

# LINETYPE AND SYMBOL LEGEND

W

- $    -$ EXISTING WATER MAIN	💢 EXISTING FIRE HYDRANT (4"X2.5"X2.5")	
- $   -$ EXISTING GAS MAIN	<b>SWV</b> EXISTING WATER VALVE	οφ
– – – s – – EXISTING SEWER MAIN	<b>OGV</b> EXISTING GAS VALVE	TSB
– – – e – – EXISTING SCE MAIN	GAS EXISTING GAS METER	
- $ -$ sd $ -$ EXISTING STORM DRAIN MAIN	EXISTING WATER METER	— w —
– – – OHW – – – EXISTING OVERHEAD WIRE	ELEC EXISTING ELECTRIC BOX	<u> </u>
- $ -$ CTV $ -$ EXISTING UNDERGROUND CABLE TV	OCO EXISTING CLEANOUT	
– – – E – – – EXISTING UNDERGROUND ELECTRIC	ODO EXISTING DRAIN OUTLET	
– – – T – – – EXISTING UNDERGROUND TELEPHONE	EXISTING POWER POLE	

WATER

# CITY OF SANTA BARBARA **ORTEGA PARK PUBLIC IMPROVEMENTS**



N.T.S.

# **PROJECT DESCRIPTION**

PUBLIC IMPROVEMENTS INCLUDE ADDITION OF PARKING STALLS, CURB, GUTTER AND SIDEWALK IMPROVEMENTS ON ORTEGA AND SALSIPUEDES STREET PASSENGER I OADING AREAS AND ACCESSIBLE CURB RAMPS AT THE INTERSECTION of ortega and salsipuedes streets. Four new accessible curb ramps and landscaped bulb-outs at the intersection of salsipuedes and cota STREETS. ONE NEW ACCESSIBLE CURB RAMP AT THE INTERSECTION OF ORTEGA AND QUARANTINA STREETS, BIORETENTION AREAS THROUGHOUT

# **SURVEY INFORMATION**

SURVEY PREPARED IN FEBRUARY 2019 BY: RRM DESIGN GROUP 10 E FIGUEROA STREET, SUITE 200 SANTA BARBARA, CA 93101 STEVEN B. WEBSTER, P.L.S. 7561

### **BENCH MARK:**

"VERTICAL DATUM FOR THIS SURVEY IS BASED ON THE CITY OF SANTA BARBARA'S 2008 NAVD BENCHMARK LIST, POINT ID CARP1133 BEING CHISELED SQUARE IN BACK OF CURB, SOUTHERLY RETURN, WESTERLY CORNER OF INTERSECTION OF CARPINTERIA ST AND SOLEDAD ST., HAVING AN ELEVATION OF 36.35." BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS BASED ON THE CITY OF SANTA BARBARA HORIZONTAL CONTROL NETWORK BETWEEN STATIONS 0013 AND 0015 HAVING A GRID BEARING OF \$71°04'09"E AND REFERENCED IN THE RECORD OF SURVEY RECORDED IN BOOK 147 AT PAGE 70 OF OFFICIAL RECORDS.

# **APPLICABLE DESIGN STANDARDS**

- STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN
- BOOK) CITY OF SANTA BARBARA PUBLIC WORKS DEPARTMENT CONSTRUCTION
- STANDARD DETAILS
- 2014 CA M.U.T.C.D. WORK AREA TRAFFIC CONTROL HANDBOOK

CONTACTS	ORGANIZATION	TITLE	NAME	EMAIL	PHONE
WATER	CITY OF SANTA BARBARA	WATER DISTRIBUTION SUPERVISOR	HAMMURABI (RABI) DAYS	hdays@SantaBarbaraCA.gov	(805) 564-5409
SANITARY SEWER	CITY OF SANTA BARBARA	WASTEWATER COLLECTION SUPERINTENDENT	BRADLEY RAHRER	brahrer@SantaBarbaraCA.gov	(805) 560-7531
ELECTRICITY	SOUTHERN CALIFORNIA EDSION	EDISON PLANNER	TIM DAVIS	timothy.davis.@sce.com	(805) 396-0300
IELEPHONE	VERIZON CALIFORNIA	CONTRACT ENGINEER	JONATHAN TRELATSKY	jonathan.trelatsky@ftr.com	(805) 388-2266
NATURAL GAS	SOUTHERN CALIFORNIA GAS COMPANY	PLANNING ASSOCIATE	MIKE MORENO	mjmoreno@semprautilities.com	(805) 681-8061
Cellular Communications	CROWN CASTLE	SITE DEVELOPMENT MANAGER	DANIEL NUESKE	daniel.nueske@crowncastle.com	(714) 472-1577
CABLE TELEVISION		CONSTRUCTION PLANNER	CARL GIVENS	coxfacilityinquiries@cox.com	(805) 681-3842
ENGINEERING	CITY OF SANTA BARBARA	PRINCIPAL ENGINEER	ADAM HENDEL	ahendel@santabarbara.CA.gov	(805) 897-1921
NSPECTIONS	CITY OF SANTA BARBARA	PUBLIC WORKS INSPECTOR	RANDY WARD	rward@santabarbaraca.gov	(805) 564-5396

EXISTING STREET SIGN EXISTING STREET LIGHT EXISTING TRAFFIC SIGNAL BOX EXISTING DRIVEWAY PROPOSED WATER MAIN PROPOSED SEWER LATERAL PROPOSED STORM DRAIN **RIGHT OF WAY LINE** SAWCUT LINE

		SHEET INDEX
HEET #	SHEET DESIGNATOR	TITLE
1	C1	TITLE SHEET
2	C2	DEMOLITION PLAN - ORTEGA AND SALSIPUEDES STREETS
3	C3	DEMOLITION PLAN - COTA STREET AND WELCOME HOUSE
4	C4	STREET IMPROVEMENT PLAN - ORTEGA STREET
5	C5	STREET IMPROVEMENT PLAN - SALSIPUEDES STREET
6	C6	STREET IMPROVEMENT PLAN - COTA STREET
7	C7	GRADING DETAILS
8	C8	CONSTRUCTION DETAILS
9	С9	SIGNAGE AND STRIPING PLAN
10	C10	HORIZONTAL CONTROL PLAN
11	C11	EROSION CONTROL PLAN
12	L1.0	CONSTRUCTION LEGEND AND NOTES
13	L1.1	CONSTRUCTION PLAN
14	L1.2	CONSTRUCTION PLAN AND ENLARGEMENT AREA
15	L1.3	CONSTRUCTION PLAN
16	L2.0	CONSTRUCTION DETAILS
17	L3.0	IRRIGATION LEGEND AND NOTES
18	L3.1	IRRIGATION PLAN
19	L3.2	IRRIGATION PLAN
20	L3.3	IRRIGATION DETAILS
21	L3.4	IRRIGATION DETAILS
22	L4.0	PLANTING SCHEDULE AND NOTES
23	L4.1	PLANTING PLAN
24	L4.2	PLANTING PLAN AND ENLARGEMENT AREA
25	L4.4	PLANTING DETAILS
26	L5.0	LANDSCAPE NOTES
27	L5.1	landscape notes

# **SPECIAL INSPECTIONS**

THE FOLLOWING ARE MANDATORY SPECIAL INSPECTIONS BY THE CITY PUBLIC WORKS INSPECTOR FOR STORM WATER POST-CONSTRUCTION IMPROVEMENTS (BMPs):

- BIORETENTION: PRE-CONSTRUCTION MEETING, EXCAVATION AND SUBGRADE, UNDERDRAIN INSTALLATION, ROCK AND SOIL LAYER INSTALLATIONS, FINAL INSPECTION
- PERMEABLE PAVEMENT: PRE-CONSTRUCTION MEETING, EXCAVATION AND SUBGRADE, ROCK LAYER INSTALLATION, FINAL INSPECTION

INSPECTIONS SHALL BE CALLED IN BY CONTRACTOR 72 HOURS PRIOR TO NEEDED INSPECTION. THE CITY WILL THEN ROUTE TO THE QSP INSPECTOR OR THIRD PARTY COMPANY.





SUPERVISING CIVIL ENGINEER

RRM Design Group 10 E. Figueroa St., Ste. 200 • Santa Barbara, CA 9310 p: (805) 963-8283 • f: (805) 963-8184 PUBLIC WORKS DEPARTMENT ENGINEERING DIVISIOI K LANS







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LOCATION	ACCESSIBLE STALL	EV CHARGING STALL	CLEAN AIR/ VANPOOL/ EV STALL	STANDARD STALL	ACCESSIBLE PASSENGER LOADING	STANDARD PASSENGER LOADING
ORTEGA STREET	4	0	3	22	1	0
SALSIPUEDES STREET	2	4	3	25	0	2
TOTAL	6	4	6	47	1	2
			63 PAR	KING STALLS	3 PASSENGER	LOADING SPACES



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	LENGTH	RADIUS	DELTA		SEGMENT	LENGTH	RADIUS	DELTA
	23.58	15.00	90°04'59''		C21	6.38	4.00	91°26'15"
	5.24	5.00	60°00'00''		C22	6.28	4.00	90°00'00''
	6.28	3.00	120°00'00''		C23	6.28	4.00	90°00'00''
	5.24	5.00	60°00'00''		C24	6.28	4.00	90°00'00''
	4.19	2.00	120°00'00''		C25	6.28	4.00	90°00'00''
	4.71	3.00	90°00'00''		C26	6.28	4.00	90°00'00''
	3.14	2.00	90°00'00''		C27	6.28	4.00	90°00'00''
	3.14	3.00	60°00'00''		C28	6.28	4.00	90°00'00''
	6.28	3.00	120°00'00''		C29	6.28	4.00	90°00'00''
	4.71	3.00	90°00'00''		C30	7.85	5.00	90°00'00''
	7.85	5.00	90°00'00''		C31	23.57	15.00	90°01'17''
	14.95	20.00	42°50'00''		C32	7.92	10.00	45°23'48''
	7.48	10.00	42°49'56"		C33	5.95	13.17	25°53'44''
	7.48	10.00	42°50'00''		C34	23.55	15.00	89°58'17"
	14.95	20.00	42°50'00''		C35	6.24	10.00	35°44'38''
	15.71	10.00	89°59'24''		C36	6.53	10.00	37°24'44"
	14.95	20.00	42°49'59"		C37	6.27	10.00	35°54'36"
	7.48	10.00	42°50'00''		C38	6.44	10.00	36°52'12"
	7.46	10.42	41°02'43"		C39	23.57	15.00	90°01'43"
1								



KEY	DETAIL	ITEM	DESCRIPTION	COLOR AND FINISH	NOTES
	SEE CIVIL PLANS	PAVING TYPE 1	CONCRETE, SAWCUT SCORING PER PLAN. SEE CONSTRUCTION NOTES.	COLOR: STANDARD GREY FINISH: MEDIUM BROOM	
	SEE CIVIL PLANS	PAVING TYPE 2	CONCRETE WITH INTEGRAL COLOR, SAWCUT SCORING PER PLAN. SEE CONSTRUCTION NOTES.	COLOR: DAVIS 'SANDSTONE' FINISH: MEDIUM SANDBLAST	1' EDGE BORDER. CONTROL JOINTS SHALL BE AT 45 DEGREES. PROVIDE 4'X4' MOCK UP FOR REVIEW
	SEE CIVIL PLANS	PAVING TYPE 3	PERMEABLE PAVERS - VEHICULAR RATED 80MM ADA AVAILABLE FROM AIR VOL BLOK, SAN LUIS OBISPO.	COLOR: BROWN CHARCOAL FINISH: STANDARD SMOOTH PATTERN: COMBO HERRINGBONE	PROVIDE SAMPLE MOCK-UP TO LANDSCAPE ARCHITECT PRIOR TO INSTALLATION
	SEE CIVIL PLANS	MULCH TYPE 1	4'-8" 'NOIYO' RIVER COBBLESTONE AVAILABLE FROM AIR VOL BLOK, SAN LUIS OBISPO.	COLOR: VARIES	MINIMUM 4" OF DEPTH
	7 L2.0	MULCH TYPE 2	DECOMPOSED GRANITE	COLOR: TAN	PROVIDE 3" DEEP LAYER AROUND PLANTINGS, KEEP 3" CLEAR OF PLANT BASE.
	4 L2.0	SEATWALL	STANDARD 8X8X16'' CMU BLOCK QUIKRETE COMMERCIAL GRADE STUCCO OR APPROVED EQUAL.	COLOR: LA HABRA EGGSHELL FINISH: TROLLED	CONTRACTOR SHALL PROVIDE 4' WIDE X WALL HEIGHT SAMPLE FOR REVIEW.
	4 L2.0	WALL CAP	12" X 9 1/8" TERRA COTA TILE CAP MALIBU CERAMIC WORKS PH: 310-455-2485 WEB: www.malibuceramicworks.com EMAIL: MARK@MALIBUCERMICWORKS.COM	COLOR: SANTA BARBARA RED	PROVIDE SAMPLE TO LANDSCAPE ARCHITECT FOR REVIEW.
	2 L2.0	DECORATIVE TILE	4" DECORATIVE RUNNER TILES BOTTOM: MC R-15 / G2, MIDDLE: MC R-35 / G2, TOP: MC R-43 / G3 MALIBU CERAMIC WORKS PH: 310-455-2485 WEB: www.malibuceramicworks.com EMAIL: MARK@MALIBUCERMICWORKS.COM	COLOR: VARIES	SUBMIT SAMPLES OF EACH TILE FOR APPROVAL BY LANDSCAPE ARCHITECT.
2	6 L2.0	BOULDERS	'SANTA BARBARA SANDSTONE' . AVAILABLE FROM SB STONE, SANTA BARBARA, CA. BOULDER 1: APPROXIMATE SIZE 48"-60" BOULDER 2: APPROXIMATE SIZE 36"-48" BOULDER 3: APPROXIMATE SIZE 24"-36"	COLOR: LIGHT BROWN/TAN	PROVIDE PHOTOGRAPHS OF BOULDERS FOR APPROVAL PRIOR TO PURCHASING.
	3 L2.0	HANDRAIL	STAIRMOUNTED, 1 3/16TH WIDE FORGED STEEL. AVAILABLE FROM KING ARCHITECTURAL METALS. PH: 714-670-8980 WEB: https://www.kingmetals.com	COLOR: BLACK FINISH: HAMMERED	HAMMER FINISH SHALL BE ON BOTH SIDES OF METAL. GALVANIZED METAL FINISH WITH SHERWIN WILLIAMS VALFLON FEVE FINISH OR APPROVED EQUAL.
L-01		BENCH	SURFACE MOUNTED, 6' L RECYCLED STEEL BAR WITH DUCTILE IRON CASTING. MODEL: CBF - 12 CITY SITES COLLECTION. AVAILABLE FROM VICTOR STANLEY. PH: 301-855-8300 X365 WEB: https://www.victorstanley.com/	COLOR: BLACK FINISH: POWDER COATED	INSTALL PER MANUFACTURER'S SPECIFICATIONS DUCTILE IRON CASTINGS INCLUDE 10 YR WARRANTY AGAINST BREAKAGE.
L-02	-	BIKE RACK	ARC RACK - SURFACE MOUNTED 2" X 2" X 11G SQUARE TUBE STEEL. 35" H X 40" L AVAILABLE FROM AMERICAN BICYCLE SECURITY COMPANY, VENTURA CA. PH: 805-933-3688 WEB: https://ameribike.com/	COLOR: BLACK (RAL 9005) FINISH: POWDER COATED	RACK CAPACITY - 2 BIKES PER RACK.
L-03	BY OWNER	SIGN TYPE 1	PARK MONUMENTATION SIGNAGE PER CITY.	N/A	PROVIDE FOOTING FOR SIGNAGE. COORDINATE WITH CITY REPRESENTATIVE FOR SIGN.
L-04	_	SKATE DETERRANT	SURFACE MOUNT 'G SERIES' $\frac{3}{16}$ STAINLESS STEEL. MODEL: G012SS AVAILABLE FROM SKATE STOPPERS PH: 619-447-6374	COLOR: STAINLESS STEEL FINISH: BRUSHED	INSTALL 18-24" FROM END OF WALL AND APPROXIMATELY 36" +/- 6" ON CENTER PER MANUFACTURER'S SPECIFICATIONS. MOUNT IN MORTAR POCKET. REFER TO PLAN FOR APPROXIMATE LOCATIONS. FINAL LOCATION SHALL BE DETERMINED IN FIELD BY

