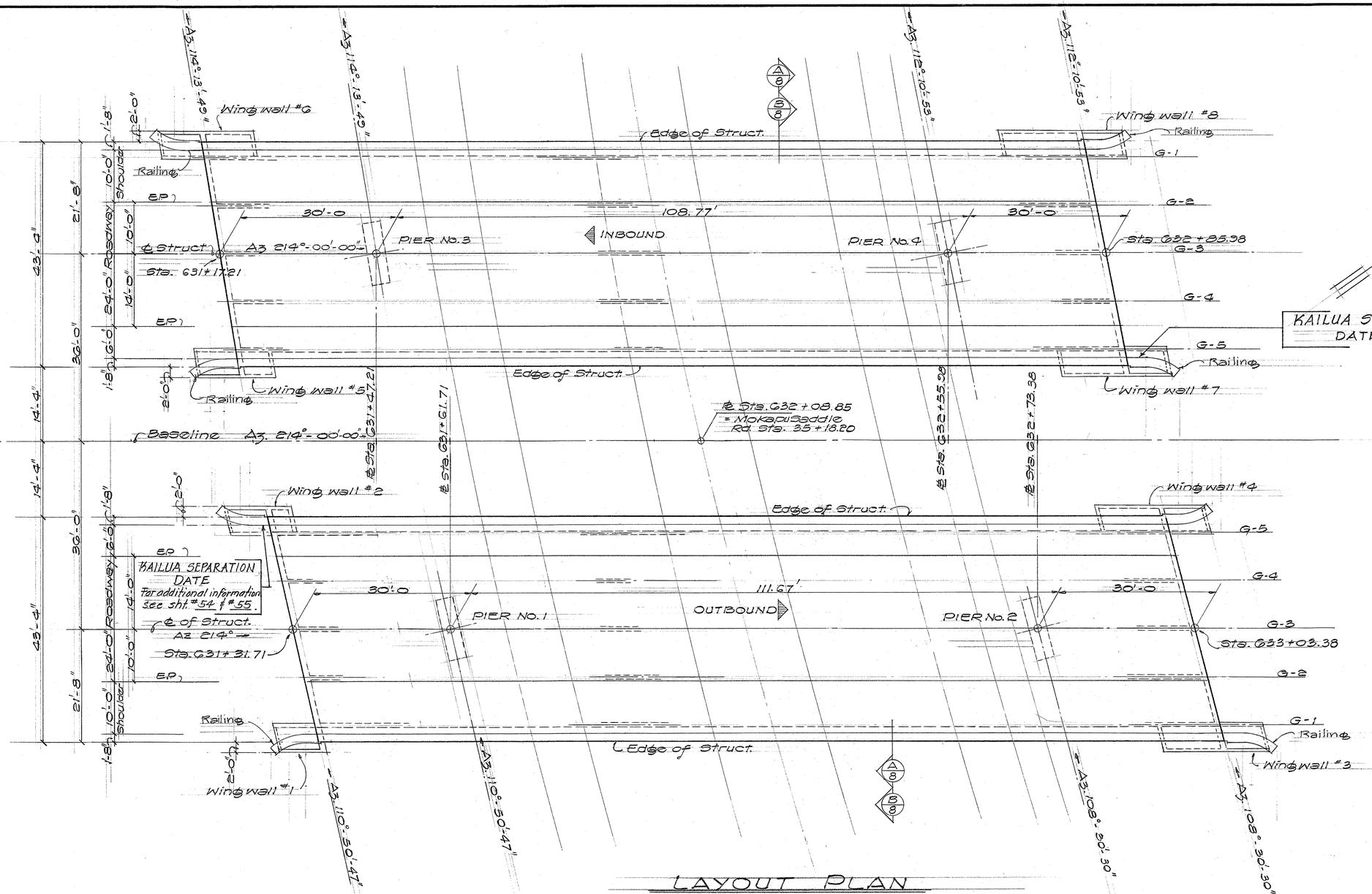
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(7):13 I-H3-1(2):8	1968	43	86



LAYOUT PLAN
Scale 1" = 10'

KAILUA SEPARATION
DATE

For additional information see sht. #54 & #55.

ORIGINAL PLAN	DATE
NOTE BOOK	SURVEY PLOTTED BY:
No.	DRAWN BY:
	TRACED BY:
	DESIGNED BY:
	QUANTITIES BY:
	CHECKED BY:

KWAN DOO PARK
REGISTERED PROFESSIONAL ENGINEER
No. 202
HAWAII, U.S.A.

This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAILUA INTERCHANGE
STRUCTURE
LAYOUT PLAN

F.A.I. Proj. No. I-H3-1(7):13, I-H3-1(2):8
SCALE: AS SHOWN DATE: NOV. 1967

SHEET No. 1 OF 13 SHEETS

PRINTED ON NO. 1000H CLEARPRINT

BORING LOG and PLOT PLAN

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-HR-1(7)13 F-HR-1(2)8	1968	44	86

BORING S-16 — AUG. 1, 1967

- 25 — Firm brown silty clay w/traces of gravel
- 90 — Unweathered dense basalt rock (frac.)
- 80 — Unweathered dense basalt rock
- 70
- 65

BORING S-17 — JULY 28, 1967

- 120 — Firm brown silty clay
- 110 — Stiff gray silty clay
- 100 — Very stiff gray silty clay
- 90 — Highly weathered rock
- Highly & mod. weathered dense basalt rock (frac.)
- Unweathered dense basalt rock
- 80
- 75

BORING S-18 — AUG. 1, 1967

- 125
- 120 — Firm brown silty clay
- 110 — Very stiff brown silty clay
- Highly weathered rock
- 100 — Moderate weathered dense basalt rock (frac.)
- 90
- 80

BORING S-19 — AUG. 10, 1967

- 180 — Firm brown clay
- Firm yellow-brown silty clay
- Highly weathered rock
- 170 — Highly weathered rock (frac.)
- Stiff brown silty clay & highly wea. gravel
- 160 — Highly weathered rock
- Slightly weathered dense basalt rock (frac.)
- Moderate weathered dense basalt rock (frac.)
- 150
- Highly & slightly wea. dense basalt rock (frac.)
- 140
- Slightly weathered dense basalt rock (frac.)
- 130
- Moderate weathered dense basalt rock (frac.)
- 120

BORING S-20 — AUG. 10, 1967

- 200 — Stiff light brown silty clay
- 190 — Highly wea. rock & stiff light brown silty clay
- Highly wea. rock & stiff light brown silty clay w/ moderate wea. rock
- 180 — Very stiff brown silty clay w/some highly wea. rock
- Very stiff light brown clay
- Moderate & slightly wea. frac. rock
- 170 — Highly weathered rock
- Unweathered dense frac. rock
- Highly weathered frac. rock
- 160 — Unweathered dense frac. rock
- 150

BORING S-21 — JULY 31, 1967

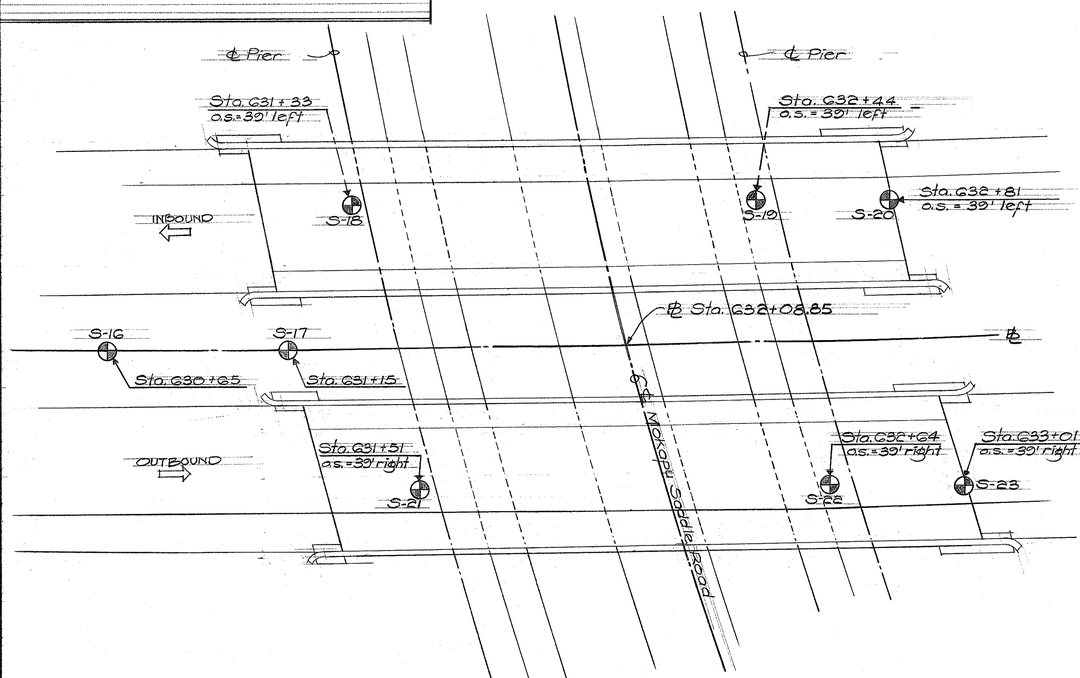
- 125
- 120 — Firm brown silty clay
- Very stiff gray silty clay
- 110
- Moderate & highly wea. dense basalt boulder
- Very stiff brown silty clay w/few highly weathered gravel
- 100
- Highly weathered rock
- Mod. & highly weathered dense basalt rock
- 90 — Highly weathered rock
- 80

BORING S-22 — AUG. 16, 1967

- 185
- 180 — Firm brown silty clay
- Silty brown silty clay & highly wea. gravel
- 170
- 160
- Unweathered dense basalt rock w/some highly weathered rock (frac.)
- 150
- 140
- Unweathered dense basalt rock (frac.)
- 130
- 120
- 115

BORING S-23 — AUG. 10, 1967

- 200 — Firm brown silty clay & highly weathered gravel
- Highly weathered rock
- 190 — Highly weathered rock (frac.)
- Highly & mod. wea. dense basalt rock (frac.)
- Slightly & mod. wea. dense basalt rock (frac.)
- 180
- Mod. weathered dense basalt rock (frac.)
- Slightly weathered dense basalt rock (frac.)
- 170
- Slightly weathered dense basalt rock
- 160
- 155



BORING PLOT PLAN

KWAN DOO PARK
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No. 202
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This work was prepared by me or under my supervision.

