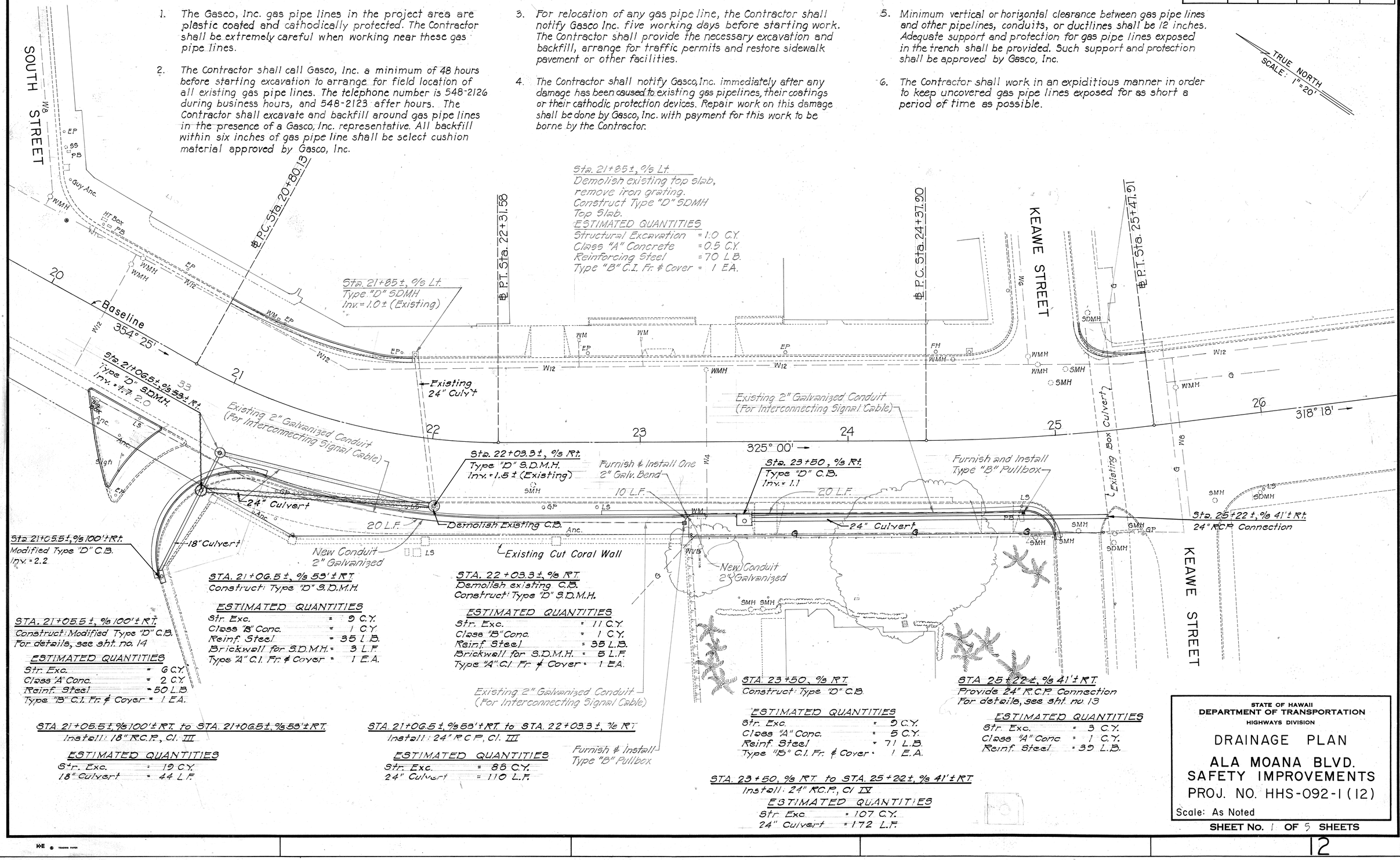
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHS-092-1(12)	1978	12	59

GENERAL NOTES FOR GAS FACILITIES

1. The Gasco, Inc. gas pipe lines in the project area are plastic coated and cathodically protected. The Contractor shall be extremely careful when working near these gas pipe lines.
2. The Contractor shall call Gasco, Inc. a minimum of 48 hours before starting excavation to arrange for field location of all existing gas pipe lines. The telephone number is 548-2126 during business hours, and 548-2123 after hours. The Contractor shall excavate and backfill around gas pipe lines in the presence of a Gasco, Inc. representative. All backfill within six inches of gas pipe line shall be select cushion material approved by Gasco, Inc.
3. For relocation of any gas pipe line, the Contractor shall notify Gasco Inc. five working days before starting work. The Contractor shall provide the necessary excavation and backfill, arrange for traffic permits and restore sidewalk pavement or other facilities.
4. The Contractor shall notify Gasco, Inc. immediately after any damage has been caused to existing gas pipelines, their coatings or their cathodic protection devices. Repair work on this damage shall be done by Gasco, Inc. with payment for this work to be borne by the Contractor.
5. Minimum vertical or horizontal clearance between gas pipe lines and other pipelines, conduits, or ductlines shall be 12 inches. Adequate support and protection for gas pipe lines exposed in the trench shall be provided. Such support and protection shall be approved by Gasco, Inc.
6. The Contractor shall work in an expiditious manner in order to keep uncovered gas pipe lines exposed for as short a period of time as possible.

