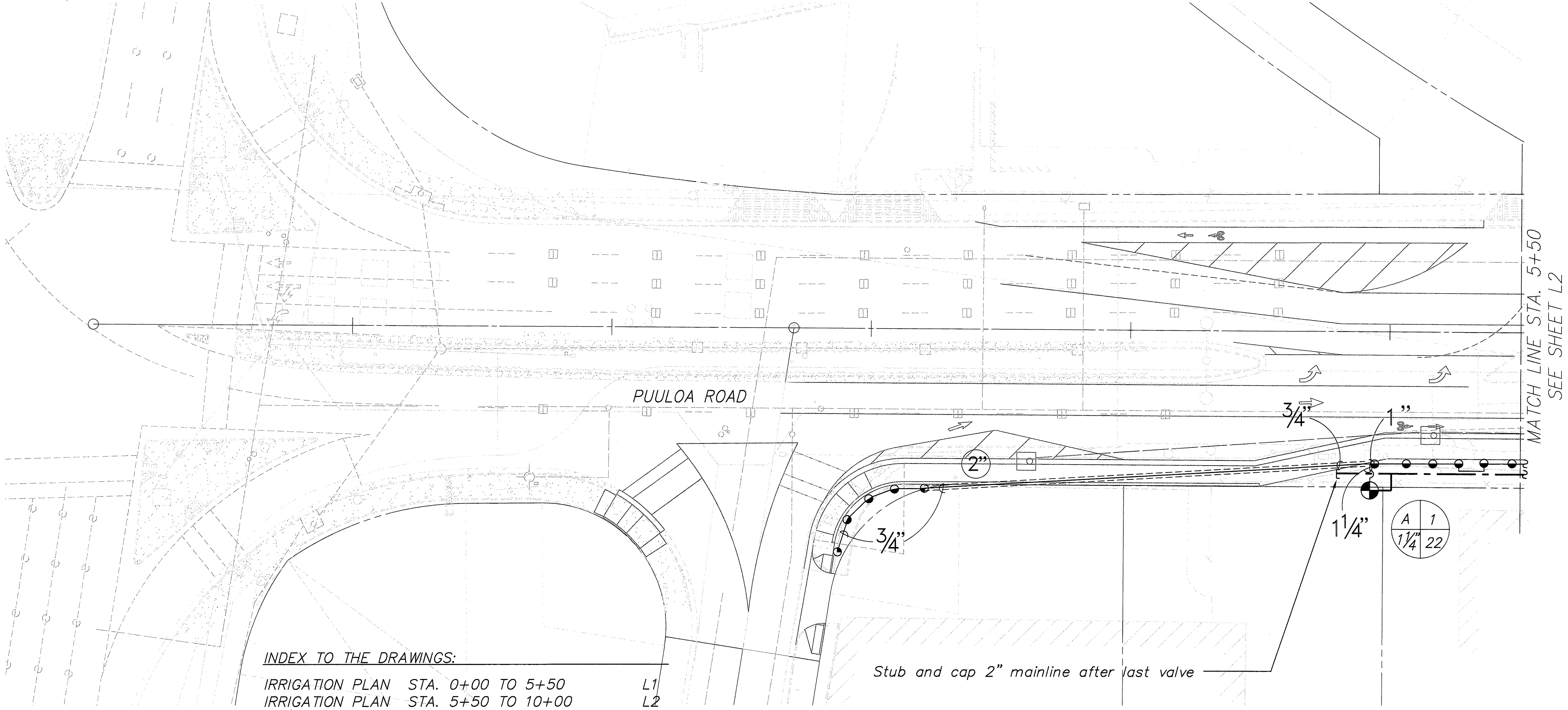


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 178 | 193 |



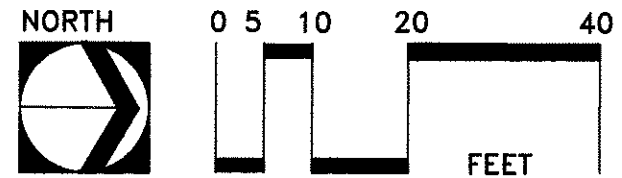
INDEX TO THE DRAWINGS:

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| IRRIGATION PLAN | STA. 0+00 TO 5+50 | L1 |
| IRRIGATION PLAN | STA. 5+50 TO 10+00 | L2 |
| IRRIGATION PLAN | STA. 10+00 TO 15+30 | L3 |
| IRRIGATION PLAN | STA. 15+30 TO 20+00 | L4 |
| IRRIGATION PLAN | STA. 20+00 TO 25+31 | L5 |
| IRRIGATION PLAN | STA. 25+31 TO 30+00 | L6 |
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| PLANTING PLAN | STA. 0+00 TO 10+00 | L12 |
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This plan is diagrammatic. The Contractor shall ensure all irrigation equipment is located within the State R.O.W. 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, utility poles, 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.

FILE: E1
SCALE: 1"=40'
BEG: 5/16/97
PM: STY
OPR: JSK:RCQ,BKM,*KKF
REVISED: 06/18/97

| ORIGINAL PLAN | DATE |
|---------------|------|
| | |
| NOTED BY | DATE |
| | |
| DESIGNED BY | DATE |
| | |
| CHECKED BY | DATE |
| | |



R. STAN DUNCAN
LICENSED PROFESSIONAL LANDSCAPE ARCHITECT
No. 5815
HAWAII, U.S.A.

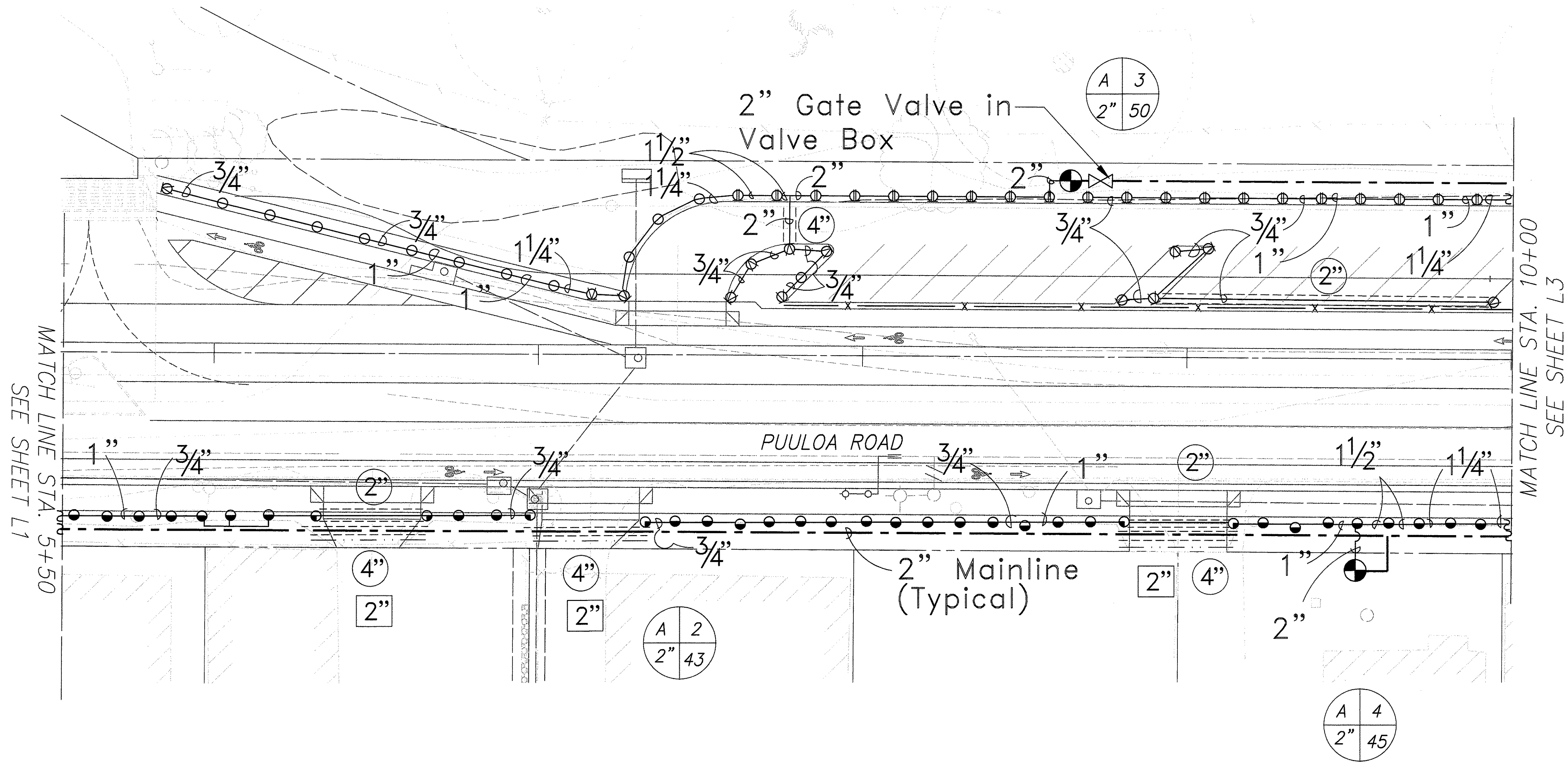
R. Stan Duncan
SIGNATURE EXPIRATION DATE OF LICENSE 4/30/04
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION PLAN
STA. 0+00 TO 5+50
PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

Scale: 1" = 20' Date: May 2003
SHEET NO. L1 OF 193 SHEETS

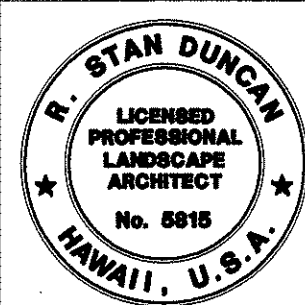
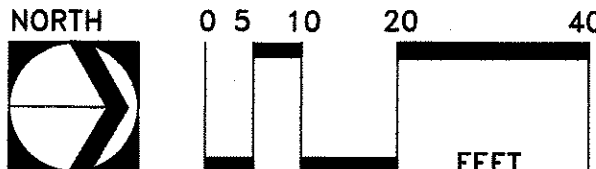
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 179 | 193 |



This plan is diagrammatic. The Contractor shall ensure all irrigation equipment is located within the State R.O.W. 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, utility poles, 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.

| | | |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTEBOOK | DRAWN BY | |
| No. | DESIGNED BY | |
| | QUANTITIES BY | |
| | CHECKED BY | |

FILE: E1
SCALE: 1"=40'
BEG: 5/16/97
REVISED: 06/18/97
PM: STY
OPR: JSK, RGO, BKM, KKF

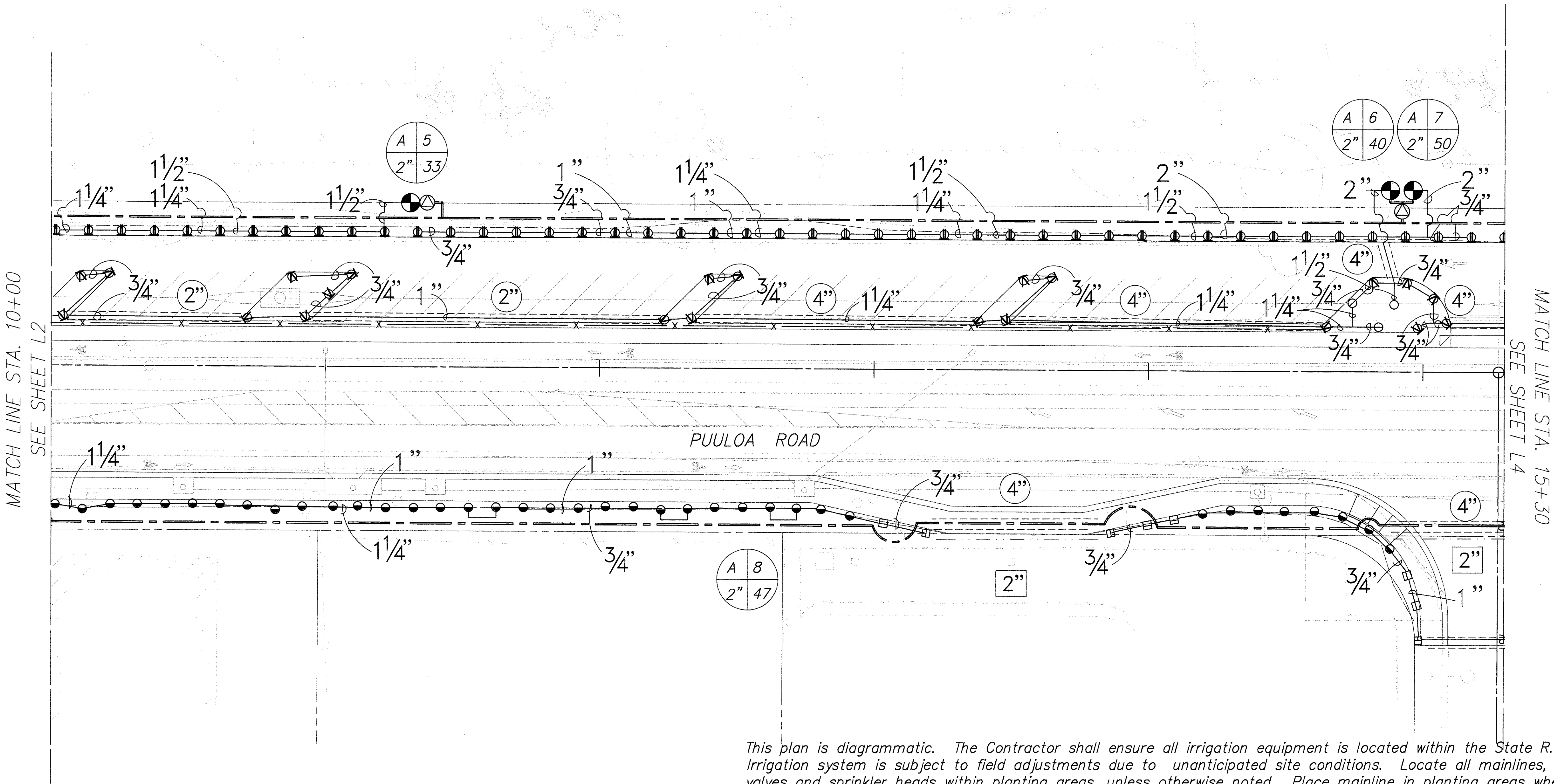


SIGNATURE: *R. Stan Duncan*
EXPIRATION DATE OF LICENSE: 4/30/04
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
IRRIGATION PLAN
STA. 5+50 TO 10+00
PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

Scale: 1" = 20' Date: May 2003
SHEET NO. L2 OF 193 SHEETS

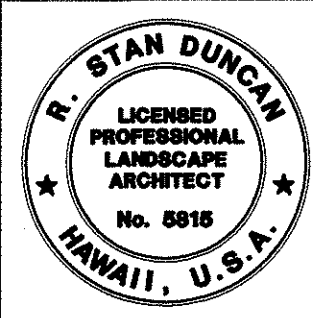
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 180 | 193 |



This plan is diagrammatic. The Contractor shall ensure all irrigation equipment is located within the State R.O.W. 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, utility poles, 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.

