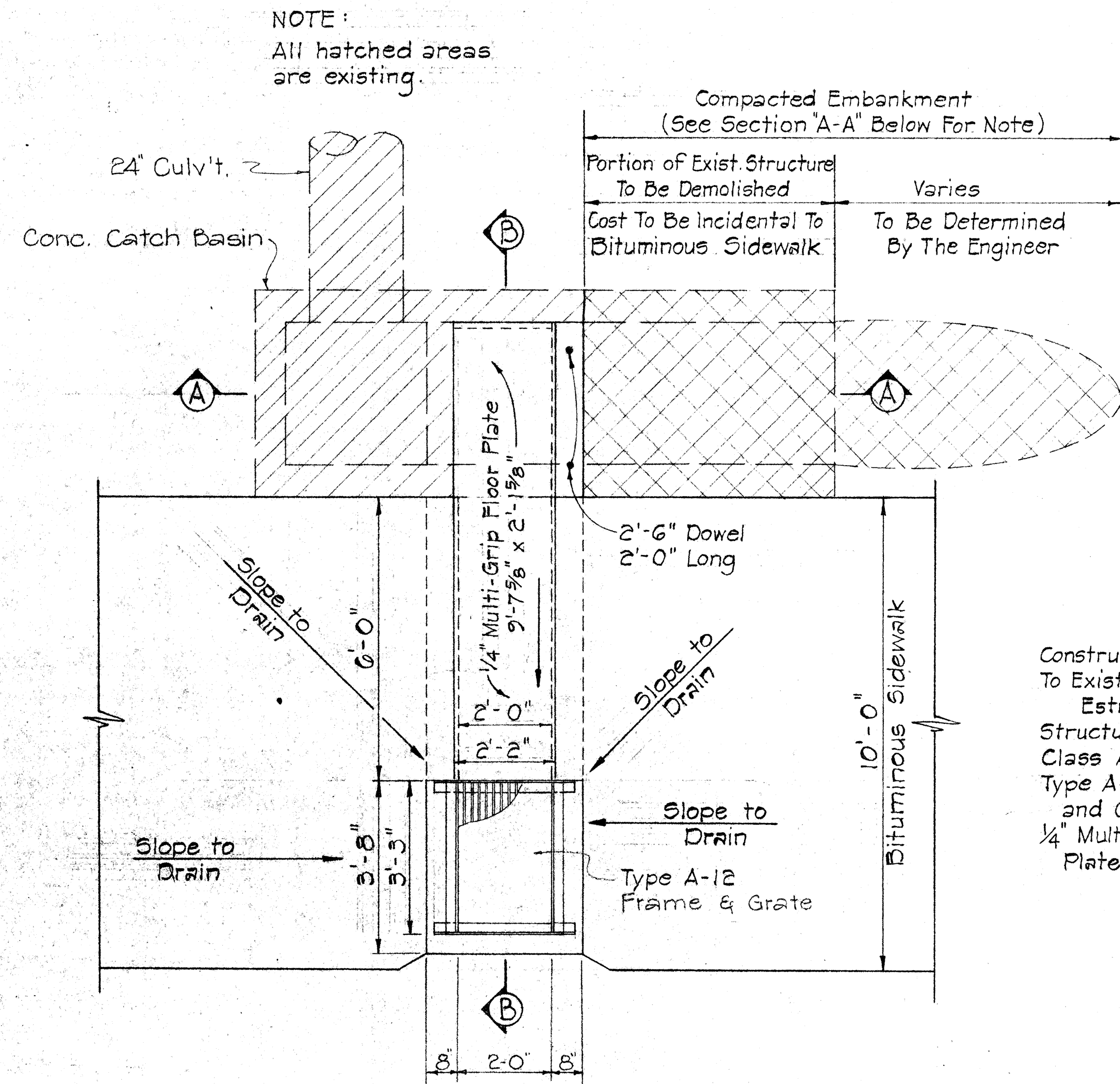
