

DRAINAGE SUMMARY

PROJECT: INTERSTATE H-1 RESURFACING KALIHI I.C. TO QUEEN EMMA SEPARATION

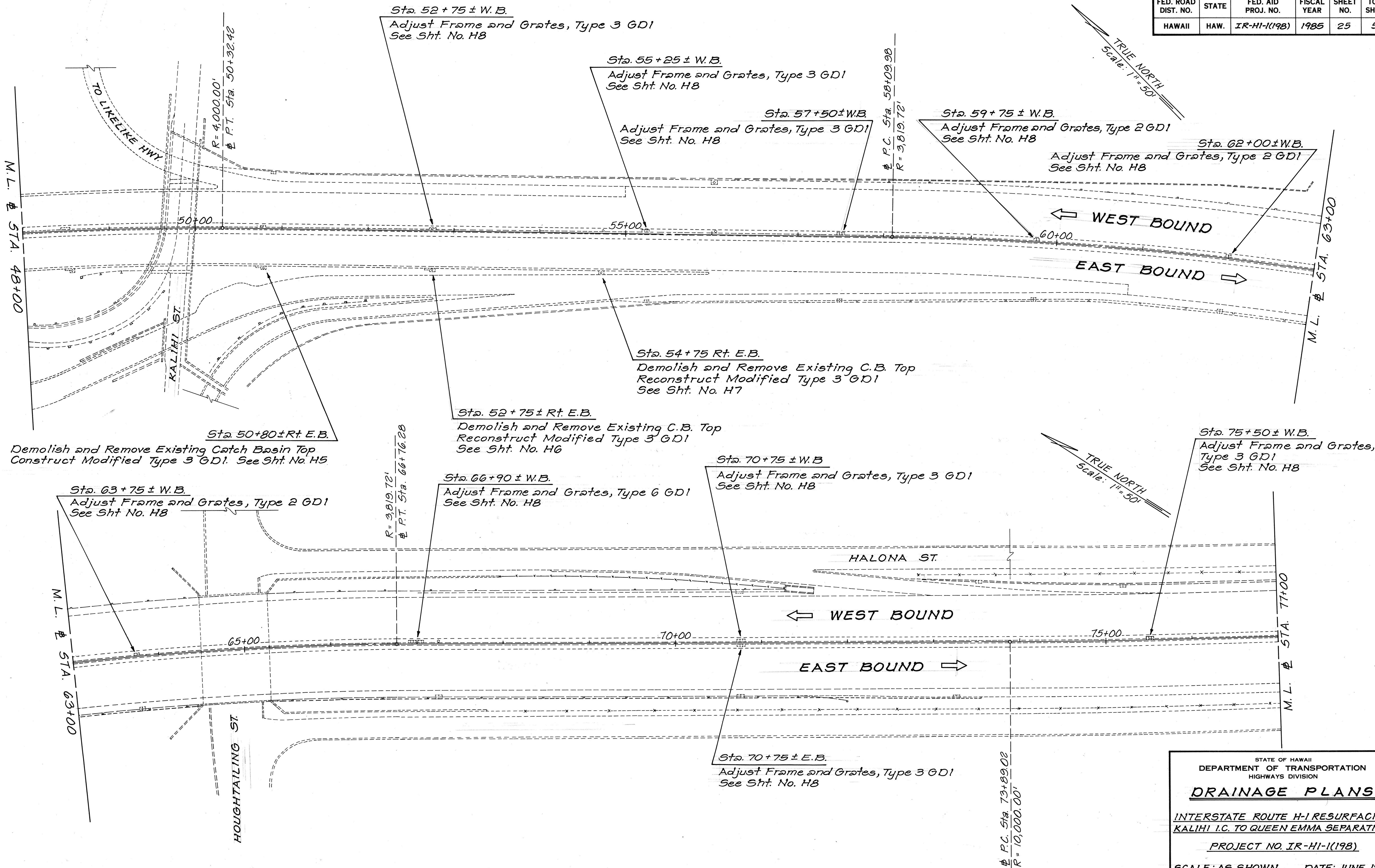
PROJECT NO.: IR-HI-1(198)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(198)	1985	24	59

[illegible]

SHEET NO. 11 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(198)	1985	25	59



DATE	_____
SURVEY PLOTTED BY	_____
DESIGNED BY	_____
TRACED BY	_____
NOTED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLANS

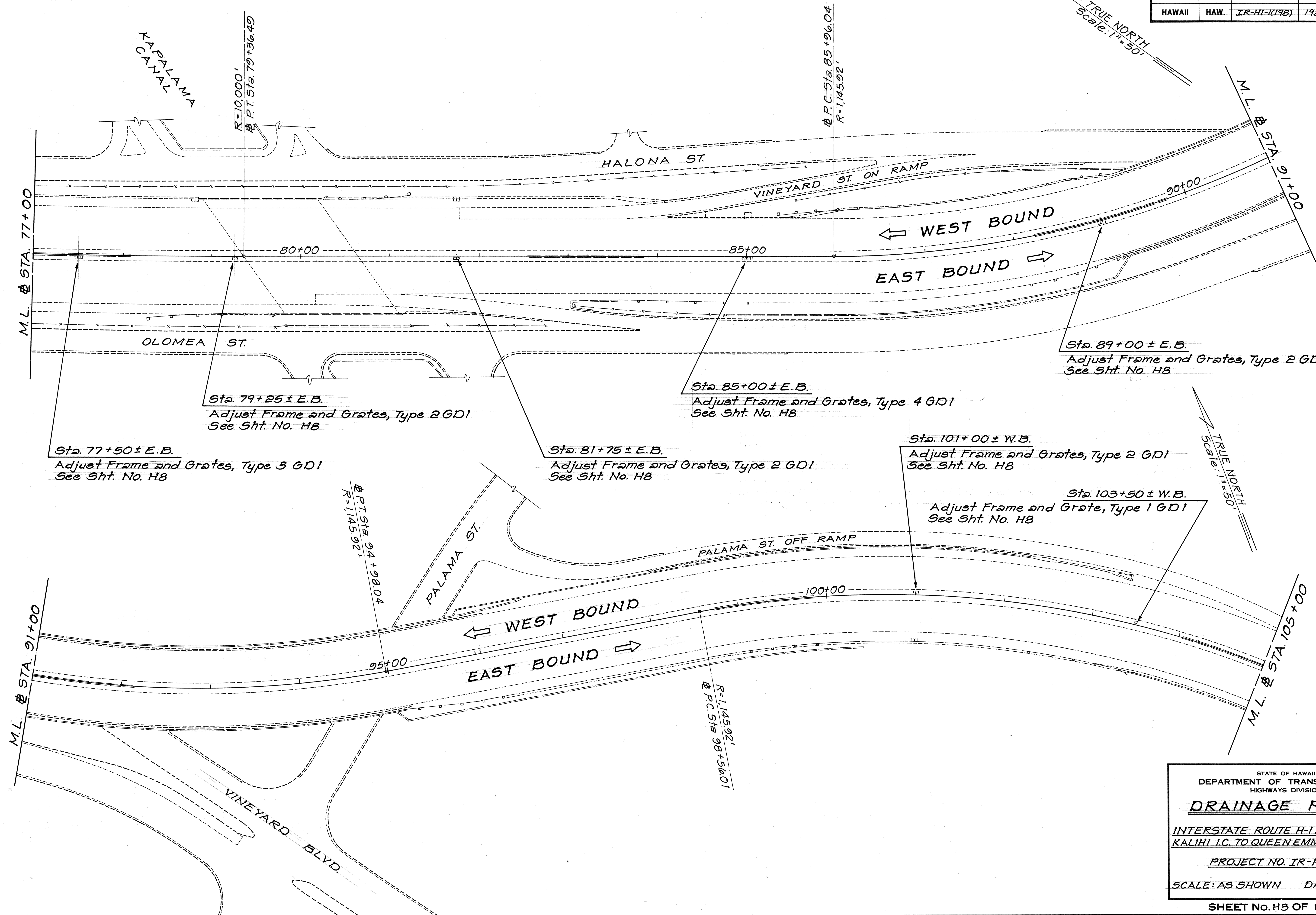
INTERSTATE ROUTE H-1 RESURFACING
KALIHĪ I.C. TO QUEEN EMMA SEPARATION

PROJECT NO. IR-HI-1(198)

SCALE: AS SHOWN DATE: JUNE 1985

SHEET No. H2 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(198)	1985	26	57



DATE	
SURVEY PLOTTED BY	
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLANS

INTERSTATE ROUTE H-1 RESURFACING
KALIHI I.C. TO QUEEN EMMA SEPARATION

PROJECT NO. IR-HI-1(198)

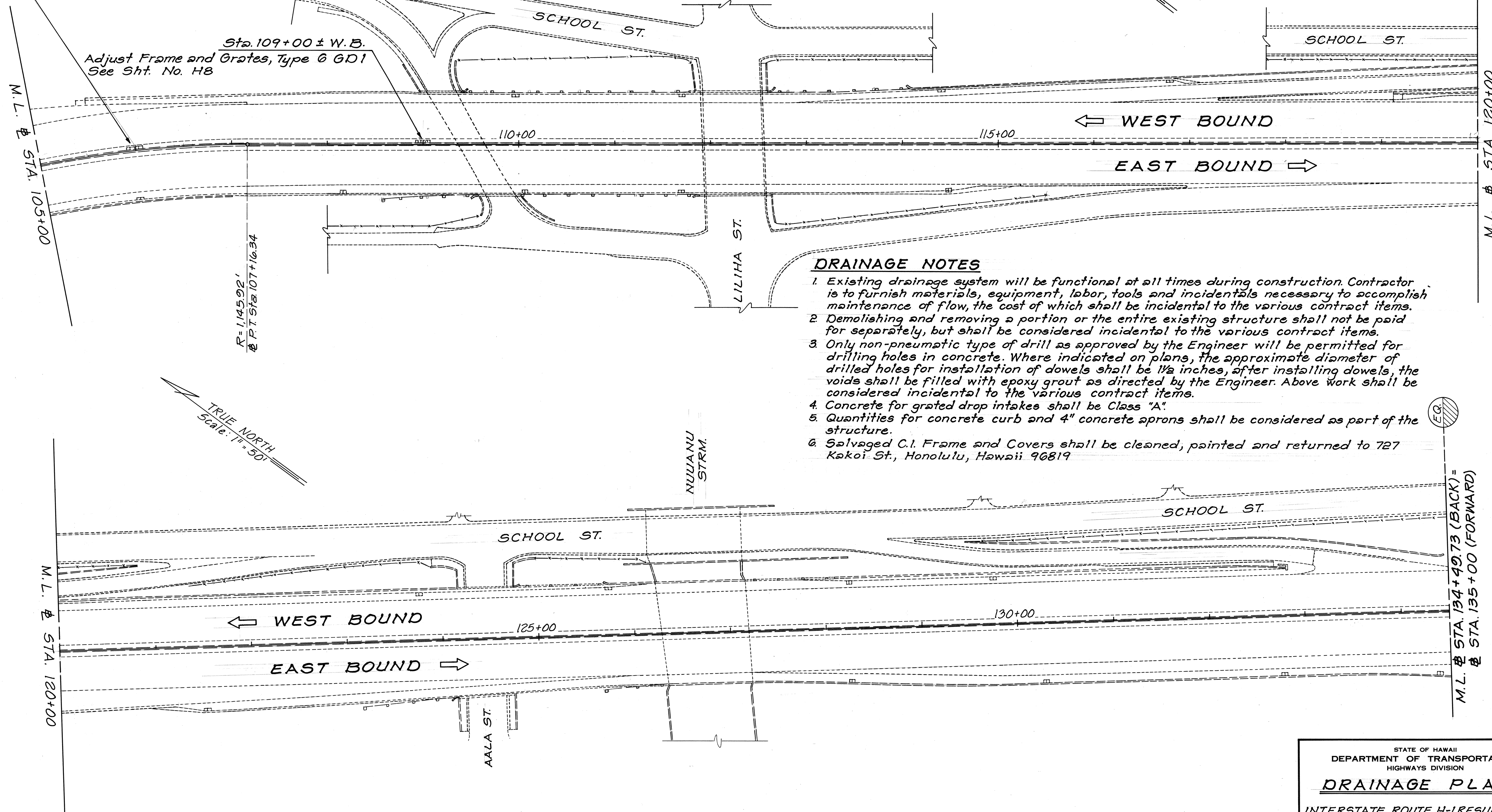
SCALE: AS SHOWN DATE: JUNE 1985

SHEET NO. H3 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(198)	1985	27	59

Sta. 106+00 ± W.B.
Adjust Frame and Grates, Type 4 GD1
See Sht. No. H8

Sta. 109+00 ± W.B.
Adjust Frame and Grates, Type 6 GD1
See Sht. No. H8



DRAINAGE NOTES

1. Existing drainage system will be functional at all times during construction. Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to accomplish maintenance of flow, the cost of which shall be incidental to the various contract items.
2. Demolishing and removing a portion or the entire existing structure shall not be paid for separately, but shall be considered incidental to the various contract items.
3. Only non-pneumatic type of drill as approved by the Engineer will be permitted for drilling holes in concrete. Where indicated on plans, the approximate diameter of drilled holes for installation of dowels shall be 1 1/2 inches, after installing dowels, the voids shall be filled with epoxy grout as directed by the Engineer. Above work shall be considered incidental to the various contract items.
4. Concrete for grated drop intakes shall be Class "A".
5. Quantities for concrete curb and 4" concrete aprons shall be considered as part of the structure.
6. Salvaged C.I. Frame and Covers shall be cleaned, painted and returned to 727 Koko St., Honolulu, Hawaii 96819

