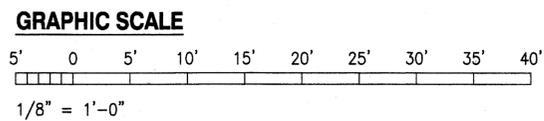


- NOTES:**
- 1 TO PANEL "C" VIA LIGHTING CONTROL PANEL. SEE SHEET E5.02 LIGHTING CONTROL DIAGRAM.
  - 2 TO LIGHTING CONTROL PANEL. SEE SHEET E5.03 LIGHTING CONTROL DIAGRAM.
  - 3 TO EF, FOR CONTINUATION, SEE SHEET E2.01.

**MAIN FACILITY LIGHTING PLAN**  
SCALE: 1/8" = 1'-0"

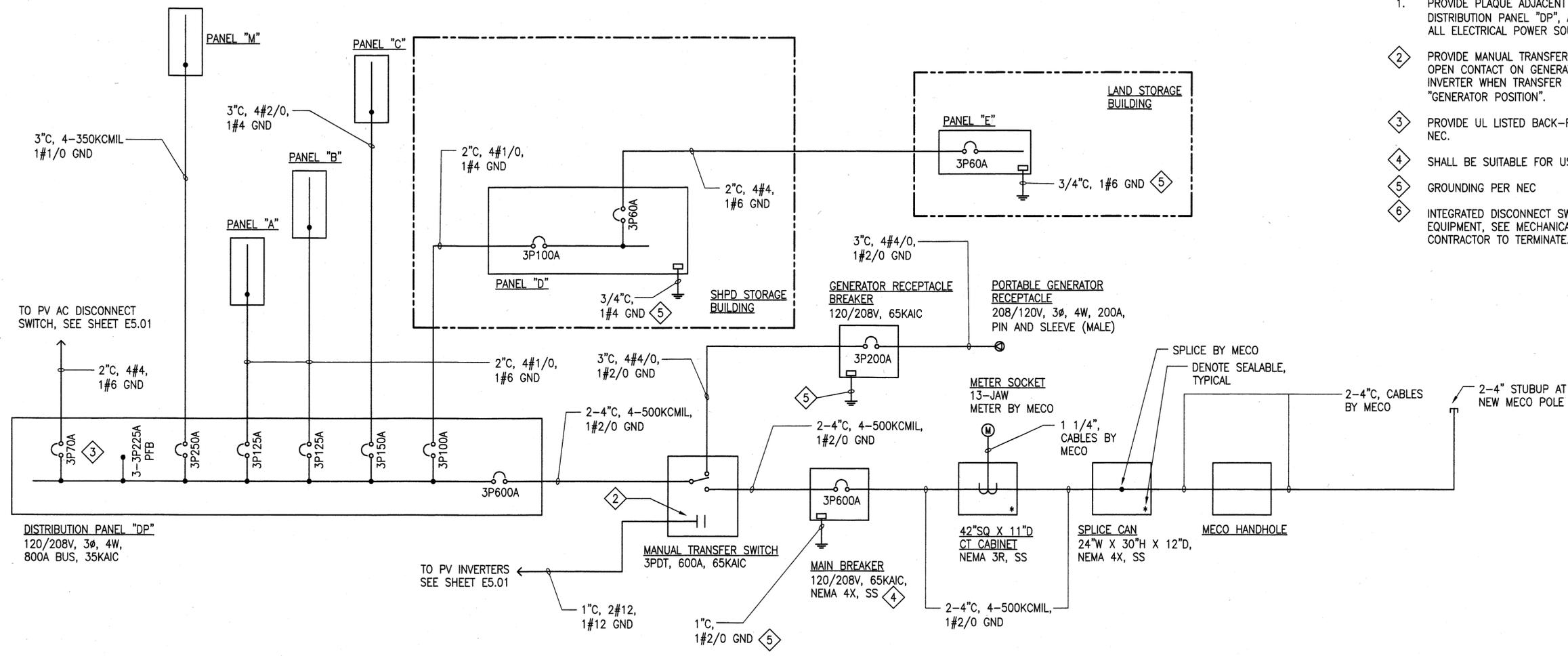


REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII					
MAIN FACILITY LIGHTING PLAN					
DESIGNED:	RP	SUBMITTED:	SC	DATE:	03/15/2016
DRAWN:	MC	CHECKED:	MA	SCALE:	AS SHOWN
APPROVED:	<i>[Signature]</i>		DATE:	MAR 23 2016	E4.00
CHIEF ENGINEER					

APRIL 30, 2016  
 EXP. DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

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**NOTES:**

1. PROVIDE PLAQUE ADJACENT TO METERING APPARATUS, DISTRIBUTION PANEL "DP", AND MAIN BREAKER INDICATING ALL ELECTRICAL POWER SOURCES ON THE PREMISES.
2. PROVIDE MANUAL TRANSFER SWITCH WITH NORMALLY OPEN CONTACT ON GENERATOR SIDE TO DISABLE PV INVERTER WHEN TRANSFER SWITCH IS IN THE "GENERATOR POSITION".
3. PROVIDE UL LISTED BACK-FEED TYPE BREAKER PER NEC.
4. SHALL BE SUITABLE FOR USE AS SERVICE EQUIPMENT.
5. GROUNDING PER NEC
6. INTEGRATED DISCONNECT SWITCH, FURNISH WITH EQUIPMENT, SEE MECHANICAL PLANS. ELECTRICAL CONTRACTOR TO TERMINATE.

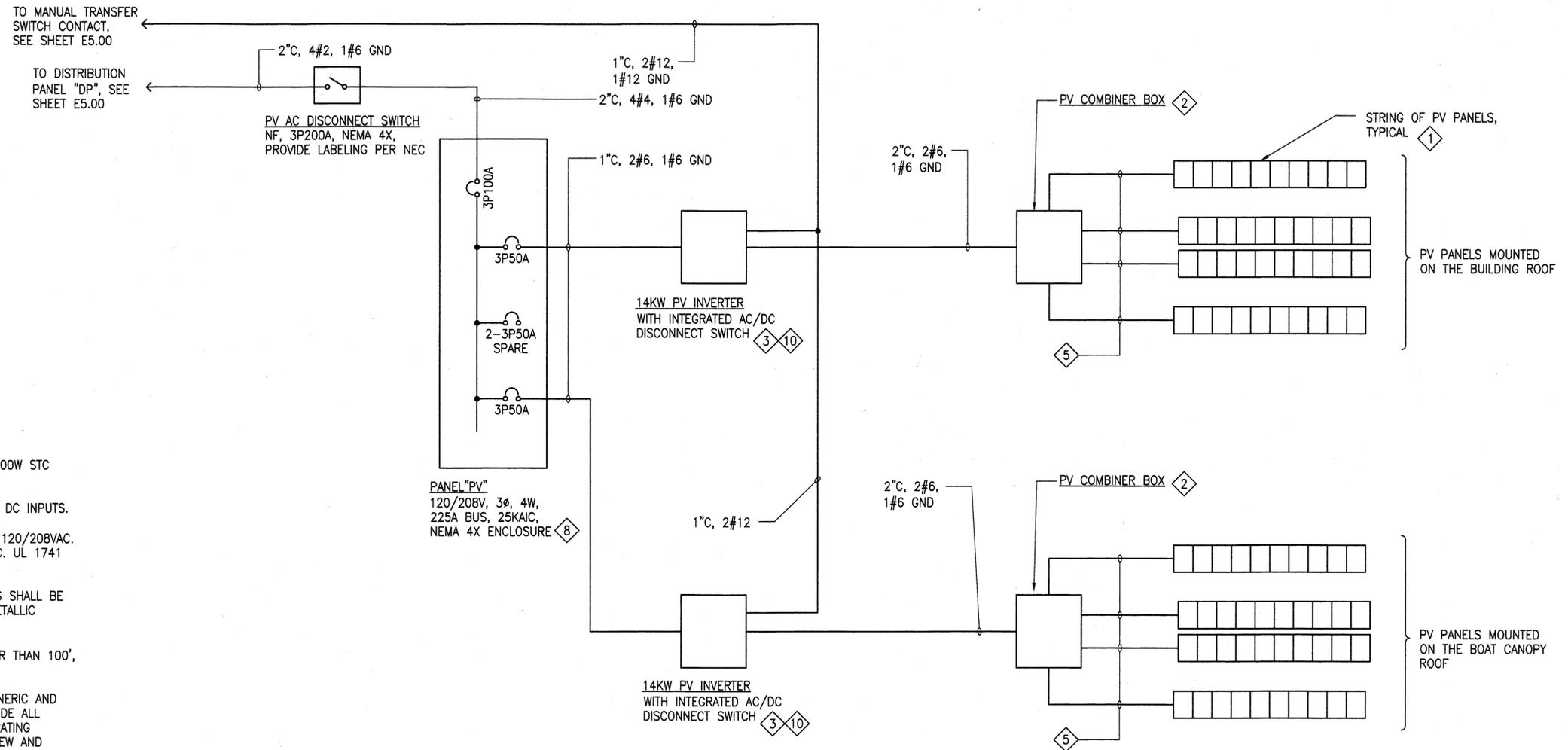
**ONE-LINE DIAGRAM**  
NO SCALE

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII					
ONE-LINE DIAGRAM					
DESIGNED:	RP	SUBMITTED:	[Signature]		
DRAWN:	MC	DATE:	03/15/2016		
CHECKED:	MA	SCALE:	AS SHOWN		
APPROVED:	[Signature]	DATE:	MAR 23 2016		
CHIEF ENGINEER			E5.00		



APRIL 30, 2016  
EXP. DATE  
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

3/17/16-11:25 Y:\148\148.026\148.026 E5.00-5.01.R01.dwg



**NOTES:**

- 1 STRING OF 10 PV PANELS. MINIMUM OF 300W STC PER PANEL.
- 2 PV COMBINER BOX. MINIMUM OF 6 FUSED DC INPUTS.
- 3 AC OUTPUT SHALL BE THREE (3) PHASE, 120/208VAC. PROVIDE DC AND AC GROUNDING PER NEC. UL 1741 LISTED.
- 4. PROVIDE GROUNDING PER NEC. CONDUITS SHALL BE GRS FOR EXPOSED INSTALLATION. NON-METALLIC CONDUITS NOT ALLOWED.
- 5 2/C#10 USE-2 CABLE. FOR RUNS LONGER THAN 100', PROVIDE LARGER GAUGE CABLES.
- 6. PV SYSTEM SHOWN IN THE PLAN IS A GENERIC AND DOES NOT SHOW ALL COMPONENTS. PROVIDE ALL COMPONENTS FOR A COMPLETE AND OPERATING SYSTEM. SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL.
- 7. PV PANEL ARRAYS, INVERTER, COMBINER BOX, AC AND DC DISCONNECT SWITCHES AND OVERCURRENT PROTECTION DEVICES SHALL BE SIZED AND RATED FOR A COMPLETE AND OPERATIONAL NET ENERGY METERED PHOTOVOLTAIC SYSTEM.
- 8. PROVIDE UL LISTED BACK-FEED TYPE BREAKER PER NEC.
- 9 PROVIDE ENGRAVED NAMEPLATE WITH THE FOLLOWING:  
 "WARNING  
 ELECTRIC SHOCK HAZARD.  
 DO NOT TOUCH TERMINALS.  
 TERMINALS ON BOTH THE LINE  
 AND LOAD SIDES MAY BE ENERGIZED  
 IN THE OPEN POSITION."
- 10 INVERTER SHALL BE DISABLED WHEN MANUAL TRANSFER SWITCH IS IN "GENERATOR POSITION", FOR MANUAL TRANSFER SWITCH CONNECTION, SEE SHEET E5.00

**PV ONE-LINE DIAGRAM**

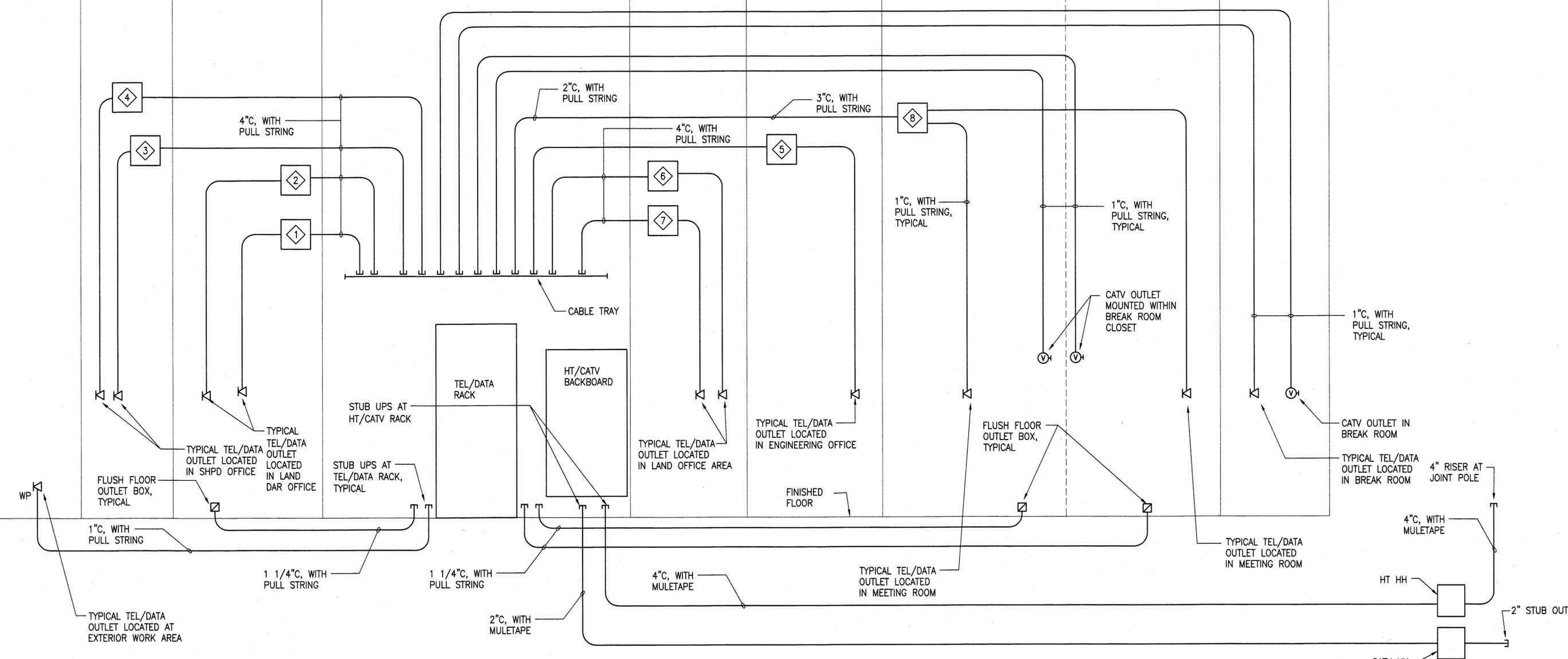
NO SCALE

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII					
PV ONE-LINE DIAGRAM					
DESIGNED:	RP	SUBMITTED:	gc		
DRAWN:	MC	DATE:	03/15/2016		
CHECKED:	MA	SCALE:	AS SHOWN		
APPROVED:	<i>[Signature]</i>	DATE:	MAR 23 2016	DRAWING NO.	E5.01
CHIEF ENGINEER					

APRIL 30, 2016  
 EXP. DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

EXTERIOR WORK AREA | SHPD OFFICE AREA | DAR OFFICE AREA | ELECTRICAL/COMMUNICATIONS ROOM | LAND OFFICE AREA | ENGINEERING OFFICE AREA | MEETING ROOM 1 | MEETING ROOM 2 | BREAK ROOM | SITE