TRUE NORTH
SCALE: 1" = 20'



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

ALA MOANA BLVD.
SAFETY IMPROVEMENTS
PROJ. NO. HHS-092-1(12)

Scale: As Noted

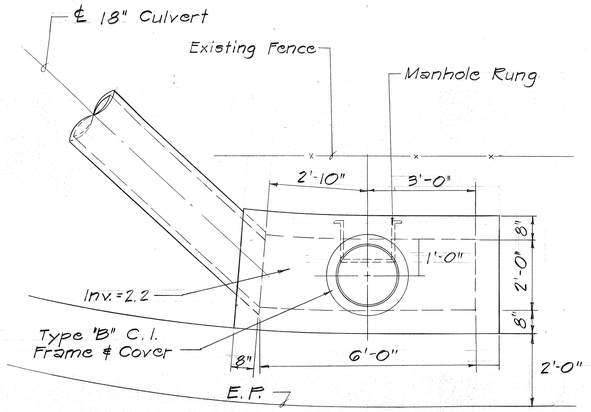
SHEET No. 1 OF 5 SHEETS

12

1196-1122 D-4-7

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHS-052-1(12)	1978	13	59

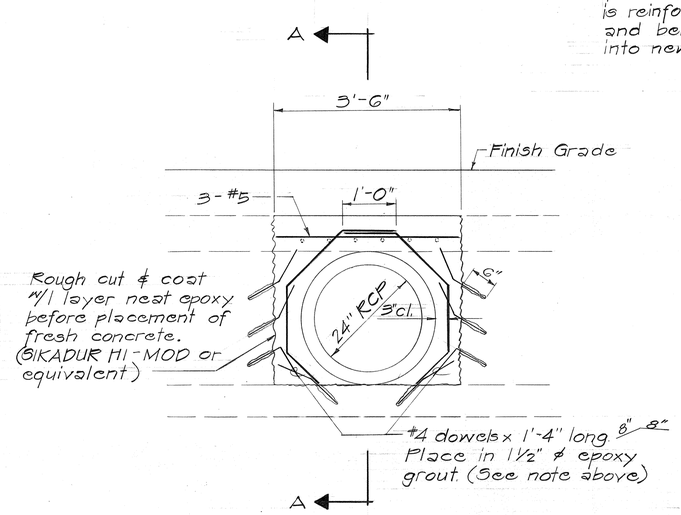
NOTE:
For reinforcing steel and dimensions not shown, see Standard Detail for Type "D" Catch Basin on sheet no. 14



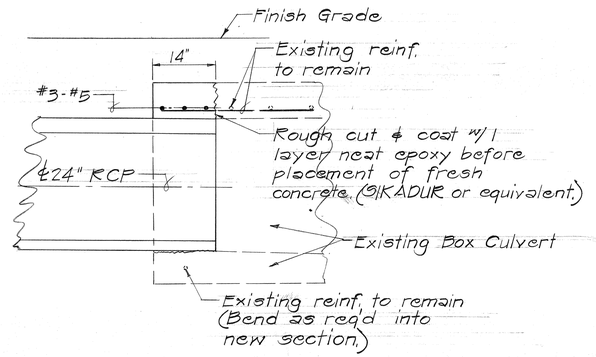
MODIFIED TYPE "D" CATCH BASIN AT STA. 21+05.5 ±, 9' 100' RT.

Scale: 1½" = 1'-0"

NOTE:
1. If existing wall and/or bottom slab is reinforced, eliminate #4 dowels and bend existing reinforcing into new section as required.



ELEVATION



SECTION "A-A"

24" RCP CONNECTION TO EXISTING 8'-0" x 2'-6" BOX CULVERT

Scale: ¾" = 1'-0"

ORIGINAL PLAN
NOTE BOOK
No.

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

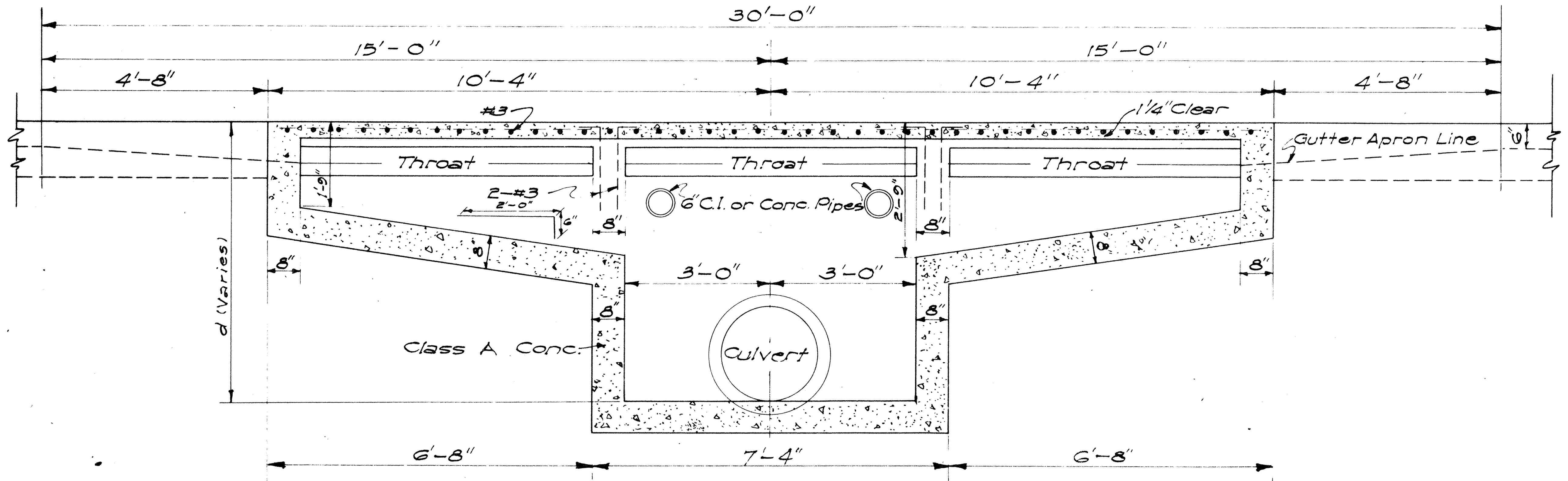
DRAINAGE DETIALS

ALA MOANA BOULEVARD SAFETY IMPROVEMENTS
PROJ. NO. HHS-052-1(12)

