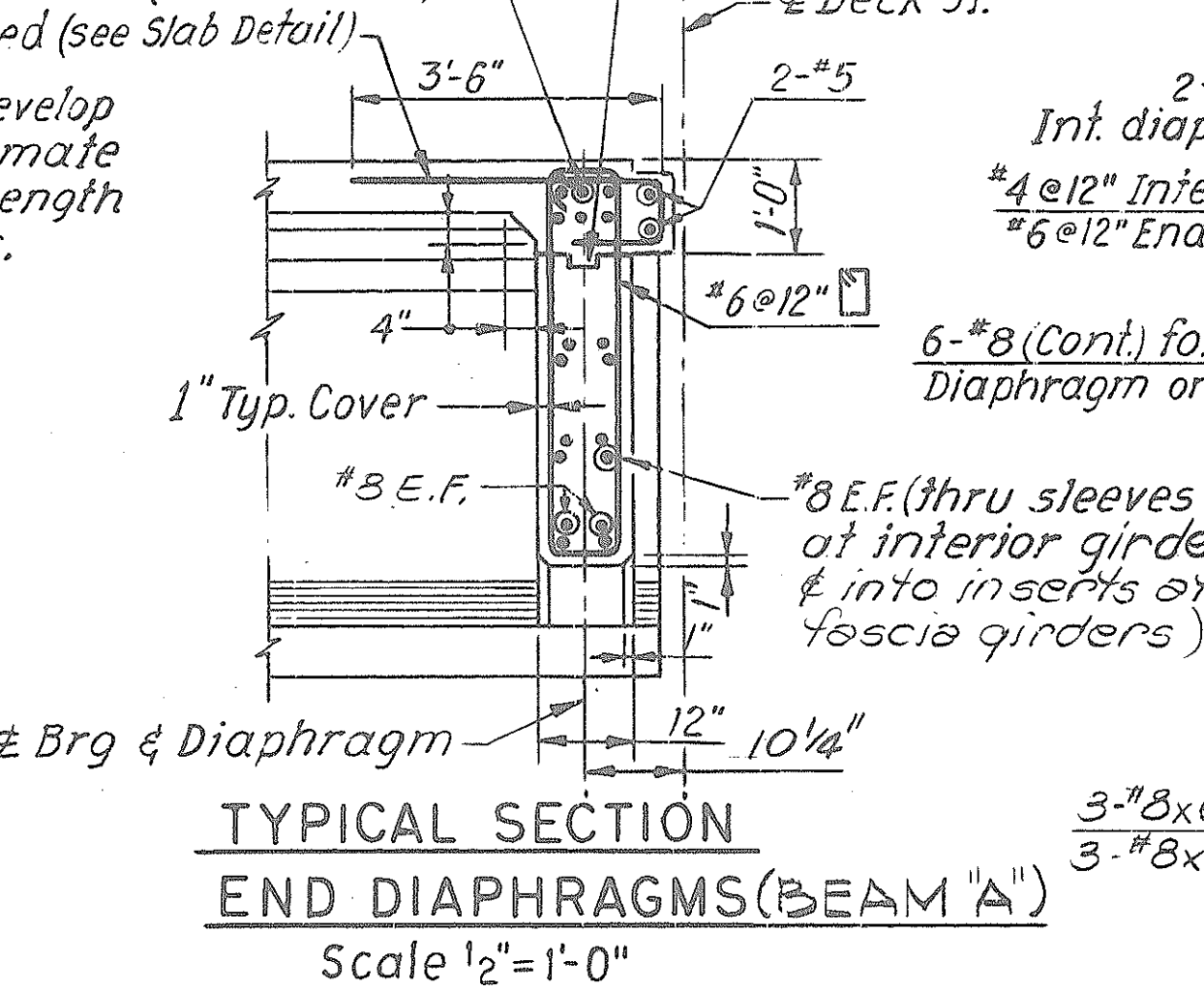
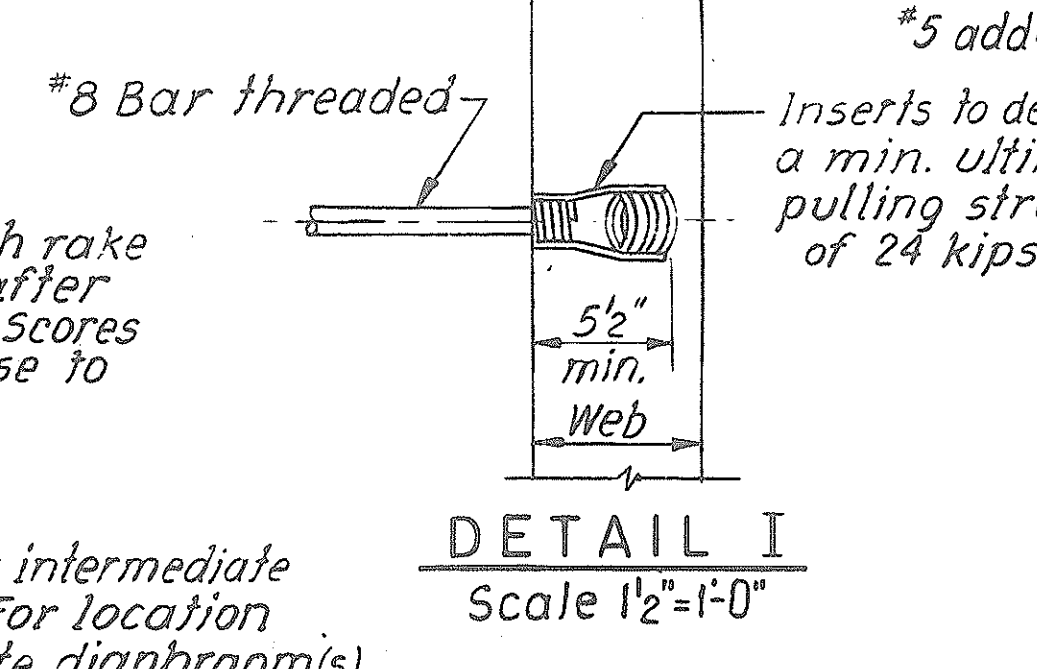