DESIGNED BY	DATE
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLANS

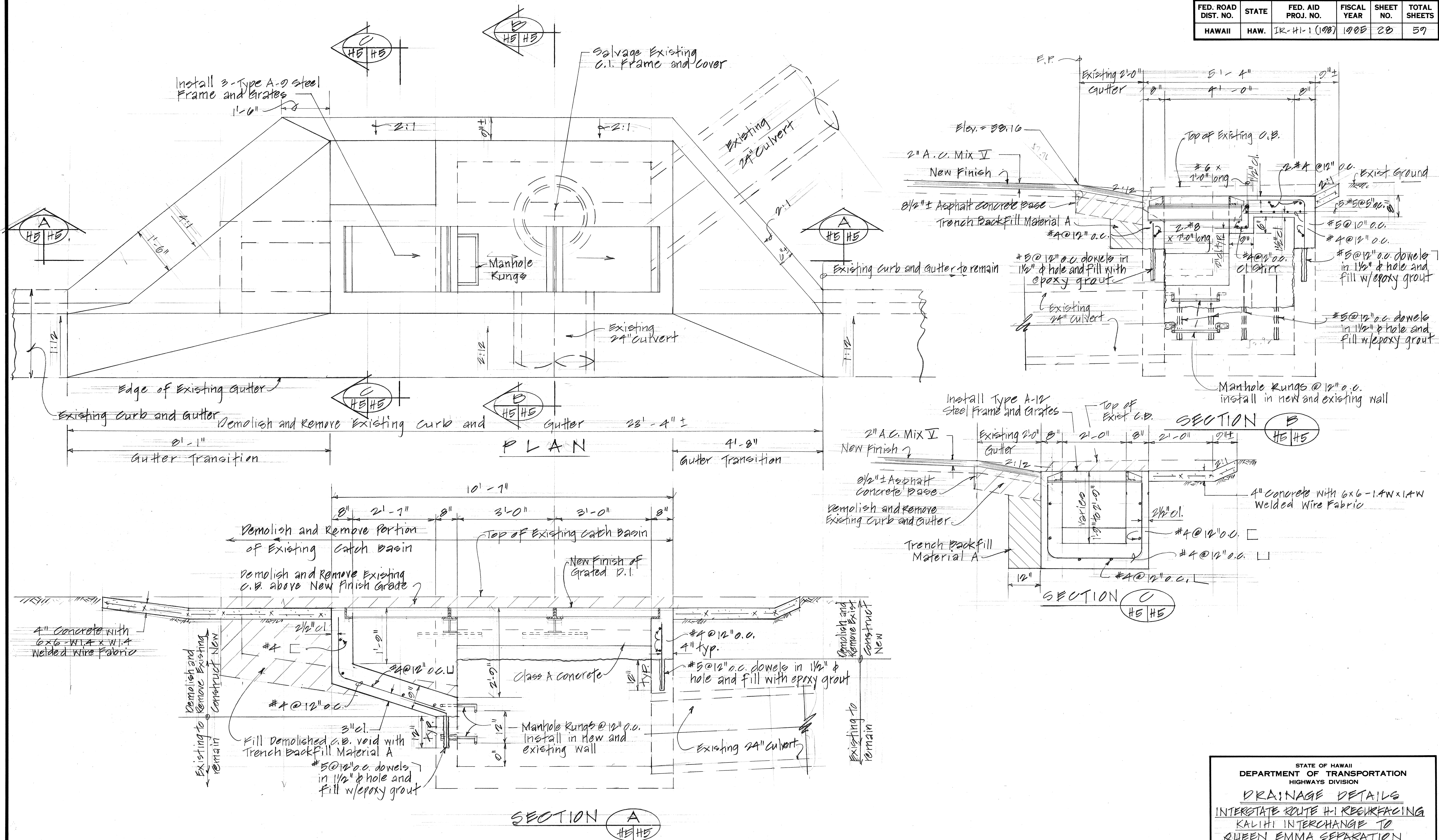
INTERSTATE ROUTE H-1 RESURFACING
KALIHI I.C. TO QUEEN EMMA SEPARATION

PROJECT NO. IR-HI-1(198)

SCALE: AS SHOWN DATE: JUNE 1985

SHEET No. H4 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-41-1 (198)	1905	28	59



DETAILS OF MODIFIED TYPE 3 GRATED DROP INLET AT STA. 50+80 F.B. RT.

SCALE: $3/4" = 1' - 0"$

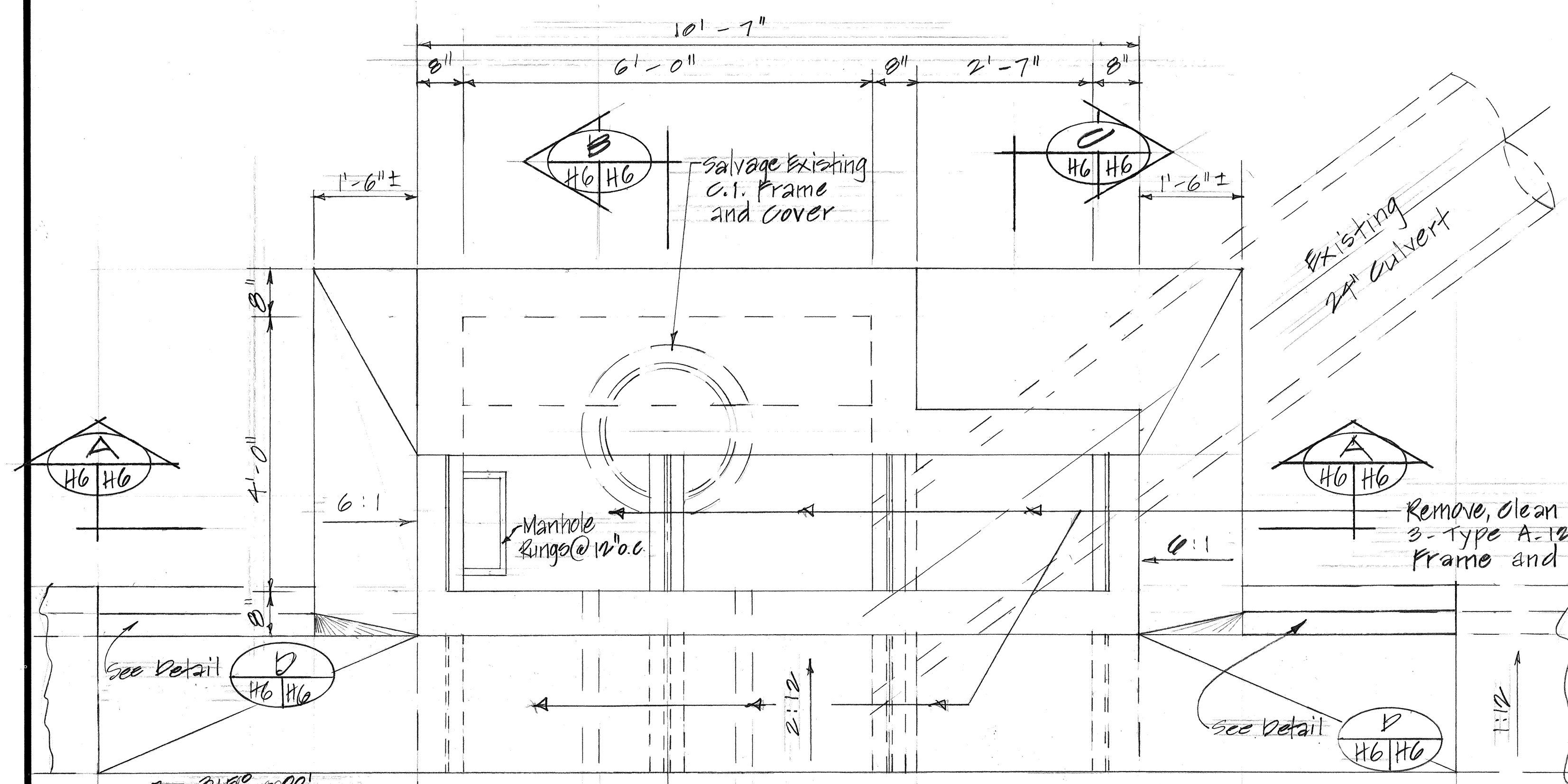
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
INTERSTATE ROUTE 41 RESURFACING
KALIHI INTERCHANGE TO
QUEEN EMMA SEPARATION
PROJECT NO. IR-41-1 (198)

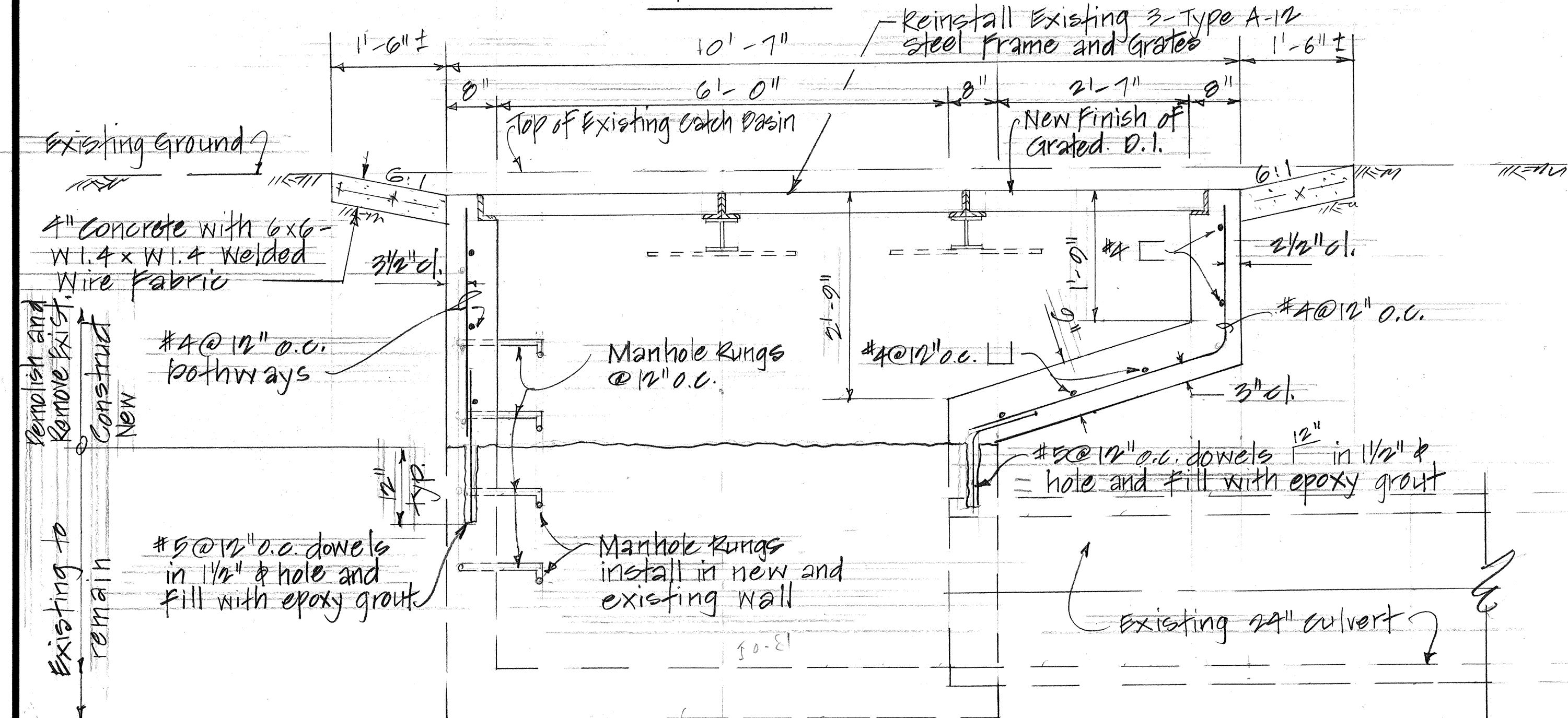
Scale: As Shown Date: June, 1985

SHEET NO. 43 OF 10 SHEETS

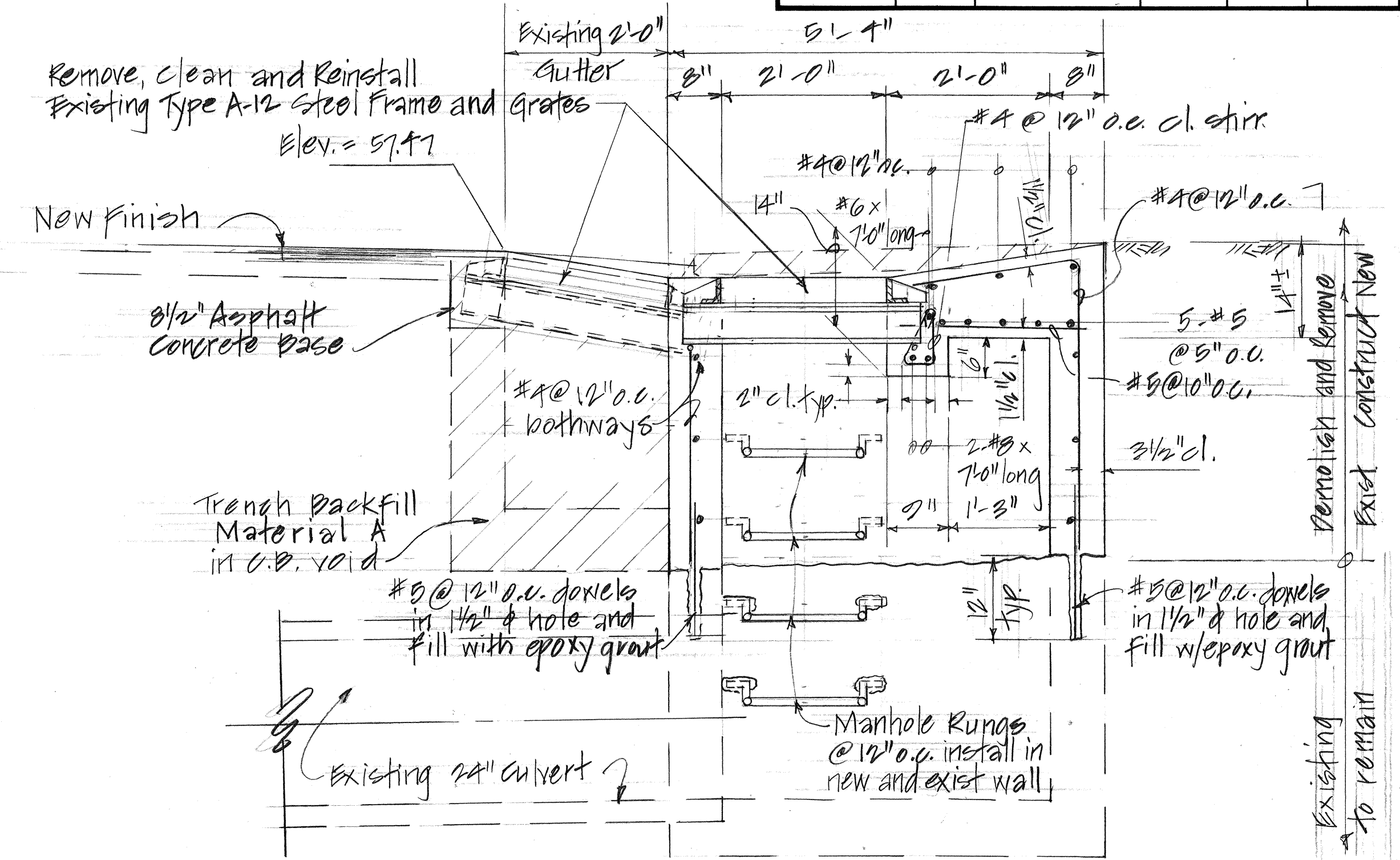
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HAWAII	HAW.	IR-HI-1(100)	1985	29	59



