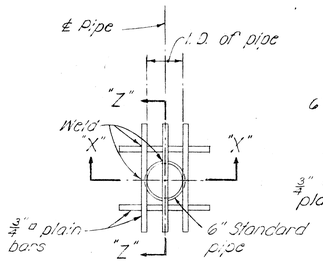
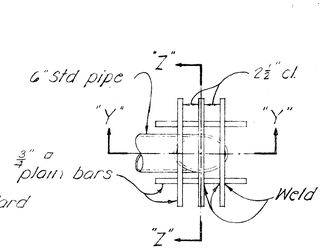
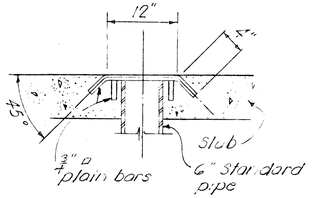
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-H089(15)	1971	241	362



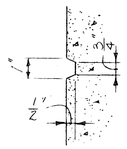
PLAN



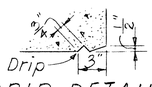
PLAN



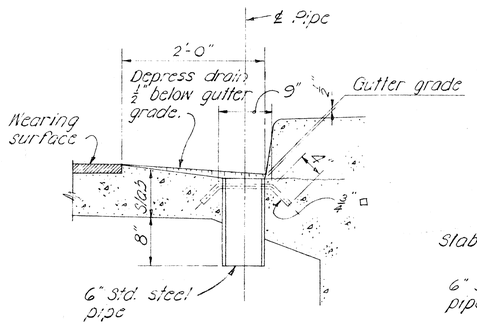
SECTION "Z-Z"



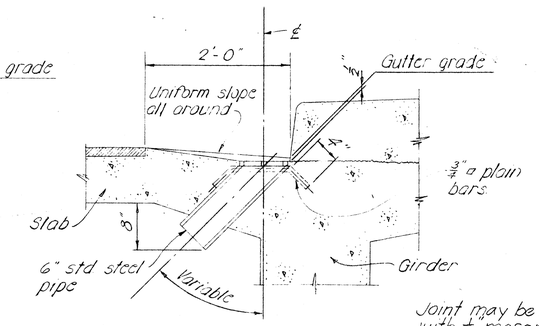
TYPICAL CONCRETE GROOVE DETAIL



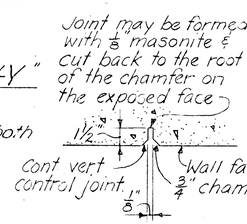
DRIP DETAIL



SECTION "X-X"



SECTION "Y-Y"

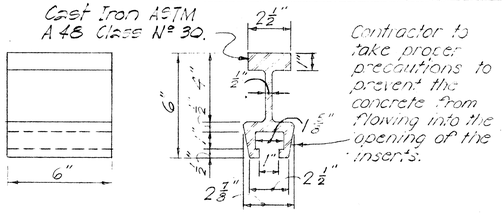


NOTE:

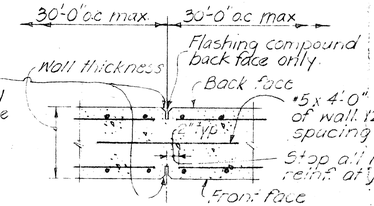
Metal drains shall be considered incidental to Class A Concrete in both concrete and steel bridges and will not be paid for separately.

Assemblage of grillage and pipe shall be hot-dip galvanized after all welding is completed.

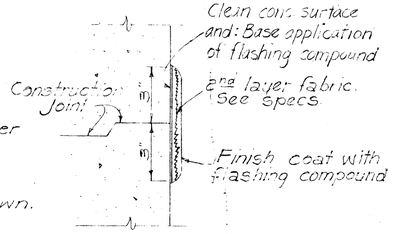
TYPICAL DRAINAGE DETAILS



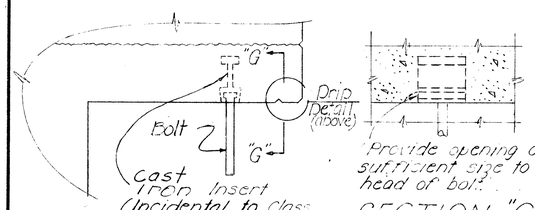
INSERT DETAIL



CONTROL JOINT DETAILS



TYP FLASHING COMPOUND WATERPROOFING DETAIL



Provide opening of sufficient size to insert head of bolt.

SECTION "G-G"

DETAIL of PIPE HANGERS & INSERTS

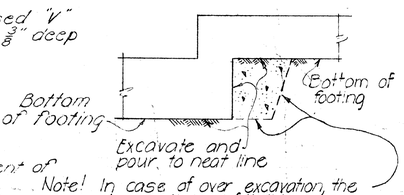
3" NAME — Use correct name of bridge

2" DATE — Date of Year built

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 #12

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" concrete at his own expense.

TYPICAL EXCAVATION FOR CONTINUOUS FOOTING STEP-UP

GENERAL NOTES

1 - All concrete shall be Class A unless otherwise noted.
2 - Reinforcing shall be detailed in accordance with A.C.I. Manual of Standard Practice for Detailing Reinforced Concrete Highway Structures 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 - 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.
5 - All dimensions relating to reinforcing are to centers of bars 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 - Vertical column bars shall be arranged in such a manner as to miss pier cap bars above as directed by the Engineer.
8 - Except as otherwise noted on drawings, all exterior corners & re-entrant angles in concrete work shall be chamfered ¾" x ¾".
9 - Concrete seats receiving steel plates, leadplates or neoprene pads shall be poured monolithically with supporting structures & top of concrete seats shall be finished with a steel trowel to a smooth level surface at the elevation shown on the plans.
10 - Elastomeric Pads: 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.
11 - 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 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.
12 - Gothic letters and figures approximating dimensions shown will be acceptable if approved by the Engineer.
13 - The contractor shall verify the location of all existing utility lines and notify the respective owners before commencing work of excavation or driving of piles.
14 - Standard Detail Drawings refer to all structures in general, except for modifications as may be required for special conditions. For such modifications refer to the corresponding detailed drawings.

APPROVAL RECOMMENDED:
Paul T. Yamashita — BRIDGE DESIGN ENGINEER — 1-23-70 DATE

APPROVED
Paul T. Yamashita — For ASSISTANT CHIEF, ENGINEERING — 1-28-70 DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

NOTES AND MISCELLANEOUS DETAILS

Date: October 1969

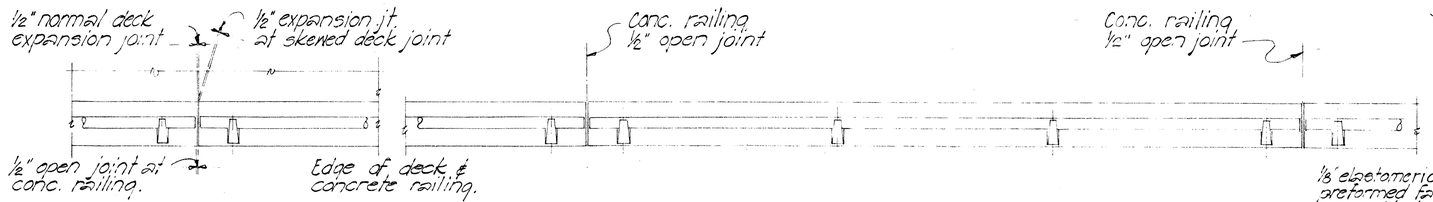
SHEET No. S1 OF S9 SHEETS DB-100

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

PRINTED ON NO. 1000H CLEARPRINT

241

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(89)13	1971	242	362



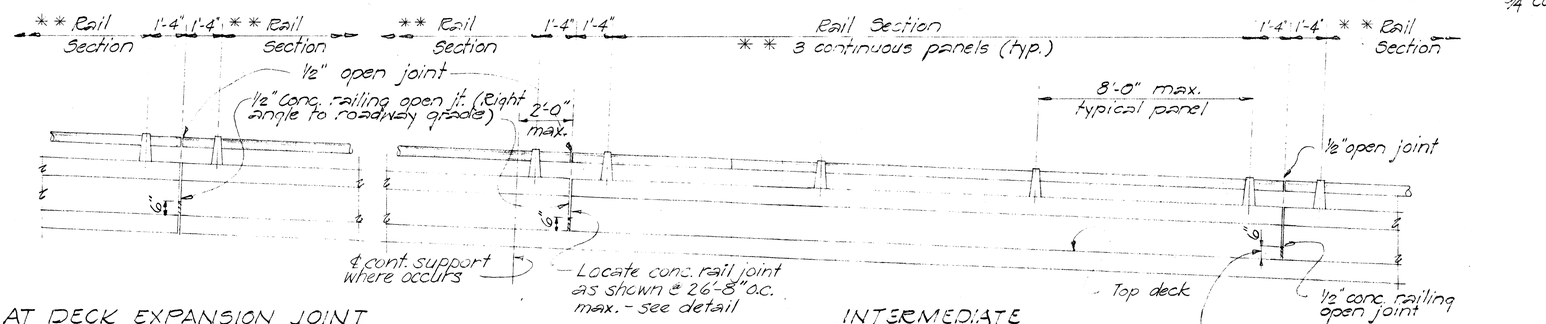
AT DECK EXPANSION JOINT

INTERMEDIATE

RAILING PLAN SCALE 3/8" = 1'-0"

* * Note !!

