IRRIGATION NOTES

1 ALL LOCAL MUNICIPAL AND STATE LAWS, RULES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR.

2 THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, STRUCTURES AND SERVICES BEFORE COMMENCING WORK. THE LOCATIONS OF UTILITIES, STRUCTURES AND SERVICES SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE UNIVERSITY'S REPRESENTATIVE.

3 THE CONTRACTOR SHALL OBTAIN THE PERTINENT ENGINEERING OR ARCHITECTURAL PLANS BEFORE BEGINNING WORK.

4 THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK INDICATED HEREIN BEFORE BEGINNING WORK.

5 THIS DESIGN IS DIAGRAMMATIC. ALL EQUIPMENT SHOWN IN PAVED AREAS IS FOR DESIGN CLARITY ONLY AND IS TO BE INSTALLED WITHIN PLANTING AREAS.

6 THE CONTRACTOR SHALL NOT WILLFULLY INSTALL ANY EQUIPMENT AS SHOWN ON THE PLANS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN CONDITIONS EXIST THAT WERE NOT EVIDENT AT THE TIME THESE PLANS WERE PREPARED. ANY SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE UNIVERSITY'S REPRESENTATIVE PRIOR TO ANY WORK OR THE IRRIGATION CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY FIELD CHANGES DEEMED NECESSARY BY THE UNIVERSITY.

7 INSTALL ALL EQUIPMENT AS SHOWN IN THE DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH LOCAL CITY, COUNTY AND STATE REQUIREMENTS FOR BOTH EQUIPMENT AND INSTALLATION.

8 CONTRACTOR IS TO PROVIDE AN ADDITIONAL PILOT WIRE FROM CONTROLLER ALONG ENTIRETY OF MAIN LINE TO THE LAST RCV ON EACH AND EVERY LEG OF MAIN LINE. LABEL SPARE WIRES AT BOTH ENDS.

9 ALL PIPE UNDER PAVED AREAS TO BE INSTALLED IN SLEEVING TWICE THE DIAMETER OF THE PIPE CARRIED. SEE LEGEND FOR TYPE. ALL WIRE UNDER PAVED AREAS TO BE INSTALLED IN A SCH. 40 SLEEVE THE SIZE REQUIRED TO EASILY PULL WIRE THROUGH. ALL SLEEVES TO BE INSTALLED WITH A MINIMUM DEPTH AS SHOWN ON THE SLEEVING DETAILS. SLEEVES TO EXTEND AT LEAST 12" PAST THE EDGE OF THE PAVING.

10 ALL QUICK COUPLER AND REMOTE CONTROL VALVES TO BE INSTALLED IN SHRUB OR GROUND COVER AREAS WHERE POSSIBLE. ALL QUICK COUPLER AND REMOTE CONTROL VALVES TO BE INSTALLED AS SHOWN ON THE INSTALLATION DETAILS. INSTALL ALL QUICK COUPLER AND REMOTE CONTROL VALVES WITHIN 18" OF HARDSCAPE.

11 ALL HEADS ARE TO BE INSTALLED WITH THE NOZZLE, SCREEN AND ARCS SHOWN ON THE PLANS. ALL HEADS ARE TO BE ADJUSTED TO PREVENT OVERSPRAY ONTO BUILDINGS, WALLS, FENCES AND HARDSCAPE. THIS INCLUDES, BUT NOT LIMITED TO, ADJUSTMENT OF DIFFUSER PIN OR ADJUSTMENT SCREW, REPLACEMENT OF PRESSURE COMPENSATING SCREENS, REPLACEMENT OF NOZZLES WITH MORE APPROPRIATE RADIUS UNITS AND THE REPLACEMENT OF NOZZLES WITH ADJUSTABLE ARC UNITS.

12 THE CONTRACTOR SHALL USE PROPER GROUNDING TECHNIQUES FOR GROUNDING THE CONTROLLER AND RELATED EQUIPMENT PER MANUFACTURERS SPECIFICATIONS. SWEENEY AND ASSOCIATES RECOMMENDS MEASURING FOR PROPER GROUND AT LEAST ONCE ANNUALLY, AND NECESSARY ADJUSTMENTS MADE TO COMPLY WITH MANUFACTURER SPECIFICATIONS.