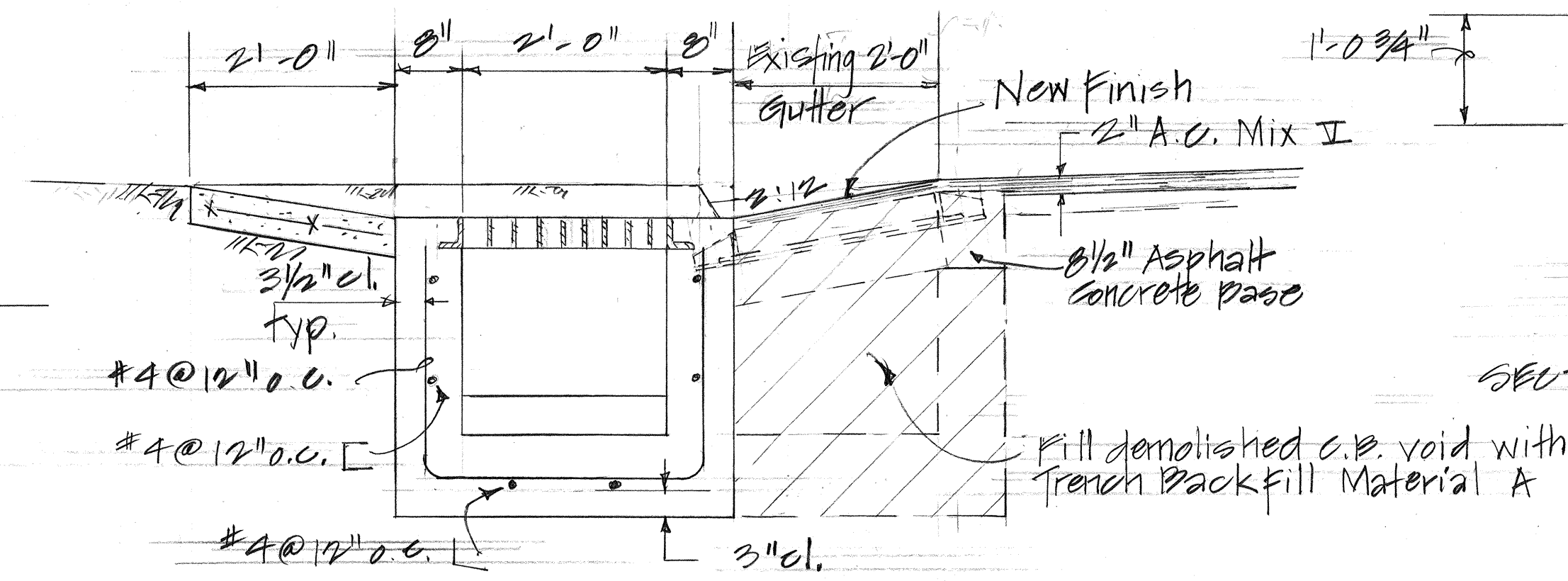
PLAN



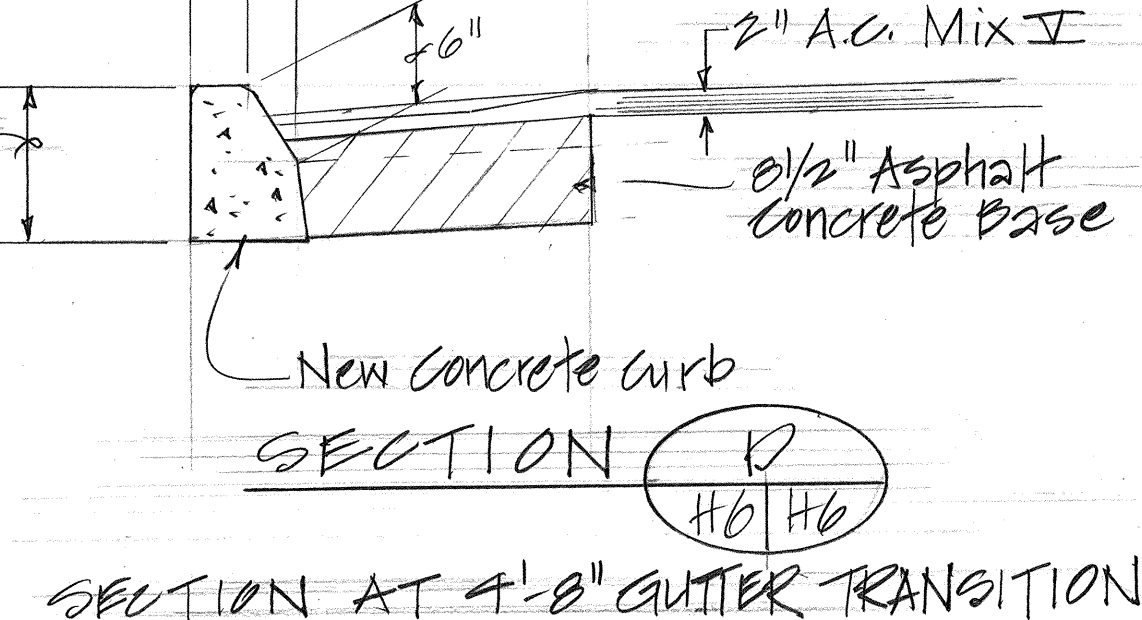
SECTION A-A
H6/H6



SECTION B-B
H6/H6



SECTION C-C
H6/H6



SECTION AT 4'-8" GUTTER TRANSITION
H6/H6

DETAILS OF RECONSTRUCTED MODIFIED TYPE 3 GRATED DROP INLET AT STA. 52+75 E.B. RT.

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE HI-1 RESURFACING
KALIHI INTERCHANGE TO
QUEEN EMMA SEPARATION
PROJECT NO. IR-HI-1 (100)

Scale: As Shown Date: June 1985
SHEET No. 46 OF 10 SHEETS

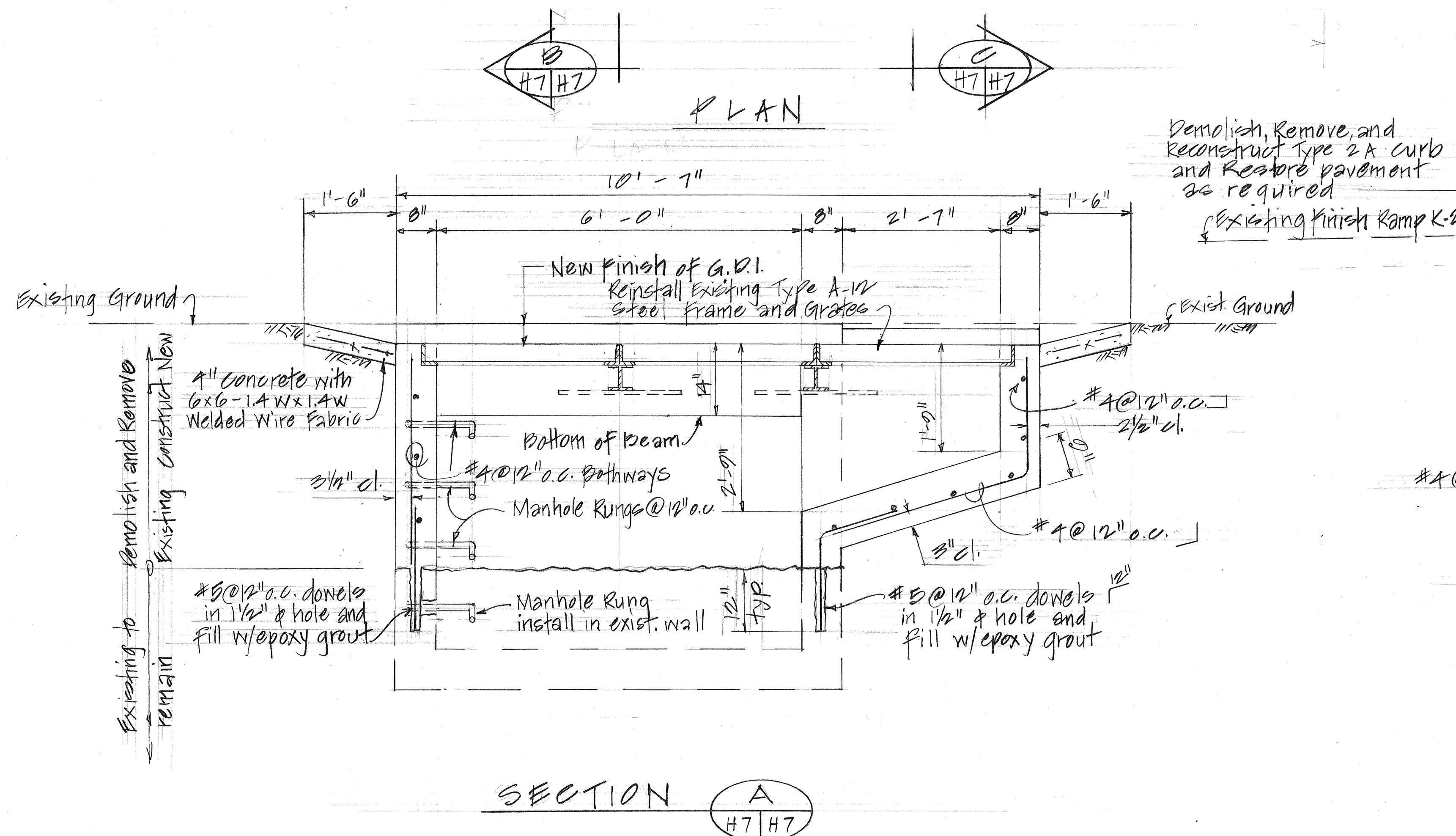
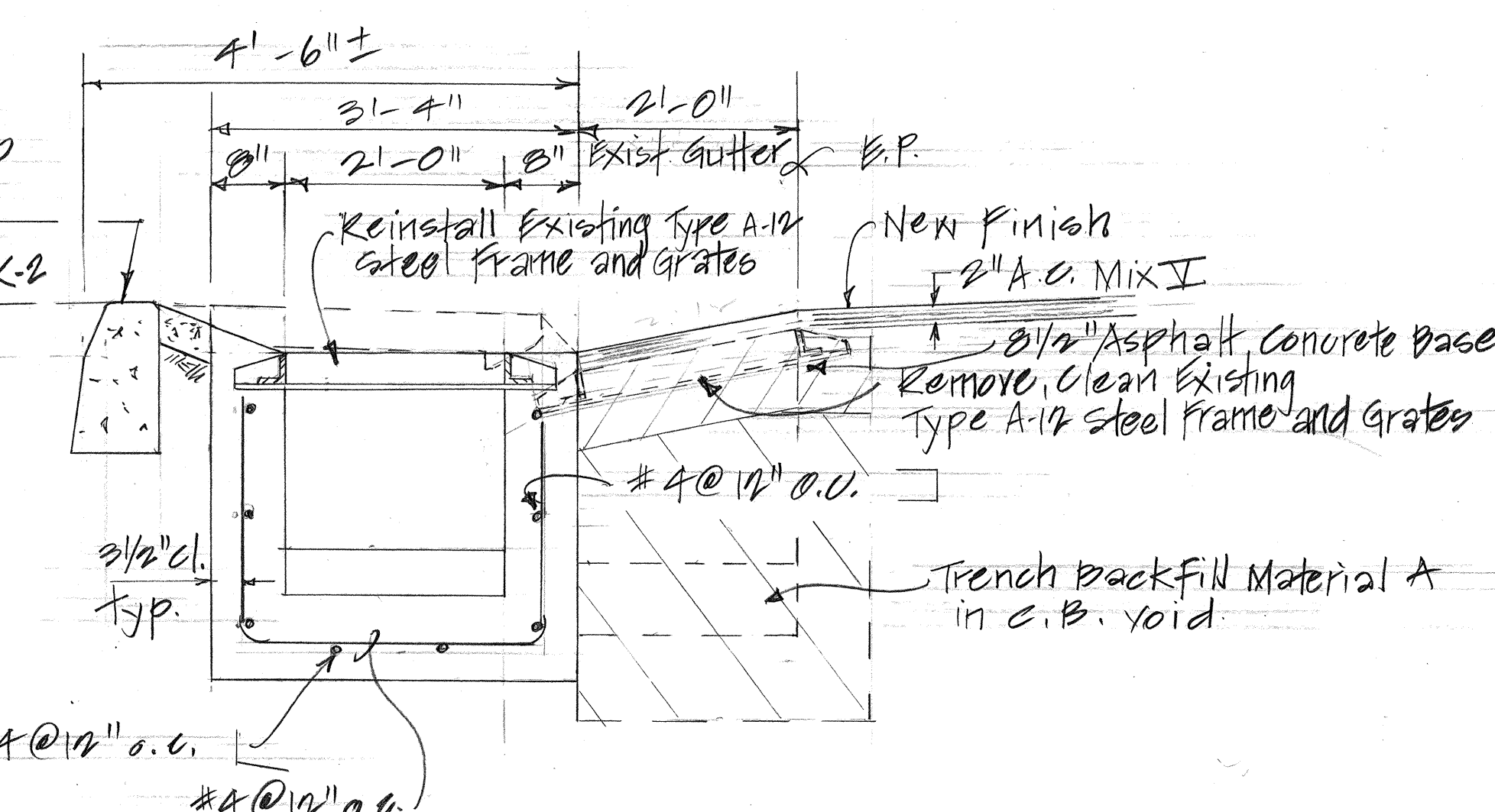
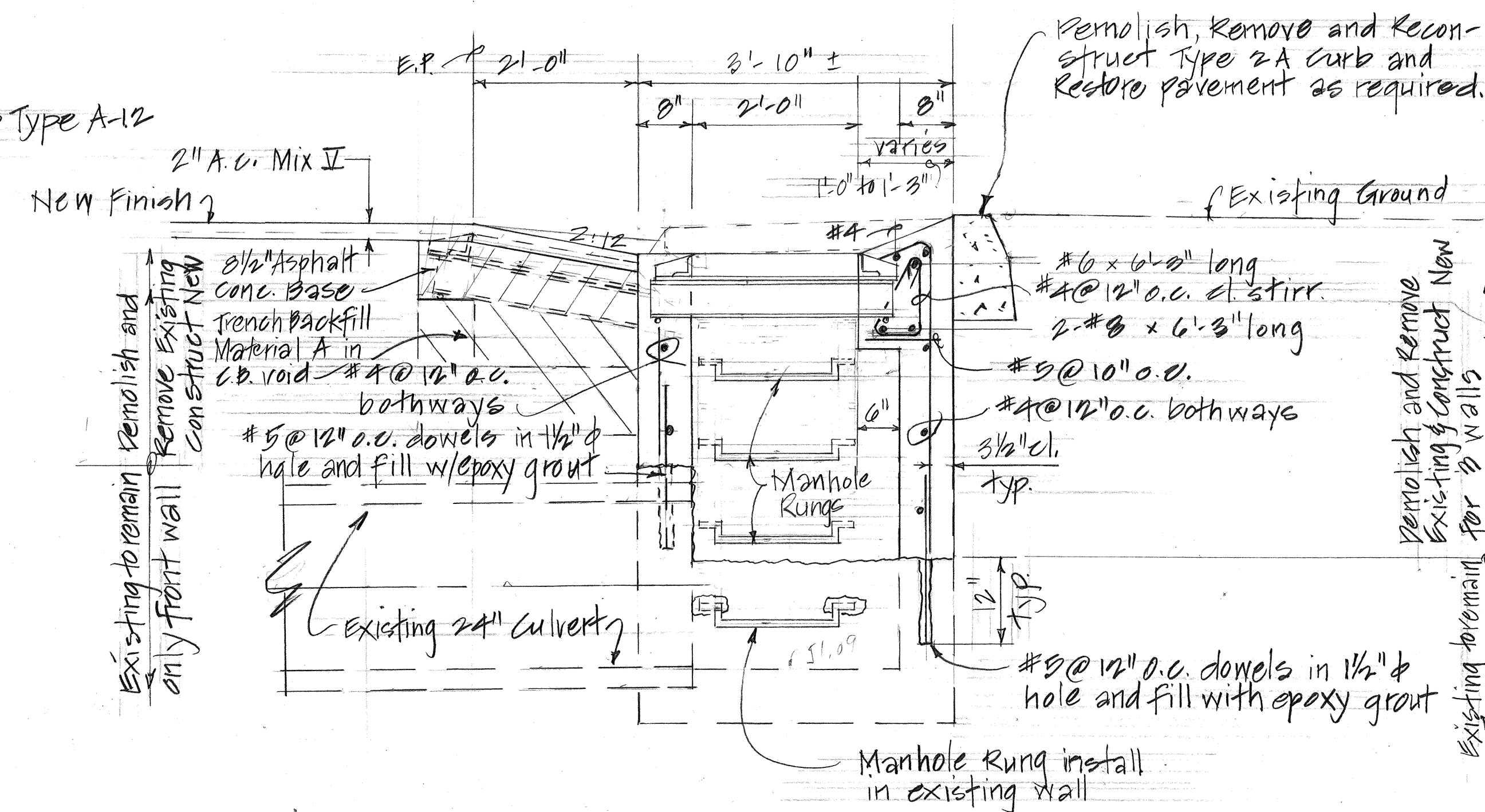
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H1 RESURFACING
KALIHI INTERCHANGE TO
QUEEN EMMA SEPARATION
PROJECT NO. IR-H1-1 (198)