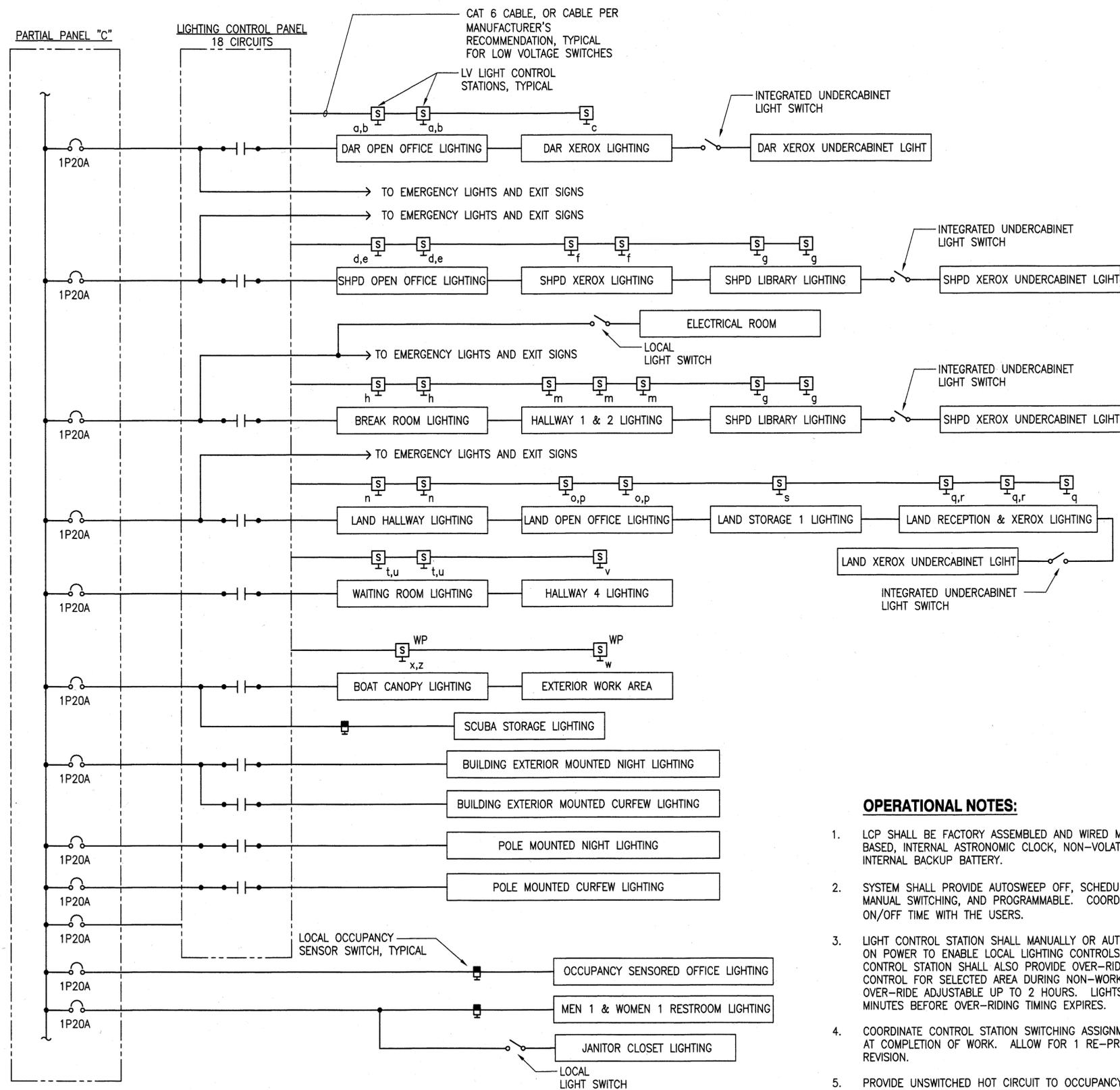
**NOTES:**

- 1 DAR T/D JUNCTION BOX - 1, 30" x 24" x 8" JUNCTION BOX
- 2 DAR T/D JUNCTION BOX - 2, 30" x 24" x 8" JUNCTION BOX
- 3 SHPD T/D JUNCTION BOX - 1, 30" x 24" x 8" JUNCTION BOX
- 4 SHPD T/D JUNCTION BOX - 2, 30" x 24" x 8" JUNCTION BOX
- 5 ENGINEERING T/D JUNCTION BOX, 18" x 18" x 6" JUNCTION BOX
- 6 LAND T/D JUNCTION BOX - 1, 30" x 24" x 8" JUNCTION BOX
- 7 LAND T/D JUNCTION BOX - 2, 30" x 24" x 8" JUNCTION BOX
- 8 MEETING ROOM T/D JUNCTION BOX, 24" x 24" x 8" JUNCTION BOX

**TEL/DATA/CATV RISER DIAGRAM**  
NOT TO SCALE

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII					
TEL/DATA/CATV RISER DIAGRAM					
DESIGNED: RP		SUBMITTED: <i>MC</i>			
DRAWN: MC		DATE: 03/15/2016			
CHECKED: MA		SCALE: AS SHOWN			
APPROVED: <i>Michelle N. Adolp</i>		DATE: MAR 23 2016		DRAWING NO. E5.02	
CHIEF ENGINEER					

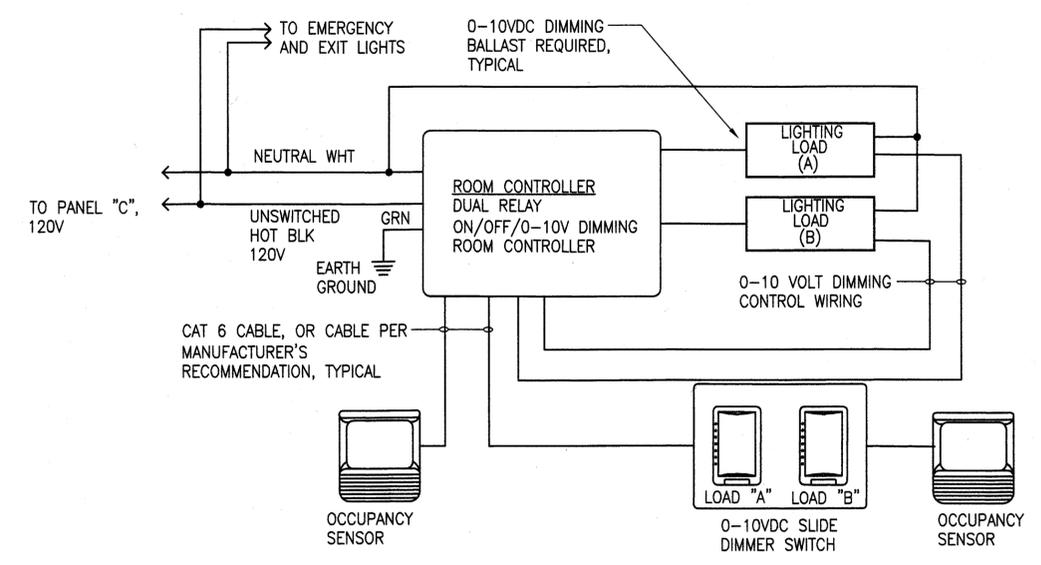
3/17/16-11:22 Y:\148\148.026\148.026 E5.02-5.04.R02.dwg



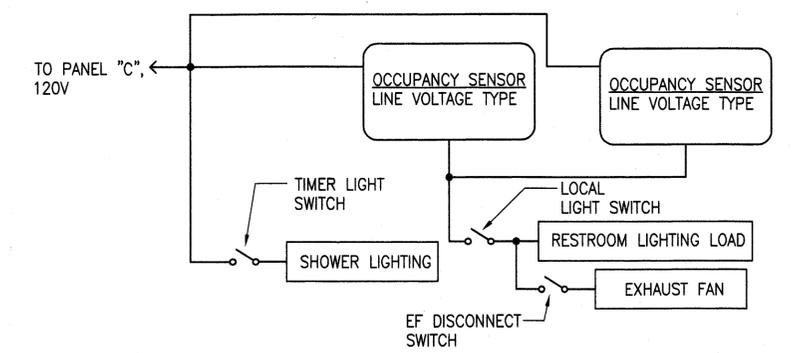
**1 LIGHTING CONTROL DIAGRAM 1**  
E5.03 NOT TO SCALE

**OPERATIONAL NOTES:**

- LCP SHALL BE FACTORY ASSEMBLED AND WIRED MICROPROCESSOR BASED, INTERNAL ASTRONOMIC CLOCK, NON-VOLATILE MEMORY, AND INTERNAL BACKUP BATTERY.
- SYSTEM SHALL PROVIDE AUTOSWEEP OFF, SCHEDULED ON/OFF, MANUAL SWITCHING, AND PROGRAMMABLE. COORDINATE SCHEDULE ON/OFF TIME WITH THE USERS.
- LIGHT CONTROL STATION SHALL MANUALLY OR AUTOMATICALLY TURN ON POWER TO ENABLE LOCAL LIGHTING CONTROLS. LIGHTING CONTROL STATION SHALL ALSO PROVIDE OVER-RIDE LIGHTING CONTROL FOR SELECTED AREA DURING NON-WORKING HOURS WITH OVER-RIDE ADJUSTABLE UP TO 2 HOURS. LIGHTS SHALL BLINK 10 MINUTES BEFORE OVER-RIDING TIMING EXPIRES.
- COORDINATE CONTROL STATION SWITCHING ASSIGNMENT WITH USERS AT COMPLETION OF WORK. ALLOW FOR 1 RE-PROGRAMMING REVISION.
- PROVIDE UNSWITCHED HOT CIRCUIT TO OCCUPANCY SENSORS, JANITOR CLOSET, PV CLOSET, AND ELECTRICAL ROOMS. ALL OTHER MANUALLY SWITCHED LIGHTS ARE CONTROLLED BY THE LCP TIME CLOCK.



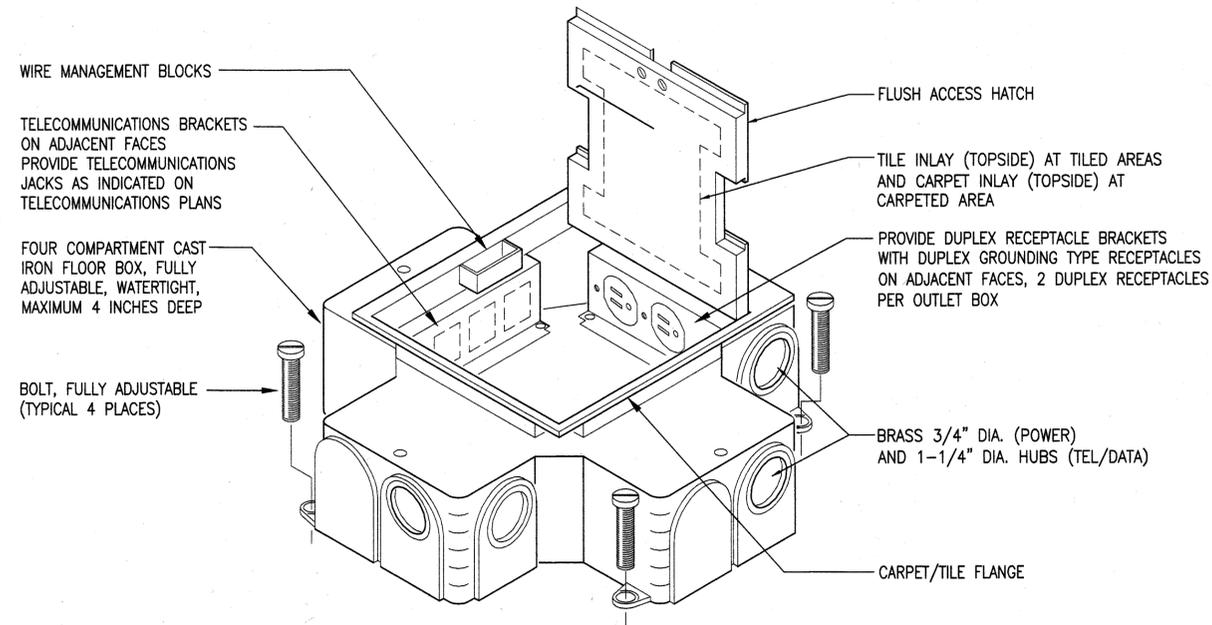
**2 LIGHTING CONTROL DIAGRAM 2 - MEETING ROOMS**  
E5.03 NOT TO SCALE



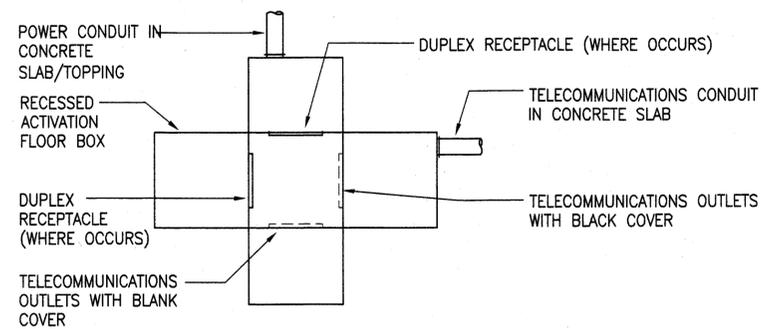
**3 LIGHTING CONTROL DIAGRAM 3 - MEN 2 & WOMEN 2 RESTROOMS**  
E5.03 NOT TO SCALE

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII					
LIGHTING CONTROL DIAGRAMS					
DESIGNED:	RP	SUBMITTED:	<i>ee rd</i>		
DRAWN:	MC	DATE:	03/15/2016		
CHECKED:	MA	SCALE:	AS SHOWN		
APPROVED:	<i>[Signature]</i>		DATE:	MAR 23 2016	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.		CHIEF ENGINEER	DRAWING NO. E5.03		

3/17/16-11:21 Y:\148\148.026\148.026 E5.02-5.04.R02.dwg



**1 COMBINATION POWER/DATA/TEL FLUSH FLOOR OUTLET**  
**E6.00** NOT TO SCALE



GROUND FLOOR

**2 TYPICAL FLOOR OUTLET CONDUIT ROUTING**  
**E6.00** NOT TO SCALE

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII					
<b>FLOOR OUTLET BOX AND MISCELLANEOUS DETAILS</b>					
DESIGNED:	RP	SUBMITTED:	[Signature]		
DRAWN:	MC	DATE:	03/15/2016		
CHECKED:	MA	SCALE:	AS SHOWN		
APPROVED:	[Signature]	DATE:	MAR 23 2016		
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.		CHIEF ENGINEER	E6.00		

### LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMPS	TYPE	DESCRIPTION	LAMPS
1	LED, AIRCRAFT CABLE MOUNTED AT 8'-6" AFF UNLESS NOTED OTHERWISE, NOMINAL 4 FOOT LONG, EXTRUDED ALUMINUM HOUSING, ACRYLIC BATWING LENS, MULTI-VOLTAGE DRIVER, MINIMUM 80 LUMENS PER WATT. PRUDENTIAL LIGHTING #BIOLIN-LED35-HO-4TMW-ABW-D1XSC-UNV OR APPROVED EQUAL	12W PER FOOT LED 3500K	12	LED, 2 FOOT WALL MOUNTED AT 7'-0" AFF, COLD ROLLED STEEL HOUSING, POLYESTER POWDER COATED FINISH, MULTI-VOLTAGE DRIVER, UL LISTED FOR DAMP LOCATION, MINIMUM 100 LUMENS PER WATT.  H.E. WILLIAMS #SLF-2-L26/835-HIA-DRV-UNV OR APPROVED EQUAL	23W LED 3500K
2	SIMILAR TYPE 1, EXCEPT MINIMUM 85 LUMENS PER WATT.  PRUDENTIAL LIGHTING #BIOLIN-LED35-SO-4TMW-ABW-D1XSC-UNV OR APPROVED EQUAL	10W PER FOOT LED 3500K	13	LED, 6" RECESSED DOWNLIGHT, DIFFUSE IMPACT RESISTANT POLYCARBONATE LENS, 120V ELECTRONIC BALLAST, UL LISTED FOR WET LOCATION, MINIMUM 1000 LUMENS OUTPUT.  PRESCOLITE #LBSLEDA10L-35K8WH OR APPROVED EQUAL	17W LED 3500K
3	LED, CEILING RECESSED, 2' X 4', DIE FORMED HEAVY GAUGE STEEL HOUSING, WHITE POWDER COAT FINISH, PAINTED AFTER FABRICATION, HIGH TRANSMISSION EXTRUDED ACRYLIC LENS, MULTI-VOLTAGE DRIVER, MINIMUM 95 LUMENS PER WATT.  COLUMBIA #LSER24-35MLG-C-EU OR APPROVED EQUAL	52W LED 3500K	14	LED, 4 FOOT UNDERCABINET MOUNTED, STEEL HOUSING, WHITE POLYESTER POWER COAT, PAINTED AFTER FABRICATION, 0.125" THICK FROSTED ACRYLIC LENS, INTEGRAL ON-OFF ROCKER SWITCH, MULTI-VOLTAGE DRIVER, UL LISTED FOR DAMP LOCATION, MINIMUM 80 LUMENS PER WATT. WILLIAMS #1SF4-835-AF12125-WRS/120-AMW-DRV-UNV OR APPROVED EQUAL	29W LED 3500K
4	LED, CEILING RECESSED, 1' X 4', DIE FORMED HEAVY GAUGE STEEL HOUSING, WHITE POWDER COAT FINISH, PAINTED AFTER FABRICATION, HIGH TRANSMISSION EXTRUDED ACRYLIC LENS, MULTI-VOLTAGE DRIVER, MINIMUM 90 LUMENS PER WATT.  COLUMBIA #LSER14-35HLG-C-EU OR APPROVED EQUAL	52W LED 3500K	15	LED, 4 FOOT SURFACE MOUNTED, VANDAL RESISTANT, IMPACT RESISTANT, UV RESISTANT FIBERGLASS HOUSING, FROSTED POLYCARBONATED LENS, MULTI-VOLTAGE DRIVER, UL LISTED FOR WET LOCATION, MINIMUM 100 LUMENS PER WATT, HIGH-AMBIENT RATED AT 40°C MINIMUM. WILLIAMS #96-4-L40/830-PCFR-HA/40C-DRV OR APPROVED EQUAL	40W LED 3000K
5	LED, CEILING RECESSED, 1' X 4', DIE FORMED HEAVY GAUGE STEEL HOUSING, WHITE POWDER COAT FINISH, PAINTED AFTER FABRICATION, HIGH TRANSMISSION EXTRUDED ACRYLIC LENS, MULTI-VOLTAGE DRIVER, MINIMUM 90 LUMENS PER WATT.  COLUMBIA #LSER14-35LWG-C-EU OR APPROVED EQUAL	31W LED 3500K	16	LED, 4 FOOT PENDANT MOUNTED, VANDAL RESISTANT, IMPACT RESISTANT, UV RESISTANT FIBERGLASS HOUSING, FROSTED POLYCARBONATE LENS, MULTI-VOLTAGE DRIVER, UL LISTED FOR WET LOCATION, MINIMUM 100 LUMENS PER WATT, HIGH-AMBIENT RATED AT 40°C MINIMUM. WILLIAMS #96-4-L40/830-PCFR-HA/40C-DRV OR APPROVED EQUAL	40W LED 3000K
6	LED, CEILING RECESSED, 2' X 4' TROFFER, DIE FORMED CODE-GAUGE COLD-ROLLED STEEL HOUSING, BAKE WHITE ENAMEL FINISH, PRISMATIC A-12 ACRYLIC DIFFUSER 0.125" THICK, MULTI-VOLTAGE DRIVER, MINIMUM 100 LUMENS PER WATT. COLUMBIA #LJT24-35MLG-FAA12125-EU OR APPROVED EQUAL	45W LED 3500W	17	LED, 4 FOOT PENDANT MOUNTED, VANDAL RESISTANT, EXTRUDED ALUMINUM HOUSING, POLYESTER POWDER COATED, POLYCARBONATE LENS, INTEGRATED OCCUPANCY SENSOR SWITCH, MULTI-VOLTAGE DRIVER, UL LISTED FOR WET LOCATION, MINIMUM 100 LUMENS PER WATT. LUMINAIRE #VPF 8 4-25W-3000K-120-277-CP-BLK-OCC OR APPROVED EQUAL	25W LED 3000K
7	LED, CEILING RECESSED, 1' X 4' TROFFER, DIE FORMED CODE-GAUGE COLD-ROLLED STEEL HOUSING, BAKE WHITE ENAMEL FINISH, PRISMATIC A-12 ACRYLIC DIFFUSER 0.125" THICK, MULTI-VOLTAGE DRIVER, MINIMUM 95 LUMENS PER WATT. COLUMBIA #LJT14-35LWG-FAA12125-EU OR APPROVED EQUAL	26W LED 3500K	18	LED, WALL PACK, DIE CAST ALUMINUM HOUSING, TYPE IV DISTRIBUTION, POWDER COAT, WITH DIFFUSER, 120V, UL LISTED FOR WET LOCATION, MINIMUM 60 LUMENS PER WATT.  HUBBELL #LNC2-12L-1-3K-4-1 OR APPROVED EQUAL	28W LED 3000K
8	LED, 4-FOOT WRAPAROUND, CEILING SURFACE MOUNTED, STEEL HOUSING, BAKE WHITE ENAMEL FINISH, HIGH IMPACT ACRYLIC PRISMATIC LENS, MULTI-VOLTAGE DRIVER, UL LISTED FOR WET LOCATION, MINIMUM 100 LUMENS PER WATT.  COLUMBIA #LAW4-35LW-EU-PAF OR APPROVED EQUAL	23W LED 3500K	19	LED, WALL PACK, DIE CAST ALUMINUM HOUSING, TYPE 2 DISTRIBUTION, POWDER COAT, WITH DIFFUSER, 120V, UL LISTED FOR WET LOCATION, MINIMUM 60 LUMENS PER WATT.  HUBBELL #LNC2-7L-1-3K-2-1 OR APPROVED EQUAL	18W LED 3000K
9	LED, 4-FOOT LENSED STRIP, PENDANT MOUNTED 9'-0" AFF, STEEL HOUSING, BAKE WHITE ENAMEL FINISH, ACRYLIC PRISMATIC LENS, MULTI-VOLTAGE DRIVER, MINIMUM 100 LUMENS PER WATT  COLUMBIA #LPT4-35LW-EU-PAF OR APPROVED EQUAL	LED 25W 3500K	☒ ☒	LED TYPE, UNIVERSAL MOUNTING EXIT SIGN, CLEAR INJECTION-MOLDED PLAQUE ALUMINUM HOUSING, UNIVERSAL ARROWS, RED LETTERS, 120V, SELF-CONTAINED BATTERY PACK  DUAL-LITE LE SERIES OR APPROVED EQUIVALENT	LED
10	SIMILAR TYPE 2, EXCEPT WITH 0-10V DIMMING DRIVER.  PRUDENTIAL LIGHTING #BIOLIN-LED35-MO-4TMW-ABW-D1XSC-UNV OR APPROVED EQUAL	10W PER FOOT LED 3500K	☒	EMERGENCY WALL PACK, THERMOPLASTIC HOUSING, WALL MOUNTED AT +8'-0", MAINTENANCE-FREE LEAD CALCIUM BATTERY WITH TEST SWITCH AND LIGHT, 120V WITH 2-6W LED LAMPS  DUAL-LITE #EVHC12-106L OR APPROVED EQUAL	2-6W LED
11	LED, 4 FOOT WALL MOUNTED AT 7'-0" AFF, COLD ROLLED STEEL HOUSING, POLYESTER POWDER COATED FINISH, MULTI-VOLTAGE DRIVER, UL LISTED FOR DAMP LOCATION, MINIMUM 100 LUMENS PER WATT.  H.E. WILLIAMS #SLF-4-L26/835-HIA-DRV-UNV OR APPROVED EQUAL	LED 26W 3500K	☒	LED, 17' POLE LIGHT, ONE PIECE DIE-CAST, LOW COPPER ALUMINUM HOUSING, POLYESTER POWDER COAT FINISH, 120V, TYPE III DISTRIBUTION, SEE E1.03 FOR ADDITIONAL DETAILS  KIM LIGHTING #WPS3E35-603K120-LG-SF OR APPROVED EQUAL	65W LED 3000K

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII					
LUMINAIRE SCHEDULE					
DESIGNED: RP		SUBMITTED: <i>cu ml</i>			
DRAWN: MC		DATE: 03/15/2016			
CHECKED: MA		SCALE: AS SHOWN			
APPROVED <i>Cyly</i> CHIEF ENGINEER		MAR 23 2016 DATE		DRAWING NO. <b>E6.01</b>	

PANEL "A"		120/208 VOLTS, 3 PHASE, 4 WIRE 125 AMP MAIN LUGS ONLY			MIN AIC: 25,000 MOUNTING: FLUSH						
WIRE SIZE (AWG)	CKT NO	USE	CKT BKR POLE/AMP	CONNECTED LOAD (KVA)			CKT BKR AMP/POLE	USE	CKT NO	WIRE SIZE (AWG)	
				PHASE A	PHASE B	PHASE C					
12	1	RECEPT-DAR OPEN OFF	1 20	0.6	0.6		20 1	RECEPT-SHPD OFF	2	10	
12	3	RECEPT-DAR OPEN OFF	1 20		0.6	0.6	20 1	RECEPT-SHPD OFF	4	10	
12	5	RECEPT-DAR OPEN OFF	1 20			0.6	20 1	RECEPT-SHPD OFF	6	10	
12	7	RECEPT-DAR OFF	1 20	0.6	0.6		20 1	RECEPT-SHPD OFF	8	10	
12	9	RECEPT-DAR OFF	1 20		0.6	0.6	20 1	RECEPT-SHPD OPEN OFF	10	10	
12	11	RECEPT-DAR OFF	1 20			0.6	20 1	RECEPT-SHPD OPEN OFF	12	10	
12	13	RECEPT-DAR OFF	1 20	0.6	0.5		20 1	RECEPT-SHPD OPEN OFF	14	10	
12	15	RECEPT-DAR OFF	1 20		0.6	0.6	20 1	RECEPT-SHPD OPEN OFF	16	12	
12	17	RECEPT-DAR OFF	1 20			0.6	20 1	RECEPT-SHPD COPIER	18	12	
12	19	RECEPT-DAR OFF	1 20	0.6	0.5		20 1	RECEPT-SHPD OFF & REF	20	12	
12	21	RECEPT-DAR OFF	1 20		0.6	0.6	20 1	RECEPT-SHPD LIB	22	12	
12	23	RECEPT-DAR XEROX	1 20			0.6	20 1	RECEPT-SHPD LIB	24	12	
12	25	RECEPT-DAR COPIER	1 20	1.2	0.4		20 1	RECEPT-WORK	26	12	
12	27	RECEPT-DAR OFF & REF	1 20		0.8	0.4	20 1	RECEPT-WORK	28	12	
12	29	DAR OFF MOD FURN	1 20			0.8	20 1	RECEPT-REF	30	12	
12	31	DAR OFF MOD FURN	1 20	0.4	1.0		20 1	RECEPT-TEL/DATA BB	32	12	
12	33	DAR OFF MOD FURN	1 20		0.6	1.0	20 1	RECEPT-TEL/DATA RACK	34	12	
-	35	SPARE	1 20			0.4	20 1	RECEPT-TEL/DATA RACK	36	12	
-	37	SPARE	1 20	0.4	1.0		20 1	RECEPT-TEL/DATA RACK	38	12	
-	39	SPARE	1 20		0.4	1.0	20 1	RECEPT-TEL/DATA RACK	40	12	
-	41	SPARE	1 20			0.4	20 1	RECEPT-TEL/DATA BB	42	12	
CONNECTED LOAD/PHASE				7.9	9.0	10.0					
TOTAL CONNECTED LOAD				26.9 KVA							
DEMAND FACTOR				0.8							
TOTAL DEMAND LOAD				21.5 KVA = 59.8 AMPS							

PANEL "C"		120/208 VOLTS, 3 PHASE, 4 WIRE 225 AMP MAIN LUGS ONLY			MIN AIC: 25,000 MOUNTING: SURFACE						
WIRE SIZE (AWG)	CKT NO	USE	CKT BKR POLE/AMP	CONNECTED LOAD (KVA)			CKT BKR AMP/POLE	USE	CKT NO	WIRE SIZE (AWG)	
				PHASE A	PHASE B	PHASE C					
12	1	RECEPT-BREAK RM	1 20	0.6	1.5		20 1	LTG-DAR OPEN OFF	2	10	
12	3	RECEPT-BREAK RM	1 20		0.6	0.9	20 1	LTG-DAR, SHPD OFF	4	10	
12	5	RECEPT-BREAK REF	1 20			1.2	20 1	LTG-SHPD OPEN OFF	6	10	
12	7	RECEPT-HALLWAY 1	1 20	0.6	1.2		20 1	LTG-BREAK, HALLWAY	8	10	
12	9	RECEPT-REST RM	1 20		0.8	0.8	20 1	LTG-REST RMS, EF	10	10	
12	11	HAND DRYER	1 20			0.4	20 1	LTG-ENG, LAND OFF	12	10	
10	13	RECEPT-IRR CONT	1 20	0.5	1.0		20 1	LTG-LAND RECP, OPEN OFF	14	10	
10	15	RECEPT-BOAT CANOPY	1 20		0.4	0.8	20 1	LTG-REST RMS, JAN, EF	16	10	
10	17	RECEPT-BOAT CANOPY	1 20			0.4	20 1	LTG-ENTRANCE, HALLWAY	18	10	
12	19	RECEPT-RSTRMS	1 20	1.4	0.4		20 1	LTG-MEET RMS	20	12	
12	21	HAND DRYER	1 20		1.4	0.5	20 1	LTG-BOAT, PARKING	22	10	
12	23	RECEPT-JRN & HALLWAY	1 20			0.2	20 1	LTG-EXT	24	10	
12	25	RECEPT-WAITING	1 20	1.0	0.4		20 1	LTG-POLE	26	6	
10	27	RECEPT-EXT	1 20		0.5	0.5	20 1	LTG-POLE	28	6	
10	29	RECEPT-EXT	1 20			0.5	20 1	LIGHTING CONT PNL	30	12	
10	31	RECEPT-EXT	1 20	0.5	0.5		20 1	SPARE	32	-	
12	33	RECEPT-ELEC RM	1 20		0.5	0.5	20 1	SPARE	34	-	
10	35	ACCESS CONTROL PANEL	1 20			0.5	20 1	SPARE	36	-	
10	37	ELECTRIFIED DR HINGE	1 20	0.5	0.5		20 1	RECEPT-ROOF	38	10	
10	39	ELECTRIFIED DR HINGE	1 20		0.5	0.4	20 1	SWING GATE	40	10	
-	41	SPARE	1 20			0.5	20 1	SWING GATE	42	10	
CONNECTED LOAD/PHASE				10.6	9.1	8.3					
TOTAL CONNECTED LOAD				28.0 KVA							
DEMAND FACTOR				0.9							
TOTAL DEMAND LOAD				25.2 KVA = 70.0 AMPS							

PANEL "M"		120/208 VOLTS, 3 PHASE, 4 WIRE 400A MAIN LUGS ONLY			MIN AIC: 35,000 MOUNTING: SURFACE							
WIRE SIZE (AWG)	CKT NO	USE	CKT BKR POLE/AMP	CONNECTED LOAD (KVA)			CKT BKR AMP/POLE	USE	CKT NO	WIRE SIZE (AWG)		
				PHASE A	PHASE B	PHASE C						
6	1		3	4.1	1.0		2	FCU 1	2	10		
6	3	ACCU-1	3		4.1	1.0	15	2	FCU 2	4	10	
6	5		40				15	2	FCU 3	6	10	
6	7		3	6.4	1.0		15	2	FCU 3	8	10	
6	9	ACCU-2	3		6.4	3.0	15	2	FCU 3	10	10	
6	11		60				15	1	SF 1, 2, 3	12	10	
8	13		3	3.0	0.5		15	1	SF 1, 2, 3	14	10	
8	15	ACCU-3	3		3.0	1.5	20	1	GARBAGE DISP	16	10	
8	17		30				20	1	SPARE	18	-	
10	19		3	1.6	1.5		20	1	SPARE	20	-	
10	21	ACCU-4	3		1.6	0.5	20	1	SPARE	22	-	
10	23		20				20	1	SPARE	24	-	
12	25	MENS-2 FAUCET & VAL	1 20	0.5	-		-	1	PFB	26	-	
12	27	WOMEN-2 FAUCET & VAL	1 20		0.5	-	-	1	PFB	28	-	
12	29	RSTRMS 1 FAUCETS & VAL	1 20			0.5	-	1	PFB	30	-	
-	31	PFB	1 20	-	-	-	-	1	PFB	32	-	
-	33	PFB	1 20	-	-	-	-	1	PFB	34	-	
12	35	CP	1 15			0.2	-	1	PFB	36	-	
12	37		3	1.3	0.5		-	1	PFB	38	-	
12	39	EWB	3			1.3	0.4	20	1	SWING GATE	40	10
12	41		15			1.3	0.4	20	1	SWING GATE	42	10
CONNECTED LOAD/PHASE				20.3	23.3	22.5						
TOTAL CONNECTED LOAD				66.1 KVA								
DEMAND FACTOR				0.9								
TOTAL DEMAND LOAD				59.5 KVA = 165.3 AMPS								