Kwan Doo Park

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAILUA INTERCHANGE STRUCTURE
BORING LOG & PLOT PLAN

F.A.I. Proj. No. I-H3-1(7):13, I-H3-1(2):8

SCALE: AS SHOWN — DATE: NOV. 1967

SHEET No. 2 OF 13 SHEETS

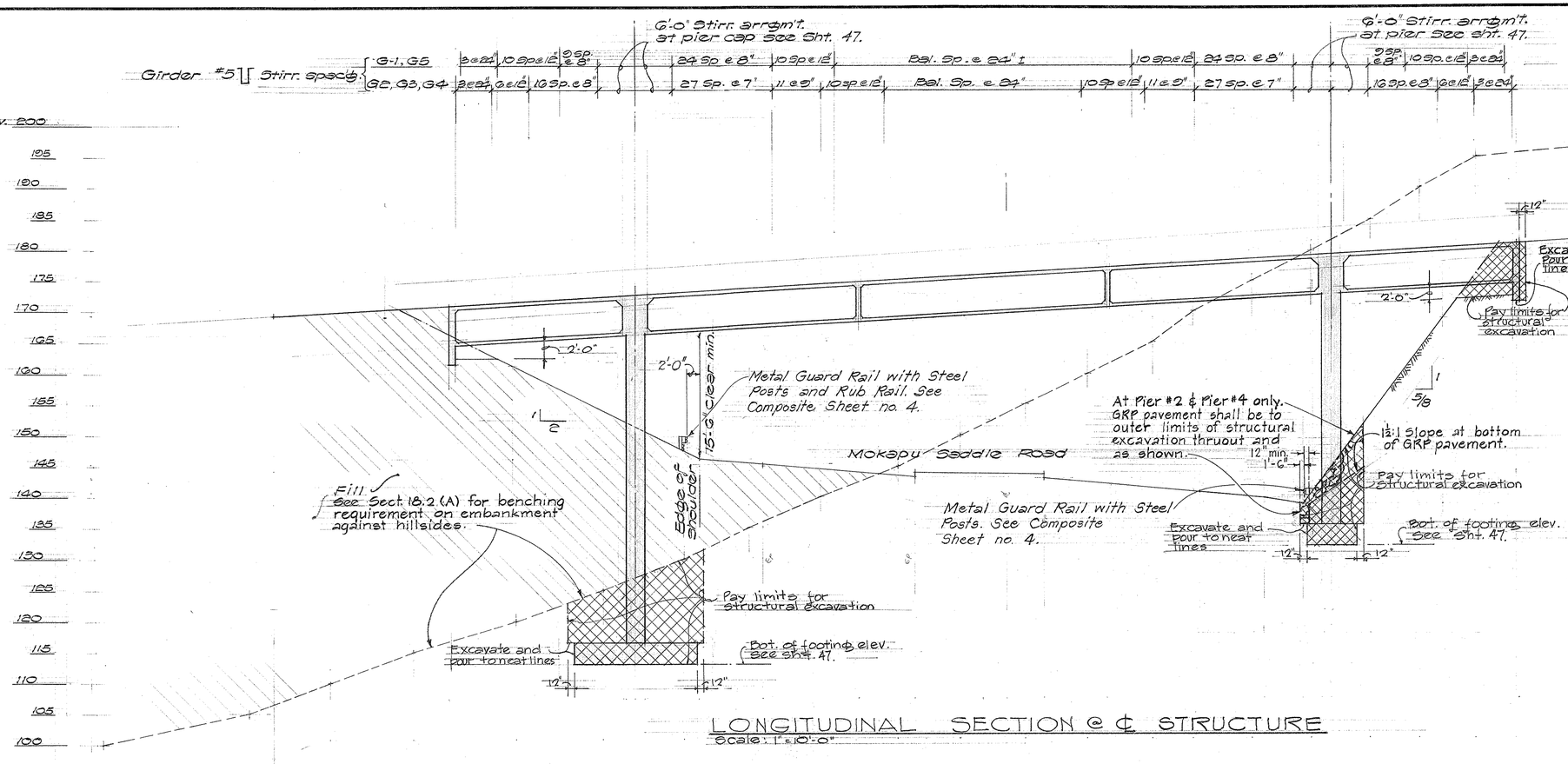
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	" "
	TRACED BY	" "
NOTE BOOK	DESIGNED BY	" "
No.	QUANTITIES BY	" "
	CHECKED BY	" "

PRINTED ON NO. 1000H CLEARPRINT

4 4 0

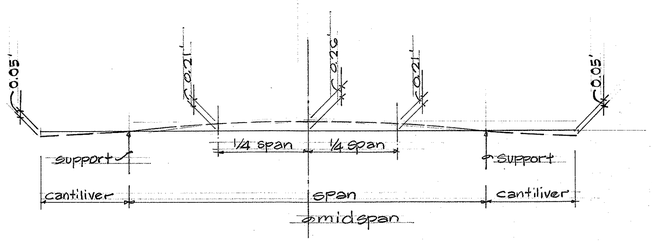
127

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(7):13 I-H3-1(2):8	1968	45	86



LONGITUDINAL SECTION ℄ STRUCTURE

Scale: 1"=10'-0"



CAMBER DIAGRAM

No scale

GENERAL NOTES

SPECIFICATIONS:
AASHO Standard Specifications for Highway Bridges (9th Edition) Hawaii Standard Specification for Road and Bridge Construction (May, 1957)

DESIGN LOADS: HS-20-44 or Interstate Loading.

DESIGN STRESSES:

See AASHO specifications except as otherwise noted

$f'c = 3000$ psi | $n = 10$
$fc = 1{,}200$ psi | $fs = 20{,}000$ psi tension
$fs = 16{,}000$ psi compression.

MATERIALS:
1. All concrete shall be Class A-1 except as otherwise noted on plans.
2. See Special Provisions for admixture in concrete.
3. All reinforcing steel to be ASTM Designation A15 Billet Steel, Intermediate Grade except as otherwise noted.

CONSTRUCTION METHODS:
1. See Standard Specifications & Special Provisions.
2. All footings shall be excavated and poured to neat lines. In case of over excavation, space between footing and ground shall be filled with concrete at contractors expense. The fill concrete shall have a minimum quality of Class D-1.
3. The contractor shall verify the location of all existing utility lines and notify the respective owners before commencing excavation work.
4. In general, Top of concrete deck of structure shall be constructed to follow the finish roadway vertical and horizontal curves and grades.
5. For concrete finish see Special Provisions.
6. Embankment shall be brought up equally on all sides of the pier stem so that excessive unbalanced loads are not introduced against it. Embankment shall be constructed according to the applicable provisions of the "Standard Specifications."

ESTIMATED QUANTITIES

Concrete – Lump Sum	L.S. (1,340 C.Y.)	
Reinforcing Steel – Lump Sum	L.S. (535,353 LBS.)	
Metal Bridge Railing (1-Rail Traffic Type)	619.0 ~~681~~	L.F.
Concrete Bridge Railing (1-Rail Traffic Type)	746.9 ~~761~~	L.F.
Structural Excavation	1258.8 ~~1041~~	C.Y.
GRP	80.49 ~~95~~	C.Y.

ORIGINAL PLAN	SURVEY PLOTTED BY
	DRAWN BY
	TRACED BY
NOTE BOOK	DESIGNED BY
	QUANTITIES BY
No.	CHECKED BY
	DATE

KWAN DOO PARK
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KALUA INTERCHANGE
STRUCTURE
LONGITUDINAL SECTION

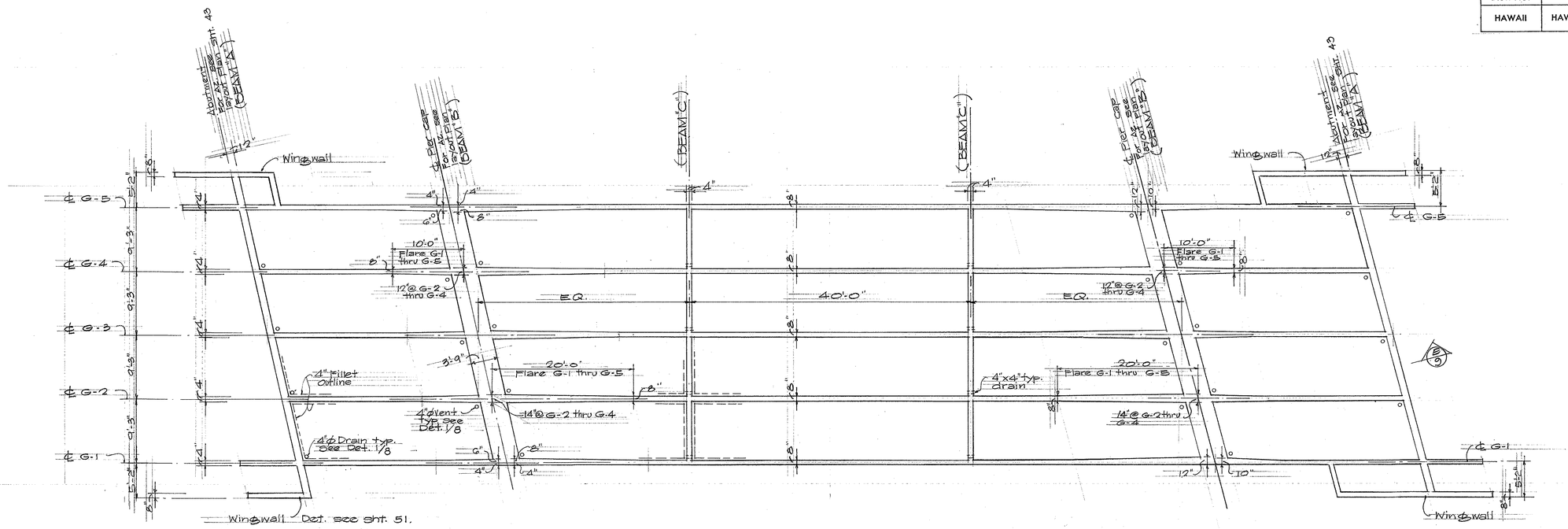
F.A.I. Proj. No. I-H3-1(7):13, I-H3-1(2):8
SCALE: AS SHOWN DATE: NOV. 1967

SHEET No. 3 OF 13 SHEETS

PRINTED ON NO. 1000H CLEARPRINT

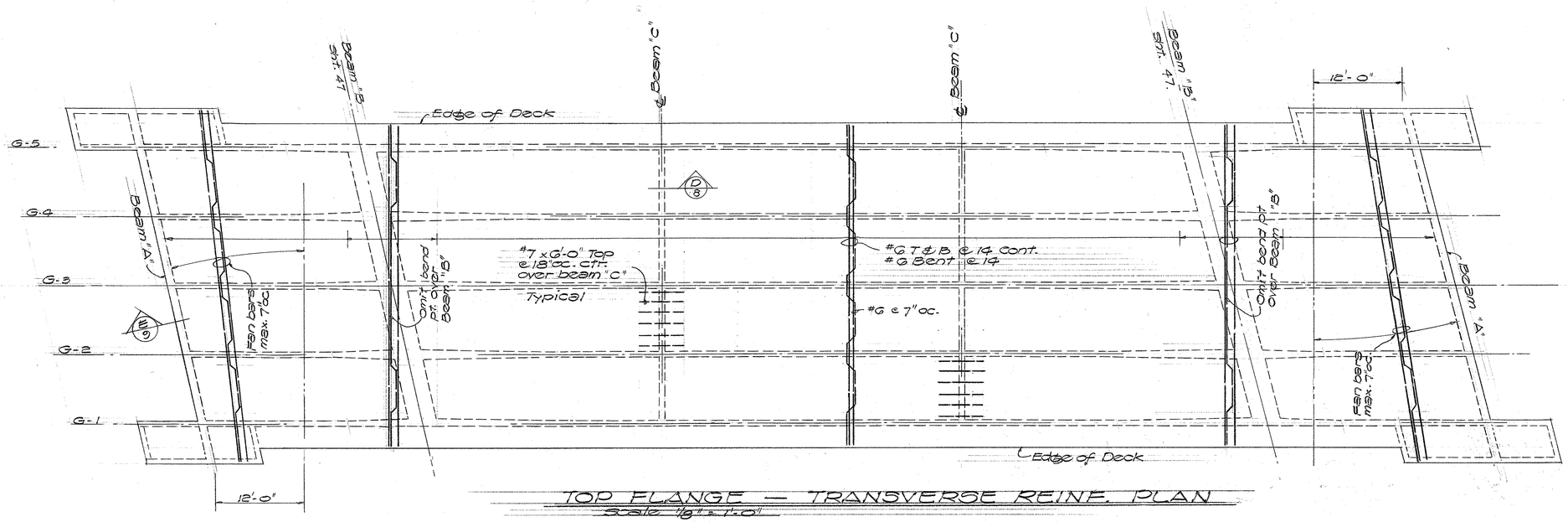
45. 125

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(7):13 I-H3-1(2):8	1968	46	86



GIRDER FRAMING PLAN

OUTBOUND AS SHOWN
Inbound similar, except opposite hand & as otherwise noted



TOP FLANGE — TRANSVERSE REINF. PLAN

Scale 1"=1'-0"

KWAN DOO PARK
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAILUA INTERCHANGE
STRUCTURE
FRAMING & REINFORCING PLAN

F.A.I. Proj. No. I-H3-1(7):13, I-H3-1(2):8

SCALE: AS SHOWN DATE: NOV. 1967

SHEET No. 4 OF 13 SHEETS

ORIGINAL PLAN

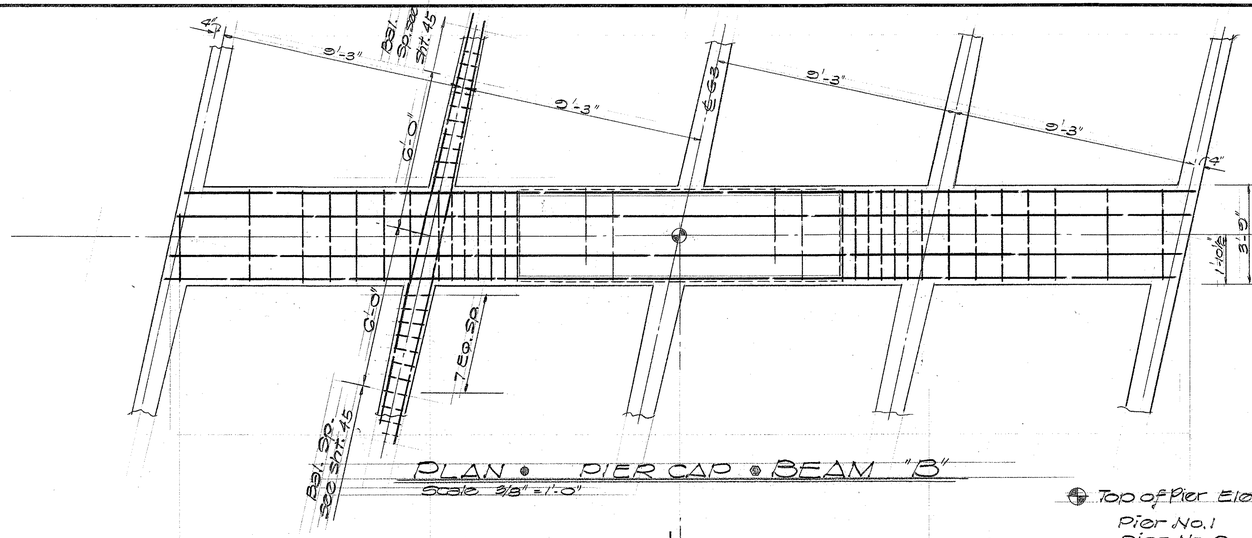
NOTE BOOK No.

