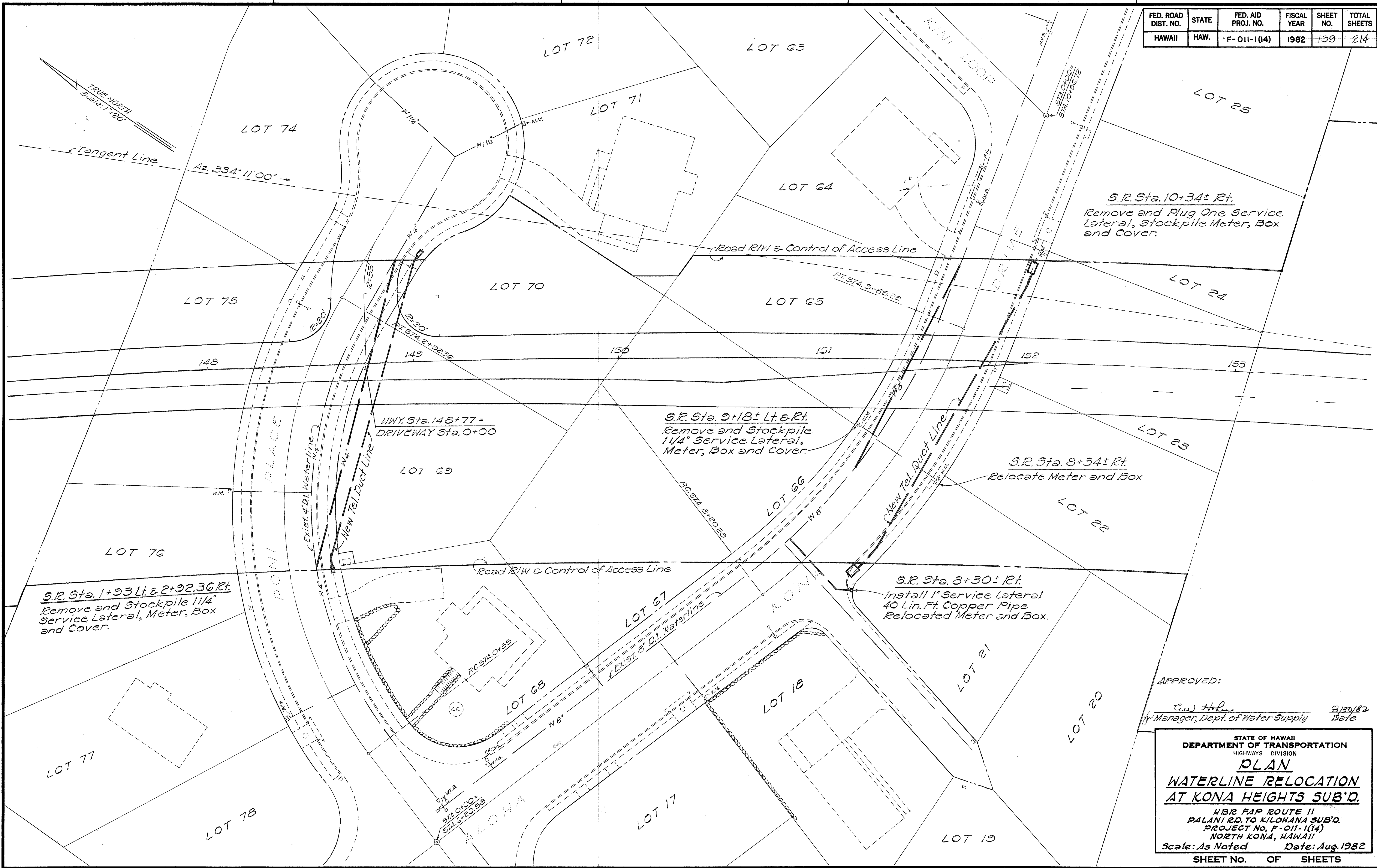


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	139	214

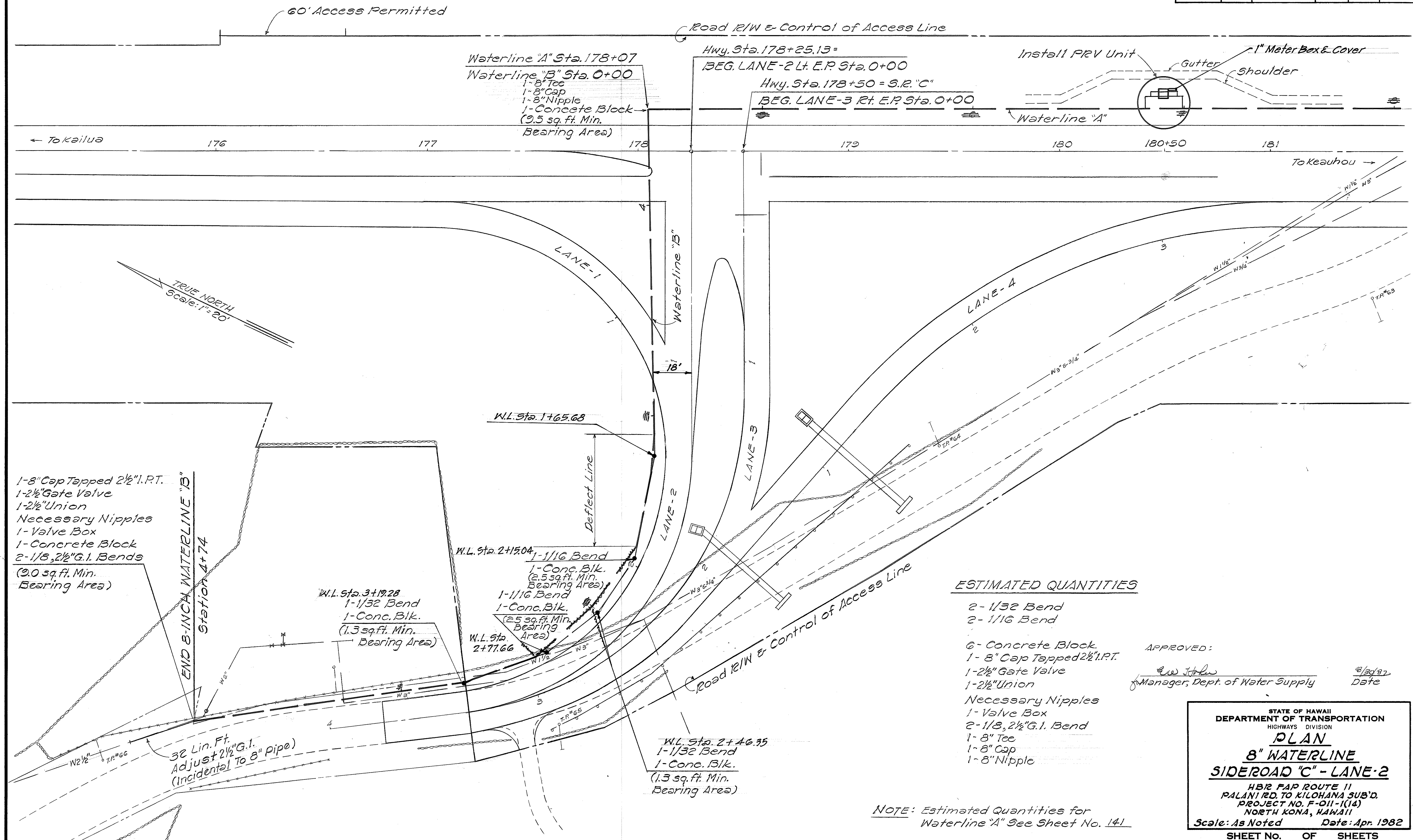


ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTE BOOK No.	

APPROVED:
[Signature]
 Manager, Dept. of Water Supply
 Date: 8/30/82

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
PLAN
WATERLINE RELOCATION
AT KONA HEIGHTS SUB'D.
 HBR PAP ROUTE 11
 PALANI RD. TO KILOHANA SUB'D.
 PROJECT NO. F-011-1(14)
 NORTH KONA, HAWAII
 Scale: As Noted Date: Aug. 1982
 SHEET NO. OF SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	140	214



1-8" Cap Tapped 2 1/2" I.P.T.
 1-2 1/2" Gate Valve
 1-2 1/2" Union
 Necessary Nipples
 1-Valve Box
 1-Concrete Block
 2-1/8, 2 1/2" G.I. Bends
 (2.0 sq. ft. Min. Bearing Area)

END 8-INCH WATERLINE "B" Station 4+74

W.L. Sta. 3+19.28
 1-1/32 Bend
 1-Conc. Blk.
 (1.3 sq. ft. Min. Bearing Area)

W.L. Sta. 2+15.04
 1-1/16 Bend
 1-Conc. Blk.
 (2.5 sq. ft. Min. Bearing Area)

W.L. Sta. 2+77.66
 1-1/16 Bend
 1-Conc. Blk.
 (2.5 sq. ft. Min. Bearing Area)

W.L. Sta. 2+46.95
 1-1/32 Bend
 1-Conc. Blk.
 (1.3 sq. ft. Min. Bearing Area)

ESTIMATED QUANTITIES

- 2- 1/32 Bend
- 2- 1/16 Bend
- 6- Concrete Block
- 1- 8" Cap Tapped 2 1/2" I.P.T.
- 1- 2 1/2" Gate Valve
- 1- 2 1/2" Union
- Necessary Nipples
- 1- Valve Box
- 2- 1/8, 2 1/2" G.I. Bend
- 1- 8" Tee
- 1- 8" Cap
- 1- 8" Nipple

APPROVED: *[Signature]* 3/29/82
 Manager, Dept. of Water Supply Date

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
PLAN
8" WATERLINE
SIDEROAD "C" - LANE-2
 HB2 FAR ROUTE 11
 PALANI RD. TO KILOHANA SUB'D.
 PROJECT NO. F-011-1(14)
 NORTH KONA, HAWAII
 Scale: As Noted Date: Apr. 1982
 SHEET NO. OF SHEETS

NOTE: Estimated Quantities for Waterline "A" See Sheet No. 141

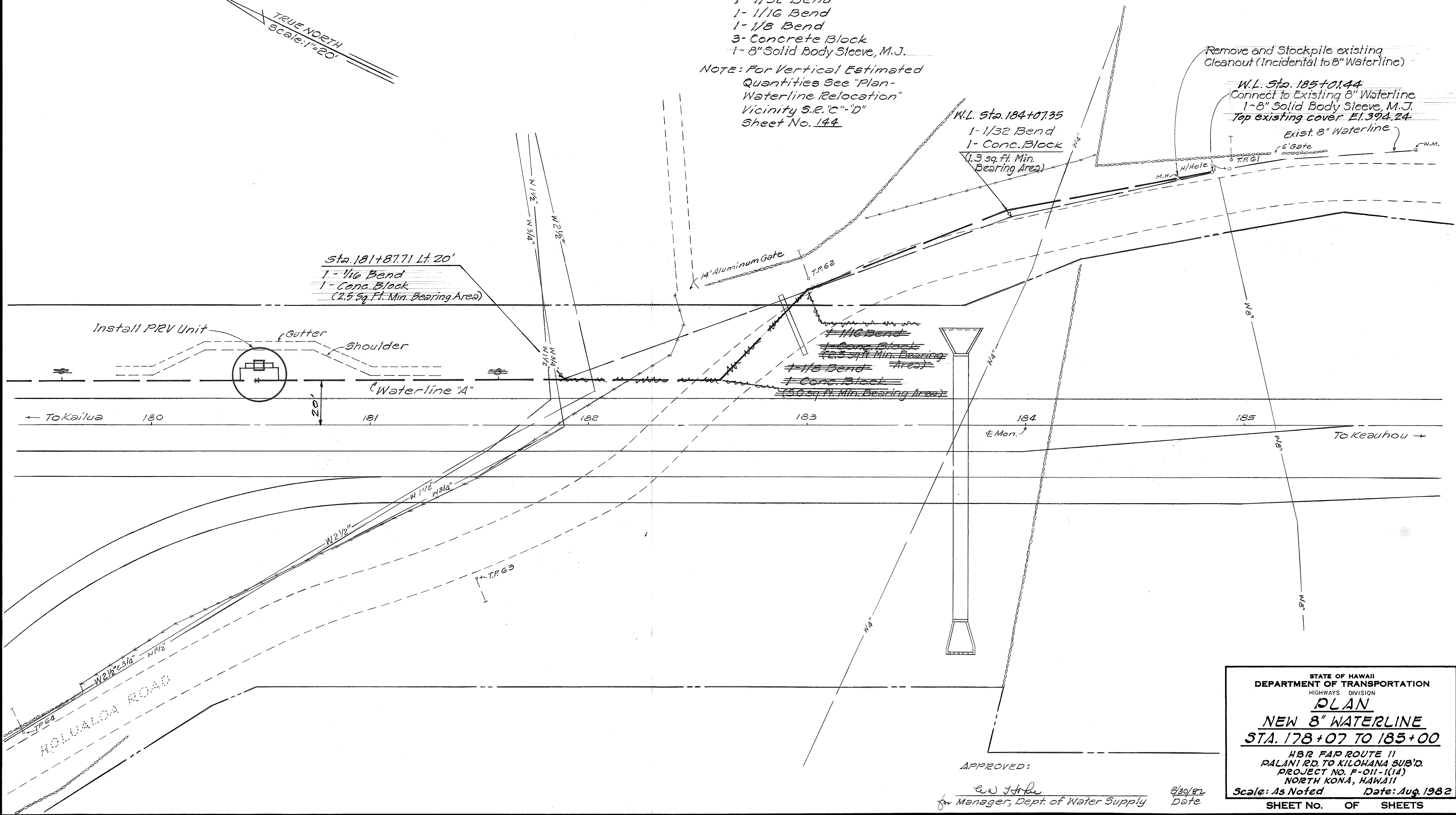
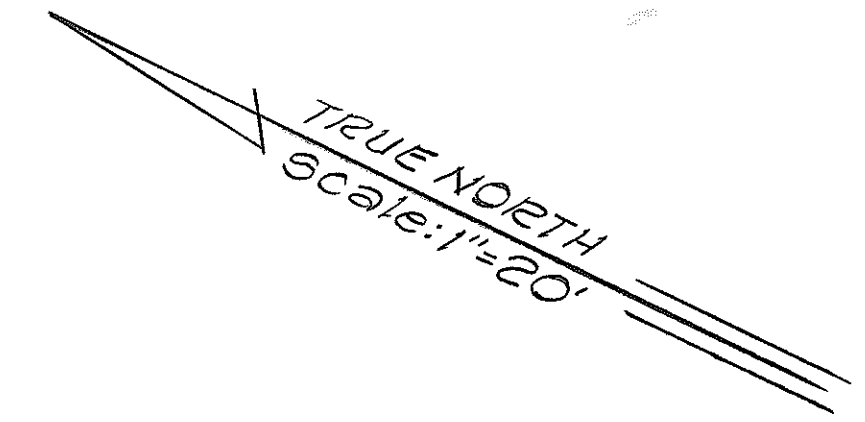
DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
NO.	_____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	141	214

ESTIMATED QUANTITIES

- 1- 1/32 Bend
- 1- 1/16 Bend
- 1- 1/8 Bend
- 3- Concrete Block
- 1- 8" Solid Body Sleeve, M.J.

