PLAN
NOTE BOOK NO. 1112
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
W.S. Crossing of 1" = 40' Scale plan

FED. ROAD DIST. NO. HAWAII | STATE HAW. | FED. AID PROJ. NO. US-S-0630(1) | FISCAL YEAR 1956 | SHEET NO. 51 | TOTAL SHEETS 170
BEG. PROJ. US-S-0630(1)
STA. -0+87
CURVE DATA
Base Line
Δ = 32° 32'
R = 1500
D = 3.81972
T = 437.68
C = 840.32
Lc = 851.72
True North
Scale: 1" = 50'
B.M. ELEV. = 107.035
Top of pin on existing C&C Mon. at School & Kalihi St.
U.S.G.S. B.M. NO. 120
Copper Bolt & Washer Cemented in Boulder. Elev. = 113.787
To be removed and reset within and near the Ewa right-of-way line. If no suitable boulder is available set in concrete block 3'x3'x3'.
Note: Azimuths are referred to Mokauea Δ. BM's are referred to Mean Sea Level Datum.
SCHOOL
STREET
OWAWA ST.
KALIHI STREET
R/W Boundary Line
Base Line
℄ North Lane
℄ South Lane
Plant Nursery
This plan was prepared in cooperation with the Division of Sewers, City and County of Honolulu.
BEGINNING OF PROJ. US-S-0630(1) STA. -0+87
℄ SCHOOL ST. STA. 0+00.40
Existing Ground Profile along Base Line
Grade at Inside Edge of Pavements
NOTE: Existing 12" Water Main to be abandoned and New 12" Main Installed in new location (Adjust invert grade in field) (Sta. 7+50 to 12+)
NOTE: Existing 6" Water Main to be abandoned and New 6" Main Installed in new location (Adjust invert grade in field) (Sta. 7+50 to 12+)
Existing 6" Water Main to be Lowered (Adjust invert grade in field) (Sta. 0+00 to 7+50)
Existing 6" Sewer
APPROVED: [signature] DIVISION ENGINEER
DATE: 3/7/56
SEWER

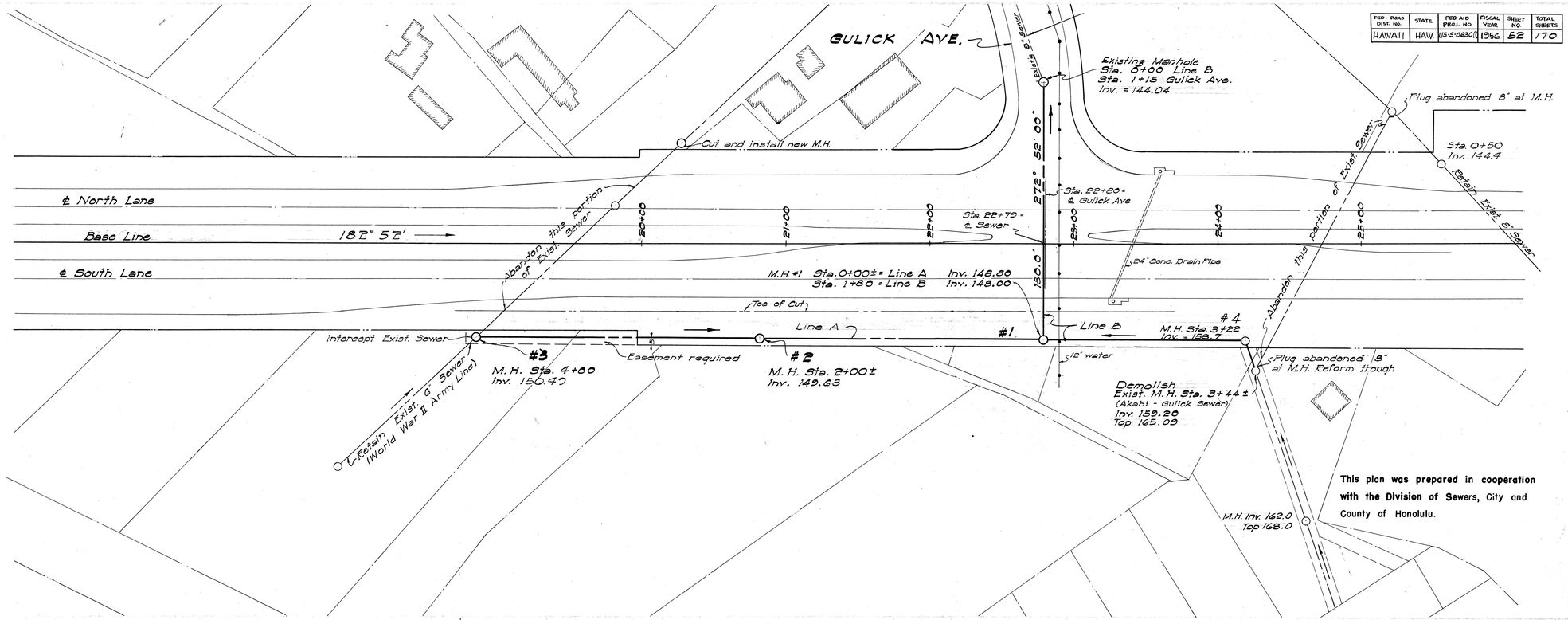
PROFILE
NOTE BOOK NO. 1147
SURVEYED
PLOTTED
GRADES CHECKED
B.M. NOTES
STRUCTURE NOTATIONS CHKD.