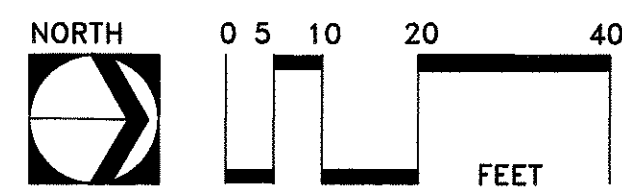
| ORIGINAL PLAN | DATE |
|---------------|------|
| DESIGNED BY | |
| NOTED BY | |
| CHECKED BY | |

FILE: E2
SCALE: 1"=40'
BEG: 5/16/97
PM: STY
OPR: GSK-RGC-BKU-WKF
REVISED: 06/18/97



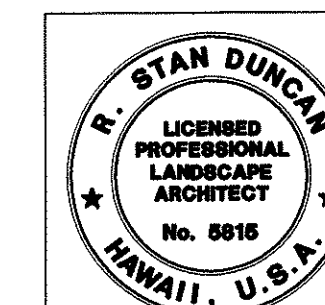
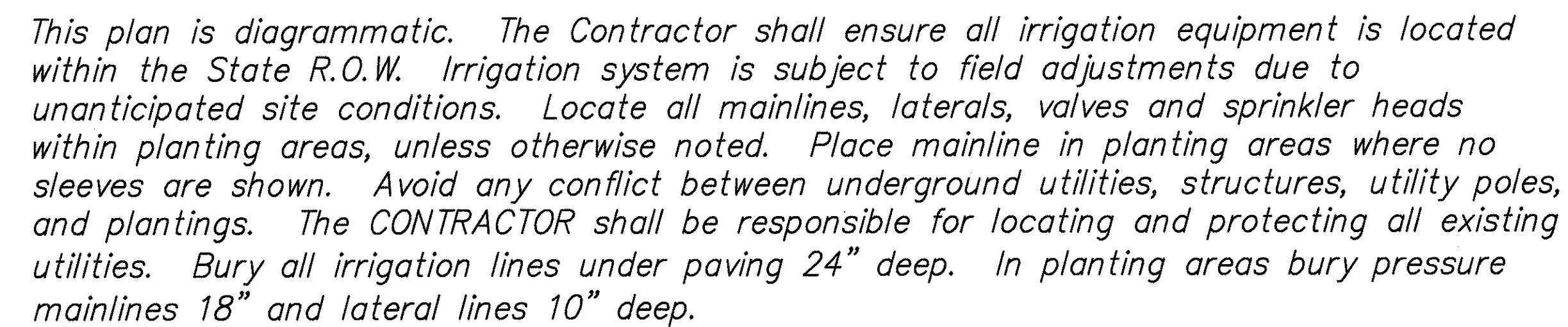
R. Stan Duncan
SIGNATURE
EXPIRATION DATE OF LICENSE: 4/29/04
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
IRRIGATION PLAN
STA. 10+00 TO 15+30
PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)
Scale: 1"=20'
Date: May 2003
SHEET NO. L3 OF 193 SHEETS



| | | |
|---------------|-------------------------|------------|
| ORIGINAL PLAN | SURVEY PLOTTED BY _____ | DATE _____ |
| NOTEBOOK | DRAWN BY _____ | _____ |
| | TRACED BY _____ | _____ |
| | DESIGNED BY _____ | _____ |
| | QUANTITIES BY _____ | _____ |
| No. _____ | CHECKED BY _____ | _____ |

FILE: E2
SCALE: 1=40
BEG: 5/16/97



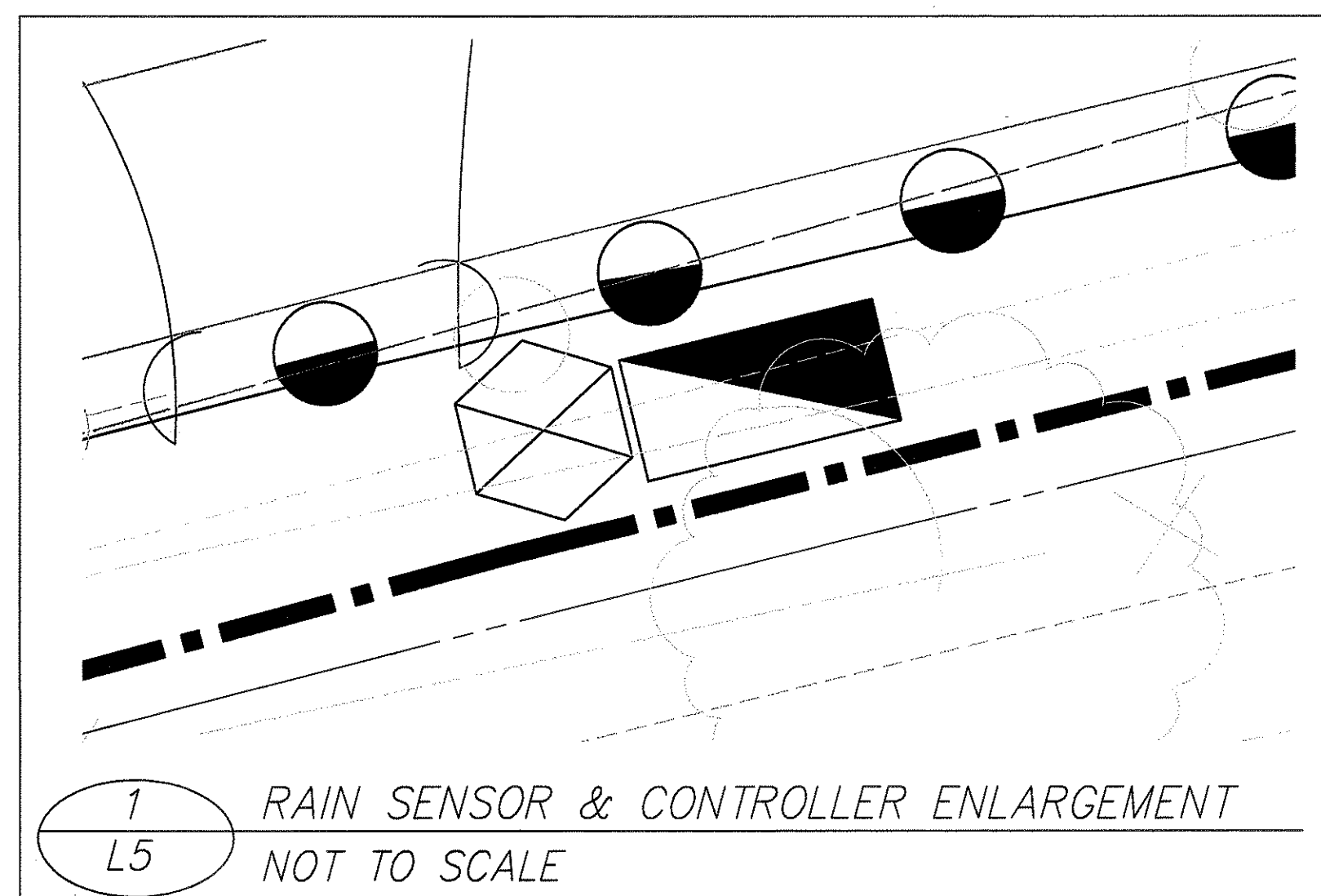
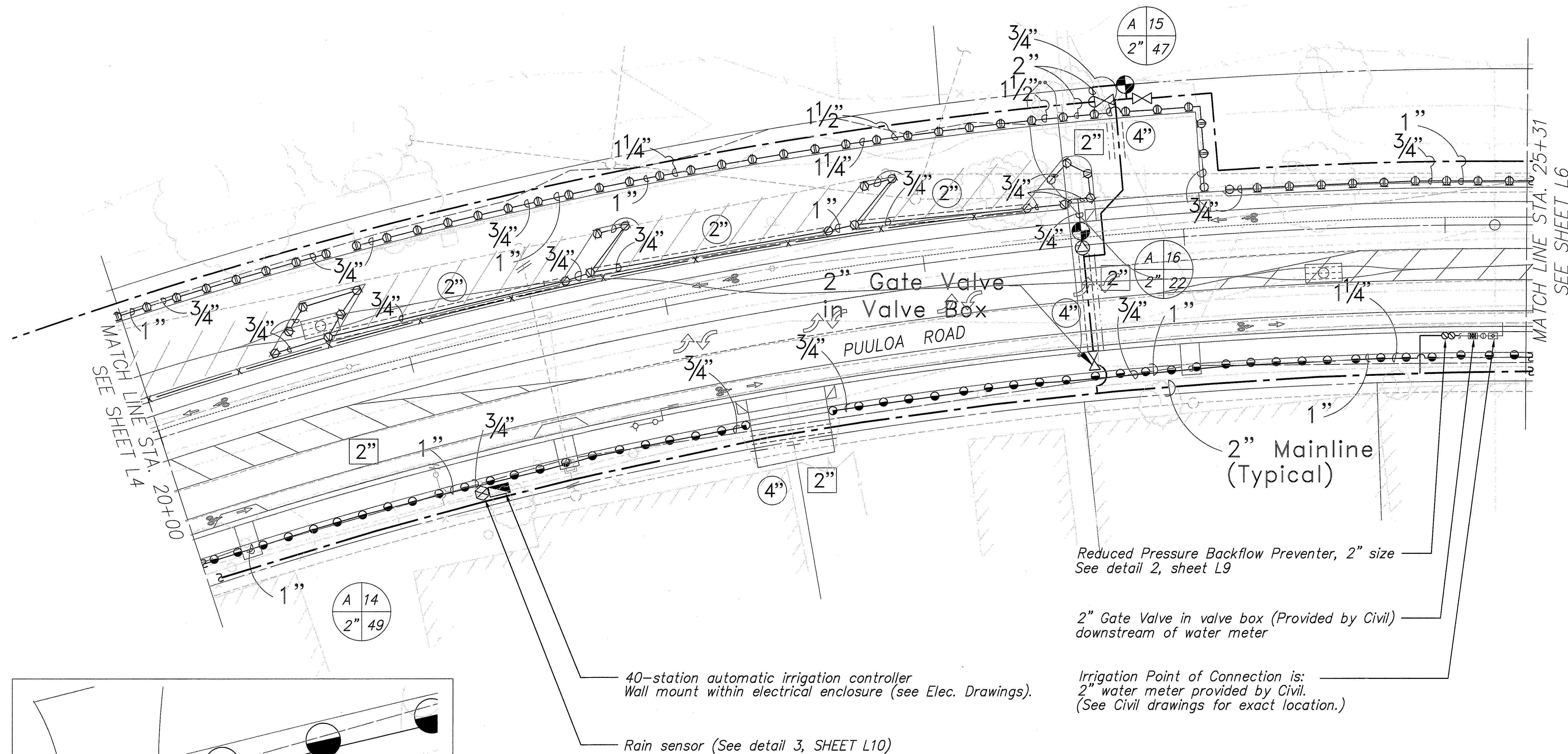
R. Peter D...
4/30/01
SIGNATURE EXPIRATION DATE OF LICENSE
THIS WORK WAS PREPARED
ME OR UNDER MY SUPERVISION

IRRI GATION PLAN
STA. 15+30 TO 20+00

Scale: 1"=20' Date: May 2003

SHEET NO. 14 OF 193 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 182 | 193 |



This plan is diagrammatic. The Contractor shall ensure all irrigation equipment is located within the State R.O.W. 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, utility poles, 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.



R. Stan Duncan
No. 5815
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION PLAN

STA. 20+00 TO 25+31

PUULOLO ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

Scale: 1"=20' Date: May 2003

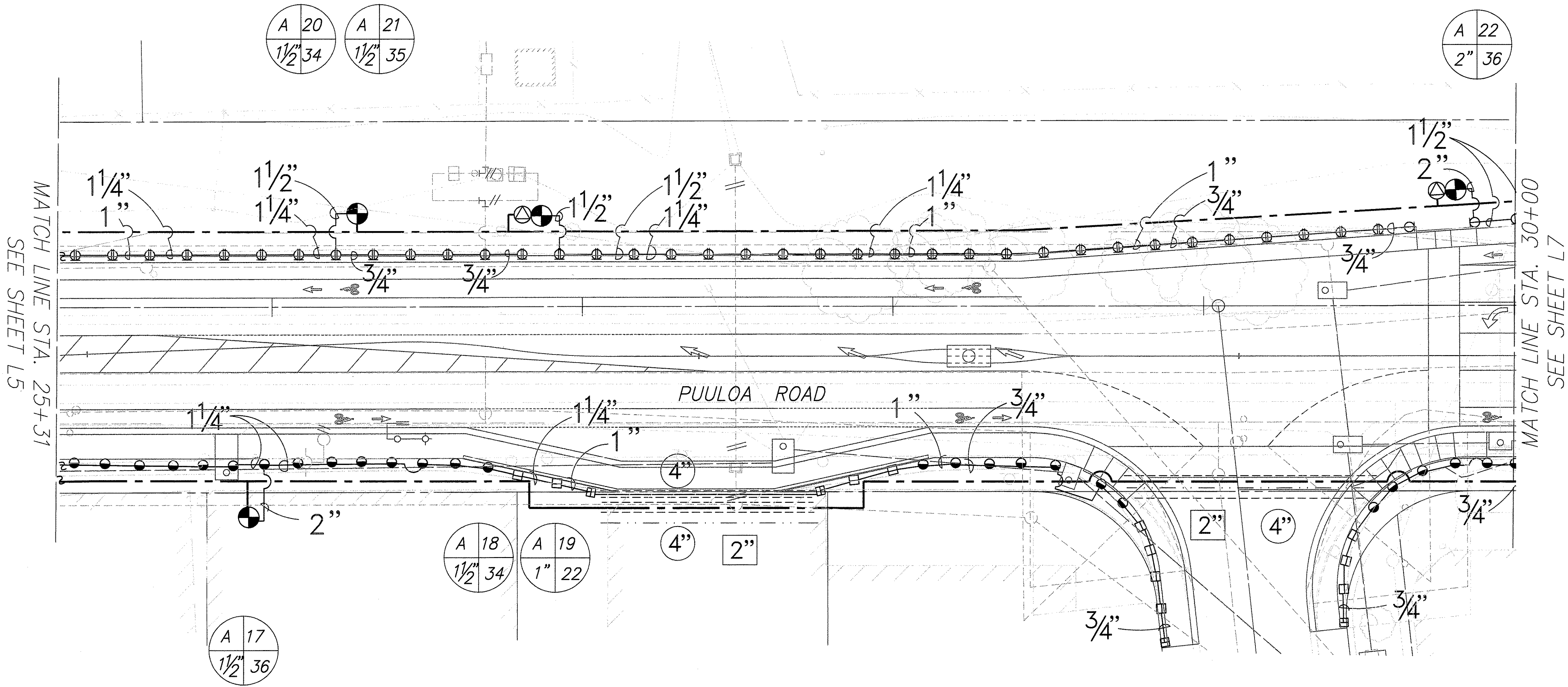
SHEET NO. L5 OF 193 SHEETS

PM: STY
OPR: CKY,KKF,BKM
REVISED: 09/19/98

FILE: E3
SCALE: 1"=40'
BEG: 5/16/97

| ORIGINAL PLAN | DATE |
|-------------------|------|
| SURVEY PLOTTED BY | |
| DRAWN BY | |
| TRACED BY | |
| DESIGNED BY | |
| QUANTITIES BY | |
| CHECKED BY | |
| NO. | |

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 183 | 193 |

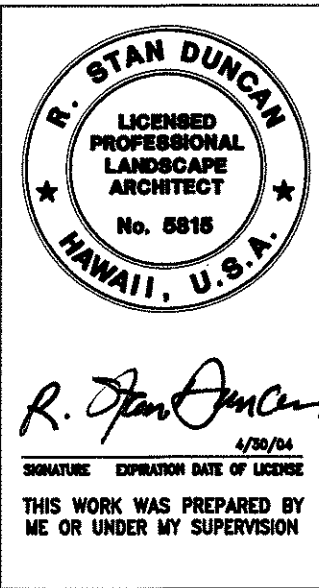
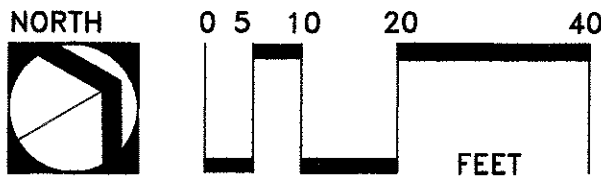