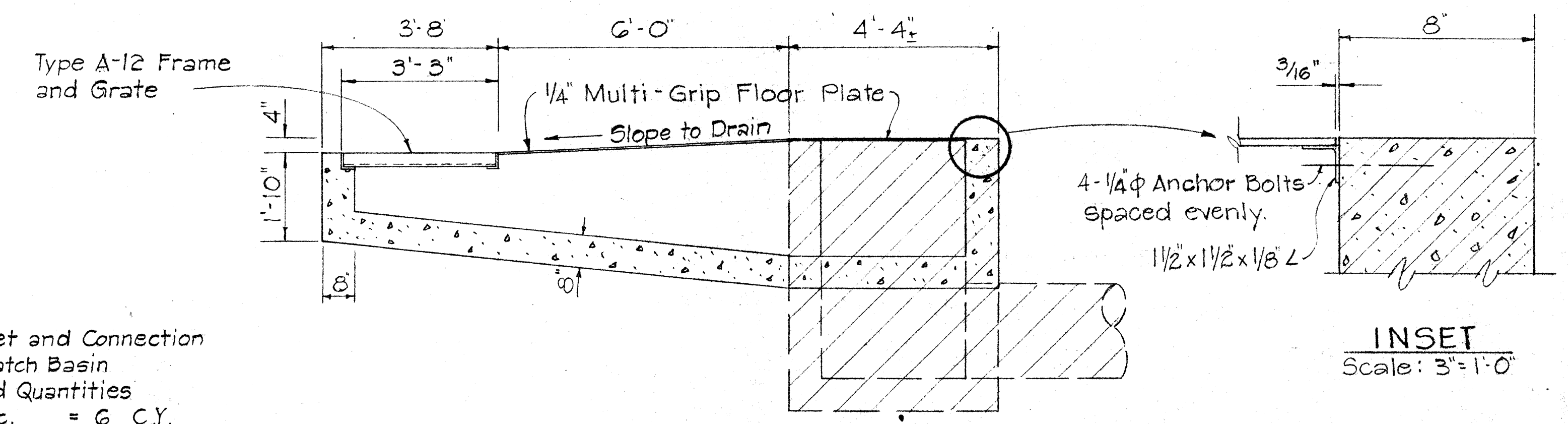


