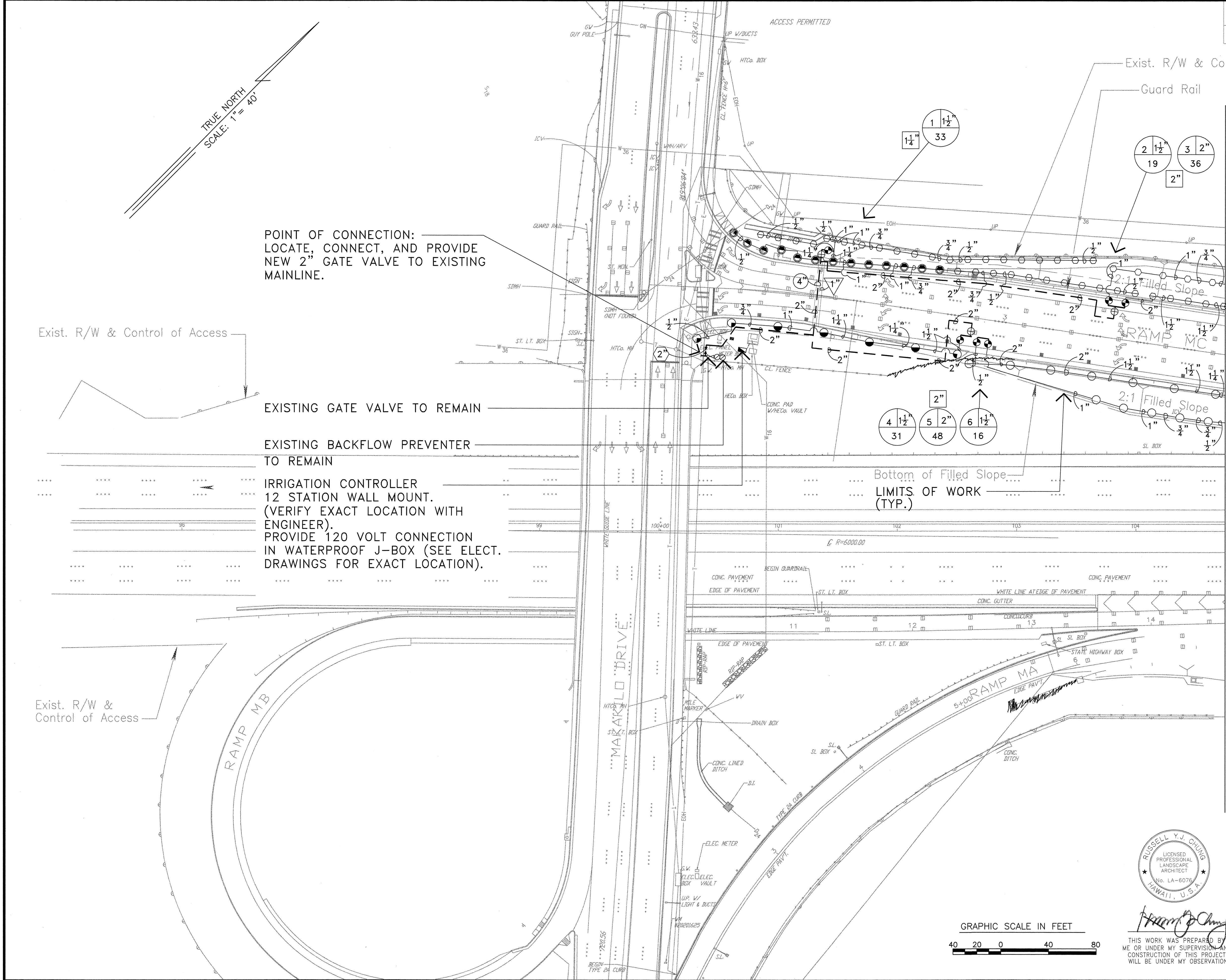
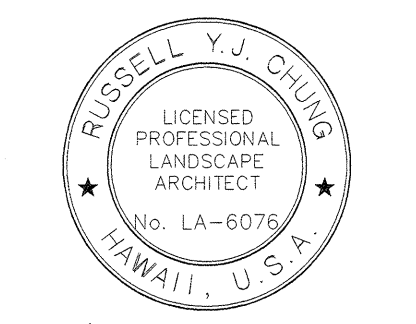


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	95	104



- NOTES:
1. ALL NEWLY GRASSED AREAS NOT PROVIDED WITH AN AUTOMATIC IRRIGATION SYSTEM SHALL RECEIVE TEMPORARY IRRIGATION TO BE PROVIDED BY THE LANDSCAPE CONTRACTOR. SEE LANDSCAPE PLANTING PLANS FOR LOCATION OF TEMPORARY GRASSED AREAS.
 2. PRIOR TO ANY DEMOLITION OR GRADING WORK, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND PERFORMING THE REPAIR, RELOCATION, AND REPLACEMENT OF ALL EXISTING IRRIGATION EQUIPMENT TO REMAIN TO ENSURE FULL OPERATION AND PROPER COVERAGE OF ALL LANDSCAPE AREAS BEYOND THE LIMITS OF WORK. THE CONTRACTOR SHALL ALSO PROVIDE FOR CONTINUED OPERATION OF ALL EXISTING IRRIGATION TO REMAIN DURING THE ENTIRE CONSTRUCTION PERIOD.

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



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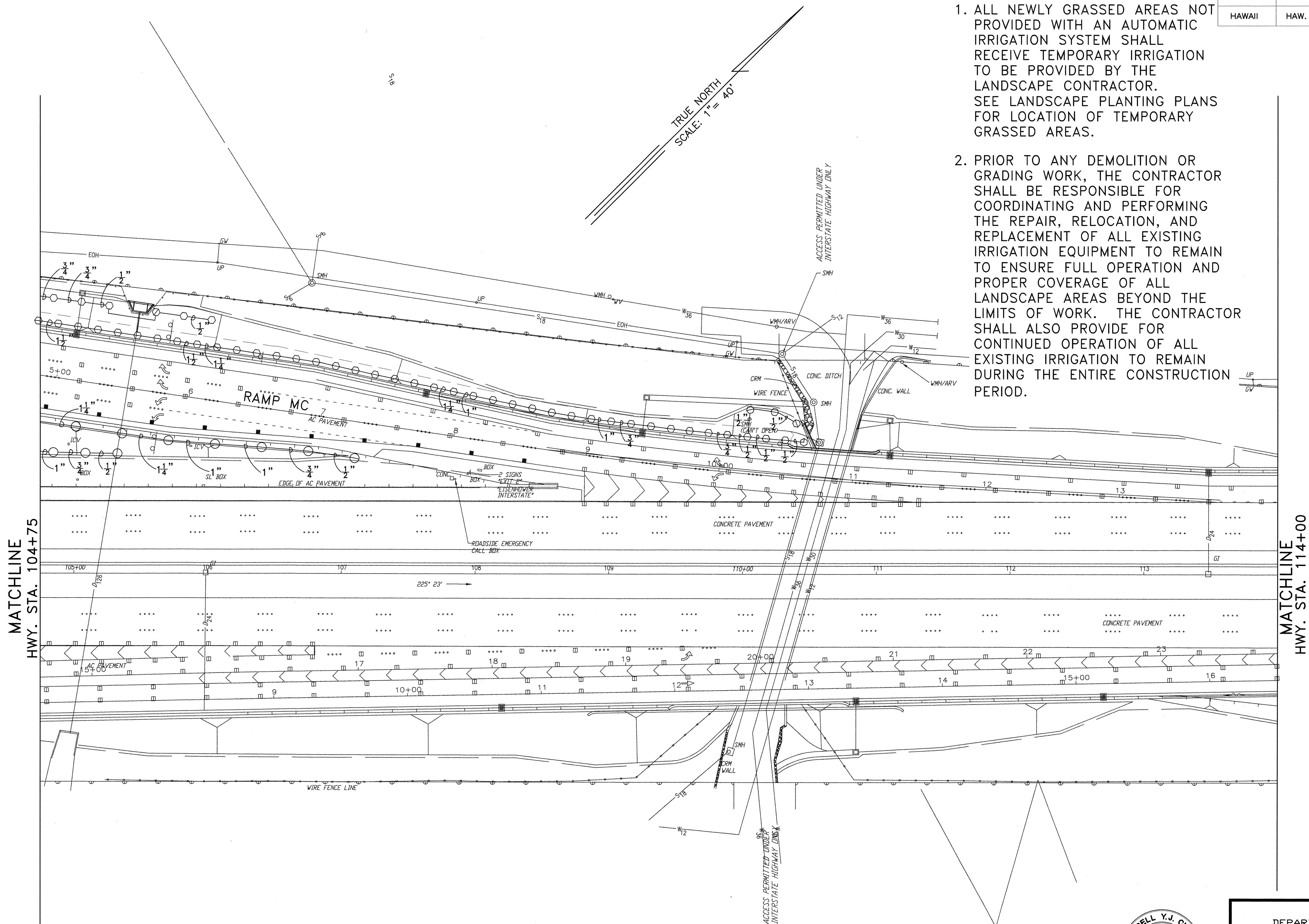
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**LANDSCAPE
IRRIGATION PLAN**
INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps

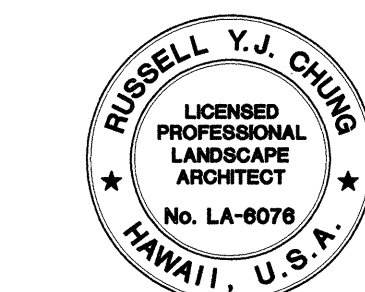
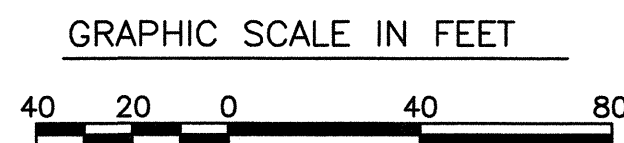
Scale: 1"=40' Date: April 30, 1997
SHEET No.L-1 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	96	104

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DESIGNED BY	DATE
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**LANDSCAPE
IRRIGATION PLAN**
INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps

Scale: 1"=40' Date: April 30, 1997

SHEET No.L-2 OF 10 SHEETS

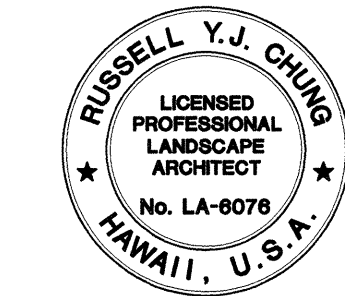
IRRIGATION NOTES

- 1.THIS PLAN IS DIAGRAMATIC. IRRIGATION SYSTEM IS SUBJECT TO FIELD ADJUSTMENTS DUE TO UNANTICIPATED SITE CONDITIONS. LOCATE ALL MAINLINES, LATERALS, VALVES AND SPRINKLER HEADS WITHIN PLANTING AREAS, UNLESS OTHERWISE NOTED. PLACE MAINLINE IN PLANTING AREAS WHERE NO SLEEVES ARE SHOWN. AVOID ANY CONFLICT BETWEEN UNDERGROUND UTILITIES, STRUCTURES AND PLANTINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES. BURY ALL IRRIGATION LINES UNDER PAVING 24" DEEP. IN PLANTING AREAS BURY PRESSURE MAINLINES 18" AND LATERAL LINES 10" DEEP.
- 2.THIS IRRIGATION SYSTEM WAS DESIGNED WITH A MINIMUM STATIC WATER PRESSURE OF 65PSI AT THE POINT OF CONNECTION. NOTIFY THE PROJECT ENGINEER, IF WATER PRESSURE IS LESS THAN 65PSI OR GREATER THAN 100PSI.
- 3.CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND OBSERVE ALL LOCAL CODES AND REGULATIONS. THE CONTRACTOR SHALL CONFIRM ALL SITE DIMENSIONS AND CONDITIONS, AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
- 4.CONTRACTOR IS TO COORDINATE THE INSTALLATION OF ALL SLEEVES, CONDUITS, MAINLINES AND LATERALS UNDER PAVEMENT AND THROUGH WALLS. CONTRACTOR SHALL ASSURE THAT THESE ITEMS ARE LAID PRIOR TO PLACEMENT OF PAVEMENT OR WALL STRUCTURES.
- 5.CONTRACTOR SHALL INSTALL IRRIGATION LINES, WIRES, VALVES AND HEADS PER SPECIFICATIONS. EXISTING GATE VALVES, POINT OF CONNECTION, ETC. ARE DERIVED FROM THE BEST AVAILABLE INFORMATION AND ON SITE INSPECTIONS. THE CONTRACTOR SHALL VERIFY THOSE POINTS OF CONNECTION NOTED AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
6. LOCATE AND INSTALL ALL SPRINKLER HEADS 12" FROM ROADWAYS, CURBS, AND WALLS UNLESS NOTED OTHERWISE. FLEX TUBING SHALL BE INSTALLED ON ALL SPRINKLER HEADS ALONG ROADWAYS. ADJUST ALL SPRINKLER HEADS AND FLOW CONTROL FOR MAXIMUM COVERAGE AND MINIMUM OVERTHROW AND MISTING. OPERATE ONLY ONE VALVE AT A TIME PER CONTROLLER.

IRRIGATION LEGEND

SYMBOL	DESCRIPTION	RADIUS	PSI	GPM	REMARK
	12" POP-UP ROTOR HEAD PART CIRCLE	17'-18'	30-50	.64-.85	
	SHRUB ROTOR HEAD ON RISER FULL CIRCLE	23'-24'	30-50	1.3-1.7	
	SHRUB ROTOR HEAD ON RISER PART CIRCLE	23'-24'	30-50	1.3-1.7	
	LARGE RADIUS POP UP IMPACT HEAD PART CIRCLE	41'	40	4.4	
	LARGE RADIUS IMPACT HEAD ON RISER FULL CIRCLE	23'	35	1.9	
	LARGE RADIUS IMPACT HEAD ON RISER PART CIRCLE	38'	35	3.3	
	EXISTING BACKFLOW PREVENTER				
	EXISTING GATE VALVE				
	BRASS GATE VALVE DENOTES SIZE OF GATE VALVE		SEE SPECIFICATIONS		SEE DRAWING FOR SIZE
	BRASS ANGLE VALVE DENOTES SIZE OF ANGLE VALVE		SEE SPECIFICATIONS		SEE DRAWING FOR SIZE
	REMOTE CONTROL VALVE		SEE SPECIFICATIONS		SEE DRAWING FOR SIZE
	IRRIGATION CONTROLLER - 12 STATION WALL MOUNT, ELECTROMECHANICAL OPERATION MOUNTED IN STAINLESS STEEL ENCLOSURE				12 STATION WALL MOUNT
	IRRIGATION MAINLINE		PVC SCHEDULE 40 PIPE		SEE DRAWING FOR SIZE
	IRRIGATION LATERAL		PVC CLASS 200 PIPE		SEE DRAWING FOR SIZE
	IRRIGATION SLEEVE DENOTES SIZE OF SLEEVE		PVC SCHEDULE 40 PIPE		SEE DRAWING FOR SIZE
	IRRIGATION CONDUIT DENOTES SIZE OF CONDUIT		PVC SCHEDULE 80 PIPE		SEE DRAWING FOR SIZE
	NO. OF VALVE / SIZE OF VALVE				SEE DRAWING FOR SIZE
	FLOW (GPM) THROUGH VALVE				

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



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

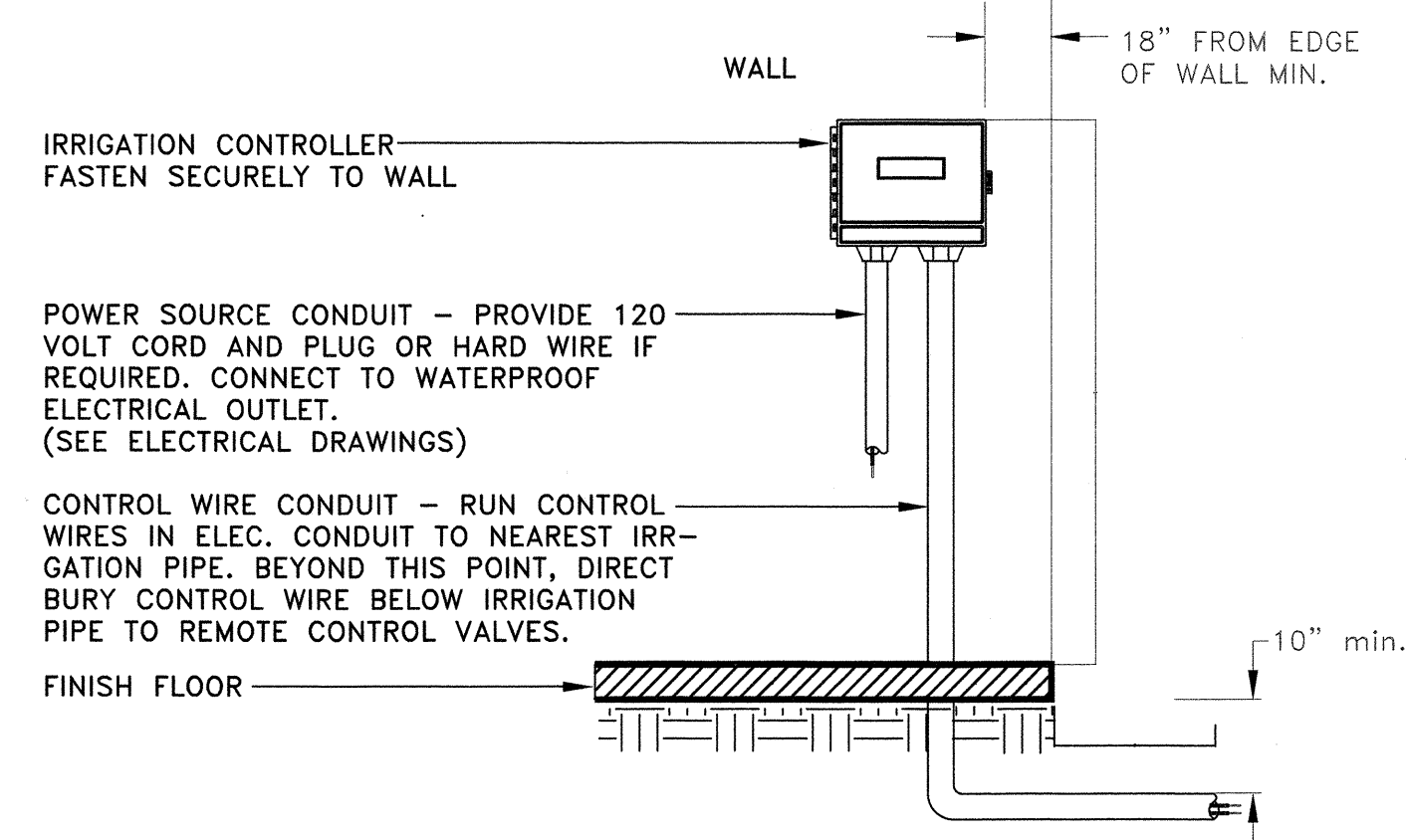
LANDSCAPE IRRIGATION
LEGEND AND NOTES
INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps

Scale: Not to Scale Date: April 30, 1997

SHEET No.L-3 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	<i>1997</i>	<i>98</i>	<i>104</i>

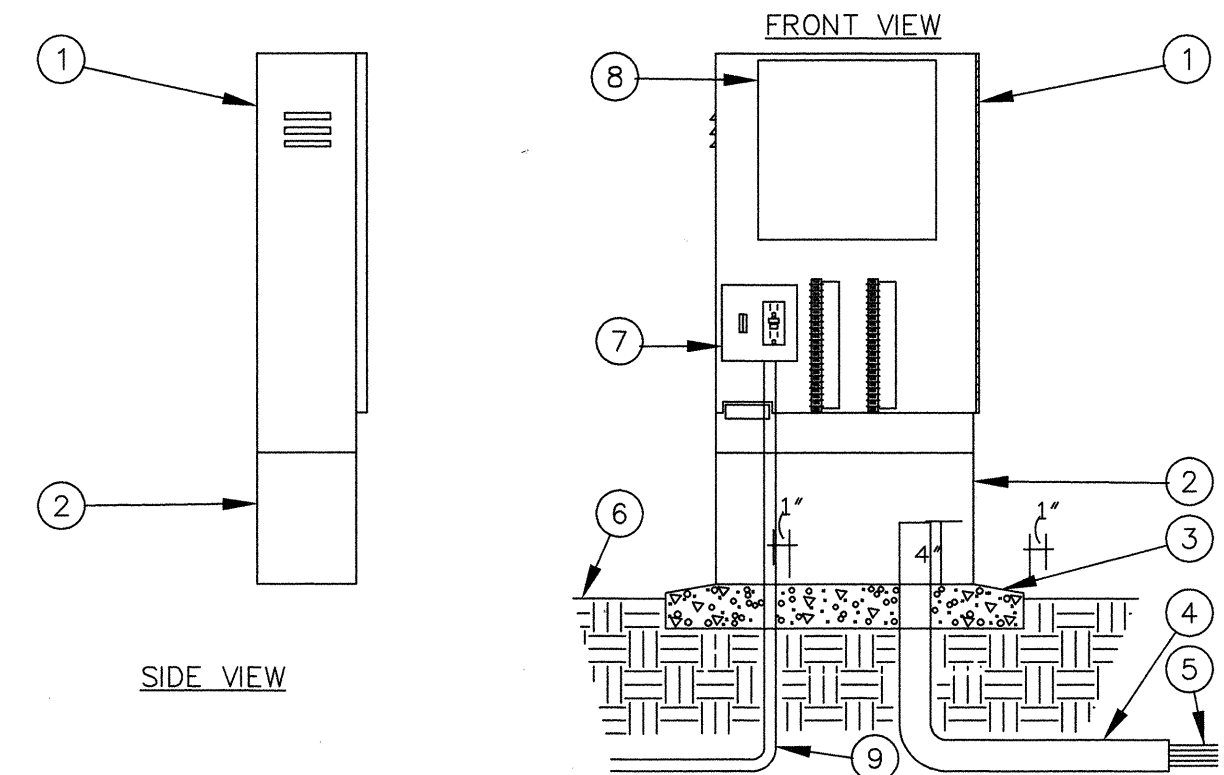
NOTES: 1. INSTALL IRRIGATION CONTROLLER AT LOCATIONS SHOWN ON DRAWINGS AND
ACCORDING TO MANUFACTURER'S RECOMMENDATIONS
2. INSTALL IRRIGATION CONTROLLER STAINLESS STEEL ENCLOSURE



1 WALL MOUNT CONTROLLER

NOT TO SCALE

CADD REF: IRR-404



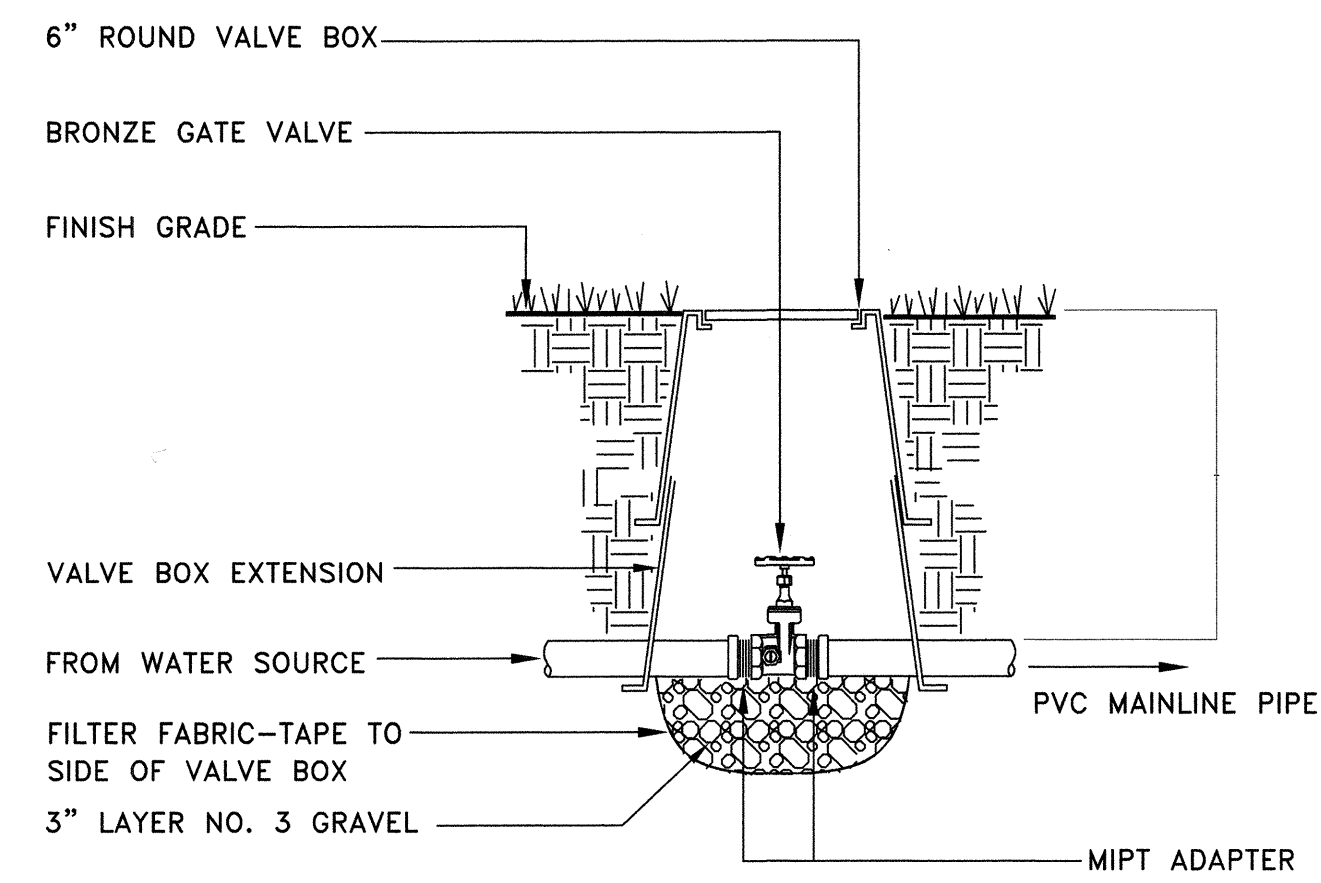
LEGEND

1. CONTROLLER ENCLOSURE.
2. OPTIONAL PEDESTAL.
3. POURED CONCRETE BASE. - 6" MIN. THICKNESS - EXTEND 6" BEYOND OUTSIDE DIMENSIONS OF ENCLOSURE WITH 1/2% SLOPE FOR DRAINAGE.
4. PVC LONG SWEEP ELL - USE ONE SWEEP ELL PER CONTROLLER.
5. DIRECT BURIAL CONTROL WIRES TO CONTROL VALVES.
6. FINISH GRADE.
7. CONTROLLER SUB-ASSEMBLY (CSA) INCLUDES GFI & TERMINAL STRIPS WITH PLACARDS.
8. AUTOMATIC CONTROLLER.
9. 120-VOLT SERVICE IN CONDUIT.

2 CONTROLLER ENCLOSURE

N.T.S.

