

LEGEND AND SPRINKLER HEAD SPECIFICATIONS

SYMBOL	NUMBER	TYPE	PRESSURE PSI	RADIUS OF COVERAGE	FLOW(GPM)	RISER
∇	L-8H	Lawn - Half Circle	10	8'	1.0	1/2" I.P.S.
▽	L-8Q	Lawn - Quarter Circle	10	8'	0.9	1/2" I.P.S.
▼	L-10F	Lawn - Full Circle	20	10'	3.0	1/2" I.P.S.
▽	L-10H	Lawn - Half Circle	20	10'	2.5	1/2" I.P.S.
•	B-1	Bubbler	10		1.0	1/2" I.P.S.
○	S-8F	Shrubbery - Full Circle	10	8'	2.0	1/2" I.P.S.
◐	S-8H	Shrubbery - Half Circle	10	8'	1.0	1/2" I.P.S.
●	S-10F	Shrubbery - Full Circle	20	10'	3.0	1/2" I.P.S.
◐	S-10H	Shrubbery - Half Circle	20	10'	2.5	1/2" I.P.S.
▽	S-10Q	Shrubbery - Quarter Circle	20	10'	2.0	1/2" I.P.S.
◐	S-15H	Shrubbery - Half Circle	30	15'	3.0	1/2" I.P.S.
■	LJ-24F	Pop Up - Full Circle	20	24'	4.8	3/4" I.P.S.
◻	LJ-24H	Pop Up - Half Circle	20	24'	3.3	3/4" I.P.S.
▽	J-25	Rocker Jet - Part Circle 5/64" Nozzle	20	25'	2.5	1/2" I.P.S.
◇	J-30	Rocker Jet - Part Circle 5/64" Nozzle	20	30'	2.6	1/2" I.P.S.
◇	J-40	Rocker Jet - Part Circle 5/32" Nozzle	25	40'	3.5	3/4" I.P.S.
⊗		Angle Control Valve w/Type "A" Valve Box				
⊙		Atmospheric Vacuum Breaker				
⊠		Water Meter (Furnished & Installed by BWS)				
⊠		Shut-Off Valve W/Box				
□		Pressure Regulator W/Box				

NOTES:

- "Pressure" is the minimum pressure, in pounds per square inch, which is available at the base of the last head. The operating pressure of acceptable heads must not exceed this value when operating at the tabulated flow and radius.
- "Radius of Coverage" is the minimum radius at the tabulated pressure.
- "Flow" is the maximum flow, in gallons per minute, which is discharged at the tabulated pressure.

GENERAL NOTES

- All pipes under the pavement shall be copper.
- Risers shall be 1/2" ϕ galvanized steel pipes, unless otherwise called for.
- Plugs shall be marked with a 1"x2"x12" redwood marker which shall be considered incidental to the cost for the various items of the sprinkler system.
- Pipe sleeves shall have an internal diameter of 1/2" greater than the outside diameter of the pipe passing through the sleeve, unless otherwise called for.
- Final location of meters, valves, pressure regulators and vacuum breakers shall be determined by the Engineer.
- Unless otherwise called for or directed by the Engineer, the center line of the feeder pipe shall be located 3" from the back of curbs or 12" from the fence line or guard rail posts.
- Pipes shall be galvanized steel and fittings shall be malleable iron, unless otherwise called for.
- When the consumers' water service will be interrupted, the Contractor shall notify each consumer and the Board of Water Supply concerning the time and duration of the shut-down.
- Asterisk (*) indicates work will be performed by BWS. Materials shall be furnished by the Contractor.
- See Sheet No. 41 for general water notes.

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
W.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER SYSTEM
INTERSTATE ROUTE HI
(LUNALILO FREEWAY)
Pele Street to Victoria Street
F.A.I. Proj. No. I-HI-(31), Unit I

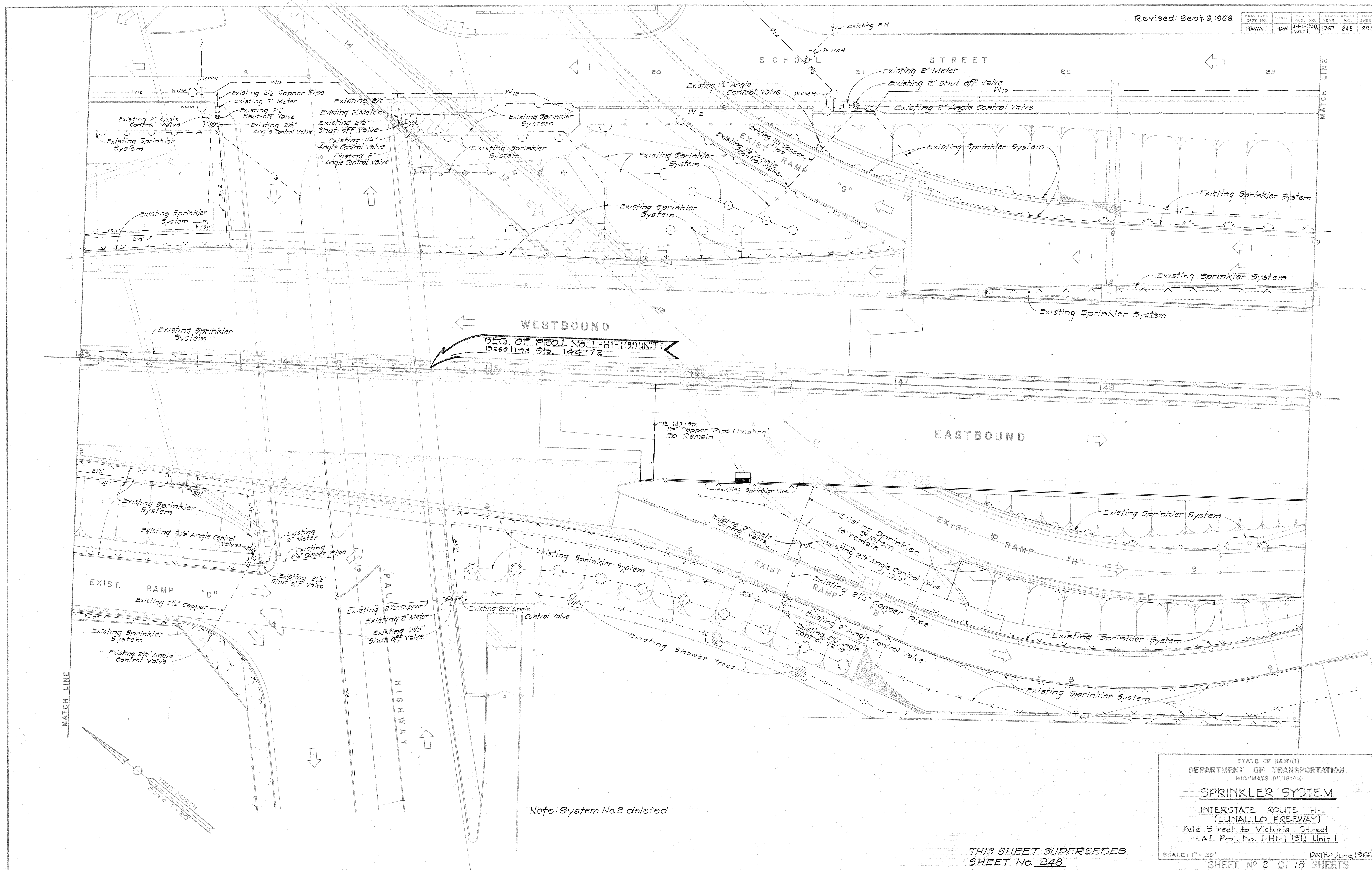
Date: June, 1966

SHEET No. 1 OF 18 SHEETS

247

Revised: Sept. 2, 1968

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(31) Unit 1	1967	248	292



DATE	DESIGNED BY	TRACED BY	QUANTITIES BY	CHECKED BY

Note: System No. 2 deleted

THIS SHEET SUPERSEDES
SHEET No. 248

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER SYSTEM

INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele Street to Victoria Street
F.A.I. Proj. No. I-HI-1 (31) Unit 1