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SCALE: 1"=40'
BEG: 5/16/97

PM: STY
OPR: CKY,KKF,BKM
REVISED: 09/19/98

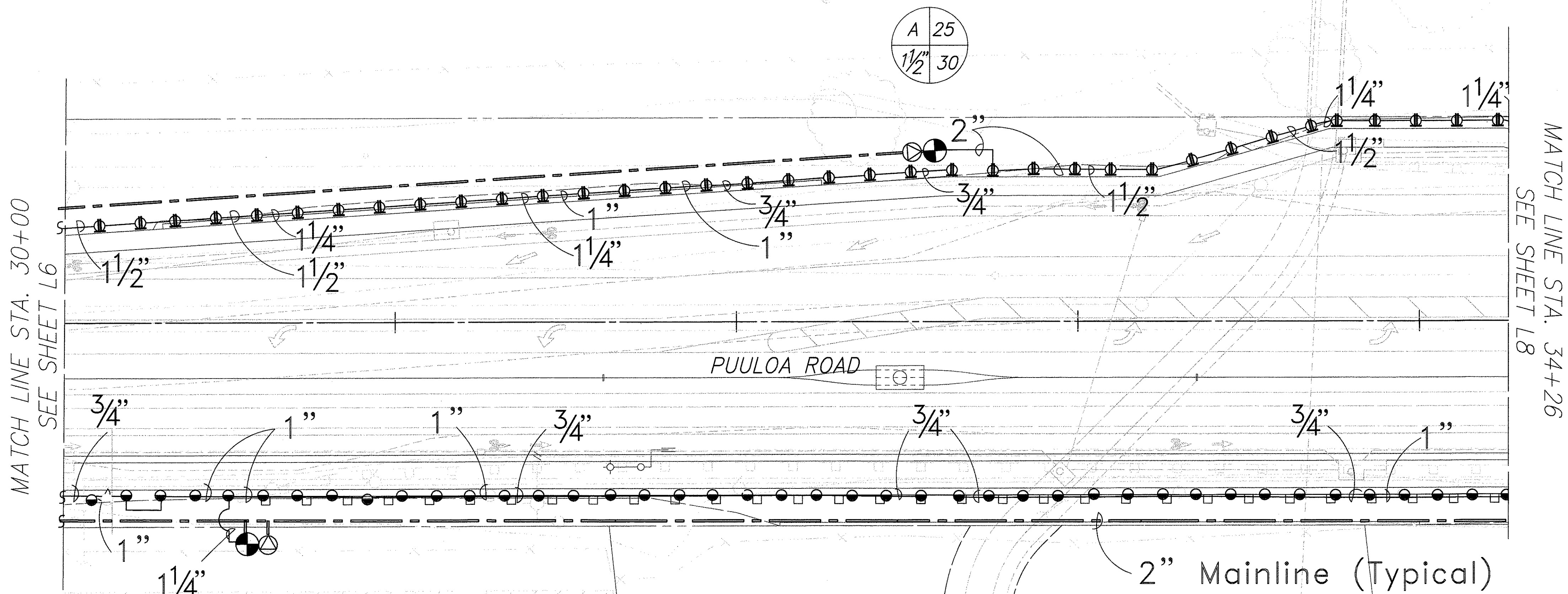
| ORIGINAL PLAN | DATE |
|-------------------|------|
| NO. | |
| NOTED BY | |
| CHECKED BY | |
| QUANTITIES BY | |
| TRACED BY | |
| DRAWN BY | |
| SURVEY PLOTTED BY | |

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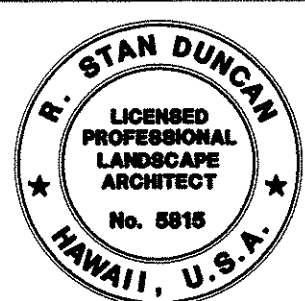
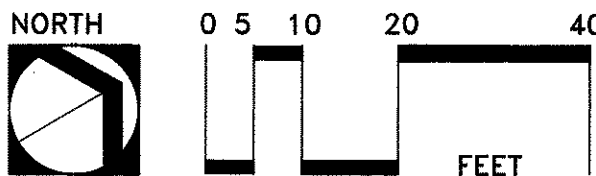


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
IRRIGATION PLAN
STA. 25+31 TO 30+00
PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)
Scale: 1"=20' Date: May 2003
SHEET NO. L6 OF 193 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 184 | 193 |



This plan is diagrammatic. The Contractor shall ensure all irrigation equipment is located within the State R.O.W. 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, utility poles, 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.



R. Stan Duncan
SIGNATURE EXPIRATION DATE OF LICENSE
 THIS WORK WAS PREPARED BY
 ME OR UNDER MY SUPERVISION

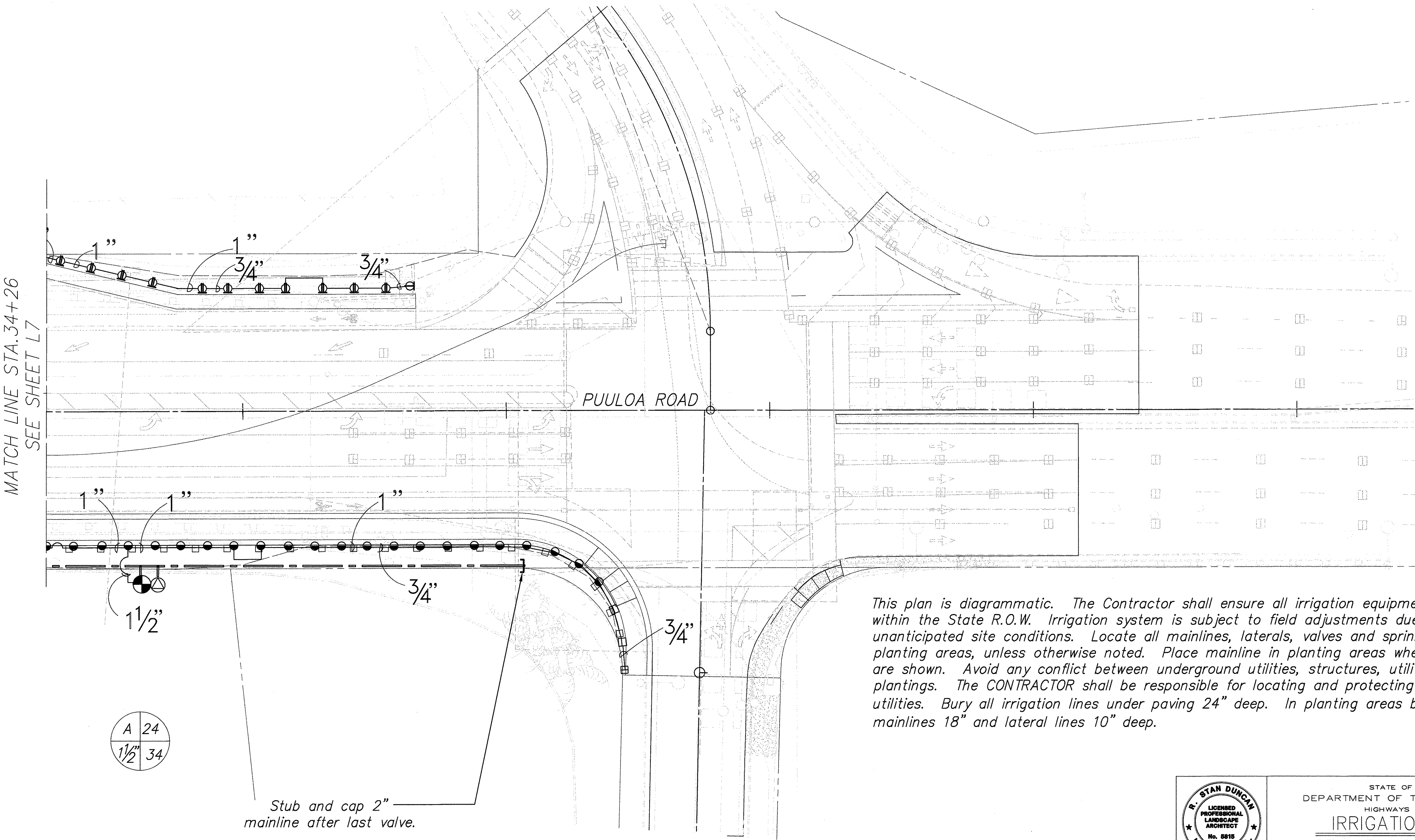
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
IRRIGATION PLAN
STA. 30+00 TO 34+26
 PUULOA ROAD IMPROVEMENTS
 Kamehameha Hwy. to Salt Lake Blvd.
 Federal Aid Project No. STP-7310(1)
 Scale: 1" = 20' Date: May 2003
 SHEET NO. L7 OF 193 SHEETS

| | | |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTED | DESIGNED BY | |
| NOTED | QUANTITIES BY | |
| NOTED | CHECKED BY | |
| No. | | |

FILED: E4
 SCALE: 1"=40'
 BEG: 5/16/97

PRJ: STY
 QPR: CAY/KKF
 REVISED: 06/18/97

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 185 | 193 |



FILE: E4
SCALE: 1"=40'
BEG. 5/16/97

PM: STY
OPR: CKY,AKF
REVISED: 06/18/97

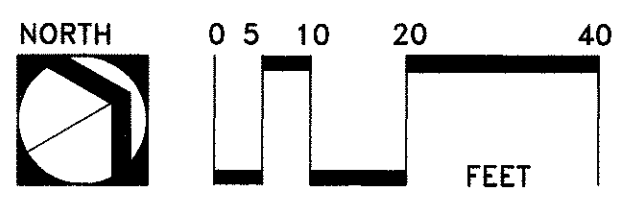
| DATE | SURVEY PLOTTED BY | ORIGINAL PLAN |
|------|-------------------|---------------|
| | | |
| DATE | DRAWN BY | NOTED BY |
| | | |
| DATE | DESIGNED BY | CHECKED BY |
| | | |
| DATE | QUANTITIES BY | |
| | | |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION PLAN
STA. 34+26 TO END
PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

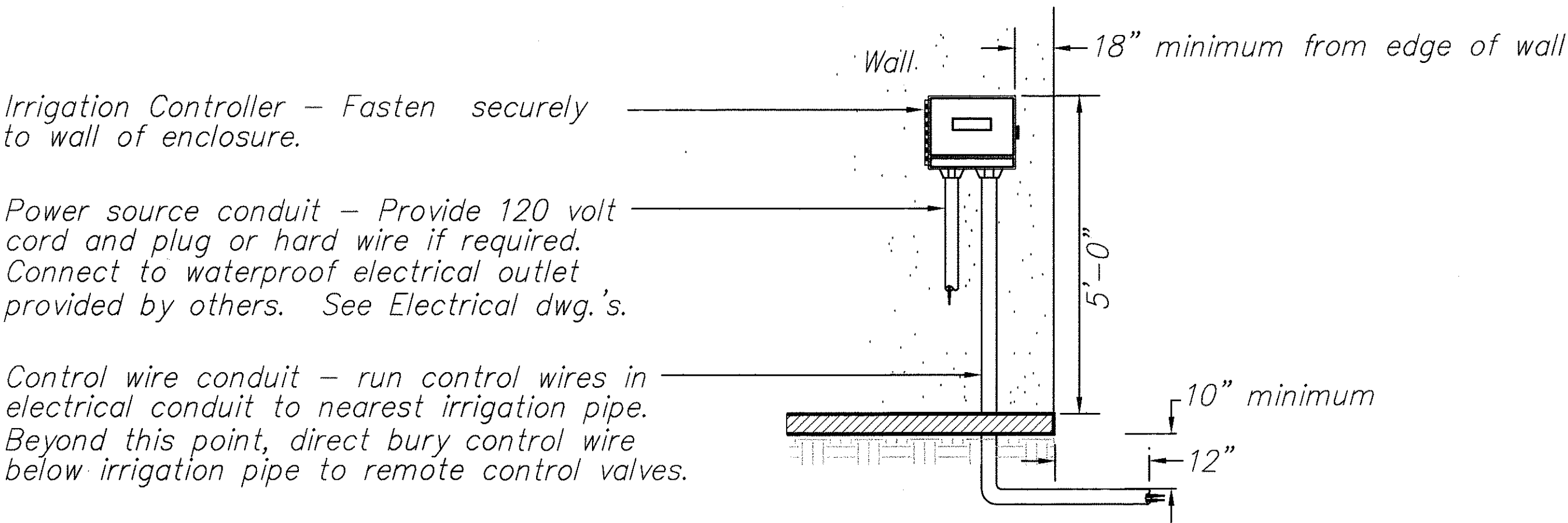
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SHEET NO. L8 OF 193 SHEETS