NOTE: For Vertical Estimated Quantities See "Plan-Waterline Relocation" Vicinity S.E. "C"- "D" Sheet No. 144



Remove and Stockpile existing Cleanout (Incidental to 8" Waterline)

W.L. Sta. 185+01.44
Connect to Existing 8" Waterline
1- 8" Solid Body Sleeve, M.J.
Top existing cover El. 394.24

Exist. 8" Waterline

W.L. Sta. 184+07.35
1- 1/32 Bend
1- Conc. Block
(1.3 sq. ft. Min. Bearing Area)

Sta. 181+87.71 Lt. 20'
1- 1/16 Bend
1- Conc. Block
(2.5 sq. ft. Min. Bearing Area)

1- 1/16 Bend
1- Conc. Block
(5.0 sq. ft. Min. Bearing Area)

1- 1/8 Bend
1- Conc. Block
(5.0 sq. ft. Min. Bearing Area)

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

APPROVED:

E.W. Jaffe
for Manager, Dept. of Water Supply

8/30/82
Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN

NEW 8" WATERLINE

STA. 178+07 TO 185+00

H&R F&P ROUTE 11
PALANI RD. TO KILOHANA SUB'D.
PROJECT NO. F-011-1(14)
NORTH KONA, HAWAII

Scale: As Noted Date: Aug. 1982

SHEET NO. OF SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	142	214

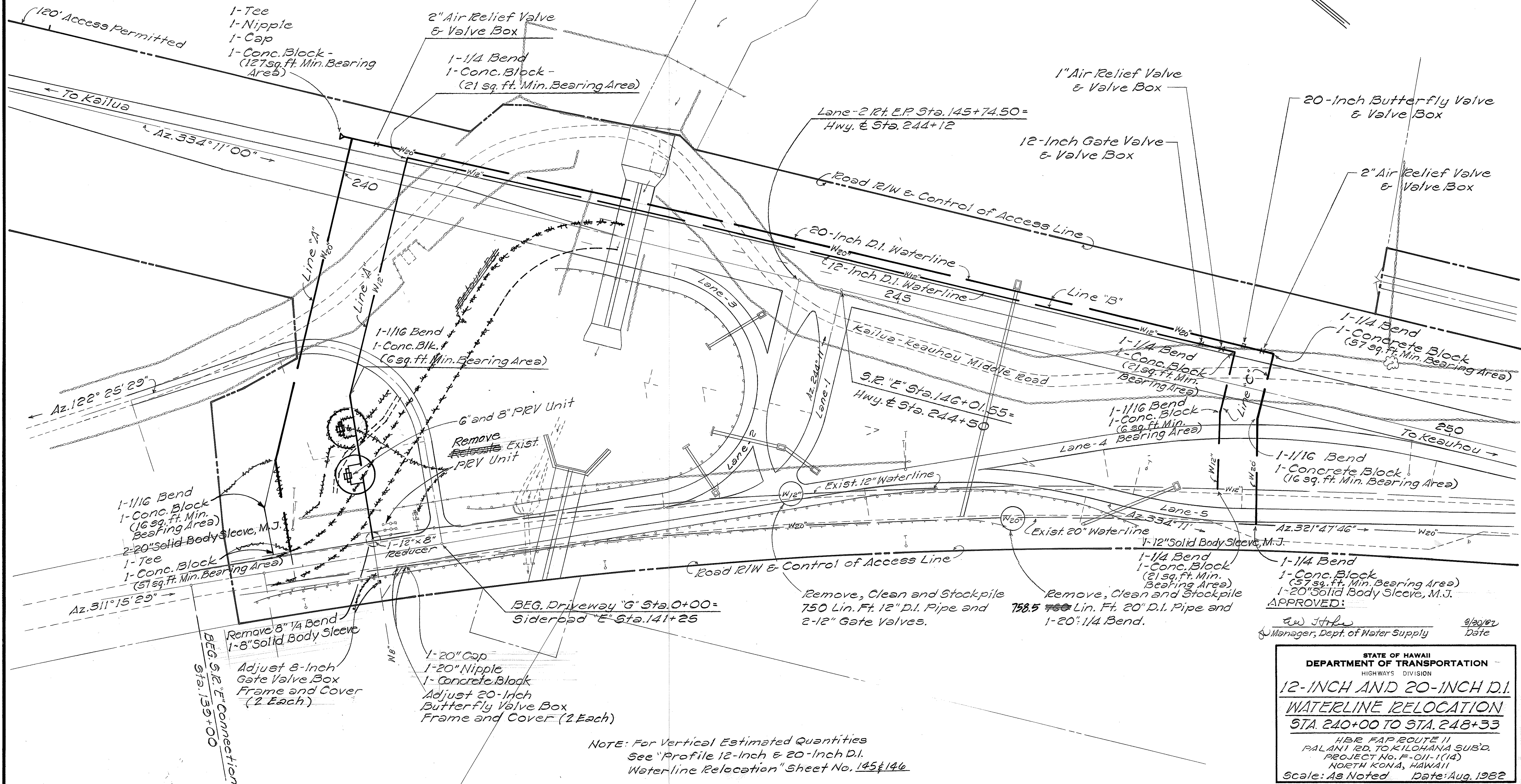
12" LINE-ESTIMATED QUANTITIES

- 2 Ea. 1/16 Bend
- 3 Ea. 1/4 Bend
- 5 Ea. Concrete Block
- 1 Ea. 1" Air Relief Valve & Box
- 1 Ea. 12"-Inch Gate Valve & Box
- 1 Ea. 12"x8" Reducer
- 1 Ea. 8" Solid Body Sleeve, M.J.
- 1 Ea. 12" Solid Body Sleeve, M.J.
- 1 Ea. Relocated PRV Unit

20" LINE-ESTIMATED QUANTITIES

- 2 Ea. 1/16 Bend
- 2 Ea. 1/4 Bend
- 7 Ea. Conc. Block
- 2 Ea. 20" Tee
- 2 Ea. 20" Nipple
- 2 Ea. 20" Cap
- 2 Ea. 2" Air Relief Valve & Box
- 1 Ea. 20-Inch Butterfly Valve & Box
- 3 Ea. 20" Solid Body Sleeve, M.J.

TRUE NORTH
Scale: 1"=40'



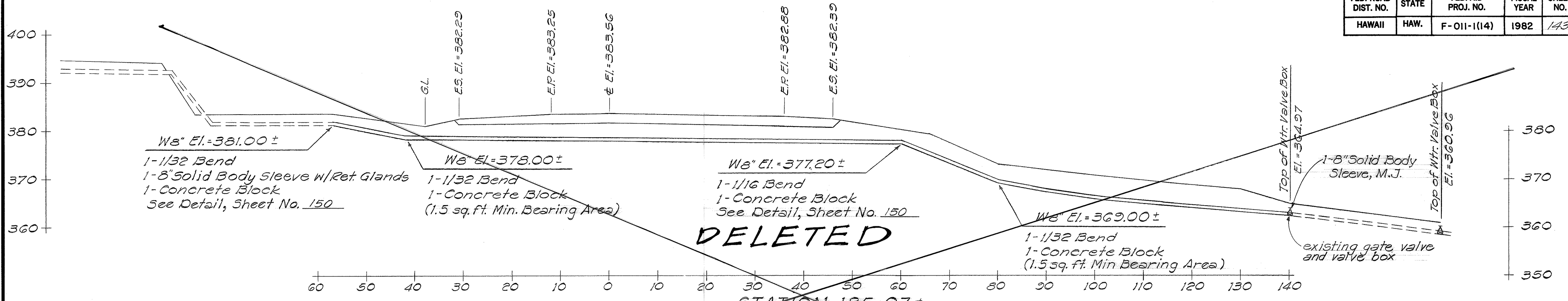
SURVEY ELICITED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NO. BOOK	
NO.	

NOTE: For Vertical Estimated Quantities See "Profile 12-Inch & 20-Inch D.I. Waterline Relocation" Sheet No. 145 & 146

APPROVED:
[Signature]
Manager, Dept. of Water Supply
Date: 9/29/82

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
12-INCH AND 20-INCH D.I. WATERLINE RELOCATION
STA. 240+00 TO STA. 248+33
HBR FAP ROUTE 11
PALANI RD. TO KILOHANA SUBD.
PROJECT No. F-011-1(14)
NORTH KONA, HAWAII
Scale: As Noted Date: Aug. 1982
SHEET NO. OF SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	143	214



DELETED
8-INCH D.I. WATERLINE RELOCATION
 Scale: Hor. = 1" = 10'
 Vert. = 1" = 10'

ESTIMATED QUANTITIES

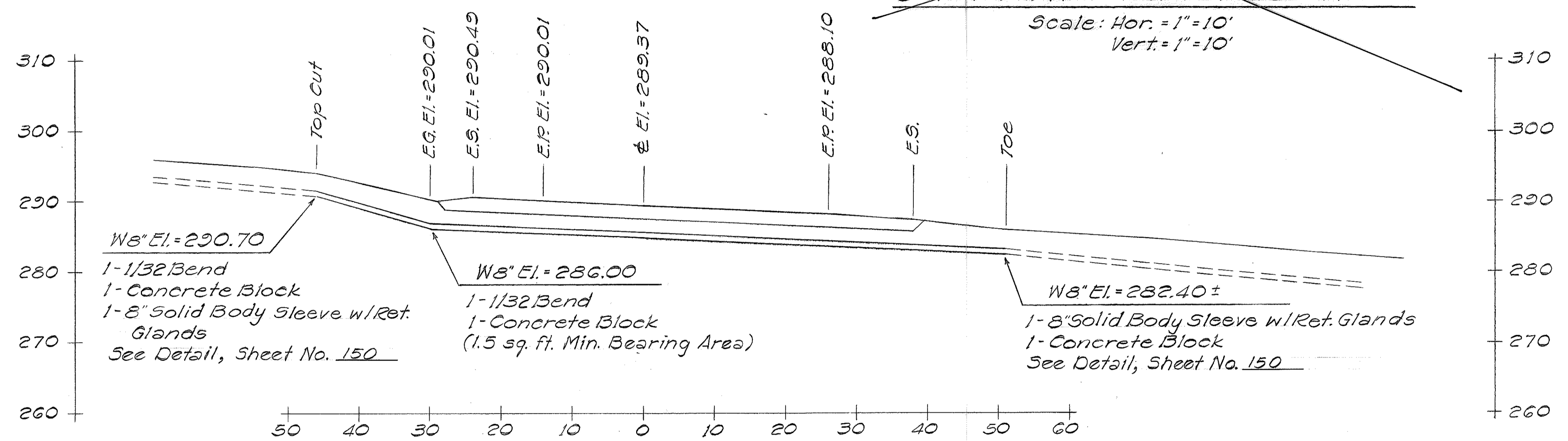
- STA. 185+07±**
- 200 Lin. Ft. 8-Inch D.I.
 - 3 Each 1/32 Bend
 - 1 Each 1/16 Bend
 - 1 Each 8-Inch Sleeve w/ Retainer Gland
 - 4 Each Concrete Block
 - 1 Each 8" Solid Body Sleeve, M.J.

- STA. 151+43±**
- 99 Lin. Ft. 8-Inch D.I.
 - 2 Each 1/32 Bend
 - 2 Each 8-Inch Solid Body Sleeve w/ Retainer Gland
 - 3 Each Concrete Block

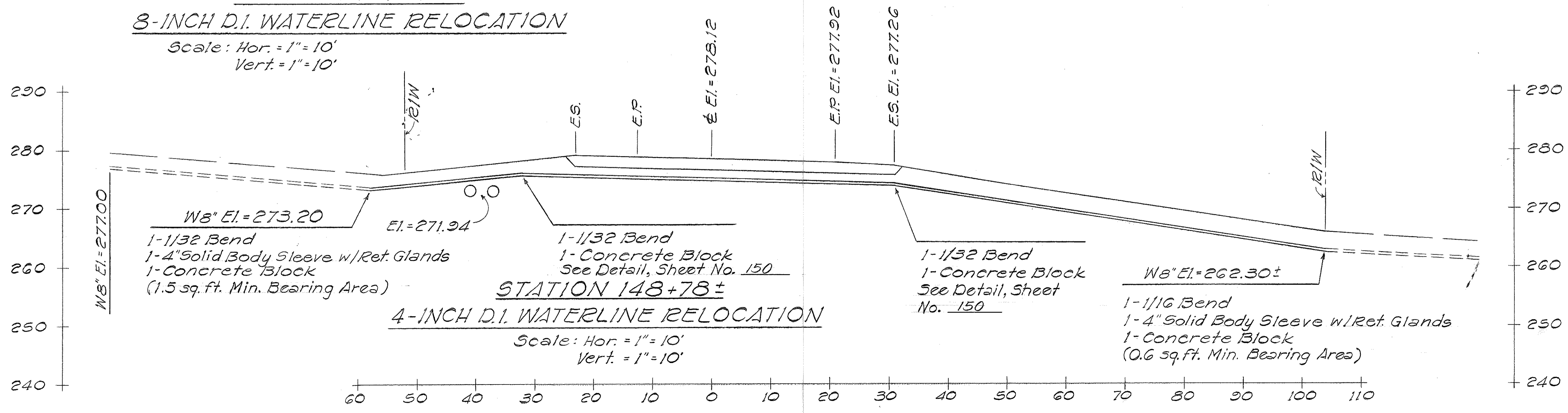
- STA. 148+78±**
- 163 Lin. Ft. 4-Inch D.I.
 - 3 Each 1/32 Bend
 - 1 Each 1/16 Bend
 - 2 Each 4" Solid Body Sleeve w/ Retainer Gland
 - 4 Each Concrete Block

APPROVED:
[Signature]
 for Manager, Dept. of Water Supply
 8/30/82
 Date

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
PROFILE
WATERLINE RELOCATION
AT VARIOUS LOCATION
 H3E FAP ROUTE 11
 PALANI RD. TO KILOHANA SUB'D.
 PROJECT NO. F-011-1(14)
 NORTH KONA, HAWAII
 Scale: As Noted Date: Aug. 1982
 SHEET NO. OF SHEETS



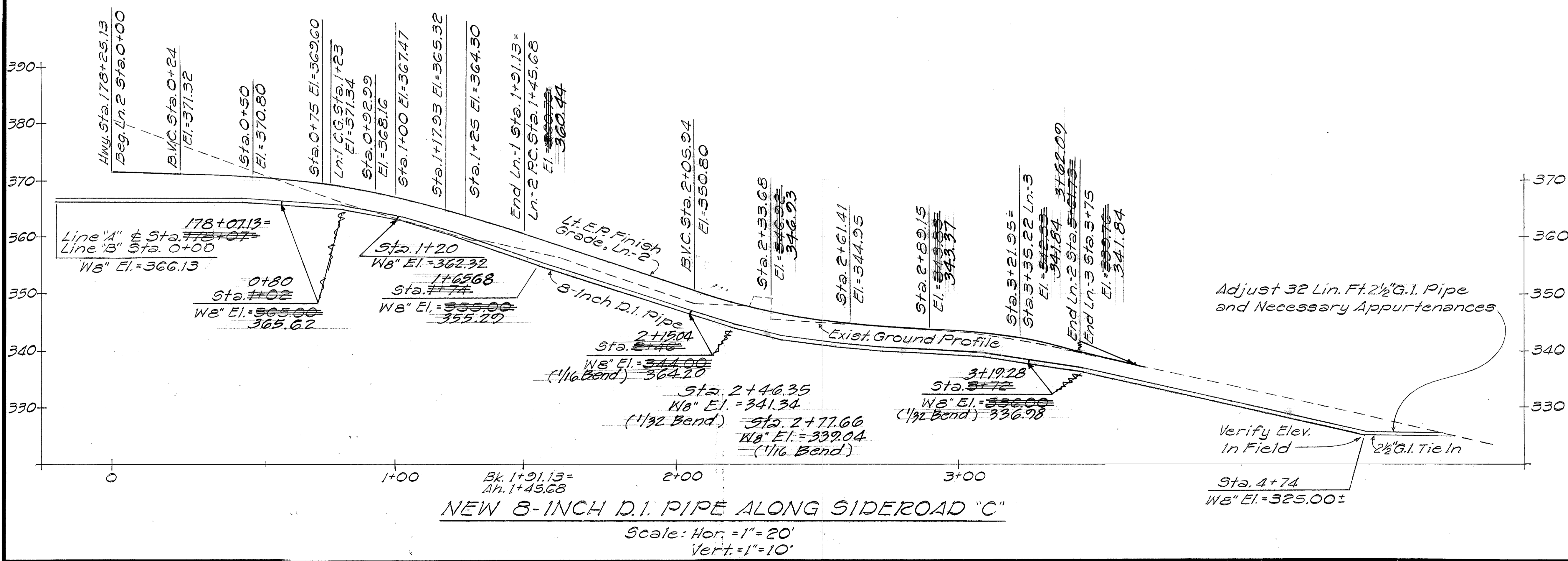
8-INCH D.I. WATERLINE RELOCATION
 Scale: Hor. = 1" = 10'
 Vert. = 1" = 10'



4-INCH D.I. WATERLINE RELOCATION
 Scale: Hor. = 1" = 10'
 Vert. = 1" = 10'

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	144	214



NOTE: For Horizontal Estimated Quantities See "Plan B" Waterline S.R. "C" - Lane-2, Sheet No. 140

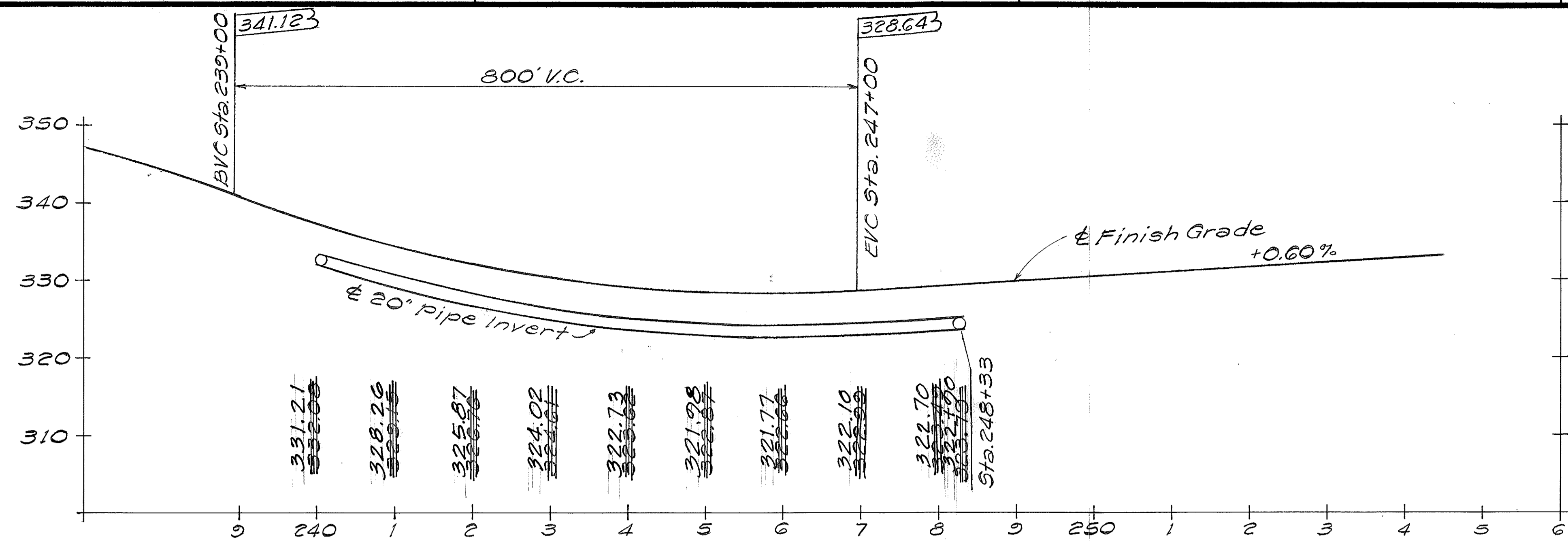
APPROVED: *Rw Stokes* 8/29/82
 Manager, Dept. of Water Supply Date

