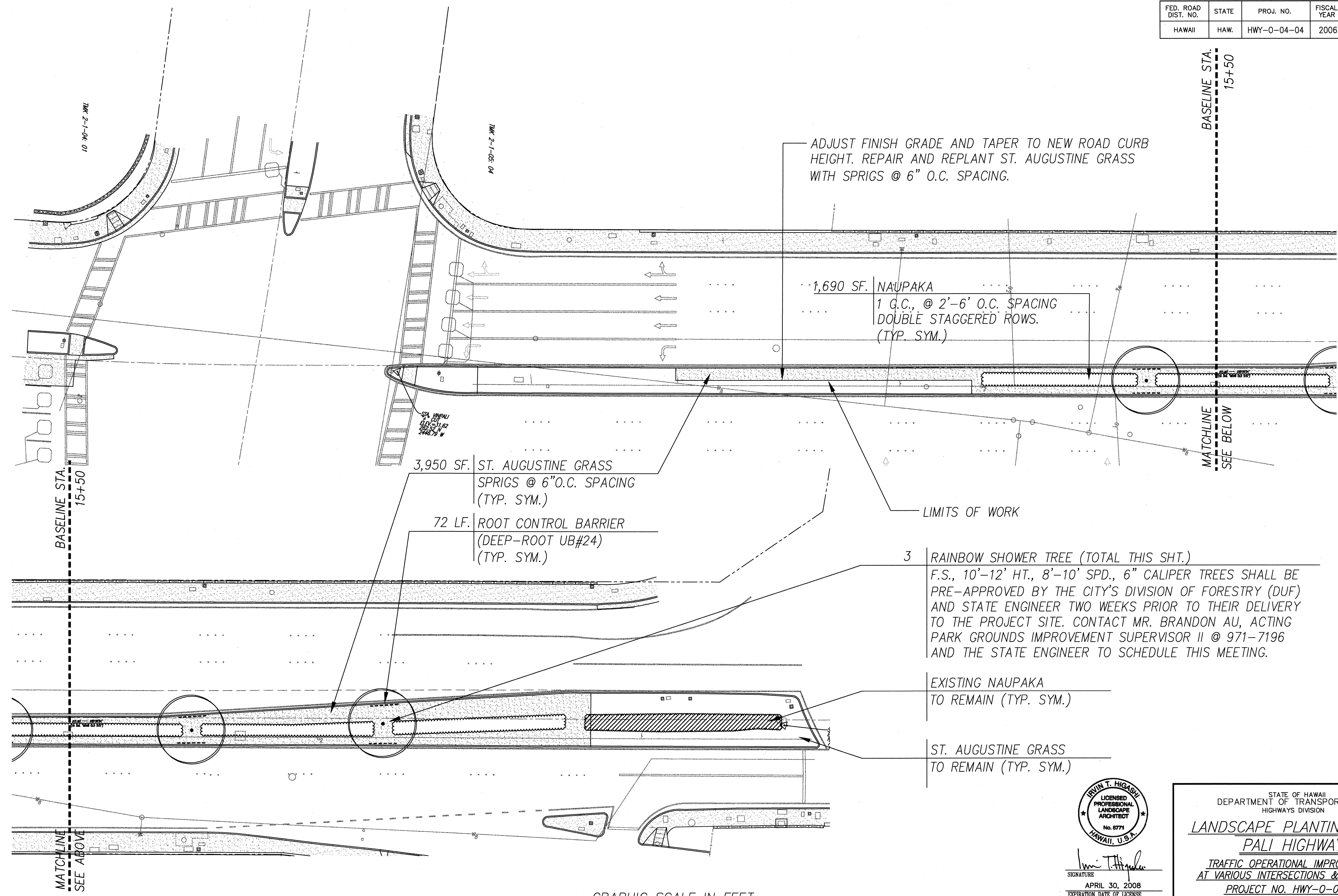
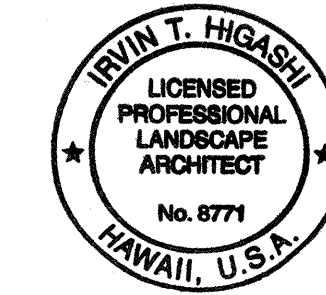


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-04	2006	18	45

DESIGNED BY	DATE
CHECKED BY	
NOTED BY	
PLANNED BY	
SURVEYED BY	
ORIGINAL PLAN	
NO.	



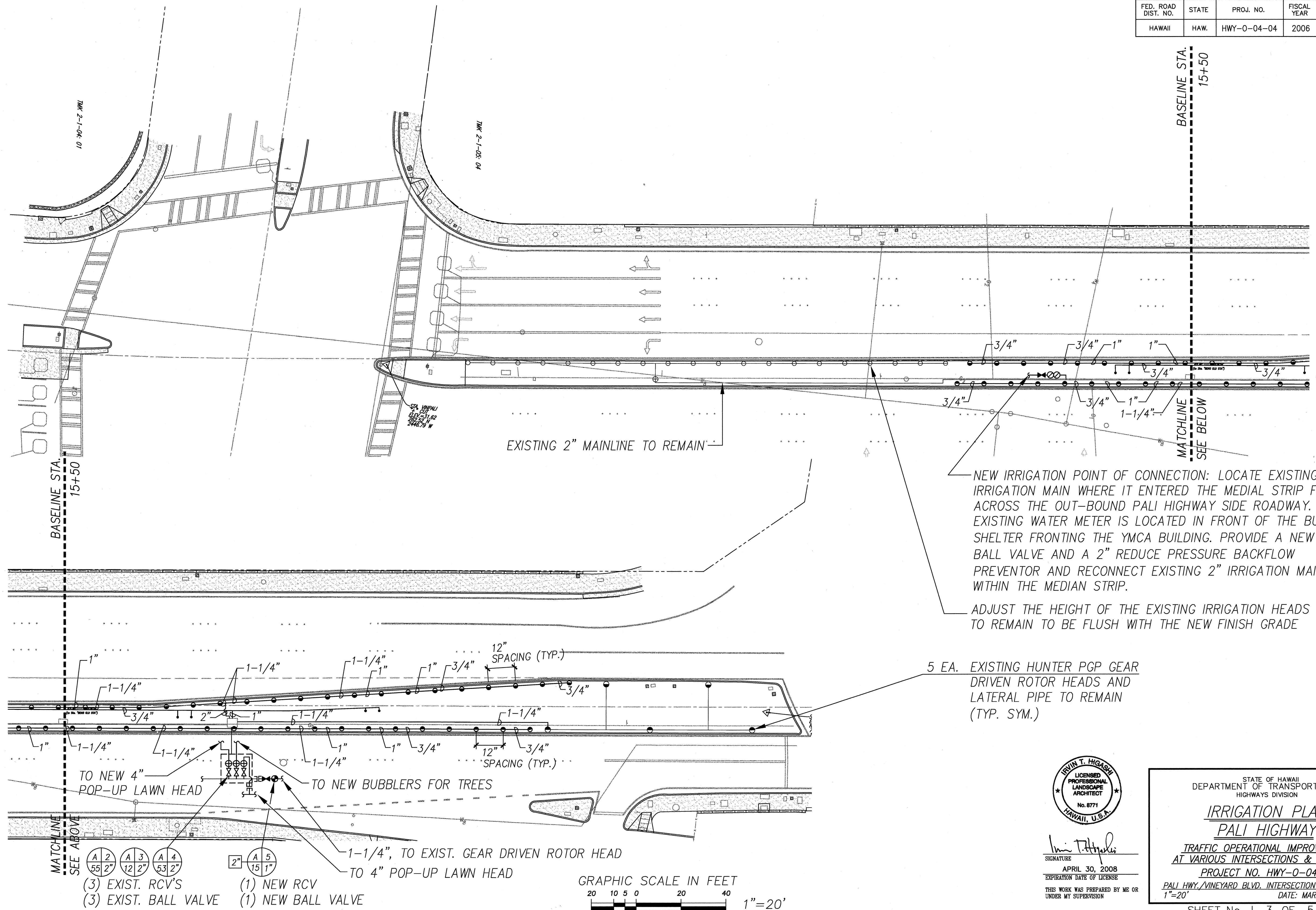
GRAPHIC SCALE IN FEET
20 10 5 0 20 40
1"=20'