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

PRINTED ON NO. 1000H CLEARPRINT

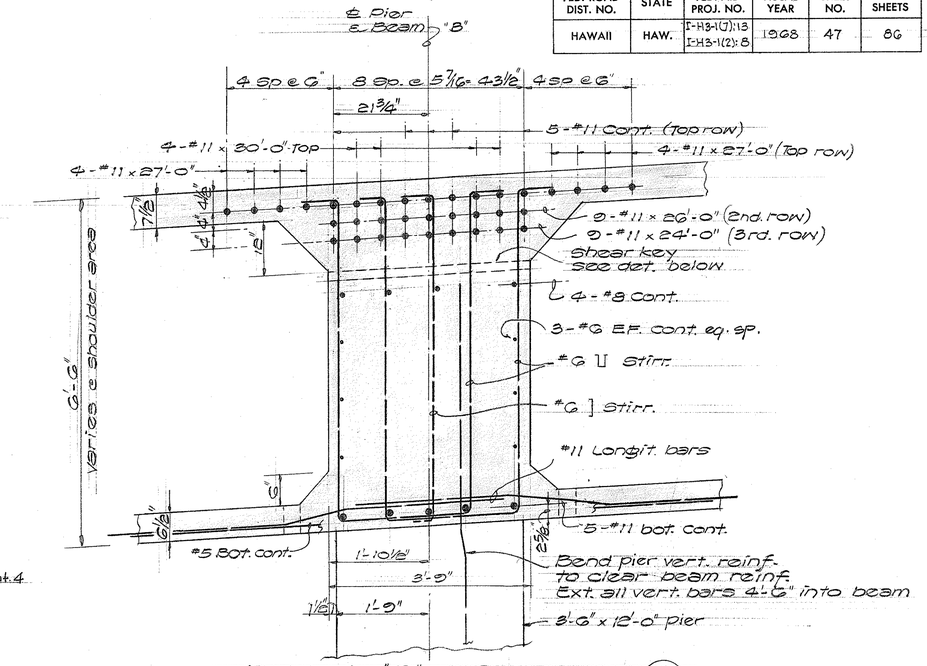
46. 129

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(7):13 I-H3-1(2):8	1968	47	86

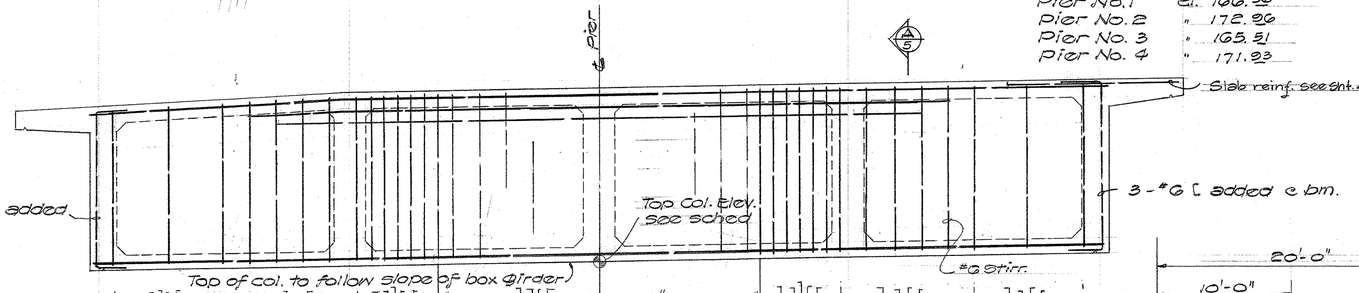


PLAN • PIER CAP • BEAM "B"
Scale 3/8" = 1'-0"

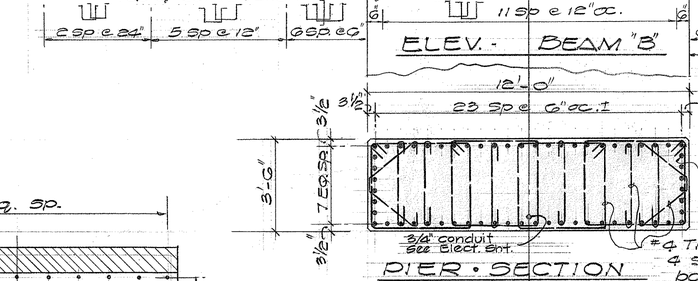
Top of Pier Elev. Sched.	
Pier No. 1	El. 166.36
Pier No. 2	" 172.96
Pier No. 3	" 165.51
Pier No. 4	" 171.23



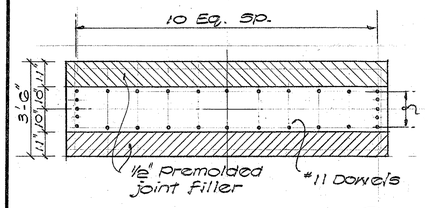
BEAM "B" • SECTION (A/5)
Scale 3/4" = 1'-0"



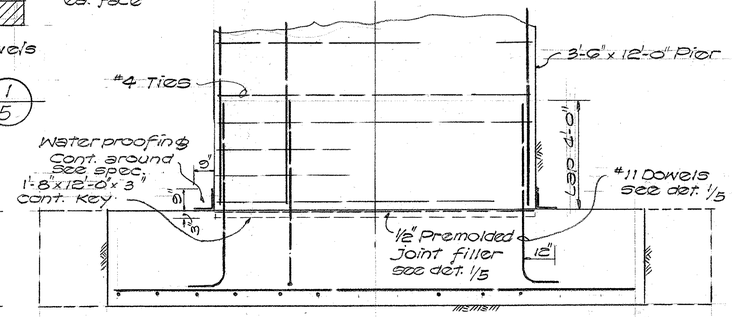
ELEV. - BEAM "B"



PIER • SECTION



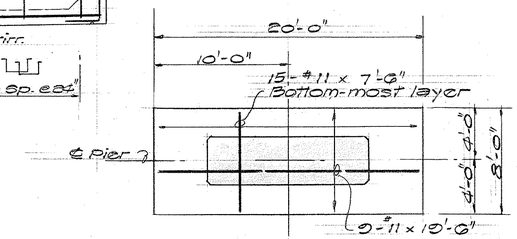
PIER BASE HINGE DET. (1/5)
Scale 3/8" = 1'-0"



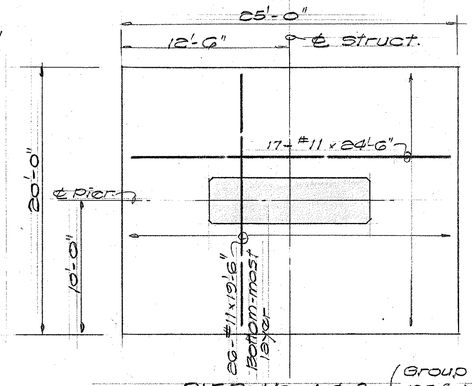
Pier No. 1	Elev. 113.9
Pier No. 2	Elev. 132.9
Pier No. 3	Elev. 115.9
Pier No. 4	Elev. 137

3'-6"

ELEVATION • PIER FOOT'G.
Scale 3/8" = 1'-0"

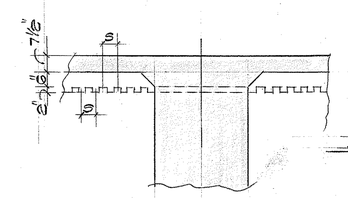


PIER No. 2 & 4 (Group IV 125% Allowable bearing = 15,000 psf.)

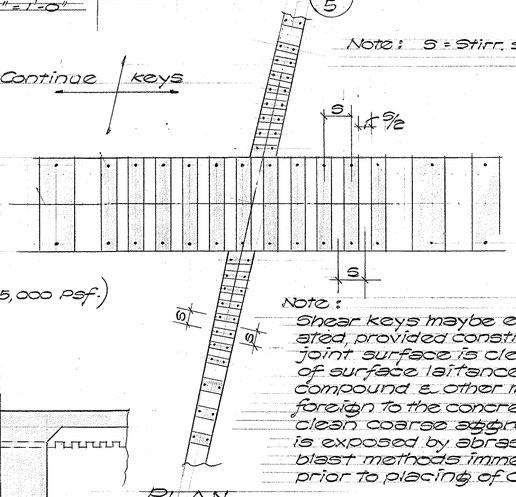


PIER No. 1 & 3 (Group IV 125% Allowable bearing = 5,000 psf.)

PLAN - PIER FOOTING
Scale 3/16" = 1'-0"



SHEAR KEY DETAIL
Scale 3/8" = 1'-0"



PLAN

Note: S = Stirr. spacing

Note: Shear keys maybe eliminated, provided construction joint surface is cleaned of surface laitance, curing compound & other materials foreign to the concrete, and clean coarse aggregate is exposed by abrasive blast methods immediately prior to placing of concrete.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Kwan Doo Park
Signature

KWAN DOO PARK REGISTERED PROFESSIONAL ENGINEER No. 202 HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAILUA INTERCHANGE STRUCTURE
PIER & BEAM PLAN, SECTIONS & ELEVATIONS