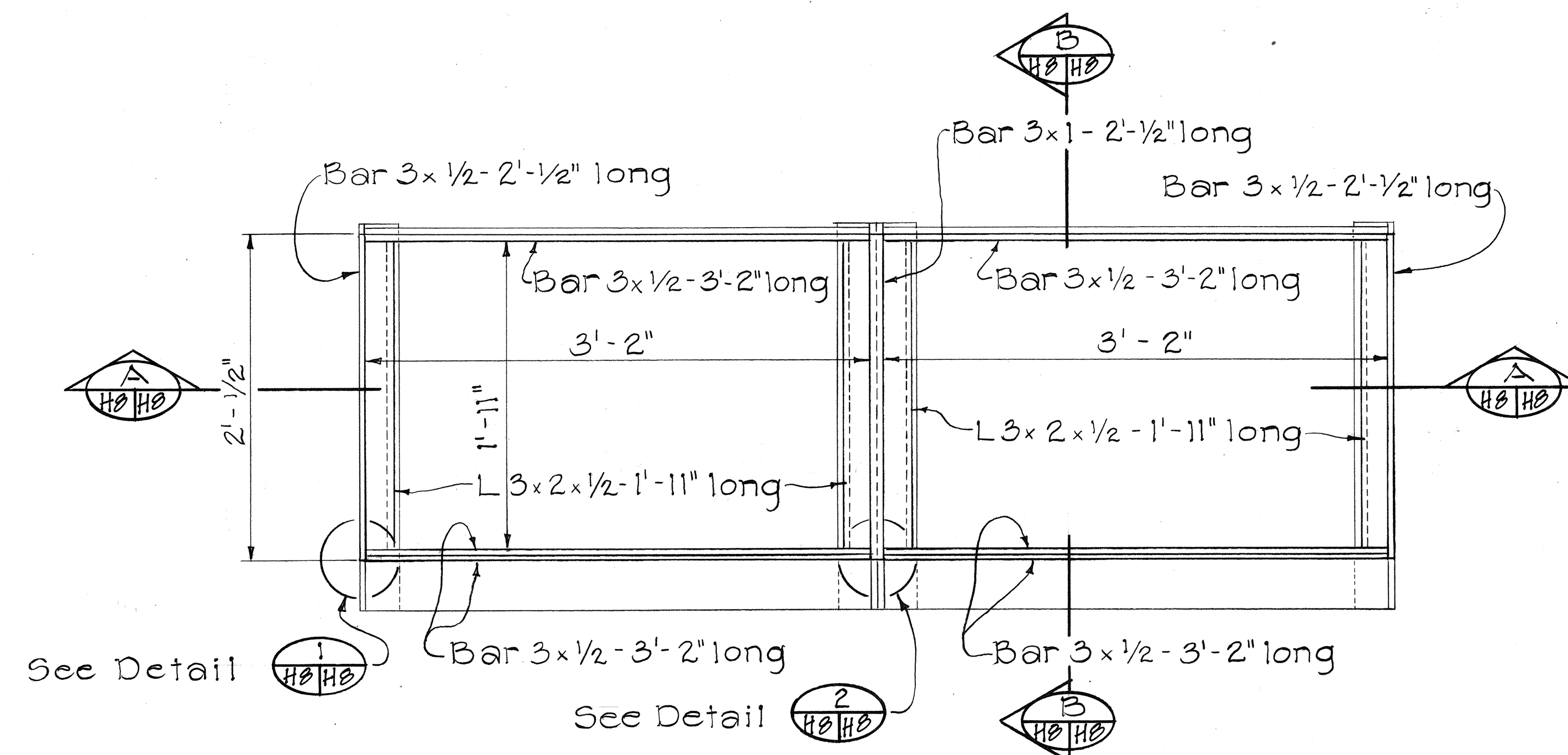
Scale: As Shown Date: June 1985

SHEET NO. 47 OF 10 SHEETS

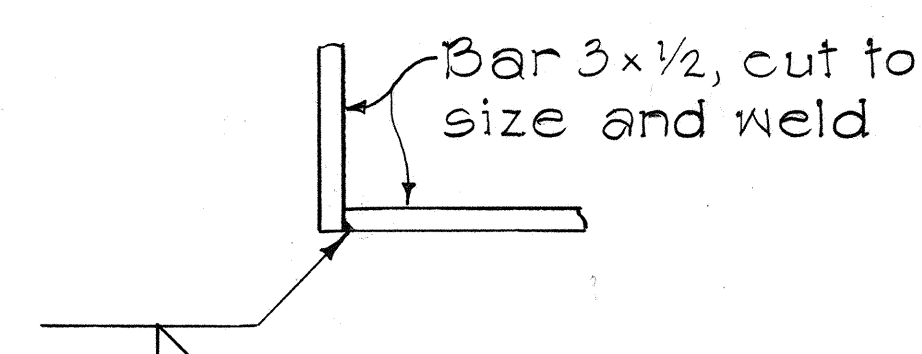


DETAILS OF MODIFIED TYPE 3 GRATED DROPP INLET AT STA. 54+75 E.B. RT.

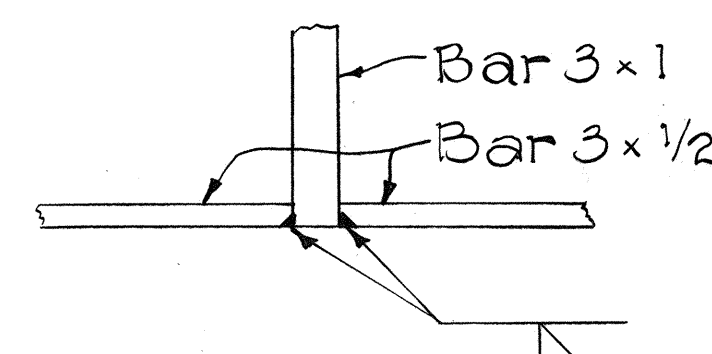
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IK-HI-1(198)	1985	31	59



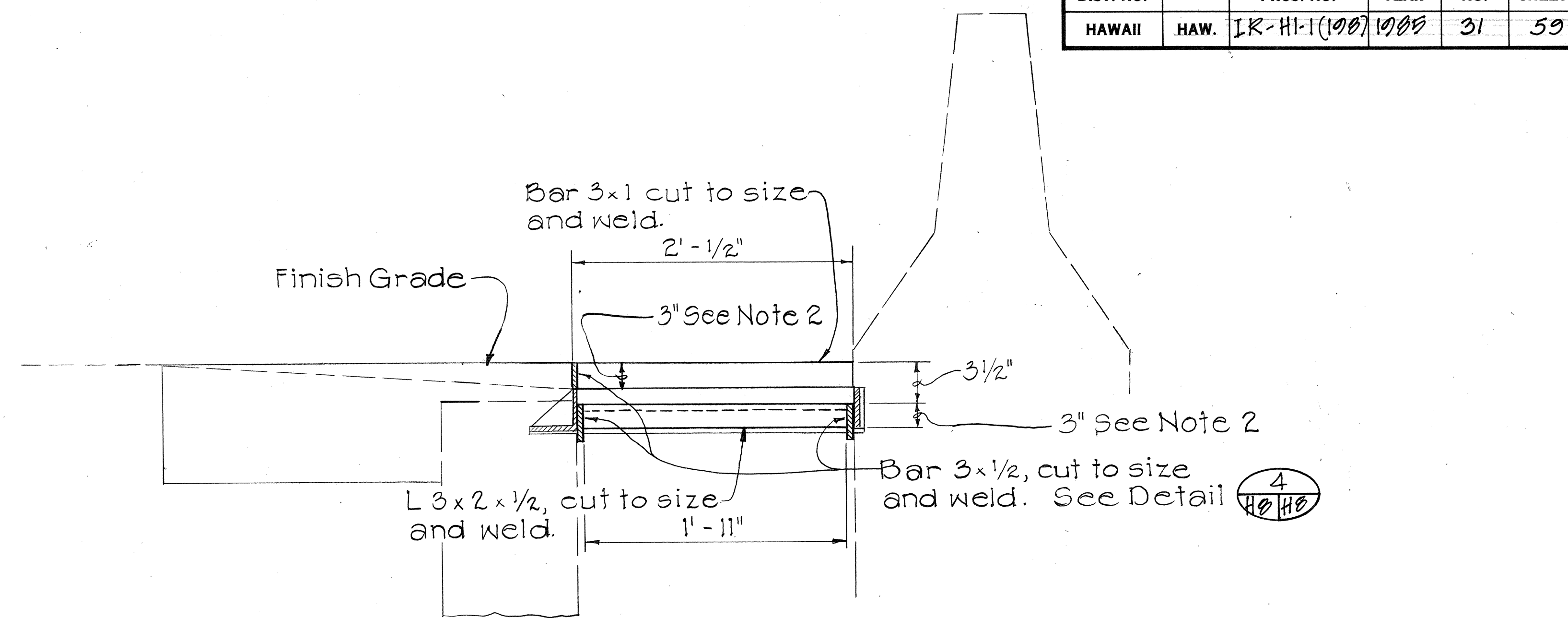
PLAN



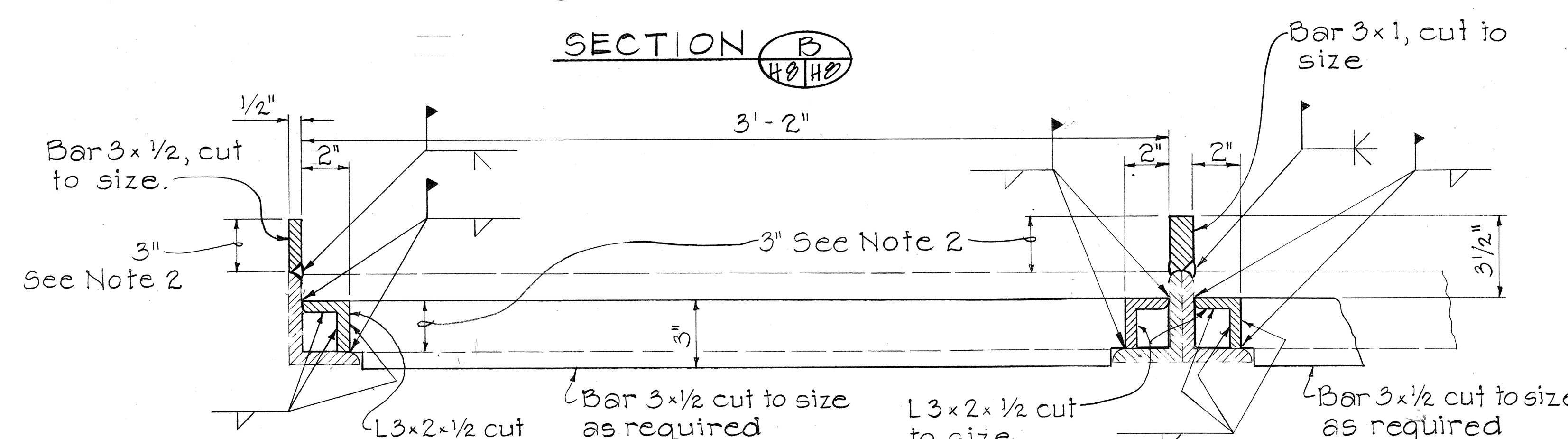
DETAIL 1
Scale: 3" = 1'-0"



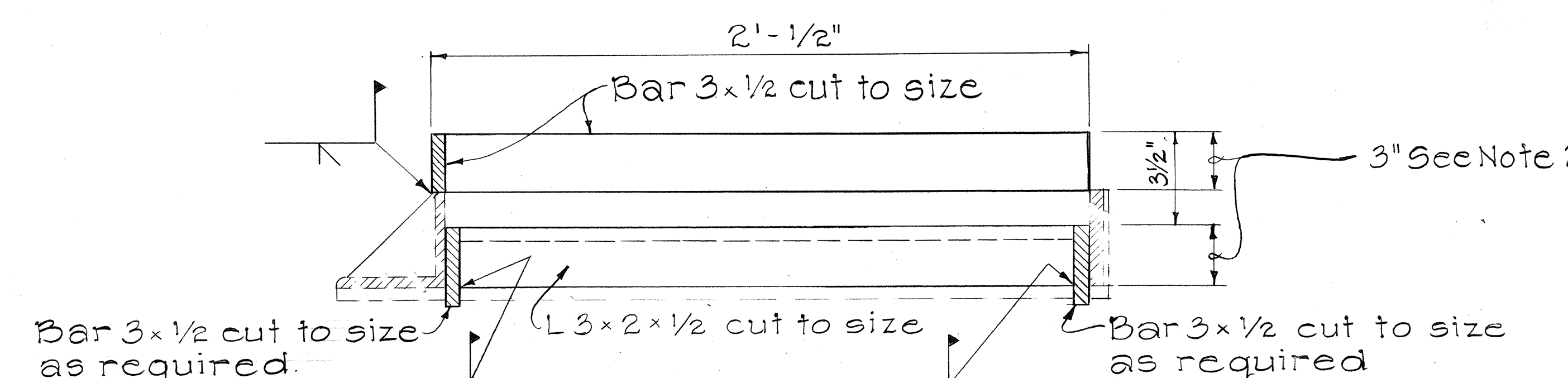
DETAIL 2
Scale: 3" = 1'-0"



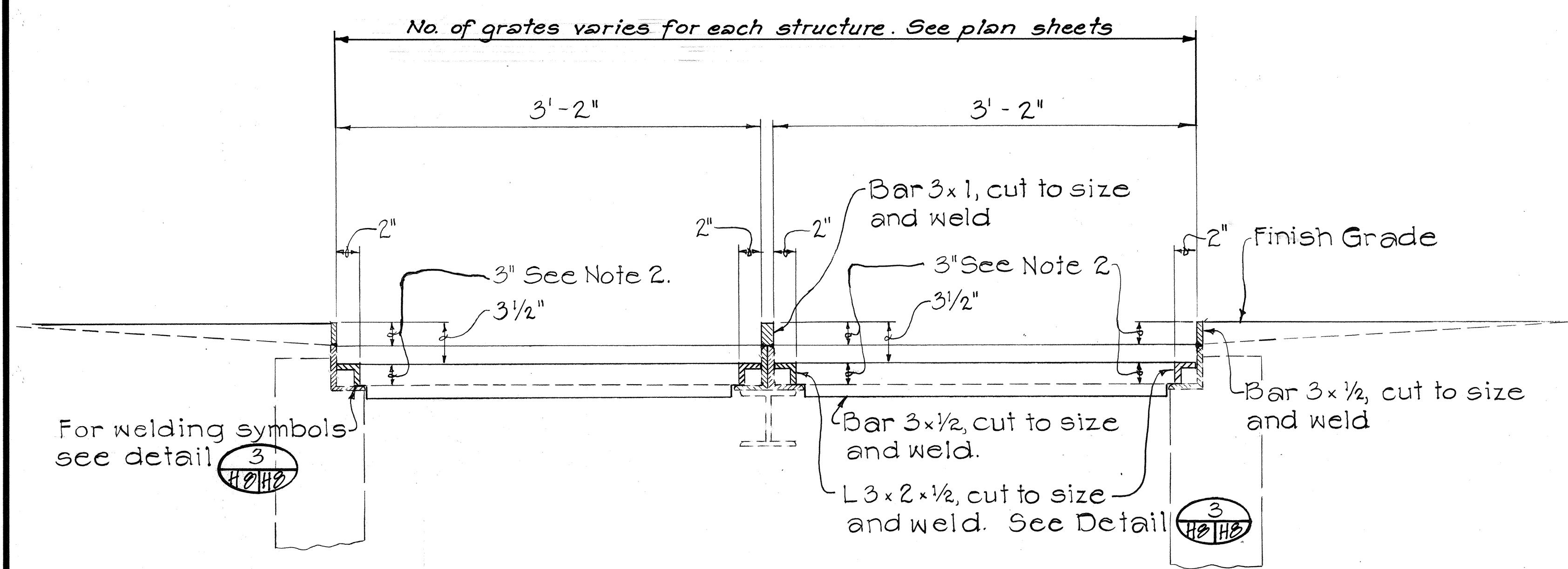
SECTION B-B



DETAIL 3
Scale: 3" = 1'-0"



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



SECTION A-A

NOTES:

1. All fillet welds, 5/16"
2. The Contractor shall verify height adjustment in the field. Frames and grates shall be no higher than the finish grade.

