

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(60)-23	1976	104	181

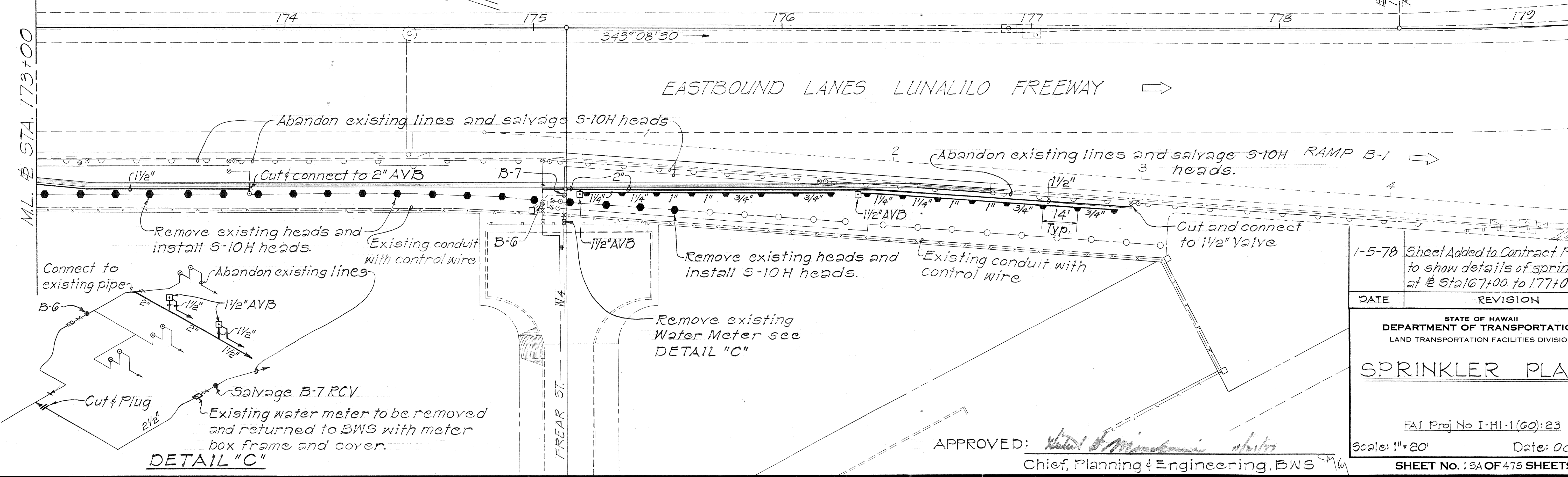
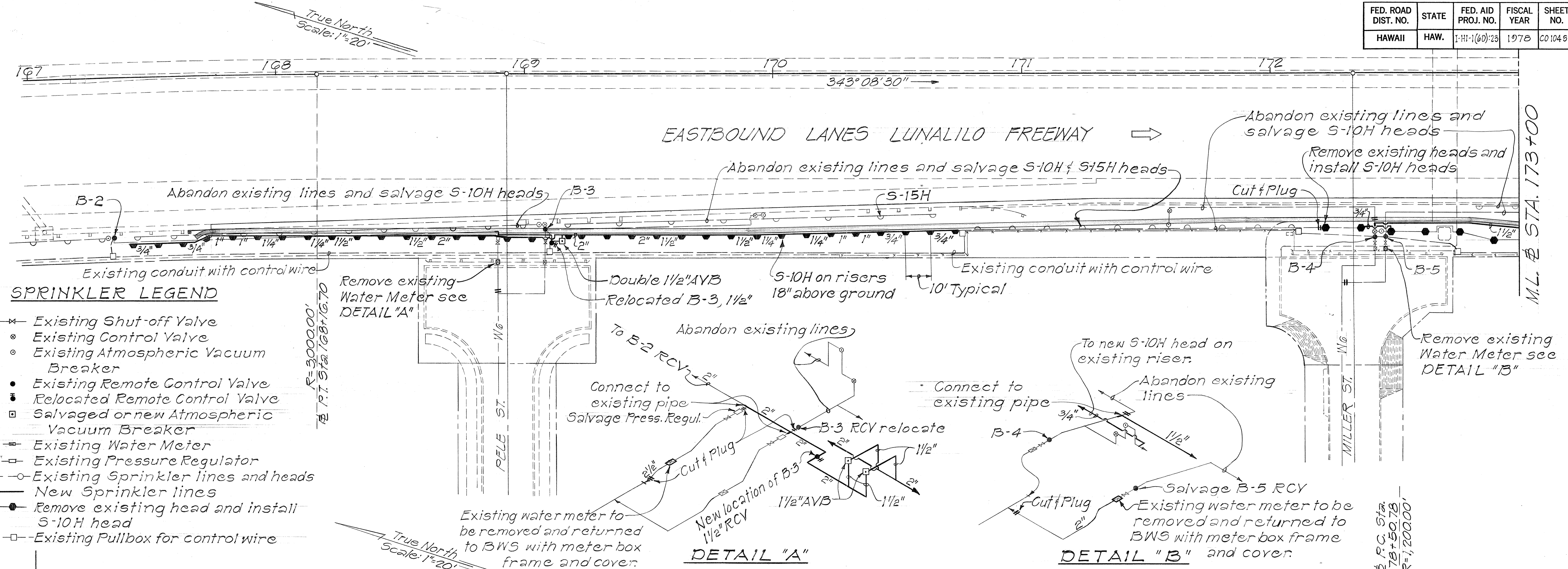
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SHEET NO. 15 OF 175 SHEETS

104

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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NOTE BOOK	DESIGNED BY	
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(60):23	1978	CO 104 S-1	181



SPRINKLER LEGEND

- Existing Shut-off Valve
- Existing Control Valve
- Existing Atmospheric Vacuum Breaker
- Existing Remote Control Valve
- Relocated Remote Control Valve
- Salvaged or new Atmospheric Vacuum Breaker
- Existing Water Meter
- Existing Pressure Regulator
- Existing Sprinkler lines and heads
- New Sprinkler lines
- Remove existing head and install S-10H head
- Existing Pullbox for control wire

1-5-78 Sheet Added to Contract Plan to show details of sprinklers at Sta 167+00 to 177+00

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

SPRINKLER PLANS

FAI Proj No I-HI-1(60):23

Scale: 1"=20' Date: Oct. 1977

SHEET No. 19A OF 475 SHEETS

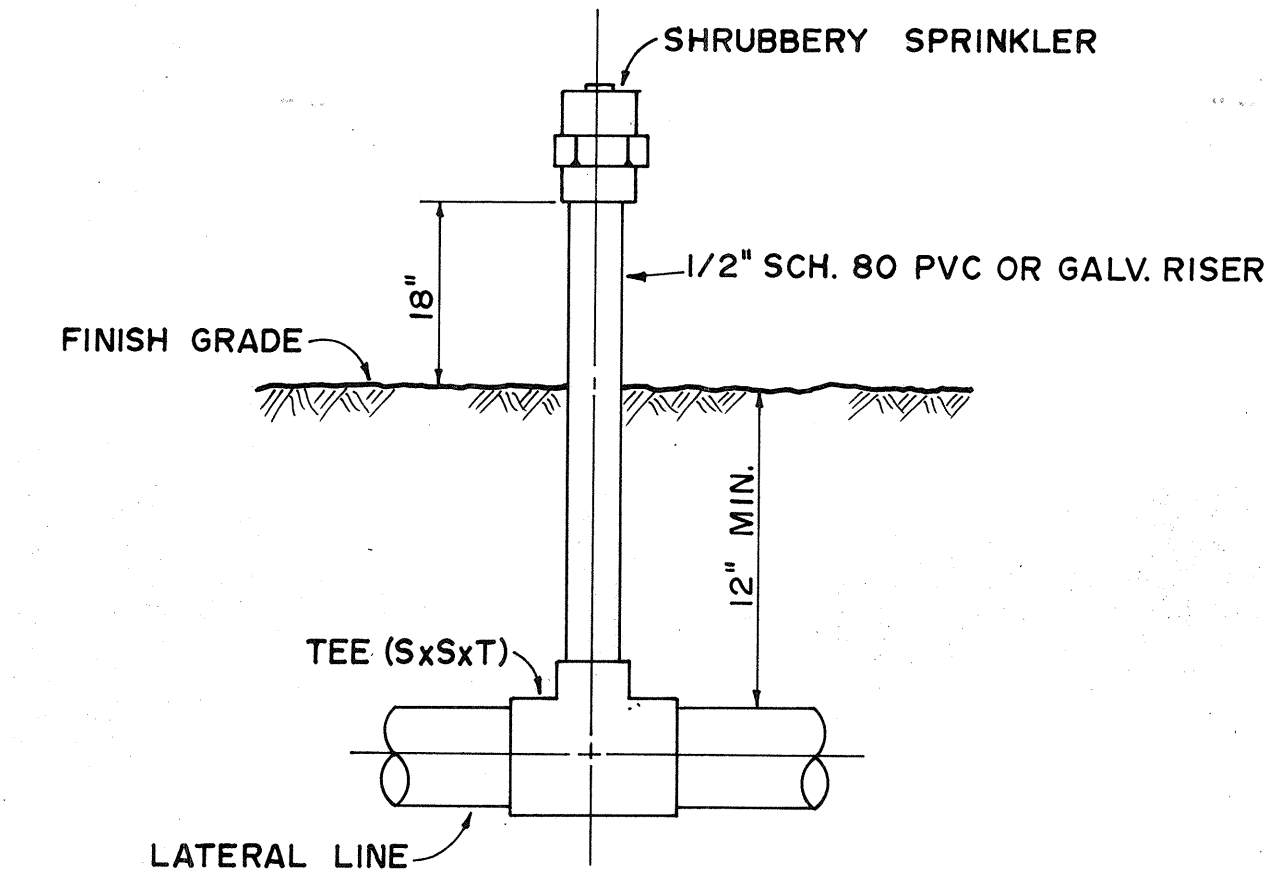
APPROVED: *[Signature]*
Chief, Planning & Engineering, BWS

C.O. 104 S-1

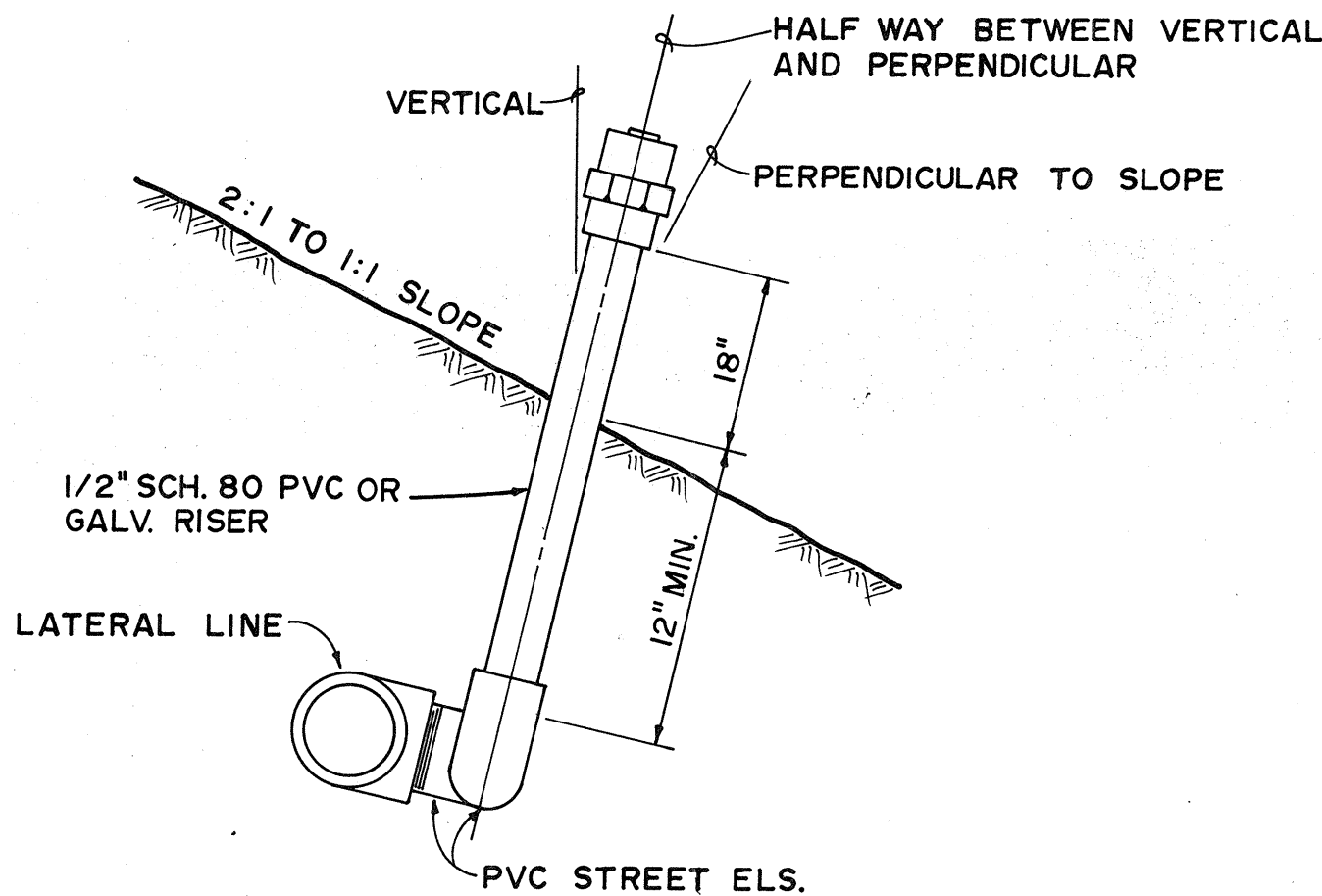
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NOTE BOOK	
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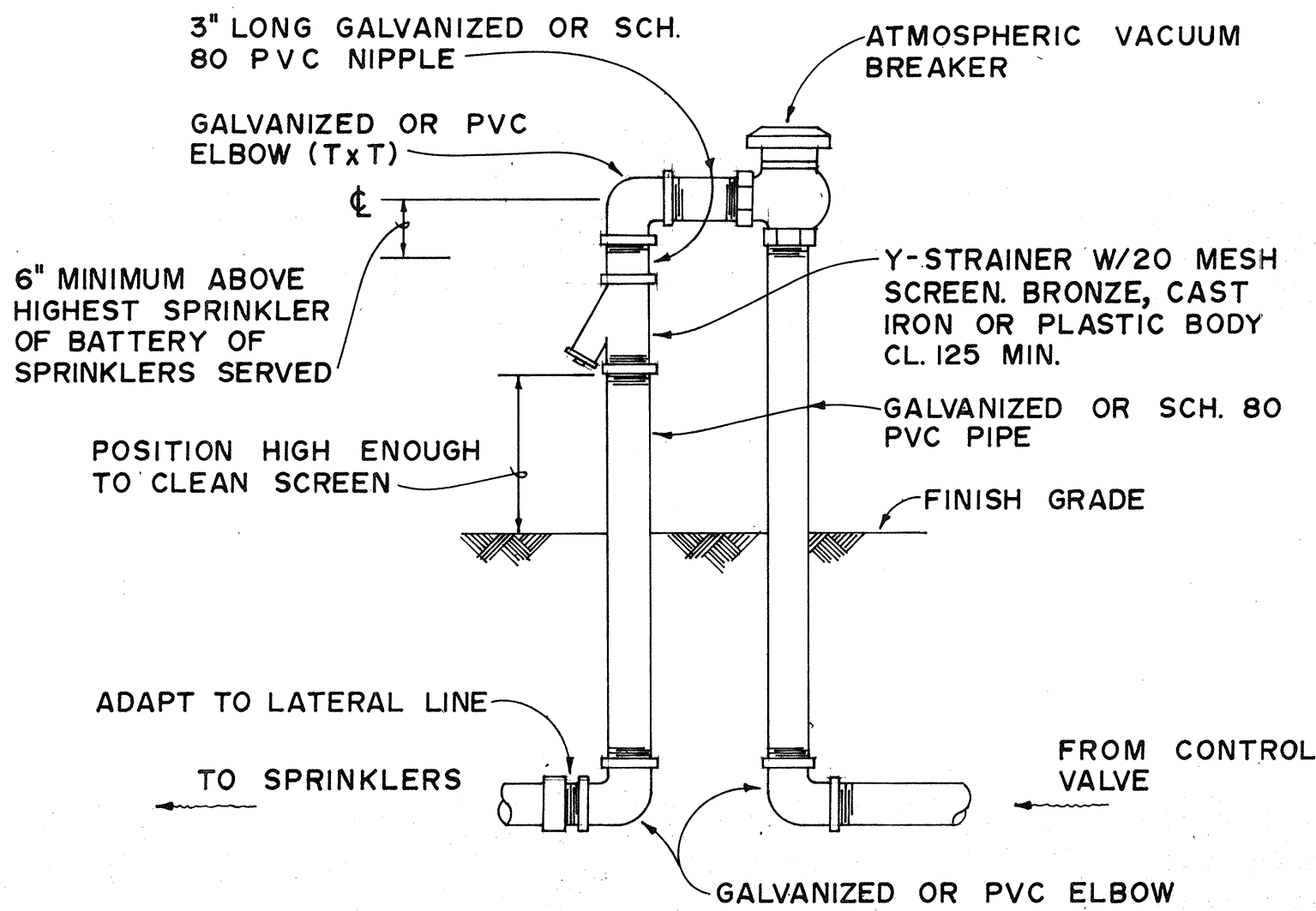
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HAWAII	HAW.	I-HI-1(60):23	1978	C01045-2	181