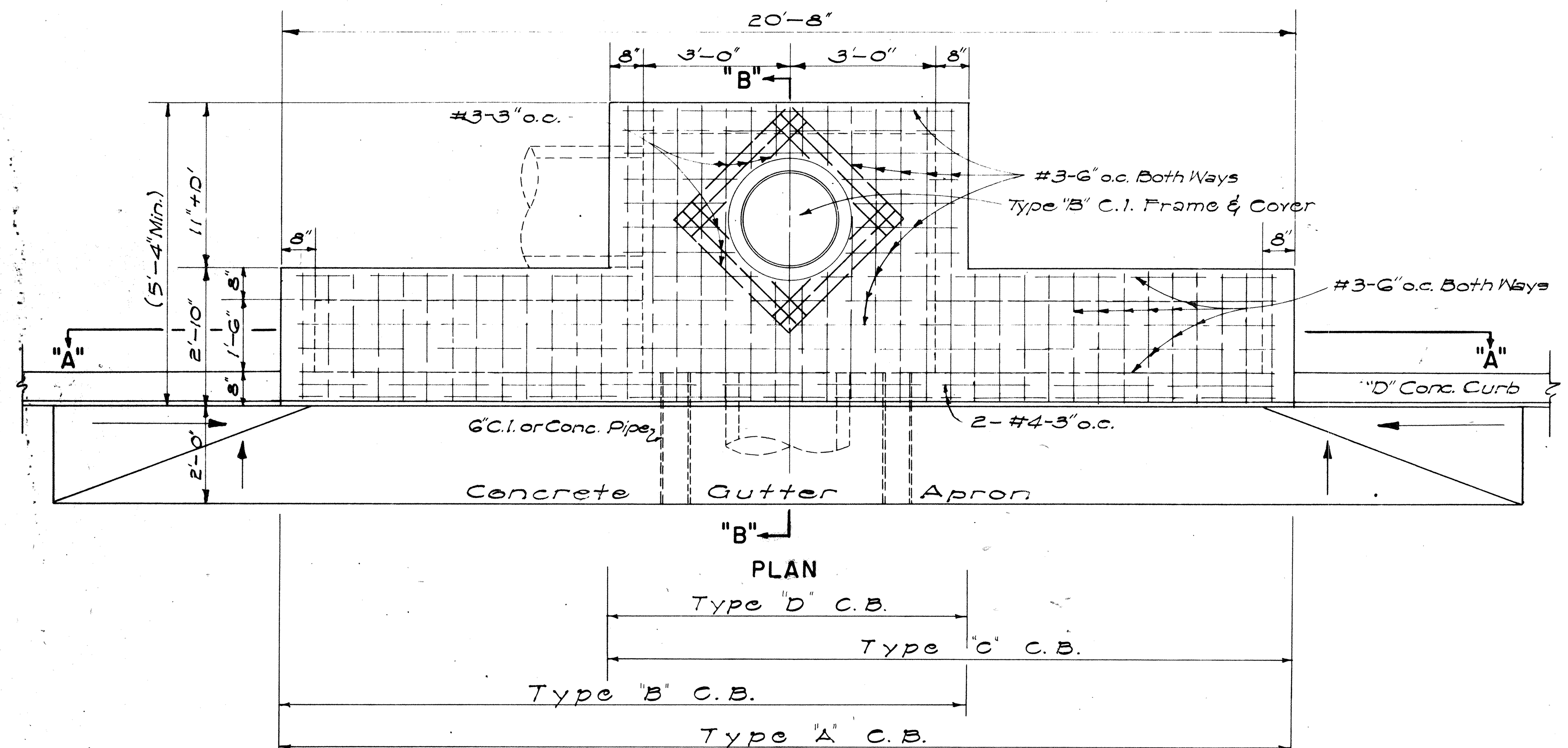
Scale: As Noted Date: Jan., 1978

SHEET No. 2 OF 5 SHEETS

2/17/59

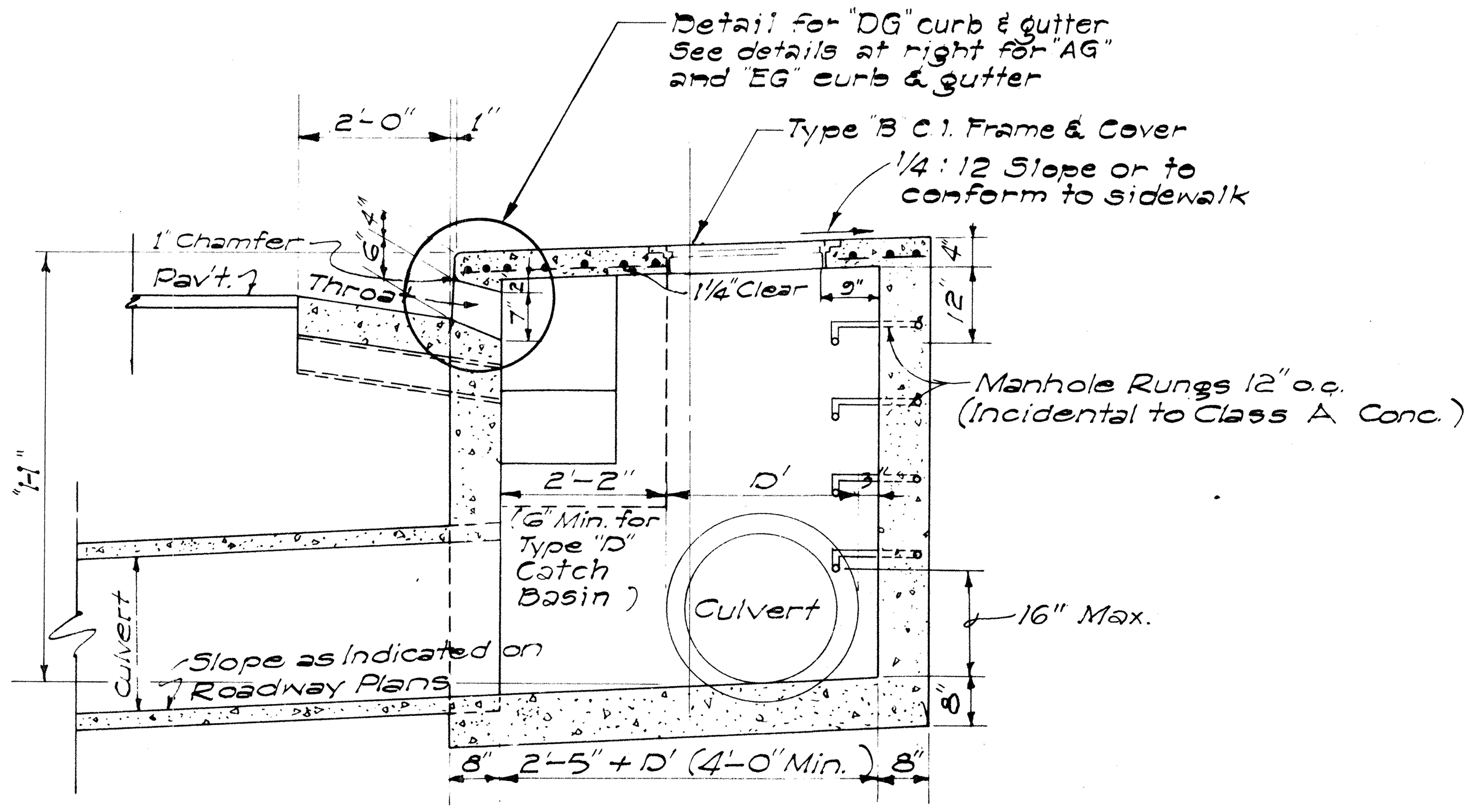


SECTION "A-A"