F.A.I Proj. No. I-H3-1(7):13, I-H3-1(2):8
SCALE: AS SHOWN DATE: NOV. 1967

SHEET No. 5 OF 13 SHEETS

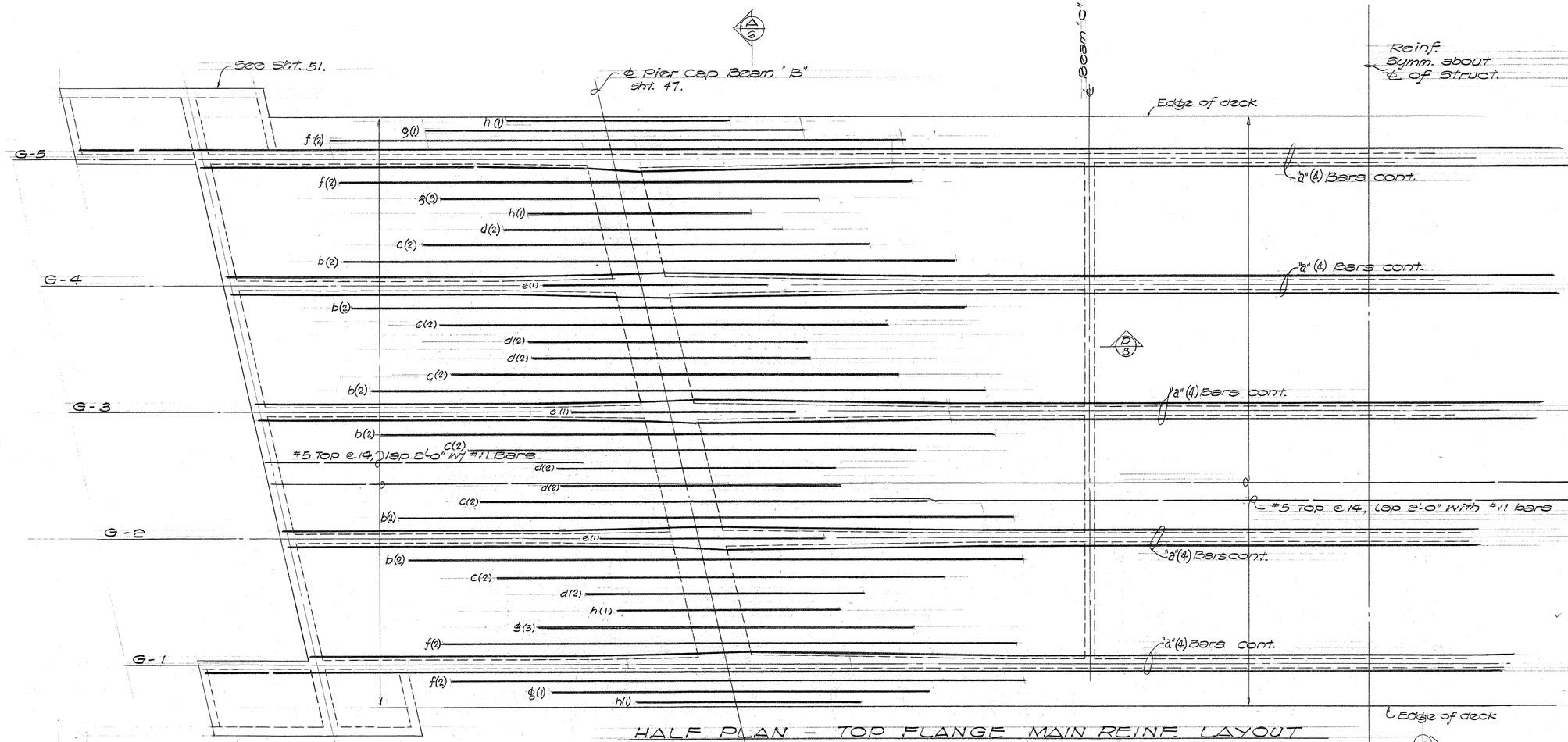
ORIGINAL PLAN	SURVEY PLOTTED BY:
	DRAWN BY:
	TRACED BY:
NOTE BOOK	DESIGNED BY:
	QUANTITIES BY:
No.	CHECKED BY:

DATE: " " " " " "

PRINTED ON NO. 1000H CLEARPRINT

47. 130

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(7):13 I-H3-1(2):8	1968	48	86

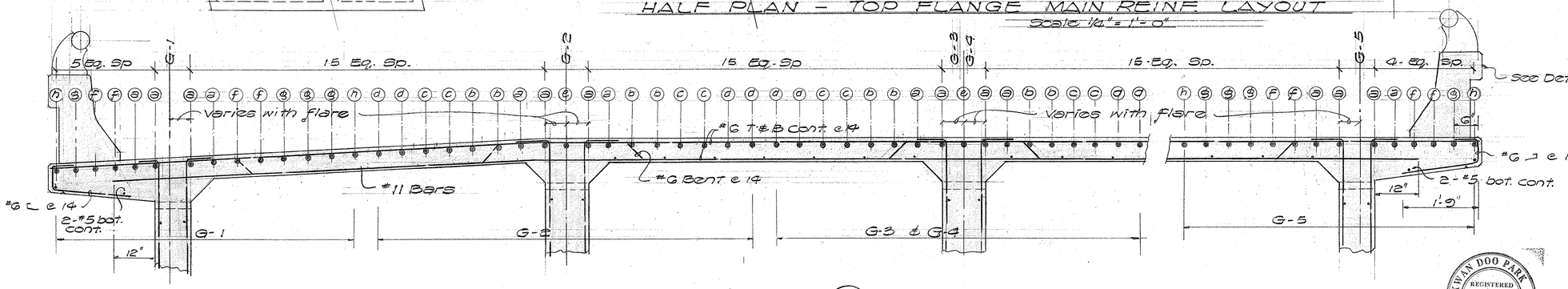


HALF PLAN - TOP FLANGE MAIN REINF. LAYOUT

Scale 1/8" = 1'-0"

Beams	Edge Bars	Mark	Dist. from ℄ Pier Toward End. Diap.	Dist. from ℄ Pier Toward mid-span	Total Length
G2, G3, G4	4	a	—	—	cont.
	4	b	21'	23'	44'
	4	c	15'	17'	32'
	4	d	9'	11'	20'
	1	e	7'	9	16'
G-1, G5	4	a	—	—	Cont
	4	f	20'	21'	41'
	4	g	13'	14'	27'
	2	h	7	9'	16'

TOP FLANGE #11 BARS SCHED.



SECTION A/6

Scale 3/4" = 1'-0"

NOTE:

1. Numerals within parenthesis accompanying the alphabets, indicate the number of lettered bars in the location. See adjacent Sect. A/6 for arrangement.
2. See section E/5 for bending of cont. longitudinal reinforcing at Beam "A".

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No. 202
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Kwan Doo Park
Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAILUA INTERCHANGE
STRUCTURE

HALF PLAN - TOP FLANGE MAIN REINF. LAYOUT & SECTIONS

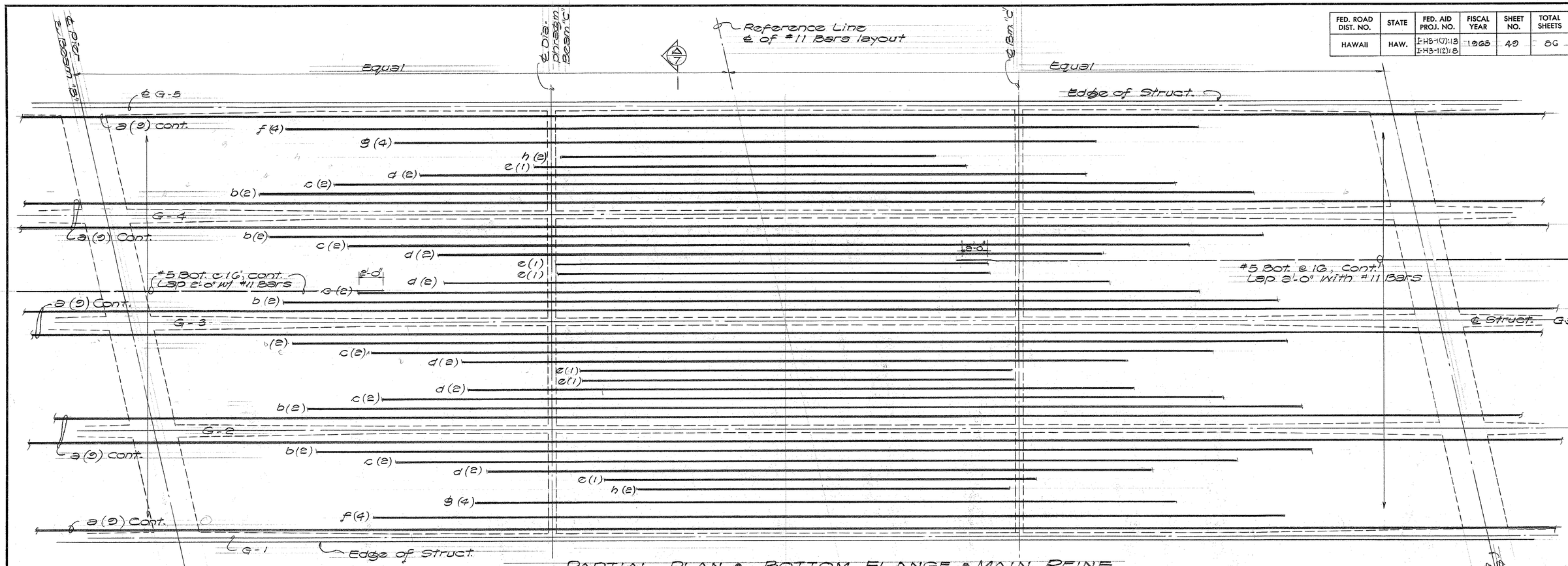
F.A.I. Proj. No. I-H3-1(7):13, I-H3-1(2):8

SCALE: AS SHOWN — DATE: NOV. 1967

SHEET No. 6 OF 13 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(7):13 I-H3-1(2):8	1968	49	86

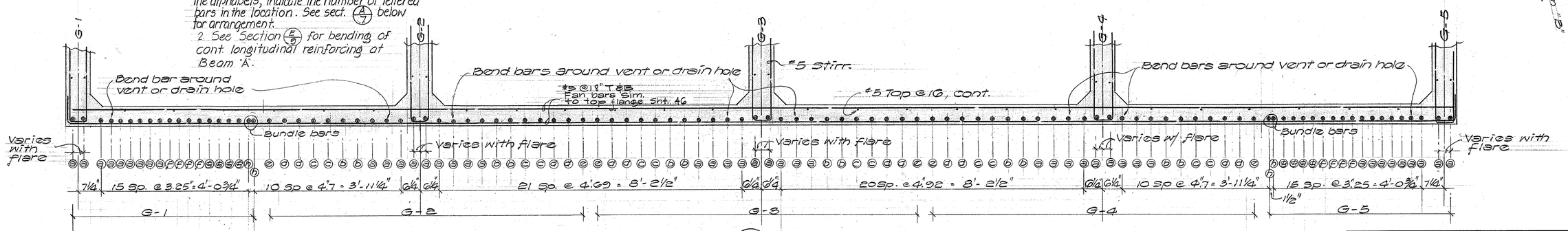


PARTIAL PLAN • BOTTOM FLANGE • MAIN REINF.

Scale 1/4" = 1'-0"

NOTE:

1. Numerals within parenthesis, accompanying the alphabets, indicate the number of lettered bars in the location. See sect. (A/7) below for arrangement.
2. See Section (E/9) for bending of cont. longitudinal reinforcing at Beam "A".



SECTION (A/7)

Scale 3/16" = 1'-0"

BOTTOM FLANGE #11 BARS SCHED.

GIRDER	G-2, G-3, G-4					G-1, G-5			
MARK	a	b	c	d	e	a	f	g	h
NO.	9	4	4	4	2	9	4	4	2
LENGTH	Cont.	85'	72'	57'	37'	Cont.	78'	60'	32'

ORIGINAL PLAN

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
NOTE BOOK
QUANTITIES BY
CHECKED BY
No.
DATE

KWAN DOO PARK
REGISTERED PROFESSIONAL ENGINEER
No. 202
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Kwan Doo Park
Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

