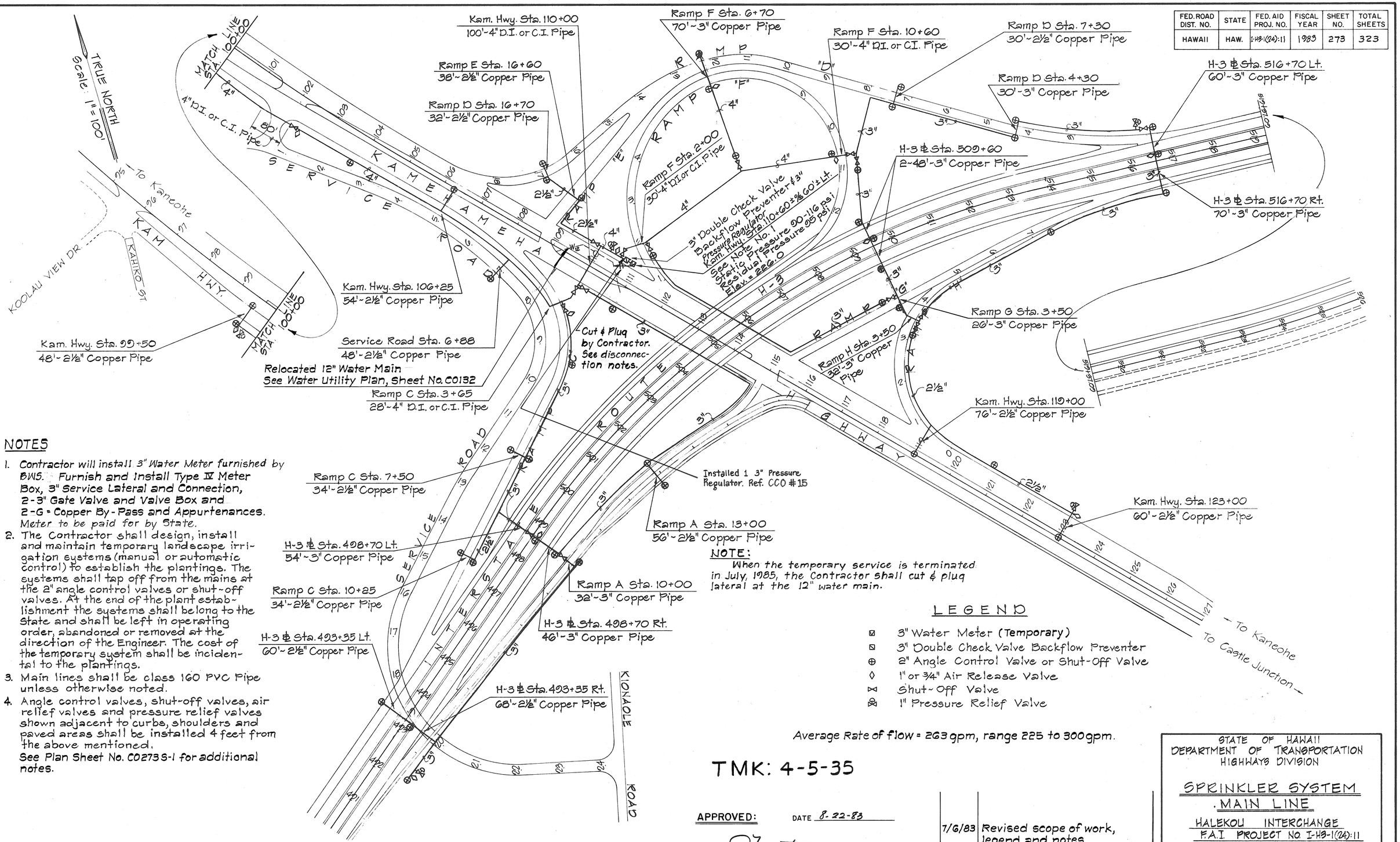
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HB-1(24):11	1983	273	323



NOTES

1. Contractor will install 3" Water Meter furnished by BWS. Furnish and Install Type IV Meter Box, 3" Service Lateral and Connection, 2-3" Gate Valve and Valve Box and 2-G - Copper By-Pass and Appurtenances. Meter to be paid for by State.
2. The Contractor shall design, install and maintain temporary landscape irrigation systems (manual or automatic control) to establish the plantings. The systems shall tap off from the mains at the 2" angle control valves or shut-off valves. At the end of the plant establishment the systems shall belong to the State and shall be left in operating order, abandoned or removed at the direction of the Engineer. The cost of the temporary system shall be incidental to the plantings.
3. Main lines shall be class 160 PVC Pipe unless otherwise noted.
4. Angle control valves, shut-off valves, air relief valves and pressure relief valves shown adjacent to curbs, shoulders and paved areas shall be installed 4 feet from the above mentioned.
   See Plan Sheet No. C0273S-1 for additional notes.

NOTE:
When the temporary service is terminated in July, 1985, the Contractor shall cut & plug lateral at the 12" water main.

LEGEND

- 3" Water Meter (Temporary)
- 3" Double Check Valve Backflow Preventer
- 2" Angle Control Valve or Shut-Off Valve
- 1" or ¾" Air Release Valve
- Shut-Off Valve
- 1" Pressure Relief Valve

Average Rate of Flow = 263 gpm, range 225 to 300 gpm.

TMK: 4-5-35

APPROVED: DATE 8-22-83

for CHIEF, PLANNING & ENGINEERING, BWS

DATE	REVISION
7/6/83	Revised scope of work, legend and notes.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER SYSTEM
MAIN LINE

HALEKOU INTERCHANGE
F.A.I. PROJECT NO I-HB-1(24):11

Scale as shown Date: Oct. 1982

SHEET NO. 1 OF 3 SHEETS

"AS-BUILT"

C.O. 273

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	C.O. 273S-1	328

WATER NOTES FOR INSTALLATION OF SERVICE LATERALS WITH TEMPORARY METERS 3 INCHES & LARGER

5. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, dated 1976, as amended, of the Hawaii Highways Division, Department of Transportation.