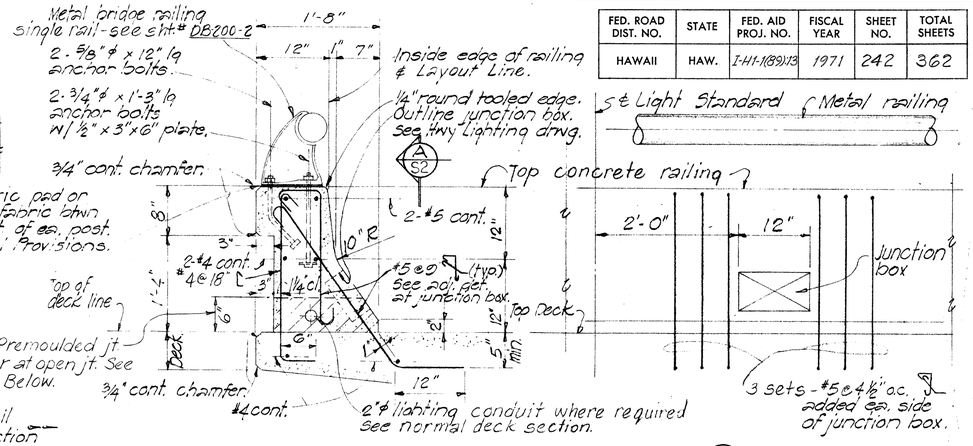
1. The contractor shall layout the railing to provide 3 cont. panels whenever possible. 2 or 4 cont. panels will be permitted to complete the layout when 3 cont. panels cannot be made. Single panels will not be permitted.
2. Rail Posts shall be normal to grade.
3. Provide double posts at each expansion jt., fixed bridge jt., continuous support, and as shown on detailed drawing.



AT DECK EXPANSION JOINT

INTERMEDIATE

EXTERIOR RAILING ELEVATION SCALE : 3/8" = 1'-0"

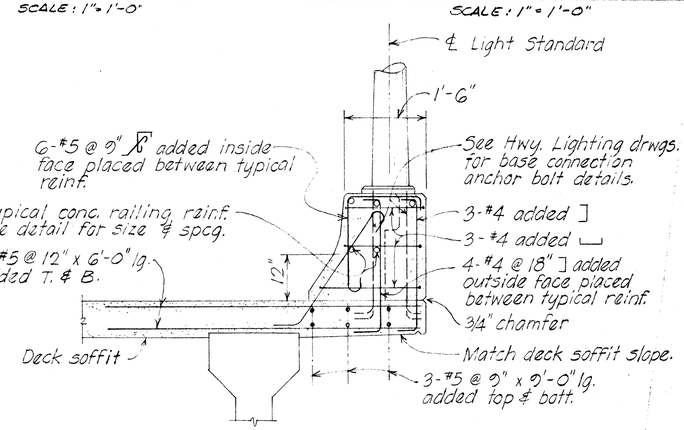


TYPICAL CONCRETE RAILING SECTION

SCALE : 1" = 1'-0"

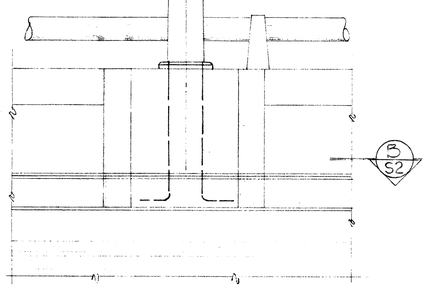
ELEVATION (A S2) SHOWING SPECIAL REINFORCEMENT AT JUNCTION BOX

SCALE : 1" = 1'-0"



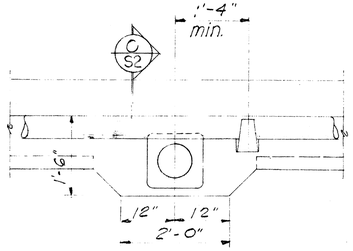
SECTION (C S2)

Scale: ¾" = 1'-0"



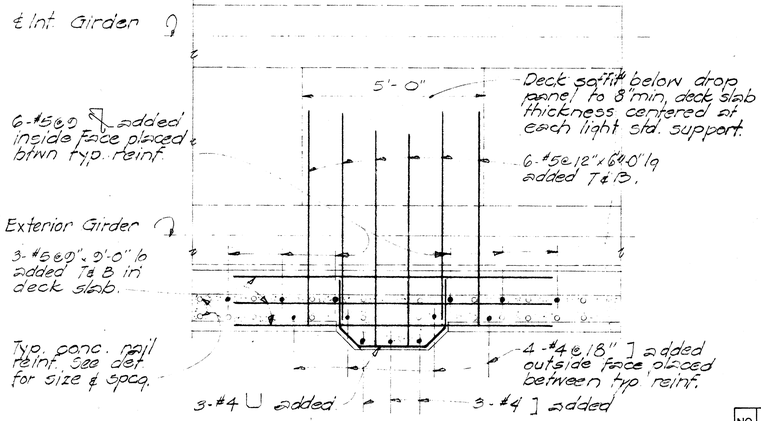
PART ELEVATION

SCALE ¾" = 1'-0"



PART PLAN

SCALE : ¾" = 1'-0"



SECTION (B S2)

SCALE : ½" = 1'-0"

DETAILS OF RAILING AT LIGHT STANDARD

SCALE AS NOTED

APPROVAL RECOMMENDED:

Paul T. Yamashita — BRIDGE DESIGN ENGINEER — 1-23-70 DATE

APPROVED

Paul T. Yamashita — For ASSISTANT CHIEF, ENGINEERING — 1-28-70 DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL BRIDGE RAILING
ONE RAIL COMBINATION TYPE
ON PARAPET

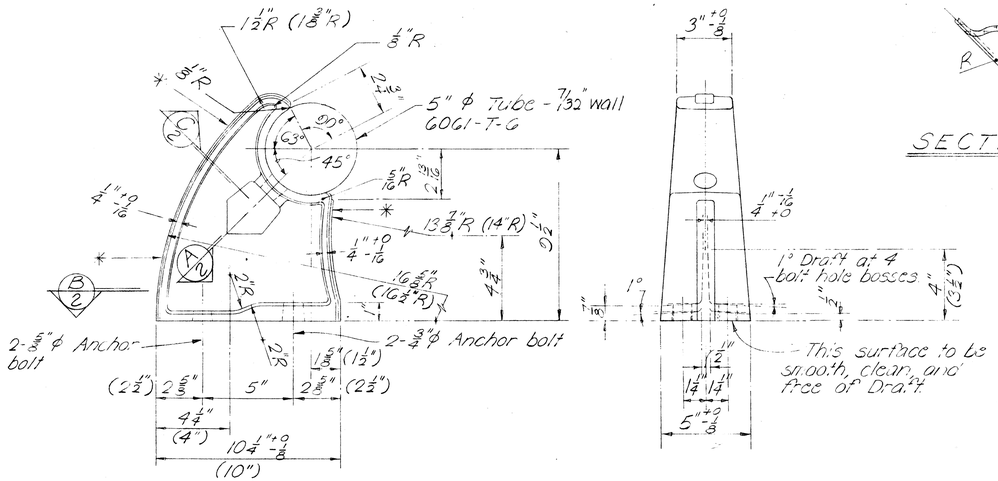
Date: October 1969

SHEET No. S2 OF S9 SHEETS DB-200-1

242

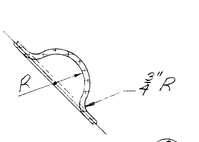
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FAH-1(89)13	1971	243	362

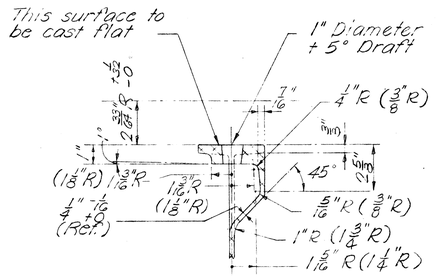


SIDE ELEVATION

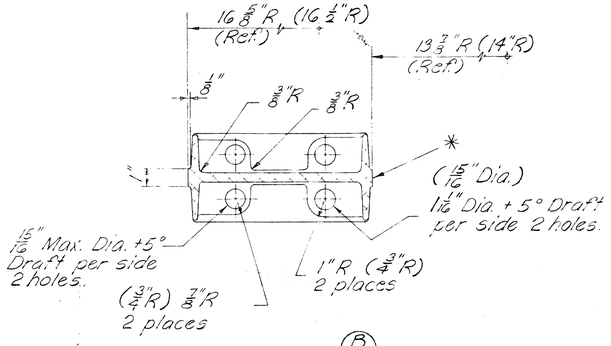
END ELEVATION



SECTION (C/3)



SECTION (A/3)

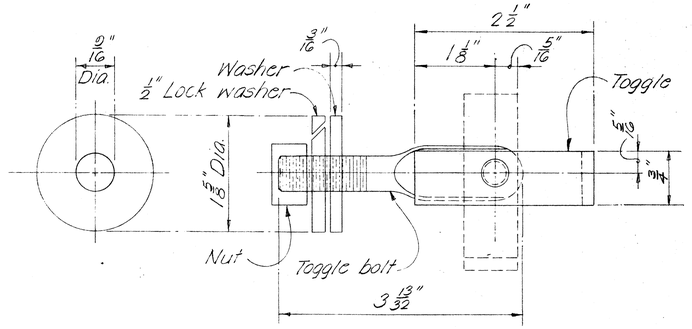


SECTION (B/3)

NOTE:

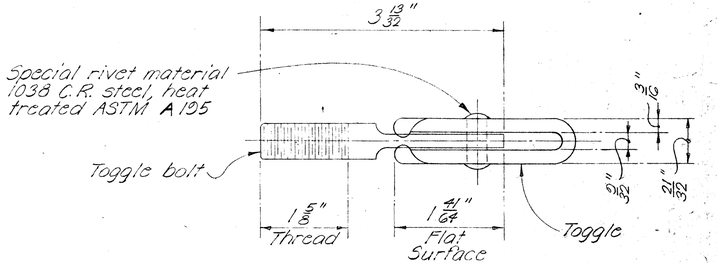
TOGGLE BOLT

Cadmium plating on steel - Type NS 0.0005" thick ASTM - A165. (all parts).