# CONSTRUCTION NOTES

- STANDARDS AND SPECIFICATIONS.

- CONSTRUCTION PERMIT
- INSPECTOR.
- ALLOWED BY OSHA.

- NEAREST SCORE MARK.

# SYMBOL LEGEND



1. APPROVED PLANS - NO CONSTRUCTION SHALL BE STARTED WITHOUT PLANS APPROVED BY CITY. THE CITY SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION. ANY CONSTRUCTION DONE WITHOUT APPROVED PLANS OR WITHOUT NOTIFICATION TO THE CITY MAY BE REJECTED AND WILL BE AT THE CONTRACTOR'S AND/OR CITY'S RISK. THE CONTRACTOR SHALL HAVE COPIES OF THE APPROVED PLANS FOR THIS PROJECT ON THE SITE AT ALL TIMES, AND SHALL BE FAMILIAR WITH ALL APPLICABLE

2. UNDERGROUND UTILITIES - PRIOR TO BEGINNING ANY EXCAVATION OR BORING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL AGENCIES INVOLVED AND SHALL LOCATE ALL FACILITIES PRIOR TO THE EXCAVATION. THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT (USA), TOLL FREE AT 811 AT LEAST 48 HOURS PRIOR TO THE START OF ANY EXCAVATION.

3. EXISTING UNDERGROUND UTILITIES - THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND FACILITIES, WHERE SHOWN ON THE PLANS ARE BASED ON AVAILABLE RECORDS, AND MAY NOT ACCURATELY REFLECT THE ACTUAL LOCATION OR ELEVATION. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR LOCATING OR PROTECTING THE SAME DURING THE COURSE OF THE PROJECT. ANY DEVIATIONS FROM THE LOCATIONS SHOWN ON THE PLAN SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE CITY GENERAL SERVICES AGENCY.

4. SAFETY - THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR SAFETY OF THE JOB SITE AND THE CONSTRUCTION WORK. THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL SAFETY DEVICES, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE, AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS, AND REGULATIONS. THE CITY INSPECTOR MAY NOTIFY THE CONTRACTOR OF ANY UNSAFE CONDITIONS WHICH MAY BE OBSERVED, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMMEDIATELY TAKING ALL SUCH MEASURES AS WILL CORRECT THE UNSAFE CONDITION.

5. PROTECTION OF PROPERTY - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PUBLIC AND PRIVATE PROPERTY IN THE VICINITY OF HIS WORK, AND SHALL EXERCISE DUE CAUTION TO ITS ORIGINAL CONDITION, ALL IMPROVEMENTS OR PROPERTY WHICH IS DAMAGED OR REMOVED (UNLESS DESIGNATED FOR REMOVAL ON THE PLANS) AS A RESULT OF HIS OPERATIONS.

6. SITE CONDITIONS - THE CONTRACTOR SHALL CONTINUALLY REVIEW JOB SITE CONDITIONS. CONDITIONS REQUIRING CONSTRUCTION DIFFERENT FROM THAT SHOWN ON THE PLANS SHALL BE REPORTED TO THE ARCHITECT OF RECORD. ALL SUCH CHANGES TO THE CONSTRUCTION SHALL BE APPROVED BY THE CITY PRIOR TO PROCEEDING WITH THE CONSTRUCTION.

7. CONTRACTOR'S RECORD OF CHANGES - THE CONTRACTOR SHALL MAINTAIN A CURRENT, COMPLETE, AND ACCURATE RECORD OF ALL CHANGES FROM THE CONSTRUCTION AS SHOWN ON THESE PLANS AND SPECIFICATIONS FOR THE PURPOSE OF PROVIDING THE ARCHITECT OF RECORD WITH A BASIS FOR THE PREPARATION OF RECORD DRAWINGS.

8. EXISTING SURVEY MONUMENTS - SHALL BE TIED OUT AND PRECONSTRUCTION CORNER RECORD FILED PRIOR TO ISSUANCE OF

9. OFF-SITE GRADING OR OTHER CONSTRUCTION WORK NOT PERMITTED WITHOUT PRIOR PERMISSION OF THE CITY.

10. THE CONTRACTOR SHALL BE RESPONSIBLE DURING CONSTRUCTION FOR CLEANING CITY/STATE STREETS, CURBS, GUTTERS AND SIDEWALKS OF DIRT TRACKED FROM THE SUBJECT SITE. THE FLUSHING OF DIRT AND DEBRIS TO STORM DRAIN OR SANITARY SEWER FACILITIES SHALL NOT BE PERMITTED. THE CLEANING SHALL BE DONE AFTER EACH DAY'S WORK OR AS DIRECTED BY THE PROJECT

11. ALL LARGE CONSTRUCTION EQUIPMENT IS TO BE EQUIPPED WITH "CRITICAL" GRADE NOISE MUFFLERS. NOISE LEVEL REDUCTIONS ASSOCIATED WITH THE USE OF "CRITICAL" RATHER THAN "STOCK" GRADE MUFFLERS CAN BE AS HIGH AS 5dBA. ENGINES WILL BE TUNED TO INSURE LOWEST POSSIBLE NOISE LEVELS. BACK UP BEEPERS ARE TO BE TUNED TO INSURE LOWEST POSSIBLE NOISE LEVELS AS

12. IN THE EVENT THAT GRADING OR OTHER OPERATIONS DO UNCOVER BURIED ARTIFACTS, ALL CONSTRUCTION ACTIVITIES SHALL BE HALTED TO PREVENT FURTHER DISRUPTION OF THE NEWLY DISCOVERED ARCHAEOLOGICAL SITE. A QUALIFIED ARCHAEOLOGIST SHOULD THEN EVALUATE THE DISCOVERY AND RECOMMEND THE APPROPRIATE DISPOSITION OF THE RESOURCES. THE CITY GENERAL SERVICES AGENCY SHALL BE NOTIFIED. ALL STATE AND FEDERAL LAWS SHALL BE COMPLIED WITH.

13. CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING AT LEAST 7 DAYS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE CITY OF SANTA BARBARA AND THE ARCHITECT OF RECORD 24 HOURS PRIOR TO THE MEETING. THIS MEETING SHALL INCLUDE THE SPECIAL INSPECTION REPORTING REQUIREMENTS, DISCUSSION OF THE EROSION CONTROL, DISABLED ACCESS COMPLIANCE & REPORTS REQUIRED. CALL THE CITY OF SANTA BARBARA FOR INSPECTIONS.

14. CONCRETE CUTTING REQUIRES COMPLETE RECOVERY OF THE SLURRY VIA VACUUM SYSTEM OR OTHER LIKE SYSTEM.

15. WHEN POURING OR PATCHING CONCRETE, WASHOUT IS REQUIRED TO BE USED ONSITE.

16. ISOLATION JOINTS SHALL BE PROVIDED AT ALL STRUCTURES, STEPS, AND WALLS ADJACENT TO PAVING.

17. WHERE NECESSARY TO REPLACE EXISTING SIDEWALK, COLD JOINT SHALL BE PROVIDED AT EXISTING JOINT, OR MIN 1.5" SAWCUT AT

18. PROVIDE SAMPLES OF ALL LISTED PRODUCTS FOR LANDSCAPE ARCHITECTS REVIEW. SEE NOTES WHERE APPLICABLE.

19. PROVIDE 3" DEEP LAYER OF FIR BARK MULCH IN COLOR LIGHT BROWN OVER MIRAFI WEED FABRIC OR APPROVED EQUAL. STAPLE EDGES OF FABRIC AT 3' ON CENTER. SUBMIT PHYSICAL SAMPLE FOR REVIEW.

DESCRIPTION
DETAIL CALLOUT, WHERE 'X' IS THE DETAIL NUMBER AND 'Y' IS THE PAGE NUMBER
SECTION CALLOUT, WHERE 'X' IS THE SECTION NUMBER AND 'Y' IS THE PAGE NUMBER
REFERENCE NOTE CALLOUT
LIMIT OF WORK
SCORE JOINT - 1.5" DEEP PER CITY OF SB STANDARD. SEE CONSTRUCTION NOTES
SCORE JOINT25" DEEP PER CITY OF SB STANDARD. SEE CONSTRUCTION NOTES
ENLARGEMENT AREA BOUNDARY
EXISTING TREE. PROTECT IN PLACE.
PROPERTY LINE



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03/06/2020 DATE

2019-00678 PBW. NO.

C-1-4879 DWG. NO.

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Symbol	DESCRIPTION
C-01	RAMP AND TRUNCATED DOMES, SEE CIV
C-02	PARKING SIGN, SEE CIVIL PLANS
C-03	LID COBBLE AREA, SEE CONSTRUCTION S MATERIAL NOTES. SEE CIVIL PLANS FOR E
C-04	NEW AC PAVING, SEE CIVIL PLANS.

![](_page_13_Figure_0.jpeg)

SYMBOL	DESCRIPTION
C-01	RAMP AND TRUNCATED DOMES, SEE CIV
C-02	PARKING SIGN, SEE CIVIL PLANS
C-03	LID COBBLE AREA, SEE CONSTRUCTION S MATERIAL NOTES. SEE CIVIL PLANS FOR D
C-04	NEW AC PAVING, SEE CIVIL PLANS.

![](_page_14_Figure_0.jpeg)

![](_page_15_Figure_0.jpeg)

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# WATER USE CALCULATIONS

### WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required element of the Landscape Document Package

Reference Ev	apotranspira	tion (Eto) <u> </u>	40.6				
Hydrozone #	Plant Factor	Irrigation	Irrigation	ETAF (PF/IE)	Landscape	ETAF x Area	<b>Estimated Total</b>
/Planting	(PF)	Method	Efficiency		Area (Sq, ft)		Water Use
Description*			(IE)				(ETWU)
<b>Regular Land</b>	scape Areas						
1 - DT Shrubs	0.25	Drip	0.81	0.31	4103	1266.36	31877
5 - DT Trees	0.25	Bubbler	0.81	0.31	300	92.59	2331
				Totals	4403	1358.95	34208
Special Lands	cape Areas						
				1	724	724	
				1	0	0	
	-			1	0	0	
				Totals	724	724	
						ETWU Total	34208
			Maxi	mum Allowed	Water Allowa	ance (MAWA)	69159

Hydrozone #/Planting Description E.G.

Irrigation Method overhead spray or drip

1.) front lawn

2.) low water use plantings

3.) medium water use planting

\*MAWA (Annual Gallons Allowed) = (Eto) (0.62) [(ETAF x LA)]+((1-ETAF) x SLA)] where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year. LA is the total landscape area in square feet. SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

### **ETAF Calculations**

Regular Landscape Areas	
Total ETAF x Area	(B)
Total Area	(A)
Average ETAF	B/A

(B+D)
(A+C)
(B+D) / (A+C)

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for nonresidential areas.

Irrigation Efficiency

0.75 for spray head

0.81 for drip

# **IRRIGATION NOTES**

### ETWU (Annual Gallons Required) Eto x 0.62 x ETAF x Area

where0.62 is a
conversion factor
that converts acre
inches per acre per
year to galls per
square foot per year.