6. The BWS Standard Details, Figures 1 to 62 inclusive, bound in the "Water System Standards" of the BWS, dated March 1977, as amended, are applicable to this Project.

7. Nuts and bolts for flanged connections within meter boxes shall be bronze or stainless steel except at coupling adaptors where "Cor-ten" (U.S. Steel) or "Mayari" (Bethelehem Steel) may be used. Flanged connections outside of meter box may use "Cor-ten" or "Mayari" type nuts and bolts.

8. Lines and grades to include stakeout, fittings, concrete reaction blocks, etc., of the new lateral shall not be the responsibility of the Board of Water Supply.

9. Unless otherwise specified, connections to existing water mains shall be done by the Contractor, with the BWS inspector coordinating the work. For details, contact BWS Planning and Engineering Division, Engineering Branch, Construction Section.

10. All meter boxes and valve boxes/manholes including frames and covers shall be furnished, installed and paid for by the Contractor.

11. Test pressure shall be prevailing line pressure, joints left exposed for 24 hours to check for leaks prior to backfill.

12. The Contractor shall chlorinate the entire inside surface of each pipe and fitting with disinfection solution of 5 ounces of sodium hypochlorite mixed with 10 gallons of water.

13. The Contractor shall notify BWS Planning and Engineering Division, Construction Section, one week prior to commencing work on the water system.

14. In the event that pipes other than copper are to be used, the plans shall be resubmitted for approval.

15. The Contractor shall pick up meter at BWS storeroom, deliver to job site and install. BWS inspector shall arrange for the pick up.

16. Valve I.D. tags shall be affixed on the underside of all new manholes and valve box covers. See details.

17. The Contractor shall be responsible for the meter from the time of pick up to the time the project is accepted by BWS. All water used through the meter shall be paid for by the Contractor.

18. Distance from meter dial to bottom of meter box cover shall be a minimum of 6 inches and a maximum of 12 inches.

19. The Contractor shall cut and plug all existing unused laterals at the main whether or not shown on the plans. Meter and valve boxes to be or already abandoned shall be demolished or removed and properly disposed of. C.I. frames and covers shall be cleaned and salvaged and delivered to the appropriate BWS corporation yard. The damaged areas shall be repaired to an equal or better condition than the immediate area. All work shall be done at the expense of the Contractor.

20. The Contractor shall furnish and install additional fittings if necessary to meet field conditions.

21. All cast iron (gray or ductile) water pipes, fittings and valves shall be enclosed in plastic material in accordance with ANSI Specifications A21.5-1972 or AWWA Specifications C105-72 Polyethylene encasement for gray and ductile cast iron piping for water and other liquids.

22. For meters 3" and larger (compound, turbine, & detector check), the Contractor shall notify Customer Service Division in writing no later than 120 days prior to withdrawing meter from BWS Storeyard. Such notice shall indicate the number, size and type of meter (compound or detector check) and approximate month and year meter is anticipated to be drawn out.

23. Reapproval shall be required if this project is not under construction within a period of one year. (See Rules and Regulations of the Board of Water Supply).

24. Board of Water Supply approval of these plans does not constitute a water commitment. Availability of water will be determined when building permit is presented to the Department. Water commitment will depend upon the status of the water system at that time.

25. The project shall be subject to the Board of Water Supply's Cross-Connection Control requirements prior to issuance of the Building Permit.

26. Any adjustments to the existing water system required during construction to meet requirements of BWS Standards, whether shown on the plans or not, shall be done by the Contractor at no cost to the Board.

DISCONNECTION OF TEMPORARY METER

1. The Contractor shall cut and plug the 3" lateral and bypass at the 12" water main, disconnect the water meter, and return meter to BWS storeroom (all under supervision of BWS Inspector).

~~2. Payment for disconnecting the temporary meter, cutting & plugging and returning meter will not be paid for separately but shall be considered to be incidental to Pay Item C16.9503.~~