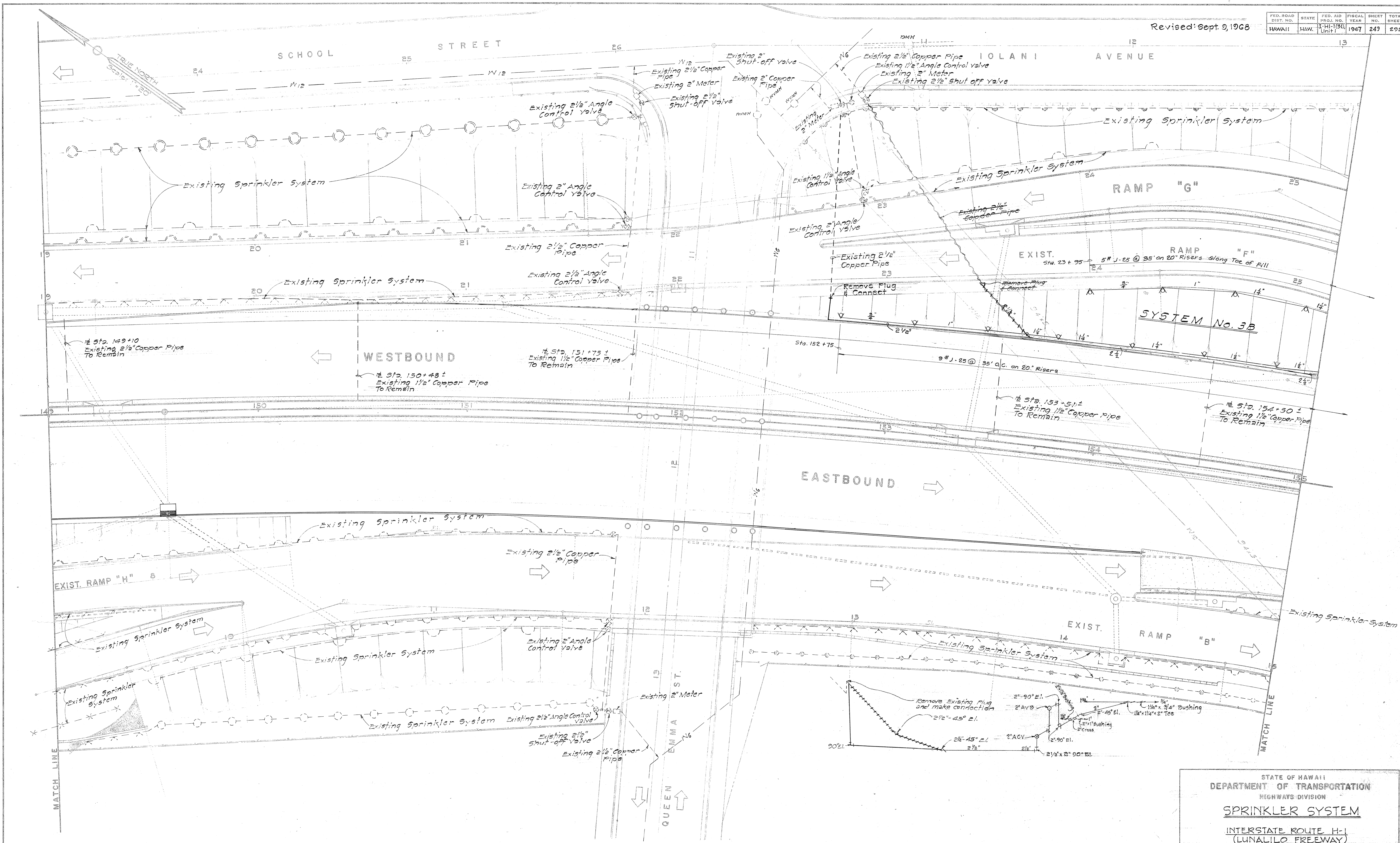
SCALE: 1" = 20' DATE: June, 1968

SHEET No. 2 OF 18 SHEETS

C0248

Revised: Sept. 9, 1968

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HI-161	HAW.	Unit 1	1967	249	292



Note: System No. 3A deleted

SYSTEM No. 3B

THIS SHEET SUPERSEDES SHEET No. 249

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
SPRINKLER SYSTEM

INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele Street to Victoria Street
F.A.I. Proj. No. I-HI-1 (31) Unit 1

SCALE: 1" = 20' DATE: June, 1966

SHEET No. 3 OF 18 SHEETS

C 0 2 4 9

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
NO.	

Revised: Sept. 9, 1968

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(31) Unit 1	1967	250	292

TRUE NORTH
Scale: 1" = 20'

IOLANI AVENUE

MAGELLAN AVENUE

PELE ST.

RAMP "G"

RAMP "F"

EASTBOUND

WESTBOUND

EXISTING DETOUR ROAD

EXIST. RAMP

EXIST.

RAMP

Temporary A.C. Road

Existing Sprinkler System

Existing 1/2" Sprinkler Line

Existing 2 1/2" Angle Control Valve w/ Precast Angle Control Valve Box

Existing Sprinkler System

EQ. = -8+00.12

Baseline P.O.C. Sta. 164+92.27
Baseline P.O.C. Sta. 156+92.15

EXIST. J-25 @ 35' O.C. on 20" Risers

J-25 @ 25' O.C. on 20" Risers

Sta. 155+55
Sta. 155+25
Existing 1 1/2" Copper Pipe to Remain

Sta. 156+30
Existing 1 1/2" Copper Pipe to Remain

Note: System No. 4 deleted

THIS SHEET SUPERSEDES SHEET No. 250

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER SYSTEM

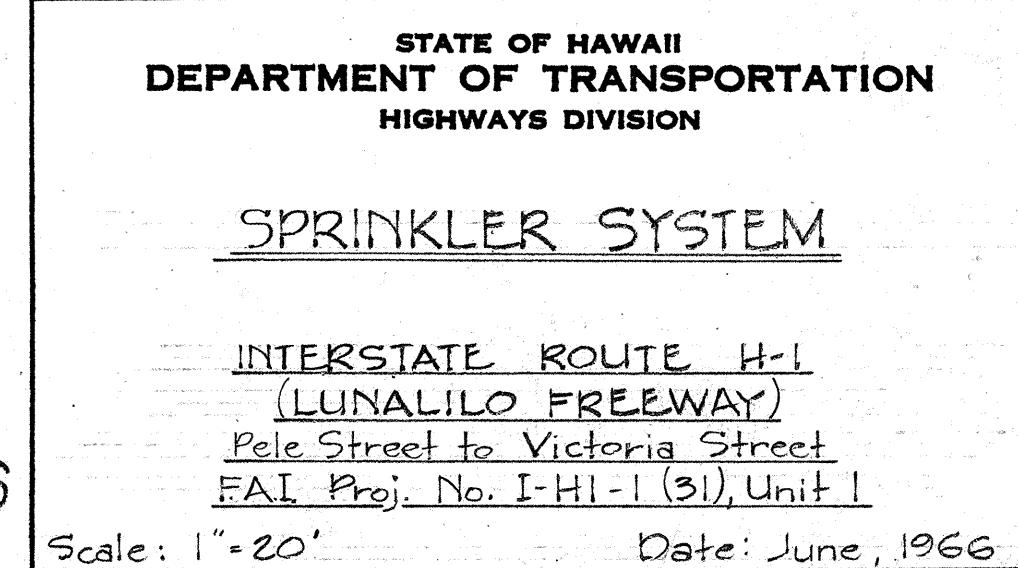
INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele Street to Victoria Street
FAI Proj. No. I-HI-1(31) Unit 1

SCALE: 1" = 20' DATE: June, 1966
SHEET No. 4 OF 18 SHEETS
C0250

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DESIGNED BY	
	DRAWN BY	
	TRACED BY	
	CHECKED BY	

Revised: Feb. 18, 1969

Revised: Feb. 18, 1969

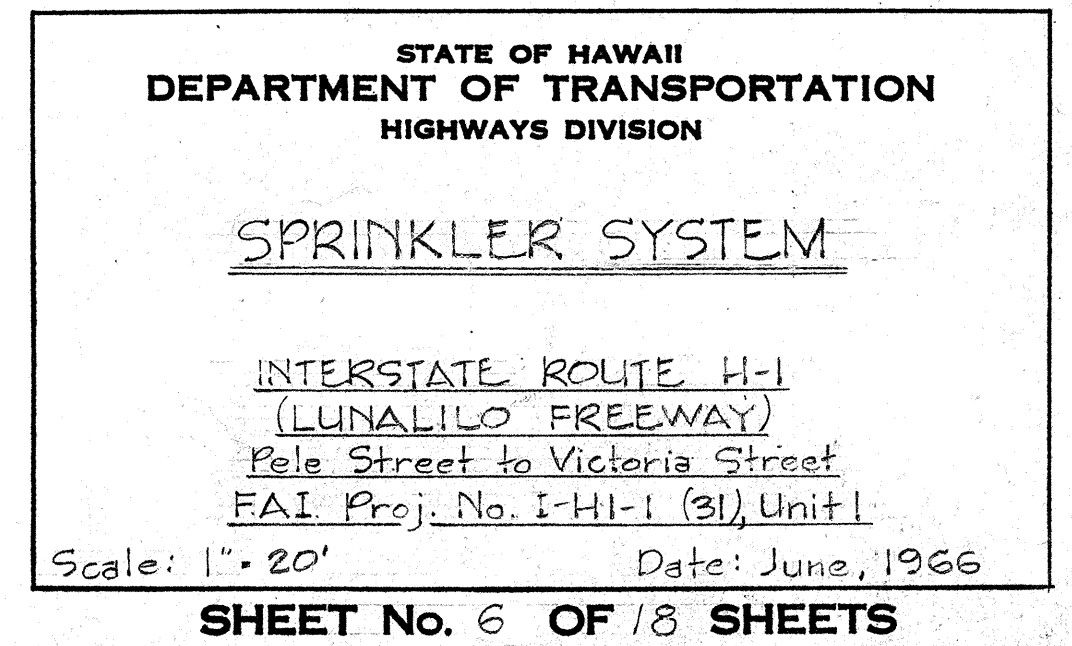


SHEET No. 5 OF 18 SHEETS

CO 251

PRINTED ON NO. 1000H CLEARPRIN

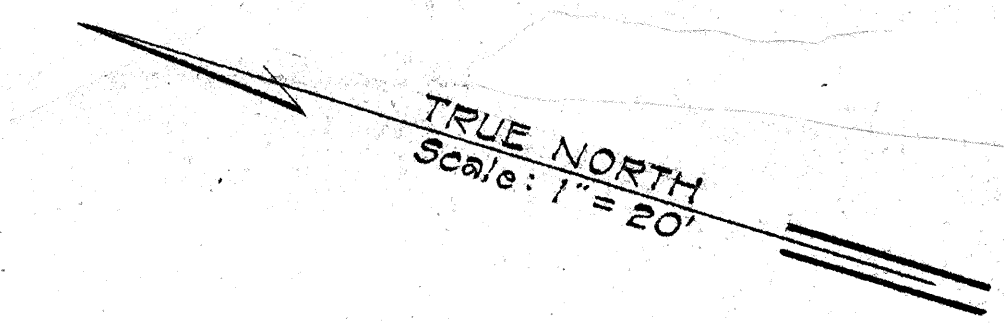
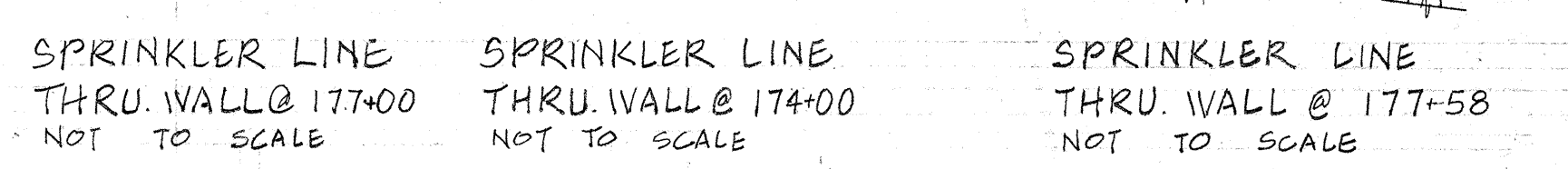
Revised: Feb. 16, 1968
Revised: Feb. 18, 1969