- 1. CONTRACTOR SHALL SLEEVE ALL LATERALS AND MAINLINES RUNNING UNDER PAVING.
- 2. IRRIGATION PLAN IS DIAGRAMMATIC. FINAL LOCATION OF PIPING WILL BE DETERMINED AT THE TIME OF INSTALLATION MAINLINE AND LATERALS SHALL BE PLACED IN THE SAME TRENCH WHEN POSSIBLE. ALL Q.C. VALVES ARE TO BE LOCA 12" FROM SIDEWALKS, CURBS, ASPHALT & CONCRETE SURFACES.
- 3. ALL EQUIPMENT REQUIRED BUT NOT SPECIFIED ON THE DRAWING, TO COMPLETE THE WORK, SHALL BE PROVIDED BY IRRIGATION CONTRACTOR.
- 4. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND/OR SPECIFICATIONS.
- 5. CONTROLLERS ON SITE ARE EXISTING. CONTRACTOR SHALL CONNECT NEW VALVES TO EXISTING WIRING TO AUTOMA NEW IRRIGATION SYSTEM.
- 6. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE PLANS AND SITE CONDITIONS PRIOR TO BEGINNING WORK. SHO CONFLICTING INFORMATION BE FOUND ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE PROJECT LANDSCAPE ARCHITECT BEFORE PROCEEDING WITH THE WORK IN QUESTION.
- 7. DO NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD OBSTRUCTIONS, GRADE DIFFERENCES OR DIFFERENCES IN THE AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION THE LANDSCAPE ARCHITECT. IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE CONTRACTOR SHALL ASSUM FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY AT NO EXPENSE TO THE CITY REPRESENTATIVE.
- 8. SPLICING OF 24 VOLT WIRES WILL NOT BE PERMITTED EXCEPT IN VALVE BOXES. LEAVE A 24" COIL OF EXCESS WIRE AT EACH SPLICE. LABEL ALL WIRES W/ WATERPROOF MARKERS AT ALL SPLICES AND VALVE MANIFOLDS.
- 9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL MATERIAL APPEARING ON PLAN.
- 10. PROVIDE PVC SHUTOFF VALVE FOR EACH VALVE.
- 11. ALL EXISTING UTILITIES, WATER LINES AND FIRE HYDRANTS SHALL REMAIN CONNECTED AND IN FULL CONTINUOUS OPERATION DURING AND FOLLOWING ALL CONTRACT WORK.
- 12. CONTRACTOR SHALL MAKE ALL NECESSARY ADJUSTMENTS TO THE IRRIGATION SYSTEM FOLLOWING A PRECIPITATION PER THE CITY. ADJUSTMENTS SHALL INCLUDE BUT WILL NOT BE LIMITED TO: HEAD RELOCATION, CHANGING NOZZLES, ADJUSTING ARC PATTERNS TO ATTAIN 65% EFFICIENT UNIFORMITY AS REQUIRED BY THE CITY.
- 13. CONTRACTOR SHALL SLEEVE ALL PIPE CROSSINGS UNDER HARDSCAPE. ALL SLEEVES UNDER PAVING SHALL RECEIVE IDENTIFYING MARK ON TOP OF HARDSCAPE AT EDGE OF PLANTER TO INDICATE LOCATION OF SLEEVE. EXTEND ALL SLEEVES 18" BEYOND EDGE OF HARDSCAPE, TYP.
- 14. ALL NEW IRRIGATION BOXES, AND ADDITIONAL BOXES SHALL BE LOCATED IN PLANTING AREAS 18" MIN. AWAY FROM ADJACENT PAVING AND 5' MIN. AWAY FROM IMMEDIATE BUILDING ENTRIES. CONTRACTOR SHALL CONFIRM FINAL LOCATION WITH CITY REPRESENTATIVE PRIOR TO INSTALLATION.
- 15. FOR ALL DRIP AREAS: CONTRACTOR TO INSTALL AIR RELIEF VALVES, OPERATION INDICATORS AND FLUSH VALVES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 16. CONTRACTOR SHALL NOT INSTALL ANY PLANTING UNTIL THE FOLLOWING ARE COMPLETED: 1. THE IRRIGATION SYSTEM SHALL BE FULLY OPERATIONAL. 2. HYDROSTATIC PRESSURE TESTS SHALL BE PERFORMED ON MAIN AND LATERAL LINES ALL ZONES SHALL PASS A COVERAGE TEST. 4. CONTROLLERS SHALL BE FULLY OPERATIONAL.
- 17. IRRIGATION TO BE INSPECTED BY CITY CROSS-CONNECTION SPECIALIST BEFORE BEING BURIED. TAPE IDENTIFYING RECYCLED WATER LINES TO BE BURIED 6 IN-1 FT ABOVE THE WATERLINE. CITY CROSS-CONNECTION SPECIALIST TO PERFORM PRESSURE TEST ON IRRIGATION ONCE IT HAS BEEN INSTALLED. CITY CROSS-CONNECTION SPECIALIST TO PERFORM CROSS-CONNECTION TEST ON SYSTEM ONCE ALL PLUMBING FOR BOTH POTABLE AND IRRIGATION HAS BEE COMPLETED.
- 18. CONTRACTOR SHALL CONTACT WATER AGENCY FOR APPROPRIATE WATER PROTECTION NEAR EXISTING WELL. CONTRACTOR SHALL ALSO CONFIRM NEW WELL LOCATION IS NOT IN CONFLICT WITH EXISTING AND PROPOSED IMPROVEMENTS.
- 19. CONTRACTOR SHALL INSTALL FIVE (5) 'DO NOT DRINK' SIGNS IN PROJECT AREA. COORDINATE LOCATIONS WITH CITY REPRESENTATIVE. SEE DETAIL 3/L3.4 AND LANDSCAPE SPECIFICATION NOTES ON SHEET L/5.1 FOR MORE INFORMATION
- 20. CONTROLLER ON SITE IS EXISTING. CONTRACTOR SHALL CONNECT NEW VALVES TO EXISTING WIRING TO AUTOMATE N IRRIGATION SYSTEM. COORDINATE WITH CITY REPRESENTATIVE FOR CONNECTION TO CONTROLLER.
- 21. CONTRACTOR SHALL RELOCATE EXISTING ROTORS, SPRAY HEADS AND SUPPLEMENTAL IRRIGATION EQUIPMENT FOR T AREAS WITHIN THE AREAS OF IMPROVEMENTS. CONTRACTOR SHALL CONFIRM NO OVERSPRAY OF IRRIGATION OCCU ON HARDSCAPE AND SHALL SET IRRIGATION EQUIPMENT TO SPRAY NO MORE THAN 2' FROM EDGE OF BACK OF WAL
- 22. CONTRACTOR SHALL REQUEST AS-BUILT DRAWINGS PRIOR TO BID AND CONFIRM SCOPE OF IRRIGATION CONSTRUCT AS BUILTS ARE AVAILABLE THROUGH CITY PARK AND RECREATION DEPARTMENT. IF ANY ERRORS AND/OR ISSUES ARE FOUND, CONTRACTOR SHALL REPORT THIS TO CITY REPRESENTATIVE IMMEDIATELY.
- 23. CONTRACTOR SHALL REPLACE ANY BROKEN OR FAILING IRRIGATION EQUIPMENT IN KIND. IF EQUIPMENT IS FOUND TO INADEQUATE OR CAUSES OVERSPRAY, CONTRACTOR SHALL REPLACE OR ADJUST EQUIPMENT AS NEEDED TO PROVID ADEQUATE COVERAGE.
- 24. CONTRACTOR SHALL ACCOUNT FOR A MINIMUM OF THE FOLLOWING MATERIALS TO COVER UNKNOWN SYSTEMS MODIFICATIONS:
- 24.1. 800 LINEAR FEET OF LATERAL LINE PIPE, MIN. 1-1/2"
- 24.2. 200 LINEAR FEET OF MAIN LINE PIPE, MIN. 2"
- 24.3. 4 HUNTER 1-20 ROTORS 24.4. 18 RAIN BIRD 1800 VAN
- 24.5. TRENCHING AND BACKFILL MATERIAL (AS REQ'D)
- 25. ALL EQUIPMENT SHOWN SHALL BE RATED FOR RECYCLED WATER USE WITH APPROPRIATE PURPLE NONPOTABLE IDENTIFICATION.

26. SEE ADDITIONAL SPECIFICATION NOTES ON SHEET L5.1.

## MWELO COMPLIANCE NOTES

THE PROJECT PROVIDES A WEATHER-BASED IRRIGATION CONTROLLER WITH A WEATHER STATION/MODULE ALLOWING AUTOMATIC ADJUSTMENTS BASED ON CHANGES IN THE WEATHER AND RAIN SHUTOFF CAPABILITY.

ALL AREAS LESS THAN EIGHT FEET WIDE ARE IRRIGATED ONLY WITH BUBBLERS OR DRIP IRRIGATION.

DRIP IRRIGATION IS PROPOSED ON AT LEAST 25% OF THE LANDSCAPED AREA (4,403 SF TOTAL).

• DRIP AREAS = 4,104 SF (95%) • TREE BUBBLERS = 300 SF (5%)

CHECK VALVES (IN-LINE OR INTEGRATED) ARE NOT REQUIRED FOR THIS PROJECT DUE TO THE RELATIVELY LEVEL GRADE CHANGE THROUGHOUT THE PROJECT.

PROJECT PROVIDES A DEDICATED PRESSURE REDUCING VALVE ON THE IRRIGATION MAINLINE TO BRING OPERATING PRESSURE DOWN TO PROPER DESIGN RANGES FOR DRIP AND BUBBLER SYSTEMS.

SEE SHEET L4.0 FOR LANDSCAPE COMPLIANCE REQUIREMENTS CHECKLIST.

<u>STMBOL</u>		DETAIL	
. <b>P</b>	TURF SPRAY 6.0" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL. 1/2" NPT FEMALE THREADED INLET. WITH SEAL-A-MATIC CHECK VALVE, AND NON POTABLE PURPLE CAP.	7/L3.3	CALIFORNIA
4	RAIN BIRD RWS-B-C-P-SOCK (TWO PER TREE) ROOT WATERING SYSTEM WITH 4.0" DIAMETER X 36.0" LONG WITH LOCKING GRATE, SEMI-RIGID MESH TUBE. CHECK VALVE, PURPLE GRATE, AND SAND SOCK. RAIN BIRD BUBBLER OPTION AS INDICATED: 1401 0.25 GPM, 1402 0.5 GPM, 1404 1.0 GPM, 1408 2.0 GPM.	8/L3.3 N	PUBLIC WORKS DEPARTMENT
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	DETAIL	ENGINEERING DIVISI
	HUNTER I-20-06-SS-PRB-R TURF ROTOR, 6.0" POP-UP. ADJUSTABLE AND FULL CIRCLE. STAINLESS STEEL RISER. DRAIN CHECK VALVE. STANDARD NOZZLE. WITH RECLAIMED WATER PURPLE ID.	7/L3.3	DATE
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	DETAIL	۲. ۲.
۲	PIPE TRANSITION POINT PIPE TRANSITION POINT FROM PVC LATERAL TO DRIP TUBING	1/L3.4	APPROVED: CITY ENGINE
	AREA TO RECEIVE DRIP EMITTERS RAIN BIRD PCT PRESSURE COMPENSATING THREADED LOW-FLOW BUBBLERS. OFFERED IN 5 GPH, 7 GPH, AND 10 GPH MODELS, WITH 1/2" FPT THREADED INLET. LIGHT BROWN = 5 GPH, VIOLET = 7 GPH, AND GREEN = 10 GPH.	1/L3.4	ESIGN RAWN HECKED
	AREA TO RECEIVE DRIPLINE TORO RGP-412-NP SUB-SURFACE PRESSURE COMPENSATING LANDSCAPE DRIPLINE WITH ROOTGUARD TECHNOLOGY. 1.00 GPH EMITTERS AT 12" O.C. DRIPLINE LATERALS SPACED AT 12" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. PURPLE TUBING FOR EFFLUENT WATER USE.	1/L3.4	DATE APPROVED DF
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	DETAIL	
•	RAIN BIRD PEB-PRS-D-NP-HAN 1", 1-1/2", 2" PLASTIC INDUSTRIAL VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION. WITH PRESSURE REGULATOR MODULE, AND PURPLE FLOW HANDLE FOR NON-POTABLE WATER USE.	4/L3.3	
	RAIN BIRD PESBR-PRS-D 1", 1-1/2", AND 2" DURABLE CHLORINE-RESISTANT VALVES FOR RECLAIMED WATER APPLICATIONS. WITH SCRUBBER MECHANISM TECHNOLOGY, PURPLE FLOW CONTROL HANDLE, AND PRESSURE REGULATOR MODULE.	1 2/L3.3	<u>ö</u>
	QUICK COUPLER VALVE SIGNATURE-7644 QUICK COUPLING VALVE WITH LAVENDER NON-LOCKING COVER. 1'' NPT. "RECLAIMED WATER - DO NOT DRINK": IN ENGLISH AND SPANISH.	9/L3.3	
X	MATCO-NORCA 759 BRASS SHUT OFF BALL VALVE, 1/2" TO 4". TWO PIECE BODY, BLOW-OUT PROOF STEM, CHROME PLATED SOLID BRASS BALL, THREADED, WITH PTFE SEATS. SAME SIZE AS MAINLINE PIPE.	1/L3.3	ANS
M	BUCKNER-SUPERIOR 3100 2" NORMALLY OPEN BRASS MASTER VALVE THAT PROVIDES DIRTY WATER PROTECTION. AVAILABLE IN 3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2" AND 3".	3/L3.3	
С	CONTROLLER EXISTING SITE CONTROLLER.	_	
ĒS	TORO TFS 1/2", 3/4", 1", 1-1/2", 2", 3", AND 4" PLASTIC TEE SIZES. EFFECTIVE FLOW MONITORING, EVEN IN FLOWS LESS THAN 5 GPM. COMPATIBLE WITH TORO AND COMPETITIVE CONTROLLERS. IMPELLER-BASED, PVC DESIGN.	- 6/L3.3	
DOG	WATER METER 3" EXISTING RECYCLED WATER METER	-	
		2/L3.4	
		2/L3.4	
	- THE SLEEVE. FVC SCHEDULE &U Valve Callout	2/L3.4	
# • # •_			
#"	Valve Size		
			03/06/2020
		BED LANDSCAPE	DATE
		STERED LANDSCAPE APCH	2019-0067

C-1-4879 DWG. NO. SHT. ]7 OF 27

L3.0

SHT. DE

PBW. NO.

BID NO.