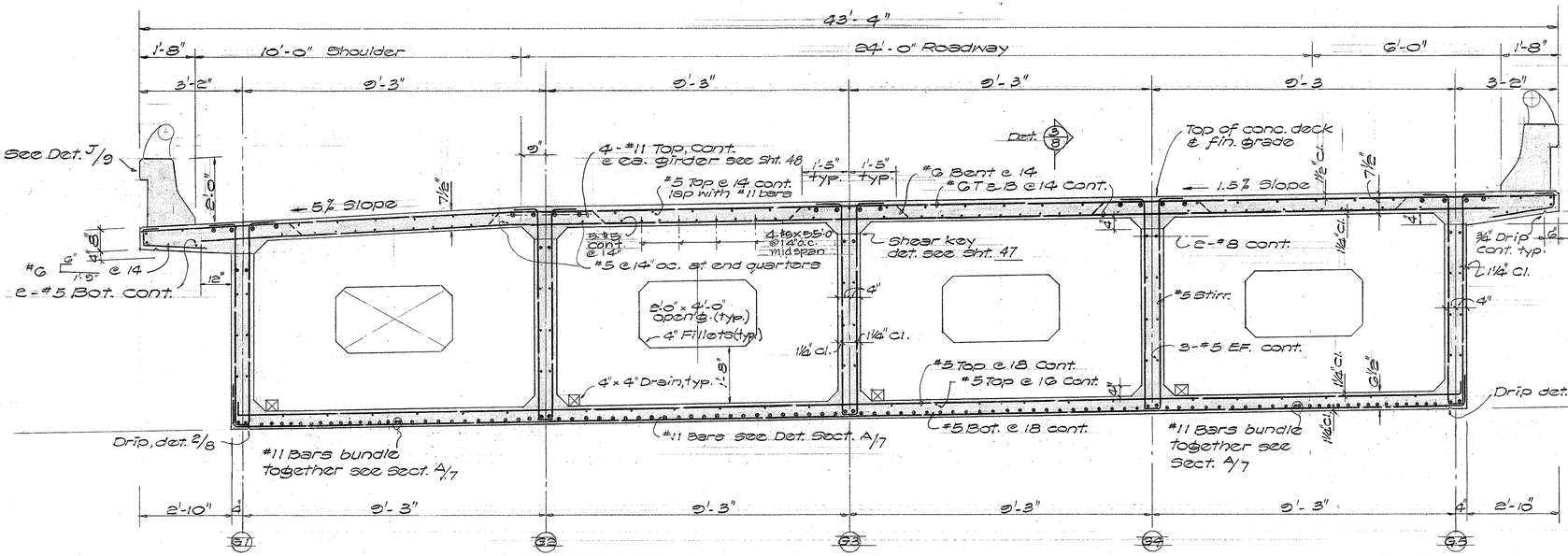
KAILUA INTERCHANGE
STRUCTURE
PARTIAL PLAN - BOT. FLANGE MAIN REINF. & SECTIONS

F.A.I. Proj. No. I-H3-1(7):13, I-H3-1(2):8
SCALE: AS SHOWN DATE: NOV. 1967

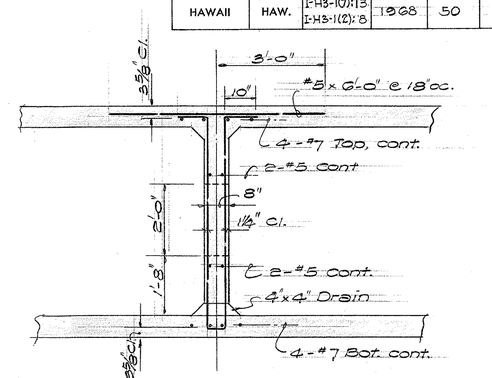
SHEET No. 7 OF 13 SHEETS

PRINTED ON NO. 1000H CLEARPRINT

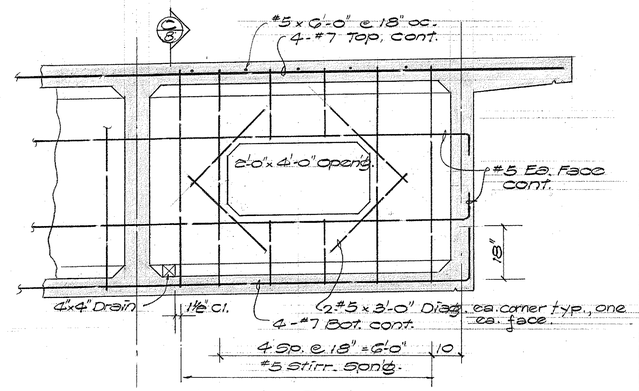
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(7):13 I-H3-1(2):8	1968	50	86



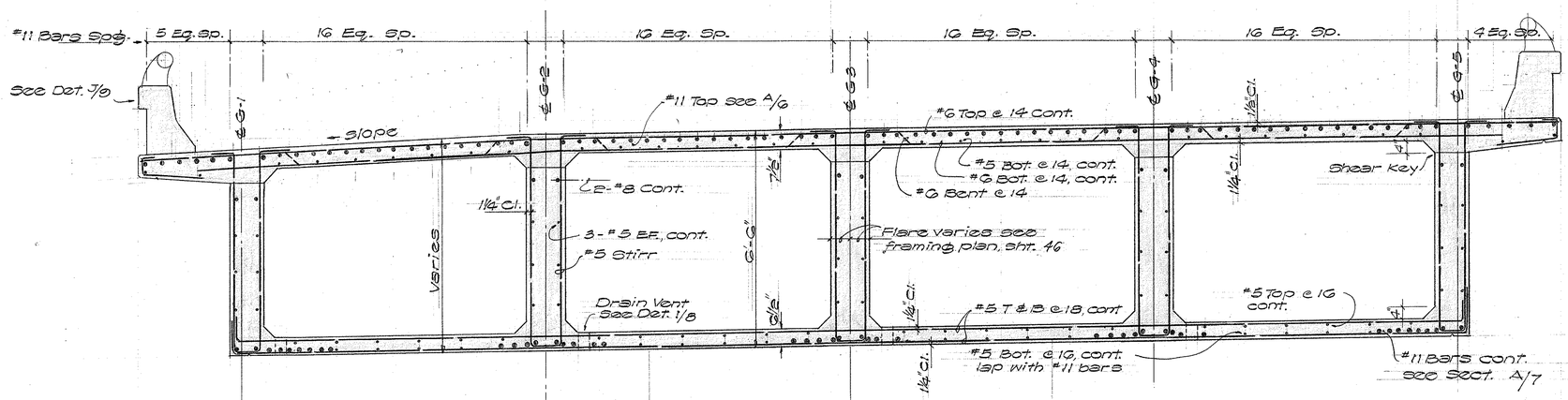
SECTION (A) 8 NEAR MIDSPAN
Scale 1/2" = 1'-0"



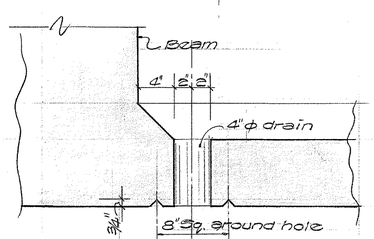
SECTION (C) 8 BEAM "C"
Scale 1/2" = 1'-0"



ELEVATION (D) 8 BEAM "C"
Scale 1/2" = 1'-0"



SECTION (B) 8 NEAR PIER
Scale 1/2" = 1'-0"



TYP. VENT & DRAIN DET. (1) 8
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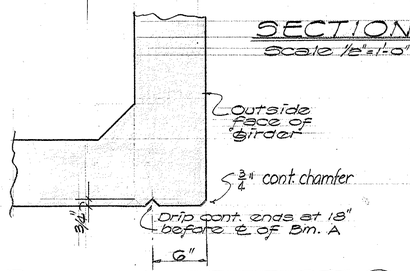
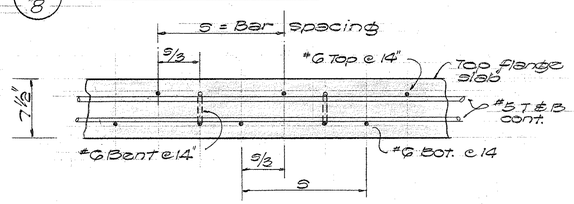


BOT. FLANGE DRIP DET. (2) 8
Scale 1½" = 1'-0"



TOP FLANGE REINF. DET. (3) 8
Scale 1½" = 1'-0"

KWAN DOO PARK
REGISTERED PROFESSIONAL ENGINEER
No. 202
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Kwan Doo Park
Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAILUA INTERCHANGE STRUCTURE
SECTIONS & DETAILS

F.A.I. Proj. No. I-H3-1(7):13, I-H3-1(2):8
SCALE: AS SHOWN DATE: NOV. 1967

SHEET No. 8 OF 13 SHEETS

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | NOTE BOOK | QUANTITIES BY | CHECKED BY | DATE | No.

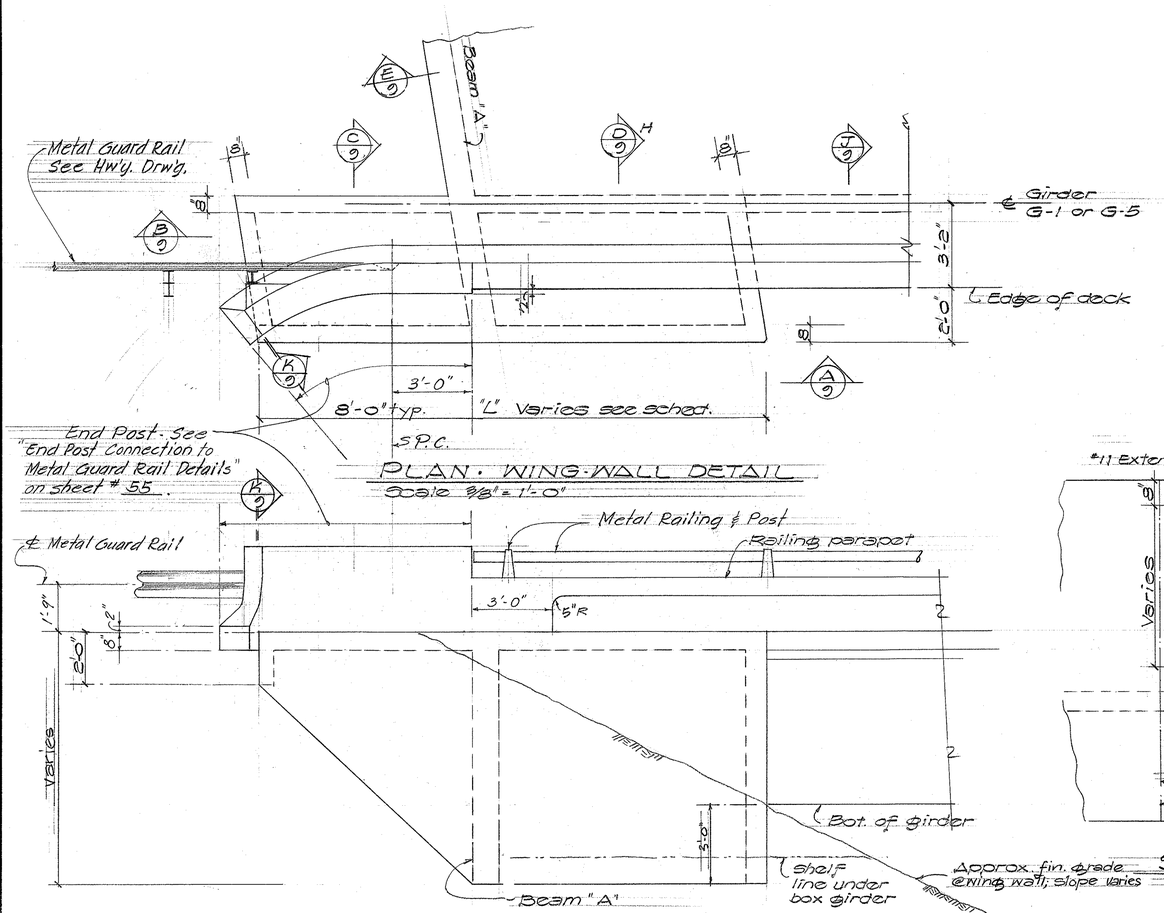
PRINTED ON NO. 1000H CLEARPRINT

50. 133

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(7):13 I-H3-1(2):8	1968	51	86

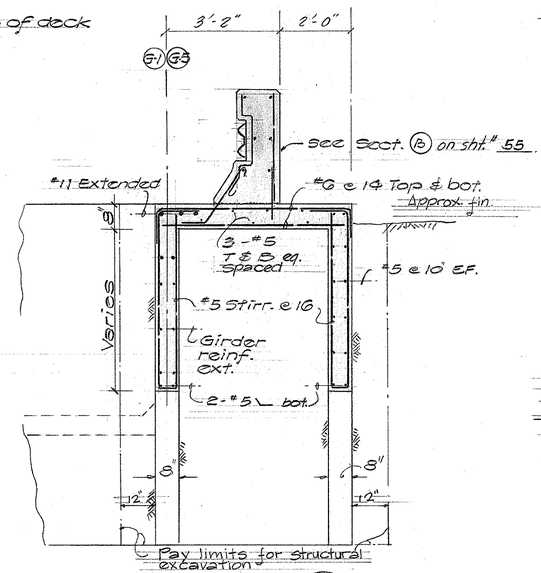
WING WALL No. (Ref. S-1)	"L" ft.
2	5'
3	~~8'~~ 6'
4	~~8'~~ 10'
5	6'-6"
6	11'
7	~~8'~~ 12'
8	~~8'~~ 13'

FOR CHANGES IN WINGWALL LENGHTS, SEE CCO # 14.