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	32A-02-71	1971	3	6

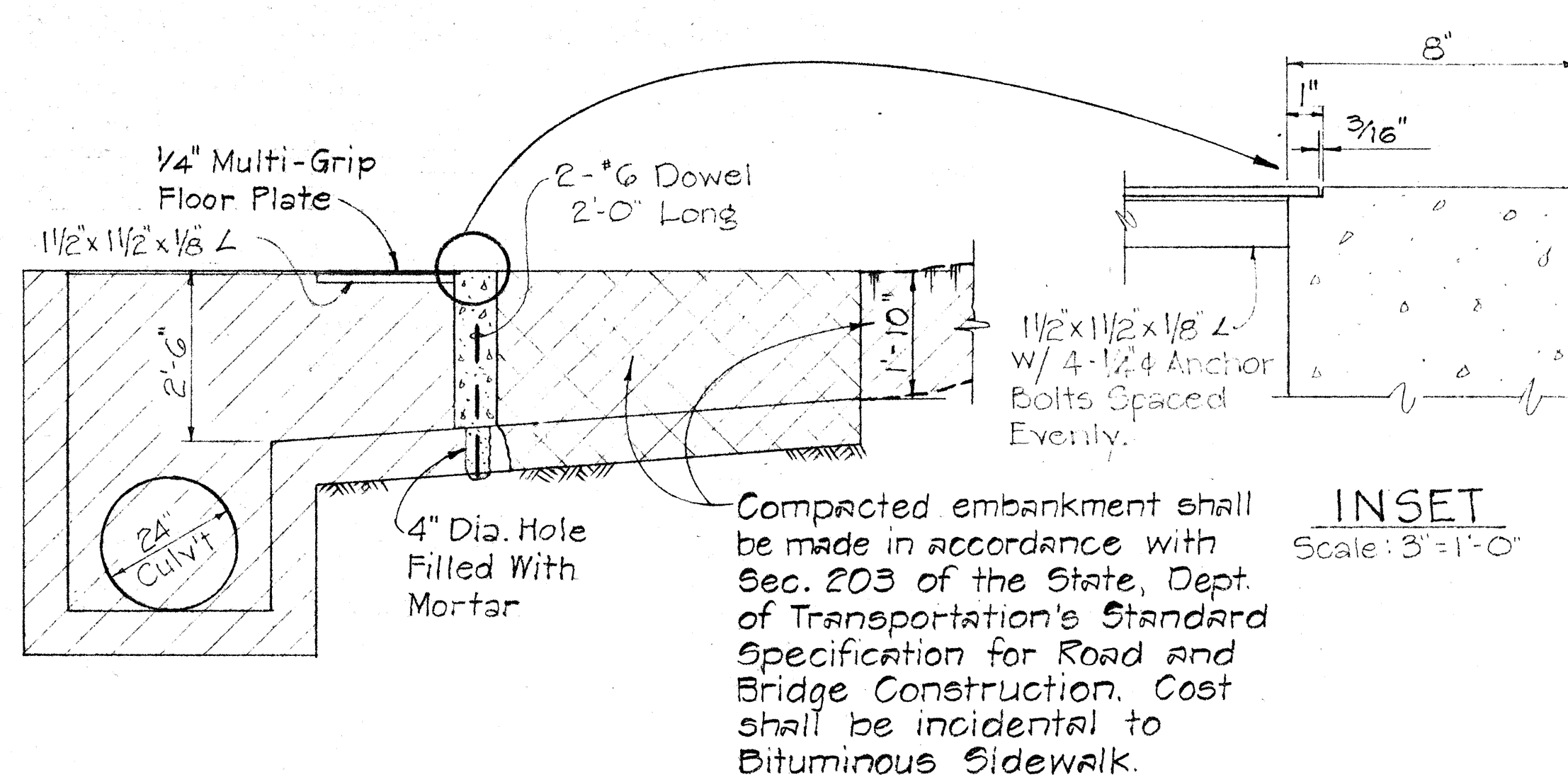


Construct Inlet and Connection To Existing Catch Basin
Estimated Quantities
Structure Exc. = 6 C.Y.
Class A Conc. = 2 C.Y.
Type A-12 Frame and Grate = 1 Ea.
1/4" Multi-Grip Floor Plate = 1 Ea.



INSET
Scale: 3" = 1'-0"

NOTE
1. Modification of existing catch basin, construction of inlet, connection of inlet to the existing catch basin and other related miscellaneous items including all materials, tools and labor necessary to complete the work will not be paid for separately but will be considered incidental to Bituminous Sidewalk.



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE DETAILS
KAAHUMANU AVENUE SIDEWALK
PROJ. NO. 32A-02-71
Scale: As Shown
Rev: Nov, 1974
Date: May, 1971
SHEET No. OF SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	32A-02-71	1971	4	6

GENERAL NOTES

1. Contractor has the option of using cast malleable iron, cast steel, welded, bolted, cast malleable iron end block or cast steel end block grate.
2. Grates and Frames shall be hot dip galvanized after fabrication, see specifications.
3. All welds 3/8" unless otherwise noted.
4. Center support assembly shall be used when two or more grates are specified. Incidental to Types A-9 or A-12 Frame and Grates.
5. Refer to "Grate Bar Spacing Table" for Types A-9 and A-12 Grate dimensions.
6. The various materials shall conform to the specifications of ASTM as listed in the following tabulation and the Std. Specifications.

Material	ASTM Designation
Structural Steel	A283, Grade D
Cast Steel	A27, Grade 65-35
Malleable Iron Casting	A47, Gr. No. 35018

GRATE BAR SPACING TABLE

TYPE	NO. BARS	CLEAR BAR SPACING - W	X
A-9	9	2"	1 9/16"
A-12	12	1 3/8"	1 1/4"