APPROVED: DATE 6-22-83

R. Nagata
CHIEF, PLANNING & ENGINEERING, BWS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

SPRINKLER SYSTEM NOTES

HALEKOU INTERCHANGE
F.A.I. PROJECT NO. I-H3-1(24):11

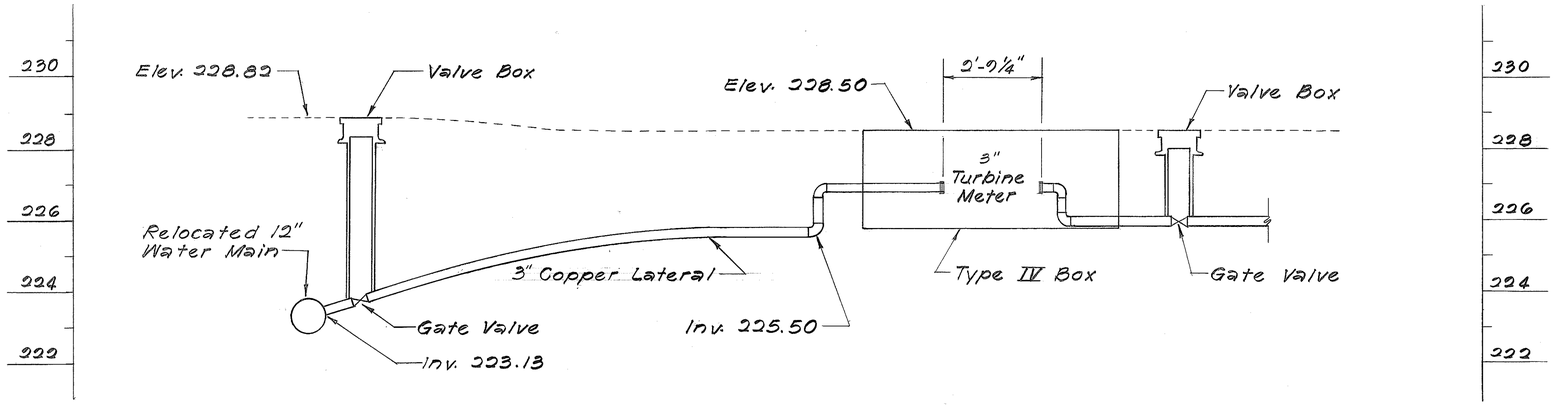
Date: June, 1983

SHEET No. 1A OF 3 SHEETS

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

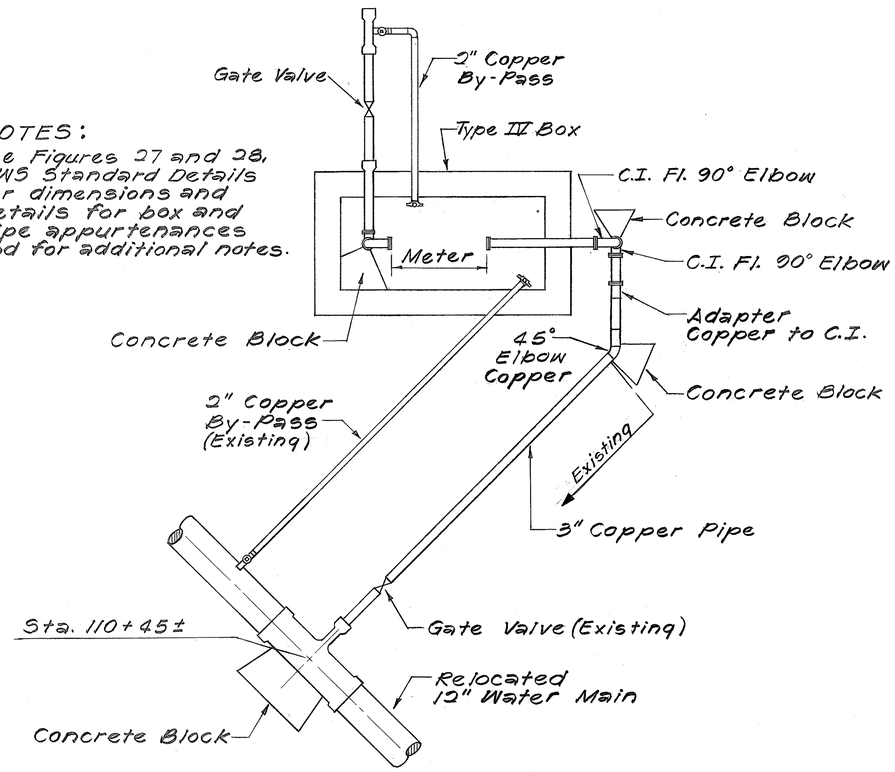
C.O. 273S-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	C.O. 273 S-2	328



PROFILE OF 3" SERVICE LATERAL

Scale: ½"=1'-0"



NOTES:
See Figures 27 and 28, BWS Standard Details for dimensions and Details for box and pipe appurtenances and for additional notes.

PLAN
3" LATERAL CONNECTION AT N.B. KAMEHAMEHA HIGHWAY STA. 110+45±

Scale: ½" = 1'-0"

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

APPROVED: DATE 8-22-83

R Nagata
CHIEF, PLANNING & ENGINEERING, BWS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

SPRINKLER SYSTEM

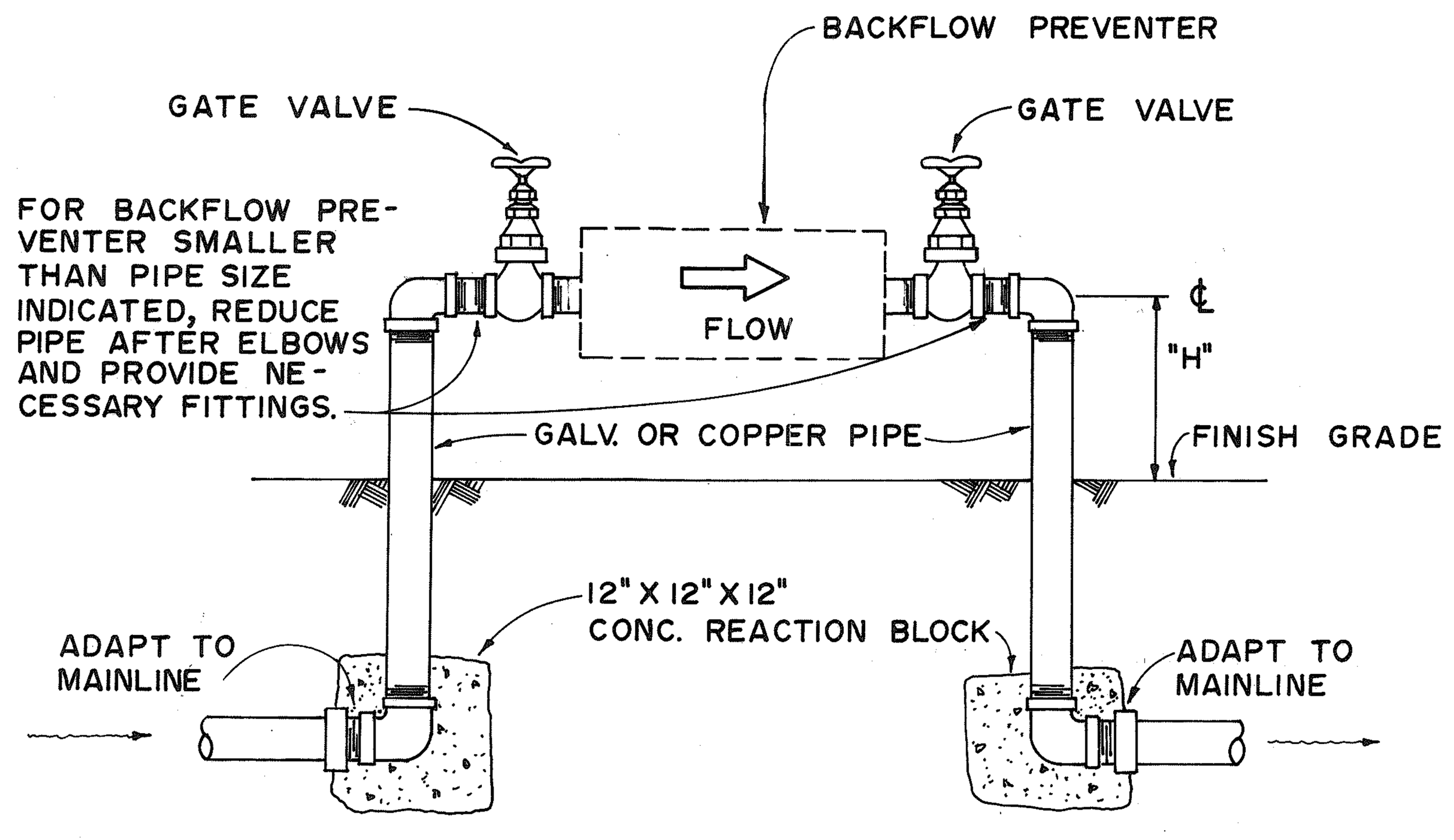
HALEKOU INTERCHANGE
F.A.I. PROJECT No. I-H3-1(24):11