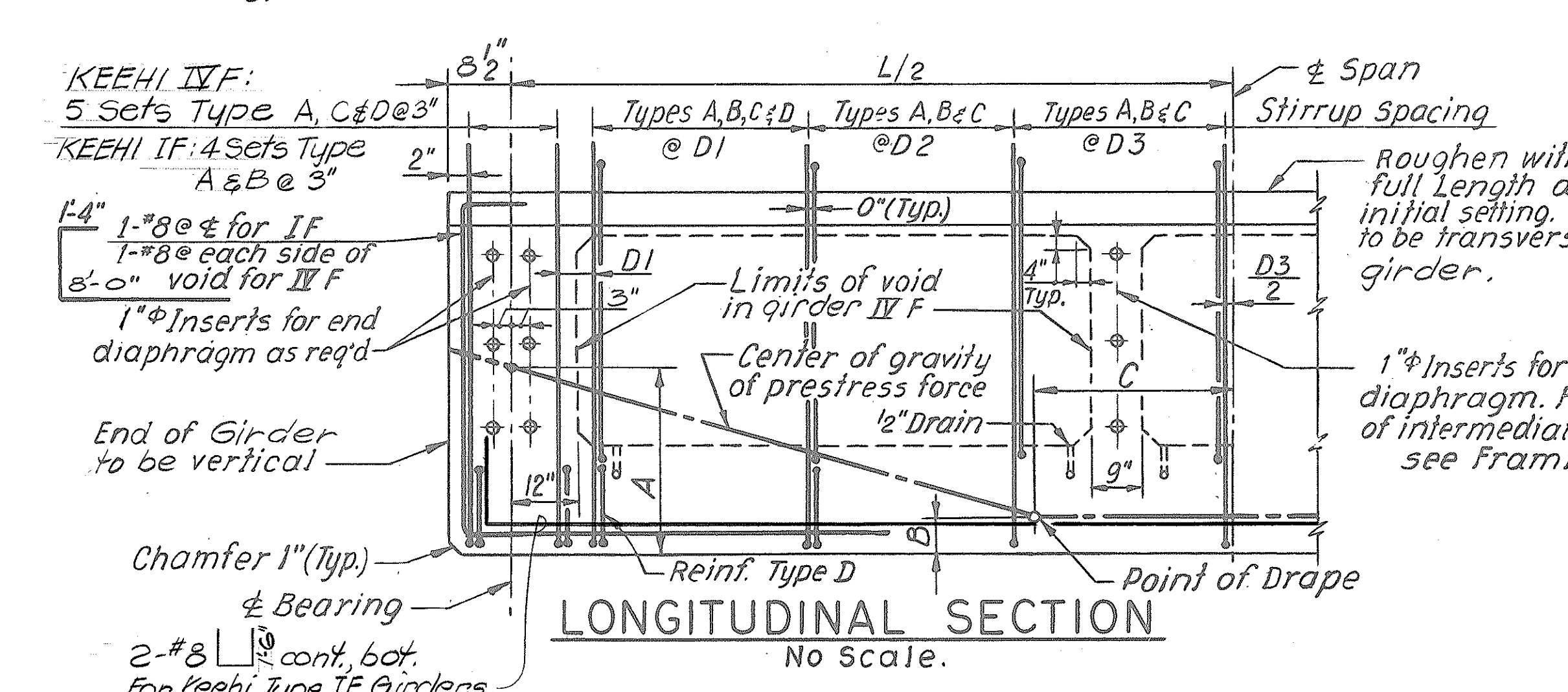
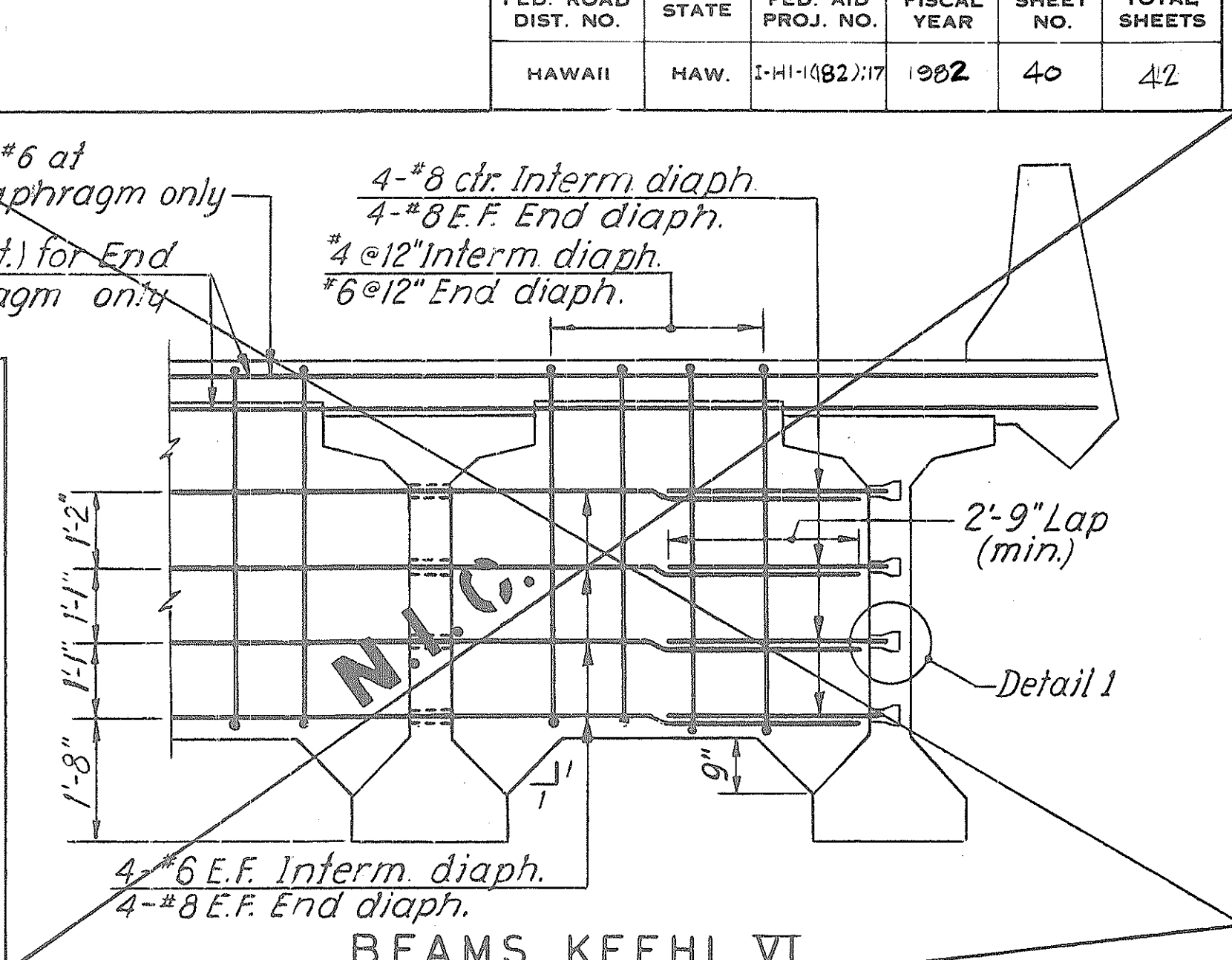