![](_page_17_Figure_0.jpeg)

SYMBOL	MANUFACTURER/MODEL
¥	RAIN BIRD RWS-B-C-P-SOCK (
SYMBOL	MANUFACTURER/MODEL
۲	PIPE TRANSITION POINT
	AREA TO RECEIVE DRIP EMITTE RAIN BIRD PCT
	AREA TO RECEIVE DRIPLINE TORO RGP-412-NP
SYMBOL	MANUFACTURER/MODEL
•	RAIN BIRD PEB-PRS-D-NP-HAN
	RAIN BIRD PESBR-PRS-D
	QUICK COUPLER VALVE
X	MATCO-NORCA 759
(M)	BUCKNER-SUPERIOR 3100 2"
С	CONTROLLER
FS	TORO TFS
	IRRIGATION LATERAL LINE: PV
	IRRIGATION MAINLINE: PVC S
	PIPE SLEEVE: PVC SCHEDULE 8
/ <b>N</b>	Valve Callout ———— Valve Number
# • # • #" •	Valve Flow Valve Size
/	

![](_page_18_Picture_0.jpeg)

IRRIGATION SCHEDULE				
SYMBOL	MANUFACTURER/MODEL			
₩	RAIN BIRD RWS-B-C-P-SOCK (TW			
SYMBOL	MANUFACTURER/MODEL			
۲	PIPE TRANSITION POINT			
	AREA TO RECEIVE DRIP EMITTERS RAIN BIRD PCT			
	AREA TO RECEIVE DRIPLINE TORO RGP-412-NP			
SYMBOL	MANUFACTURER/MODEL			
$\bigcirc$	RAIN BIRD PEB-PRS-D-NP-HAN			
	RAIN BIRD PESBR-PRS-D			
	QUICK COUPLER VALVE			
X	MATCO-NORCA 759			
M	BUCKNER-SUPERIOR 3100 2"			
С	CONTROLLER			
FS	toro tfs			
	- IRRIGATION LATERAL LINE: PVC			
	- IRRIGATION MAINLINE: PVC SCH			
	PIPE SLEEVE: PVC SCHEDULE 80			
	Valve Callout Valve Number			

![](_page_19_Figure_0.jpeg)

![](_page_20_Figure_0.jpeg)

![](_page_20_Figure_1.jpeg)

MAINLINE COMBINED WITH LATERAL LINE

MIN. ATFR

LATERAL LINE

3 x's DIA OF LATERAL

LINE

![](_page_20_Figure_3.jpeg)

PRESSURE LINE POSITION CONTROL WIRES IN LOWER LEFT OR RIGHT HAND QUADRANT OF MAINLINE. TAPE WIRE AT 10' INTERVALS; DO NOT SECURE TO MAINLINE.

- SAND BED

WATER JET BEDDING

AND BACKFILL FOR

PIPELINE

BACKFILL.

– LATERAL LINE

\_\_\_\_\_\_ SLEEVE POTABLE LINE FOR A MIN. OF 10' BOTH WAYS BEYOND CROSSING OF

NON-POTABLE LINE.

LATERAL LINE

POTABLE LINE.

OR LATERAL LINE

POTABLE WATER MAINLINE OR

SLEEVE NON-POTABLE LINE

WAYS BEYOND CROSSING OF

NON-POTABLE WATER MAINLINE

FOR A MIN. OF 10' BOTH

INSTALLATION. TYPICAL FOR ALL

NATURAL EARTH

![](_page_20_Figure_5.jpeg)

![](_page_20_Figure_6.jpeg)

MAINLINE WITH CONTROL WIRE

![](_page_20_Figure_8.jpeg)

MAINLINE COMBINED WITH LATERAL LINE UNDER PAVEMENT

### RECLAIMED WATER & POTABLE WATER PIPE

TRENCHING 2 1'' = 1'-0''

MAXIMUM LATERAL LENGTH (FEET)						
	EMITTER FLOW RATE GPH					
PSI	12" SPACING 0.6 0.9	18" SPACING 24" SPACING 0.6 0.9 0.6 0.9				
10 20 30 40 50 60	125 96   249 191   307 236   350 268   125 96   125 96	175135218171350171442340434333550422495380627171175135218171175135218171				

			ES (IN/HR)
EMITTER	ΙΔΤΕΡΔΙ	EMITTER F	LOW RATE
SPACING	SPACING	0.6	0.9
12 18 24	12 18 24	0.96 0.69 0.28	1.44 1.03 0.41
		PER 100 E	
LAIERA			
EMITTER FLOW	12" SPACING	18" SPACING	24" SPACING

2. INSTALL AIR RELIEF VALVE AT HIGHEST POINT.

3. NORMAL SPACING WITHIN THE TOP 3/3 OF SLOPE,

WHENEVER POSSIBLE.

ON A SEPARATE VALVE.

THE SLOPE.

DRIPLINE LATERALS SHOULD FOLLOW THE CONTOURS OF THE SLOPE

4. INSTALL DRIPLINE AT 25% GREATER SPACING AT THE BOTTOM 1/3 OF

![](_page_20_Figure_14.jpeg)

52.4 GPM 2.2 PSI

PVC SCH 40 TEE OR ELL.

PVC MANIFOLD LINE.

EASY FIT COMPRESSION

![](_page_20_Figure_15.jpeg)

![](_page_20_Figure_16.jpeg)

DOGBONE SHAPED

MATCH TYPE AND GRADE OF EXISTING PAVING

### EXISTING PAVING

2 SACK SLURRY BACKFILL

### - SAND COVER — TRACER TAPE

MAINLINE IN SLEEVE, SEE IRRIGATION PLAN FOR SLEEVING LOCATIONS POSITION CONTROL WIRES IN LOWER LEFT OR RIGHT HAND QUADRANT OF MAINLINE. TAPE WIRE AT 10' INTERVALS; DO NOT SECURE TO MAINLINE. SAND BED

— BACKFILL MATERIAL - TRACER TAPE - SAND COVER - PRESSURE (MAIN)LINE — POSITION CONTROL WIRES

IN LOWER LEFT OR RIGHT HAND QUADRANT OF MAINLINE. TAPE WIRE AT 10' INTERVALS; DO NOT SECURE TO MAINLINE.

- SAND BED

### ------ PAVING PER PLANS

----- LATERAL LINE WITH SLEEVE

### — BACKFILL MATERIAL

- TRACER TAPE
- SAND COVER MAINLINE IN SLEEVE, SEE
- IRRIGATION PLAN FOR SLEEVING LOCATIONS
- POSITION CONTROL WIRES IN LOWER LEFT OR RIGHT HAND QUADRANT OF MAINLINE.
- TAPE WIRE AT 10' INTERVALS; do not secure to MAINLINE.
- SAND BED

- 1. PIPE BEDDING AND BACKFILL SHALL BE WATER JETTED TO ACHIEVE PROPER DENSIFICATION.
- 2. PIPE AND CONTROL WIRE CROSSING VECHICULAR ROADWAY SHALL BE SLEEVED PER PLANS AND THIS DETAIL
- 3. ELECTRICAL SLEEVE: 3" MIN; LARGER | REQUIRED BY INSPECTOR.
- 4. IRRIGATION SLEEVE: TWO PIPE SIZES LARGER THAN WATER PIPE SIZE. 5. SHOW ALIGNMENT OF ALL CONTROL WIRE

\_\_\_\_ 1/2" CLASS 315

IRRIGATION

- WIRE TAPED AT

LOWER HALF OF

10' O.C. TO

P.V.C. PIPE

(NOT AN

LINE)

PIPE

CONTROL WIRE SEPARATE FROM PIPE

> NOT INSTALLED WITH MAINLINE ON AS-BUILT DRAWINGS.

> > 328401-01

![](_page_20_Picture_43.jpeg)

### POLYGON SHAPED

![](_page_20_Figure_45.jpeg)

![](_page_20_Picture_46.jpeg)

![](_page_20_Picture_47.jpeg)

"C" SHAPED

CURVED POLYGON

![](_page_20_Picture_49.jpeg)

![](_page_20_Picture_50.jpeg)

HOURGLASS SHAPED

FX-IR-RB-DRIP-25

![](_page_20_Picture_53.jpeg)

PUBLIC DEPART ENGINEERING	WORKS IMENT G DIVISION	•
	DATE	
APPROVED:	CITY ENGINEER	
ESIGN RAWN HECKED		
		Ľ
ÿ⊲⊲		
	OKIEGA PAKK IRRIGATION DETAILS	

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C-1-4879

DWG. NO.

<sup>внт.</sup> 21 ог **27** 

# PLANTING NOTES

- THE SPECIFICATIONS.

- PROGRESSES.

- INFORMATION.

andatory Measures: ease note the sheet numbers for these measures)	Sheet#
No turf in parkways, medians, or other areas with any dimension of $< 8$ feet	L4.0
No turf on >20% slope	14.0
Residential, mixed-use & institutional projects have $\geq 80\%$ of the landscaped area designed with water wise plants	N/A
Plan includes total square footage of landscaped area, as well as percentage breakdowns for 1) water- wise landscaped area and 2) medium and high water using landscape area (including turf)	L3.0
Plant list includes botanical name, common name, and WUCLOS designation	L4.0
Three inches of mulch, specified as required	L4.0
Areas of sprinkler coverage avoids overspray and runoff, including optimum distribution uniformity, head-to-head spacing and setbacks from walkways and pavement	L3.0-L3.4
Sprinklers have matched precipitation rates within each valve and circuit	N/A
Valves separated for individual hydrozones based on plant water needs and sun/shade requirements	L3.0-L3.4
Weather based irrigation controller with a rain shutoff sensor for the entire irrigation system (if including an automatic irrigation system)	N/A
Areas less than 8' wide irrigated only with bubblers, rotating nozzles on pop-ups, sub-surface, or drip	L3.0-L3.4
Drip irrigation system on >25% of irrigated landscaped area	L3.0-L3.4
Check valves (inline or integrated) located to prevent unwanted draining of irrigation lines	130-134
Pressure regulator(s) scheduled for mainline(s) if necessary, inline regulators at each valve	L3.0-L3.4
Grading encourages water retention and infiltration by preserving open space and creating depressed areas/swales. Grading mimics natural, pre-development hydrologic flow paths and maintains and/or increases the width of flow paths in order to decrease flow rates.	C4-C7

L4.0
14.0
N/A
L3.0
L4.0
L4.0
L3.0-L3.4
N/A
L3.0-L3.4
N/A
L3.0-L3.4
L3.0-L3.4
130-134
L3.0-L3.4
C4-C7

Signature

www.SantaBarbaraCA.gov/LandscpaeDesignStandards

City of Santa Barbara Planning Counter / 630 Garden St. / (805) 564-5578

1. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO FURNISH AND INSTALL PLANT MATERIAL AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN

2. PLANT SCHEDULE SHALL BE USED AS A GUIDE ONLY. CONTRACTOR SHALL VERIFY QUANTITIES BY PLAN CHECK. NOTIFY PROJECT LANDSCAPE ARCHITECT OF ANY MAJOR DISCREPANCIES.

3. CONTRACTOR SHALL SUBMIT LABELED PHOTOS OF ALL TREES AND SPECIMEN PLANTS FOR APPROVAL BY LANDSCAPE ARCHITECT. PHOTOS SHALL BE OF THE SPECIFIED CONTAINER SIZE.

4. CONTRACTOR SHALL SUBMIT PHOTOS OF ANY SUBSTITUTED PLANTS.

5. ADJUST PLANT MATERIAL AS NECESSARY AROUND UTILITY LOCATIONS. NOTIFY LANDSCAPE ARCHITECT OF ANY MAJOR CONFLICTS OR NECESSARY ADJUSTMENTS.

6. SOILS SHALL BE PREPARED AND AMENDED PER THE SPECIFICATIONS. SOIL AMENDMENTS AND PREPARATION SHALL CONFORM TO STATE MODEL WATER EFFICIENT LANDSCAPE ORDINANCE AND LOCAL WATER EFFICIENT LANDSCAPE ORDINANCES.

7. ALL WORK ON THE IRRIGATION SYSTEM INCLUDING OPERATIONAL TESTS, AND BACKFILLING OF TRENCHES SHALL BE COMPLETED AHEAD OF PLANTING.

8. LOCATIONS OF ALL PLANT MATERIAL SHALL BE REVIEWED ON SITE BY THE CITY'S AUTHORIZED REPRESENTATIVE PRIOR TO PLANTING. THE REPRESENTATIVE RESERVES THE RIGHT TO MAKE ANY ADJUSTMENTS, SUBSTITUTIONS, ADDITIONS, AND DELETIONS TO THE PLANT LAYOUT AS WORK

9. A MINIMUM 3-INCH LAYER OF DECOMPOSED GRANITE MULCH (COLOR AS APPROVED) SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES IN PLANTER AREAS DELINEATED ON PLAN. ALL OTHER PLANTER AREAS SHALL HAVE A MINIMUM 3-INCH LAYER OF BARK MULCH PER SPECS.

10. UNLESS CONTRADICTED BY THE REQUIRED SOILS TEST, COMPOST AT A RATE OF A MINIMUM OF FOUR CUBIC YARDS PER 1,000 SQUARE FEET OF PERMEABLE AREA SHALL BE INCORPORATED TO A DEPTH OF SIX INCHES INTO THE SOIL.

11. REFER TO ADDITIONAL NOTES ON SHEET L5.0 AND PLANTING DETAILS FOR ADDITIONAL

Landscane	Compliance	Requirements
Lunuscupe	compnunce	neganements

Landscape Design for Water Conservation **Compliance Statement** (Signed copy to be included on L-Sheet)

meets or exceeds the minimum requirements of the Landscape Design Standards.