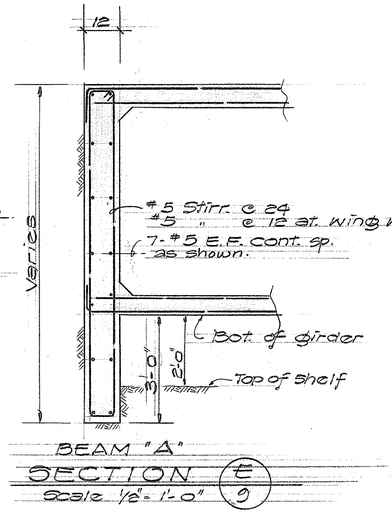


PLAN · WING-WALL DETAIL
Scale 3/8" = 1'-0"

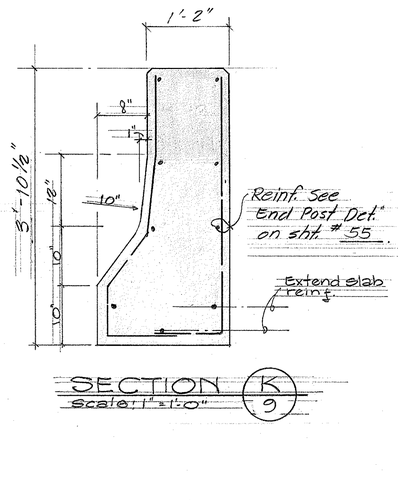
ELEVATION (A/9)
Scale 3/8" = 1'-0"



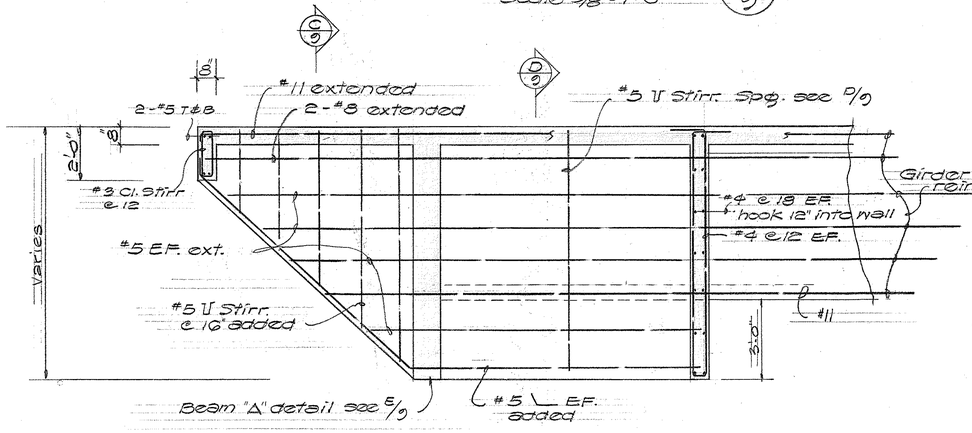
SECTION (C/9)
Scale 1/8" = 1'-0"



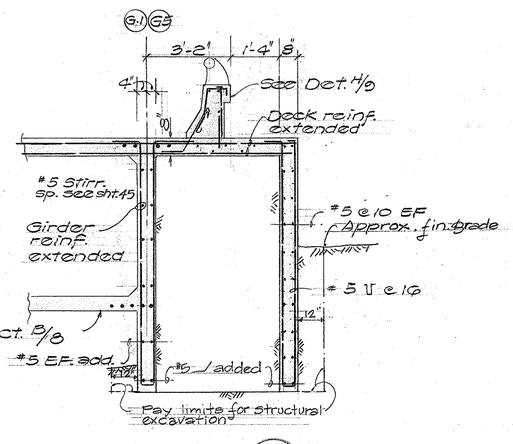
BEAM "A" SECTION (E/9)
Scale 1/2" = 1'-0"



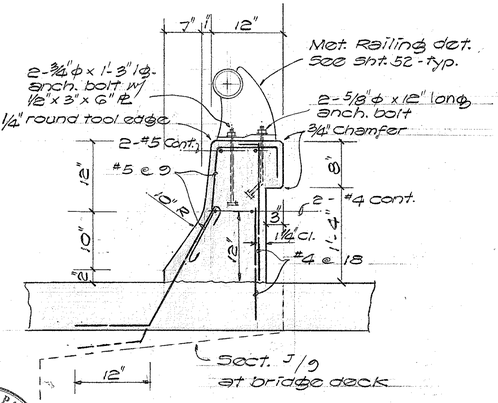
SECTION (K/9)
Scale 1" = 1'-0"



SECTION (B/9)
Scale 3/8" = 1'-0"



SECTION (D/9)
Scale 3/8" = 1'-0"



KWAN DOO PARK
REGISTERED PROFESSIONAL ENGINEER
No. 202
HAWAII, U.S.A.

SECTION (H/9) (J/9)
Scale 1" = 1'-0"

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAILUA INTERCHANGE STRUCTURE

WING WALL - PLAN, SECT & DET.

F.A.I. Proj. No. I-H3-1(7):13, I-H3-1(2):8
SCALE : AS SHOWN DATE : NOV. 1967

SHEET No. 9 OF 13 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

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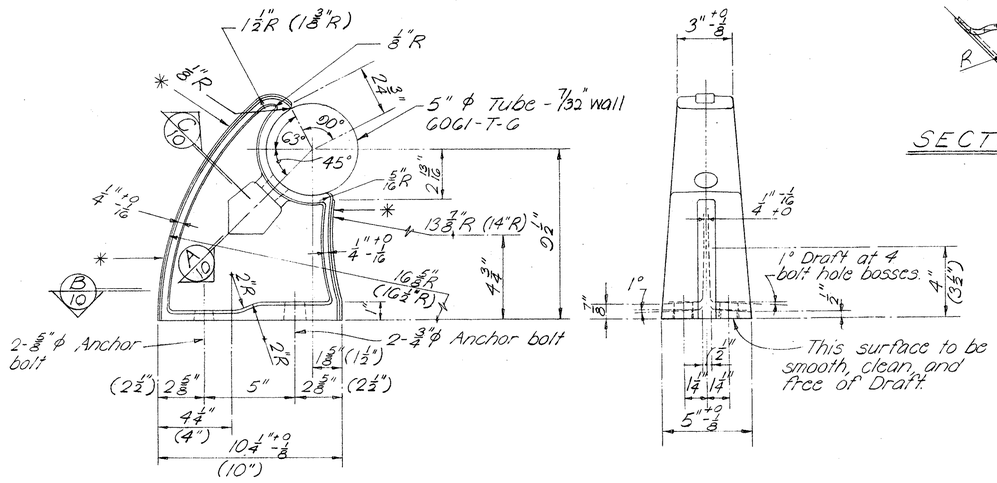
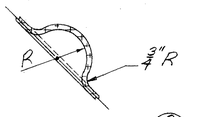
51. 134

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-H3-1(7)13 F-H3-1(2)8	1968	52	86



SIDE ELEVATION

END ELEVATION



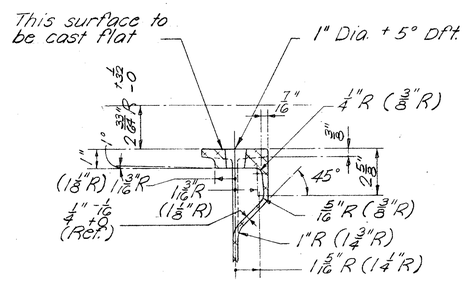
SECTION C/10

NOTE:

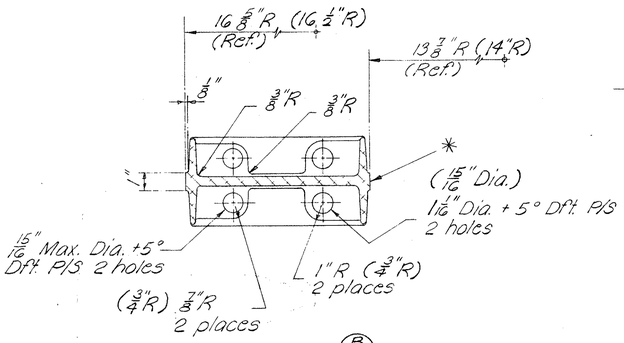
* Casting to be supplied with a standard scratch brush finish on entire gating rib surface and as indicated by an asterisk (*). Finish shall be approved by the Engineer.
Casting to be neatly trimmed and any protruding flash to be broken off.
For cast post specifications, see Special Provisions.
Unless otherwise specified, draft angles to be 3°, corner radii to be 3/32" R, fillet radii to be 3/8" R, casting tol. to be ± 1/16", wall thickness to be ± 1/32".
Dimensions may be as shown or as shown in parenthesis ( ).

TYPICAL RAIL POST DETAILS

Scale: 3" = 1'-0"



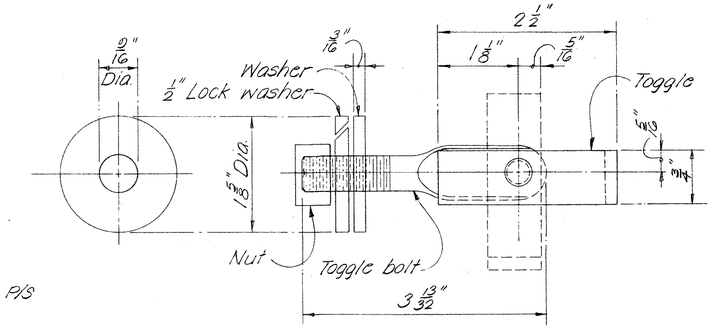
SECTION A/10



SECTION B/10

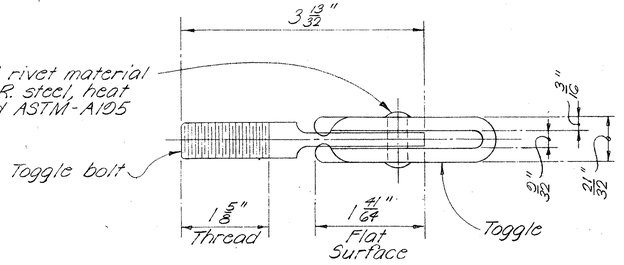
NOTE:

Toggle Bolt Material - 1/2" - 13 N.C. 1335 C.R. - Steel heat treated R.C. 32-38. ASTM-A354.
Toggle Material - 1015 H.R. steel pickled and oiled. Round edges ASTM-A303.
Washer Material - SAE 1020 H.R. steel plates. ASTM-A-7. Break sharp edges.
Nut - 1/2" - 13 American hex. nut - Heavy Material 1035 C.R. - Steel heat treated ASTM A325 Grade 2H.
Cadmium plating on steel - Type N.S. .0005" thick ASTM-A165. (all parts).
For cast post specifications, see Special Provisions.



WASHER

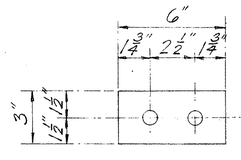
SIDE ELEVATION ASSEMBLAGE



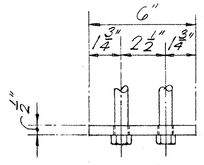
TOP PLAN

1/2" ϕ TOGGLE BOLT DETAILS

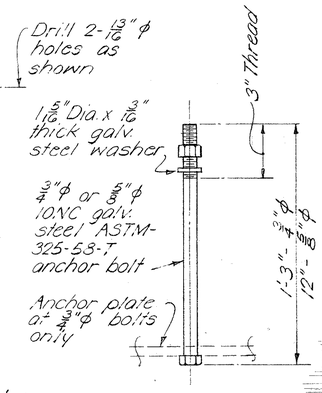
Full Scale



PLAN



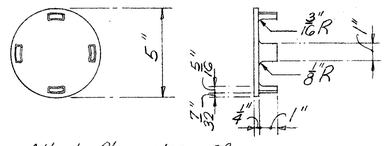
ELEVATION



ANCHOR ϕ DETAIL ANCHOR BOLT

TYPICAL RAIL POST ANCHOR BOLT ASSEMBLY

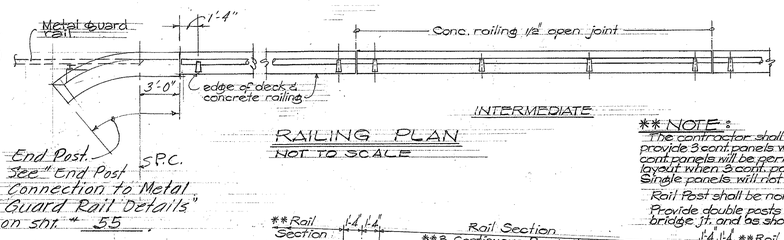
Scale: 3" = 1'-0"



All draft angles = 3°

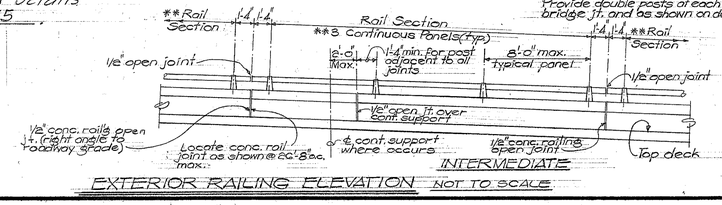
RAIL CAP DETAIL

Scale: 3" = 1'-0"



RAILING PLAN

NOT TO SCALE



EXTERIOR RAILING ELEVATION NOT TO SCALE

** NOTE:
The contractor shall layout the railing to provide 3 cont. panels whenever possible. 2 or 4 cont. panels will be permitted to complete the layout when 3 cont. panels cannot be made. Single panels will not be permitted.
Rail Post shall be normal to grade.
Provide double posts at each expansion jt. fixed bridge jt. and be shown on detailed drawings.