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
PROFILE
NEW 8" WATERLINE
SIDEROAD "C" - LANE-2
 H&R F&P ROUTE 11
 PALANI RD. TO KILOHANA SUB'D.
 PROJECT NO. F-011-1(14)
 NORTH KONA, HAWAII
 Scale: As Noted Date: Aug. 1982
 SHEET NO. OF SHEETS

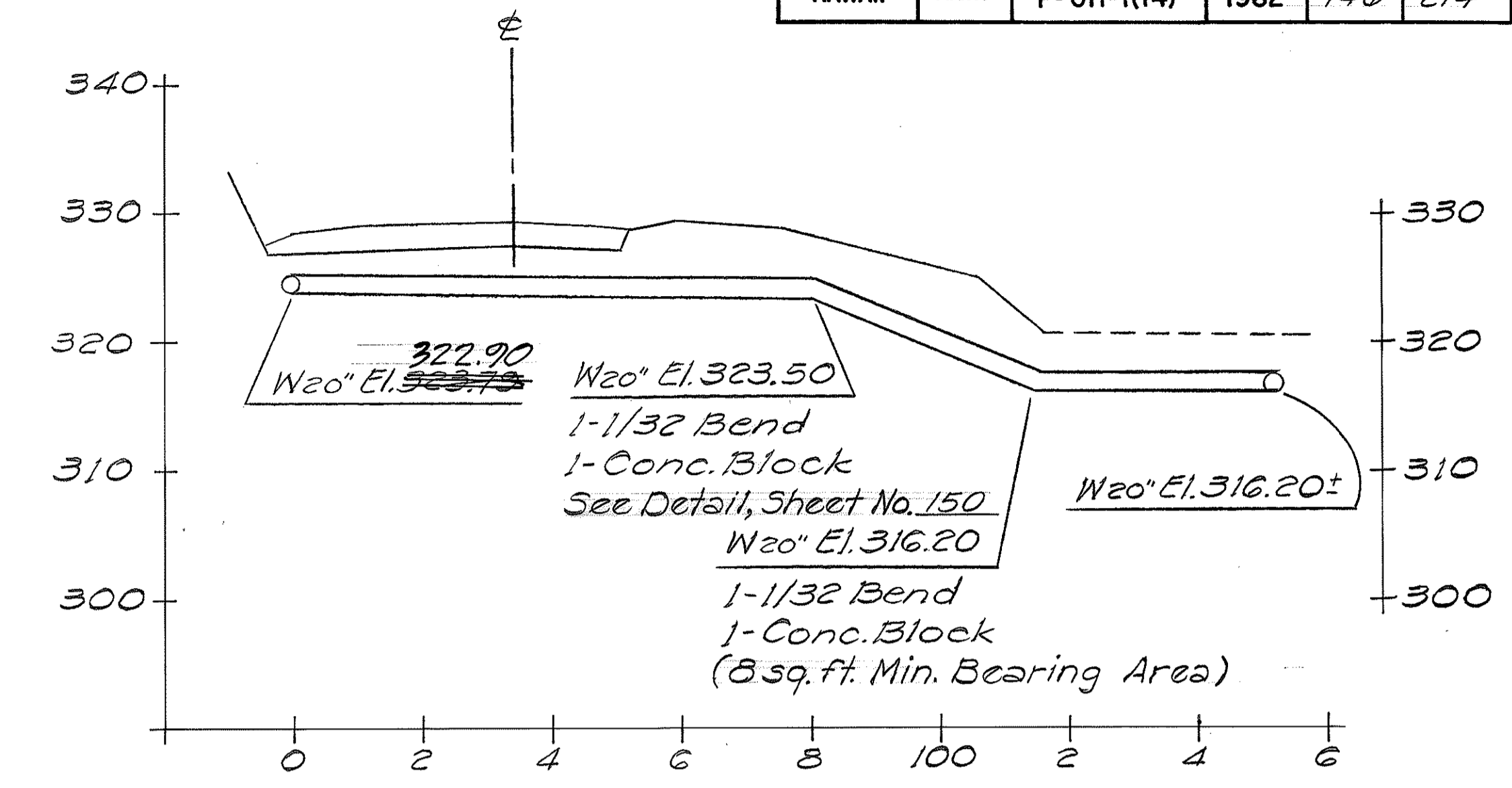
SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
NO. _____	

NEW 8-INCH D.I. PIPE ALONG SIDEROAD "C"
 Scale: Hor. = 1" = 20'
 Vert. = 1" = 10'

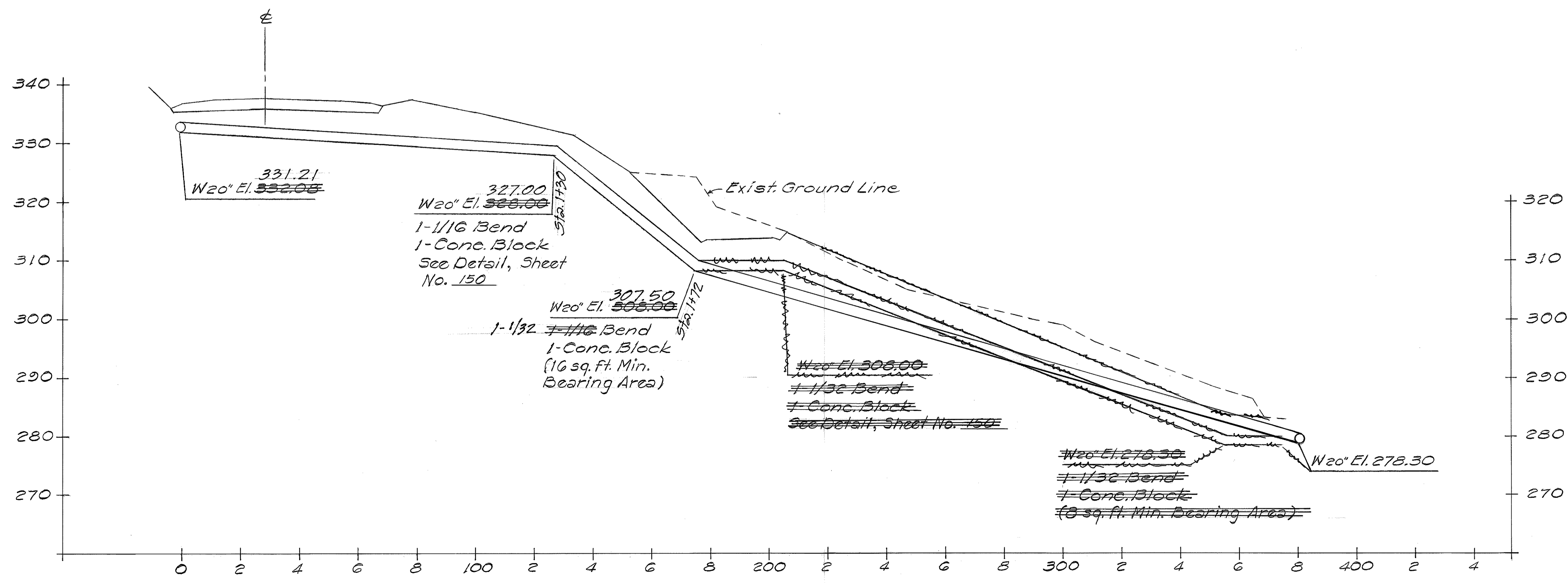
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	146	214



LINE "B" - 20-INCH WATERLINE
 Scale: Hor. = 1" = 100'
 Vert. = 1" = 10'



LINE "C" - 20-INCH WATERLINE
 STA. 248+33
 Scale: Hor. = 1" = 20'
 Vert. = 1" = 10'



LINE "A" - 20-INCH WATERLINE
 STA. 240+00
 Scale: Hor. = 1" = 20'
 Vert. = 1" = 10'

ESTIMATED QUANTITIES
 4 - 1/32 Bend
 2 - 1/16 Bend
 6 - Conc. Block

NOTE: For Horizontal Estimated Quantities See Plan "12-Inch & 20-Inch D.I. Waterline Relocation" Sheet No. 142

APPROVED:
[Signature]
 Manager, Dept. of Water Supply
 8/30/82
 Date

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

PROFILE 20-INCH D.I. WATERLINE RELOCATION
 STA. 240+00 to STA. 248+33

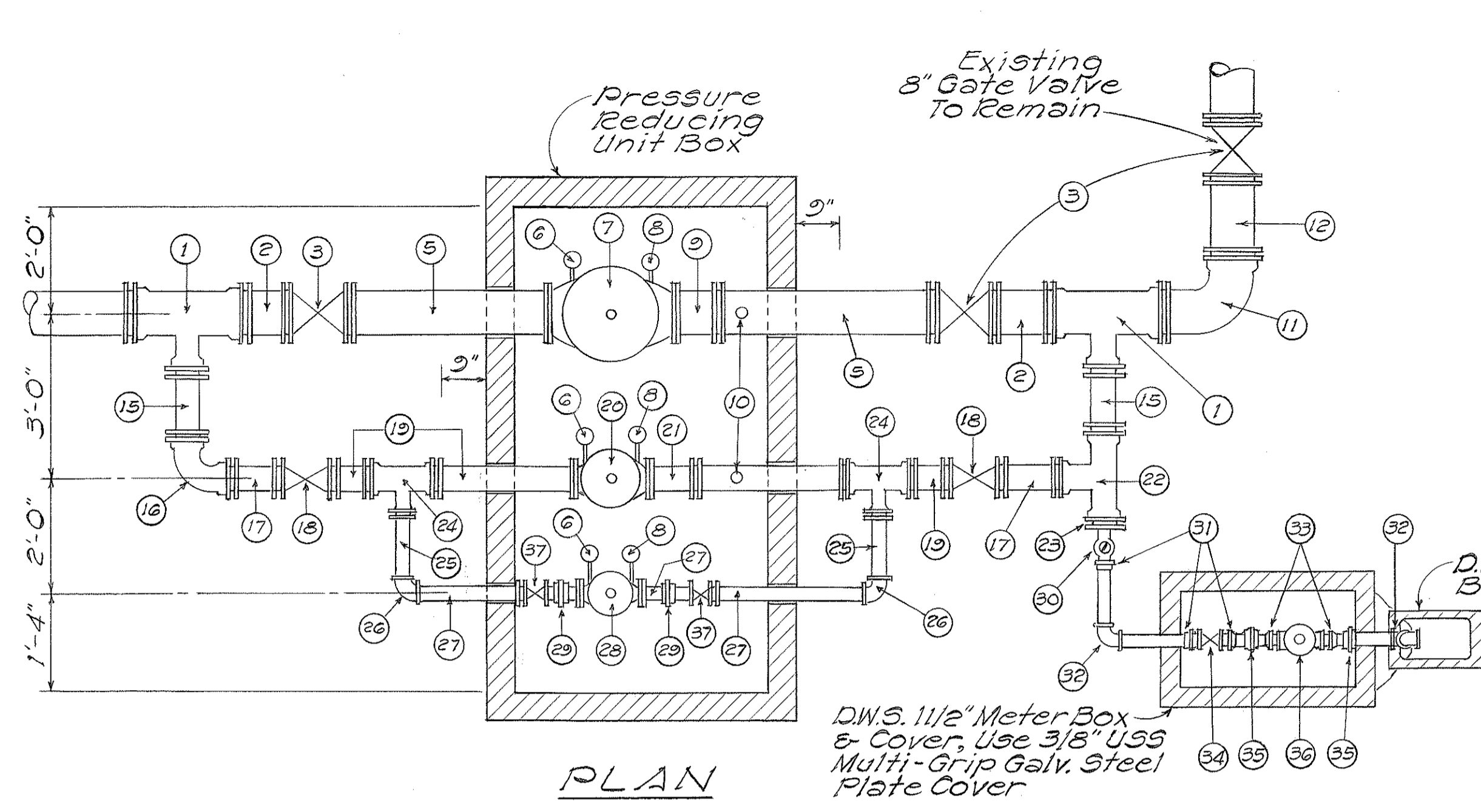
HBR FAP ROUTE 11
 PALANI RD. TO KILOHANA SUB'D.
 PROJECT No. F-011-1(14)
 NORTH KONA, HAWAII

Scale: As Noted Date: Aug. 1982

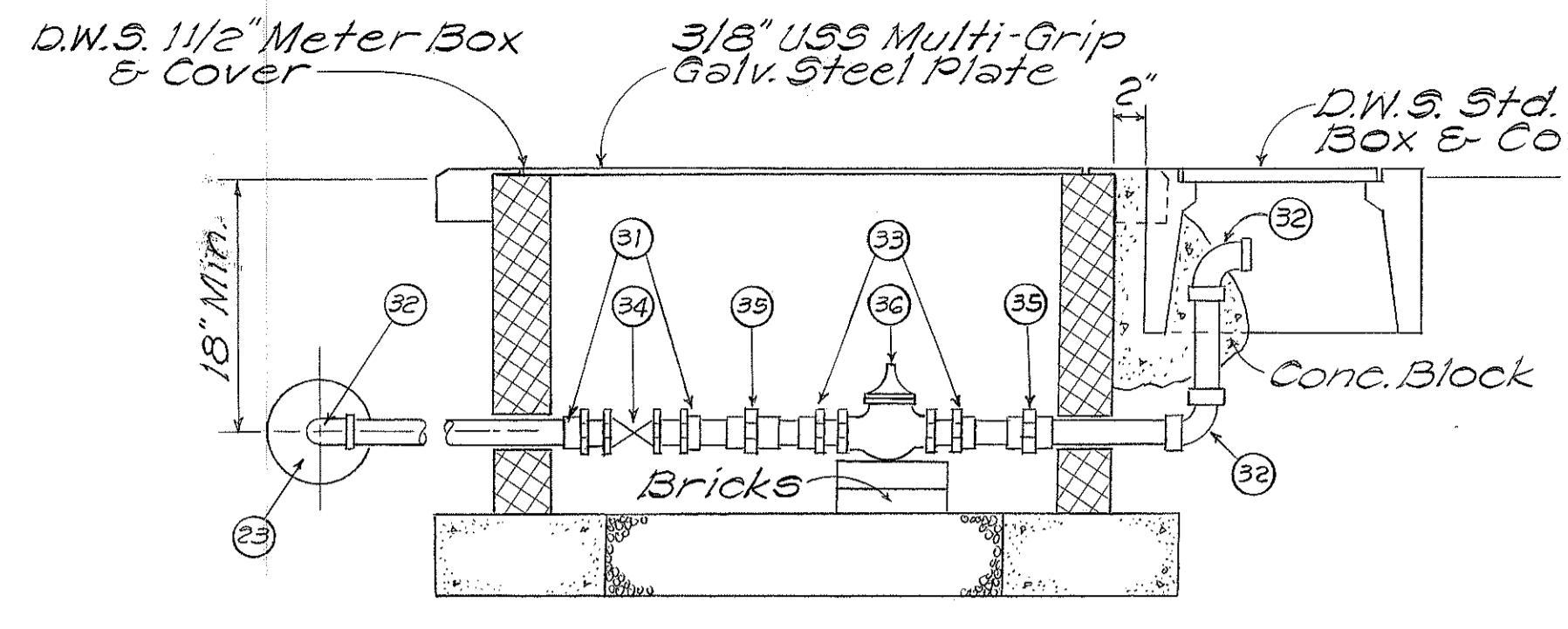
SHEET NO. OF SHEETS

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

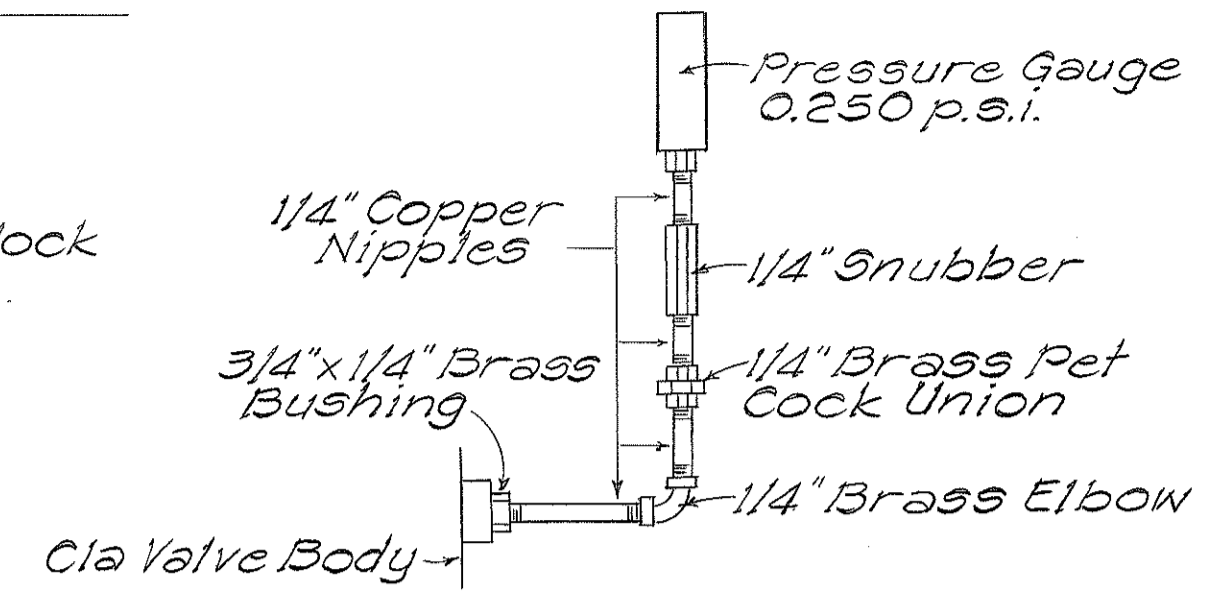
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	147	214