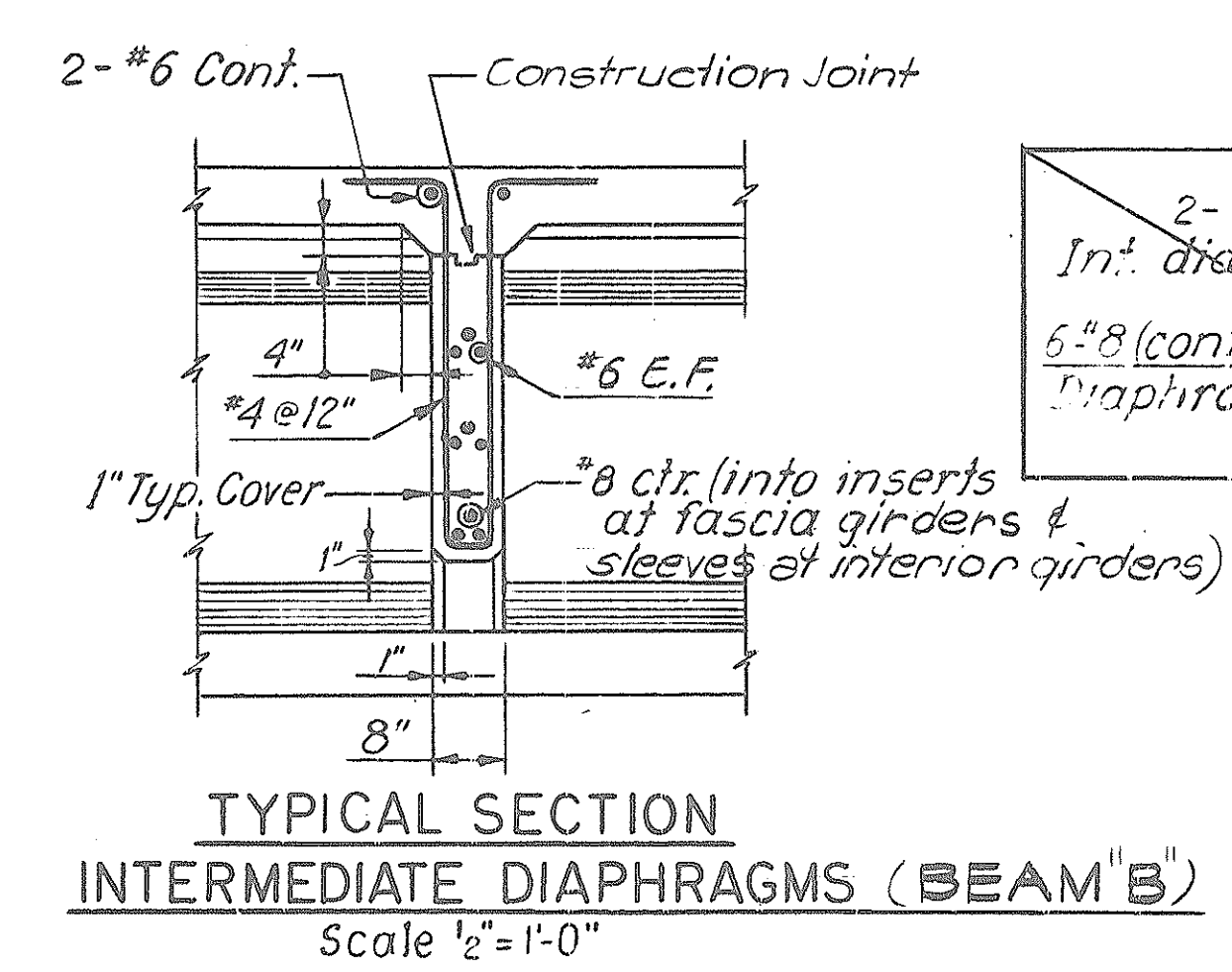
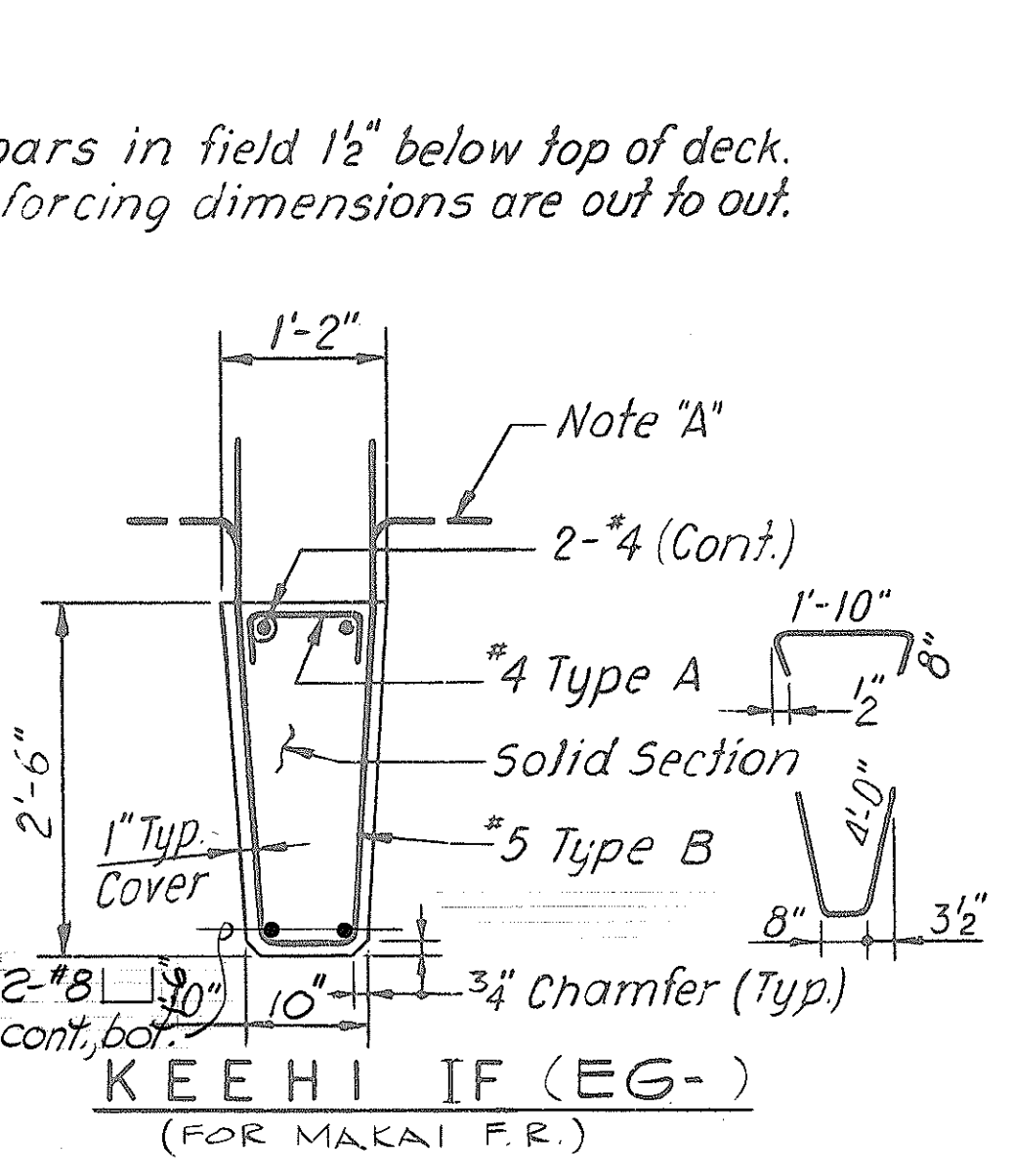
