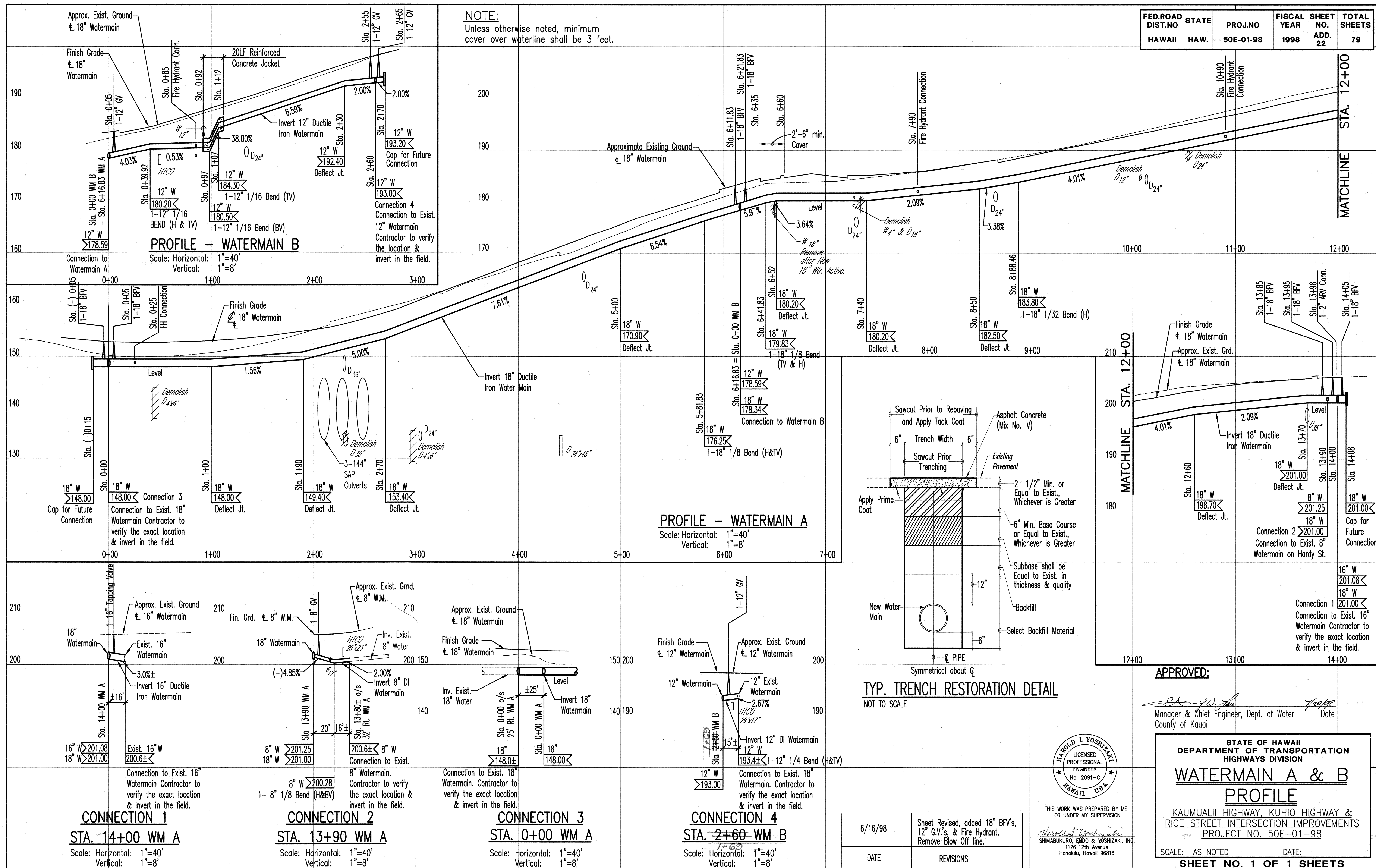


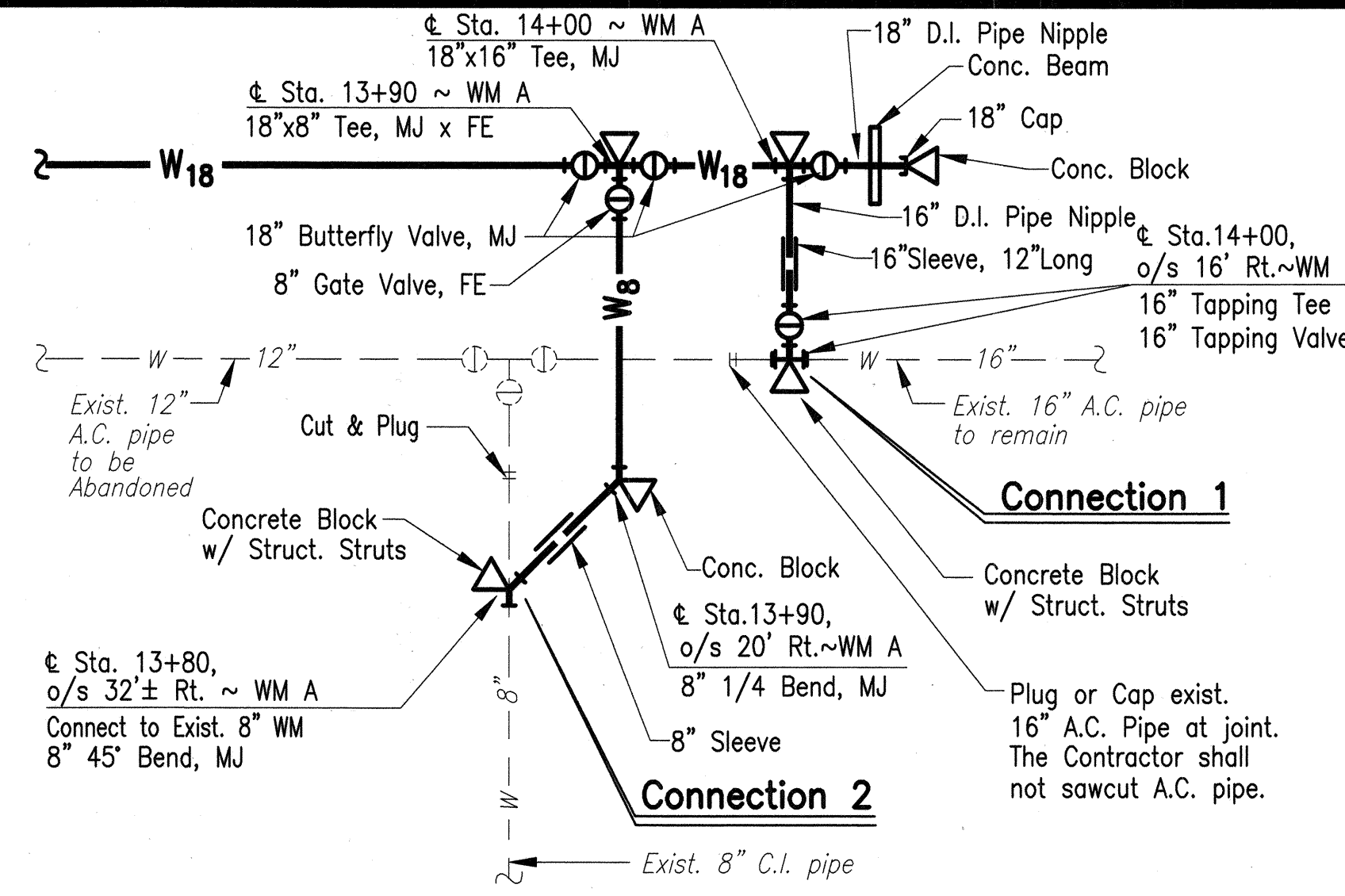
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	50E-01-98	1998	ADD. 22	79



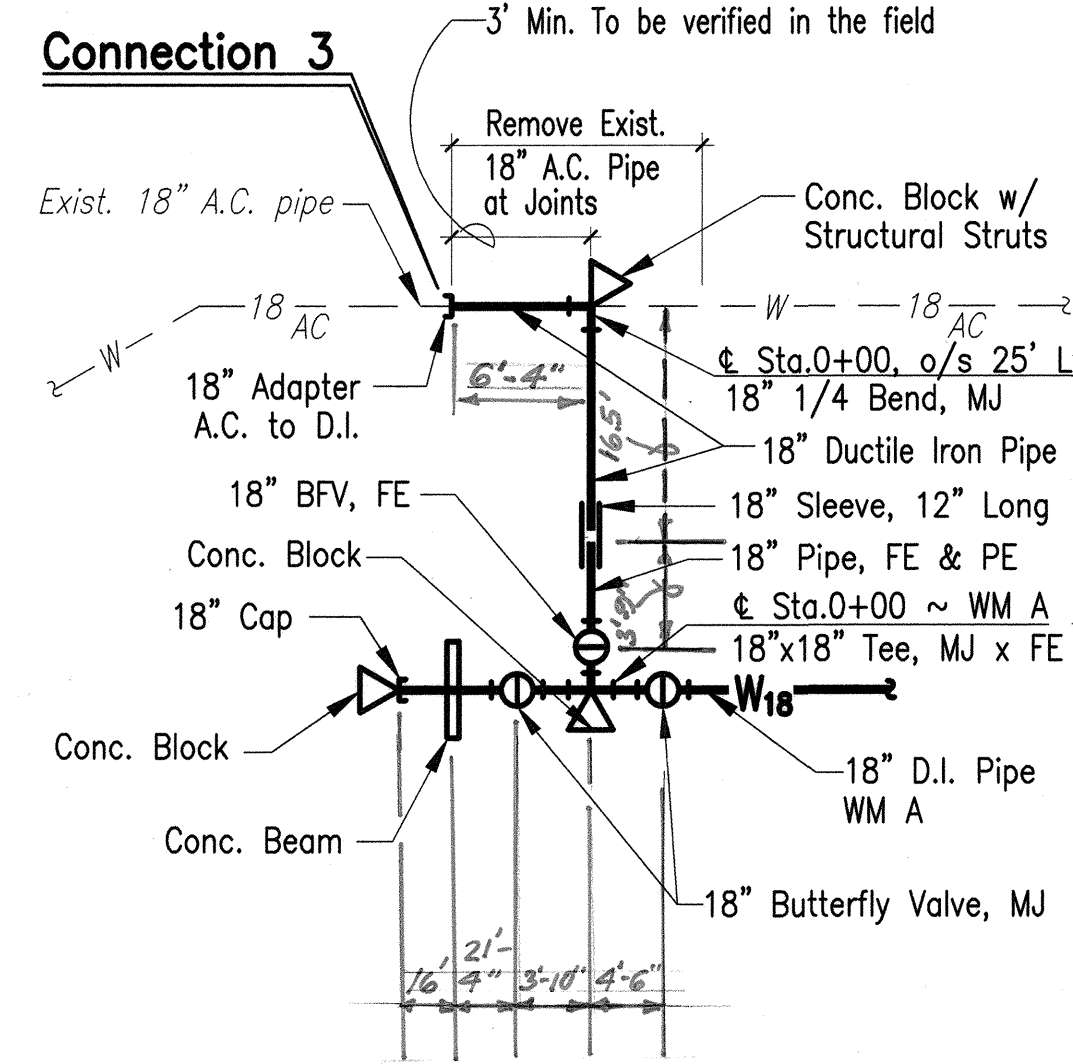
"AS-BUILT"

WATERMAIN MATERIAL CALLOUT:

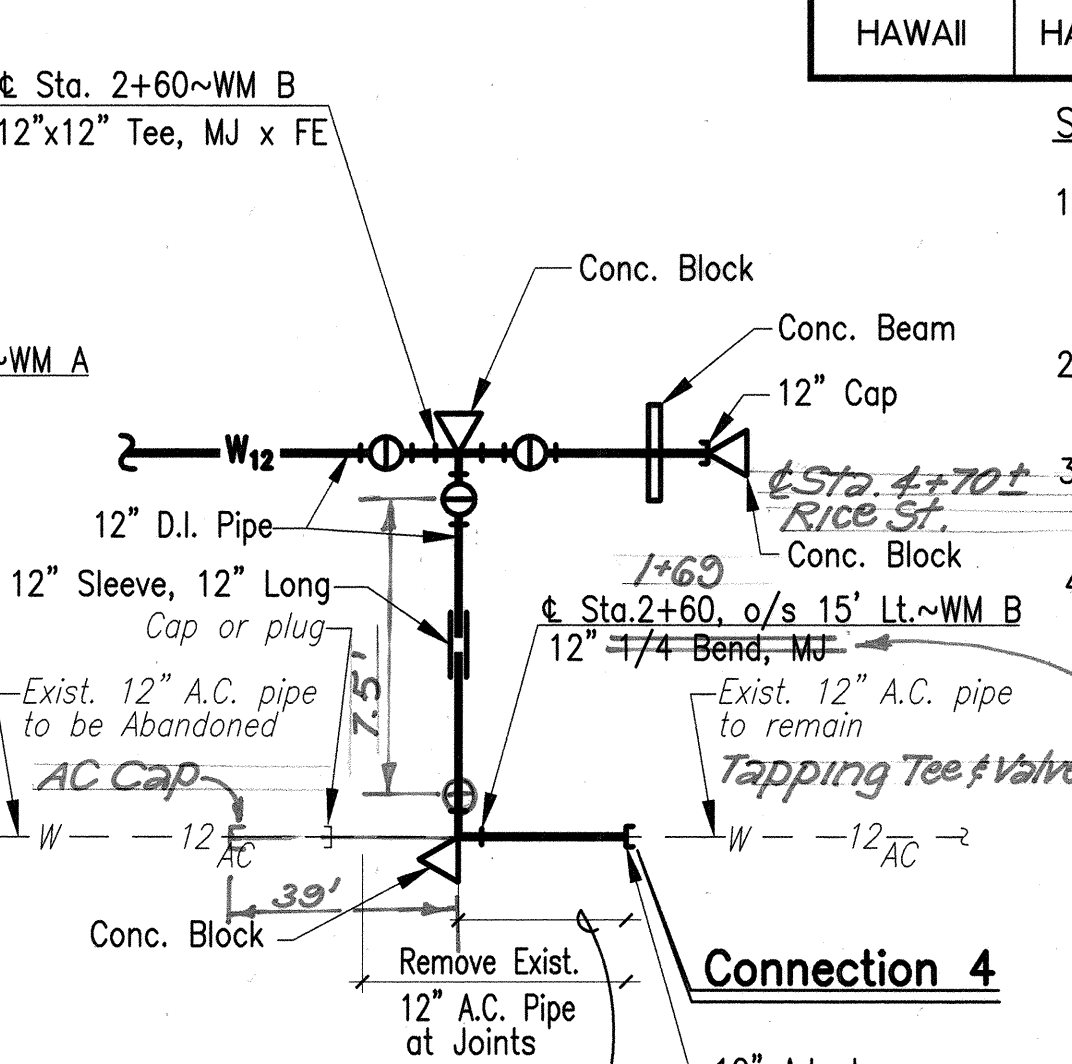
1. Sta. 0+00, o/s 25' Lt. ~ WM A
Connect New W18 to Exist. A.C. W18
1-Conc. Block w/ Struct. Struts
Materials for Connection:
1-18" Adapter A.C. to D.I.
1-18" 1/4 Bend, MJ
1-18" Sleeve, 12" long
20 LF 18" Ductile Iron Pipe
See Connection Schematic Layout, This Sheet.
2. Sta. 0+00 ~ WM A
= Sta. 0+50.00 Kaunualii Hwy,
o/s 34.30' Rt.
2-18" BFV, MJ, 150#
1-18" BFV, FE, 150#
3-Valve Boxes
2-Conc. Block
1-Conc. Beam w/ Reverse Bell
1-18"x18" Tee, MJ x FE
1-18" Cap, MJ
Temporary for Testing:
1-18" Cap Tapped for 4" C.O.
1-Conc. Block
3. Sta. 0+25 ~ WM A
Fire Hydrant Connection o/s 10'± Rt
1-6" GV, MJ x FE, 150#
1-Valve Box
3-Conc. Block
1-18"x6" Tee, MJ x FE
1-6" 1/4 Bend, MJ
1-6" 1/8 Bend, MJ
1-Fire Hydrant Assembly
20 LF 6" DI Pipe, Cl. 52
See Profile, This Sheet
4. Sta. 4+19.19 ~ WM A
= Sta. 4+01.00 Rd. A, o/s 13.00' Rt.
1-18" 1/16 Bend, MJ
1-Conc. Block
5. Sta. 4+47.76 ~ WM A
= Sta. 4+26.93 Rd. A, o/s 1.00' Rt.
1-18" 1/16 Bend, MJ
1-Conc. Block
6. Sta. 5+81.83 ~ WM A
= Sta. 5+61.00 Rd. A, o/s 1.00' Rt.
1-18" 1/16 Bend MJ (H & TV)
1-Conc. Block (See DOW Standard Detail Plate #108)
7. Sta. 6+16.83 ~ WM A =
Sta. 0+00 ~ WM B
2-18" BFV, MJ, 150#
1-12" GV, 150#, MJ x FE
3-Valve Boxes
1-Conc. Block
1-18"x12" Tee, MJ x FE
8. Sta. 6+41.83 ~ WM A
= Sta. 1+80.06 Rice St., o/s 19.40' Rt.
1-18" 1/8 Bend, MJ (H & TV)
1-Conc. Block (See DOW Standard Detail Plate #108)
9. Sta. 7+90 ~ WM A
Fire Hydrant Connection o/s 20'± Rt.
1-6" GV, MJ x FE, 150#
1-Valve Box
2-Conc. Blocks
1-18"x6" Tee, MJ x FE
1- Fire Hydrant Assembly
20 LF 6" Ductile Iron Pipe, Cl. 52
See Profile, This Sheet
10. Sta. 8+40 ~ WM A
Reconnect Exist. 3" Compound Meter w/ 4" D.I. Pipe Lateral
Adjust Exist. Meter Box to Fin. Grade
Submit shop drawings for approval.
11. Sta. 8+88.46 ~ WM A
= Sta. 8+31.15 Kaunualii Hwy,
o/s 45.67' Rt.
1-18" 1/32 Bend, MJ
1-Conc. Block
12. Sta. 9+85± ~ WM A
Reconnect 1 1/2" Meter w/ 2" Cu. Lateral (See DOW Standard Detail Plate #69)
Adjust Exist. Meter box to Fin. Grd.
13. Sta. 10+70± ~ WM A
Reconnect Exist. 2" Compound Meter w/ 3" D.I. Pipe Lateral
Adjust Exist. Meter Box to Fin. Grd.
Submit shop drawings for approval
14. Sta. 10+90 ~ WM A
Fire Hydrant Connection o/s 25'± Rt.
1-6" GV, MJ x FE, 150#
1-Valve Box
2-Conc. Blocks
1-18"x6" Tee, MJ x FE
1- Fire Hydrant Assembly
25 LF 6" Ductile Iron Pipe, Cl. 52
See Profile, This Sheet
15. Sta. 13+10± ~ WM A
Remove exist. and install new
4" Detector Check. DOW shall transfer meter only. See Detail
16. Sta. 13+57 ~ WM A
= Sta. 12+88.83 Kaunualii Hwy,
o/s 11.25' Rt.
1-18" 1/16 Bend, MJ
1-Conc. Block
17. Sta. 13+90 ~ WM A =
Connect to existing 8" water main on Hardy Street
2-18" BFV, MJ, 150#
1-8" GV, MJ x FE, 150#
3-Valve Boxes
1-18"x 8" Tee, MJ x FE
1-Conc. Block
18. Sta. 13+98± ~ WM A
1-2" Air Relief Valve Assembly
See Detail on this sheet
19. Sta. 14+00 ~ WM A
1-Conc. Beam w/ Reverse Bell
1-18"x16" Tee, MJ
1-18" BFV, MJ, 150#
1-Valve Box
1-18" Cap
2-Conc. Blocks
Temporary for Testing:
1-16" Cap Tapped for 4" C.O.
1-Conc. Block
20. Sta. 14+00, o/s 16'± Rt. ~ WM A
Connect New W18 to Exist. A.C. W16
1-Conc. Block w/ Struct. Struts
1-Valve Box
Materials for Connection:
1-16"x16" Tapping Tee, MJ
1-16" Tapping Valve, MJ, 150#
1-16" Sleeve, 12" long
8 LF 16" D.I. Pipe
See Conn. Schematic Layout, This Sheet
21. Sta. 13+80±, o/s 32'± Rt. ~ WM A
Connect New W8 to Exist. C.I. W8
1-Conc. Block w/ Struct. Struts
1-8" 1/8 Bend, MJ (H&BV)
1-Conc. Block
30 LF 8" D.I. Pipe, Cl. 52
Materials for Connection:
1-8" 1/8 Bend, MJ
1-8" Sleeve, 12" Long
6 LF 8" D.I. Pipe, Cl. 52
Temporary for Testing:
1-8" Cap Tapped for 2 1/2" C.O.
1-Conc. Block
See Conn. Schematic Layout, This Sheet
22. Sta. 0+15 ~ WM B
= Sta. 5+99.08 Road A,
o/s 1.17' Rt.
1-12" 1/8 Bend, MJ
1-Conc. Block
23. Sta. 0+39.92 ~ WM B
= Sta. 6.22+18 Road A,
o/s 10.52' Rt.
1-12" 1/16 Bend, MJ (H & TV)
1-Conc. Block (See DOW Standard Detail Plate # 108)
24. Sta. 0+85 ~ WM B
Fire Hydrant Connection o/s 13'± Rt.
1-6" GV, MJ x FE, 150#
1-Valve Box
2-Conc. Block
1-18"x6" Tee, MJ x FE
1- Fire Hydrant Assembly
15 LF 6" Ductile Iron Pipe, Cl. 52
See Profile, This Sheet
25. Sta. 0+97 ~ WM B
1-12" 1/16 Bend, MJ (BV)
26. Sta. 1+07 ~ WM B
1-12" 1/16 Bend, MJ (TV)
27. Reconnect 3/4" Meter w/ 1" Cu. Lateral, See DOW Standard Detail Plate 73
28. Sta. 2+60 ~ WM B
1-Conc. Beam w/ Reverse Bell
2-12" GV, MJ, 150#
1-12" GV, MJ x FE, 150#
3-Valve Boxes
1-12"x12" Tee, MJ x FE
1-12" Cap
2-Conc. Blocks
Temporary for Testing
1-12" Cap Tapped w/ 4" C.O.
1-Conc. Block
29. Sta. 2+60, o/s 15' Rt. ~ WM B
Connect New W12 to Exist. A.C. W12
1-Conc. Block w/ Struct. Struts
Materials for Connection:
4-12" Adapter D.I. to A.C.
1-12" 1/4 Bend, MJ (H&TV)
1-12" Sleeve, 12" long
20 LF 12" D.I. Pipe
Temporary for Testing
1-12" Cap Tapped for 4" C.O.
1-Conc. Block
See Connection Schematic Layout, This Sheet



Sta. 13+90 to 14+00~W.M. "A"

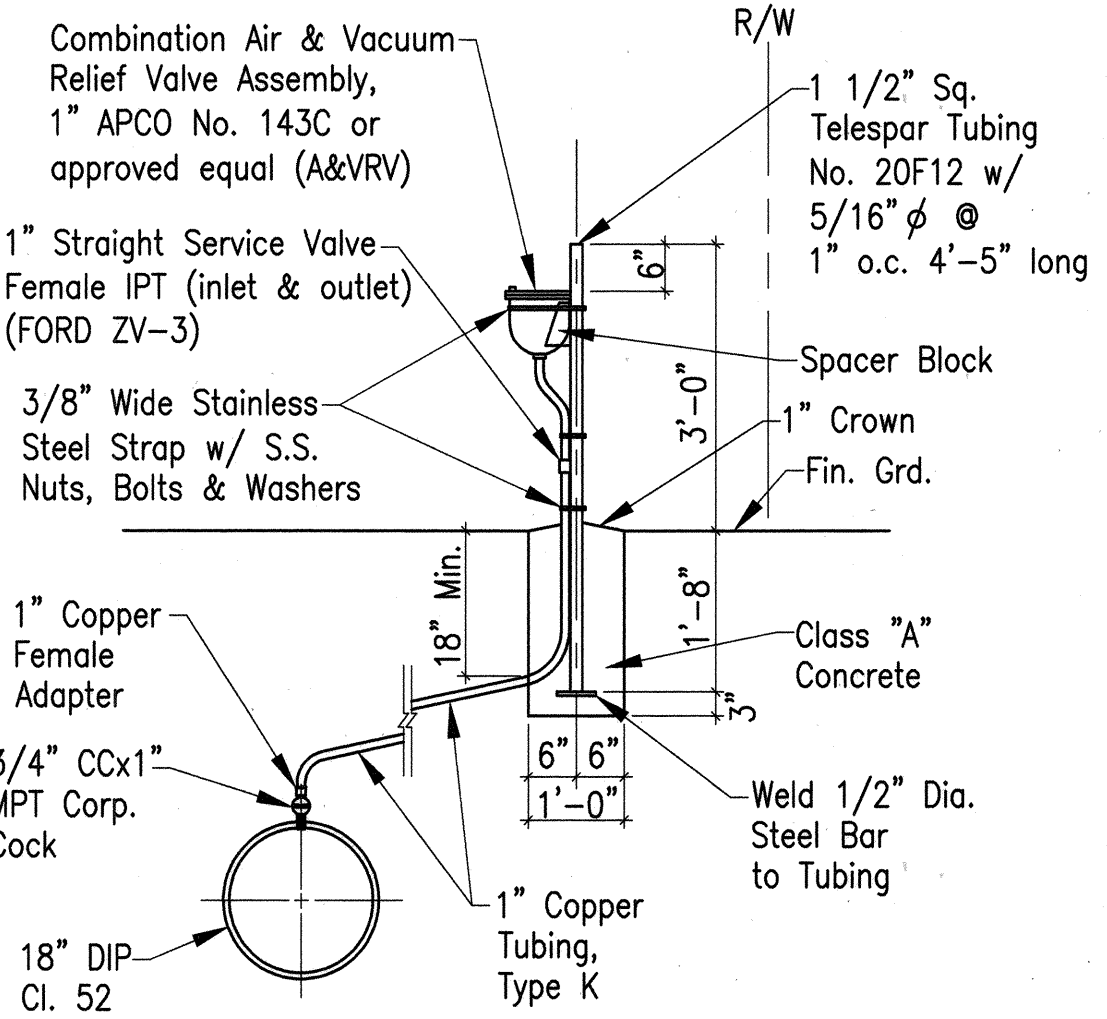
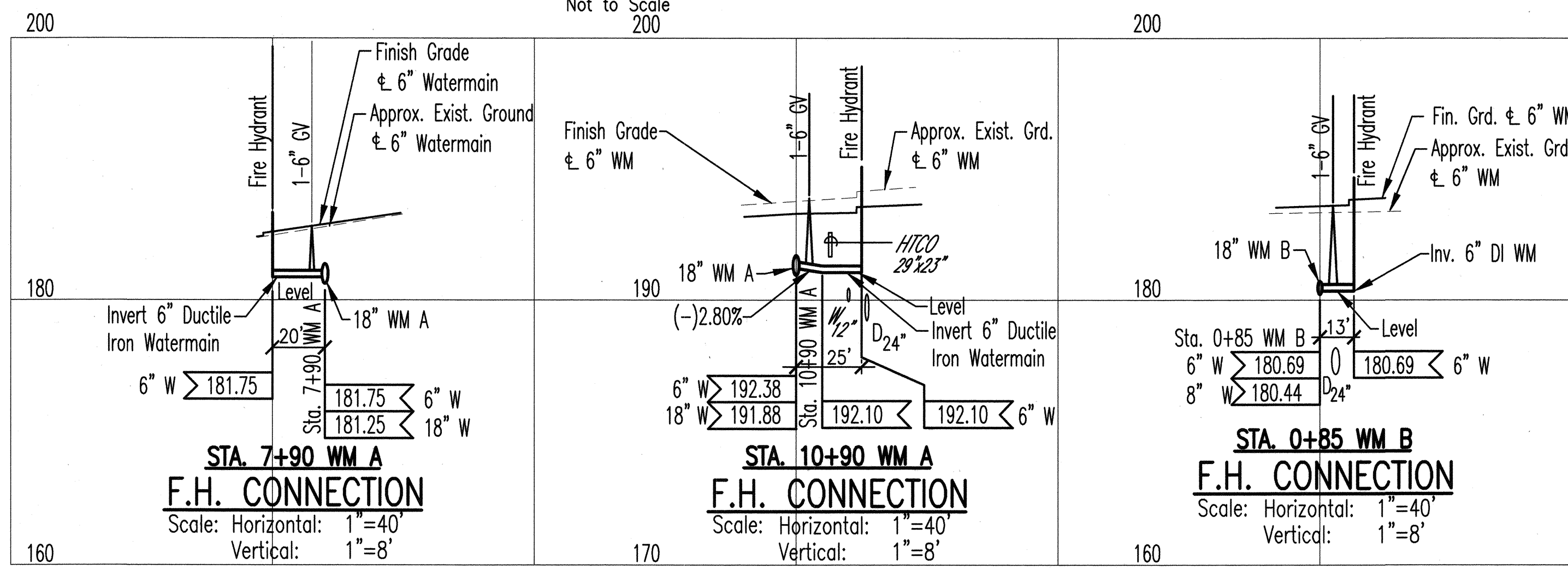