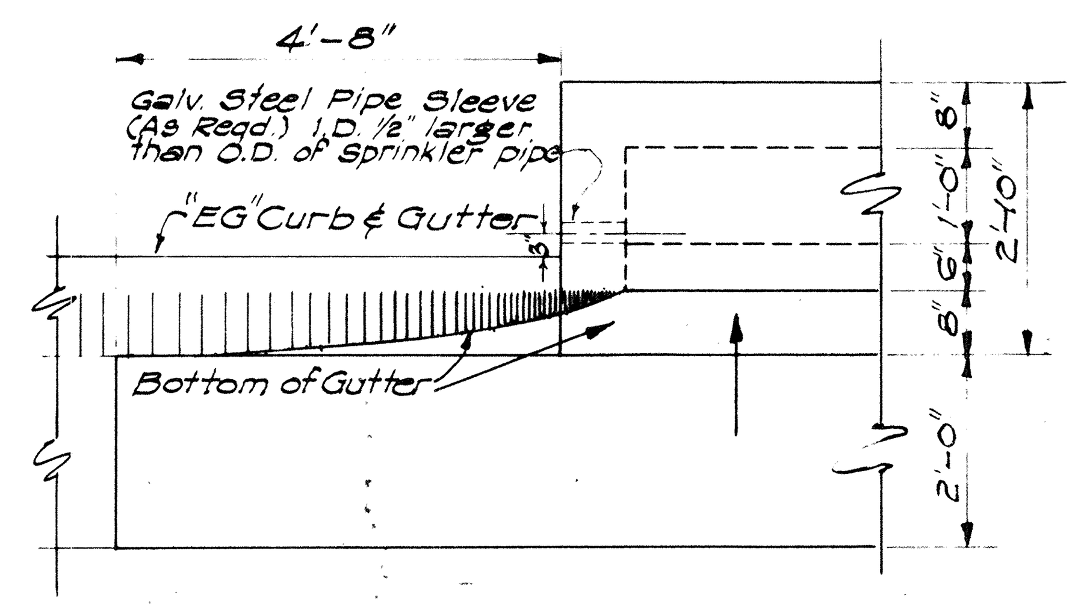


DETAILS OF TYPES "A", "B", "C" AND "D" CATCH BASINS

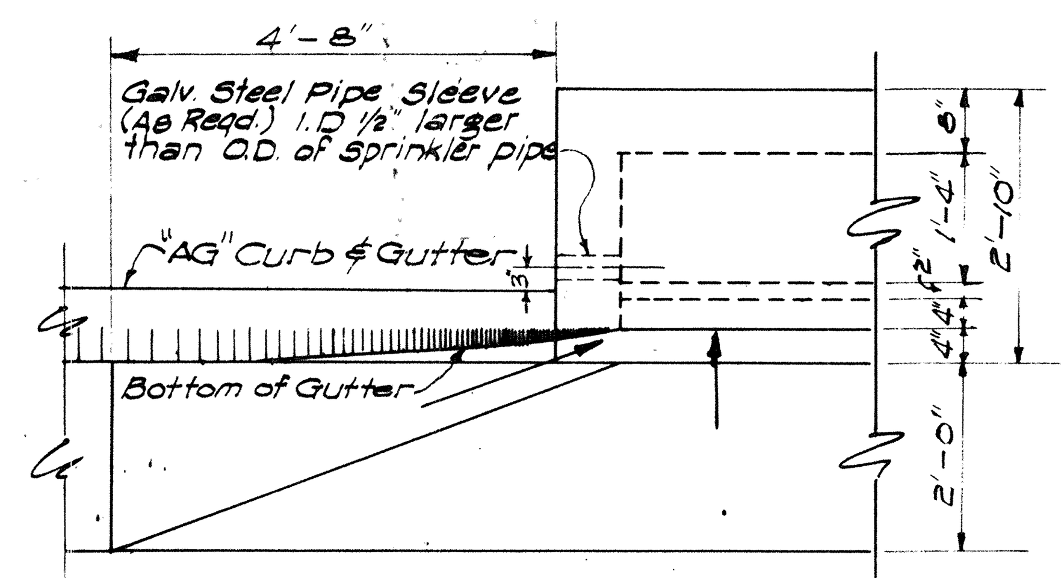
SCALE: 1/2" = 1'-0"