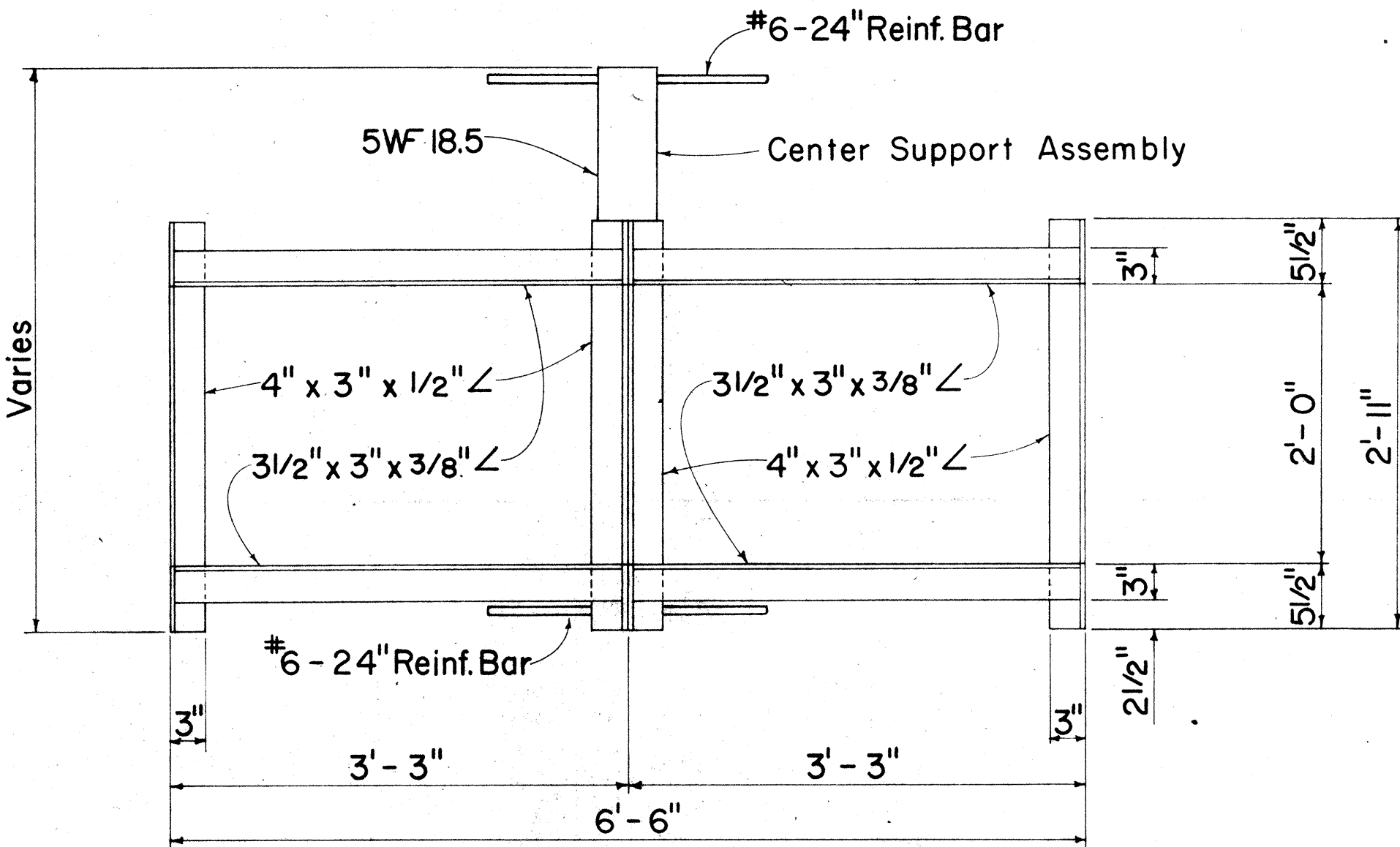
DRAINAGE DETAILS

TYPE A-9 AND A-12
FRAMES AND GRATES

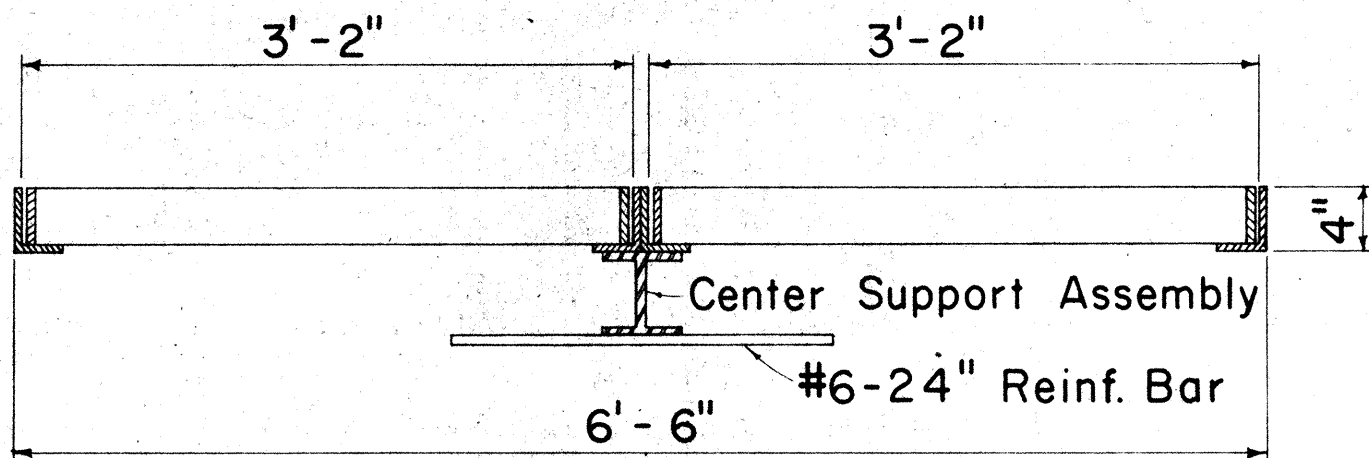
Scales: As Noted

Revised: Nov. 1974
Date: Aug. 1968

SHEET No. 2 OF 2 SHEETS