Sta. 0+00, o/s 25' Lt.~W.M. "A"



Sta. 2+60~W.M. "B"

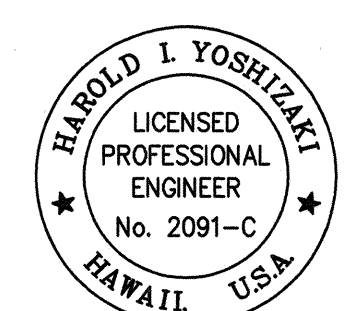
CONNECTION SCHEMATIC LAYOUT



AIR & VACUUM RELIEF VALVE

APPROVED:

Manager & Chief Engineer, Dept. of Water
County of Kauai



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**WATERMAIN DETAILS &
MATERIAL CALLOUT**
KAUNUALII HIGHWAY, KUHIO HIGHWAY &
RICE STREET INTERSECTION IMPROVEMENTS
PROJECT NO. 50E-01-98
SCALE: AS NOTED DATE:
SHEET NO. 1 OF 1 SHEETS

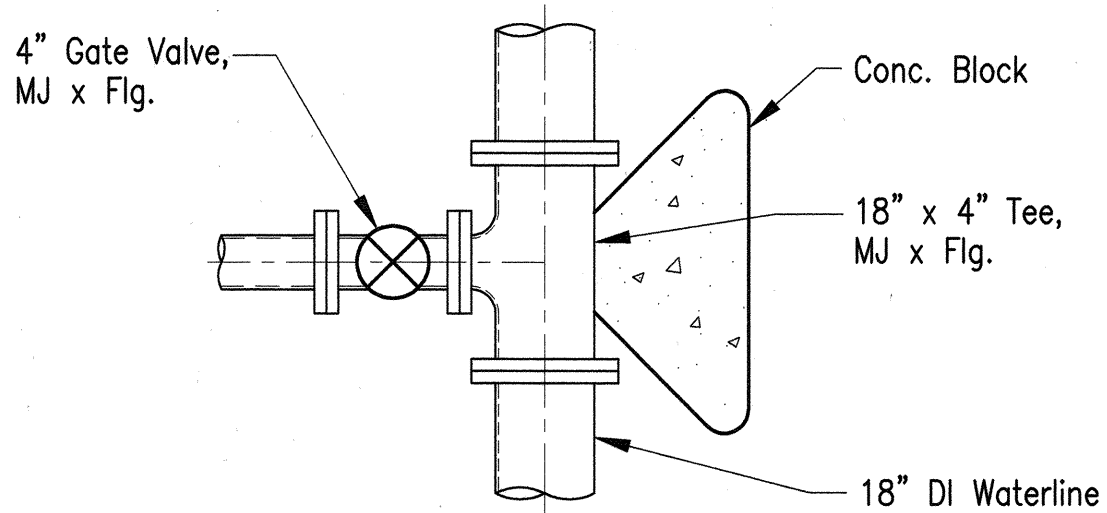
"AS-BUILT"

ADD. 23

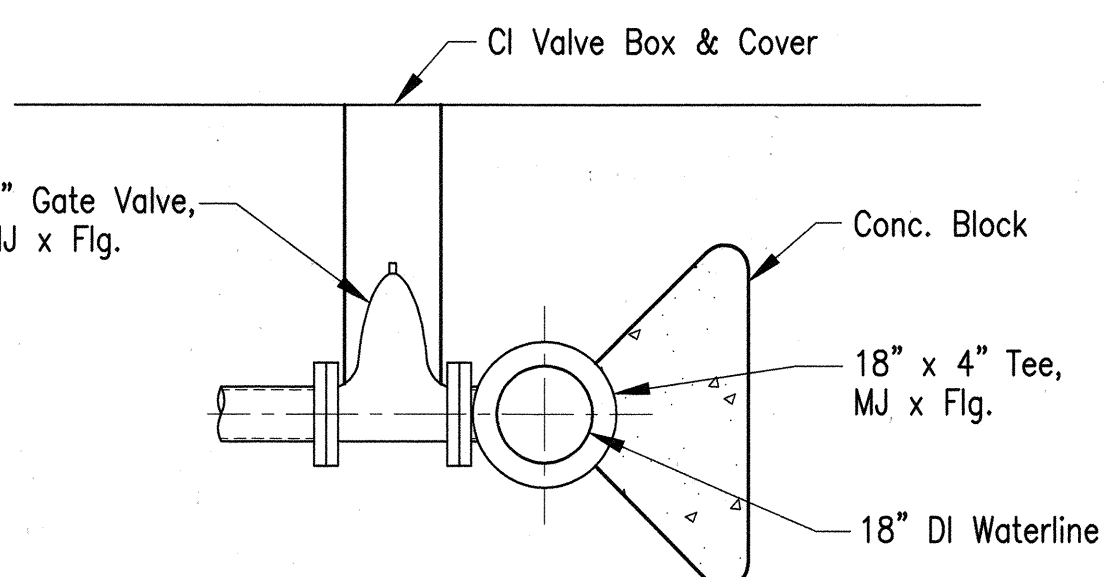
DATE	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

6/16/98	Sheet Revised, added 18" BFV's, 12" GV's and Fire Hydrant. Remove Blow Off line.
DATE	Revisions

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-050-1(20)	1998	ADD. 23S-1	79