SECTION "B-B"

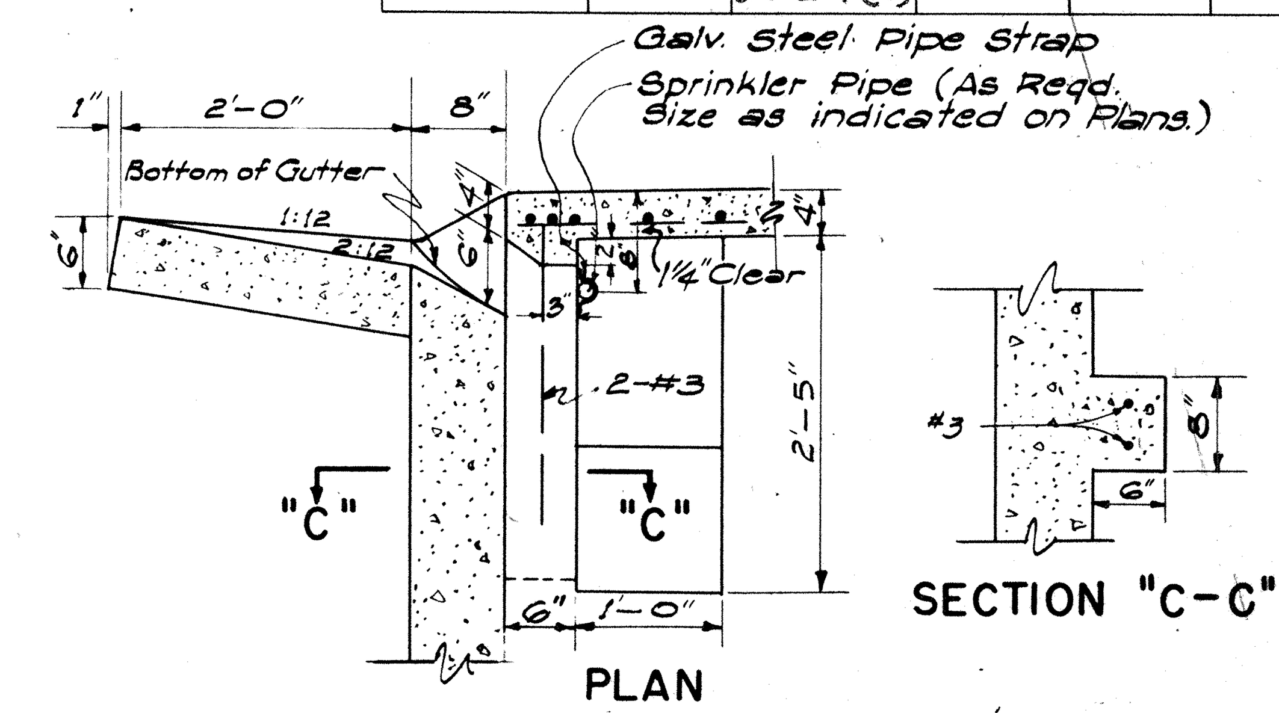


DETAIL OF CATCH BASIN WITH "EG" CURB & GUTTER



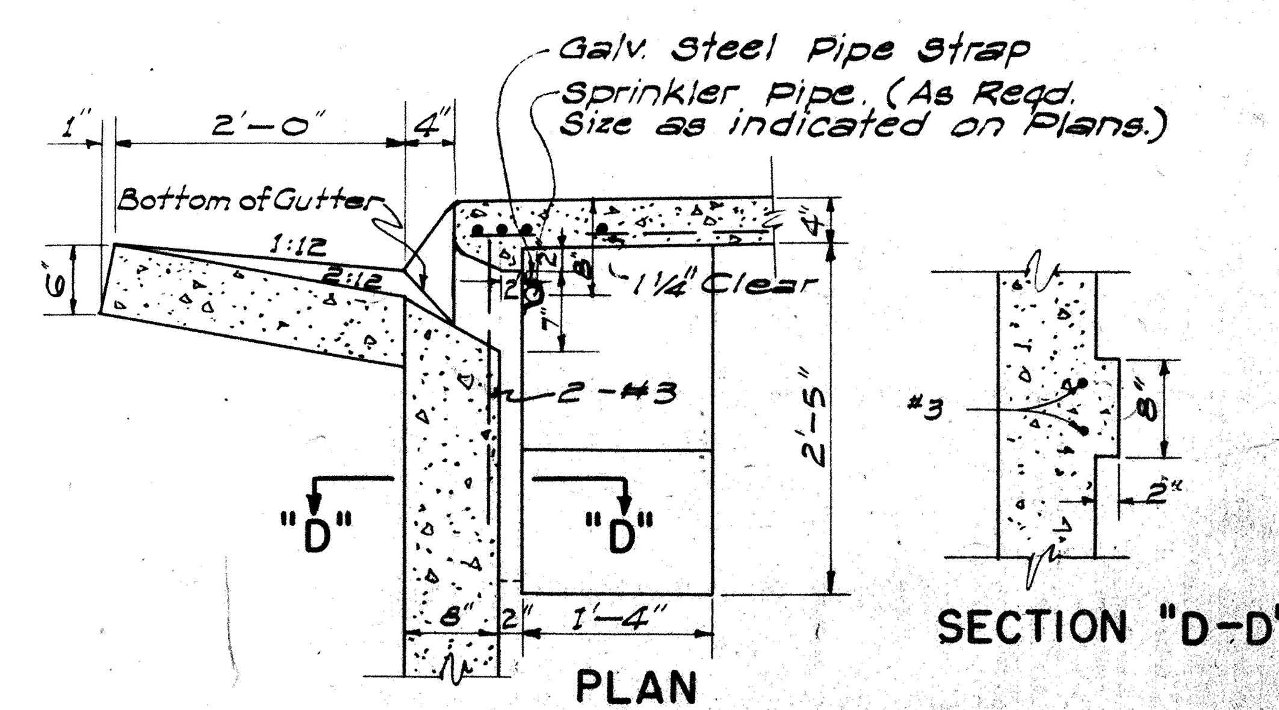
DETAIL OF CATCH BASIN WITH "AG" CURB & GUTTER