DETAIL OF SPRINKLER HEAD ON RISER

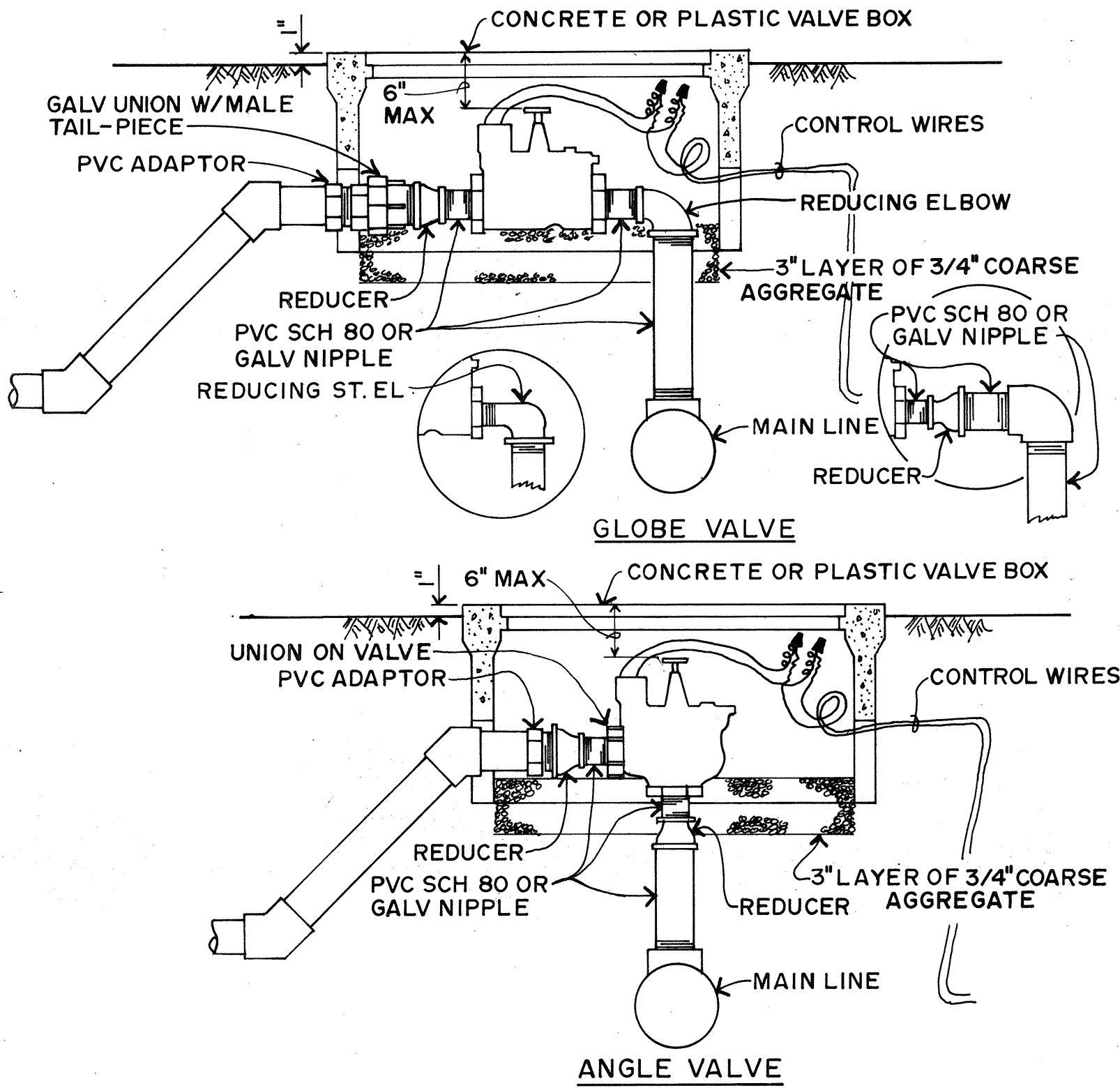


SHRUBBERY HEAD DETAIL ON SLOPE



ATMOSPHERIC VACUUM BREAKER UNIT DETAIL

- NOTES:
1. ATMOSPHERIC VACUUM BREAKER, Y-STRAINER AND PIPE ABOVE FINISH GRADE SHALL BE PRIME COATED AND PAINTED WITH TWO COATS OF DARK GREEN ENAMEL PAINT.
 2. GALVANIZED PIPE BELOW FINISH GRADE SHALL BE PAINTED WITH TWO COATS OF ASPHALT PAINT.



TYPICAL CONTROL VALVE DETAIL

NOTE: A 2" MINIMUM CLEARANCE SHALL BE REQUIRED ON ALL SIDES OF THE VALVE.

GENERAL NOTES

1. Final locations of valves and vacuum breakers shall be determined by the Engineer.
2. Lateral lines shall be installed to a minimum depth of 12 inches and shall be solvent welded, class 200/SDR 21 PVC pipe.
3. AYB's for use in systems B-3 and B-6 could be furnished as new equipment or salvage from existing sprinkler systems at the contractor's option.
4. Salvage sprinkler heads, remote control valves and pressure regulator shall be turned over to the Engineer.
5. The sprinkler heads, atmospheric vacuum breakers and control valves with the required risers, Y-strainers and all additional materials necessary for that installation shall be measured and paid for as a unit.
6. Existing lines, angle control valves, shut-off valves and atmospheric vacuum breakers shall be abandon unless directed by the Engineer for reuse.

WATER GENERAL NOTES

1. 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 Land Transportation Facilities Division, Department of Transportation.
2. Prior to excavating for new drain, sewer and other utility lines, the Contractor shall verify in the field the location of existing water mains and appurtenances. Where the installation of new drain, sewer or other utility lines are to cross over or under

Continued on sheet no. C.O. 104 S-3

SPRINKLER HEAD SPECIFICATIONS

NUMBER	SYMBOL	TYPE	Q	P.S.I.	COVERAGE	I.P.S.	ADJ. NOZZLE	MATERIAL
S-10H		Shrubbery Sprinkler, half circle	2.5	20	10' R	1/2"	✓	BB or PL

Q - Approximate discharge (GPM)
P.S.I. - Operating Pressure
R - Radius

I.P.S. - Riser connection
BB - Brass or Bronze
PL - Plastic

Approved for cross-connection control requirements.

Tahira Ali
Board of Water Supply

11-17-77
Date

APPROVED: *[Signature]*
Chief, Planning & Engineering, BWSN

1-5-78 Sheet Added to Contract Plan to show details of sprinklers at Sta. 167+00 to 177+00.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER PLANS

FAI Proj No I-HI-1(60):23

Not to Scale Date: Oct. 1977

SHEET NO. 158 OF 476 SHEETS

C.O. 104 S-2

DATE	11-17-77
SURVEY PLOTTED BY	11-17-77
DRAWN BY	11-17-77
DESIGNED BY	11-17-77
CHECKED BY	11-17-77
NOTED BY	11-17-77
ORIGINAL PLAN	11-17-77
NOTE BOOK	11-17-77
NO.	11-17-77

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(60):23	1978	C0104 S-3	181

WATER GENERAL NOTES ~ Continuation

2. Cont.~ existing water mains, the Contractor shall expose the existing water mains prior to trenching. Excavation around water mains shall be done by hand.
3. Items indicated as "relocate" on the plans shall be removed, cleaned, painted and reinstalled at the new location by the Contractor.
4. All work and materials including chlorination shall be furnished and installed by the Contractor with BWS inspector coordinating the work.
5. The minimum clearance between fire hydrants and utility poles or light standards shall be 3.0 feet.
6. The Contractor shall notify the Board of Water Supply in writing one week prior to commencing work on the main.
7. Approval by the Board of Water Supply is based solely on the adequacy of the water supply. Discrepancies, if any, of alignments, grades, fittings, etc. shall be the responsibility of the engineer who prepared the plan.
8. The existence and location of underground utilities and structures as shown on the plans are from the latest available data but is not guaranteed as to the accuracy or the encountering of other obstacles during the course of the work. The Contractor shall be responsible and shall pay for all damages to existing utilities.
9. In fill areas, the embankment for the pipe shall be compacted to the finish grade of the roadway and the pipe shall be installed after the trench has been excavated to the proper depth. The trench backfill and embankment shall have a relative compaction of not less than 95 per cent.

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

1-5-78 Sheet Added to Contract Plan to show Water Notes as required by BWS.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