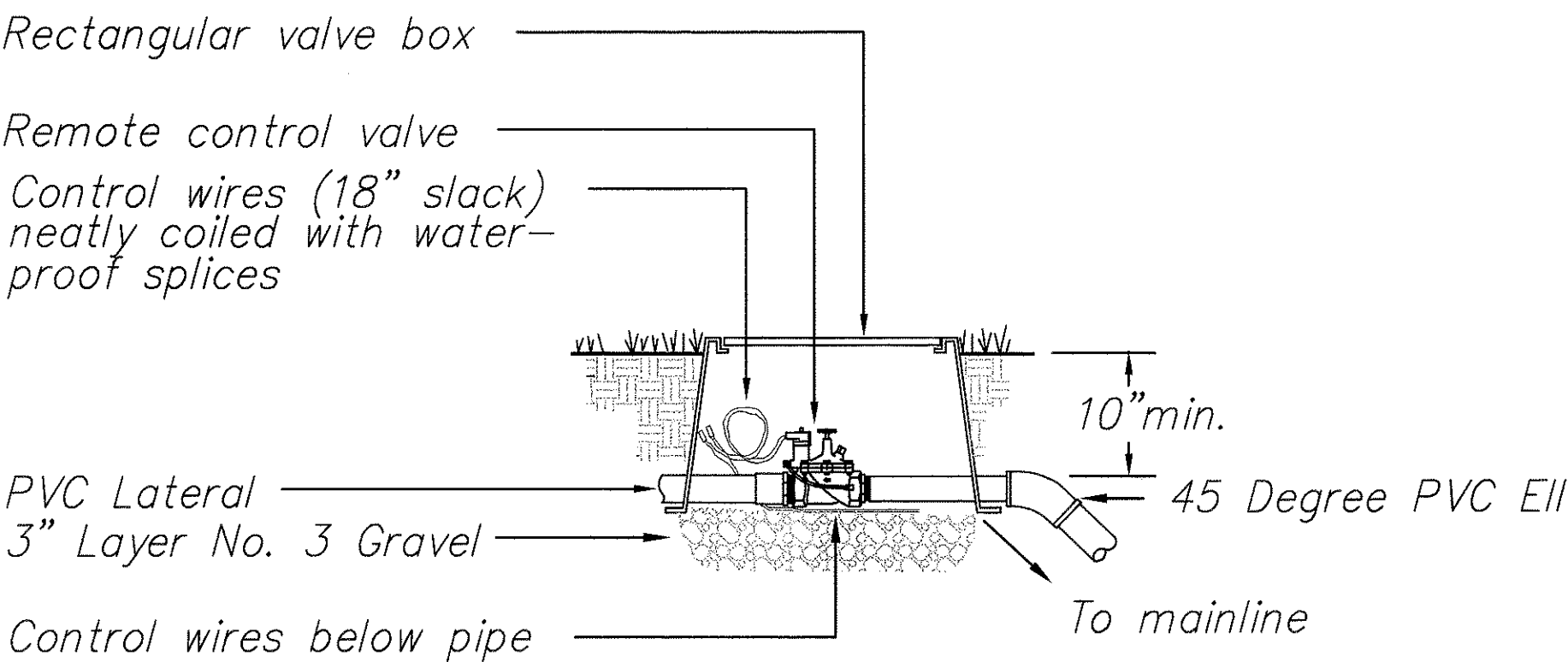


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 186 | 193 |

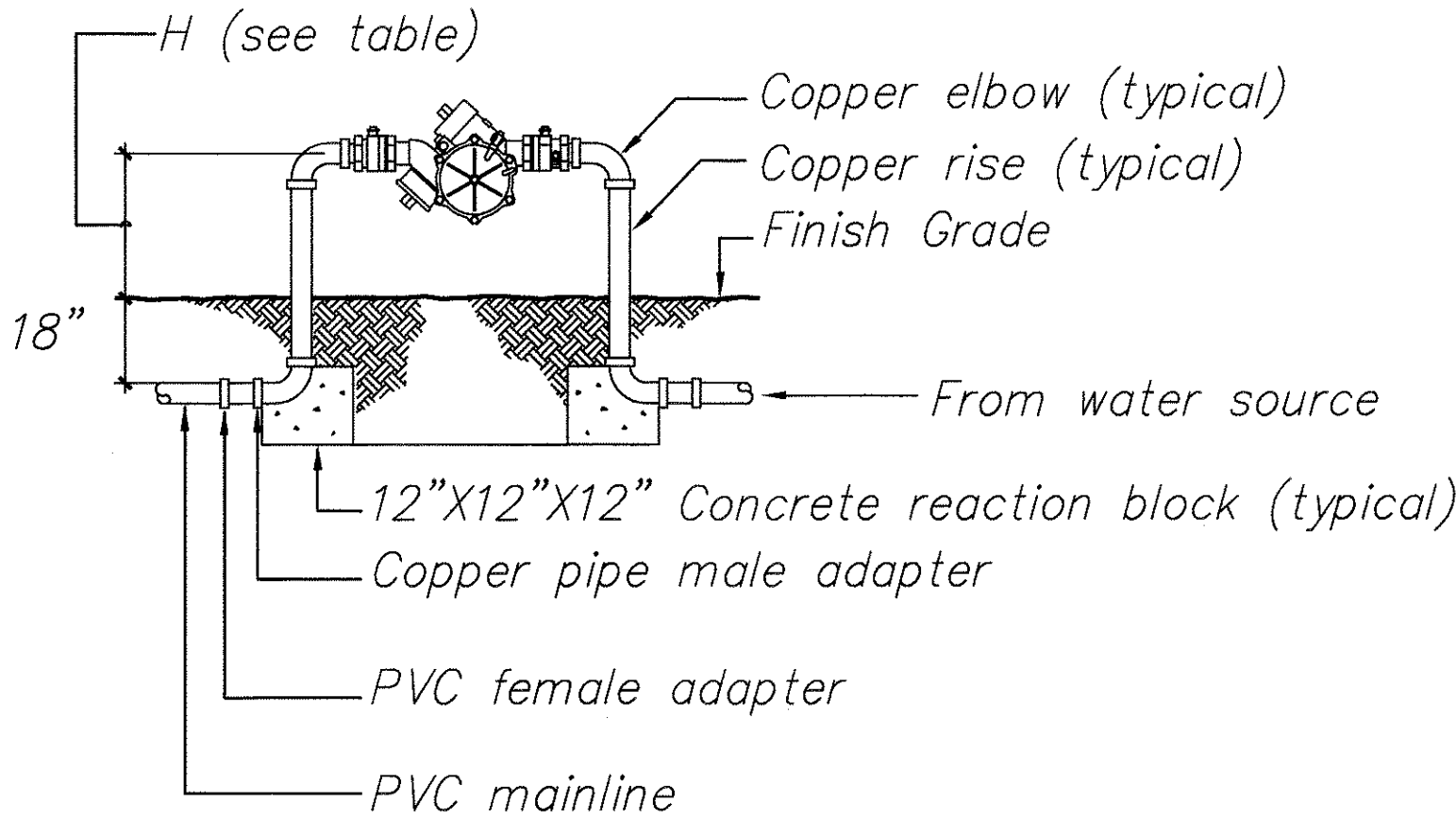
Note: Install irrigation controller at location shown on drawings and according to the Manufacturer's recommendations.



1
L9 WALL MOUNT CONTROLLER
NOT TO SCALE

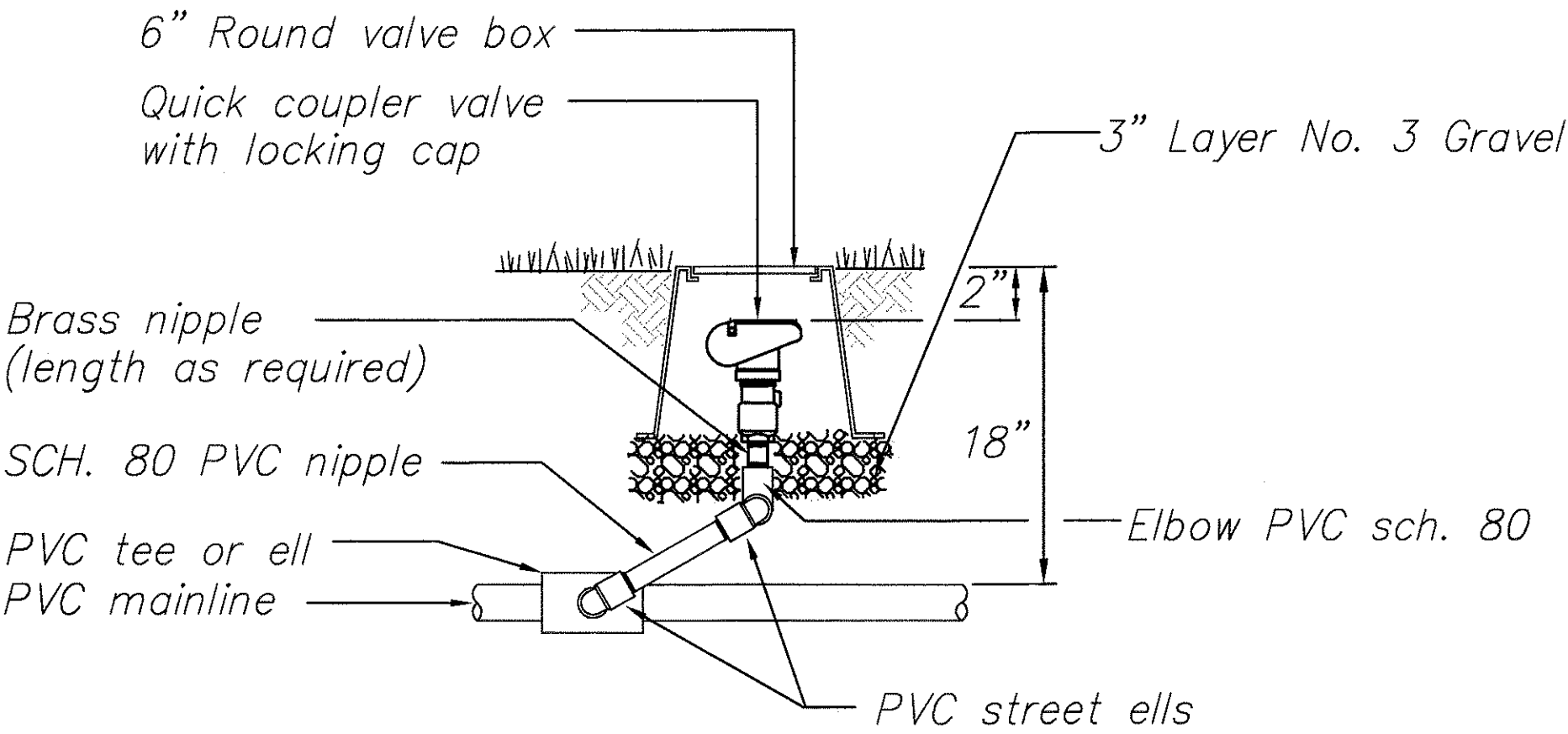


4
L9 REMOTE CONTROL VALVE
NOT TO SCALE



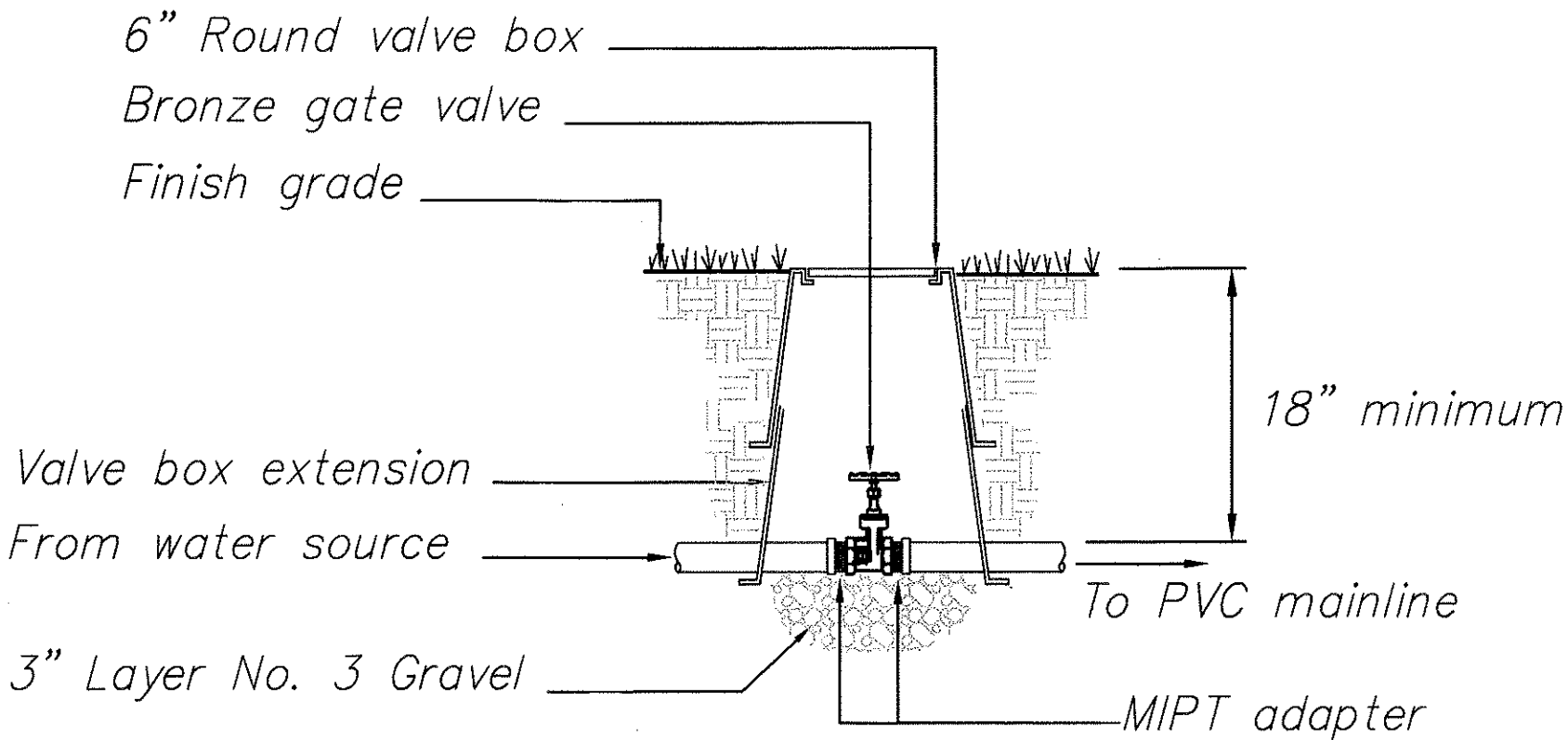
| Size (Inches) | H (Inches) |
|---------------|------------|
| 3/4 TO 1-1/2 | 18 |
| 2 TO 3 | 24 |

2
L9 REDUCED PRESSURE BACKFLOW PREVENTER
NOT TO SCALE

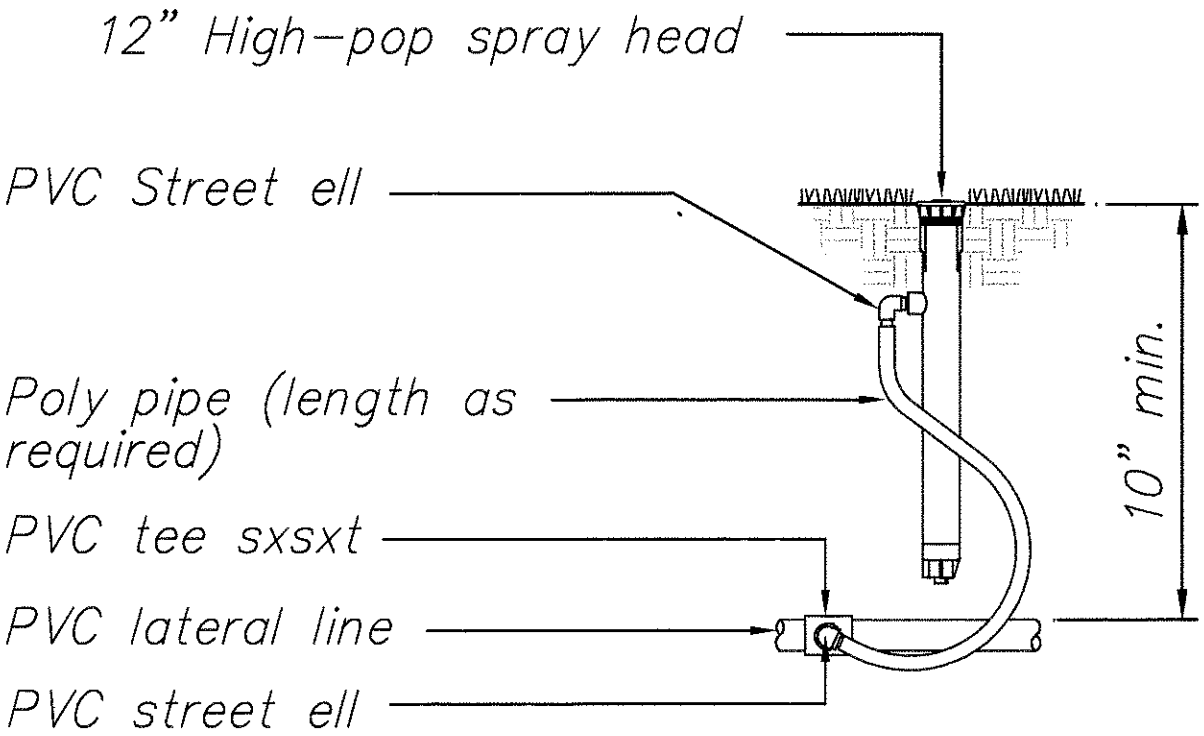


NOTE: KBI or LASCO swing joints may be used upon approval by Landscape Architect.