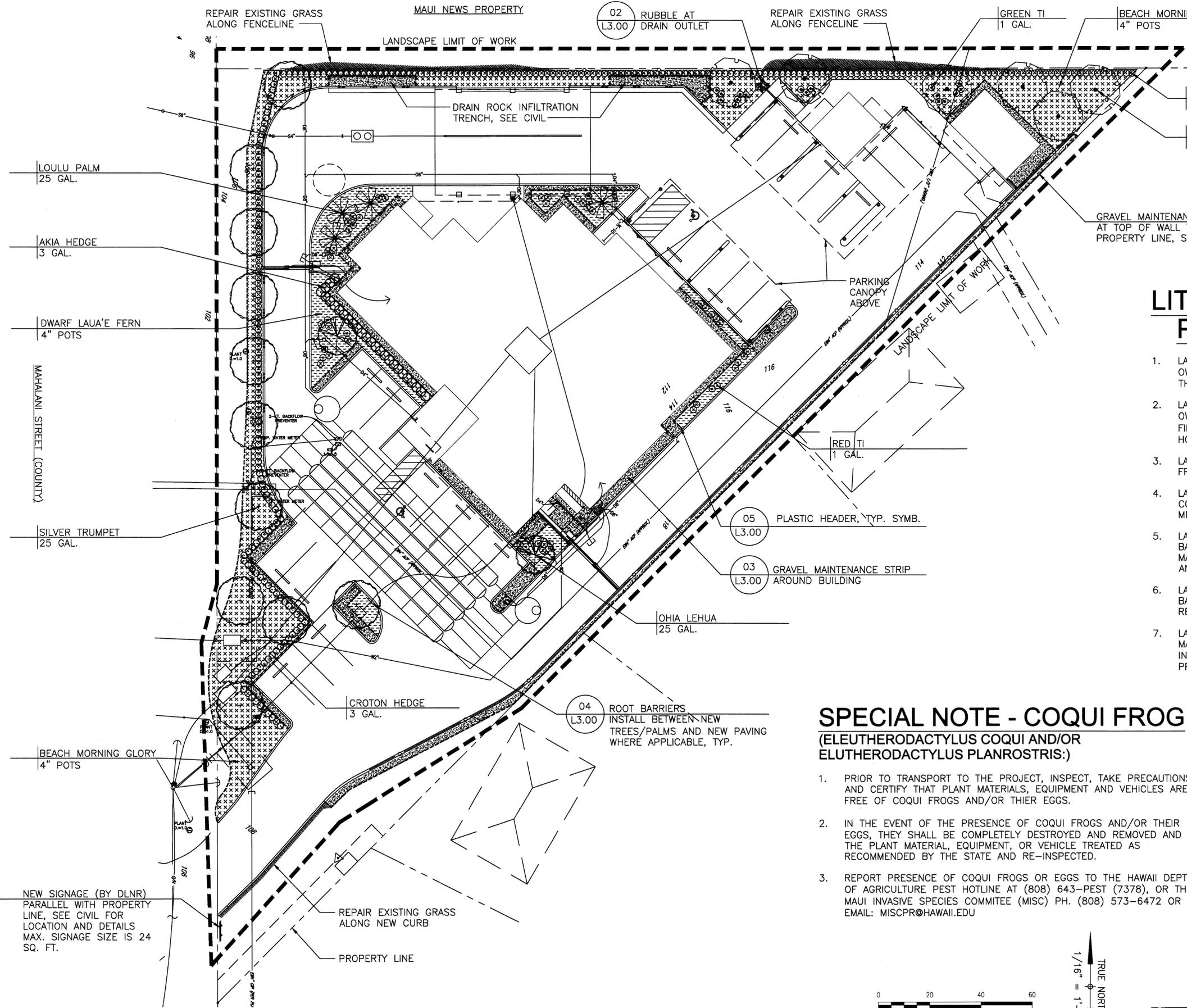
PANEL "B"		120/208 VOLTS, 3 PHASE, 4 WIRE 125 AMP MAIN LUGS ONLY			MIN AIC: 25,000 MOUNTING: FLUSH						
WIRE SIZE (AWG)	CKT NO	USE	CKT BKR POLE/AMP	CONNECTED LOAD (KVA)			CKT BKR AMP/POLE	USE	CKT NO	WIRE SIZE (AWG)	
				PHASE A	PHASE B	PHASE C					
12	1	RECEPT-LAND OFF	1 20	0.6	0.4		20 1	RECEPT-MEETING	2	12	
12	3	RECEPT-LAND OFF	1 20		0.6	0.4	20 1	RECEPT-MEETING	4	12	
12	5	RECEPT-LAND OFF	1 20			0.6	20 1	RECEPT-MEETING	6	12	
12	7	RECEPT-LAND OFF	1 20	0.6	0.4		20 1	RECEPT-MEETING	8	12	
12	9	RECEPT-LAND OFF	1 20		0.6	0.4	20 1	RECEPT-MEETING	10	12	
12	11	RECEPT-LAND OFF	1 20			0.6	20 1	RECEPT-MEETING	12	12	
12	13	RECEPT-LAND OFF	1 20	0.4	0.4		20 1	RECEPT-JAN, REST, HALLWAY	14	12	
12	15	RECEPT-LAND COPIER	1 20		1.2	0.4	20 1	RECEPT-WAIT	16	12	
12	17	RECEPT-LAND OFF	1 20			0.4	20 1	RECEPT-WAIT	18	12	
12	19	RECEPT-LAND OFF	1 20	0.4	0.6		20 1	RECEPT-BREAK RM	20	12	
12	21	RECEPT-LAND OFF	1 20		0.4	0.4	20 1	RECEPT-BREAK RM	22	12	
12	23	RECEPT-LAND STR	1 20			0.4	20 1	RECEPT-BREAK REF	24	12	
12	25	RECEPT-ENG OFF	1 20	0.4	0.6		20 1	RECEPT-HALLWAY	26	12	
12	27	RECEPT-ENG OFF	1 20		0.4	0.8	20 1	RECEPT-BATH	28	12	
12	29	RECEPT-ENG OFF	1 20			0.4	20 1	SPARE	30	-	
-	31	SPARE	1 20	0.4	0.4		20 1	SPARE	32	-	
-	33	SPARE	1 20			0.4	20 1	SPARE	34	-	
-	35	SPARE	1 20			0.4	20 1	SPARE	36	-	
-	37	SPARE	1 20	0.4	-		-	1	PFB	38	-
-	39	SPARE	1 20		0.4	-	-	1	PFB	40	-
-	41	SPARE	1 20			0.4	-	1	PFB	42	-
CONNECTED LOAD/PHASE				6.0	6.8	6.4					
TOTAL CONNECTED LOAD				19.2 KVA							
DEMAND FACTOR				0.8							
TOTAL DEMAND LOAD				15.4 KVA = 42.7 AMPS							

PANEL "D"		120/208 VOLTS, 3 PHASE, 4 WIRE 3P100A MAIN BREAKER			MIN AIC: 10,000 MOUNTING: SURFACE						
WIRE SIZE (AWG)	CKT NO	USE	CKT BKR POLE/AMP	CONNECTED LOAD (KVA)			CKT BKR AMP/POLE	USE	CKT NO	WIRE SIZE (AWG)	
				PHASE A	PHASE B	PHASE C					
12	1	RECEPT	1 20	0.2	0.4			DAR & LAND	2	10	
12	3	RECEPT	1 20		0.4	0.2		STORAGE	4	10	
12	5	LIGHTS	1 20			0.4	20 1	SPARE	6	-	
10	7	LTG-EXT	1 20	0.5	0.4		20 1	SPARE	8	-	
-	9	SPARE	1 20		0.4	0.4	20 1	SPARE	10	-	
-	11	SPARE	1 20			0.4	20 1	SPARE	12	-	
-	13	SPARE	1 20	0.4	0.8		3		14	4	
12	15	ACCU-5	2		1.3	0.8	60	PANEL "E"	16	4	
12	17		20			1.3	0.8	60		18	4
CONNECTED LOAD/PHASE				2.7	3.5	3.7					
TOTAL CONNECTED LOAD				9.9 KVA							
DEMAND FACTOR				0.8							
TOTAL DEMAND LOAD				7.9 KVA = 22.0 AMPS							

PANEL "PV"		120/208 VOLTS, 3 PHASE, 4 WIRE 100A MAIN BREAKER WITH 225A BUS REQ'D OPTIONS: NEMA 4X ENCLOSURE			MIN AIC: 25,000 MOUNTING: SURFACE						
WIRE SIZE (AWG)	CKT NO	USE	CKT BKR POLE/AMP	CONNECTED LOAD (KVA)			CKT BKR AMP/POLE	USE	CKT NO	WIRE SIZE (AWG)	
				PHASE A	PHASE B	PHASE C					
6	1		3	4.8	4.8		3		2	-	
6	3	PV INVERTER	3		4.8	4.8	50		4	-	
6	5		50				50		6	-	
6	7		3	4.8	4.8		3		8	-	
6	9	PV INVERTER	3		4.8	4.8	50		10	-	
6	11		50				50		12	-	
-	13	PFB	1	-	-	-	-	1	PFB	14	-
-	15	PFB	1	-	-	-	-	1	PFB	16	-
-	17	PFB	1	-	-	-	-	1	PFB	18	-
-	19	PFB	1	-	-	-	-	1	PFB	20	-
-	21	PFB	1	-	-	-	-	1	PFB	22	-
-	23	PFB	1	-	-	-	-	1	PFB	24	-
-	25	PFB	1	-	-	-	-	1	PFB	26	-
-	27	PFB	1	-	-	-	-	1	PFB	28	-
-	29	PFB	1	-	-	-	-	1	PFB	30	-
CONNECTED LOAD/PHASE				19.2	19.2	19.2	ALL BREAKERS SHALL BE UL LISTED BACK-FEED TYPE BREAKERS PER NEC.				
TOTAL CONNECTED LOAD				57.6 KVA							
DEMAND FACTOR				0.5							
TOTAL DEMAND LOAD				28.8 KVA = 80.0 AMPS							

PANEL "E"		120/208 VOLTS, 3 PHASE, 4 WIRE 3P60A MAIN BREAKER			MIN AIC: 10,000 MOUNTING: SURFACE	
WIRE SIZE (AWG)	CKT NO	USE				

NOTE:  
ALL TREES WITHIN THE MAUI NEWS PROPERTY SHALL NOT BE DAMAGED BY CONSTRUCTION OR GRADING. SEE SPECIFICATION SECTION 02100, SITE PREPARATION, FOR MORE INFORMATION.



## LITTLE FIRE ANT PREVENTION PROGRAM

1. LANDSCAPE CONTRACTOR WILL NOTIFY ENGINEER OF RECORD AND THE OWNER'S REPRESENTATIVE PRIOR TO DELIVERY OF ANY PLANT MATERIALS TO THE PROJECT.
2. LANDSCAPE CONTRACTOR WILL SUBMIT A PLAN TO THE ENGINEER AND THE OWNER'S REPRESENTATIVE FOR APPROVAL TO PREVENT IMPORTATION OF LITTLE FIRE ANT (LFA) ONTO THE PROPERTY, I.E. PROVIDE QUARANTINE OR A HOLDING AREA FOR 6 WEEKS BEFORE PLANT DELIVERY TO PROJECT SITE.
3. LANDSCAPE CONTRACTOR WILL BUY PLANTS OR PLANTING MATERIALS ONLY FROM FIRE ANT-FREE NURSERIES AND SUPPLIERS.
4. LANDSCAPE CONTRACTOR WILL TEST FOR LFA AND IDENTIFY THE SPECIES CORRECTLY. CONSULT WEBSITE: WWW.LITTLEFIREANTS.COM FOR TESTING METHODS AND SPECIES IDENTIFICATION.
5. LANDSCAPE CONTRACTOR WILL BAIT AND ALLOW AT LEAST 2 WEEKS FOR THE BAIT TO BE CARRIED BACK TO THE COLONY FOR ALL PLANTS AND NURSERY MATERIALS AT THE SUPPLYING NURSERIES REGARDLESS OF THE FIRE ANT-FREE CLAIM.
6. LANDSCAPE CONTRACTOR WILL APPLY A BARRIER TREATMENT, FOLLOWING THE BAITING, TO ALL NURSERY MATERIALS AT THE SUPPLYING NURSERIES REGARDLESS OF THE FIRE ANT-FREE CLAIM.
7. LANDSCAPE CONTRACTOR WILL DRENCH ALL SOILS OR LOOSE NURSERY MATERIALS WITH THE PROPER MIXTURE OF SEVIN PER GALLON OF WATER INDICATED BY THE MANUFACTURER AND FOLLOW MANUFACTURER'S SAFETY PRECAUTIONS.

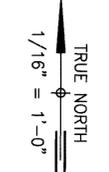
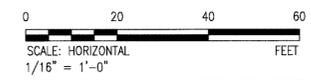
## SPECIAL NOTE - COQUI FROG (ELEUTHERODACTYLUS COQUI AND/OR ELUTHERODACTYLUS PLANROSTRIS:)

1. PRIOR TO TRANSPORT TO THE PROJECT, INSPECT, TAKE PRECAUTIONS, AND CERTIFY THAT PLANT MATERIALS, EQUIPMENT AND VEHICLES ARE FREE OF COQUI FROGS AND/OR THEIR EGGS.
2. IN THE EVENT OF THE PRESENCE OF COQUI FROGS AND/OR THEIR EGGS, THEY SHALL BE COMPLETELY DESTROYED AND REMOVED AND THE PLANT MATERIAL, EQUIPMENT, OR VEHICLE TREATED AS RECOMMENDED BY THE STATE AND RE-INSPECTED.
3. REPORT PRESENCE OF COQUI FROGS OR EGGS TO THE HAWAII DEPT. OF AGRICULTURE PEST HOTLINE AT (808) 643-PEST (7378), OR THE MAUI INVASIVE SPECIES COMMITTEE (MISC) PH. (808) 573-6472 OR EMAIL: MISCPR@HAWAII.EDU

REVISION NO.	SYM.	DESCRIPTION	SHT. OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII					
PLANTING PLAN					
DESIGNED:	SM	SUBMITTED:	[Signature]		
DRAWN:	SM	DATE:	03/15/16		
CHECKED:	RC	SCALE:	AS SHOWN		
APPROVED:	[Signature]	THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION		DRAWING NO.	
CHIEF ENGINEER		DATE:	MAR 23 2016		L1.00

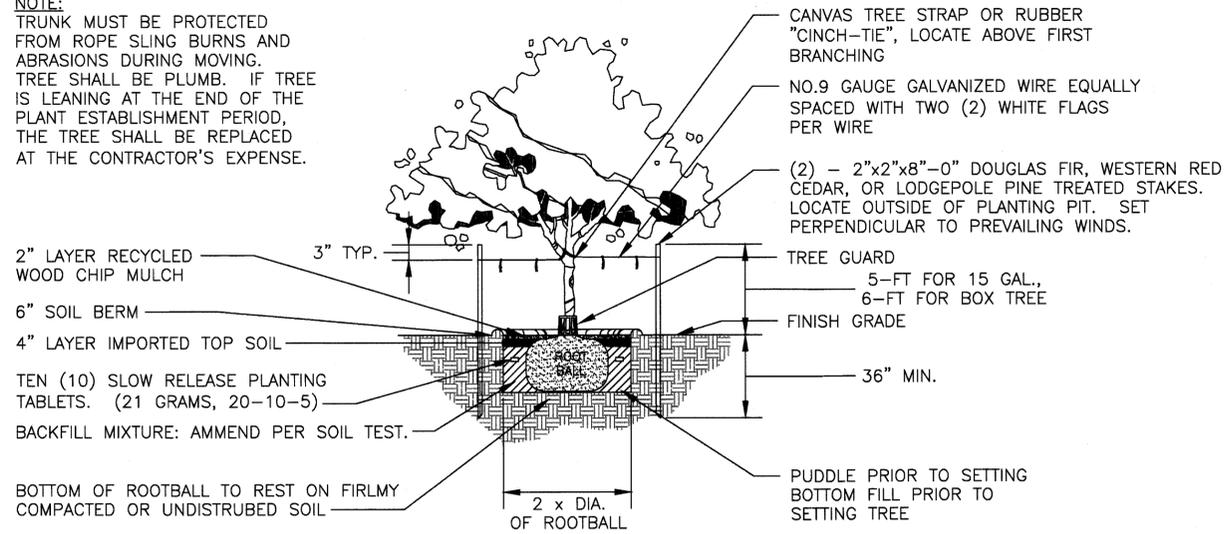
NEW SIGNAGE (BY DLNR) PARALLEL WITH PROPERTY LINE, SEE CIVIL FOR LOCATION AND DETAILS. MAX. SIGNAGE SIZE IS 24 SQ. FT.