SIGNATURE
IRWIN T. HIGASHI
APRIL 30, 2008
EXPIRATION DATE OF LICENSE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
LANDSCAPE PLANTING PLAN
PALI HIGHWAY
TRAFFIC OPERATIONAL IMPROVEMENTS
AT VARIOUS INTERSECTIONS & ROADWAYS
PROJECT NO. HWY-0-04-04
PALI HWY./VINEYARD BLVD. INTERSECTION IMPROVEMENTS
SCALE: 1"=20' DATE: MARCH 2006
SHEET No. L-2 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-04	2006	19	45



NEW IRRIGATION POINT OF CONNECTION: LOCATE EXISTING 2" IRRIGATION MAIN WHERE IT ENTERED THE MEDIAL STRIP FROM ACROSS THE OUT-BOUND PALI HIGHWAY SIDE ROADWAY. THE EXISTING WATER METER IS LOCATED IN FRONT OF THE BUS SHELTER FRONTING THE YMCA BUILDING. PROVIDE A NEW 2" BALL VALVE AND A 2" REDUCE PRESSURE BACKFLOW PREVENTOR AND RECONNECT EXISTING 2" IRRIGATION MAIN WITHIN THE MEDIAN STRIP.

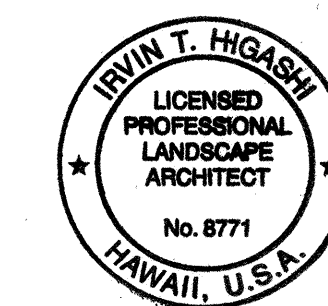
ADJUST THE HEIGHT OF THE EXISTING IRRIGATION HEADS TO REMAIN TO BE FLUSH WITH THE NEW FINISH GRADE

5 EA. EXISTING HUNTER PGP GEAR DRIVEN ROTOR HEADS AND LATERAL PIPE TO REMAIN (TYP. SYM.)

TO NEW 4" POP-UP LAWN HEAD
TO NEW BUBBLERS FOR TREES
1-1/4", TO EXIST. GEAR DRIVEN ROTOR HEAD
TO 4" POP-UP LAWN HEAD

(3) EXIST. RCV'S
(3) EXIST. BALL VALVE
(1) NEW RCV
(1) NEW BALL VALVE

GRAPHIC SCALE IN FEET
20 10 5 0 20 40
1"=20'



SIGNATURE
IRVIN T. HIGASHI
APRIL 30, 2008
EXPIRATION DATE OF LICENSE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION PLAN
PALI HIGHWAY

TRAFFIC OPERATIONAL IMPROVEMENTS
AT VARIOUS INTERSECTIONS & ROADWAYS
PROJECT NO. HWY-0-04-04
PALI HWY./VINEYARD BLVD. INTERSECTION IMPROVEMENTS
1"=20'
DATE: MARCH 2006

SHEET No. L-3 OF 5 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NO. 1	DRAWN BY	
	TRACED BY	
	DESIGNED BY	
	CHECKED BY	

PLANT LIST

TREES	SIZE AND CONDITIONS	TOTAL
EXISTING MONKEYPOD TREES	EXISTING FIELD STOCK (PRUNE BRANCHES AND ROOTS FOR TRANSPLANTING. REMOVE AND LOAD TREES TO BE TRANSPORTED & PLANTED BY CITY & COUNTY OF HONOLULU)	4
RAINBOW SHOWER TREE	F.S. 10'-12' HT. 8'-10" SPD., 6" CAL.	3

SHRUBS	SIZE AND CONDITIONS	TOTAL
NAUPAKA	1 G.C. @ 2'-6" O.C. SPACING DOUBLE STAGGERED ROWS	1,690 SF.

GRASS	SIZE AND CONDITIONS	TOTAL
ST. AUGUSTINE GRASS	SPRIGS @ 6" O.C. SPACING	3,950 SF.

MISCELLANEOUS	SIZE AND CONDITIONS	TOTAL
AUTOMATIC IRRIGATION SYSTEM	S.F.	5,640
BARK MULCH	C.Y., TREE BASE & BELOW SHRUBS	2
MAINTENANCE PERIOD	DAYS	90
ORGANIC SOIL AMENDMENT	C.Y., 2" LAYER (5,640 S.F.)	35
ROOT CONTROL BARRIER	ROTO-TILL TO 4" DEPTH L.F., DEEP ROOT UB-24 (24" DEEP)	72

LANDSCAPE NOTES

1. FOR ALL DEPRESSIONS, LOW SPOTS, UPROOTED AREAS AND PROBLEM SPOTS AS DETERMINED BY THE ENGINEER, THE CONTRACTOR SHALL RESTORE ALL AFFECTED AREAS ACCEPTABLE TO THE ENGINEER.