SPRINKLER PLANS

PA1 Proj No 1-HI-1(60):23

Date: Nov. 1977

SHEET NO. 18 COF 478 SHEETS

APPROVED: *[Signature]* 11/6/77
Chief, Planning & Engineering, BWSA

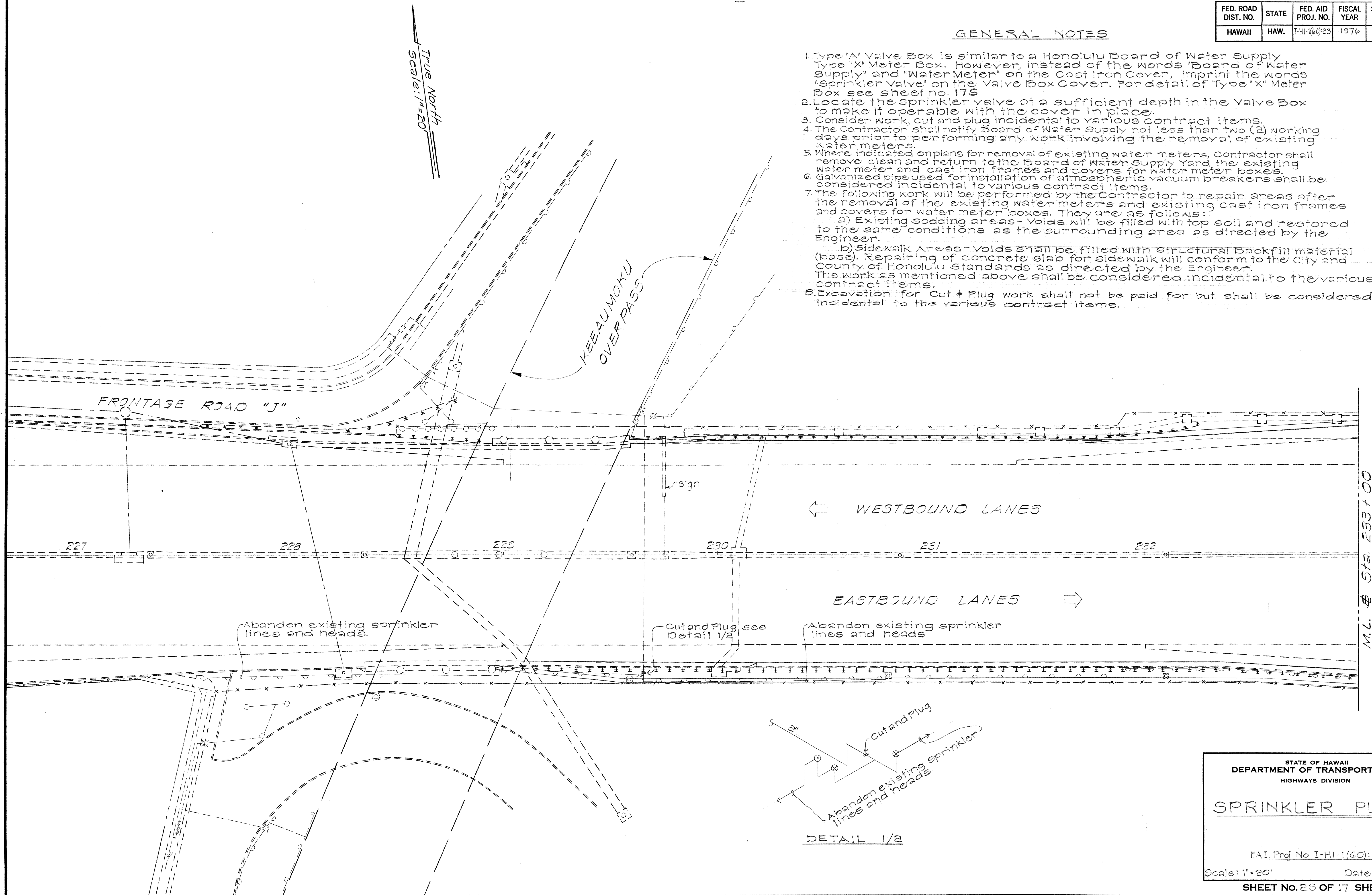
C.O. 104 S-3

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(60)23	1976	105	181

GENERAL NOTES

1. Type "A" Valve Box is similar to a Honolulu Board of Water Supply Type "X" Meter Box. However, instead of the words "Board of Water Supply" and "Water Meter" on the Cast Iron Cover, imprint the words "Sprinkler Valve" on the Valve Box Cover. For detail of Type "X" Meter Box see sheet no. 175
2. Locate the sprinkler valve at a sufficient depth in the Valve Box to make it operable with the cover in place.
3. Consider work, cut and plug incidental to various contract items.
4. The Contractor shall notify Board of Water Supply not less than two (2) working days prior to performing any work involving the removal of existing water meters.
5. Where indicated on plans for removal of existing water meters, Contractor shall remove, clean and return to the Board of Water Supply Yard the existing water meter and cast iron frames and covers for water meter boxes.
6. Galvanized pipe used for installation of atmospheric vacuum breakers shall be considered incidental to various contract items.
7. The following work will be performed by the Contractor to repair areas after the removal of the existing water meters and existing cast iron frames and covers for water meter boxes. They are as follows:
 - a) Existing sodding areas- Voids will be filled with top soil and restored to the same conditions as the surrounding area as directed by the Engineer.
 - b) Sidewalk Areas- Voids shall be filled with Structural Backfill material (base). Repairing of concrete slab for sidewalk will conform to the City and County of Honolulu Standards as directed by the Engineer.
 The work as mentioned above shall be considered incidental to the various contract items.
8. Excavation for Cut & Plug work shall not be paid for but shall be considered incidental to the various contract items.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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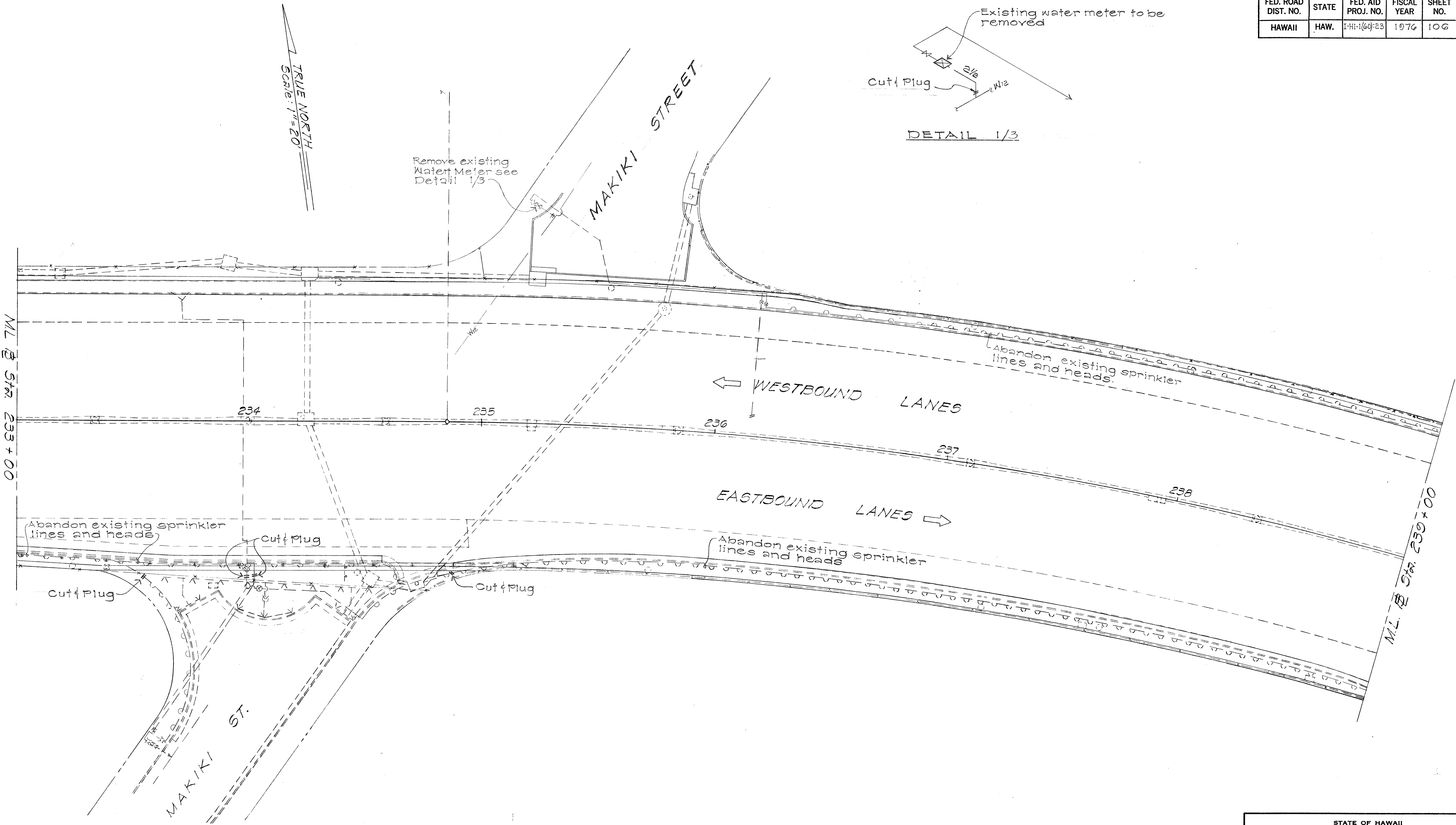
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER PLANS

FAI Proj No I-HI-1(60):23
Scale: 1"=20'
Date: Aug., 1976

SHEET No. 25 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(60):23	1976	106	181



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

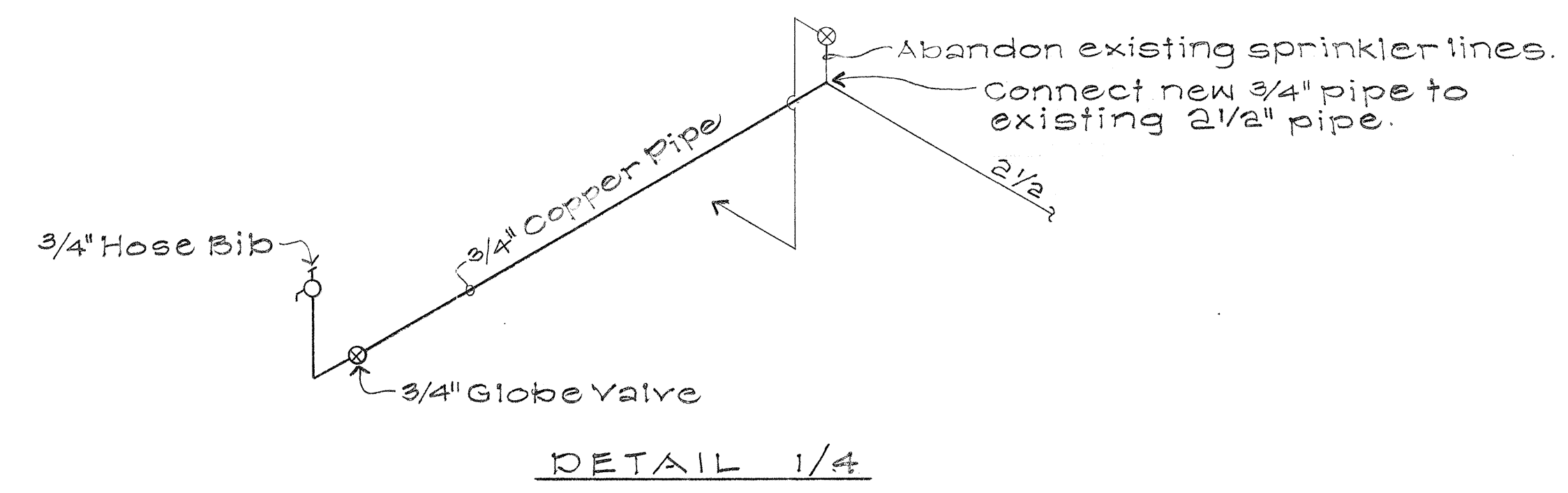
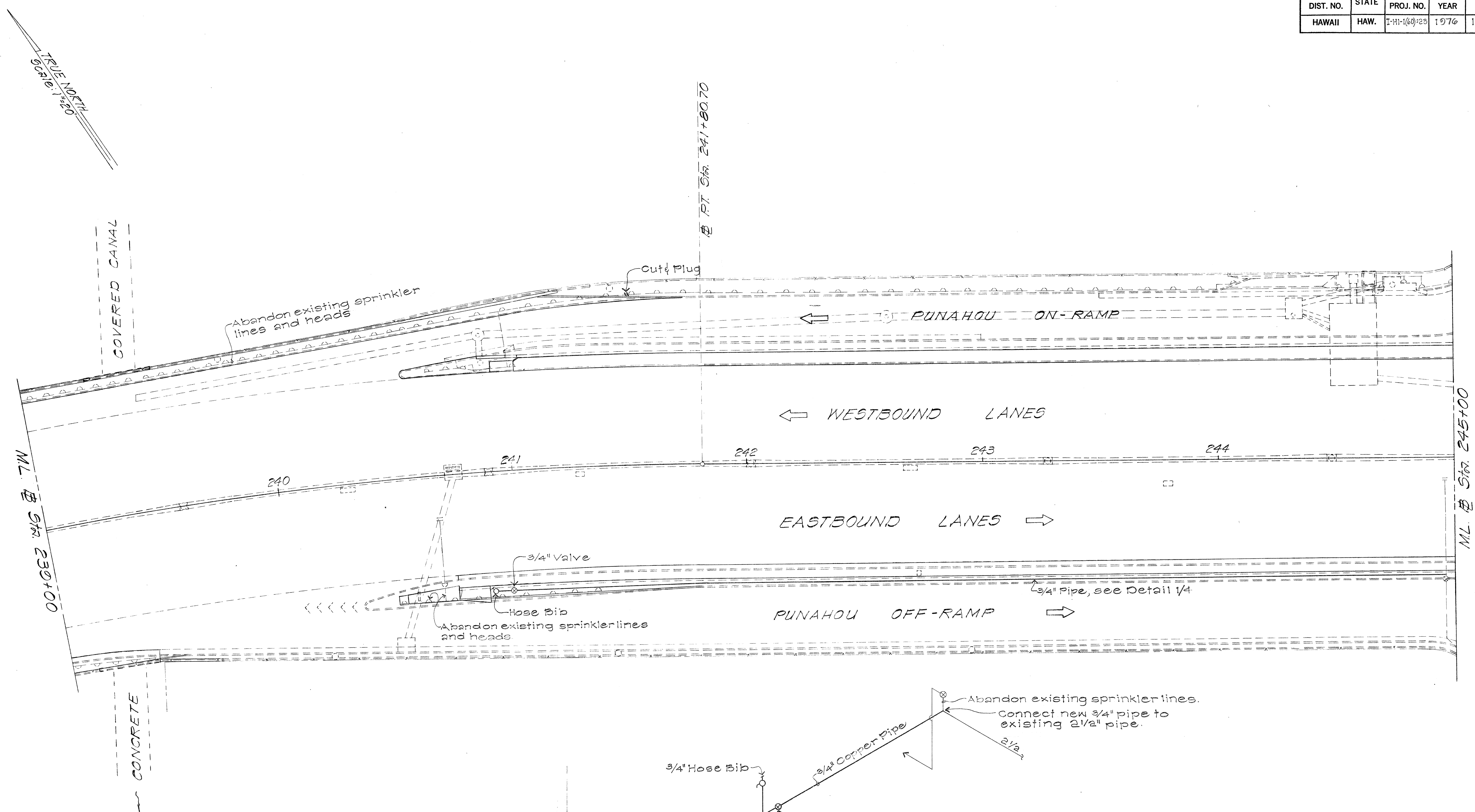
SPRINKLER PLANS

FAI Proj No I-HI-1(60):23
Scale: 1"=20' Date: Aug 1976

SHEET NO. 3 OF 17 SHEETS

Robert H. Minick
ASST. CHIEF ENGINEER, D.W.O. 9/6/76 DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(60):23	1976	107	181



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

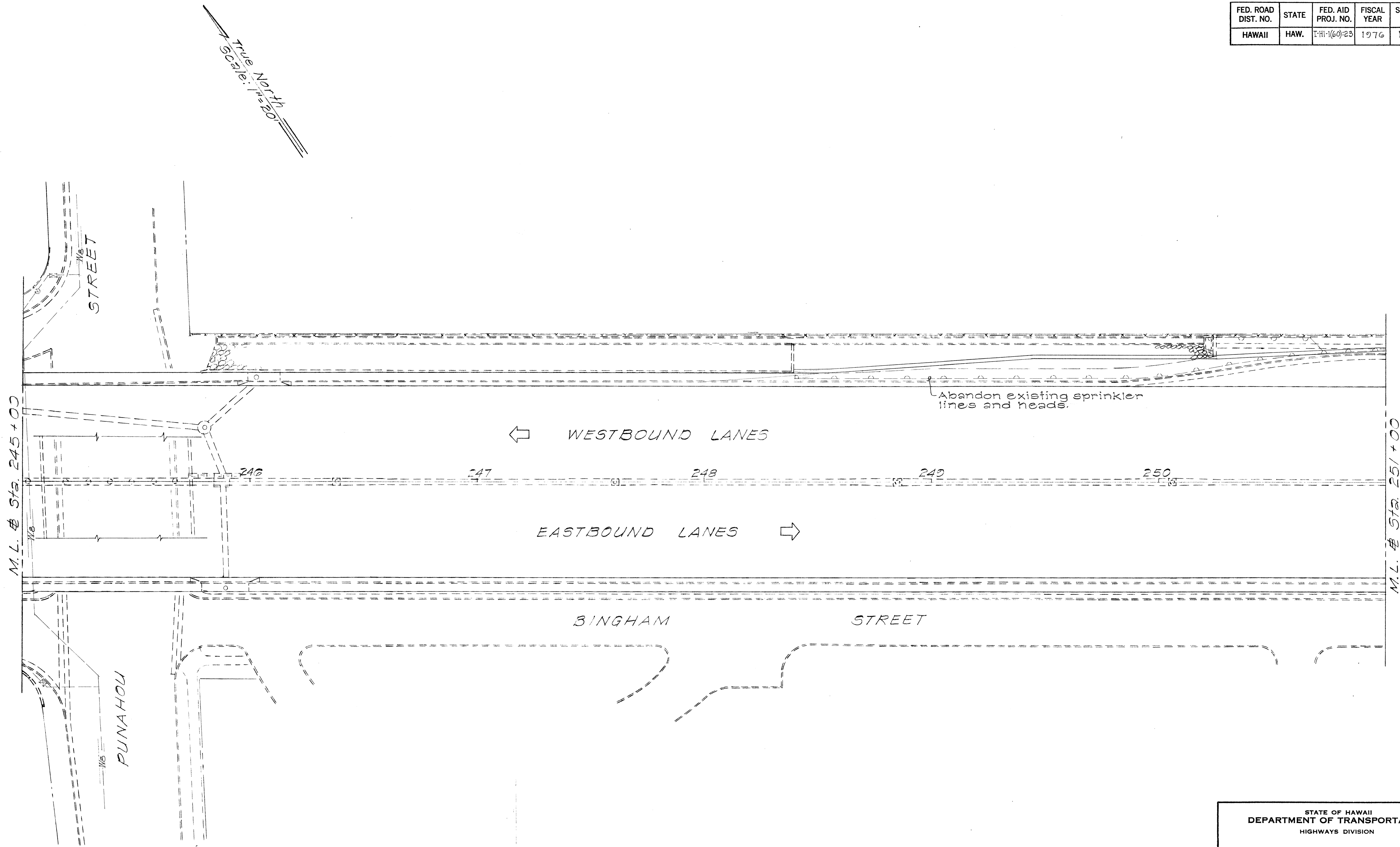
SPRINKLER PLANS

FAI Proj No I-HI-1(60):23
Scale: 1"=20' Date: Aug. 1976

SHEET No. 45 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(60):23	1976	108	181