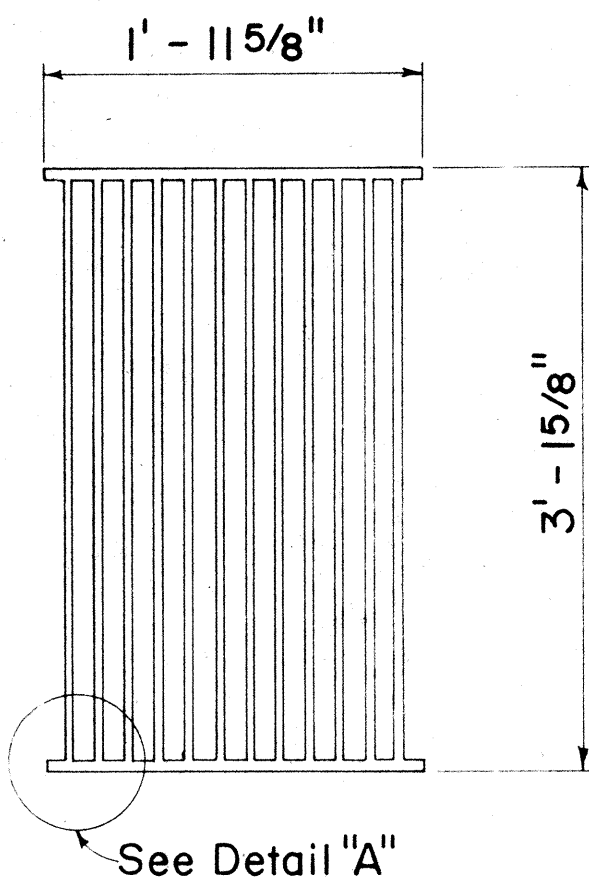
PLAN
(Two or More Grates)



LONGITUDINAL SECTION
(Thru Frame & Grate)

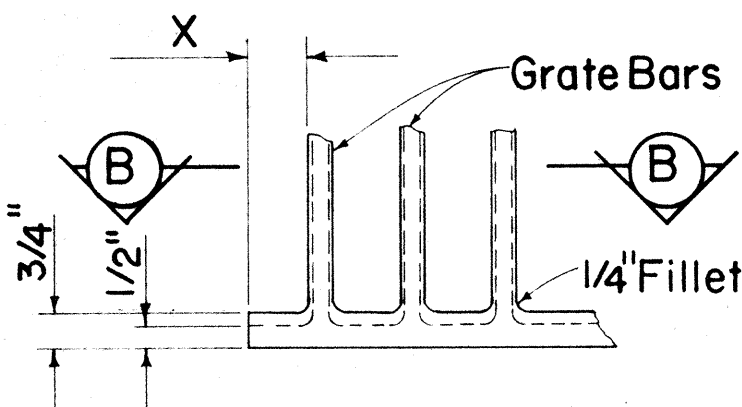
FRAME DETAILS

Scale: 1" = 1' - 0"



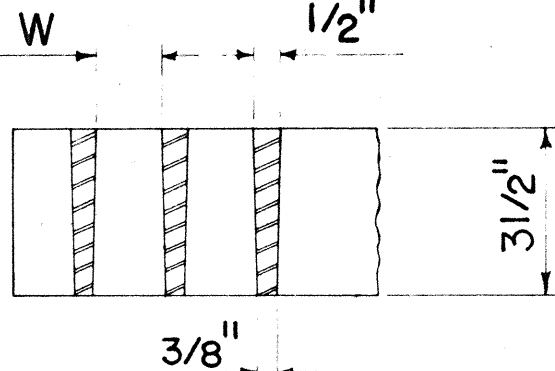
PLAN
Scale: 1" = 1' - 0"