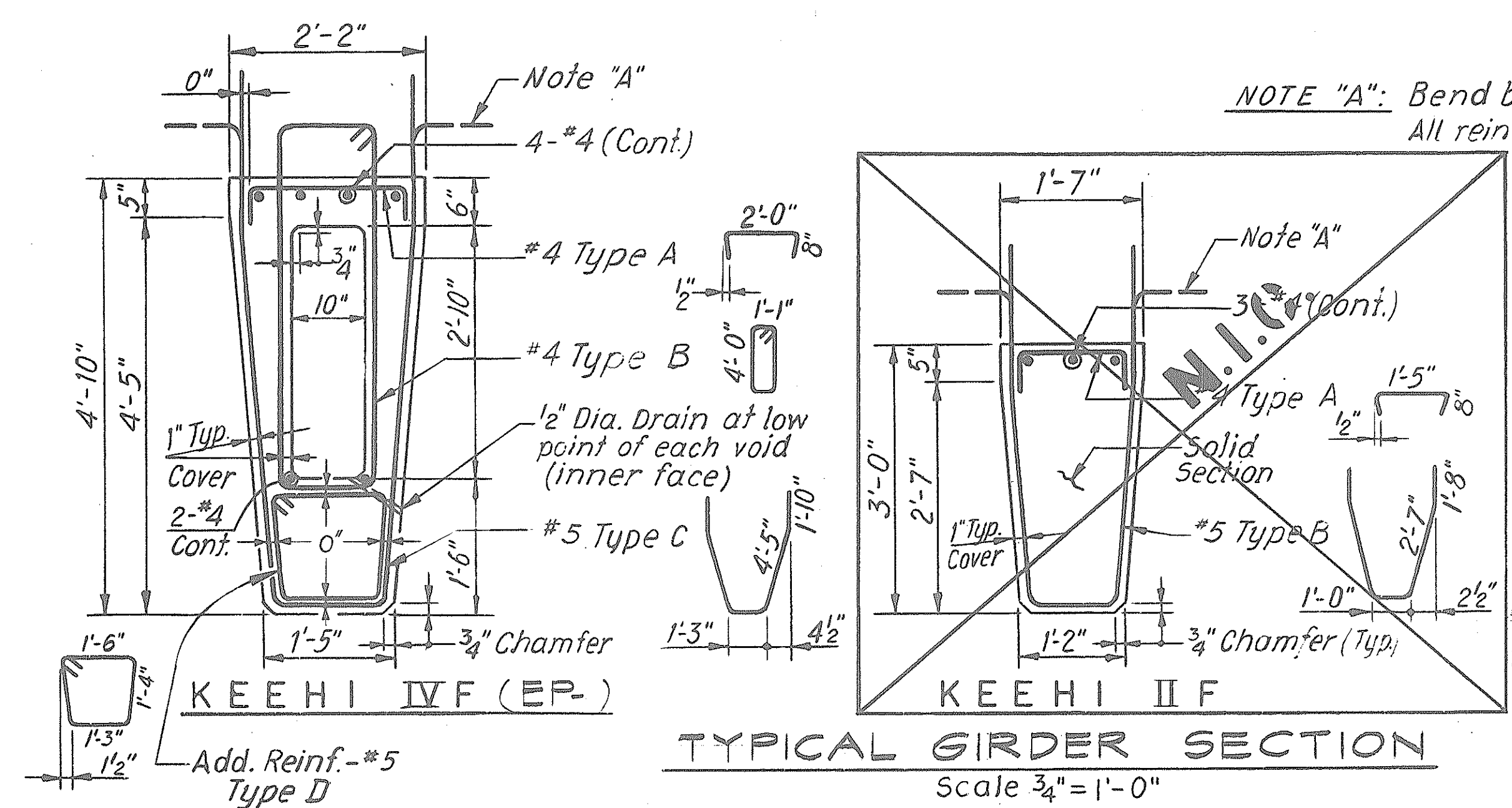
KEEHI INTERCHANGE AREA I & II CONSULTANTS
c/o Shimizu, Shimboku & Fukuda, Inc.
1215 Ward Ave., Honolulu, Hawaii 96814



