TROJAN STORAGE CALABASAS

EIMP2021000068

LANDSCAPE WATER EFFICIENCY PLAN

5050 SCANDIA LANE
CALABASAS, CA 91302
APN: 2049-022-040

LANDSCAPE PLAN
REVIEWED AND ACCEPTED

For Water Efficient Landscape Ordinance (MWELO) COMPLIANCE

REVIEWED BY: DATE 5/18/21

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

GENERAL NOTES

GENERAL NOTES

1. VISIT SITE PRIOR TO SUBMITTING BIDS.
2. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS BEFORE PROCEEDING WITH THE WORK. NOTIFY LANDSCAPE ARCHITECT IMMEDIATELY SHOULD FIELD CONDITIONS VARY FROM THOSE SHOWN ON PLANS.
3. DO NOT SCALE DRAWINGS.
4. ALL WORK CONSTRUCTION AND MATERIALS SHALL COMPLY WITH ALL PROVISIONS OF THE LATEST BUILDING CODE AND WITH OTHER RULES, REGULATIONS AND ORDINANCES GOVERNING THE LOCATION OF THE WORK. BUILDING CODE REQUIREMENTS TAKE PRECEDENCE OVER THE DRAWINGS AND IT SHALL BE THE RESPONSIBILITY OF ANYONE SUPPLYING LABOR OR MATERIALS OR BOTH TO BRING TO THE ATTENTION OF THE LANDSCAPE ARCHITECT ANY DISCREPANCIES OR CONFLICT BETWEEN THE REQUIREMENTS OF THE CODE AND THE DRAWINGS.
5. REFERENCE TO ANY DETAIL OR DRAWING IS FOR CONVENIENCE ONLY AND DOES NOT LIMIT THE APPLICATION OF SUCH DETAIL OR DRAWINGS.
6. DISCREPANCIES IN THE DRAWINGS OR BETWEEN THE DRAWINGS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE LANDSCAPE ARCHITECT. CORRECTED DRAWINGS OR INSTRUCTIONS SHALL BE ISSUED PRIOR TO THE CONTINUATION OF THIS WORK. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY CORRECTIONS DUE TO FAILURE TO REPORT KNOWN DISCREPANCIES.
7. GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL WORK SHOWN ON THESE DRAWINGS AND SPECIFICATIONS UNLESS SPECIFICALLY NOTED OTHERWISE.
8. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE UNLESS OTHERWISE SHOWN; THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE GENERAL CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE LANDSCAPE ARCHITECT SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES REQUIRED FOR SAME, WHICH ARE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR. ANY SUPPORT SERVICES PERFORMED BY THE LANDSCAPE ARCHITECT DURING CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED BY THE LANDSCAPE ARCHITECT, WHETHER OF MATERIAL OR WORK, AND WHETHER PERFORMED BEFORE, DURING OR AFTER COMPLETION OF CONSTRUCTION ARE PERFORMED SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS, BUT THEY DO NOT GUARANTEE GENERAL CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
9. A PROTECTION FENCE SHALL BE CONSTRUCTED AND MAINTAINED DURING CONSTRUCTION CONFORMING TO THE REQUIREMENTS OF THE BUILDING CODE.
10. MAINTAIN SANITARY TOILET FACILITIES DURING CONSTRUCTION AS REQUIRED BY APPLICABLE REGULATIONS.
11. THE GENERAL CONTRACTOR WARRANTS TO THE OWNER AND THE LANDSCAPE ARCHITECT THAT ALL MATERIALS AND EQUIPMENT FURNISHED WILL BE NEW UNLESS OTHERWISE SPECIFIED AND THAT ALL WORK WILL BE OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS.
12. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK AND/OR EQUIPMENT SUPPLIED BY THE OWNER.
13. PROVIDE FACILITIES FOR THE PHYSICALLY HANDICAPPED IN ACCORDANCE WITH C.A.C. TITLE 24 AND AS REQUIRED BY THE LATEST VERSION OF THE CALIFORNIA BUILDING CODE.
14. IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT AND TO PROTECT THEM FROM DAMAGE. THE GENERAL CONTRACTOR SHALL BEAR ALL EXPENSE OF REPAIR OR REPLACEMENT IN CONJUNCTION WITH THE EXECUTION OF THIS WORK.
15. PAVING, MASONRY AND CONCRETE SUBCONTRACTORS ARE TO COORDINATE WITH THE ELECTRICIAN, DRAINLINE SUBCONTRACTOR AND IRRIGATION SUBCONTRACTOR FOR SLEEVING, PIPING AND/OR CONDUIT INSTALLATION UNDER OR THROUGH HARDSCAPE ELEMENTS.
16. VERIFY ALL PROPERTY LINES OR OTHER LIMIT OF WORK LINES PRIOR TO COMMENCING WORK.
17. IN THE CASE OF DISCREPANCIES IN THE DRAWINGS, SPECIFICATIONS TAKE PRECEDENCE OVER DETAILS, AND DETAILS TAKE PRECEDENCE OVER PLANS.
18. SUBSTITUTIONS MUST BE APPROVED IN WRITING BY THE OWNER.
19. THE GENERAL CONTRACTOR SHALL ENSURE THAT ALL TRADES ARE PROVIDED WITH CURRENT DRAWINGS AND SPECIFICATIONS APPROVED FOR CONSTRUCTION. DO NOT ALLOW DOCUMENTS NOT APPROVED FOR CONSTRUCTION TO BE USED IF SEEN ON SITE. KEEP ONE SET OF AGENCY-APPROVED STAMPED PLANS ON SITE IN CASE CITY INSPECTORS REQUIRE PROOF OF CITY-APPROVED PLANS.
20. REPAIR OR REPLACE ANY DAMAGE TO ADJACENT PROPERTIES, CURBS, WALKS, PLANTING, WALLS, ETC. AT NO ADDITIONAL COST TO THE OWNER.
21. LOCATIONS OF N.I.C. CONSTRUCTION ELEMENTS SUCH AS LIGHTS, SIGNS, VENTS, HYDRANTS, TRANSFORMERS, ETC. ARE APPROXIMATE. NOTIFY THE LANDSCAPE ARCHITECT IMMEDIATELY SHOULD THE LOCATION OF THESE ITEMS INTERFERE WITH THE PROPER EXECUTION OF WORK.
22. PROVIDE THE OWNER WITH ALL WARRANTIES, GUARANTEES, AND INSTRUCTION MANUALS FOR EQUIPMENT, APPLIANCES, FIXTURES, ETC. AS DESCRIBED IN THE SPECIFICATIONS.
23. NOTIFY THE CITY'S AUTHORIZED REPRESENTATIVE 48 HOURS PRIOR TO COMMENCEMENT OF WORK TO COORDINATE PROJECT INSPECTION SCHEDULES.
24. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK INDICATED HEREIN BEFORE BEGINNING WORK.
25. CONTRACTOR SHALL OBTAIN THE PERTINENT ENGINEERING AND ARCHITECTURAL PLANS BEFORE BEGINNING WORK.
26. LANDSCAPE ARCHITECT SHALL HAVE FINAL SAY ON INTERPRETATION OF ALL INFORMATION CONTAINED IN THE LANDSCAPE CONSTRUCTION DOCUMENTS, SPECIFICATIONS AND ASSOCIATED REPORTS FOR THE PROJECT.

ABBREVIATIONS

@	AT	MISC	MISCELLANEOUS
℄	CENTERLINE	N.A.P.	NOT A PART
#	NUMBER	NCN	NO COMMON NAME
AC	ASPHALTIC CONCRETE	NIC	NOT IN CONTRACT
CF	CUBIC FOOT	NTS	NOT TO SCALE
CLR	CLEAR	O.C.	ON CENTER
CONC	CONCRETE	O.D.	OUTSIDE DIAMETER
CTR	CENTER	PL	PROPERTY LINE
DIA	DIAMETER	P.A.	PLANTER AREA
DIM	DIMENSION	P.I.P	POURED IN PLACE
EJ	EXPANSION JOINT	R	RADIUS
EQ	EQUAL	REV	REVISION
E.W.	EACH WAY	R.O.W.	RIGHT OF WAY
EX.	EXISTING	SHT	SHEET
FG	FINISH GRADE	SPEC	SPECIFICATION
FS	FINISH SURFACE	SF	SQUARE FOOT
GA	GAUGE	SQ	SQUARE
GALV	GALVANIZED	SS	STAINLESS STEEL
HORIZ	HORIZONTAL	STD	STANDARD
HT	HEIGHT	T	TRANSFORMER
I.D.	INSIDE DIAMETER	T.C.	TOP OF CURB
INCL	INCLUDING	T.D.	TOP OF DRAIN
INV	INVERT ELEVATION	T.R.	TOP OF RAILING
L.O.W.	LIMIT OF WORK	T.S.	TOP OF STEP
M	METER	T.W.	TOP OF WALL
MAX	MAXIMUM	TYP	TYPICAL
MFR	MANUFACTURER	VERT	VERTICAL
MH	MANHOLE	W/	WITH
MIN	MINIMUM	W.I.	WROUGHT IRON
		WT	WEIGHT

MAINTENANCE

MAINTENANCE RESPONSIBILITY

A. ALL IMPROVEMENTS TO BE MAINTAINED BY PROPERTY OWNER

MAINTENANCE PERIOD

A. ALL LANDSCAPED AREAS ARE SUBJECT TO A 90-CALENDAR DAY MINIMUM,180-CALENDAR DAY MAXIMUM, LANDSCAPE MAINTENANCE PERIOD.

B. SODDED AREAS - NORMAL MAINTENANCE AND ESTABLISHMENT PERIODS.

C. SEEDED AREAS - NORMAL MAINTENANCE AND ESTABLISHMENT PERIODS PLUS AN ADDITIONAL 60 CALENDAR DAYS.

WARRANTY PERIOD

SHRUBS, GROUNDCOVER, AND TURF:	90 CALENDAR DAYS
CANOPY TREES:	1 YEAR
IRRIGATION SYSTEM, INCLUDING TRENCHING:	1 CALENDAR YEAR

WATER DISTRICT NOTES

STREET TREES IN THE PUBLIC RIGHT-OF-WAY ARE TO BE PLANTED PER APPROVED STREET IMPROVEMENT PLAN

TREE CANOPIES ARE SHOWN IN FULL MATURITY

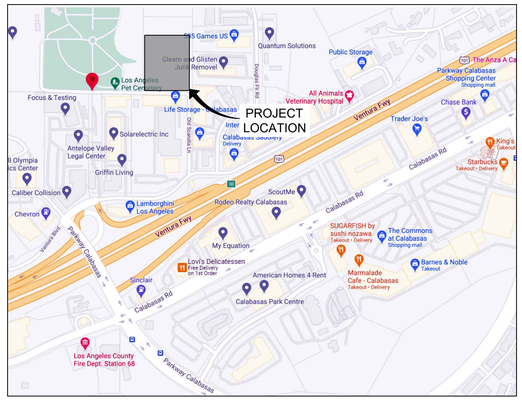
ALL HARDSCAPE, RETAINING WALLS, SWIMMING POOLS AND / OR BLOCK WALLS MUST BE REVIEWED AND APPROVED UNDER A SEPARATE PERMIT.

ALL PLANTS IN COMPLIANCE WITH DROUGHT TOLERANT LANDSCAPE (DTL)

THE TYPE OF SOIL IS SUITABLE FOR ALL THE PROPOSED PLANTS IN THIS LANDSCAPE

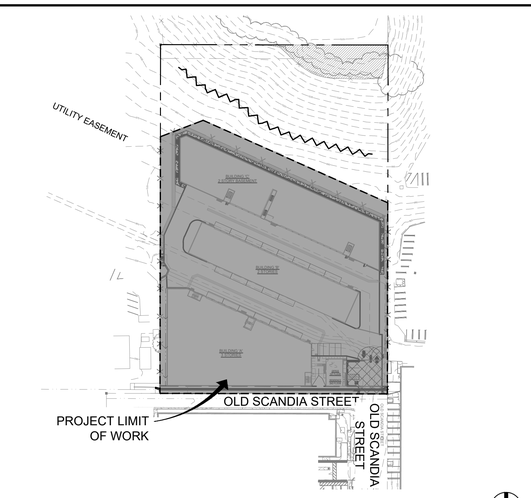
CONTRACTOR TO PROTECT AND PRESERVE IN PLACE ALL EXISTING SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE RESET BY A LICENSED LAND SURVEYOR AND THE APPROPRIATE CORNER RECORD MUST BE FILED WITH THE COUNTY OF LOS ANGELES.

VICINITY MAP



SCALE: NOT TO SCALE

SITE MAP



SCALE: NOT TO SCALE

OWNER

TROJAN STORAGE

1732 AVIATION BLVD. SUITE 217
REDONDO BEACH, CA 90278

CONTACT: DMITRIY DUBROVSKY
PH: (310) 372-8600
EMAIL: dDubrovsky@trojanstorage.com

PROJECT TEAM

ARCHITECT

JORDAN ARCHITECTS
131 CALLE IGLESIA, SUITE 100
SAN CLEMENTE, CA, 92672-7541
CONTACT: CHUCK CURRY
EMAIL:ccurry@jordanarchitects.com
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16755 VON KARMAN AVE.,
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LANDSCAPE

RIDGE LANDSCAPE
ARCHITECTS
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SUITE 200, IRVINE, CA, 92618
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EMAIL: jiao@ridgela.com
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SHEET INDEX

SHEET NO.	DESCRIPTION	SCALE
L0.0	LANDSCAPE COVER SHEET	--
L1.1	IRRIGATION PLAN	1:20
L2.1	IRRIGATION SCHEDULES & CALCULATIONS	--
L2.2	IRRIGATION NOTES	--
L3.1 - L3.2	IRRIGATION DETAILS	AS SHOWN
####	##########################	1:20
####	##########################	AS SHOWN
L6.1 -L6.3	LANDSCAPE SPECIFICATIONS	--

LANDSCAPE CALCULATIONS:
- TOTAL SITE LANDSCAPE AREA: 31,157 S.F.

UNDERGROUND SERVICE ALERT
CALL: TOLL FREE
811
TWO WORKING DAYS BEFORE YOU DIG

SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT IDENTIFICATION NUMBER CALL UNDERGROUND SERVICE ALERT.

STATEMENT OF COMPLIANCE

I HAVE COMPLIED WITH THE CRITERIA OF THE WATER EFFICIENT LANDSCAPE ORDINANCE AND APPLIED THEM ACCORDINGLY FOR THE EFFICIENT USE OF WATER IN THE IRRIGATION DESIGN PLAN.