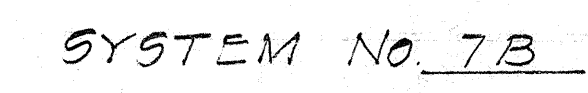
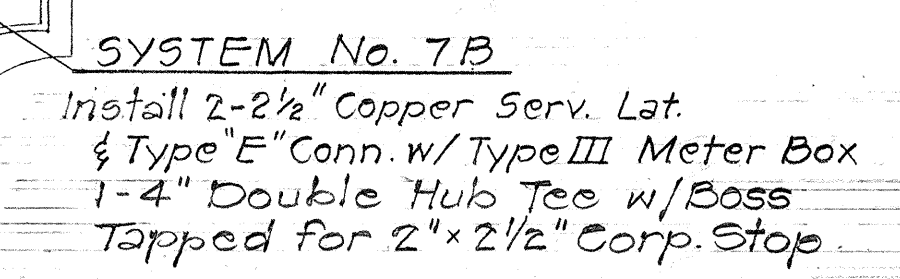
CO 252

PRINTED ON NO. 1000H CLEARPRINT

Revised: Feb. 16, 1968
Revised: Feb. 18, 1969



SYSTEM NO. 7A
Install 2 1/2" Copper Serv. Lat.
& Type "E" Conn. w/Type III Meter Box
* 1-6" Service Clamp w/Tap for
2" x 2 1/2" Corp. Stop

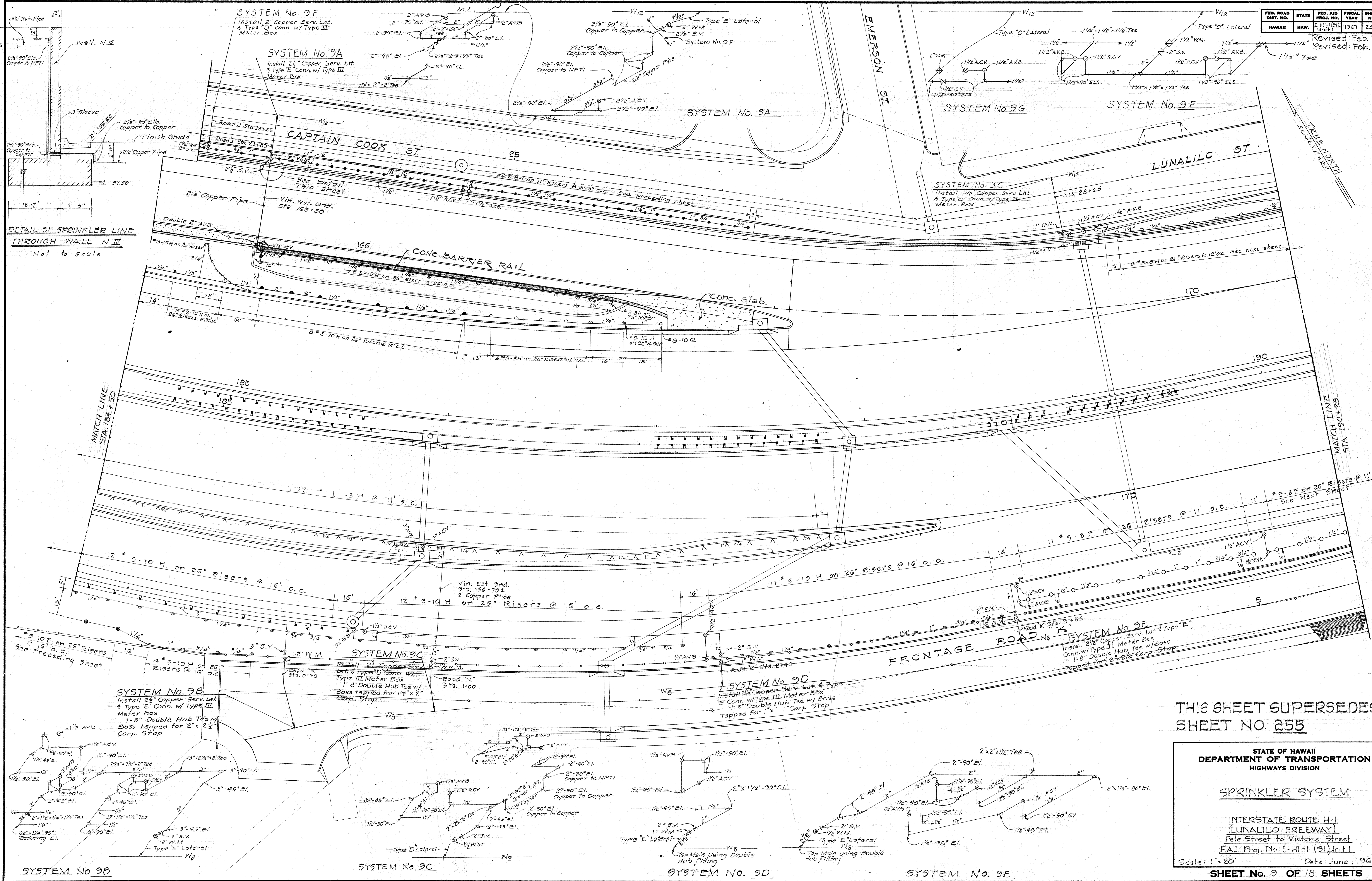


SHEET No. 7 OF 18 SHEETS

CO 253

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-1-1-1	1967	255	292

Revised: Feb. 16, 1968
Revised: Feb. 18, 1969



THIS SHEET SUPERSEDES
SHEET NO. 255

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER SYSTEM

INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele Street to Victoria Street
FAI Proj. No. I-H-1 (31) Unit 1

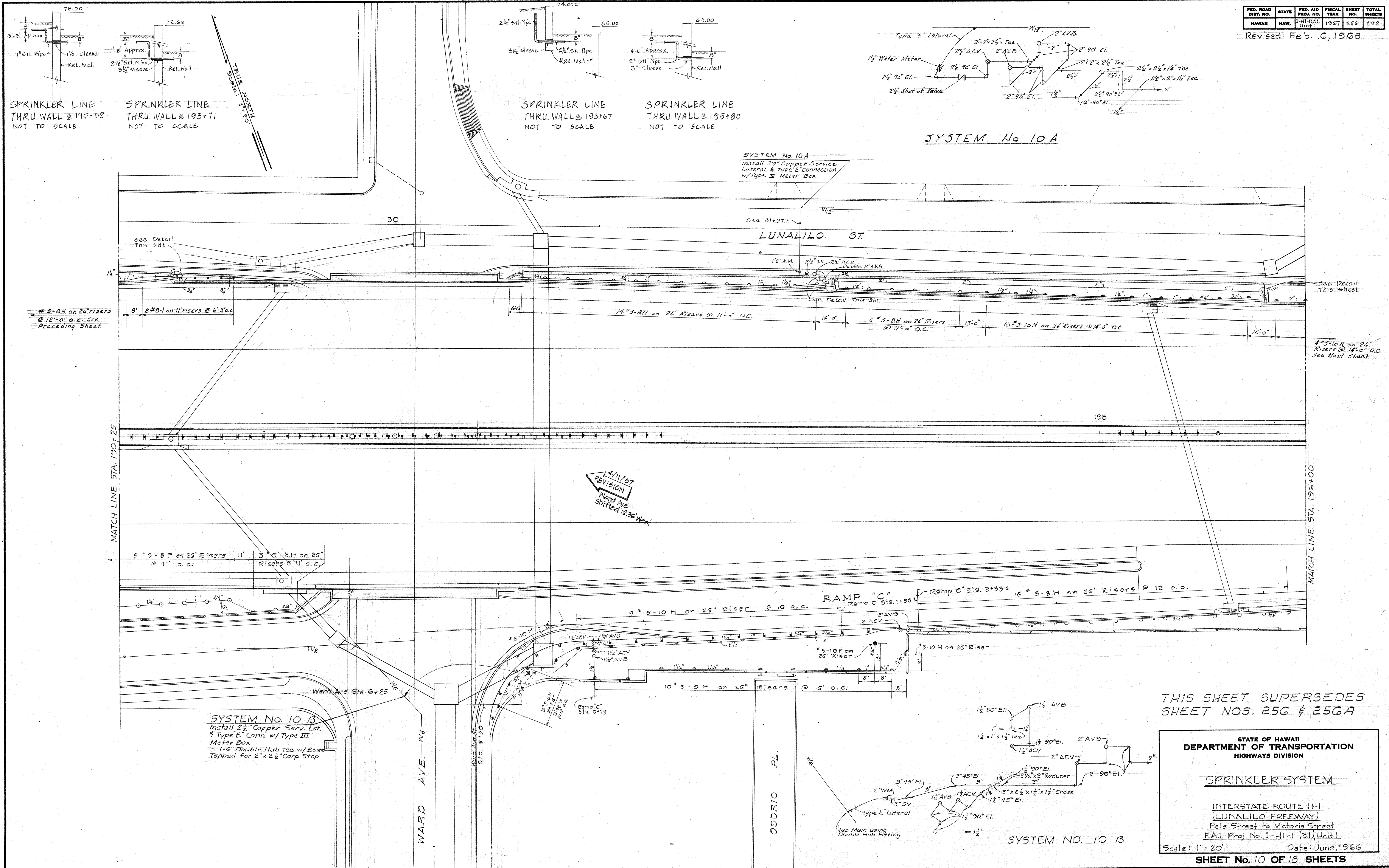
Scale: 1" = 20' Date: June, 1966

SHEET No. 9 OF 18 SHEETS

DATE	
DESIGNED BY	
CHECKED BY	
NOTED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H-1 (31) Unit I	1967	256	292