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NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	



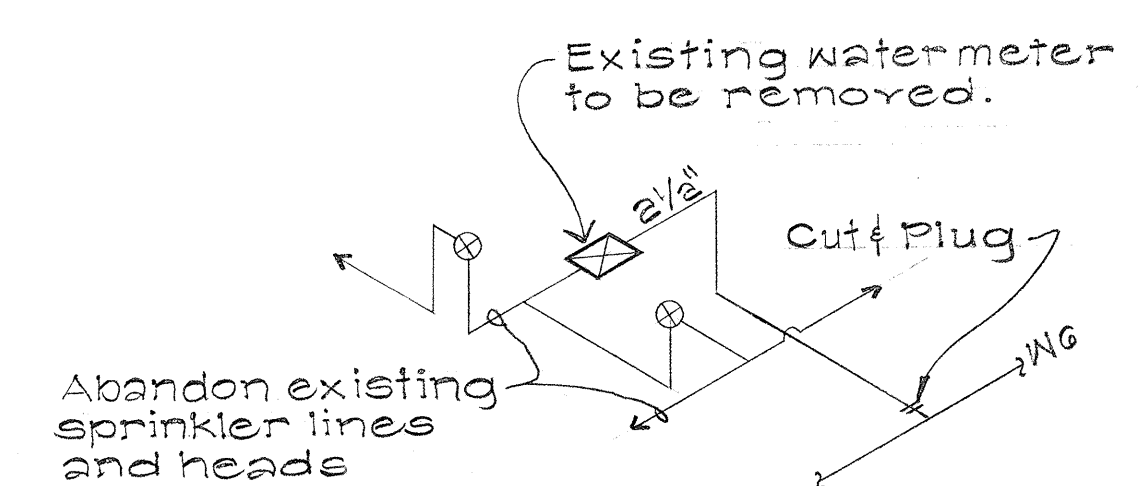
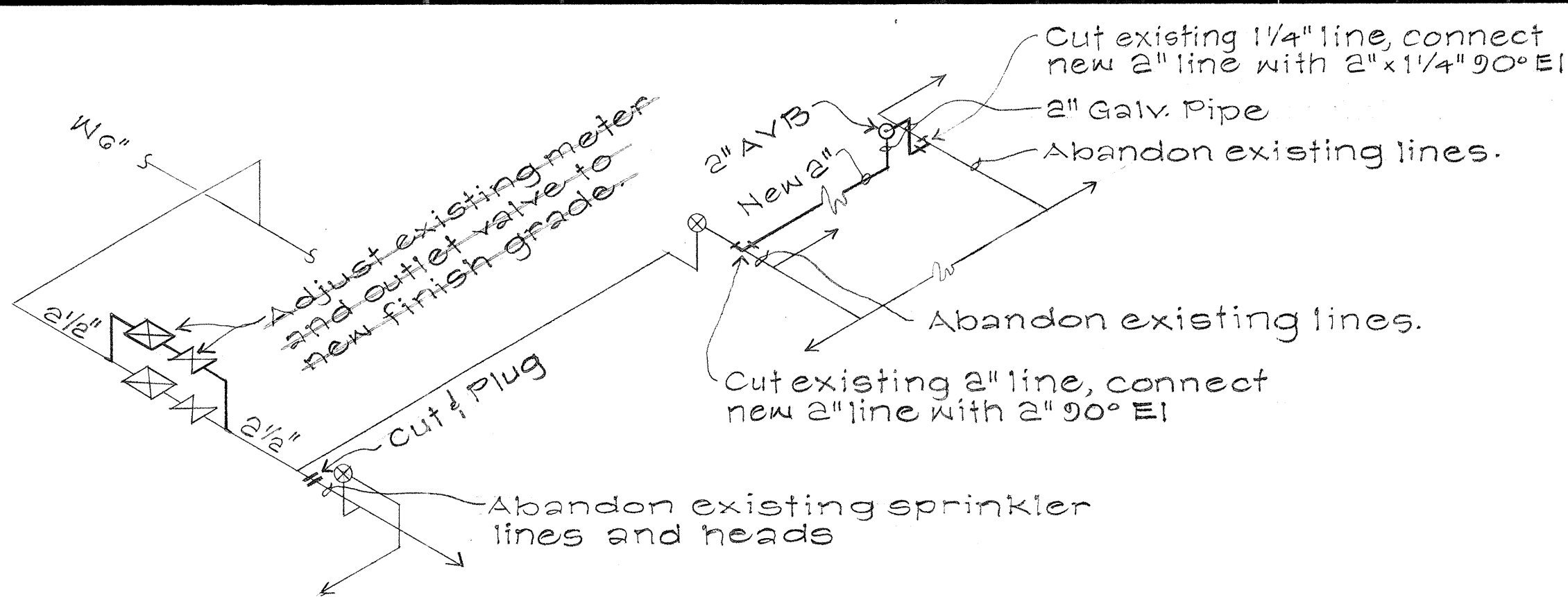
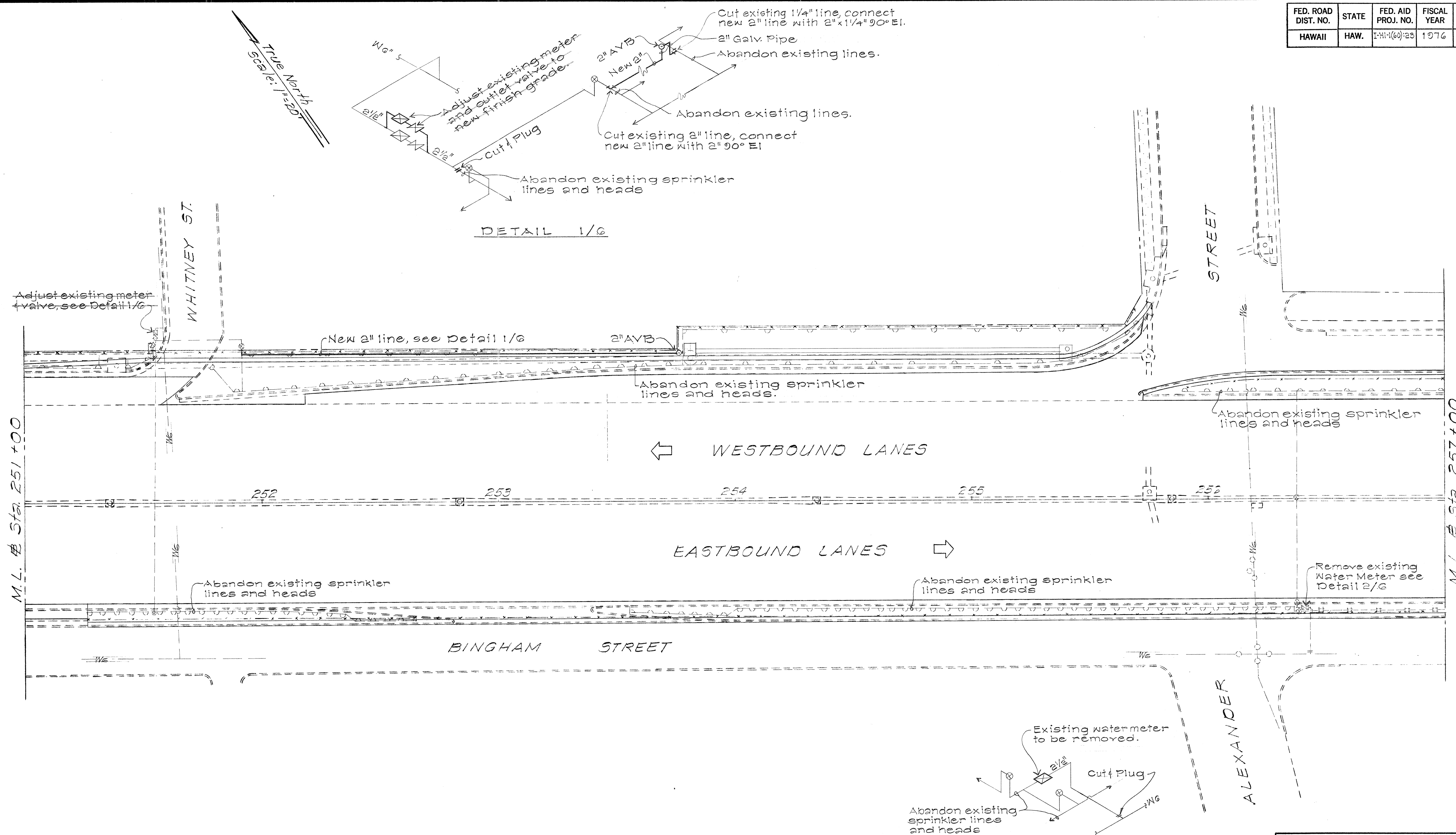
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER PLANS

FAI. Proj No I-HI-1(60):23
Scale: 1"=20' Date: Aug, 1976

SHEET NO. 55 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(60):23	1976	109	181



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER PLANS

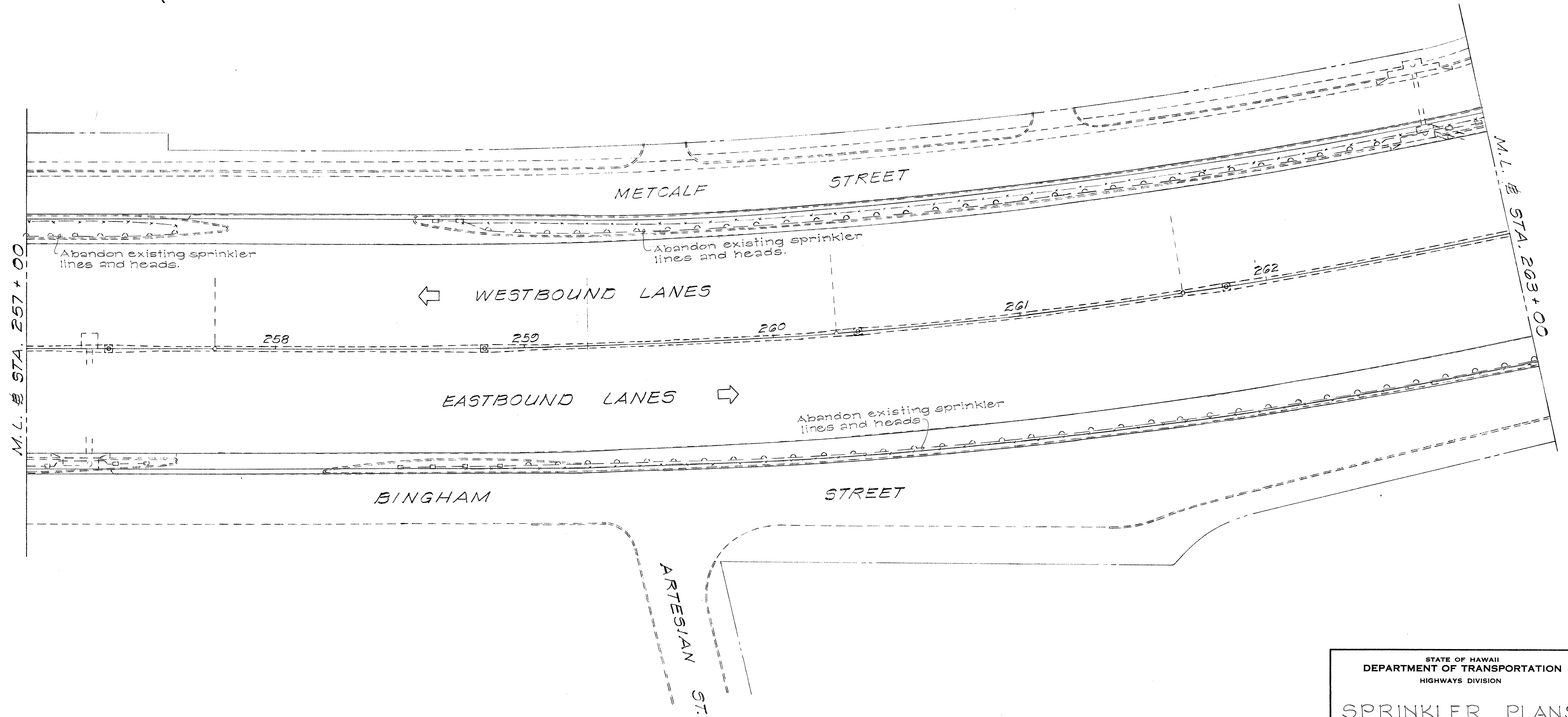
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Scale: 1"=20' Date: Aug. 1976

SHEET No. 69 OF 17 SHEETS

Walter J. Winkler 9/20/76
ASST. CHIEF ENGINEER, D.W.S. & DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(60):23	1976	110	181

True North
Scale: 1"=20'