05-07-2021

JAMES J. RIDGE, LANDSCAPE ARCHITECT RLA #2809 DATE

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949.387.1323
RIDGELA.COM

Client

TROJAN STORAGE
1732 AVIATION BLVD.,
STE. 217,
REDONDO BEACH, CA,
90278

Project

TROJAN STORAGE
CALABASAS
5050 SCANDIA LANE,
CALABASAS, CA 91302

	Issue	Date & Issue Description
--	--	02/03/21
		1ST CITY SUBMITTAL
--	--	05/07/21
		2ND CITY SUBMITTAL

Seal/Signature

REGISTERED LANDSCAPE ARCHITECT
JAMES J. RIDGE
LANDSCAPE ARCHITECT
LICENSE NUMBER 2809
05/07/21
(DATE)
05/31/23
(EXP. DATE)
STATE OF CALIFORNIA

Project Number

19076

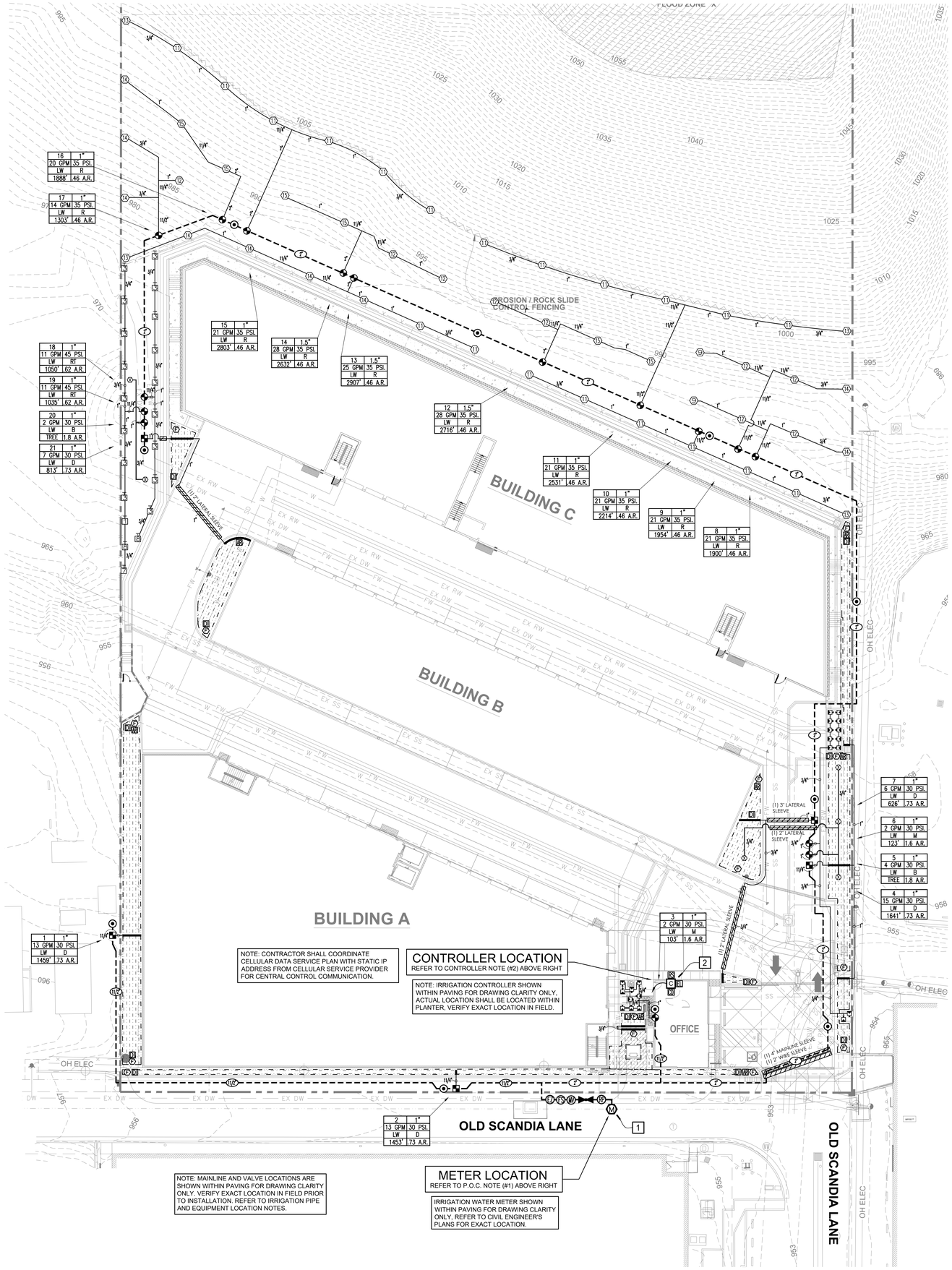
Drawn By / Checked By

RLA / RLA

Description

LANDSCAPE COVER SHEET

L0.0



DRIPLINE INTAKE/EXHAUST HEADER PIPE SIZING CHART	
INTAKE/EXHAUST HEADER MINIMUM SIZE OF 3/4 INCH.	
FLOW RANGE	**MINIMUM SIZE OF EXHAUST HEADER**
0 THROUGH 5 GPM	MINIMUM SIZE SHALL BE 3/4 INCH
6 THROUGH 10 GPM	MINIMUM SIZE SHALL BE 1 INCH
11 THROUGH 15 GPM	MINIMUM SIZE SHALL BE 1-1/4 INCH
16 THROUGH 25 GPM	MINIMUM SIZE SHALL BE 1-1/2 INCH
26 THROUGH 50 GPM	MINIMUM SIZE SHALL BE 2 INCH
NOTE: CONTRACTOR SHALL SIZE ALL DRIPLINE INTAKE/EXHAUST HEADERS PER PIPE SIZING CHART, IN NO INSTANCE SHALL PIPE SIZE EXCEED DESIGNATED GPM RANGE.	

P.O.C. / METER NOTES

1 **P.O.C. NOTE #1:**
POINT OF CONNECTION SHALL BE A NEW 1" DOMESTIC WATER IRRIGATION METER WITH A 1-1/2" SERVICE LINE. VERIFY THE ACTUAL LOCATION, SIZE AND WATER PRESSURE IN THE FIELD PRIOR TO STARTING WORK. IF ANY OF THE POC INFORMATION SHOWN ON THESE DRAWING IS FOUND TO BE DIFFERENT THAN THE ACTUAL POC INFORMATION GATHERED IN THE FIELD, IMMEDIATELY NOTIFY THE LANDSCAPE ARCHITECT. IN THE EVENT PRESSURE DIFFERENCES ARE NOT REPORTED PRIOR TO START OF CONSTRUCTION, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY AT NO ADDITIONAL COST TO THE OWNER.

DOMESTIC WATER METER INFORMATION	
ADDRESS: 5050 SCANDIA LANE, CALABASAS, CA 91302	
METER SIZE	1"
STATIC WATER PRESSURE	125 PSI
SYSTEM DESIGN PRESSURE	100 PSI.
MAXIMUM SYSTEM DEMAND	28 GPM
LANDSCAPE AREA SERVED	31,157 SQ. FT.

CONTROLLER NOTES

2 **CONTROLLER NOTE #2:**
CONTROLLER LOCATION. REFER TO LEGEND FOR CONTROLLER MAKE AND MODEL NUMBER. CONTROLLER ASSEMBLY SHALL BE INSTALLED IN A STAINLESS STEEL ENCLOSURE. FINAL LOCATION OF CONTROLLER ASSEMBLY AND ELECTRICAL POC SHALL BE CONFIRMED WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO COMMENCING WORK. THE 120 VOLT POWER SUPPLY HOOK-UP OF THE IRRIGATION CONTROLLER SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR.

IRRIGATION PIPE AND EQUIPMENT LOCATION NOTES

1. ALL IRRIGATION EQUIPMENT, SPRINKLERS AND PIPE THAT ARE SHOWN IN PAVING IS FOR DRAWING CLARITY ONLY. ALL EQUIPMENT SHALL BE INSTALLED WITHIN LANDSCAPED AREA. NO IRRIGATION EQUIPMENT SHALL BE LOCATED IN HARDSCAPE.

2. MAINLINE AND VALVE LOCATIONS SHOWN ON THIS DRAWING ARE DESIGNED AS DIAGRAMMATIC AND APPROXIMATE. THE LANDSCAPE CONTRACTOR SHALL STAKE ALL IRRIGATION PIPE / APPURTENANCE LOCATION FOR REVIEW AND APPROVAL. FINAL LOCATION AND EXACT POSITIONING OF ALL IRRIGATION SHALL BE DETERMINED BY THE OWNER'S AUTHORIZED REPRESENTATIVE. MINOR MODIFICATIONS OF ALL IRRIGATION APPURTENANCE AS REQUESTED BY THE OWNER SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST. FAILURE TO OBTAIN OWNER'S APPROVAL PRIOR TO THE INSTALLATION SHALL CAUSE THE CONTRACTOR TO MAKE OWNER DIRECTED REVISION AT NO CHARGE. ALL PIPING AND WIRES SHALL BE SLEEVED UNDER PAVING, HARDSCAPE, ETC. AND AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE.

IRRIGATION VALVE CALLOUT

CONTROLLER LETTER / VALVE NUMBER	A2	1.5" — VALVE SIZE
GALLONS PER MINUTE G.P.M.	16 GPM	30 PSI. — OPERATING PRESSURE (P.S.I.)
HYDROZONE PLANT FACTOR	LW	D — HYDROZONE / IRRIGATION TYPE - SEE HYDROZONE LEGEND (BELOW)
LANDSCAPE HYDROZONE AREA SQUARE FOOTAGE	2000'	.73 A.R. — APPLICATION RATE IN INCHES PER HOUR

HYDROZONE LEGEND

Hydrozone Number	Plant Factor (Water Use) - from WUCOLS Selected based on type of plants in hydrozones:	IE - Irrigation Efficiency
(1) Drip - Low Water / Plants	VLW = 0.1 - Very Low Water Use Plants	RT = Rotary .73
(2) Rotator - Low Water / Plants	LW = 0.1 - 0.3 - Low Water Use Plants	R = Rotor .73
(3) Rotor - Low Water / Plants	MW = 0.4 - 0.6 - Moderate Water Use Plants	B = Bubbler .77
(4) Bubbler - Low Water / Trees	HW = 0.7 - 0.9 - High Water Use Plants	D = Drip .81
		M = Micro Spray .73

IRRIGATION NOTE CALLOUT

(1) — IRRIGATION CONSTRUCTION CALLOUT NUMBER.

[1] — P.O.C. AND CONTROLLER CALLOUT NUMBER.

FOR IRRIGATION LEGEND AND CALCULATIONS - SEE SHEET L2.1
FOR IRRIGATION NOTES - SEE SHEET L2.2
FOR IRRIGATION DETAILS - SEE SHEETS L3.1 - L3.2
FOR LANDSCAPE SPECIFICATIONS - SEE SHEET L6.1 - L6.3

0 10 20 40 60

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Project

TROJAN STORAGE
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5050 SCANDIA LANE,
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Issue		Date & Issue Description
--	--	02/03/21
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		2ND CITY SUBMITTAL

Seal/Signature

REGISTERED LANDSCAPE ARCHITECT
CHRISTOPHER J. RIDGE
No. 5204
05/07/21
Expires
05/31/23
STATE OF CALIFORNIA

Project Number

19076

Drawn By / Checked By

RLA / RLA

Description

IRRIGATION PLAN

L1.1

CONTROLLER SCHEDULING NOTE:
THESE SUGGESTED RUN TIMES ARE FOR REFERENCE ONLY. ACTUAL RUN TIMES MAY DIFFER DUE TO VARYING SITE CONDITIONS. CONTRACTOR SHALL ADJUST RUN TIMES AS REQUIRED TO PROVIDE APPROPRIATE WATER FOR EACH VALVE CIRCUIT. MULTIPLE CYCLES MAY BE REQUIRED TO MINIMIZE PONDING AND RUNOFF ONTO NON-IRRIGATED AREAS.

SEASONAL IRRIGATION SCHEDULE

Project Name: Trojan Calabasas
Meter Number: #1

Cycles Per Day:	1
Days Per Week:	7

Evapotranspiration Rates:

Eto Historical:	52.22			
	Winter	Spring	Summer	Fall
Eto Per Day	0.08	0.16	0.19	0.14
Eto Per Season	7.5	14.8	17.7	12.3

Irrigation Efficiency (%):

Rotors:	0.75
Spray Heads:	0.71
Bubbler Heads:	0.77
Drip Line:	0.81
Drip Emitter:	0.81
Stream Rotary:	0.75
Micro Spray	0.73

Precipitation Rate (in/hr)

Rotors:	0.45
Spray Heads:	1.60
Bubbler Heads:	1.80
Drip Line:	0.73
Drip Emitter:	0.40
Stream Rotary:	0.45
Micro Spray:	0.61

Run Times (Minutes per Day) = 60 x (Eto x PF) / (PR x IE) x (7/RD) / C
Eto = Daily Evapotranspiration Rate
IE = Irrigation Efficiency
PR = Precipitation Rate (Inches per Hour)
RD = Run days (Program run days per week)
C = Cycles per Day
PF = Plant Factor (Kc)
60 = Conversion to minutes
7 = Days in a week

Valve Quantity	Water Use Type	Planting	Irrigation Type	Kc	PR	IE	Winter (Dec, Jan, Feb)	Spring (Mar, Apr, May)	Summer (Jun, Jul, Aug)	Fall (Sep, Oct, Nov)	
5	Low	Shrub	Drip Line	0.20	0.73	0.81	2	3	4	3	Min. Per Day
10	Low	Shrub	Rotor	0.20	0.45	0.75	3	6	7	5	Min. Per Day
2	Low	Shrub	Rotary	0.20	0.45	0.75	3	6	7	5	Min. Per Day
2	Low	Shrub	Micro	0.20	0.61	0.73	2	4	5	4	Min. Per Day
2	Low	Tree	Bubbler	0.40	1.80	0.77	1	3	3	2	Min. Per Day
Total Valves		21	Total Hour Run Times @ 7 Days Per Week				0.9	1.6	2.0	1.4	Hours Per Day

Irrigation Pressure Calculation

Meter No:	1
HGL:	1160 FT
Elevation of Meter:	953 FT
Static Water Pressure PSI:	125 psi
Valve No:	15
Valve Demand	21 GPM
Maximum System Demand	28 GPM
Elevation Change P.O.C. to Highest Head:	52 FT
Losses:	
1" Water Meter	4.6 psi
1-1/2" Service line	5.2 psi
1-1/2" RP Backflow Device	12.0 psi
1-1/2" Wye Strainer	1.0 psi
1-1/2" Master Valve	2.2 psi
1-1/2" Flow Sensor	1.1 psi
Isolation Valves	1.0 psi
1-1/2" R.C.V.	3.9 psi
700 Feet of 2" Mainline CL 315	4.8 psi
Fitting Loss 10%	3.6 psi
Lateral Line Loss 10%	3.5 psi
Loss to Highest Head	22.5 psi
Total Losses:	65 psi
Head Operating Pressure:	35 psi
Total Pressure Required:	100 psi
Static Pressure Available:	125 psi
Residual Pressure:	25 psi
Residual % of Static Pressure:	20%
Set Pressure Regulator:	110 psi

AB1881 WATER BUDGET CALCULATIONS

(CALCULATIONS SHOW THIS PROJECT TO BE IN COMPLIANCE WITH STATE MODEL WATER EFFICIENT LANDSCAPE ORDINANCE "MWELO")

Appendix A Water Efficient Landscape Worksheet

Reference Evapotranspiratio (ET$_o$)	52.22		Project Type Non-Residential		0.45		
Hydrozone # / Planting Description [a]	Plant Factor (PF)	Irrigation Method [b]	Irrigation Efficiency (IE) [c]	ETAF (PF/IE)	Landscape Area (Sq. Ft.)	ETAF x Area	Estimated Total Water Use (ETWU) [d]
Regular Landscape Areas							
1- Shrub Drip (LOW)	0.2	Drip	0.81	0.25	5994	1480	47917
2 - Shrub Rotary (LOW)	0.2	Rotators	0.73	0.27	2085	571	18494
3 - Shrub Rotor (LOW)	0.2	Rotors	0.73	0.27	22851	6261	202694
4 - Shrub Micro (LOW)	0.2	Overhead	0.73	0.27	227	62	2014
				Totals	31157	8374	271119
Special Landscape Areas							
SLA-1 N/A			1		0	0	0
				Totals	0	0	0
				ETWU Total [d]			271,119
				Maximum Allowed Water Allowance (MAWA) [e]			453,938

[a] **Hydrozone# / Planting Description** e.g.
1.) Front lawn
2.) Low water use planting
3.) Medium water use planting

[b] **Irrigation Method**
1.) Overhead Spray
2.) Drip

[c] **Irrigation Efficiency**
1.) 0.73 for Spray Head
2.) 0.81 for Drip

[d] **ETWU (Annual Gallons Required)**
=
Eto x 0.62 x ETAF x Area
Where 0.62 is a conversion factor to change acre-inches per acre per year to gallons per square foot per year

[e] **MAWA (Annual Gallons Allowed)** = (Eto) (0.62) [(ETAF x LA) + (1-ETAF) x SLA)]
Where 0.62 is a conversion factor to change acre-inches per acre per year to gallons per square foot per year, LA is the total regular landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is 0.55 for residential areas and 0.45 for non-residential areas.

