

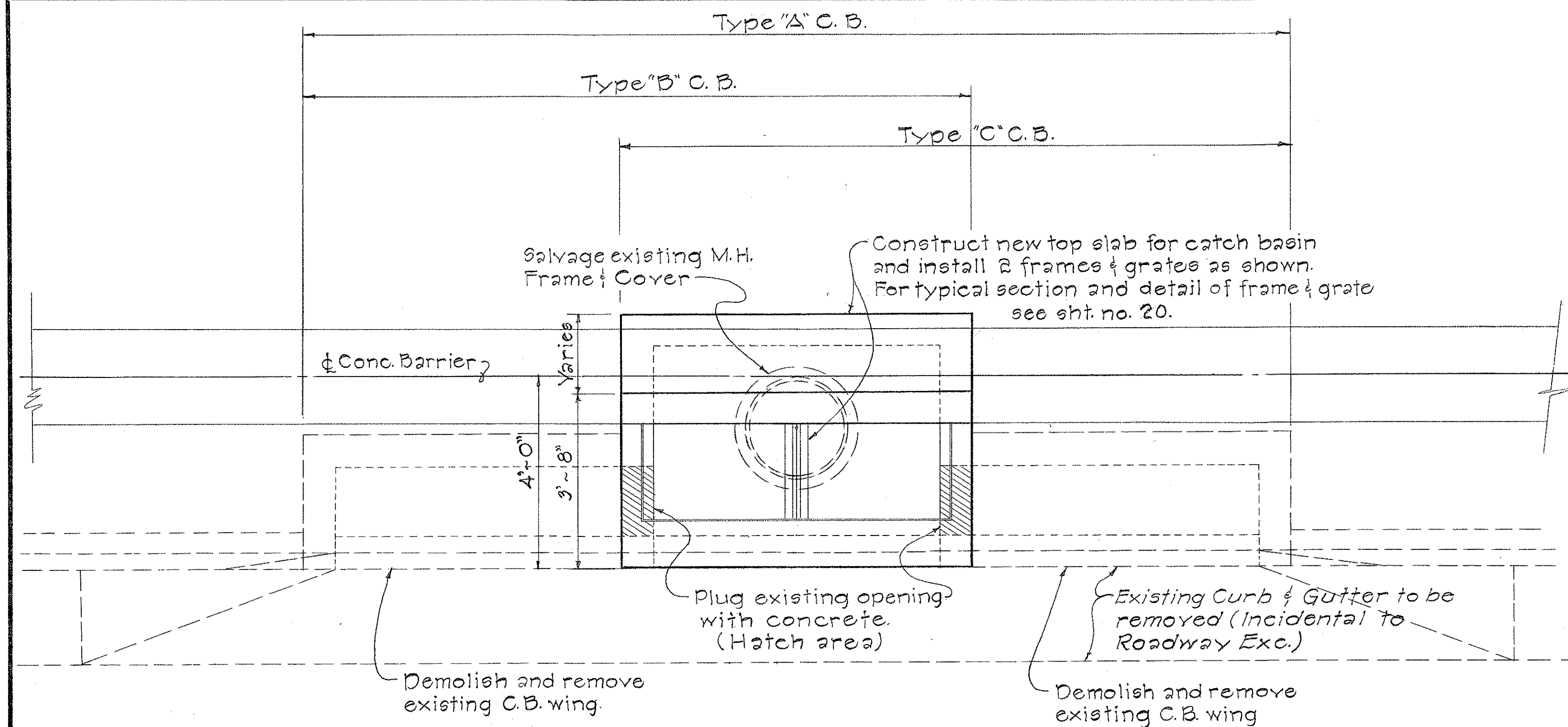
DRAINAGE

TABULATION

			DETAIL SHEET		ESTIMATED QUANTITIES										REMARKS																					
NUMBER	STRUCTURE	STATION			14.01	46.101	48.01	54A.04	98.15	98.30	98.57	59A166																								
					STRUCTURE EXCAVATION OTHER THAN AT BRIDGES	CLASS A1 CONCRETE OTHER THAN IN BRIDGES	REINFORCING STEEL OTHER THAN IN BRIDGES	TYPE "S" STEEL FRAME AND GRATE	TYPE "A" C.I. FRAME AND COVER	INSTALLING SALVAGED C.I. FRAME AND COVER	SALVAGING CAST IRON FRAME AND COVER	24"CGMB, 14 GA OR 24" RCCB, CLASS III																								
			C.Y.	C.Y.	LB.	EA.	EA.	EA.	EA.	EA.																										
MIDDLE STREET TO KAPALAMA CANAL BRIDGE																																				
1	S.D.M.H.#3	355+70	19		1.96	1.71 1.5	187.3 180			1	1																									
2	C.B.#12	358+00	16		4.7 5	3.92 4.0	289.6 251	5			1																									
3	C.B.#18	9+00	16		2.13	1.65 1.5	176.5 234	2			1																									
4	S.D.M.H.#9	11+50	19		1.66 2	1.28 2.5	165.5 184			1	1																									
5	C.B.#26	13+50	16		1.66	0.90 1.5	143.5 210	2			1																									
6	C.B.#33	18+55	16		1.66	0.90 1.0	176.5 194	2			1																									
7	S.D.M.H.#19	20+75	19		1.66 2	1.28 2.0	144.3 162			1	1																									
8	C.B.#37	22+40	17		1.66	1.33 1.0	130.8 100		1		1																									
9	S.D.M.H.#20	23+50	17		1.66 2	1.28 3.0	79.9 100	4		1	1																									
10	C.B.#40	25+20	16		1.7 2	1.4 1.5	176.5 191	3			1																									
11	C.B.#41	32+00	16		1.7 2	1.57 1.5	176.5 181	3			1																									
12	S.D.M.H.#21	33+75	19		1.66 2	1.28 2.5	165.5 184			1	1																									
13	C.B.#43	35+55	16		4.2 4	2.88 2.0	176.5 203	2			1																									
14	C.B.#45	38+25	16		1.6 2	1.58 1.5	176.5 188	3			1																									
15	C.B.#47	41+00	16		1.6 2	1.58 2.0	176.5 188	3			1																									
16	C.B.#53	46+50	16		1.66 2	0.90 2.0	174.9 203	2			1																									
17	C.B.#57	48+55	16		3.0 3	2.03 3.0	186.2 181	4			1																									
18	C.B.#64	50+80	16		1.66	0.90 1.0	158.2 188	2			1																									
19	C.B.#67	52+75	16		1.6 2	1.48 2.0	176.5 219	3			1																									
20	S.D.M.H.#34	54+75	19		7	2.91 2.0	153.1 173			1	1																									
21	C.B.#71	55+25	16		1.6 2	1.58 2.0	176.5 219	3			1																									
22	S.D.M.H.	56+05	18		13.3 23	4.64 5.0	207.0 203			1	1																									

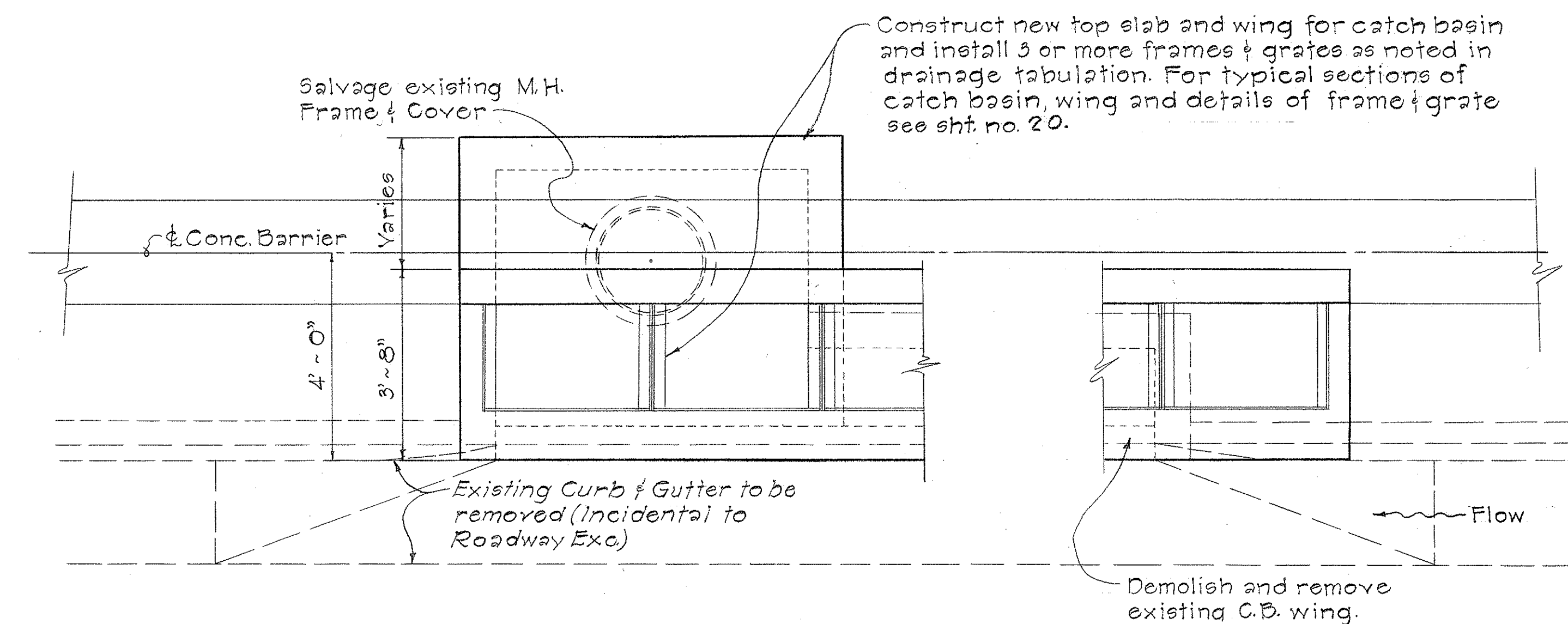
DRAWN BY
PLAN
DESIGNED BY
NOTE BOOK
CHECKED BY
No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(51)	1969	16	33



PLAN VIEW OF MODIFICATIONS TO CONVERT EXISTING TYPES "A", "B" & "C" CATCH BASINS TO USE 2 GRATES

Scale: 1/2" = 1'-0"



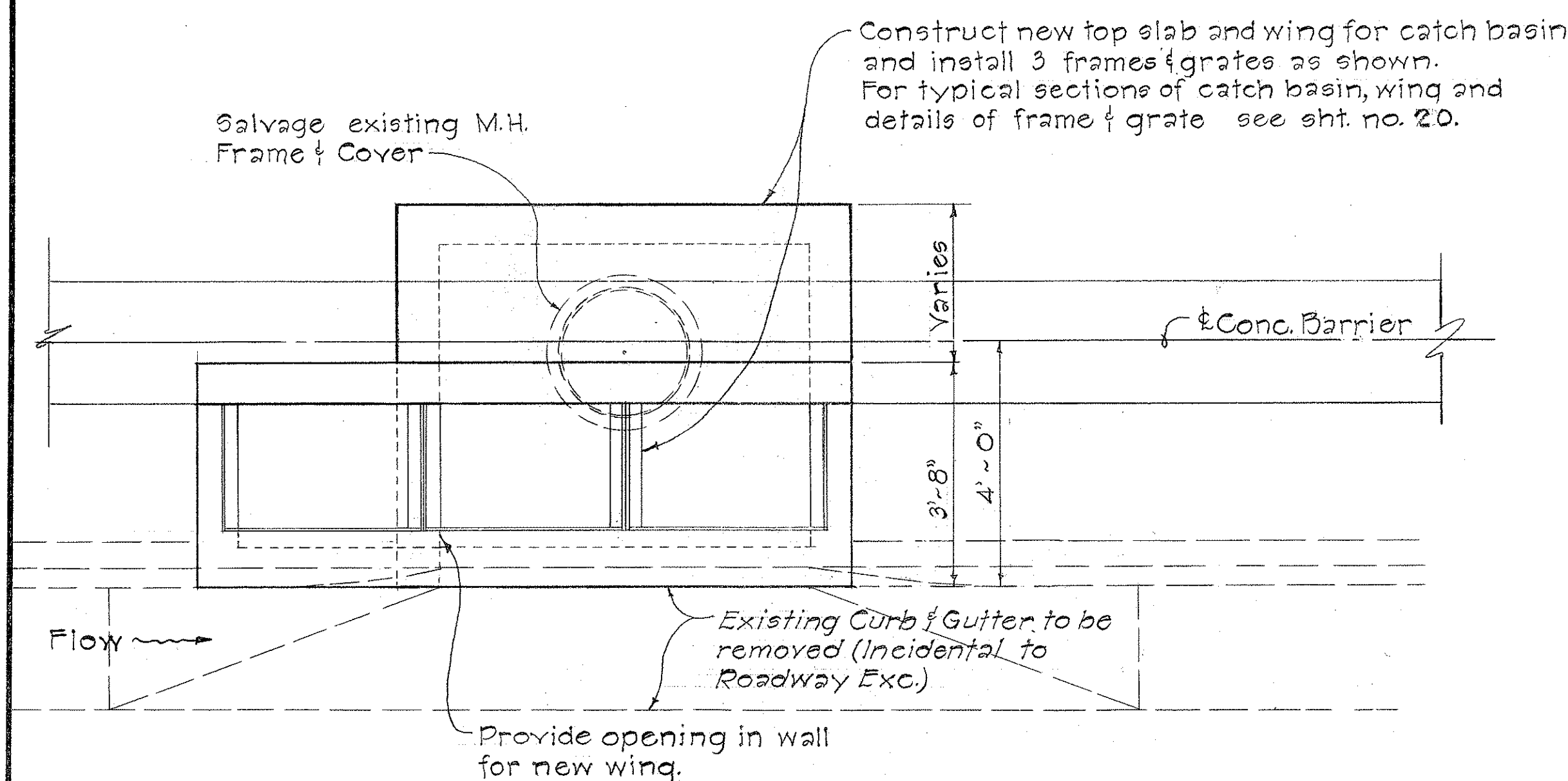
PLAN VIEW OF MODIFICATIONS TO CONVERT EXISTING TYPE "C" CATCH BASIN TO USE 3 OR MORE GRATES

Scale: 1/2" = 1'-0"

*Type "B" Catch Basin Similar But with opposite Hand

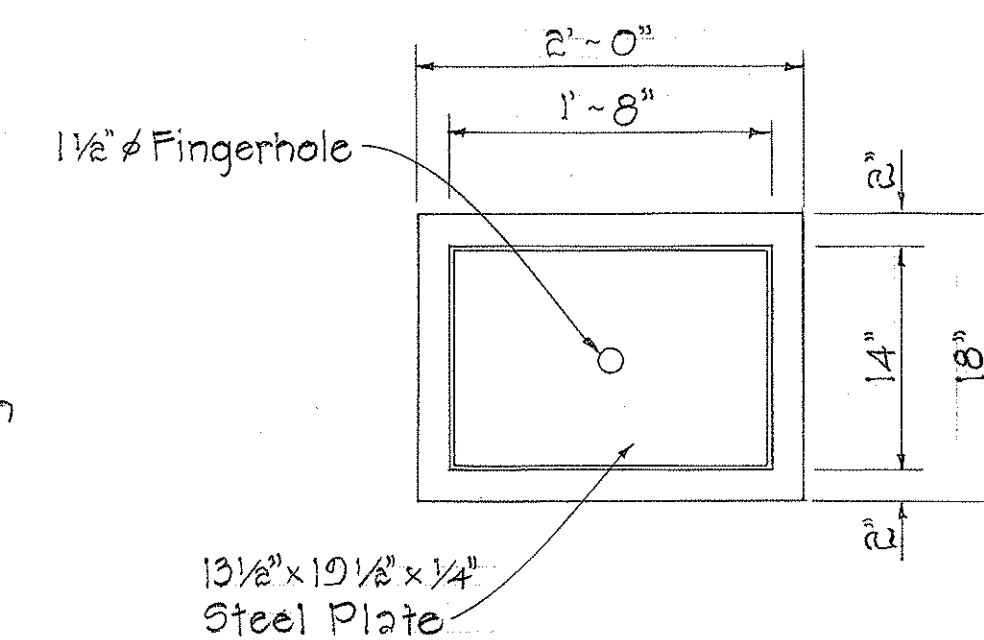
GENERAL NOTES

1. 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.
2. For additional reinforcing around storm drain manhole opening, see sht. no. 19.
3. Unnecessary culvert lengths within the catch basins or storm drain manholes shall be neatly cut flush with the face of the wall.
4. All adjustments to the existing subdrain cleanouts shall be made by the Contractor, including horizontal adjustments, if necessary, to clear the concrete barrier. The work mentioned above shall not be paid for separately but shall be considered incidental to the various contract items.
5. All existing sprinkler systems shall be cut and plugged as shown in the typical details.