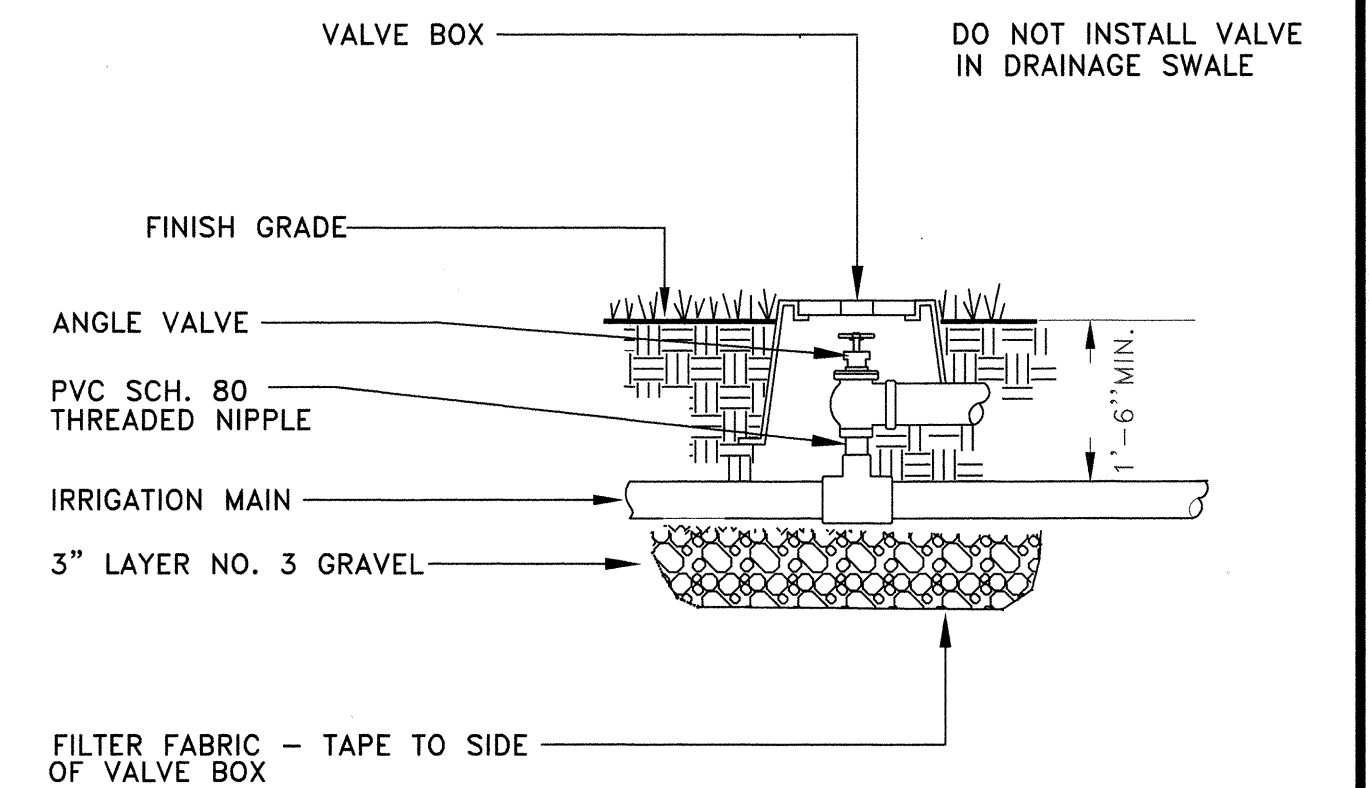
CLOCK2



7 GATE VALVE

NOT TO SCALE

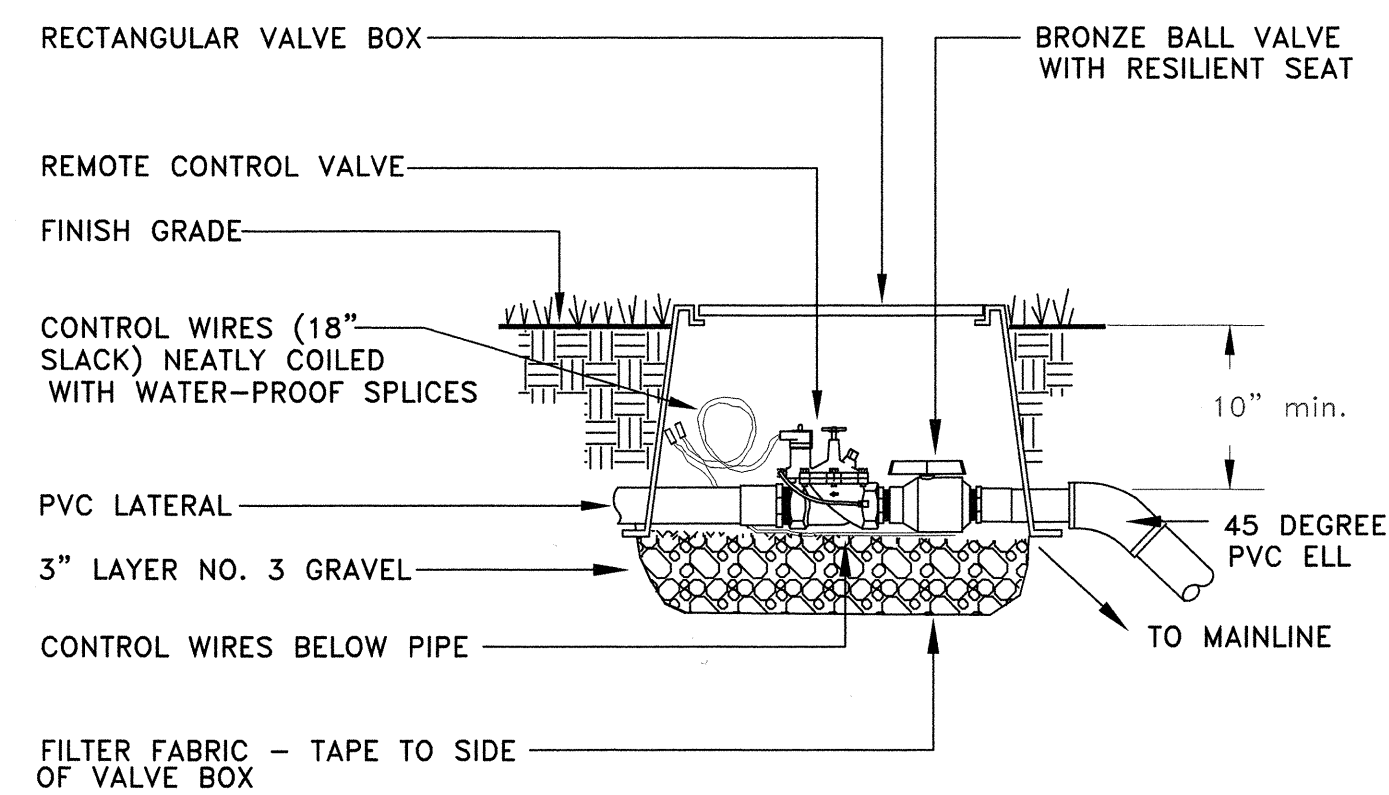
CADD REF: IRR-204



1 ANGLE VALVE

NOT TO SCALE

DD REF: IRR-212



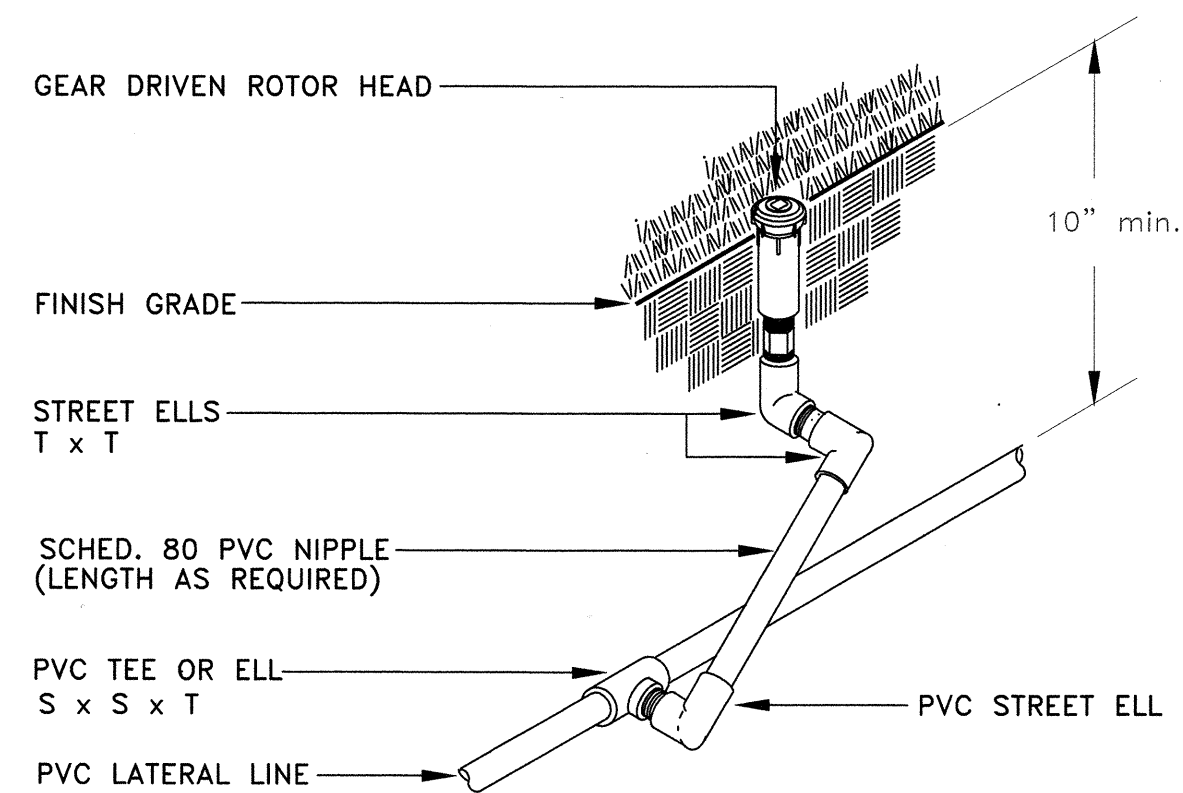
5 REMOTE CONTROL VALVE

NOT TO SCALE

CADD REF: IRR-201

NOTE: 1. SWING JOINTS MAY BE USED
UPON APPROVAL BY ENGINEER.