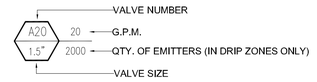
WATER PRESSURE CALCULATIONS

WATER METER NUMBER	1	WATER METER SIZE	
HYDRAULIC GRADE LINE (FT)		WATER METER ELEVATION (FT)	9
ELEVATION DIFFERENCE (FT)		STATIC PRESSURE (PSI)	0
REMOTE CONTROL VALVE #	7	REMOTE CONTROL VALVE SIZE	11/2"
R.C.V. DEMAND (GPM)	18	TOTAL DEMAND (GPM)	18
HIGHEST HEAD SERVED (FT)	28	STATIC PRESSURE AT HIGHEST HEAD	

SIZE	DESCRIPTION	FLOW	#	PSI LOSS	
	SERVICE LINE (50 FT OF TYPE K COPPER)		1	0.0	PSI
	WATER METER (DISC TYPE)		2	0.0	PSI
	BACKFLOW PREVENTER (R/P TYPE)		3	0.0	PSI
	FILTRATION (WYE FILTER)		4	0.0	PSI
	PRESSURE REGULATOR (WILKINS 500HLR)		5	0.0	PSI
	BFD ASSEMBLY PIPING (BRASS W/ 4 ELLS)		6	0.0	PSI
	MASTER CONTROL VALVE		7	0.0	PSI
	FLOW SENSOR		8	0.0	PSI
2"	ISOLATION VALVES (BALL TYPE)	18	9	1.0	PSI
11/2"	400 FEET OF MAINLINE: SCH. 40 PVC	18	10	3.6	PSI
11/2"	20 FEET OF MAINLINE: TYPE K COPPER	18	11	0.3	PSI
11/2"	5 - 90 DEGREE ELBOWS	18	12	0.5	PSI
1"	REMOTE CONTROL VALVE	18	13	3.0	PSI
10%	LATERAL LINE LOSS	N/A	14	3.0	PSI
20%	FITTING LOSS (IN ADDITION TO ELBOWS SHOWN)	N/A	15	0.8	PSI
19	ELEVATION CHANGE (P.O.C. TO HIGHEST HEAD)	N/A	16	8.2	PSI
TOTAL SYSTEM PRESSURE LOSS (SUM OF #1 THRU #16)			17	20.4	PSI
PRESSURE REQUIRED AT HEAD			18	30.0	PSI
TOTAL PRESSURE REQUIRED (SUM OF #17 AND #18)			19	50.4	PSI
STATIC WATER PRESSURE (FROM ABOVE)			20	0.0	PSI
RESIDUAL PRESSURE (SUBTRACT #19 FROM #20)			21	-50.4	PSI
SET PRV OR MCV AT (#19 PLUS 10 PSI)			22	N/A	PSI
PRESSURE BOOST, IF REQUIRED (SET TO ACHIEVE 10 PSI RESIDUAL)			23	60.4	PSI