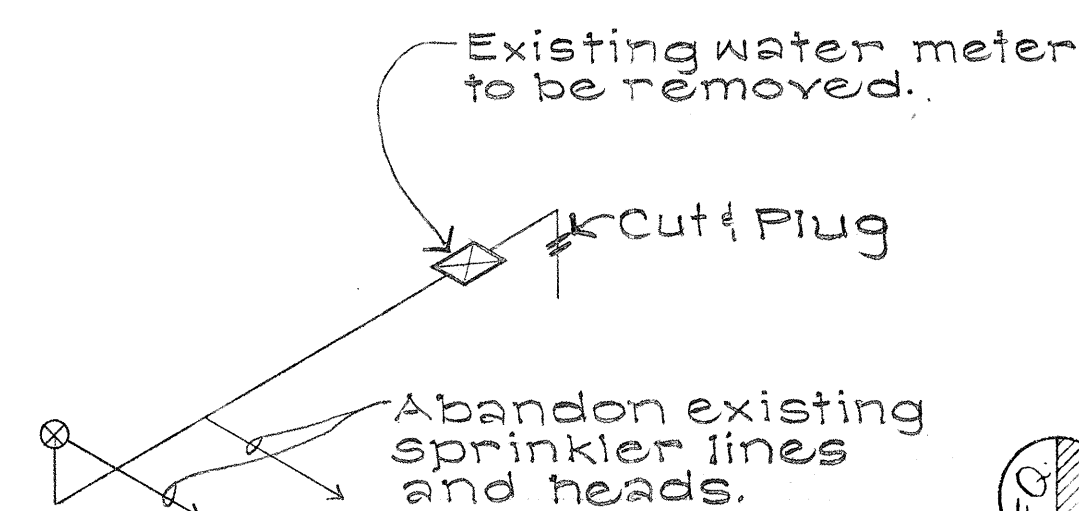
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER PLANS

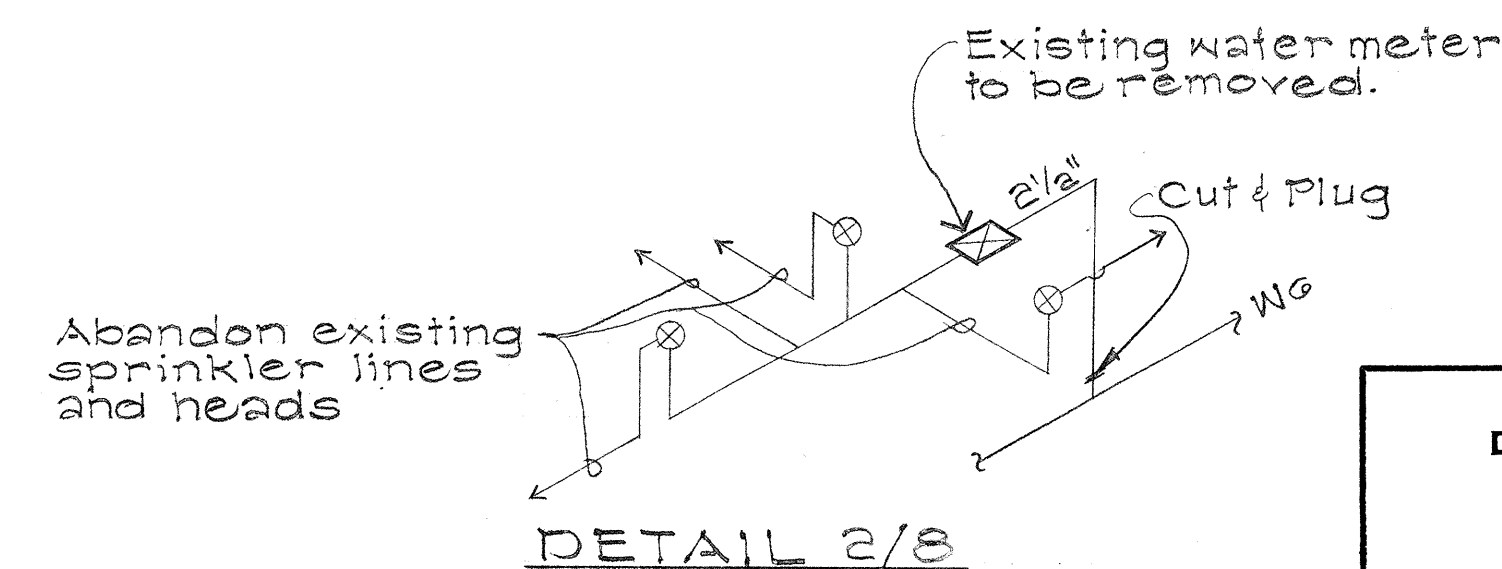
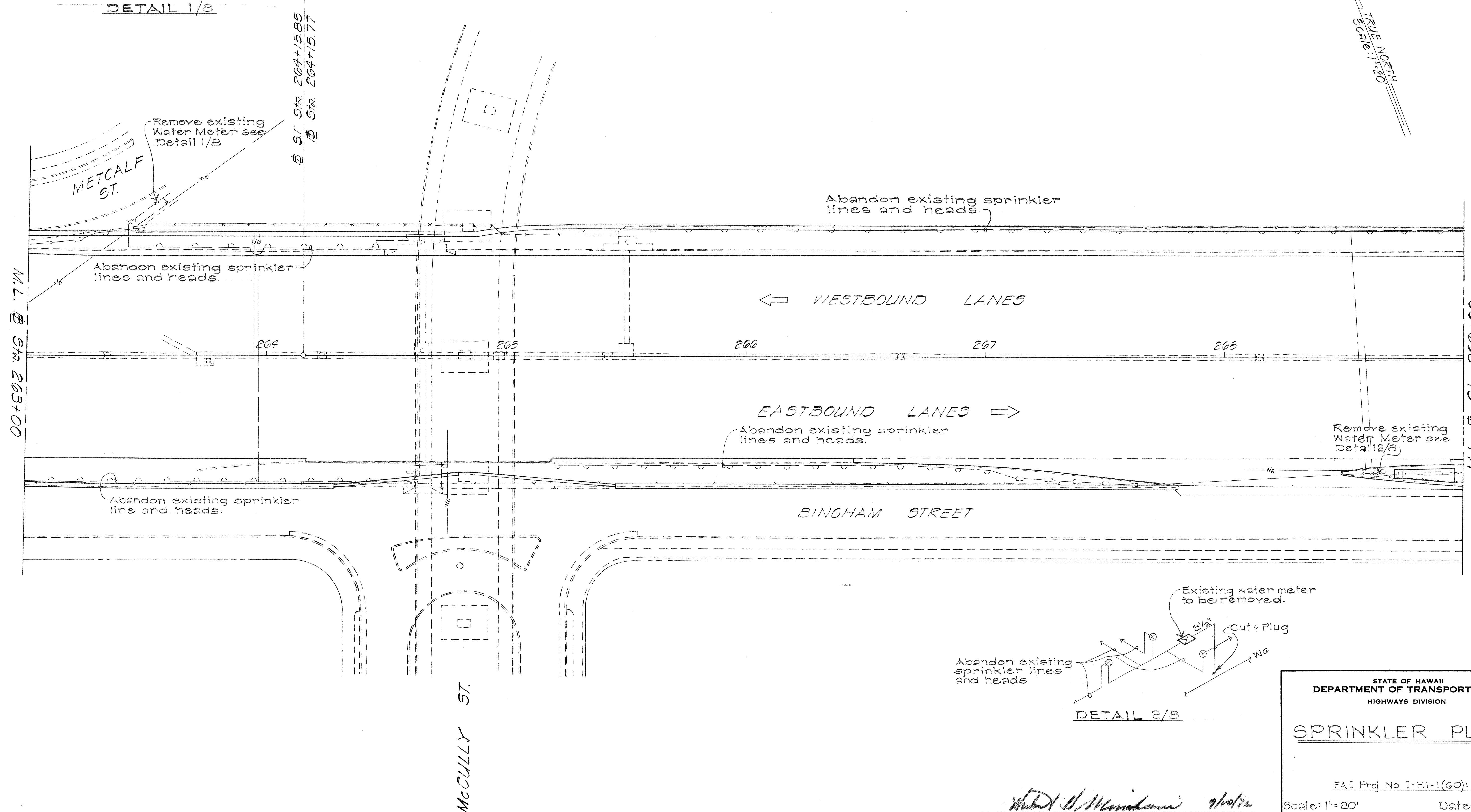
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SHEET NO. 7 OF 17 SHEETS

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HAWAII	HAW.	I-HI-1(60):23	1976	111	181



DETAIL 1/8

TRUE NORTH
Scale: 1"=20'



DETAIL 2/8

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NO. 1	DRAWN BY	
NO. 2	TRACED BY	
NO. 3	QUANTITIES BY	
NO. 4	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

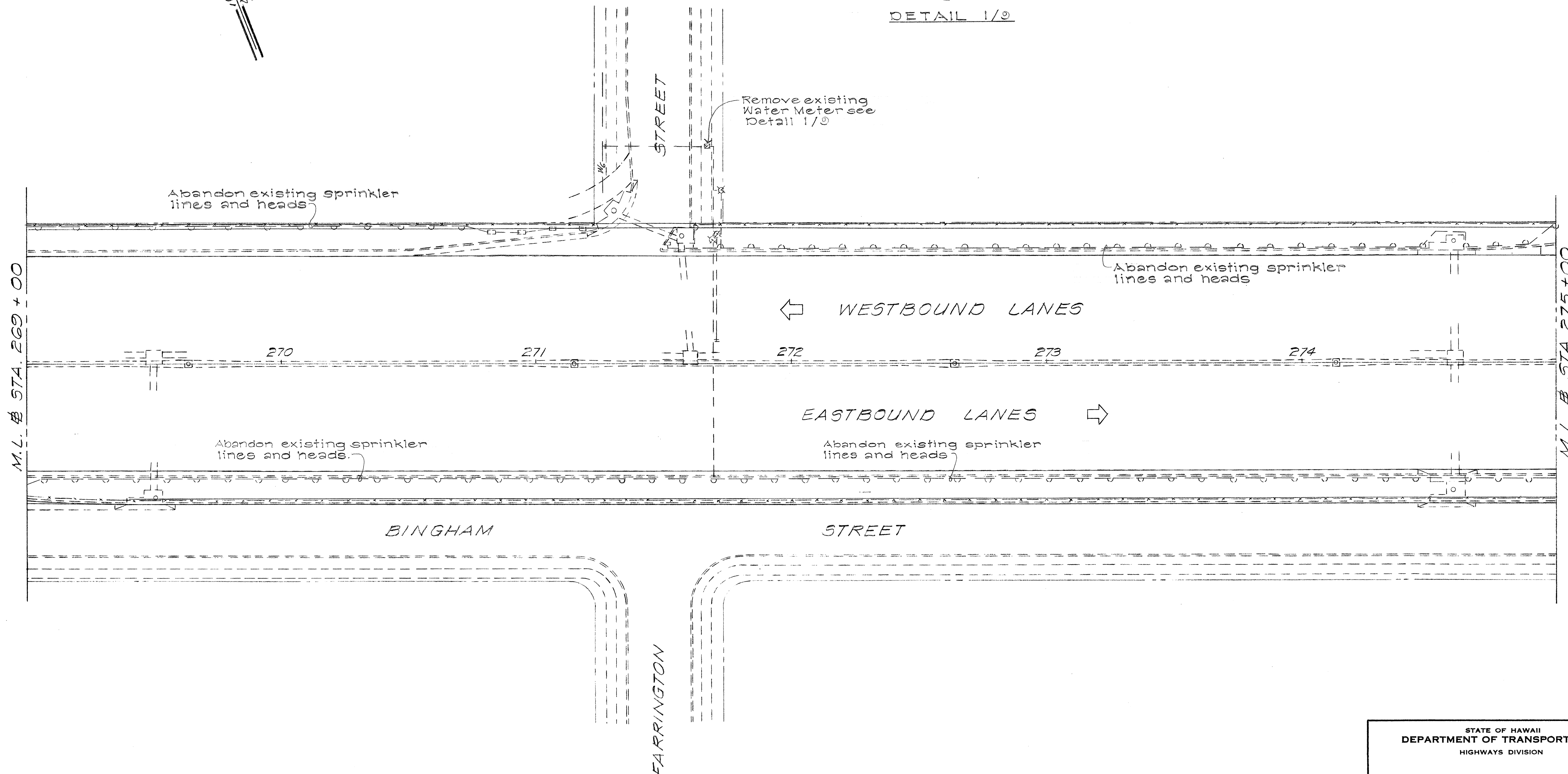
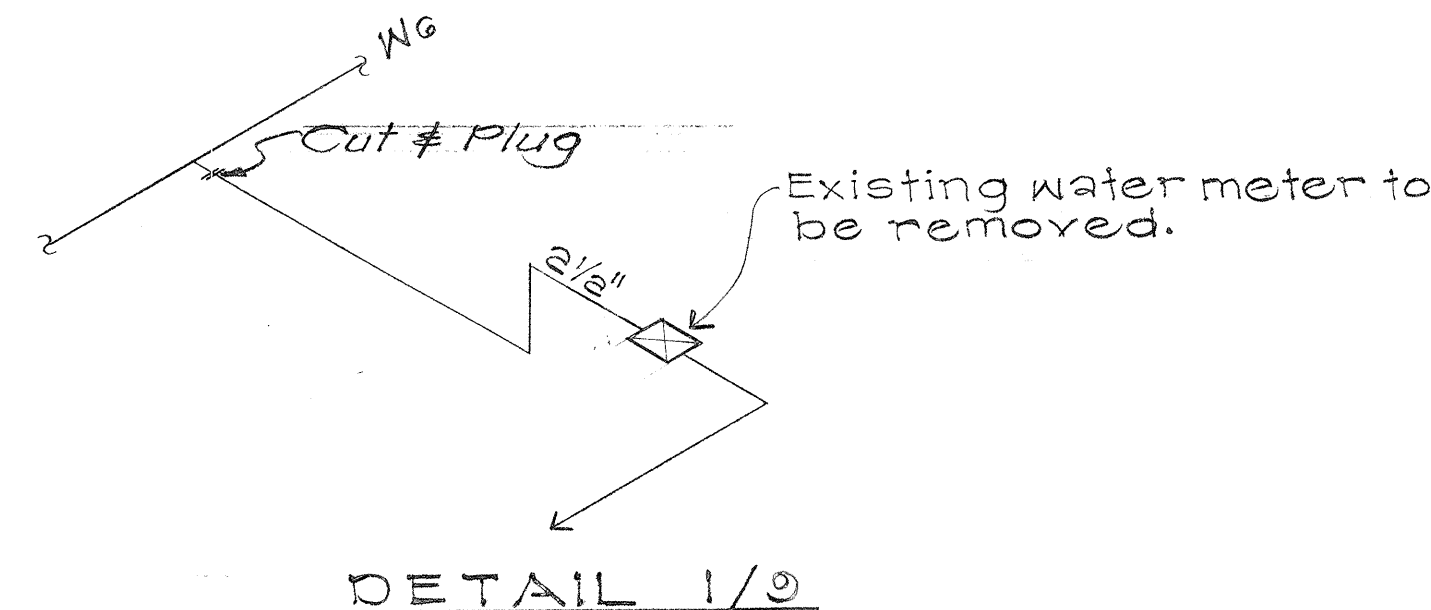
SPRINKLER PLANS

FAI Proj No I-HI-1(60):23
Scale: 1"=20' Date: Aug. 1976
SHEET No. 8 OF 17 SHEETS

Hubert D. Mendenhall 9/10/76
ASST. CHIEF ENGINEER, D.W.S. DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FH-1(60):23	1976	112	181