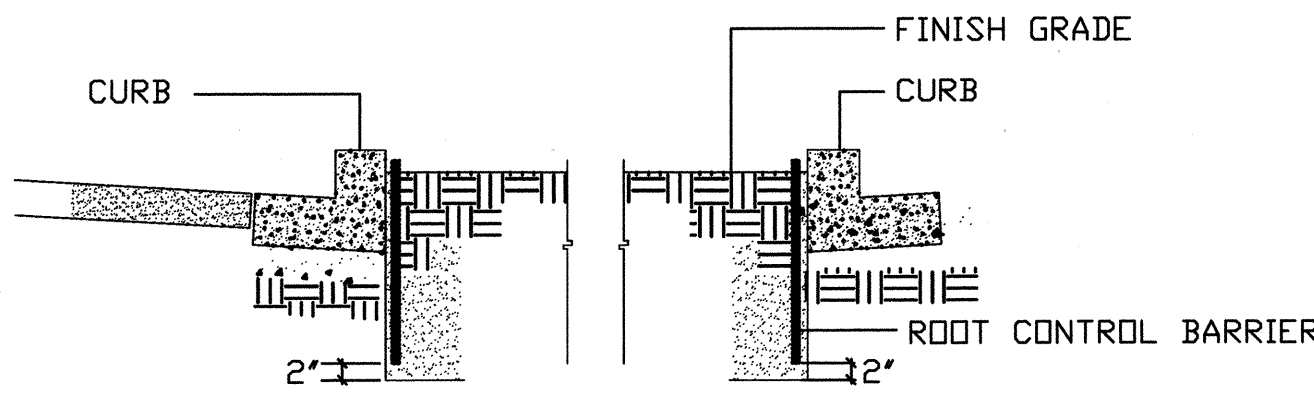
2. THE CONTRACTOR SHALL RESTORE ALL DAMAGE CAUSED BY HIS OPERATIONS TO ORIGINAL CONDITION OR BETTER AT HIS OWN EXPENSE. ALL RESTORATION WORK SHALL BE DONE IN ACCORDANCE WITH THE ENGINEER.

3. ALL TREE RELOCATION AND TREE PRUNING (TOP AND ROOT) SHALL BE DONE UNDER THE DIRECT SUPERVISION OF AN ARBORIST CERTIFIED BY THE INTERNATIONAL SOCIETY OF ABORICULTURE. EXTENSIVE ROOT PRUNING MAY REQUIRE TOP PRUNING TO PROPERLY BALANCE AND COMPENSATE FOR WATER LOSS. ALL WORK SHALL BE DONE UNDER THE OBSERVATION OF THE URBAN FORESTRY DIVISION, DEPARTMENT OF PARKS AND RECREATION. THE CONTRACTOR SHALL NOTIFY MR. BRANDON AU, URBAN FORESTRY ADMINISTRATOR, PHONE NO. 971-7190, SEVEN DAYS PRIOR TO START OF WORK.

4. ALL AFFECTED TREES SHALL BE GUARANTEED FOR ONE YEAR. THE CONTRACTOR SHALL REPLACE WITH THE SAME SIZE AND SPECIES IF ANY TREES FAILS TO SURVIVE BY THE END OF ONE YEAR.

5. THE CONTRACTOR SHALL BE RESPONSIBLE TO PLAN AND CONSTRUCT BEST MANAGEMENT PRACTICES (BMP) AS REQUIRED BY HIS OPERATIONS TO COMPLY WITH ALL LAWS, STANDARDS, RULES, AND OR POLICIES OF THE CITY, STATE OR FEDERAL REGULATORY AGENCIES. UPON ACCEPTANCE OF THE PROJECT BY THE CITY, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE ALL BEST MANAGEMENT PRACTICES AND TO RESTORE THE PROJECT SITE TO ITS ORIGINAL CONDITIONS OR BETTER.

- NOTE: 1. TOP OF BARRIER MUST BE AT GRADE (NEVER BELOW GRADE)
2. POSITION BARRIER AGAINST STRUCTURE OR AS CLOSE TO STRUCTURE AS POSSIBLE
3. DURING CONSTRUCTION THE BARRIER CAN BE PLACED AGAINST THE INSIDE OF THE FORMS
4. THE RAISED ROOT DEFLECTORS MUST BE FACING TOWARD THE TREE



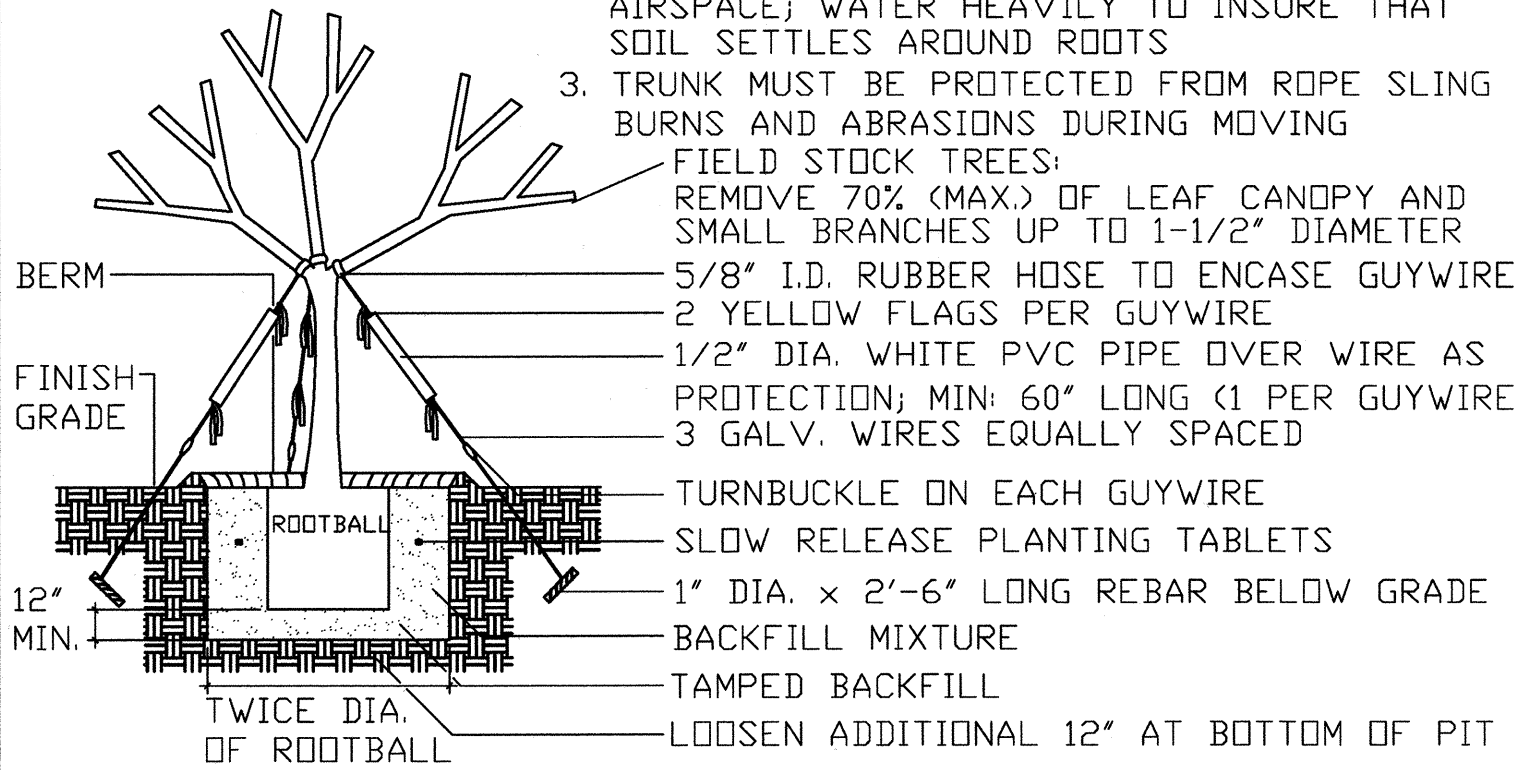
ROOT CONTROL BARRIER DETAIL

NOT TO SCALE 4

NOTE: 1. RAKE OUT BERM AT END OF MAINTENANCE PERIOD.