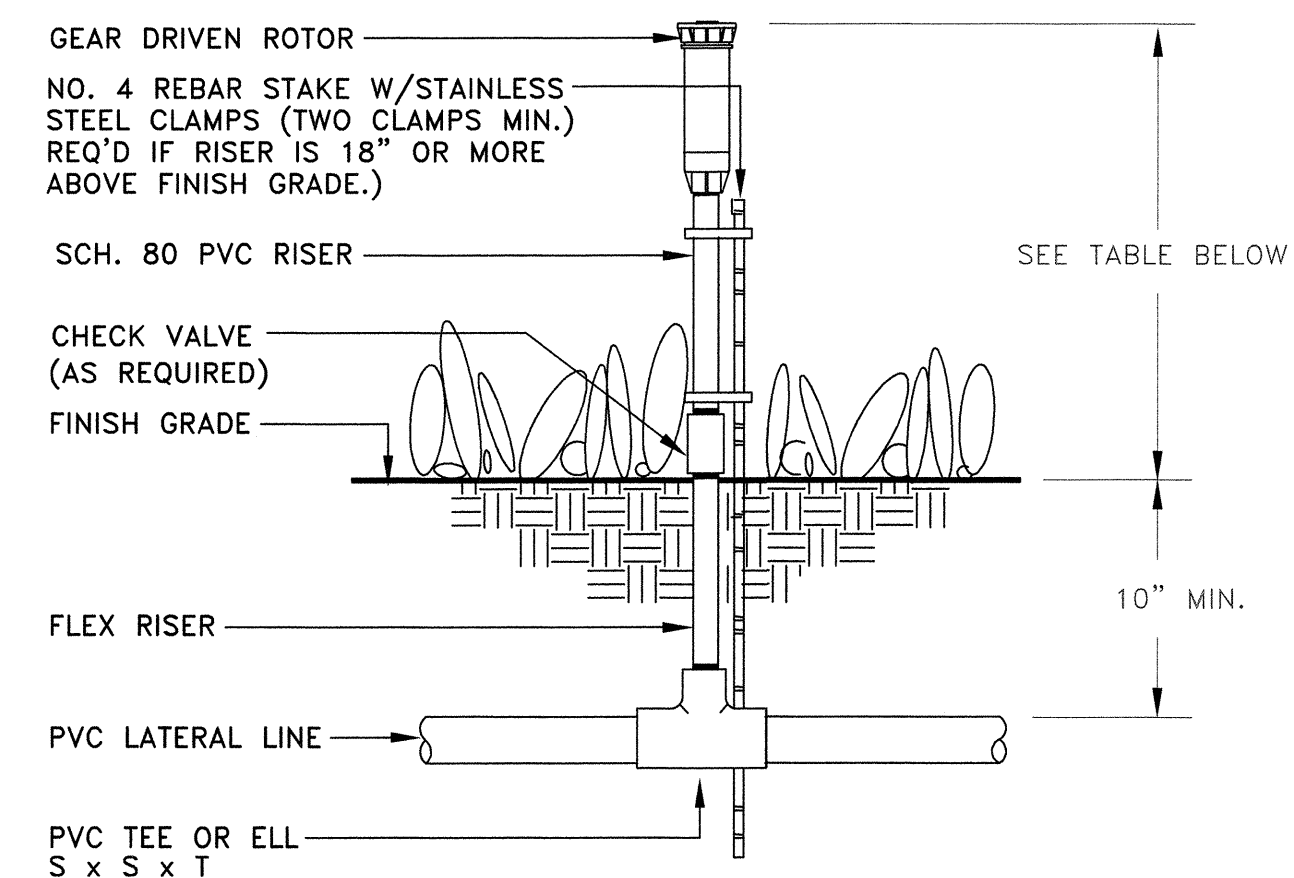
2. INSTALL PART CIRCLE POP-UP
HEADS 12" FROM EDGE OF PAVED AREAS.



6 GEAR DRIVEN ROTOR POP-UP

NOT TO SCALE

CADD REF: IRR-107

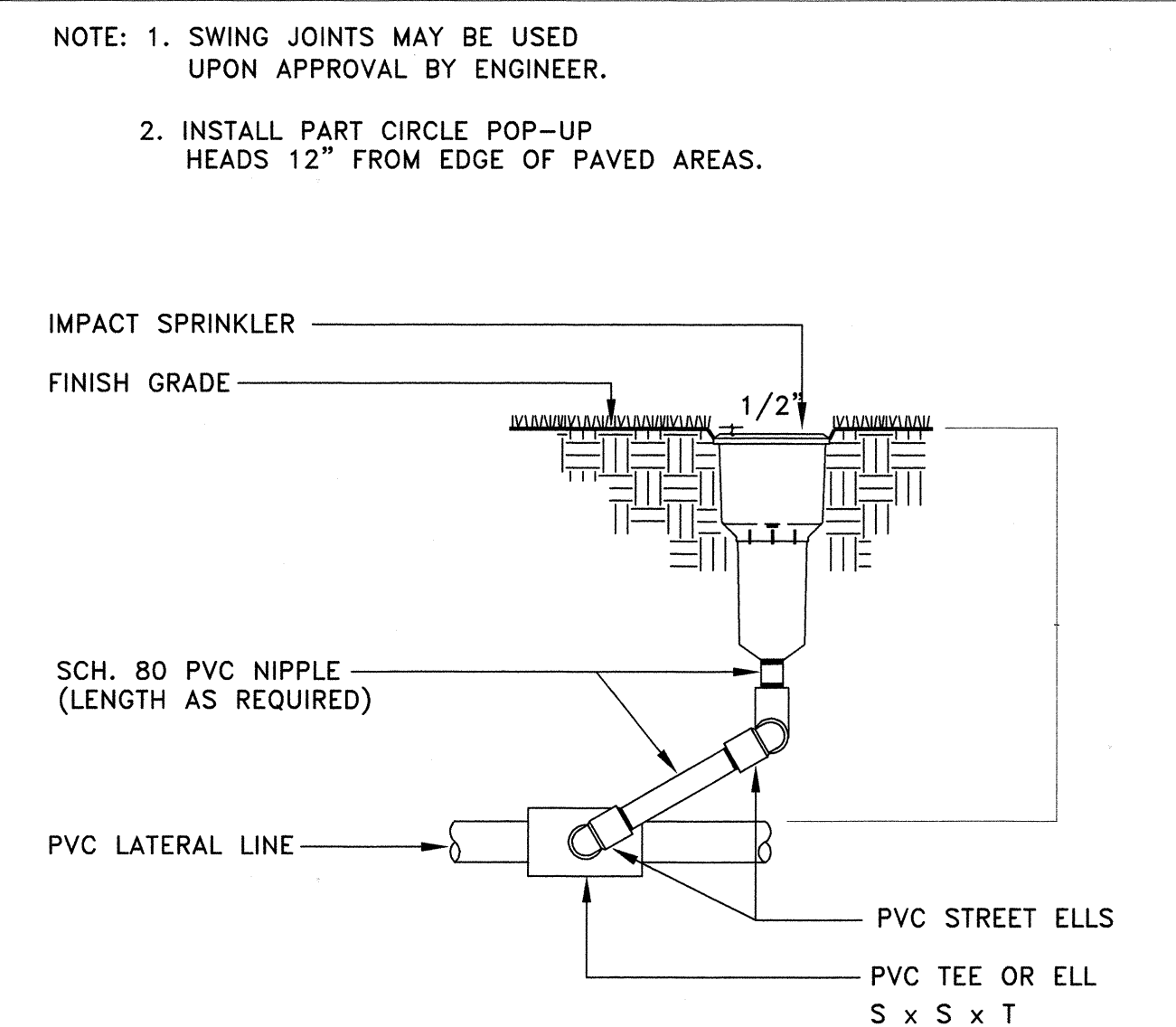


GROUND COVER	HEIGHT
WEDELIA	18"
BUFFALO GRASS 'TOP GUN'	12"