DETAILS TO ADJUST MEDIAN G.D.I. FRAMES AND GRATES
Scale: 1 1/2" = 1'-0"

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

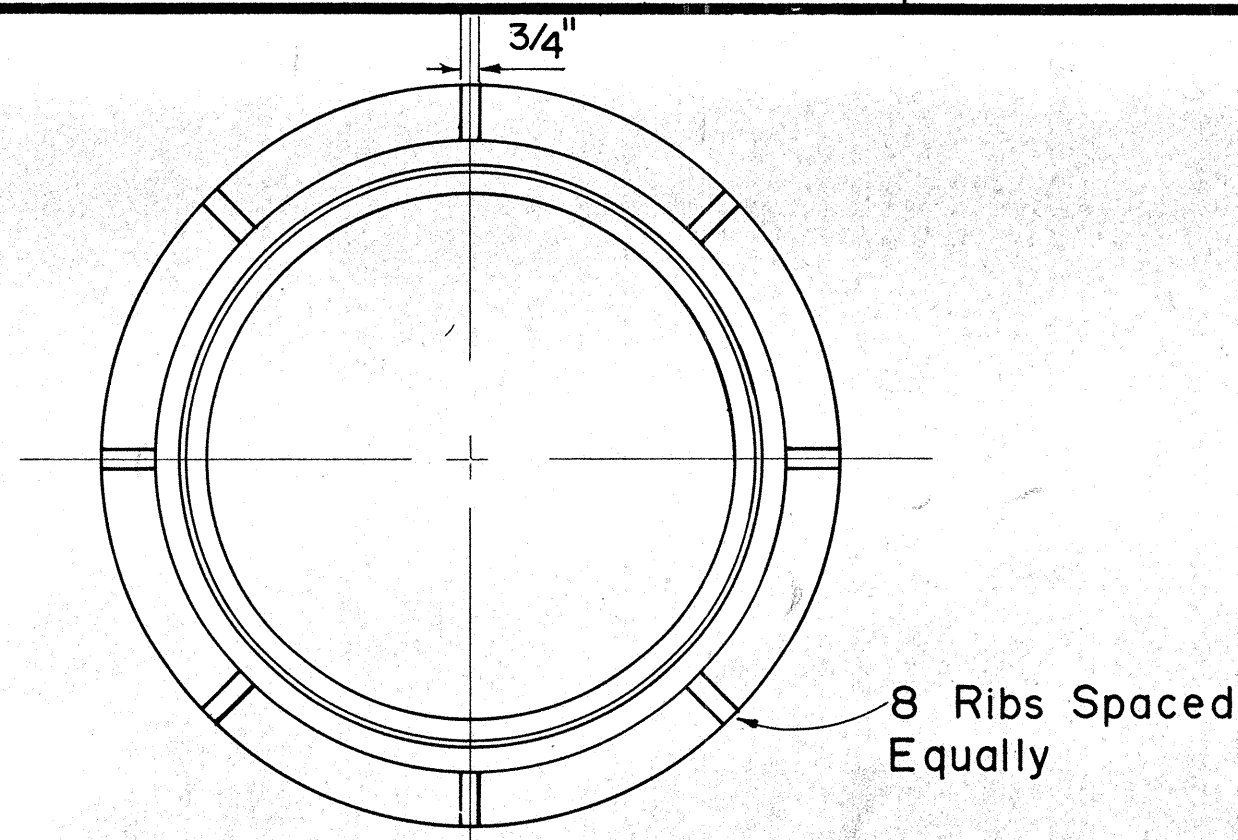
INTERSTATE ROUTE H-1 RESURFACING
KALIHI INTERCHANGE TO
QUEEN EMMA SEPARATION
F.A.I. PROJ. NO. IR-HI-1(198)

SCALE: AS NOTED

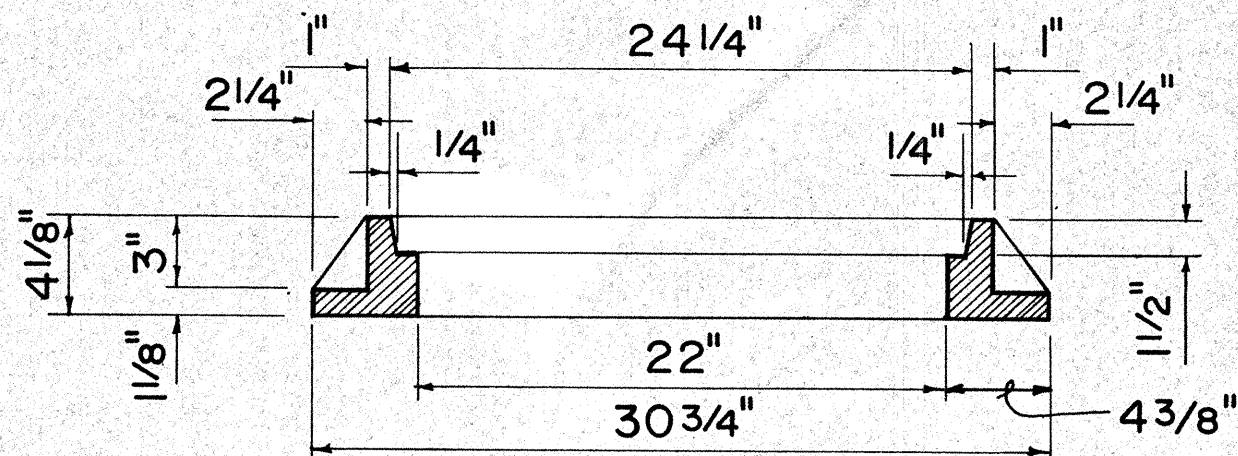
DATE: JUNE 1985

SHEET No. H8 OF 10 SHEETS

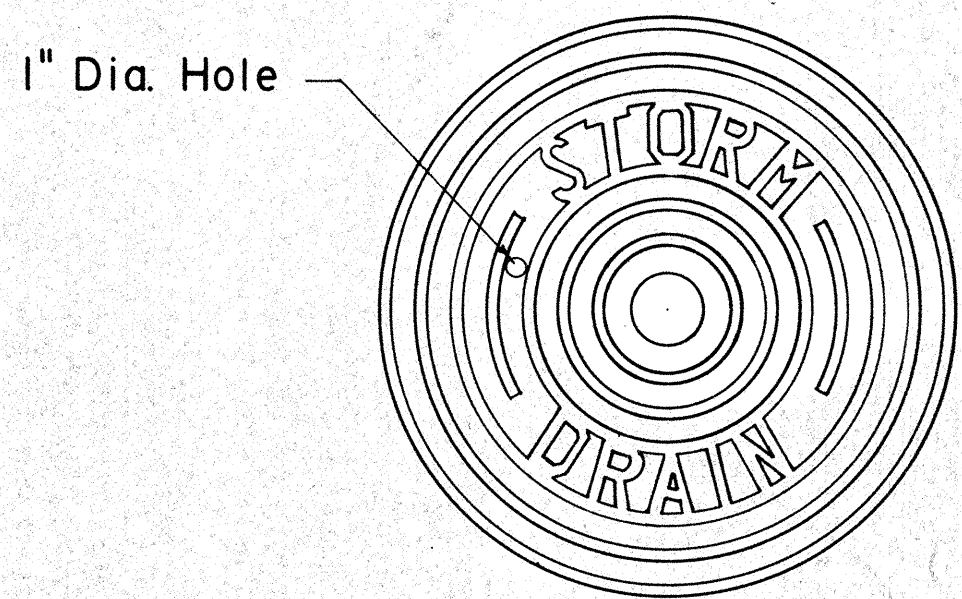
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(198)	1985	32	59