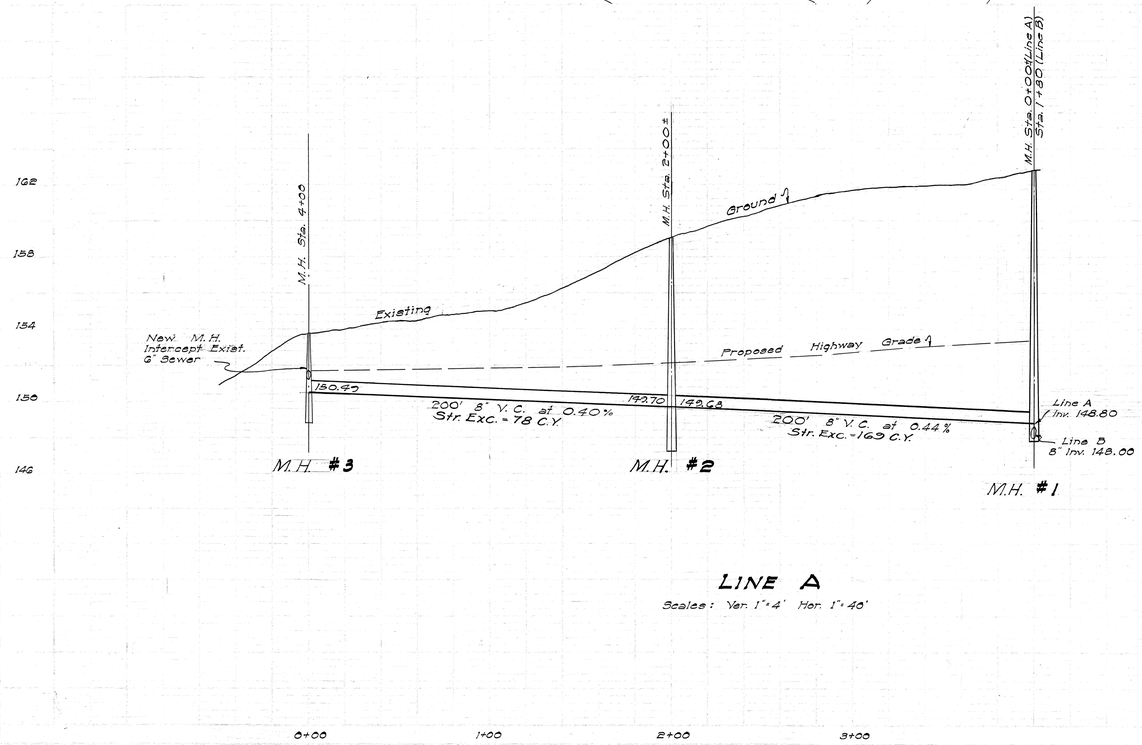
PLATE 1 - PLAN-PROFILE O. P. R. & R. S. STANDARD
KEUFFEL & ESSER CO., NEW YORK