Revised: Feb. 16, 1968



THIS SHEET SUPERSEDES SHEET NOS. 25G & 25GA

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER SYSTEM

INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele Street to Victoria Street
FAI Proj. No. I-H-1 (31) Unit I

Scale: 1" = 20'

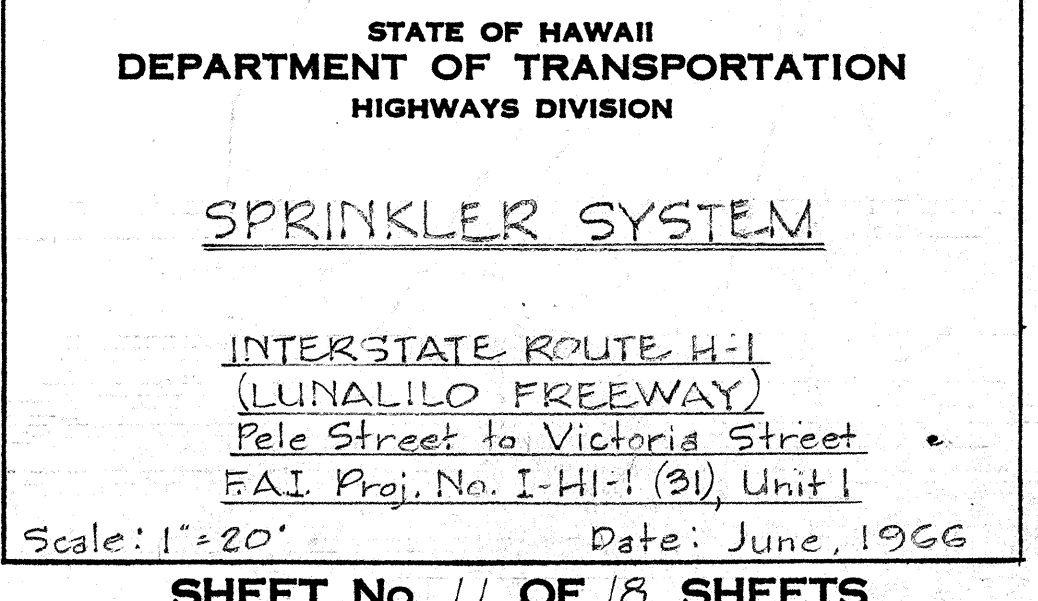
Date: June, 1966

SHEET No. 10 OF 18 SHEETS

C 0 2 5 6 A

DATE	1/11/67
DESIGNED BY	W. J. B. / J. B. B.
CHECKED BY	W. J. B. / J. B. B.
NOTED BY	W. J. B. / J. B. B.
QUANTITIES BY	W. J. B. / J. B. B.
ORIGINAL PLAN	W. J. B. / J. B. B.
PLAN	W. J. B. / J. B. B.
NOTE BOOK	W. J. B. / J. B. B.
NO.	W. J. B. / J. B. B.

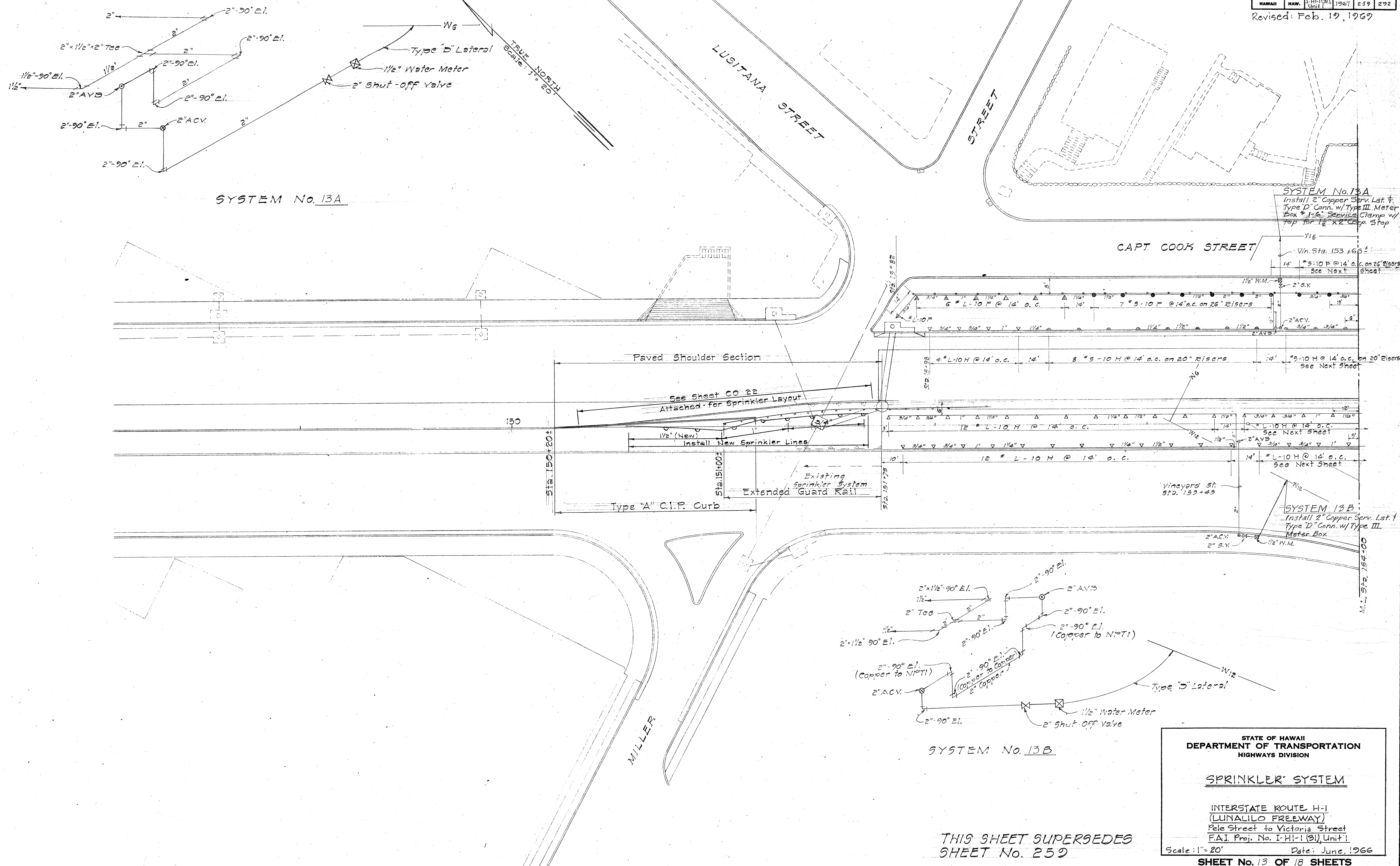
Revised: Feb. 16, 1968



C O 257

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1-H-1 (31) Unit 1	HAW.	1967	1967	259	292

Revised: Feb. 12, 1969



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

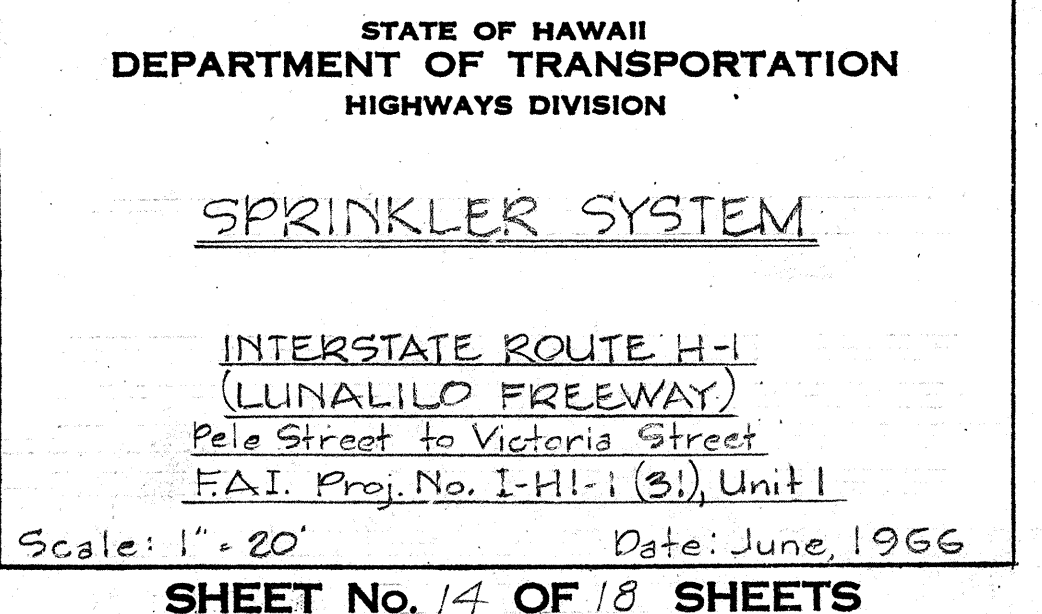
SPRINKLER SYSTEM

INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele Street to Victoria Street
F.A.I. Proj. No. I-H-1 (31) Unit 1
Scale: 1" = 20' Date: June, 1966