ETAF Calculations

Regular Landscape Areas

Total ETAF x Area	8374
Total Area	31157
Average ETAF	0.27

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

All Landscape Areas

Total ETAF x Area	8374	(B+D)
Total Area	31157	(A+C)
Average ETAF	0.27	(B+D) ÷ (A+C)

IRRIGATION EQUIPMENT LEGEND

SYMBOL	MANUFACTURE / MODEL NO. / DESCRIPTION	DETAIL	SHEET
M	P.O.C. POINT OF CONNECTION - 1" DOMESTIC WATER IRRIGATION METER WITH 1-1/2" SERVICE LINE. VERIFY SIZE, LOCATION, AND STATIC WATER PRESSURE IN FIELD.	N/A	N/A
BF	FEBCO - LF825YA, 1-1/2" R/P BACKFLOW PREVENTION DEVICE INSTALLED WITH MODEL LF650A WYE STRAINER WITH PLUG AND PIPE NIPPLE STRAINER KIT OPTION. INSTALL A WILKINS "NR3" 1-1/2" PRESSURE REGULATOR AS PART OF BACKFLOW ASSEMBLY.	K	L3.1
NO SYMBOL	V.I.T. STRONG BOX - SBBC-30CR, METAL POWDER COATED SMOOTH TOUCH BACKFLOW DEVICE ENCLOSURE WITH A V.I.T. STRONG BOX PBB-30 SLIP-ON INSULATION COVER. INSTALL ON A POURED IN PLACE CONCRETE BASE PER MANUFACTURE SPECIFICATIONS. PROVIDE PADLOCK AND TWO SETS OF KEYS.	K, L	L3.1
W	GRISWOLD - 2250-K-E, SERIES 1-1/2" NORMALLY CLOSED, PRESSURE REDUCING, SURGE ANTICIPATING, EPOXY COATED, MASTER CONTROL VALVE. WIRE TO CONTROLLER WITH BLUE & WHITE TWISTED DIRECT BURIAL WIRES. INSTALL PER MANUFACTURERS RECOMMENDATIONS.	M	L3.1
FS	IMPERIAL TECHNICAL SERVICES - IFS-150F, 1-1/2" (FLOMEC) QS200-15, ULTRA SONIC FLOW METER, INSTALL PER MANUFACTURER'S RECOMMENDATIONS. WIRE TO CONTROLLER WITH PAIGE ELECTRIC CORP., #P7162D, FLOW SENSOR COMUNICATION CABLE, 2 CONDUCTOR, SHEILDED 16 AWG SOLID COPPER INSTALLED WITHIN 1-1/4" PVC CONDUIT. CONTRACTOR TO INSTALL FLOW SENSOR WIRE PULL BOXES LOCATED EVERY 250' MAXIMUM SPACING AND AT ALL CROSSINGS. MAXIMUM 2000' CABLE RUN DISTANCE. ALSO INSTALL FLOW SENSOR WIRE PULL BOX AT AUTOMATIC CONTROLLER AND FLOW SENSOR LOCATIONS AND AT EACH CHANGE OF DIRECTION. FOR GRAPHIC CLARITY, PULL BOXES ARE NOT SHOWN ON PLANS. FLOW SENSOR IS SUPPLIED AS PART OF I.T.S. CONTROLLER ASSEMBLY.	N	L3.1
FZ	EZ-FLO SYSTEMS - EZ-001-CX-CBV-150-FERTI-MAXX STARTER-25, 1.5 GALLON LIQUID FERTILIZING SYSTEM WITH 25 LB BAG STARTER FERTILIZER.	O	L3.1
	NIBCO - T-580-70-66, BRONZE BALL VALVE WITH STAINLESS STEEL STEM AND HANDLE NUT, LINE SIZE PER MAINLINE.	P	L3.2
	RAIN BIRD - PEB-PRS-D, SERIES (1" OR 1-1/2") PLASTIC REMOTE CONTROL VALVE, SIZE AS SHOWN.	Q	L3.2
	RAIN BIRD - PEB, (1" OR 1-1/2") SERIES PLASTIC DRIP REMOTE CONTROL VALVE ASSEMBLY, SIZE AS SHOWN. INSTALL WITH RAIN BIRD MODEL # LCRBY-S, (1" OR 1-1/2") LARGE CAPACITY SCREEN FILTER AND MODEL #PSI-H40X (1" OR 1-1/2") 40 PSI., HIGH FLOW INLINE PRESSURE REGULATOR. FOR DEMANDS 1 - 19 GPM: INSTALL 1" VALVE WITH LCRBY100-S, 1" SCREEN FILTER AND PSI-H40X-100, 1", 40 PSI., HIGH FLOW INLINE PRESSURE REGULATOR. FOR DEMANDS 20 - 55 GPM: INSTALL XCZ-150-LCS, DRIP ZONE KIT WITH 1-1/2" VALVE, LCRBY150-S, 1-1/2" SCREEN FILTER AND PSI-H40X-150, 1-1/2", 40 PSI., HIGH FLOW INLINE PRESSURE REGULATOR.	R	L3.2
	RAIN BIRD - 33DLRC, 3/4" QUICK COUPLER VALVE WITH LOCKING COVER.	S	L3.2

IRRIGATION CONTROLLER LEGEND

SYMBOL	MANUFACTURE / MODEL NO. / DESCRIPTION	DETAIL	SHEET
C	IMPERIAL TECHNICAL SERVICES - MODEL # ICA12-RB3-24 / SP / IQ-GPRS-5YR / WRSPE / IFS-150F: ICA12 = U.L. APPROVED, V.I.T. STRONG BOX, LD-16SW, STAINLESS STEEL WALL MOUNT ENCLOSURE. RB3 = RAIN BIRD "ESP-LXMEF" SERIES, "ET" WEATHER BASED SMART CONTROLLER. 24 = QUANTITY OF STATIONS. SP = SURGE PROTECTION. IQ-GPRS-5YR = IQ NETWORK 4G CELLULAR DATA MODEM COMMUNICATION CARTRIDGE WITH FIVE (5) YEAR SERVICE PLAN. WRSPE = WIRELESS RAIN SENSOR, POLE MOUNTED, WITHIN VANDAL RESISTANT STAINLESS STEEL ENCLOSURE. IFS-150F, 1-1/2" (FLOMEC) QS200-15, ULTRA SONIC FLOW METER. NOTE: FOR FURTHER INFORMATION CONTACT DARYL GREEN AT GREEN PRODUCT SALES (949) 584-7311. THE INSTALLATION OF THE CONTROLLER ASSEMBLY MUST BE APPROVED AND CERTIFIED BY IMPERIAL TECHNICAL SERVICES PRIOR TO START OF 90 DAY MAINTENANCE PERIOD. PROVIDE COPIES OF CERTIFICATION TO THE OWNER'S AUTHORIZED REPRESENTATIVE AND LANDSCAPE ARCHITECT. NOTE: REVIEW THE IRRIGATION COMMUNICATION AND OPERATIONAL INTENT WITH THE OWNERS AUTHORIZED REPRESENTATIVE PRIOR TO ORDERING IRRIGATION CONTROLLER ASSEMBLY TO ENSURE THE APPROPRIATE EQUIPMENT/OPTIONS AND CONFIGURATIONS ARE INCLUDED.	T	L3.2
CN	CELLULAR DATA CENTRAL CONTROL COMMUNICATION CONNECTION. CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION AND SETUP OF THE CELLULAR DATA SERVICE PLAN WITH STATIC IP ADDRESS FROM CELLULAR SERVICE PROVIDER AND CONFIRM PROPER OPERATION TO THE CENTRAL CONTROL COMPUTER SYSTEM AND WITH THE RAIN BIRD IQ V4.0 CLOUD SOFTWARE. NOTE: WIRELESS COMMUNICATION DEVICES REQUIRE A WIRELESS SITE SURVEY. CONTRACTOR SHALL CONTACT RAIN BIRD AND COORDINATE A SITE SURVEY FOR CONTROLLER RADIO, CELLULAR SERVICE, OR ETHERNET COMMUNICATION PRIOR TO ORDERING CONTROLLER ASSEMBLY.	N/A	N/A
WS	IMPERIAL TECHNICAL SERVICES - POLE MOUNTED WIRELESS RAIN SENSOR. INSTALLED WITHIN STAINLESS STEEL VANDAL RESISTANT ENCLOSURE. MOUNT WIRELESS SENSOR ON BUILDING ROOF WHERE IT WILL BE EXPOSED TO UNOBSTRUCTED RAINFALL AND CLEAR OF ANY OBSTRUCTIONS. VERIFY EXACT LOCATION IN FIELD WITH OWNER PRIOR TO INSTALLATION.VERIFY EXACT LOCATION IN FIELD WITH OWNER'S AUTHORIZED REPRESENTATIVE. RAIN SENSOR IS SUPPLIED AS PART OF I.T.S. ASSEMBLY.	T	L3.2
PL	120 VOLT ELECTRICAL POWER PROVIDED BY ELECTRICIAN, VERIFY ACTUAL LOCATION IN FIELD. THE COORDINATION OF POWER AND CONNECTION OF CONTROLLER SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.	N/A	N/A

IRRIGATION PIPE & WIRE LEGEND

SYMBOL	MANUFACTURE / MODEL NO. / DESCRIPTION	DETAIL	SHEET
	BURIED NON-PRESSURE LATERAL LINE PIPE: SCH. 40 PVC PIPE FOR SIZES 3/4" TO 2-1/2". MINIMUM PIPE SIZE SHALL BE 3/4" - SIZE LATERALS PER PLAN.	U	L3.2
	BURIED PRESSURE IRRIGATION MAINLINE: SCH. 40 PVC PIPE FOR MAINLINE SIZES (1-1/2" AND SMALLER). CLASS 315 PVC PIPE FOR MAINLINE SIZES (2" AND LARGER).	U	L3.2
NO SYMBOL	AS APPROVED - CONCRETE THRUST BLOCKS CONSISTING OF MINIMUM (1) ONE CUBIC FOOT OF CONCRETE (2,000 PSI) SHALL BE INSTALLED FOR ALL MAINLINE 2" OR GREATER AT ELBOWS AND AT POINT OF CHANGE IN DIRECTION.	Z	L3.2
	SLEEVING - SCH 40 PVC PIPE, EXTEND 12" BEYOND EDGE OF HARDSCAPE. SLEEVE SHALL BE MINIMUM TWICE THE DIAMETER OF THE PIPE OR WIRE BUNDLE CARRIED, MINIMUM 2" SIZE. PLACE BELOW ALL PAVING, HARDSCAPE, ETC., AND AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE. SLEEVE LOCATIONS SHALL BE MARKED AT EACH END AT THE TIME OF INSTALLATION WITH A PAINTED SPOT OR OTHER SIMILAR MARKING ON THE BACK OF THE CURB. EXACT SLEEVE LOCATIONS SHALL BE RECORDED ON RECORD DRAWINGS WITH DIMENSIONING FOR IRRIGATION AS-BUILT PLANS PRIOR TO BACKFILL.	V	L3.2
	CONTROL WIRE CONDUIT - SCH. 40 PVC PIPE, INSTALL UNDER ALL PAVING / HARDSCAPE AREAS. CONDUIT SHALL BE MINIMUM TWICE THE DIAMETER OF WIRE BUNDLE CARRIED, MINIMUM 2" SIZE.	V	L3.2
NO SYMBOL	K.B.I. - KSC-XXX-S SWING CHECK VALVE, LINE SIZE, 1 DOWNSTREAM OF EACH RCV WHEN RCV IS LOWER THAN THE SPRINKLERS.	N/A	N/A
NO SYMBOL	K.B.I. - KC-XXX-S SPRING CHECK VALVE, LINE SIZE, 1 DOWNSTREAM OF EACH RCV IMMEDIATELY ABOVE FIRST LATERAL LINE TEE, WHEN RCV IS HIGHER THAN THE SPRINKLERS.	N/A	N/A
NO SYMBOL	PAIGE - P7079D, IRRIGATION CONTROL WIRE #14UF AWG DIRECT BURIAL (U.L. APPROVED)	U, V,W	L3.2
NO SYMBOL	3M - DBR/Y-6 DIRECT BURIAL WIRE CONNECTORS FOR USE ON ALL WIRE CONNECTIONS.	W	L3.2

NOTE:
ALL WIRE SPLICES SHALL BE PLACED WITHIN PLASTIC VALVE BOX OR WIRE PULL BOX. WIRE SPLICES MUST BE TWISTED WITH WIRE TWISTING TOOL WITH A MAXIMUM OF TWO WIRES PER TWIST. REFER TO MANUFACTURE RECOMMENDATION FOR PROPER WIRE CONNECTIONS.

SPLICING RECOMMENDATIONS:
WIRE SPLICES ARE THE WEAK LINK OF ANY ELECTRICAL CIRCUIT. IT IS ESPECIALLY IMPORTANT TO MAKE PROPER JOINTS IN IRRIGATION SYSTEMS BECAUSE THE JOINTS ARE EXPOSED TO WET AND DAMP ENVIRONMENTS THAT CAN CAUSE CORROSION OF THE COPPER CONDUCTOR, AND PREMATURE FAILURE. PAIGE ELECTRIC RECOMMENDS THE STRICT USE OF MODEL DBR/Y-6, AS MANUFACTURED BY THE 3M COMPANY (PAIGE SPECIFICATION P7364D)

DRIP IRRIGATION LEGEND

SYMBOL	MANUFACTURE / MODEL NO. / DESCRIPTION	GPH	PSI	RADIUS	PREC. RATE	DETAIL	SHEET
	RAIN BIRD - XFS-CV-6-12, XFS SUB-SURFACE "COPPER SHIELD" SERIES 17mm, 12" O.C. EMITTER, DRIPLINE WITH PRESSURE COMPENSATING, ANTI SIPHON CHECK VALVE AND COPPER SHIELD ROOT INTRUSION PROTECTION EMITTER.	0.61	30	N/A	0.73	A, B, C, D	L3.1
	RAIN BIRD - DRIPLINE CONNECTIONS SHALL BE MADE USING "XF SERIES" 17mm DRIPLINE INSERT FITTINGS. INSTALL STAINLESS STEEL CLAMPS ON FITTINGS FOR ANY SYSTEM THAT EXCEEDS 50 PSI.					E	L3.1
	HUNTER - ECO-ID, POP-UP ECO-INDICATOR WITH YELLOW STEM, DRIP SYSTEM POP-UP OPERATION INDICATOR.					F	L3.1
	RAIN BIRD - ARV-050, 1/2" AIR/VACUUM RELIEF VALVE. LOCATE AT HIGHEST POINT OF THE DRIPLINE ZONE. INSTALL INSIDE A 6" ROUND VALVE BOX 18" FROM PAVING.					G	L3.1
	NETAFIM - TLSOV, MANUAL SHUT-OFF, FLUSH VALVE. INSTALL FLUSH VALVE WITH STAINLESS STEEL CRIMP CLAMPS INSIDE A 10" ROUND VALVE BOX 18" FROM PAVING. LOCATE AT END OF DRIPZONE IN EACH DIRECTION, MINIMUM TWO PER ZONE.					H	L3.1
NO SYMBOL	NETAFIM - TLCV050MI-B, IN-LINE DRIP CHECK VALVE. INSTALL ON DRIPLINE TUBLING WITH 8' OR GREATER ELEVATION CHANGE TO PREVENT LOW DRAINAGE. INSTALL MINIMUM ONE CHECK VALVE FOR EACH LINE IN SYSTEM. ABSOLUTELY NO LOW WATER DRAINAGE ALLOWED.					N/A	N/A

NOTE: ALL SUB-SURFACE TUBING SHALL BE INSTALLED 2" BELOW FINISH SOIL GRADE ANCHORED WITH RAIN BIRD 6" GALVANIZED WIRE STAKES, MODEL TDS-050 BEND, INSTALLED FOUR (4) FEET ON CENTER.

SPRAY HEAD SPRINKLER LEGEND

SYMBOL				MANUFACTURE / MODEL NO. / DESCRIPTION	FLOW RATE GPM				PSI	RADIUS	PREC. RATE	DETAIL	SHEET
	Q	H	F	V		Q	H	F	V						
SHRUB 12" HI-POP SPRAY HEADS WITH CHECK VALVE AND PRESSURE REGULATION													
				--	RAIN BIRD - RD-12-S-P30-F, W/ SQ SERIES NOZZLE.	.12	.20	.40	--	30	2-4 FT	1.6	I	L3.1
NOTE: ALL SPRAY HEADS THAT REQUIRE ARC ADJUSTMENT FOR OVERSPRAY SHALL BE INSTALLED WITH RAIN BIRD (HE-VAN) HIGH-EFFICIENCY VARIABLE ARC SPRAY NOZZLES. FOR RADIUS REDUCTION USE RAIN BIRD PCS-SCREENS.													