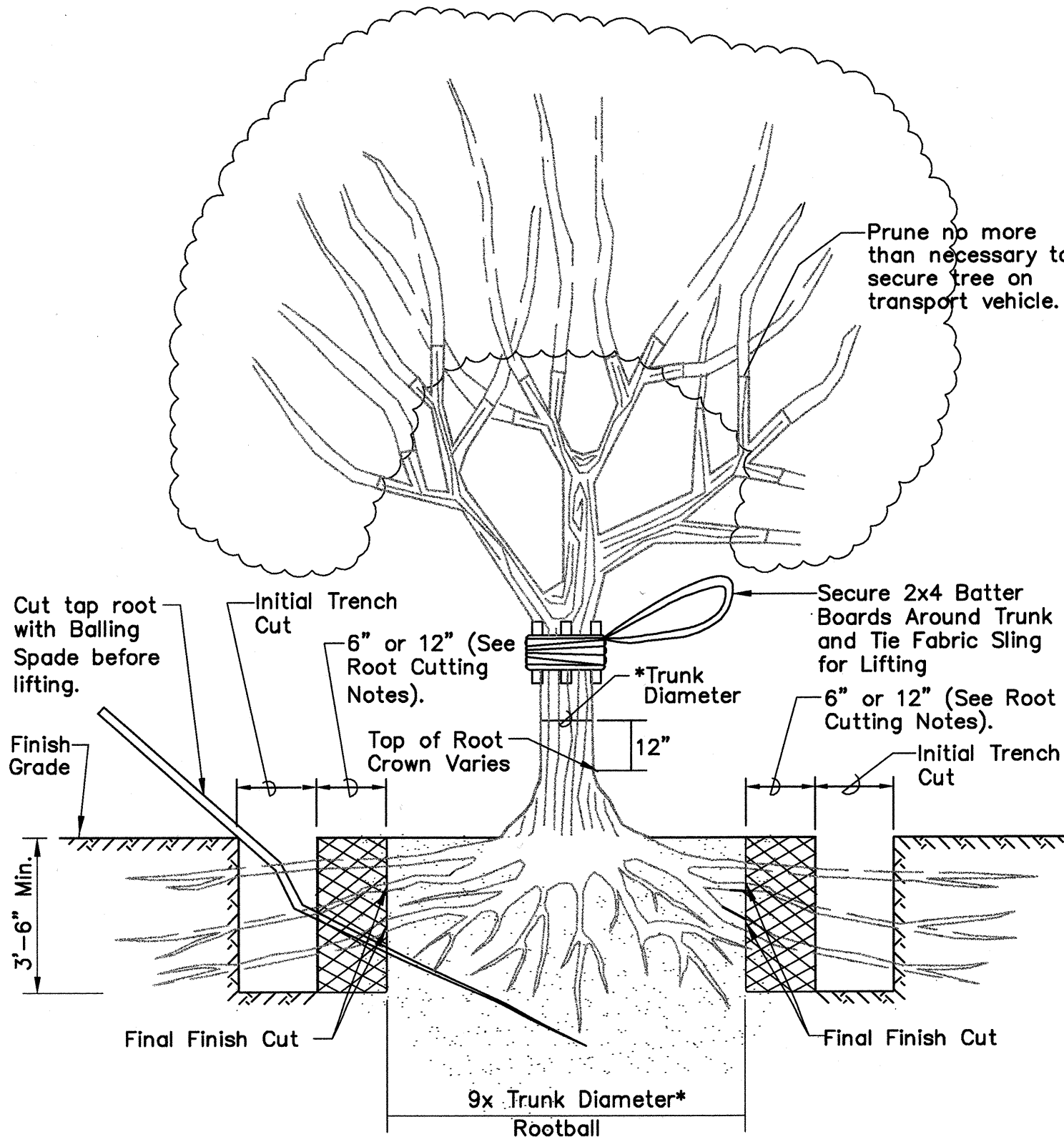
2. WHEN REFILLING HOLE DO NOT LEAVE ANY AIRSPACE; WATER HEAVILY TO INSURE THAT SOIL SETTLES AROUND ROOTS

3. TRUNK MUST BE PROTECTED FROM ROPE SLING BURNS AND ABRASIONS DURING MOVING



FIELD STOCK TREE PLANTING DETAIL

NOT TO SCALE 2



- Note:
- All relocation shall be done under the supervision of a certified arborist per specifications.
 - Trunk diameter measured 12" above top of root crown.

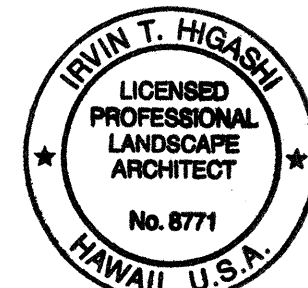
- Root Cutting Notes:
- Make initial trench cuts 6" beyond the final finish cut when using a trencher.
 - Make initial trench cuts 12" beyond the final finish cuts when using a backhoe.
 - Hand excavate around roots to the size of desired rootball and then trim off protruding roots by handsaw or chainsaw.

LARGE TREE RELOCATION DETAIL

NOT TO SCALE 3

SHRUB PLANTING DETAIL

NOT TO SCALE 1



SIGNATURE
APRIL 30, 2008
EXPIRATION DATE OF LICENSE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLANT LIST DETAILS & NOTES
PALI HIGHWAY