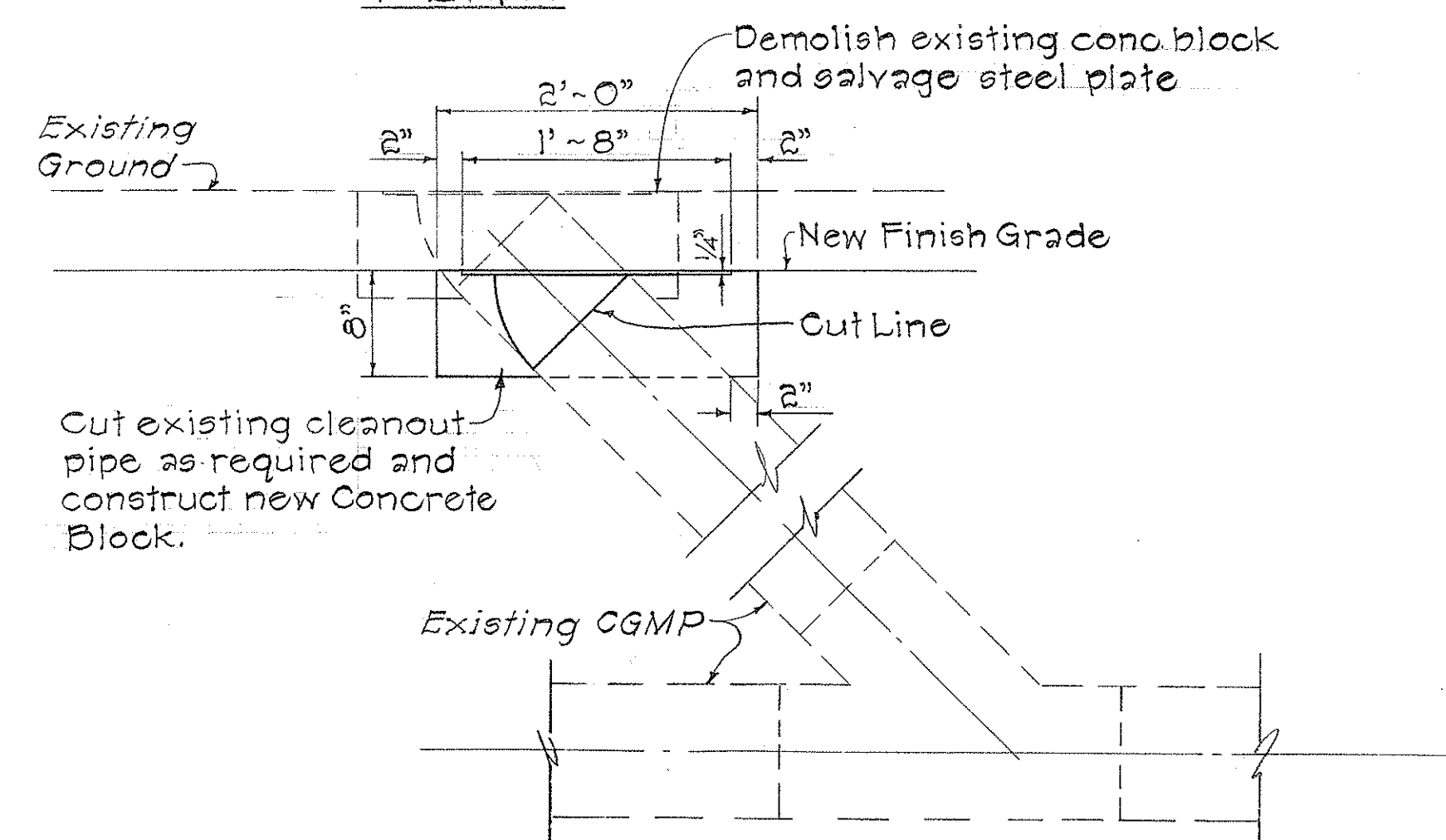


PLAN VIEW OF MODIFICATIONS TO CONVERT EXISTING TYPE "D" CATCH BASIN TO USE 3 GRATES

Scale: 1/2" = 1'-0"



PLAN



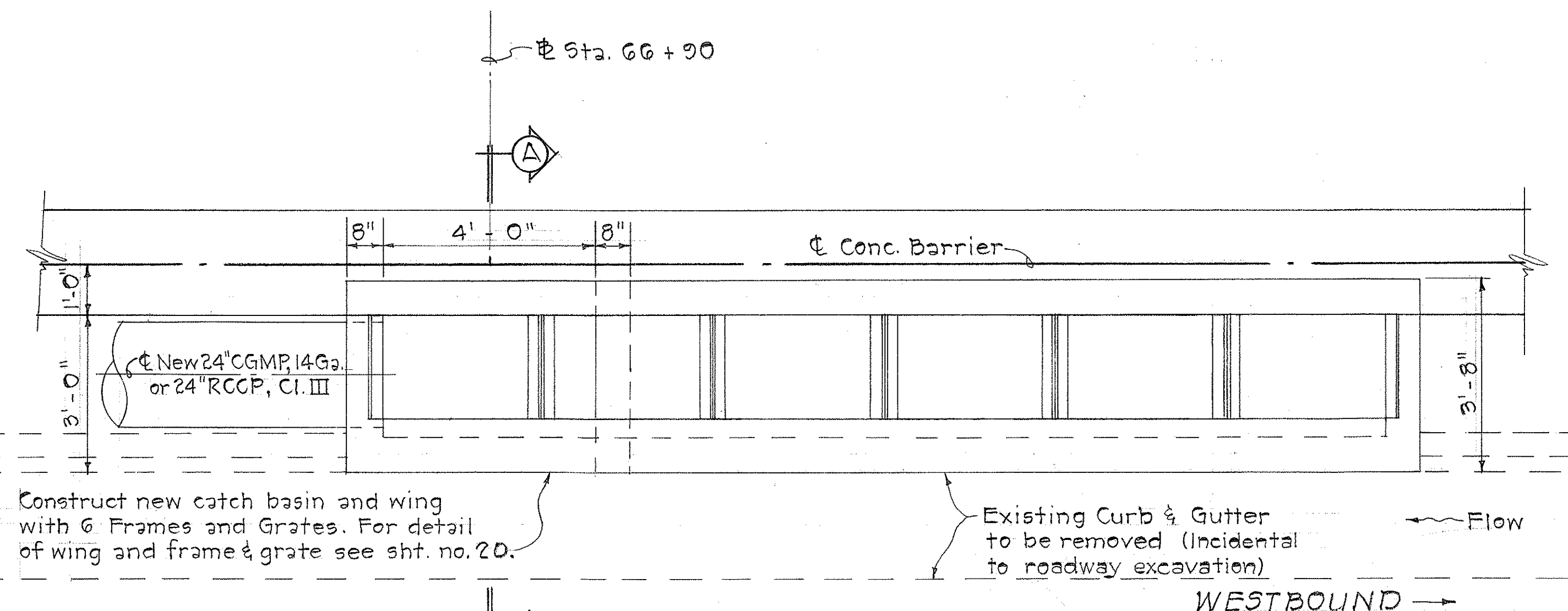
ELEVATION

DETAIL OF SUBDRAIN CLEANOUT AND CONCRETE BLOCK

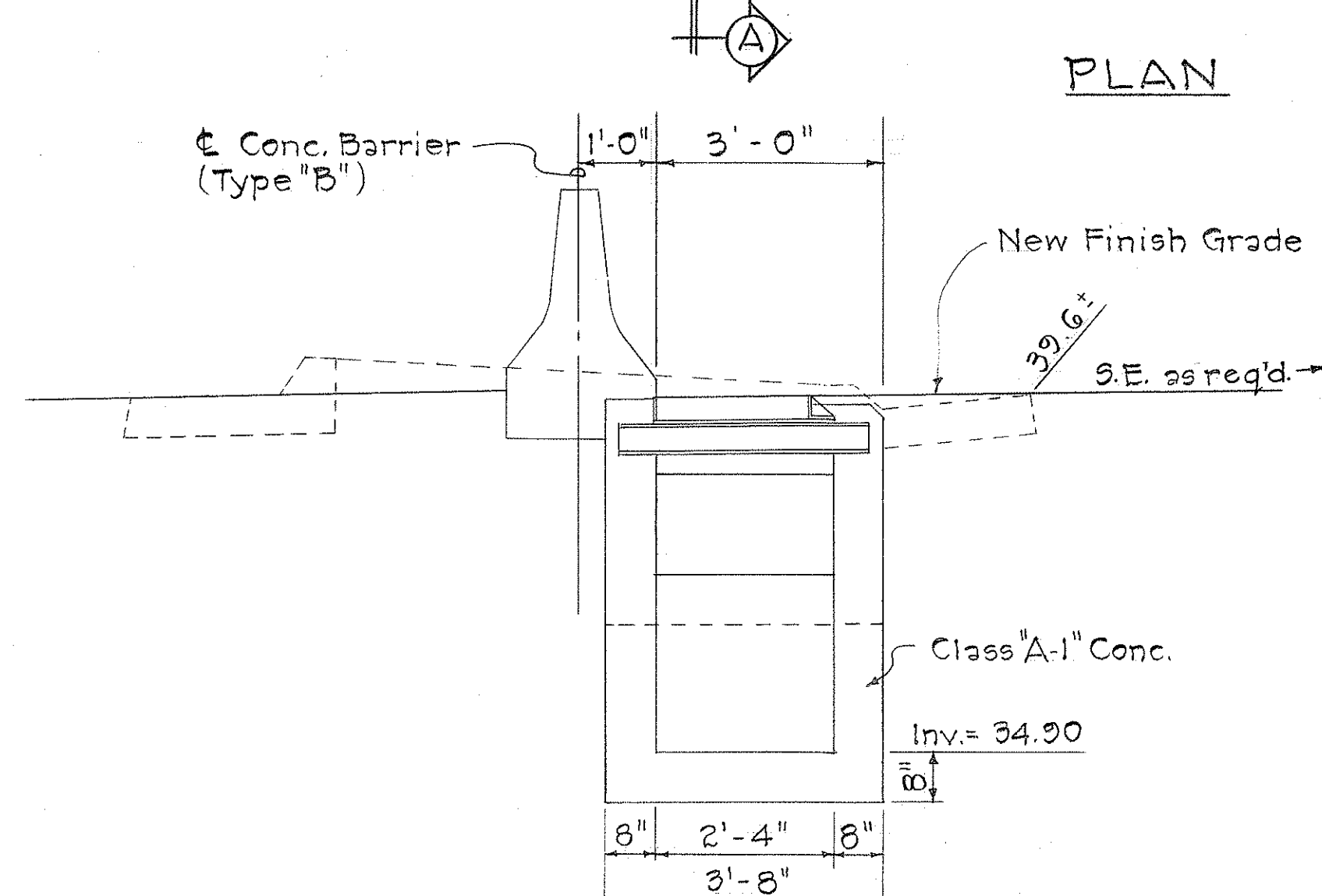
Scale: 1" = 1'-0"

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
DRAINAGE DETAILS MODIFICATIONS OF CATCH BASINS FOR CONCRETE BARRIER
Fed. Aid Interstate Proj. No. I-HI-1(51)
Scale: As Shown Date: May, 1968
SHEET No. 3 OF 9 SHEETS

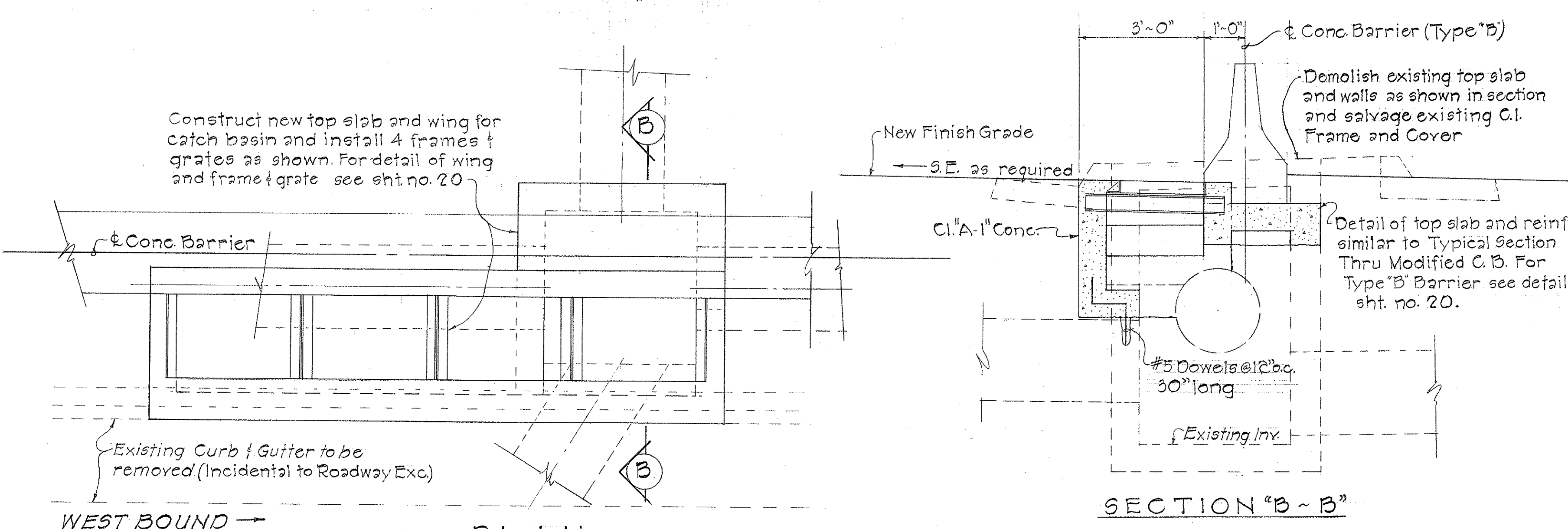
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(51)	1969	17	33