5
L9 QUICK COUPLER DETAIL
NOT TO SCALE



3
L9 GATE VALVE
NOT TO SCALE

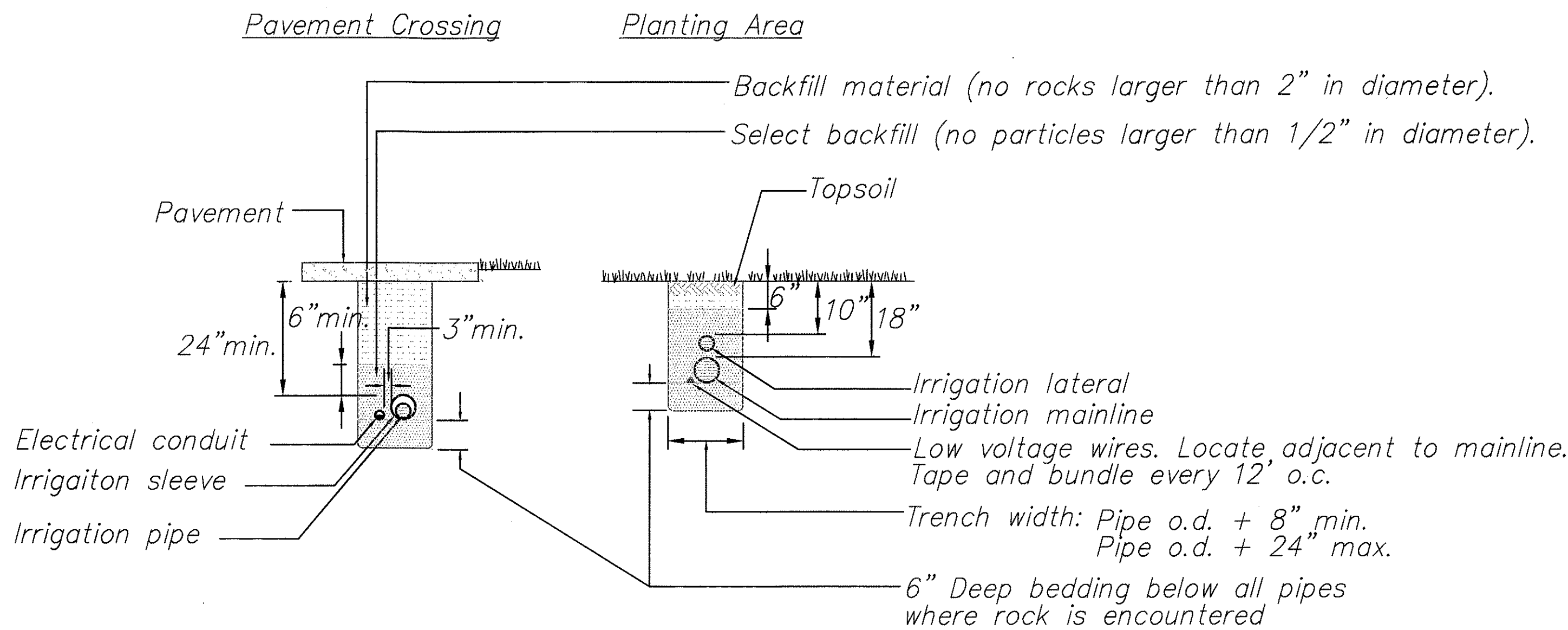


6
L9 SHRUB SPRAY HIGH-POP
NOT TO SCALE

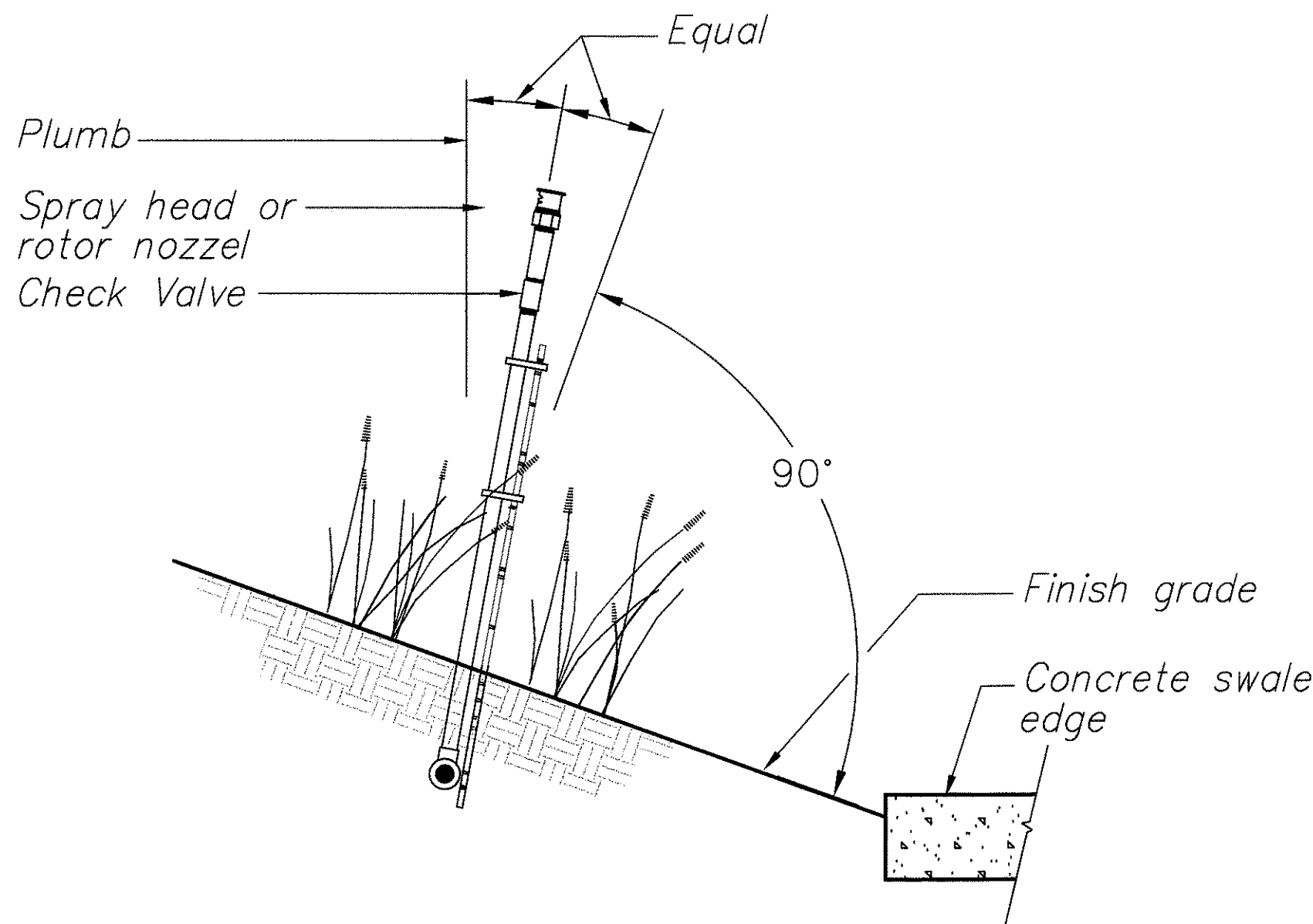
SURVEY PLOTTED BY
 DRAWN BY
 TRACED BY
 DESIGNED BY
 CHECKED BY
 ORIGINAL PLAN
 NO.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 IRRIGATION DETAILS
 PUULOA ROAD IMPROVEMENTS
 Kamehameha Hwy. to Salt Lake Blvd.
 Federal Aid Project No. STP-7310(1)
 Scale: None Date: May 2003
 SHEET NO. L9 OF 193 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 187 | 193 |



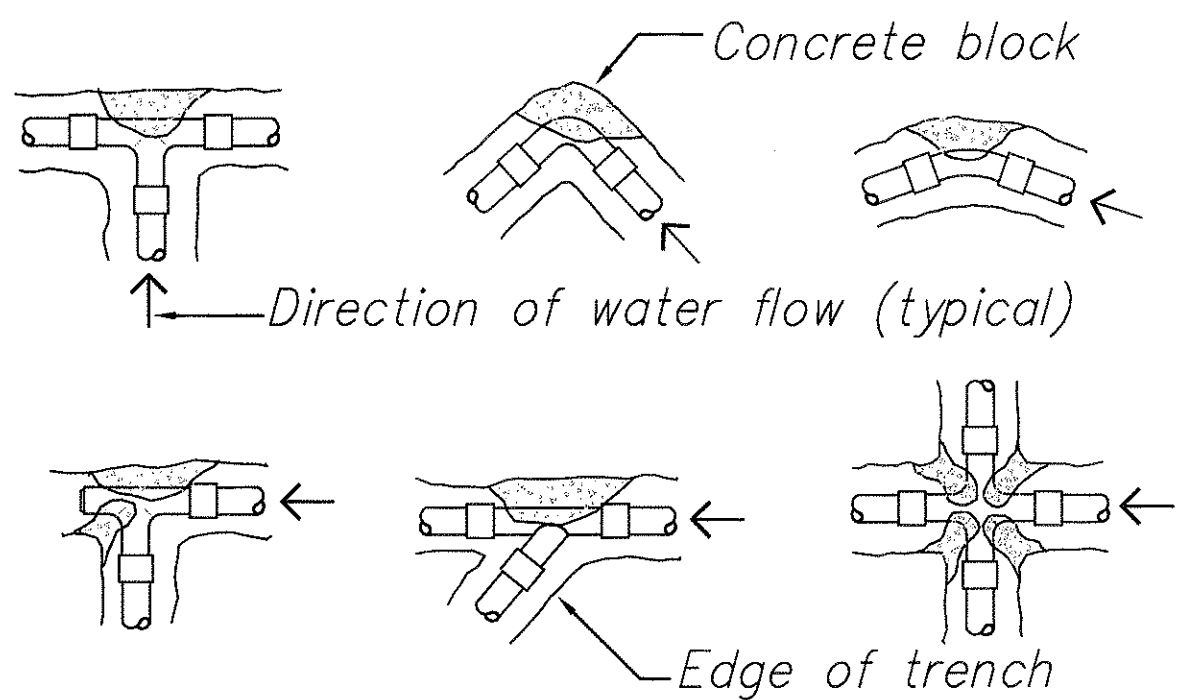
1
L10 TRENCH & WIRING DETAIL
NOT TO SCALE



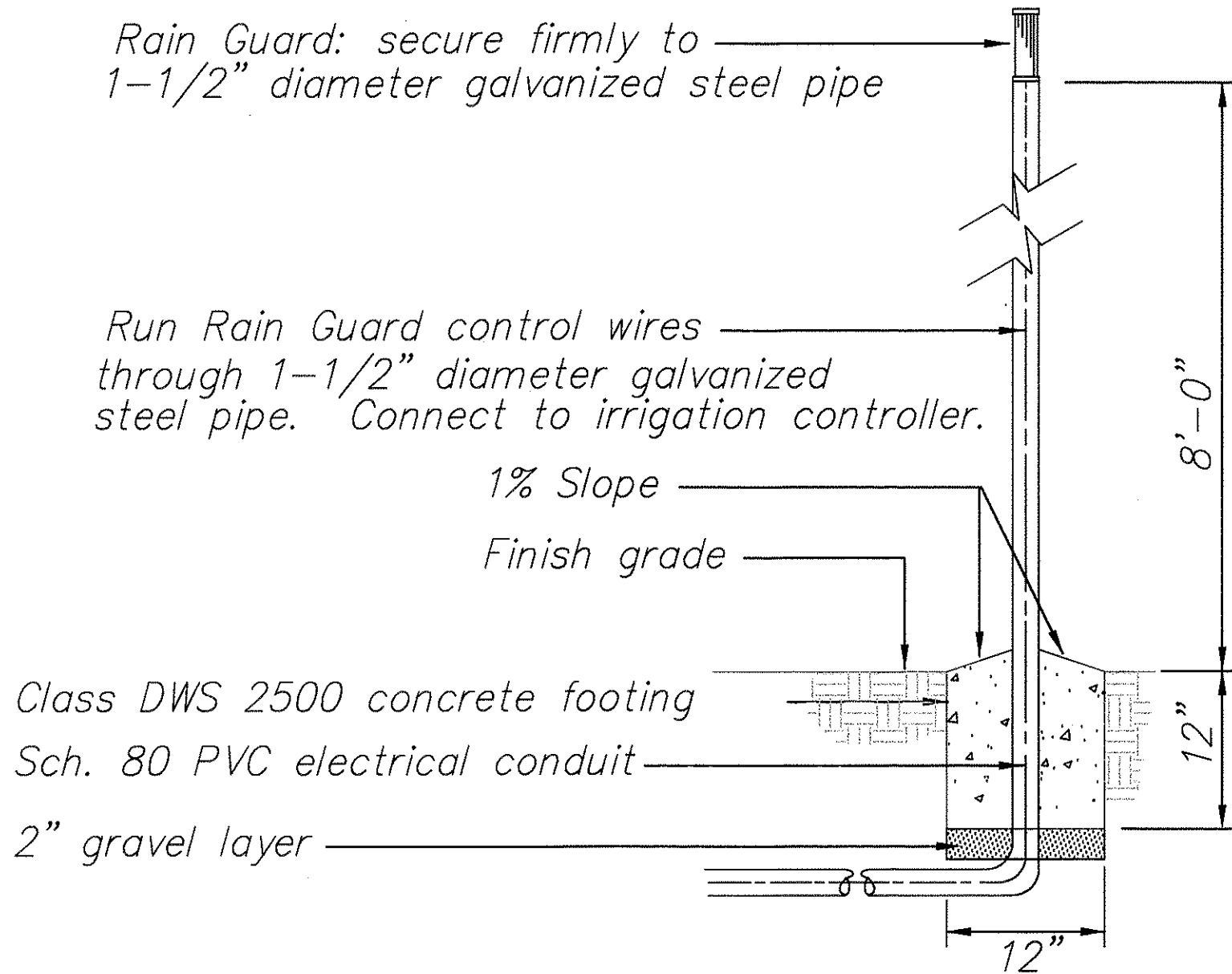
4
L10 SHRUB SPRAY HEAD ON SLOPE
NOT TO SCALE

| THRUST BLOCK BEARING AREA (SQ. FT.) | | | | | |
|-------------------------------------|-----------------|------|------|-----|--|
| PIPE SIZE | 1 1/4" - 2 1/2" | 3" | 4" | 6" | |
| TEES/ELLS | 1.00 | 1.00 | 1.25 | 3.2 | |
| 90 BENDS | 1.00 | 1.25 | 2.00 | 4.5 | |
| 45 BENDS | 1.00 | 1.00 | 1.00 | 2.4 | |

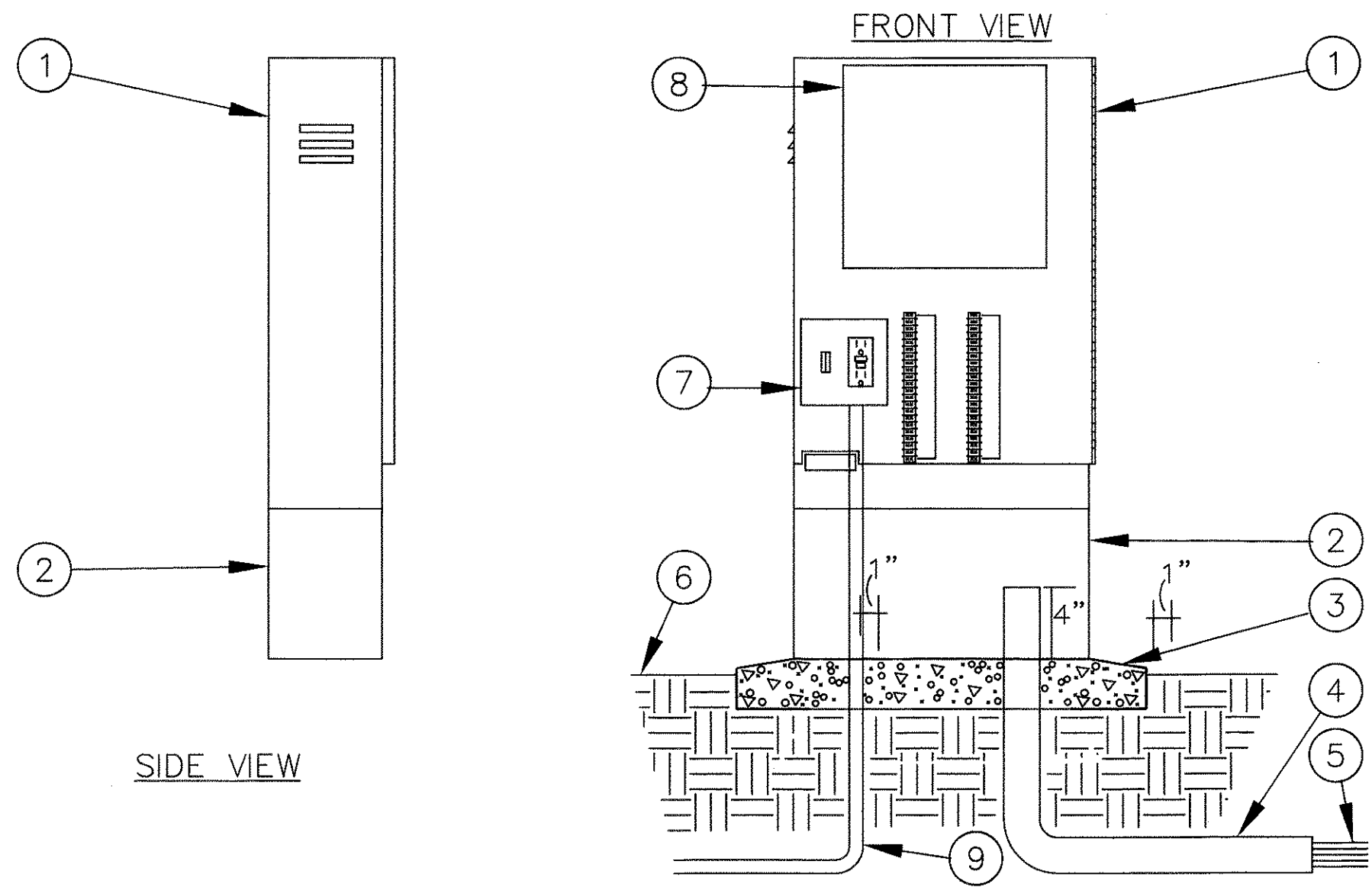
Note: install thrust block at all mainline bends, tees or ells as shown below. Thrust blocks shall be a minimum of (1) cu. ft. Redi-Mix Concrete or 2500 PSI 28 day concrete.