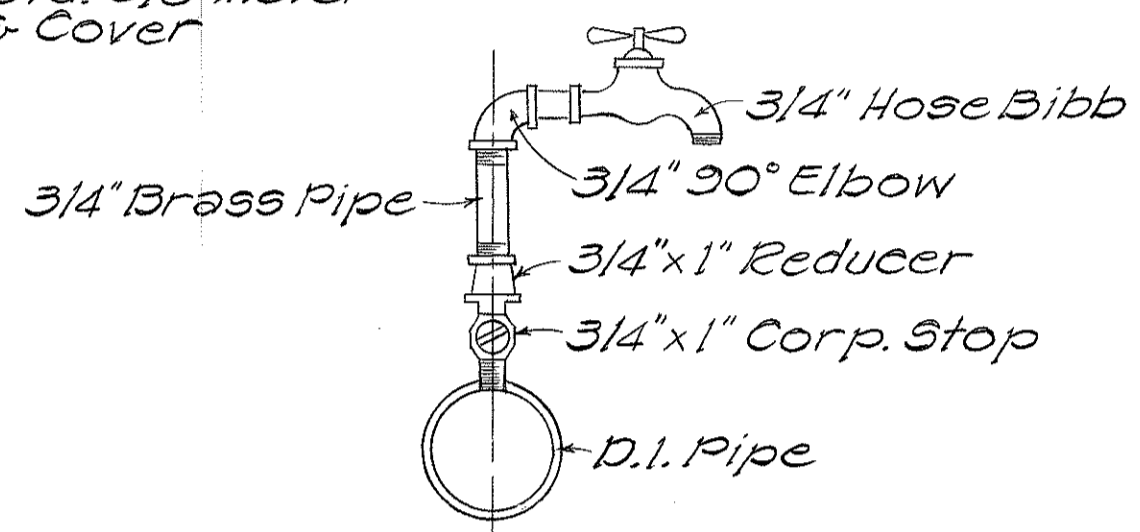
PLAN
PRESSURE REDUCING UNIT
Scale: 1/2" = 1'-0"



ELEVATION
PRESSURE RELIEF UNIT
Scale: 1" = 1'-0"



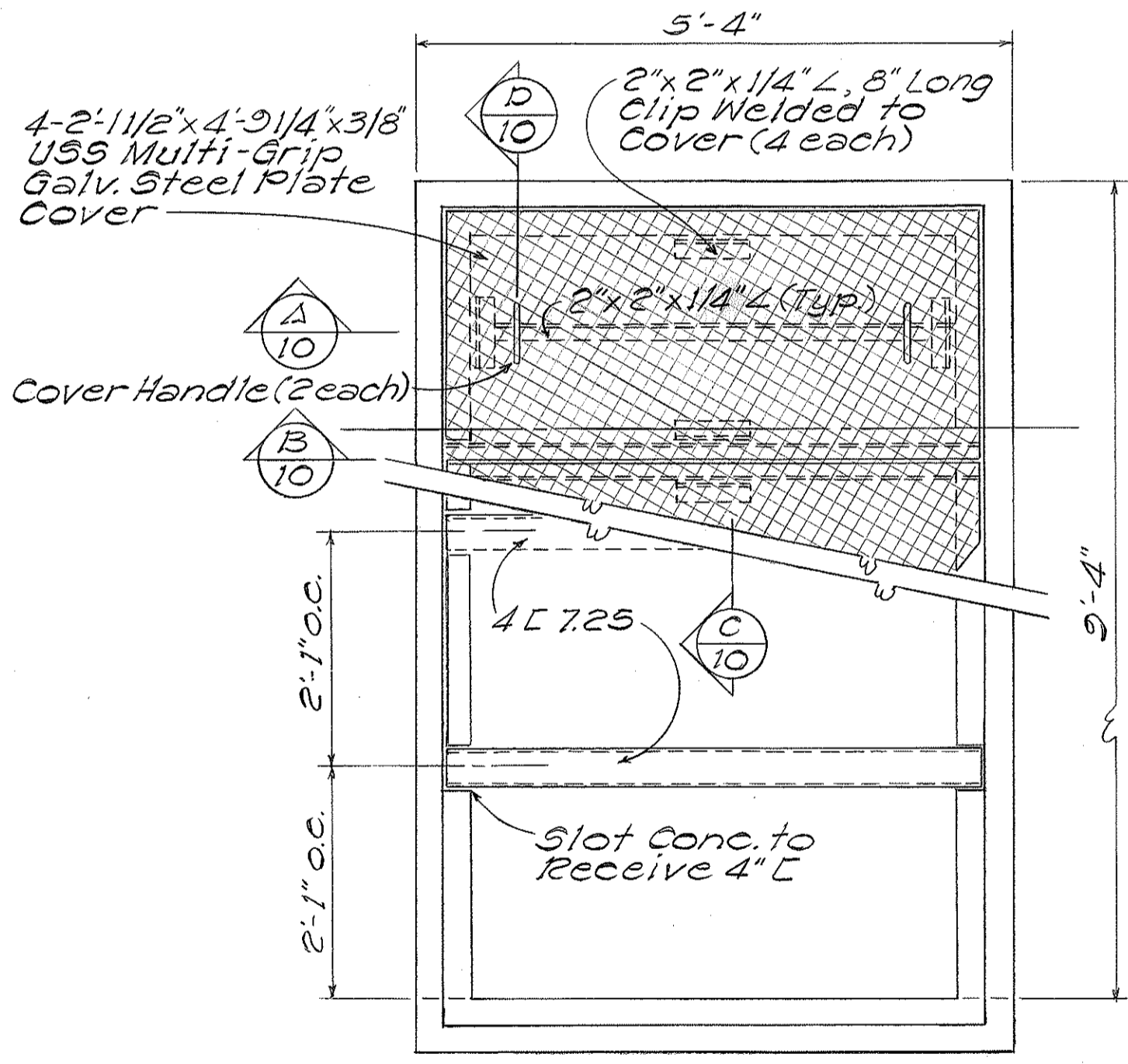
TYPICAL PRESSURE GAUGE
Not To Scale



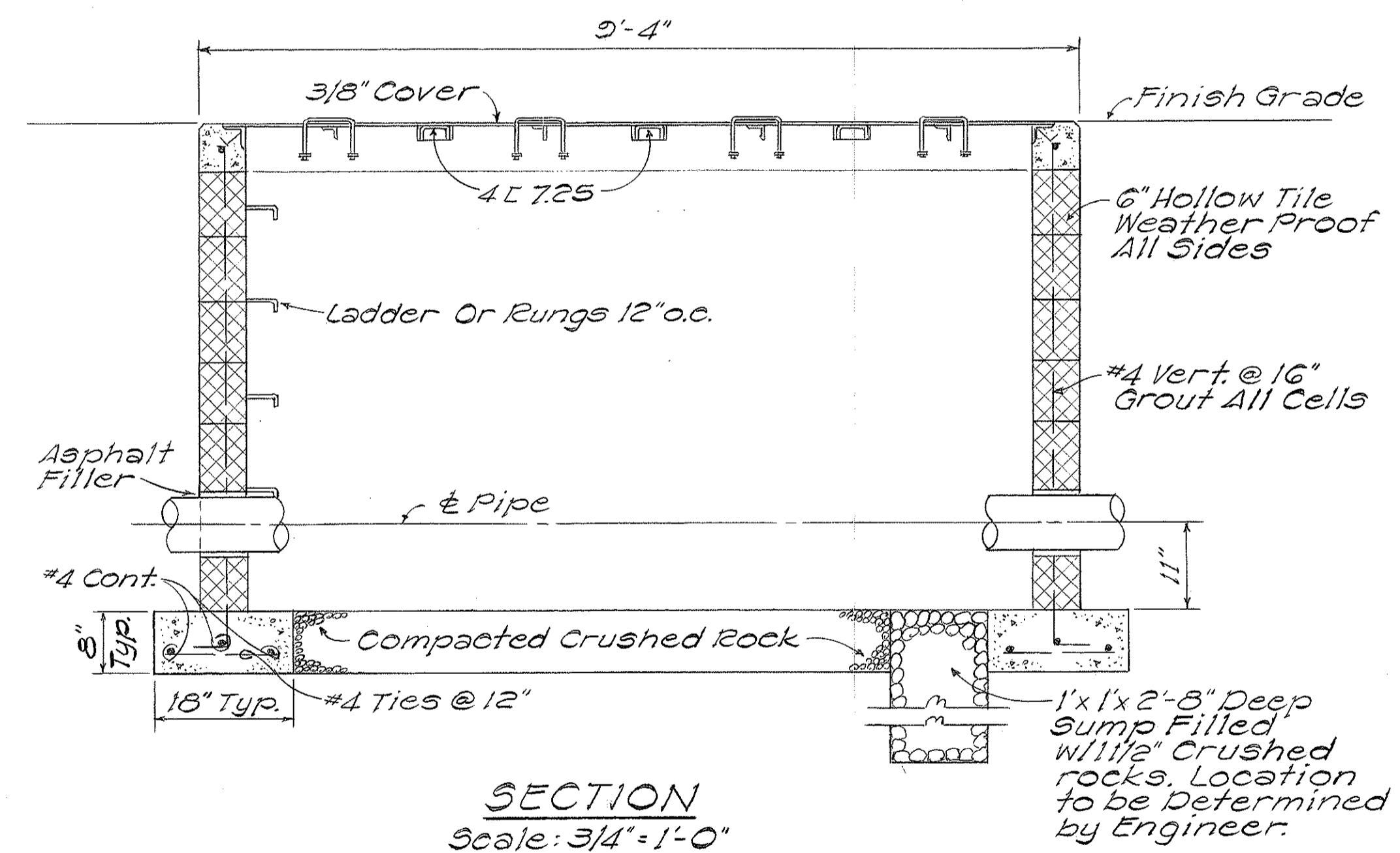
HOSE BIBB DETAIL-10
Not To Scale

MATERIAL SCHEDULE:

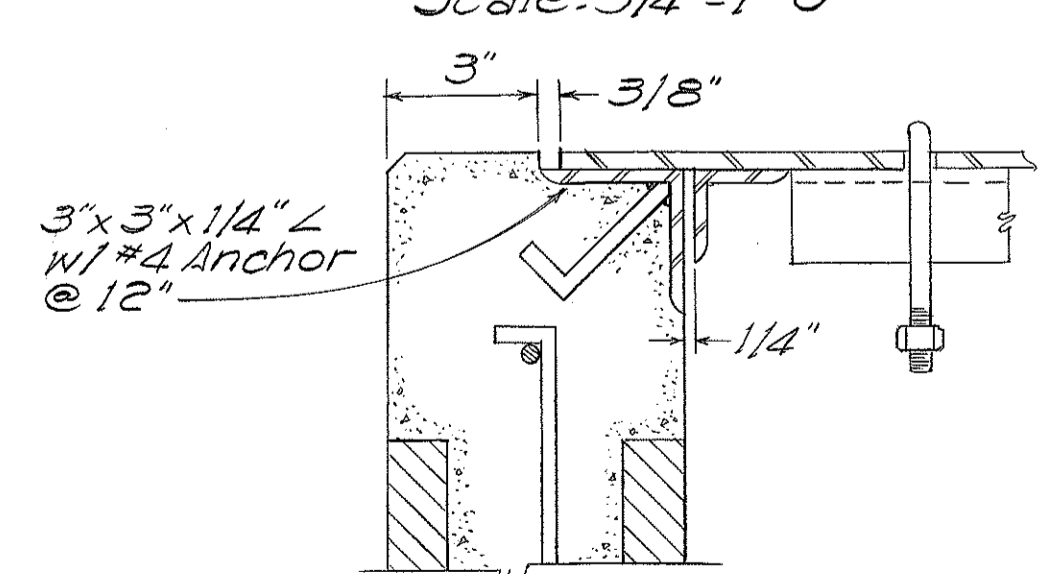
- 1 8"x4" Tee, M.J., Cl. 250
- 2 8" D.I. Nipple, P.E. x P.E., 1'-5" Long
- 3 8" Gate Valve, M.J. w/C.I. Valve Box
- 4 16" D.I. Nipple, M.J., 12" Long
- 5 8" D.I. Nipple, F.E. x P.E., Cut to Fit
- 6 3 1/2" Dia. Pressure Gauge Unit, 0-300 psi (See Detail this Sheet)
- 7 8" Pressure Reducing & Sustaining Valve, F.E., Epoxy Coated Internally w/ Stem Indicator, Cla-Val 92 G-01, C5
- 8 3 1/2" Dia. Pressure Gauge Unit 0-200 psi (See Detail this Sheet)
- 9 8" Flange Coupling Adapter, Sm-Blair #913-09050800-003, 300# Class
- 10 3/4" Hose Bibb
- 11 8" 1/4 Bend, M.J. x P.E.
- 12 8" D.I. Nipple, P.E. x P.E., Cut to Fit
- 13 16"x8" Tee, M.J.
- 14 16" Solid Body Sleeve, M.J., 15" Long
- 15 4" D.I. Nipple, P.E. x P.E. Cut to Fit
- 16 4" 1/4 Bend, M.J.
- 17 4" Nipple, P.E. x P.E., 1'-5" Long
- 18 4" Gate Valve, M.J., w/C.I. Valve Box
- 19 4" D.I. Nipple, F.E. x P.E., Cut to Fit
- 20 4" Pressure Reducing & Sustaining Valve, F.E., Epoxy Coated Internally w/ Stem Indicator Cla-Val 92 G-01, C5
- 21 4" Flange Coupling Adapter, Sm-Blair #913-04800400-003, 300# Class
- 22 4"x4" Tee, M.J.
- 23 4" Plug, M.J., Tapped for 2" I.P.T.
- 24 4"x2" Tee, M.J.
- 25 2" D.I. Nipple, M.J.-S.E.
- 26 2" 1/4 Bend, S.E.
- 27 2" D.I. Nipple, F.E.-S.E., Cut to Fit
- 28 2" Pressure Reducing & Sustaining Valve, F.E. Epoxy Coated Internally w/ Stem Indicator, Cla-Val 92 G-01, BOSJ.
- 29 2" Union, Galv.
- 30 2" Curb Stop
- 31 2" Copper Adaptor, Copper to Threaded (F)
- 32 2" Copper Elbow, C to C.
- 33 2"x1 1/2" Adapter, Copper to Threaded (F)
- 34 2" Gate Valve, Brass, S.E.
- 35 2" Union, C to C.
- 36 1 1/2" Pressure Relief Valve, S.E., Cla-Val 50 G-01 B, Cl. 250
- 37 2" Gate Valve, S.E.