JEFF FERBER	2844 / 03-31-2021	
Name	License # and Exp. Date	

Revised: 6/28/2018

Page 2 of 2

# <u>PL</u>

ANTING SCHED	OULE						
TREES	QTY	BOTANICAL NAME		CONT		DETAIL	WATER USE
A	2	ARCHONTOPHOENIX CUNNINGHAMIANA	KING PALM	12` B.T.		2/L4.4	L
ENS.	1	ARCHONTOPHOENIX CUNNINGHAMIANA	MULTI-TRUNK KING PALM	15` B.T.		2/L4.4	L
and the second s	7	PINUS CANARIENSIS (DESIGNATED SPECIES PER CITY OF SANTA BARBARA STREET TREE MASTER PLAN.)	CANARY ISLAND PINE	24''BOX		3/L4.4	L
$\left(\cdot\right)$	7	STENOCARPUS SINUATUS (DESIGNATED SPECIES PER CITY OF SANTA BARBARA STREET TREE MASTER PLAN.)	FIREWHEEL TREE	24''BOX		3/L4.4	L
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	CONT		DETAIL	I
$\bigcirc$	6	AEONIUM CANARIENSE	AEONIUM	2 GAL		1/ 27.7	L
<b>€</b> ⊙	10	AGAVE ATTENUATA `NOVA`	BLUE CLONE	5 GAL		1/L4.4	L
-{Â3	28	AGAVE DESMETTIANA `VARIEGATA`	VARIEGATED AGAVE	5 GAL		1/L4.4	L
B	9	AGAVE X `BLUE GLOW`	BLUE GLOW AGAVE	2 GAL		1/L4.4	L
$\bigcirc$	26	BULBINE FRUTESCENS	STALKED BULBINE	1 GAL		1/L4.4	L
(LEU)	2	LEUCADENDRON X `SAFARI GOLD STRIKE`	YELLOW CONEBUSH	15 GAL		1/L4.4	L
	91	LOMANDRA LONGIFOLIA `LIME TUFF`	LIME TUFF DWARF MAT RUSH	1 GAL		1/L4.4	L
<pre>CD</pre>	3	OLEA EUROPAEA `LITTLE OLLIE` TM	LITTLE OLLIE OLIVE	5 GAL		1/L4.4	L
(ST)	7	STRELITZIA REGINAE	BIRD OF PARADISE	5 GAL		1/L4.4	L
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	1/L4.4 <u>DETAIL</u>	L
	361	LOMANDRA CONFERTIFOLIA `LITTLE CON` SPECIES SUITABLE FOR LID AREAS.	SMALL MAT RUSH	1 GAL	24" o.c.	4/1 4 4	I
	527	SENECIO SERPENS	BLUE CHALKSTICKS	PLUGS	6" o.c.	4/L4.4	L
++++++++++++++++++++++++++++++++++++	7,878 SF	TURF SOD GN-1	HYBRID BERMUDA BLEND	SOD		4/L4.4	L

![](_page_21_Picture_36.jpeg)

DECOMPOSED GRANITE MULCH

![](_page_21_Figure_38.jpeg)

03/06/2020 date					
2019-00678 PBW. NO.					
– BID NO.	L4.0 sht. des.				
С-1-4879 дwg. No.					
sht. 22 (	⊳ 27				

![](_page_22_Picture_0.jpeg)

	PLANT SCH	HEDULE	
	TREES	BOTANICAL NAME	COMMON NAME
	A	ARCHONTOPHOENIX CUNNINGHAMIANA	KING PALM
M 20		ARCHONTOPHOENIX CUNNINGHAMIANA	MULTI-TRUNK KING
·		PINUS CANARIENSIS (DESIGNATED SPECIES PER CITY OF SANTA BARBARA STREET TREE MASTER PLAN.)	CANARY ISLAND P
•	}	STENOCARPUS SINUATUS (DESIGNATED SPECIES PER CITY OF SANTA BARBARA STREET TREE MASTER PLAN.)	FIREWHEEL TREE
	<u>SHRUBS</u>	BOTANICAL NAME	COMMON NAME
	Ô	AEONIUM CANARIENSE	AEONIUM
	۩	AGAVE ATTENUATA `NOVA`	BLUE CLONE
	£Å3	AGAVE DESMETTIANA `VARIEGATA`	VARIEGATED AGA
	B	AGAVE X `BLUE GLOW`	BLUE GLOW AGAV
	$\bigcirc$	BULBINE FRUTESCENS	STALKED BULBINE
	(EU)	LEUCADENDRON X `SAFARI GOLD STRIKE`	YELLOW CONEBUS
	$\bigcirc$	LOMANDRA LONGIFOLIA `LIME TUFF`	LIME TUFF DWARF N
	¢}	OLEA EUROPAEA `LITTLE OLLIE` TM	LITTLE OLLIE OLIVE
	$(\mathbf{I})$	STRELITZIA REGINAE	BIRD OF PARADISE
	GROUND COVERS	BOTANICAL NAME	COMMON NAME
		LOMANDRA CONFERTIFOLIA `LITTLE CON`	SMALL MAT RUSH
		SENECIO SERPENS	BLUE CHALKSTICKS
	$\begin{bmatrix} + + + + + + + + + + + + + + + + + + +$	TURF SOD GN-1	hybrid bermuda

![](_page_23_Figure_0.jpeg)

PLANT	

<u>S</u>	BOTANICAL NAME	COMMON NAME
8	ARCHONTOPHOENIX CUNNINGHAMIANA	KING PALM
4	ARCHONTOPHOENIX CUNNINGHAMIANA	MULTI-TRUNK KING P
	PINUS CANARIENSIS (DESIGNATED SPECIES PER CITY OF SANTA BARBARA STREET TREE MASTER PLAN.)	CANARY ISLAND PIN
	STENOCARPUS SINUATUS (DESIGNATED SPECIES PER CITY OF SANTA BARBARA STREET TREE MASTER PLAN.)	FIREWHEEL TREE
BS	BOTANICAL NAME	
	AEONIUM CANARIENSE	AEONIUM
)	AGAVE ATTENUATA `NOVA`	BLUE CLONE
3	AGAVE DESMETTIANA `VARIEGATA`	VARIEGATED AGAV
)	AGAVE X `BLUE GLOW`	BLUE GLOW AGAVE
)	BULBINE FRUTESCENS	STALKED BULBINE
)	LEUCADENDRON X `SAFARI GOLD STRIKE`	YELLOW CONEBUSH
)	LOMANDRA LONGIFOLIA `LIME TUFF`	LIME TUFF DWARF M
}	OLEA EUROPAEA `LITTLE OLLIE` TM	LITTLE OLLIE OLIVE
)	STRELITZIA REGINAE	BIRD OF PARADISE
UND COVERS	BOTANICAL NAME	COMMON NAME
	LOMANDRA CONFERTIFOLIA `LITTLE CON`	Small mat rush
	SENECIO SERPENS	BLUE CHALKSTICKS
++++ ++++ +++++ +++++	TURF SOD GN-1	HYBRID BERMUDA BI

![](_page_24_Picture_0.jpeg)

![](_page_24_Figure_1.jpeg)

![](_page_24_Figure_2.jpeg)

![](_page_24_Figure_4.jpeg)

![](_page_24_Picture_5.jpeg)

![](_page_24_Picture_6.jpeg)

![](_page_24_Picture_7.jpeg)

# LANDSCAPE SPECIFICATION NOTES

SECTION 32 9300 PLANTS

- PART 1 GENERAL
- **1.01 SECTION INCLUDES**
- A. Preparation of subsoil and topsoil. B. Topsoil bedding.

### Section 32 9300 Plants

- C. New trees, plants, and ground cover.
- D. Relocated trees, plants, and ground cover.
- E. Mulch and Fertilizer.
- F. Plants in pots/containers
- G. Warranty Replacement
- H. Tree Pruning. **1.02 RELATED REQUIREMENTS**
- A. Standard Specifications for Public Works Construction "Greenbook".
- B. Section 32 8200 Irrigation
- **1.03 DEFINITIONS**
- A. Weeds: Any plant life not specified or scheduled.
- B. Plants: Living trees, plants, and ground cover specified in this Section, and described in ANSI Z60.1.
- 1.04 REFERENCE STANDARDS
- A. ANSI/ANLA Z60.1 American National Standard for Nursery Stock; 2004. B. ANSI A300 Part 1 - American National Standard for Tree Care Operations --Tree, Shrub and Other Woody Plant Maintenance -- Standard Practices; 2008.
- **1.05 SUBMITTALS**
- A. Submit list of plant life sources.
- B. Submit purchase invoices from nurseries for review.
- C. Samples: Submit the following to the City for acceptance:
- 1. Soil Separator: One square foot minimum, accompanied by product data. 2. Drain Rock: One-half cubic foot.
- 3. Wood Bark Mulch: One-half cubic foot.
- 4. Root Control Barrier: One square foot sample panel, accompanied by product
- D. Product Data: Submit the following product information to the City for acceptance
- 1. Tree Staking Materials: Manufacturer's literature.
- 2. Herbicides: Schedule for application of herbicides must be approved by the City.
- F. Test Reports: Soil tests shall be performed by a certified soils analyst by the state of California. Provide the following tests and submit the results to the City:
- 1. Existing Site Soil: Provide two separate tests at distinctly separate on-site locations, for agricultural suitability, fertility, particle size analysis; including recommendations for soil amendment, and fertilization during the maintenance period.
- 2. Import Soil: Submit test reports of representative sample(s) for approval prior to delivery and for every 100 yards delivered to the site. Test for agricultural suitability, fertility, particle size analysis; including recommendations for soil amendment, and fertilization during the maintenance period.
- 3. Organic Amendments, Fir Bark: Test for partial organic amendment evaluation. 4. All Other Fertilizers and Amendments: For standard products, submit manufacturer's analysis. For all other products, submit analysis by testing

laboratory G. Soil Mix: Submit cut-sheets of each accepted planter soil mix component and one-ounce samples of the fertilizers to the Inspector.

- 1.06 OUALITY ASSURANCE
- A. Nursery Qualifications: Company specializing in growing and cultivating the plants with three years documented experience
- B. Installer Qualifications: Company specializing in installing and planting the plants with five years experience
- C. Testing Laboratory: Recognized laboratory for soil and plant disease analysis for ornamental horticulture, approved by the Inspector. Testing laboratory is to perform all work in accordance with the current methods of the Association of Official Agricultural Chemists.

### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer. Store fertilizers and amendments, bark mulch, soil mixes, and other materials which could stain concrete and similar surfaces in such a manner that staining does not occur.
- B. Plants: Maintain all plant material in a healthy growing condition prior to and during planting operations. Protect plants at all times from sun and drying winds. Plants that cannot be planted immediately upon delivery shall be kept in the shade, well protected and watered. Plant material delivered to the site must be planted within 3 days of site delivery. Plants that cannot be installed on this work schedule shall be returned to the grower until installation requirements can be met.

### 1.08 SUBSTITUTIONS, ADDITIONS, DELETIONS

- A. General: Submit proposals for substitutions in accordance with the requirements in the Greenbook. Acceptance by the Inspector is required prior to proceeding with the work under this Section.
- B. The Architect reserves the right to substitute plant material of sizes equal to material specified, as the work progresses, at no additional cost to the City.
- C. When requesting substitutions for plant material, the Contractor shall provide the Architect with the following:
- 1. Contact information for nurseries Contractor was unable to obtain plant material. Minimum of three are required.
- 2. Three (3) alternate plant suggestions as part of the initial request. Provide
- foliage/flower color, growth habit, and sunset zone of each.
- 3. Substitution requests which do not include the above requirements will be denied until requirements have been met.
- **1.09 FIELD CONDITIONS**
- A. General: Become familiar with the anticipated growing conditions prior to commencement of work. Notify the Inspector immediately in writing of any conditions, which will prevent the proper execution of the warranty responsibilities specified. Failure to so notify the Inspector constitutes acceptance of the growing conditions. Any removal, repair or replacement of plant material required by unsuitable conditions found after work has begun shall be done at no additional cost to the City.
- B. Do not install plant life when ambient temperatures may drop below 35 degrees F or rise above 90 degrees F.
- C. Do not install plant life when wind velocity exceeds 30 mph. 1.10 WARRANTY
- A. Plant Material: Warrant that all trees under this Contract will be vigorous, healthy, free of dead or dying branches and branch tips, bearing foliage of normal density and color, and will otherwise comply with the requirements of this Section, for a period of one year from date of Final Acceptance. Any delay in completion of planting operations which extends the planting into more than one growing season shall extend the warranty period correspondingly.
- B. Replacements: Without cost to the City, in a timely manner and as directed by the Inspector, replace all plants not meeting the requirements above throughout the course of the warranty period. Replacements shall closely match adjacent specimens of the same species in size and shall comply with all requirements of

- this specification.
- C. Species: Replace all plant material determined by the City within two years
- replacement, at no additional cost to the City.

### PART 2 PRODUCTS

### 2.01 PLANTS

- grown in climatic conditions similar to those in locality of the Work. 1. Size:
- a. Plants shall conform to measurements specified. Measure plants when branches are in their normal position. Height and spread dimensions specified refer to the main body of plant and not branch tip to tip. Take caliper measurements at a point on the trunk 6 inches above natural ground line for trees up to 4 inches in caliper, and at a point 12 inches above the natural ground line for trees over 4 inches in caliper.
- b. The measurements specified are the measurements after pruning, where
- pruning is required. Plants that meet the measurements specified, but do not possess a normal balance between height, spread, and caliper, shall be rejected. c. Plants larger than specified may be used if approved by the City, and if
- provided at no additional cost to the City. If larger plants are approved, the root ball shall be increased in proportion to the size of the plant; irrigation system shall also be adjusted as required to accommodate larger plants.
- B. Acclimatization: The General Contractor is responsible for supplying plant material that has been properly acclimated and conditioned, in accordance with good horticultural practices, for the exposure, wind and humidity levels, soil conditions, etc., encountered at the project site and in the proposed plant location.
- C. Coordination: The Contractor shall coordinate his acclimatization schedule with the City as to allow an adequate conditioning period for the plant material prior to the approved date of
- planting commencement. Notify the City in writing prior to proceeding with any acclimatization work if approved work schedule allows insufficient time to acclimate the material.
- D. Quality: Plants shall be superior in form, compactness and symmetry; sound, healthy and vigorous, well branched and densely foliated when in leaf; free of disease, insect pests, eggs or larvae, and free from physical damage or adverse conditions that would prevent thriving growth.
- E. Species: Tag one of each plant prior to delivery to the site; label with genus, species and variety. Any plants not so identified will be subject to rejection by the City. Plants may be cross referenced with nurseries invoice at the discretion
- of the Architect.
- F. Root Ball: 1. Do not supply any bare root or ball and burlapped stock unless approved by the City.
- 2. Sizes: As specified on the plans. Where no root ball dimensions have been specified, supply material in container sizes specified.
- 3. Material: Root ball shall consist of a soil or soil mix that is compatible with the soil or soil mix into which the plant will be planted, and that provides for thorough drainage, aeration, and adequate moisture and nutrient retention. Having sufficient density and firmness that when planted, the plant will stand upright and stable without need for additional support.
- 4. Containers: All plant material shall have been grown in the containers in which delivered for at least six months, but not over two years. Stock appearing to not have been in their containers for this term shall be rejected.
- 5. Root Pruning: Where root pruning is required to provide material of the specified size, or for planting in the sloped containers, the pruning is to be done under the direction of a Certified Arborist. No root pruning is to be done within one year of installation unless approved by the City.
- G. Trunks and Branches: Do not prune plants before delivery. All trunks are to be straight and of uniform taper, larger at the bottom unless otherwise specified. Plants with damaged or crooked leaders, or multiple leaders, unless specified, will be rejected. Plants with abrasions of the bark, sun scalds, disfiguring knots, or fresh cuts of limbs over 3/4 inch, which have not completely callused, will be rejected. Any plant unable to stand upright without support will be rejected. 2.02 SOIL MATERIALS
- A. General: All soils to be used in areas to be planted on the project shall be free of rocks over one inch in diameter, and free of foreign debris. Soil shall be free from sub-base/aggregate, refuse, plants or roots, clods, weeds, viable weed seeds, sticks, solvents, petroleum products, concrete, base rock, or other deleterious or extraneous material. Soil shall be free of soil-borne diseases, and capable of sustaining healthy plant life.