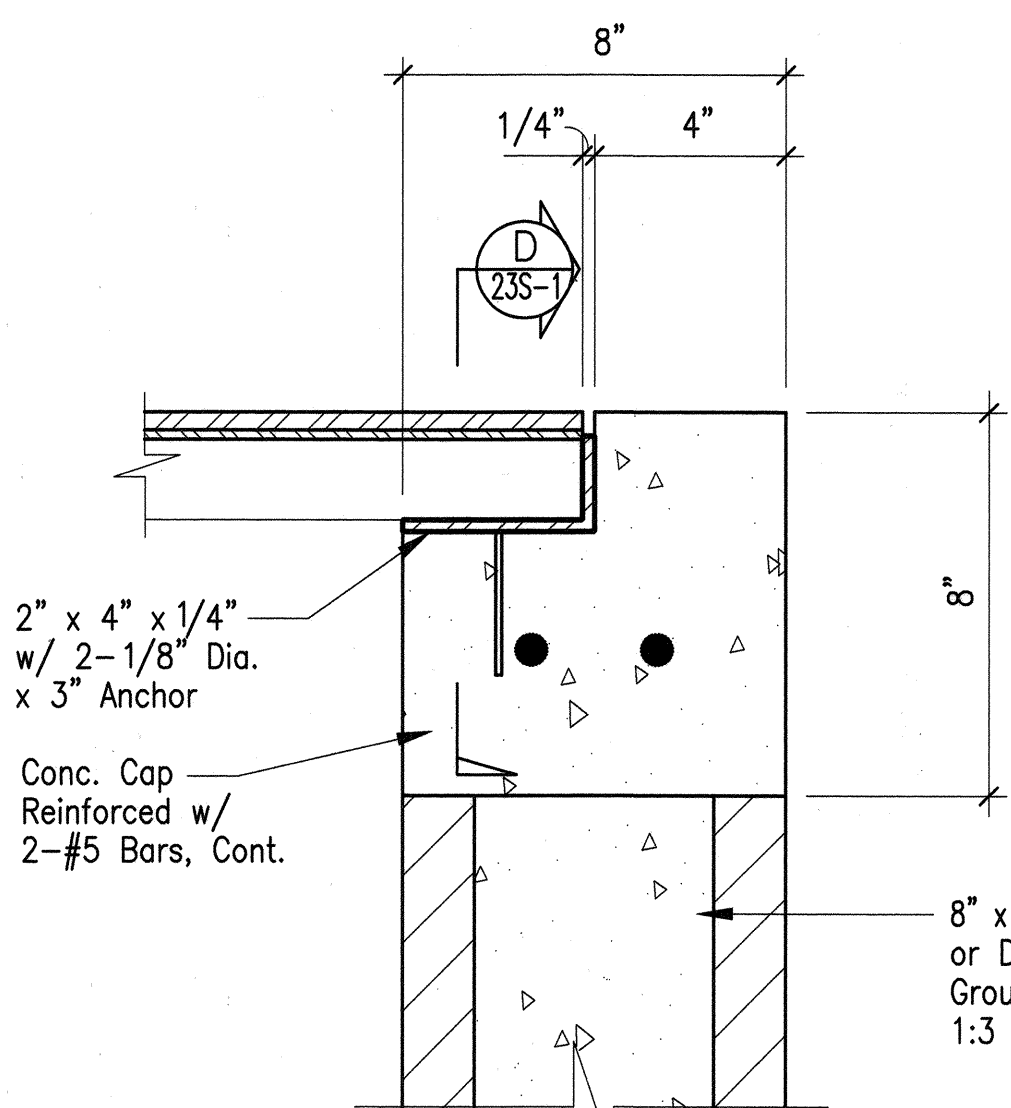


PLAN

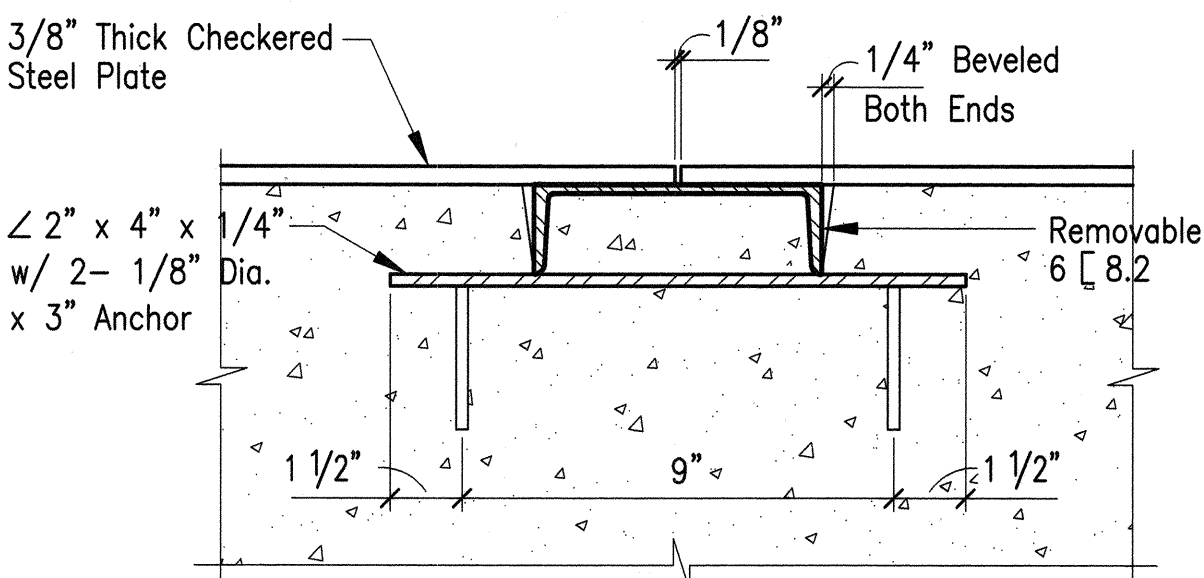


ELEVATION

4" CONNECTION DETAIL B
Not to Scale

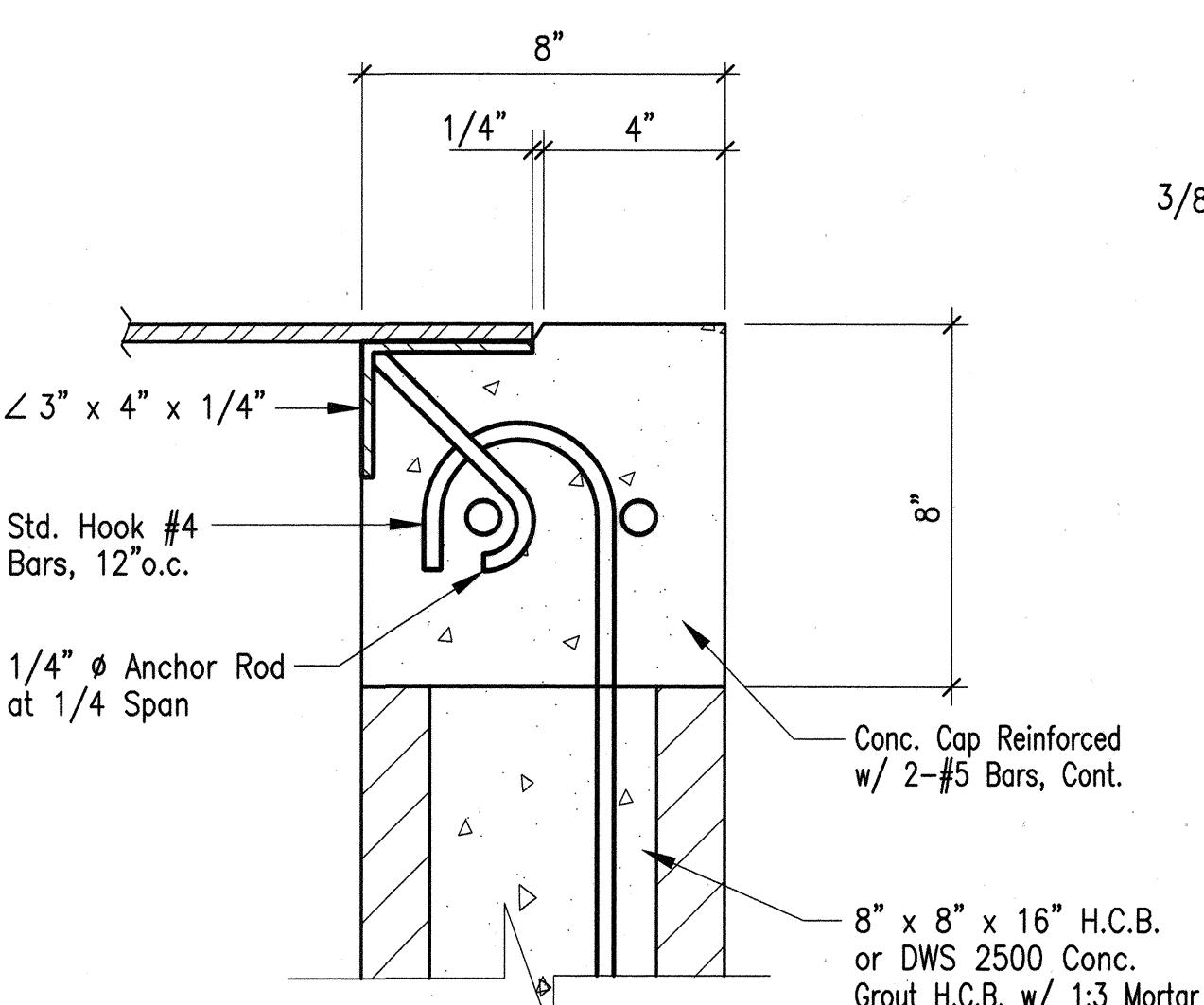


SECTION C
Scale: 3" = 1'-0"

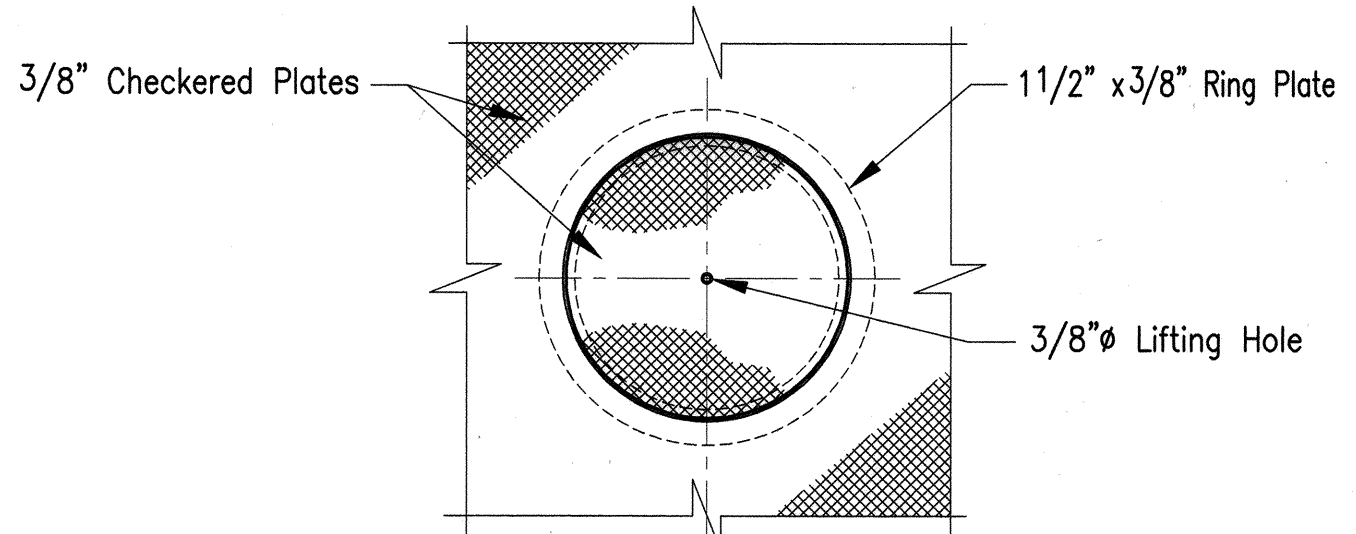


Note:
3/8" Thick checkered steel plate cover (4 panels as shown). All metal parts (frame & cover) shall be hot-dipped galvanized after fabrication (prior to installation). Beam supports shall be provided at panel joints as shown. Contractor shall submit shop drawings to the Dept. of Water for review and approval prior to fabrication.

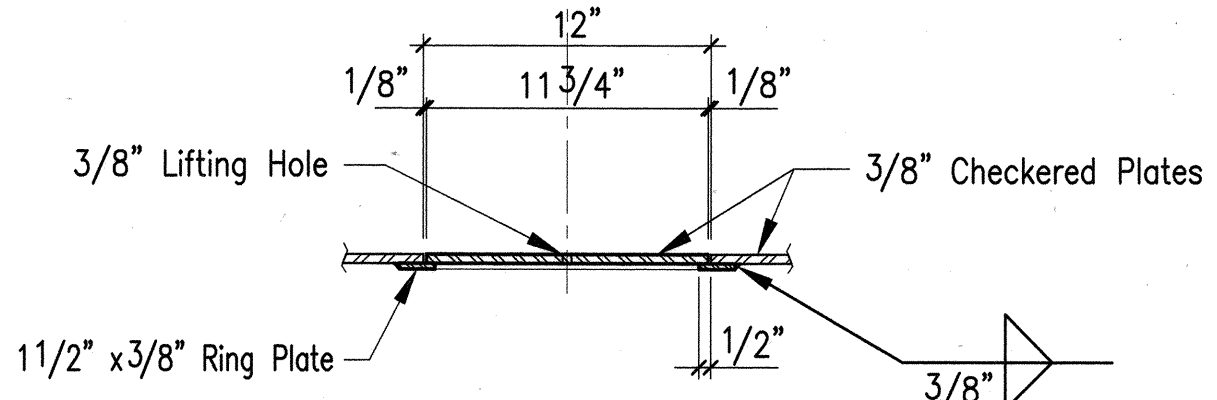
SECTION D
Scale: 3" = 1'-0"



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

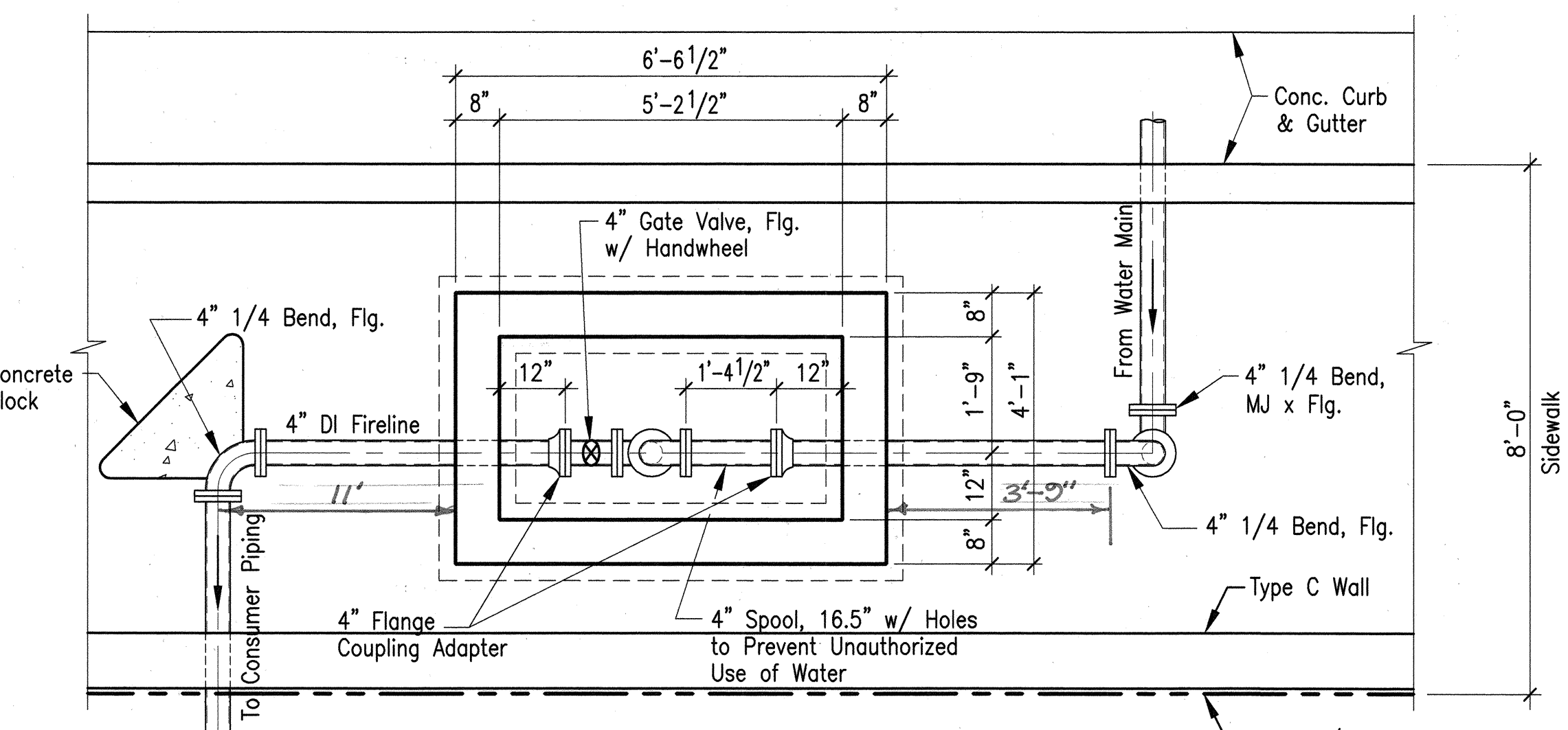


PLAN

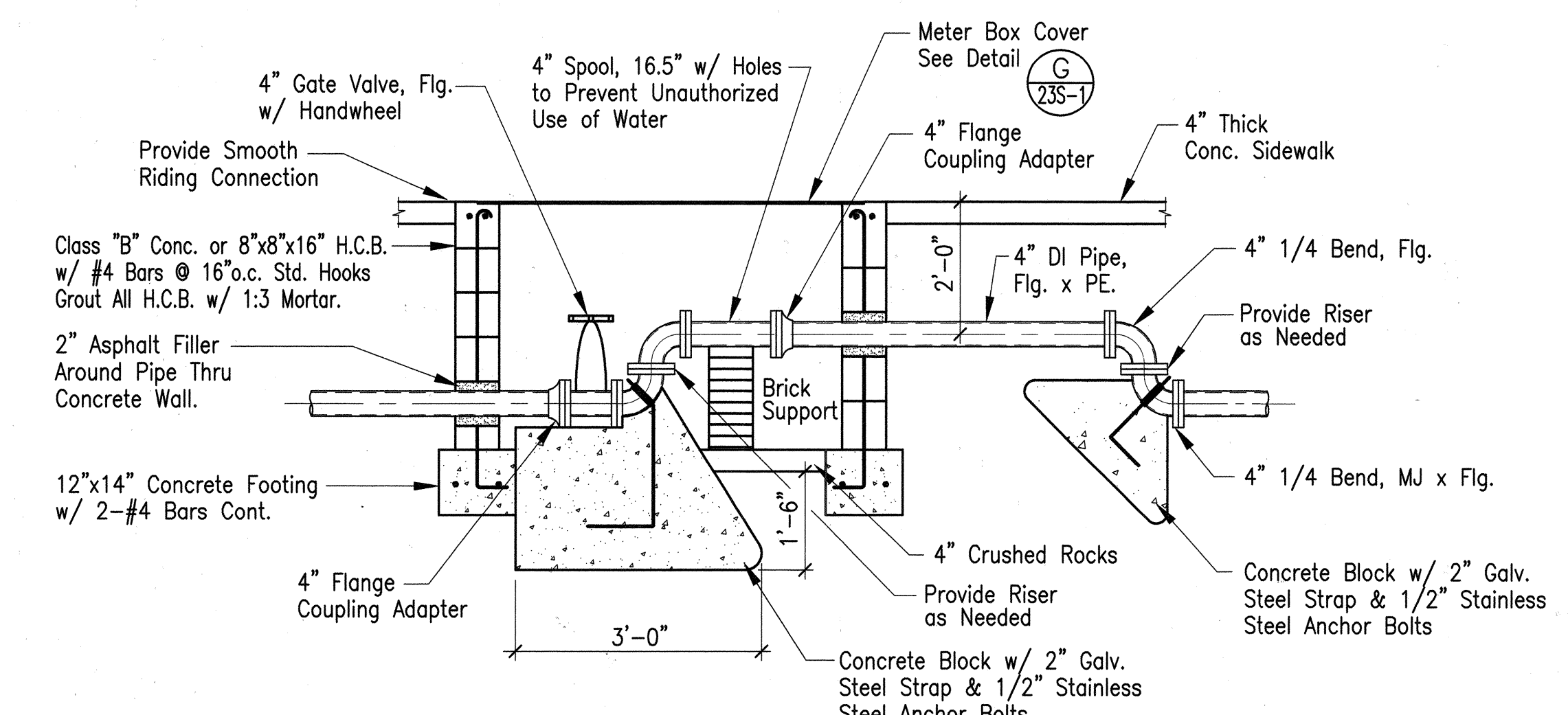


SECTION

READING HOLE DETAIL F
Scale: 1 1/2" = 1'-0"