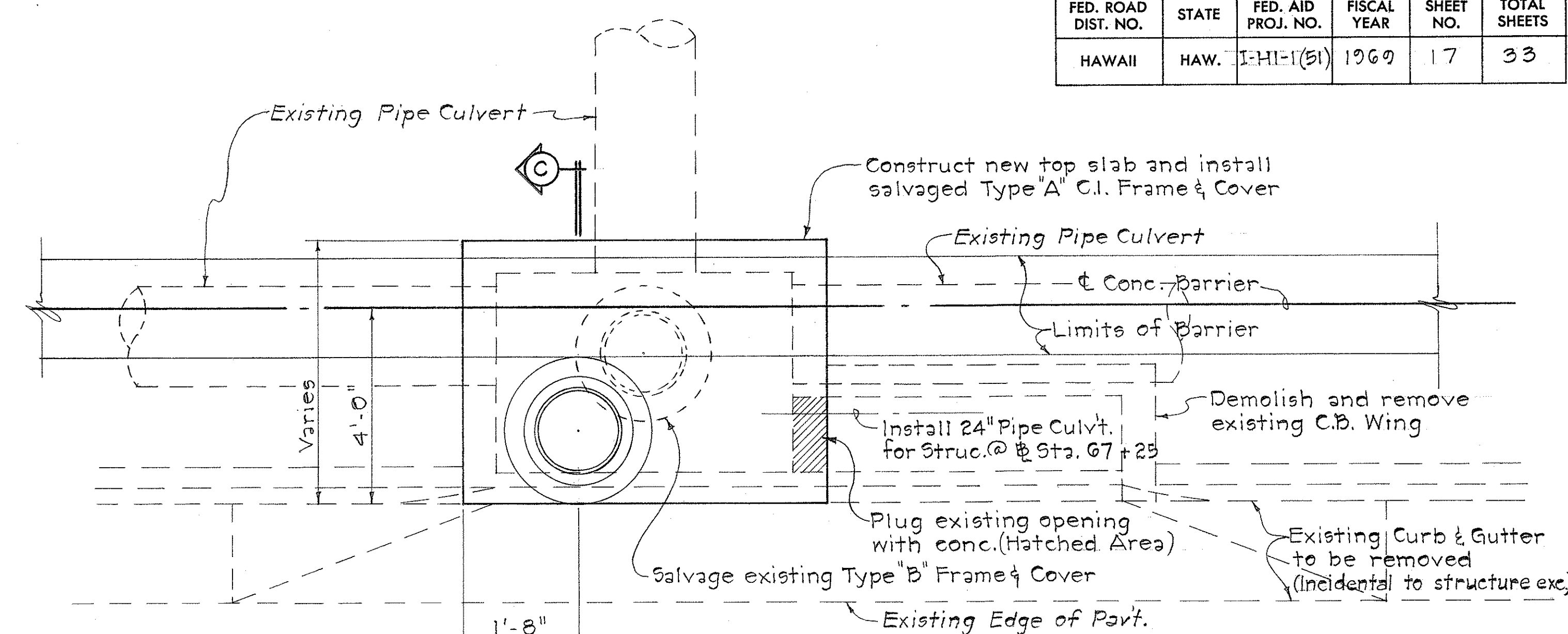
PLAN



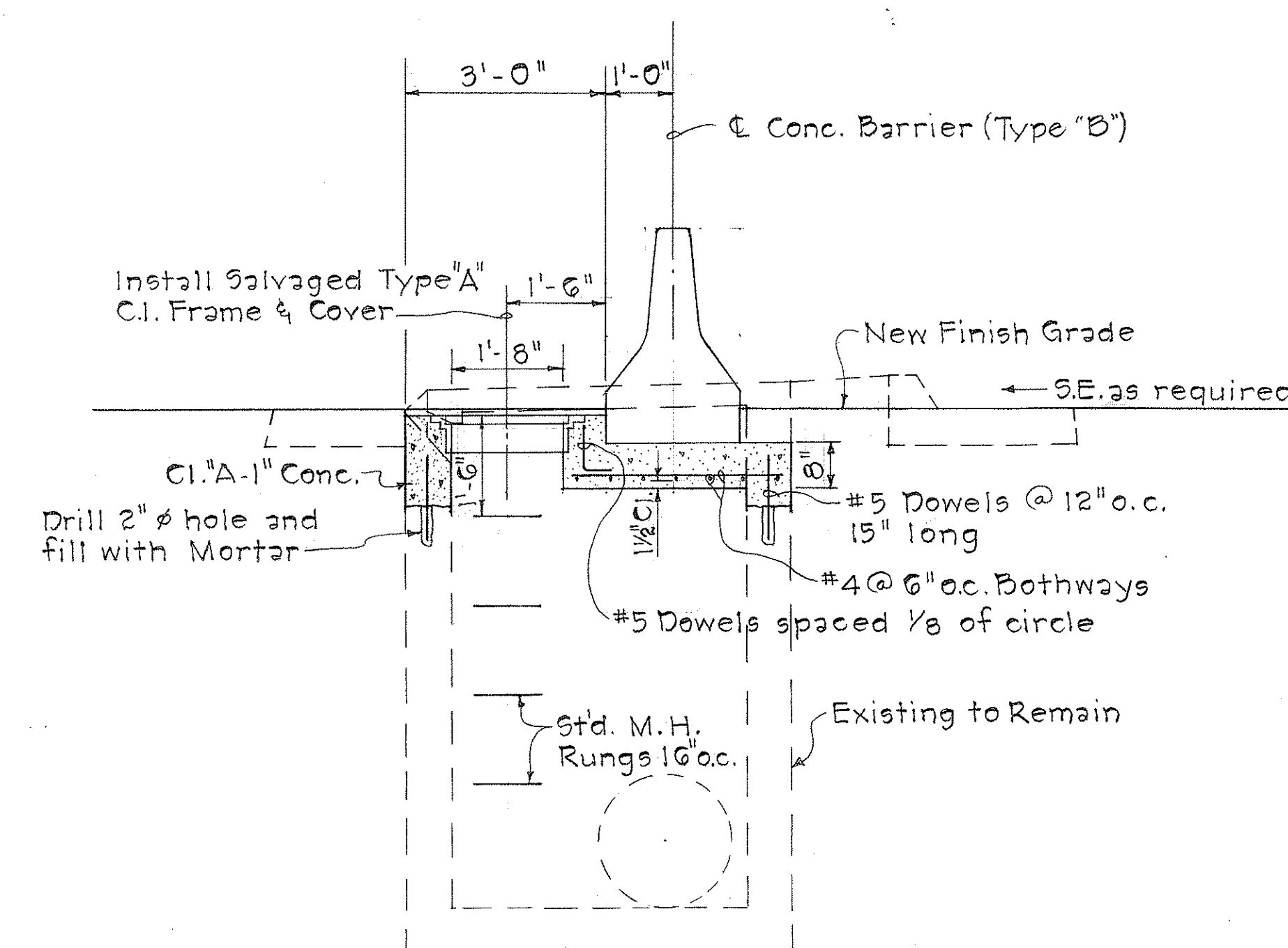
SECTION "A-A"
DETAIL OF NEW CATCH BASIN AT STA. 66+30
Scale: 1/2" = 1'-0"



MODIFICATIONS TO CONVERT EXISTING S.D.M.H. TO A CATCH BASIN
AT STA. 23+50
Scale: 1/8" = 1'-0"



PLAN

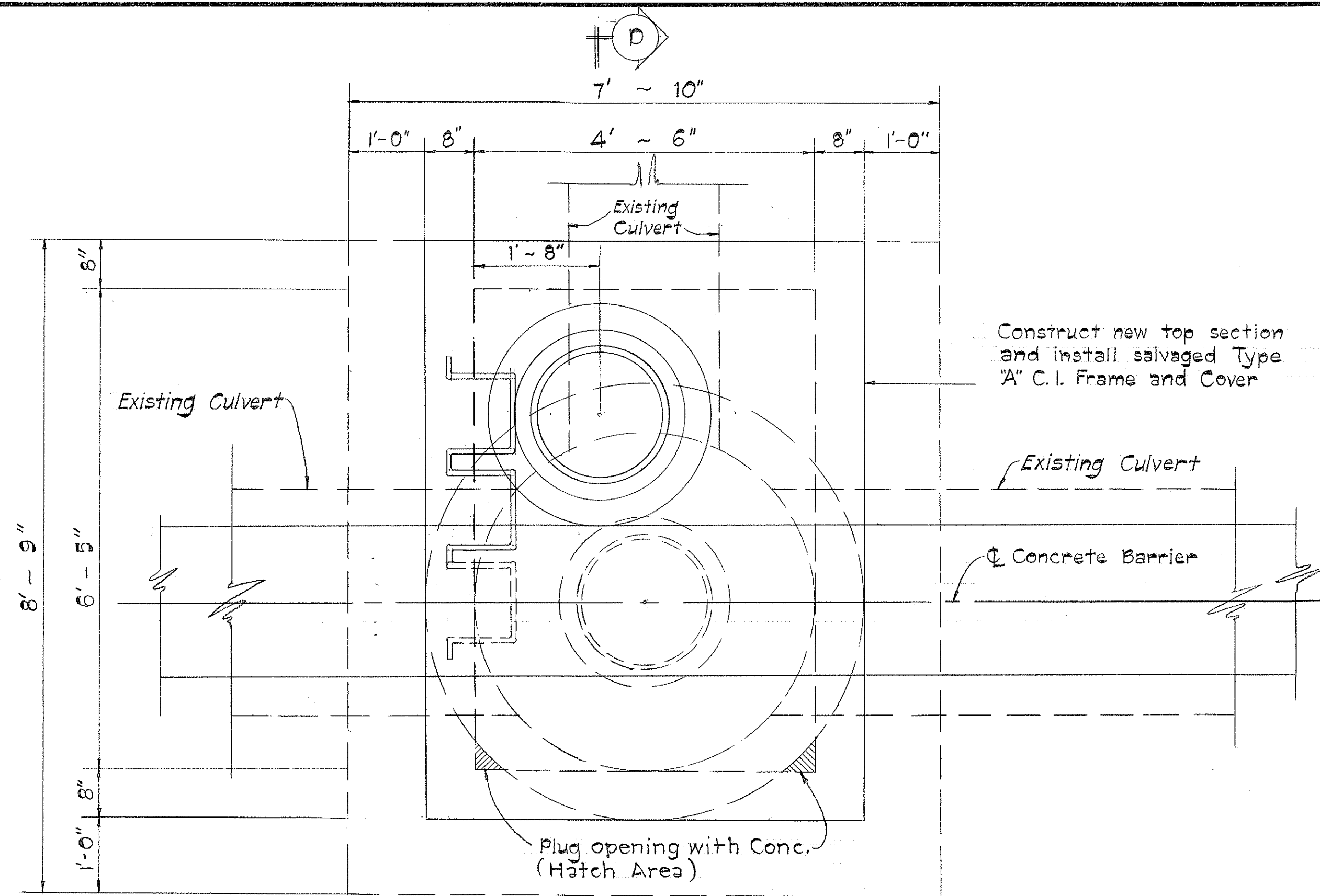


SECTION "C-C"

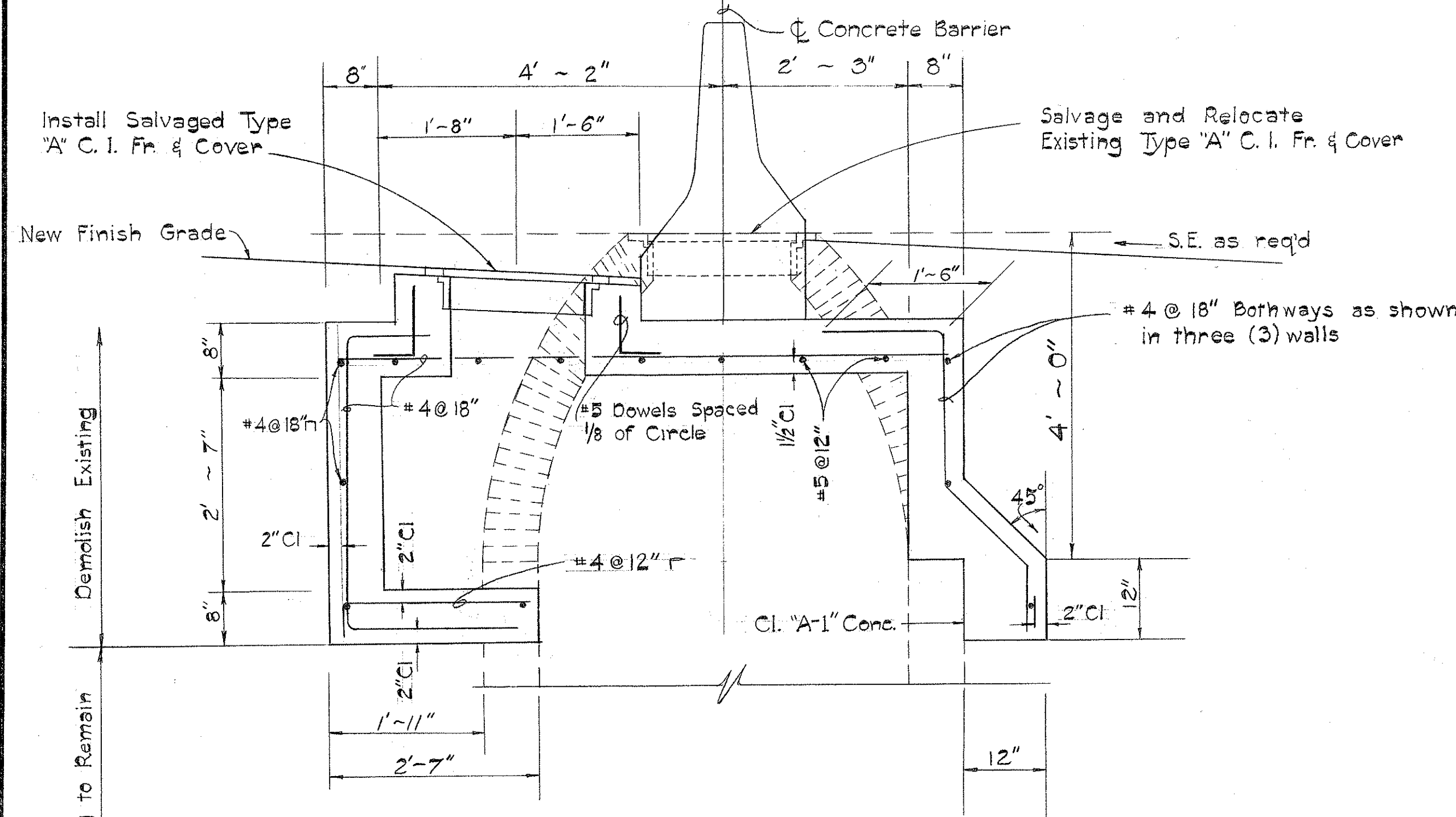
MODIFICATIONS TO CONVERT
EXISTING TYPES "B" & "C" CATCH
BASIN TO S.D.M.H. @ STA. 22+40 & 67+25
Scale: 1/2" = 1'-0"

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE DETAILS MODIFICATIONS OF STORM DRAIN MANHOLES FOR CONCRETE BARRIER	
Fed. Aid Interstate Proj. No. I-HI-1(51)	
Scale: As Shown	Date: May 1968
SHEET No. 4 OF 9 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-11-1(51)	1969	18	33



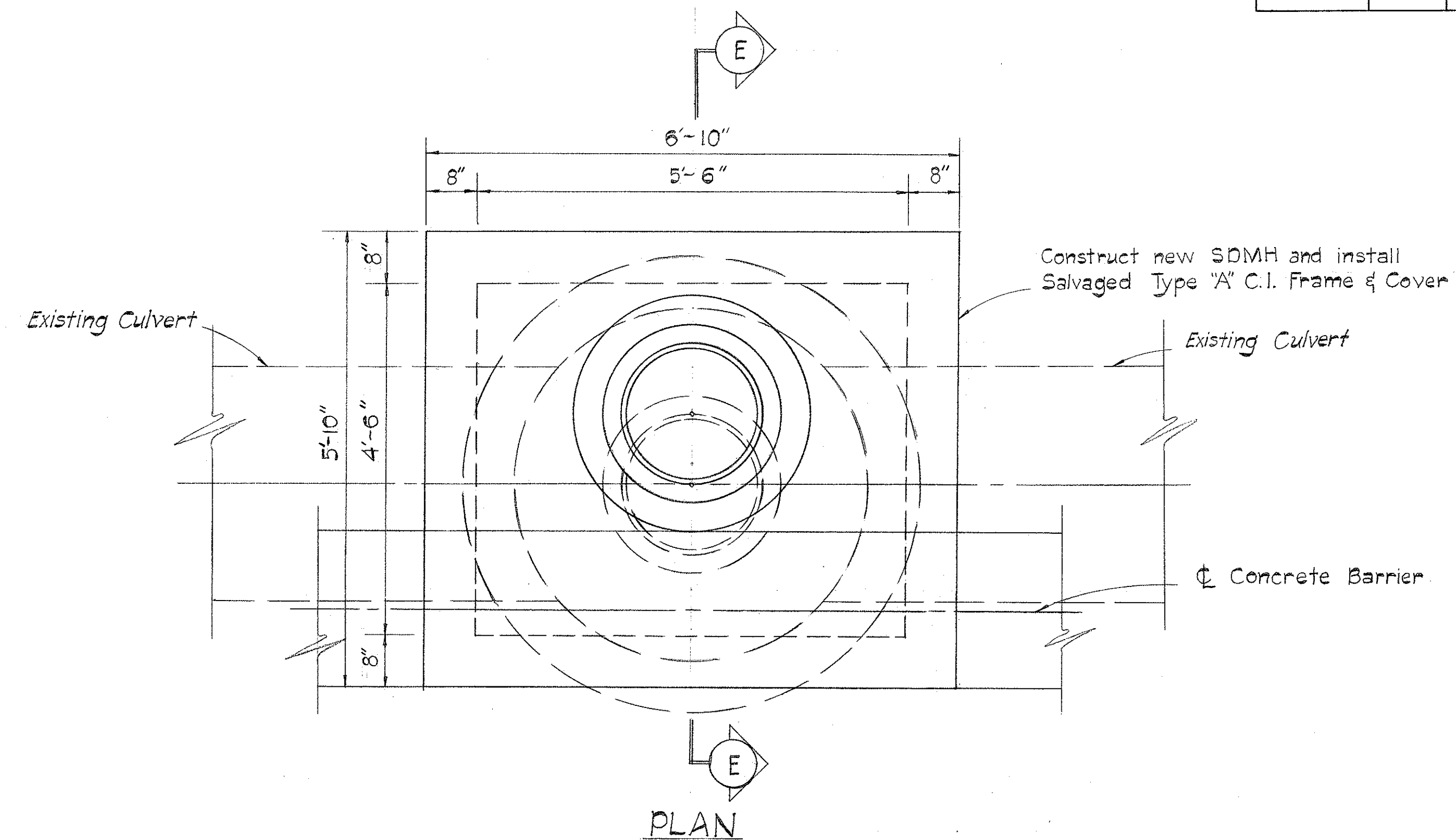
PLAN



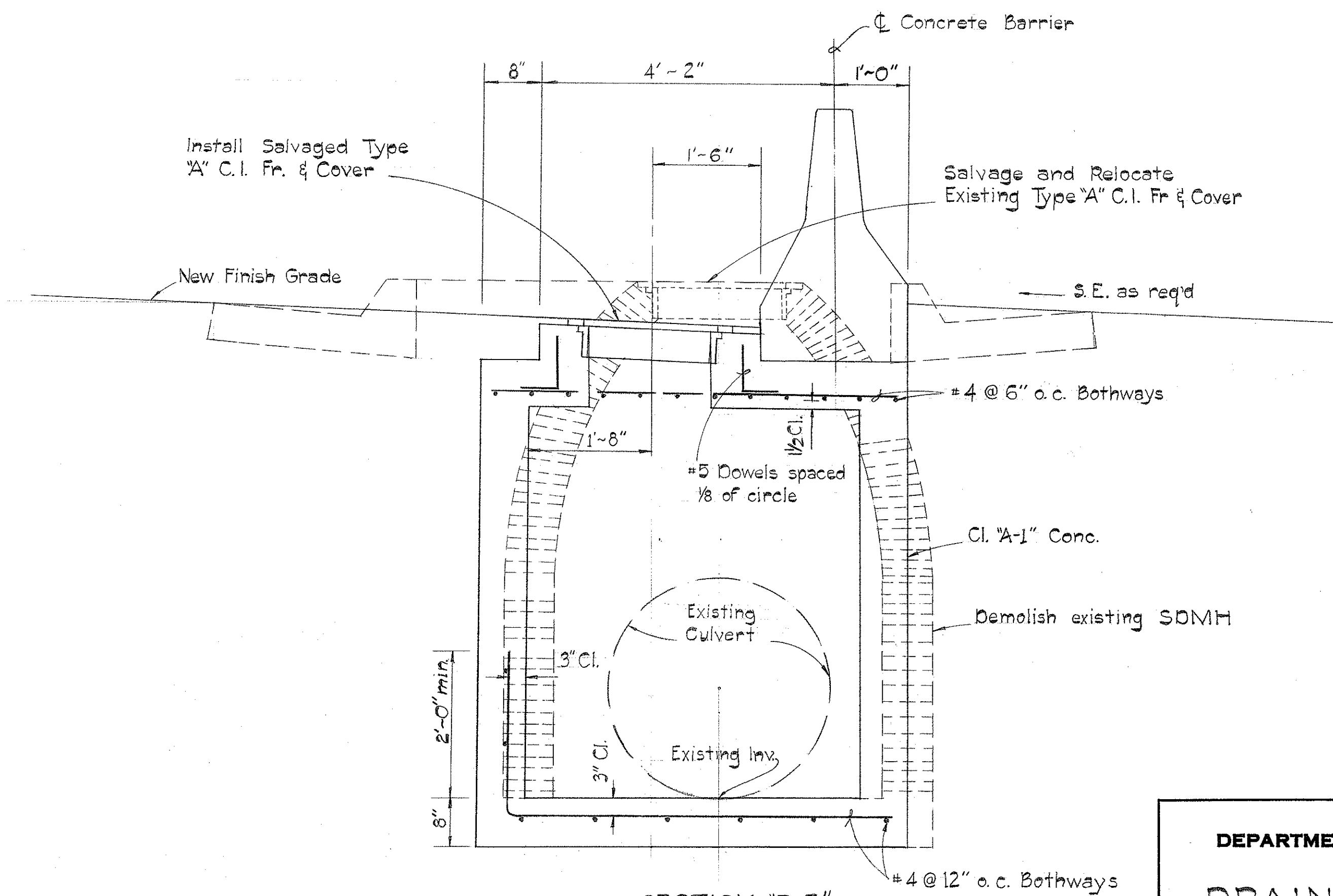
SECTION "D-D"