Scale: ½"= 1'-0" Date: June, 1983

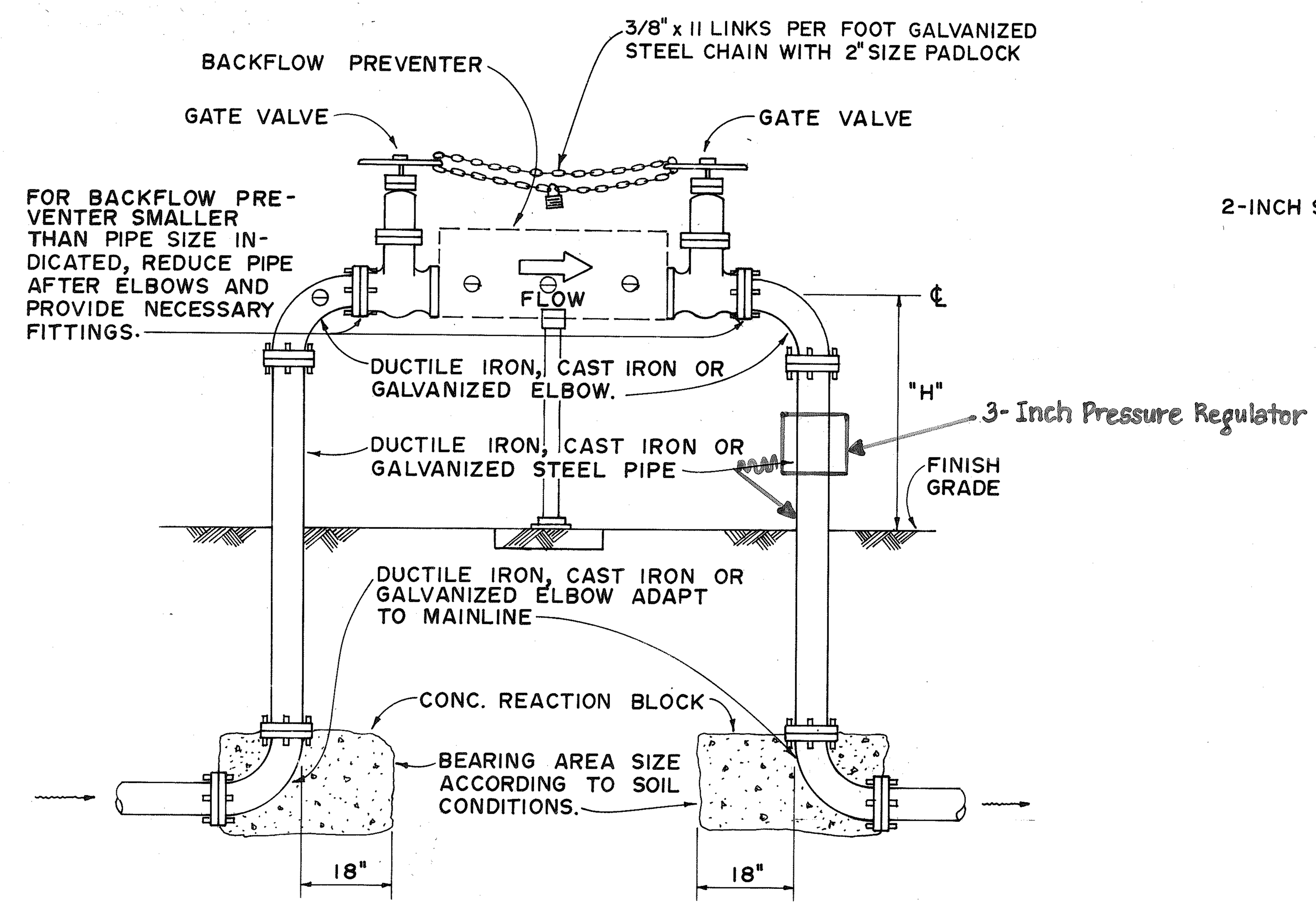
SHEET No. 18 OF 3 SHEETS

C.O. 273S-2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	274	328



2 1/2" AND SMALLER

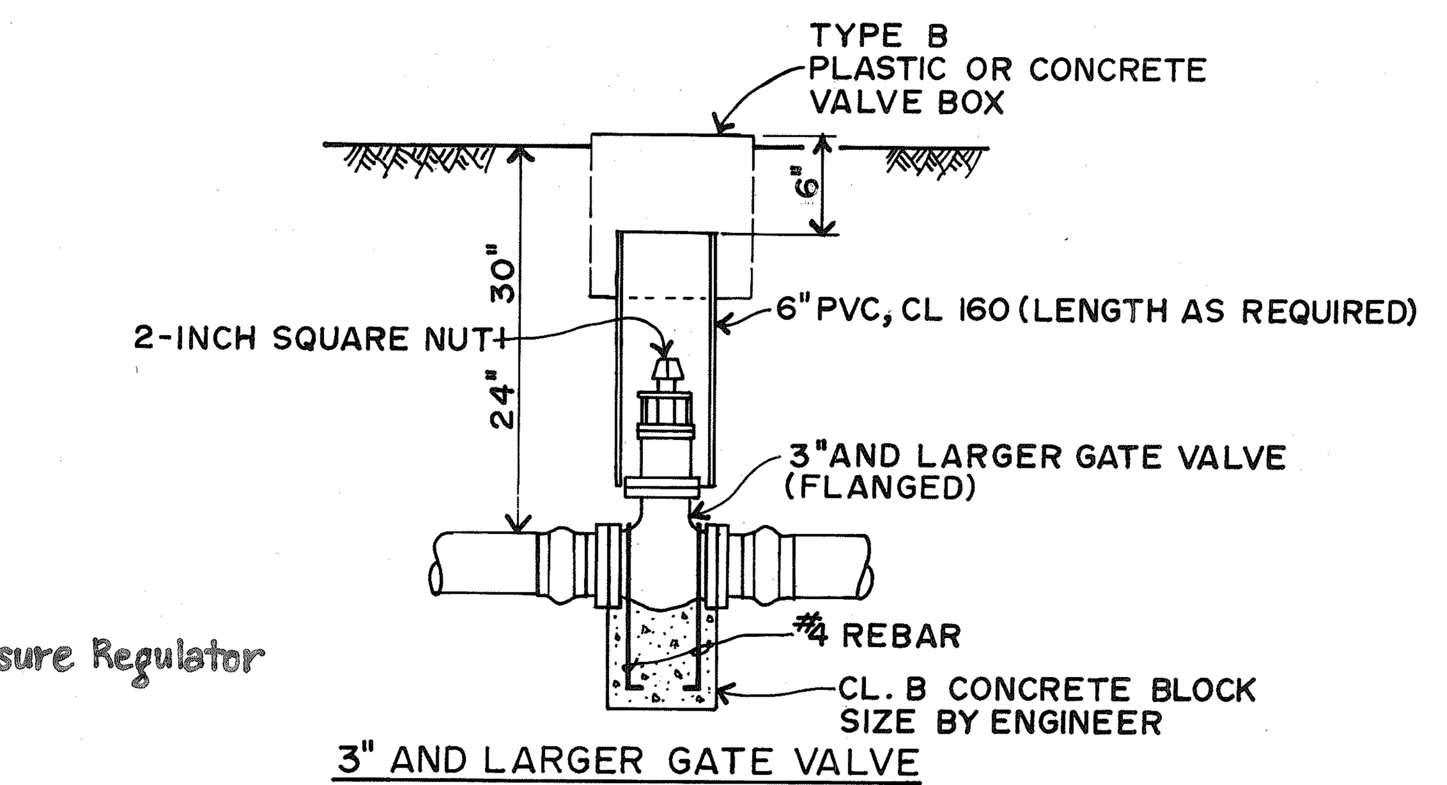


3" AND LARGER

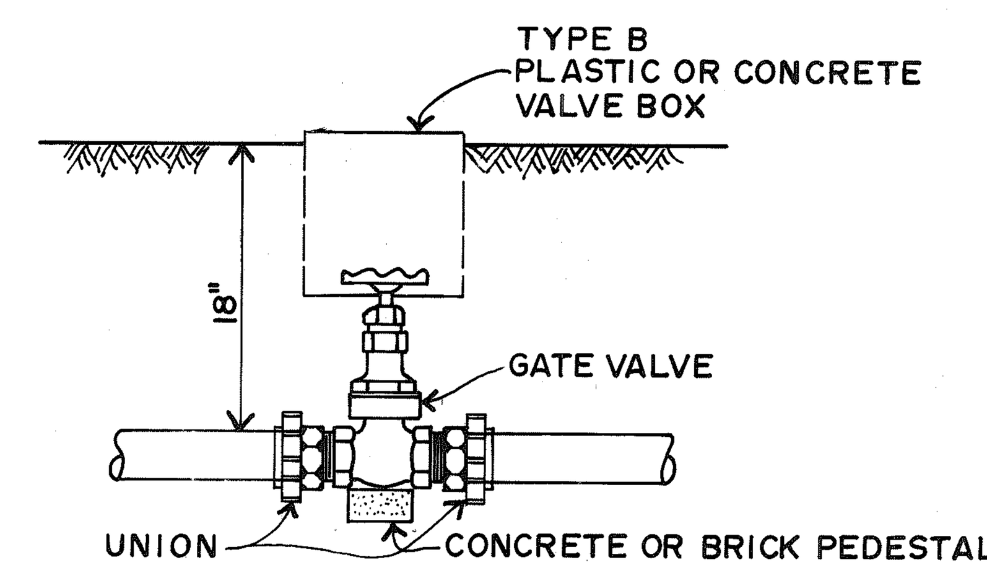
BACKFLOW PREVENTION UNIT DETAIL

NOTES:
1. ONLY ONE TYPE OF PIPE AND FITTINGS SHALL BE USED.
2. BACKFLOW PREVENTION UNIT SHALL BE PRIME COATED AND PAINTED WITH TWO COATS OF DARK GREEN ENAMEL PAINT TO THE FINISH GRADE.
3. DUCTILE IRON, CAST IRON OR GALVANIZED PIPE BELOW FINISH GRADE SHALL BE PAINTED WITH TWO COATS OF ASPHALT PAINT.
4. THERE SHALL BE NO OBSTRUCTION WITHIN A DISTANCE OF TWO (2) FEET SURROUNDING THE BACKFLOW PREVENTION UNIT.
5. THE BACKFLOW PREVENTER SHALL BE APPROVED IN ACCORDANCE WITH AMERICAN WATER WORKS ASSOCIATION STANDARD C-506-78.