**1** PREFINAL PLANTING PLAN  
1/16" = 1'-0"



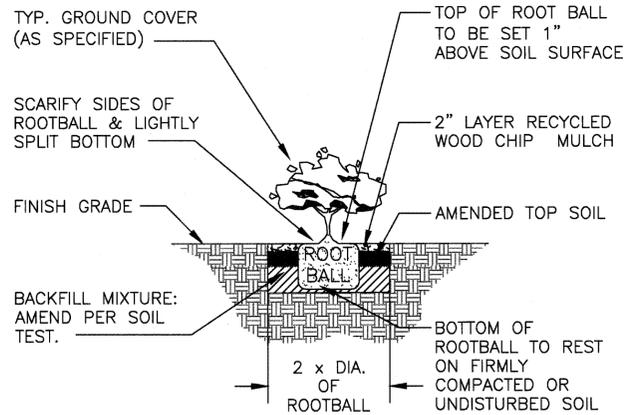
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**NOTE:**  
TRUNK MUST BE PROTECTED FROM ROPE SLING BURNS AND ABRASIONS DURING MOVING. TREE SHALL BE PLUMB. IF TREE IS LEANING AT THE END OF THE PLANT ESTABLISHMENT PERIOD, THE TREE SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.



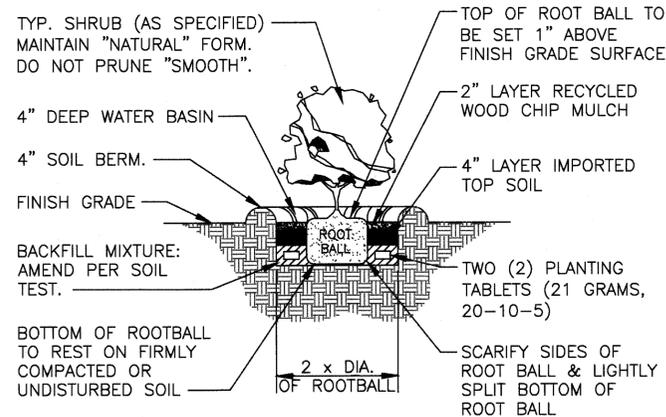
**01 TREE PLANTING AND STAKING DETAIL**  
N.T.S.

**NOTE:**  
IMMEDIATELY AFTER PLANTING, WATER HEAVILY TO ENSURE SOIL SETTLES AROUND ROOTS.

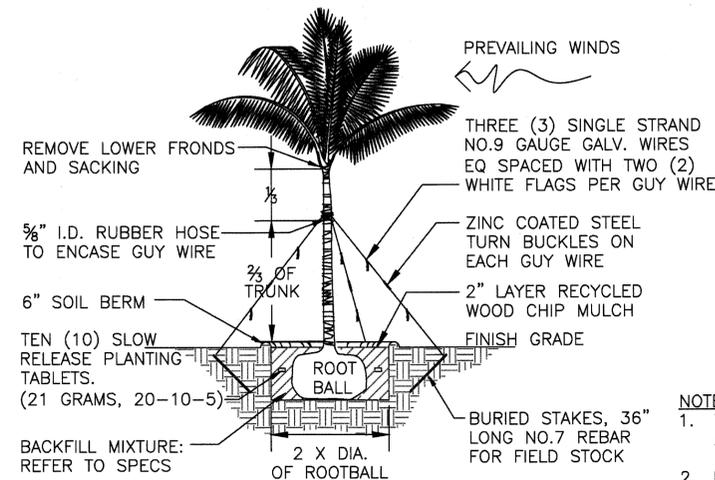


**02 GROUND COVER PLANTING DETAIL**  
N.T.S.

**NOTES:**  
1. SINGLE STEM SHRUBS SHALL BE PLUMB. IF SHRUB IS LEANING AT THE END OF THE PLANT ESTABLISHMENT PERIOD, IT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.  
2. IMMEDIATELY AFTER PLANTING, WATER HEAVILY TO ENSURE SOIL SETTLES AROUND ROOTS.



**03 SHRUB PLANTING DETAIL**  
N.T.S.



**04 PALM PLANTING DETAIL**  
N.T.S.

**NOTES:**  
1. TRUNK MUST BE PROTECTED FROM ROPE SLING BURNS AND ABRASIONS DURING MOVING.  
2. PROTECT HEART AND TIP FROM DAMAGE AND BREAKAGE DURING TRANSPORTING AND TRANSPLANTING.

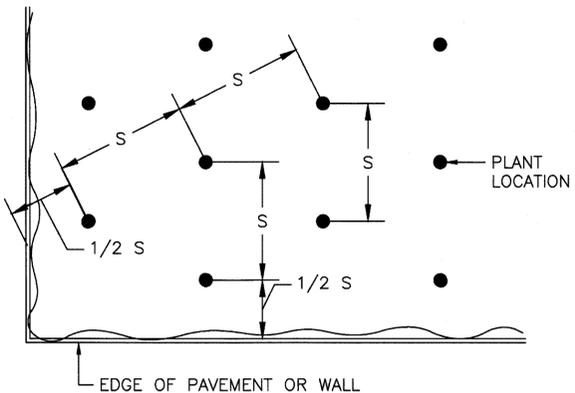
**PLANT SCHEDULE**

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	REMARKS
	2	METROSIDEROS POLYMORPHA	OHIA LEHUA	25 GAL		VERTICAL TRUNK
	6	SAPINDUS OAHUENSIS	LONOMEA	25 GAL		VERTICAL TRUNK
	11	TABEBUIA AUREA	SILVER TRUMPET	25 GAL		VERTICAL TRUNK
PALM TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	REMARKS
	4	PRITCHARDIA HILLEBRANDII	LOULU PALM	25 GAL		4' BROWN TRUNK I
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	CONT	O.C.	REMARKS
	279	CODIAEUM VARIEGATUM	CROTON	3 GAL	AS SHOWN	
	17	CORDYLINE FRUTICOSA 'EMERALD GREEN'	GREEN TI	1 GAL	AS SHOWN	
	49	CORDYLINE FRUTICOSA 'RED'	RED TI	1 GAL	AS SHOWN	
	27	WIKSTROEMIA UVA-URSI	AKIA	3 GAL		
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	REMARKS
	3,852 SF	IPOMOEA PES-CAPRAE BRASILENSIS	BEACH MORNING GLORY	4" POTS	18" o.c.	
	1,308 SF	MICROSORUM SCOLOPENDRUM 'DWARF'	DWARF LAUA'E FERN	4" POTS	18" o.c.	
SYMBOL	DESCRIPTION	QTY				
	PLASTIC HEADER	1000 LF				
	3" LAYER GRAVEL MAINTENANCE STRIP	15 CY				
	ROOT BARRIER, 24" DEPTH MIN.	250 LF				

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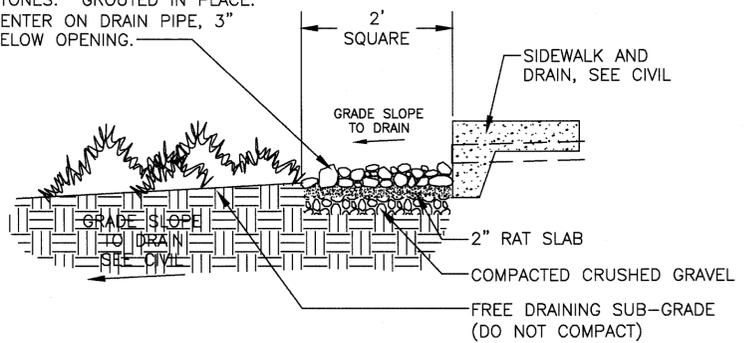
REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII					
PLANTING DETAILS AND PLANT SCHEDULE					
DESIGNED: SM	SUBMITTED:				
DRAWN: SM	DATE: 03/15/16				
CHECKED: RC	SCALE: AS SHOWN				
APPROVED:		DATE: MAR 23 2016		DRAWING NO. L2.00	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION					

NOTE:  
 1. S = SPACING, (REFER TO PLANT LIST FOR SPACING)  
 2. USE SPACING LAYOUT FOR SHRUBS, GROUNDCOVERS, AND ANNUALS

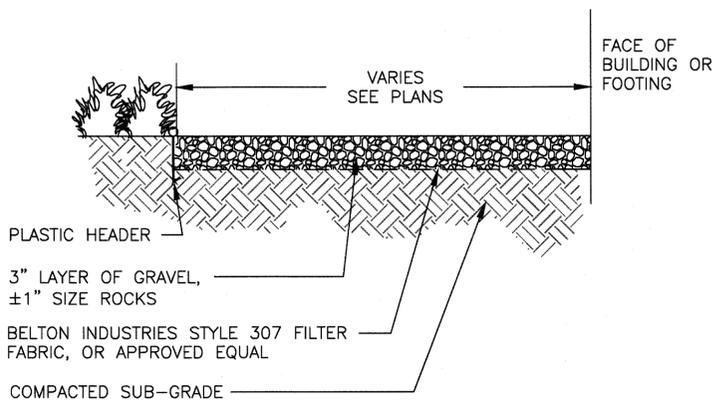


**01 TRIANGULAR SPACING DETAIL**  
 N.T.S.

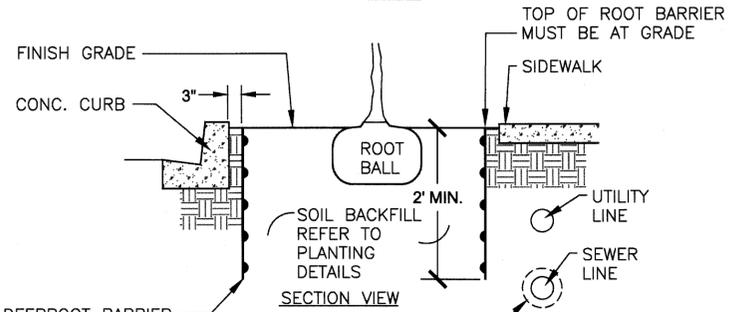
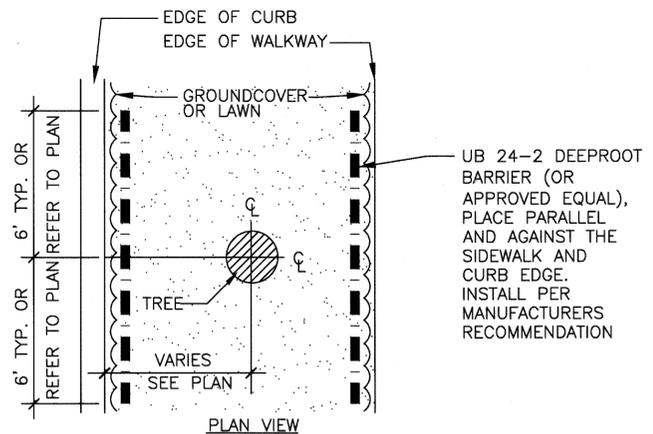
DRY LAID BLUE ROCK RUBBLE. VARIED SIZES, ±4" TO ±6" DIA. STONES. GROUDED IN PLACE. CENTER ON DRAIN PIPE, 3" BELOW OPENING.



**02 RUBBLE AT DRAIN OUTLET DETAIL**  
 N.T.S.



**03 GRAVEL MAINTENANCE STRIP DETAIL**  
 N.T.S.

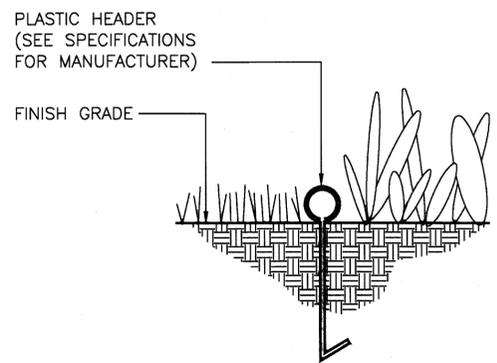


UB 24-2 DEEPROOT BARRIER (OR APPROVED EQUAL), PLACE PARALLEL AND AGAINST THE SIDEWALK AND CURB EDGE. INSTALL PER MANUFACTURER'S RECOMMENDATION

NOTE:  
 LANDSCAPE CONTRACTOR SHALL INSTALL 4 FT. DEPTH RIGID ROOT BARRIER AT STREET TREES LOCATED WITHIN 10 HORIZONTAL FEET OF UNDERGROUND UTILITIES.

SEWER LINES LOCATED WITHIN 10 HORIZONTAL FEET OF A STREET TREE SHALL BE WRAPPED WITH BIOBARRIER PROTECTION FABRIC BY THE SITE CONTRACTOR.

**04 DEEP ROOT BARRIER DETAIL**  
 N.T.S.



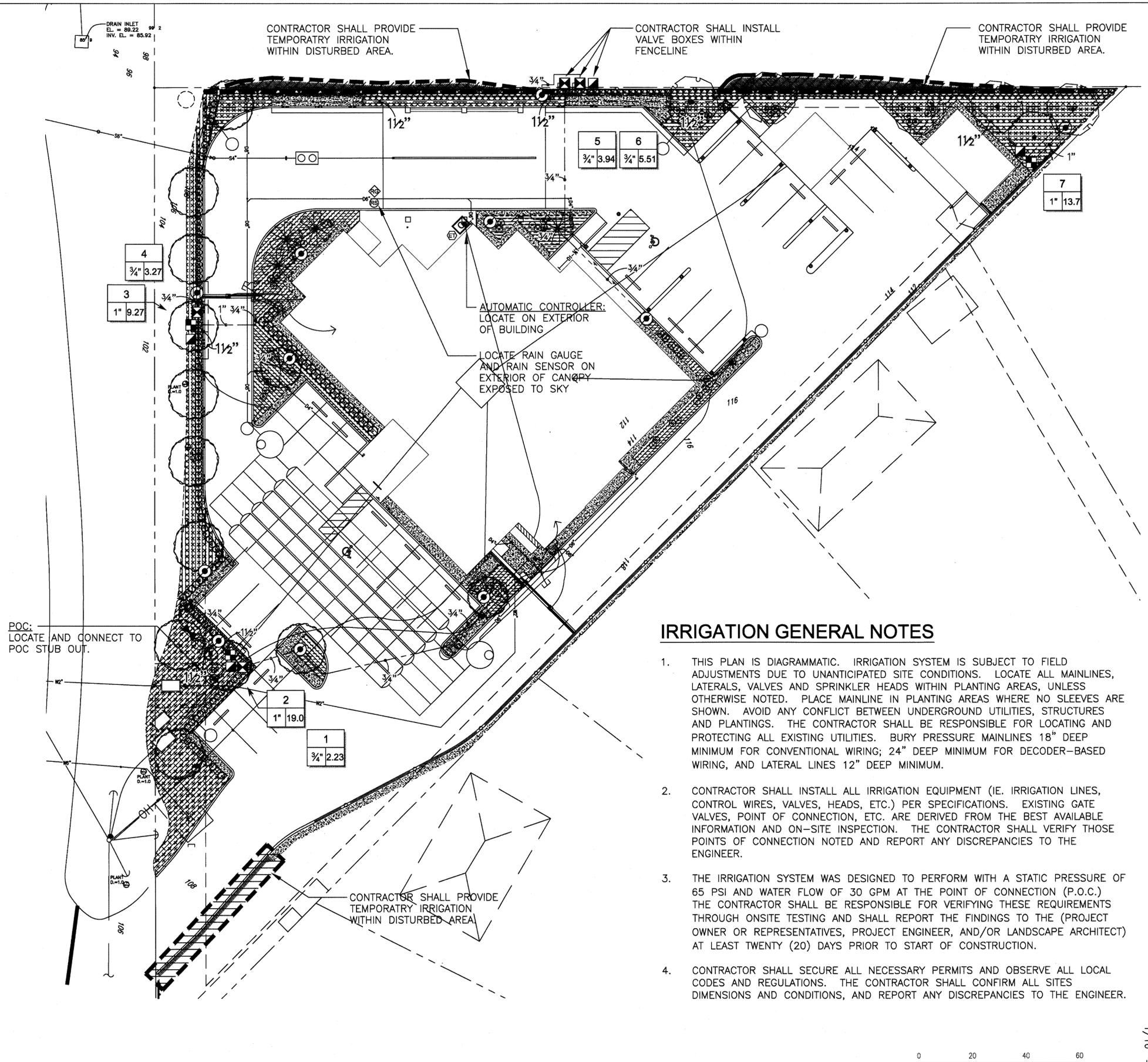
**05 PLASTIC HEADER DETAIL**  
 N.T.S.