MODIFICATION TO EXISTING
S.D.M.H # 9-L @ STA. 155+70

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



PLAN



SECTION "E-E"

DETAILS OF S.D.M.H AT
STA. 56+05

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
MODIFICATIONS OF
STORM DRAIN MANHOLES
FOR CONCRETE BARRIER

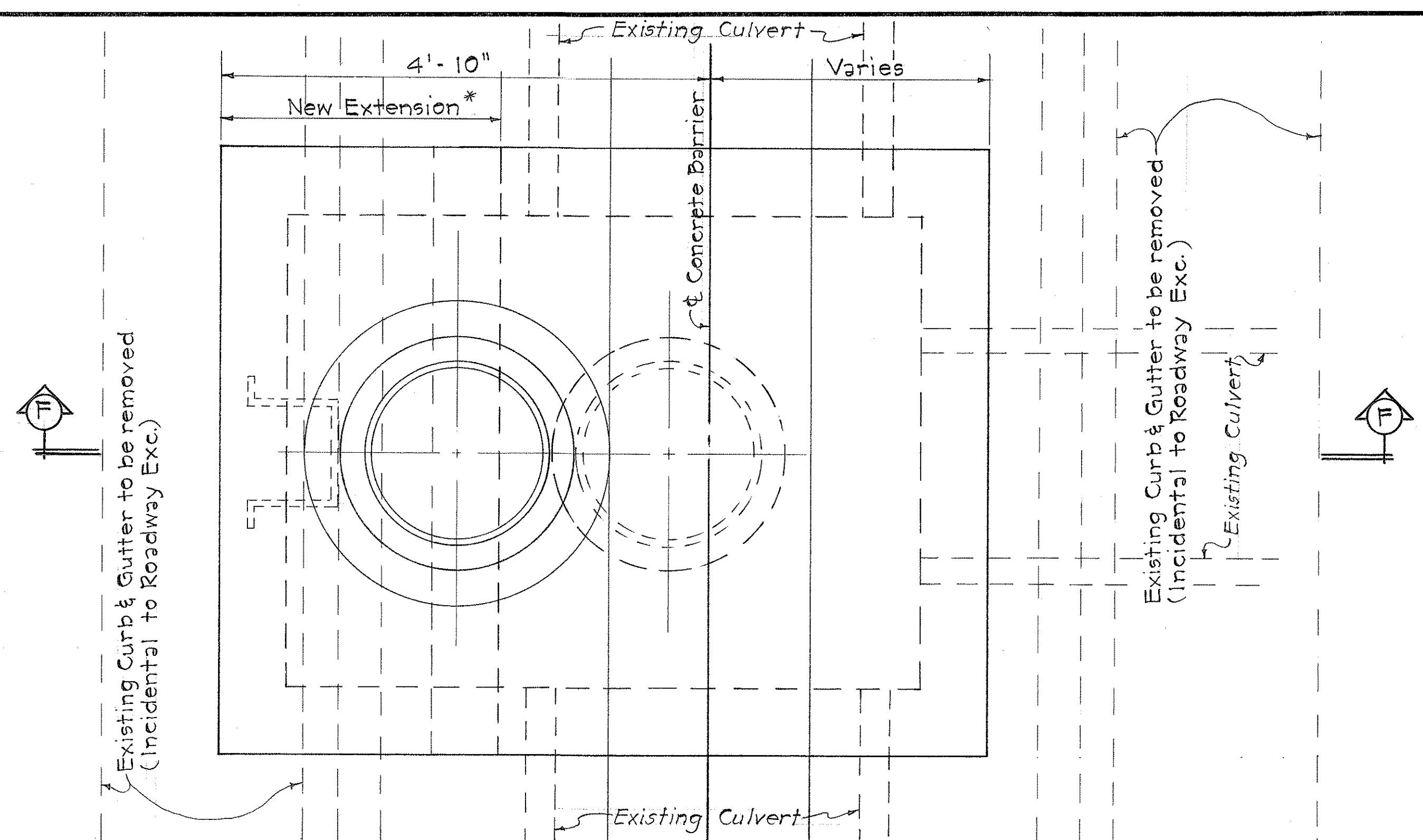
Fed. Aid Interstate Proj. No. I-11-1(51)

Scale: As Shown Date: May 1969

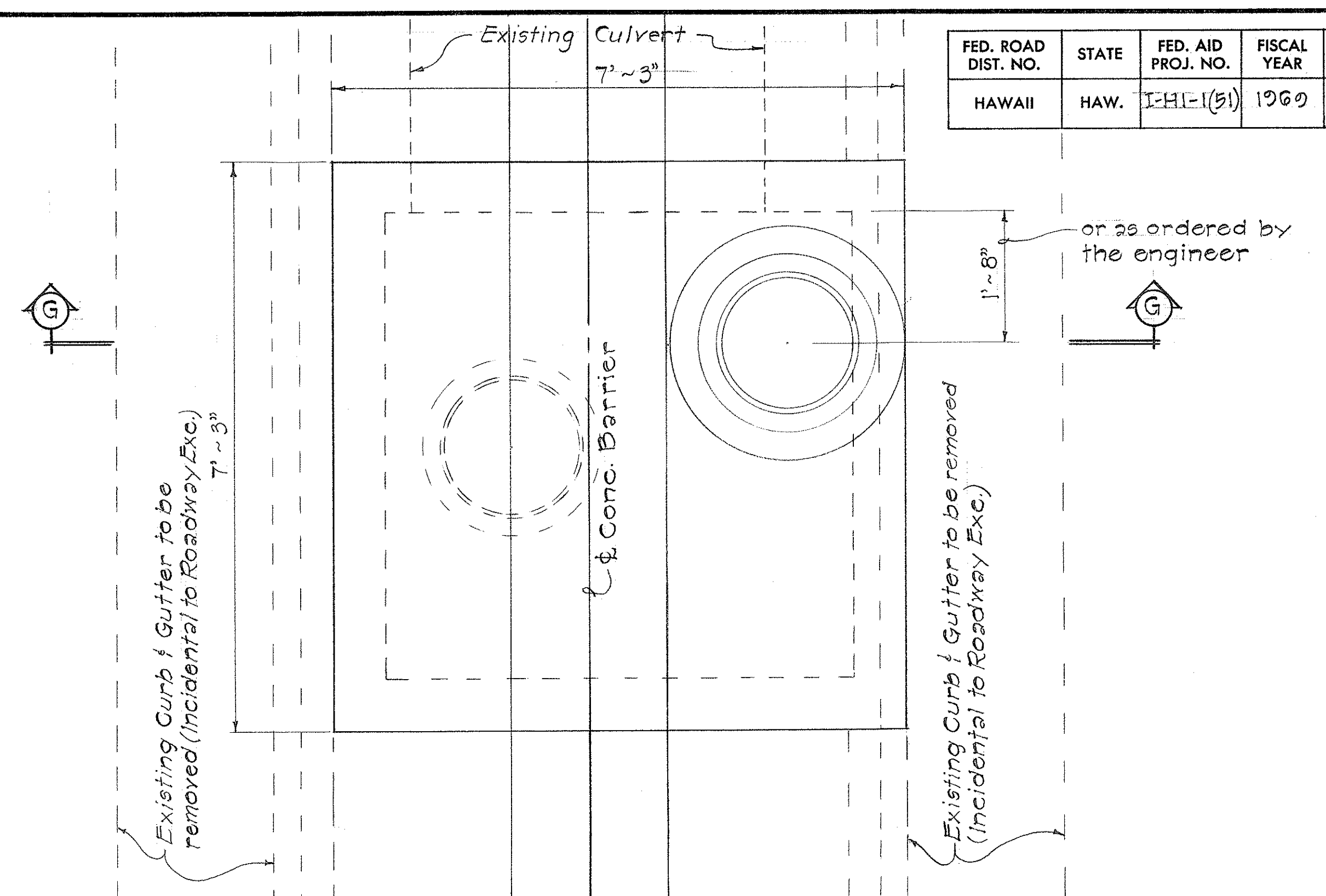
SHEET No. 5 OF 9 SHEETS

DATE	DESIGNED BY	CHECKED BY
PLAN	DESIGNED BY	CHECKED BY
NOTE BOOK	DESIGNED BY	CHECKED BY
NO.	DESIGNED BY	CHECKED BY

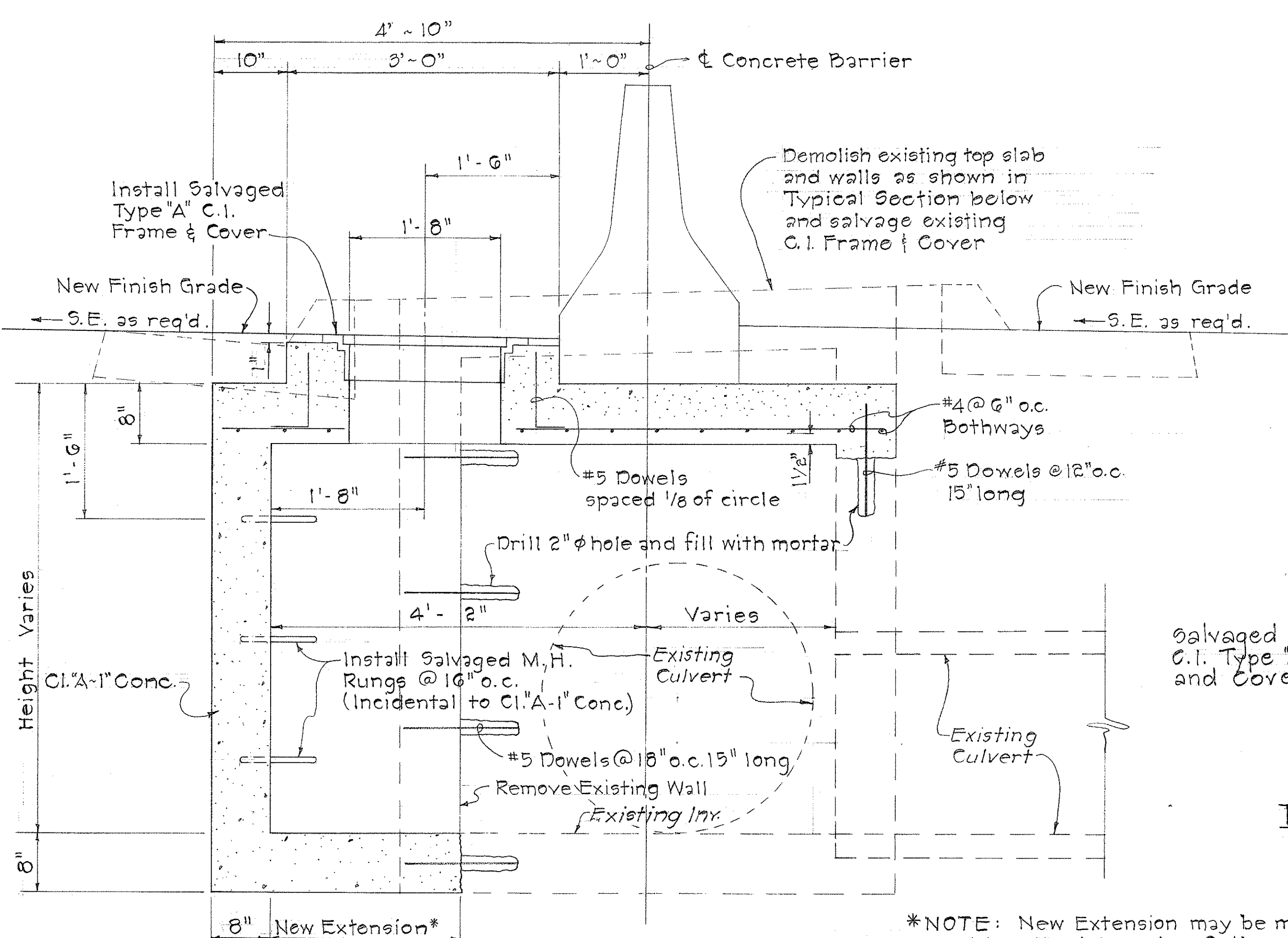
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(51)	1969	19	33



PLAN



PLAN

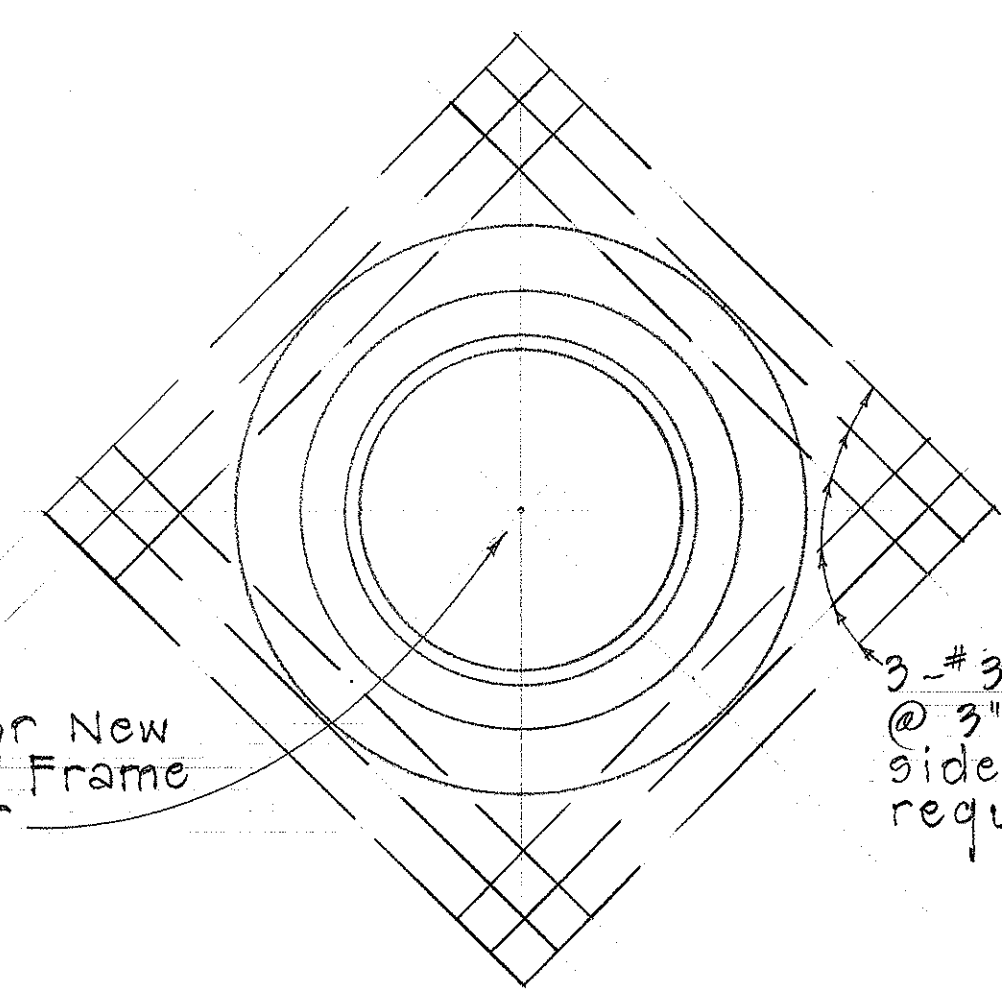


SECTION "F-F"

TYPICAL DETAIL OF MODIFICATION OF S.D.M.H.