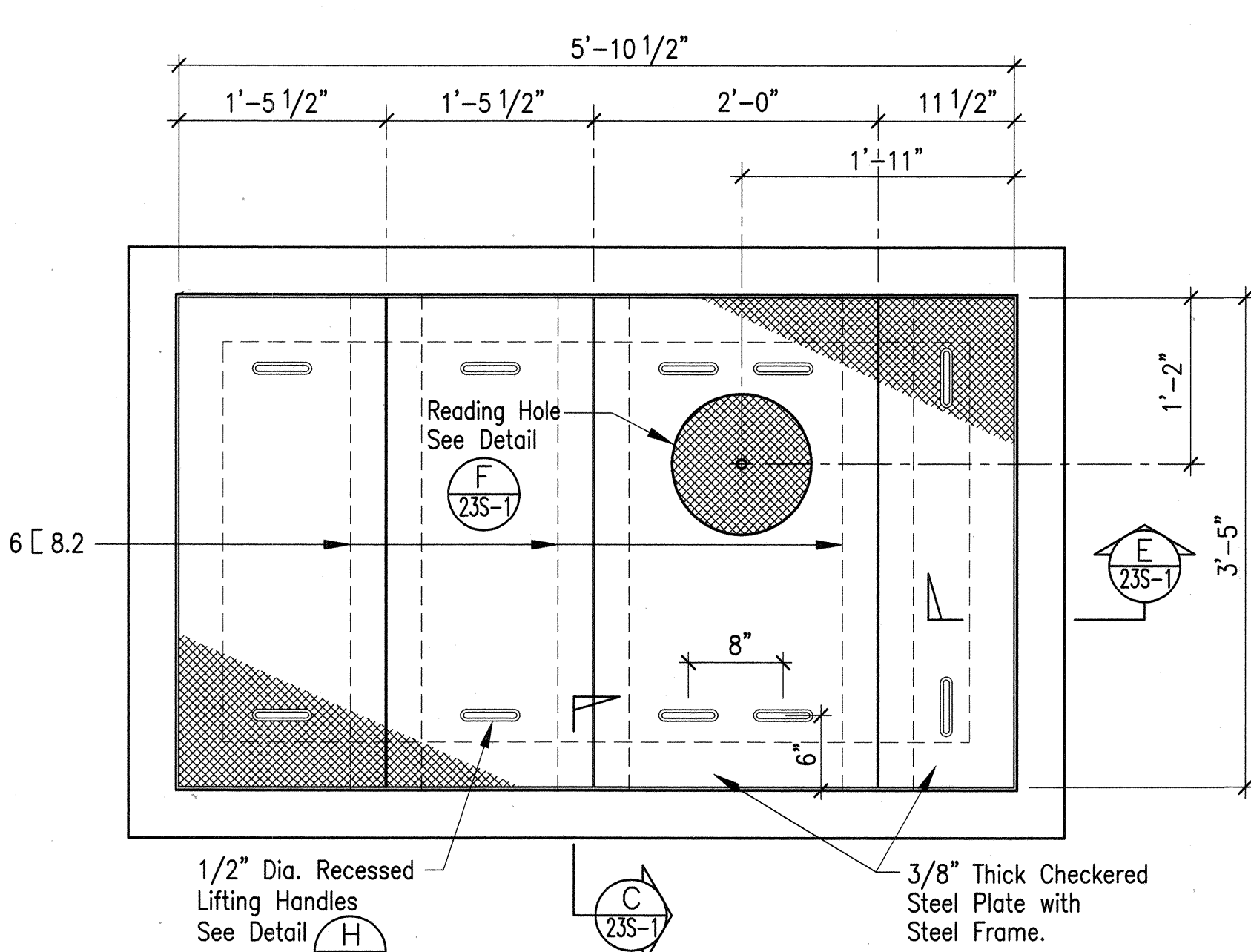


PLAN

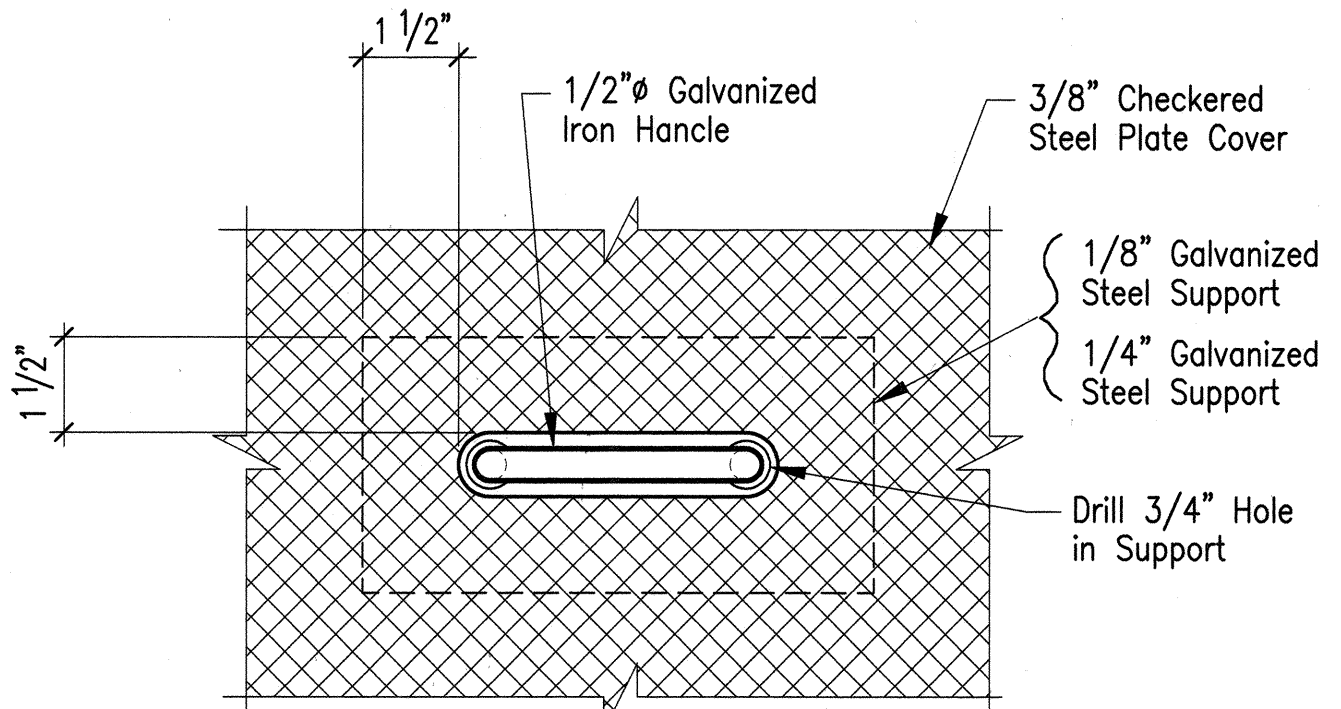


ELEVATION

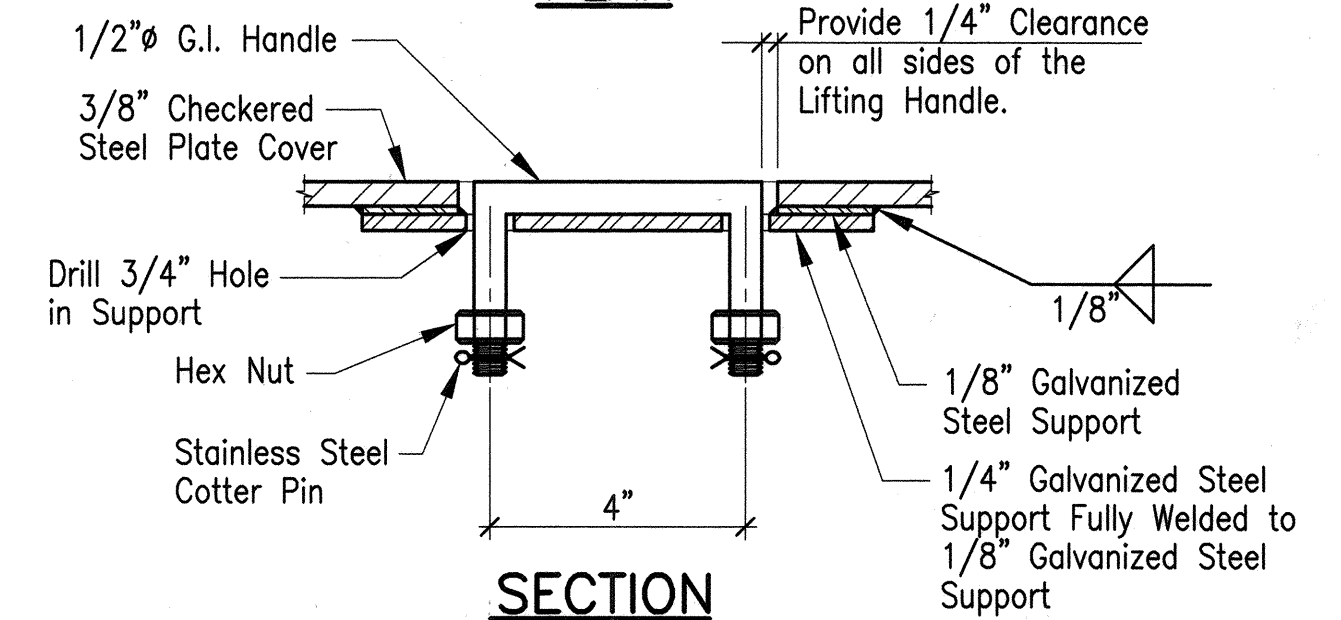
4" DETECTOR CHECK CONNECTION DETAIL A
Not to Scale



METER BOX COVER PLAN G
Scale: 1" = 1'-0"



PLAN

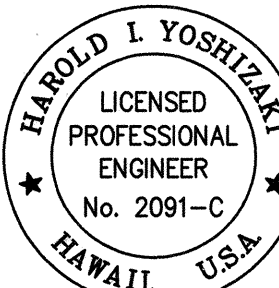


SECTION

RECESSED LIFTING HANDLE DETAIL H
Not To Scale

APPROVED:

Manager & Chief Engineer, Dept. of Water
County of Kauai



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

SHIMABUKURO, ENDO & YOSHIZAKI, INC.
1126 12th Avenue
Honolulu, Hawaii 96816

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

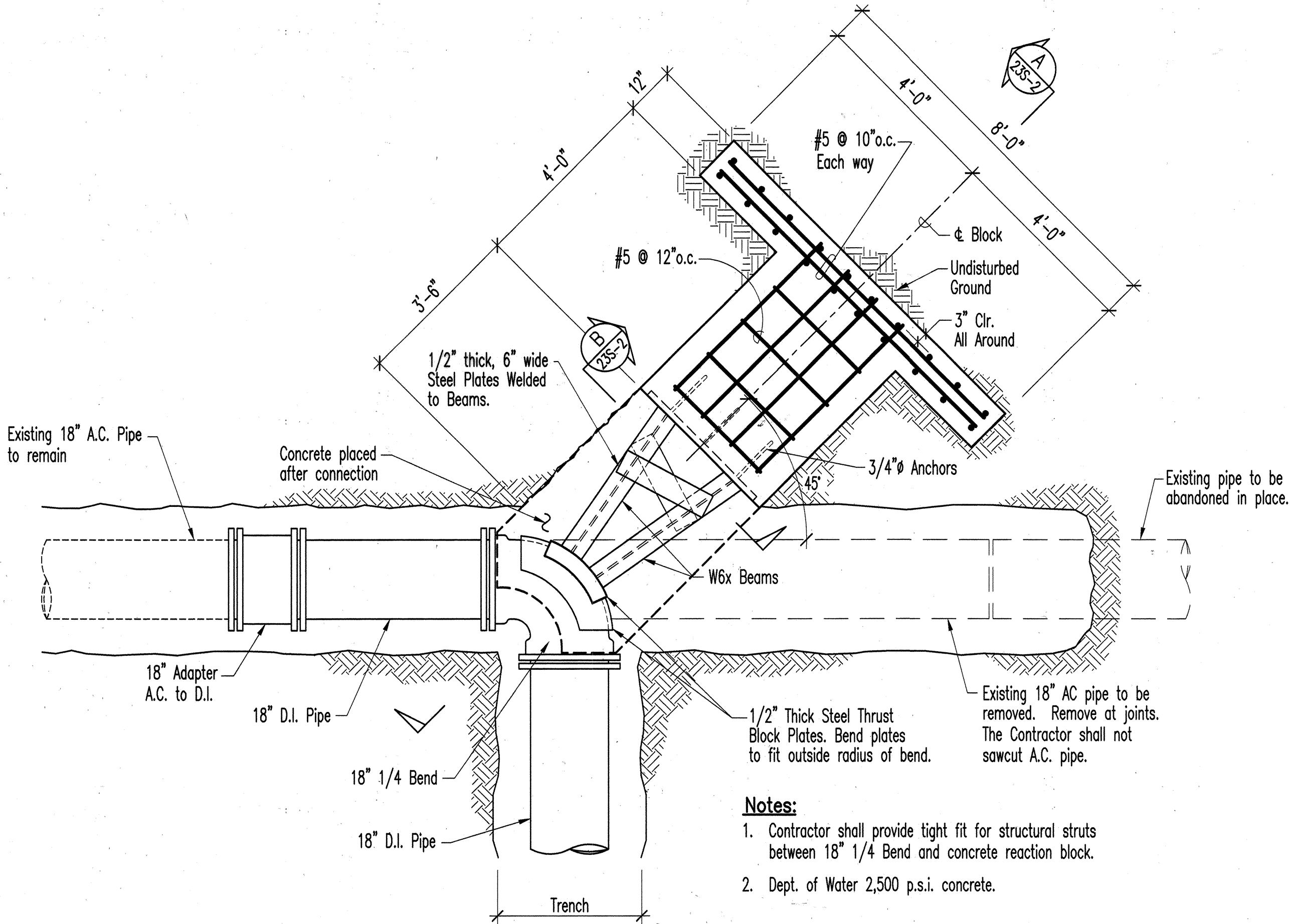
4" DETECTOR CHECK DETAILS
KAUMUALII HIGHWAY
TRAFFIC SIGNAL MODERNIZATION
FEDERAL-AID PROJECT NO. STP-050-1(20)
SCALE: AS SHOWN
DATE:

6/16/98	SHEET ADDED TO SHOW 4" DETECTOR CHECK DETAILS.
DATE	REVISION

"AS-BUILT"

ADD. 23S-1

FED. ROAD DIST. NO	STATE	FED. AID PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	50E-01-98	1998	23S-2	79

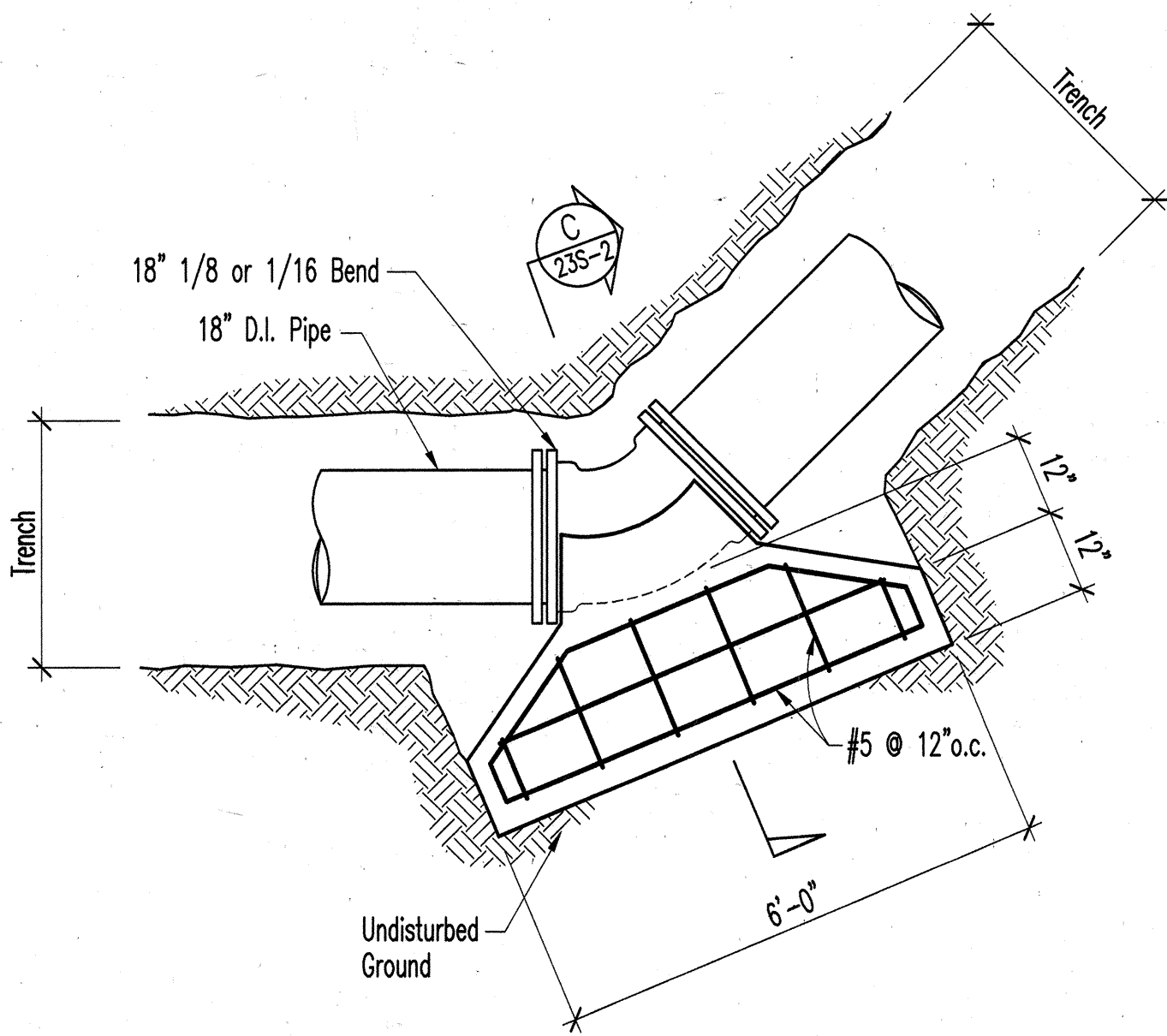


Notes:

- Contractor shall provide tight fit for structural struts between 18" 1/4 Bend and concrete reaction block.
- Dept. of Water 2,500 p.s.i. concrete.

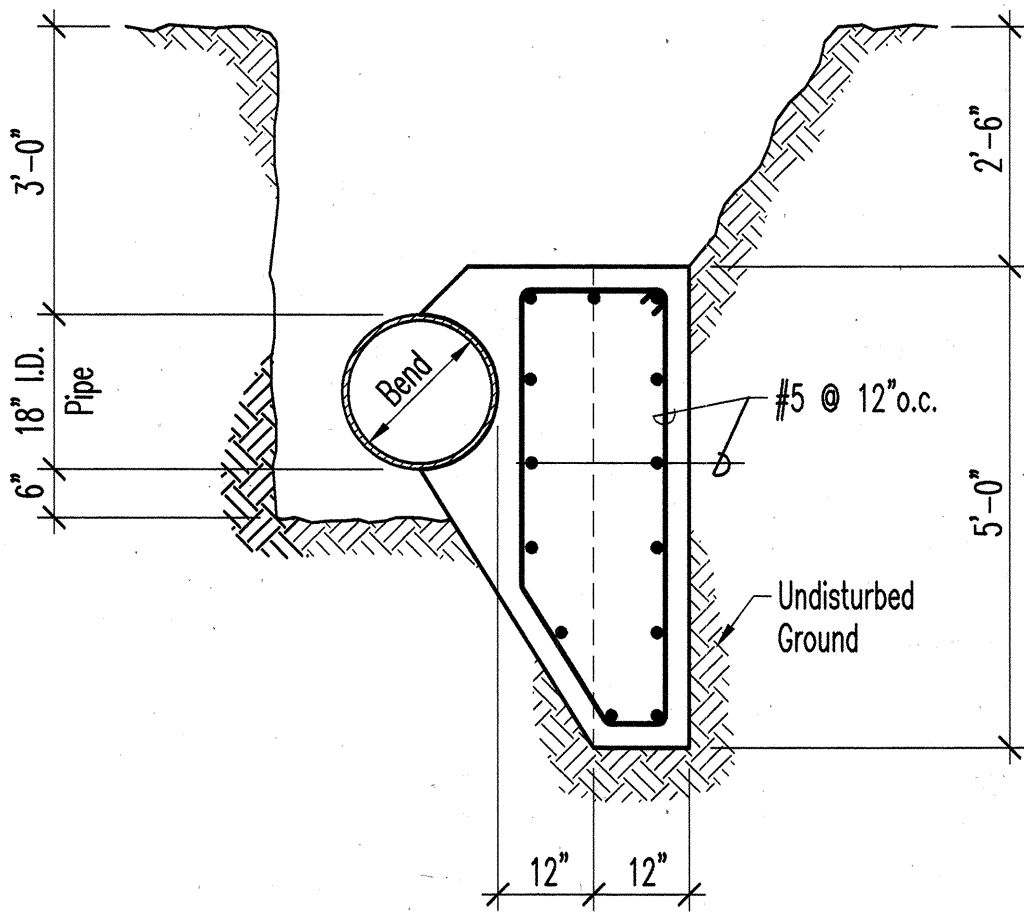
THRUST BLOCK @ STA. 0+00, o/s 25'± Lt., WM A DETAIL

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



THRUST BLOCKS AT STA. 5+81.83 WM A and 6+41.83 WM A

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

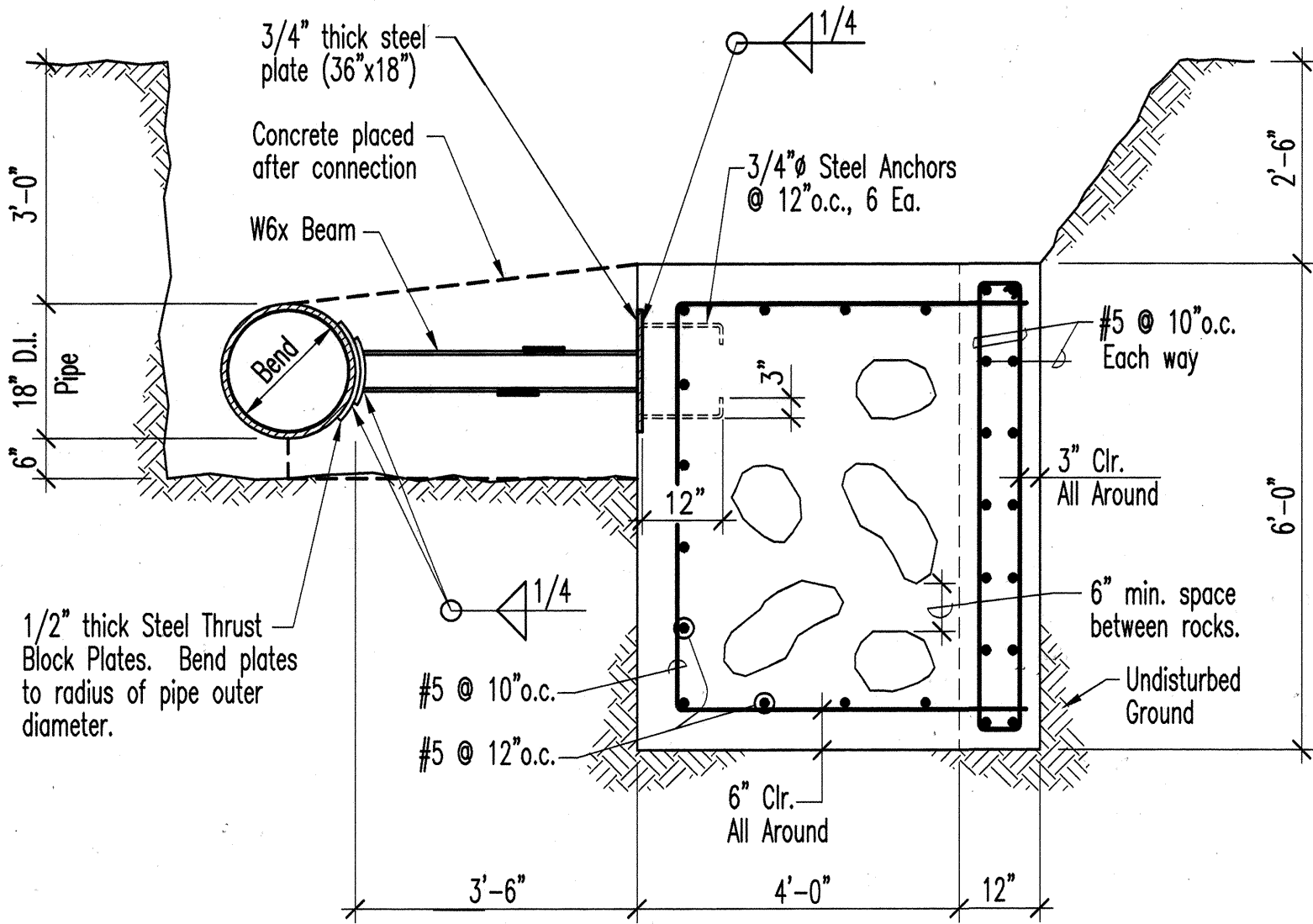


NOTES:

- Dept. of Water 2,500 p.s.i. concrete.
- Min. 3" cover over all reinforcing.