True North
Scale: 1"=20'



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER PLANS

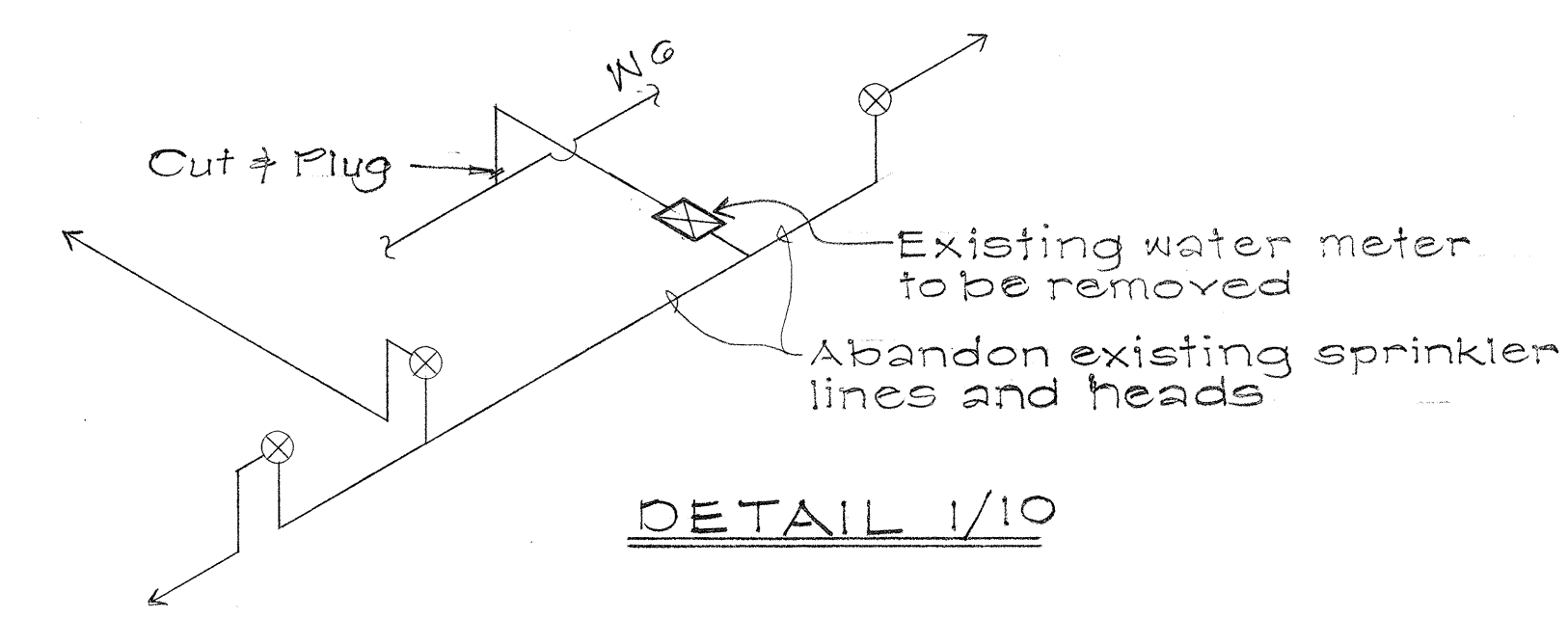
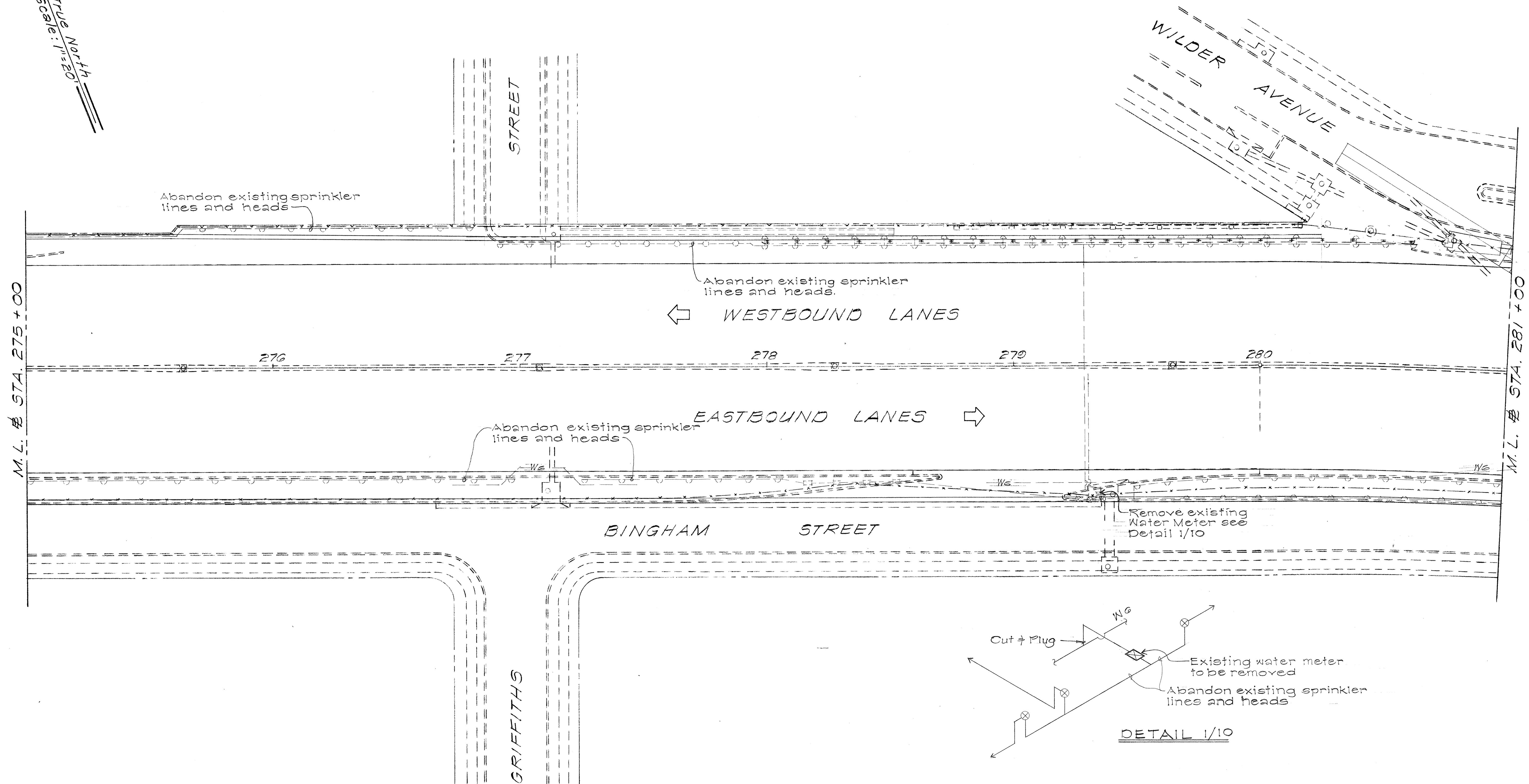
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Scale: 1"=20' Date: Aug. 1976

SHEET NO. 9 OF 17 SHEETS

Robert H. Manikawa 9/10/76
ASST. CHIEF ENGINEER, D.W.S. # DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(60):23	1976	113	181

True North
Scale: 1"=20'



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER PLANS

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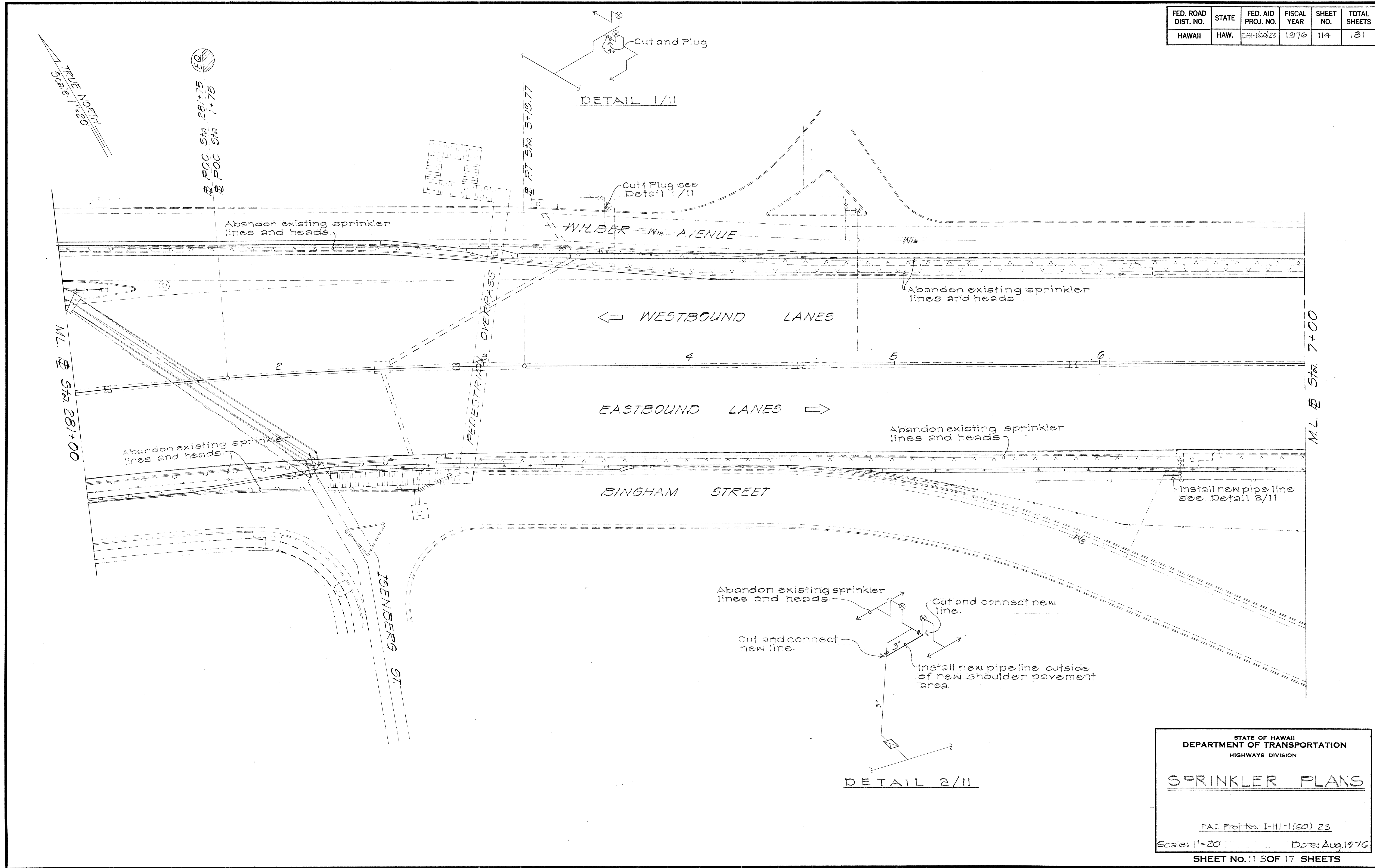
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SHEET No. 105 OF 17 SHEETS

Hubert D. Minakami 7/10/76
ASST. CHIEF ENGINEER, D.W.S. DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(60)-23	1976	114	181

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER PLANS

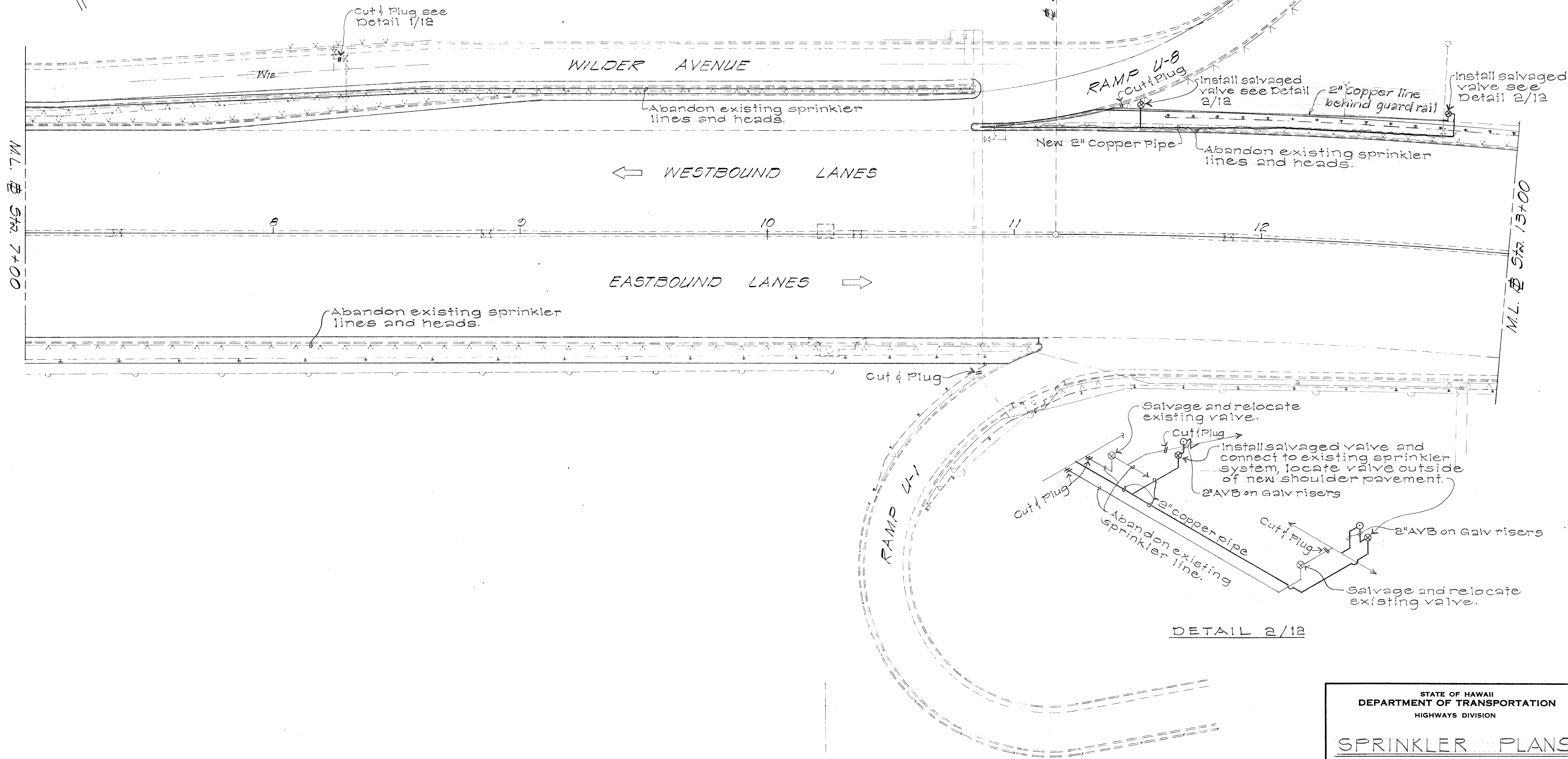
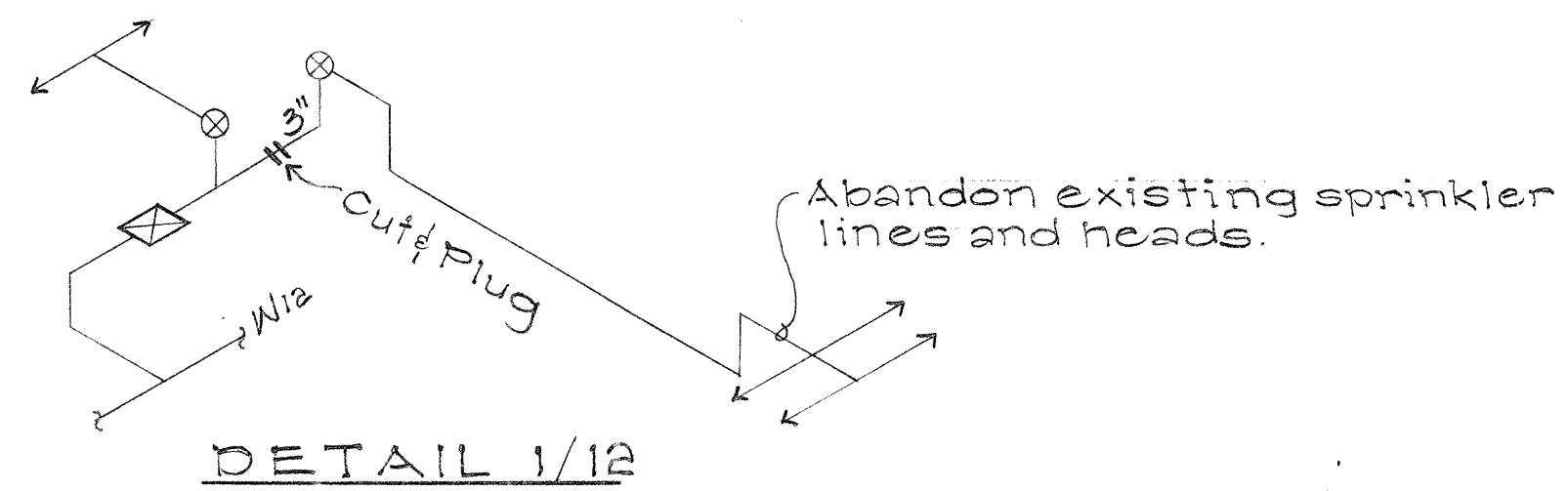
FAI Proj No. I-HI-1(60)-23