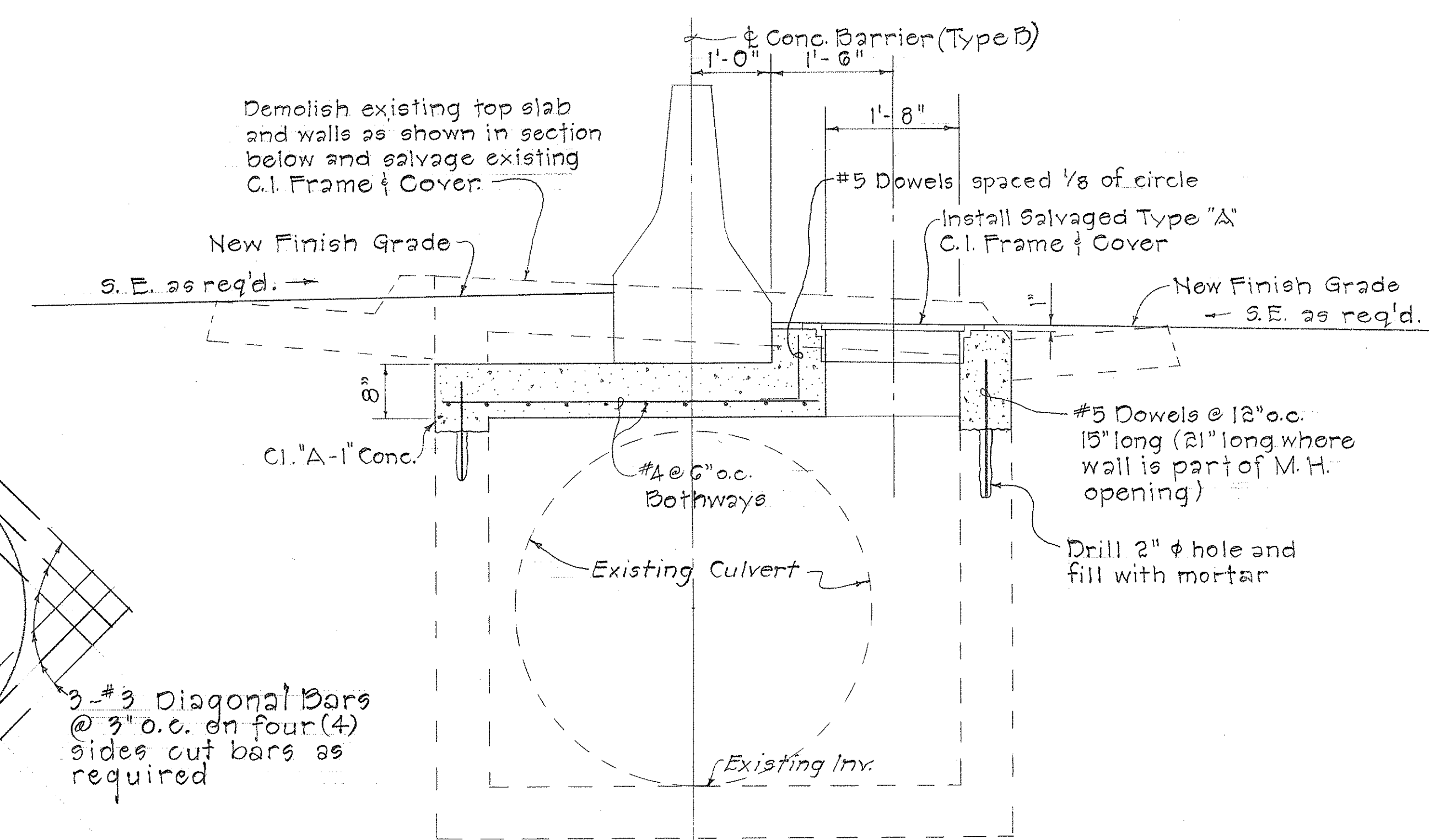
Scale: 1" = 1'-0"

*NOTE: New Extension may be made to either the Inbound or Outbound side of the existing S.D.M.H. See Drainage Tabulation Sht. 14 & 15.



TYPICAL REINFORCING AROUND S.D.M.H. OPENINGS

Not to scale



SECTION "G-G"

MODIFICATION OF S.D.M.H. @ STA. 355 + 70

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
MODIFICATIONS OF
STORM DRAIN MANHOLES
FOR CONCRETE BARRIER

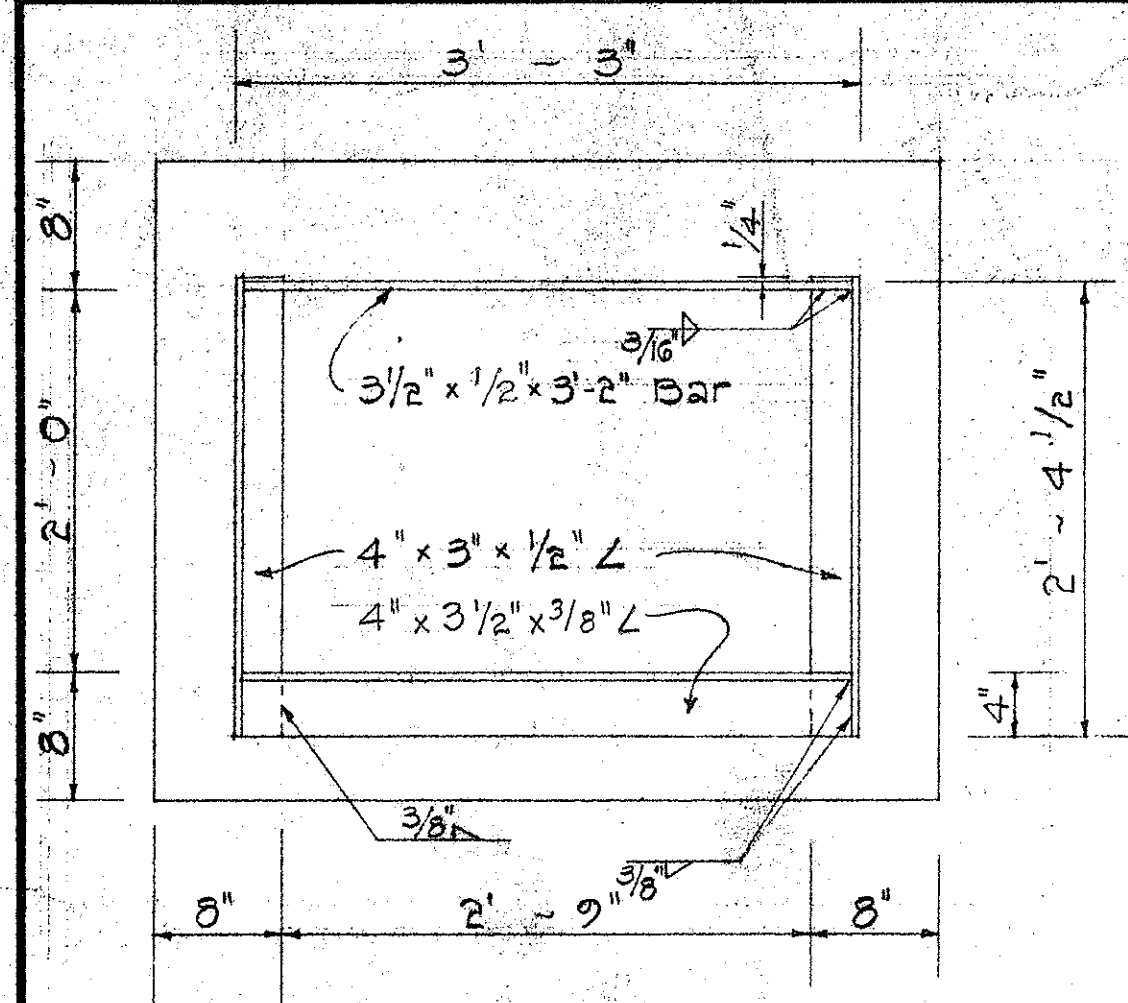
Fed. Aid Interstate Proj. No. I-HI-1 (51)

Scale: As Shown Date: May, 1968

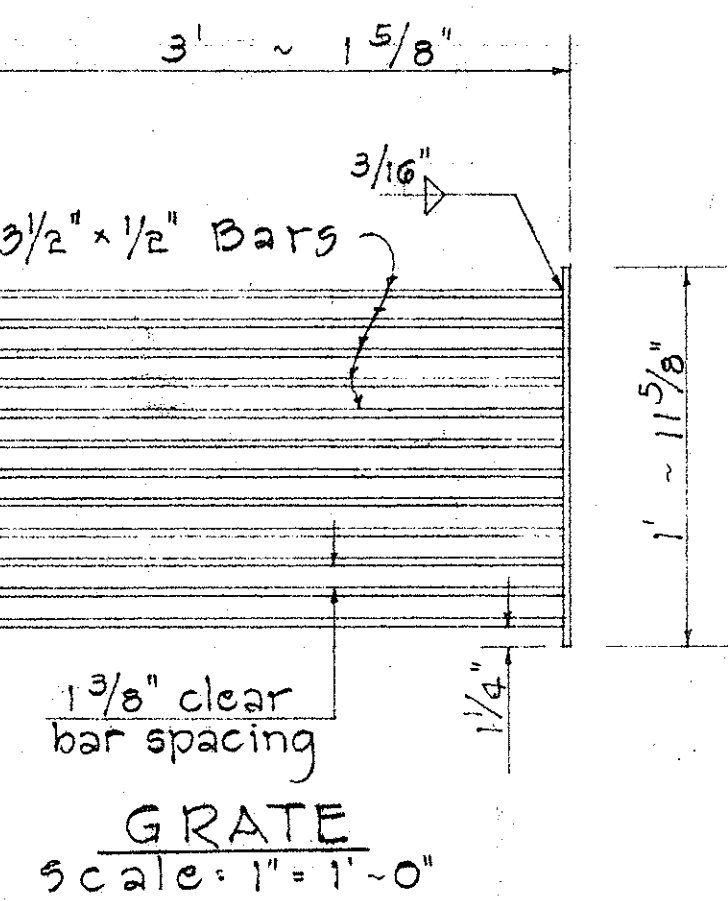
SHEET No. 6 OF 9 SHEETS

DATE	DESIGNED BY	CHECKED BY
PLAN	DESIGNED BY	CHECKED BY
NOTE BOOK	DESIGNED BY	CHECKED BY
QUANTITIES BY	DESIGNED BY	CHECKED BY
NO.	DESIGNED BY	CHECKED BY

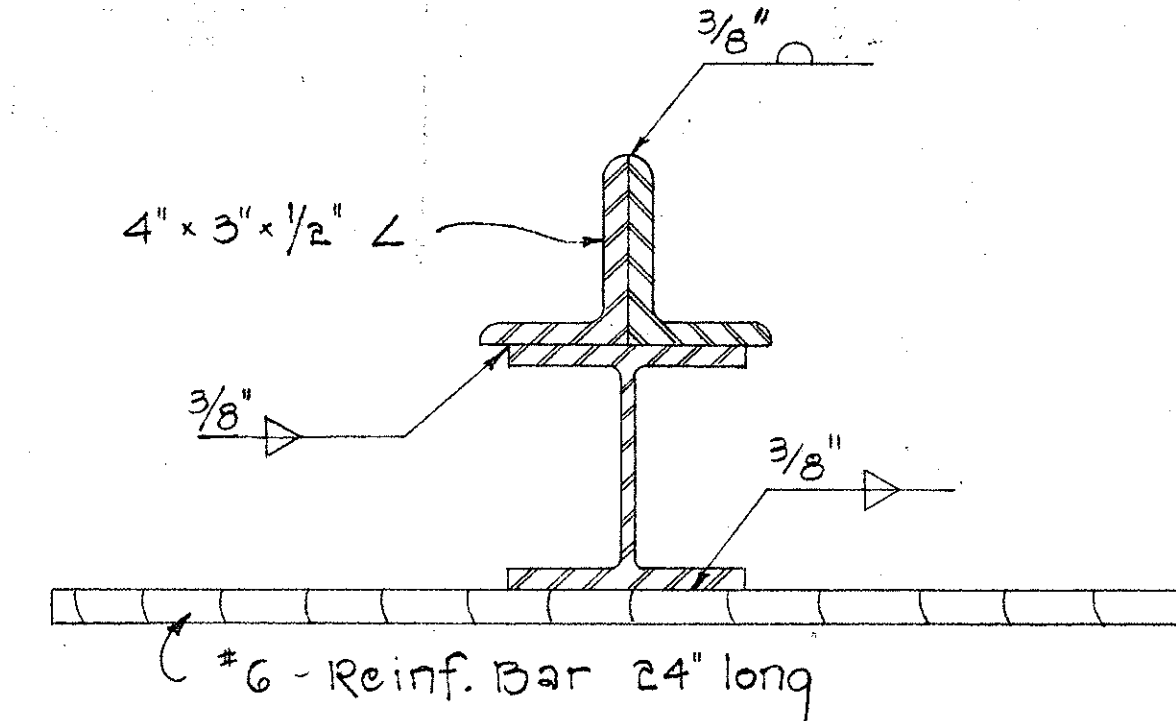
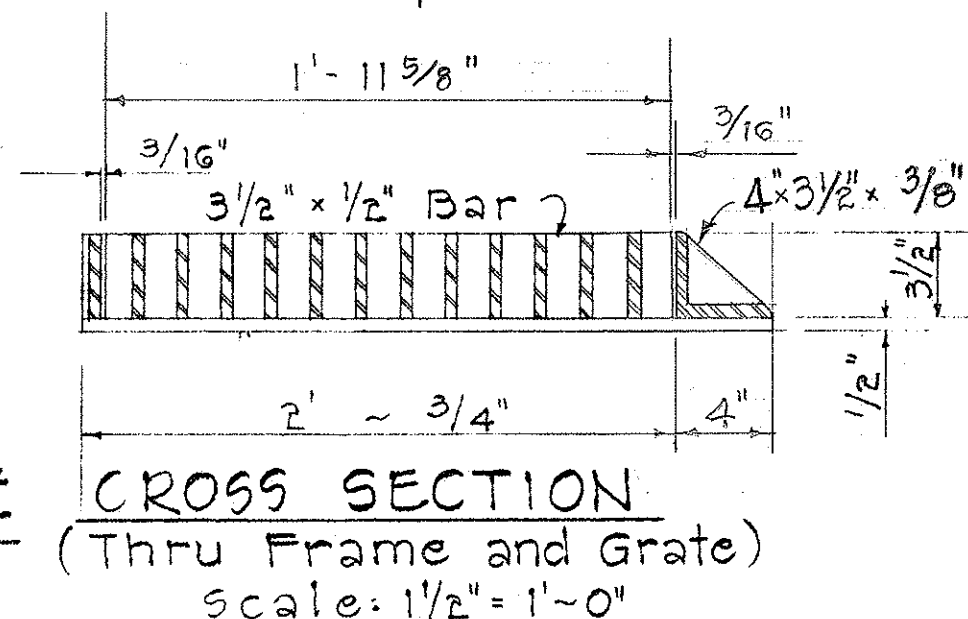
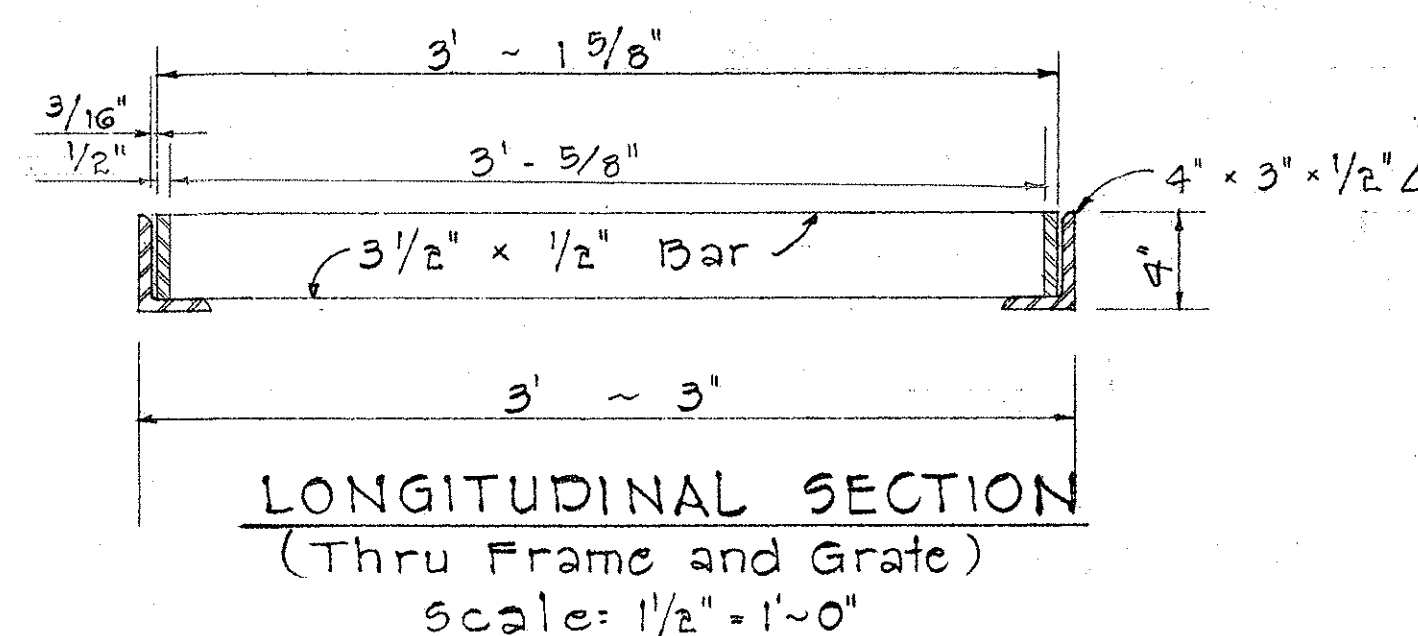
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(51)	1969	20	33