**PLANTING NOTES:**

- LANDSCAPE CONTRACTOR SHALL FIELD VERIFY ALL PLANT QUANTITIES AND DIMENSIONS PRIOR TO INSTALLATION. QUANTITIES SHOWN ON PLANT LIST AND MATERIAL SCHEDULES ARE FOR REFERENCE ONLY, VERIFY ACTUAL QUANTITIES AS SHOWN ON PLAN. IF THERE IS A DISCREPANCY, THE PLANTING PLAN SHALL TAKE PRECEDENCE.
- STAKE TREE AND PALM LOCATIONS AND OBTAIN APPROVAL OF THE ENGINEER PRIOR TO PLANTING TREES AND PALMS.
- ALL EXISTING UTILITIES, SITE FURNISHINGS, PAVING, LANDSCAPE AND OTHER ELEMENTS TO REMAIN SHALL BE PROTECTED FROM ANY DAMAGE UNLESS OTHERWISE NOTED.
- LANDSCAPE CONTRACTOR SHALL COORDINATE ALL WORK WITH RELATED CONTRACTORS AND WITH THE GENERAL CONSTRUCTION OF THE PROJECT IN ORDER NOT TO IMPEDE THE PROGRESS OF THE WORK OF OTHERS OR THE CONTRACTOR'S OWN WORK.
- CONTRACTOR SHALL NOTIFY ALL NECESSARY UTILITY COMPANIES 48 HOURS MINIMUM PRIOR TO DIGGING FOR VERIFICATION OF ALL UNDERGROUND UTILITIES, AND OTHER OBSTRUCTIONS AND COORDINATE WITH OWNER'S REPRESENTATIVE PRIOR TO INITIATING OPERATIONS.
- PRIOR TO TREE AND SHRUB HOLE EXCAVATION, ALL PLANTING LOCATIONS SHALL BE STAKED OUT BY CONTRACTOR FOR APPROVAL BY ENGINEER. DO NOT PLANT UNTIL GROUND HAS BEEN PREPARED AND FREE OF STONES GREATER THAN 1/2" DIA., SITE IS NEAT, ORDERLY, AND THE ENGINEER ACCEPTS SITE FOR PLANTING.
- NOTIFY ENGINEER OF ANY DISCREPANCIES IN PLANT LOCATIONS OR INSUFFICIENT PLANT QUANTITIES DUE TO DIFFERENCE IN PLANS AND ACTUAL FIELD CONDITIONS.
- NOTIFY ENGINEER 30 DAYS PRIOR TO PLANTING OPERATIONS FOR APPROVAL OF ALL PLANT MATERIAL AT PLACE OF GROWTH. ALL PLANT MATERIAL NOT APPROVED BY THE ENGINEER WILL BE SUBJECT TO REJECTION. THE ENGINEER WILL INSPECT PLANTS AT THE PLACE OF GROWTH AND AFTER THE DELIVERY TO THE PROJECT. EACH TREE SHALL BE TAGGED BY THE ENGINEER. TREES DELIVERED TO THE PROJECT WITHOUT ENGINEER'S TAG WILL BE REJECTED.
- PLANTS SHALL MEET SIZE INDICATED BY MINIMUM HEIGHT AND SPREAD. PLANTS SHALL BE STRAIGHT AND UNIFORMLY SHAPED, UNLESS UNIQUE OR SPECIAL CHARACTERISTICS ARE SPECIFIED, AND SHALL BE UNDAUNAGED, SOUND, HEALTHY, VIGOROUS AND FREE OF DISEASE AND INSECT INFESTATION. PLANTS NOT CONFORMING TO THESE REQUIREMENTS ON DELIVERY TO THE PROJECT AND AT THE END OF THE PLANT ESTABLISHMENT PERIOD WILL BE REJECTED.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE COMPLETE REMOVAL AND DAMAGES RESULTING FROM PLANTING ANY PLANT SPECIES LISTED ON THE HAWAII DEPARTMENT OF AGRICULTURE 'NOXIOUS WEED RULES' AS DEFINED IN THE STATUTE, HAWAII ADMINISTRATIVE RULES 4:68:1 OR THE 'FEDERAL NOXIOUS WEED LIST' AS DEFINED IN TITLE 7 OF THE CODE OF FEDERAL REGULATIONS (CFR), PARTS 360 AND 361.
- ALL TREE WORK MUST ADHERE TO AMERICAN NATIONAL STANDARD INSTITUTE (OR ANSI) - A300 TREE CARE STANDARDS AND ANSI-Z133 SAFETY STANDARDS FOR TREE WORK. WORK SHALL BE CONTRACTED TO ARBORISTS THAT HAS BEEN CERTIFIED IN GOOD STANDINGS AS AN ISA CERTIFIED ARBORIST FOR AT LEAST 5 YEARS TO ASSURE THAT TREE WORK IS PERFORMED PROPERLY AND TREES ARE NOT DAMAGED BY PRACTICES SUCH AS TOPPING, FLUSH CUTS, OVER-THINNING, OR CLIMBING WITH SPIKES. CONTRACTOR SHALL SUBMIT A COPY OF THE ISA ARBORIST CERTIFICATION OF GOOD STANDING OF 5 YEARS TO THE ENGINEER A MINIMUM OF 7 DAYS PRIOR TO TREE PRUNING.
- FOR THE DURATION OF CONSTRUCTION WITHIN THE DRIP LINE OF TREES TO REMAIN THERE MUST BE: NO CHANGES, ALTERATIONS OR DISTURBANCE TO THE GRADE BY ADDING FILL, EXCAVATING OR SCRAPING EXCEPT AS NOTED ON PLANS; NO STORAGE OF CONSTRUCTION MATERIAL OR EQUIPMENT; NO STOCKPILING OF ANY CONSTRUCTION MATERIAL OR ANY EXCAVATED MATERIAL NO DISPOSAL OF ANY LIQUIDS (E.G. CONCRETE SLEUTH, GAS, OIL, PAINT); NO VEHICULAR TRAFFIC, EQUIPMENT OR EXCESSIVE PEDESTRIAN TRAFFIC NO ATTACHMENT OF ANY WIRES, ROPES, LIGHTS, OR ANY OTHER SUCH ATTACHMENT OTHER THAN THOSE OF PROTECTIVE NATURE TO ANY TREE TO BE PRESERVED; AND NO CLEANING OF EQUIPMENT OR MATERIAL UNDER THE CANOPY OF ANY TREE OR GROUP OF TREES TO REMAIN.
- PROTECTIVE FENCE SHALL BE ERECTED AROUND TREES IDENTIFIED ON PLAN OR TREES WITH TRUNK DIAMETER GREATER THAN 24 INCHES AS MEASURED AT HEIGHT OF 4 1/2 FEET. LANDSCAPE CONTRACTOR TO VERIFY WITH OWNER PRIOR TO INSTALLATION AS NEEDED.
- IF TREES OTHER THAN THOSE SPECIFICALLY DESIGNATED FOR REMOVAL ARE DAMAGED BEYOND SURVIVAL CONDITIONS AS DETERMINED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE SUCH TREES AND REPLACE THE TREE WITH A SAME SPECIES AND SIZE AND MAINTAIN FOR THE DURATION OF CONSTRUCTION OR 12 MONTHS WHICHEVER IS GREATER AT NO COST TO THE OWNER.
- PROVIDE AN EVEN LAYER OF PLANTING SOIL OVER ALL PLANTING AREAS. REFER TO THE SPECIFICATIONS FOR TOPSOIL MIXTURE DEPTH. REPRESENTATIVE SAMPLES OF SOIL FROM PROJECT SITE SHALL BE SUBMITTED TO A LABORATORY ACCEPTABLE TO THE ENGINEER FOR ANALYSIS OF REQUIRED SOIL AMENDMENTS. TEST RESULTS AND FERTILIZATION SCHEDULE SHALL BE PRESENTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE BEFORE PLACING PLANTING SOIL. UNIFORMLY DISTRIBUTE FERTILIZER AND AMENDMENTS OVER PLANTING AREAS AS RECOMMENDED BY THE SOIL ANALYSIS REPORT. ROTOTILL TOP LAYER OF SOIL TO EVENLY INCORPORATE FERTILIZER AND AMENDMENTS.
- GUY WIRES, FLAGGING, STAKES, WINDBREAKERS, ETC. SHALL BE MAINTAINED AND REPLACED IF NECESSARY BY THE CONTRACTOR UNTIL THE TREE OR SHRUB IS ABLE TO STAND BY ITSELF. THE CONTRACTOR SHALL REMOVE AND DISPOSE AT THE END OF PLANT ESTABLISHMENT PERIOD. SEE DETAILS.
- LANDSCAPE CONTRACTOR SHALL FIELD ADJUST LOCATIONS OF PLANT MATERIAL AS NECESSARY TO AVOID DAMAGE TO EXISTING UNDERGROUND UTILITIES AND/OR EXISTING ABOVE GROUND ELEMENTS. ALL CHANGES REQUIRED SHALL BE COMPLETED AT THE CONTRACTOR'S EXPENSE AND SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE AND THE ENGINEER.

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REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION  MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII					
PLANTING DETAILS AND NOTES					
DESIGNED:	SM	SUBMITTED:			
DRAWN:	SM	DATE:	03/15/16		
CHECKED:	RC	SCALE:	AS SHOWN		
APPROVED:	 RUSSELL Y.J. CHUNG LICENSED PROFESSIONAL LANDSCAPE ARCHITECT No. 6076 HAWAII, U.S.A.				DRAWING NO.
CHIEF ENGINEER	THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION		MAR 23 2016 DATE		L3.00



**1 IRRIGATION MAIN LINE ROUTING PLAN**  
1/16" = 1'-0"

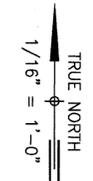
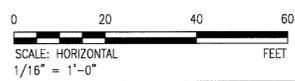
**IRRIGATION GENERAL NOTES**

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 PLANTINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES. BURY PRESSURE MAINLINES 18" DEEP MINIMUM FOR CONVENTIONAL WIRING; 24" DEEP MINIMUM FOR DECODER-BASED WIRING, AND LATERAL LINES 12" DEEP MINIMUM.
2. CONTRACTOR SHALL INSTALL ALL IRRIGATION EQUIPMENT (I.E. IRRIGATION LINES, CONTROL WIRES, VALVES, HEADS, ETC.) PER SPECIFICATIONS. EXISTING GATE VALVES, POINT OF CONNECTION, ETC. ARE DERIVED FROM THE BEST AVAILABLE INFORMATION AND ON-SITE INSPECTION. THE CONTRACTOR SHALL VERIFY THOSE POINTS OF CONNECTION NOTED AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
3. THE IRRIGATION SYSTEM WAS DESIGNED TO PERFORM WITH A STATIC PRESSURE OF 65 PSI AND WATER FLOW OF 30 GPM AT THE POINT OF CONNECTION (P.O.C.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THESE REQUIREMENTS THROUGH ONSITE TESTING AND SHALL REPORT THE FINDINGS TO THE (PROJECT OWNER OR REPRESENTATIVES, PROJECT ENGINEER, AND/OR LANDSCAPE ARCHITECT) AT LEAST TWENTY (20) DAYS PRIOR TO START OF CONSTRUCTION.
4. CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND OBSERVE ALL LOCAL CODES AND REGULATIONS. THE CONTRACTOR SHALL CONFIRM ALL SITES DIMENSIONS AND CONDITIONS, AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

**IRRIGATION GENERAL NOTES CONT.**

5. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL SLEEVES, CONDUITS, MAINLINES AND LATERALS UNDER PAVEMENT AND THROUGH WALLS. CONTRACTOR SHALL ENSURE THAT THESE ITEMS ARE LAID PRIOR TO PLACEMENT OF PAVEMENT OR WALL STRUCTURES.
6. LOCATE AND INSTALL ALL SPRINKLER HEADS 6" FROM SIDEWALKS, CURBS, DRIVEWAYS, BUILDING AND WALL UNLESS OTHERWISE NOTED. FLEX TUBING SHALL BE INSTALLED ON ALL SPRINKLER HEAD ALONG SIDEWALKS, DRIVEWAYS, AND PARKING SPACES. ADJUST ALL SPRINKLER HEADS AND FLOW CONTROL FOR MAXIMUM COVERAGE AND MINIMUM OVERTHROW AND MISTING. OPERATE ONLY ONE VALVE AT A TIME PER CONTROLLER, UNLESS OTHERWISE NOTED.
7. WITHIN 30 DAYS AFTER AWARD OF THE CONTRACT, SUBMIT FOR THE ENGINEER'S ACCEPTANCE SIX (6) COPIES OF DETAILED SCALED DRAWINGS AND WIRING DIAGRAMS FOR PERMANENT AND TEMPORARY IRRIGATION SYSTEMS. NOT PROPOSED DEVIATIONS FROM THE CONTRACT. INCLUDE SAMPLES OF MATERIALS, IF REQUIRED BY CONTRACT.
8. PERFORM HYDROSTATIC TEST BY APPLYING CONTINUOUS STATIC PRESSURE OF 100 PSI FOR ONE (1) HOUR. NOTIFY THE ENGINEER AT LEAST THREE (3) DAYS IN ADVANCE OF TEST. REPAIR LEAKS THAT DEVELOP AND REPEAT TEST. DO NOT BACKFILL UNTIL THERE IS NO FURTHER SIGN OF LEAKAGE.
9. PERFORM OPERABILITY TEST BY OPENING REMOTE CONTROL VALVE AND TEST CIRCUITS FOR LEAKS AROUND BARBED AND THREADED PVC FITTINGS. REPAIR LEAKS AND REPEAT TESTS. NOTIFY THE ENGINEER AT LEAST THREE (3) DAYS IN ADVANCE OF TEST. DO NOT BACKFILL UNTIL THERE IS NO FURTHER SIGN OF LEAKAGE.
10. PERFORM COVERAGE TEST. BEFORE PLANTING PERIOD, RUN AUTOMATIC CONTROLLER THROUGH ALL IT'S CYCLES. CHECK WATERING FOR COVERAGES AND UNIFORMITY IN COMPANY OF THE ENGINEER. RUN SYSTEM UNTIL THERE ARE PUDDLES OR THERE IS SHEET FLOW TO DETERMINE INITIAL IRRIGATION TIME AND NUMBER OF CYCLES PER WEEK NEEDED TO WATER REQUIREMENTS OF PLANTS.
11. LOCATE VALVE BOXES SO THAT THE OUTER EDGES ARE NO CLOSER THAN FIVE FEET TO ROADWAY PAVEMENT. GROUP VALVE BOXES AS FEASIBLE.
12. IF PLANS DO NOT SPECIFY DEPTH OF EXCAVATION, PROVIDE MINIMUM COVER TO FINISH GRADE AS FOLLOWS:
  - a. 4 INCHES FOR DRIP IRRIGATION MAIN.
  - b. 18 INCHES FOR IRRIGATION MAIN WITH CONVENTIONAL WIRING; 24" FOR IRRIGATION MAINLINE W/DECODER-BASED WIRING.
  - c. 10 INCHES FOR IRRIGATION LATERAL
  - d. 24 INCHES FOR SLEEVE OR CONDUIT UNDER LANDSCAPE PAVEMENT.
  - e. 36 INCHES FOR SLEEVE OR CONDUIT UNDER ROADWAY PAVEMENT.
  - f. FOR CONTROLLER WIRES AND CONDUITS IN UNPAVED AREAS, DEPTH EQUAL TO THAT OF PRESSURE IRRIGATION PIPE.
13. AFTER INSTALLATION OF IRRIGATION, LANDSCAPE CONTRACTOR TO PROVIDE MARK-UP INFORMATION OF ANY CHANGES MADE IN THE FIELD TO THE FINAL DESIGN PLANS. PROVIDE THREE (3) REPRODUCIBLE COPIES DOCUMENTING THESE 'AS-BUILT' CONDITIONS TO THE ENGINEER UPON COMPLETION OF IRRIGATION INSTALLATION WORK OR THIRTY (30) DAYS BEFORE FINAL INSPECTION, WHICHEVER IS SOONER.  
\*(CAN INCLUDE DOCUMENTATION OF TEST RESULTS, STATIC & WORKING PRESSURE, GPM, ETC.)