WASHER

SIDE ELEVATION ASSEMBLAGE



TOP PLAN

1/2" ϕ STEEL TOGGLE BOLT DETAILS

Full Scale

NOTE:

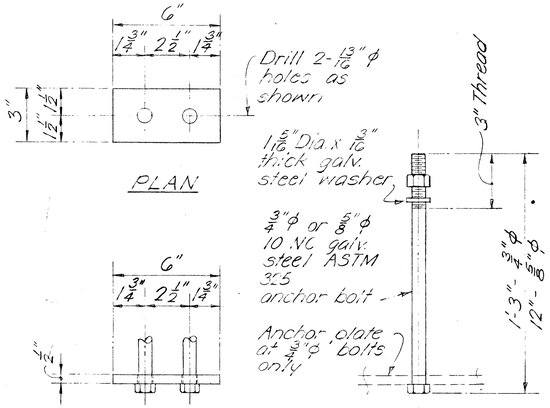
* Casting to be supplied with a standard scratch brush finish on entire gating rib surface and as indicated by an asterisk (*). Finish shall be approved by the Engineer.

Casting to be neatly trimmed and any protruding flash to be broken off. 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"

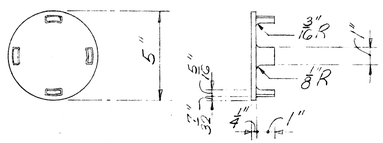


ANCHOR BOLT DETAIL ANCHOR BOLT

TYPICAL RAIL POST

STEEL ANCHOR BOLT ASSEMBLY

Scale: 3" = 1'-0"



All draft angles = 3°

RAIL CAP DETAIL

Scale: 3" = 1'-0"

GENERAL NOTES:

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

APPROVAL RECOMMENDED:

Paul T. Yamashita — BRIDGE DESIGN ENGINEER — 1-23-70 DATE

APPROVED

Paul T. Yamashita — For ASSISTANT CHIEF, ENGINEERING — 1-28-70 DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL BRIDGE RAILINGS
ONE RAIL COMBINATION TYPE
ON PARAPET

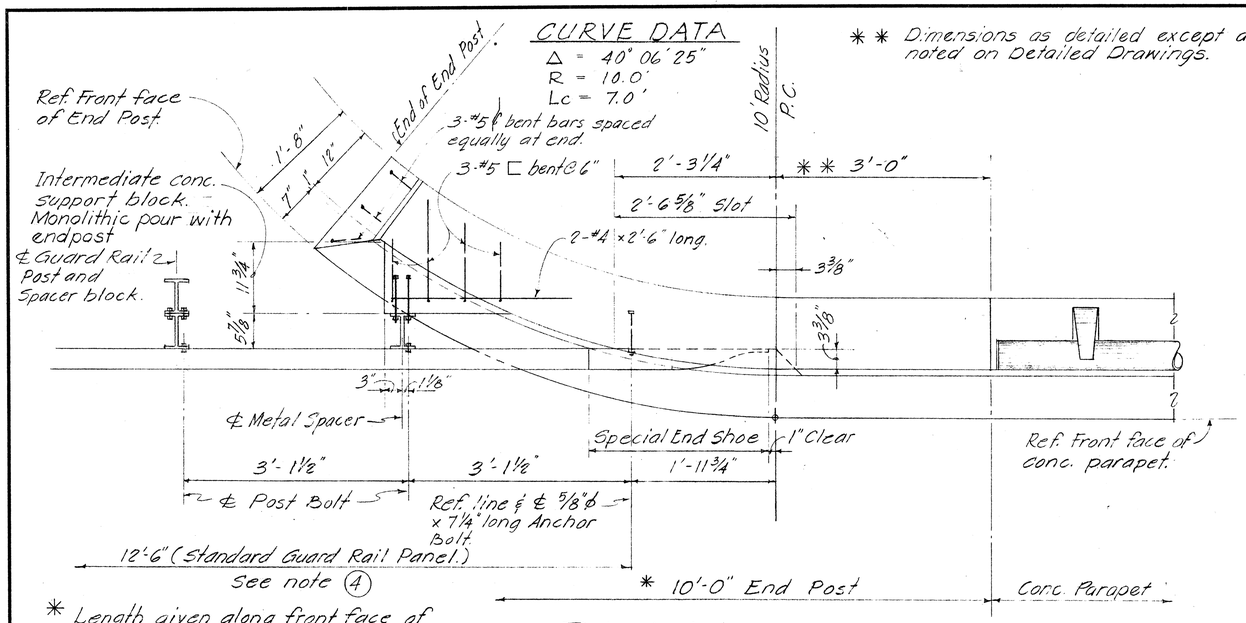
Scale as noted Date:

SHEET No. S3 OF S9 SHEETS DB-200-2

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

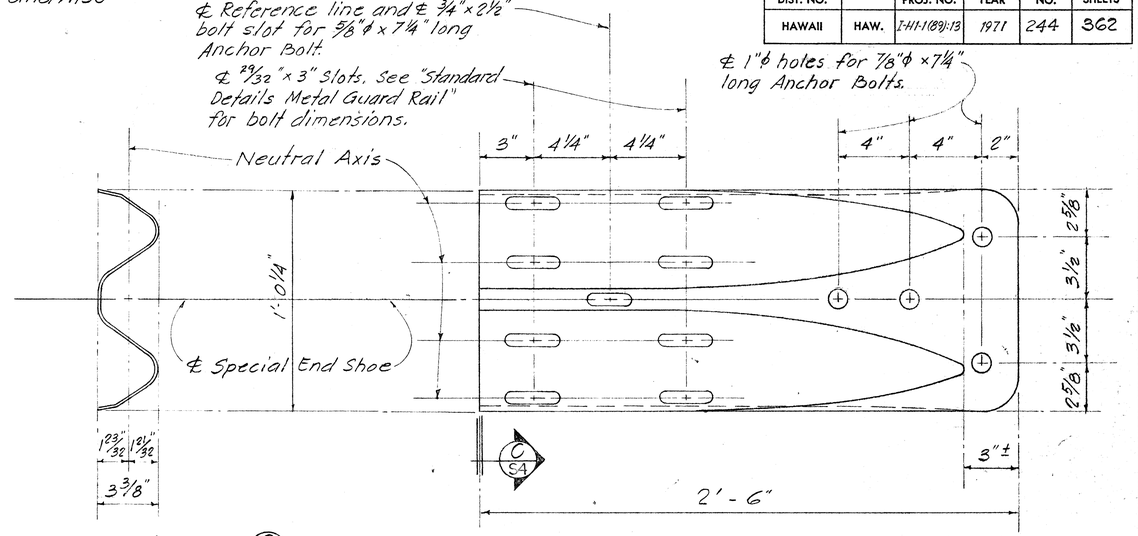
PRINTED ON NO. 1000H CLEARPRINT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(69)13	1971	244	362



** Dimensions as detailed except as otherwise noted on Detailed Drawings.

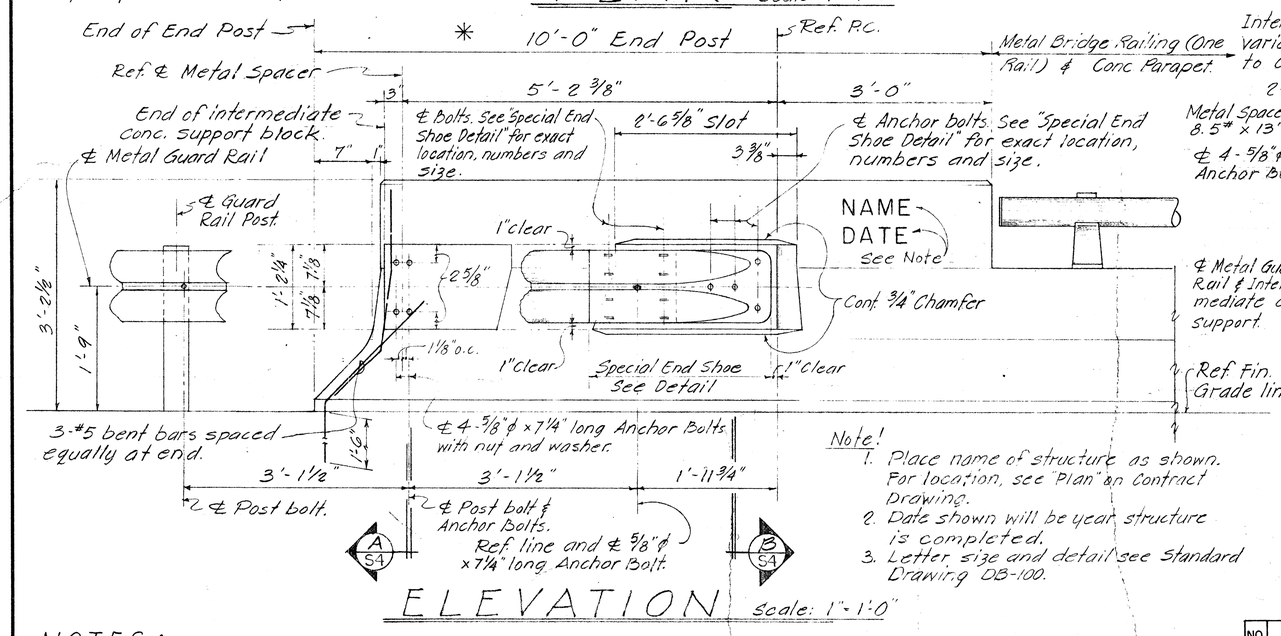
* Length given along front face of parapet and end post.