SIZE OF PIPE	"H"
3/4" - 1 1/2"	18"
2" - 3"	24"
4" - 6"	30"

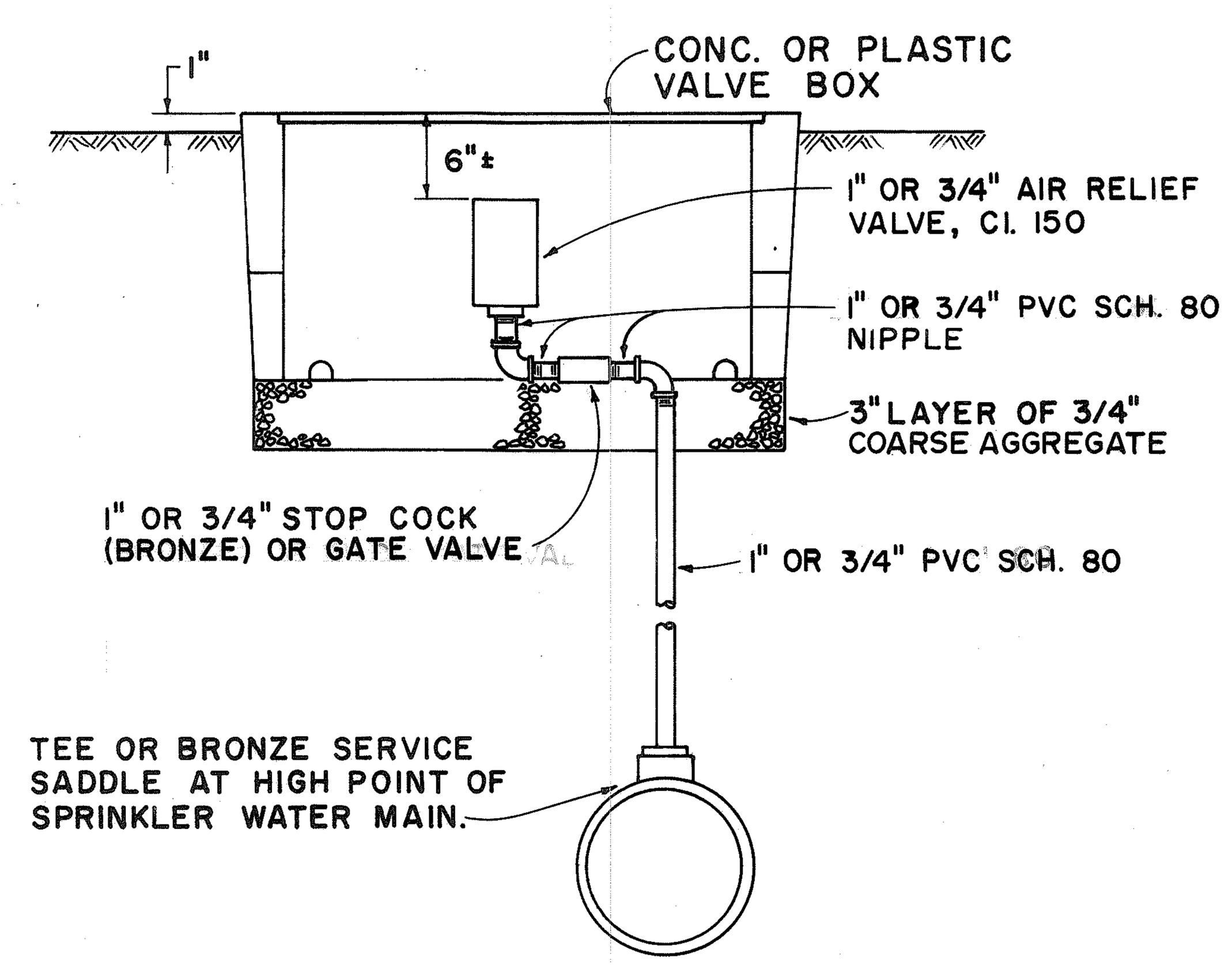


3" AND LARGER GATE VALVE

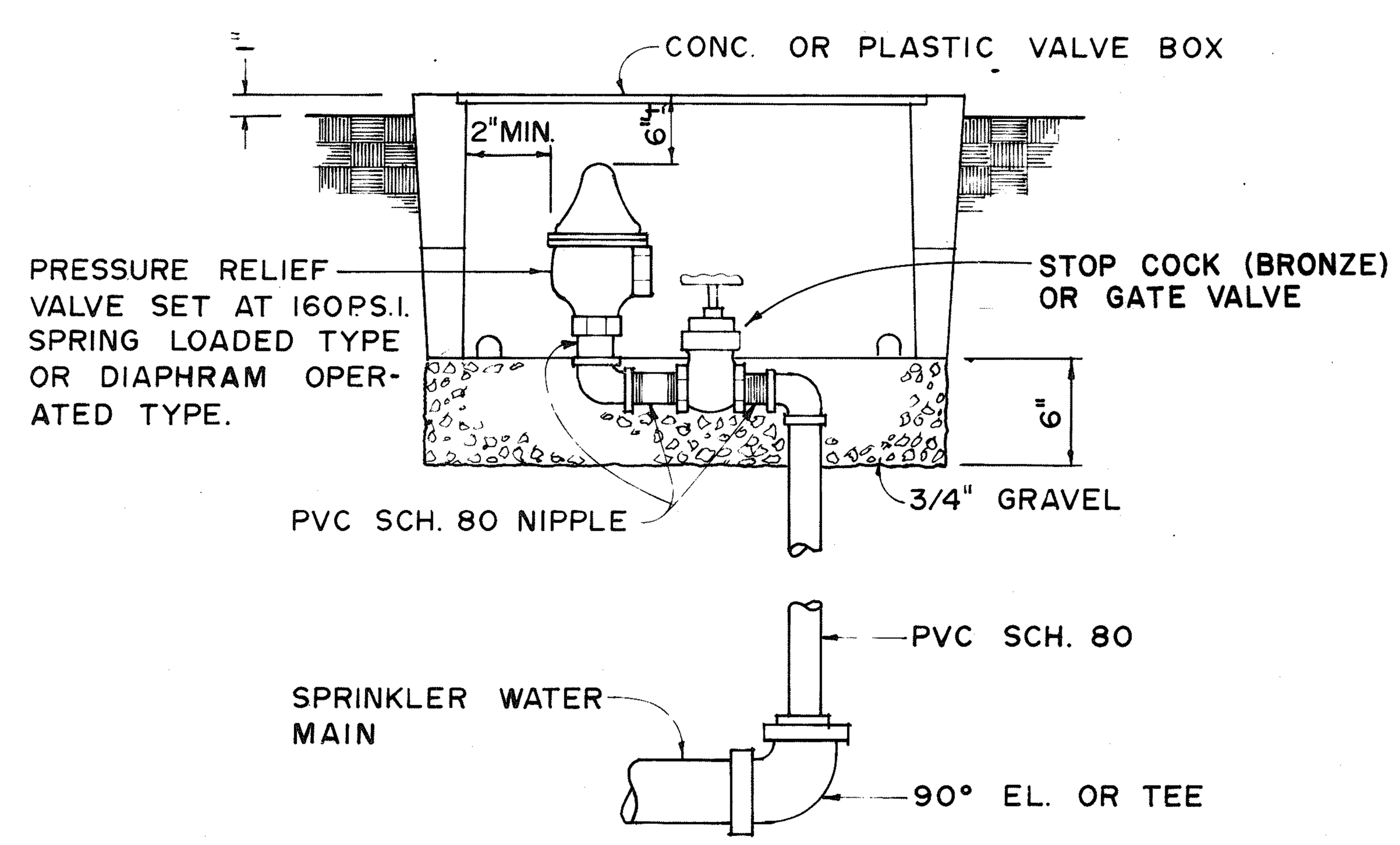


2 1/2" AND SMALLER GATE VALVE

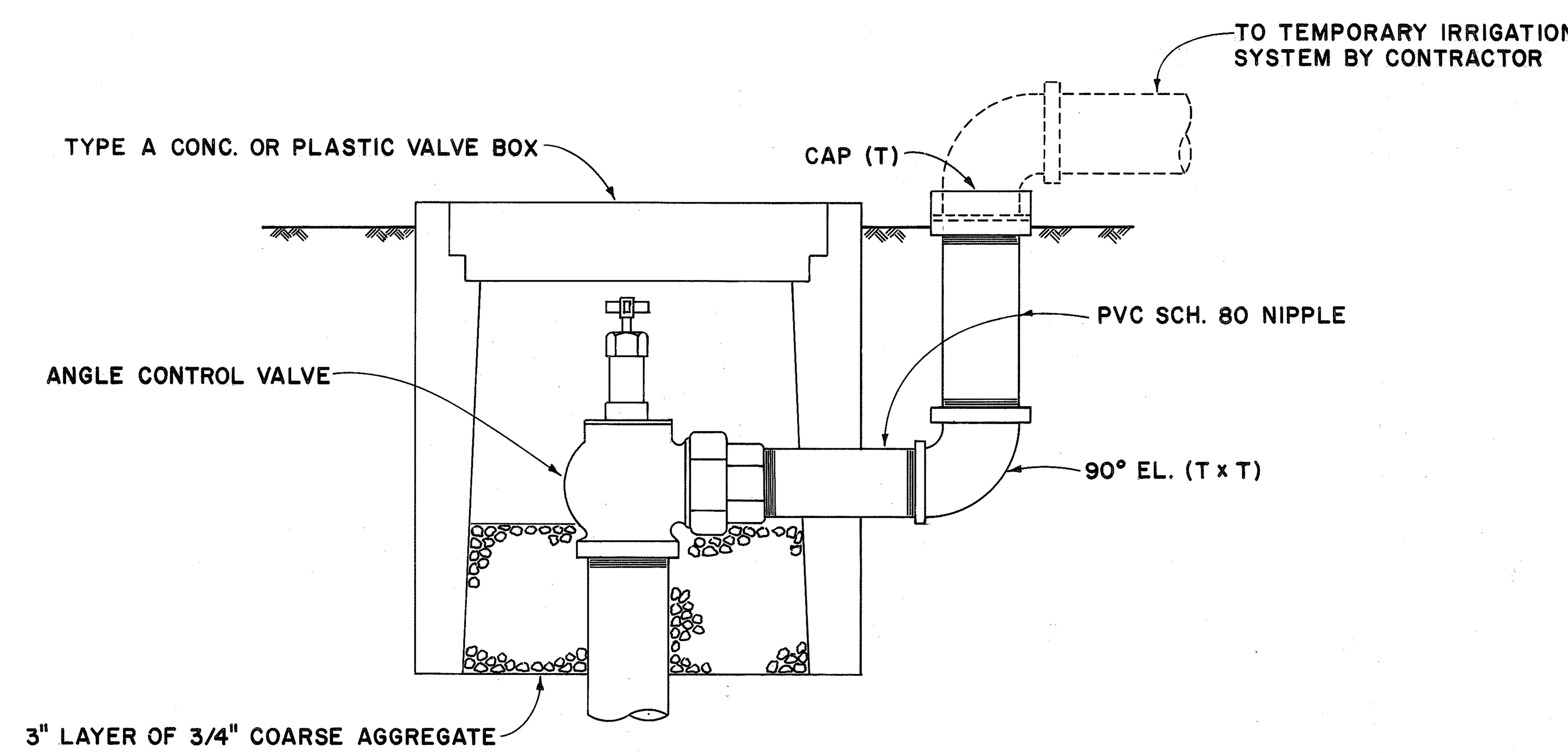
GATE VALVE DETAILS



TYPICAL INSTALLATION DETAIL FOR AIR RELIEF VALVES



PRESSURE RELIEF VALVE ASSEMBLY DETAIL



ANGLE CONTROL VALVE DETAIL

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

APPROVED FOR CROSS-CONNECTION CONTROL REQUIREMENTS.