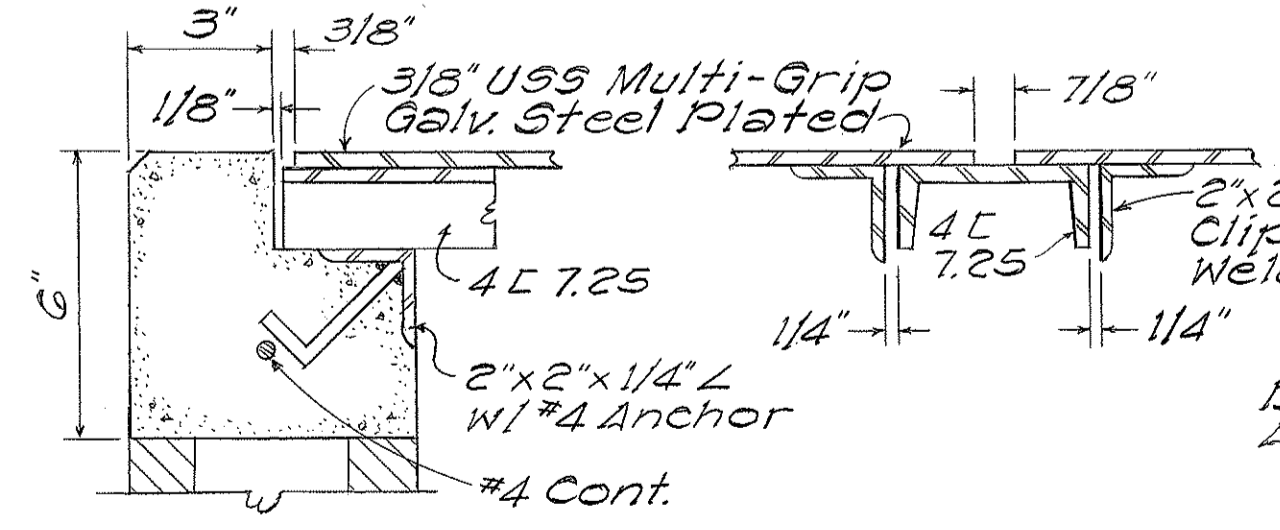
PLAN
PRESSURE REDUCING UNIT BOX
Scale: 3/4" = 1'-0"



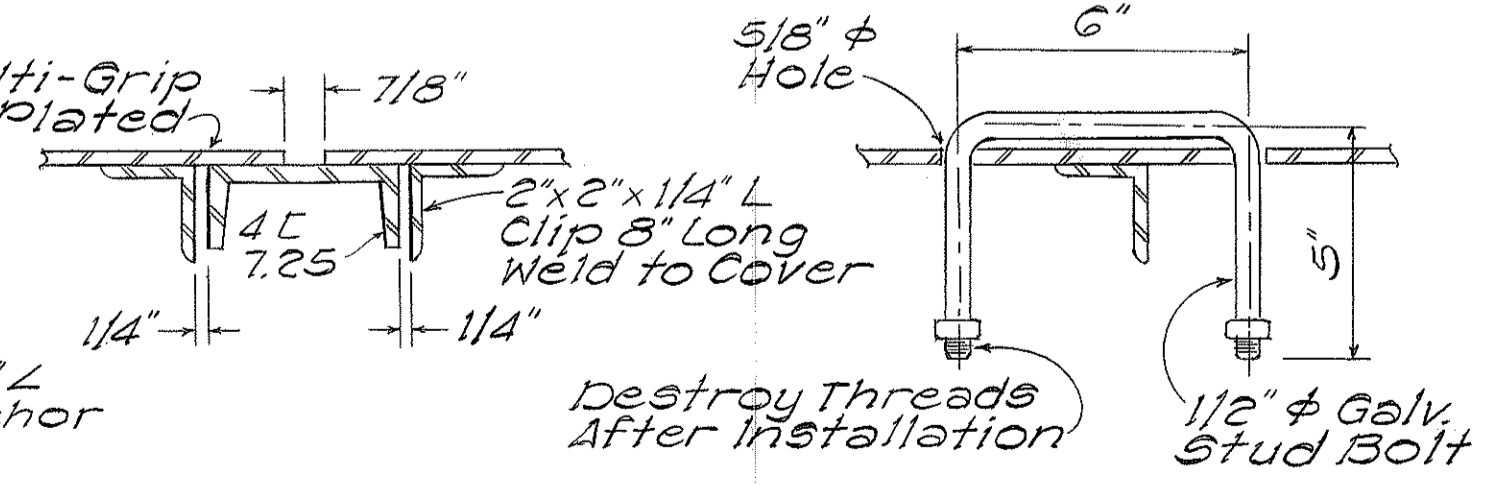
SECTION
Scale: 3/4" = 1'-0"



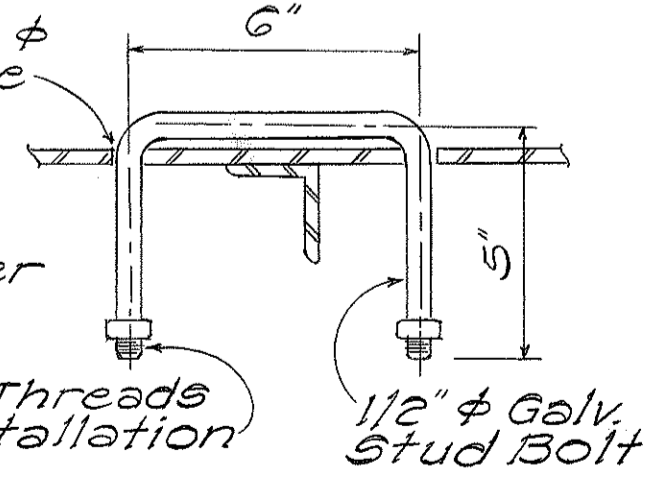
SECTION A-A
Scale: 3" = 1'-0"



SECTION B-B
Scale: 3" = 1'-0"



SECTION C-C
Scale: 3" = 1'-0"



SECTION D-D
Scale: 3" = 1'-0"

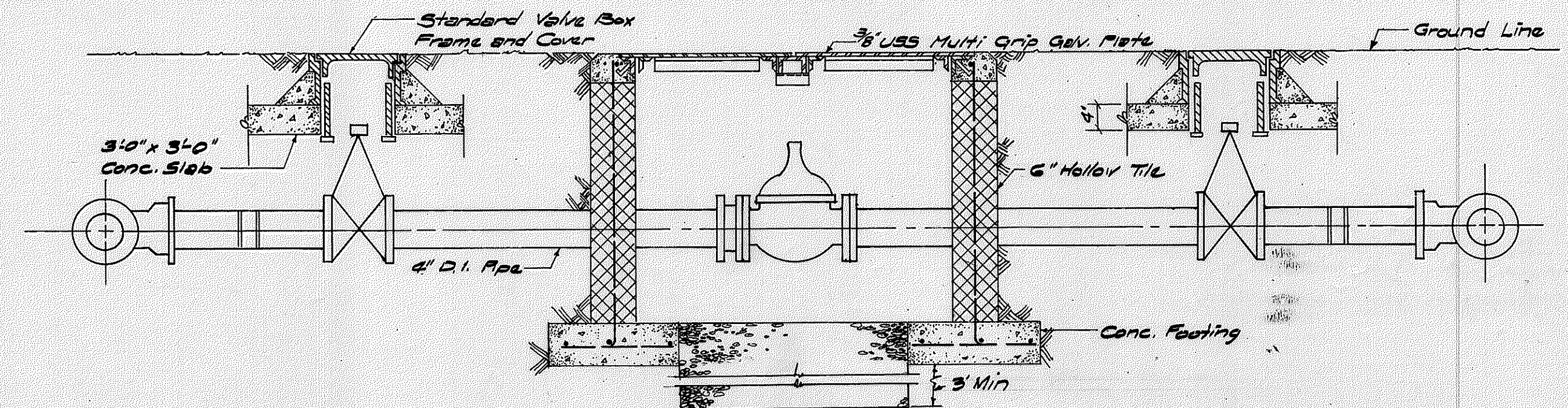
PRESSURE REDUCING UNIT BOX
Scale: As Noted

Details Ref.: Dept. of Land & Natural Resources
Div. of Wtr. & Land Development
Kona Wtr. Proj. No. 8 HW-49, Sht. 10, Dated 5/29/80

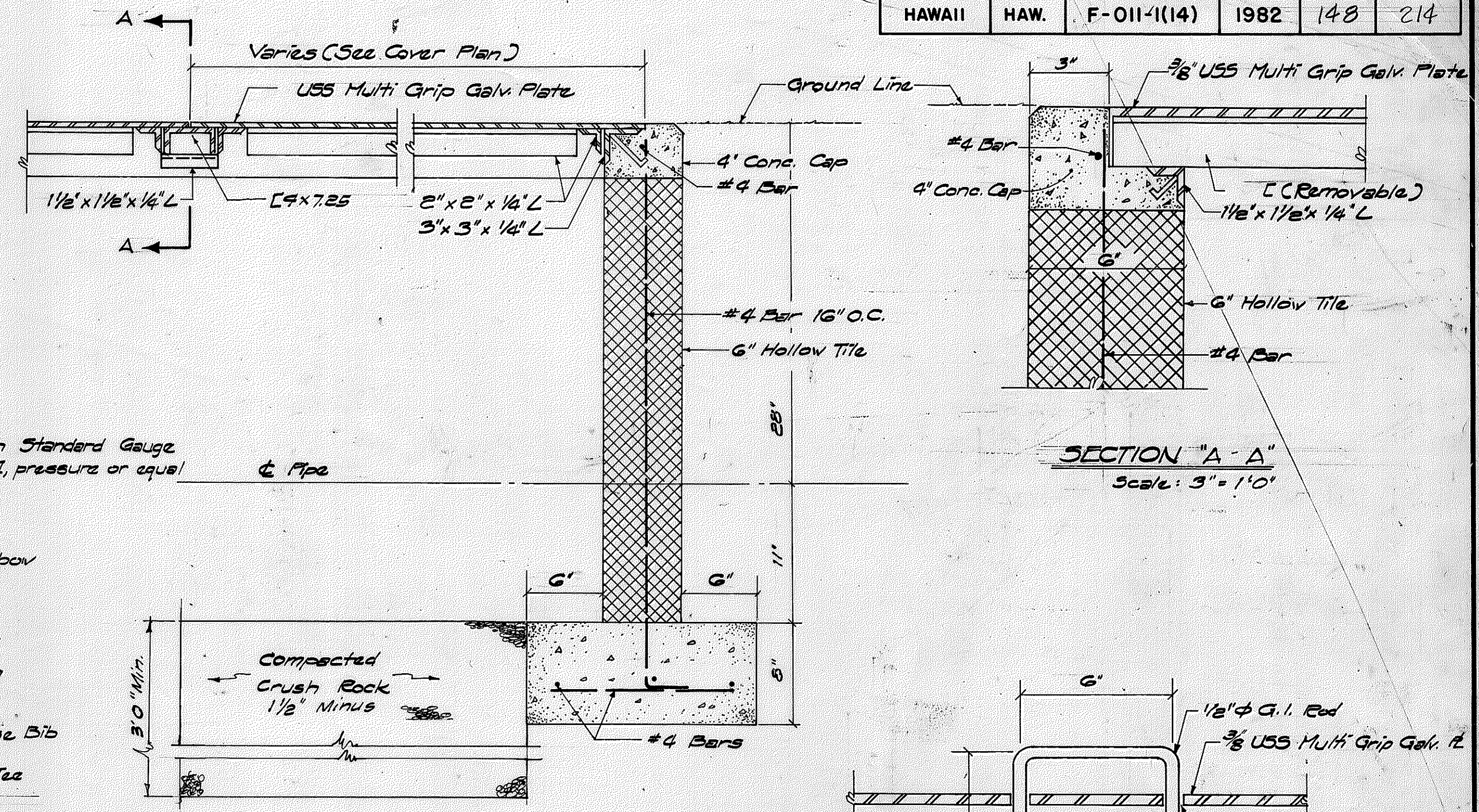
APPROVED: *[Signature]* 8/20/82
DEPT. OF WATER SUPPLY DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PRESSURE REDUCING UNIT
DETAILS AT HWY. STA. -3+50 RT.
H&R F&P ROUTE 11
PALANI RD. TO KILOHANA SUB'D
PROJECT NO. F-011-1(14)
NORTH KONA, HAWAII
Scale: As Shown Date: July 1982
SHEET No. OF SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	148	214

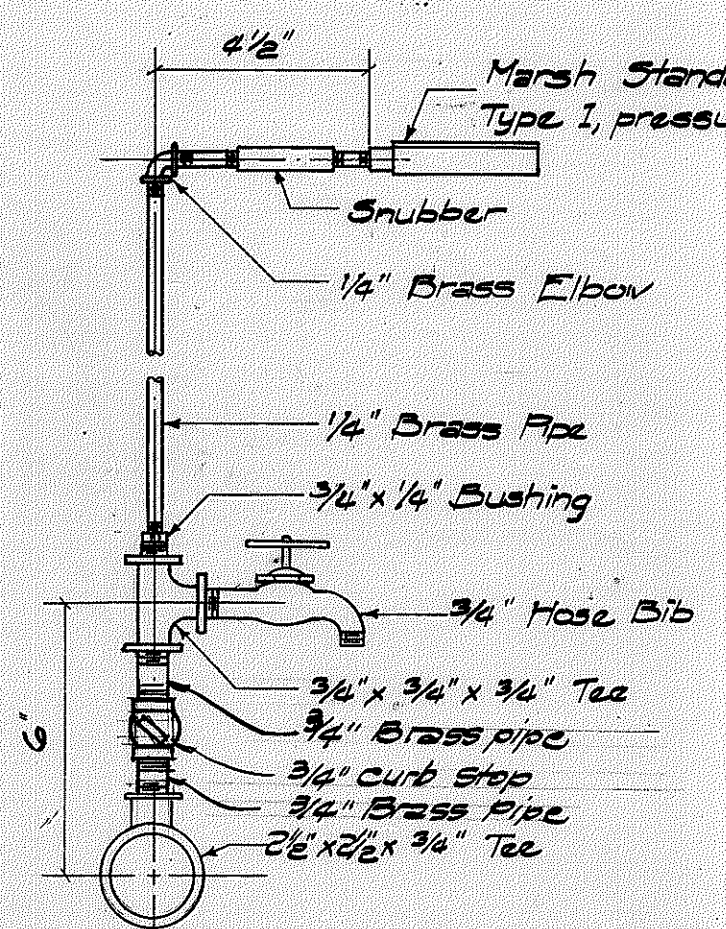


2" AND 4" PRESSURE REDUCING VALVE UNIT
ELEVATION
Scale: 3/4" = 1'-0"

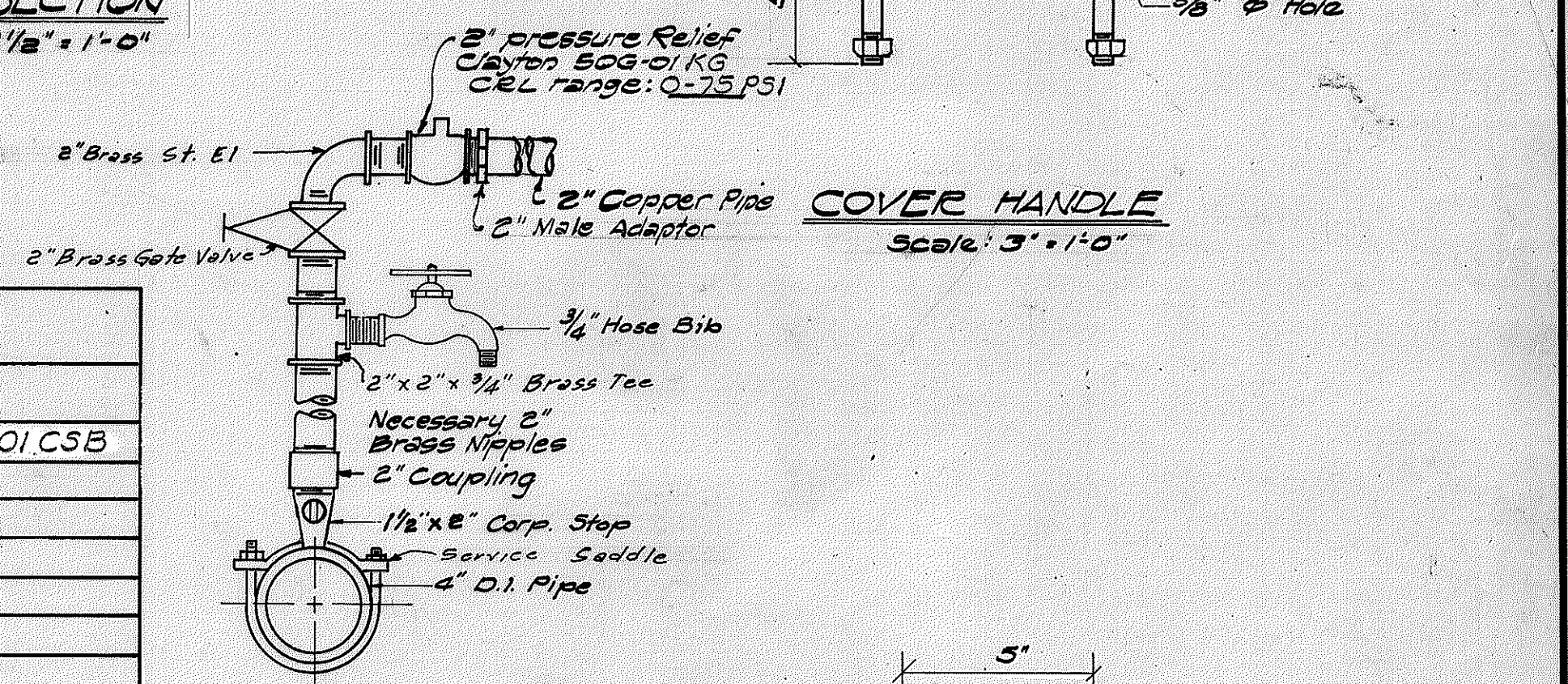


TYPICAL SECTION
Scale: 1/2" = 1'-0"