SECTION (C S4) ELEVATION

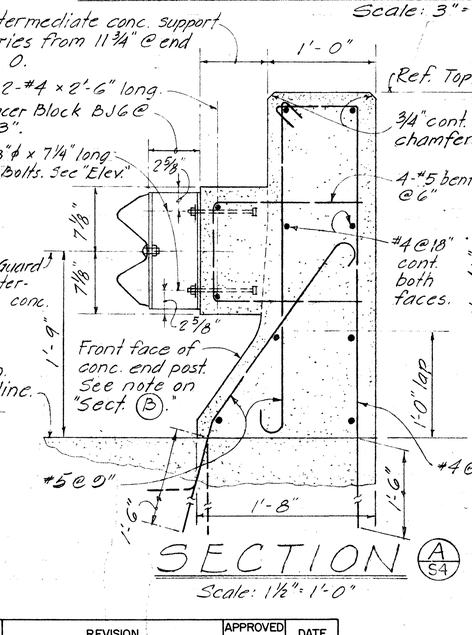
SPECIAL END SHOE DETAILS

Scale: 3" = 1'-0"

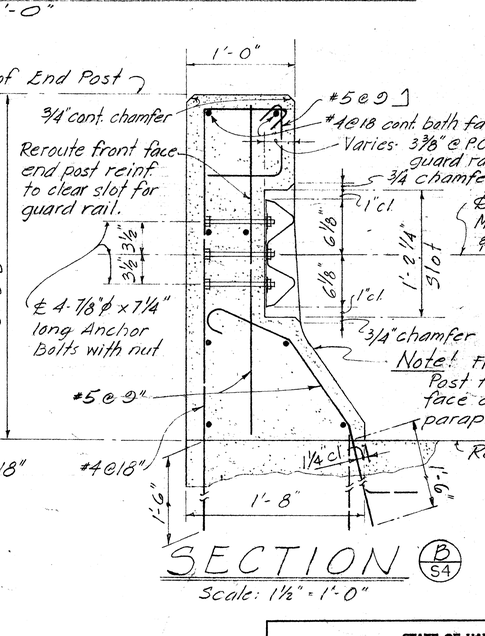


ELEVATION Scale: 1" = 1'-0"

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 Drawing DB-100.



SECTION (A S4)
Scale: 1 1/2" = 1'-0"



SECTION (B S4)
Scale: 1 1/2" = 1'-0"

NOTES:

1. All Anchor Bolts shall be High Strength bolts conforming to the requirements of ASTM A325.
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 Specifications for requirements.
5. Anchor Bolt length given from under bolt head.

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED: Paul T. Yamashita — BRIDGE DESIGN ENGINEER — 1-23-70 DATE

APPROVED Paul T. Yamashita — for ASSISTANT CHIEF, ENGINEERING — 1-28-70 DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

METAL GUARD RAIL CONNECTION

ONE RAIL COMBINATION TYPE END POST

Date

SHEET No. S4 OF S9 SHEETS DB-205

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

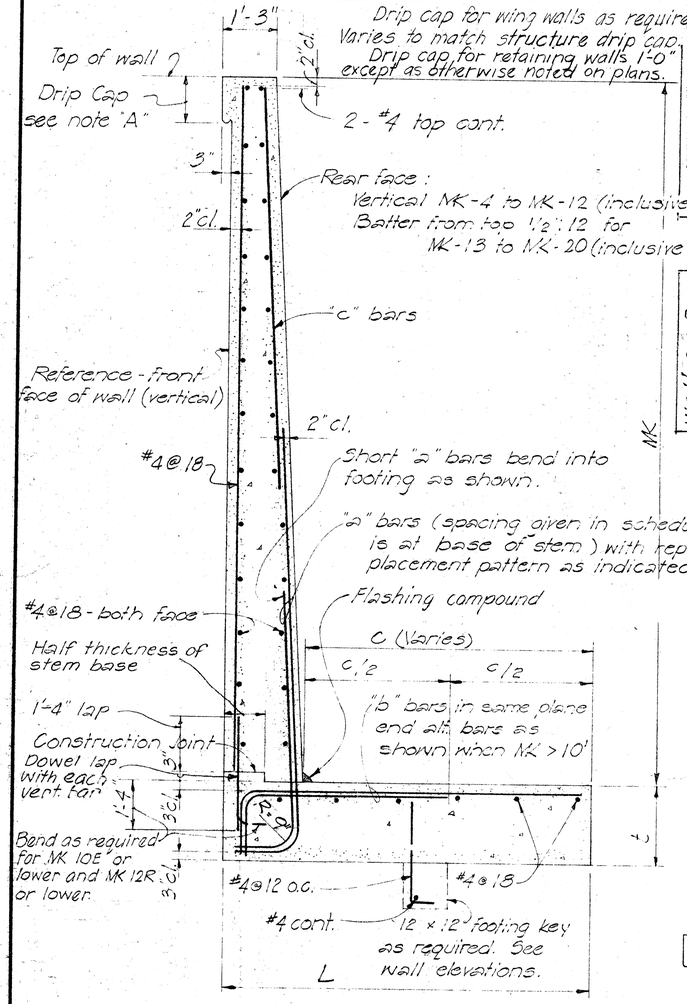
K&E CRYSTALENE® LA 2020 TRACING PAPER

2 44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(69)13	1971	245	362

Note "A" !!

Drip cap for wing walls as required. Varies to match structure drip cap. Drip cap for retaining walls 1'-0" except as otherwise noted on plans.



TYPE "L-1" WALL SCHEDULE OF DIMENSIONS AND REINFORCING STEEL

WALL ON EARTH

Maximum "MK"	4E	5E	6E	7E	8E	9E	10E	11E	12E	13E	14E	15E	16E	17E	18E	19E	20E
L	3.0'	3.25'	3.5'	4.25'	4.75'	5.5'	6.0'	6.75'	7.5'	8.5'	9.25'	10.5'	12.0'	12.75	14.00	15.50	17.00
t	14"	14"	14"	14"	14"	14"	14"	18"	18"	18"	21"	24"	27"	27"	27"	30"	30"
"a"	#3@12"	#3@12"	#4@12"	#4@9"	#5@8"	#5@6"	#6@6"	#6@6"	#7@7"	#6@6"	#7@7"	#7@6"	#8@5½"	#8@6"	#8@6"	#8@5½"	#9@6"
"b"	#3@12"	#3@12"	#4@12"	#4@9"	#5@8"	#5@6"	#6@6"	#6@6"	#7@6"	#8@6"	#9@7"	#9@6"	#10@5½"	#8@6"	#8@6"	#8@5½"	#9@6"
"c"	—	—	—	—	—	—	—	#4	#4	#4	#4	#4	#5	#5	#5	#5	#5

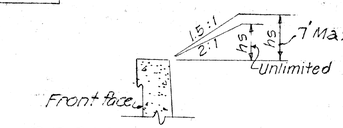
WALL ON ROCK

Maximum "MK"	4R	5R	6R	7R	8R	9R	10R	11R	12R	13R	14R	15R	16R
L	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'	6.0'	6.5'	7.0'	7.5'	8.0'	8.5'
t	14"	14"	14"	14"	14"	14"	14"	14"	14"	18"	18"	18"	18"
"a"	#3@12"	#3@12"	#4@12"	#4@9"	#5@8"	#5@6"	#6@6"	#7@7"	#8@7"	#6@6"	#7@7"	#7@6"	#8@6"
"b"	#3@12"	#3@12"	#4@12"	#4@9"	#5@8"	#5@6"	#6@6"	#7@7"	#8@7"	#7@6"	#8@7"	#8@6"	#9@6"
"c"								#4	#4	#4	#4	#4	#5

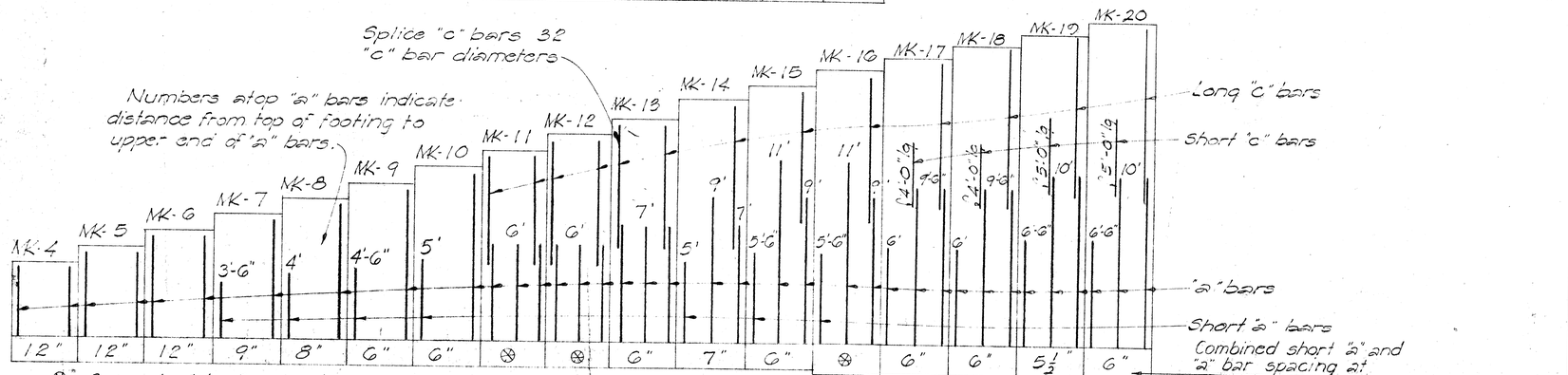
MK

REFERENCE NOTES:

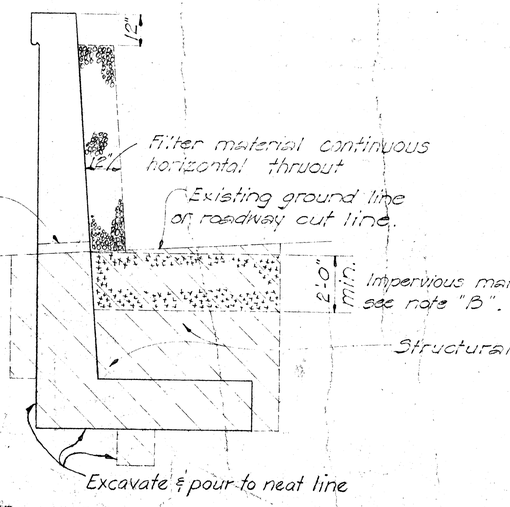
Refer to Standard Drawing Sht DB-207-2 for expansion joint & footing step details.

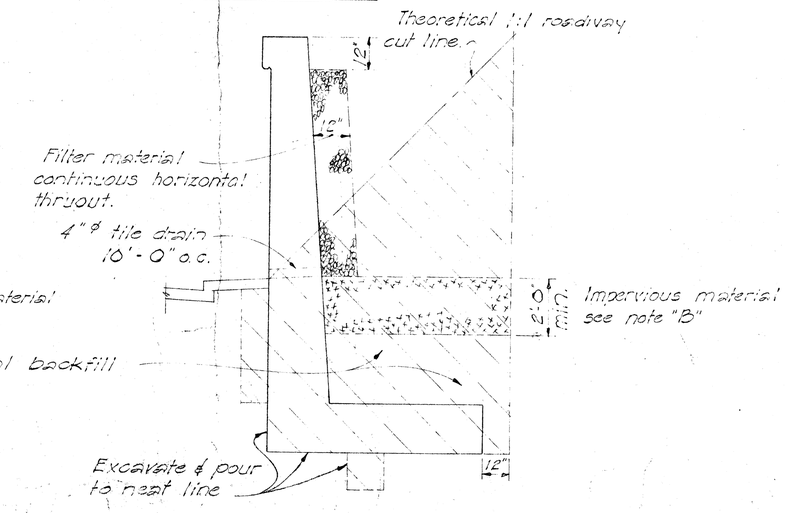


DESIGN LIMITS OF WALL SURCHARGE AND SLOPES



VERTICAL REINFORCING STEEL ARRANGEMENT





STRUCTURAL EXCAVATION & DRAINAGE DETAILS

TYPICAL SECTION TYPE "L-1" WALL

Note:

Hatched areas denotes limits of structural excavation pay line. All other excavation shall be roadway excavation except as otherwise noted.

Note "B"!!

Impervious material as selected by the Engineer incidental to structural excavation. When "MK" is 2'-0" or less, all backfill below weep hole level shall be impervious material.

The subgrade upon which filter material is to be placed shall be made as impervious as possible by pneumatic tamping or other approved methods.

Impervious material shall be incidental to roadway excavation or imported borrow when used in embankment area.

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED
Paul T. Umemoto
BRIDGE DESIGN ENGINEER — 1-23-70 DATE

APPROVED
Paul T. Umemoto
for ASSISTANT CHIEF, ENGINEERING — 1-24-70 DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAIL
RETAINING WALL TYPE L-1

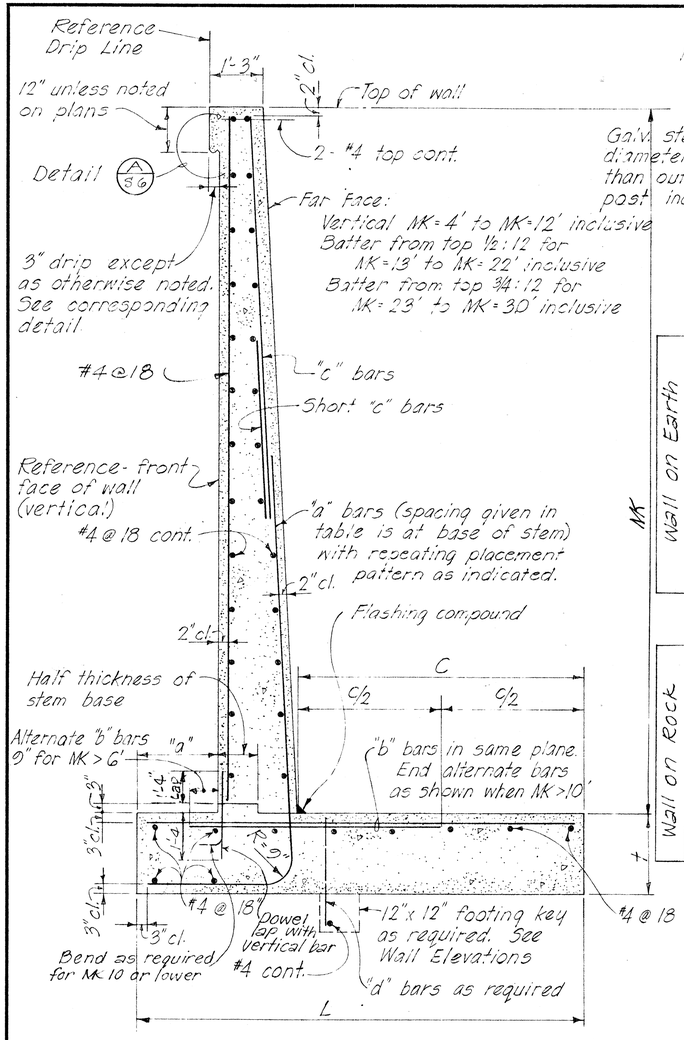
ORIGINAL PLAN	SURVEY PLOTTED BY	DRAWN BY	TRACED BY	DESIGNED BY	QUANTITIES BY	CHECKED BY	DATE
	NOTE BOOK	No.					

PRINTED ON NO. 1000H CLEARPRINT

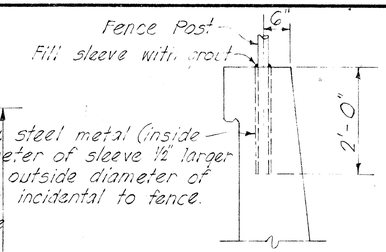
SHEET No. S5 OF S9 SHEETS DB-206

245

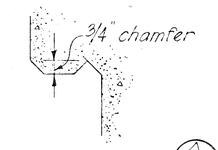
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FAH-1(80)13	1971	246	362



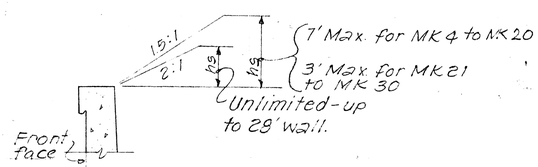
WALL SECTION



CHAIN LINK FENCE POST DETAIL



DETAIL A S6



DESIGN LIMITS OF WALL SURCHARGE AND SLOPES

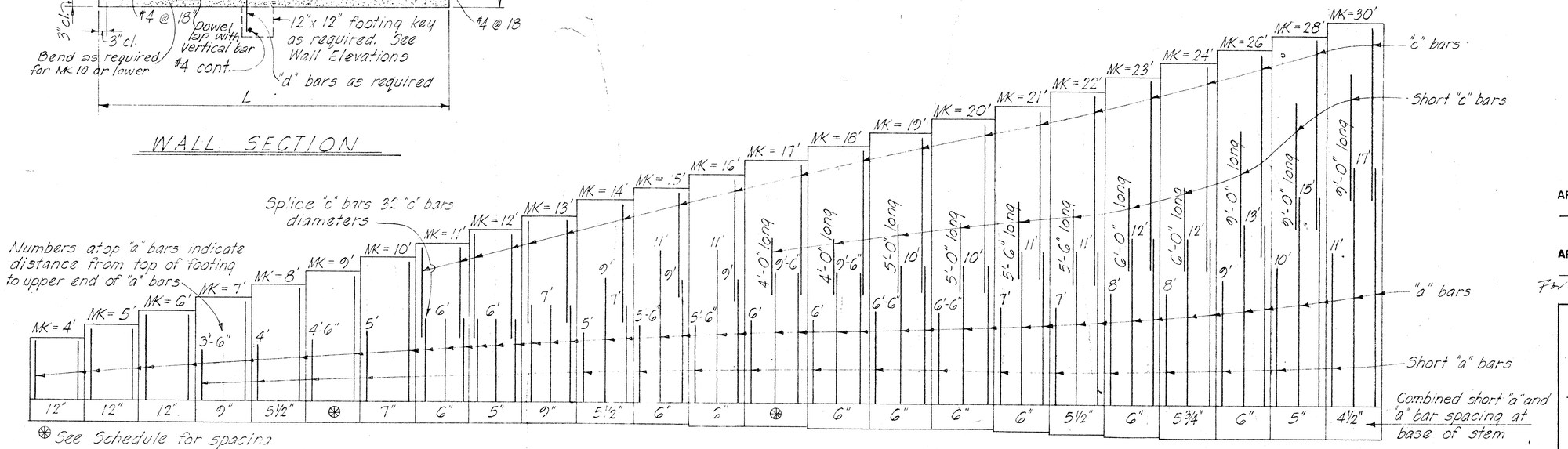
SCHEDULE OF DIMENSIONS AND REINFORCING STEEL