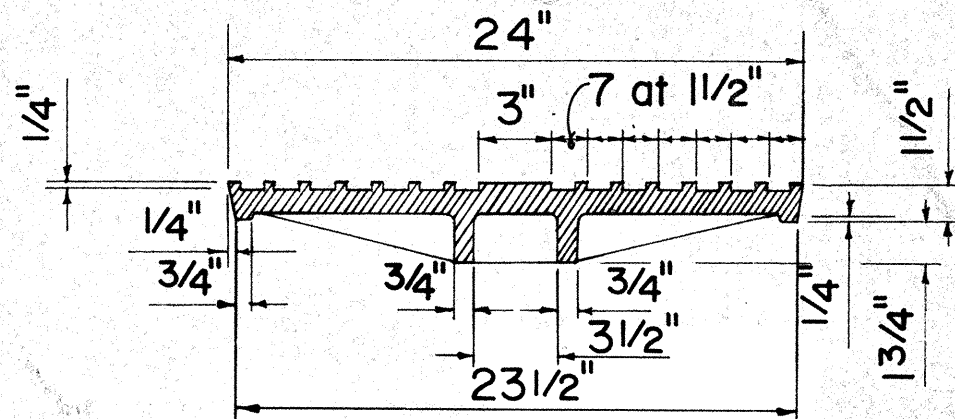
PLAN OF FRAME



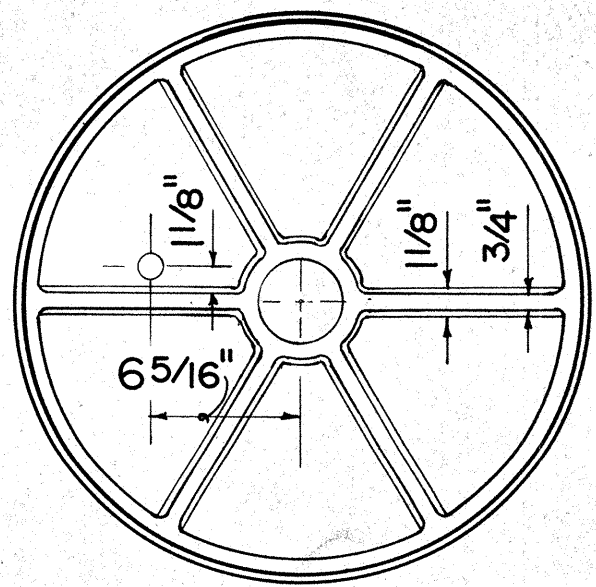
SECTION OF FRAME



TOP VIEW OF COVER

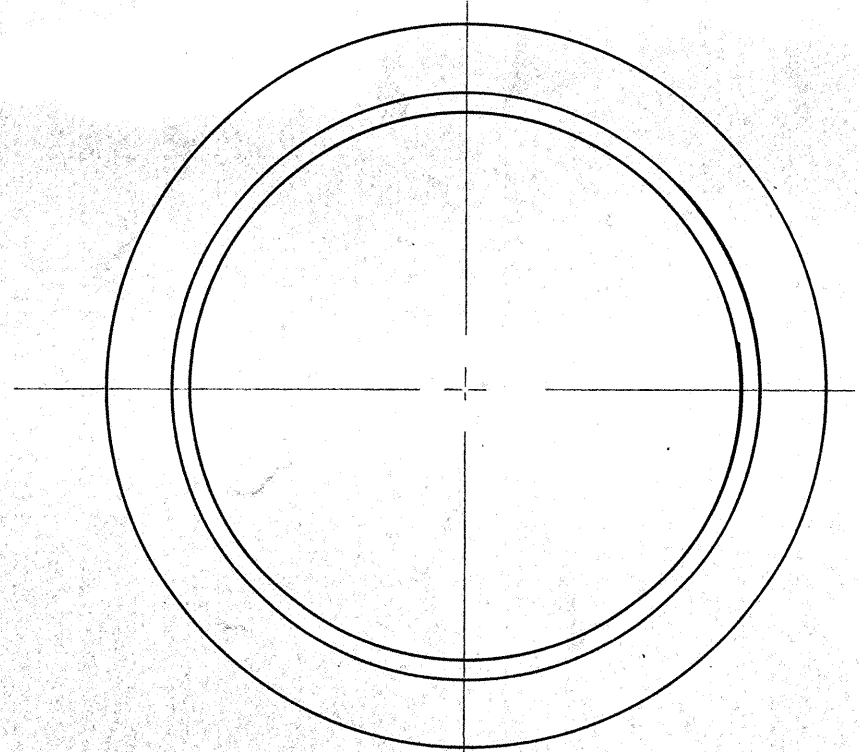


SECTION

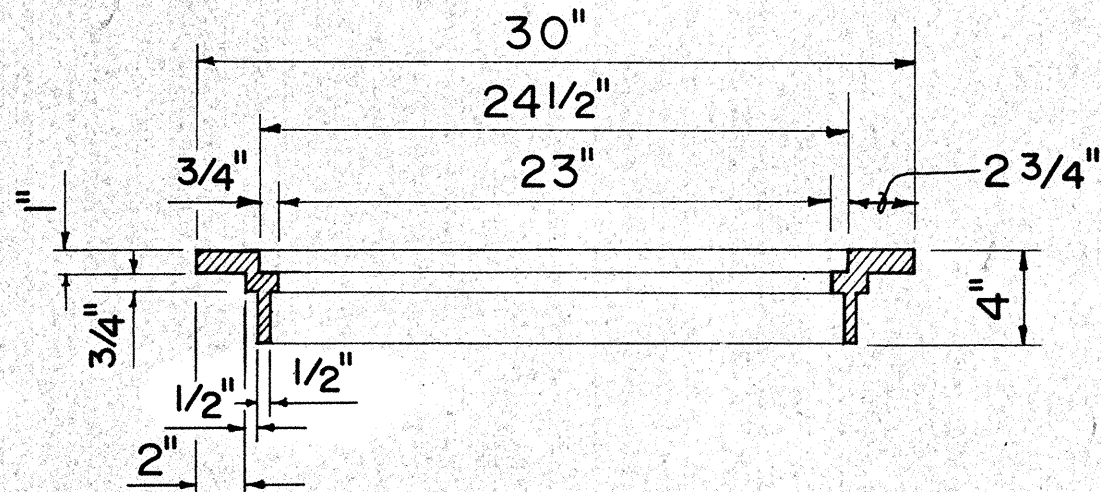


BOTTOM VIEW OF COVER

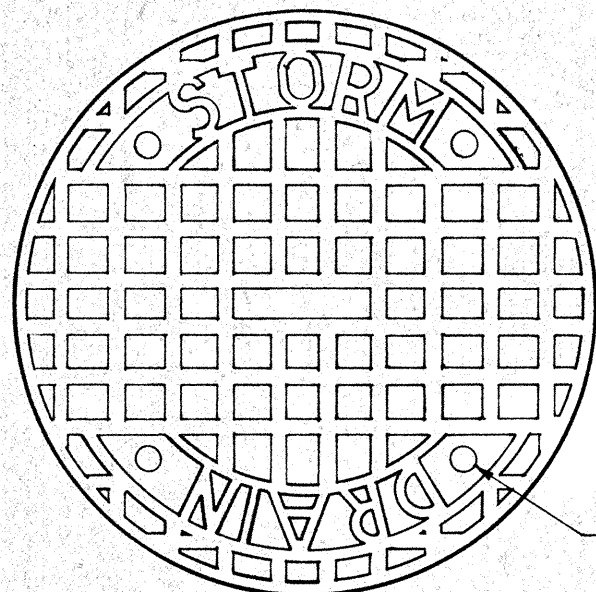
TYPE "P" CAST IRON
FRAME AND COVER



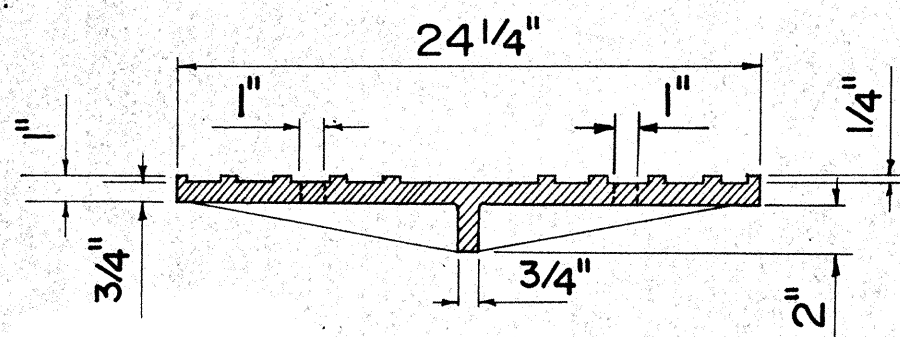
PLAN OF FRAME



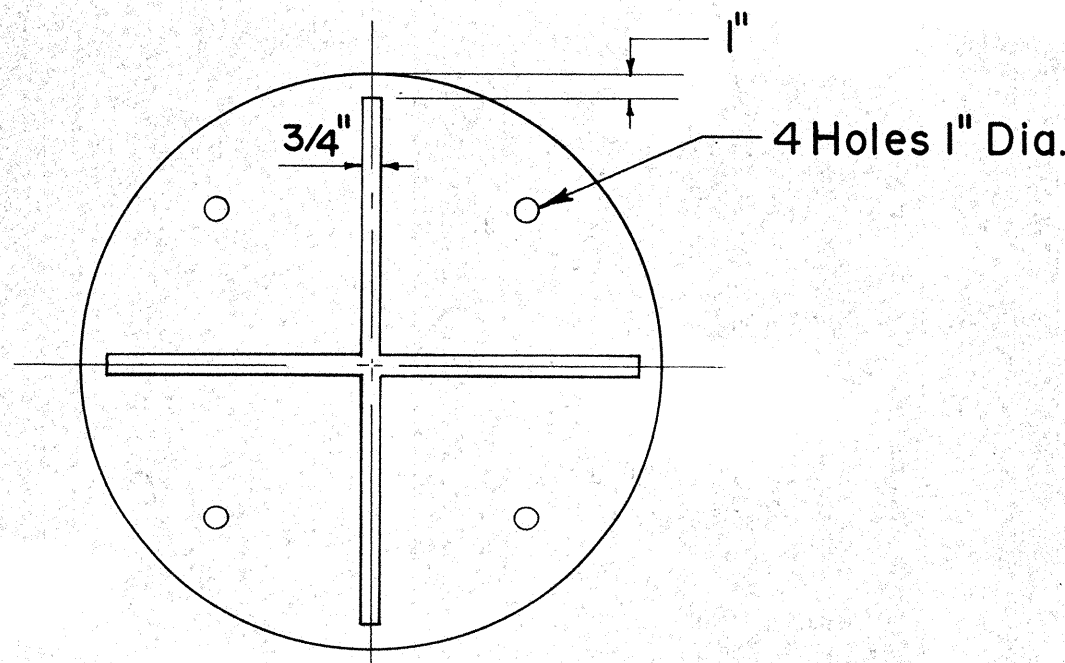
SECTION OF FRAME



TOP VIEW OF COVER

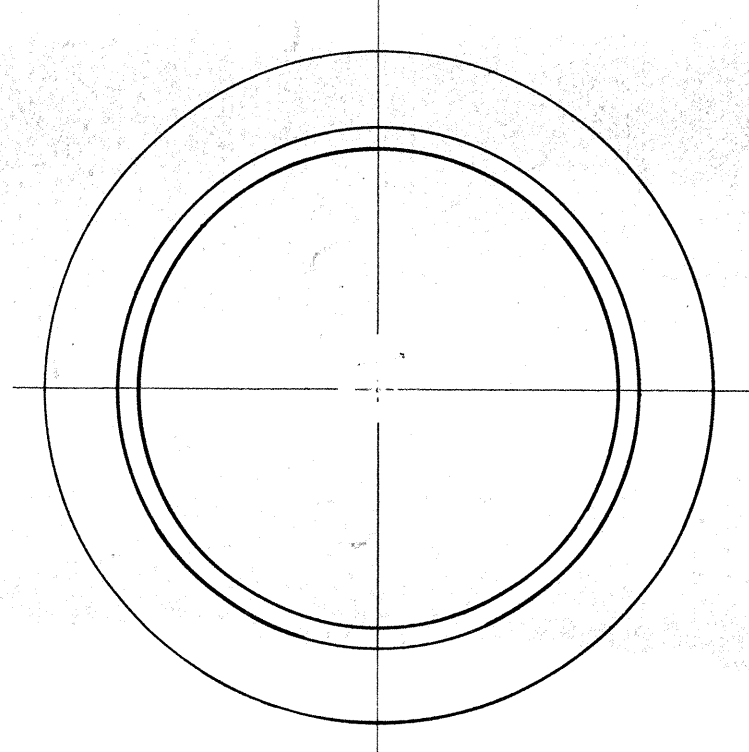


SECTION

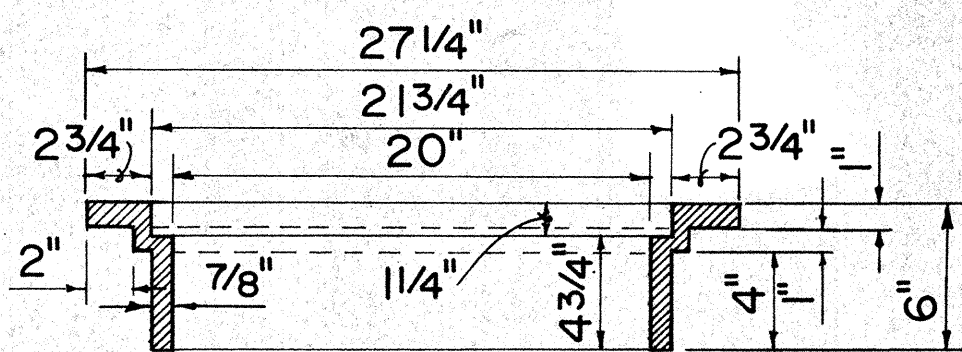


BOTTOM VIEW OF COVER

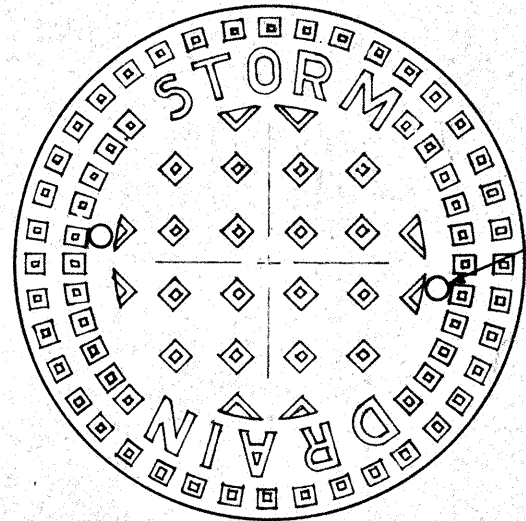
TYPE "B" CAST IRON
FRAME AND COVER



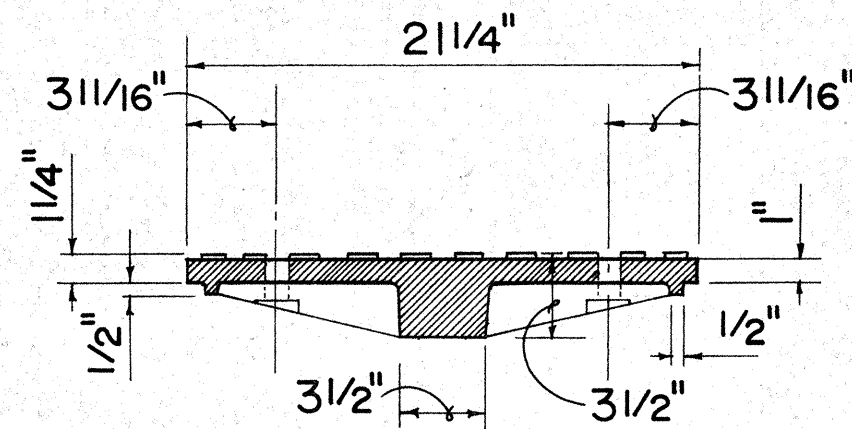
PLAN OF FRAME



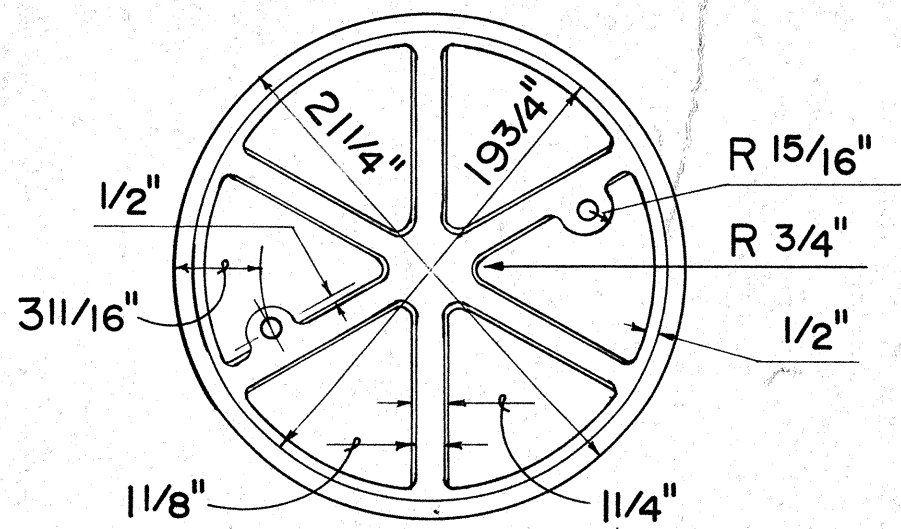
SECTION OF FRAME



TOP VIEW OF COVER

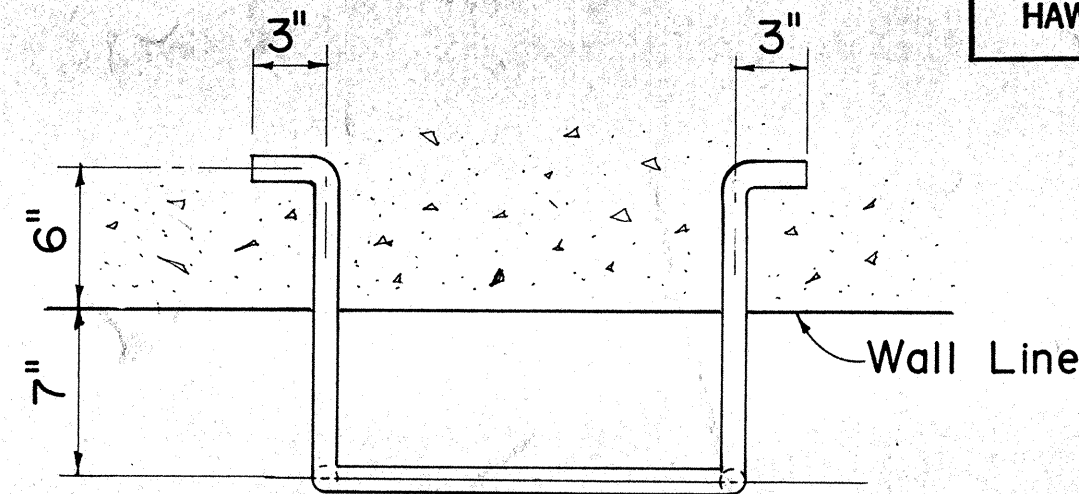


SECTION

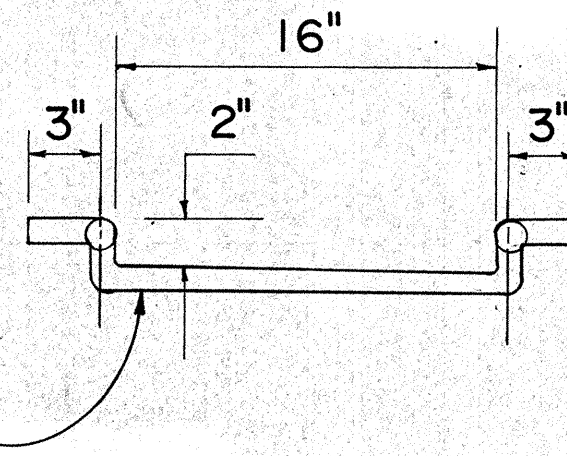


BOTTOM VIEW OF COVER

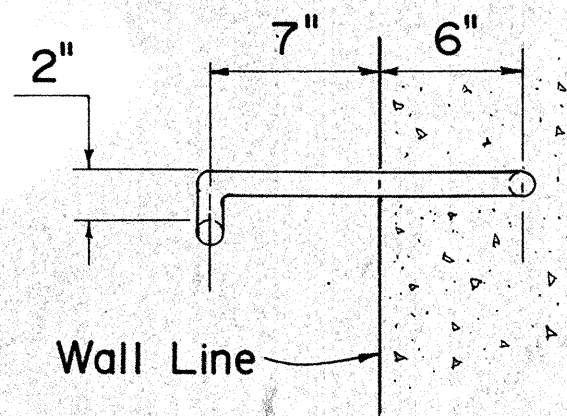
TYPE "A" CAST IRON