IRRIGATION ROTARY NOZZLE SPRINKLER HEAD LEGEND

SYMBOL 45°-270°	SYMBOL 360°	MANUFACTURE / MODEL NO. / DESCRIPTION	GPM 45°-270°	GPM 360°	PSI	RADIUS	PREC. RATE	DETAIL	SHEET
12" POP-UP HEAD WITH CHECK VALVE AND PRESSURE REGULATION									
1	2	RAIN BIRD - RD-12-S-P45-F, W/ ROTARY SERIES R-VAN 8-14 NOZZLE.	.73	1.27	45	8-13 FT	.62	I	L3.1
3	4	RAIN BIRD - RD-12-S-P45-F, W/ ROTARY SERIES R-VAN13-18 NOZZLE.	1.17	1.85	45	14-17 FT	.62	I	L3.1
5	6	RAIN BIRD - RD-12-S-P45-F, W/ ROTARY SERIES R-VAN17-24 NOZZLE.	1.96	3.48	45	17-23 FT	.62	I	L3.1
L/RCS 7	SST 8	RAIN BIRD - RD-12-S-P45-F, W/ ROTARY SERIES R-VAN LCS/RCS/SST, STRIP SERIES NOZZLE.	.24	.48	45	5x15 FT 5x30 FT	.62	I	L3.1
1	2	RAIN BIRD - ROTARY SERIES R-VAN 8-14 NOZZLE ON PVC RISER WITH PA-8S-P45, 45 PSI PRESSURE REGULATING SHRUB ADAPTER.	.73	1.27	45	8-13 FT	.62	W	L3.2
3	4	RAIN BIRD - ROTARY SERIES R-VAN 13-18 NOZZLE ON PVC RISER WITH PA-8S-P45, 45 PSI PRESSURE REGULATING SHRUB ADAPTER.	1.17	1.85	45	14-17 FT	.62	W	L3.2
5	6	RAIN BIRD - ROTARY SERIES R-VAN 17-24 NOZZLE ON PVC RISER WITH PA-8S-P45, 45 PSI PRESSURE REGULATING SHRUB ADAPTER.	1.96	3.48	45	17-23 FT	.62	W	L3.2
L/RCS 7	SST 8	RAIN BIRD - ROTARY SERIES R-VAN LCS/RCS/SST, STRIP SERIES NOZZLE ON PVC RISER WITH PA-8S-P45, 45 PSI PRESSURE REGULATING SHRUB ADAPTER.	.24	.48	45	5x15 FT 5x30 FT	.62	W	L3.2

IRRIGATION ROTOR HEAD SPRINKLER LEGEND

SYMBOL Q	SYMBOL H	SYMBOL F	MANUFACTURE / MODEL NO. / DESCRIPTION	FLOW RATE GPM Q	FLOW RATE GPM H	FLOW RATE GPM F	PSI	RADIUS	PREC. RATE	DETAIL	SHEET
12" POP-UP ROTOR HEAD WITH CHECK VALVE AND PRESSURE REGULATION											
1	2	3	HUNTER - PGP-12-CV, ULTRA SERIES, 12" POP-UP SHRUB ROTOR HEAD W/ NOZZLES Q-.50SR/H-1.0SR/F-2.0SR	.43	.90	1.7	35	16 FT	0.46	I	L3.1
4	5	6	HUNTER - PGP-12-CV, ULTRA SERIES, 12" POP-UP SHRUB ROTOR HEAD W/ NOZZLES Q-.75SR/H-1.5SR/F-3.0SR	.68	1.3	2.7	35	20 FT	0.46	I	L3.1
7	8	9	HUNTER - PGP-12-CV, ULTRA SERIES, 12" POP-UP SHRUB ROTOR HEAD W/ NOZZLES Q-1.5 / H-2.5 / F-5.0	1.4	2.1	3.5	35	25 FT	0.46	I	L3.1
10	11	12	HUNTER - PGP-12-CV, ULTRA SERIES, 12" POP-UP SHRUB ROTOR HEAD W/ NOZZLES Q-2.0 / H-3.0 / F-6.0	1.7	2.7	5.6	35	30 FT	0.46	I	L3.1
1	2	3	HUNTER - PGP-00, ULTRA SERIES, SHRUB ROTOR HEAD ON RISER W/ NOZZLES Q-.50SR/H-1.0SR/F-2.0SR	.43	.90	1.7	35	16 FT	0.46	V	L3.2
4	5	6	HUNTER - PGP-00, ULTRA SERIES, SHRUB ROTOR HEAD ON RISER W/ NOZZLES Q-.75SR/H-1.5SR/F-3.0SR	.68	1.3	2.7	35	20 FT	0.46	V	L3.2
7	8	9	HUNTER - PGP-00, ULTRA SERIES, SHRUB ROTOR HEAD ON RISER W/ NOZZLES Q-1.5 / H-2.5 / F-5.0	1.4	2.1	3.5	35	25 FT	0.46	V	L3.2
10	11	12	HUNTER - PGP-00, ULTRA SERIES, SHRUB ROTOR HEAD ON RISER W/ NOZZLES Q-2.0 / H-3.0 / F-6.0	1.7	2.7	5.6	35	30 FT	0.46	V	L3.2

NOTE: HUNTER ULTRA SERIES ROTOR REQUIRE THE INSTALLATION OF THE HUNTER HSJ-0 (3/4") MODEL COMMERCIAL SWING JOINT ASSEMBLY WITH EACH HEAD.

NOTE: NOZZLES NUMBERS WITHIN THE ROTOR HEAD SYMBOLS DO NOT EXACTLY CORRESPOND TO THE HUNTER NOZZLE NUMBERS. NOZZLE NUMBERS FOR QUARTER, HALF, AND FULL HEADS ARE SHOW WITHIN THE HEAD MODEL NUMBER AS SHOWN IN THE LEGEND.

NOTE: SHRUB ROTOR HEADS INSTALLED FARTHER THAN FIVE (5) FEET FROM PAVING, CURBS, SIDEWALKS, STEPS, TURF BOUNDARIES OR OTHER PEDESTRIAN AREAS MAY BE INSTALLED AS A HUNTER PGP-00 SHRUB ROTOR ON RISER W/ HUNTER "HCV" SERIES 3/4" ANTI-DRAIN CHECK VALVE WITH NOZZLE AS SHOWN.

NOTE: POP-UP HEADS WITH ELEVATION CHANGES OF 10 FEET OR GREATER FROM HIGHEST HEAD IN ZONE OR HEADS WITH POTENTIAL OF LOW HEAD DRAINAGE WILL REQUIRE THE INSTALLATION OF A SPRING-TYPE ANTI-DRAIN CHECK VALVE. ABSOLUTELY NO LOW HEAD DRAINAGE ALLOWED.

IRRIGATION TREE BUBBLER LEGEND

SYMBOL	MANUFACTURE / MODEL NO. / DESCRIPTION	GPM	PSI	RADIUS	PREC. RATE	DETAIL	SHEET
	RAIN BIRD - RD-12-S-P30-F, W/ HUNTER MSBN-50Q, MULTI-STREAM BUBBLER NOZZLE, TWO (2) PER TREE.	.50 (1.0)	30	1 FT	1.8	J	L3.1
NOTE: SINGLE SYMBOL ON PLANS REPRESENTS TWO (2) BUBBLERS PER TREE. PLACE BUBBLERS AT EDGE OF ROOTBALL ON OPPOSITE SIDES OF TREE WITHIN TREE WELL TYPICAL.							

FOR IRRIGATION PLAN - SEE SHEET L1.1
FOR IRRIGATION NOTES - SEE SHEET L2.2
FOR IRRIGATION DETAILS - SEE SHEETS L3.1 - L3.2
FOR LANDSCAPE SPECIFICATIONS - SEE SHEET L6.1 - L6.3

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△	Issue	Date & Issue Description
--	--	02/03/21
		1ST CITY SUBMITTAL
--	--	05/07/21
		2ND CITY SUBMITTAL

Seal/Signature

REGISTERED LANDSCAPE ARCHITECT
MICHAEL J. RYAN
05/07/21
Date
05/31/23
Exp. Date
STATE OF CALIFORNIA

Project Number

19076

Drawn By / Checked By

RLA / RLA

Description

IRRIGATION SCHEDULES & CALCULATIONS

L2.1

IRRIGATION SYSTEM MAINTENANCE SCHEDULE

MAINTENANCE OF THE IRRIGATION SYSTEM IS A NECESSARY AND CONTINUING PROCESS INVOLVING MONITORING, ADJUSTMENT AND REPAIR. REPAIRS CAN BE MINIMIZED BY INSTITUTING A MAINTENANCE PROGRAM. SOME IRRIGATION SYSTEM MAINTENANCE ACTIVITIES NEED TO BE DONE AT REGULAR PERIODIC INTERVALS. OTHERS PERFORMED ON A NORMAL BASIS.

WEEKLY
* TRIM FOLIAGE FROM AROUND SPRINKLER HEADS AS NECESSARY TO AVOID SPRAY BLOCKAGE.
* BRIEFLY ACTIVATE EACH CONTROL VALVE AND OBSERVE SPRINKLERS FOR PROPER COVERAGE AND OPERATION AND MISALIGNED BY MOVING OPERATIONS.
* CHECK FOR IRRIGATION OVER SPRAY OR RUNOFF AND CORRECT AS NEEDED.
*CHECK ALL DRIP LINES FOR CLOGGED EMITTERS AND CLEAN OR REPLACE AS NEEDED.

MONTHLY
* ADJUST PROGRAMMING OF THE AUTOMATIC IRRIGATION CONTROLLER(S) BASED ON OBSERVED FIELD CONDITIONS.
* CHECK THE SOIL MOISTURE WITH AN AUGER AND EVALUATE WITH REGARD TO DURATION AND FREQUENCY OF THE IRRIGATION CYCLES. FINE TUNE SYSTEMS WEEKLY OR BIWEEKLY AND MAKE CORRECTIONS AS NECESSARY. KEEP RECORDS OF ALL INFORMATION. MAINTAIN PET COCKS OF VALVE IN GOOD OPERATIONAL CONDITION, PET COCKS SHALL BE ONLY "FINGER TIGHT" WHEN IN THE CLOSED POSITION.
* CONTROLLER OPERATION: CHECK FIELD VALVES FOR SEQUENCING, TIMING, ACCURACY, AND GENERAL FUNCTION AT THE BEGINNING OF EACH WATERING SEASON.
* WALK AND CHECK ALL ON GRADE PIPE, CHECK FOR BREAKS OR LEAKS, CHECK STAKING AND POSITION OF ALL PIPE AND SPRINKLER HEADS INSTALLED ON SLOPE.
* FLUSH ALL DRIP SYSTEM LATERAL LINES AT EACH END OF DRIP ZONES.
* CHECK AND CLEAN ALL DRIP REMOTE CONTROL BASKET FILTERS.

CONTINUALLY
* CLEAN SOIL AND DEBRIS FROM SPRINKLER BODIES, NOZZLES AND DRIP SYSTEMS TO ENSURE PROPER WATER DISCHARGE.
* STRAIGHTEN SPRINKLERS AND ADJUST NOZZLES TO INSURE PROPER WATER DISCHARGE.
* MAINTAIN ALL SPRINKLERS IN GOOD OPERATING ORDER, INCLUDING PROPER COVERAGE ADJUSTMENTS. REPAIR OR REPLACE SPRINKLERS AS NEEDED.
* MAINTAIN ELECTRIC CONTROL VALVE BOXES FREE OF DIRT AND DEBRIS.
* ADJUST WATER APPLICATIONS ACCORDING TO CHANGES IN THE WEATHER. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE RESULTING FROM EITHER OVER OR UNDER-WATERING.

AS NEEDED
* EXTEND THE HEIGHT OF SPRINKLERS AS NECESSARY IN SHRUB AREAS TO AVOID INTERFERENCE FROM ADJACENT FOLIAGE.
* THE STAFF SHALL REPAIR OR REPLACE ANY DAMAGED OR MALFUNCTIONING EQUIPMENT WITHIN ONE WEEK OF DETECTION.
* TURN OFF CONTROLLERS TEMPORARILY DURING PERIODS OF RAINFALL.

EQUIPMENT REPLACEMENT
* REPLACE ANY IRRIGATION VALVES, SPRINKLERS, DRIP LINE OR OTHER COMPONENTS WITH REPLACEMENT OF THE EXACT TYPE, GPM AND MANUFACTURE AS CALLED FOR IN THE ORIGINAL IRRIGATION PLANS.

MAJOR REPAIRS
* WHERE CONDITIONS DEVELOP WHICH CAN NOT BE HANDLED BY ROUTINE MAINTENANCE, THEY SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNER.
* ALL DAMAGE NOT RESULTING FROM CONTRACTOR'S ACTIVITIES OR NEGLIGENCE SHOULD BE BROUGHT TO THE OWNER'S ATTENTION.
* DURING TIMES WHEN THE WATER SUPPLY IS CUT OFF OR THE IRRIGATION SYSTEM IS OTHERWISE INOPERABLE, THE LANDSCAPE SHOULD BE CAREFULLY MONITORED FOR SIGNS OF WATER STRESS. START A HAND WATERING PROGRAM IMMEDIATELY FOR ALL STRESSED LANDSCAPES. NOTIFY OWNER IN WRITING IF THIS OCCURS.

LANDSCAPE IRRIGATION AUDIT SCHEDULE
* LANDSCAPE IRRIGATION AUDITS SHALL BE PERFORMED IN ACCORDANCE WITH THE STATE OF CALIFORNIA WATER MANAGEMENT PROGRAM AS DESCRIBED IN THE "LANDSCAPE IRRIGATION AUDITOR HANDBOOK".
* AUDITS SHALL BE CONDUCTED BY CERTIFIED LANDSCAPE IRRIGATION AUDITOR.
* THE FIRST LANDSCAPE IRRIGATION AUDIT SHALL BE PERFORMED PRIOR TO ACCEPTANCE AND SHALL BE REPEATED EVERY FIVE YEARS THEREAFTER.

KEEPING OF RECORDS
* THE CONTRACTOR SHALL KEEP PERMANENT RECORDS OF ALL PERFORMED MAINTENANCE TASKS.
* RECORD ALL WATER USAGE AND CHANGES IN THE CONTROLLER TIMING, INCLUDING OFF TIMES DURING RAINFALL.
* RECORD ALL ACTIVITIES PERFORMED DURING THE QUARTERLY REVIEW.
* RECORD ALL PROPOSED AND EXECUTED REPAIRS.
* RECORD ALL TIMES WHEN THE IRRIGATION SYSTEMS ARE NOT OPERABLE.
* RECORD ALL PERFORMED IRRIGATION AUDITS.

COLOR CHART NOTE:
AS A REQUIREMENT THE AUTOMATIC CONTROLLER SHALL CONSIST OF A NEATLY DRAWN 11"x17" LAMINATED IRRIGATION PLAN AND COLORED ZONE MAP LAYOUT CHART. LAYOUT CHART SHALL BE COLOR CODED INDICATING LOCATION OF ALL CONTROLS, PIPING, SLEEVES, HEADS (INCLUDING TYPE), VALVES AND CONNECTION TO WATER SERVICE.

IRRIGATION WATER AUDIT NOTE:
LANDSCAPE CONTRACTOR TO PROVIDE AN IRRIGATION AUDIT, IN COMPLIANCE WITH THE STATE OF CALIFORNIA LANDSCAPE WATER MANAGEMENT PROGRAM, SHALL BE PERFORMED BY A CERTIFIED IRRIGATION AUDITOR, OTHER THAN THE DESIGNER OR INSTALLER, PRIOR TO TURNOVER OF PROJECT AND EVERY 5 YEARS THEREAFTER. A SCHEDULE SHALL BE ESTABLISHED AND SUBMITTED TO THE CITY OF AT LEAST ONCE EVERY FIVE YEARS AS REQUIRED BY THE CITY. THE REGULAR MAINTENANCE SCHEDULE COUPLED WITH THE AUDITS SHOULD HELP TO MAINTAIN THE IRRIGATION EFFICIENCY AS INTENDED IN THE DESIGN. IRRIGATION SYSTEM SHALL BE TESTED AND MAINTAINED ON A MONTHLY BASIS BY THE MAINTENANCE STAFF.

AT A MINIMUM, AUDITS SHALL BE IN ACCORDANCE WITH THE LATEST STATE OF CALIFORNIA LANDSCAPE WATER MANAGEMENT PROGRAM AS DESCRIBED IN THE LATEST LANDSCAPE IRRIGATION AUDITOR HANDBOOK, PREPARED FOR THE CALIFORNIA DEPARTMENT OF WATER RESOURCES, WATER CONSERVATION OFFICE, THE ENTIRE DOCUMENT, WHICH IS HEREBY INCORPORATED BY REFERENCE.

THE SCHEDULE SHALL PROVIDE FOR LANDSCAPE IRRIGATION AUDITS TO BE CONDUCTED BY A QUALIFIED INDIVIDUAL, OTHER THAN THE DESIGNER OR INSTALLER, AS DETERMINED BY THE DIRECTOR AT LEAST ONCE EVERY FIVE YEARS IN ACCORDANCE WITH THE REQUIREMENTS OF THE COUNTY.