5567.51

FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS
HAWAII | HAW. | US-S-0630(1) | 1956 | 6 | 170
Acceleration Lane & Median Strip Conc. Pav't.
434 L.F. Type "A" Curb
3 L.F. Type "C" Curb
155 C.Y. P.C.C. Pav't.
42 L.F. Type "B" Curb
Sta. 12+92 Construct
1-Type "C" Catch Basin
Estimated Quantities
Struc. Exc. = 5 c.y.
Class "A-1" Conc. = 6.6 c.y.
Reinf. Steel = 155 lbs.
1-Type "B" Std. C.I. Frame & Cover
Existing 10" Sewer
#1 M.H. Sta. 0+00
Tie to C&C Mon. 207°24'20" 21.43
Existing C&C Mon.
8" V.C. Pipe
236 L.F.(±) 30" S.S. Reinf. Conc. Culv't Pipe @ 1.04%
Struc. Exc. = 144 c.y.
274°39'13"
143.00'
New M.H. #2 Sta. 1+43.00
M.H. #2 to #3
Az. 240° 38'
Dist. 104.50'
1680 L.F. Type "EG" Curb
Install C&C Mon. 11+18.53
8" V.C.
Abandon Exist. 6" & 12" Water Mains
B.M. "+" on Conc. Step Hse #1821
B.M. ELEV. = 145.545
M.H. #3 Sta. 2+47.50
8" Stub End With Plug
Plant Nursery
112 L.F. 24" E.S. R.C.C. Pipe
Str. Exc. = 51 c.y.
Sta. 12+40 (Rt.) Construct
1-Conc. Drop Intake,
Top of grating at ground level.
Estimated Quantities
Struct. Exc. = 4 c.y.
Class "B-1" Conc. = 2.8 c.y.
1-Type "C" Std. C.I. Frame & Grating
Traffic Islands
530 L.F. Type "B" Curb
142 L.F. Type "BG" Curb & Gutter
9 L.F. Type "C" Curb
KALIHI ST.
Future Kalihi St.
Sta. 15+30(±) Construct
1-Type "C" Catch Basin
Estimated Quantities
Struct. Exc. = 12 c.y.
Class "A-1" Conc. = 7.5 c.y.
Reinf. Steel = 95 lbs.
1-Type "B" Std. C.I. Frame & Cover
True North
Scale: 1" = 50'
OWAWA STREET
B.L. P.T. Sta 14+27.32
Runoff Distance = 180'
192 L.F.(±) 24" S.S. Reinf. Conc. Culv't Pipe @ 1.00%
Struc. Exc. = 145 c.y.
Existing 4" V.C. Pipe
96 L.F.(±) 24" E.S. Reinf. Conc. Culv't Pipe @ 1.54%
Struc. Exc. = 65 c.y.
885 L.F. Type "A" Curb
200 L.F. Type "AG" Curb & Gutter
Tie M.H. to Roof Pin 270°56' 5.00'
6" V.C.
Az. = 186° 15' 20"
Dist. = 298.75'
Runoff Distance = 250'
2-4" Clean-out
6" V.C. Lateral From M.H. #4 to 4" C.I. Pipe
M.H. #4 Sta 5+46.25
Clean-out
6" V.C. Lateral
Sta. 15+54(±) Construct
1-Type "A" C.B. with opening in back. For details, See Sht. No. 5567.82
Est. Quant.
Str. Exc. = 7 c.y.
Class A-1 Conc. = 6 c.y.
Reinf. Steel = 125 lbs.
1-Type "B" Std. C.I. M.H. Frame and Cover.
Const. 98 L.F. Cement Rubble Masonry (Low Type)
Estimated Quantities 10 c.y. C.R.M.
NOTE:
See Sheet 5567.22
For Detail of Intersection at P.T. 14+27.32
Sta. 17+30(±) Construct
1-Type "B" Brick Manhole (4'-6" D.) with Type "D" Std. C.I. M.H. Frame & Cover
Estimated Quantities
Struct. Exc. = 7 c.y.
Class "B-1" Conc. = 1.6 c.y.
Reinf. Steel = 26 lbs.
Brick Wall (4'-6" dia.) = 7.5 L.F.
1-Type "D" Std. C.I. Frame & Cover
192 L.F. 24" S.S. Reinf. Conc. Culv't Pipe @ 1.00%
Struc. Exc. = 116 c.y.
Existing 6" Conc. Pipe
R/W Boundary Line
88 L.F.(±) 24" E.S. Reinf. Conc. Culv't Pipe @ 2.1%
Struc. Exc. = 45 c.y.
182° 52'
323 L.F. Type "A" Curb
℄ South Lane
Exist. Sewer
New 8" V.C. Sewer
Acceleration Lane & Curb Return
114 L.F. Type "EG" Curb & Gutter
282 L.F. Type "E" Curb
94 c.y. P.C.C. Pav't.
Sta. 19+70 (±) Install
1-Type "B" Catch Basin
Estimated Quantities
Struct. Exc. = 8 c.y.
Class "A-1" Conc. = 6 c.y.
Reinf. Steel = 95 lbs.
1-Type "B" Std. C.I. M.H. Frame & Cover
Sta. 19+30(±) Construct
1-Type "C" Catch Basin
Estimated Quantities
Struct. Exc. = 11 c.y.
Class "A-1" Conc. = 7.2 c.y.
Reinf. Steel = 95 lbs.
1-Type "D" Std. C.I. M.H. Frame & Cover
Acceleration Lane
237 L.F. Type "E" Curb
56 L.F. Type "EG" Curb & Gutter
71 c.y. P.C.C. Pav't.
Transverse grade of acceleration lane to be continuation of super on main road.
Quick Avenue
C.R. = 50'
B.L. Sta. 22+80
℄ North Lane
Base Line
50 L.F. A.C. Traffic Roll
Install C&C Mon.
Transverse grade of deceleration lane to be continuation of super on main road
Abandoned Army Shack
Wash Trough
Army Mess Hall
Foundry
R/W Boundary Line
Hut Hse.
Transverse grade of deceleration lane to be continuation of super on main road
Reconstruct 72" chain link Fence Approx. 140 L.F.
Median Deceleration Lane
295 L.F. Type "A" Curb
3 L.F. Type "C" Curb
82 C.Y. P.C.C. Pav't
Existing Hot-house to be altered. For details See Sht. No. 5567.71
2 Traffic Islands at Intersection
119 L.F. Type "B" Curb
14 L.F. Type "C" Curb
NOTE:
See Sheet 5567.92
For Detail of 8" V.C. Sewer
Exist. 8" Sewer
NOTE:
See Sheet 5567.23
For Detail of Intersection at Sta. 22+80
AKAHI ST.
PLAN
NOTE BOOK No. 1112 / 1157
W.S. Photostat of 1"=40' Scale Plan & 29-J-1 & 41-J-1
B.V.C. (N.&S.L.) 137.42
500' V.C. (N.&S.L.)
C.G. (N.&S.L.) 145.21
E.V.C. (S.L.) 147.28
E.V.C. (N.L.) 147.07
B.V.C. (S.L.) 151.84
500' V.C. (S.L.)
C.G. (S.L.) 153.01
B.L. Sta. 10+00
B.L. Sta. 12+50
B.L. Sta. 15+00
B.L. Sta. 20+50
B.L. Sta. 23+00
+3.116
North & South Lanes
New C.B.'s
Profile of Fin. Grade at Inside Edge of Pavements
+0.829% South Lane
+0.745% North Lane
Existing Ground Profile at Base Line
30" S.S. Reinf. Conc. Culv't Pipe @ 1.30%
24" E.S. Reinf. Conc. Culv't Pipe @ 4.09%
24" E.S. Reinf. Conc. Culv. Pipe across main highway
24" S.S. Reinf. Conc. Culv. Pipe
24" S.S. Reinf. Conc. Culv't Pipe @ 1.00%
24" E.S. Reinf. Conc. Culv't Pipe
24" E.S. Reinf. Conc. Culv't Pipe @ 2.00%
24" E.S. Reinf. Conc. Culv. Pipe @ 1.67%
Existing 10" Sewer #1 M.H. Sta. 0+00
Existing 10" Sewer Inv. 130.39
130.80
143'
1.89%
8" Sewer Line
12" Water Line
#2 M.H. Sta. 1+43
Top of M.H. 143.5±
30" Storm Drain Inv. 136.00
133.50
104.50'
4.30%
138.00
#3 M.H. Sta. 2+47.50
Top of M.H. 149.±
8" Stub End With Plug Inv. 138.00
Existing Ground Profile
6" Sewer Line
298.75'
1.34%
24" Storm Drain Inv. 143.50
142.00
#4 M.H. Sta. 5+46.25
Top of M.H. 149.±
WASTE = 38,724 c.y.
Exc. = 39,406 c.y.
Emb. = 4.99 c.y.
0+00 1+00 2+00 3+00 4+00 5+00 6+00
PROFILE
NOTE BOOK No. 1147
PROPOSED SEWER - OWAWA STREET
(CROSSING TERRITORY HIGHWAY)
REVISED
SEPT. 7, 1956
SEWER
5567.51A
PLATE 1 - PLAN-PROFILE - O. P. R. & R. E. STANDARD
KEUFFEL & ESSER CO. NEW YORK