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



THROAT DETAIL FOR "EG" CURB & GUTTER

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



THROAT DETAIL FOR "AG" CURB & GUTTER

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

GENERAL NOTES

1. Quantities based on d = 5.75' and D' = 30".
2. Quantities do not include concrete for Gutter Apron.
3. The Contractor shall install two 6" Cast Iron or Concrete Pipes as incidental to Class A Concrete for Construction Drainage. The Engineer shall determine the exact location in the field.
4. Culvert shall leave C.B. from any position and any direction indicated by plans or ordered by the Engineer. Culvert may both enter and leave C.B. so that C.B. will also act as Manhole.
5. The Contractor shall install Galvanized Steel Pipe Sleeves and Straps as incidental to Sprinkler System.
6. The type of curb and/or gutter (Type 1, 2, 3, etc.) shall conform to the type specified on the roadway plans.
7. Manhole Rungs (12" o.c.) are required when "H" is greater than 4 Feet 6 inches. Only one rung (16 inches from the bottom) is required if "H" is 4 feet 6 inches or less. Type "B" Cast Iron Frame and Cover and Manhole Rungs may be placed at any location as ordered by the Engineer.

ESTIMATED QUANTITIES

Type	Class A Conc	Struct. Exc.	Reinf. Steel	Gutter Length
"A"	7.5 c.y.	24.7 c.y.	145 lb.	30'-0"
"B"	6.0 c.y.	21.5 c.y.	108 lb.	23'-4"
"C"	6.0 c.y.	21.5 c.y.	108 lb.	23'-4"
"D"	4.9 c.y.	16.5 c.y.	77 lb.	16'-8"

NO.	REVISION	APPROVED BY	DATE
1	Spacing on Manhole Rungs to conform to OSHA.	H.T.	1-21-75

APPROVAL RECOMMENDED:

HYDRAULIC DESIGN ENGINEER — DATE 12-17-69

APPROVED:

ASSISTANT CHIEF, ENGINEERING — DATE 12-17-69

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS

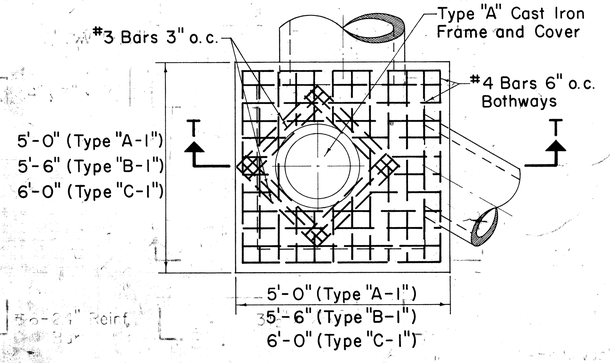
CATCH BASINS

Scale: As Noted — Date: July, 1969

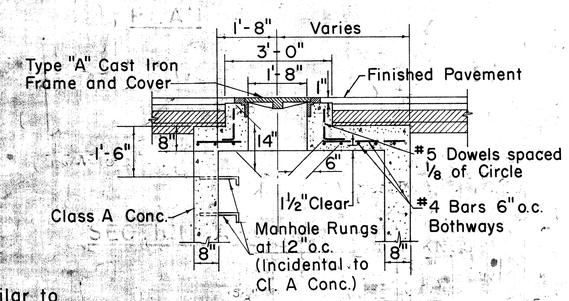
ORIGINAL PLAN / NOTE BOOK No. / SURVEY PLOTTED BY / DESIGNED BY / DRAWN BY / TRACED BY / QUANTITIES BY / CHECKED BY / DATE

(3)

FED. ROAD DIST. NO.	STATE	FED. AID. PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	HHS-092-1(12)	1978	15	59



PLAN

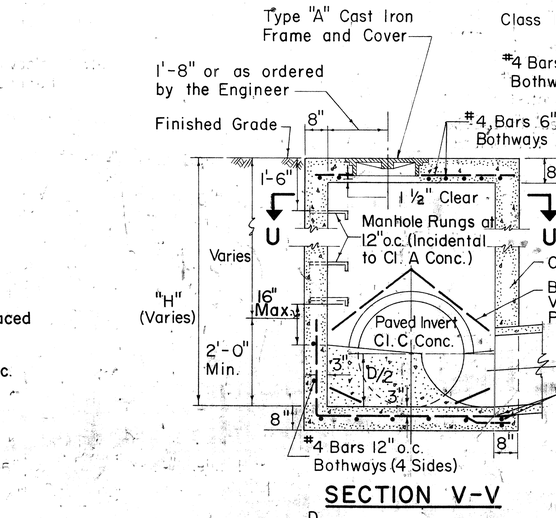


Note:
Bottom detail similar to Type "A", "B", & "C".