Irrigation Installation Notes

1. THE CONTRACTOR SHALL OBTAIN, COORDINATE AND PAY FOR ANY AND ALL PERMITS AND ALL INSPECTIONS AS REQUIRED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE AND LIABLE FOR ANY AND ALL DAMAGES TO OPERATIONS OR WORK OF OTHER CONTRACTORS. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ACTIVITIES WITH ALL AGENCIES AND OTHER TRADES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE AND LIABLE FOR ANY ENCROACHMENT INTO ADJACENT PROPERTY, R.O.W.'S, EASEMENTS, SETBACKS OR ANY OTHER LEGAL PROPERTY RESTRICTIONS EITHER MARKED OR UNMARKED.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH ALL UNDERGROUND UTILITIES. CONTRACTOR SHALL REPAIR OR REPLACE, AT NO ADDITIONAL COST TO THE OWNER, ANY DAMAGE TO UNDERGROUND UTILITIES THAT MAY OCCUR.
5. THE CONTRACTOR SHALL OBTAIN THE PERTINENT ENGINEERING PLANS BEFORE BEGINNING WORK.
6. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS SHOWN ON PLANS AT THE SITE PRIOR TO COMMENCEMENT OF ANY WORK. ALL DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO PROJECT LANDSCAPE ARCHITECT FOR DIRECTION. ANY CONTINUATION OF WORK IS AT THE CONTRACTOR'S RISK AND EXPENSE.
7. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, STRUCTURES AND SERVICES BEFORE COMMENCING WORK. THE LOCATIONS OF UTILITIES, STRUCTURES AND SERVICES SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE PROJECT LANDSCAPE ARCHITECT FOR DIRECTION.
8. BEFORE ANY WORK COMMENCES, A CONFERENCE SHALL BE HELD WITH THE CITY'S PUBLIC WORKS INSPECTOR, LANDSCAPE ARCHITECT AND THE CONTRACTOR, REGARDING GENERAL REQUIREMENTS OF THIS WORK.
9. INSTALL ALL IRRIGATION COMPONENTS ACCORDING TO LOCAL CODES AND ORDINANCES.
10. THE IRRIGATION WATER METER IS TO BE PROVIDED BY THE OWNER UNLESS SHOWN OTHERWISE ON THE PLANS. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ALL IRRIGATION EQUIPMENT DOWNSTREAM OF THE POINT OF CONNECTION (P.O.C.) AT THE IRRIGATION WATER METER.
11. ALL IRRIGATION EQUIPMENT NOT OTHERWISE DETAILED OR SPECIFIED SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
12. THE CONTRACTOR SHALL NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT OBSTRUCTIONS (INCLUDING EXISTING AND/OR NEW PLANT MATERIAL), GRADE DIFFERENCES OR DIFFERENCES IN THE AREA'S DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE DESIGN. SUCH OBSTRUCTIONS OR DIFFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.
13. THE WORK SHOWN ON THESE PLANS IS DIAGRAMMATIC; ALL ITEMS, I.E. CONTROLLERS, VALVES, MAINLINES, SLEEVES, WIRES, IRRIGATION HEADS, ETC. ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ONLY. DO NOT SCALE DIMENSIONS. DETAIL DRAWINGS MAY CLARIFY LOCATIONS OF SOME ITEMS. THE CONTRACTOR SHALL NOT LOCATE ANY ITEMS WHERE IT IS OBVIOUS THAT THEY ARE IN CONFLICT WITH UNDERGROUND UTILITIES, STRUCTURES, OTHER IMPROVEMENTS, OR VEHICULAR OR PEDESTRIAN SAFETY CONSIDERATIONS.
14. CONTROLLER LOCATIONS ARE APPROXIMATE. FINAL LOCATION OF THE AUTOMATIC CONTROLLER AND THE BACKFLOW DEVICE SHALL BE APPROVED BY THE OWNER AND THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
15. ALL CONSTANT PRESSURE LINES SHALL BE TESTED FOR 3 HOURS UNDER A HYDROSTATIC PRESSURE OF 150 POUNDS PER SQUARE INCH AND BE PROVEN WATERTIGHT. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT FOR HYDROSTATIC TESTS. HYDROSTATIC TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE LANDSCAPE ARCHITECT, CITY PUBLIC WORKS INSPECTOR OR, IF APPROVED BY LANDSCAPE ARCHITECT, CONTRACTOR MAY E-MAIL DIGITAL PHOTOGRAPHS OF THE PRESSURE GAUGE TO THE LANDSCAPE ARCHITECT AT BEGINNING AND END OF TEST PERIOD.
16. 120-VOLT ELECTRICAL POWER OUTLET AT THE AUTOMATIC CONTROLLER LOCATION SHALL BE PROVIDED PER THE ELECTRICAL ENGINEER'S PLANS AND SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ELECTRICAL SERVICE WITH THE GENERAL CONTRACTOR AND TO MAKE THE FINAL HOOK-UP FROM THE ELECTRICAL OUTLET TO THE AUTOMATIC CONTROLLER.
17. ALL LOCAL MUNICIPAL AND STATE LAWS, RULES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR.
18. BACKFLOW DEVICE SHALL BE INSTALLED IN GROUND COVER AREA WHEREVER POSSIBLE. FINAL LOCATION SHALL BE DETERMINED BY THE OWNER'S AUTHORIZED REPRESENTATIVE AND MAY VARY FROM THAT INDICATED ON THE DRAWINGS.
19. QUICK COUPLER VALVES, CONTROL VALVES, AND SHUT-OFF VALVES SHALL BE INSTALLED IN GROUND COVER AREAS WHEREVER POSSIBLE.
20. PIPING AND WIRE CONDUIT PENETRATIONS THROUGH WALLS AND INSTALLATION EQUIPMENT UNDER PAVING SHALL BE INSTALLED IN SCH 40 PVC SLEEVES, AS CALLED OUT ON PLANS, OR AS PER LOCAL CODES AND MUST BE COORDINATED WITH THE GENERAL CONTRACTOR AND CONTRACTORS OF ALL VARIOUS TRADES THAT MAY BE INVOLVED TO ELIMINATE PROBLEMS THAT MAY ARISE FROM INACCESSIBILITY OR DAMAGE TO ANOTHER TRADE'S WORK. PIPING AND WIRE CONDUIT PENETRATIONS THROUGH EXISTING WALLS SHALL BE CORE DRILLED AND SLEEVED PER ABOVE, UNLESS AN EXISTING SLEEVE IS AVAILABLE FOR RE-USE WHICH WILL NOT SIGNIFICANTLY AFFECT THE SYSTEM DESIGN.
21. USE CHECK VALVES AS REQUIRED TO ELIMINATE LOW HEAD DRAINAGE.
22. THE CONTRACTOR SHALL INSTALL KBI SERIES ANTI-DRAIN VALVES ON ALL LATERALS IN AREAS WHERE SLOPE OF GRADE EXCEEDS 4:1, WHERE POST VALVE SHUT-OFF DRAINING OF THE IRRIGATION OCCURS, OR AS DIRECTED BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
23. THE CONTRACTOR SHALL ONLY APPLY SUFFICIENT WATER TO PROMOTE HEALTHY GROWTH OF PLANT MATERIAL. AT NO TIME SHALL THE CONTRACTOR APPLY WATER AT A RATE OF FREQUENCY WHICH CAUSES RUNOFF OR OVER-SATURATION OF THE SOIL.
24. THE CONTRACTOR SHALL FLUSH AND ADJUST ALL SPRINKLER HEADS FOR OPTIMUM PERFORMANCE AND TO PREVENT OVERSPRAY ONTO ADJACENT PAVING, WALLS OR OTHER HARDSCAPE ELEMENTS TO THE EXTENT POSSIBLE. THIS SHALL INCLUDE SELECTING THE BEST DEGREE OF ARC TO FIT THE EXISTING SITE CONDITIONS AND ADJUSTING THE FLOW CONTROL AT EACH VALVE TO OBTAIN THE OPTIMUM OPERATING FLOW FOR EACH SYSTEM.
25. WHEN RADIUS OF SPRINKLER HEADS AS REQUIRED FOR PROPER COVERAGE IS LESS THAN RADIUS SHOWN ON LEGEND, THE CONTRACTOR SHALL EQUIP SPRINKLER HEAD WITH A PRESSURE COMPENSATING SCREEN (PCS) FOR LOW FLOW AND RADIUS CONTROL.
26. USE ADJUSTABLE ARC NOZZLES FOR ALL HEADS LOCATED IN AREAS WHERE A STANDARD ARC PATTERN SPRAYS OVER ONTO ADJACENT PAVING, WALLS OR OTHER HARDSCAPE ELEMENTS. ADJUSTABLE ARC NOZZLE SHOULD HAVE THE SAME RADIUS OF THROW AS THE NOZZLE BEING REPLACED.
27. NO OVERSPRAY OR LOW HEAD DRAINAGE SHALL BE ALLOWED.
28. WHEN VERTICAL OBSTRUCTIONS (LIGHT POLES, FIRE HYDRANTS, TREES, ETC.) INTERFERE WITH THE SPRAY PATTERN OF THE SPRINKLER HEADS SO AS TO PREVENT PROPER COVERAGE, THE CONTRACTOR SHALL FIELD ADJUST THE SPRINKLER SYSTEM BY INSTALLING A QUARTER CIRCLE OR HALF CIRCLE SPRINKLER HEAD ON EACH SIDE OF THE OBSTRUCTION SO AS TO PROVIDE PROPER COVERAGE. ALL ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.
29. PIPE SIZES SHALL CONFORM TO THOSE SHOWN ON THE DRAWING. NO SUBSTITUTIONS OF SMALLER PIPE SIZES SHALL BE PERMITTED, BUT SUBSTITUTIONS OF LARGER SIZES MAY BE APPROVED. ALL DAMAGED AND REJECTED PIPE SHALL BE REMOVED FROM THE SITE IMMEDIATELY UPON REJECTION.
30. ALL ELECTRICAL CONTROL WIRE SHALL BE DIRECT BURIAL, #14 UL APPROVED, IN AN 18" DEEP TRENCH, INSTALLED UNDERNEATH AND ATTACHED WITH PLASTIC TIE 10' O.C. TO THE MAINLINE PIPE WHEN RUN IN THE SAME TRENCH. WIRE CONNECTORS SHALL BE PENTITE OR DRI-SPLICE ONLY.
COLORS FOR CONTROL WIRE SHALL BE AS FOLLOWS:
   A. COMMON WIRE - WHITE WITH COLORED STRIPE (FOR MULTIPLE CONTROLLERS USE DIFFERING COLOR STRIPE PER CONTROLLER)
   B. EXTRA COMMON WIRES, PROVIDE A MINIMUM THREE (3) EACH DIRECTION AND MINIMUM ONE (1) TO EACH LEG OF MAINLINE PER CONTROLLER.
   C. LEAD/HOT WIRE - BLACK
   D. EXTRA LEAD WIRES, PROVIDE A MINIMUM OF TWO (2) EXTRA SPARE LEAD WIRES FOR EACH GROUP OF TEN (10) CONTROL VALVES AND ALSO TO EACH LEG OF MAINLINE END RUN - SPARE LEAD WIRES SHALL BE A DIFFERENT COLOR THAN CONTROL VALVE WIRES. LABEL ALL SPARE WIRES "SPARE" AT BOTH ENDS.
31. ALL AUTOMATIC CONTROLLER PROGRAMS MUST BE SET TO OPERATE BETWEEN THE HOURS OF 10 P.M. AND 6 A.M.
32. THE ENTIRE SPRINKLER SYSTEM SHALL BE GUARANTEED BY THE CONTRACTOR AS TO MATERIAL AND WORKMANSHIP, INCLUDING THE SETTLING OF BACKFILLED AREAS AND TRENCHES FOR A PERIOD OF ONE YEAR FOLLOWING THE DATE OF FINAL ACCEPTANCE OF THE WORK. SHOULD ANY OPERATION DIFFICULTIES IN CONNECTION WITH THE SPRINKLER SYSTEM DEVELOP WITHIN THE SPECIFIED GUARANTEE PERIOD, WHICH IN THE OPINION OF THE OWNER MAY BE DUE TO INFERIOR MATERIAL AND/OR WORKMANSHIP, SAID DIFFICULTIES SHALL BE IMMEDIATELY CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.
33. THE CONTRACTOR SHALL AT ALL TIMES PROTECT HIS WORK FROM DAMAGE AND THEFT AND REPLACE ALL DAMAGED OR STOLEN PARTS AT HIS EXPENSE UNTIL THE WORK IS ACCEPTED IN WRITING BY THE OWNER.
34. THE IRRIGATION SYSTEM DESIGN IS BASED ON THE MINIMUM OPERATING PRESSURE AND THE MAXIMUM FLOW DEMAND SHOWN ON THE IRRIGATION DRAWINGS AT EACH POINT OF CONNECTION. THE CONTRACTOR SHALL VERIFY WATER PRESSURE IN THE FIELD PRIOR TO CONSTRUCTION TO DETERMINE IF IT IS SUFFICIENT TO OPERATE SYSTEMS AS DESIGNED. REPORT ANY DIFFERENCE BETWEEN THE WATER PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION TO THE PROJECT LANDSCAPE ARCHITECT. IN THE EVENT PRESSURE DIFFERENCES ARE NOT REPORTED PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY AT NO ADDITIONAL COST TO THE OWNER.
35. AFTER INSTALLATION OF THE IRRIGATION SYSTEM IS COMPLETED, THE CONTRACTOR SHALL PERFORM A COVERAGE TEST IN THE PRESENCE OF THE LANDSCAPE ARCHITECT AND CITY PUBLIC WORKS INSPECTOR TO DETERMINE IF THE IRRIGATION COVERAGE FOR PLANTING AREAS IS ADEQUATE AND COMPLETE. FURNISH ALL MATERIALS AND PERFORM ALL WORK REQUIRED TO CORRECT ANY INADEQUACIES OF COVERAGE DUE TO DEVIATIONS FROM THE PLANS OR BECAUSE DISCREPANCIES BETWEEN THE PLANS AND ACTUAL FIELD CONDITIONS WERE NOT BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

Irrigation General Notes

1. IRRIGATION PLANS ARE DESIGNED AS DIAGRAMMATIC AND APPROXIMATE. ALL IRRIGATION EQUIPMENT, SPRINKLERS AND PIPE ARE TO BE INSTALLED IN LANDSCAPED AREA. NO IRRIGATION EQUIPMENT SHALL BE LOCATED IN HARDSCAPE. THE IRRIGATION CONTRACTOR SHALL ENSURE NO OVERSPRAY ONTO HARDSCAPE, STREETS, WALLS OR ANY OTHER HARDSCAPE / STRUCTURE.
2. MAINLINE SHOWN WITHIN PAVING FOR DRAWING CLARITY ONLY, ACTUAL MAINLINE LOCATION TO BE A MINIMUM OF 18" OFF ADJACENT HARDSCAPE AND OTHER OBSTACLES TYP.
3. WHEN VERTICAL OBSTRUCTIONS (PROPS, STREET LIGHTS, TREES, ETC.) INTERFERE WITH THE SPRAY PATTERN OF THE SPRINKLER HEADS SO AS TO PREVENT PROPER COVERAGE, THE IRRIGATION CONTRACTOR SHALL FIELD ADJUST THE SPRINKLER SYSTEM BY INSTALLING A QUARTER CIRCLE OR HALF CIRCLE SPRINKLER HEAD ON EACH SIDE OF THE OBSTRUCTION SO AS TO PROVIDE PROPER COVERAGE. ALL ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.
4. WHEN RADIUS OF SPRINKLER HEADS, REQUIRED FOR PROPER COVERAGE, IS LESS THAN RADIUS SHOWN ON LEGEND, THE CONTRACTOR SHALL EQUIP SPRINKLER HEAD WITH A RAIN BIRD "PCS" PRESSURE COMPENSATING SCREEN FOR LOW FLOW AND RADIUS CONTROL.
5. USE ADJUSTABLE ARC NOZZLES FOR ALL HEADS LOCATED IN AREAS WHERE A STANDARD ARC PATTERN OVER SPRAYS ONTO BUILDINGS, WALLS OR PAVING. ADJUSTABLE ARC NOZZLE SHOULD HAVE THE SAME RADIUS OF THROW AS THE NOZZLE BEING REPLACED.
6. OVERHEAD IRRIGATION SHALL NOT BE PERMITTED WITHIN 24 INCHES OF ANY NON-PERMEABLE SURFACE. (PER STATE ORDINANCE AB 1881.) ABSOLUTELY NO OVERSPRAY OR LOW HEAD DRAINAGE IS ALLOWED.
7. IRRIGATION SLEEVES SHOWN FOR MAJOR STREET AND DRIVEWAY CROSSINGS FOR CLARITY ONLY. CONTRACTOR SHALL INSTALL SLEEVING BELOW ALL PAVING, HARDSCAPE, ETC. AND AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE.
8. ALL PIPING AND WIRE SHALL BE SLEEVED UNDER PAVING / HARDSCAPE. ALL SLEEVES TO BE MINIMUM 2X DIAMETER OF PIPE SLEEVES. ALL MAINLINE SHALL BE ACCOMPANIED WITH A MINIMUM 2-INCH DIAMETER WIRE SLEEVE. SLEEVING TO EXTEND MINIMUM 12 INCHES BEYOND PAVING.
9. ALL LEAD WIRES TO BE #14 GAUGE, AND BLACK IN COLOR. ALL COMMON WIRE TO BE #14 GAUGE AND WHITE WITH COLORED STRIPE. FOR MULTIPLE CONTROLLERS USE DIFFERING COLOR STRIPE PER CONTROLLER.
10. PROVIDE A MINIMUM OF TWO (2) SPARE LEAD WIRES FOR EACH GROUP OF TEN (10) CONTROL VALVES AND ALSO TO EACH LEG OF MAINLINE END RUN. PROVIDE MINIMUM ONE (1) SPARE COMMON WIRE TO EACH MAINLINE END RUN. LOOP SPARE WIRES IN A NEARBY VALVE BOX WITH MINIMUM 2' OF COILED WIRE. SPARE LEAD WIRES SHALL BE A DIFFERENT COLOR THAN CONTROL VALVE WIRES. LABEL ALL SPARE WIRES "SPARE" AT BOTH ENDS.
11. ALL IRRIGATION ADJACENT TO BUILDING SHALL BE INSTALLED A MINIMUM DISTANCE OF 12" INCHES FROM BUILDING TO AVOID WATER/OVERSPRAY ONTO BUILDING OR WINDOWS. ALL LAYOUT SHALL BE CONFIRMED IN FIELD WITH OWNER'S REPRESENTATIVE PRIOR TO COMMENCING WORK.
12. CONTROLLER LOCATION SHOWN ON THIS DRAWING IS APPROXIMATE. THE LANDSCAPE CONTRACTOR SHALL STAKE OUT THE CONTROLLER LOCATION FOR REVIEW AND APPROVAL BY THE OWNER PRIOR TO INSTALLATION OF THIS EQUIPMENT. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL CONNECTION FROM 120 VOLT POWER SOURCE TO THE CONTROLLER AND ALL WIRE CONNECTIONS FROM ALL VALVES AND APPURTENANCE VALVES TO TERMINAL STRIP. REFER TO ELECTRICAL ENGINEER'S DRAWING'S FOR POWER SOURCE. ALL ELECTRICAL WORK SHALL CONFORM TO LOCAL STATE AND NATIONAL ELECTRICAL CODES AND REGULATIONS. FINAL LOCATION AND EXACT POSITIONING OF THE CONTROLLER SHALL BE DETERMINED BY THE OWNER. MINOR MODIFICATIONS OF CONTROLLER REQUESTED BY THE OWNER SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. FAILURE TO OBTAIN OWNER'S APPROVAL PRIOR TO THE INSTALLATION SHALL CAUSE THE CONTRACTOR TO MAKE OWNER DIRECTED REVISIONS AT NO ADDITIONAL COST TO THE OWNER.
13. ELECTRIC CONTROL VALVES AND ISOLATION VALVE LOCATIONS ON THIS DRAWING ARE APPROXIMATE. THE LANDSCAPE CONTRACTOR SHALL STAKE OUT EACH ELECTRICAL CONTROL VALVE AND ISOLATION VALVE LOCATION FOR REVIEW AND APPROVAL BY OWNER PRIOR TO INSTALLATION OF ALL VALVES. FINAL LOCATION AND EXACT POSITIONING FOR ELECTRIC CONTROL VALVES AND ISOLATION VALVES SHALL BE DETERMINED BY THE OWNER. MINOR MODIFICATIONS OF ELECTRIC CONTROL VALVES AND ISOLATION VALVE LOCATIONS AS REQUESTED BY THE OWNER SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. FAILURE TO OBTAIN OWNER'S APPROVAL PRIOR TO THE INSTALLATION SHALL CAUSE THE CONTRACTOR TO MAKE OWNER DIRECTED REVISIONS AT NO ADDITIONAL COST TO THE OWNER. IN GENERAL, UNLESS OTHERWISE DIRECTED BY OWNER, ALL VALVES SHALL BE INSTALLED THREE FEET FROM EDGE OF HARDSCAPE, WALK OR CURB IN SHRUB PLANTING AREAS.
14. BACKFLOW PREVENTER LOCATION SHOWN ON THIS DRAWING ARE APPROXIMATE. THE LANDSCAPE CONTRACTOR SHALL STAKE OUT THE BACKFLOW PREVENTER, AND ALL IRRIGATION APPURTENANCE LOCATION FOR REVIEW AND APPROVAL BY OWNER, LANDSCAPE ARCHITECT AND CITY'S PUBLIC WORKS INSPECTOR PRIOR TO INSTALLATION OF THIS EQUIPMENT. FINAL LOCATION AND EXACT POSITIONING OF BACKFLOW PREVENTER AND ALL IRRIGATION APPURTENANCE SHALL BE DETERMINED BY THE OWNER. MINOR MODIFICATIONS OF THE BACKFLOW PREVENTER, AND ALL IRRIGATION APPURTENANCE AS REQUESTED BY THE OWNER SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. FAILURE TO OBTAIN OWNER'S APPROVAL PRIOR TO THE INSTALLATION SHALL CAUSE THE CONTRACTOR TO MAKE OWNER DIRECTED REVISION AT NO CHARGE.