GENERAL NOTES

Metal bridge railing shown is for Aluminum bridge railing. See Special Provisions for alternate railing in steel.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS METAL BRIDGE RAILINGS SINGLE RAIL

F.A.I. Proj. No. I-H3-1(7):13, I-H3-1(2):8
Scale as noted Date: Oct. 1968

SHEET No. 10 OF 13 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
	DESIGNED BY	
NOTE BOOK	QUANTITIES BY	
No.	CHECKED BY	

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52.0

135

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(7)13 I-H3-1(2)8	196	53	86

July 1967

4 open stirr. @ 4" o.c. added (Stirrup arrangement at jt.)

Open Stirrups (See Stirr. Spcg.)

Open Stirrups

Z/11

Top slab bars continuous.

Fillet

3"

1-#8 cont. each face

2-#5 cont. ea. face. Stop horiz. bars 2" from diagonal bars.

"T"

Fillet

Bottom slab bars continuous.

Construction jt.

4"

4"

"X" or "Y"

center about joint for: "T" = 7'-0" & greater

6½"

1½"

D/3

D/3

D/3

D

center about joint bottom shear bar.

6½"

1½"

2-#8 shear bar bent each face.

2'-0"

2'-0"

45°

2'-0"

3'-6" lap

Constr. jt.

These laps to clear ends of #8 bent bars.

Varies

Top Slab

Bott. Slab

Open Stirrup

Construction Jt.

3"

1-#8 cont. each face

1¼" cl.

1¼" cl.

Varies

#5 cont. ea. face

2-#8 shear bar bent ea. face.

2'-9"

2'-0"

3"

D/3

D/3

D/3

D

SECTION Z/11

NOTE: D = Depth of girder stem to bottom of slab.

NOTE:
D = Depth of girder stem to bottom of slab.
S = Distance between top & bott. cont. girder stem longitudinal bars.
For additional details see Normal Section of the Plans.

Depth "T"	"Z"
4'-11" & smaller	1'-9"
5'-0" to 5'-11"	2'-0"
6'-0" to 6'-11"	2'-3"
7'-0" & greater	3'-0"

GIRDER STEM CONSTRUCTION JOINT

2-#5 x 3'-0" lg. top & bottom added @ each corner.

℄ Girder

2'-6"

2'-6"

Span

℄ Span

8-#4 truss bars 4 ea. side of opening, placed between cont. bars. See Section E/11

℄ Girder

Top & bott. cont. slab bars. Lap as shown. See Section E/11

E/11

F/11

Note: Final location of opening shall be determined by the Engineer.

Form removal opening may extend from edge of deck to edge of deck with approval of the Engineer. Lap small longitudinal deck bars as shown on Section E/11

PART PLAN - DECK SHOWING FORM REMOVAL OPENING

2'-6" x 2'-6" opening

2"

Top of slab

Continuous construction joint key (See Detail)

Top & bottom continuous bars

Hatched area to be poured after form removal

Lap deck bars (main girder bars continuous)

SECTION E/11

Note: Form removal opening at top slab shall not be located where main girder bars occur.

2'-6" x 2'-6" opening

Continuous construction joint key (See Detail)

#4 truss bars each side (See Plan)

1'-6"

1'-6"

Top & bottom continuous bars (lap not shown)

SECTION F/11

℄ Beam

℄ Girder

4"

TYPICAL DETAIL OF VERTICAL CHAMFER AT ACUTE INTERSECTION OF SKEWED CONCRETE MEMBER

ORIGINAL PLAN
NOTE BOOK
No.
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
CONCRETE BOX GIRDER

F.A.I. Proj. No. I-H3-1(7):13, I-H3-1(2):8

SCALE As Noted DATE: Oct. 1968

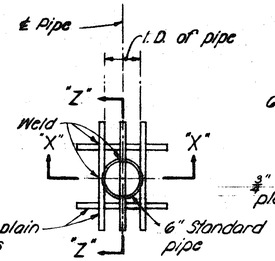
SHEET No. 11 OF 13 SHEETS

53.

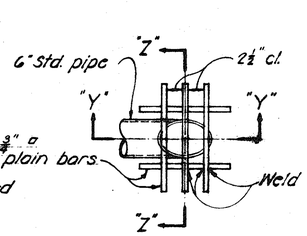
136

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(7)13 I-H3-1(2)8	1968	54	86

REVISION
Jan. '67
Feb. '67
Apr. 67



PLAN



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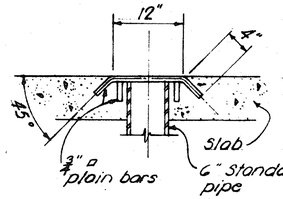
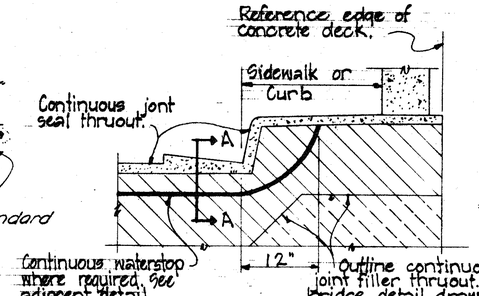
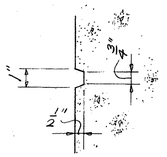


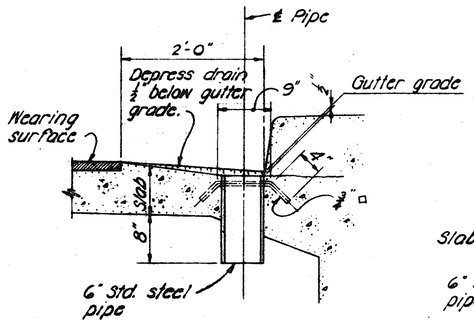
SECTION "Z-Z"



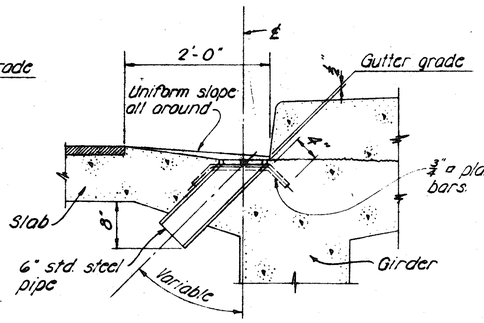
ELEVATION



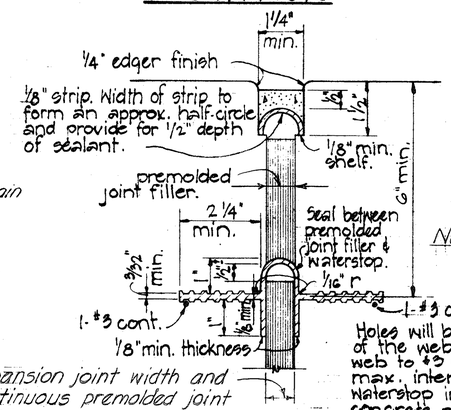
END POST GROOVE DETAIL
Scale: 3"=1'-0"



SECTION "X-X"



SECTION "Y-Y"



Expansion joint width and continuous premolded joint filler, see contract drawings.

Waterstop to have 5 or more pairs of raised ribs to provide 0.1 sq. in. min. rib cross-section area on each half of the waterstop. Height of ribs to be 3/32" min.

Nailing Strip:
Nail or staple to form or premolded joint filler.

Holes will be permitted in the outer ½" of the web for wires, rings, etc. Tie web to #3 reinforcing bars at 12" max. intervals to support the waterstop in proper position during concrete placement. Alternative detail may be submitted for approval of the Engineer.

SECTION "A-A"

TYPICAL EXPANSION JOINT DETAIL

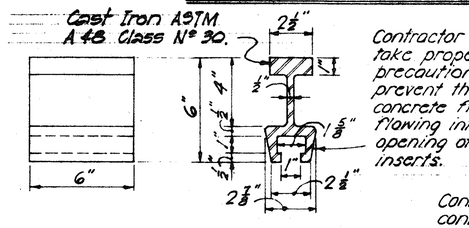
GENERAL NOTES

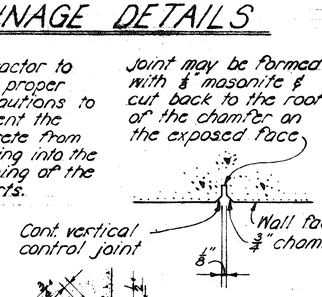
Elastomeric Pads: Top & bottom of bridge bearing pads shall be secured against displacement with adhesives approved by the Engineer. Pads shall be incidental to concrete and will not be paid for separately.

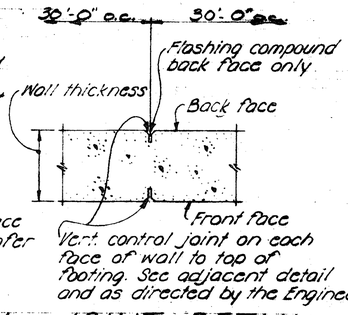
1. The Contractor shall verify the location of all existing utility lines and notify the respective owners before commencing excavation work.
2. All concrete shall be Class A-1 unless otherwise noted.
3. Clearance for reinforcing bars shall be as follows, unless otherwise noted:
   a. - 1½" For stirrups of beams & pier caps.
   b. - 2" For ties of columns.
   c. - 2" For formed walls.
   d. - 3" For footings.
4. Concrete seats receiving steel plates, lead plates or neoprene pads shall be poured monolithically with supporting structures & top surfaces of the concrete seats shall be finished with a steel trowel to a smooth level at the elevation shown on the plans.
5. Reinforcing shall be detailed in accordance with A.C.I. Manual of Standard Practice for Detailing Reinforced Concrete Highway Structures unless otherwise noted.
6. Reinforcing bars shall be securely tied at all intersections & lap splices & shall be held in place during pouring to maintain their proper locations as shown on plans.
7. Splices of reinforcing - See Special Provisions.
8. Minimum spacing between parallel bars shall be 2½ times the diameter of bars, but in no case shall the clear distance between the bars be less than 1½ times the maximum size of the coarse aggregate.
9. All dimensions relating to reinforcing are to centers of bars unless otherwise noted.
10. Forms for all exposed surfaces of separation structures and surfaces of retaining walls visible from a traveled way or from a populated area shall be plywood except that metal forms may be permitted provided a surface finish satisfactory to the Engineer can be obtained and the use of such forms is approved in writing by the Engineer. Forms for round columns shall be made of materials that will give a smooth finish and true dimensions as given in the plans. Forms for prestressed concrete members shall be either metal or plywood.
11. Vertical column bars shall be arranged in such a manner as to miss pier cap bars above as directed by the Engineer.
12. Except as otherwise noted on drawings, all exterior corners & re-entrant angles in concrete work shall be chamfered ¾" x ¾". See Standard Specifications.
13. Concrete Finish - See Special Provisions.
14. All welders and welding procedures shall be qualified according to the requirements of the Special Provisions.
15. Gothic letters and figures approximating dimensions shown will be acceptable if approved by the Engineer.