FRAME
Scale: 1" = 1'-0"



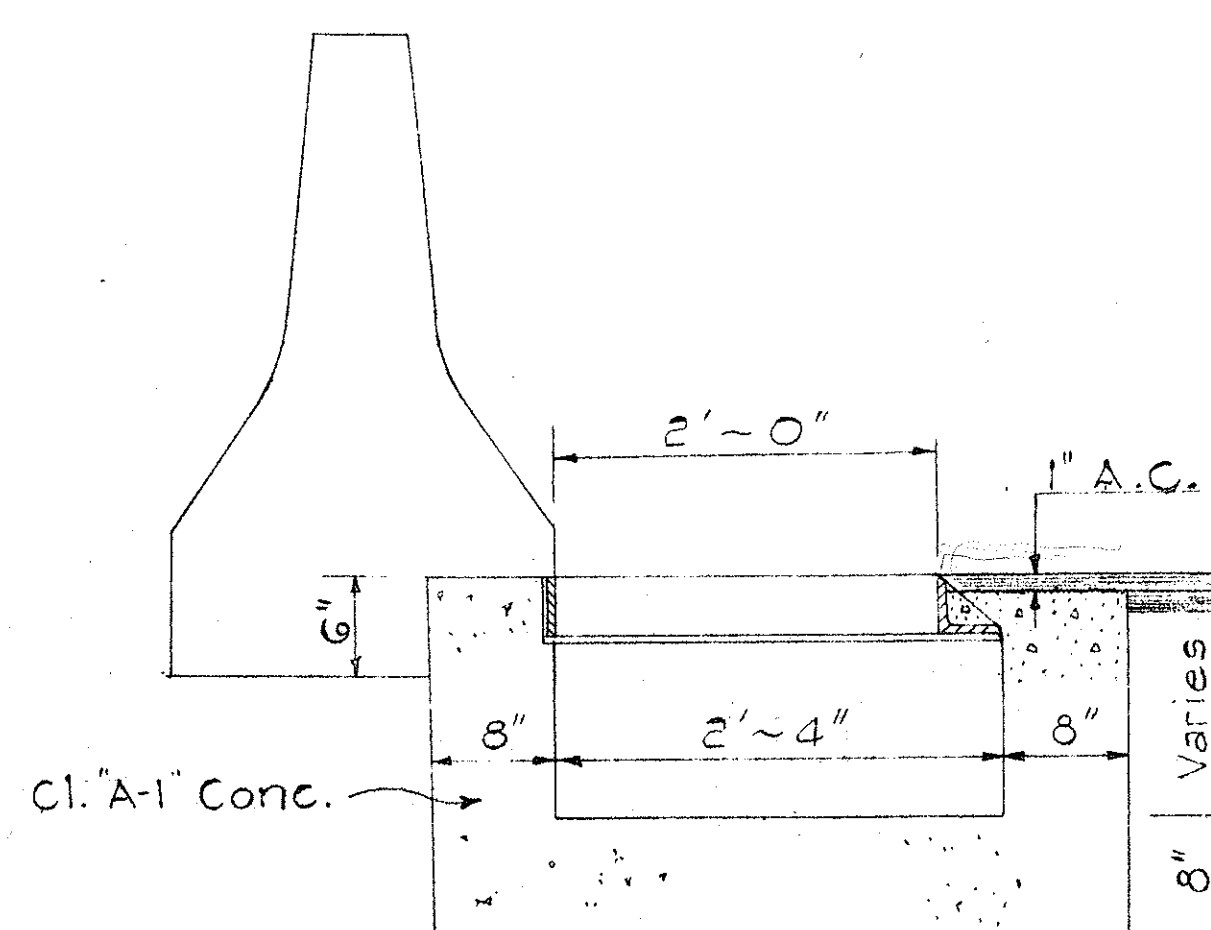
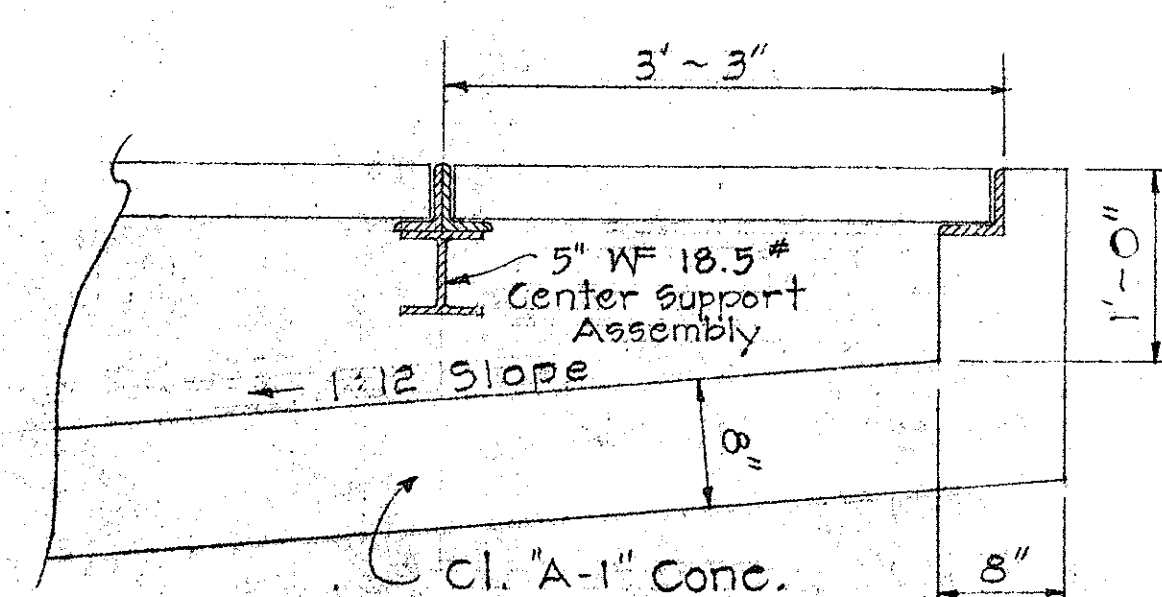
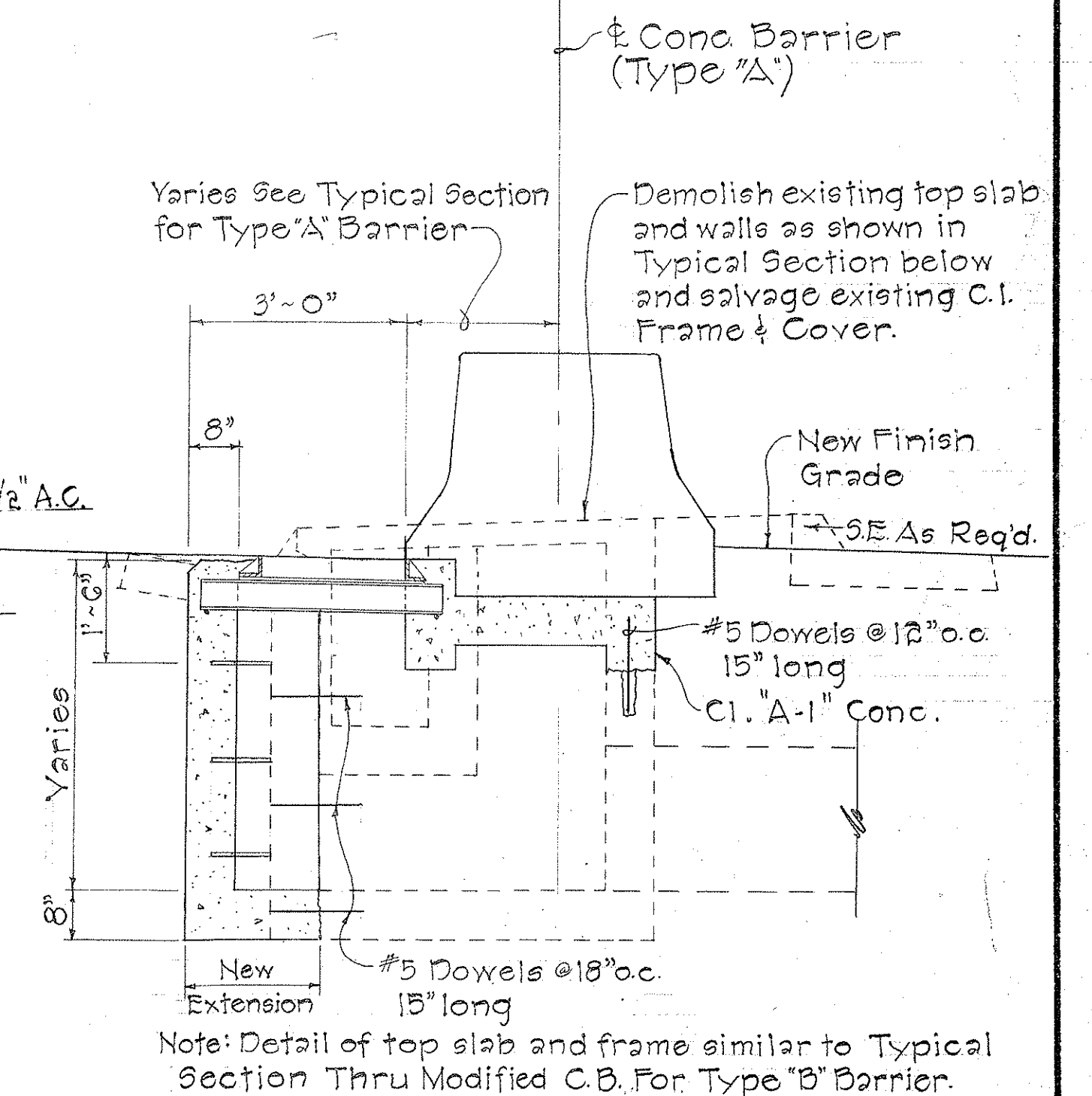
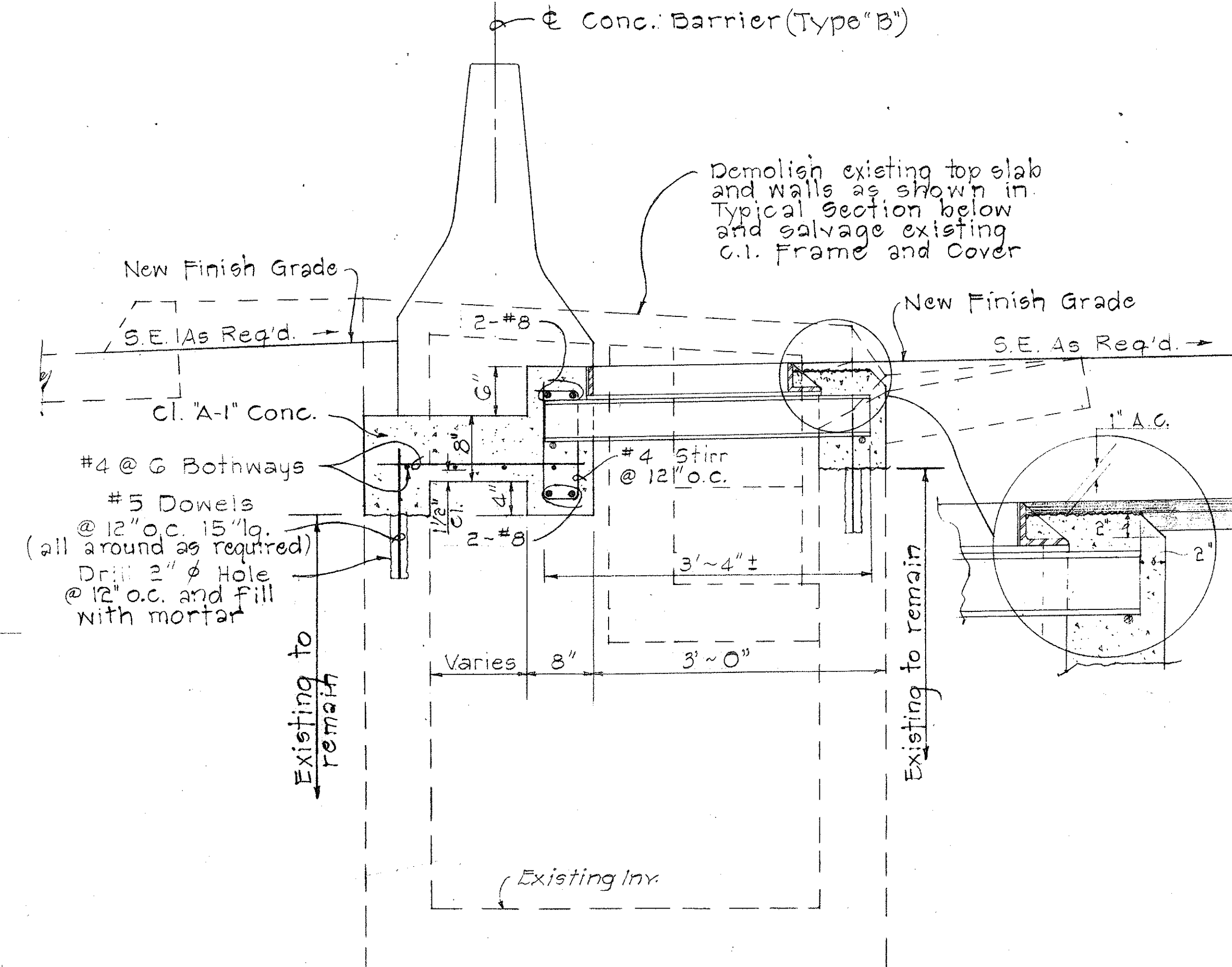
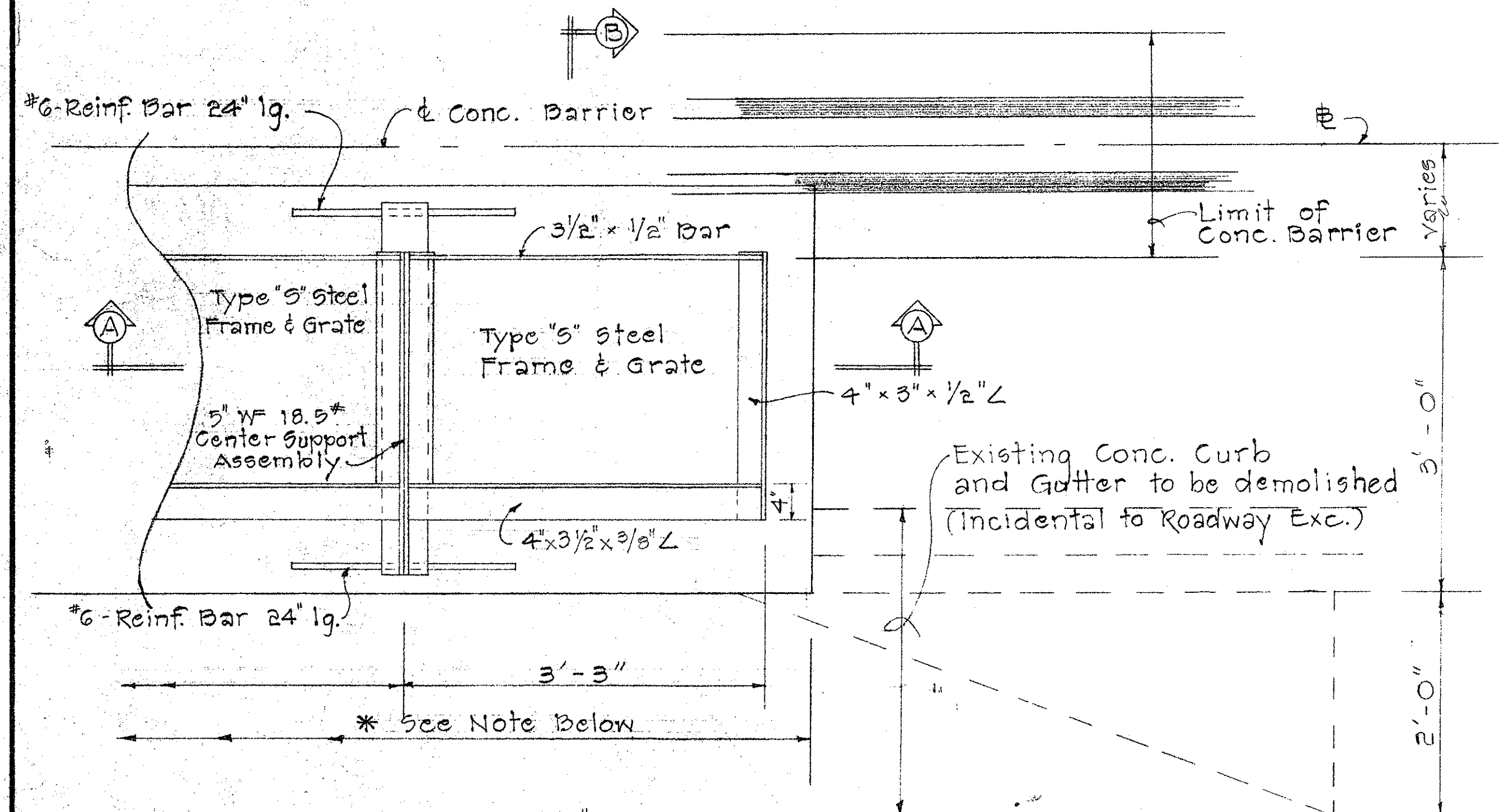
GRATE
Scale: 1" = 1'-0"



- NOTE:
1. All welds 3/8" unless otherwise noted
 2. All steel shall be structural grade
 3. Grate and Frame shall be hot dip galvanized after fabrication in accordance with section 44 (H) of the standard Specifications.