Wall on Earth

Maximum "MK"	4E	5E	6E	7E	8E	9E	10E	11E	12E	13E	14E	15E	16E	17E	18E	19E	20E	21E	22E	23E	24E	26E	28E	30E
a	6"	6"	6"	12"	12"	12"	12"	12"	12"	12"	15"	18"	21"	24"	24"	24"	27"	30"	33"	36"	39"	54"	60"	72"
t	14"	14"	14"	14"	14"	14"	14"	18"	18"	18"	18"	18"	21"	21"	24"	24"	24"	27"	30"	31"	33"	36"	39"	42"
L	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'	6.0'	6.5'	7.0'	7.75'	8.25'	9.0'	9.75'	10.5'	11.5'	12.5'	13.5'	14.5'	15.25'	16.0'	18.0'	20.0'	21.0'
"a" bars	#3@12"	#3@12"	#4@12"	#4@9"	#4@5½"	#5@7"	#6@7"	#6@6"	#6@5"	#7@9"	#6@5½"	#7@6"	#8@6"	#8@5¾"	#9@6"	#9@6"	#10@6"	#10@6"	#10@5½"	#10@6"	#10@5¾"	#11@6"	#11@5"	#11@4½"
"b" bars	#3@12"	#3@12"	#3@12"	#3@9"	#4@11"	#4@7"	#5@7"	#5@6"	#5@5"	#7@9"	#6@5½"	#7@6"	#8@6"	#10@5¾"	#8@6"	#9@6"	#10@6"	#10@6"	#10@5½"	#10@6"	#10@5¾"	#11@6"	#11@5"	#11@4½"
"c" bars								#4	#4	#4	#4	#4	#5	#5	#5	#6	#6	#6	#7	#7	#7	#7	#7	#7
"d" bars	#3@12"	#3@12"	#3@12"	#3@12"	#4@18"	#4@15"	#4@15"	#4@12"	#4@11"	#4@9"	#5@12"	#5@12"	#5@10"	#5@9"	#5@9"	#5@8"	#6@10"	#6@9"	#7@12"	#7@11"	#7@10"	#7@	#7@	#7@6"

Wall on Rock

Maximum "MK"	4R	5R	6R	7R	8R	9R	10R	11R	12R	13R	14R	15R	16R	17R	18R	19R	20R	21R	22R	23R	24R	26R	28R	30R
a	6"	6"	6"	12"	12"	12"	12"	12"	12"	12"	15"	18"	21"	21"	21"	21"	24"	24"	27"	30"	33"	39"	39"	51"
t	14"	14"	14"	14"	14"	14"	14"	18"	18"	18"	18"	18"	18"	18"	18"	21"	21"	21"	21"	24"	24"	27"	30"	36"
L	2.5'	3.0'	3.5'	4.0	4.5'	5.0'	5.5'	6.0'	6.5'	6.75	7.25'	7.75	8.25'	8.75'	9.25'	9.75'	10.25'	10.5'	11.0'	11.5'	12.0'	13.0'	14.0'	15.0'
"a" bars	#3@12"	#3@12"	#4@12"	#4@9"	#4@5½"	#5@6"	#6@7"	#6@6"	#6@5"	#7@9"	#6@5½"	#7@6"	#8@6"	#8@6"	#9@6"	#9@6"	#10@6"	#10@6"	#10@5½"	#10@6"	#10@5¾"	#11@6"	#11@5"	#11@4½"
"b" bars	#3@12"	#3@12"	#3@12"	#3@9"	#4@11"	#4@6"	#5@7"	#5@6"	#5@5"	#7@9"	#6@5½"	#7@6"	#7@6"	#8@6"	#9@6"	#9@6"	#10@6"	#10@6"	#10@5½"	#10@6"	#10@5¾"	#10@6"	#10@5"	#9@4½"
"c" bars								#4	#4	#4	#4	#4	#5	#5	#5	#6	#6	#6	#7	#7	#7	#7	#7	#7
"d" bars	#3@12"	#3@12"	#3@12"	#3@12"	#4@18"	#4@15"	#4@15"	#4@12"	#4@11"	#4@9"	#5@12"	#5@12"	#5@10"	#5@9"	#5@9"	#5@8"	#6@10"	#6@9"	#7@12"	#7@11"	#7@10"	#7@	#7@	#7@6"



VERTICAL REINFORCING STEEL ARRANGEMENT

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED
Paul T. Yamashita — 1-23-70
BRIDGE DESIGN ENGINEER — DATE

APPROVED Paul T. Yamashita — 1-28-70
For ASSISTANT CHIEF, ENGINEERING — DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
RETAINING WALL TYPE T-1

SCALE AS NOTED DATE:

SHEET No. S6 OF 59 SHEETS DB-207-1

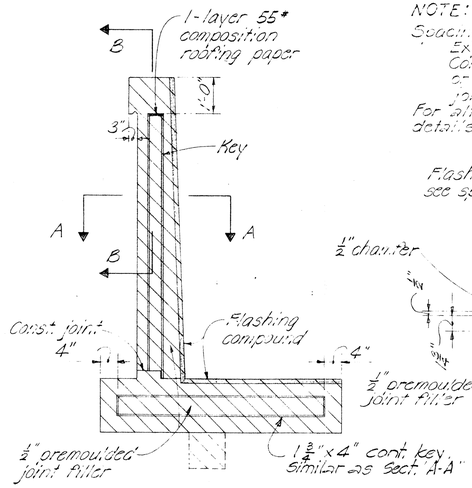
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

PRINTED ON NO. 1000H CLEARPRINT

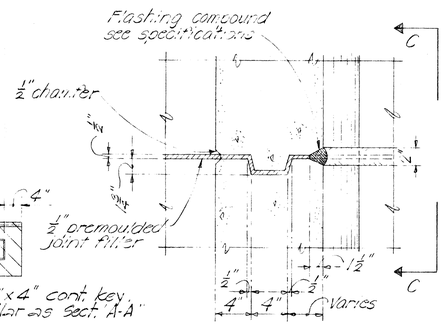
246

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(89)13	1971	247	362

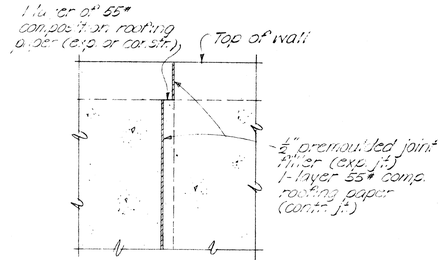
NOTE:
Spacing of joints
Expansion = 90'-0" max.
Contraction = 30'-0" max. except where conc railing or curb occurs 26'-8" max. (match with railing joint above)
For alternate contraction joint and control joint details - See Standard Details Sht #DB-100



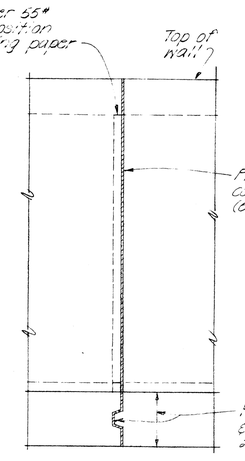
JOINT ELEVATION



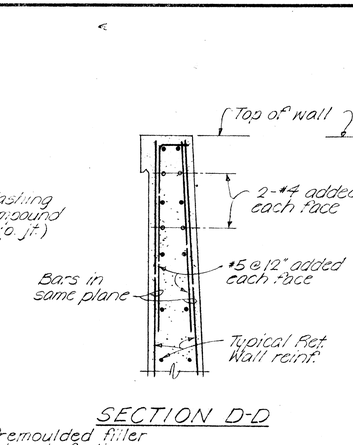
SECTION A-A



SECTION B-B



SECTION C-C

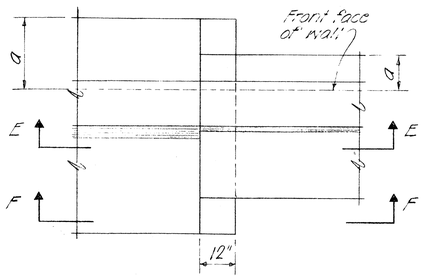


SECTION D-D

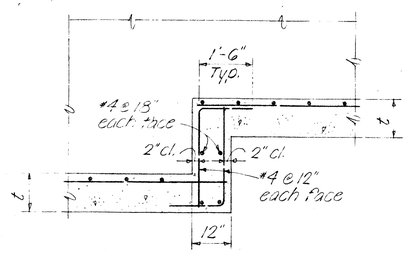
ELEVATION

TYPICAL ADDED REINFORCEMENT AT LIGHT STANDARD BASE No Scale

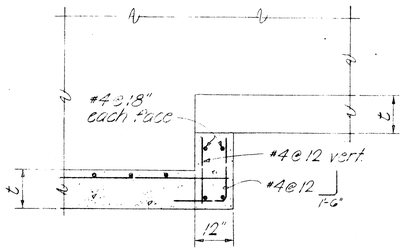
TYPICAL EXPANSION JOINT DETAILS No Scale