7 GEAR DRIVEN ROTOR ON RISER

NOT TO SCALE

CADD REF: IRR-106

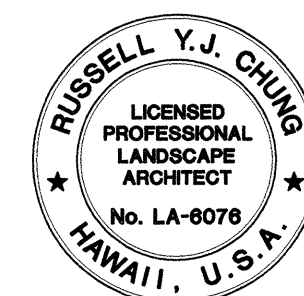


8 IMPACT ROTOR SPRINKLER

NOT TO SCALE

DD REF: IRR-108

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



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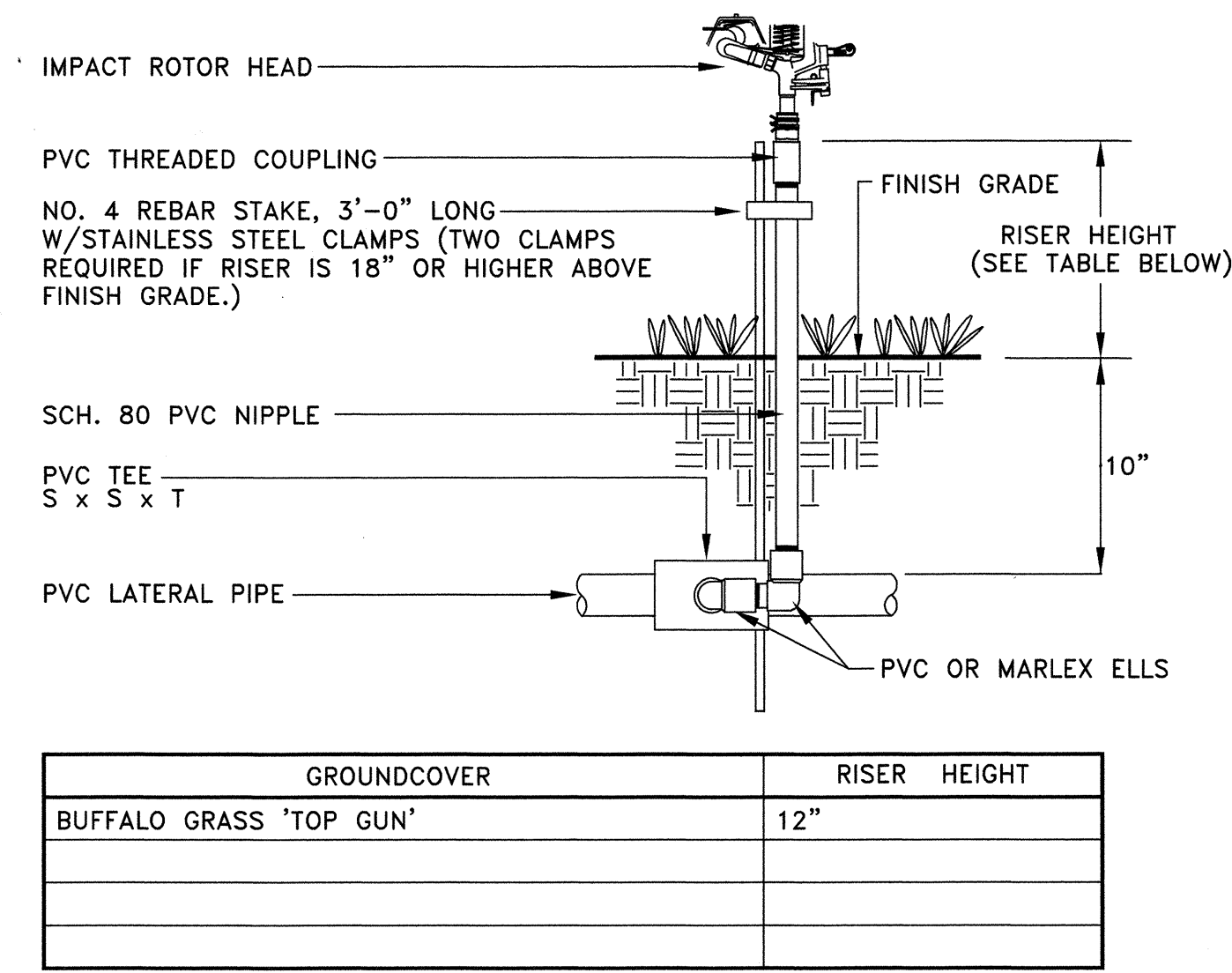
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

*LANDSCAPE
IRRIGATION DETAILS
INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps*