GENERAL NOTES

1. Center Support Assembly shall be used when two or more Gratings are specified.
2. Center Support Assembly shall not be paid for separately, but shall be considered as incidental to Type "S" Steel Frame and Grate.
3. Salvaged C.I. Frame and Covers shall be cleaned and returned to 721 Kelikoi Street, Honolulu.



DETAIL OF NEW C.B. WING

*(Length of Wings vary according to number of grates - see detail plan)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
TYPE "S" STEEL FRAME AND
GRATE FOR MODIFIED C.B.

Fed. Aid Interstate Proj. No. I-HI-1(51)

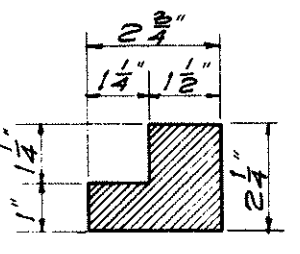
Scale: As shown Date: May 1968

SHEET No. 7 OF 9 SHEETS

2/17/57
8:14:50

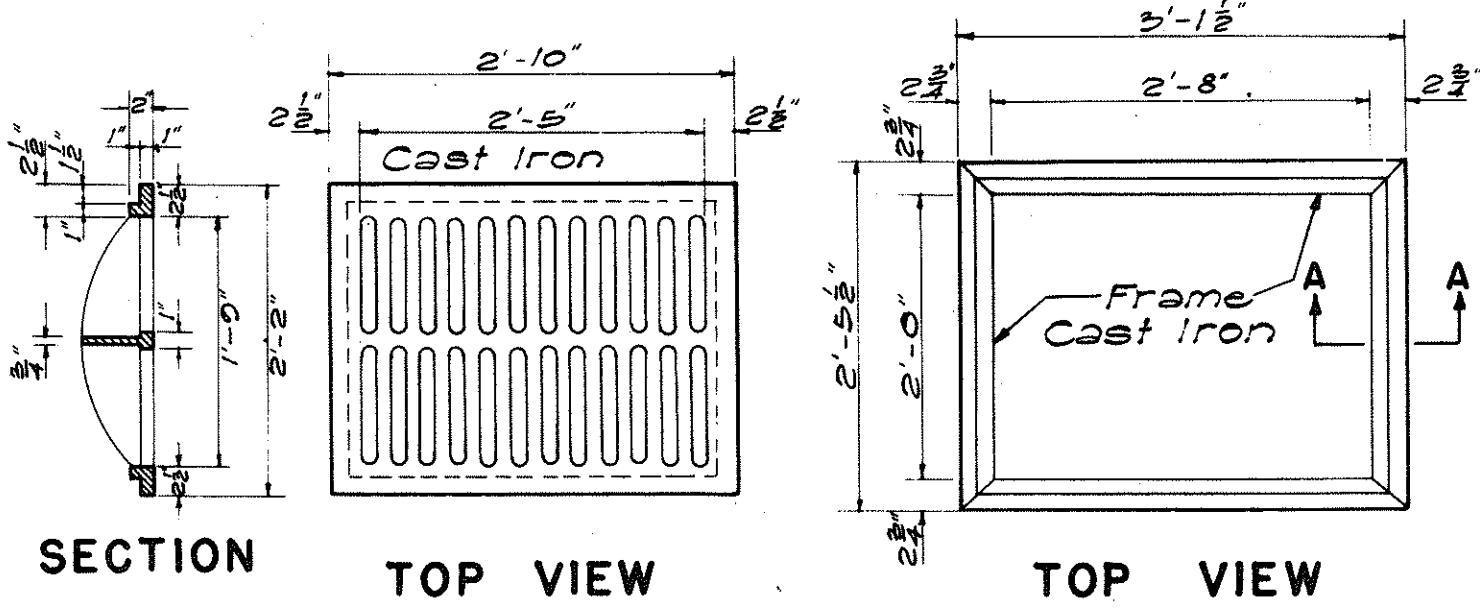
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1-(61)	1960	21	33

August 1957

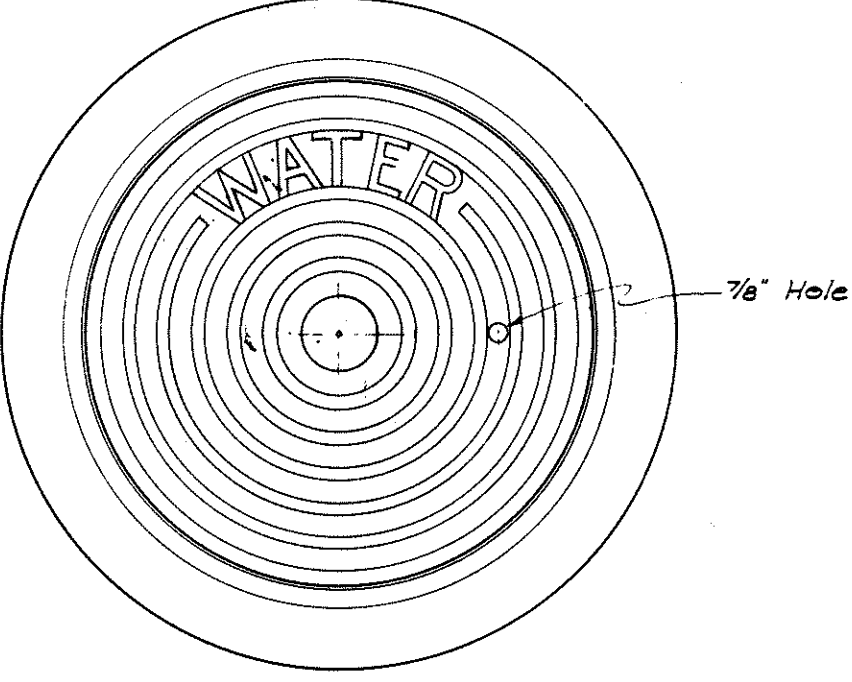


SECTION "A-A"
SCALE 3" = 1'-0"

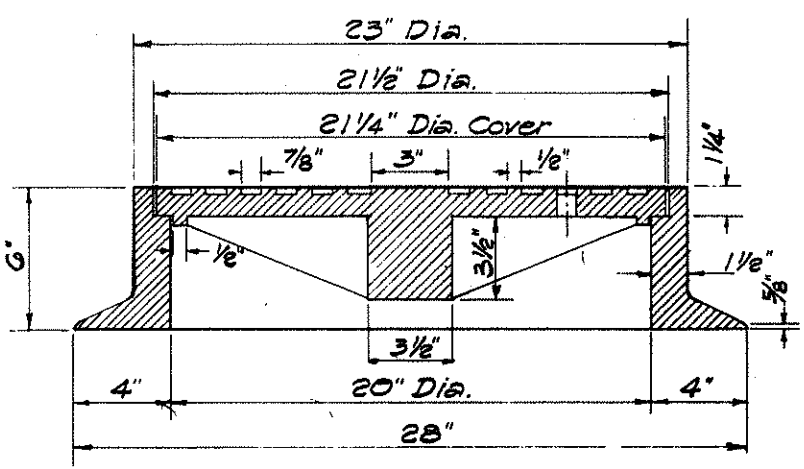
NOTE: Stock Pattern From Novelty Foundry ~ Honolulu



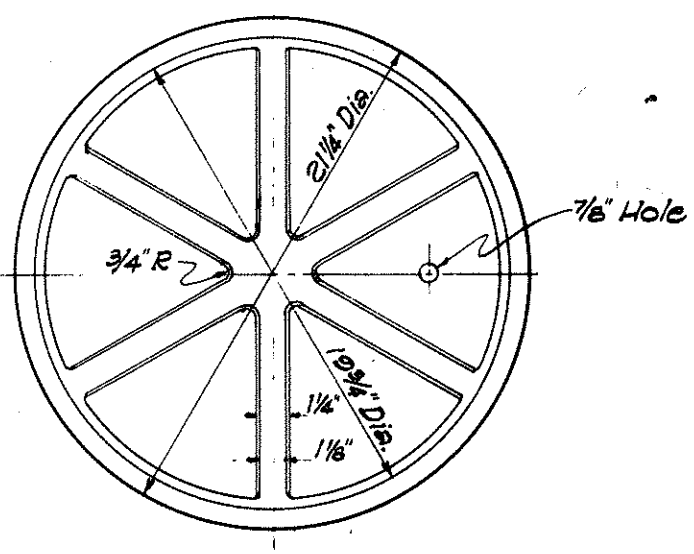
TYPE C C.I. FRAME AND GRATING
SCALE: 3/4" = 1'-0"



PLAN OF FRAME AND COVER



SECTION OF FRAME AND COVER



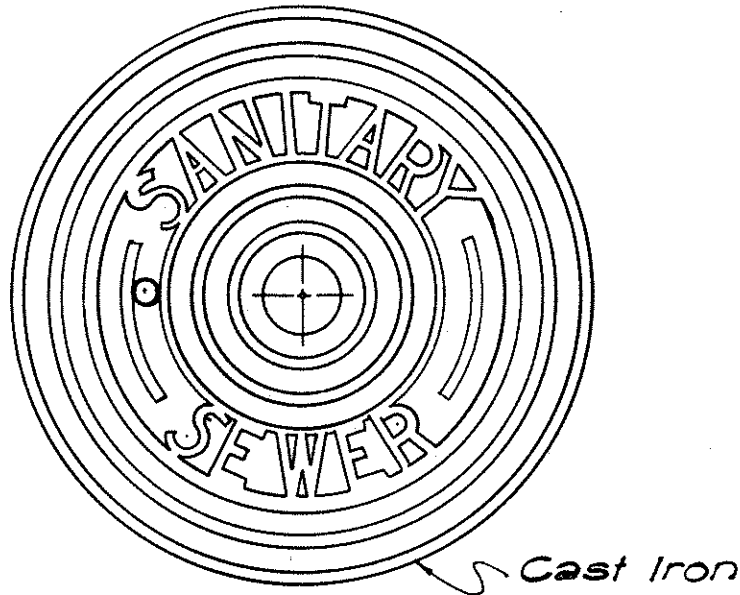
BOTTOM VIEW OF COVER

DETAILS OF TYPE "W"
CAST IRON FRAME AND COVER

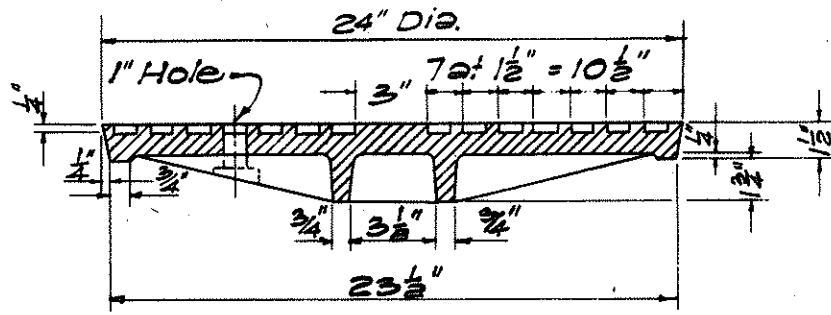
SCALE: 1-1/2" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

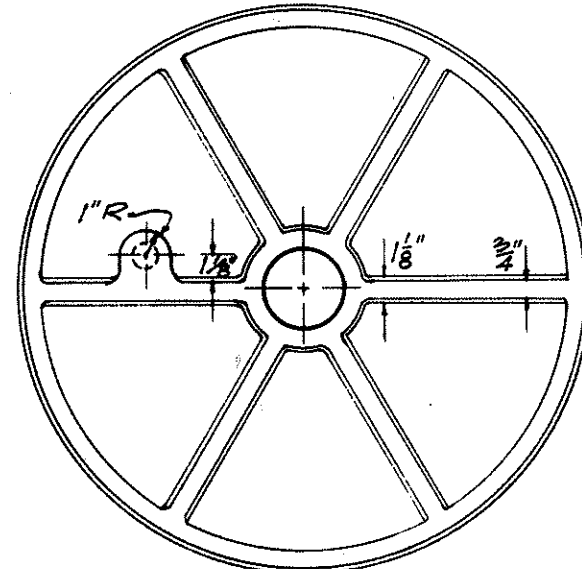
STANDARD DETAILS
CATCH BASIN AND
MANHOLE CASTINGS
SCALES AS NOTED