TRAFFIC OPERATIONAL IMPROVEMENTS
AT VARIOUS INTERSECTIONS & ROADWAYS

PROJECT NO. HWY-0-04-04

PALI HWY./VINEYARD BLVD. INTERSECTION IMPROVEMENTS
NO SCALE DATE: MARCH 2006



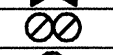

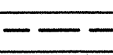

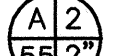



SHEET No. L-4 OF 5 SHEETS

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

IRRIGATION NOTES

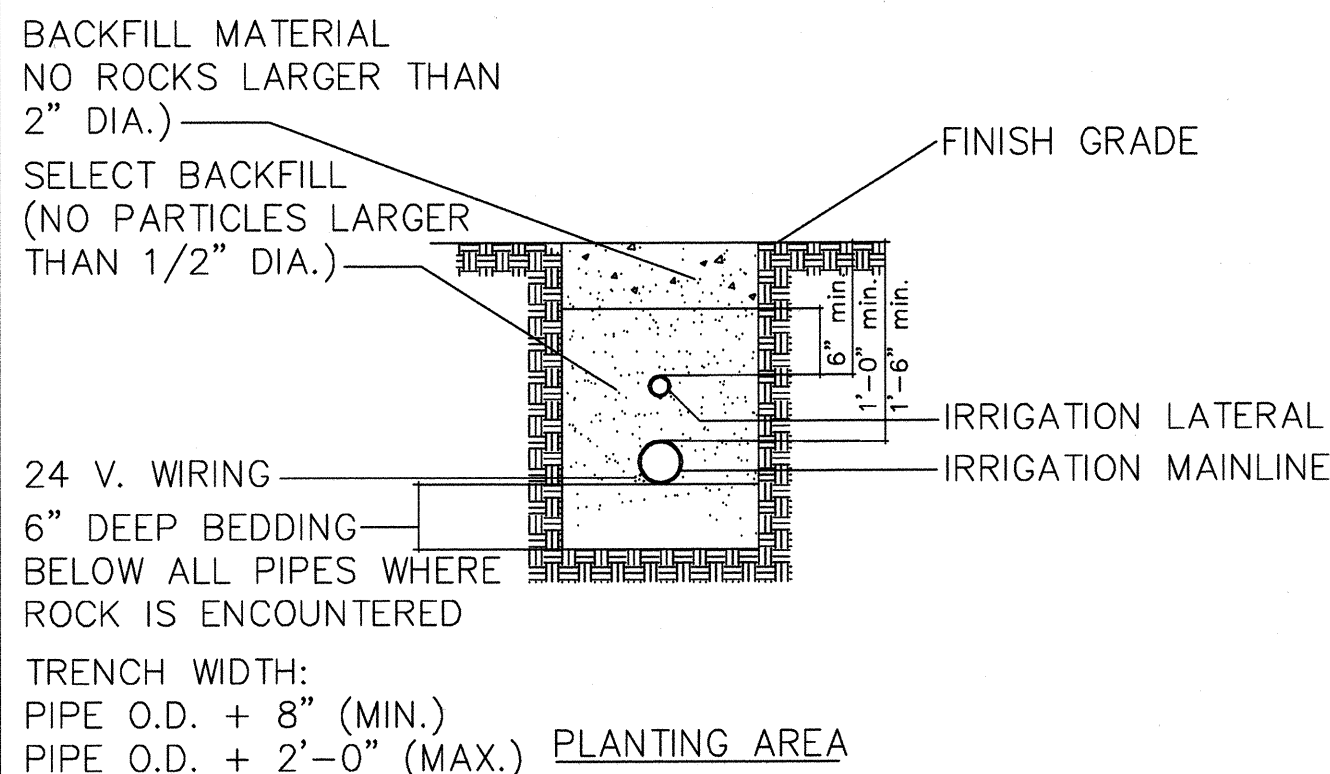
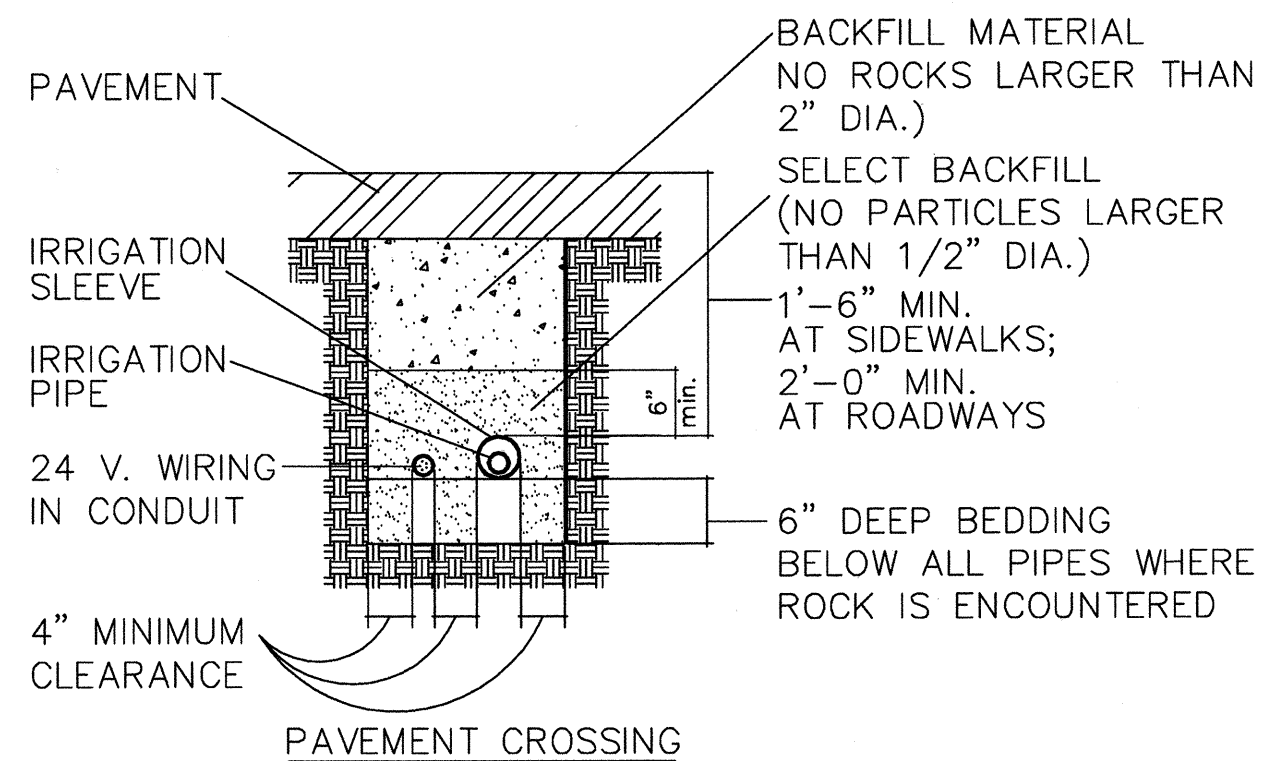
1. ALL INDICATED ITEMS ARE NEW UNLESS OTHERWISE NOTED.
2. THE EXTENT OF REMOVAL AS INDICATED IS APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE EXTENT OF REMOVAL WORK TO PROPERLY ACCOMMODATE HIS METHOD OF CONSTRUCTING NEW WORK AS REQUIRED. ADDITIONAL REMOVAL, AND RESTORATION REQUIRED TO ACCOMMODATE CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO THE NEW WORK.
3. THE CONTRACTOR SHALL PROTECT ALL EXISTING LANDSCAPE & IRRIGATION SYSTEM TO REMAIN. ANY DAMAGES RESULTING DIRECTLY OR INDIRECTLY FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AND/OR REPLACED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.
4. LOCATIONS OF ALL EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN EXCAVATING NEAR UTILITIES. ANY AND ALL DAMAGE SHALL BE IMMEDIATELY REPAIRED AND/OR RESTORED TO ITS ORIGINAL CONDITION BY THE CONTRACTOR AT HIS COST. UTILITIES SHALL INCLUDE BUT NOT LIMITED TO ELECTRICAL, TELEPHONE, SEWER, WATER, AND IRRIGATION SYSTEMS, ETC.
5. THE CONTRACTOR SHALL NOT STORE OR PARK EQUIPMENT, VEHICLES AND/OR MATERIALS UNDER THE EXISTING TREES OR WITHIN THE PARK. DRIVING VEHICLES OVER TREE ROOTS IS NOT PERMITTED.
6. THE EXISTING IRRIGATION SYSTEM SHALL BE REPAIRED AND/OR REPLACED AS SHOWN AND/OR AS NOTED ON THE PLANS AND IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR IRRIGATION AND WATER SYSTEMS OF THE DEPARTMENT OF PARKS AND RECREATION, CITY AND COUNTY OF HONOLULU.
7. THE CONTRACTOR SHALL BE REQUIRED TO FIELD VERIFY AND OPERATE THE EXISTING IRRIGATION SYSTEM TO BECOME FAMILIAR WITH THE RESPECTIVE SYSTEMS NOT AFFECTED BY THIS PROJECT BUT WITHIN THE PROJECT LIMITS PRIOR TO THE START OF CONSTRUCTION AND DEMOLITION. THE CONTRACTOR SHALL NOT BE RESPONSIBLE FOR DAMAGES ON THE EXISTING SYSTEMS PRIOR TO START OF DEMOLITION AND CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE OPERATION OF THE VARIOUS SYSTEMS WITH THE PARKS AND RECREATION DISTRICT MANAGER. HOWEVER, UPON COMMENCEMENT OF THE PROJECT THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT, MAINTAIN AND REPAIR THE PORTION OF THE EXISTING SYSTEMS WITHIN THE PROJECT LIMITS FOR THE DURATION OF THE CONTRACT.
8. EXISTING SPRINKLER HEADS MAY BE BURIED. THE LOCATION OF EXISTING WATER AND SPRINKLER LINES, HEADS AND VALVES AS SHOWN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL LOCATE, EXPOSE, AND VERIFY THESE EXISTING FACILITIES PRIOR TO COMMENCING WITH WORK.
9. THE CONTRACTOR SHALL PERFORM THE RELOCATION WORK IN SUCH A MANNER SO THAT SHUTTING DOWN OF THE EXISTING WATER AND SPRINKLER LINES ARE KEPT TO A MINIMUM AND ADJUST SPRINKLERS TO ASSURE PROPER COVERAGE AND OPERATION.
10. THE UNDERGROUND PIPES, CABLES OR DUCT LINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF HIS RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE UTILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTION OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
11. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL EXISTING DIMENSIONS, AS BUILT CONDITIONS, STRUCTURES, SITE IMPROVEMENTS, ETC., PRIOR TO BIDDING.
12. THE CONTRACTOR SHALL WATER FOR THE IRRIGATION OF THE GROUNDS TO THE SATISFACTION OF THE ENGINEER AND SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