2
L10 THRUST BLOCK DETAIL
NOT TO SCALE



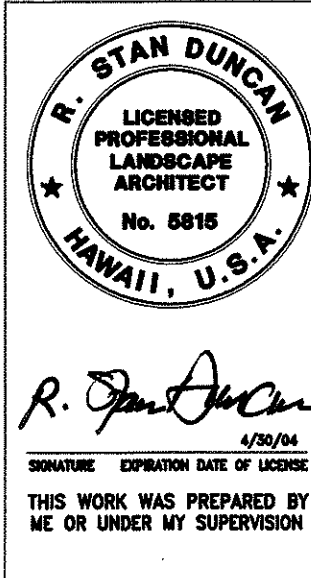
3
L10 RAIN SHUT-OFF DETAIL
NOT TO SCALE



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.

5
L10 CONTROLLER ENCLOSURE
NOT TO SCALE



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAILS

PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

Scale: None Date: May 2003
SHEET NO. L10 OF 193 SHEETS

IRRIGATION NOTES

1. This plan is diagrammatic. 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 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 60 PSI at the point of connection. Notify the project ENGINEER if water pressure is less than 60 PSI or greater than 100 PSI.
3. The 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 project ENGINEER.
4. CONTRACTOR is to coordinate the installation of all sleeves, conduits, mainlines and laterals under pavement. CONTRACTOR shall assure that these items are laid prior to placement of pavement.












IRRIGATION MATERIAL SCHEDULE

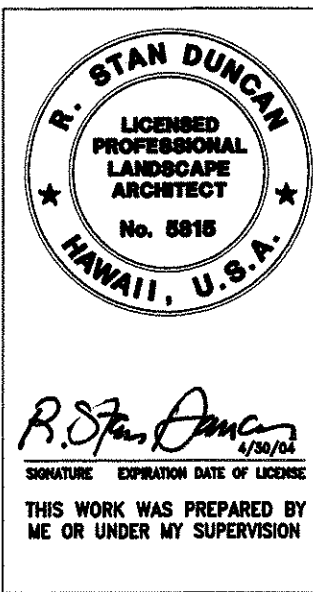
| SYMBOL | DESCRIPTION | MANUFACTURER/ CATALOG NUMBER |
|---|---|---|
|  | 40 STA. AUTO. CONTROLLER | RAINBIRD ESP-40MC OR APPROVED EQUAL |
| | STAINLESS STEEL ENCLOSURE | STRONGBOX SB-18SS WITH PEDESTAL |
|  | REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER | FEBCO 825Y OR APPROVED EQUAL SIZE AS NOTED |
|  | GATE VALVE | NIBCO T-113 OR APPROVED EQUAL FULL LINE SIZE |
|  | AUTOMATIC RAIN SENSOR | WATER CONSERVATION SYSTEMS RAIN GUARD MODEL RD-11 WITH MOUNTING BRACKET OR APPROVED EQUAL |
|  | REMOTE CONTROL VALVE | RAINBIRD PESB SERIES W/ PRS-D OR APPROVED EQUAL, SIZE AS NOTED |
|  | QUICK COUPLER VALVE | RAINBIRD 44DNP OR APPROVED EQUAL PROVIDE 5 KEYS EACH FOR CAPS AND VALVES |
|  | IRRIGATION MAINLINE | SCHEDULE 40 PVC, 18" OR 24" DEPTH, 2" SIZE |
|  | IRRIGATION LATERAL | CLASS 200 PVC, SIZE AS NOTED, 10" DEPTH |
|  | IRRIGATION SLEEVE | SCHEDULE 40 PVC, SIZE AS NOTED, 24" DEPTH |
|  | IRRIGATION CONDUIT | SCHEDULE 80 PVC, SIZE AS NOTED, 24" DEPTH |
| CONTROLLER NUMBER  STATION NUMBER | | |
| VALVE SIZE  GALLONS PER MINUTE (GPM) | | |
| IRRIGATION VALVE FLAG | | |
|  ELECTRICAL CONDUIT SIZE  IRRIGATION SLEEVE SIZE | | |

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 188 | 193 |

5. The irrigation systems are designed to operate at the pressure listed for the head types in the legend. CONTRACTOR shall adjust the pressure regulation device on all valves to ensure that the furthest sprinkler on each circuit operates at the pressures shown. Adjustment by the flow control stem is not acceptable.
6. Locate and install all sprinkler heads 6" from sidewalks, curbs and driveways unless noted otherwise. Flex tubing shall be installed on all sprinkler heads along sidewalks and driveways. Adjust all sprinkler heads and flow control for maximum coverage and minimum overthrow and misting. Operate only one valve at a time per controller.
7. Install PCS screens and variable arc nozzles as needed to minimize overspray on all spray heads.
8. Contractor shall prepare and furnish two (2) reproducible "as built" plans upon completion of irrigation system installation.

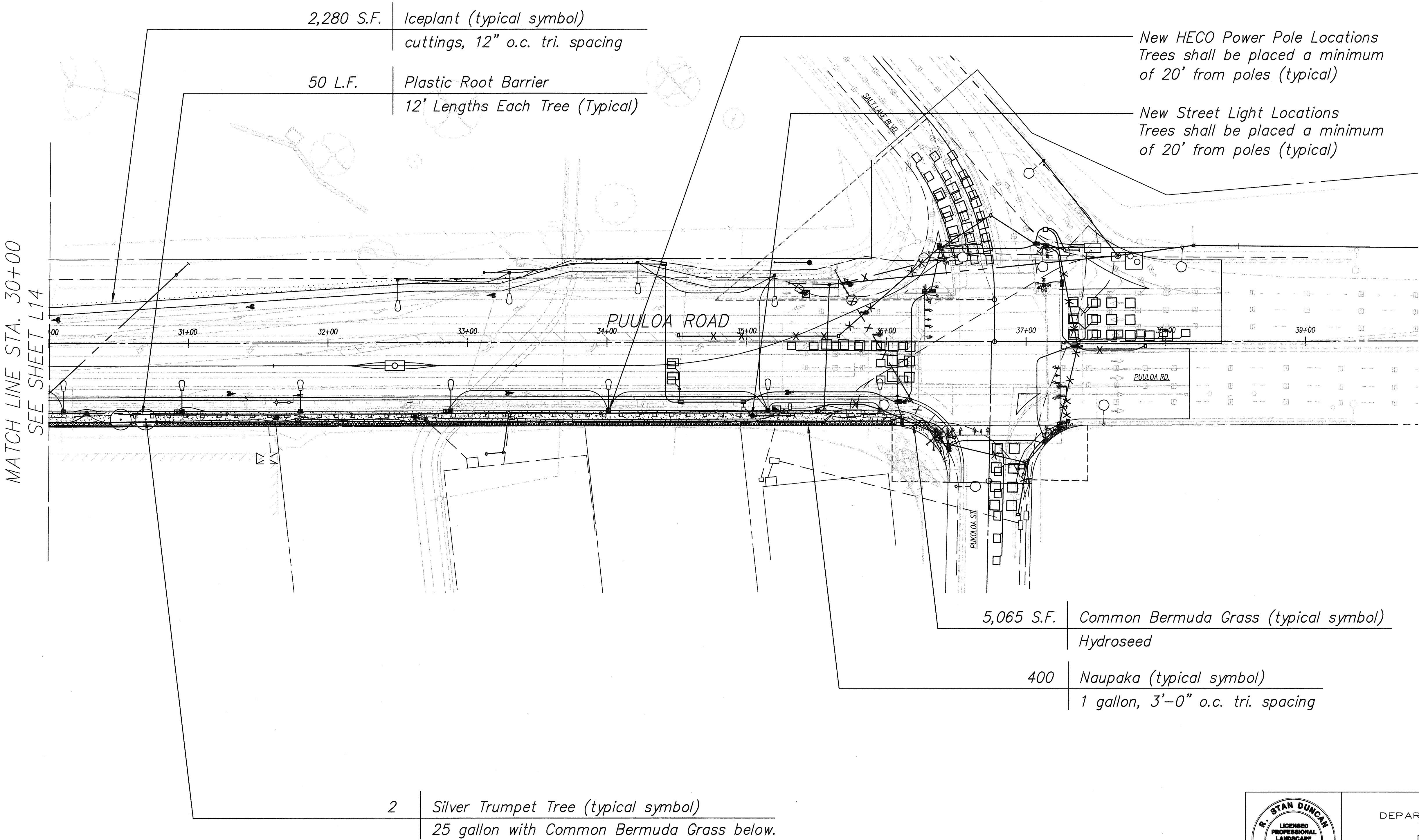
IRRIGATION SCHEDULE

| HEAD SYMBOL | ANGLE | MANUFACTURER/ CATALOG NUMBER | G.P.M. | P.S.I. | RAD. |
|---|-------|---|-----------|--------|--------|
| SPRAY HEAD 6" POP-UP | | RAINBIRD 1806 SERIES (OR APPROVED EQUAL) | | | |
|  | 90° | 1806-SAM-PRS-10Q | 0.39 | 30 | 10' |
|  | 180° | 1806-SAM-PRS-10H | 0.79 | 30 | 10' |
|  | 360° | 1806-SAM-PRS-10F | 1.58 | 30 | 10' |
|  | VAN | 1806-SAM-PRS-10VAN | 0.48-2.60 | 30 | 10' |
|  | SST | 1806-SAM-PRS-15SST | 1.21 | 30 | 4'X30' |
|  | EST | 1806-SAM-PRS-15EST | 0.61 | 30 | 4'X14' |
| SPRAY HEAD ON RISER | | RAINBIRD 1812 SERIES (OR APPROVED EQUAL) | | | |
|  | 180° | 1812-SAM-PRS-10H | 0.79 | 30 | 10' |
|  | 360° | 1812-SAM-PRS-10F | 1.58 | 30 | 10' |
|  | VAN | 1812-SAM-PRS-10VAN | 0.48-2.60 | 30 | 10' |
|  | SST | 1812-SAM-PRS-15SST | 1.21 | 30 | 4'X30' |
|  | EST | 1812-SAM-PRS-15EST | 0.61 | 30 | 4'X14' |



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
IRRIGATION
LIST AND NOTES
PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)
Scale: None Date: May 2003
SHEET NO. L11 OF 193 SHEETS

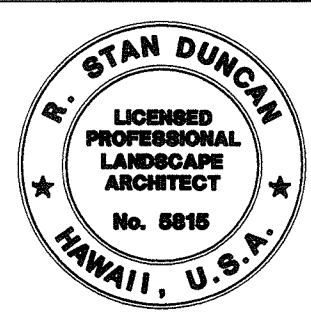
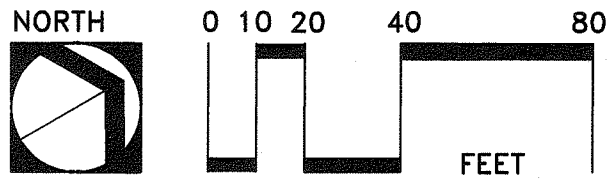
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 189 | 190 |



PM: STY
OPR: OKY, KKF
REVISED: 06/18/97

FILE: E4
SCALE: 1"=40'
BEG: 5/16/97

| DATE | SURVEY PLOTTED BY | DATE |
|------|-------------------|------|
| | DRAWN BY | |
| | TRACED BY | |
| | CHECKED BY | |
| | QUANTITIES BY | |
| | CHECKED BY | |
| | NO. | |



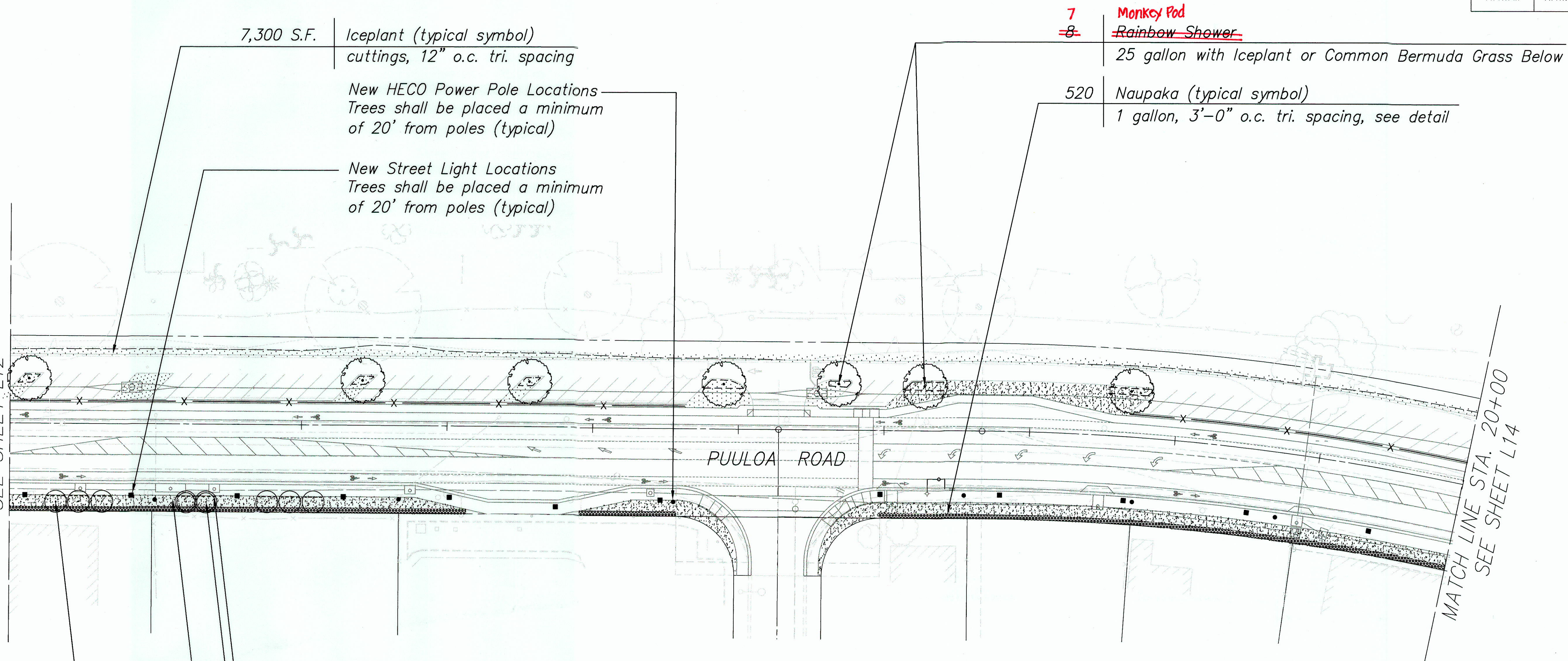
R. Stan Duncan
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PLANTING PLAN
STA. 30+00 TO END
PUULOLO ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