CONTROLLER CERTIFICATION NOTE:

1. UPON COMPLETION OF INSTALLATION, THE ENTIRE IRRIGATION CONTROLLER ASSEMBLY SHALL BE INSPECTED AND TESTED FOR PROPER CONNECTIONS AND COMPLETE AND FULL OPERATION BY THE MANUFACTURE'S AND/OR DISTRIBUTOR'S REPRESENTATIVE, INCLUDING FULL AND PROPER INTERFACE WITH FLOW SENSOR DATA INTERFACE, MASTER CONTROL VALVE, AND ANY OTHER SENSOR / CONTROL COMPONENTS. WRITTEN CERTIFICATION FROM THE MANUFACTURE'S REPRESENTATIVE, VERIFYING INSTALLATION AND OPERATION IN ACCORDANCE WITH THE MANUFACTURE'S SPECIFICATIONS, SHALL BE PROVIDED TO THE, LANDSCAPE ARCHITECT, CITY AND OWNER'S REPRESENTATIVE PRIOR TO FINAL INSPECTION.
2. CONTROLLER CERTIFICATION SHALL INCLUDE VERIFICATION FROM MANUFACTURE'S / DISTRIBUTOR'S REPRESENTATIVE THAT CONTROLLER IS FUNCTIONING PROPERLY IN "ET" MODE. THE FOLLOWING PARAMETERS SHALL BE PROGRAMMED INTO THE CONTROLLER **PRIOR** TO START OF 90 DAY MAINTENANCE PERIOD. (FOR EACH CONTROLLER VALVE STATION / CIRCUIT):
3. CONTROLLER SETUP SHALL INCLUDE:
   A. FLOW RATES ACQUIRED FOR ALL STATIONS.
   B. STATION DESCRIPTION.
   C. STATION GROUP'S NAMES BY GROUP AND ASSIGNED TO CORRECT PROGRAM.
   D. STATION PRIORITIES.
   E. ALERT ACTIONS SET TO HIGH FLOW ALERT/SHUT OFF AND LOW FLOW ALERT/NO ACTION.
   F. ALL WEATHER SETTINGS AND CENTRAL CONTROL COMMUNICATION FOR "ET" AND RAIN USE.
   G. BUDGETS SETUP IN PROGRAMMING.
   H. CONTRACTOR SHALL PROVIDE CONTROLLER ASSEMBLY INSTALLATION CERTIFICATION **PRIOR** TO START OF 90 DAY MAINTENANCE PERIOD.
   I. ALL PROGRAMS SHALL BE WATERING IN THE WATER BUDGET ALLOCATED BY THE WATER DISTRICT **PRIOR** TO COMMENCEMENT OF MAINTENANCE.

FOR IRRIGATION PLAN - SEE SHEET L1.1
FOR IRRIGATION LEGEND AND CALCULATIONS - SEE SHEET L2.1
FOR IRRIGATION DETAILS - SEE SHEETS L3.1 - L3.2
FOR LANDSCAPE SPECIFICATIONS - SEE SHEET L6.1 - L6.3

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△	Issue	Date & Issue Description
--	--	02/03/21
		1ST CITY SUBMITTAL
--	--	05/07/21
		2ND CITY SUBMITTAL

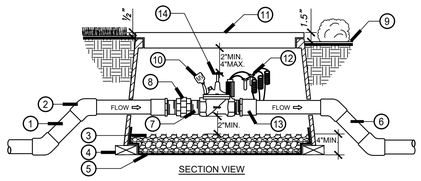
Seal/Signature
REGISTERED LANDSCAPE ARCHITECT
MICHAEL J. RYAN
05/07/21
(Date)
05/31/23
(Exp. Date)
STATE OF CALIFORNIA

Project Number
19076

Drawn By / Checked By
RLA / RLA

Description
IRRIGATION NOTES

L2.2



LEGEND:

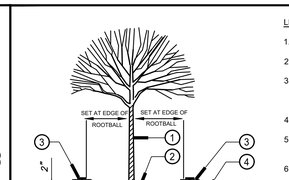
1. PVC MAINLINE FROM BACKFLOW DEVICE. SEE LEGEND FOR TYPE, DEPTH PER SPECIFICATIONS.
2. PVC SCH 80, 45 DEGREE ELL - TYP. (4 REQ.).
3. 1/2" ROUND WASHED PEA GRAVEL - MINIMUM 4" DEPTH.
4. NOMINAL SIZE SOLID BRICK (4 REQUIRED - ONE AT EACH CORNER OF VALVE BOX).
5. LANDSCAPE FABRIC.
6. PVC MAINLINE TO FLOW SENSOR. SEE SPECIFICATIONS AND TRENCHING DETAIL FOR MAINLINE DEPTH.
7. SCH 80 PVC NIPPLE - LENGTH AS REQUIRED (3 REQ.)
8. PVC SCH 80 UNION (VALVE SIZE) WITH REDUCING BUSH IF REQUIRED.
9. FINISHED GRADE. SET TOP OF VALVE BOX ½" ABOVE FINISHED GRADE IN TURF AREAS, AND 1-1/2" IN SHRUB / GROUND COVER AREAS.
10. CHRISTY'S VALVE STATION # I.D. TAG ATTACHED TO VALVE BONNET BOLT.
11. PLASTIC RECTANGULAR VALVE BOX WITH LOCKING COVER, USE STAINLESS BOLT, NUT, AND WASHER. HEAT BRAND "MV" ONTO LID.
12. EPOXY-FILLED WATERPROOF CONTROL WIRE CONNECTIONS. SEE LEGEND FOR TYPE. PROVIDE MINIMUM 24" WIRE EXPANSION COILS AT VALVE.
13. SCH 80 PVC FEMALE ADAPTER (2 REQ.)
14. MASTER CONTROL VALVE. SEE LEGEND FOR TYPE.

NOTES:

A. USE SCH 80 PVC FITTINGS.
B. SET TOP OF VALVE BOX ½" ABOVE FINISHED GRADE IN TURF AREAS AND 1-1/2" ABOVE FINISHED GRADE IN GROUNDCOVER AND SHRUB AREAS.
C. SET VALVE BOX AND VALVE ASSEMBLY IN GROUNDCOVER / SHRUB AREAS WHERE POSSIBLE. INSTALL IN TURF ONLY IF THERE IS NO ADJACENT GROUNDCOVER.
D. USE TEFLON TAPE ON ALL THREADED FITTINGS, TYPICAL.
E. INSTALL 45 DEGREE ELLS AS REQUIRED TO ACHIEVE PROPER VALVE INSTALLATION ABOVE MAINLINE DEPTH.

M MASTER VALVE

NOT TO SCALE



SECTION VIEW

NOTE:

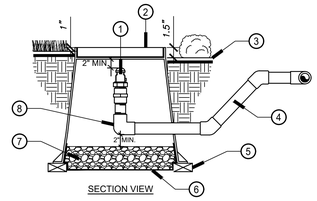
A. INSTALL TWO BUBBLERS PER TREE.
B. PERCOLATION TEST TO BE DONE FOR DEEP WATERING, AND RESULTS RETURNED TO LANDSCAPE ARCHITECT.
C. PLACE BUBBLERS AT EDGE OF ROOTBALL ON OPPOSITE SIDES OF TREE. ADJUST PER ROOTBALL SIZE, TYPICAL.
D. USE TEFLON TAPE ON ALL THREADED FITTINGS, TYPICAL.

LEGEND:

1. TREE TRUNK.
2. TREE ROOTBALL.
3. IRRIGATION POP-UP HEAD WITH BUBBLER NOZZLE - SEE LEGEND FOR TYPE.
4. FINISHED GRADE.
5. 2" LAYER OF MULCH, PER PLANTING PLANS.
6. IRRIGATION POP-UP HEAD - SEE LEGEND FOR TYPE.
7. SCH 80 PVC THREADED RISER - LENGTH AS REQUIRED.
8. PVC LATERAL, PER PLAN.
9. PRE-ASSEMBLED TRIPLE SWING JOINT: HUNTER SJ SERIES (OR APPROVED EQUAL). LAY LENGTH TO BE 6" MINIMUM. SIZE AS PER SPRINKLER OUTLET.
10. SET ROOTBALL ON UNDISTURBED NATIVE SOIL.
11. PVC SCH 40 TEE -SST OR ELL -ST ON PVC LATERAL
12. TREE PIT, PER PLANTING DETAILS.

J POP-UP TREE BUBBLER

NOT TO SCALE



SECTION VIEW

LEGEND:

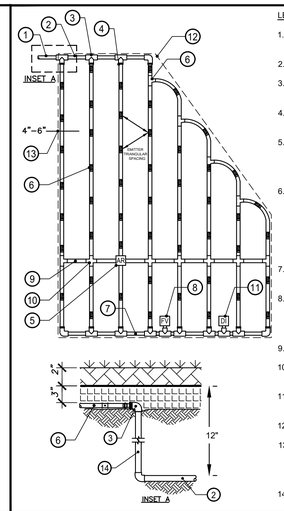
1. DRIP SYSTEM AIR RELEASE VALVE, SEE LEGEND FOR TYPE. INSTALLED ON SCH. 40 PVC THREADED COUPLING WITH A 3/4" SCH. 80 NIPPLE, LENGTH AS REQUIRED TO LOCATE VALVE 2" FROM TOP OF VALVE BOX.
2. 6" PLASTIC ROUND VALVE BOX, HEAT BRAND "ARV" ONTO LID.
3. FINISHED GRADE.
4. PVC PIPE FROM DISCHARGE HEADER, LENGTH AS REQUIRED.
5. NOMINAL SIZE SOLID BRICK SUPPORTS (3 REQUIRED - EQUALLY SPACED).
6. LANDSCAPE FABRIC.
7. 1/2" ROUND WASHED PEA GRAVEL - MINIMUM 4" DEPTH.
8. PVC SCH 40 ELBOW (SxT) OR TEE , 3/4" SIZE.

NOTES:

A. USE SCH 40 PVC 45 DEGREE ELLS TO TRANSITION TO DRIPLINE HEADER DEPTH.
B. SET TOP OF VALVE BOX 1-1/2" ABOVE FINISHED GRADE IN GROUNDCOVER / SHRUB AREAS.
C. USE TEFLON TAPE ON ALL THREADED FITTINGS, TYPICAL.
D. INSTALL AIR RELIEF VALVE 18" FROM PAVING.

G DRIP AIR RELIEF VALVE

NOT TO SCALE

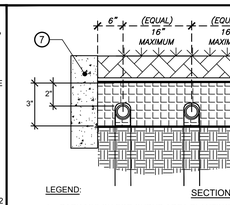


LEGEND:

1. PVC PIPE LATERAL LINE FROM DRIP ZONE KIT.
2. PVC PIPE SUPPLY HEADER.
3. SCH 40 PVC TEE SxSxT OR ELL, LINE SIZE BY ½".
4. DRIPLINE FITTING MALE ADAPTER TRANSITION TO DRIP TUBING.
5. AIR/VACUUM RELIEF VALVE (PLUMBED AT EACH HIGH POINT OF EACH LATERAL LEG CENTERED ON MOUND OR BERM) (TYP)
6. IN-LINE DRIP TUBING WITH TRIANGULAR SPACING EMITTERS 12 INCH ON CENTER, ROW SPACING 14-16 INCHES ON CENTER FOR SHRUB AREAS AND 12 INCHES MAXIMUM FOR TURF AREAS. - SEE LEGEND FOR TYPE.
7. PVC PIPE FLUSH EXHAUST MANIFOLD.
8. MANUAL DRIP FLUSH VALVE, PLUMBED TO PVC PIPE AT LOW/END OF DRIP ZONE (TYP) - SEE LEGEND FOR TYPE.
9. ½" POLYETHYLENE BLANK TUBING.
10. BARB X BARB INSERT TEE OR CROSS. TYP
11. DRIP OPERATIONAL INDICATOR - SEE LEGEND FOR TYPE.
12. PLANTER AREA PERIMETER.
13. PERIMETER DRIPLINE PIPE TO BE INSTALLED 4"-6" FROM PERIMETER OF PLANTER AREA, MINIMUM 12" DISTANCE FROM BUILDING.
14. PVC PIPE SCH 40 RISER, LENGTH AS REQUIRED.

D DRIPLINE LAYOUT (TYP)

NOT TO SCALE



SECTION VIEW

LEGEND:

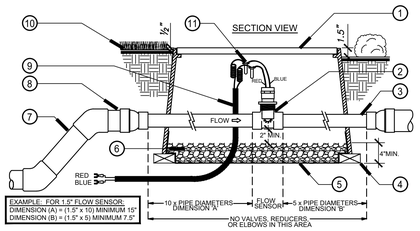
1. BARK MULCH FOR SHRUB AREA PLANTING, SEE PLANTING PLAN FOR DEPTH AND TYPE.
2. FINISHED GRADE.
3. AMENDED SOIL. BRING SOIL LEVEL MINIMUM 3" BELOW FINISHED GRADE PRIOR TO DRIP TUBING INSTALLATION.
4. IN-LINE DRIP TUBING - SEE LEGEND FOR TYPE, EMITTER AND ROW SPACING.
5. AMENDED SOIL AS PER LANDSCAPE DRAWINGS.
6. 6" WIRE STAKES FIVE (5) FEET ON CENTER - SEE LEGEND FOR TYPE.
7. HARDSCAPE / CURB / PAVING.