ALTERNATIVE CAST MALLEABLE IRON
OR CAST STEEL GRATE



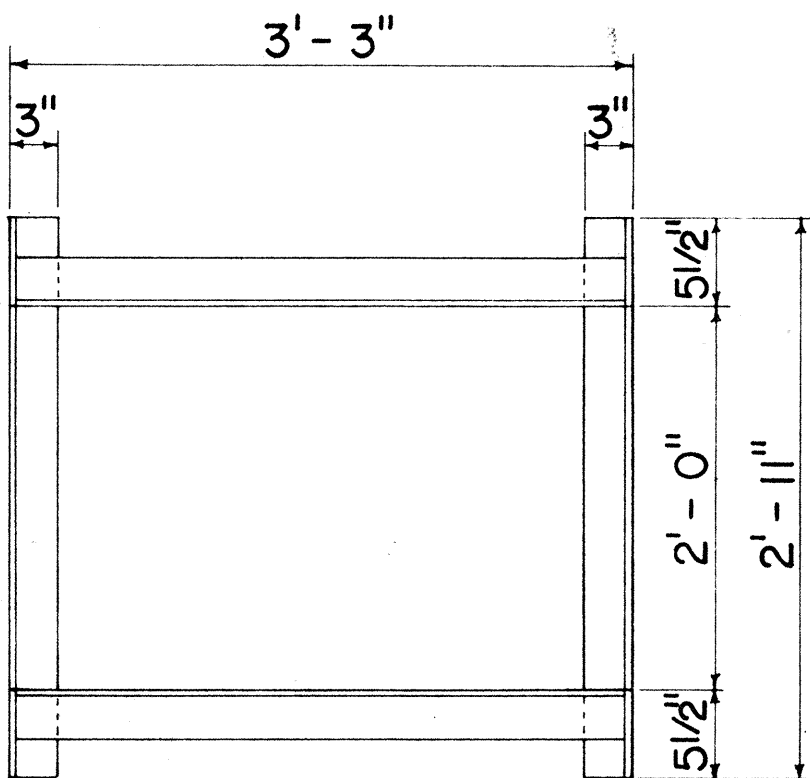
DETAIL "A"

Scale: 3" = 1' - 0"

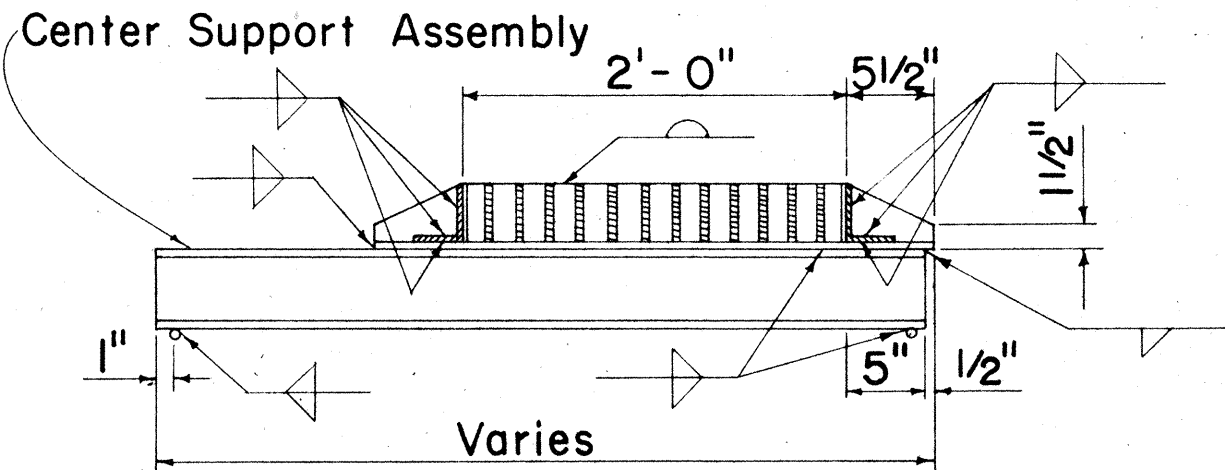


SECTION "B-B"

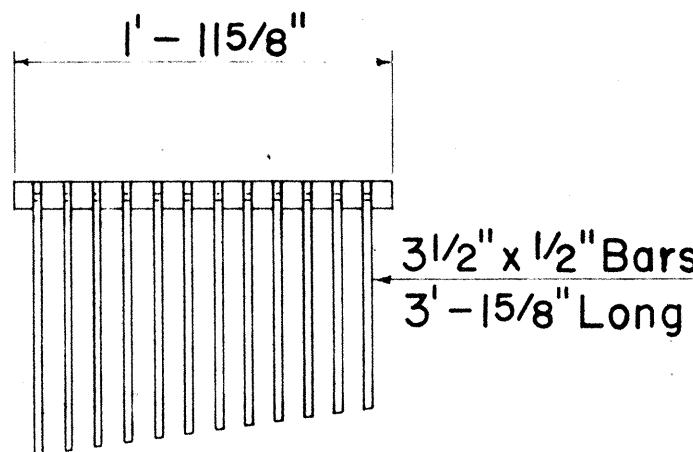
Scale: 3" = 1' - 0"