Scale: 1"=20' Date: Aug. 1976

SHEET NO. 11 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(60)23	1976	115	181

TRUE NORTH
Scale: 1"=20'



DETAIL 2/12

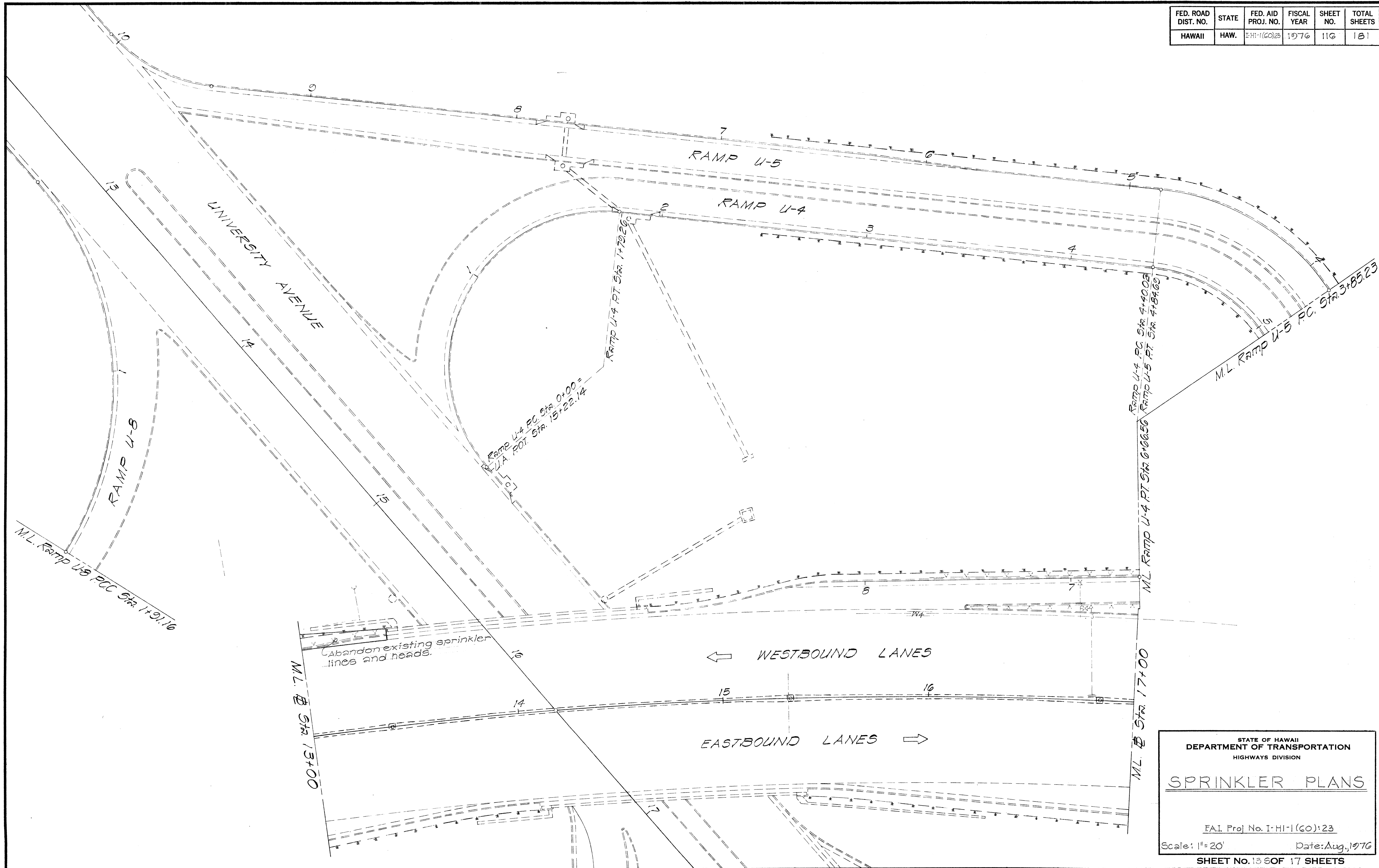
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STATE OF HAWAII
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HIGHWAYS DIVISION

SPRINKLER PLANS

F.A.I. Proj. No. I-HI-1(60)23
Scale: 1"=20' Date: Aug., 1976
SHEET No. 125 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(60):23	1976	116	181



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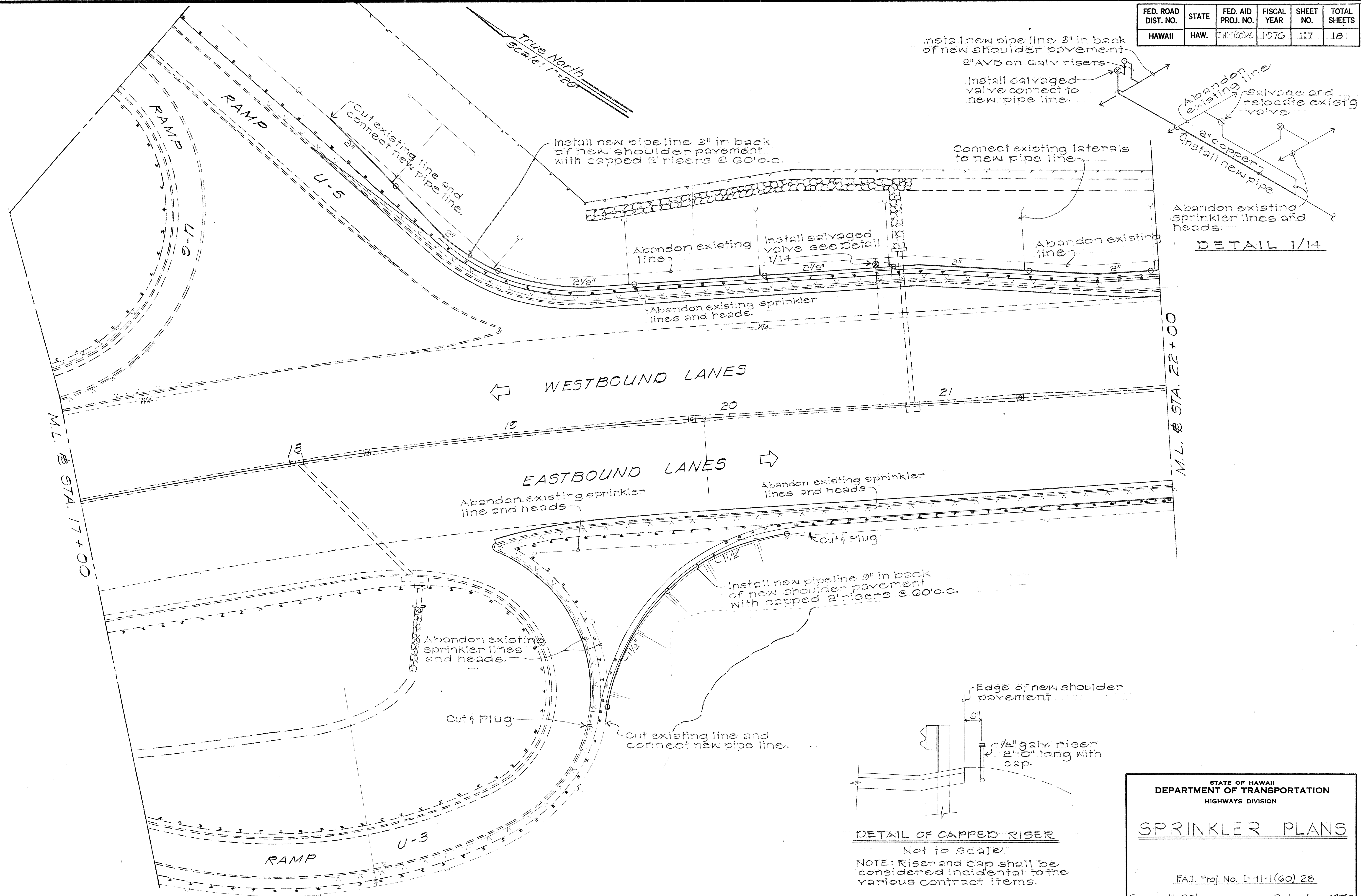
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER PLANS

F.A.I. Proj No. I-HI-1(60):23
Scale: 1" = 20' Date: Aug, 1976

SHEET No. 13 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FH-1(60)28	1976	117	181



SURVEY PLOTTED BY	DATE
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ORIGINAL PLAN	
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STATE OF HAWAII
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HIGHWAYS DIVISION

SPRINKLER PLANS

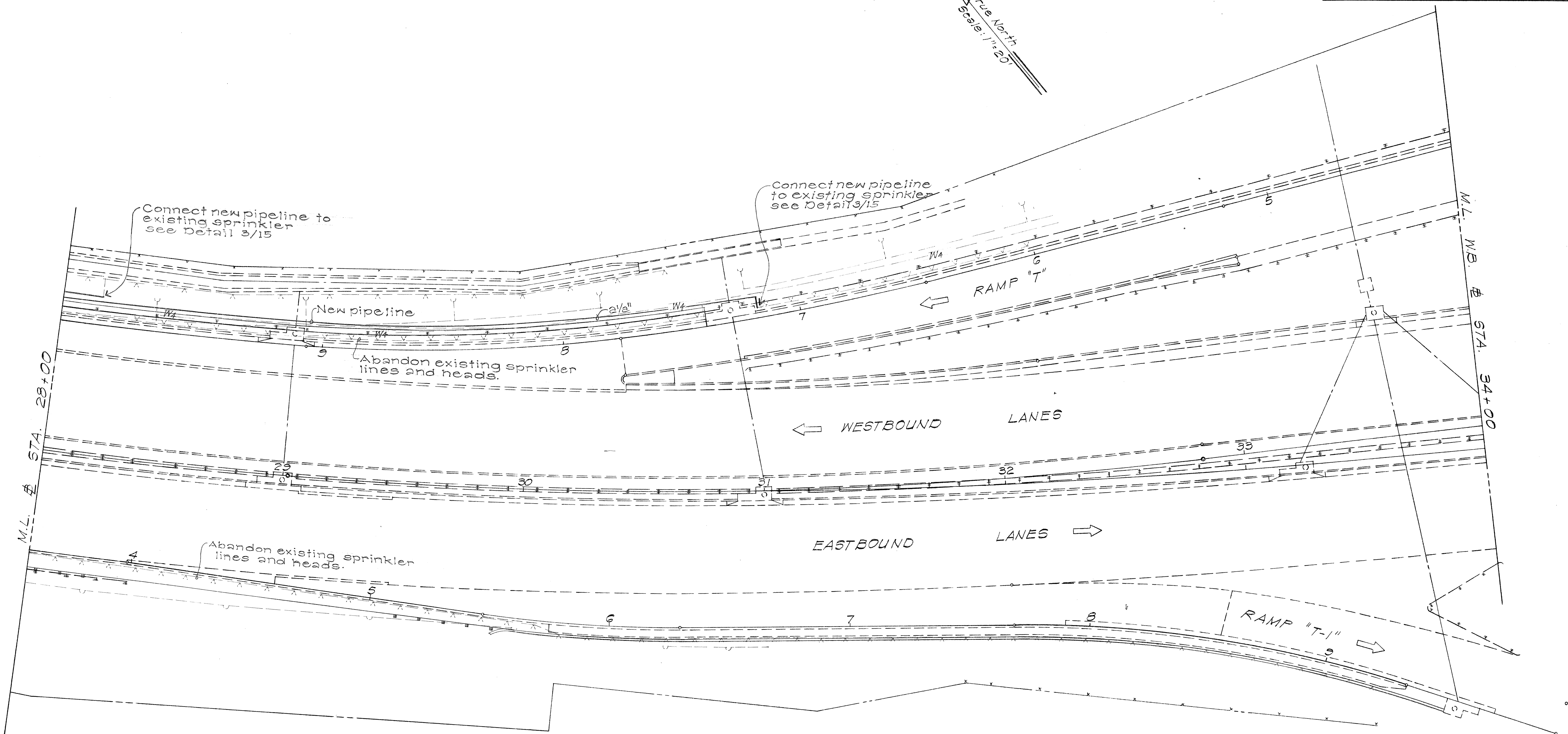
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Scale: 1"=20' Date: Aug., 1976