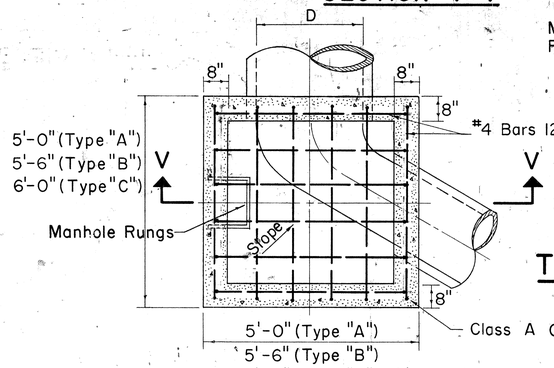
SECTION T-T

TYPE "A-1", "B-1", & "C-1" STORM DRAIN MANHOLE TOP DETAIL UNDER PAVEMENT

Scale: ½" = 1'-0"



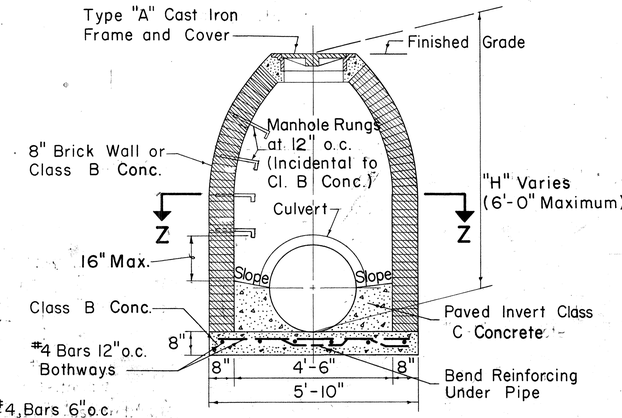
SECTION V-V



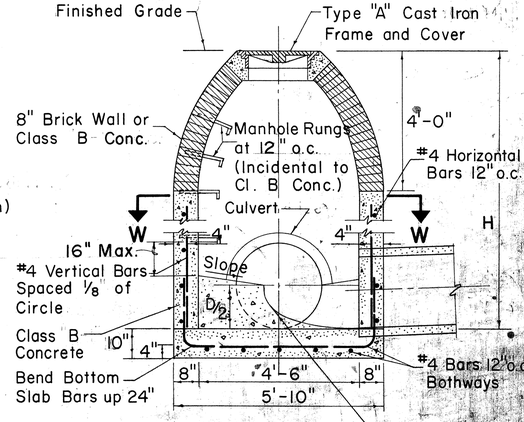
SECTION U-U

TYPE "A", "B", & "C" S.D.M.H.

Scale: ½" = 1'-0"



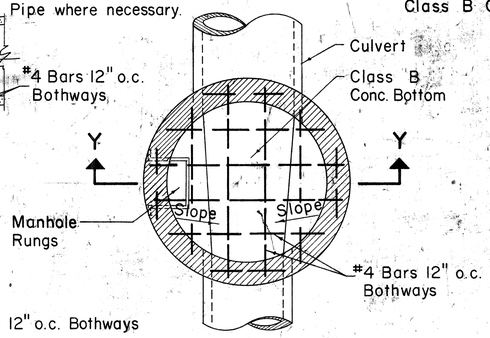
SECTION Y-Y



SECTION X-X

NOTE:

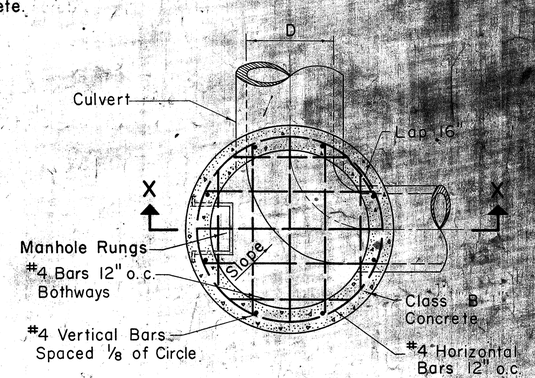
1. Exterior surface of brick wall shall be plastered with 1" thickness of 1:2 Cement Mortar.
2. Number, size and direction of culvert at manhole to be as shown on plans.
3. Paved invert not required at drop manholes.
4. All Class C Concrete to be incidental to Class B Concrete.



SECTION Z-Z

TYPE "D" STORM DRAIN MANHOLE

Scale: ½" = 1'-0"



SECTION W-W

TYPE "E" STORM DRAIN MANHOLE

Scale: ½" = 1'-0"

GENERAL NOTES

1. Culvert shall enter and leave S.D.M.H. from any position and in the direction indicated by the plans or ordered by the Engineer.
2. Manhole Rungs (12" o.c.) are required when "H" is greater than 4'-6". Only one rung (16" from the bottom) is required if "H" is 4'-6" or less. Type "A" C.I. Frame and Cover and Manhole Rungs may be placed at any location as ordered by the Engineer.

APPROVAL RECOMMENDED:
G. Takano — HYDRAULIC DESIGN ENGINEER — 12-17-69 DATE

APPROVED:
ASS'T. CHIEF, ENGINEERING — 12-17-69 DATE

NO.	REVISION	APPROVED BY	DATE
1	Spacing on Manhole Rungs to conform to OSHA.	H.T.	1-21-75

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

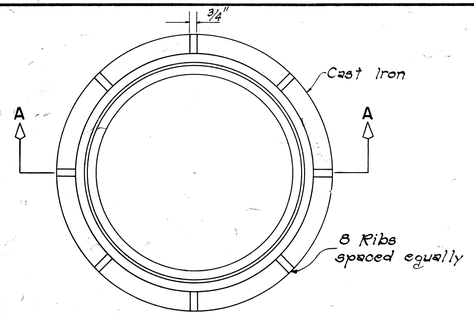
STANDARD DETAILS

STORM DRAIN MANHOLES

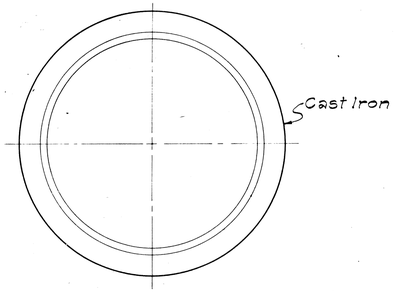
Scales: As Noted — Date: July, 1969

SHEET NO. 4 OF 5 SHEETS DH-5

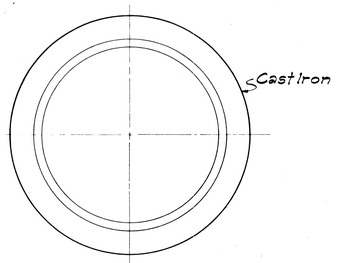
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHS-052-1(18)	1978	16	59