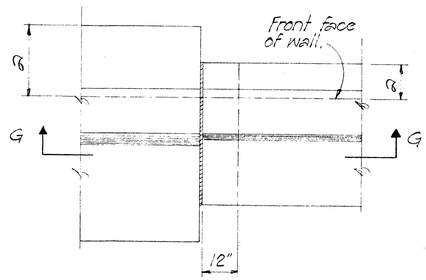
PLAN



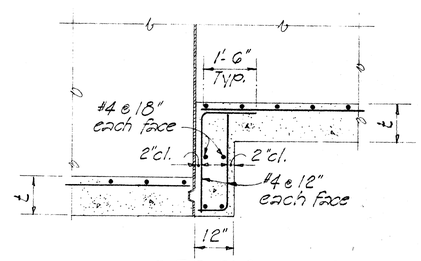
SECTION E-E AT CONTINUOUS FOOTING



SECTION F-F

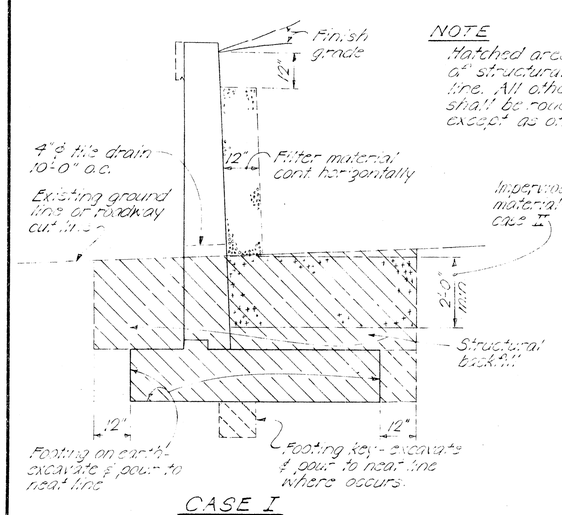


PLAN



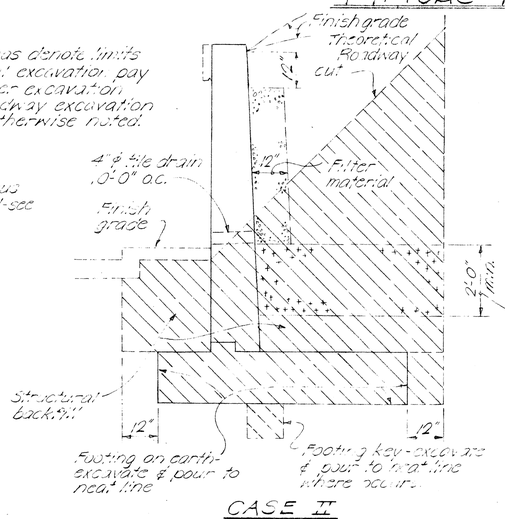
SECTION G-G AT EXPANSION JOINT

TYPICAL FOOTING STEP-UP DETAILS No Scale



CASE I

NOTE
Hatched areas denote limits of structural excavation pay line. All other excavation shall be roadway excavation except as otherwise noted.



CASE II

Impervious material as selected by the Engineer incidental to structural excavation. The subgrade upon which filter material is to be placed shall be made as impervious as possible by pneumatic tamping or other approved methods.
Impervious material shall be incidental to roadway excavation or imported borrow when used in embankment area.

STRUCTURAL EXCAVATION & DRAINAGE DETAILS No Scale

APPROVAL RECOMMENDED:
Paul T. Yamashita — 1-23-70
BRIDGE DESIGN ENGINEER — DATE

APPROVED
Paul T. Yamashita — 1-28-70
For ASSISTANT CHIEF, ENGINEERING — DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
RETAINING WALL TYPE T-1

SCALE AS NOTED DATE:

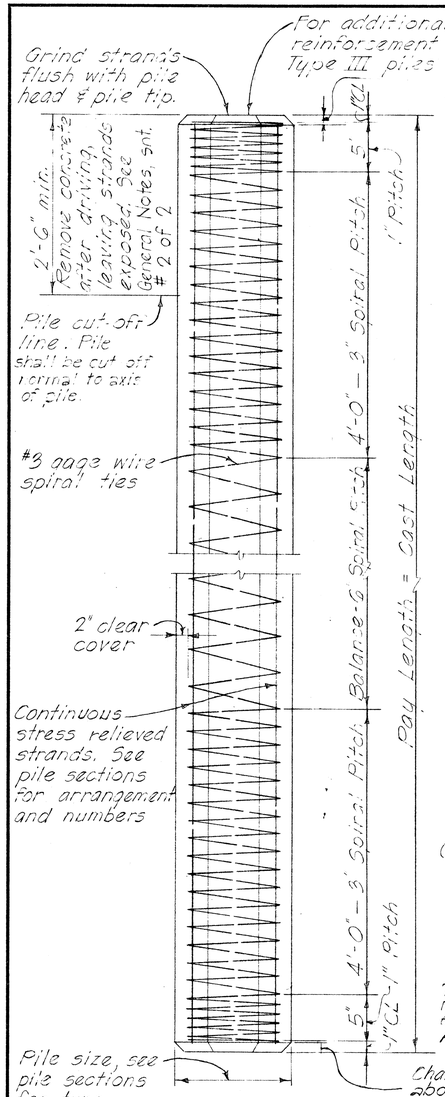
SHEET No. S7 OF S9 SHEETS DB-207-2

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

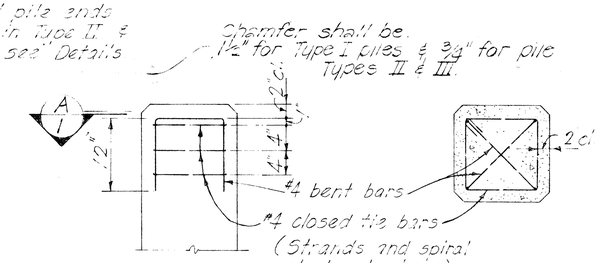
PRINTED ON NO. 1000H CLEARPRINT

247

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HH-1(89)13	1971	248	362

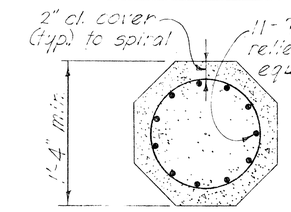


TYPICAL PILE DETAIL



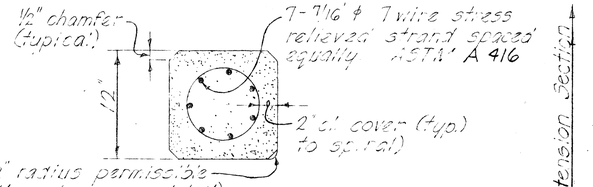
PART ELEVATION SECTION A S8

TYPICAL ADDED REINFORCEMENT PILE ENDS - TYPE II & III ONLY

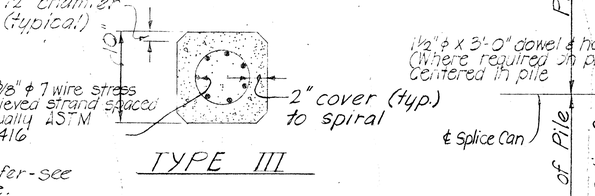


Note: All types of pile spiral reinforcement shall be cold drawn steel wire ASTM A 82

TYPE I



TYPE II



TYPE III

TYPICAL SECTIONS THRU PILES

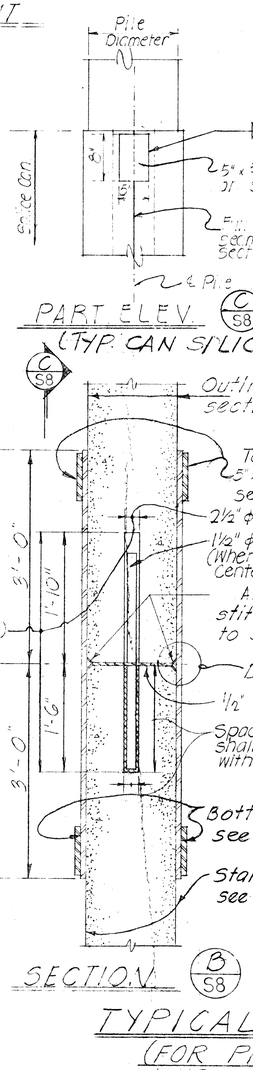
Max. Length "L" *	Max. Length "L" *	Length "L" *
Type I "L" = 53'-0"	Type I "L" = 75'-0"	Type I "L" over 75'-0"
12" Type II "L" = 50'-0"	12" Type II "L" = 72'-0"	12" Type II "L" over 72'-0"
10" Type III "L" = 46'-0"	10" Type III "L" = 66'-0"	10" Type III "L" over 66'-0"
0.30 L 0.70 L	0.21 L 0.58 L 0.21 L	0.15 L 0.35 L 0.35 L 0.15 L

* The length "L" is the distance end to end of pile.