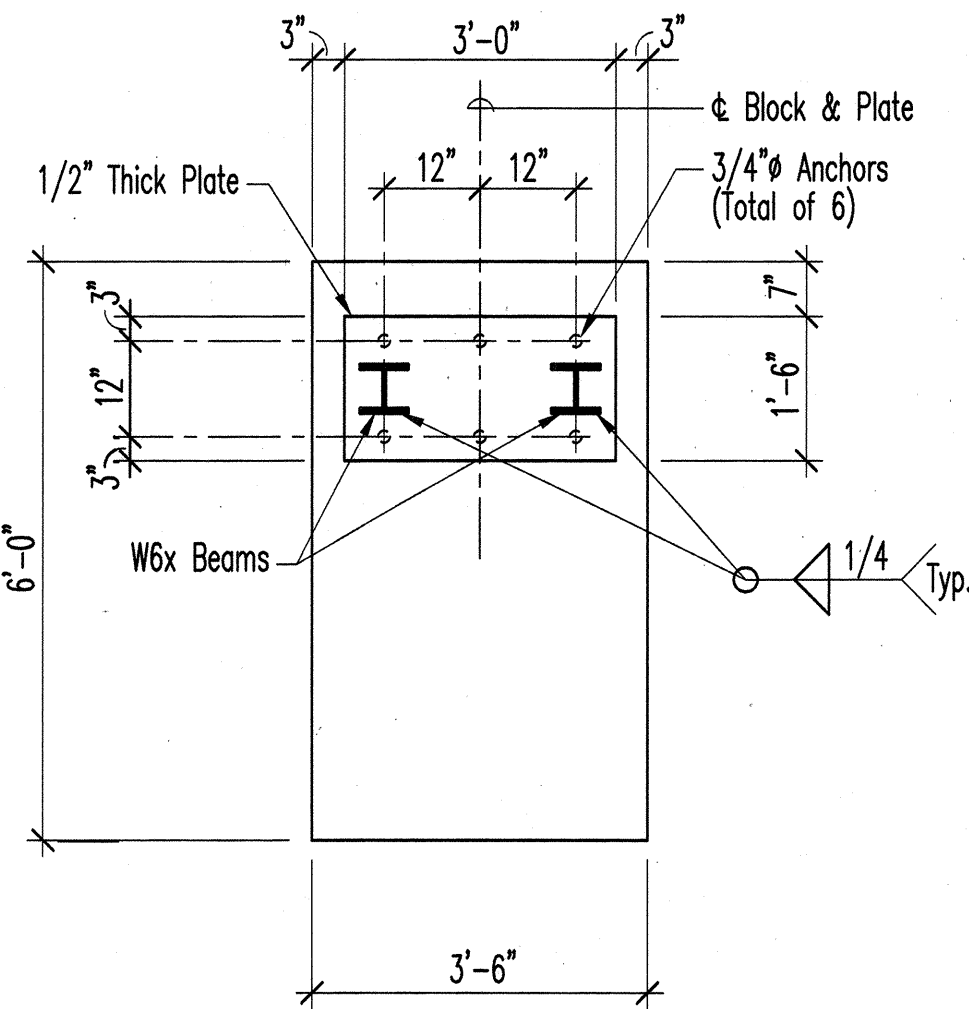
SECTION C

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



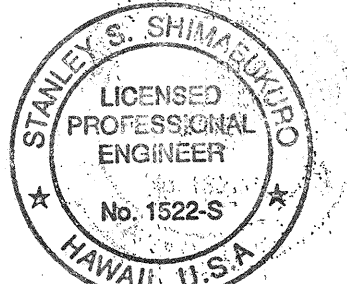
SECTION A

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



SECTION B

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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION,
Stanley S. Shimadzu
 SHIMADZUKO, ENDO & YOSHIZAKI, INC.
 1126 12th Avenue
 Honolulu, Hawaii 96816

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

REACTION BLOCK DETAILS

KAUMUALII HIGHWAY, KUHIO HIGHWAY &
 RICE STREET INTERSECTION IMPROVEMENTS
 PROJECT NO. 50E-01-98

SCALE: AS NOTED DATE:

SHEET NO. 1 OF 1 SHEETS

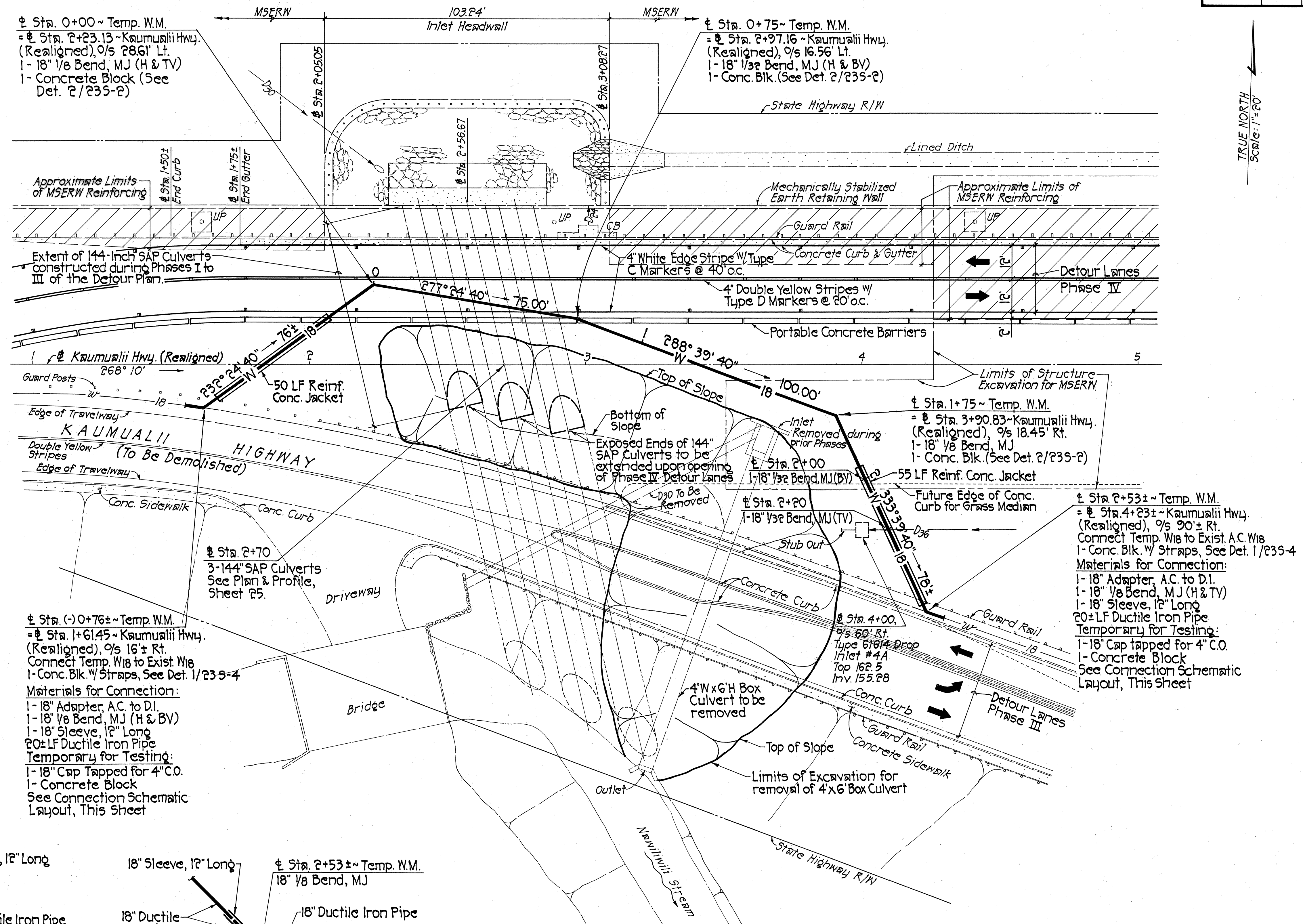
"AS-BUILT"

C0 23 S-2

NOTES:

1. Construction of temporary water main shall be in accordance with the "Water Notes". See sheet 4.
2. Ductile iron pipes shall be Class 52, double wrapped with polyethylene. Double polyethylene wrap shall not be less than 16 mils. thick.
3. The Contractor may use joint restraint systems in place of reaction blocks with the approval of Dept. of Water, except at connections to existing 18" A.C. pipe (Sta. (-) 0+76± and Sta. 2+53±).
4. See sheet 23 S-4 for temporary water main profile.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	50E-01-28	1998	23 S-3	79

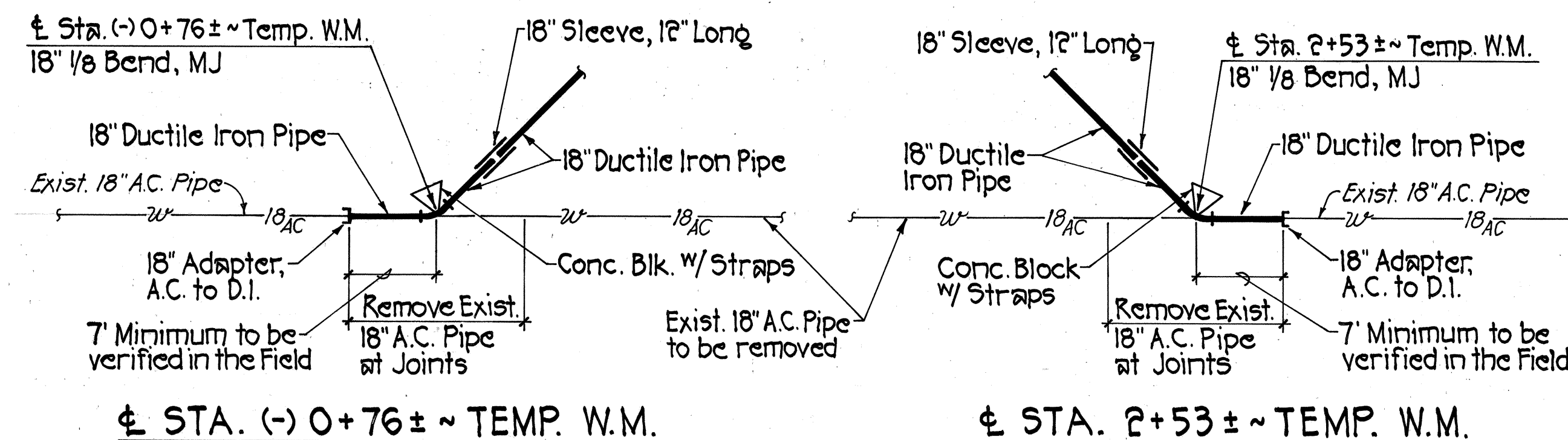


CONNECTION NOTES:

1. The Contractor shall obtain approval of connection sequence and any water service interruption from Dept. of Water (DOW) prior to construction.
2. The Contractor shall verify the exact location of connection and A.C. pipe joints in the field. Contractor shall obtain approval of connection point from DOW, prior to trenching.
3. The Contractor shall remove, handle and dispose of A.C. pipe to meet all State & Federal regulations.
4. The Contractor shall not sawcut A.C. pipe.

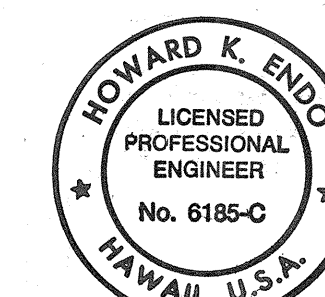
Sta. (-) 0+76± ~ Temp. W.M.
= Sta. 1+61.45 ~ Kaumualii Hwy.
(Realigned), 9/5 16'± Rt.
Connect Temp. W.M. to Exist. W.M.
1- Conc. Blk. w/ Straps, See Det. 1/23 S-4

Materials for Connection:
1- 18" Adapter, A.C. to D.I.
1- 18" 1/8 Bend, M.J. (H & BV)
1- 18" Sleeve, 12" Long
20± LF Ductile Iron Pipe
Temporary for Testing:
1- 18" Cap Tapped for 4" C.O.
1- Concrete Block
See Connection Schematic Layout, This Sheet



CONNECTION SCHEMATIC LAYOUT
Not To Scale

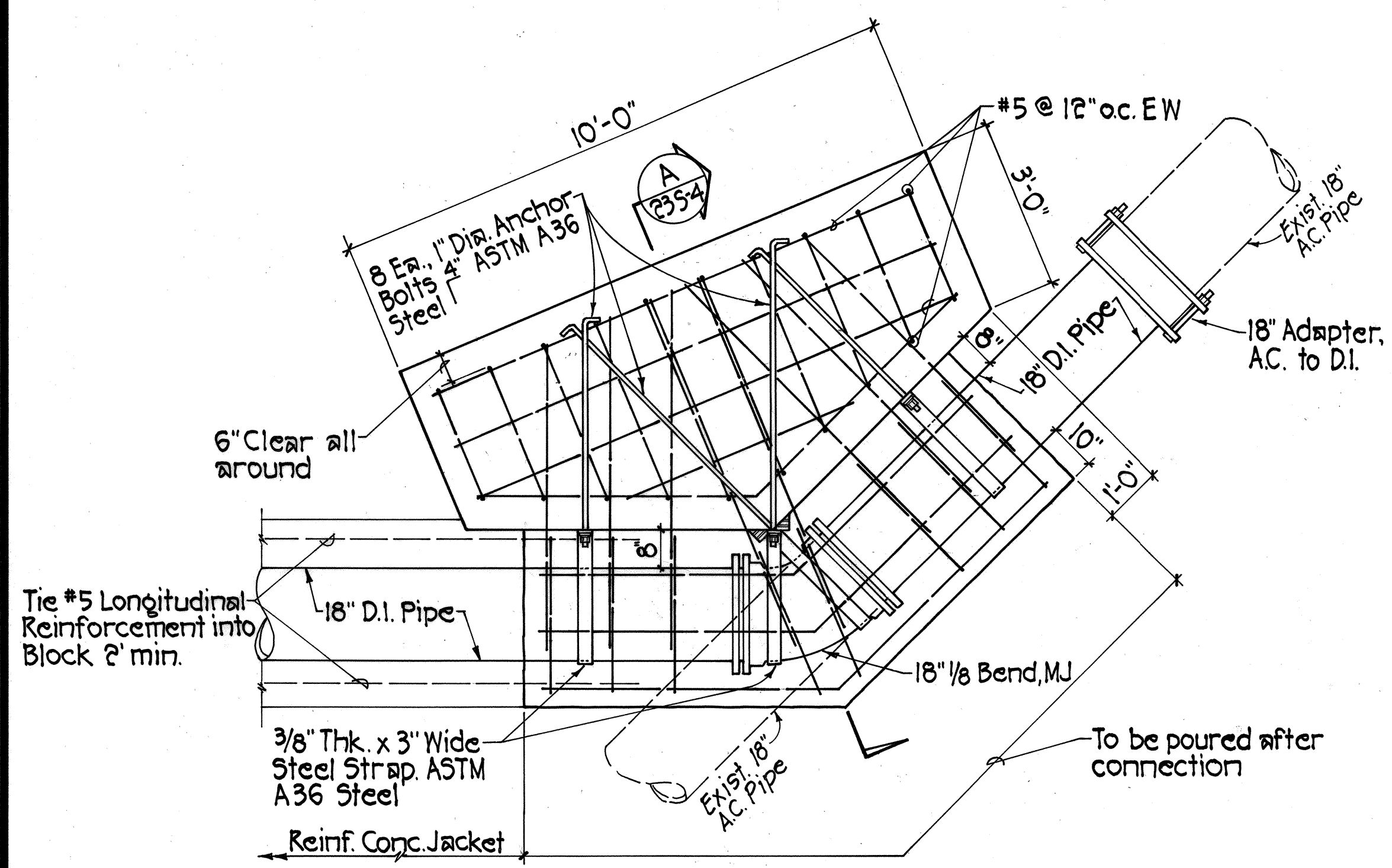
TEMPORARY WATER MAIN PLAN
Scale: 1" = 20'