IRRIGATION MATERIAL LEGEND

SYMBOL Q T H F	MANUFACT.	MODEL NO. / DESCRIPTION	GPM	PSI	RADIUS	DETAIL
	RAIN BIRD	1806-SAM-PRS WITH 1402 BUBBLER NOZZLE AND PA-80 ADAPTER, EACH SYMBOL REPRESENTS TWO BUBBLERS PER TREE, PLACE BUBBLERS AT EDGE OF ROOTBALL ON OPPOSITE SIDES OF TREE TYPICAL.	.50 (1.0)	30	N/A	A
	HOOVER	HOOVER IRRIGATION BOOSTER PUMP AND HUNTER ICC-12 CONTROLLER, HCF-5CS-230/3-E-12,L,Z, SEE DETAIL, INSTALL PER MANUFACTURERS RECOMMENDATION. ASSEMBLED BY HOOVER PUMPING SYSTEMS, POMPANO BEACH, FL, CONTACT KEVIN CAVAIOLI (954) 971-7350 CONTRACTOR SHALL VERIFY EXISTING POWER SUPPLY PRIOR TO ORDERING PUMP				B
	LASCO	SLO-CLOSE SCH. 80 PVC TRU-UNION BALL VALVE WITH SOLVENT WELD CONNECTIONS, LINE SIZE				C
	RAIN BIRD	33-DLRC QUICK COUPLER VALVE, INSTALL WITHIN 10" ROUND VALVE BOX				D
	RAIN BIRD	1X0-PESB-PRS-D (1", 11/2") SERIES PRESSURE REGULATED PLASTIC REMOTE CONTROL VALVE, SIZE AS SHOWN				E
	RAIN BIRD	100-PESB-PRS-D 1" SERIES DRIP REMOTE CONTROL VALVE ASSEMBLY, SIZE AS SHOWN, INSTALL AG PRODUCTS 1" #4E-1AN-150, 1" MPT W/ MHT FLUSH & CAP 150 MESH WYE FILTER AND SENNINGER PRESSURE REGULATOR PMR-40MF, AG PRODUCTS 11/2" SIZE #4E-11/2-150, 11/2" MPT W/ MPT FLUSH AND BALL VALVE, 150 MESH WYE FILTER AND SENNINGER PR-40HF PRESSURE REGULATOR				F
	N/A	230 VOLT (THREE) PHASE ELECTRICAL POWER FOR BOOSTER PUMP SYSTEM, PROVIDED BY ELECTRICIAN, VERIFY ACTUAL LOCATION IN FIELD				N/A
	RAIN BIRD	LD-06-12 DRIP TUBING W/ .6 GPH EMITTERS 12" ON CENTER, INSTALL TUBING ROWS A MAXIMUM OF 16" APART IN SHRUB AREAS. ALL TUBING SHALL BE INSTALLED 4" BELOW FINISHED SOIL GRADE W/ 9" WIRE STAKES FIVE (5) FEET ON CENTER; VERIFY THE LAYOUT AND SPACING IN THE FIELD PRIOR TO STARTING WORK				G,H,I
	RAIN BIRD	INSERT FITTINGS WITH PVC TEE OR ELL FITTINGS FOR CONNECTION BETWEEN PVC LATERAL LINES AND DRIP TUBING				G,H,I
NO SYMBOL	RAIN BIRD	ALL CONNECTIONS BETWEEN DRIP TUBING SHALL BE MADE USING INSERT FITTINGS				G,H,I
	TORO	PROVIDE A FCH-H-FIPT AUTOMATIC FLUSH VALVE AT END/MIDDLE OF DRIPLINE 3/4" PCV FLUSH MANIFOLD LINE, INSTALL FLUSH VALVE INSIDE A SEPERATE VALVE BOX, ONE AT THE END OF TUBING RUNS IN EACH DIRECTION. INSTALL MIN. ONE FLUSH VALVE PER 1000' OF TUBING IN EACH DIRECTION ON DRIPLINE FLUSH MANIFOLD. INSTALL 18" FROM PAVING. INSTALL ALL FLUSH EQUIPMENT PER MANUFACTURER'S SPECIFICATIONS.				I,J
	TORO	YD-500-34 AIR/VACUUM RELIEF VALVE INSTALLED WITH A FT-050 CONBINATION TEE AND A 3/4" X 1/2" REDUCER BUSHING, INSTALL AIR RELIEF ASSEMBLY INSIDE A 6" ROUND VALVE BOX AT THE HIGH POINT OF EACH PLANTER, MIN. 1 ARV PER 500' OF DRIPLINE. USING AIR RELIEF LATERAL, CONNECT AIR RELIEF VALVE TO ALL DRIPLINE LATERALS WITHIN THE ELEVATED AREA. MULTIPLE ARV'S SHALL BE REQUIRED PER RCV WITHIN UNDULATING AREAS, VERIFY QUANTITY PRIOR TO STARTING WORK. INSTALL VALVE BOX 18" FROM PAVING AND AT HIGH POINTS OF PLANTER AREA. INSTALL ALL AIR VACUUM RELIEF EQUIPMENT PER MANUFACTURER'S SPECIFICATIONS.				I,K
	AS APPROVED	PVC PIPE 3/4" - 11/2" CL. 200 AS LATERAL LINES 12" BELOW GRADE				L
	AS APPROVED	PVC PIPE 11/2" SCH. 40 SOLVENT WELD AS MAINLINES 18" BELOW GRADE				L
	AS APPROVED	PVC PIPE SCH. 40 AS SLEEVING, TWICE THE DIAMETER OF PIPE OR WIRE BUNDLE CARRIED PLACE BELOW ALL PAVING, HARDSCAPE ETC. AND AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE.				M
NO SYMBOL	AS APPROVED	IRRIGATION CONTROL WIRE #14UF AWG DIRECT BURIAL (U.L. APPROVED)				L,M,N
NO SYMBOL	3M	DBY-6 DIRECT BURIAL WATER-PROOF WIRE CONNECTORS FOR USE ON ALL WIRE CONNECTIONS (U.L. APPROVED)				N



IRRIGATION CONTROLLER RUN TIMES

Controller : A

PLANT TYPE / SPRINKLER TYPE	Eto	AKc	PR RATE	IE	RUN TIME (HOURS)	QUANTITY	RUN TIME (HOURS)
Days Per Week: 6	5.8						
Shrub and Ground Covers							
Drip	5.80	0.40	0.49	0.90	0.20	7	**1.43**
Trees							
Bubbler Heads	5.80	0.80	3.00	0.90	0.07	2	**0.13**
CYCLES PER DAY: 1					TOTAL NUMBER OF STATIONS:	9	
						TOTAL RUN TIME IN HOURS:	**1.57**

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SEAL / SIGNATURE / DATE

REVISION 02 - AUGUST 14 2009

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Date	#	Revision
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Issue (#)	Issue Date / For
7.24.07	SCHEMATIC DESIGN APPROVAL
11.12.07	SCHEMATIC DESIGN APPROVAL
02.22.08	SCHEMATIC DESIGN APPROVAL
03.28.08	SCHEMATIC DESIGN APPROVAL
10.21.08	PROGRESS DESIGN DEVELOPMENT
11.26.08	100 % DESIGN DEVELOPMENT
02.25.09	FOUNDATION PERMIT
03.18.09	50% CONSTRUCTION DOCUMENTS
05.18.09	100% CONSTRUCTION DOCUMENTS

PROJECT NO.: 2441

SHEET INDEX

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