SHEET No. 13 OF 18 SHEETS

CO 259

Revised: Feb. 19, 1969



Scale: 1" = 20' Date: June, 1966

SHEET No. 14 OF 18 SHEETS

CO 260

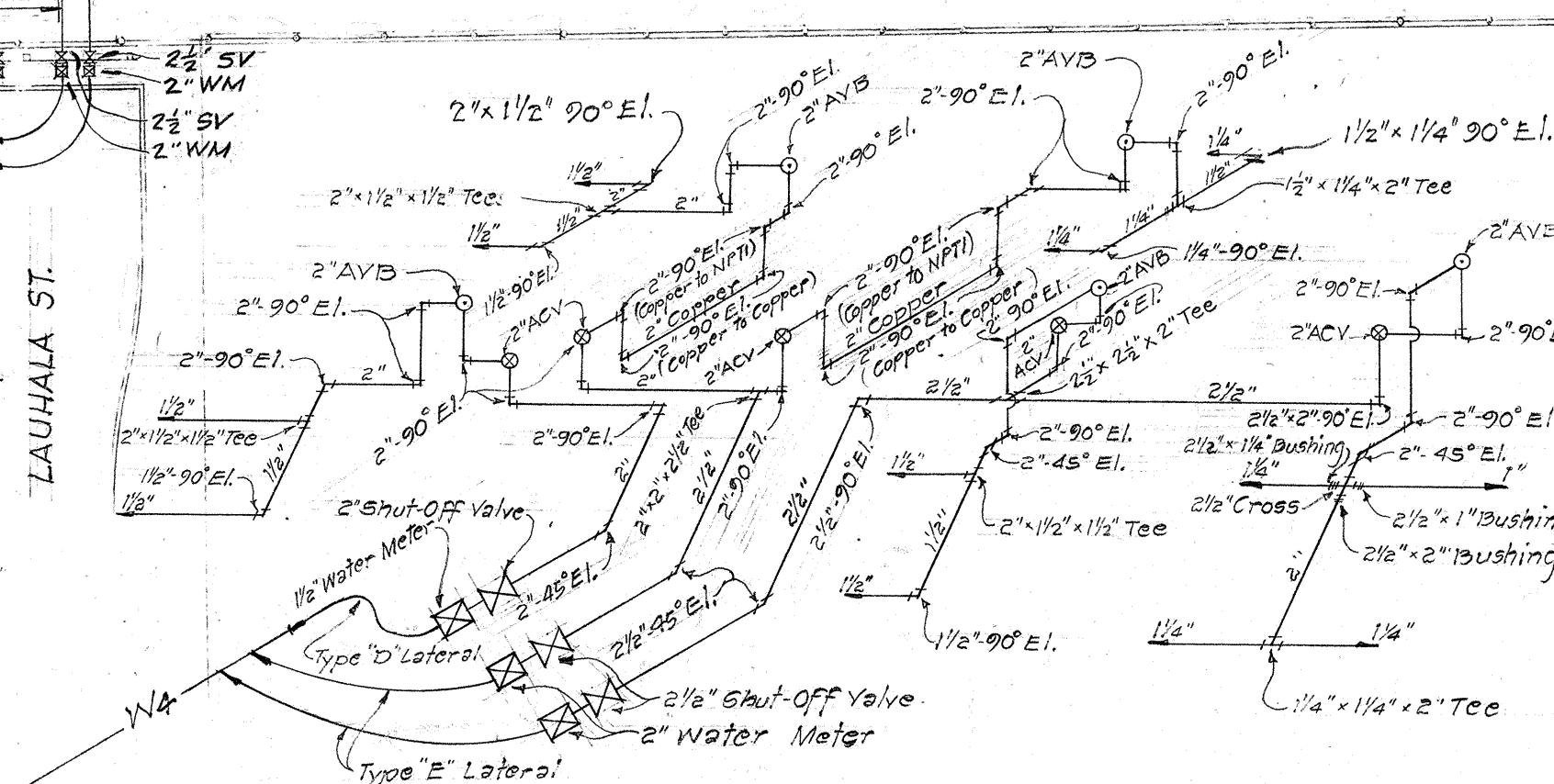
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1961	1961	261	292

Revised: Feb. 19, 1969

TRUE NORTH
Scale: 1" = 20'

DATE	SURVEY PLOTTED BY
ORIGINAL PLAN	DRAWN BY
NOTE BOOK	QUANTITIES BY
CHECKED BY	

SYSTEM No. 15
Install 1-2 Copper Serv. Lat. & Type D Comp. w/ Type III Meter Box
2-2 1/2" Copper Serv. Lat. & Type E Conn. w/ Type III Meter Box
2-4" Double Hub Tee w/ Boss Tapped for 2" x 2 1/2" Corp. Stop



THIS SHEET SUPERSEDES
SHEET No. 261

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

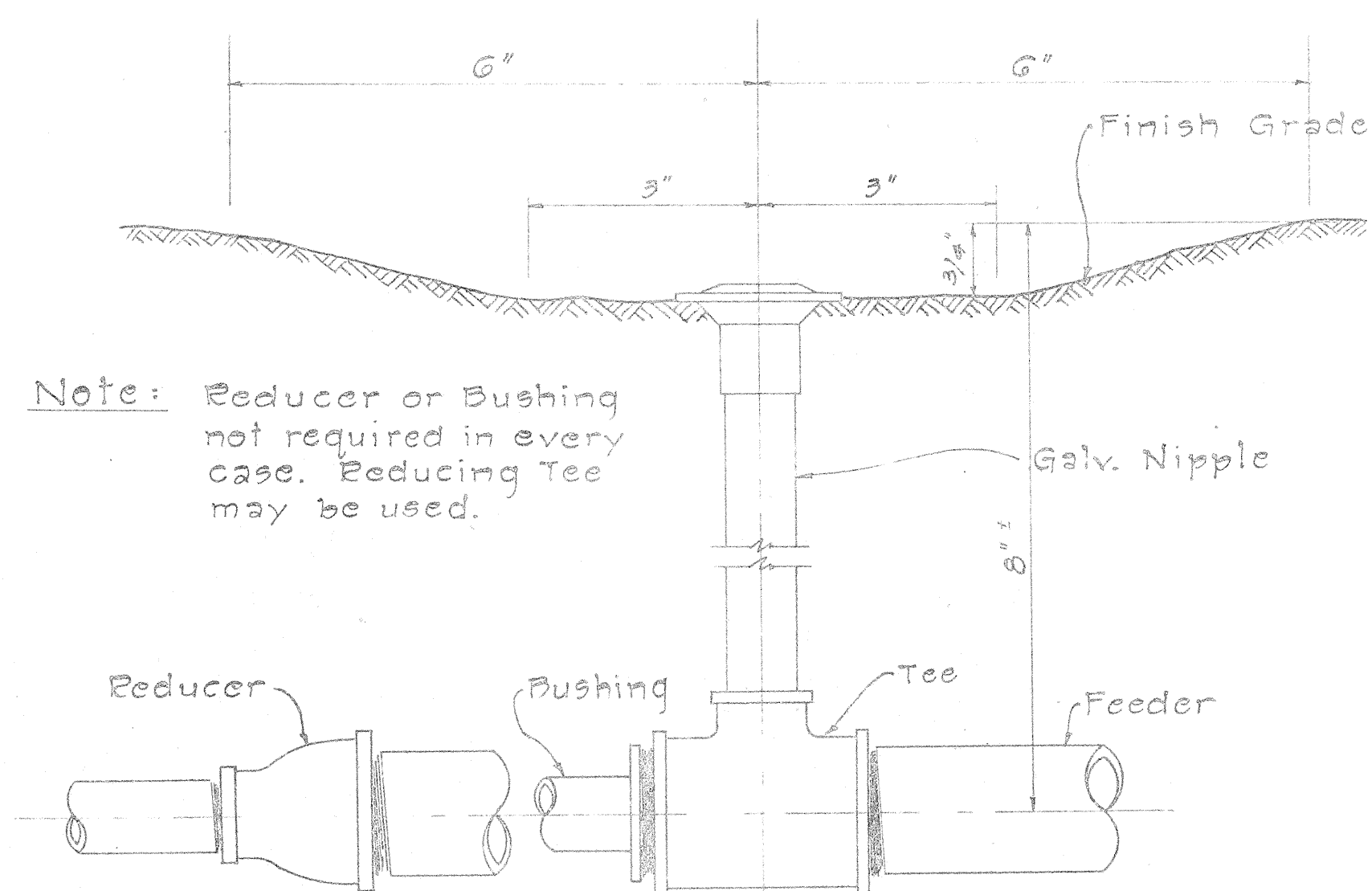
SPRINKLER SYSTEM

INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele Street to Victoria Street
FAI Proj. No. I-H-1-1 (31) Unit I