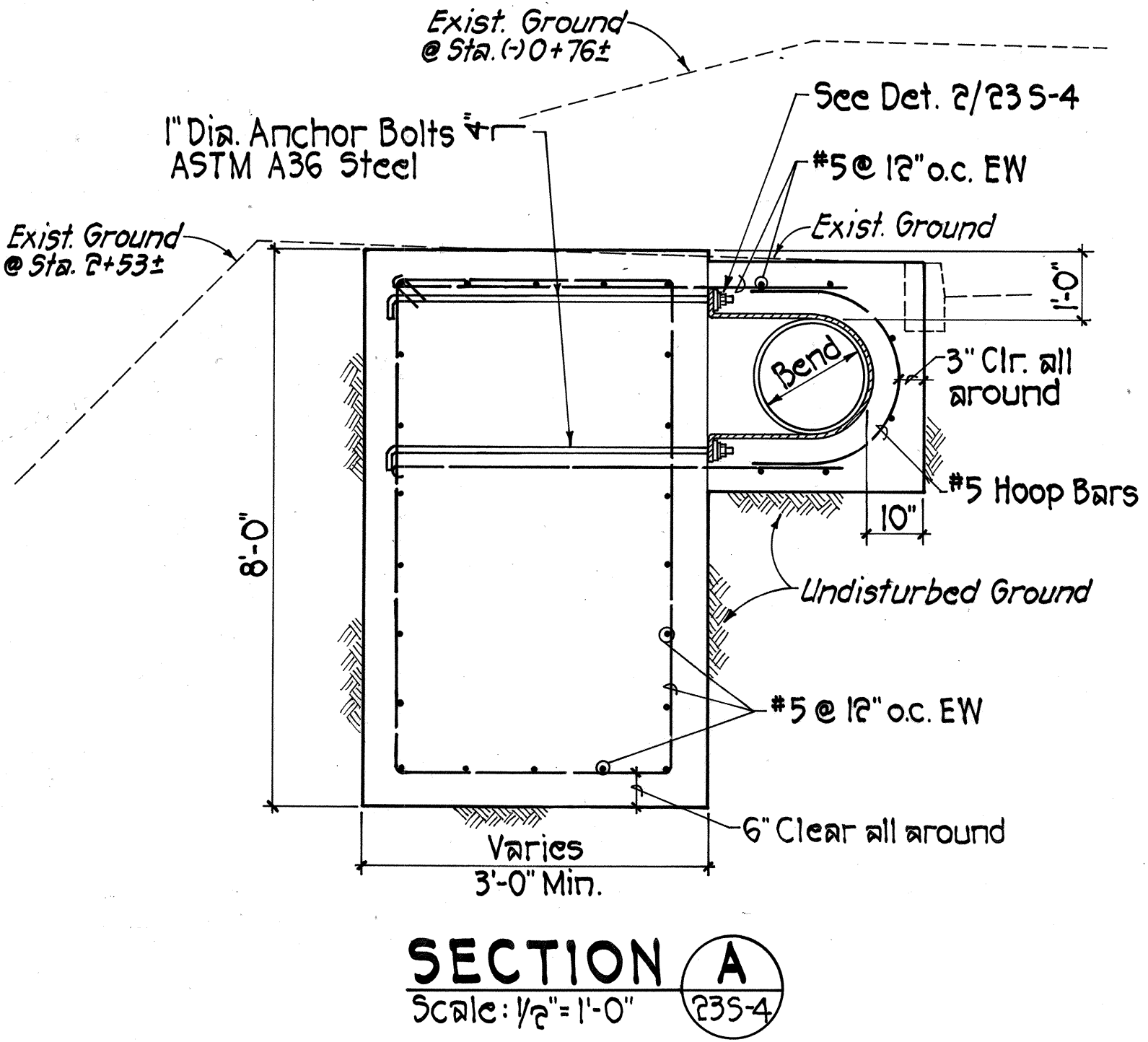
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Howard K. Endo
SHIMABUKURO, ENDO & YOSHIZAKI, INC.
1126 12th Avenue
Honolulu, Hawaii 96816

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
TEMPORARY WATER MAIN PLAN	
KAUMUALII HIGHWAY, KUHIO HIGHWAY & RICE STREET INTERSECTION IMPROVEMENTS PROJECT NO. 50E-01-28	
SCALE: AS NOTED	DATE:
SHEET NO. 1 OF 2 SHEETS	

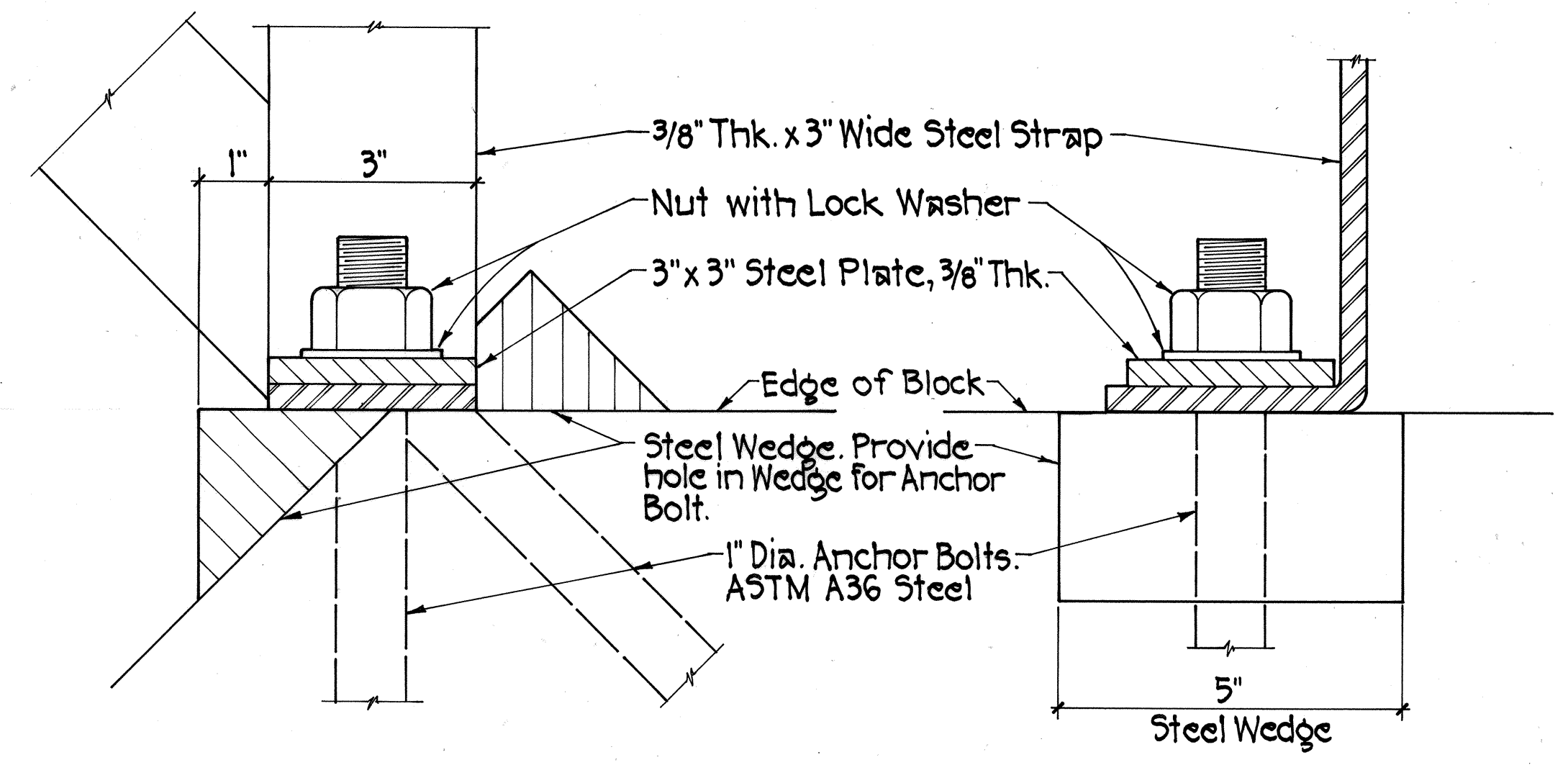
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	50E-01-98	1998	235-4	79



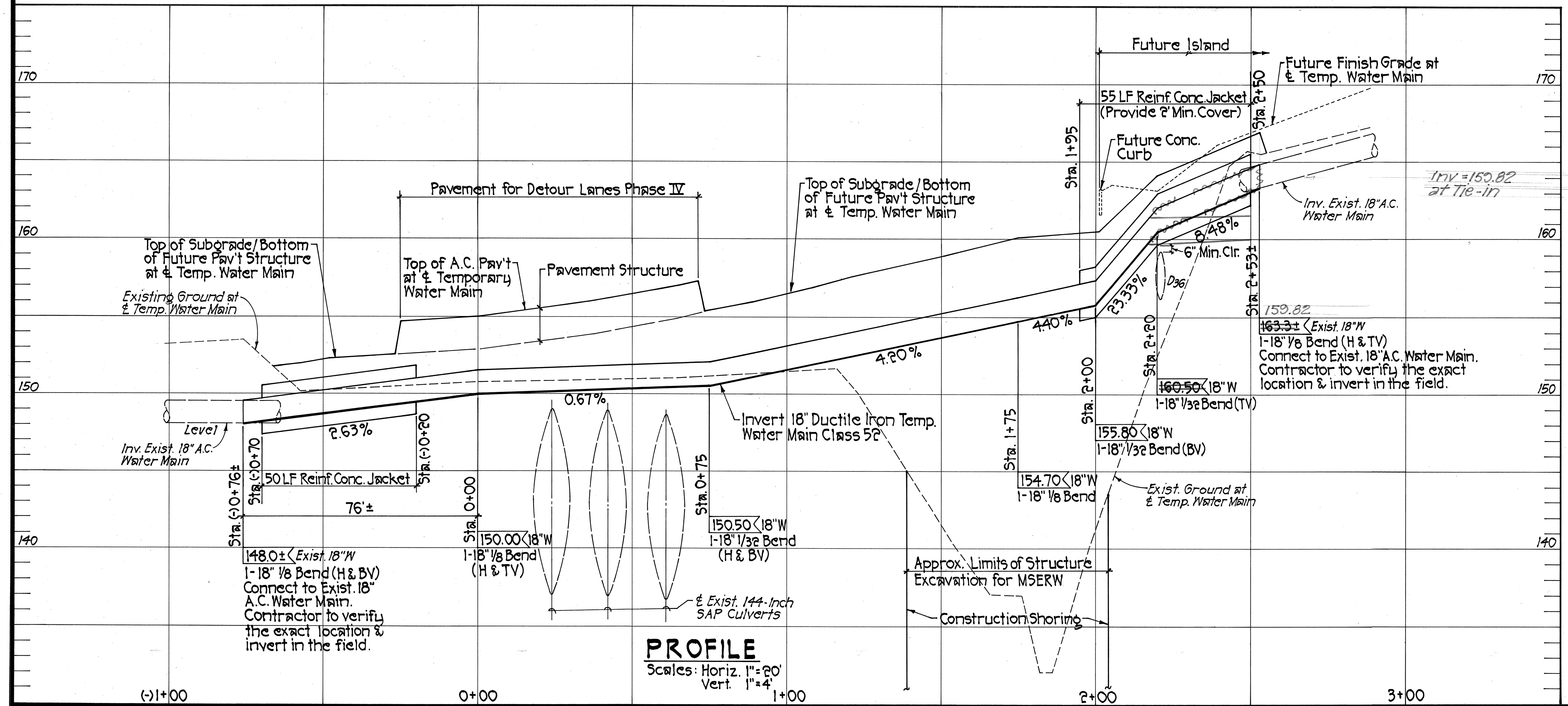
PLAN - THRUST BLOCK WITH STRAPS AT STA. (-)0+76± & STA. 2+53± ~ TEMP. W.M.
Scale: 1/2" = 1'-0"



- NOTES:
- Dept. of Water 2,500 psi Concrete.
 - Anchor bolts shall be placed perpendicular to the bend at the strap.



ANCHOR BOLT CONNECTION DETAIL 2
Scale: 1/2" = 1'-0"



HOWARD K. ENDO
LICENSED PROFESSIONAL ENGINEER
No. 6185-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
SHIMABUKURO, ENDO & YOSHIZAKI, INC.
1126 12th Avenue
Honolulu, Hawaii 96816

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TEMPORARY WATER MAIN
PROFILE & DETAILS**

KAUMUALII HIGHWAY, KUHIO HIGHWAY &
RICE STREET INTERSECTION IMPROVEMENTS
PROJECT NO. 50E-01-98

SCALE: AS NOTED DATE: _____
SHEET NO. 2 OF 2 SHEETS

"AS-BUILT"