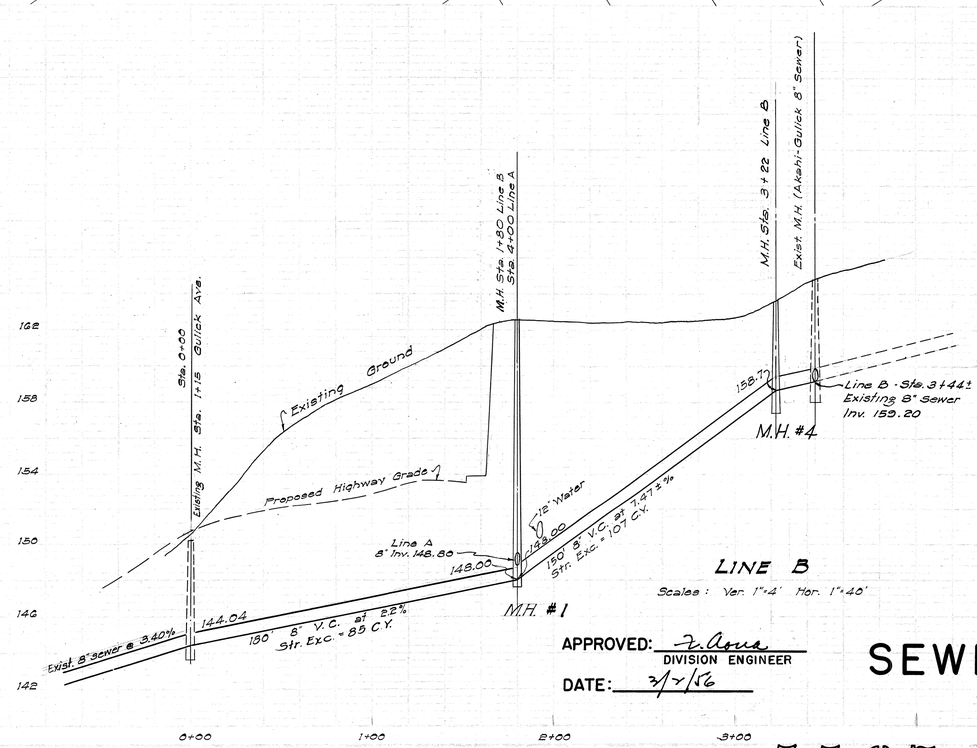
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	US-S-0830(7)	1956	52	170





LINE A

Scales: Ver. 1"=4' Hor. 1"=40'



LINE B

Scales: Ver. 1"=4' Hor. 1"=40'

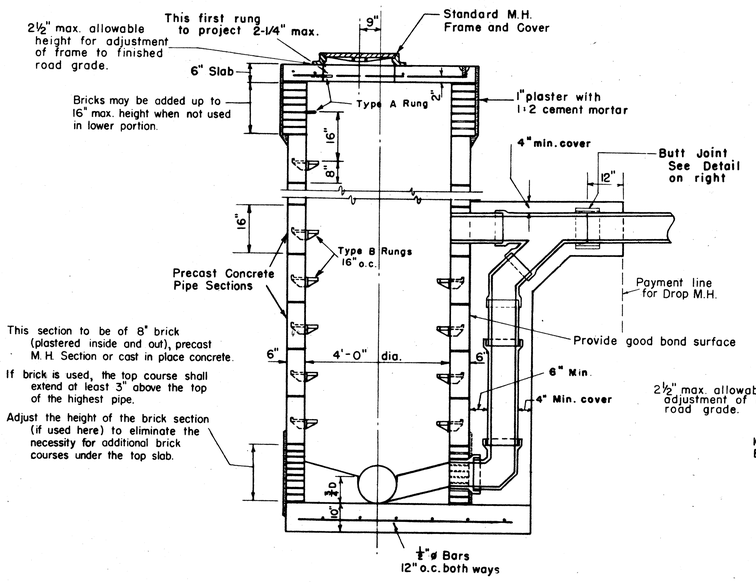
APPROVED: _____ DIVISION ENGINEER

DATE: 3/7/56

SEWER

55G7.52

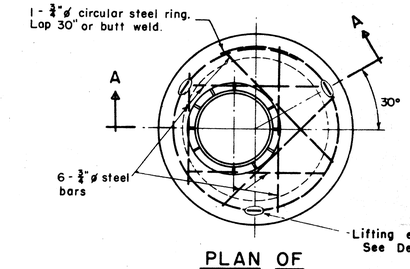
FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	US-0630(1)	1956	53	170



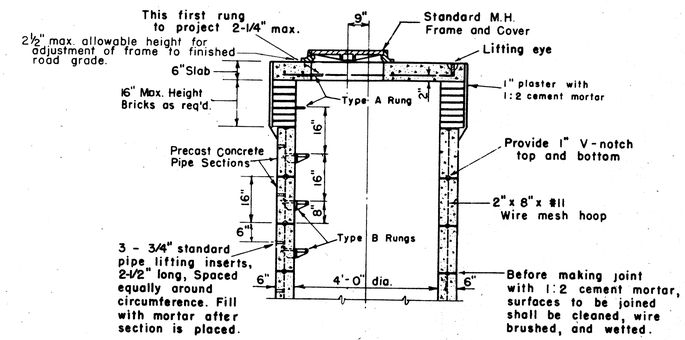
DROP MANHOLE
USING PRECAST CONCRETE PIPE SECTIONS
FOR MANHOLES LESS THAN 10 FT. IN HEIGHT