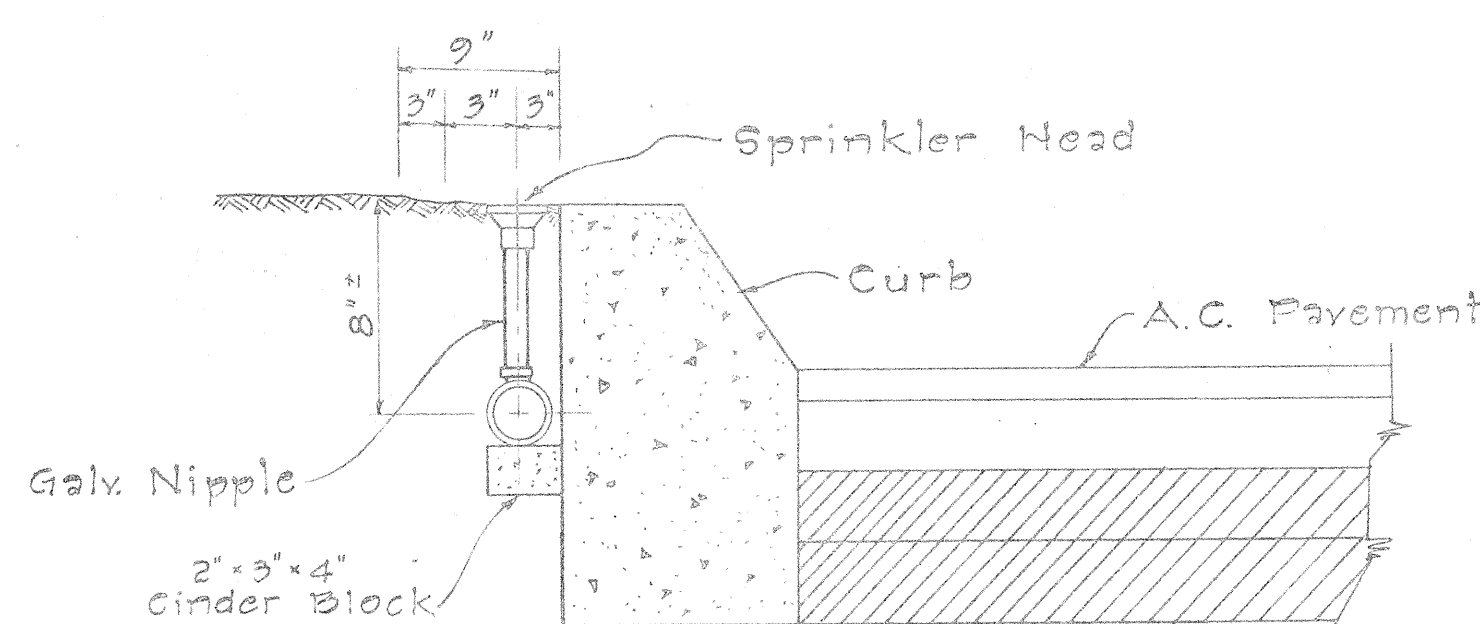
Scale: 1" = 20' Date: June, 1966

SHEET No. 15 OF 18 SHEETS

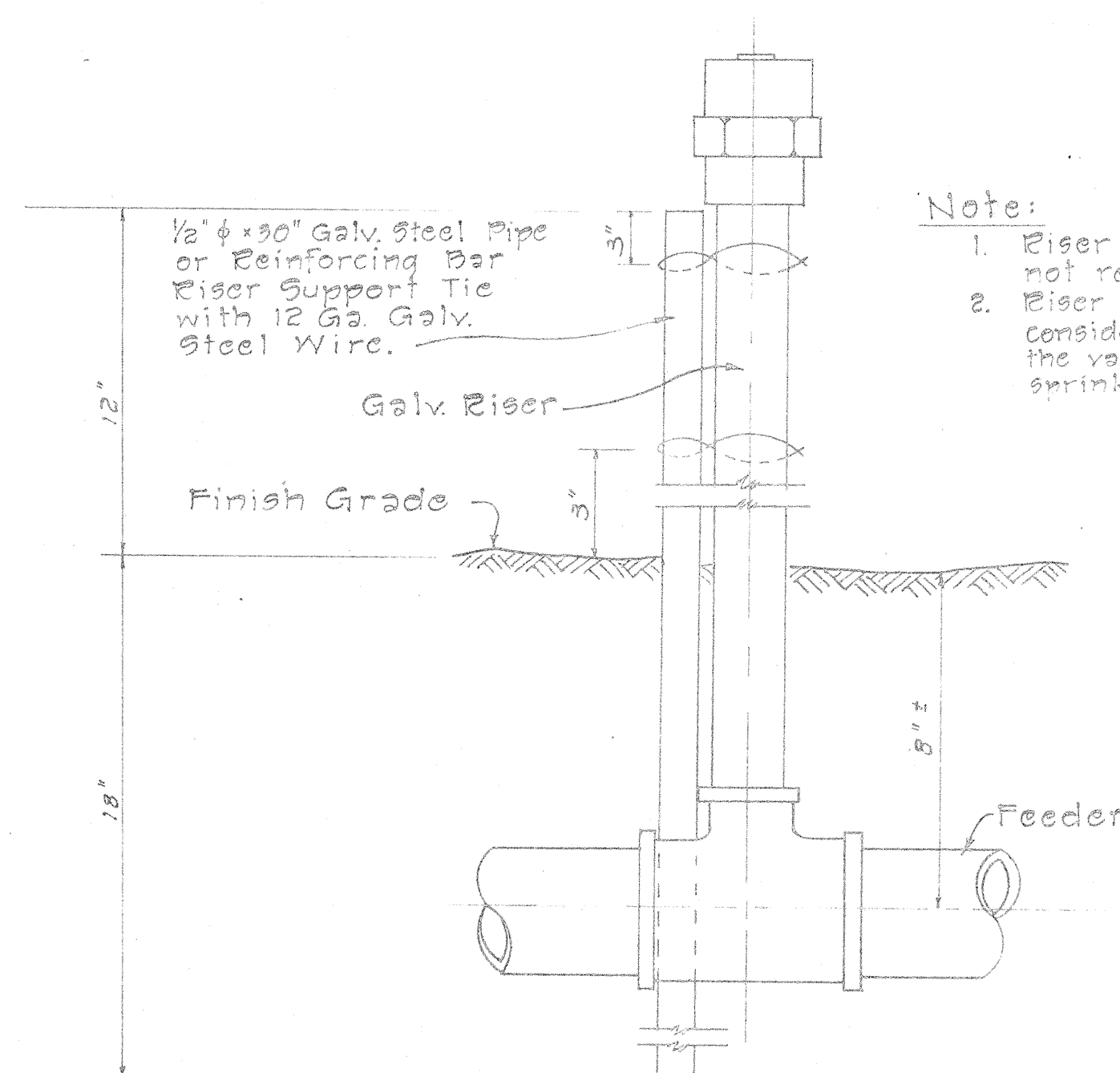
CO 261



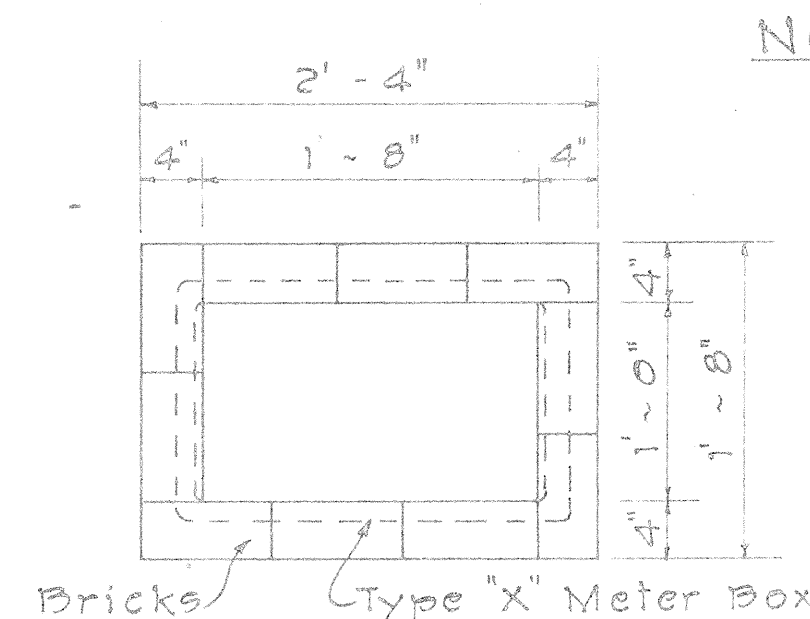
CONNECTION OF SPRINKLER HEAD TO FEEDER
Not to Scale



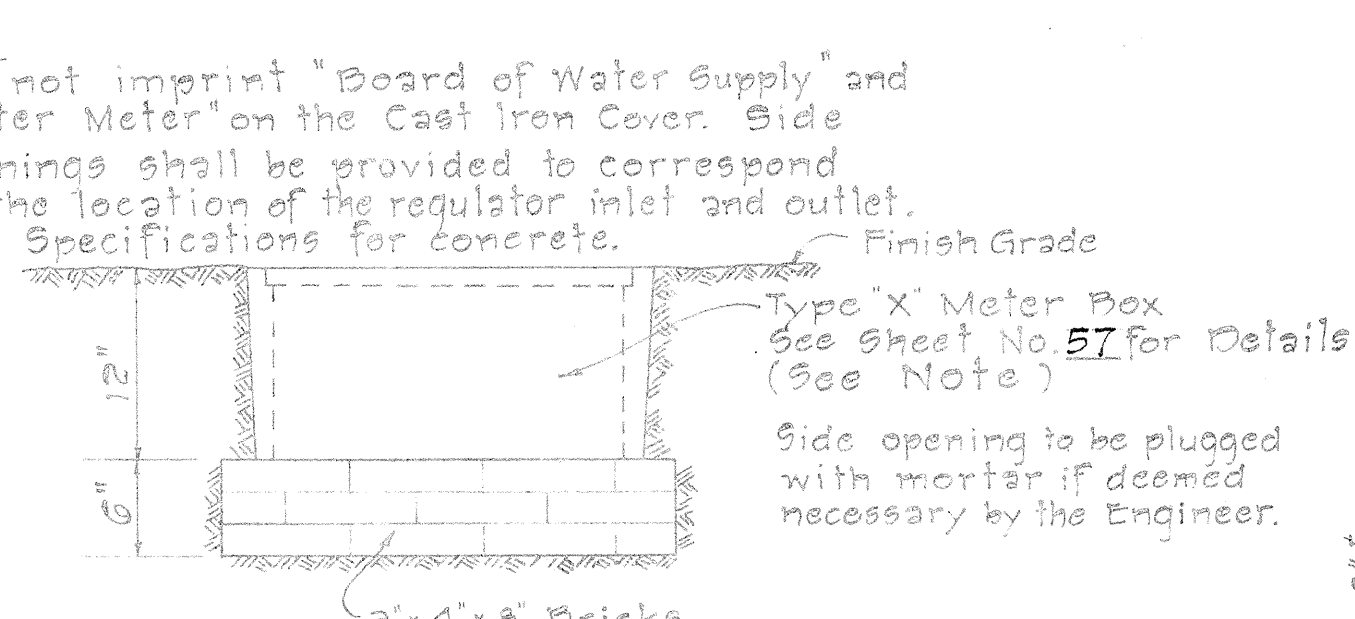
TYPICAL DETAIL OF SPRINKLER HEAD AT CONC. CURB
Not to Scale