Scale: 1"=40' Date: Dec. 2002
SHEET NO. L15 OF 190 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2002 | 190 | 193 |

MATCH LINE STA. 10+00
SEE SHEET L12

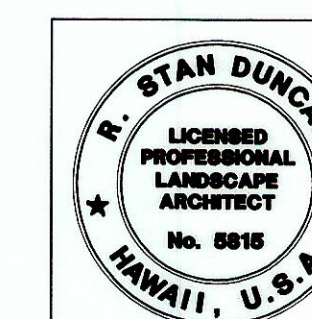
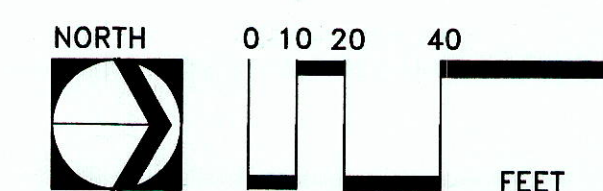


- 445 L.F. Plastic Root Barrier
12' Lengths Each Tree (Typical)
- 2 ~~Silver Trumpet~~ ~~Buttonwood~~ Tree (typical symbol)
25 gallon with Common Bermuda Grass below.
- 9,090 S.F. Common Bermuda Grass (typical symbol)
Hydroseed
- 6 Silver Trumpet Tree (typical symbol)
25 gallon with Common Bermuda Grass below

| | |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY | |
| DESIGNED BY | |
| QUANTITIES BY | |
| CHECKED BY | |
| ORIGINAL PLAN | |
| NOTEBOOK | |
| No. | |

PM: STY
OPR: JSK,RCQ,BKM,*KKF
REVISED: 06/18/97

FILE: E2
SCALE: 1"=40'
BEC: 5/16/97

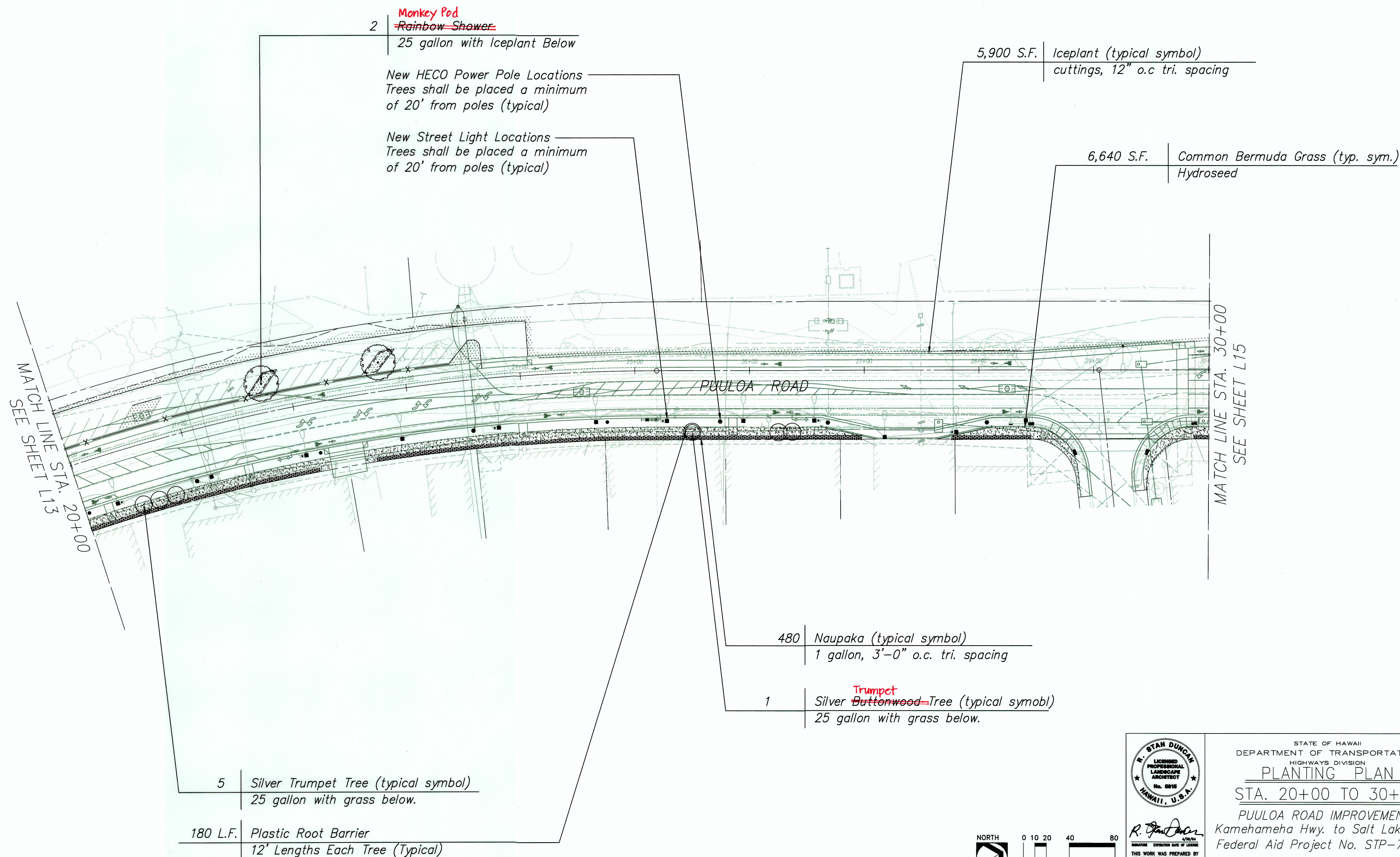


R. Stan Duncan
4/20/04
SIGNATURE EXPIRATION DATE OF LICENSE
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PLANTING PLAN
STA. 10+00 TO 20+00
PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)
Scale: 1"=40' Date: May 2003
SHEET NO. L13 OF 193 SHEETS

"AS-BUILT"

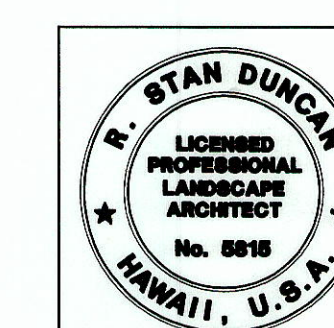
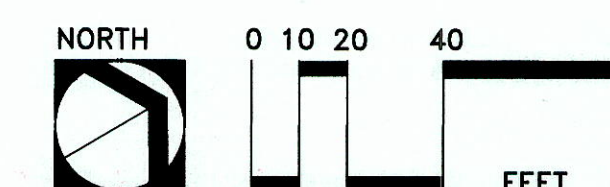
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|------------------------|-------|-----------------------|----------------|--------------|-----------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 191 | 193 |



| | | |
|---------------|-------------------------|------------|
| ORIGINAL PLAN | SURVEY PLOTTED BY _____ | DATE _____ |
| NOTEBOOK | DRAWN BY _____ | _____ |
| | TRACED BY _____ | _____ |
| | DESIGNED BY _____ | _____ |
| | QUANTITIES BY _____ | _____ |
| No. _____ | CHECKED BY _____ | _____ |

PM: STY
OPR: CKY,KKF,*BKM
REVISED: 09/19/98

FILE: E3
SCALE: 1=40
BEG: 5/16/97



80

R. J. [Signature] 4/30/01

SIGNATURE EXPIRATION DATE OF LICENSE

THIS WORK WAS PREPARED
ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLANTING PLAN

STA. 20+00 TO 30+00

PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

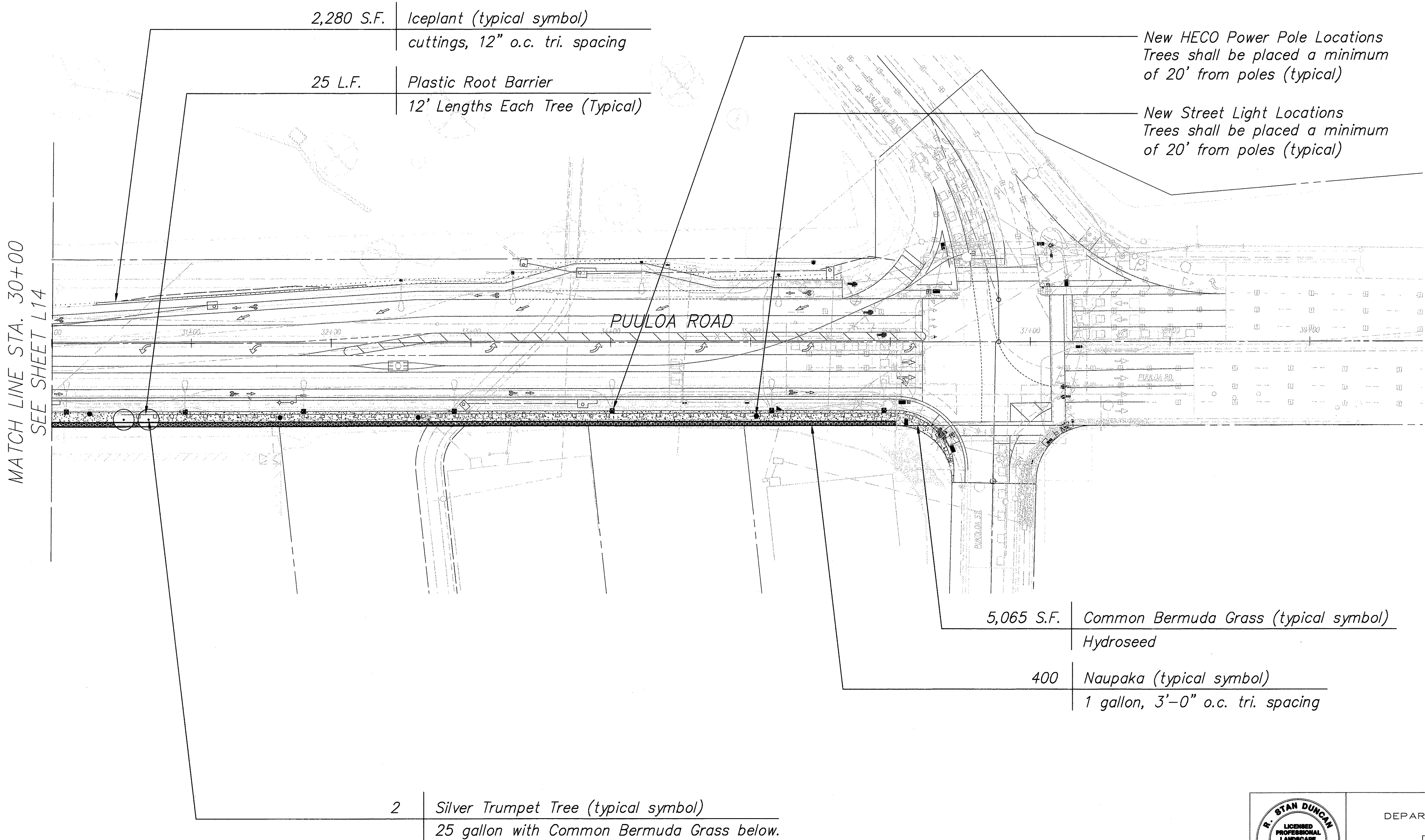
Scale: 1"=40'

Date: May 2003

SHEET NO. 14 OF 193 SHEETS

"AS-BUILT"

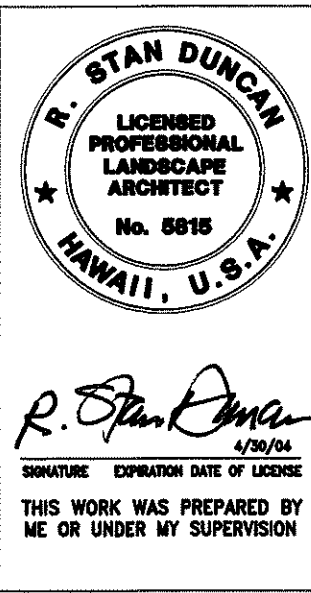
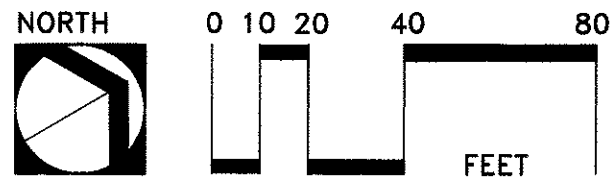
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 192 | 193 |



FILE: E4
SCALE: 1"=40'
BEG: 5/16/97

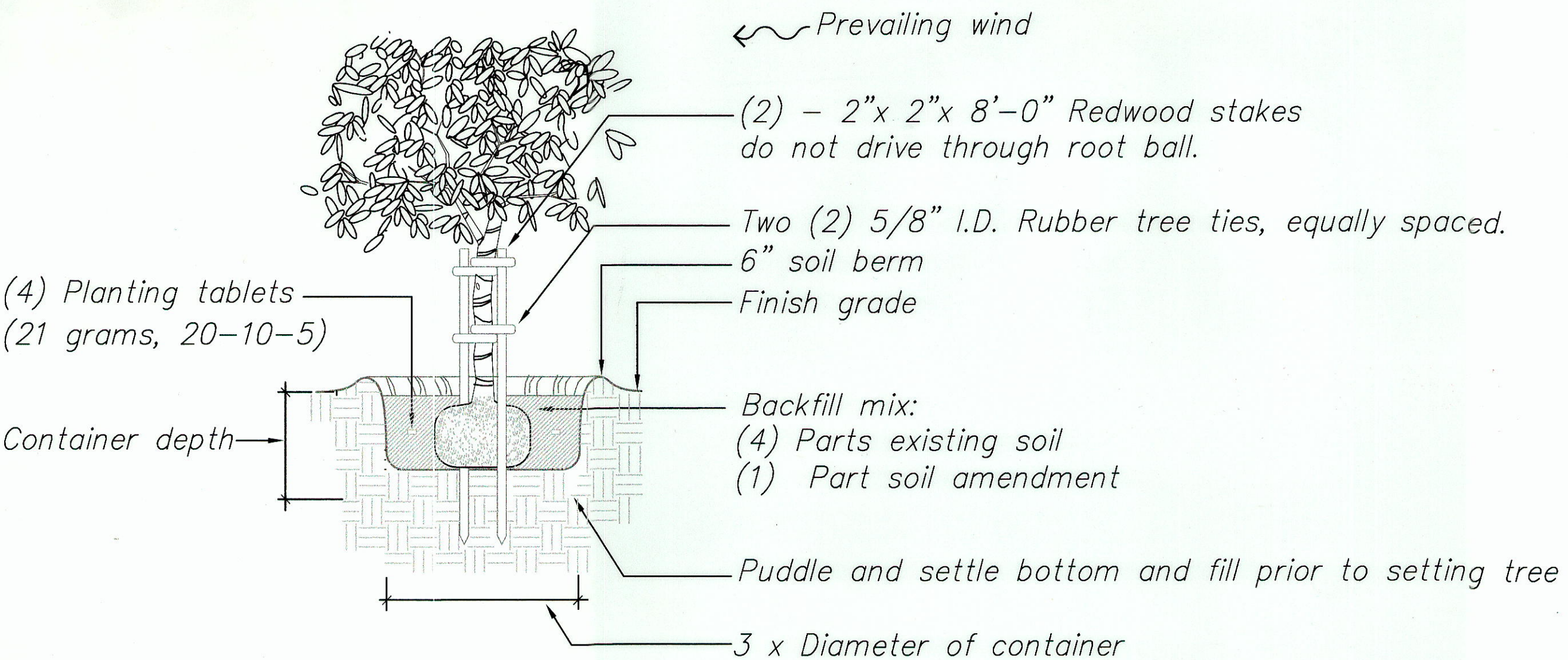
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| SURVEY PLOTTED BY | DATE |
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| TRACED BY | |
| DESIGNED BY | |
| QUANTITIES BY | |
| CHECKED BY | |