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

NOTE : (Shallow) Drop M.H. may be constructed similarly

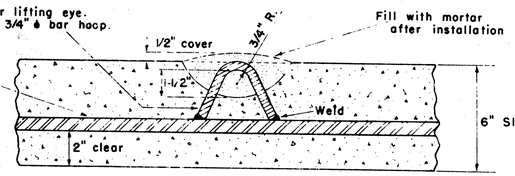


PLAN OF PRECAST MANHOLE
Scale: ½"= 1'-0"

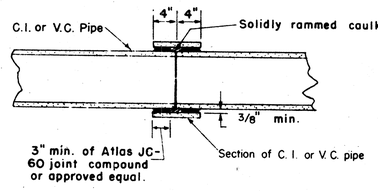


SECTION A-A
Scale: 1/2"= 1'-0"

NOTE:
1. When backfilling around precast manholes, material shall be deposited in such a manner that the difference in elevation on one side of the manhole shall not exceed the elevation on the other side by more than 5 feet.
2. Pipe sections may be made in heights other than 16" if desired.
3. Size of drop pipe shall be same as influent pipe.



SECTION OF LIFTING EYE
Scale: 3" = 1'-0"



BUTT JOINT DETAIL
Scale: 1" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALIHI VALLEY RD.
PROJ. NO. US-S-0630(1)
February 1956

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

REVISED

STANDARD DETAILS
(SUPERSEDES STANDARD DATED 7-13-49)

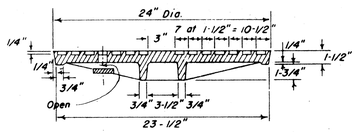
ENGINEER F. Sum, Hellwig — DATE Nov. 1, 1954
DRAFTSMAN A. Konoyama — TRACER H. Lum
SCALE As Noted — CHECKED BY H. Ewley
APPROVED: Franklin Y.K. Sunn, CHIEF ENGINEER ACTING — APPROVED: D. Clough, DIVISION ENGINEER ACTING

5567.53

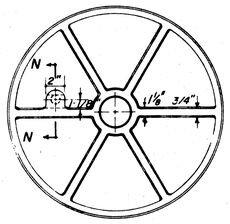
FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	(1)	1956	54	170

PLAN OF MANHOLE COVER
Scale 1-1/2"= 1'-0"

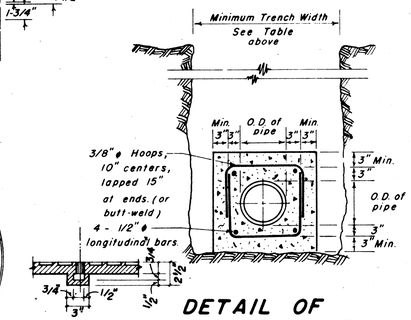
TRENCH WIDTHS	
Pipe Size	Min. Width
6"	24"
8"	24"
10"	24"
12"	30"
15"	30"
18"	36"
21"	36"
24"	45"
27"	45"
30"	50"



SECTION A - A



BOTTOM VIEW OF COVER
Scale 1-1/2"= 1'-0"

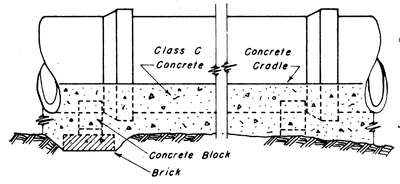


SECTION N-N
Scale: 1-1/2"= 1'-0"

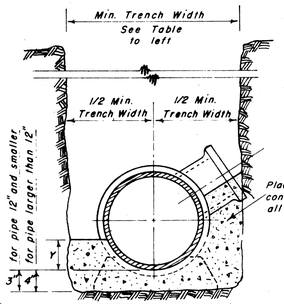
DETAIL OF CONCRETE JACKET

Contractor shall set Concrete Blocks on undisturbed ground. Where ground is too low, the Contractor shall not heap up dirt under the Concrete Block but shall use Concrete Bricks to take up the deficiency, scraping away beneath Concrete Block to give sufficient room for Brick.

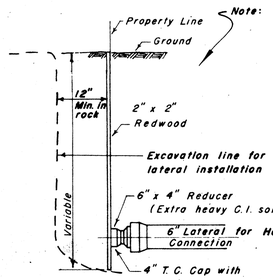
Note: Minimum width of cradle shall be minimum trench width.



ELEVATION SHOWING METHOD OF LAYING PIPE



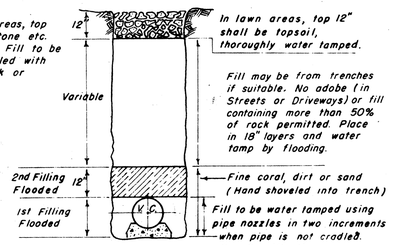
DIM. OF CONC. CRADLE	
Pipe Size	"Y"
6"	3"
8"	3"
10"	3"
12"	3"
15"	4"
18"	5"
21"	5"
24"	6"
27"	7"
30"	7"



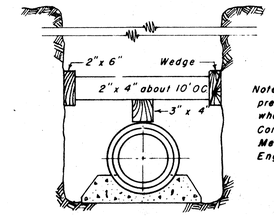
Note: Permission is to be secured from property owner before construction at property line is started.