Scale: Not to Scale Date: April 30, 1997

SHEET No.L-4 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	99	104

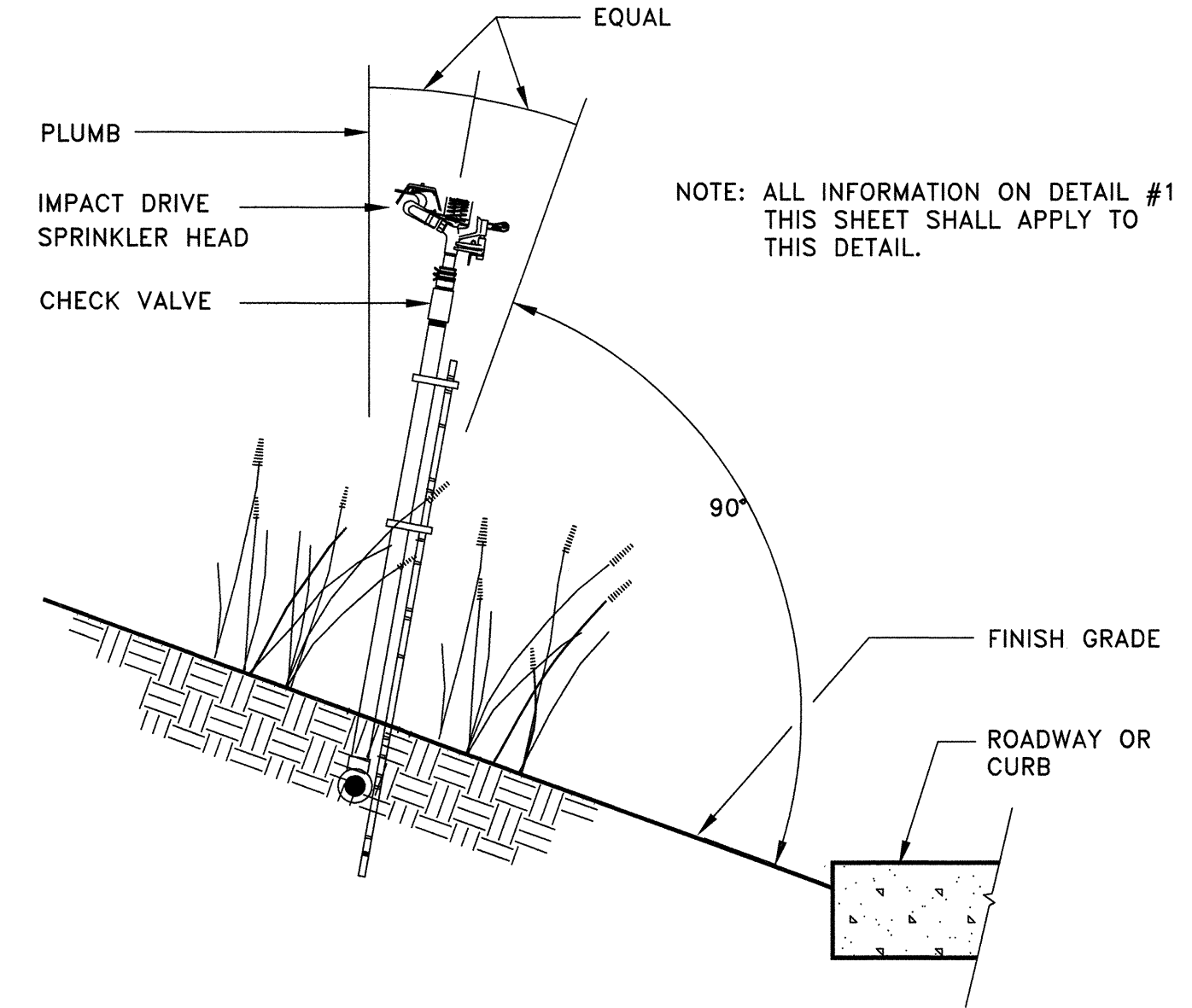


1

IMPACT ROTOR DETAIL

NOT TO SCALE

CADD REF: IRR-109

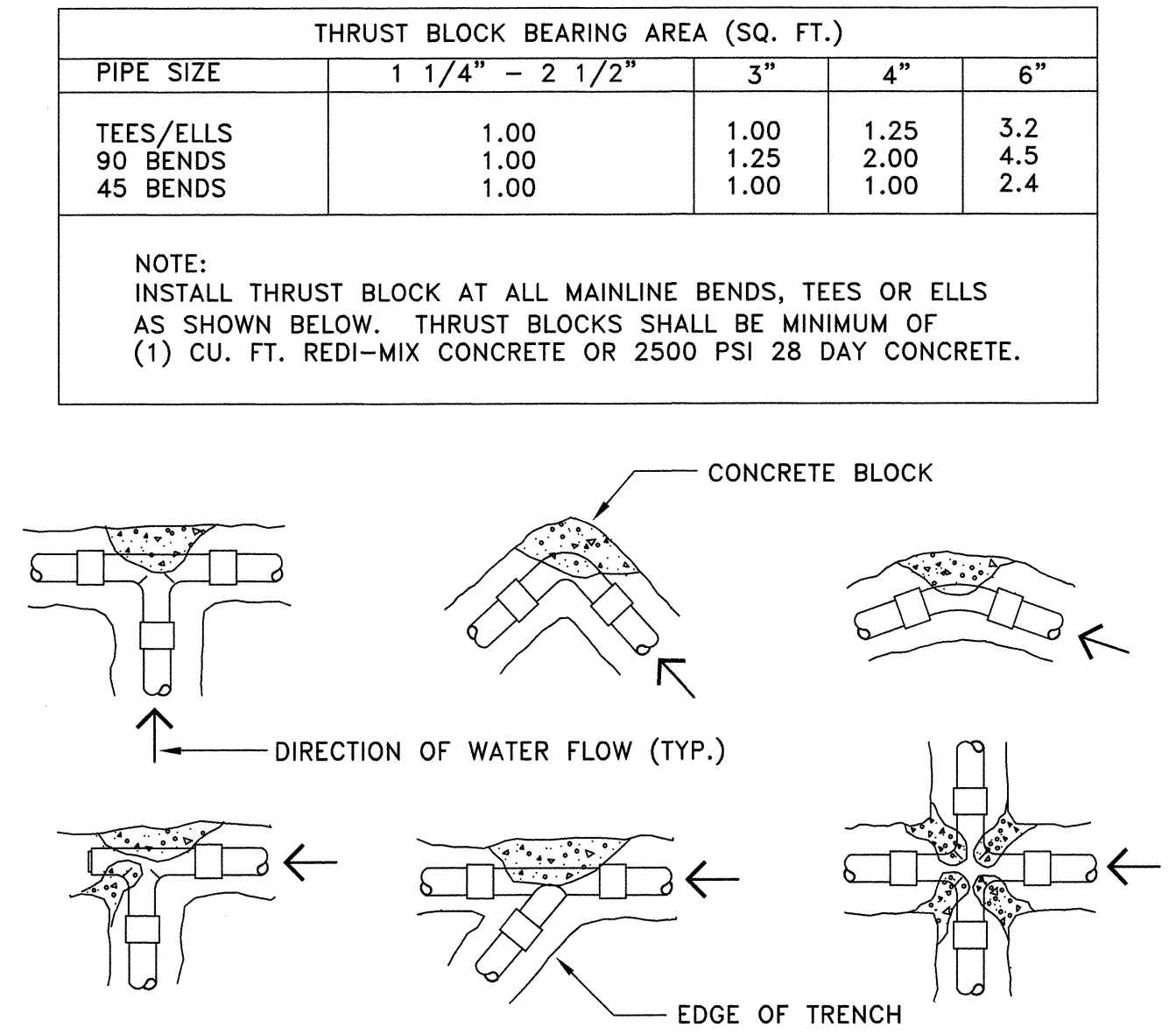


2

SPRINKLER HEAD ON SLOPE

NOT TO SCALE

CADD REF: IRR-111

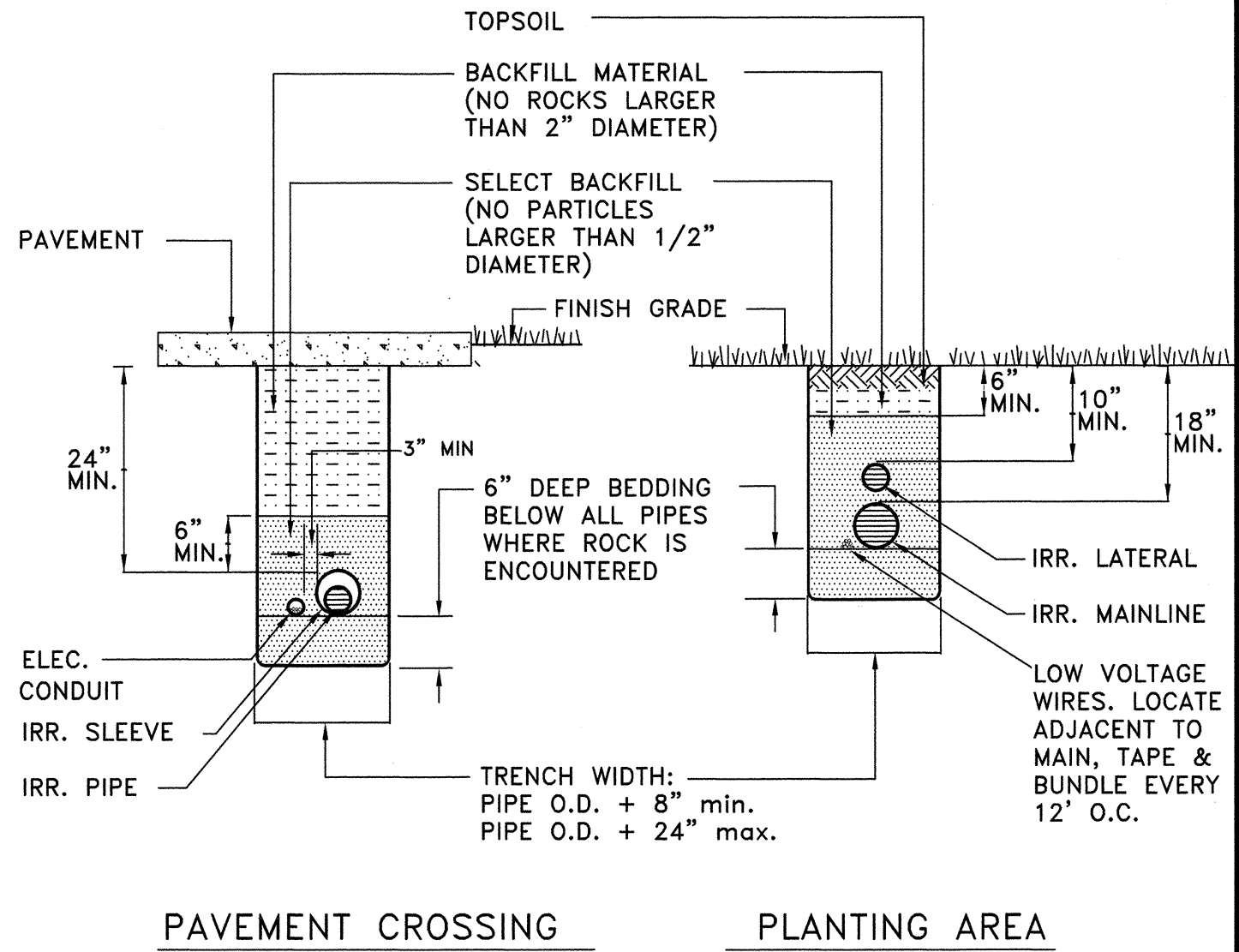


3

THRUST BLOCK DETAIL

NOT TO SCALE

CADD REF: IRR-401



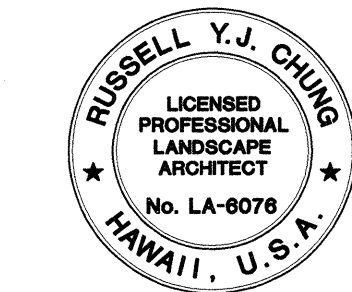
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TRENCH & WIRING DETAIL

NOT TO SCALE

CADD REF: IRR-402

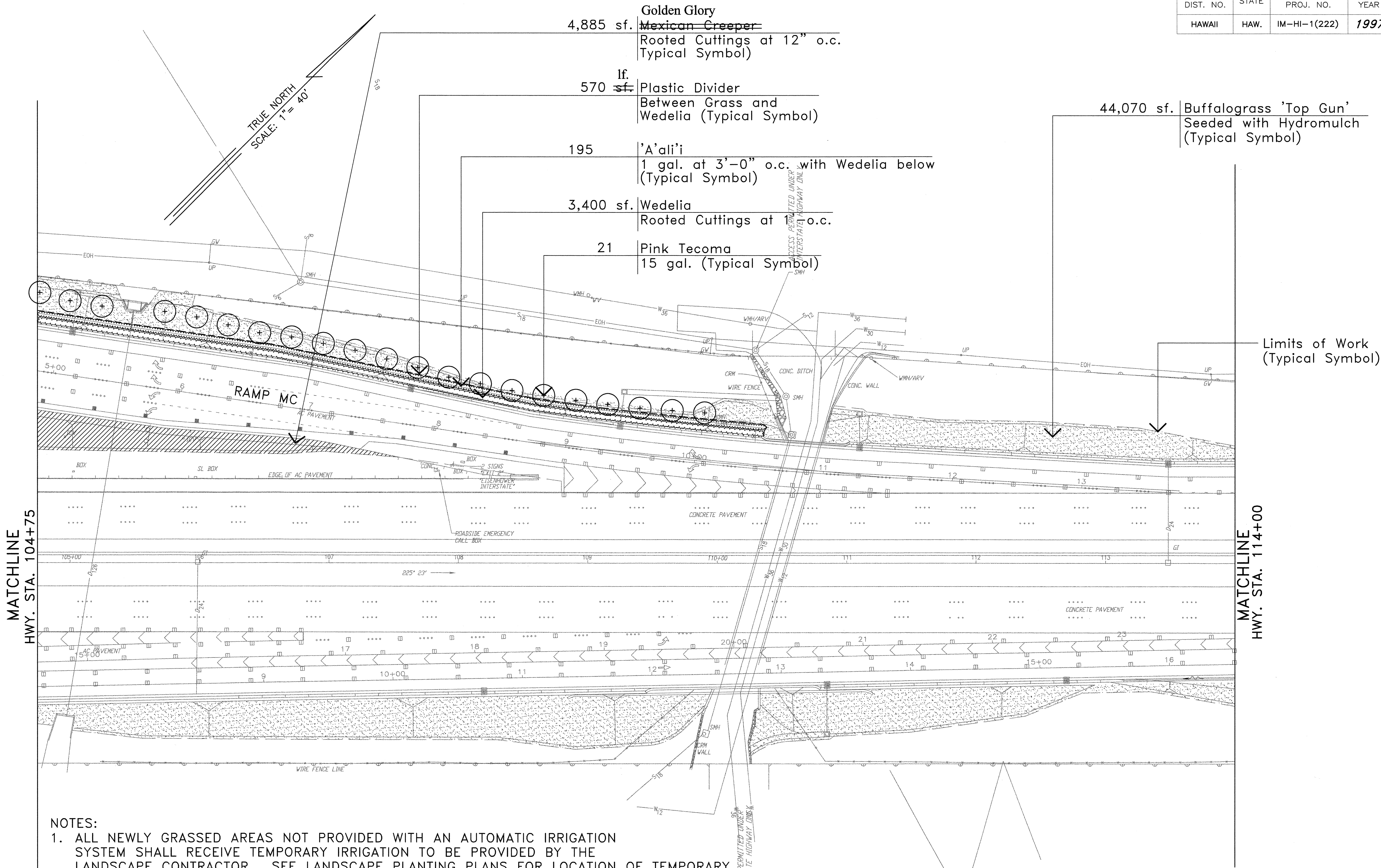
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	