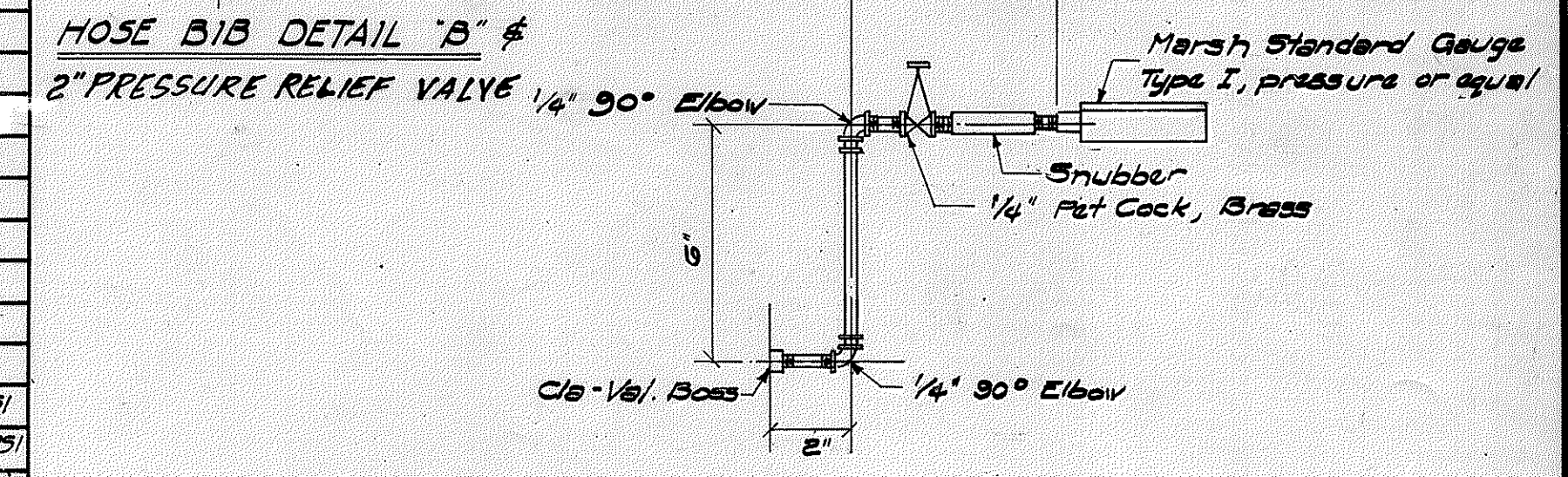
SECTION "A-A"
Scale: 3" = 1'-0"



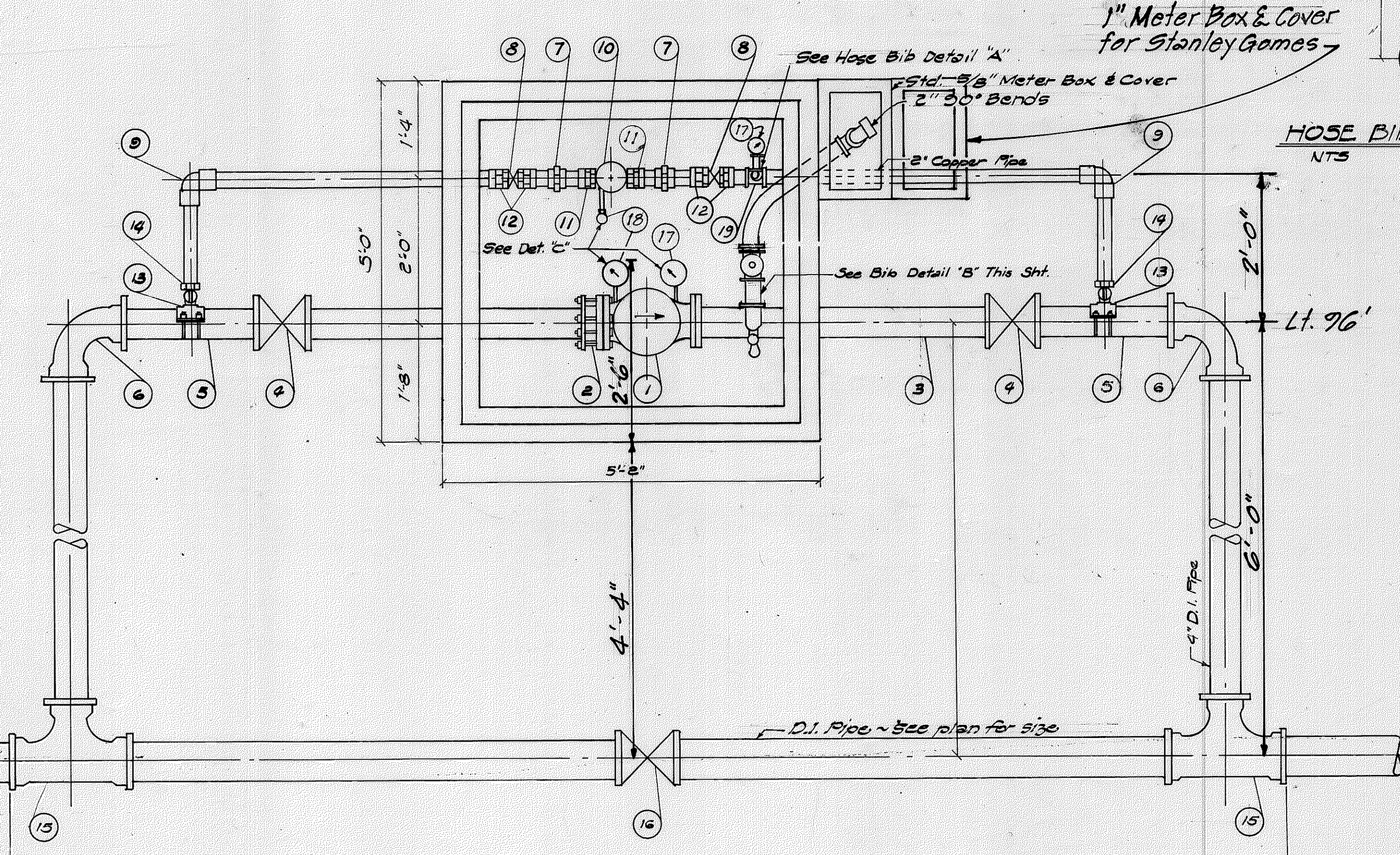
HOSE BIB DETAIL "A"
NTS



COVER HANDLE
Scale: 3" = 1'-0"



PRESSURE GAUGE DETAIL "C"
NTS



STA. 180+50, LT. 26.83'
2" AND 4" PRESSURE REDUCING VALVE UNIT
PLAN
Scale: 3/4" = 1'-0"

Item No.	Description
1	4" Pressure Reducing Valve Clayton 926-01 CSB
2	5B Flange Coupling Adapter, # 912-00048004-000
3	4" x 48" C.I. Adapter, FE, RE
4	4" Gate Valve, M.J. 1/4" Retainer Gland & Valve Box
5	4" x 24" C.I. Adapter, FE
6	4" 90° C.I. Bend, M.J. 1/4" Retainer Gland
7	2 1/2" Brass Union, C-C
8	2 1/2" Gate Valve, Sort
9	2 1/2" 90° Brass Elbow C-C
10	2" Pressure Reducing Valve Clayton 926-01 CSB
11	2 1/2" x 2" Adapter, C to F
12	2 1/2" Male Brass Adapter, C to M
13	2" x 2 1/2" Corp. Stop 1/2" Service Saddle
14	2 1/2" Brass Adapter, C to F
15	C.I. Tee, M.J. w/ 4" Branch, sized for pipeline main.
16	Gate Valve, M.J. ~ pipeline main size.
17	Marsh Standard Gauge, Type I, pressure or equal 0-125 PSI
18	Marsh Standard Gauge, Type I, pressure or equal 0-250 PSI
19	2 1/2" x 2 1/2" x 3/4" Brass Tee
	Necessary 3/4" Copper

- NOTE:**
- Clayton Valves shall be equipped with epoxy coating and valve position indicators. (X101)
 - Upstream static pressure:
 - Pressure reducer settings:
4": 45 PSI
2": 50 PSI
 - CEL Range: 15-75 PSI
CEL Range: 20-200 (if applicable)
PSI

Approved: *aw JH* Date: 8/20/82

DEPT. OF WATER SUPPLY

Revised: 9/1/81

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

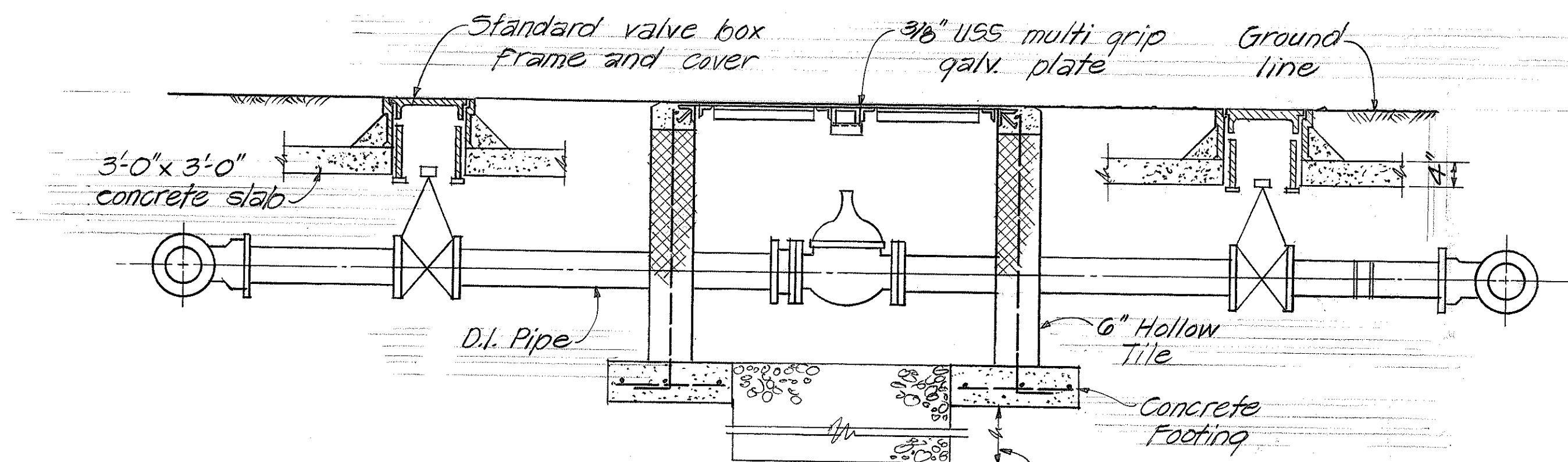
2" AND 4" PRESSURE REDUCING VALVE UNIT

HBR FAP ROUTE 11
PALANI RD. TO KILOHANA SUB'D
PROJECT NO. F-011-1(14)
NORTH KONA, HAWAII

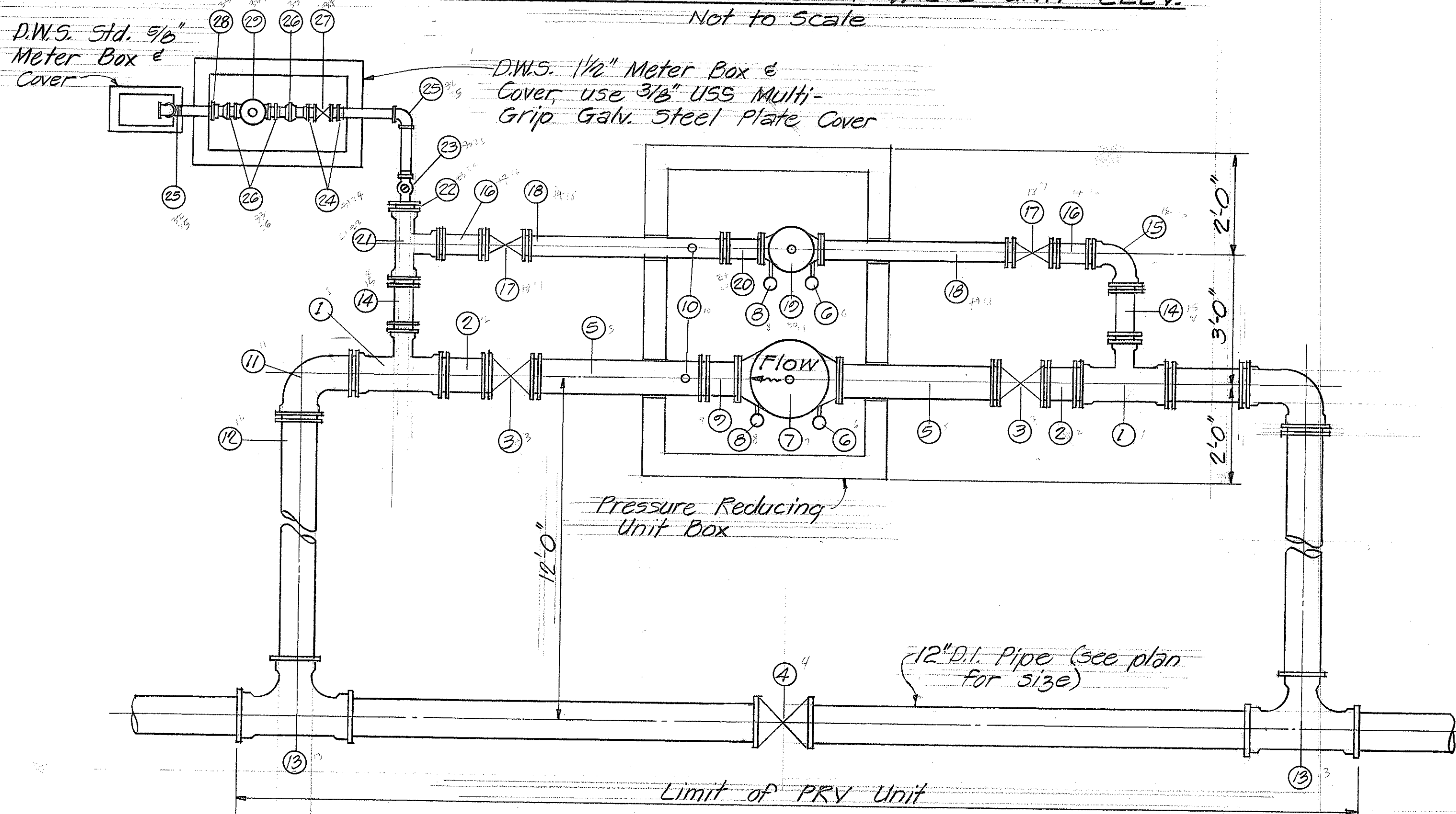
Scale: As Noted Date: Aug. 1982

SHEET NO. OF SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	149	214



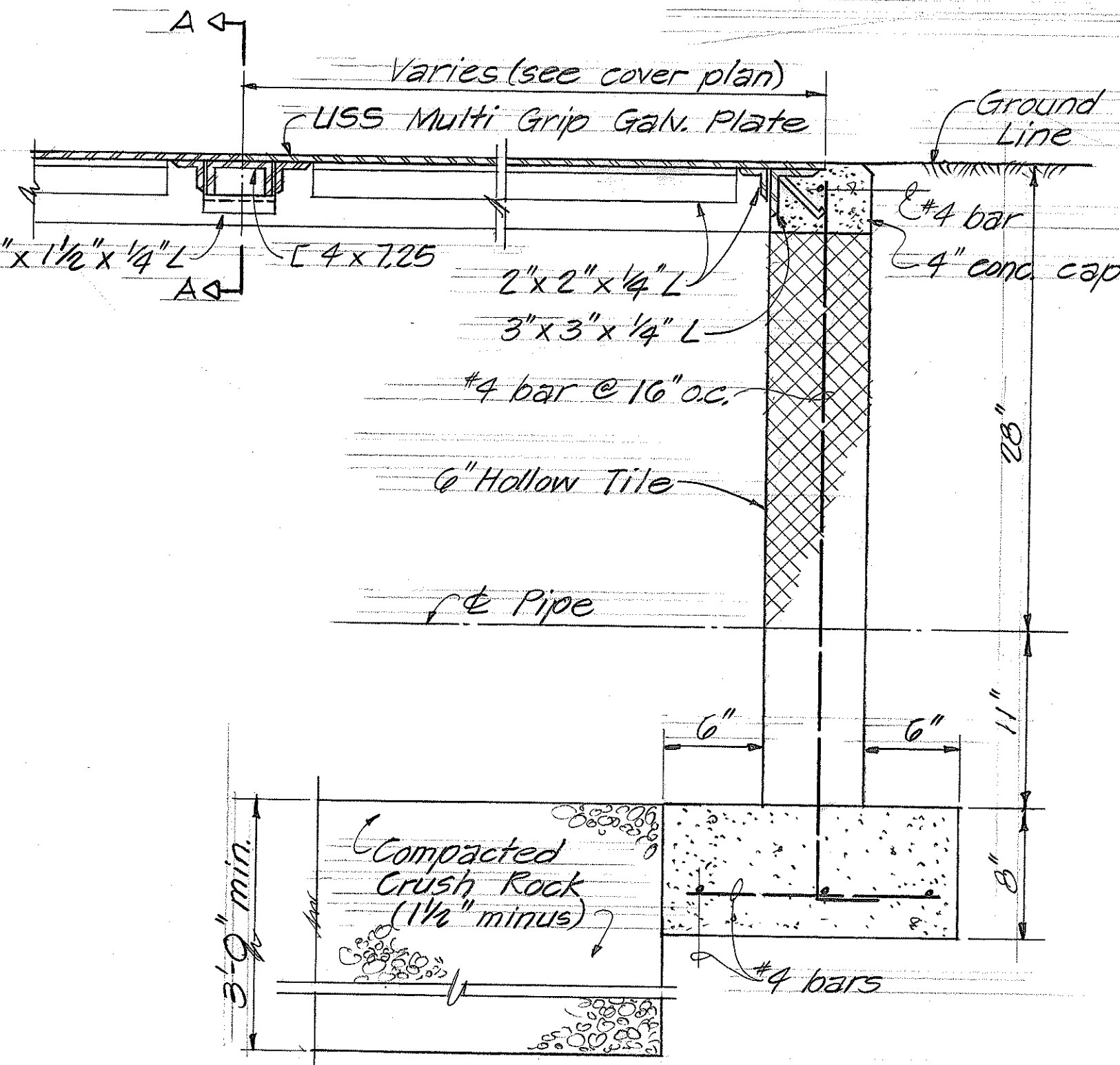
6" AND 8" PRESSURE REDUCING VALVE UNIT ELEV.
Not to Scale