CONSTRUCTION AT PROPERTY LINE
Scale 1/2" = 1'-0"

In Street Areas, top 12" to be Stone etc. See Specs. Fill to be dry and rolled with 5 Ton Truck or equivalent.

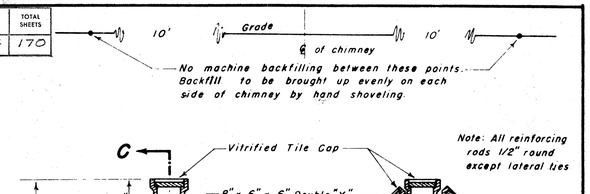


METHOD OF BACKFILL

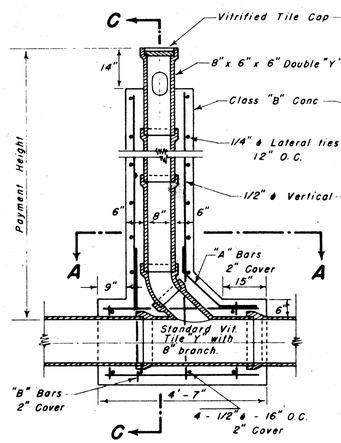


PIPE FLOTATION PREVENTION Scale 1" = 1'-0"

Note: Suggested Method for preventing Pipe from floating when pouring cradle. Contractor may use any other Method if approved by the Engineer.

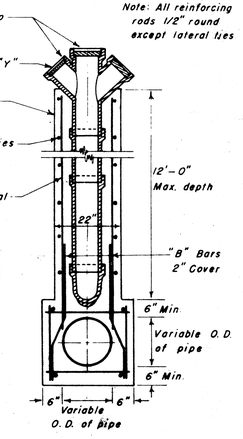


CHIMNEY DETAIL FOR CAST IRON SEWER LINE
Scale 1/2" = 1'-0"

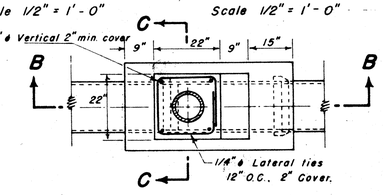


SECTION B - B
Scale 1/2" = 1'-0"

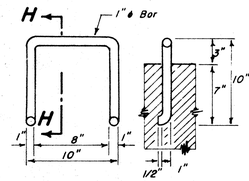
Note: All reinforcing rods 1/2" round except lateral ties



SECTION C - C
Scale 1/2" = 1'-0"



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



PLAN SECTION H-H

TYPE A RUNGS
WROUGHT IRON M.H. RUNGS
Scale 1-1/2"= 1'-0"

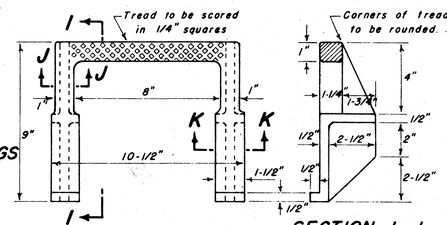
STEEL SCHEDULE			
Mark	Steel	Shape	Req.
"A"	1/2ø	2" 45° 45° 12" Determine in field.	2 Pcs.
"B"	1/2ø	22-1/2° 24" 9" 22-1/2°	4 Pcs

CHIMNEY DETAILS

Note: Dimensions shown may be varied to accomodate specific brand of pipe furnished by Contractor.

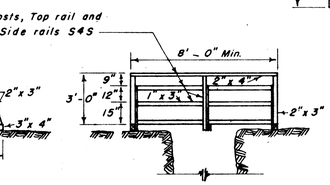
Note: Contractor shall use such Standard Details shown above as are applicable to, and called for, on this project.

When lateral sewers are constructed from the trunk sewer to the property line, the grade of such lateral sewer shall be 1/8" per lineal foot unless otherwise ordered by the Engineer.

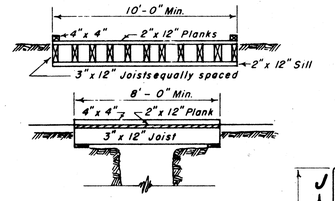


PLAN

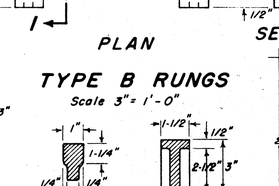
SECTION I - I



DETAILS
CROSS WALKS OVER TRENCHES
Scale 1/4" = 1'-0"

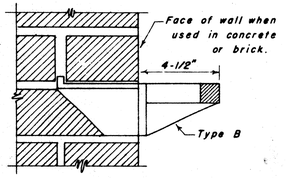


DETAILS
WOODEN BRIDGE OVER TRENCHES AT ROAD CROSSINGS
Scale 1/4" = 1'-0"

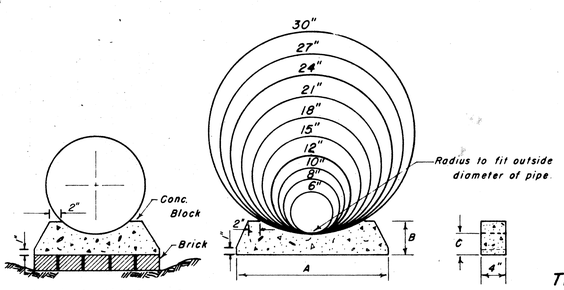


TYPE B RUNGS
Scale 3" = 1'-0"

SECTION J-J SECTION K-K
CAST IRON M.H. RUNGS
Scale 3" = 1'-0"



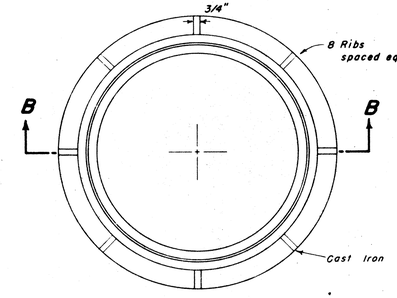
METHOD OF INSTALLATION



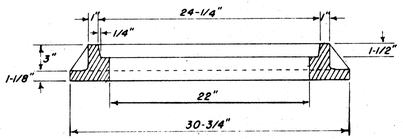
Showing method of use of Bricks to set pipe on firm ground.