IRRIGATION LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER & MODEL NO.	RADIUS	PSI	GPM	REMARKS
	4" POP-UP HEAD, HALF CIRCLE	TORO #570Z-4P-PR-15H	15'	30	1.65	15' SERIES 30 DEGREE SPRAY
	4" POP-UP HEAD, BUBBLER	TORO #570-4P-PR-SB-360	8'	30	2.00	FULL CIRCLE STREAM BUBBLER
	BALL VALVE	WATTS #FBV-2				2" SIZE
	REDUCE PRESSURE BACKFLOW PREVENTOR	WATTS #USB-G(2")				2" SIZE
	REMOTE CONTROL VALVE	RAINBIRD PEBS SERIES				SEE DRAWING FOR SIZE
	BATTERY OPERATED CONTROLLER	RAINBIRD EASY RAIN				SINGLE STATION MOUNTED ON RCV
	IRRIGATION MAINLINE	PVC SCHEDULE 40 PIPE				SEE DRAWING FOR SIZE
	IRRIGATION LATERAL	PVC CLASS 200 PIPE				SEE DRAWING FOR SIZE
	CONTROLLER/ STATION NUMBER					
	FLOW (GPM) THRU VALVE/ SIZE OF VALVE					

B.W.S. FLOW REQUIREMENTS

Premise ID (PID):	<u>1129381</u>		
Meter Number (M/N):	<u>02701398</u>		
Description	fu	gpm	gpd
Proposed Domestic: (All fixtures being installed)	<u>0</u>	<u>0</u>	
Proposed Irrigation:	<u>150</u>	<u>55</u>	
Other	<u> </u>	<u> </u>	
Total Proposed: (Do Not include irrigation gpm if less than domestic and done during off-peak hours)	<u>150</u>	<u>55</u>	<u>2080</u>
Demolition: (All fixtures being removed)	<u>150</u>	<u>55</u>	
Demo Permit #	Date: <u> </u>		
Net Change: (Subtract "E" from "D" above)	<u>0</u>	<u>0</u>	
Existing to Remain: (Other fixtures serviced by this meter but not affected by project)	<u>0</u>	<u>0</u>	<u>0</u>
GRAND TOTAL (Add "D" and "G" above)	<u>150</u>	<u>55</u>	<u>2080</u>