### B. Imported Topsoil:

- 1. Topsoil shall be fertile, friable soil of loamy character, containing an amount of organic matter normal to the region. All imported topsoil used on the job shall
- be from the same source. a. Make all arrangements for obtaining and testing imported topsoil. Submit test reports of a representative sample of the proposed supply for approval by the City well in advance of its scheduled delivery to the site. The approved
- sample will establish the standards to which all imported topsoil used on the job must conform.
- b. Transport imported topsoil directly from source to final position. If stockpiling is required, locations and amounts of stockpiles will be
- designated by the City. c. The City reserves the right to take additional samples of imported topsoil at the site. If subsequent testing proves material to be at variance with the
- approved sample, remove rejected soil from the site and replace immediately at no additional cost to the City.
- C. Imported Planter Pot Soil Mix: For use in planters and planter pots. The following ingredients, thoroughly blended into a homogeneous mix:

Amount	Ingredi
0.5 cubic yards	1/8 incl
0.5 cubic yards	Fine Sa
3 pounds	Single
1 pound	Calciur
1 pound	Iron Su
8 pounds	Kaiser

A. Existing On-Site Soils: Existing site soils shall be amended per the recommendations of the approved soils testing laboratory. The following soil amendments and fertilizers are to be used FOR BIDDING PURPOSES ONLY. Contractor shall submit soil samples results for review by Landscape Architect. 1. Site Soil: Top 6 inches of site soil shall be amended with following blend of amendments per 1000 square feet.

Amount	Ingred
6 cubic yards	Nitrog
15 lbs	12-12-
15 lbs	Soil Su
100 lbs	Agricu
Destrill Mix (an a	node le cotiene)

Amoun

Ingredient

following the final acceptance of the project, to be untrue to the species, clone and/or variety specified, to the equal condition of adjacent plants at the time of

A. Trees, Plants, and Ground Cover: Species and size identifiable in plant schedule,

- ch Fine Fir Bark as Specified
- and as Specified Superphosphate 0-20-0
- m Nitrate 15.5-0-0
- ılfate r 65 Dolomite Lime
- gen Stabilized 0" 1/4" Fir Bark
- -12 Commercial Fertilizer as approved ulfur
- ultural Gypsum
- 2. Backfill Mix (on-grade locations): Amend site soil as follows per cubic yard.

- 3/5 cubic yard Surface Soil 2/5 cubic yard Nitrogen Stabilized 0" to 1/4" Fir Bark 1lb 12-12-12 Commercial Fertilizer as Specified lbsIron Sulfate as Specified 10 lbs Agricultural Gypsum
- 3. Additional Amendments: Soil amendment recommendations will vary for planting areas if imported topsoil is required to establish finish grade. Provide all additional amendments as may be required by subsequent soil testing of approved imported topsoil and as directed by the Inspector.
- 2.03 SOIL AMENDMENT MATERIALS
- A. Nitrogen Stabilized Fir Bark On-Grade: Meeting the following specifications: 1. Particle Size (dry weight basis):
  - Percent Passing Sieve Size
- 6.35 mm (1/4 inch) 95 100
- 2.38 mm (No. 8, 8 mesh) 50 80 500 micron (No. 35, 32 mesh)0 - 25
- 2. Organic Content: Determined by ash analysis. Minimum 92% based on dry
- 3. Nitrogen: Minimum 0.8% nitrogen based on dry weight. 4. Salinity: Maximum saturation extract conductivity 3.5 millimhos per cm at 25 degrees centigrade.
- 5. Iron: Minimum 0.08% dilute acid soluble Fe based dry weight, if iron treated. 6. Bulk Density: 400 pounds per cubic yard.
- B. Fertilizer: Containing fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated in analysis
- 1. Fertilizers shall be approved by the Organic Materials Review Institute (OMRI). 2. Contractor shall obtain City's written approval of proposed fertilizer(s) prior to
- C. Water: Clean, fresh, and free of substances or matter that could inhibit vigorous growth of plants.
- D. Pre-Emergent Herbicide: For all on-grade ground cover and shrub areas, provide "Surflan A.S." as manufactured by Elanco Products Co., Indianapolis, IN, with no acceptable substitutions. Apply per manufacturer's instructions. 2.04 MULCH MATERIALS
- A. Mulching Material: Fir species wood shavings, free of growth or germination inhibiting ingredients. Mulch shall have been baked to remove unwanted seed growth.
- 2.05 ACCESSORIES
- A. Drain Rock: 3/4" diameter river rock or approved equal.
- B. Soil Separator: Soil Separator: "Mirafi 140N", as manufactured by Mirafi, Charlotte, NC, "Trevira Spunbond 1120", as manufactured by Hoechst Fibers Industries, Spartanburg, SC, or approved equal.
- C. Stakes: Softwood lumber, pointed end.
- 1. Lodgepole stakes. Length as required to meet dimensions required per plans. D. Root Control Barrier: "Deep Root Control Barrier", stock number UB24-2 as manufactured by Deep Root Corp., 15040 Golden West Circle, Westminister, CA 92683 (714) 898-0563, or approved equal.
- E. Breather Tube: 3" perforated pipe with Menards SS8x20 or equal filter sock
- (length as required). Cap with plastic atrium drain grate Rain Bird DG4RAG or equal. #57 washed gravel.
- 2.06 SOURCE QUALITY CONTROL
- A. Analyze to ascertain percentage of nitrogen, phosphorus, potash, soluble salt and organic matter; pH value and any deficiencies.
- B. Submit minimum 10 oz sample of topsoil proposed. Forward sample to testing laboratory in sealed containers to prevent contamination.
- C. Testing is not required if recent tests are available for imported topsoil. Submit these test results to the testing laboratory for approval. Indicate, by test results, information necessary to determine suitability.
- PART 3 EXECUTION 3.01 ORDERING, REVIEW AND ACCEPTANCE OF PLANT MATERIAL A. Ordering:
- 1. Within 30 days after award of contract, submit written certification to the City of the quantity and species of plant material ordered, and the nursery(s) supplying the material.
- 2. The Contractor is responsible for providing all plant material in the quantities and sizes specified on the drawings, and for making all arrangements in advance that may be
- required to obtain these materials. If any material specified will be unavailable at the time of planting, submit written verification to the City along with the
- B. Review of Plant Material: Before planting operations begin, all plant materials shall be reviewed for conformance to the design intent of the Contract Documents by the City. Submit written request for review of plant material at least 10 days prior to commencement of planting operations. Review by the City
- does not waive the right of rejection during planting or any time thereafter. C. Rejection of Material: The City reserves the right to review and reject plant
- material at any time, and at the place of growth, for nonconformance to the Specifications. Do not install plant material, which has not been reviewed at the project site by the City. 3.02 EXAMINATION
- A. Verify that prepared subsoil and planters are ready to receive work. B. Saturate soil with water to test drainage.
- C. Verify that required underground utilities are available, in proper location, and ready for use.
- 3.03 GRADING
- A. General: All areas to be planted on the project shall be free of rocks over one inch in diameter to a depth of 8" minimum below finish grade, and free of foreign debris, subsoil, refuse, plants or roots, clods, weeds, sticks, solvents, petroleum products, concrete, base rock, or other deleterious or extraneous material. Areas to be planted shall be free of soil-borne diseases and capable of sustaining healthy plant life. Do all work necessary to bring site soil, import soil and planter backfill to compliance with these requirements. Remove from the project site and dispose of in a legal manner any soils and material not meeting these requirements. Subject to acceptance of the City, all soil and material not meeting these requirements shall be the property of the Contractor.
- 1. Surface Drainage: Contractor is responsible for proper surface drainage of planted areas. Report in writing to the City any discrepancies in the Contract Documents, obstructions on the site, or any other conditions, which the Contractor feels prevent establishing proper drainage, and obtain the Inspector's instructions prior to proceeding with the work affected.
- 2. Final Contouring: a. Handle and place the soil to depths required. Remove all rocks and clods over one inch in diameter. Provide for surface drainage and cut all necessary drain swales.
- b. Work soil sufficiently so that after rolling and after full settlement has occurred, the site will be graded to within  $\pm 0.10$  of a foot from the lines, grades and elevations shown, and as may be directed by the Inspector. Finished surface shall be smooth and uniform and shall be free of depressions that retain standing water or any surface irregularities that would impede proper drainage. Unless otherwise noted, all soil finish grades shall be 1-1/2 inches below finish grade of adjacent walks, pavements and curbs,

- and top of wall elevations. 3. Erosion Repair: Repair all erosion damage that occurs until Final Acceptance. Take all measures necessary to prevent erosion occurring during work under
- Section.
- 3.04 PREPARATION OF SUBSOIL A. Amend subsoil as indicated in analysis.
- B. Prepare subsoil to eliminate uneven areas. Maintain profiles and contours. Make
- changes in grade gradual. Blend slopes into level areas. C. Remove foreign materials, weeds and undesirable plants and their roots. Remove contaminated subsoil.
- D. Scarify subsoil to a depth of 3 inches where plants are to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.
- E. Dig plant pits and beds twice the size of the rootball as directed per the drawings.
- 3.05 PLACING TOPSOIL
- A. Spread topsoil to a minimum depth of 6 inches over area to be planted. Rake
- B. Place topsoil during dry weather and on dry unfrozen subgrade. C. Remove vegetable matter and foreign non-organic material from topsoil while
- spreading. D. Grade topsoil to eliminate rough, low or soft areas, and to ensure positive drainage.
- E. Install topsoil into pits and beds intended for plant root balls, to a minimum thickness of 6 inches
- F. Place topsoil mix to the depths specified to obtain finish grades shown on the drawings. Soil mix shall be handled in a manner so as to prevent segregation of ingredients. Thoroughly water planter backfill mix after placement to compact and settle mix.
- 3.06 FERTILIZING
- A. Apply fertilizer in accordance with manufacturer's instructions.
- B. Apply after initial raking of topsoil.
- C. Mix thoroughly into upper 2 inches of topsoil. D. Lightly water to aid the dissipation of fertilizer.
- 3.07 EXCAVATION OF PLANTING PITS ON-GRADE
- A. General: Excavate plant pits by hand or with a backhoe; use of augers will not be permitted. Prior to planting and backfill, scarify the sides and bottom of the pit as required to eliminate any glazed surfaces. Excavate container-grown tree, shrub, and vine holes to the following dimensions: 1. 1, 5, and 15 gallon containers: Two times the size of the root ball in width and
- depth. 2. 24-inch boxes and larger: Large enough to allow one foot of space around the ball in all directions.
- 3. Holes on mounds: Dig plant holes on mounds deeper than normal. 4. Excess Soil: Transport and dispose of off-site in a legal manner any excess excavated soil.
- 5. Obstructions: If rocks, underground construction work, tree roots or other unknown obstructions are encountered in the excavation of plant holes, alternate locations may be selected by City. Report all such conditions in writing to the City. If a change in the location of the planting pit is unacceptable to the City, the original planting pit shall be over-excavated to remove the obstructions to a minimum dimension of 12" beyond the sides and bottom of the tree pit as typically specified. Obtain the City's instructions prior to proceeding with the work affected.

3.08 DETRIMENTAL SOILS AND DRAINAGE

after 24 hours.

test for proper drainage.

plant under unfavorable weather conditions.

other lines should not be allowed to damage bark.

broken before or during planting operations

B. Place plants for best appearance.

when taken from the container.

B. Drainage Chimneys:

3.09 PLANTING

C. Set plants vertical.

1. Container Stock:

any time

root ball.

when full.

per 100 square feet.

this Section. Provide and amend replacement soil in accordance with this

A. General: Prior to planting, test drain all planting areas as follows: 1. On-Grade Plant Pits: Fill with 12 inches of water. Water should drain

2. Plant Beds: Irrigate until soil is saturated. Saturated condition should not remain

1. General: For plant pits failing the initial drainage test, provide drainage chimneys as shown on the drawings and as directed by the City. 2. Neatly auger drainage chimneys to a depth directed by the City. Remove loose

soil from hole and plant pit. Locate chimneys at perimeter of plant pit. Repeat

3. Once required drainage test has been passed, backfill chimneys with drain rock, flush with bottom of pit. Cover chimneys with soil separator.

C. Failure of Drainage Test: report in writing to the City all areas not passing these tests and all soil conditions that the Contractor considers detrimental to growth of plant material. State condition and proposal and cost estimate for correcting

the condition. Obtain the City's instructions prior to proceeding with the work affected. Repeat drainage testing and correction of conditions in this manner as necessary until tests are passed. Failure to perform drainage tests and/or to

notify the City in writing of the conditions specified above renders the Contractor responsible for all plant failure that occurs as a result of inadequate

drainage or detrimental soil conditions, as determined by the City.