DETAIL OF PRECAST CONCRETE BLOCKS

CONCRETE BLOCK DIMENSIONS			
Pipe Size	"A"	"B"	"C"
6"	1'-2"	6"	3"
8"	1'-5"	6"	3"
10"	1'-7"	6"	3"
12"	1'-7"	6"	3"
15"	1'-8"	6"	4"
18"	1'-9"	6"	4"
21"	1'-10"	6"	4"
24"	1'-11"	6"	4"
27"	2'-0"	6"	4"
30"	2'-3"	6"	4"

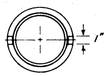


PLAN OF MANHOLE FRAME
Scale 1-1/2"= 1'-0"

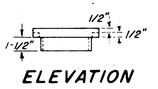


SECTION B - B

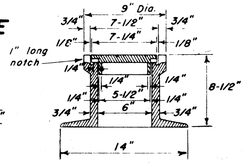
PLAN OF COVER



BOTTOM OF COVER



ELEVATION



SECTION

DROP MANHOLE CHIMNEY CASTINGS
Scale 1-1/2"= 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALIHI VALLEY RD.
PROJ. NO. US-S-0630(1)
February 1956
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS
REVISED
STANDARD DETAILS
(SUPERSEDES STANDARD DATED 4-1-49)
ENGINEER F. Sunn, DATE Nov. 1, 1954
DRAFTSMAN A. Kanayama, CHECKED BY [illegible]
SCALE As Shown, TRACER A. Kanayama
APPROVED: Franklin Y.K. Sunn, CHIEF ENGINEER ACTING
APPROVED: [illegible], DIVISION ENGINEER ACTING

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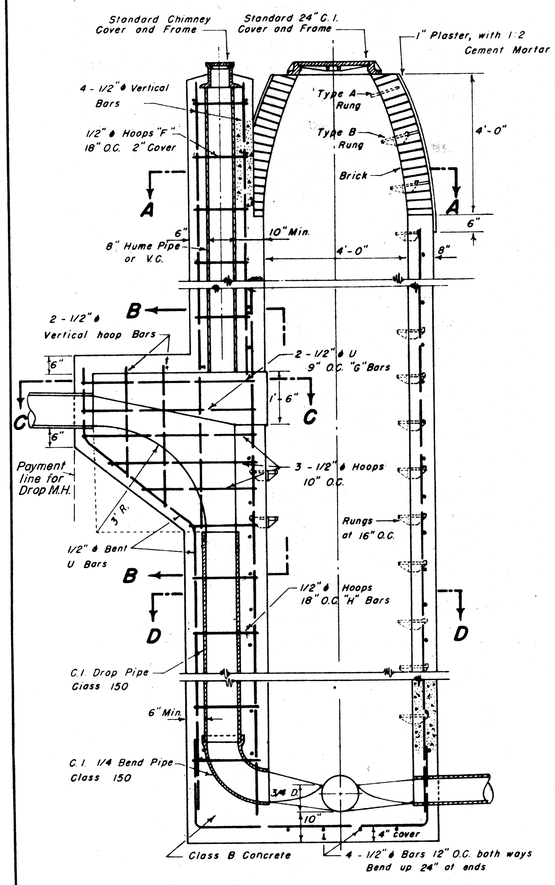
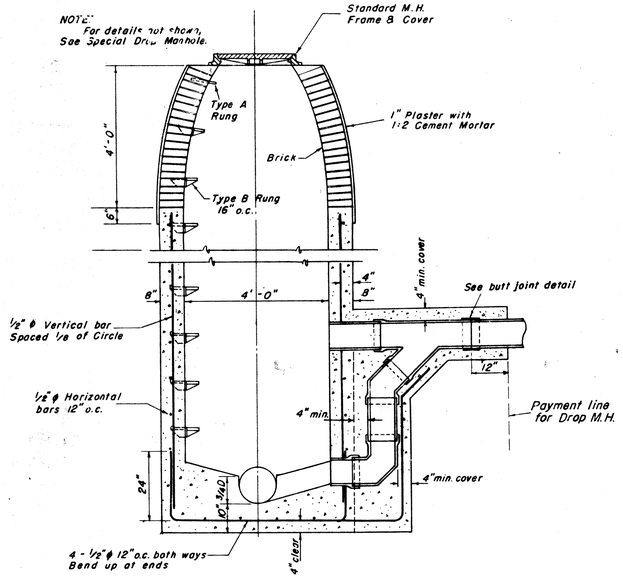
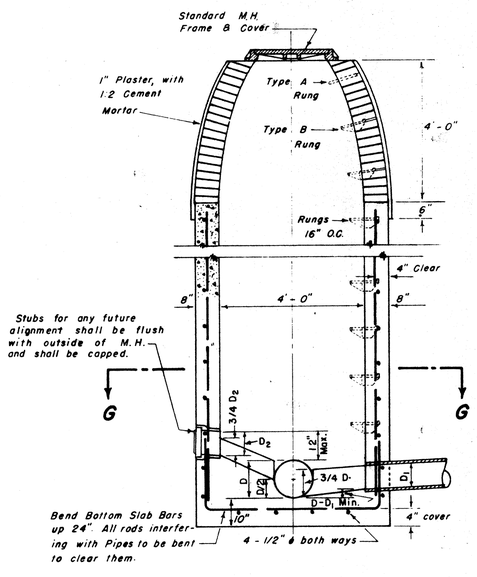
FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	US-S-0630(1)	1956	55	170