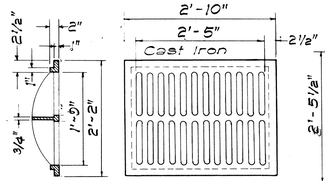
PLAN



PLAN OF RIM

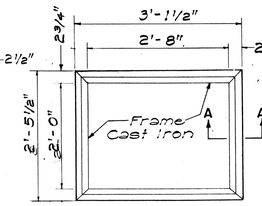


PLAN OF RIM

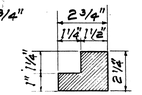


SECTION

TOP VIEW



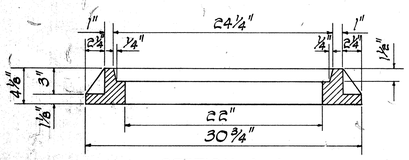
TOP VIEW



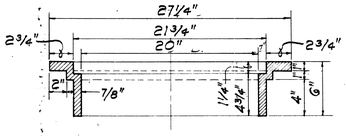
SECTION "A-A"
SCALE 3"=1'-0"

TYPE C C.I. FRAME AND GRATE

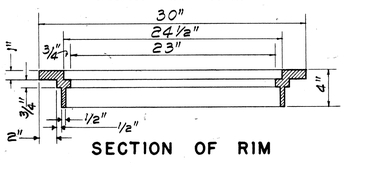
SCALE: 3/4" = 1'-0"



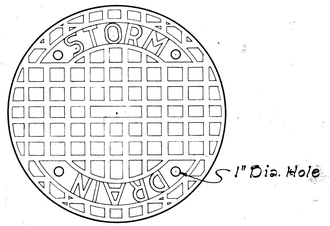
SECTION A-A



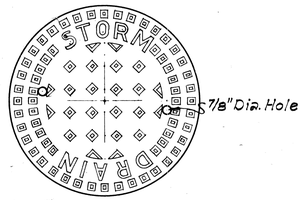
SECTION OF RIM



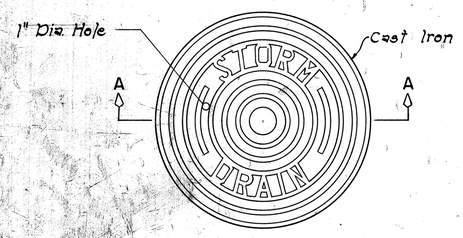
SECTION OF RIM



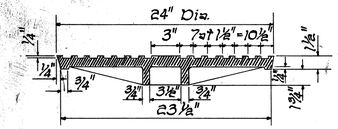
TOP VIEW OF COVER



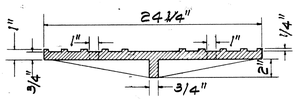
TOP VIEW OF COVER



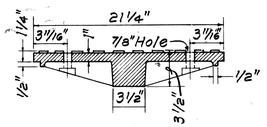
PLAN



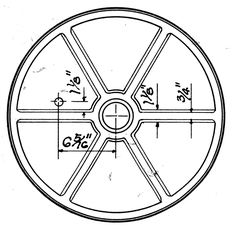
SECTION A-A



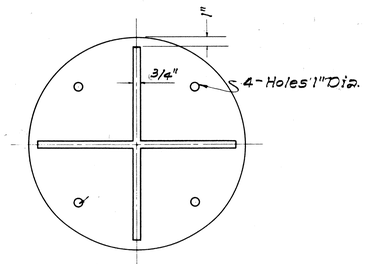
SECTION



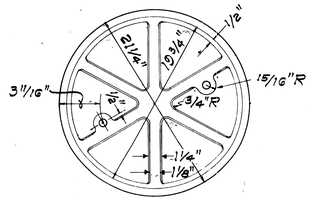
SECTION



BOTTOM VIEW OF COVER



BOTTOM VIEW OF COVER



BOTTOM VIEW OF COVER

DETAILS OF TYPE "P" CAST IRON FRAME AND COVER

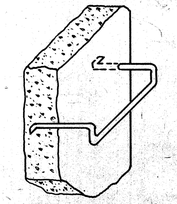
SCALE: 1-1/2"= 1'-0"

DETAILS OF TYPE "B" CAST IRON FRAME AND COVER

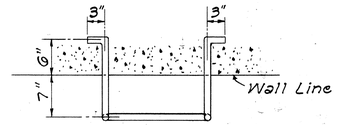
SCALE: 1-1/2"= 1'-0"

DETAILS OF TYPE "A" CAST IRON FRAME AND COVER

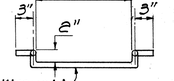
SCALE: 1-1/2"= 1'-0"



PICTORIAL VIEW
NOT TO SCALE

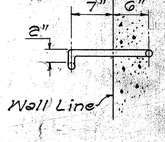


PLAN



1"ϕ Wrought Iron Bar or 1"ϕ Steel Bar

FRONT VIEW



SIDE VIEW

DETAILS OF MANHOLE RUNG

SCALE : 1"= 1'-0"

APPROVAL RECOMMENDED:
H. Takano — 12-17-69
HYDRAULIC DESIGN ENGINEER — DATE

APPROVED:
Walter R. Schmidt — 12-17-69
ASSISTANT CHIEF, ENGINEERING — DATE

NO.	REVISION	APPROVED BY	DATE
1.	Detail of Type "P" Cast Iron Frame and Cover	H.T.	1-6-71
2	Details of Manhole Rungs to conform to O.S.H.A.	H.T.	1-21-75
3	Option for Manhole Rungs	H.T.	1-13-76

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS
CATCH BASIN AND MANHOLE CASTINGS

Scale: As Noted — Date: July, 1969

SHEET Nº 5 OF 5 SHEETS DH 6

16

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