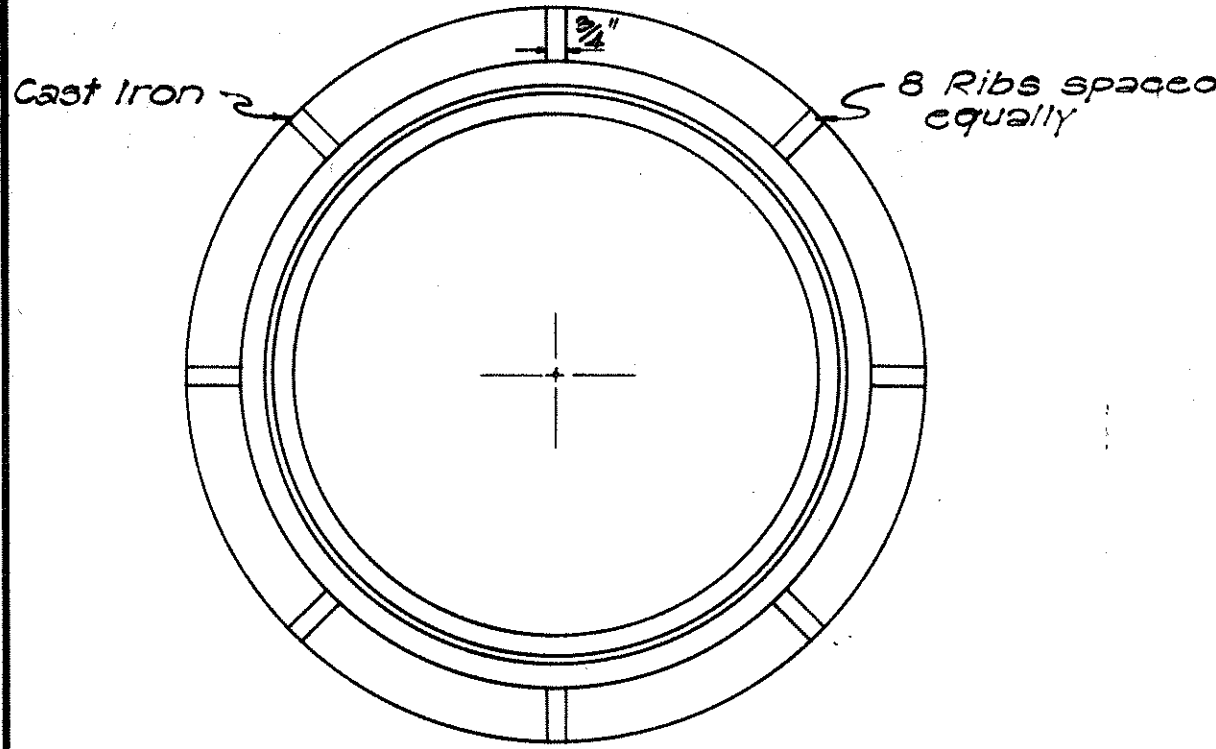
TOP VIEW OF COVER



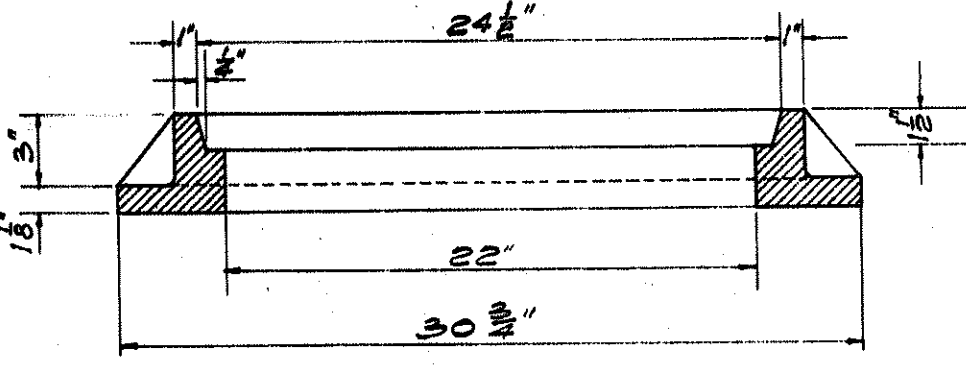
SECTION



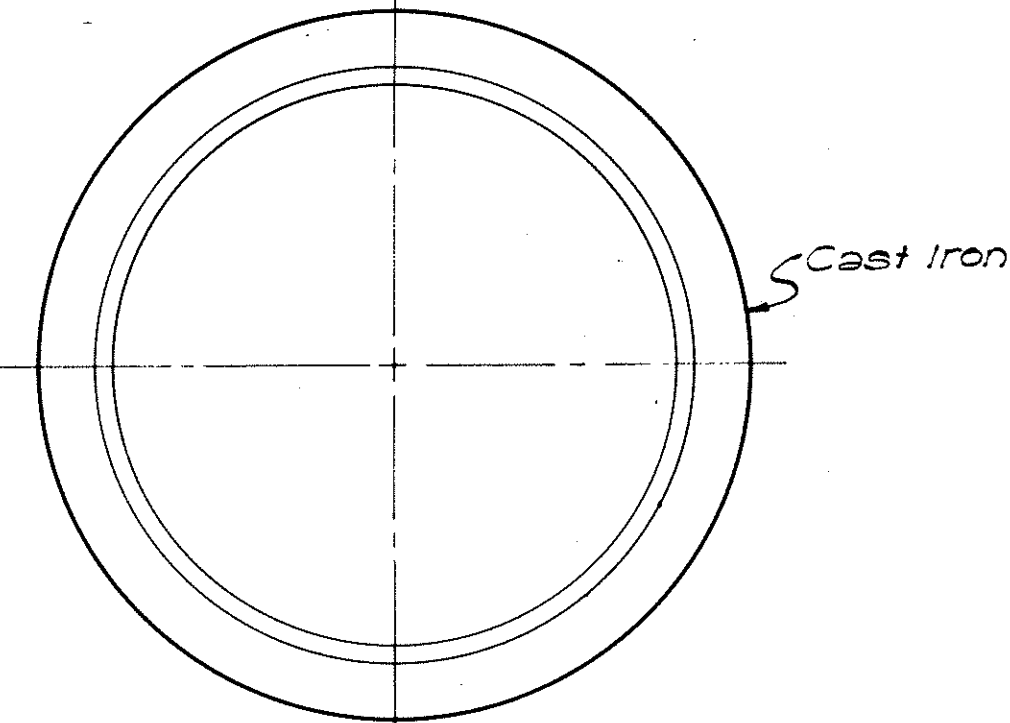
BOTTOM VIEW OF COVER



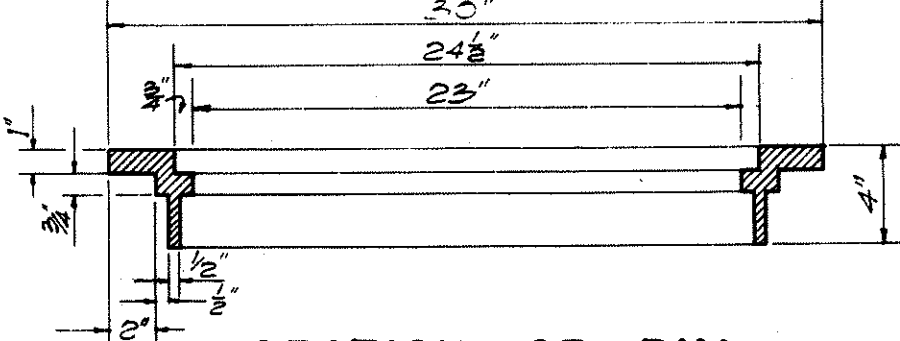
PLAN OF RIM



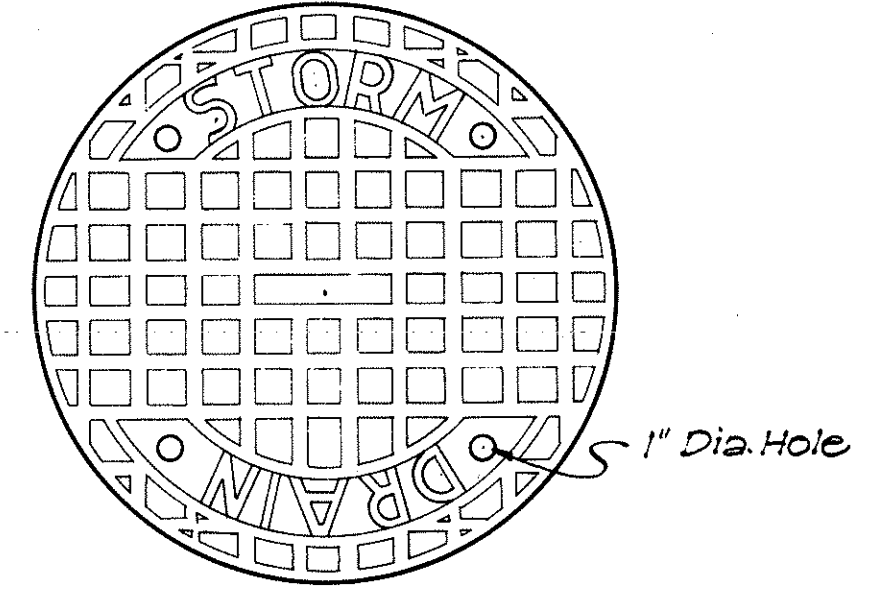
SECTION OF RIM
DETAILS OF TYPE "S"
CAST IRON FRAME AND COVER
SCALE: 1-1/2" = 1'-0"



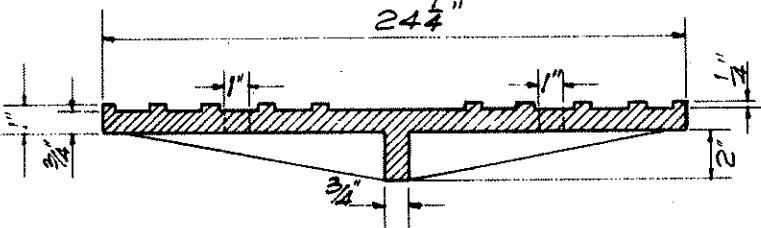
PLAN OF RIM



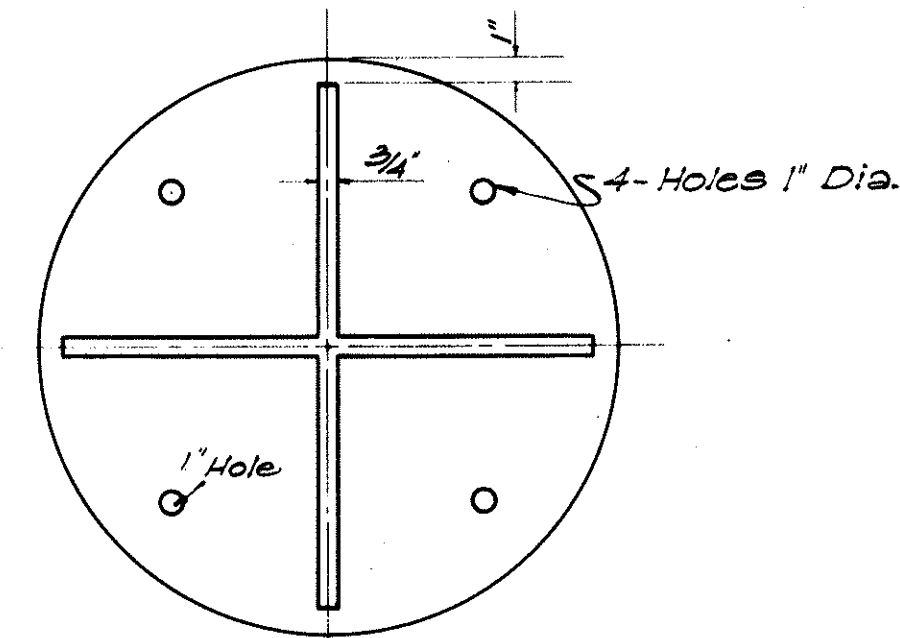
SECTION OF RIM



TOP VIEW OF COVER



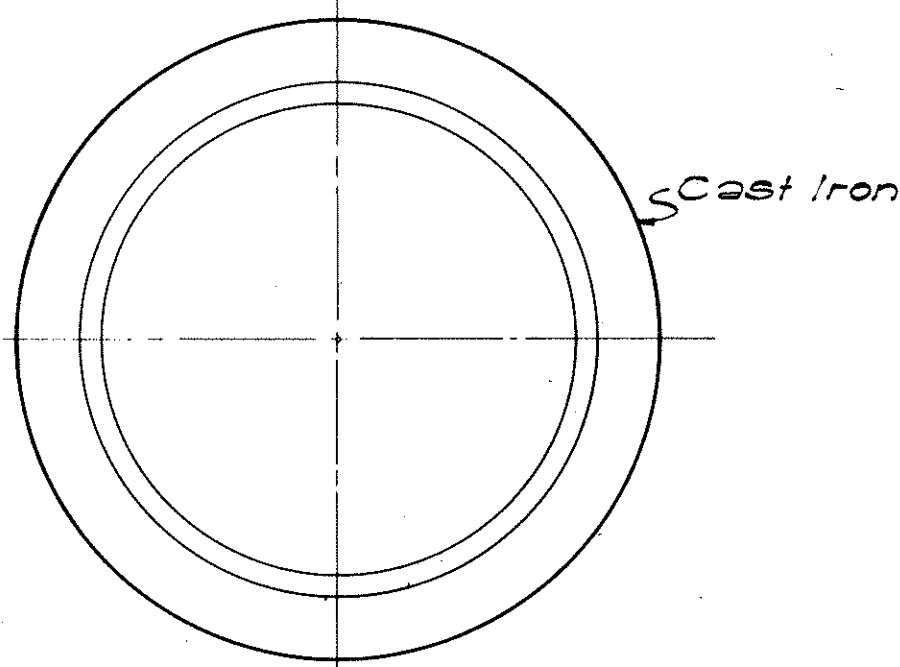
SECTION



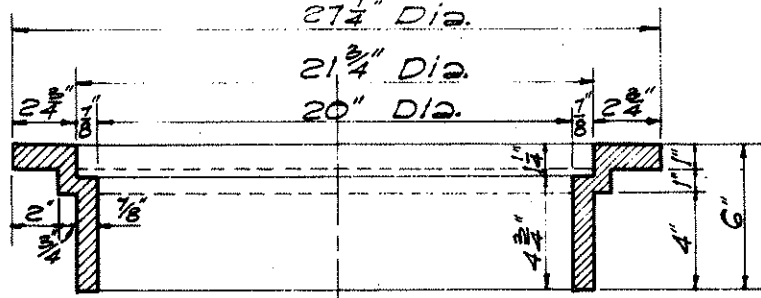
BOTTOM VIEW OF COVER

DETAILS OF TYPE "B"
CAST IRON FRAME AND COVER

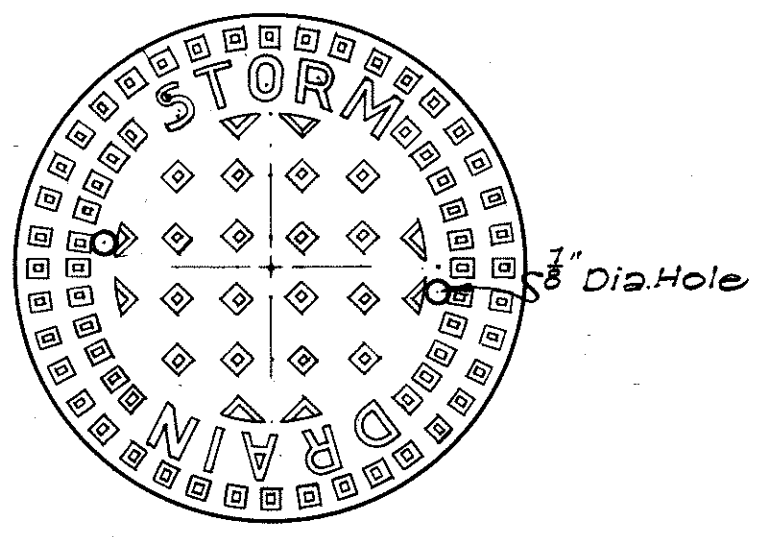
SCALE: 1-1/2" = 1'-0"



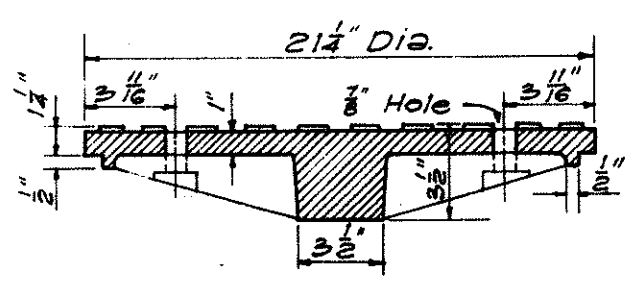
PLAN OF RIM



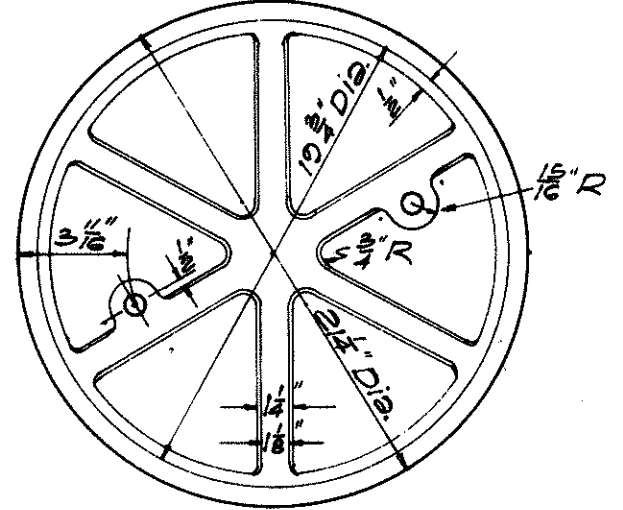
SECTION OF RIM



TOP VIEW OF COVER



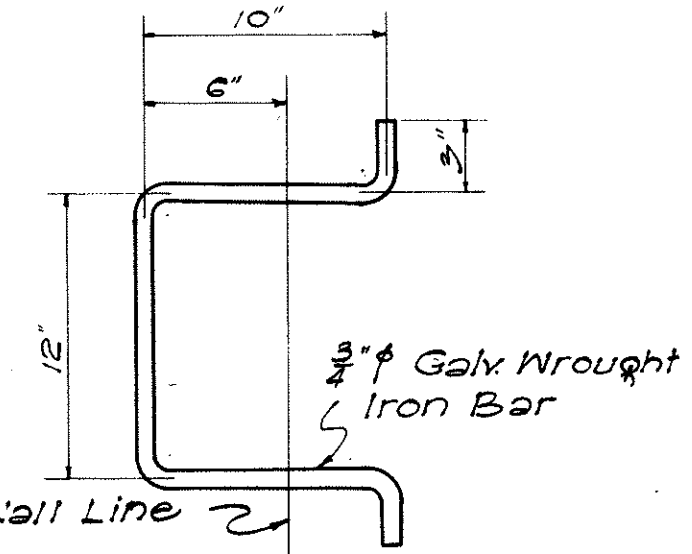
SECTION



BOTTOM VIEW OF COVER

DETAILS OF TYPE "A"
CAST IRON FRAME AND COVER

SCALE: 1-1/2" = 1'-0"



MANHOLE RUNG
SCALE: 1-1/2" = 1'-0"

NOTE:

THE TYPE "S" CAST IRON FRAME AND COVER SHOWN ON THIS SHEET IS EQUIVALENT TO THE CITY AND COUNTY OF HONOLULU, DIVISION OF SEWERS' TYPE "SA" CAST IRON MANHOLE FRAME AND COVER.

THE TYPE "W" CAST IRON FRAME AND COVER SHOWN ON THIS SHEET IS EQUIVALENT TO THE CITY AND COUNTY OF HONOLULU, BOARD OF WATER SUPPLY'S CAST IRON MANHOLE FRAME AND COVER, 20" SIZE.