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|---------------|-----|
| ORIGINAL PLAN | No. |
| NOTEBOOK | |

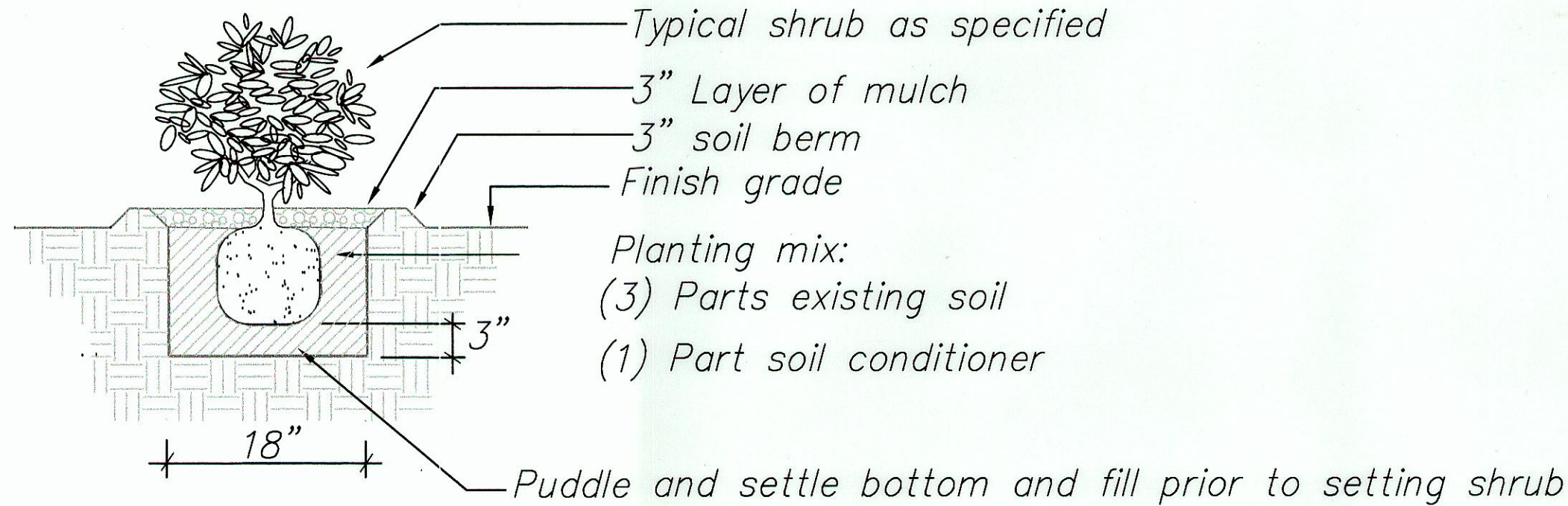


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PLANTING PLAN
STA. 30+00 TO END
PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)
Scale: 1"=40' Date: May 2003
SHEET NO. L15 OF 193 SHEETS

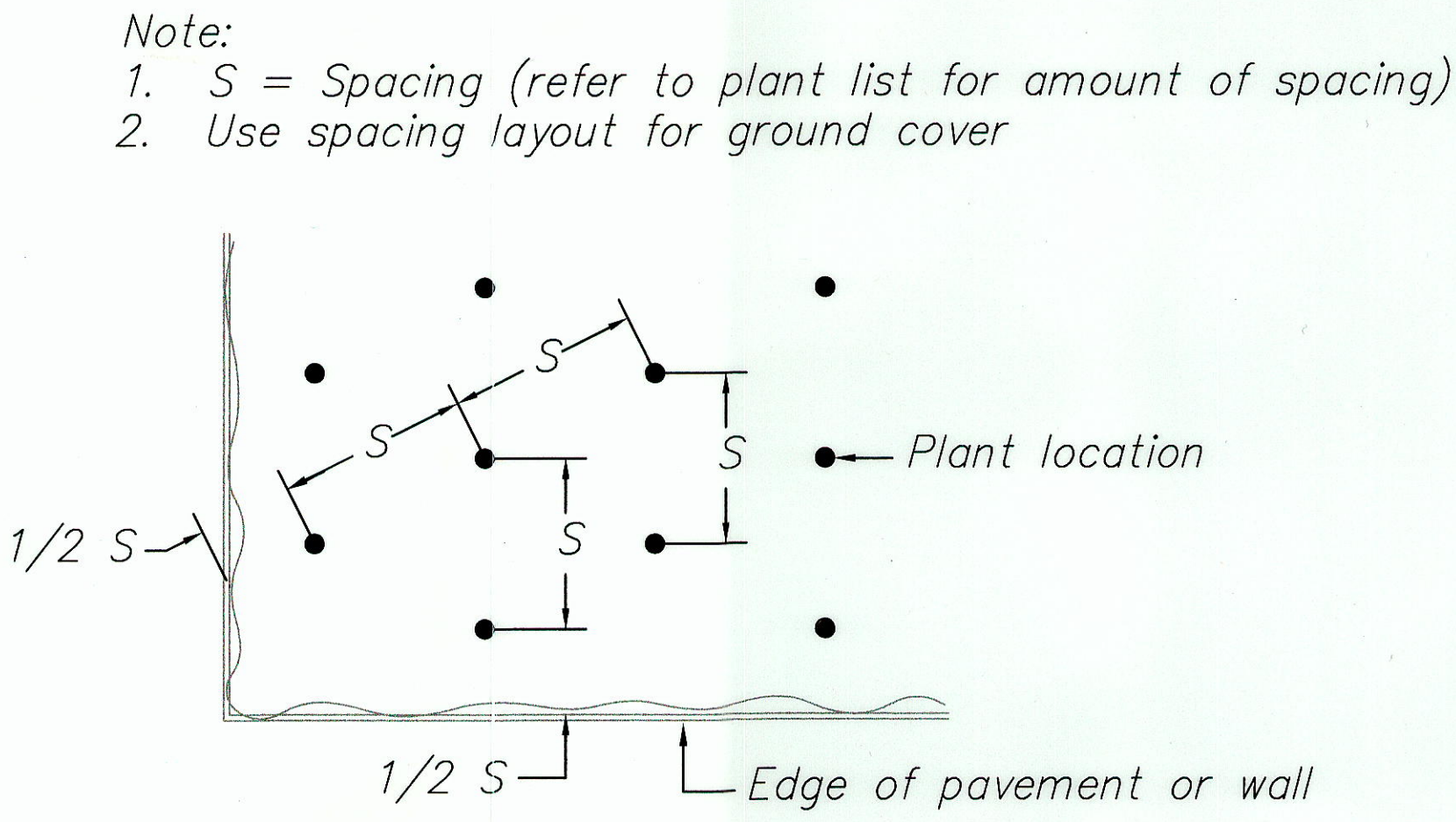
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-7310(1) | 2003 | 193 | 193 |



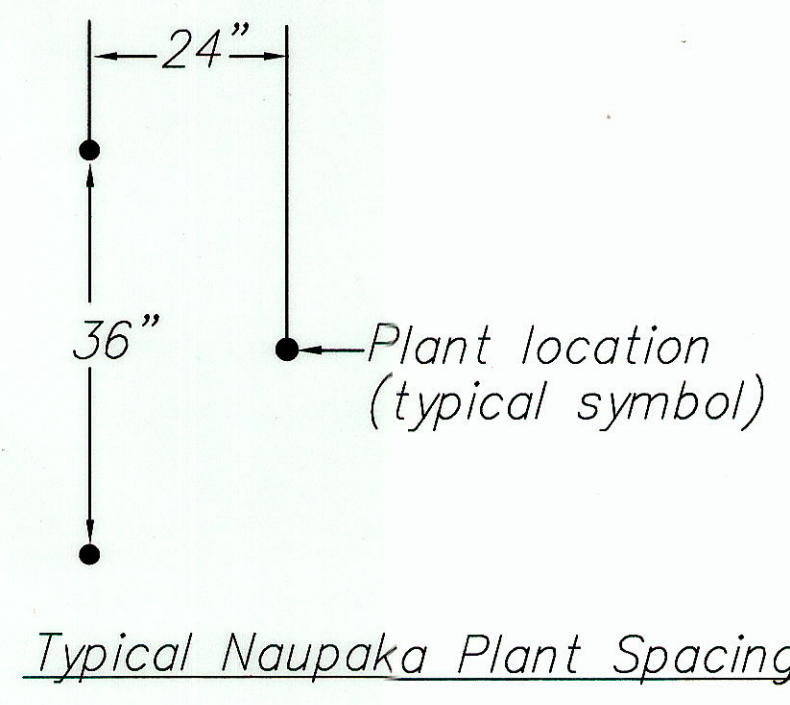
1 DOUBLE TREE STAKING DETAIL
L16 NOT TO SCALE



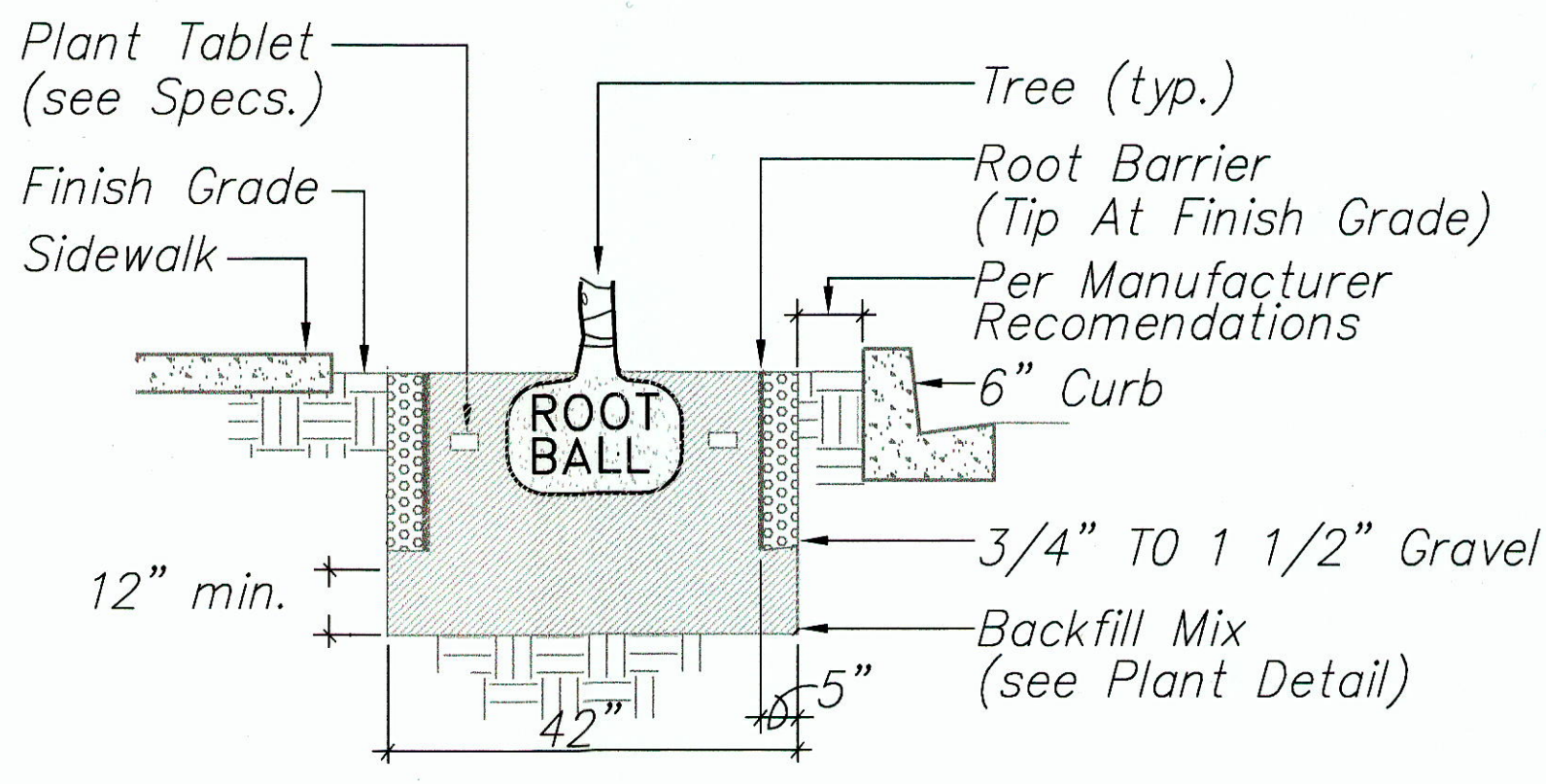
2 SHRUB PLANTING DETAIL
L16 NOT TO SCALE



3 TRIANGULAR SPACING DETAIL
L16 NOT TO SCALE



6 SHRUB PLANT SPACING DETAIL
L16 NOT TO SCALE
L12,L13,L14,L15



7 TREE ROOT BARRIER DETAIL
L16 NOT TO SCALE
L12,L13,L14,L15

| PLANT LIST | | | | |
|---|--|-----------|-----------------------|----------------------------------|
| COMMON NAME | BOTANICAL NAME | SIZE | HEIGHT | REMARKS |
| TREES | | | | |
| Silver Trumpet tree | Tabebuia argentea | 25 gal. | 8'-10' | 2" caliper minimum |
| Silver Buttonwood Monkey Pod | Conocarpus erectus var. argenteus | 25 gal. | 8'-10' 12' | 2" caliper minimum |
| Rainbow Shower | Casia javanica X C. fistula | 25 gal. | 8'-10' | 2" caliper minimum |
| SHRUBS | | | | |
| Naupaka | Scaevola frutescens | 1 gal. | 1' | 36" o.c. tri spacing, see detail |
| GROUND COVERS | | | | |
| Iceplant | Carpobrotus edulis | cuttings | | 12" o.c. triangular spacing |
| Common bermuda grass | Cynodon dactylon | hydroseed | | |
| MISCELLANEOUS | | | | |
| Imported Screened Soil, 6" Depth | | | | See Specifications |
| Soil Amendments | | | | See Specifications |
| Plastic Root Barrier, 36" Depth | | | | See Specifications |

- PLANT NOTES:
- CONTRACTOR shall field verify all plant quantities and dimensions prior to installation. Quantities shown in plant list are for convenience only, plans shall govern.
 - CONTRACTOR shall be responsible for locating and protecting all existing utilities. See civil and electrical drawings for approx. location.
 - CONTRACTOR shall notify and meet with the ENGINEER prior to installation for verification and interpretation of plans
 - CONTRACTOR shall notify the ENGINEER of any discrepancies in plant locations or insufficient plant quantities due to differences in the plan and actual field conditions.
 - CONTRACTOR shall notify the ENGINEER 30 days prior to planting operations for acceptance of all plant material at place of growth. All plant material not accepted by the ENGINEER will be subject to rejection.
 - CONTRACTOR shall install a 3 inch cover layer of mulch for all specified planting areas after completion of planting trees, shrubs and ground cover.
 - CONTRACTOR shall install root barrier a minimum of 3'-0" away from utility lines. CONTRACTOR shall verify location of utility lines with ENGINEER prior to installation.

R. Stan Duncan
4/20/04
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLANT DETAILS

PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

Scale: None Date: May 2003

SHEET NO. L16 OF 193 SHEETS

PM: STY
OPR: CKY, KKF
REVISED: 06/18/97

FILE: E4
SCALE: 1"=40'
BEG: 5/16/97

| | |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY | |
| TRACED BY | |
| QUANTITIES BY | |
| CHECKED BY | |
| ORIGINAL PLAN | |
| NO. _____ | |