PLAN
(Single Grate)

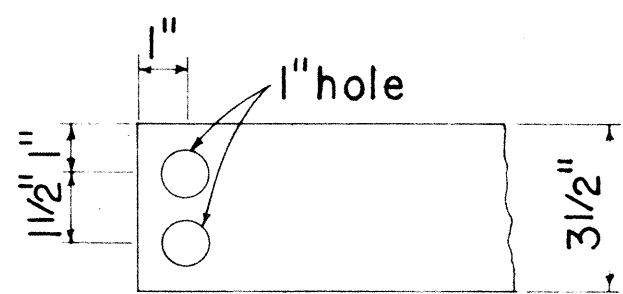


CROSS SECTION
(Thru Frame & Grate)



CAST END BLOCK

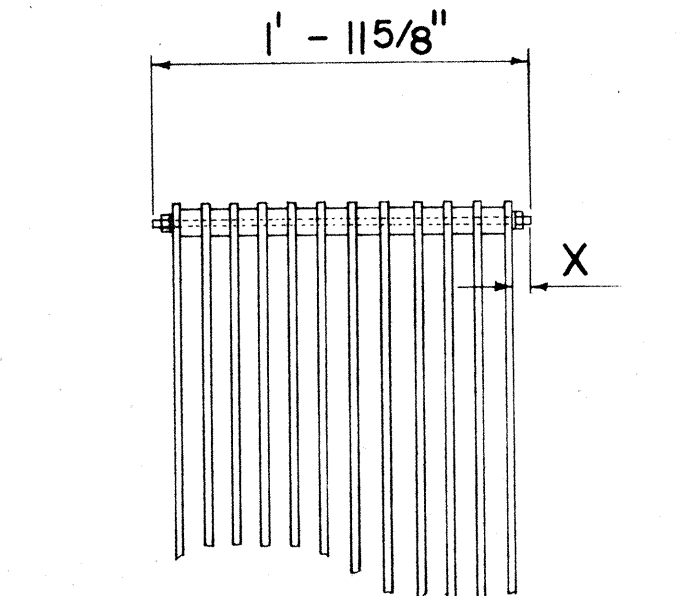
Scale: 1" = 1' - 0"



END OF BAR

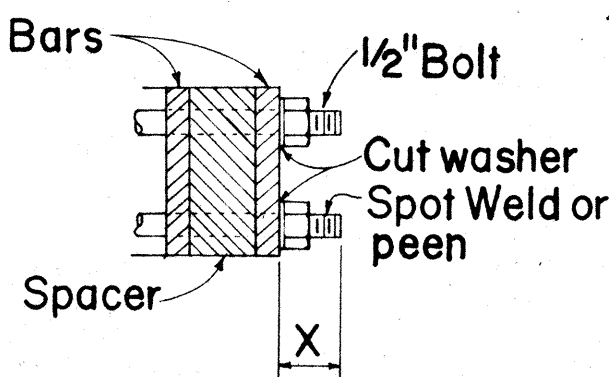
Scale: 3" = 1' - 0"

ALTERNATIVE CAST MALLEABLE IRON
OR CAST STEEL END BLOCK GRATE



BOLTED END BLOCK

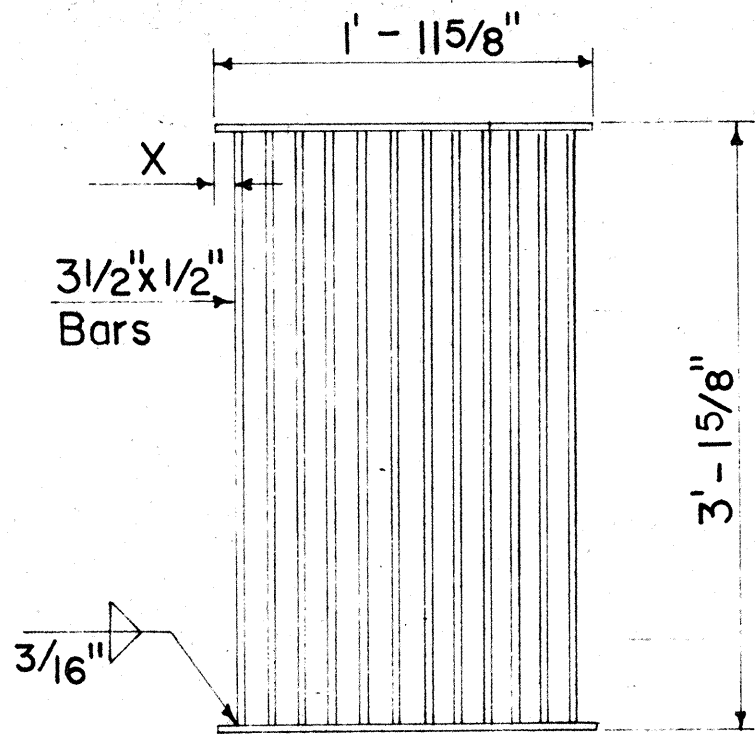
Scale: 1" = 1' - 0"