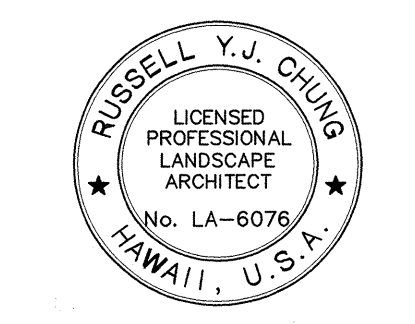
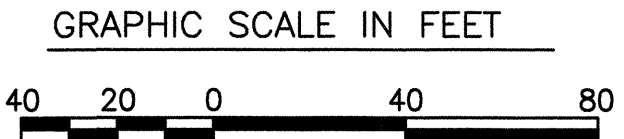
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
LANDSCAPE
IRRIGATION DETAILS
INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps
Scale: Not to Scale Date: April 30, 1997
SHEET No.L-5 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	101	104



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**LANDSCAPE
PLANTING PLAN**
INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps

Scale: 1"=40'
Date: April 30, 1997
SHEET No. 7 OF 10 SHEETS

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

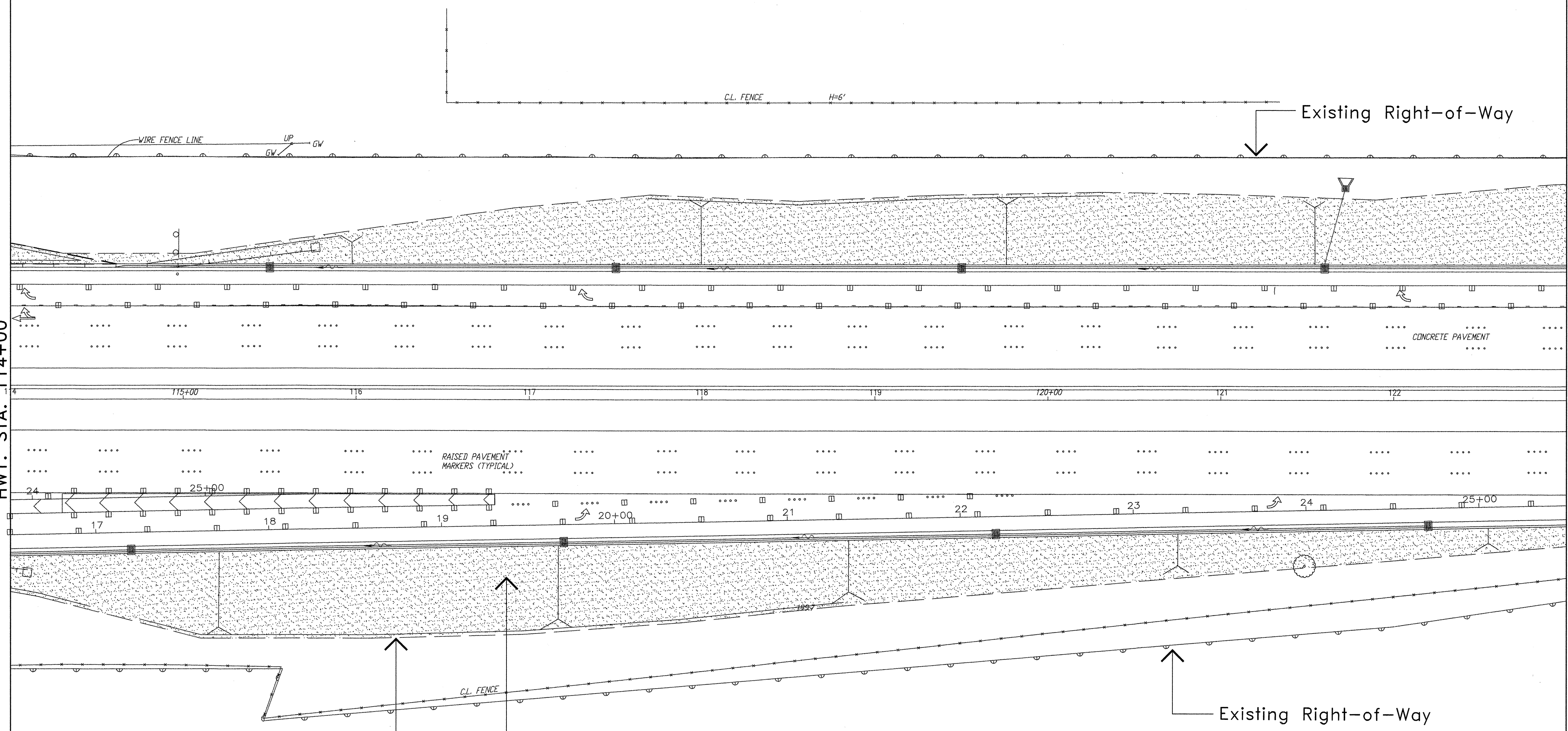
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	102	104

TRUE NORTH
SCALE: 1"= 40'

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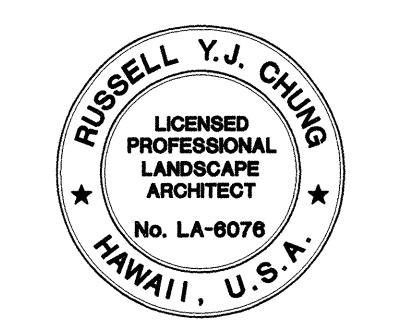
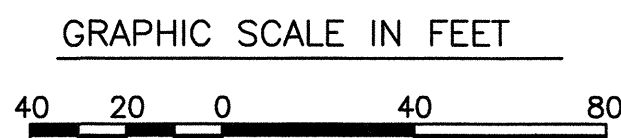
MATCHLINE
HWY. STA. 114+00

MATCHLINE
HWY. STA. 123+00



67,035 sf. Buffalograss 'Top Gun'
Seeded with Hydromulch
(Typical Symbol)

Limits of Work
(Typical Symbol)



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**LANDSCAPE
PLANTING PLAN**
INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps

Scale: 1"=40' Date: April 30, 1997
SHEET No. L-8 OF 10 SHEETS

ORIGINAL PLAN	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1996	103	104

MATCHLINE
HWY. STA. 123+00

Limits of Work
(Typical Symbol)

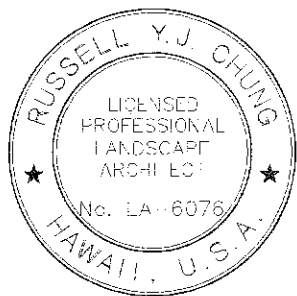
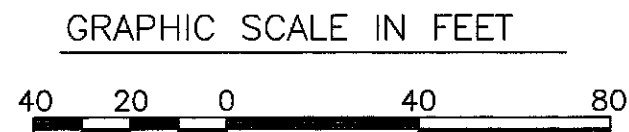
46,665 sf.
~~13,640 sf.~~ Buffalograss "Top Gun"
Seeded with Hydromulch
(Typical Symbol)

TRUE NORTH
SCALE: 1" = 40'

Existing Trees to Remain
(Typical Symbol)

NOTE:
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SHALL RECEIVE TEMPORARY IRRIGATION TO BE PROVIDED BY THE LANDSCAPE CONTRACTOR.
SEE LANDSCAPE PLANTING PLANS FOR LOCATION OF TEMPORARY GRASSED AREAS.

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



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2/9/98	ADDED GRASSED AREA
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**LANDSCAPE
PLANTING PLAN
INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps**

Scale: 1" = 40' Date: April 30, 1997

SHEET No. L-9 OF 10 SHEETS