SHEET No. 143 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(60)23	1976	119	181

True North
Scale: 1" = 20'



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
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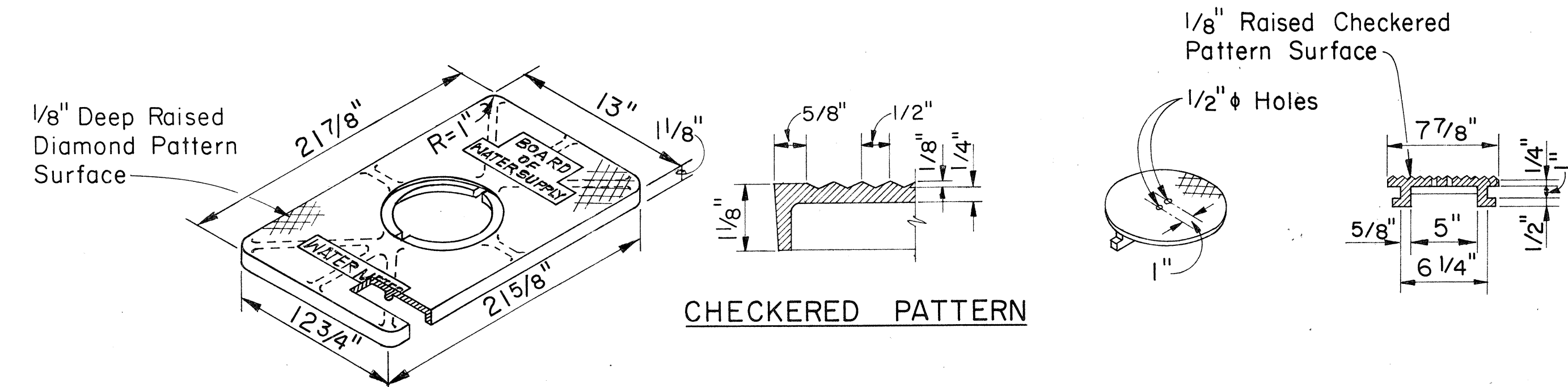
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER PLANS

F.A.I. Proj. No. I-HI-1(60)23
Scale: 1" = 20' Date: Aug. 1976
SHEET No. 165 OF 17 SHEETS

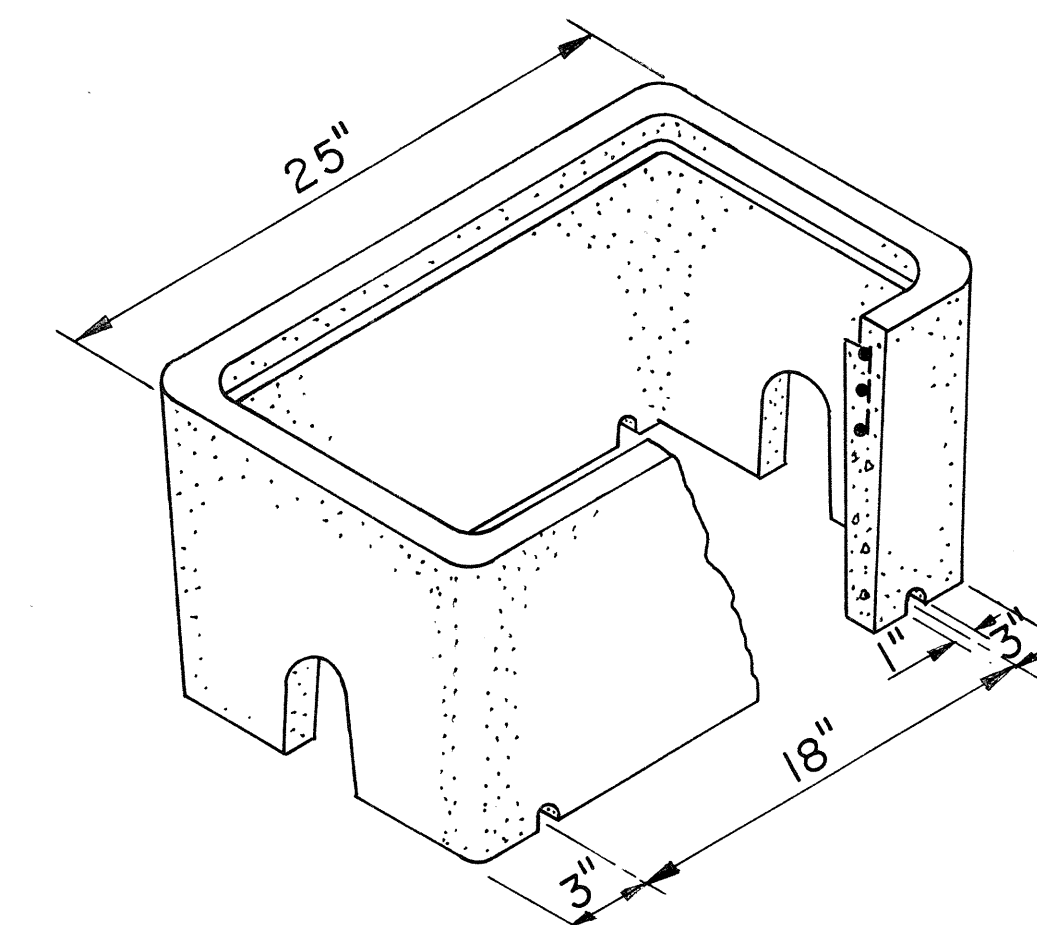
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HAWAII	HAW.	I-11-16023	1976	120	181

NOTE:
Thickness dimensions are net.
Add 1/8" for raised surfaces.

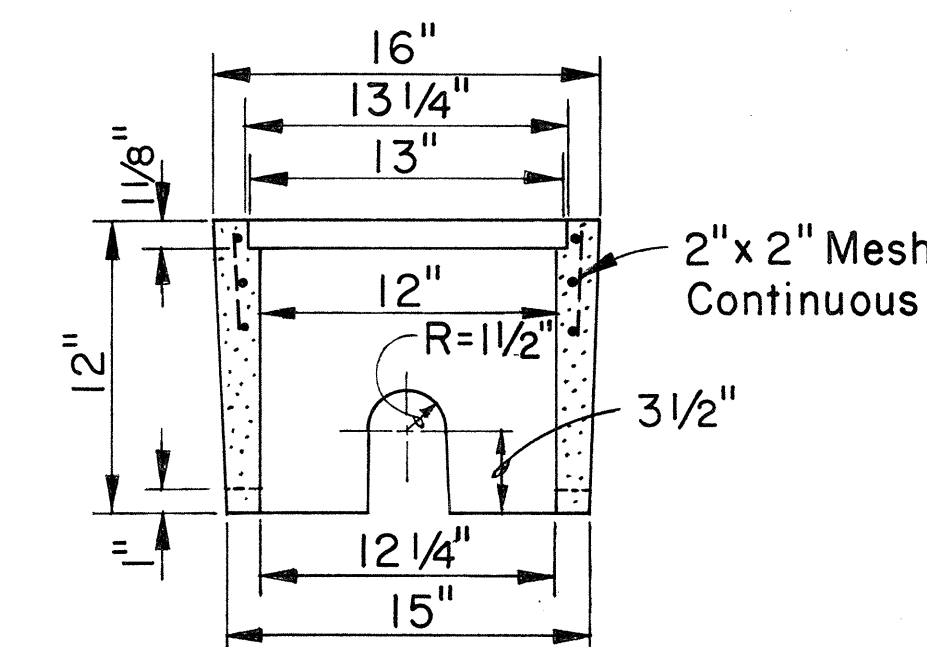


CAST IRON COVER
WT. = 36 LBS.

CAST IRON READING COVER



CONCRETE BOX
WT. = 107 LBS.



METER BOX AND COVER
TYPE "X"

FIGURE 30

TYPE III METER BOX

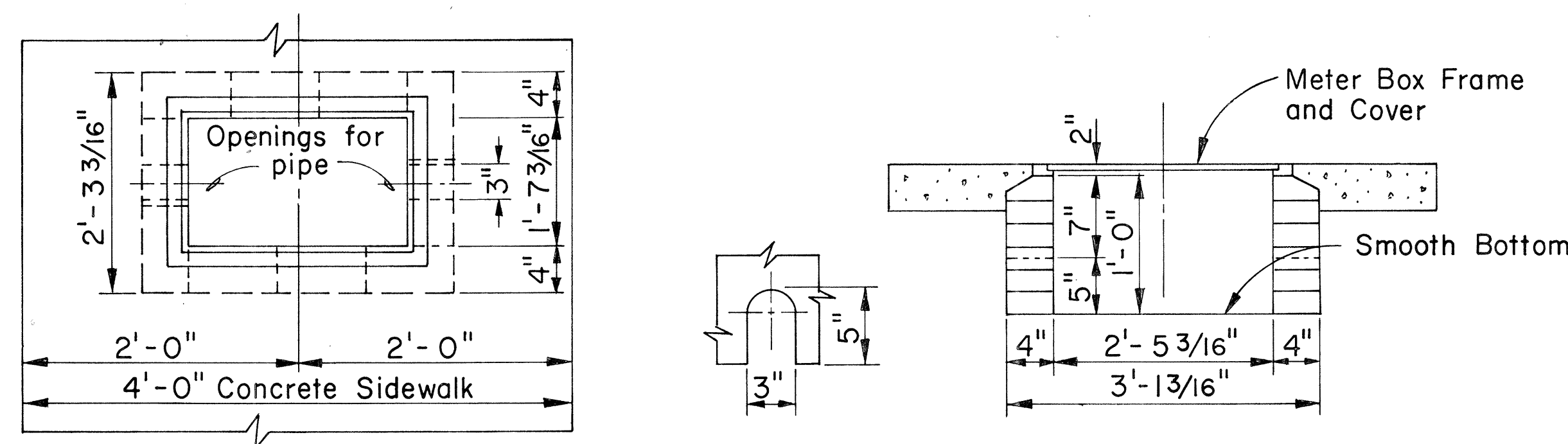
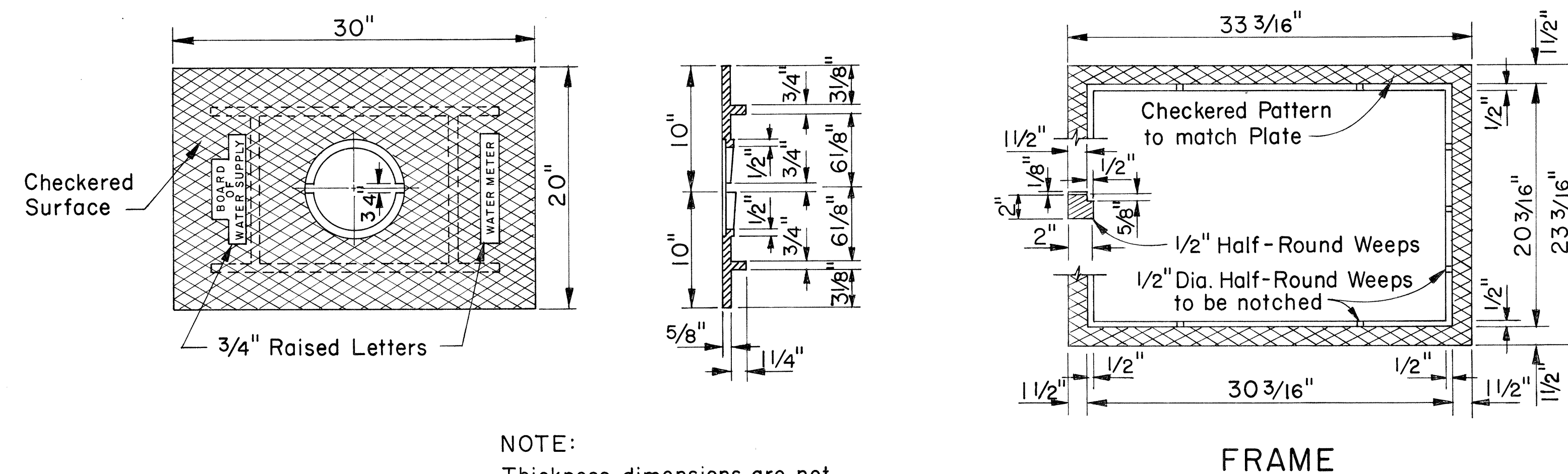
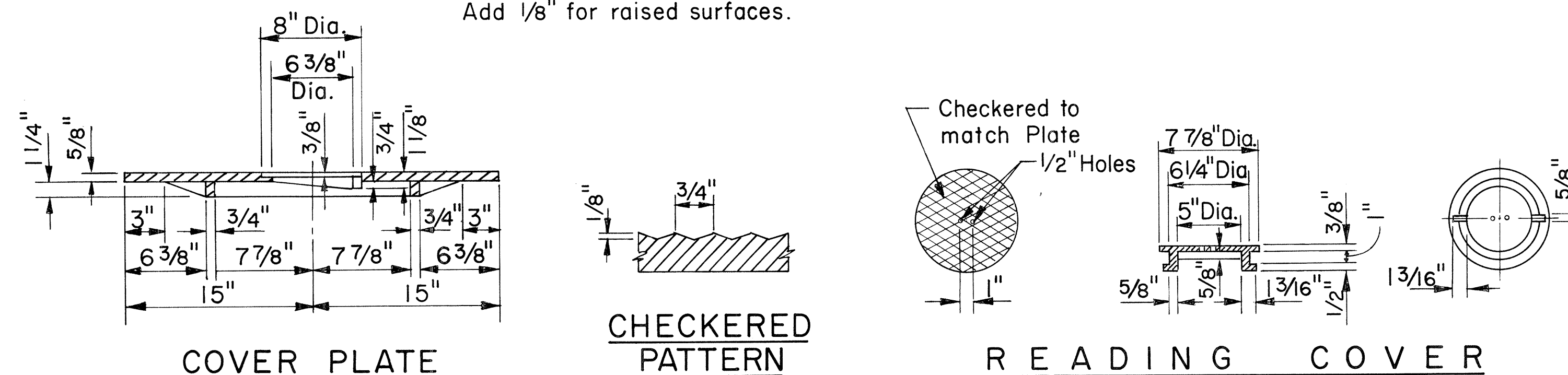


FIGURE 29



FRAME

NOTE:
Thickness dimensions are net.
Add 1/8" for raised surfaces.



COVER PLATE

CHECKERED PATTERN

READING COVER

CAST IRON FRAME, PLATE AND COVER
TYPE III

FIGURE 28

APPROVED:
[Signature]
ASSISTANT CHIEF ENGINEER
BOARD OF WATER SUPPLY
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
BOARD OF WATER SUPPLY

SHEET No. 175 OF 17 SHEETS