BOLTING DETAIL

Scale: 3" = 1' - 0"

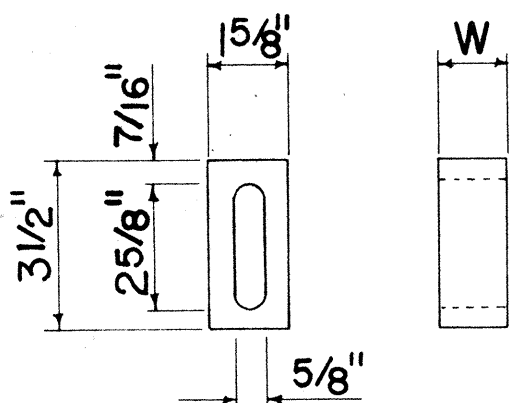
ALTERNATIVE BOLTED GRATE



PLAN

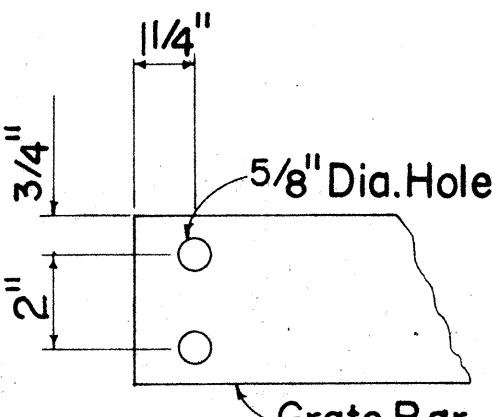
ALTERNATIVE WELDED GRATE

Scale: 1" = 1' - 0"



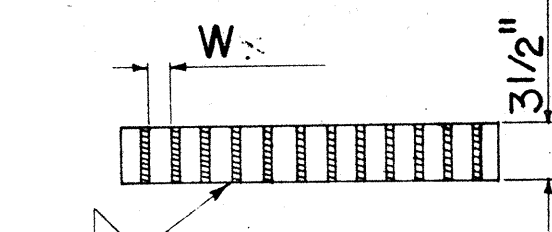
BAR SPACER

Scale: 3" = 1' - 0"

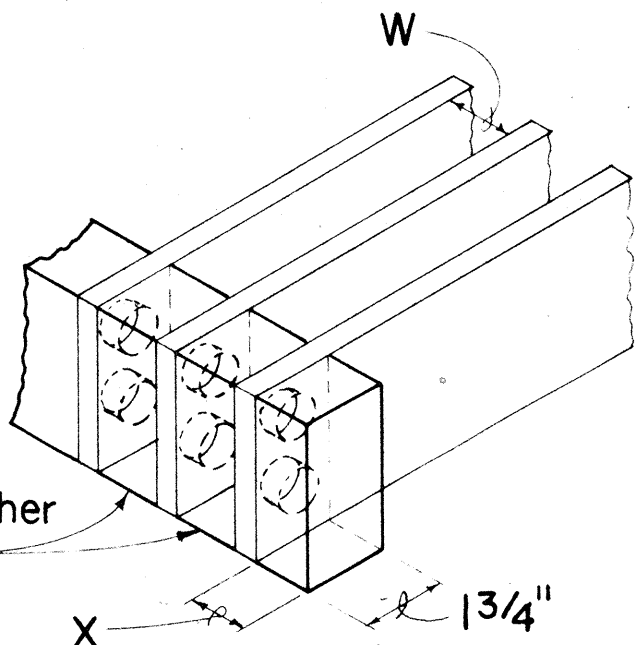


END OF BAR

Scale: 3" = 1' - 0"



SECTION



Both ends held together
by solid casting