NOTES

A. TO INSURE EVEN PARALLEL AND LEVEL TUBING ROWS IT IS RECOMMENDED THAT THE SOIL LEVEL IN THE PLANTER AREAS BE BROUGHT TO MINIMUM 3"- 4" BELOW FINISHED GRADE AND PROPERLY COMPACTED AS PER THE LANDSCAPED DRAWINGS PRIOR TO THE INSTALLATION OF THE TUBING.
B. INSTALL TUBING ROWS A MAXIMUM 16" ROW SPACING. SECURE TO GRADE USING 9" GALVANIZED WIRE HOOP STAKES AT MAXIMUM 4 FEET ON CENTER SPACING.
C. BACKFILL FINAL 2" - 3" OF SOIL AFTER INSTALLATION OF TUBING.
D. DRIP TUBING SHALL BE INSTALLED WITH EMITTERS TRIANGULAR SPACED.
E. INSTALL PERIMETER TUBING MAXIMUM 6" FROM PERIMETER EDGE FOR GROUNDCOVER AREAS OR AT FIRST LINE OF SHRUBS.
F. INSTALL PARALLEL TO SLOPE AT ALL TIMES.
G. CONTRACTOR SHALL DETERMINE MINIMUM ROW SPACING IN THE FIELD AFTER REVIEW OF PLANT SPACING FOR EACH PLANTER.
H. EACH AND EVERY SHRUB SHALL RECEIVE WATER FROM A MINIMUM OF TWO INLINE EMITTERS.
I. AREAS OF TIGHTLY SPACED GROUNDCOVER WILL REQUIRE 12" OR CLOSER ROW SPACING.
J. FOR ANY 'SINGLE' OR 'DOUBLE' ROW TYPE PLANTINGS, INSTALL DRIP TUBING ON BOTH SIDES OF THE SHRUB ROW TO IRRIGATE SHRUBS ON EITHER SIDE.
K. DUE TO SOIL STRATA DIFFERENCES AND POSSIBLE COMPACTION CONTRACTOR SHALL FIELD VERIFY PRIOR TO STARTING WORK AND BEFORE BACKFILLING THAT THE FINAL LAYOUT AND ROW SPACING WILL PROVIDE ADEQUATE WATER TO ALL PLANTS.

A DRIPLINE LAYOUT (TYP)

NOT TO SCALE



LEGEND:

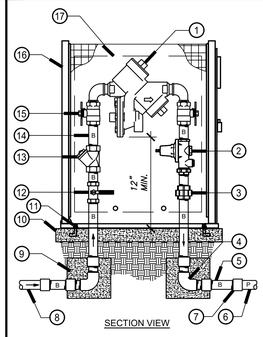
1. PLASTIC RECTANGULAR VALVE BOX WITH BOLT DOWN COVER, USE STAINLESS BOLT NUT AND WASHER - HEAT BRAND "FS" ONTO LID.
2. FLOW SENSOR - SEE LEGEND FOR SIZE AND TYPE.
3. MAINLINE - SIZE PER FLOW SENSOR, LENGTH AS REQUIRED PER MANUFACTURE RECOMMENDATIONS.
4. NOMINAL SIZE SOLID BRICK (4 REQUIRED, ONE AT EACH CORNER).
5. LANDSCAPE FABRIC.
6. 1/2" ROUND WASHED PEA GRAVEL - MINIMUM 4" DEPTH.
7. PVC MAINLINE TO MASTER VALVE - SEE LEGEND FOR TYPE, SIZE PER PLAN.
8. SCH 80 REDUCER COUPLING - SIZE PER MAINLINE AND FLOW SENSOR (2 REQUIRED).
9. 1-1/4" SCH 40 PVC WIRE CONDUIT WITH SWEEP ELBOW TO CONTROLLER LOCATION. SEAL CONDUIT ENDS WITH EXPANDING SPRAY FOAM SEALANT.
10. FINISHED GRADE. SET TOP OF VALVE BOX ½" ABOVE GRADE IN TURF AREAS AND 1-1/2" ABOVE GRADE IN SHRUB / GROUNDCOVER AREAS.
11. EPOXY-FILLED WATERPROOF CONTROL WIRE CONNECTIONS - SEE LEGEND FOR TYPE. PROVIDE MINIMUM 24" WIRE EXPANSION COILS AT FLOW SENSOR.

NOTES:

A. USE SCH 80 PVC FITTINGS.
B. SET TOP OF VALVE BOX ½" ABOVE FINISHED GRADE IN TURF AREAS AND 1-1/2" ABOVE FINISHED GRADE IN GROUNDCOVER AND SHRUB AREAS.
C. SET VALVE BOX AND VALVE ASSEMBLY IN GROUNDCOVER / SHRUB AREAS WHERE POSSIBLE. INSTALL IN TURF ONLY IF THERE IS NO ADJACENT GROUNDCOVER.
D. USE TEFLON TAPE ON ALL THREADED FITTINGS, TYPICAL.
E. INSTALL 45 DEGREE ELLS AS REQUIRED TO ACHIEVE PROPER VALVE INSTALLATION ABOVE LATERAL LINE DEPTH.
F. INSTALL FLOW SENSOR PER MANUFACTUR'S RECOMMENDATIONS.

N FLOW SENSOR

NOT TO SCALE



LEGEND:

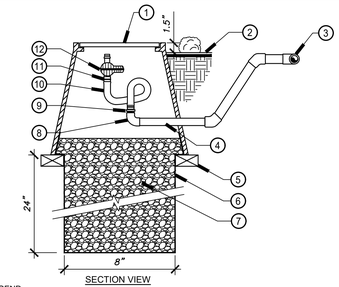
1. R/P DEVICE - SEE LEGEND FOR SIZE AND TYPE.
2. PRESSURE REGULATOR - IF SPECIFIED SEE LEGEND FORSIZE AND TYPE.
3. BRASS UNION.
4. BRASS ELL (TYP).
5. SCH. "K" HARD COPPER NIPPLE - 12" MINIMUM LENGTH.
6. PVC MAINLINE TO MASTER VALVE - SIZE AND TYPE PER PLAN.
7. SCH 80 FEMALE ADAPTER.
8. SCH. "K" HARD COPPER MAINLINE FROM METER.
9. 12"x12"x12" POURED CONCRETE THRUST BLOCKS- TWO REQUIRED.
10. POURED CONCRETE BASE - SEE NOTE (A) BELOW.
11. 3/8" (L) ANCHOR BOLTS SUBMERGED IN CONCRETE MINIMUM TWO INCHES - PER MANUFACTURE SPECIFICATIONS.
12. BRASS FULL-PORT BALL VALVE, LINE SIZE.
13. WYE STRAINER - SEE LEGEND FOR TYPE.
14. BRASS RISER - LENGTH AS REQUIRED, 4 REQ.
15. BRASS BALL VALVE AS PART OF ASSEMBLY.
16. BACKFLOW DEVICE ENCLOSURE - SEE LEGEND FOR TYPE. MAXIMUM SIZE (17.75"W x 27"H x 46.5"L) MAXIMUM WT. 50 LBS.
17. SLIP-ON INSULATING / FREEZE BLANKET BACKFLOW COVER - SEE LEGEND FOR SIZE AND TYPE.

NOTES:

A. POURED CONCRETE BASE - 6" MINIMUM THICKNESS – EXTEND 4" BEYOND OUTSIDE DIMENSIONS OF ENCLOSURE, INSTALL PER MANUFACTURE SPECIFICATIONS.
B. IF BACKFLOW ENCLOSURE IS SPECIFIED IN THE LEGEND, THE CONCRETE SLAB SHALL BE THE SIZE REQUIRED BY THE MANUFACTURER.
C. BACKFLOW PREVENTION DEVICE ASSEMBLY SHALL BE INSTALLED IN ACCORDANCE TO GOVERNING CODES AND ORDINANCE.
D. WRAP SUBSURFACE BRASS PIPING WITH 10 MILL UPC PIPE WRAP.
E. PROVIDE 6" CLEARANCE ALL AROUND ENCLOSURE. SLOPE TO DRAIN AWAY AND FINISH WITH 1/4" ROUND OVER.
F. INSTALL ENCLOSURE ACCORDING TO MANUFACTURER'S INSTRUCTIONS. PROVIDE ADEQUATE CLEARANCE FOR MAINTENANCE.

K BACKFLOW DEVICE

NOT TO SCALE



SECTION VIEW

LEGEND:

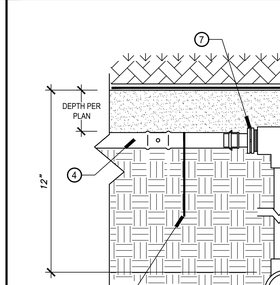
1. 6" PLASTIC ROUND VALVE BOX - HEAT BRAND "FV" ONTO LID.
2. FINISHED GRADE.
3. 3/4" SCH 40 PVC PIPE EXHAUST HEADER FROM DRIP TUBING.
4. 3/4" SCH 40 PVC LATERAL LINE PIPE (OR EXHAUST HEADER).
5. NOMINAL SIZE SOLID BRICK SUPPORTS (3 REQUIRED - EQUALLY SPACED).
6. LANDSCAPE FABRIC.
7. 1/2" ROUND WASHED PEA GRAVEL - (MINIMUM 2.5 CUBIC FEET)
8. S X 3/4" SCH. 40 PVC, 90 DEGREE ELL.
9. 3/4" DRIP TUBING MALE ADAPTER.
10. BLANK DRIP TUBING. PROVIDE SUFFICIENT TUBING TO REMOVE FLUSH VALVE FROM BOX (MINIMUM ONE FOOT LENGTH)
11. STAINLESS STEEL CRIMP CLAMPS - (2 REQ.)
12. MANUAL SHUT-OFF VALVE.

NOTES:

A. USE SCH 40 PVC 45 DEGREE ELLS TO TRANSITION TO DRIPLINE HEADER DEPTH.
B. SET TOP OF VALVE BOX 1-1/2" ABOVE FINISHED GRADE IN GROUNDCOVER / SHRUB AREAS.
C. USE TEFLON TAPE ON ALL THREADED FITTINGS, TYPICAL.
D. INSTALL FLUSH VALVE 18" FROM PAVING.

H MANUAL FLUSH VALVE

NOT TO SCALE

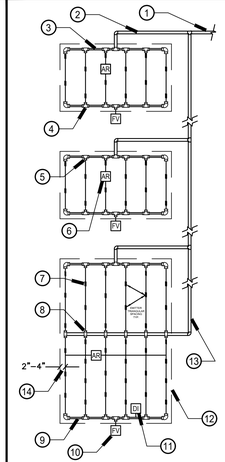


LEGEND:

1. BARK MULCH FOR SHRUB AREA PLANTING, SEE PLANTING PLAN FOR DEPTH AND TYPE.
2. FINISHED GRADE.
3. AMENDED SOIL.
4. DRIP TUBING - SEE LEGEND FOR TYPE.
5. SCH 40 PVC ELL FOR END FEED, TEE FOR CENTER FEED.
6. PVC PIPE RISER - SIZE AND LENGTH AS REQUIRED - SEE LEGEND FOR TYPE.
7. DRIP TUBING MPT MALE ADAPTER FITTING.
8. PVC PIPE SUPPLY HEADER, SIZE PER PLAN - SEE LEGEND FOR TYPE.
9. 6" WIRE STAKES MAXIMUM FIVE (5) FEET ON CENTER - SEE LEGEND FOR TYPE.

E DRIPLINE CONNECTION

NOT TO SCALE



LEGEND:

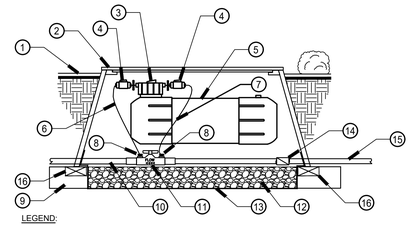
1. BARK MULCH FOR SHRUB AREA PLANTING, SEE PLANTING PLAN FOR DEPTH AND TYPE.
2. FINISHED GRADE.
3. AMENDED SOIL.
4. DRIP TUBING - SEE LEGEND FOR TYPE.
5. SCH 40 PVC ELL FOR END FEED, TEE FOR CENTER FEED.
6. PVC PIPE RISER - SIZE AND LENGTH AS REQUIRED - SEE LEGEND FOR TYPE.
7. DRIP TUBING MPT MALE ADAPTER FITTING.
8. PVC PIPE SUPPLY HEADER, SIZE PER PLAN - SEE LEGEND FOR TYPE.
9. 6" WIRE STAKES MAXIMUM FIVE (5) FEET ON CENTER - SEE LEGEND FOR TYPE.

NOTES:

A. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
B. DRIP EMITTER LAYOUT SHALL BE TRIANGULAR SPACED.

B DRIPLINE LAYOUT (TYP)

NOT TO SCALE



LEGEND:

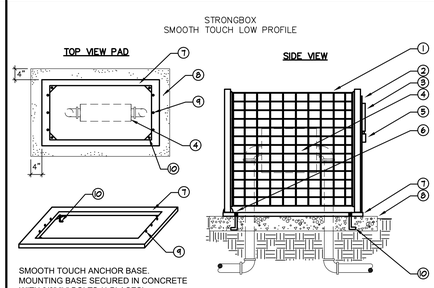
1. FINISHED GRADE.
2. PLASTIC RECTANGULAR "JUMBO" VALVE BOX, SIZE BOX PER MANUFACTURE RECOMENDATION, WITH LOCKING COVER, USE STAINLESS BOLT, NUT, AND WASHER. HEAT BRAND "FI" ONTO LID.
3. PROPORTIONING CAP WITH FEED ADJUSTMENT KNOB.
4. EZ-FLO SHUT OFF VALVES
5. EZ-FLO FERTILIZING SYSTEM, SEE LEGEND FOR SIZE.
6. (FERTILIZER OUT) CONNECT CLEAR TUBE TO GREEN CONNECTIONS ON PROPORTIONING CAP AND COUPLING.
7. (WATER IN) CONNECT BLACK TUBE TO BLUE CONNECTIONS ON PROPORTIONING CAP AND COUPLING.
8. 1/4" TUBING CLAMP - BOTH THE GREEN AND BLUE COUPLING TUBING CONNECTIONS.
9. APPROVED BACKFILL.
10. PVC MAIN LINE TO VALVE MANIFOLD.
11. EZ COUPLING CONNECTOR - INSTALL ACCORDING TO WATER FLOW DIRECTION ARROW, SIZE PER MAINLINE.
12. 1/2" ROUND WASHED PEA GRAVEL (MINIMUM 4" DEPTH).
13. LANDSCAPE FABRIC.
14. INLINE THREADED BRASS CHECK VALVE, SIZE PER MAINLINE.
15. PVC MAIN LINE FROM P.O.C EQUIPMENT.
16. NOMINAL SIZE SOLID BRICK (4 REQUIRED - ONE AT EACH CORNER OF VALVE BOX).

NOTE:

A. ITEMS 3, 4, 5, 6, 7 AND 8 ARE INCLUDED WITH THE EZ-FLO SYSTEM.
B. ITEM 11 IS PURCHASED SEPARATELY. SIZE ITEM 11PER MAINLINE.
C. FILL SYSTEM WITH FERTI-MAXX STARTER FERTILIZER PURCHASED SEPARATELY.
D. INSTALL PER MANUFACTURE RECOMMENDATION.

O FERTILIZING SYSTEM

NOT TO SCALE



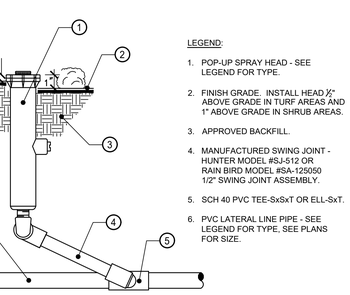
SMOOTH TOUCH ANCHOR BASE.
MOUNTING BASE SECURED IN CONCRETE WITH 3/8" "L" BOLTS (4 PLACES).
EXISTING CONCRETE CORNERS WILL NEED 3/8"x 3" REDHEAD ANCHORS.

LEGEND

1. STRONGBOX SMOOTH TOUCH BACKFLOW CAGE AS SPECIFIED PER SIZE.
2. ENCLOSURE LOCKING SWING DOOR (DOOR MOUNTED TO ANCHOR BASE)
3. PADLOCK PROTECTIVE COVER.
4. BACKFLOW PREVENTER.
5. PADLOCK.
6. ENCLOSURE SWIVEL POINT ATTACHED TO MOUNTING BASE. ENCLOSURE SECURED TO BASE (6 PLACES)
7. ANCHOR BASE MOUNT.
8. POURED CONCRETE BASE, 6" MINIMUM THICKNESS. EXTEND 4" BEYOND OUTSIDE DIMENSIONS OF ENCLOSURE.
9. ENCLOSURE MOUNTING BASE STUDS 3/8" X 3/4".
10. 3/8" "L" ANCHOR BOLTS SUBMERGED IN CONCRETE A MINIMUM TWO INCHES.