DETAIL OF SPRINKLER HEAD ON RISER
Not to Scale

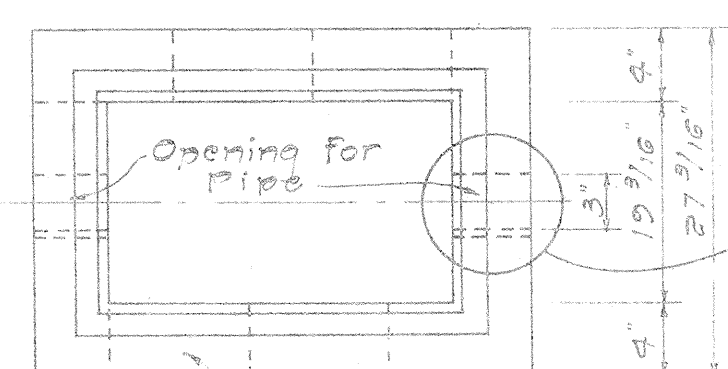


PLAN

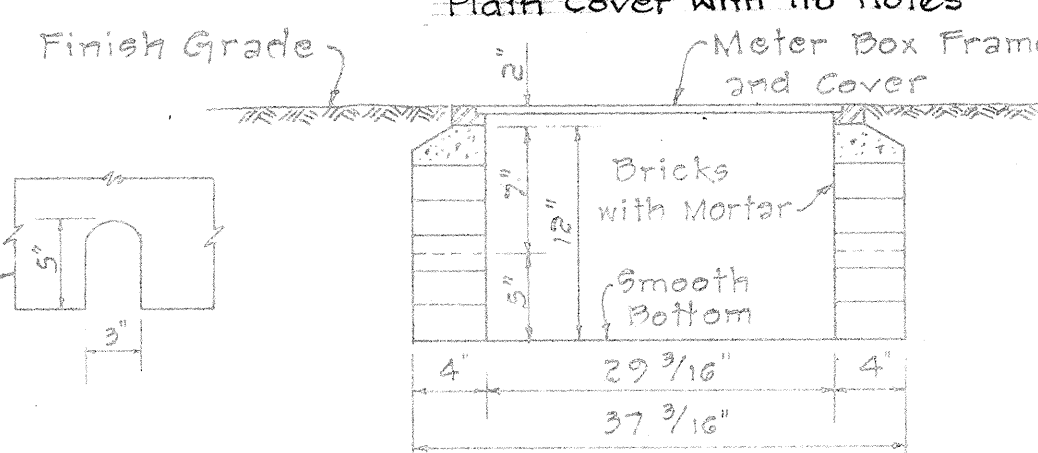


ELEVATION

PRESSURE REGULATOR BOX
Not to Scale



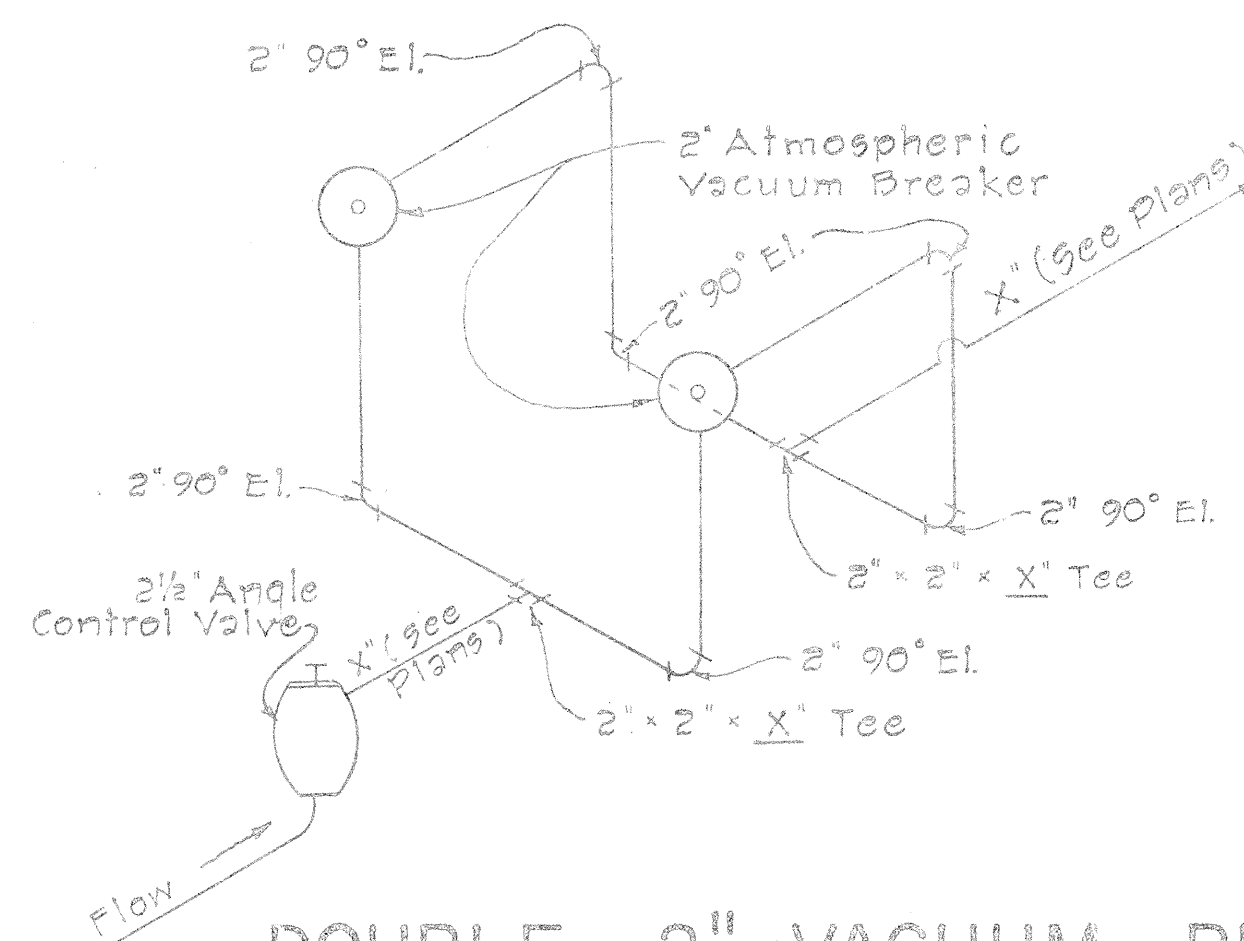
PLAN



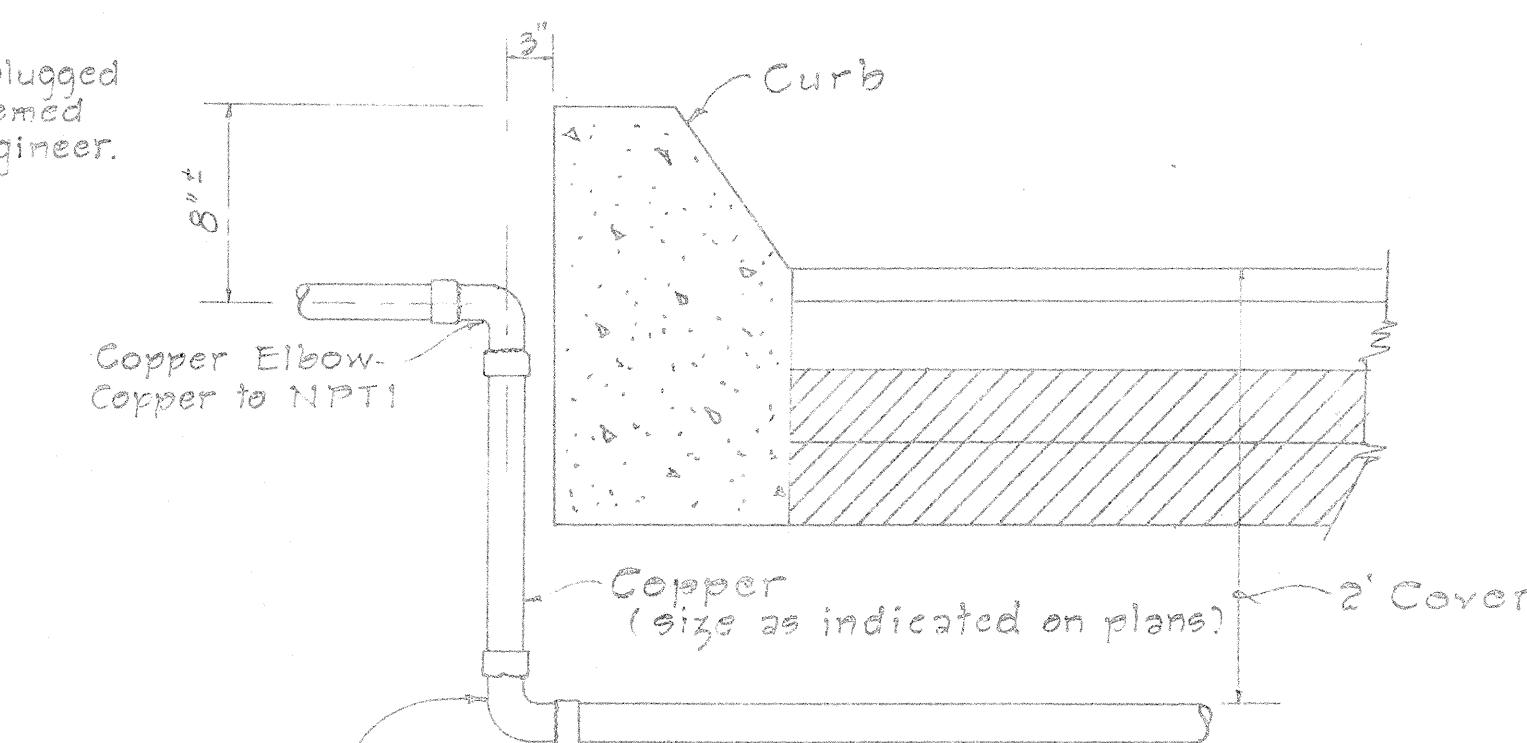
ELEVATION

TYPE III METER BOX
Not to Scale

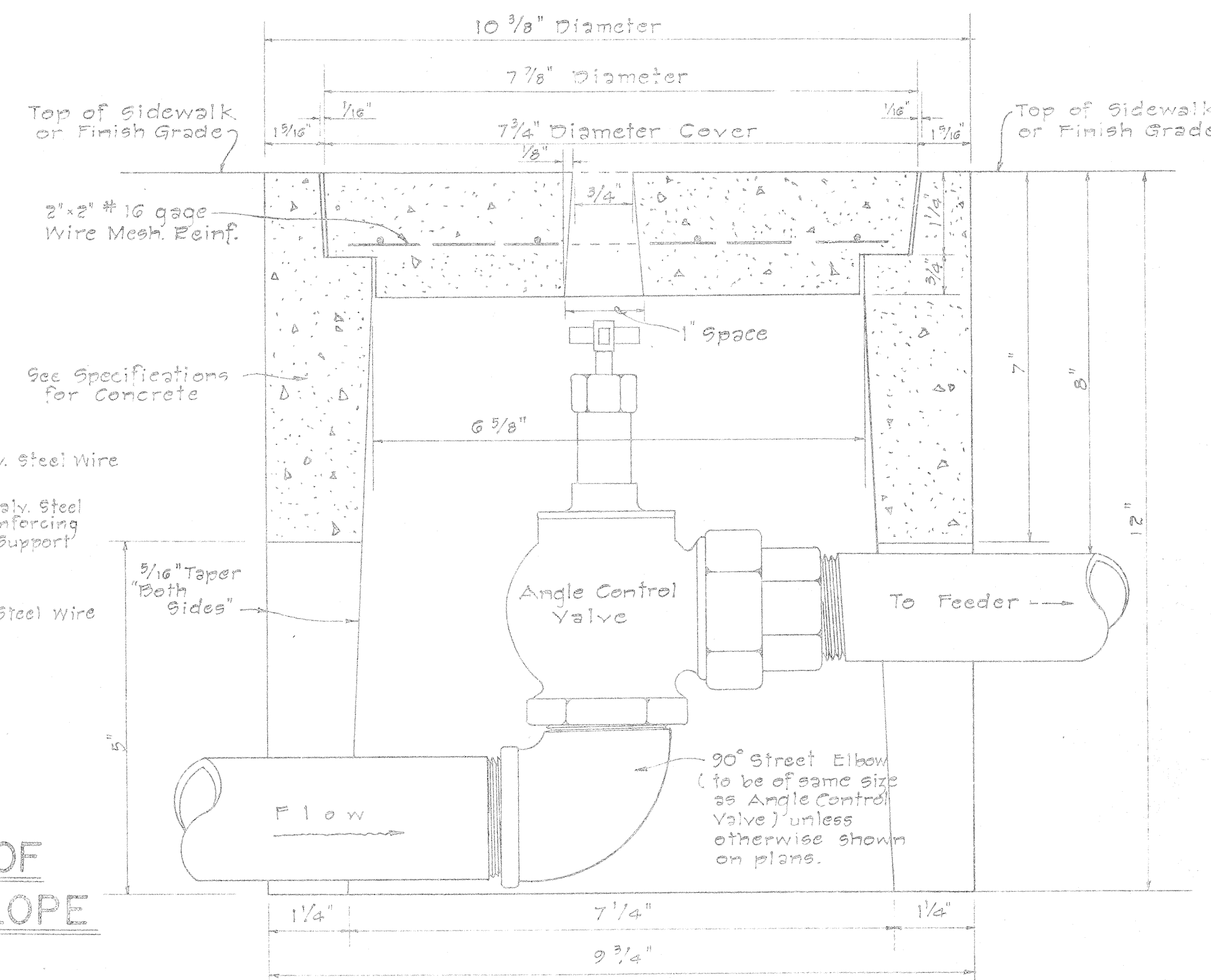
TYPICAL LAYOUT OF 2 1/2" SERVICE LATERAL AND CONNECTION (TYPE "E")
Not to Scale



DOUBLE - 2" VACUUM BREAKER (ATMOSPHERIC TYPE)
Not to Scale



TYPICAL DETAIL OF ROADWAY CROSSING
Not to Scale



TYPE "A" VALVE BOX
Not to Scale

- Notes:**
1. Location of side openings shall correspond to the location of the valve inlet and valve outlet.
 2. When the angle control valve is located in the sidewalk area, the valve shall be located at a sufficient depth so as to allow the cover to be replaced with the valve wide open.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPRINKLER SYSTEM

INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele Street to Victoria Street
FAI Proj. No. I-H-1 (31) Unit 1
Not to Scale Date: June, 1966

SUMMARY

Revised - Mar. 11, 1968
Revised - Sept. 9, 1968
Revised - Feb. 19, 1969

All the quantities shown are original theoretical quantities.
For actual quantities, refer to project ledger and/or
computation book.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION

SPRINKLER SYSTEM

INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele Street to Victoria Street
FAI Proj. No. I-H-1 (31), Unit I

Date: June, 1966

THIS SHEET SUPERSEDES
SHEET No. 263.

SHEET No. 17 OF 18 SHEETS

CO 263

SPRINKLER

SUMMARY

FED. ROAD DIST. NO. STATE FED. AID PROJ. NO. FISCAL YEAR SHEET NO. TOTAL SHEETS
HAWAII HAW I-HI-1(31) Unit 1967 244 292
Revised - Feb. 16, 1968
Revised - Sept. 2, 1968
Revised - Feb. 19, 1969

SYSTEM NO.	METER LOCATION	ESTIMATED QUANTITIES																							REMARKS
		PRESSURE REG. W/PRESSURE REG. BOX			Structure Excavation Other Than At Bridges	Class B-1 Concrete Other Than In Bridges	Brick Wall For Type C Water Manhole	20-Inch C.I. Water Manhole Frame and Cover	Furn. & Install 4-Inch C.I. Pipe, Class 250	Furn. & Install C.I. Fittings	Furnish Only C.I. Fittings	Furn. & Install 1 1/2-Inch Copp. Serv. Lat. w/ Type C Copp. Serv. Conn.	Furn. & Install 2-Inch Copp. Serv. Lat. w/ Type D Copp. Serv. Conn.	Furn. & Install 2 1/2-Inch Copp. Serv. Lat. w/ Type E Copp. Serv. Conn.	Furn. & Install 1 1/2-Inch Copp. Serv. Lat. w/ Type C Copp. Serv. Conn. off Exist. Main	Furn. & Install 2-Inch Copp. Serv. Lat. w/ Type D Copp. Serv. Conn. off Exist. Main	Furn. & Install 2 1/2-Inch Copp. Serv. Lat. w/ Type E Copp. Serv. Conn. off Exist. Main	Furn. & Install Type III Meter Box Including C.I. Frame & Cover	Furn. & Install 4-Inch Gate Valve (Class 150)	Valve Box	Furn. 6 Inch Serv. Clamp w/ tap For Appropriate Size Corp. Stop	Furn. 8 Inch Serv. Clamp w/ tap For Appropriate Size Corp. Stop	Reinforcing Steel Other Than In Bridges		