FRAME AND COVER



PLAN



FRONT VIEW



SIDE VIEW

MANHOLE RUNG

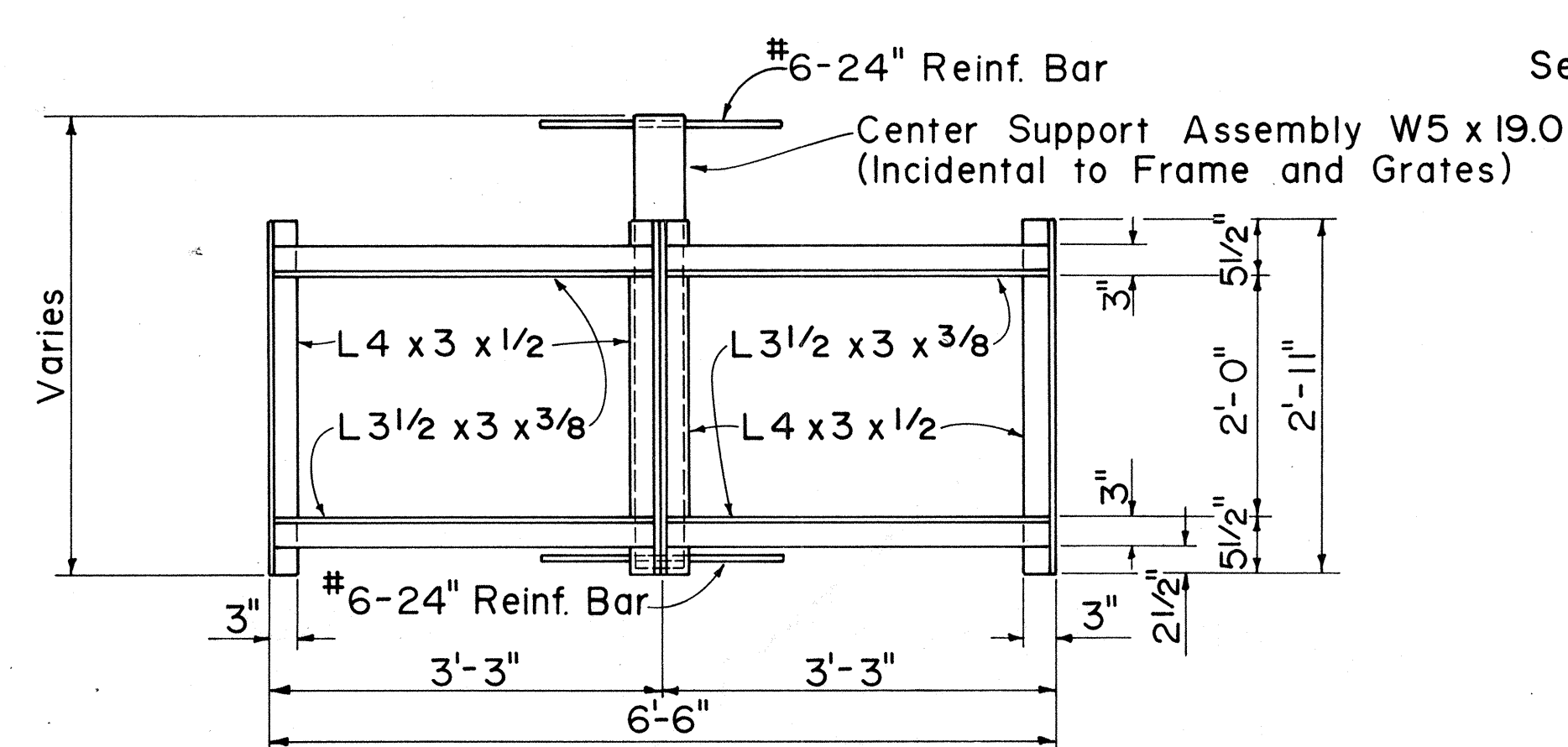
APPROVAL RECOMMENDED:
Takano
 HYDRAULIC DESIGN ENGINEER 6-19-79 DATE
 APPROVED:
Harber Zakeishi
 ASSISTANT CHIEF, ENGINEERING 6-22-79 DATE

NO.	REVISION	APPROVED BY	DATE
1.	Supersedes Sht. DH 6 approved 12-17-69	H.P.	6/22/79

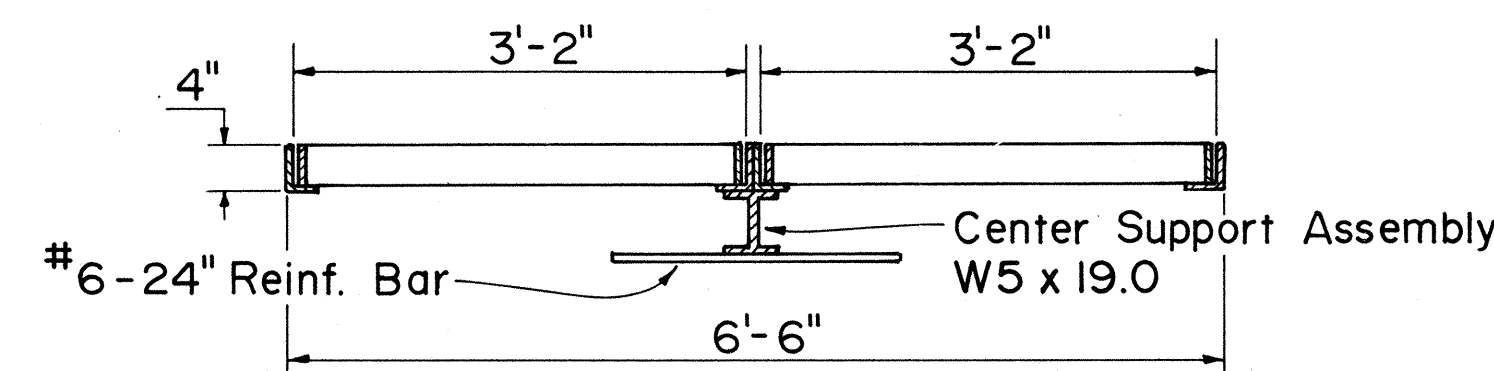
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 STANDARD DETAILS
 CATCH BASIN AND
 MANHOLE CASTINGS
 Not To Scale Date: Dec. 1977
 SHEET No. 49 OF 10 SHEETS DH 6

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

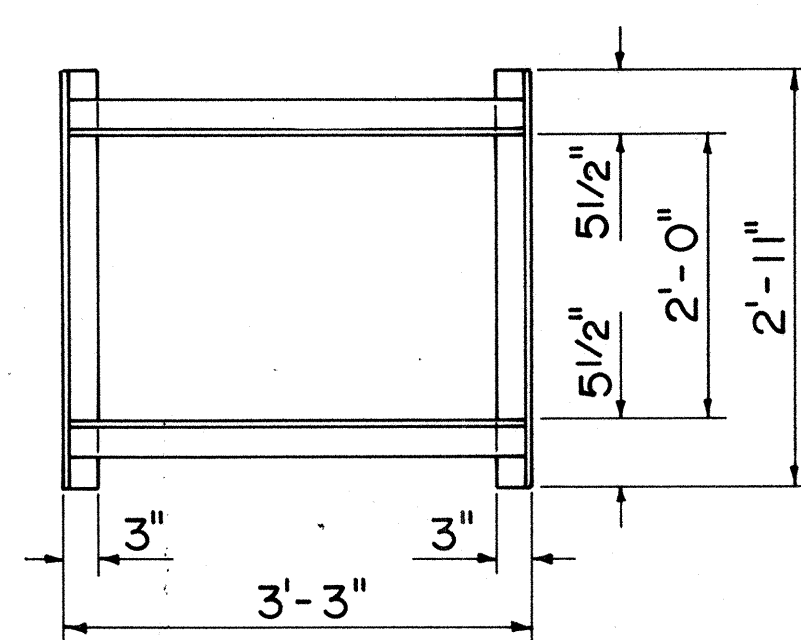
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(198)	1985	33	59



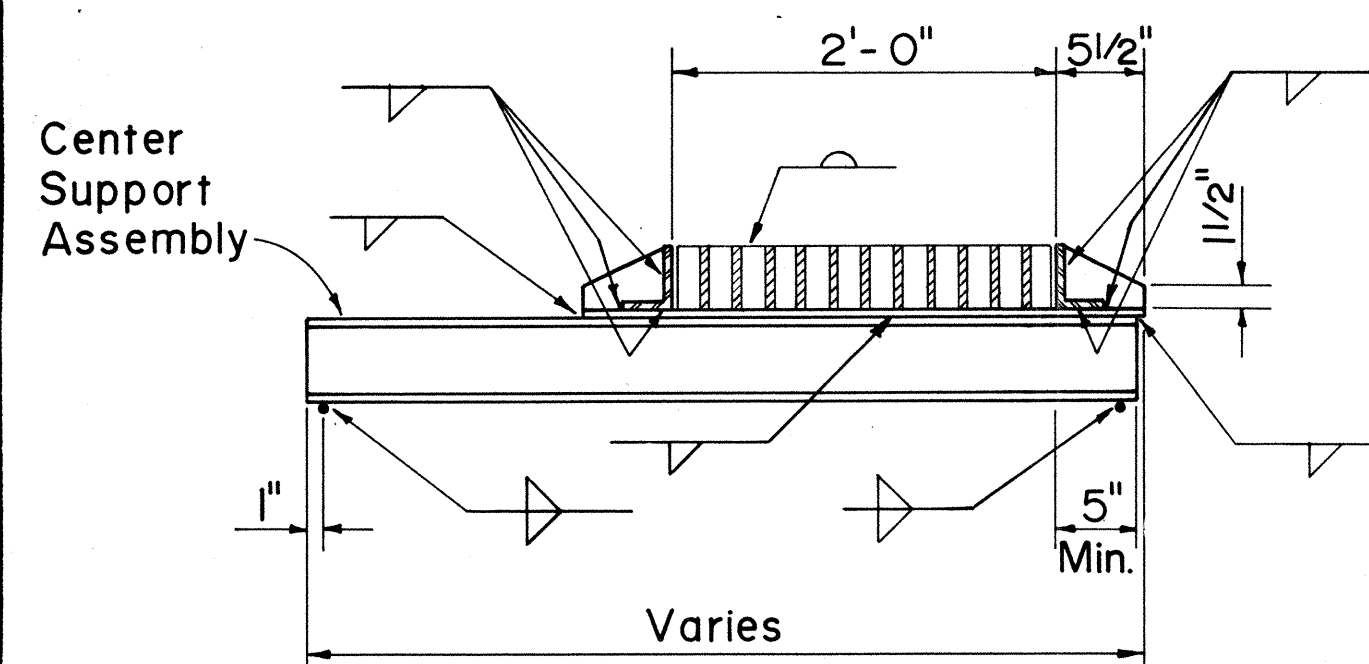
PLAN
(Two or More Grates)



LONGITUDINAL SECTION
(Thru Frame & Grate)

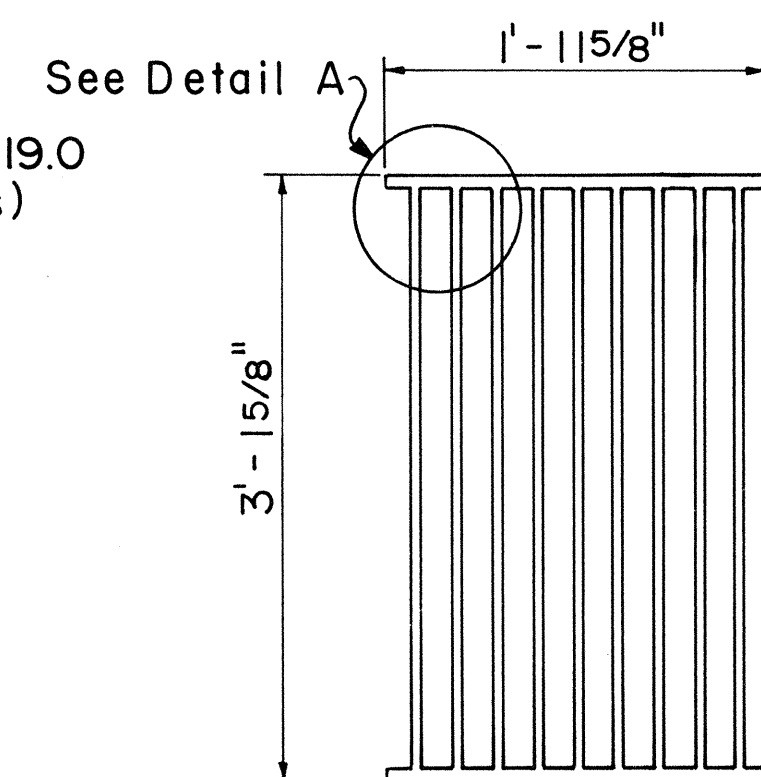


PLAN
(Single Grate)

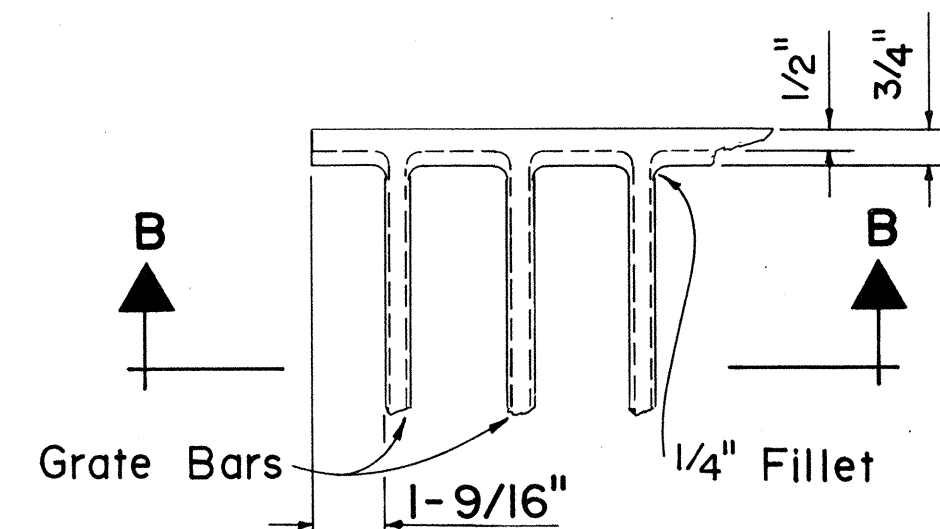


CROSS SECTION
(Thru Frame & Grate)