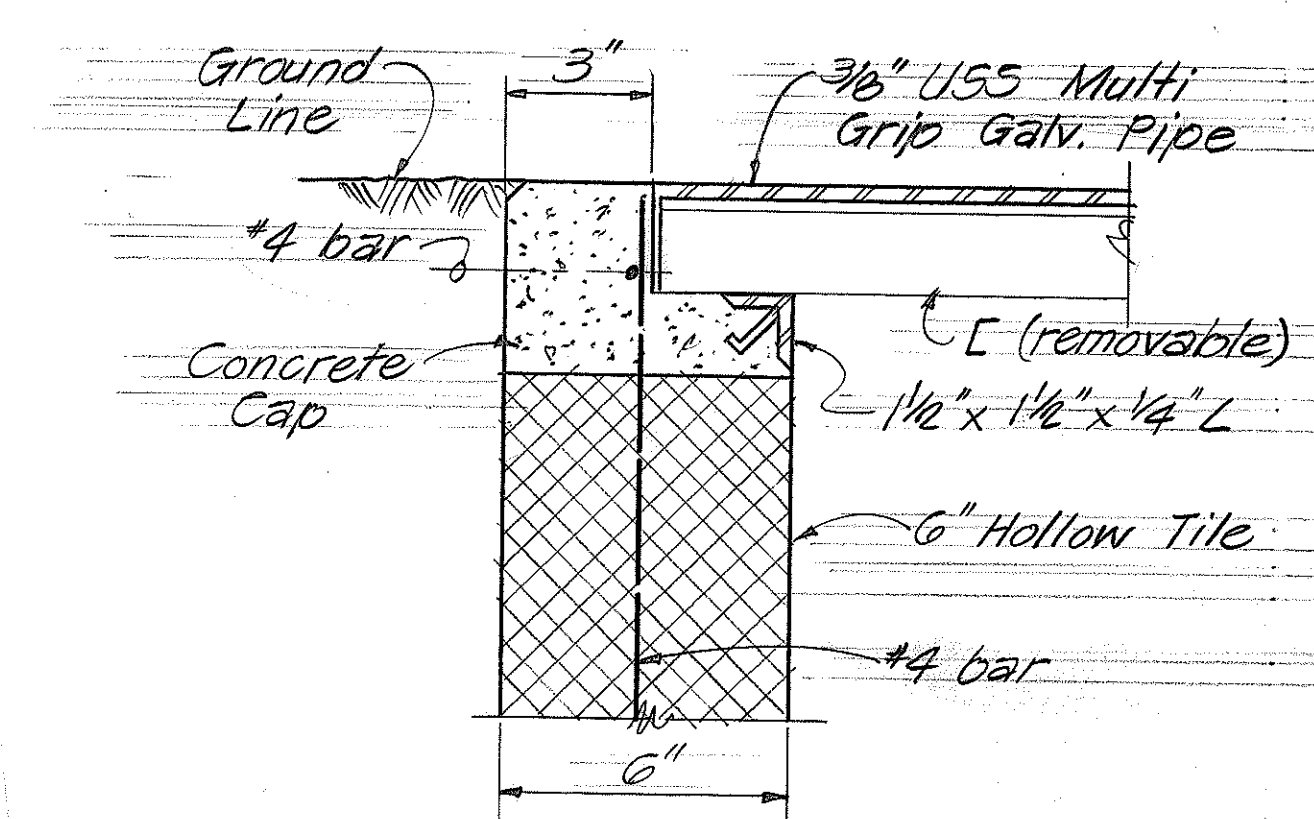
6" AND 8" PRESSURE REDUCING VALVE UNIT PLAN
Not to Scale

MATERIAL SCHEDULE

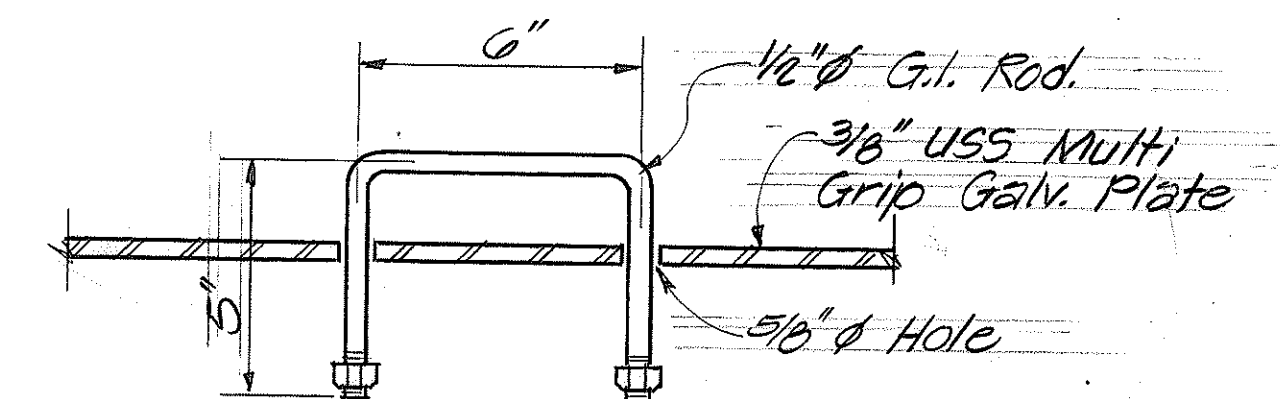
- | | |
|---|--|
| <ul style="list-style-type: none"> ① 8" x 6" Tee, M.J., Cl. 250 ② 8" D.I. Nipple, P.E. x P.E., 1'-5" long. ③ 8" Gate Valve, M.J. w/ Cl. Valve Box ④ 12" Gate Valve, M.J. w/ Cl. Valve Box ⑤ 8" D.I. Nipple, Cut to Fit ⑥ Marsh Standard Gauge, Type I, Pressure or Equal, 0-250 psi (see detail this sheet) ⑦ 8" Pressure Reducing & Sustaining Valve, F.E., Epoxy Coated Internally w/ Stem Indicator, Cla-Val 92G-01-CSB ⑧ Marsh Standard Gauge, Type I, Pressure or Equal 0-125 psi (see detail this sheet) ⑨ 8" Flange Coupling Adapter ⑩ 3/4" Hose Bib ⑪ 8" 1/4 Bend, M.J. x P.E. ⑫ 8" D.I. Nipple, P.E. x P.E., Cut to Fit ⑬ 12" x 8" Tee, M.J. ⑭ 6" D.I. Nipple, P.E. x P.E., Cut to Fit | <ul style="list-style-type: none"> ⑮ 6" 1/4 Bend, M.J. ⑯ 6" Nipple, P.E. x P.E., 1'-5" long ⑰ 6" Gate Valve, M.J., w/ Cl. Valve Box ⑱ 4" D.I. Nipple, Cut to Fit ⑲ 6" Pressure Reducing & Sustaining Valve, F.E. Epoxy Coated Internally w/ Stem Indicator Cla-Val 92G-01, CSB ⑳ 6" Flange Coupling Adapter ㉑ 6" x 6" Tee, M.J. ㉒ 6" Plug, M.J., Tapped for 2" I.P.T. ㉓ 2" Curb Stop ㉔ 2" Copper Adaptor, Copper to Threaded (F) ㉕ 2" Copper Elbow, C. to C. ㉖ 2" x 1 1/2" Adaptor, Copper to Threaded (F) ㉗ 2" Gate Valve, Brass, S.E. ㉘ 2" Union, C. to C. ㉙ 1 1/2" Pressure Relief Valve, S.E., Cla-Val 506-01 |
|---|--|



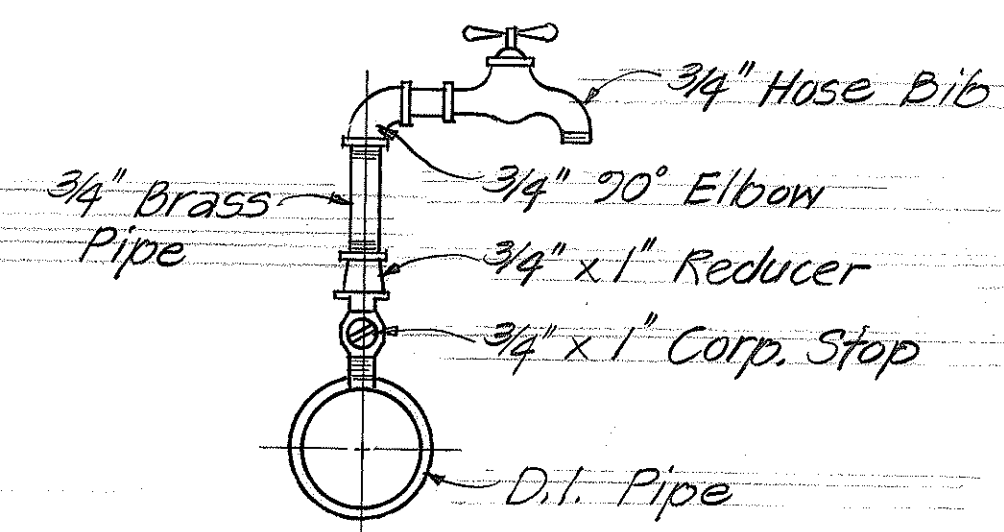
TYPICAL SECTION
Scale: 1/2" = 1'-0"



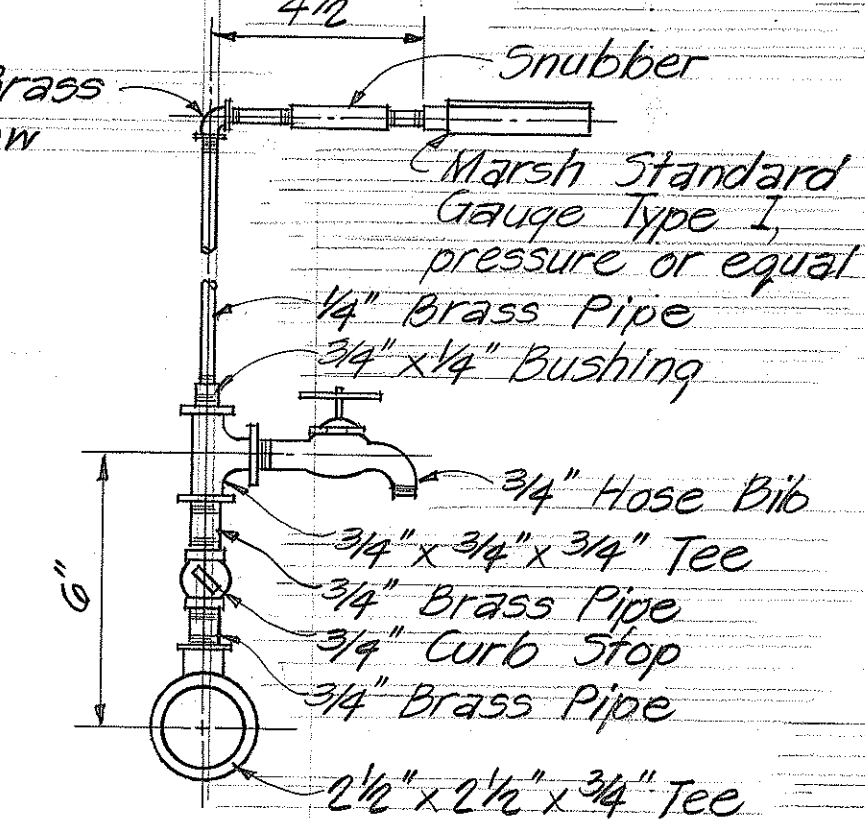
SECTION A-A
Scale: 3" = 1'-0"



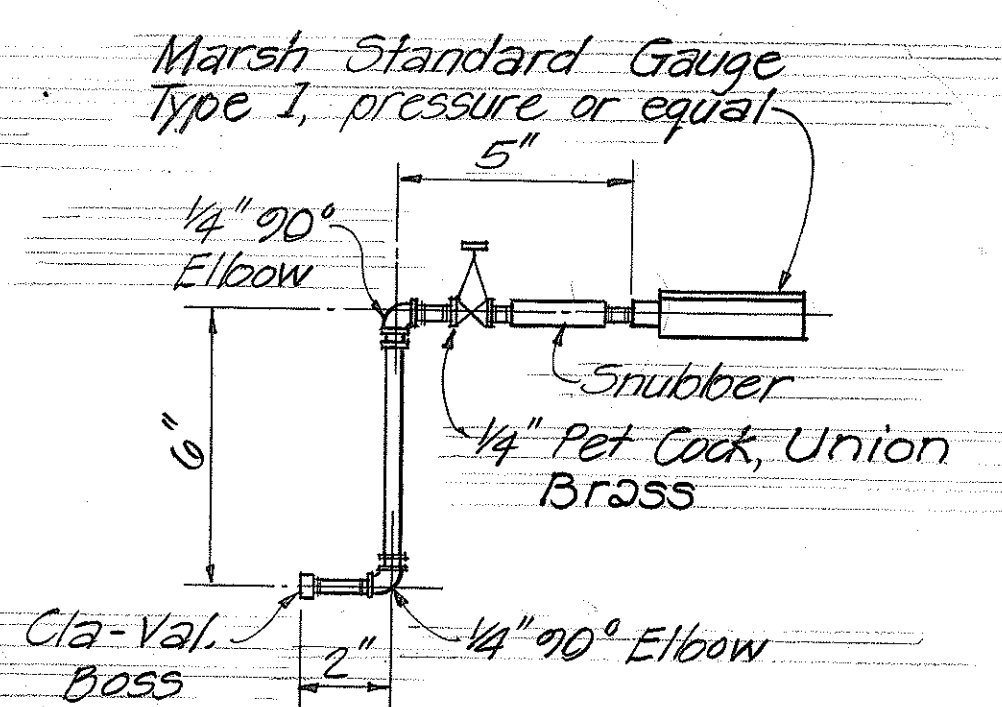
COVER HANDLE DETAIL
Scale: 3" = 1'-0"



HOSE BIB DETAIL
Not to Scale

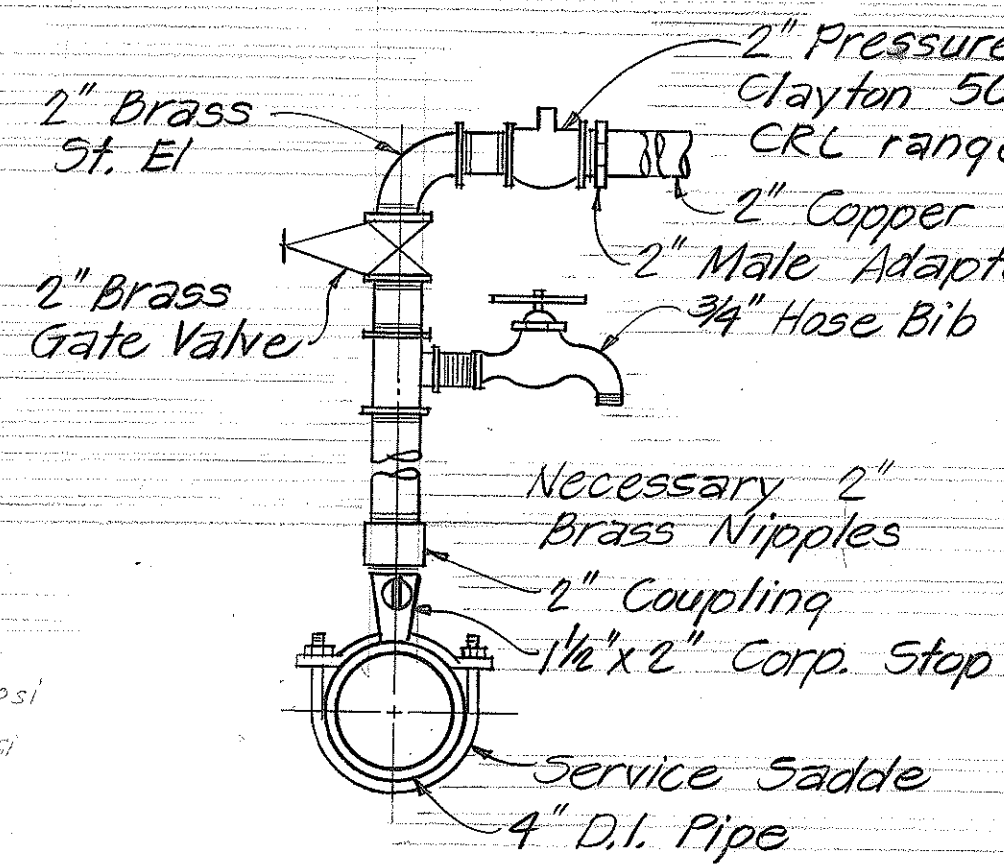


HOSE BIB DETAIL "A"
Not to Scale



PRESSURE GAUGE DETAIL "C"
Not to Scale

- NOTE**
- Clayton valves shall be equipped with epoxy coating and valve position indicators (X101)
 - Upstream static pressure:
 - Pressure reducer settings: 8": 60 psi, 6": 65 psi, 4": 70 psi
 - CRD Range: 30-300 psi, 300 psi CRL Range: 20-200 psi, 200 psi (if applicable)