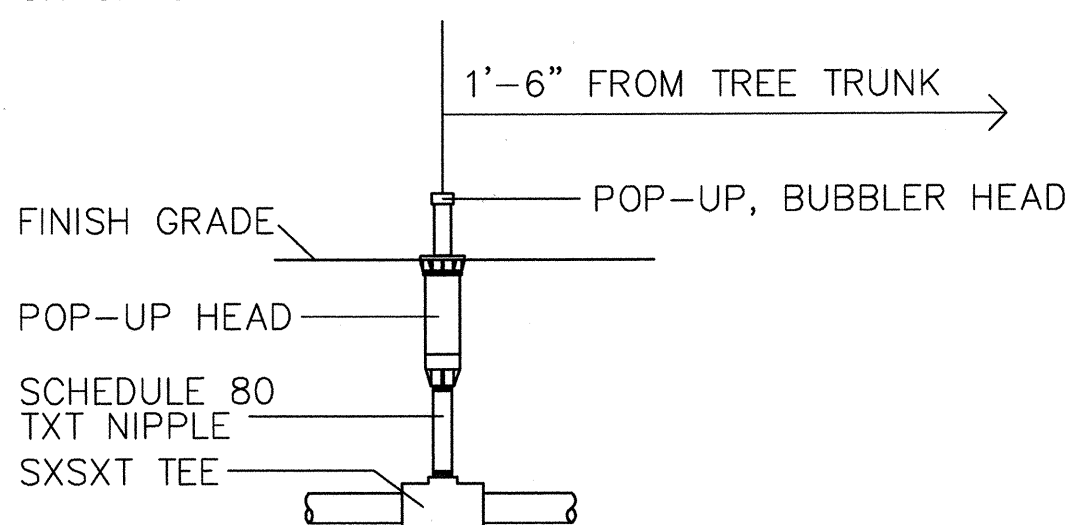


TRENCH DETAIL

NOT TO SCALE

6

INSTALL 2 BUBBLERS PER TREE ON OPPOSITE SIDES OF TRUNK

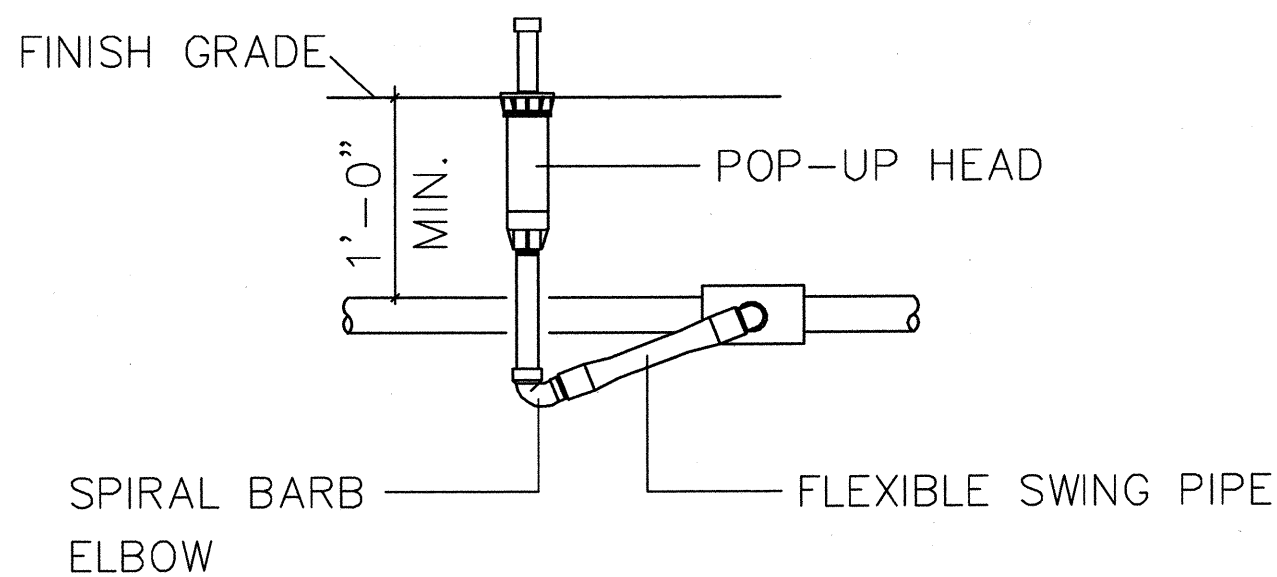


4" POP-UP BUBBLER DETAIL

NOT TO SCALE

5

INSTALL PART CIRCLE POP-UP HEADS 4" FROM EDGE OF LAWN; STRIP HEADS 2" FROM EDGE.