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REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION  MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII  IRRIGATION PLAN AND NOTES					
DESIGNED:	SM	SUBMITTED:			
DRAWN:	SM	DATE:	03/15/16		
CHECKED:	RC	SCALE:	AS SHOWN		
APPROVED:			DATE:		DRAWING NO.
CHIEF ENGINEER			MAR 23 2016		11.00

# IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
■	RAIN BIRD XCZ-100-PRB-R MEDIUM PLUS FLOW FOR COMMERCIAL APPLICATIONS. PURPLE CAP DESIGNATES FOR RECLAIMED WATER, NON-POTABLE USE. 1" PESBR VALVE AND 1" PRESSURE REGULATING 40PSI BASKET FILTER. 5-20GPM.
⊠	RAIN BIRD XCZ-LF-100-PRF LOW FLOW DRIP CONTROL KIT, 1" LOW FLOW VALVE, 3/4" PRESSURE REGULATING RBY FILTER, AND 30PSI PRESSURE REGULATOR. 0.2GPM-5GPM.
○	PIPE TRANSITION POINT IN DRIP BOX PIPE TRANSITION POINT FROM PVC LATERAL TO DRIP TUBING WITH RISER IN 6" (150MM) DRIP BOX, TO RAINBIRD QF DRIPLINE HEADER



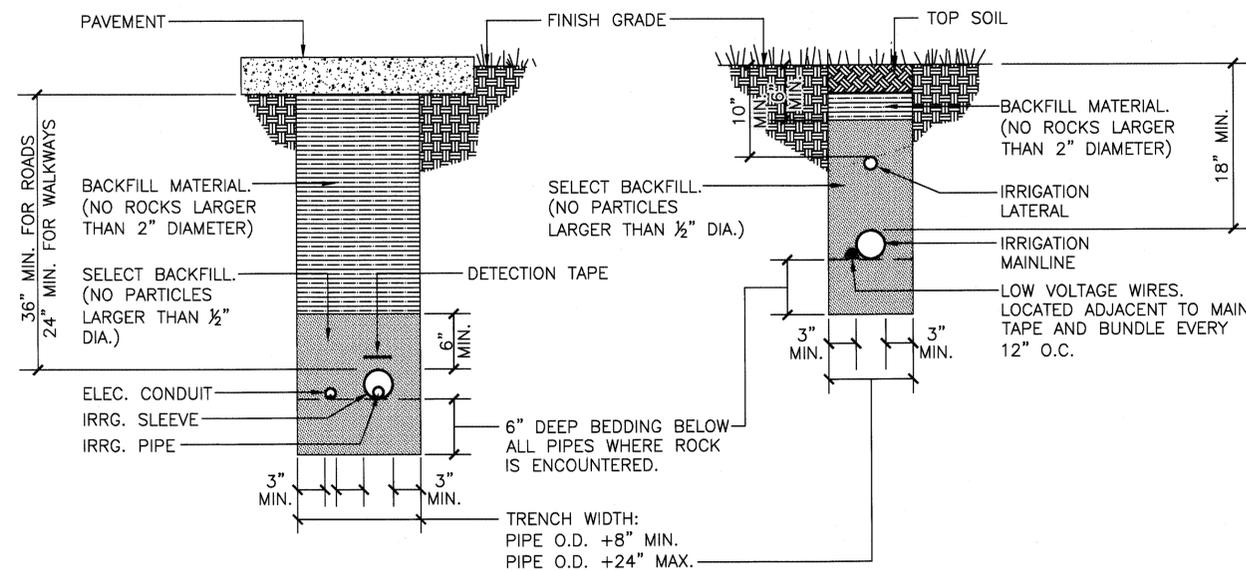
AREA TO RECEIVE DRIPLINE  
NETAFIM TLCV-06-12 (12)  
TECHLINE PRESSURE COMPENSATING LANDSCAPE DRIPLINE WITH CHECK VALVE. 0.6GPH EMITTERS AT 12.0" O.C. DRIPLINE LATERALS SPACED AT 12.0" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. 17MM.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
■	BUCKNER-SUPERIOR QB5AR-LRC 1" BRASS QUICK COUPLING VALVE WITH ANTI-ROTATION DESIGN. ONE PIECE, DOUBLE SLOT WITH LOCKING PLASTIC YELLOW TUFF TOP LID.
⊠	NIBCO T-113 CLASS 125 BRONZE GATE SHUT OFF VALVE WITH WHEEL HANDLE, SAME SIZE AS MAINLINE PIPE DIAMETER AT VALVE LOCATION. SIZE RANGE - 1/4" - 3"
⊕	GRISWOLD 2160KE 1-1/2" 1-1/2" SOLENOID, NORMALLY OPEN MASTER VALVE. EPOXY COATING. CAST IRON AND BRONZE MATERIAL. NPT END CONNECTION.
⊖	WATTS LF909 1" LEAD FREE REDUCED PRESSURE BACKFLOW PREVENTER.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
⊠	RAIN BIRD ESP8LXMEF WITH (03) ESPLXMSM4 20 STATION COMMERCIAL CONTROLLER. MOUNTED ON A PLASTIC WALL MOUNT. FLOW SENSING AND WATER MANAGEMENT CAPABILITIES.
⊠	RAIN BIRD ETC-LX UPGRADES ANY ESP-LX SERIES CONTROLLER TO AN ET/WEATHER-BASED IRRIGATION CONTROLLER.
⊠	RAIN BIRD ETM-RG TIPPING BUCKET RAIN GAUGE MEASURES RAIN TO 1 MM PER TIP. MOUNT EXTERIOR AS INDICATED USING THE INCLUDED 30 FT. (9.1M) CABLE.
⊠	RAIN BIRD RSD-CEX RAIN SENSING DEVICE, CONDUIT MOUNT. WITH THREADED ADAPTER, EXTENSION WIRE.
⊠	RAIN BIRD FS-150-B 1-1/2" FLOW SENSOR FOR USE WITH RAIN BIRD MAXICOM, SITECONTROL, AND ESP-LXD CENTRAL CONTROL SYSTEMS. BRASS MODEL. SUGGESTED OPERATING RANGE OF 2.0 GPM TO 82.6 GPM. SENSORS SHOULD BE SIZED FOR FLOW RATHER THAN PIPE SIZE.

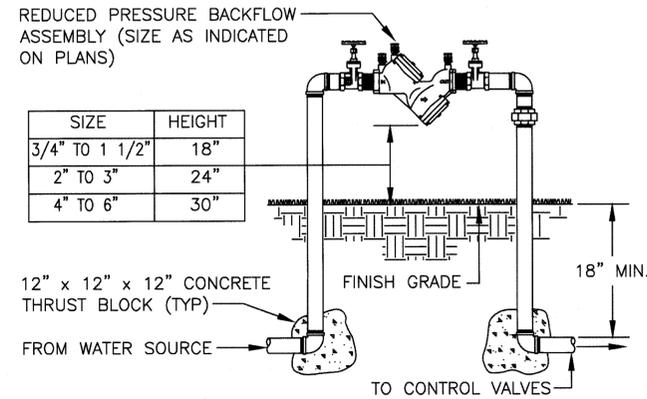
SYMBOL	DESCRIPTION
—	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 PVC CLASS 200 IRRIGATION PIPE.
---	IRRIGATION LATERAL LINE: TYPE K COPPER PIPE ONLY LATERAL TRANSITION PIPE SIZES 1" AND ABOVE ARE INDICATED ON THE PLAN, WITH ALL OTHERS BEING 3/4" IN SIZE.
---	IRRIGATION MAINLINE: PVC SCHEDULE 40

VALVE CALLOUT		CONDUIT & SLEEVE CALLOUT	
#	VALVE NUMBER	▽	CONDUIT SIZE
#/	VALVE FLOW	⊕	SLEEVE SIZE
#	VALVE SIZE		

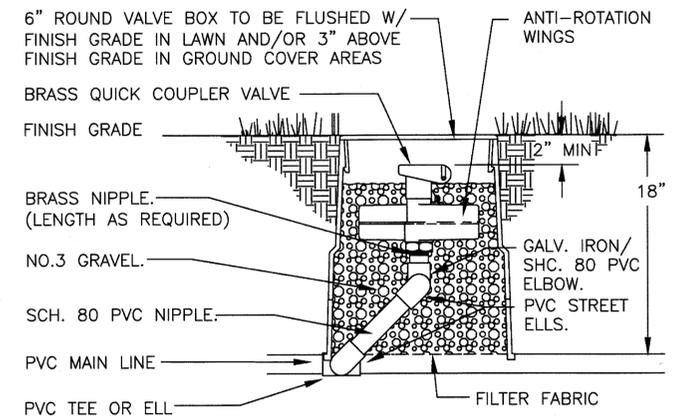


**1 IRRIGATION TRENCHING DETAIL**  
1" = 1"

NOTE:  
1. ALL PIPE AND FITTINGS LESS THAN 4" IN SIZE SHALL BE COPPER. ALL PIPE AND FITTINGS 4" OR GREATER IN SIZE SHALL BE FLANGED DUCTILE IRON.  
2. MIN. HEIGHT MUST BE 12" ABOVE HIGHEST POINT OF DISTRIBUTION, OR THAT SHOWN IN CHART, WHICHEVER IS GREATEST.

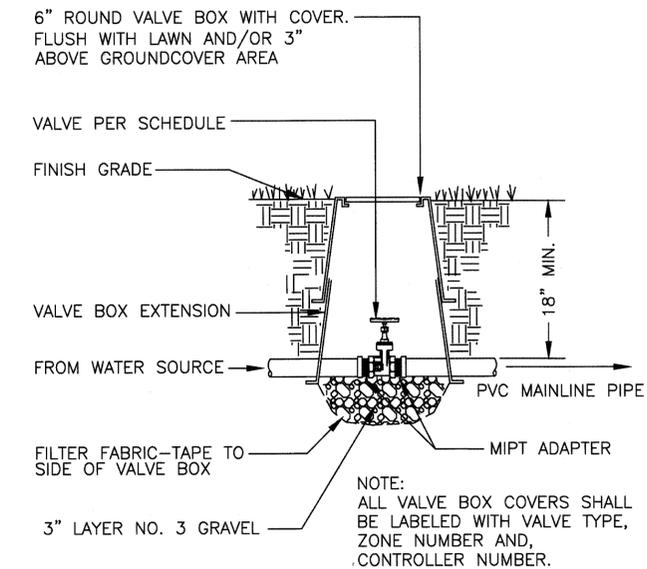


**2 REDUCE PRESSURE BACKFLOW PREVENTER**  
NOT TO SCALE M3093.01-04



NOTE:  
1. KBI OR LASCO SWING JOINTS UPON APPROVAL BY LANDSCAPE ARCHITECT  
2. ALL VALVE BOX COVER SHALL BE LABELED WITH VALVE TYPE, ZONE NUMBER AND CONTROLLER NUMBER.  
3. CONTRACTOR SHALL PROVIDE ONE (1) QUICK COUPLER KEY, ONE (1) HOSE ELL & ONE (1) COVER KEY FOR EACH QUICK COUPLER VALVE.

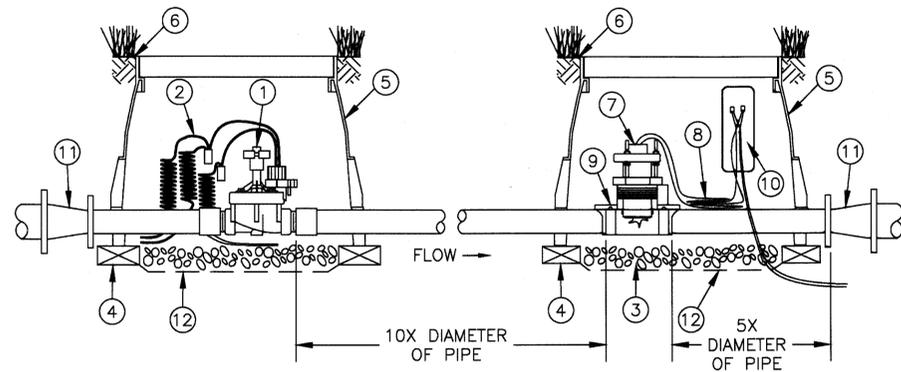
**4 QUICK COUPLING VALVE**  
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**3 GATE VALVE**  
NOT TO SCALE M3093.01-06

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STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION  MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII IRRIGATION SCHEDULE AND DETAILS					
DESIGNED:	SM	SUBMITTED:	gc	DATE:	03/15/16
DRAWN:	SM	CHECKED:	RC	SCALE:	AS SHOWN
APPROVED:	<i>[Signature]</i>	DATE:	MAR 23 2016	DRAWING NO.:	12.00
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION CHIEF ENGINEER					

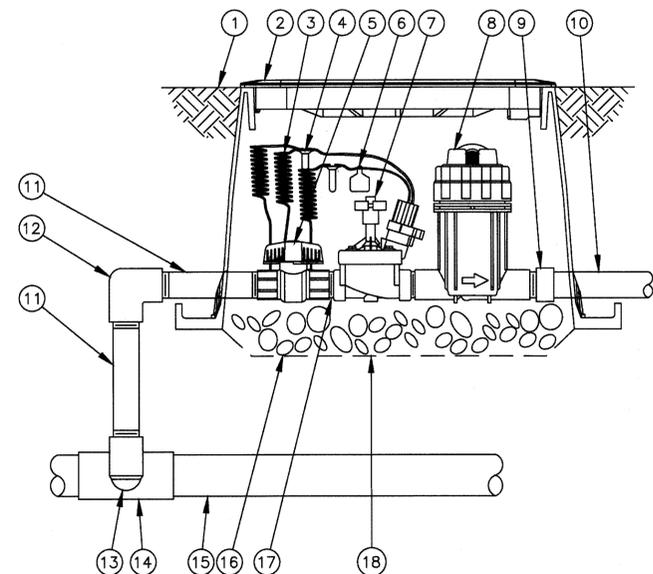
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- ① MASTER VALVE
- ② 36-INCH LENGTH OF COILED WIRE TO SATELLITE CONTROLLER SPARE STATION
- ③ 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
- ④ BRICK (1 OF 4)
- ⑤ VALVE BOX WITH COVER - 12-INCH SIZE
- ⑥ FINISH GRADE
- ⑦ FLOW SENSOR
- ⑧ 36-INCH LENGTH OF COILED PE-CABLE.
- ⑨ DOUBLE-STRAP SADDLE
- ⑩ WIRE SPLICE
- ⑪ CONCENTRIC REDUCER
- ⑫ FILTER FABRIC

**1 MASTER VALVE AND FLOW SENSOR DETAIL**  
1" = 1"

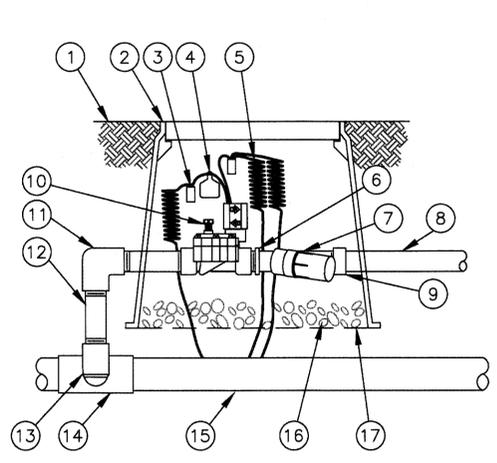
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- ① FINISH GRADE/TOP OF MULCH
- ② VALVE BOX WITH COVER
- ③ 30-INCH LINEAR LENGTH OF WIRE, COILED
- ④ 3M DBYR6 WATERPROOF CONNECTION
- ⑤ 1-INCH BALL VALVE
- ⑥ ID TAG
- ⑦ REMOTE CONTROL VALVE
- ⑧ PRESSURE REGULATING QUICK CHECK BASKET FILTER
- ⑨ PVC SCH 40 FEMALE ADAPTOR
- ⑩ LATERAL PIPE
- ⑪ PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
- ⑫ PVC SCH 40 ELL
- ⑬ PVC SCH 80 NIPPLE (2-INCH LENGTH, HIDDEN) AND PVC SCH 40 ELL
- ⑭ PVC SCH 40 TEE OR ELL
- ⑮ MAINLINE PIPE
- ⑯ 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
- ⑰ PVC SCH 80 NIPPLE, CLOSE
- ⑱ FILTER FABRIC

**3 1" MEDIUM FLOW VALVE DETAIL**  
1" = 1"

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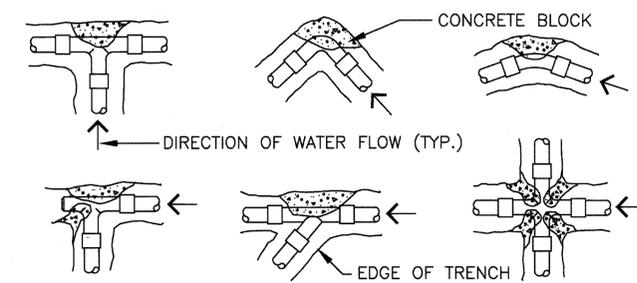
- ① FINISH GRADE
- ② ROUND VALVE BOX WITH COVER
- ③ 3M DBYR6 WATERPROOF CONNECTION
- ④ VALVE ID TAG
- ⑤ 30-INCH LINEAR LENGTH OF WIRE, COILED
- ⑥ 1" X 3/4" REDUCING COUPLING
- ⑦ PRESSURE REGULATING FILTER
- ⑧ LATERAL PIPE
- ⑨ PVC SCH 40 FEMALE ADAPTOR OR REDUCER
- ⑩ REMOTE CONTROL VALVE
- ⑪ PVC SCH 40 ELL
- ⑫ PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
- ⑬ PVC SCH 80 NIPPLE (2-INCH LENGTH, HIDDEN) AND PVC SCH 40 ELL
- ⑭ PVC SCH 40 TEE OR ELL
- ⑮ PVC MAINLINE
- ⑯ 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
- ⑰ FILTER FABRIC

**2 1" LOW FLOW DRIP VALVE DETAIL**  
1" = 1"

M3093.01-39

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

NOTES:  
1. INSTALL THRUST BLOCK AT ALL MACHINE BENDS, TEES OR ELLS AS SHOWN BELOW. THRUST BLOCKS SHALL BE MINIMUM OF (1) CU. FT. REDI-MIX CONCRETE OR 2500 PSI 28 DAY CONCRETE.  
2. SET ALL THRUST BLOCKS AGAINST UNDISTURBED SOIL.