NOTE: Metal drains shall be considered incidental to Class A-1 Concrete in both concrete and steel bridges and will not be paid for separately.
Assemblage of grillage and pipe shall be hot-dip galvanized after all welding is completed.

TYPICAL DRAINAGE DETAILS



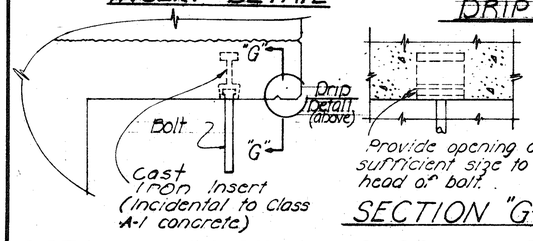




CONTROL JOINT DETAIL

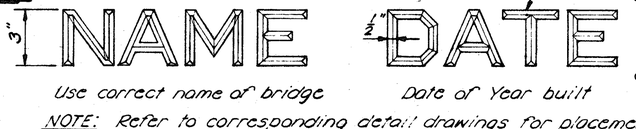
DRIP DET.

INSERT DETAIL



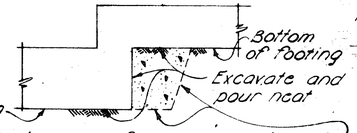
SECTION "G-G"

DETAIL of PIPE HANGERS & INSERTS



NOTE: Refer to corresponding detail drawings for placement of such names & dates at end post.
Exact details & spacing of letters & figures shall be as directed by the Engineer. See Note #15.

TYPICAL DETAIL OF LETTERS & FIGURES AT CONCRETE END POST



NOTE: In case of over excavation, the contractor shall backfill this area with minimum class D-1 concrete at his own expense.

TYPICAL EXCAVATION FOR CONTINUOUS FOOTING STEP-UP

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD BRIDGE DETAILS

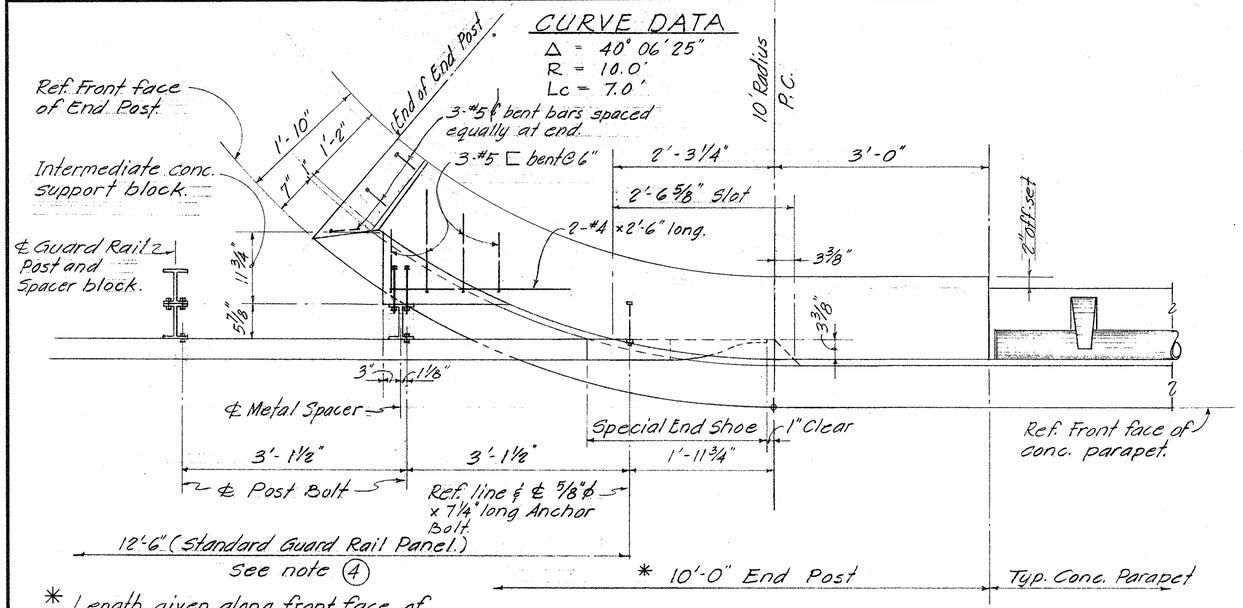
F.A.I. Proj. No. I-H3-1(7):13, I-H3-1(2):8
Scale as Noted Date: Oct. 1968

SHEET No. 12 OF 13 SHEETS

PRINTED ON NO. 1000H CLEARPRINT

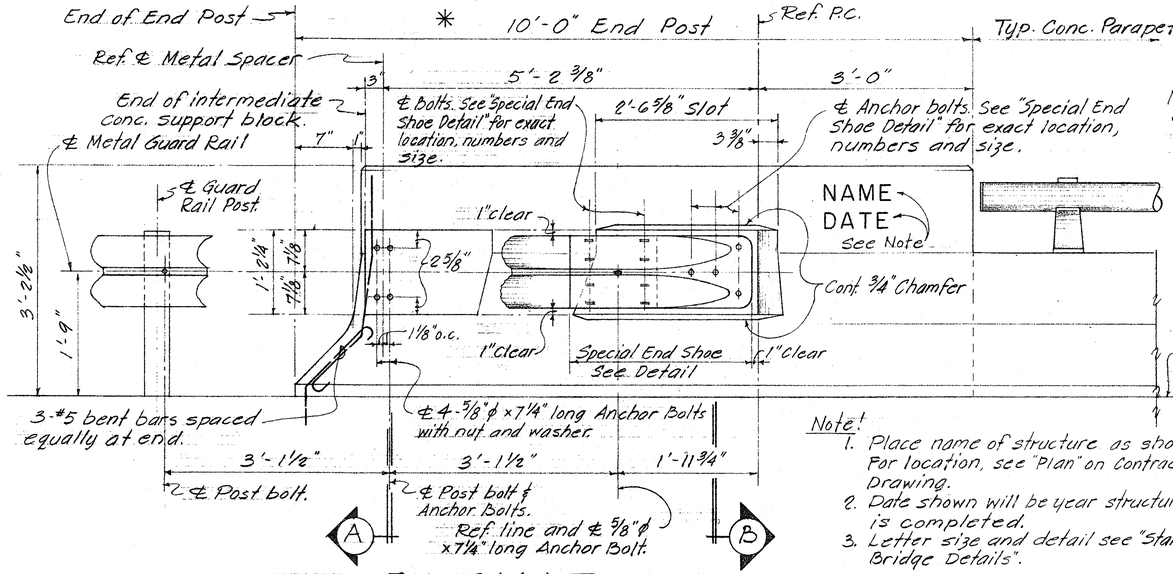
54. 135

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HB-1(7):13 I-HB-1(2):8	1968	55	86



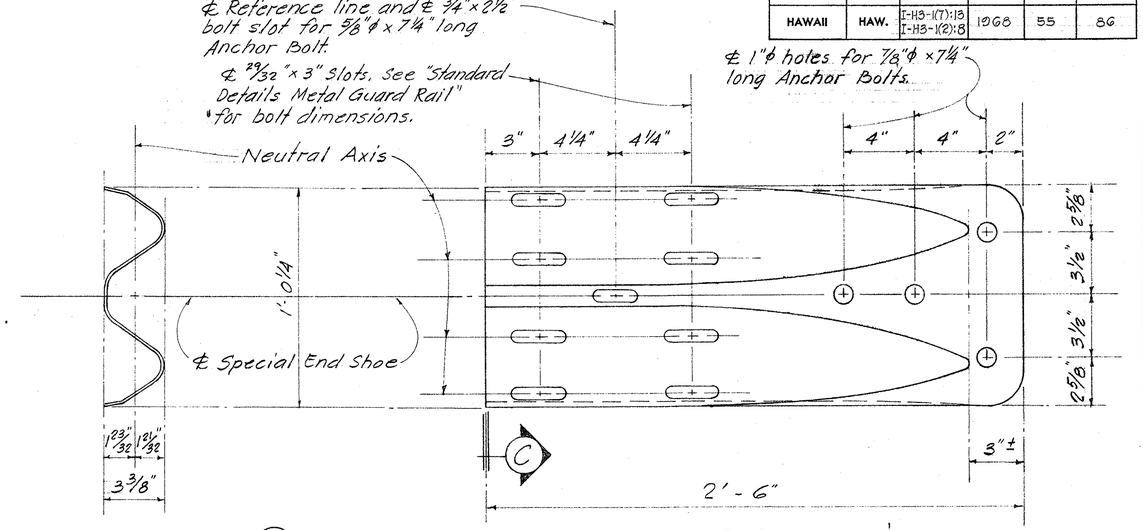
* Length given along front face of parapet and end post.

PLAN
Scale: 1" = 1'-0"

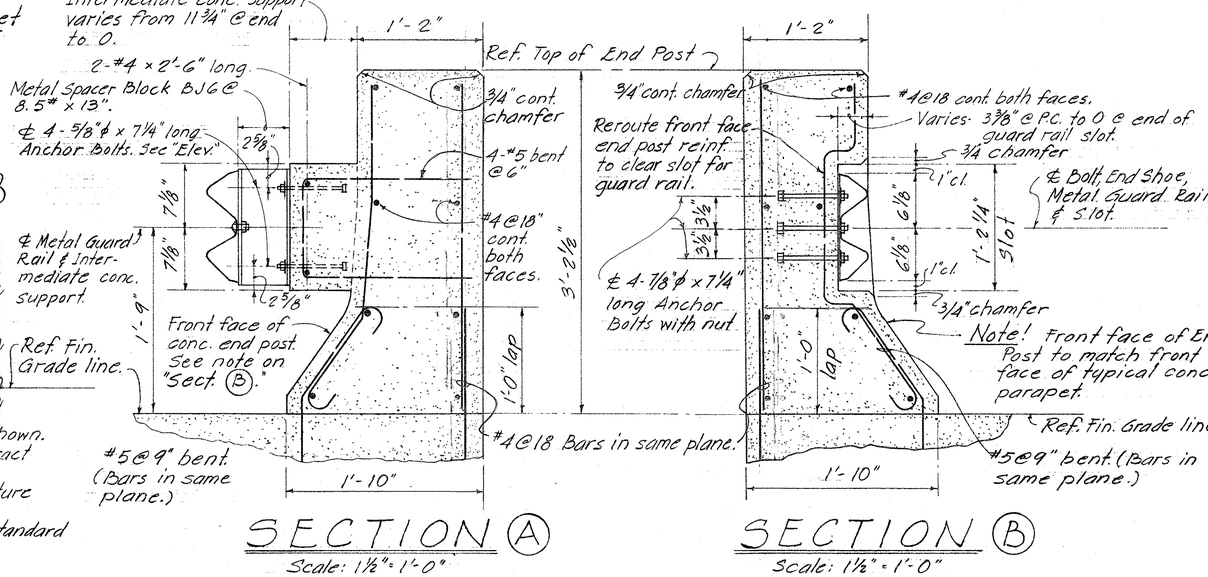


ELEVATION
Scale: 1" = 1'-0"

Note!
1. Place name of structure as shown. For location, see "Plan" on Contract Drawing.
2. Date shown will be year structure is completed.
3. Letter size and detail see "Standard Bridge Details".



SECTION (C) ELEVATION
SPECIAL END SHOE DETAILS
Scale: 3" = 1'-0"



SECTION (A)
Scale: 1½" = 1'-0"

SECTION (B)
Scale: 1½" = 1'-0"

NOTES

1. All Anchor Bolts shall be High Strenght bolts conforming to the requirements of ASTM A-325.
2. All Shoe assembly, including anchor bolts, nuts and washers, shall be galvanized.
3. Special End Shoe shall be fabricated from 10 gage steel conforming to the requirements of AASHO 180.
4. First Guard Rail Panel adjoining "Special End Shoe" shall be of galvanized steel. See Special Provisions for requirements.
5. Anchor Bolt length given from under bolt head.

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE
NOTE BOOK
No.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END POST CONNECTION TO METAL GUARD RAIL DETAILS
(SINGLE RAIL TYPE)

SCALE AS SHOWN DATE: MARCH, 1968

SHEET No. 13 OF 13 SHEETS

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