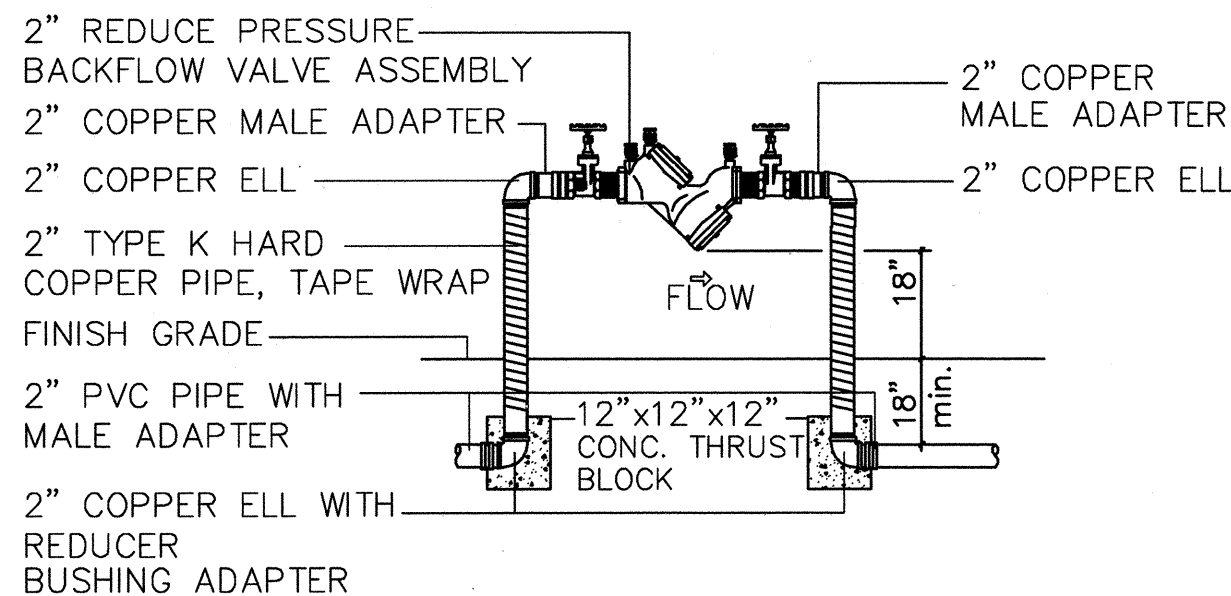


4" POP UP SPRAY HEAD DETAIL

NOT TO SCALE

4

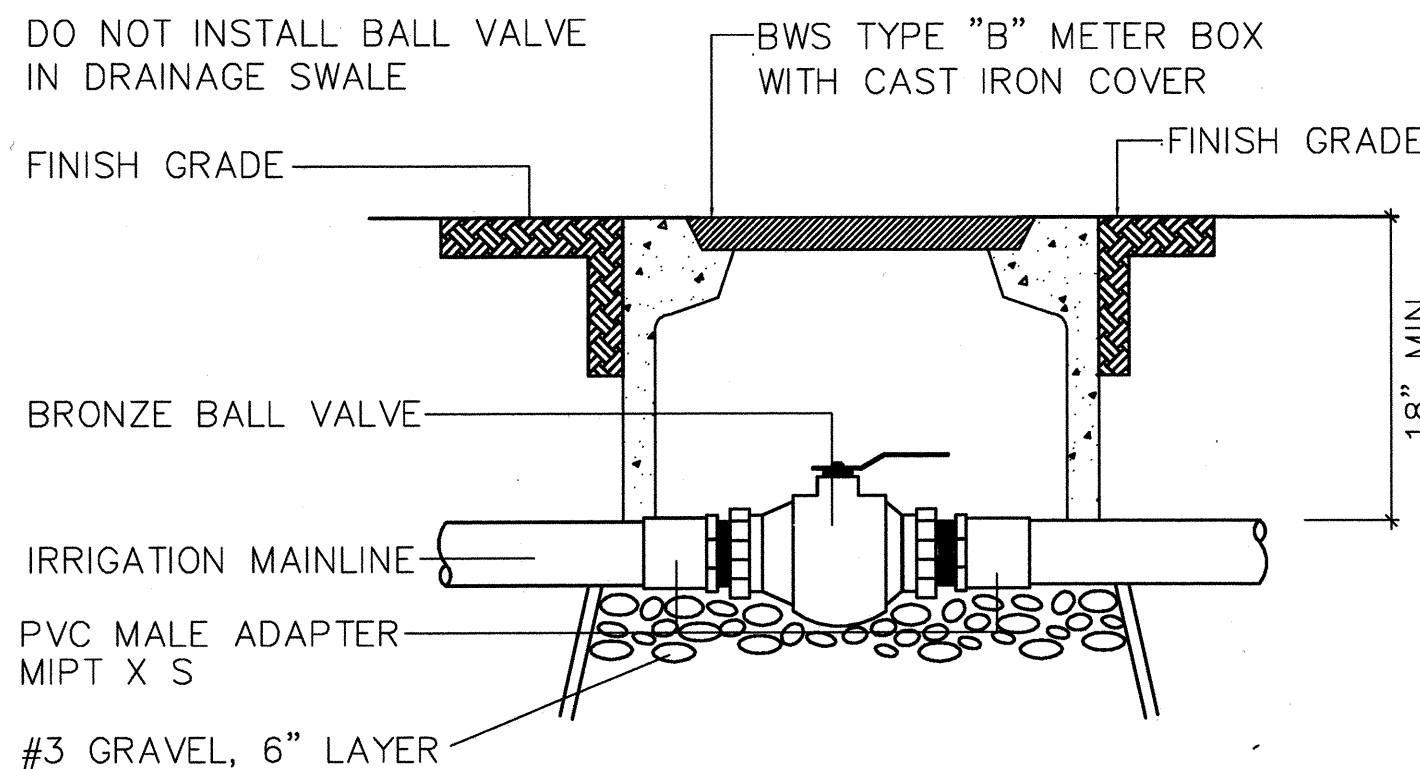
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-04-04	2006	21	45



2" REDUCE PRESSURE BACKFLOW VALVE

NOT TO SCALE

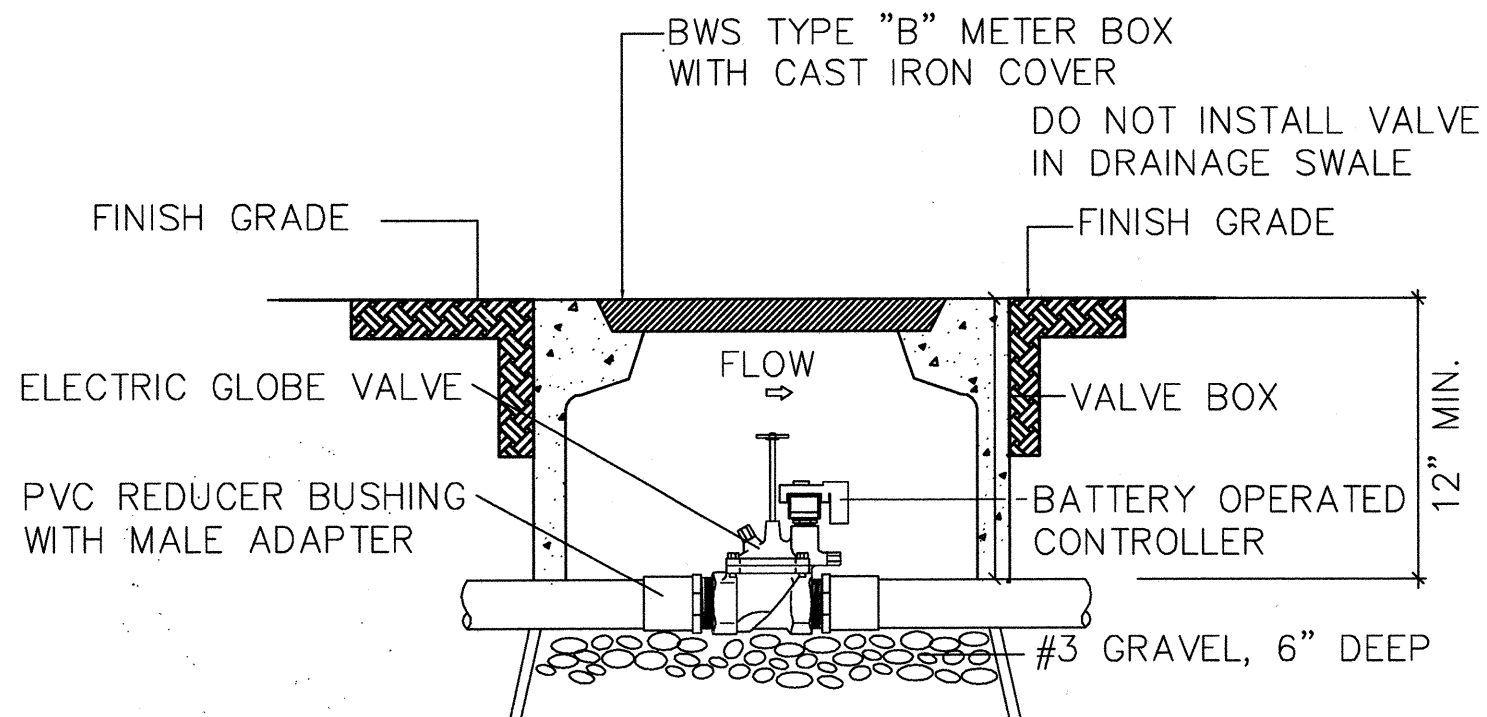
3



BRONZE BALL VALVE DETAIL

NOT TO SCALE

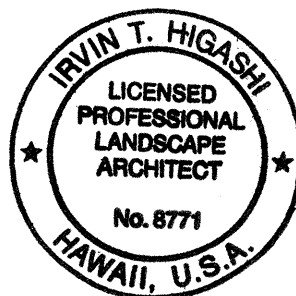
2



BATTERY OPERATED CONTROLLER DETAIL

NOT TO SCALE

1



SIGNATURE
APRIL 30, 2008
EXPIRATION DATE OF LICENSE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
IRRIGATION LEGEND, DETAILS & NOTES
PALI HIGHWAY
TRAFFIC OPERATIONAL IMPROVEMENTS
AT VARIOUS INTERSECTIONS & ROADWAYS
PROJECT NO. HWY-0-04-04
PALI HWY./VINEYARD BLVD. INTERSECTION IMPROVEMENTS
NO SCALE
DATE: MARCH 2006

SHEET No. L-5 OF 5 SHEETS

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