HOSE BIB DETAIL "B" AND 2" PRESSURE RELIEF VALVE
Not to Scale

APPROVED: *[Signature]* 8/29/82
DEPT. OF WATER SUPPLY DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

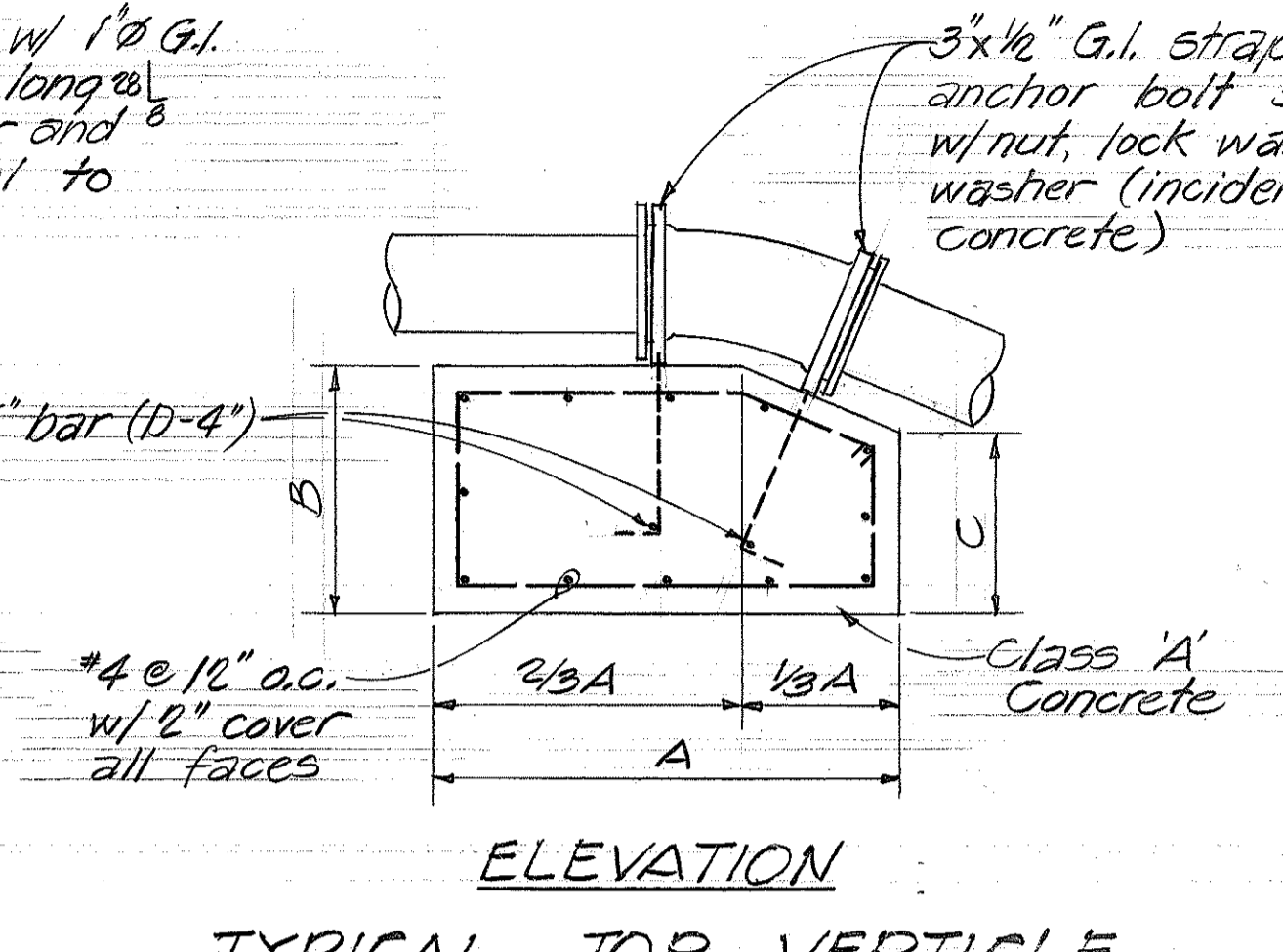
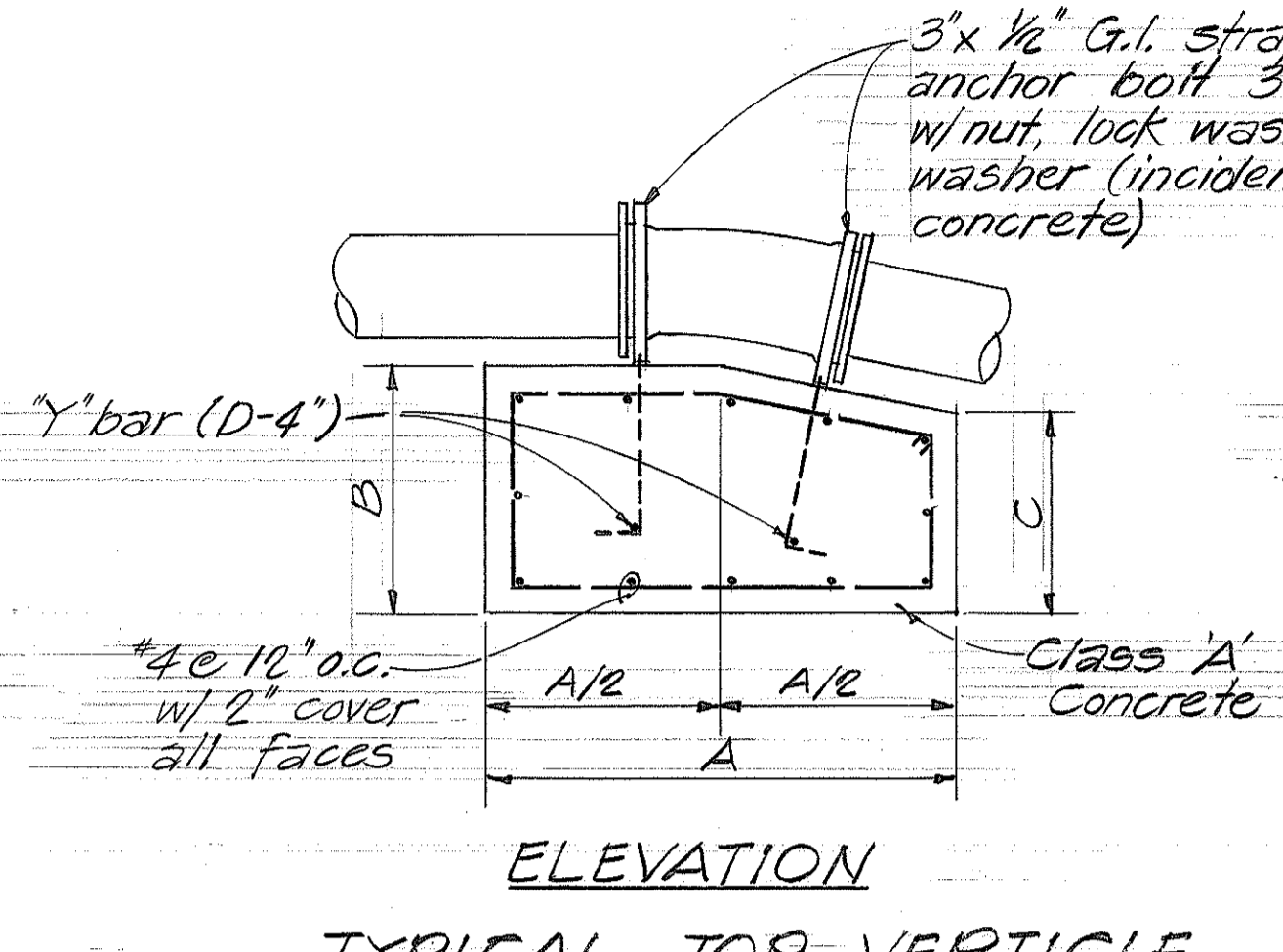
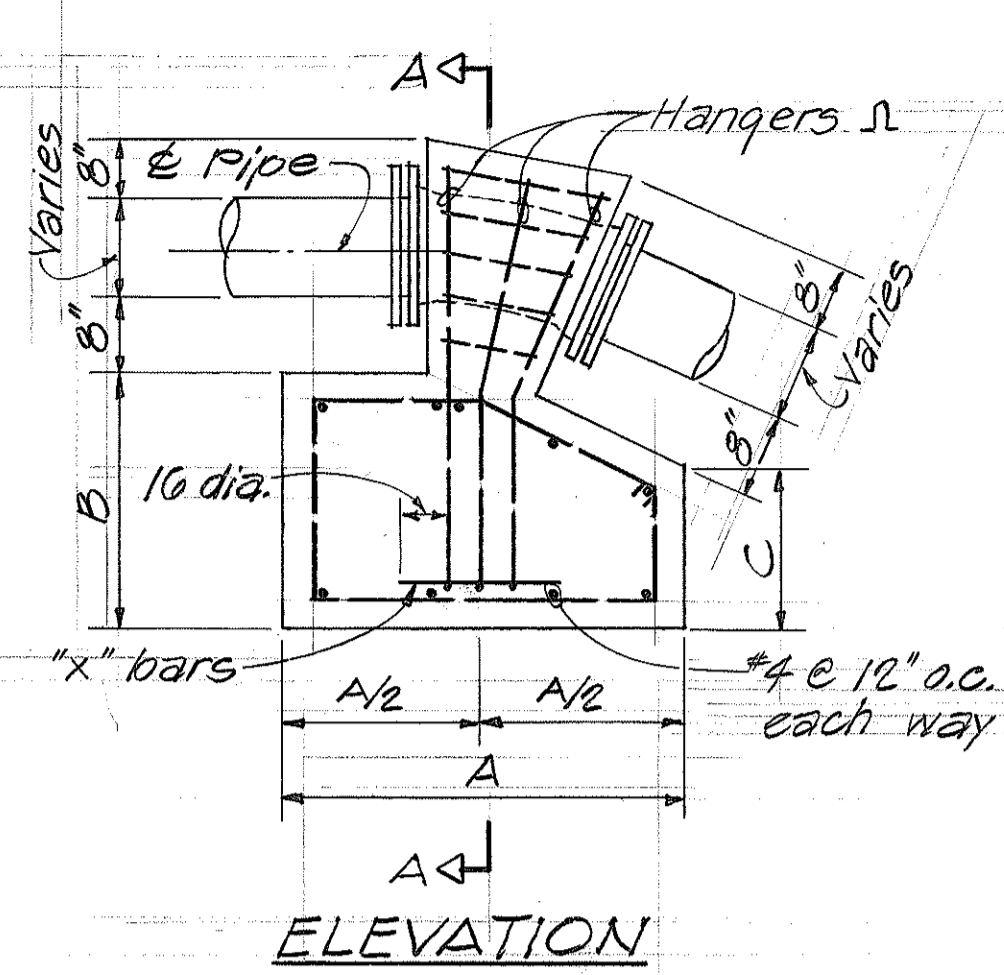
6" AND 8" PRESSURE REDUCING VALVE UNIT

HBR PAP ROUTE 11
PALANI RD. TO KILOHANA SUBD.
PROJECT NO. F-011-1(14)
NORTH KONA, HAWAII

Scale: As Noted Date: Aug. 1982

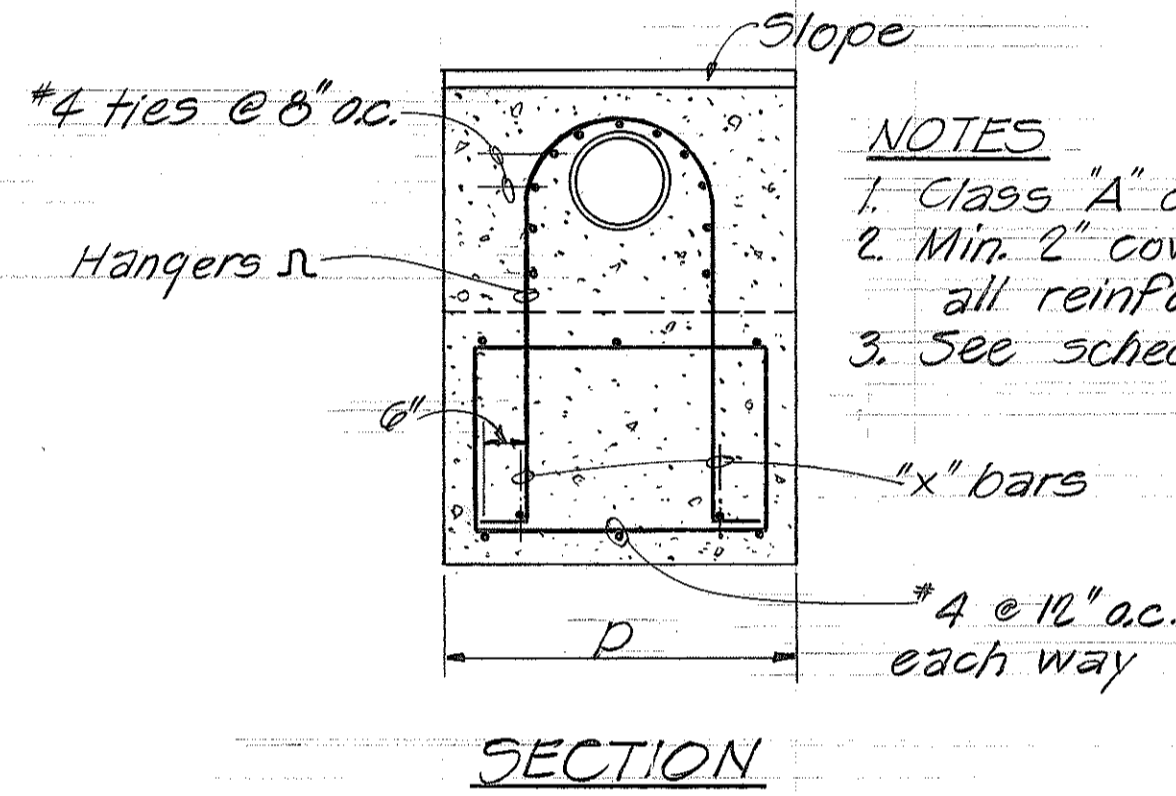
SHEET NO. OF SHEETS

DATE: 8/22/82
SURVEY PLOTTED BY: JMK
DRAWN BY: JMK
DESIGNED BY: JMK
CHECKED BY: JMK



ELEVATION
TYPICAL TOP VERTICLE
REACTION BLOCK
(12" & 20" 1/32 BEND)

ELEVATION
TYPICAL TOP VERTICLE
REACTION BLOCK
(20" 1/16 BEND)



SECTION
TYPICAL TOP VERTICLE
REACTION BLOCK
(4" & 8" BENDS)

- NOTES
1. Class 'A' concrete
 2. Min. 2" cover over all reinforcing
 3. See schedule

TOP VERTICLE THRUST BLOCK SCHEDULE

PIPE SIZE	BEND	QTY	CONCRETE BLOCK				REINFORCING (SEE TYP FOR ADD BARS)		
			A	B	C	D	HANGER	X BAR	Y BAR
4"	1/32	1	1'-8"	1'-5"	1'-3"	2'-0"	3-#3	2-#3	N/A
8"	1/16	2	5'-2"	3'-6"	2'-6"	2'-0"	3-#4	2-#4	N/A
	1/32	2	3'-0"	2'-10"	2'-6"	2'-0"	3-#3	2-#3	N/A
16"	1/32	3	4'-8"	5'-1 1/2"	4'-8"	4'-8"	N/A	N/A	2-#8
20"	1/16	1	8'-0"	6'-1 1/4"	7'-0"	7'-0"	N/A	N/A	2-#8
	1/32	2	6'-0"	6'-7 1/4"	6'-0"	6'-0"	N/A	N/A	2-#8

DATE: 8/1/82
 SURVEY PLOTTED BY: JMK
 DRAWN BY: JMK
 DESIGNED BY: JMK
 QUANTITIES BY: JMK
 CHECKED BY: JMK

APPROVED:
 [Signature]
 MANAGER, DEPT. OF WATER SUPPLY
 DATE: 8/30/82

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TYPICAL TOP VERTICLE
 REACTION BLOCK DETAILS

HBR FAP ROUTE 11
 PALANI RD. TO KILOHANA SUB'D.
 PROJECT NO. F-011-1(14)
 NORTH KONA, HAWAII

Scale: No Scale Date: Aug. 1982

SHEET NO. OF SHEETS