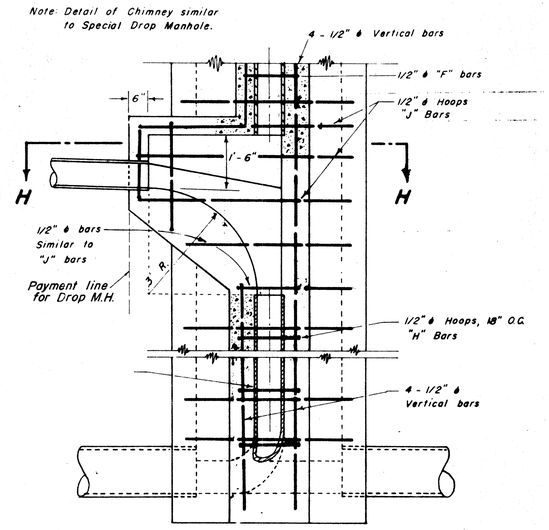
SPECIAL DROP MANHOLE



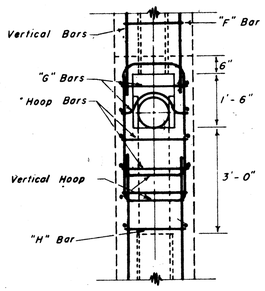
DROP MANHOLE



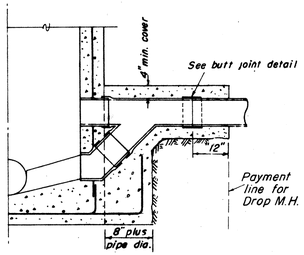
PLAIN MANHOLE



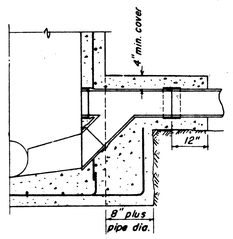
SPECIAL SIDE DROP MANHOLE
SECTION 1-1



SECTION B-B

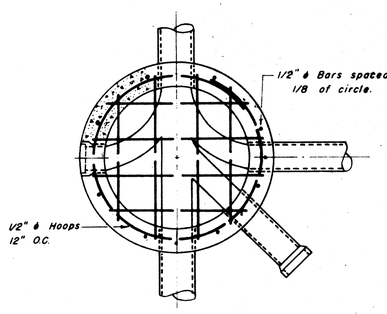


(SHALLOW) DROP MANHOLE

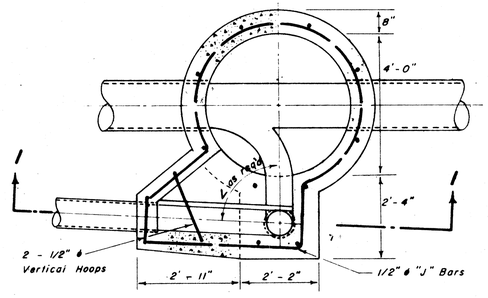


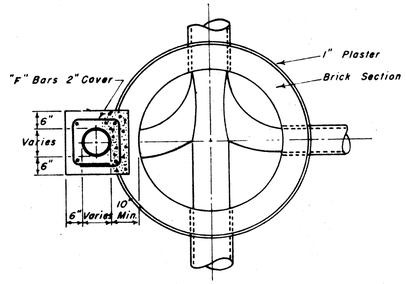
(SHALLOW) DROP MANHOLE ALTERNATE

NOTE:
Cut pipe vertically through "Y" or extension for drops where detail to left cannot be used

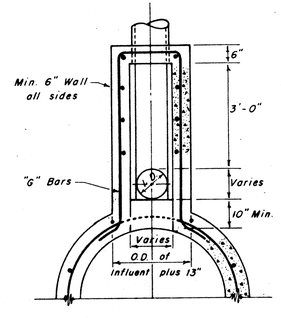


SECTION G-G

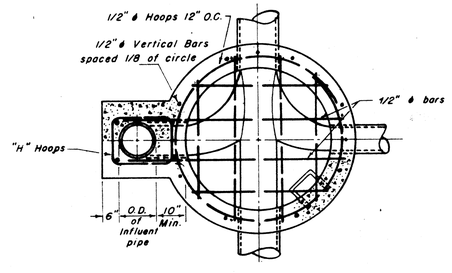




SECTION A-A



SECTION C-C



SECTION D-D

NOTE:

1. Manhole rungs shall not be aligned above any flow line.
2. No rungs shall be installed in manholes less than 3' high.
3. When not otherwise noted, manhole stubs shall be sloped as follows:

Pipe Size	Rise Per Foot
6"	1/8"
8"	3/32"
10"	1/16"
12"	1/16"

4. All reinforcing rods interfering with pipes shall be bent to clear them.
5. Bar laps to be 40 diameters in length.
6. Data for special manholes not shown shall be similar to that for Plain Manholes.
7. Size of drop pipe in all Drop Manholes shall be same as influent line.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALIHI VALLEY RD.
PROJ. NO. US-S-0630(1)
February 1956

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS

REVISED

STANDARD DETAILS

(SUPERSEDES STANDARD DATED 4-1-49)

ENGINEER F. Sunn
DRAFTSMAN A. Kanayama
SCALE 3" = 1'-0"
APPROVED: Franklin Y. K. Sunn, CHIEF ENGINEER ACTING

DATE NOV. 1, 1954
CHECKED BY H. Cooley
TRACER A. Kanayama
APPROVED: K. Cooke, DIVISION ENGINEER ACTING

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