A. General: Do not plant any material that has not been reviewed by the Inspector upon delivery to the project site or that has been rejected for any reason. Do not

D. Remove non-biodegradable root containers. After removing plants from their containers, disentangle any small roots that encircle the container. Do not cut or otherwise disturb the root ball. Inspect all plants for rootbound condition; do not install rootbound plants or plants found to have cracked or broken root balls

E. Care should be exercised to prevent damage or breakage to limbs, and ropes or

a. General: Do not lift or handle container plants by tops, stems, or trunks at

b. Boxed Stock: Remove bottom of box prior to placement of plant in planting pit. Cut bands and remove box sides just prior to backfilling.

c. Canned Stock: Remove canned stock carefully after cans have been cut on two sides with acceptable cutter. Do not use spade to cut cans. d. Ball and Burlap Stock: Dig ball and burlap (B & B) plants with firm balls of

earth of diameter not less than that recommended by the American Standard for Nursery Stock, and of sufficient depth to include the fibrous and feeder roots. Plants moved with ball will not be accepted if the ball is cracked or

F. Set plants in pits or beds, partly filled with prepared plant mix, at a minimum depth of 6 inches under each plant. Remove burlap, ropes, and wires, from the

G. Place bare root plant materials so roots lie in a natural position. Backfill soil mixture in 6 inch layers. Maintain plant life in vertical position.

H. Saturate soil with water when the pit or bed is half full of topsoil and again

I. Top-dress Fertilizing On-Grade: When plant installation is complete, fertilize all planting areas (excluding lawn areas) with top-dress fertilizer at the rate of 4 lbs.

J. Anti-Desiccant: At Contractor's option, spray all evergreen and deciduous plant

material in full leaf with anti-desiccant, in accordance with manufacturer's instructions. Apply an adequate film over trunks, branches, twigs and foliage. Take precautions as necessary to prevent damage, particularly from sun scald. K. Mulching: Mulch all planting areas (excluding lawn areas) with 3 inch layer of

wood bark mulch unless otherwise shown. Spread mulch uniformly to form a smooth cover free of bare spots and mounds.

- 1. Settlement: As shown on the drawings, the crowns of all plants shall be at least 1/2 inch above the surrounding grade after all settlement has occurred.
- 2. Watering Basins On-Grade: Form a watering basin, an excavated ring around the root ball of the plant for each tree and shrub. Do not form watering basins in lawn areas.

### 3.10 GROUND COVER PLANTING

A. Pre-emergent herbicide Application On-Grade Only: Apply pre-emergent herbicide, Surflan

- A.S. at the rate of 5-1/3 pounds per acre applied in 25 gallons of water to all on-grade locations. Apply before wood bark mulch application.
- B. Planting: Plant ground cover plants through wood bark mulch at the specified triangular spacings. Make planting hole with a hand mattock avoiding mixing surface applied herbicide into planting hole.
- 1. Activation of Herbicide On-Grade Only: After planting, irrigate with at least one inch of water to activate the herbicide. Water areas carefully taking care to avoid erosion. Repair erosion occurring from careless watering immediately. Remove, repair and replace adjacent planting and soil damaged by careless watering and translocation of herbicide.

### 3.11 LAYOUT OF PLANT MATERIAL

- A. General: The City will review for conformance to the design intent of the Contract Documents locations of all plants in the field prior to planting. Notify the City and schedule layout review sufficiently in advance of planting to allow for review and adjustment without disrupting construction schedule.
- B. Adjustments: The City reserves the right to make minor adjustments in the layout of all plant material; adjust irrigation system as necessary.
- 3.12 INSTALLATION OF ACCESSORIES A. Install trunk protectors on all new trees located in turf areas.

### 3.13 PLANT SUPPORT

A. General: Complete staking and guying immediately after planting. Perform in accordance with reference standards, unless otherwise shown on the drawings or directed by the City. Securely stake or guy all trees planted on the site using staking or guying type shown on the drawings. The City reserves the right to make modifications to staking and guying procedures as required to accommodate field conditions at no additional cost to the City. 1. Staking: Stake trees with one as shown on the drawings.

### 3.14 PRUNING

A. Prune plants only at the direction of the City and according to reference standards to preserve the natural character of the plant. Remove all dead wood, suckers and broken or badly bruised branches. Remove sucker basal and lateral growth to prevent resprouting; retain normal side branching. Use only disinfected, sharp tools. Improperly pruned trees will be subject to rejection by the City. Apply tree seal to cuts over one inch diameter in accordance with manufacturer's instructions

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# LANDSCAPE SPECIFICATION NOTES

### PART 1 GENERAL

Section 32 8423 - Irrigation System

### **1.01 SECTION INCLUDES**

- A. Pipe and fittings, and accessories.
- B. Automatic valves
- C. Manual valves D. Control system.
- E. Drip Irrigation
- F. Pop-up rotor systems
- **1.02 DESCRIPTION**
- A. Provide all material, labor, equipment transportation, and services necessary for the furnishing and installation of the complete automatic sprinkler irrigation system as shown on the drawings and as specified herein. The work includes, but is not limited to:
- 1. Trenching, stockpiling excavation materials and refilling trenches. 2. Providing a complete system including piping, valves, fittings, backflow
- prevention device(s), sprinklers, automatic controls, dripline, and emitters and final adjustment of heads to ensure complete coverage.
- 3. Line voltage connections to all irrigation controllers; low voltage control wiring from controller to remote control valves.
- 4. Electrical service and hookup to automatic controller
- 5. Automatic controller assembly and installation. 6. Thrust Blocking
- 7. Submittals, tests, as-built and record drawings.
- 8. Erosion control and repair of damage due to over watering and erosion.
- 9. Warranty replacement.
- 10. Cleanup, inspection and approval.
- **1.03 RELATED REQUIREMENTS**
- A. Section 26 0519 Low-Voltage Electrical Power Conductors and Cables. B. Section 31 2316 - Excavation: Excavating for irrigation piping.
- C. Section 31 2316.13 Trenching: Excavating and backfilling for irrigation piping.
- D. Section 31 2323 Fill: Backfilling for irrigation piping.
- E. Section [] Exterior Plants.
- 1.04 REFERENCE STANDARDS
- A. ASTM D2241 Standard Specification for Poly (Vinyl Chloride) (PVC)
- Pressure-Rated Pipe (SDR Series); 2015.
- B. ASTM D2564 Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 2012.
- C. NEMA 250 Enclosures for Electrical Equipment (1000 Volts Maximum); 2014. **1.05 SUBMITTALS**
- A. See Section 01 3300 Submittals, for submittal procedures.
- B. Detail Drawings: Submit detailed drawings for Owner approval, for all assemblies not detailed on the drawings.
- C. Controller Charts:
- 1. The Landscape Architect shall accept Record drawings before controller charts are prepared. Provide one controller chart for each controller supplied. The chart shall show the area controlled by the automatic controller and shall be the maximum size that the controller door will allow.
- 2. The chart is to be a reduced drawing of the actual "as-built" system. However, in the event the controller sequence is not legible when the drawing is reduced, it shall be enlarged to a size that will be readable when reduced. The chart shall be a black line or blue line ozalid print and a different color shall be used to indicate the area of coverage for each station. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum of 10 mils. These charts shall be completed by the Contractor and approved by the Landscape Architect prior to final observation of the irrigation system.
- D Operation and Maintenance Data:
- 1. Provide instructions for operation and maintenance of system and controls, seasonal activation and shutdown, and manufacturer's parts catalog.
- 2. Provide schedule indicating length of time each valve is required to be open to provide a determined amount of water.
- E. Maintenance Materials: Provide the following for City's use in maintenance of project.
- 1. See Section 01 6000 Product Requirements, for additional provisions.
- 2. Extra Sprinkler/Rotor Heads: One of each type and size.
- 3. Extra Valve Keys for Manual Valves: One.
- 4. Extra Valve Box Keys: One. 5. Extra Quick Coupler Keys: One
- 6. Prepare and deliver to the Landscape Architect, within 10 calendar days prior to completion of construction, two hardcover binders with three rings containing
- the following information: a. Index sheet stating Contractor's address and telephone number, list of
- equipment with name and addresses of local manufacturer's representative.
- b. Catalog and part sheets on every material and equipment installed under this
- c. Contractor's Guarantee statement that all equipment has been installed per plans and specifications.
- d. Complete operating and maintenance instruction on all major equipment. F. Irrigation Schedule
- 1. Watering schedule shall include watering times and start times for each valve. Schedule shall indicate watering times for each day of the week as applicable. The schedule shall be broken out to include seasonal adjustments.
- 2. Submit the Watering Schedule to the Landscape Architect for approval. The amount of water used per the irrigation schedule shall not exceed the projected water usage shown on the irrigation calculations and plans.
- 1.06 PRODUCT DELIVERY, STORAGE AND HANDLING
- A. Handling of PVC Pipe and Fittings: The Contractor is cautioned to exercise care in handling, loading, unloading, storing and installation of PVC pipe and fittings. All PVC pipe shall be transported in a vehicle that allows the length of pipe to lie flat so as not to subject it to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged will be discarded and, if installed, shall be replaced with new piping.
- **1.07 JOB CONDITIONS**
- A. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences should be brought to the attention of the Landscape Architect. In the event this notification is not performed, the irrigation Contractor shall assume full responsibility for any revision necessary.
- **1.08 SUBSTITUTIONS**
- A. Procedure: Submit information in conformance with the substitution requirements of Division 01, General Provisions.
- B. Provide descriptive catalog literature, performance charts and flow charts for each item to be substituted.
- **1.09 REGULATORY REQUIREMENTS**
- A. Requirements of Regulatory Agencies: All work and materials shall be in full conformance with the latest rules and regulations of the California Plumbing and Electric codes.
- B. Manufacturer's Directions: Manufacturer's directions and detailed drawings shall be followed in all cases where the manufacturers of articles used in this contract furnish directions covering points not shown in the drawings and specifications.
- C. Underwriters Laboratories: Electrical wiring, controls, motors, and devices shall be

- UL listed, and so labeled 1.10 INSTALLATION MEETINGS
- Representative in advance for the following observation meetings, according to the time indicated: (Certain meetings may be grouped if prior approval is granted). 1. Coordinate one week prior to commencing work of this Section. 2. Pressure supply line installation and testing: 48 hours.
- A. Contractor shall be responsible for notifying the Landscape Architect or Designated
- 3. Automatic controller location: 48 hours.
- 4. Coverage test: 48 hours.
- 5. Final site review: 7 days.
- B. When observations have been conducted by other than the Landscape Architect or Designated Representative, show evidence in writing of when and by whom these observations were made.
- 1. Final Observation:
- a. The Contractor shall operate each system in its entirety for the Landscape Architect or Designated Representative at time of final observation. Any items deemed not acceptable by the Landscape Architect or Designated Representative, or not in compliance with these specifications and drawings, shall be reworked to the complete satisfaction of the Landscape Architect or
- Designated Representative. b. The Contractor shall show evidence to the Landscape Architect or Designated Representative that the City has received all accessories, charts, record drawings, and equipment as required before final observation can occur.
- 1.11 COORDINATION
- life.
- 1.12 WARRANTY
- A. The warranty for the sprinkler irrigation system shall be made in accordance with the following form.
- B. A copy of the warranty form shall be included in the operations and maintenance C. The warranty form shall be retyped onto the Contractor's letterhead and contain the
- following information D. WARRANTY FOR SPRINKLER IRRIGATION SYSTEM
- 1. We hereby warrant that the sprinkler irrigation system we have furnished and installed is free from defects in materials and work quality, and the work has been completed in accordance with the drawings and specification. We agree to repair or replace any defects in material or work quality that may develop during the period of one year from the date of acceptance, except those that may be caused by ordinary wear and tear, unusual abuse or neglect. We also agree to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the City. We shall make such repairs or replacements within a reasonable time, as determined by the City, after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt of written notice from City, we authorize the City to proceed to have said repairs or replacements made at our expense, and we will pay the costs and charges therefore upon demand.
- 2. PROJECT: 3. CONTRACTOR: NO.:
- ADDRESS:
- 6. DATE OF
- ACCEPTANCE:

### PART 2 PRODUCTS

- 2.01 IRRIGATION SYSTEM A. Manufacturers:
- 1. As shown on plans.
- 2. Rain Bird Sales, Inc; : www.rainbird.com/#sle.
- B. Substitutions: See Section 01 6000 Product Requirements
- 2.02 PIPE MATERIALS
- A. PVC Pipe (Sizes up through 3"): ASTM D 2241; 200 psi pressure rated upstream from controls, 160 psi downstream; solvent welded sockets.
- B. PVC Pipe (3" 6" sizes): ASTM D 2241; 200 psi (1.38 MPa) pressure rated upstream from controls, 160 psi (1.10 MPa) downstream; rubber gasketed joints. C. Pressure and Non-Pressure Main Line Piping and Fittings: Sizes 2 1/2 inches and
- smaller shall be Schedule 80 PVC.
- D. Non-pressure lines (buried): Shall be PVC Schedule 40.
- E. Fittings: Type and style of connection to match pipe and shall meet the requirements for service at an operating pressure of 150 pounds per square inch, unless otherwise specified.
- F. Pipe Risers at Valves: 160 psi PVC pipe.
- G. Solvent Cement: ASTM D2564 for PVC pipe and fittings.
- H. Sleeve Material: PVC Material per plan.
- I. PVC nipples: Schedule 80 with molded threads. J. All PVC pipe must bear the following markings: 1. Manufacturer's name.

Distribution of Non-Potable Water.

1. As indicated on the drawings.

1. As indicated on the drawings

2. Nominal pipe size. 3. Schedule or class.

6. Date of extrusion.

2.03 OUTLETS

A. Manufacturer:

drawings.