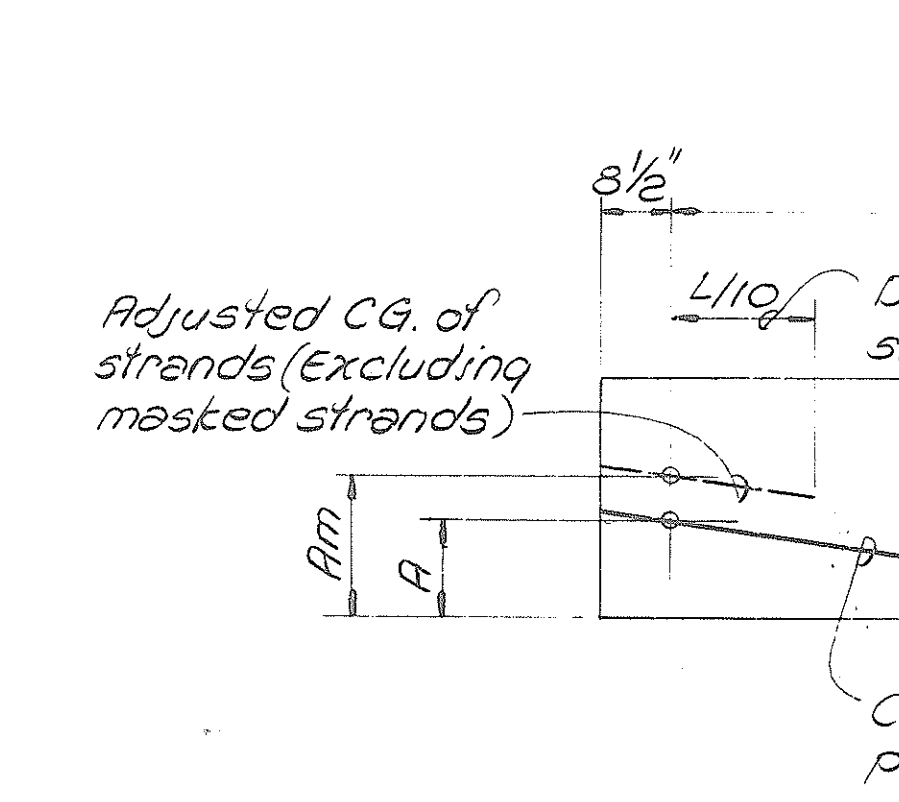
Michael Muroga

1/16/84	REVISED PREFORMED HOLES, REVISED NOTE #2b.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
PRESTRESS GIRDER DETAILS SHEET 1 OF 2	
KEEHI INTERCHANGE F.A.I. PROJECT NO. 1-HI-1082 : 17	
SCALE:	DATE: 4/21/83
SHEET NO T-9 OF 16 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1182	1982	40	42



- NOTES**
- For Prestress Notes and Camber Diagram see Sh. No. T-3
 - Apply Epoxy Bonding Compound to contact area of all KEEHI IV F Fascia Girders before placing diaphragm concrete. Epoxy Bonding Compound incidental to concrete in bridges.
 - Bars in sleeves shall be grouted in place before pouring the diaphragms concrete.
 - Inserts & sleeves are incidental to prestressed concrete girder.
 - See Sh. 5.49 for Prestressed Girder Schedule.



GIRDER SCHEDULE

GIRDER TYPE	INITIAL PRESTRESS FORCE (KIPS)	WORKING FORCE (KIPS) (AFTER ALL LOSSES)	CALCULATED CAMBER SEE NOTE 4	DEAD LOAD DEFLECTION SEE NOTE 5	LOCATION OF CENTER OF GRAVITY OF PRESTRESS FORCE			STIRRUPS			REQUIRED MIN. ULT. CONC. STRENGTH BEFORE RELEASE OF STRANDS (PSI)	REMARKS
					DIST. A	DIST. B	DIST. TO PT. OF DRAPE C	NO. OF STIRRUPS @ SPACING D1	NO. OF STIRRUPS @ SPACING D2	SPACING D3		
EP1	1035	799	-1.81"		18.07"	8.49"	L/10	12 @ 8 1/2"	10 @ 12"	16"	4000	
EP2	1341	1034	-1.24"		18.71"	9.93"	L/10	12 @ 9"	9 @ 12"	16"	4500	
EP26	1341	1034	-1.22"		18.71"	10.16"	L/10	12 @ 9"	9 @ 12"	16"	4500	
EP3	1368	1058	-1.41"		18.18"	9.71"	L/10	13 @ 10"	3 @ 14"	16"	4500	
EP4	1423	1104	-1.49"		18.78"	10.02"	L/10	13 @ 10"	3 @ 12"	16"	4500	
EP5	1462	1123	-1.34"		19.71"	10.93"	L/10	12 @ 9"	9 @ 12"	16"	4500	
EG-1	4864	376			11.56"	8.76"	L/10	9 @ 8"	@ 12"	12"	4500	
EG-1a	4864	376			11.56"	11.56"		5 @ 9"	@ 12"	12"	4500	G2 at span between 34+55