		1 1/2 Inch	2 Inch	2 1/2 Inch																					
UNIT USED		Ea.	Ea.	Ea.	C.Y.	C.Y.	L.F.	Ea.	L.F.	Lbs.	Lbs.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Lbs.	
3B	B Sta. 153+40				11																				Conn. To Exist. System
5	Road J Sta. 6+75	1			4																				
6A	Road J Sta. 8+55			1	10																				
6B	Road J Sta. 10+40			1	9																				
6C	Road J Sta. 12+15 & 12+40			2	49																				
6D	Pele St. Cul-de-sac		2		18																				
6E	Miller St. Cul-de-sac				38																				
7A	Road J Sta. 16+45			1	28																				
7B	Frear St. Cul-de-sac									75			2												
8A	Road J Sta. 18+55 & 18+75		1		16																				
8B	Road J Sta. 21+80				12							1													
8C	Alapai St. Cul-de-sac				36	2	5	1	12	1205									1					22	
9A	Road J Sta. 23+85				22																				
9B	Road K Sta. 0+30				26					150															
9C	Road K Sta. 1+00									150															
9D	Road K Sta. 2+40				7					150															
9E	Road K Sta. 3+85				16					150															
9F	Road J Sta 23+55				37																				
9G	Road J Sta 28+55				9																				
10A	Road J Sta. 31+97				28																				
10B	Ward Ave Sta 6+15				20					105															
11	Victoria St Cul-de-Sac				46	1			240	15	335	1							1	1					
12	Road J Sta. 40+47				30																				
13A	Vin. Sta. 153+63				10																				
13B	Vin Sta 153+50				13																				
14A	Vin. Sta. 155+45				10																				
14B	Vin. Sta. 156+32				32					105															
14C	Lusitana St Sta. 4+20				44					210			3												
14D	Lusitana St Sta 4+20				9					150			1												
14E	Lusitana St. Sta. 5+50				9																				
15	Lauhala St Cul-de-sac				49					150															

All the quantities shown are original theoretical quantities.
For actual quantities, refer to project ledger and/or computation book.

ORIGINAL PLAN
DESIGNED BY
CHECKED BY
DATE
NO.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
SPRINKLER SYSTEM
INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele Street to Victoria Street
FAI Proj. No. I-HI-1 (31), Unit I
Date: June, 1966

THIS SHEET SUPERSEDES
SHEET No. 264.

SHEET No. 18 OF 18 SHEETS
C O 264