2.04 VALVES

A. Manufacturers:

A. Coordinate the work with site backfilling, landscape grading and delivery of plant

PHONE

RV

**BV** 

- 4. Pressure rating in AST (not required on drip tubing).
- 5. NSF (National Sanitation Foundation) approval (not required on drip tubing).
- 7. Colored Purple (Pantone #522) and embossed or integrally stamped/marked continuously on two sides with the words "CAUTION: RECYCLED WATER -DO NOT DRINK" and identified in accordance with AWWA Guidelines for the
- 2. Substitutions: See Division 01, General Provisions B. Emitter: Non-clogging, self-cleaning per the model numbers shown on the
- C. Tree Bubbler: Fixed outlet capable of watering deep root systems directly.
- D. Quick Coupler: Two piece body with purple cover E. All outlets used shall have an exposed surface colored purple to associate them with recycled water use. The exposed surface may be colored purple through the use of weatherproof paint, or dyed plastic/rubber.
- F. Where possible, the exposed surface shall have the following warnings molded or hot-stamped upon it: (1)"DO NOT DRINK" in English and Spanish, and (2) the international "DO NOT DRINK" warning symbol. Sprinklers unable to meet these specifications shall be identified with purple bilingual recycled water warning tags.
- 2. Substitutions: See Division 01, General Provisions
- B. Ball Valves: Brass construction with locking lever...
- C. Backflow Preventers: Bronze body construction, reduced pressure zone type. D. Backflow Enclosure: Vvandal and weather resistant nature manufactured entirely of marine grade aluminum alloy 5052-H32. The mounting base shall be manufactured entirely of stainless steel. The length of the enclosure shall be expandable to allow for site adjustment. The enclosure shall have a mounting lip on one end and a locking mechanism on the other end. The handle controlling the locking mechanism shall be concealed within the surface of the enclosure and provide for a padlock.

- E. Quick Coupling Valves: Two-piece brass body construction, 150-pound class, with 1-inch female threads opening at base permitting operation with a special connecting device (coupler) designed for this purpose.
- 1. Coupler threads: Lug type.
- 2. Hinge cover: Provide with rubber-like locking and non-potable (purple) vinyl 3. The words "NON-POTABLE" or "RECYCLED WATER" and "DO NOT
- DRINK" marked in English and Spanish with the International "DO NOT DRINK" warning symbol located on the cover.
- F. Master Valves
- 1. Valve Type: Spring loaded, packless diaphragm activated, normally closed type with brass body, equipped with flow control and pressure regulation capabilities where noted.
- 2. Valve Solenoid: 24 volt AC, 4.5 watt maximum, 500 milli-amp maximum surge, corrosion-proof, stainless steel construction, epoxy encapsulated to form a single integral unit unless otherwise noted on plans.
- 3. Provide bleeder valve to permit operation in the field without power at the controller
- G. Remote Control Valves
- 1. Valve Type: Spring loaded, packless diaphragm activated, normally closed type with brass body, equipped with flow control and pressure regulation capabilities where noted.
- 2. Valve Solenoid: 24 volt AC, 4.5 watt maximum, 500 milli-amp maximum surge, corrosion-proof, stainless steel construction, epoxy encapsulated to form a single integral unit unless otherwise noted on plans.
- 3. Provide bleeder valve to permit operation in the field without power at the controller.
- H. Valve Boxes
- 1. Remote control Valves: 14" x 19" of concrete material with locking cover. 2. Gate valves, ball valves and quick couplers: 10" round of concrete material with locking cover.
- 3. Valve box extensions shall be by the same manufacturer as the valve box.
- 4. Emboss, letters on valve boxes to indicate contents of valve box. (ie, GV = GateValve, OC = Quick Coupler, RC = Remote Control Valve, MV = Master Valve, BV = Ball Valve)
- 5. Valve boxes shall be of purple color (Pantone #522) with warning labels permanently molded into or affixed onto the lid. Warning labels shall be constructed of a purple weatherproof material with the warning permanently stamped or molded into the label. The warning shall contain the following information:
- a. "NON-POTABLE" or "RECYCLED WATER"
- b. "DO NOT DRINK" in English and Spanish c. The international "DO NOT DRINK" warning symbol such as a glass of water with a slash through it.
- I. Station Decorders
- 1. Shall match manufacturer of controller.
- 2. Provide minimum one (1) decoder per valve. The station decoder shall be a 2-station decoder and shall be able to operate up to 2-solenoids using unique colored wires for each. Utilizing decorder to support multiple valves is acceptable in accordance with manufacturer's instructions.
- 3. Include POC decorders for master valve and flow sensor per manufacturer's instructions
- 4. Provide grounding rods or plates per manufacturer's instructions.
- 2.05 CONTROLS A. Manufacturers:
- 1. Calsense or approved equal. City maintenance approval required for
- substitution 2. Substitutions: See Division 01, General Provisions.
- B. Flow Sensor
- 1. Shall match manufacturer of controller.
- 2. The flow sensor shall be wired back to the irrigation controller using two #14 AWG wires, one red, and one black in 1" PVC conduit to connect to the irrigation controller. The maximum wire run between flow meter and controller shall be 2000 ft. The flow meter shall send low voltage digital pulses back to the controller and therefore all electrical connections must be waterproof and be resistant to any moisture entry.
- 3. Housing to be a Sch 80 polyvinyl chloride tee or bronze tee.
- 2.06 ELECTRICAL (LOW VOLTAGE)
- A. Connections between controller and remote control valves shall be made with direct burial AWG-UH, 600-volt wire, insulation thickness 3/64 inch, utilizing low-density high molecular weight polyethylene insulation.
- B. Splices, where permitted, shall be waterproofed using Rain Bird, Pen-Tite Connectors or fusible heat shrinking tubing, and housed in a box. Boxes for other irrigation use may be utilized for this purpose
- C. Wire sizing shall be minimum of #14 "UF" 600 volt underground wiring, unless a shielded cable is used in which case #16 wire may be used. Common wires to be #12 and white in color. Each "hot" valve wire shall have a distinct and unique color other than white with no repetition of colors.
- D. All electrical connections must be waterproof and moisture-resistant and shall be done with 3M<sup>TM</sup> Scotchcast<sup>TM</sup> 3570G Connector Sealing Packs.
- 2.07 ACCESSORIES
- A. Do Not Drink Signage 1. Aluminum 8"x8" sign shall read "RECYCLED WATER IN USE DO NOT DRINK. WASH HANDS AFTER CONTACTING. NO TOME EL AGUA LAVESE LAS MANOS DESPUÉS DE HACER CONTACTO CON EL AGUA"
- 2. Quantity five (5) signs.
- PART 3 EXECUTION
- 3.01 EXAMINATION
- A. Verify location of existing utilities.
- B. Verify that required utilities are available, in proper location, and ready for use. 3.02 PREPARATION
- A. Drawings are generally diagrammatic and indicative of the work to be installed. Due to the scale of drawings, it is not possible to indicate all offsets, fittings, sleeves, etc., which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan accordingly, furnishing such fittings, etc., as may be required.
- B. All scaled dimensions are approximate. The Contractor shall check and verify all size dimensions and receive Landscape Architect or Designated Representative's approval prior to proceeding with work under this section.
- C. Coordinate installation of irrigation system, including pipe, so there will be NO interference with utilities or other construction or difficulty in planting trees, shrubs, and ground covers. The Contractor shall carefully check all grades to satisfy him/her that he may safely proceed before starting work on the irrigation system.
- D. All piping or equipment shown diagrammatically on drawings outside planting areas shall be installed inside planting areas whenever possible.
- E. Layout and stake locations of system components. F. Review layout requirements with other affected work. Coordinate locations of sleeves under paving to accommodate system.
- 3.03 TRENCHING
- A. Trench and backfill in accordance with Greenbook and City of Santa Barbara standards.
- B. Excavate trenches to required depths. Follow approved layout for each system. C. Trench bottom shall be flat to ensure piping is supported continuously on an even grade.

- D. Where lines occur under paved areas, consider dimension to be below the subgrade. E. Trench Size:
- 1. As indicated on the drawings.
- F. Trench to accommodate grade changes and slope to drains. G. Maintain trenches free of debris, material, or obstructions that may damage pipe. 3.04 INSTALLATION
- A. Assemblies: 1. Install pipe, valves, controls, and outlets in accordance with manufacturer's
- instructions
- 2. Line Clearance: All lines shall have a minimum clearance of 6 inches from each other and from lines of other trades. Parallel lines shall not be installed directly over one another.
- 3. Connect to utilities.
- 4. Install all assemblies specified herein in accordance with respective detail. In absence of detail drawings or specification pertaining to specific items required to complete work, perform such work in accordance with best standard practice, with prior approval from Landscape Architect or Designated Representative.
- 5. PVC pipe and fittings shall be thoroughly cleaned of dirt, dust and moisture before installation. Installation and solvent welding methods shall be as
- recommended by the pipe and fitting manufacturer. 6. On PVC to metal connections, the Contractor shall work the metal connections first. Teflon tape or approved equal shall be used on all threaded PVC to PVC, and on all threaded PVC to metal joints. Light wrench pressure is all that is required. Where threaded PVC connections are required, use threaded PVC adapters into which the pipe may be welded.
- 7. Quick Coupling Valves: Unless otherwise indicated, locate valves within 12
- inches of hardscape.

1. Use for pipe sizes 4" and larger.

B. Mechanical Joints:

C. Thrust Blocks:

D. Electrical Supply

change.

E. Automatic Controller:

F. Flow Sensor:

I. Sprinkler Heads:

J. Valve Boxes:

installed.

8. Set outlets and box covers 1 inch above finish grade in turf areas and 2 inches above finish grade in shrub planters. 9. Provide for thermal movement of components in system.

10. Use threaded nipples for risers to each outlet.

of main lines unless otherwise approved.

be enclosed in an acceptable box.

sensor terminal at controller.

their respective detail.

manufacturer.

in part 2 - products.

3.05 FIELD QUALITY CONTROL

pressure for two hours.

during test period.

being performed

to meet site requirements

Architect or Designated Representative.

3.07 TEMPORARY REPAIRS

3.08 SYSTEM STARTUP

warranty as herein specified.

required adjustments without cost to the City.

watertight.

3.06 BACKFILLING

displacement.

letters 2-3/4 inches by 2-1/4 inches.

installed as noted in drawing.

2. Wire is to be taped a maximum 12 feet on center.

![](_page_26_Figure_184.jpeg)

### 1. For 4" pipe and larger install thrust blocks at fittings.

- 1. Low voltage wiring shall be placed in the same ditch and taped on bottom side
- 3. Provide a minimum 12-inch expansion loop at each connection and directional
- 4. Use a continuous wire between controller and remote control valves. Except as otherwise approved, do not splice wire at any point. All approved splices shall
- 5. Each controller shall be provided with separate 2-wire path.
- 1. Contractor shall coordinate controller location and connection with City.
- 1. Flow sensor tee assembly shall be installed with minimum required length of unobstructed straight pipe run per manufacturer's instructions. 2. Install flow sensor wiring from flow sensor to controller. Connect wiring to flow
- G. Mark valves with neoprene valve markers containing locking device. Set valve
- markers in pipe risers extending from top of valve to finish grade. H. System Flush: After piping is installed, but before outlets are installed and backfilling commences, open valves and flush system with full head of water.
- 1. Install the sprinkler heads as designated on the drawings and in accordance with
- 2. Spacing of heads shall not exceed the maximum indicated on the drawings. In no case shall the spacing exceed the maximum recommended by the
- 1. All buried valves and equipment shall be installed with a proper box as specified
- 2. Fill area under box with a minimum of 1 cubic feet of pea gravel before box is
- a. Identification tags shall be attached to each remote control valve, showing number that corresponds with controller sequence. Tags shall be manufactured of polyurethane Behr Desopaid, yellow in color with black
- b. All boxes shall be permanently marked on top, designating type of equipment
- A. Prior to backfilling, test system for leakage at main piping to maintain 100 psi
- B. System is acceptable if no leakage or loss of pressure occurs and system self drains
- C. Testing of pressure main lines shall occur prior to installation of electrical control valves, quick couplers or any other equipment that might prevent a proper test from
- D. All piping under paved areas shall be tested under hydrostatic pressure of 150 pounds per square inch, and proved watertight, prior to paving. E. If leaks develop, replace joints and repeat test until entire system is proven
- F. All hydrostatic tests shall be made only in the presence of the Landscape Architect or Designated Representative of the City. No pipe shall be completely backfilled until it has been inspected, tested and approved in writing.
- G. Furnish necessary force pump and all other test equipment. H. Upon completion of each phase of work, entire system shall be tested and adjusted
- I. Low voltage wire under paving shall be tested for continuity, prior to paving.
- A. Backfill trench and compact to specified subgrade elevation. Protect piping from
- B. Buried pipe in trenches shall be center loaded only until all required tests are performed. Trenches shall be carefully backfilled with the excavated materials
- approved for backfilling, consisting of earth, loam, sandy clay, sand or other approved materials, free from large clods of earth or stones. Backfill shall be mechanically compacted in landscaped areas to a dry density equal to adjacent undisturbed soil in planting areas. Backfill will conform to adjacent grades without
- dips, sunken areas, humps or other surface irregularities. C. A fine granular material backfill will be initially placed on all lines. No foreign matter larger than 1/2 inch in size will be permitted in the initial backfill.
- D. Flooding of trenches will be permitted only with approval of the Landscape E. If settlement occurs and subsequent adjustments in pipe, valves, sprinkler heads,
- lawn or planting, or other construction are necessary, the Contractor shall make all A. The City reserves the right to make temporary repairs as necessary to keep the
- sprinkler system equipment in operating condition. The exercise of this right by the City shall not relieve the Contractor of his responsibilities under the terms of the

- A. Prepare and start system in accordance with manufacturer's instructions. B. Adjust control system to achieve time cycles required.
- 3.09 MAINTENANCE
- A. The entire sprinkler irrigation system shall be under full automatic operation for a period of seven days prior to any planting.
- B. The Landscape Architect or Designated Representative reserves the right to waive or shorten the operation period. 3.10 CLEANUP
- A. Cleanup shall be performed as each portion of the work progresses. Refuse and excess dirt shall be removed from the site, all walks and paying shall be broomed or washed down, and any damage sustained to the work of others shall be repaired and work returned to its original condition.
- 3.11 OPERATING INSTRUCTIONS A. The Contractor shall be required to train City's maintenance personnel in proper operation of all major equipment. Provide written evidence of the person or persons so trained to the Landscape Architect or Designated Representative.
- 3.12 CLOSEOUT ACTIVITIES A. Instruct City's personnel in operation and maintenance of system. Use operation and maintenance material as basis for demonstration.
- B. Irrigation Schedule: See Submittal Requirements above.
- C. Irrigation Audit: Shall be performed by a third party representative hired by the City. Contractor shall coordinate keys to controllers and valve boxes for use by the auditor
- 3.13 MAINTENANCE
- A. Provide a separate maintenance contract for specified maintenance service. End of Section

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