BOARD OF WATER SUPPLY — DATE 8/18/83

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER SYSTEM DETAILS

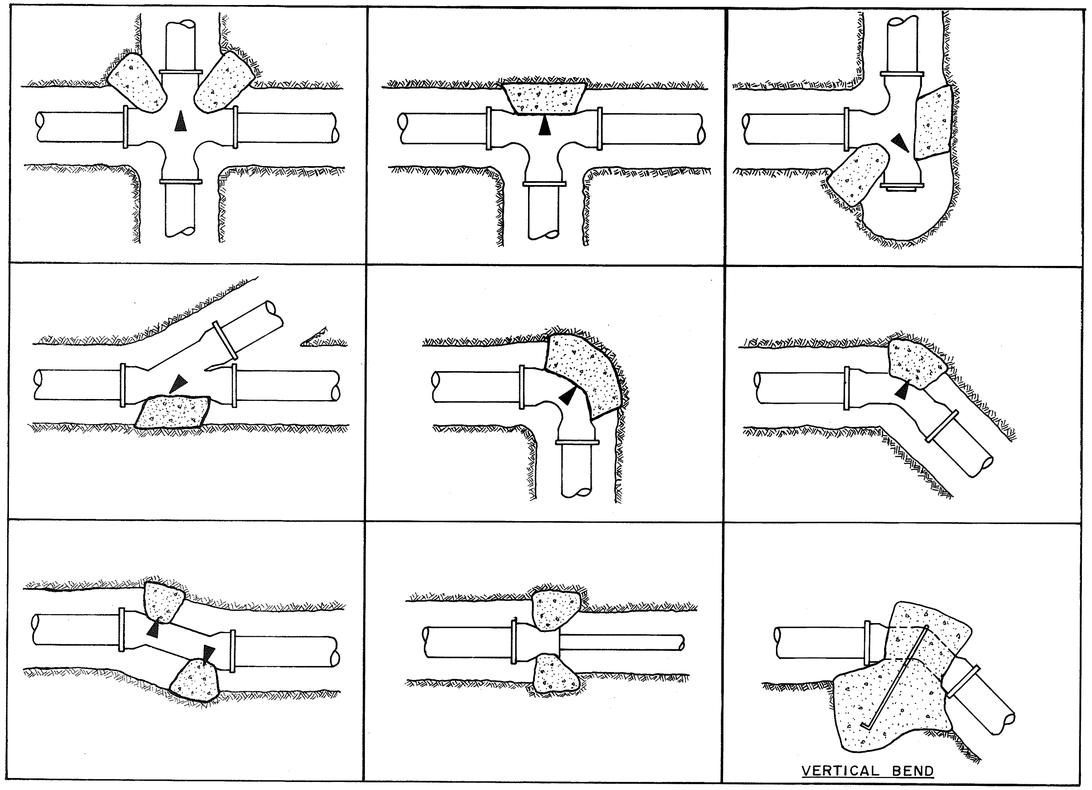
HALEKOU INTERCHANGE
F.A.I. PROJECT NO. I-H3-1(24):11

SCALE: NOT TO SCALE DATE: OCT. 1982

SHEET No. 2 OF 3 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	275	328



VERTICAL BEND

SPRINKLER MAINS

THRUST AT FITTINGS, LBS. AT 100 PSI & 120 PSI AWWA WATER HAMMER			
PIPE SIZE	90° EL	45° EL	TEE
2 1/2"	1,725	930	1,220
3"	2,550	1,380	1,880
4"	4,230	2,290	3,000
6"	9,150	5,000	6,470

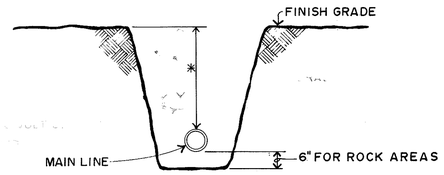
SPRINKLER LATERALS

THRUST AT FITTINGS, LBS. AT 100PSI			
PIPE SIZE	90°EL	45°EL	TEE
1 1/2"	415	225	295
2"	645	350	455
2 1/2"	935	510	660
3"	1395	755	985

TYPICAL THRUST BLOCK DETAILS

GENERAL NOTES:

1. SIZE OF BLOCK AND STEEL REQUIREMENTS TO BE DETERMINED BY THE ENGINEER.
2. MINIMUM DISTANCE BETWEEN PIPE AND UNDISTURBED GROUND FOR REACTION BLOCK SHALL BE 18".
3. CONCRETE SHALL BE CLASS B.

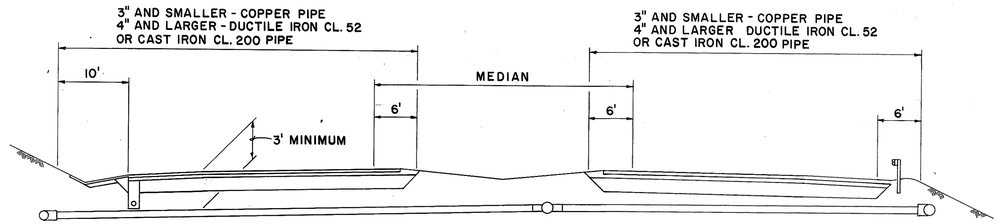


*SEE TABLE BELOW

	MINIMUM COVER
SPRINKLER MAINS	
1/2" TO 2 1/2"	18"
3" OR 4"	24"
OVER 4"	30"

TRENCH DETAIL

NOTE: PIPES UNDER ROADWAY SHALL HAVE MINIMUM COVER OF 36 INCHES AND SHALL NOT BE IN THE ROADWAY STRUCTURE.



TYPICAL IRRIGATION MAIN ROADWAY CROSSING

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER SYSTEM DETAILS

HALEKOU INTERCHANGE
F.A.I. PROJECT NO. I-H3-1(24):11

SCALE: NOT TO SCALE DATE: OCT. 1982

SHEET No. 3 OF 3 SHEETS

275

K+E