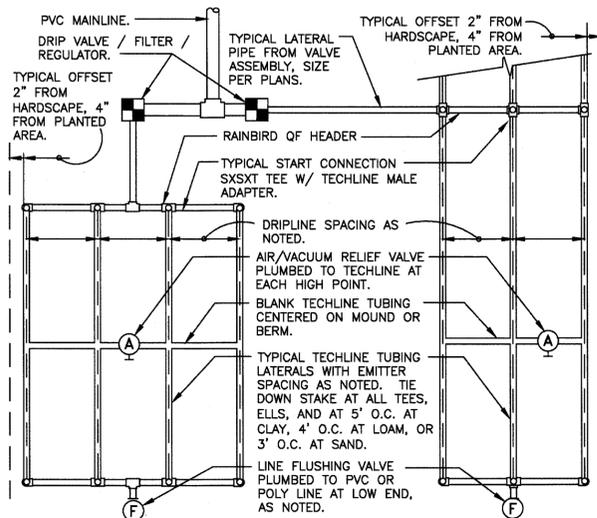


**4 THRUST BLOCK**  
NOT TO SCALE

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REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION  <b>MAUI OFFICE ANNEX</b> WAILUKU, MAUI, HAWAII  IRRIGATION DETAILS					
		DESIGNED: SM DRAWN: SM CHECKED: RC APPROVED: <i>[Signature]</i> CHIEF ENGINEER			
SIGNATURE: <i>[Signature]</i> EXPIRATION DATE OF LICENSE: 4/30/18		SUBMITTED: <i>[Signature]</i> DATE: 03/15/16 SCALE: AS SHOWN		DRAWING NO. <b>13.00</b> DATE: <b>MAR 23 2016</b>	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION					



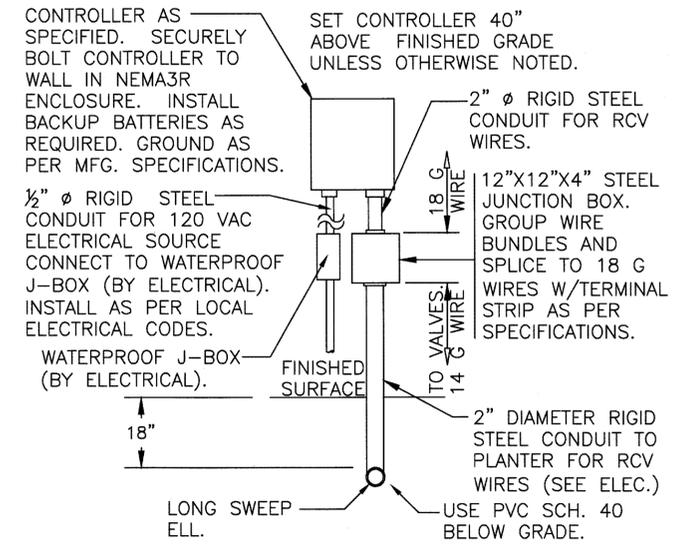
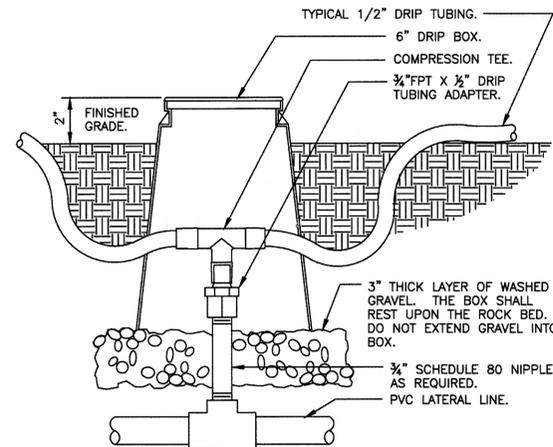
END FEED EXAMPLE

CENTER FEED EXAMPLE

TECHLINE CV MAXIMUM LENGTH OF SINGLE LATERAL (FEET)											
DRIPPER SPACING		12"				18"				24"	
DRIPPER FLOW RATE (GPH)		0.26	0.4	0.6	0.9	0.26	0.4	0.6	0.9	0.6	0.9
INLET PRESSURE (PSI)	15	127	109	86	65	177	151	120	91	152	116
	25	427	325	256	194	604	459	361	274	458	348
	35	539	409	322	244	763	579	456	346	580	440
	45	618	469	369	280	877	664	523	397	666	506

TECHLINE CV FLOW PER 100 FEET										
DRIPPER SPACING	0.26 GPH DRIPPER		0.4 GPH DRIPPER		0.6 GPH DRIPPER		0.9 GPH DRIPPER			
	GPH	GPM	GPH	GPM	GPH	GPM	GPH	GPM	GPH	GPM
12"	26.40	0.44	40.00	0.67	61.00	1.02	92.00	1.53		
18"	17.58	0.29	26.67	0.44	41.00	0.68	61.00	1.02		
24"	N/A	N/A	N/A	N/A	31.00	0.51	46.00	0.77		

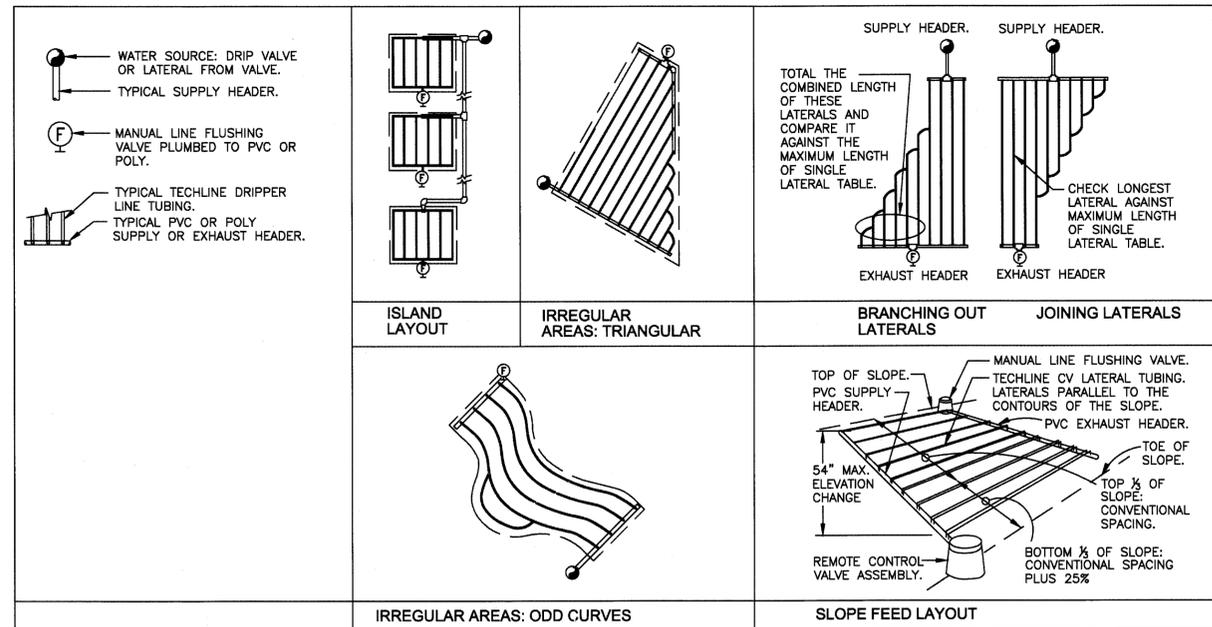


2 ZONE CONTROL  
3" = 1'-0"

M3093.01-08

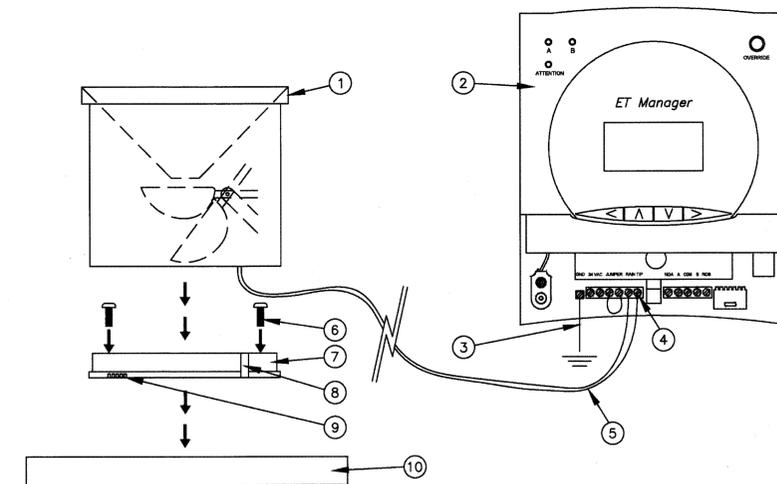
3 WALL MOUNT CONTROLLER  
NOT TO SCALE

M3093.01-02



1 TYPICAL NETAFIM TECHLINE REQUIREMENTS  
3" = 1'-0"

M3093.01-26



4 TIPPING RAIN GAUGE W/ET MANAGER DETAIL  
N.T.S.

M3093.01-01

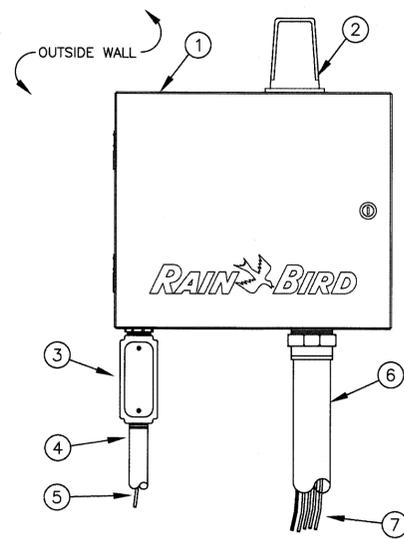
- RAIN BIRD ET MANAGER TIPPING RAIN GAUGE: RAIN BIRD ETM-RG (DIMENSIONS 3 1/8" H X 1 1/8" W X 3 7/8" D)
- RAIN BIRD ET MANAGER
- SOLID BARE COPPER WIRE (#10 AWG MIN.) FROM ET MANAGER TO GROUNDING GRID. MAKE WIRE AS SHORT AND STRAIGHT AS POSSIBLE.
- RAIN TIP TERMINAL FOR CONNECTION TO TIPPING RAIN GAUGE
- 30' LENGTH OF WIRE TO TIPPING RAIN GAUGE (INCLUDED). CUT TO REQUIRED LENGTH. IF ADDITIONAL DISTANCE IS REQUIRED THE RAIN GAUGE CAN HAVE A MAXIMUM CABLE RUN OF 500'. USE 18 AWG AS A MINIMUM WIRE SIZE FOR ADDITIONAL CABLE.
- MOUNTING SCREWS (NOT INCLUDED)
- MOUNTING PLATE WITH 2 MOUNTING HOLES
- WIRE NOTCH
- RAIN DRAINAGE HOLES
- LEVEL SURFACE OR BRACKET

3/15/16-9:25 P:\PROJECTS\MAUI\DLNR Administration Building - 03093.01\CAD\ SHEETS\03093.01-1-4.0.dwg

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION					
MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII					
IRRIGATION DETAILS					
DESIGNED:	SM	SUBMITTED:	cc	DATE:	03/15/16
DRAWN:	SM	CHECKED:	RC	SCALE:	AS SHOWN
APPROVED:		CHIEF ENGINEER		DATE:	MAR 23 2016
DRAWING NO.					14.00



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION



- ① IRRIGATION CONTROLLER:  
RAIN BIRD ESP-LXMEF SMART CONTROLLER WITH FLOW SMART MODULE AND ET  
MANAGER CARTRIDGE IN LXMM METAL CABINET WITH OUTSIDE WALL MOUNT.
- ② RECEIVER (INCLUDED WITH ET MANAGER CARTRIDGE)
- ③ JUNCTION BOX
- ④ 1-INCH CONDUIT AND FITTINGS TO POWER SUPPLY
- ⑤ POWER SUPPLY WIRE
- ⑥ 2-INCH CONDUIT AND FITTINGS FOR STATION WIRES
- ⑦ MASTER VALVE AND REMOTE CONTROL VALVE WIRES
- ⑧ FLOW SENSOR WIRE (PE 39, 89 OR 54) TO FLOW SENSOR

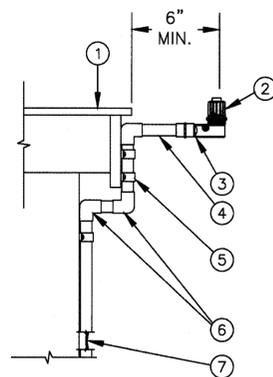
NOTES:

- 1. ESP-LXMEF CONTROLLER IS AVAILABLE IN 8- OR 12-STATION BASE MODELS. ADDITIONAL  
MODULES IN 4-, 8- & 12-STATION VERSIONS MAY BE ADDED TO BRING THE CONTROLLER  
UP TO 48 STATIONS MAXIMUM.
- 2. FOR EASE OF INSTALLATION INTO A CONTROLLER WITH MORE THAN 24 STATIONS, INSTALL A  
JUNCTION BOX AT THE BASE OF CONTROLLER & TRANSITION LARGER VALVE & COMMON  
WIRES FROM FIELD TO 18 AWG MULTI CONDUCTOR WIRE TO BE USED IN CONTROLLER.
- 3. USE STEEL CONDUIT FOR ABOVE GRADE & SCH 40 PVC CONDUIT FOR BELOW GRADE  
CONDITIONS.
- 4. PROVIDE PROPER GROUNDING COMPONENTS TO ACHIEVE GROUND RESISTANCE OF 10 OHMS  
OR LESS.
- 5. INSTALL CONTROLLER IN A LOCATION TO MAXIMIZE RECEIVER RECEPTION. USE ET MANAGER  
REMOTE MOUNTING KIT (ETM-RMK) IN CONDITIONS WHERE RADIO EXTENSION IS NEEDED.

**1 RAINBIRD CNTLR IN METAL CAB W/ET MANAGER CARTRIDGE**

1" = 1"

M3093.01-03



- ① EAVE OF BUILDING
- ② RAIN SENSOR
- ③ FEMALE ADAPTER (SLIP X  
FIPT)
- ④ 3/4" PVC OR GALVANIZED PIPE
- ⑤ SECURE W/ APPROVED PIPE  
ANCHOR
- ⑥ USE APPROPRIATE FITTINGS  
TO ALIGN PIPE CONNECTION
- ⑦ WIRE TO IRRIGATION  
CONTROLLER

NOTE:

- 1. PAINT CONDUIT TO MATCH EAVE AND BUILDING COLOR.

**2 RAIN SENSOR ON BUILDING EAVE WITH CONDUIT**

NOT TO SCALE

M3093.01-09

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REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION  MAUI OFFICE ANNEX WAILUKU, MAUI, HAWAII  IRRIGATION DETAILS					
		DESIGNED: SM	SUBMITTED: <i>SM</i>		
		DRAWN: SM	DATE: 03/15/16		
SIGNATURE: <i>SM</i> EXPIRATION DATE OF LICENSE: 4/30/18  THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION		CHECKED: RC	SCALE: AS SHOWN		
		APPROVED: <i>Cyly</i> CHIEF ENGINEER	DATE: MAR 23 2016		DRAWING NO. 15.00