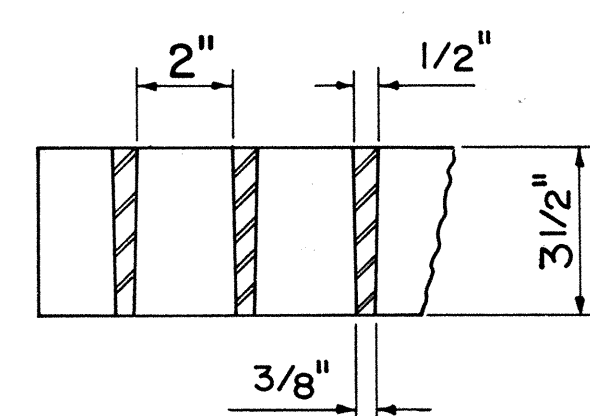
FRAME DETAILS



PLAN



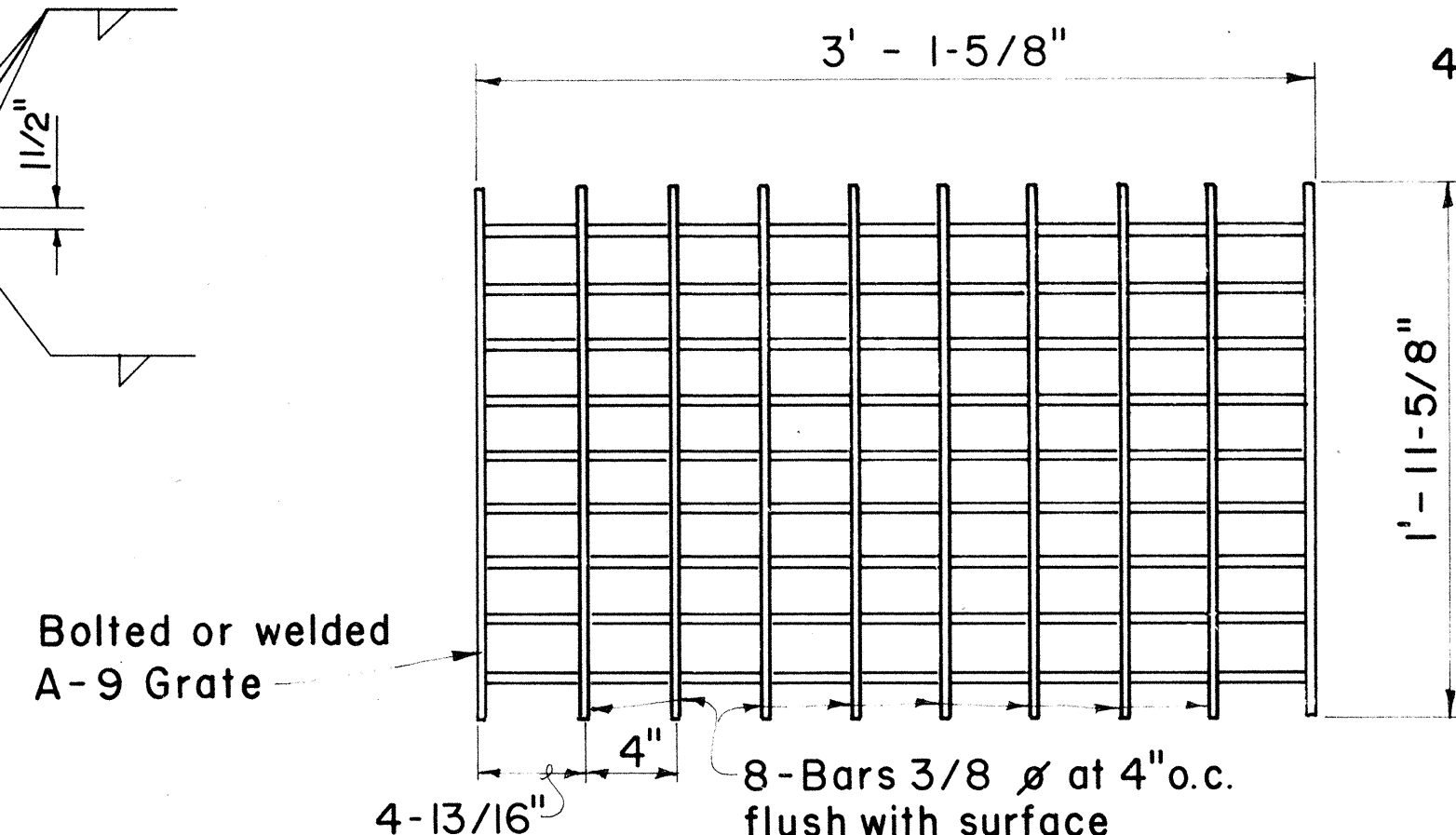
DETAIL A



SECTION B-B

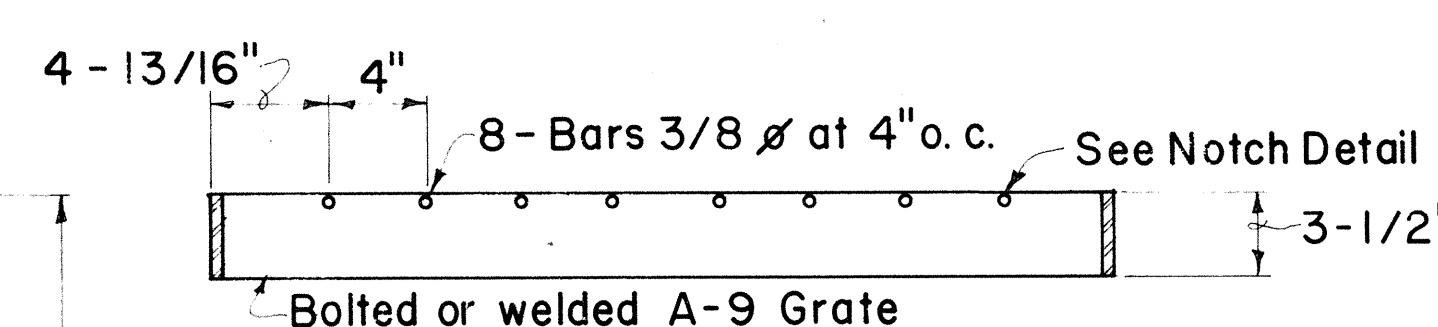
TYPE A-9 STEEL GRATE

ALTERNATIVE CAST MALLEABLE IRON OR CAST STEEL GRATE

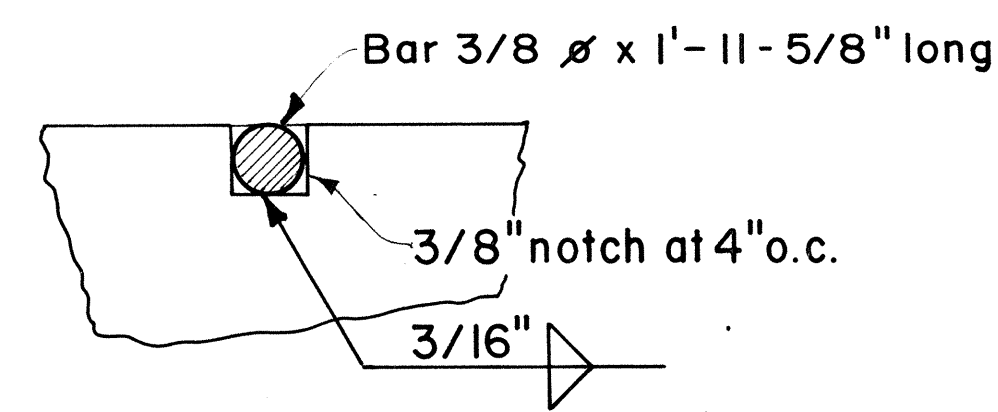


PLAN

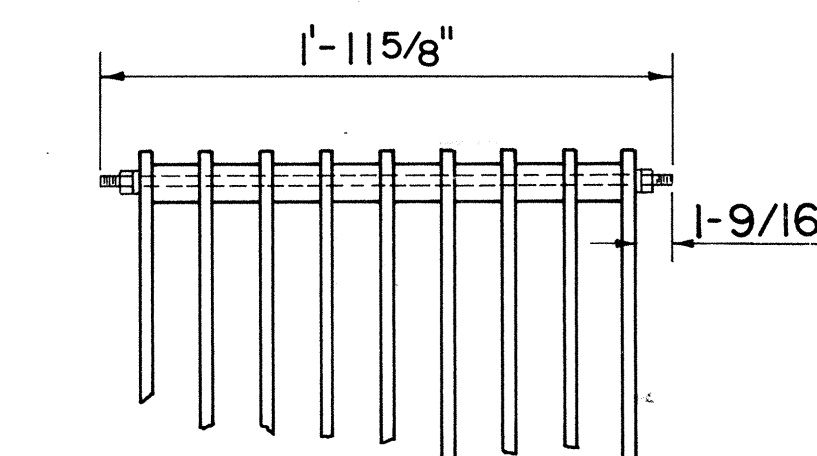
TYPE A-9P STEEL GRATE



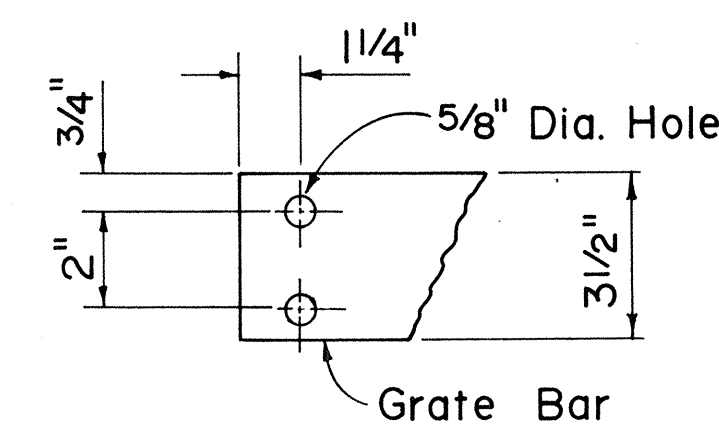
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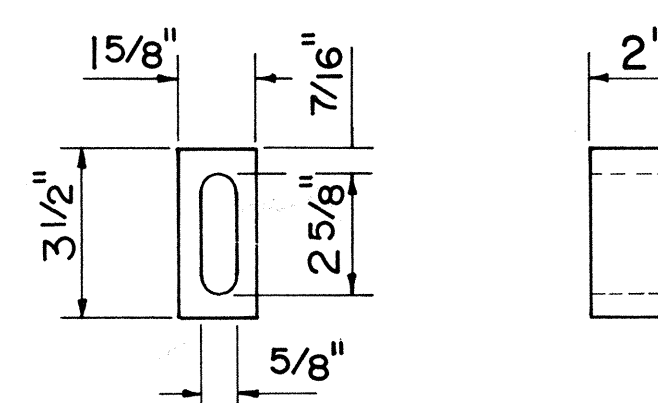
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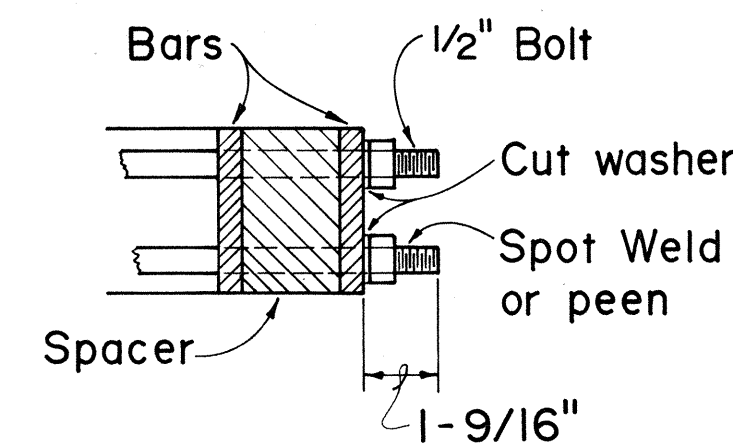
BOLTED END BLOCK



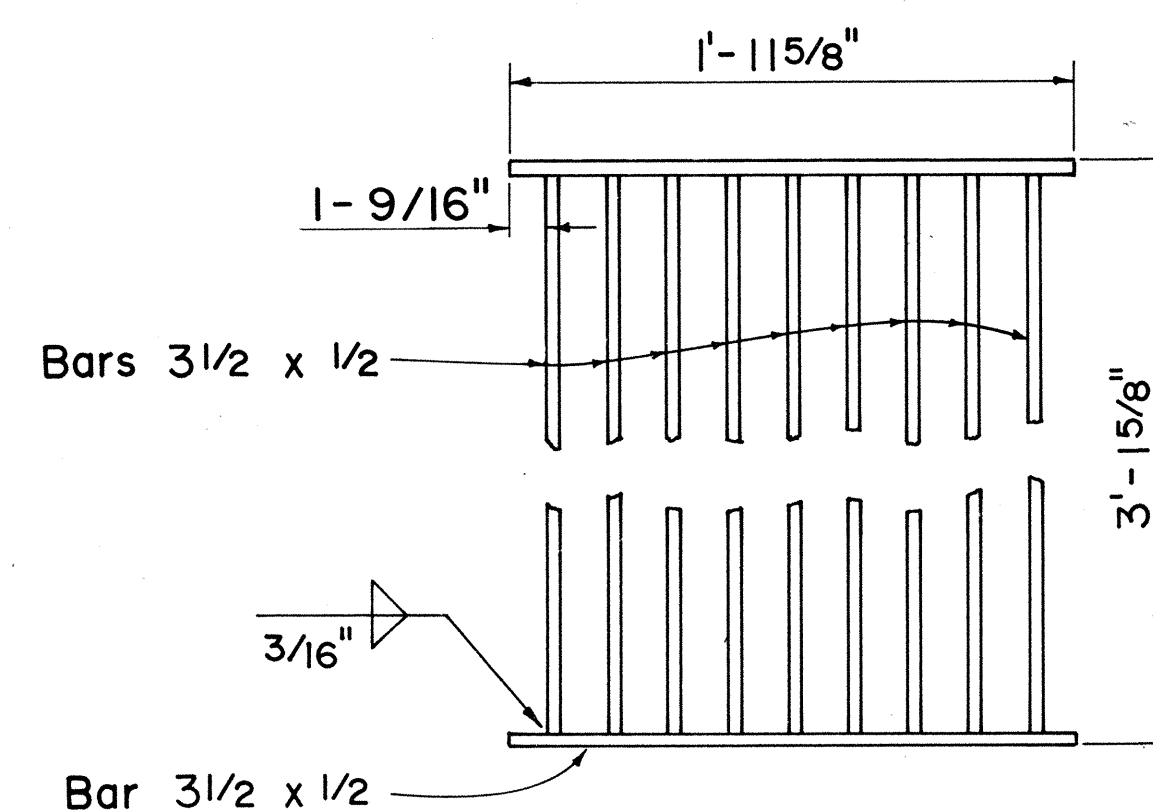
END OF BAR



BAR SPACER

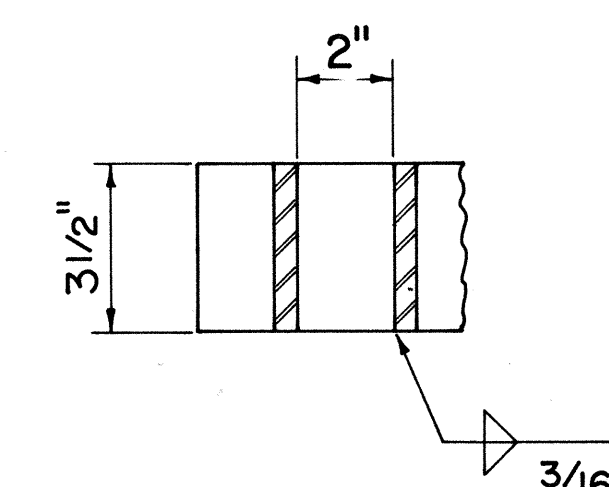


BOLTING DETAIL



PLAN

ALTERNATIVE WELDED GRATE



SECTION

GENERAL NOTES

- Contractor has the option of using cast malleable iron, cast steel, welded, or bolted grate.
- All welds 3/8" unless otherwise noted.
- Type A-9 - Use in location not accessible to bicycle traffic.
- Grate shall be parallel to the direction of flow.

APPROVAL RECOMMENDED:

 HYDRAULIC DESIGN ENGINEER 6-19-79 DATE

APPROVED:

 ASSISTANT CHIEF, ENGINEERING 6-22-79 DATE

NO.	REVISION	APPROVED BY	DATE
1.	Supersedes Sht. DH 7 approved 12-17-69	H.T.	6/22/79
2.	Revise standard nomenclature for rolled steel shapes.	H.T.	4/21/82
3.	Revised note no. 3 & no. 4 and eliminated Type A-12 Grate.	H.T.	7-25-84

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS TYPE A-9 AND A-9P FRAMES AND GRATES
Not To Scale Date: Dec. 1977

SHEET NO. H-100F OF 10 SHEETS DH 7