END DIAPHRAGM @ KEEHI IF GIRDER & 30" TEE TYPICAL INTERMEDIATE AND END DIAPHRAGMS
 Scale 1/2" = 1'-0"

1/16/84
 DATE
 REVISION

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

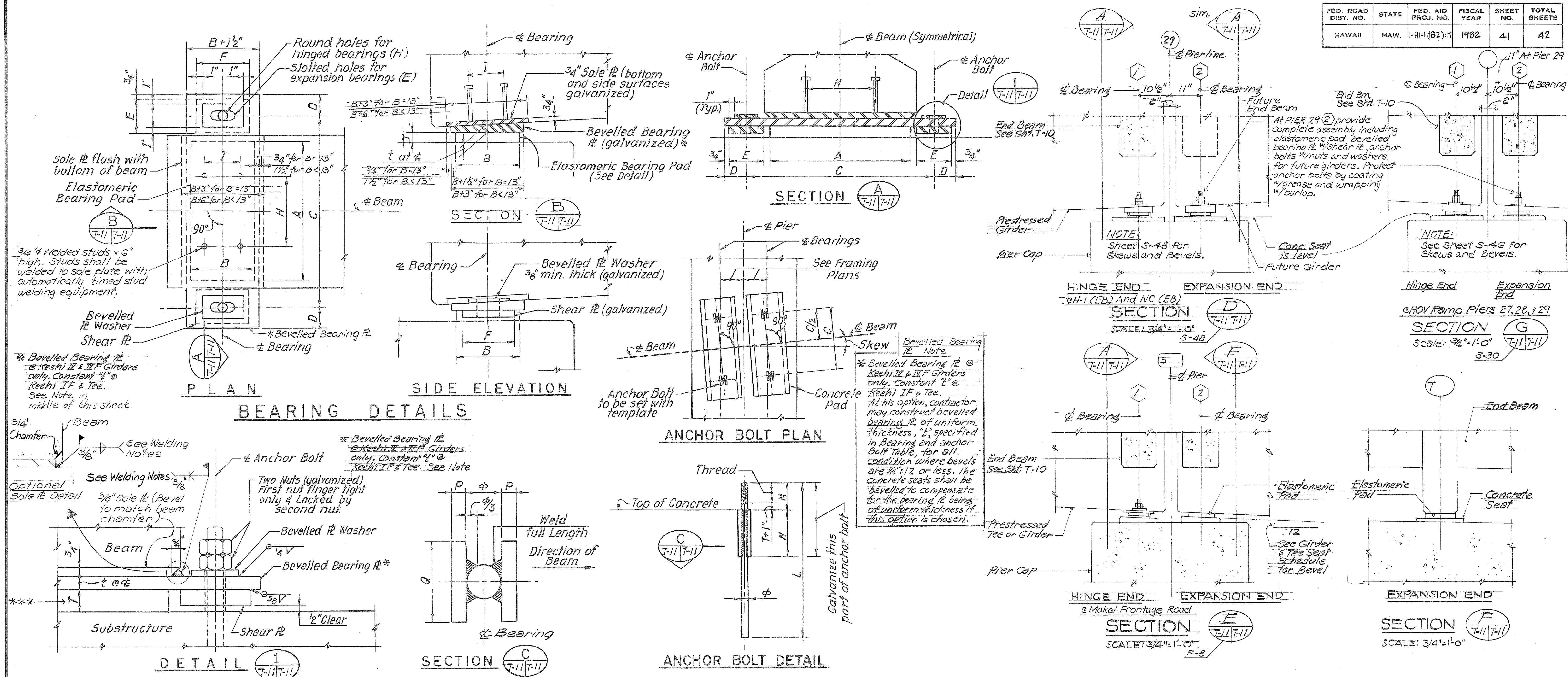
PRESTRESS GIRDER & BEAM "A" & "B" DIAPHRAGM DETAILS
 SHEET 2 OF 2

KEEHI INTERCHANGE
 F.A.I. PROJECT NO. 1-HI-1182 (1982)
 SCALE: As Shown
 DATE: 4/21/83

SHEET NO. T-10 OF 16 SHEETS

SURVEY PLOTTED BY
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 QUANTITIES BY
 CHECKED BY
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H-1 (82)	1982	41	42