1 POINT PICK-UP 2 POINT PICK-UP 3 POINT PICK-UP

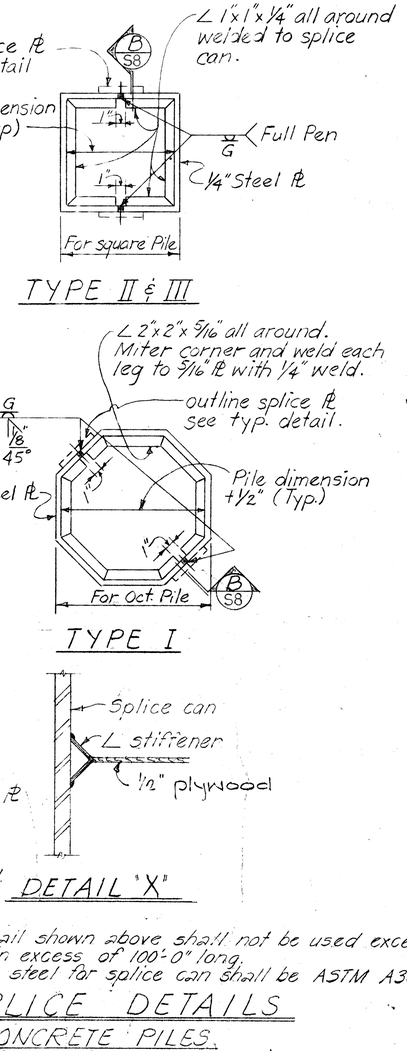
NOTE: Unless special lifting devices are attached for pick-up points, pick-up points shall be plainly marked on all piles after removal of the forms and all lifting shall be done at these points.
The use of special embedded or attached lifting devices, the employment of other pick-up points or any other method of pick-up shall be subject to approval by the Engineer.

NOTE:
Concrete in pile built-ups without driving shall be Class A Concrete. Concrete in pile build ups with driving shall have a minimum compressive cylinder strength 'f'c' of 5000 p.s.i. at 28 days. Build-ups may be driven if the specimen of concrete from which the piles were poured develops a strength of at least 3500 p.s.i. but not earlier than 7 days.



PART ELEV C S8 (TYP. CAN SPLICE ℄)

SECTION B S8



TYPE II & III

TYPE I

DETAIL "X"

NOTE:
1. Splice detail shown above shall not be used except for pile length in excess of 100'-0" long.
2. Structural steel for splice can shall be ASTM A36.

TYPICAL PILE SPLICE DETAILS
(FOR PRESTRESSED CONCRETE PILES WHEN CAST IN TWO OR MORE SECTIONS)

NOTE: All welding shall conform to the Specifications for "Welded Highway and Railway Bridges" of the American Welding Society.

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:
Paul T. Yamashita — 1-23-70
BRIDGE DESIGN ENGINEER — DATE

APPROVED
Paul T. Yamashita — 1-28-70
for ASSISTANT CHIEF, ENGINEERING — DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
PRESTRESSED CONCRETE PILES

Date

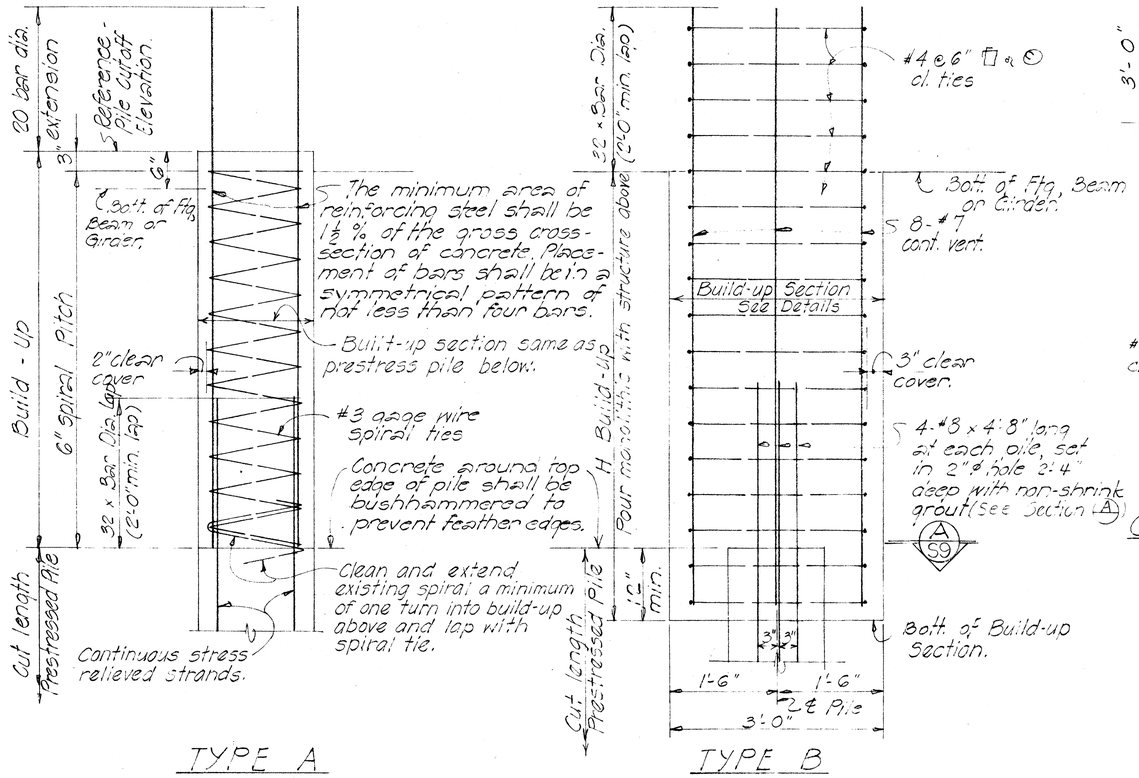
SHEET No. S8 OF S9 SHEETS DB-300-1

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

PRINTED ON NO. 1000H CLEARPRINT

248

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(89)13	1971	249	362



TYPE A

TYPE B

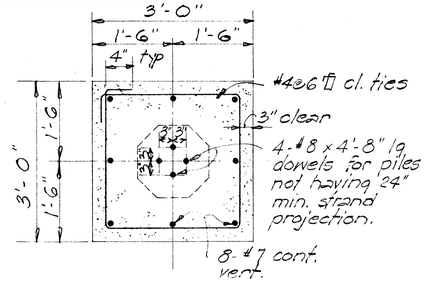
Notes:

Selection of pile build-up type without driving to be determined by the Engineer.

When height of depressed portion of footing (H) exceeds 4", the depressed section shall be poured separately from the main body of the footing.

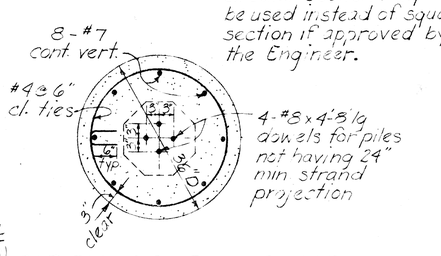
Depressed portion of footing may be omitted for pile heads embedded at least 4" into footing provided at least 90% of the piles in each footing have the minimum embedment into footing as shown in contract plans.

WITHOUT DRIVING
TYPICAL PILE BUILD-UP DETAILS



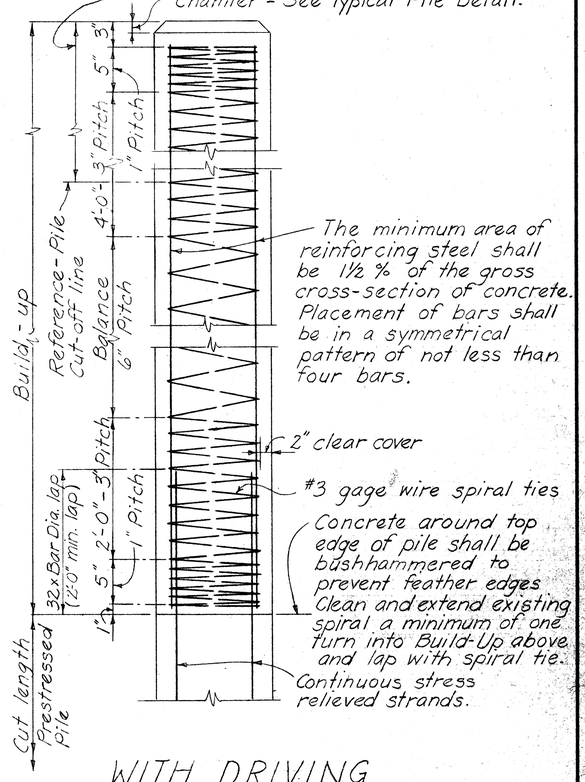
SQUARE BUILD-UP

Note:
Circular section may be used instead of square section if approved by the Engineer.



CIRCULAR BUILD-UP SECTION (A S9)

2'-6" min. unless otherwise directed by the Engineer. Remove concrete after driving, leaving reinf. exposed



WITH DRIVING
TYPICAL PILE BUILD-UP DETAIL

GENERAL NOTES

1. Work of cutting off prestressed conc. piles or concrete build-ups shall be performed in such a manner as to avoid spalling or damaging the pile below cut-off. In case of such damage, the pile shall be replaced or repaired by the Contractor at his expense as directed by the Engineer.
2. Portion of pile embedded into footing shall be of sound concrete. Damaged portions shall be removed and pile cut-off elevation lowered as required by the Engineer.

APPROVAL RECOMMENDED:
Paul T. Yamashita — BRIDGE DESIGN ENGINEER — 1-23-70 DATE

APPROVED Paul T. Yamashita for ASSISTANT CHIEF, ENGINEERING — 1-28-70 DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
PRESTRESSED CONCRETE PILES

Date: Oct. 1968

SHEET No. S9 OF S9 SHEETS DB-300-2

249

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

PRINTED ON NO. 1000H CLEARPRINT