*** Based on Steel Laminated Bearing Pads.

BEARING AND ANCHOR BOLT TABLE

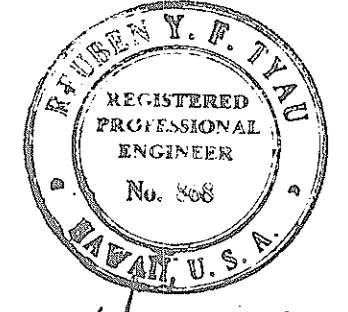
BEARING TYPE	ELASTOMERIC BEARING PAD			STEEL DIMENSIONS					STUD SPACING		ANCHOR BOLT HOLES		ANCHOR BOLT			ANCHOR PLATES		
	A	B	T	C	D	E	F	G	H	I	HINGED BRGS.	EXP. BRGS.	Φ	L	M	N	Q	P
1H	15 1/2"	13"	1 5/8"	27"	3 3/4"	7"	10"	1 1/8"	8"	6"	2"Φ	2" x 4"	1 3/4"	39"	9"	9"	5"	3/4"
1E	15 1/2"	13"	2 1/4"	27"	3 3/4"	7"	10"	1 1/8"	8"	6"	2"Φ	2" x 4"	1 3/4"	39"	9"	9"	5"	3/4"
2H	24 1/2"	8 1/2"	1 5/8"	32"	3 3/4"	7"	8"	1 1/8"	12"	5"	2"Φ	2" x 4"	1 3/4"	39"	9"	9"	5"	3/4"
2E	24 1/2"	8 1/2"	2 1/4"	32"	3 3/4"	7"	8"	1 1/8"	12"	5"	2"Φ	2" x 4"	1 3/4"	39"	9"	9"	5"	3/4"
3H	8 1/2"	7 1/2"	1 5/8"	17"	3 1/2"	6"	7 1/2"	3/4"	5"	6"	1 1/2"Φ		1 1/4"	30"	8"	6"	4"	1 1/2"
3E	8 1/2"	7 1/2"	2 1/4"	17"	3 1/2"	6"	7 1/2"	3/4"	5"	6"	1 1/2"Φ		1 1/4"	30"	8"	6"	4"	1 1/2"
4H	10 1/2"	8 1/2"	1 5/8"	19"	3 1/2"	6"	7 1/2"	3/4"	6"	6"	1 1/2"Φ		1 1/4"	30"	8"	6"	4"	1 1/2"
4E	10 1/2"	8 1/2"	2 1/4"	19"	3 1/2"	6"	7 1/2"	3/4"	6"	6"	1 1/2"Φ		1 1/4"	30"	8"	6"	4"	1 1/2"
5E	24"	8"	1 5/8"	32"	3 3/4"	6"	8"	1"					1 3/4"	33"	9"	8"	4"	5/8"
6E	19"	12"	1 5/8"	27"	3 3/4"	6"	8"	1"					2" x 4"	1 3/4"	39"	9"	8"	5/8"

BEARING TYPE LOCATION SCHEDULE						
	H-1 (EB) Pier 29- (1)		MAKAI FRONTAGE ROAD SPANS S-1 thru S-11		HOV RAMP Spans 27, 28, 29	
	G1 & G2 IHE1 & IHE10 G1 & G10	T1-T6 IHE2-IHE9 G2-G9	G1 & G2	T1 - T9	G1A & G2A	T1A & T2A
GIRDER						
HINGE END (H)	1H	2H	3H	4H	1H	2H
EXPANSION END (E)	1E	2E	3E	4E	1E	2E
	H-1 (EB) Pier 29 (2)		NC (EB) Pier 29 (2)		HOV RAMP Pier 29 (2)	
	IHE1 #IHE10	IHE2 thru IHE9	IHE1 #IHE10	IHE2 thru IHE9	IHV1 #IHV4	IHV2 #IHV3
GIRDER						
EXPANSION END (E)	GE	5E	GE	5E	GE	5E

See Sheet S-47 for Elastomeric Bearing Pad Details.

Welding Notes:

The contractor shall minimize and dissipate the heat generated during the field welding of the 3/4" sole plate to the bevelled bearing plate and during the field galvanizing of the weld. The Contractor shall take all necessary precautions to avoid burning the elastomeric bearing pad during welding and galvanizing. Welding of the sole plate to the bearing plate shall be done prior to the pouring of diaphragm and deck. Temporary wooden shims (A x B x 3/4" min. thickness) shall be placed between the bevelled bearing plates and the elastomeric bearing pads during field welding and galvanizing. Shims shall be removed.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

H-1 VIADUCT (EB)
TYPICAL DETAILS
BEARING DETAILS

KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI-1 (82) : 17
SCALE: AS SHOWN
DATE: 4/21/83

SHEET NO. T-11 OF 16 SHEETS

NOTE B:
Provide continuous gutter with 2% cross slope on low side of deck, except as otherwise indicated.