L BACKFLOW ENCLOSURE

NOT TO SCALE



SECTION VIEW

LEGEND:

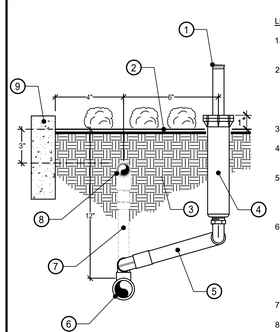
1. POP-UP SPRAY HEAD - SEE LEGEND FOR TYPE.
2. FINISH GRADE. INSTALL HEAD ½" ABOVE GRADE IN TURF AREAS AND 1" ABOVE GRADE IN SHRUB AREAS.
3. APPROVED BACKFILL.
4. MANUFACTURED SWING JOINT - HUNTER MODEL #SJ-512 OR RAIN BIRD MODEL #SA-125050 1/2" SWING JOINT ASSEMBLY.
5. SCH 40 PVC TEE-SxSxT OR ELL-SxT.
6. PVC LATERAL LINE PIPE - SEE LEGEND FOR TYPE, SEE PLANS FOR SIZE.

NOTES:

A. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
B. INSTALL SPRINKLER HEADS 24" FROM ANY NON-PERMEABLE SURFACE.
C. INSTALL SPRINKLER HEADS 12" FROM ALL BUILDINGS AND WALLS.
D. INSTALL SPRINKLER HEADS PLUMB.
E. ADJUST SPRAY OR NOZZLE STREAM TO COVER LANDSCAPE AREA WITHOUT OVERSPRAY ONTO PAVING, FENCES, WALLS OR BUILDINGS.
F. USE TEFLON TAPE ON THREADED FITTINGS, TYPICAL. (NO LIQUID TEFLON)
G. DO NOT SCALE DRAWINGS.
H. DO NOT USE SIDE INLET.

I POP-UP SPRINKLER

NOT TO SCALE



SECTION VIEW

NOTES:

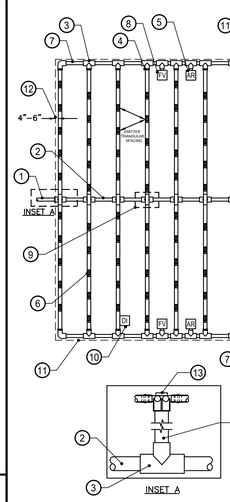
A. AFTER COMPLETE SYSTEM FLUSH, INSTALL DRIP INDICATOR CAP.
B. INSTALL POP-UP INDICATOR HEAD 10" FROM PERIMETER OF PLANTER / HARDSCAPE.
C. DISCHARGE EXHAUST HEADER SHALL BE INSTALLED 12" BELOW FINISHED SOIL GRADE, TYPICAL.
D. INSTALL MINIMUM ONE(1) DRIP INDICATOR PER DRIP ZONE.
E. USE TEFLON TAPE ON THREADED FITTINGS, TYPICAL. (NO LIQUID TEFLON)

LEGEND:

1. POP-UP DRIP INDICATOR. - SEE LEGEND FOR TYPE.
2. FINISH GRADE. INSTALL POP-UP DRIP INDICATOR ½" ABOVE GRADE IN TURF DRIP AREAS AND 1" ABOVE GRADE IN SHRUB DRIP AREAS.
3. APPROVED AMENDED BACKFILL.
4. 6" POP-UP HEAD - SEE LEGEND FOR TYPE.
5. MANUFACTURED SWING JOINT - HUNTER MODEL #SJ-512 OR RAIN BIRD MODEL #SA-125050 1/2" SWING JOINT ASSEMBLY.
6. SCH 40 PVC PIPE END FLUSH EXHAUST FOOTER FROM DRIP SYSTEM. SIZE INTAKE/EXHAUST HEADERS PER TABLE SHOWN ON PLANS. IN NO INSTANCE SHALL PIPE SIZE EXCEED 5 FPS OR DESIGNATED GPM RANGE.
7. DRIP ASSEMBLY CONNECTION.
8. SUB-SURFACE IN-LINE DRIP TUBING - SEE LEGEND FOR TYPE.
9. HARDSCAPE / CURB / PAVING

F DRIP SYSTEM POP-UP INDICATOR

NOT TO SCALE



LEGEND:

1. PVC PIPE LATERAL LINE FROM DRIP ZONE KIT.
2. PVC PIPE SUPPLY MANIFOLD.
3. SCH 40 PVC TEE SxSxT OR ELL, LINE SIZE BY ½".
4. DRIPLINE FITTING MALE ADAPTER TRANSITION TO DRIP TUBING.
5. AIR/VACUUM RELIEF VALVE (PLUMBED AT EACH HIGH POINT OF EACH LATERAL LEG CENTERED ON MOUND OR BERM) (TYP) ON FLAT AREAS PLACE AT END OF DRIP ZONE.
6. IN-LINE DRIP TUBING WITH EMITTERS 12 INCH ON CENTER, MAXIMUM ROW SPACING 14"-16" ON CENTER FOR SHRUB AREAS AND 10"-12" FOR TURF - SEE LEGEND FOR TYPE. EMITTERS TO BE TRIANGULAR SPACING.
7. PVC PIPE FLUSH EXHAUST MANIFOLD.
8. MANUAL DRIP FLUSH VALVE, PLUMBED TO PVC PIPE AT LOW/END OF DRIP ZONE (TYP) - SEE LEGEND FOR TYPE.
9. CONNECTION FROM SUPPLY MANIFOLD TO DRIPLINE (TYPICAL)- SEE INSET "A"
10. DRIP OPERATIONAL INDICATOR - SEE LEGEND FOR TYPE.
11. PLANTER AREA PERIMETER.
12. PERIMETER DRIPLINE PIPE TO BE INSTALLED 4"-6" FROM PERIMETER OF PLANTER AREA, AND MINIMUM 12" CLEARANCE FROM BUILDING.
13. BARB X FEMALE FITTING (TYPICAL) , SEE LEGEND FOR TYPE.
14. PVC PIPE RISER, LENGTH AS REQUIRED.

C DRIPLINE LAYOUT (TYP)

NOT TO SCALE

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Project

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CALABASAS
5050 SCANDIA LANE,
CALABASAS, CA 91302

	Issue	Date & Issue Description
--	--	02/03/21
		1ST CITY SUBMITTAL
--	--	05/07/21
		2ND CITY SUBMITTAL

Seal/Signature

REGISTERED LANDSCAPE ARCHITECT
NICHOLAS J. R. DYKE
LICENSE NO. 5302
05/07/21
Date
05/31/23
Exp. Date
STATE OF CALIFORNIA

Project Number

19076

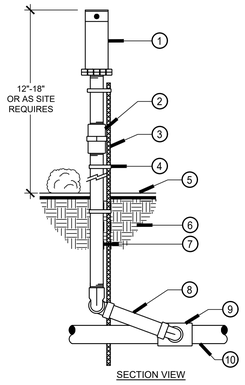
Drawn By / Checked By

RLA / RLA

Description

IRRIGATION DETAILS

L3.1



LEGEND:

1. SHRUB ADAPTER SPRAY HEAD - SEE LEGEND FOR SPECIFICATIONS.
2. SCH 40 PVC THREADED COUPLING OR SPRING-TYPE ANTI-DRAIN CHECK VALVE FOR HEADS WITH POTENTIAL OF LOW HEAD DRAINAGE.
3. RE-BAR STAKE - #4 X 30" LENGTH.
4. VANDAL-PROOF STAINLESS STEEL CLAMP - USE IN 3 PLACES.
5. FINISHED GRADE.
6. UNDISTURBED SOIL.
7. ULTRA-VIOLET RESISTANT SCH 40 PVC PIPE - LENGTH AS REQUIRED.
8. PRE-ASSEMBLED TRIPLE SWING JOINT. HUNTER SJ SERIES (OR APPROVED EQUAL). SIZE AS PER SPRINKLER OUTLET.
9. SCH 40 PVC SxSxT TEE FITTING - LATERAL SIZE x SPRINKLER INLET SIZE.
10. LATERAL LINE - SEE SPECIFICATIONS FOR TYPE AND DEPTH REQUIRED.

NOTES:

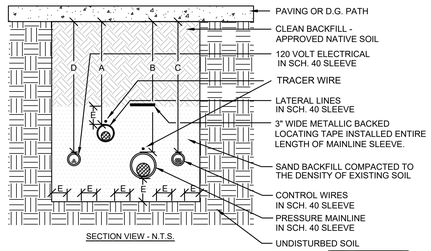
A. INSTALL SPRINKLER HEADS 12" FROM FENCES, WALLS, OR BUILDINGS.

B. DO NOT INSTALL SPRINKLER HEAD WITHIN 36" OF PAVING, CURBS, OR TURF EDGES.

C. INSTALL SPRINKLER HEADS PLUMB. ADJUST SPRAY TO COVER LANDSCAPE AREA WITHOUT OVERSPRAY ONTO PAVING, FENCES, WALLS, OR BUILDINGS.

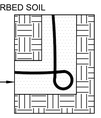
(Y) ROTOR HEAD ON RISER

NOT TO SCALE



DIMENSION	A	B	C	D	E
	24"	36"	36"	36"	6"

TIE A 36" LOOP IN ALL WIRING AT CHANGES OF DIRECTION GREATER THAN 30 DEGREES. UNTIE AFTER ALL CONECTIONS HAVE BEEN MADE.

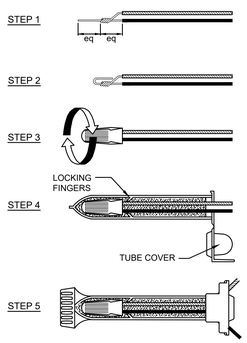


NOTES:

A. ALL PVC MAINLINE, PVC LATERAL LINES, AND CONTROL WIRES SHALL BE SLEEVED BELOW ALL HARDSCAPE ELEMENTS WITH SCH. 40 PVC, 2 TIMES THE DIAMETER OF THE PIPE OR WIRE BUNDLE WITHIN.
B. SLEEVE LOCATIONS SHALL BE MARKED AT EACH END AT THE TIME OF INSTALLATION WITH A PAINTED SPOT ON THE BACK FACE OF THE CURB OR A "SCORE" MARK TO DESIGNATE SLEEVE LOCATION.
C. EXACT SLEEVE LOCATION AND SIZE SHALL BE MARKED ON RECORD DRAWINGS WITH DIMENSIONING FOR IRRIGATION AS-BUILT PLANS PRIOR TO BACKFILL.
D. SLEEVE DETAIL SHALL ALSO BE USED FOR INSTALLATION OF PIPE IN ROCK SOIL.
E. LINES MUST HAVE MINIMUM CLEARANCE OF 6" FROM EACH OTHER & 24" FROM OTHER TRADES.
F. TIE A 24" LOOP IN ALL WIRING AT CHANGES IN DIRECTION.
G. INSTALL EXPANDING FOAM SEALANT INSIDE PIPE ENDS.
H. ALL SLEEVES MUST EXTEND MINIMUM 12" DISTANCE PAST CURB OR SIDEWALK.

(V) SLEEVE TRENCHING

NOT TO SCALE



LEGEND:

STRIP BOTH WIRES, TWIST STRAND AROUND RIGID STRAND CLOCKWISE DIRECTION OVER HALF THE LENGTH OF STRIPPED WIRES.

FOLD THE OTHER HALF OF THE RIGID STRAND OVER TWISTED STRAND AS SHOWN.

INSERT THE TWISTED SPLICE INTO THE "Y" ELECTRICAL SPRING CONNECTION AND TWIST OVER WIRE STRANDS IN A CLOCKWISE DIRECTION.

INSERT THE CONNECTOR INTO THE GEL-FILLED DIRECT BURY SPLICE KIT. PUSH PAST THE LOCKING FINGERS TO SECURE CONNECTOR INSIDE TUBE.

POSITION ALL THE WIRES THROUGH THE DEDICATED INSULATOR CHANNELS AND SNAP INSULATOR TUBE COVER CLOSED.

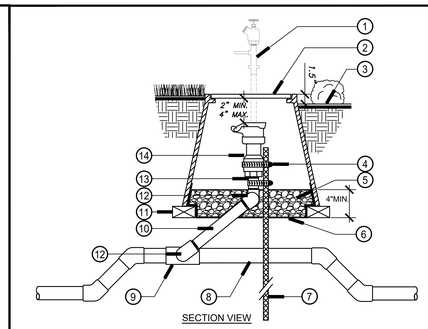
3M "DBY-6/DBR-6" WIRE CONNECTOR

NOTES:

A. JOIN WIRES AND TWIST TOGETHER. WIRE SPLICES MUST BE TWISTED WITH WIRE TWISTING TOOL WITH A MAXIMUM OF TWO WIRES PER TWIST, PRIOR TO INSTALLING CONNECTOR. TWIST CONNECTOR ONTO WIRES TO SEAT FIRMLY. CORRECT WIRE CONNECTIONS ARE EXTREMELY IMPORTANT. REFER TO MANUFACTURE RECOMMENDATION FOR PROPER WIRE CONNECTIONS.
B. ALL WIRE CONNECTIONS SHALL INCLUDE A WIRE NUT CONNECTOR AND A POLY TUBE PRE-FILLED WITH WATERPROOF SEALING GEL.
C. DIRECT BURY SPLICE KIT MODEL # SA 101 SHALL BE USED TO ELECTRICALLY CONNECT 2 - #14 AND/OR 1 - #18 PRE-STRIPPED COPPER WIRES. LARGER WIRES OR GREATER QUANTITIES OF WIRES SHALL REQUIRE MODEL # SA102, A LARGER WIRE CONNECTOR.
D. ALL WIRE SPLICES SHALL BE PLACED WITHIN PLASTIC VALVE BOX OR WIRE PULL BOX.

(S) QUICK COUPLER VALVE

NOT TO SCALE



LEGEND:

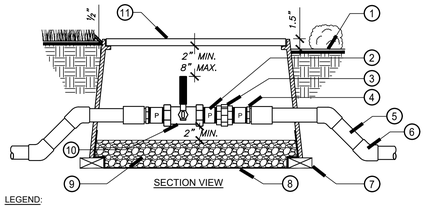
1. REMOVABLE QUICK COUPLER KEY ASSEMBLY CONNECTION. KEY MUST CLEAR VALVE BOX, AS SHOWN.
2. 10" PLASTIC ROUND VALVE BOX WITH LOCKING COVER, USE STAINLESS BOLT, NUT, AND WASHER. HEAT BRAND "QCV" ONTO LID.
3. FINISHED GRADE.
4. STAINLESS STEEL CLAMP - 2 REQUIRED.
5. 1/2" ROUND WASHED PEA GRAVEL - MINIMUM 4" DEPTH.
6. LANDSCAPE FABRIC.
7. #4 REBAR - 36" MINIMUM LENGTH.
8. PVC MAINLINE - SEE LEGEND FOR TYPE.
9. PVC SCH 80 TEE OR ELL
10. BRASS NIPPLE, 6" MINIMUM LENGTH
11. NOMINAL SIZE SOLID BRICK SUPPORTS (3 MINIMUM REQUIRED - SPACED EQUALLY).
12. BRASS ELL - 2 REQUIRED.
13. BRASS NIPPLE, LENGTH AS REQUIRED.
14. QUICK COUPLING VALVE WITH LOCKING COVER - SEE LEGEND FOR TYPE.

NOTES:

A. USE SCH. 80 PVC 45 DEGREE ELLS TO TRANSITION TO MAINLINE DEPTH.
B. SET TOP OF VALVE BOX 1-1/2" ABOVE FINISHED GRADE IN MULCH OR GROUNDCOVER / SHRUB AREAS. SET ½" ABOVE FINISHED GRADE IN TURF AREAS.
C. USE TEFLON TAPE ON ALL THREADED FITTINGS, TYPICAL.

(P) BALL VALVE

NOT TO SCALE



LEGEND:

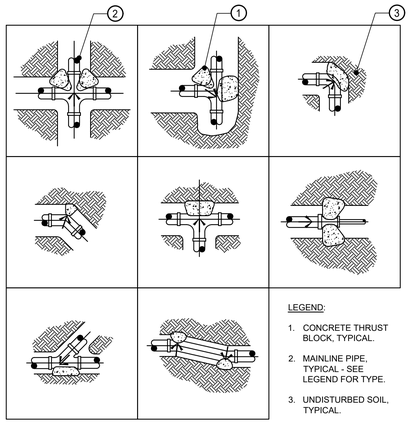
1. FINISHED GRADE.
2. SCH 80 PVC NIPPLE - LENGTH AS REQUIRED.
3. SCH 80 PVC UNION.
4. SCH 80 PVC REDUCER BUSHING, SxT, SIZE AS REQUIRED (QTY. 2 REQUIRED).
5. PVC MAINLINE - DEPTH PER SPECS.
6. 45 DEGREE ELBOW, SCH 80 FITTINGS SHALL BE USED TO RAISE MAINLINE FOR BALL VALVE WITHIN 12" OF FINISHED GRADE. (QTY. 4 REQUIRED)
7. NOMINAL SIZE SOLID BRICK (QTY. 4 REQUIRED - ONE AT EACH CORNER OF VALVE BOX).
8. LANDSCAPE FABRIC.
9. 1/2" ROUND WASHED PEA GRAVEL - MINIMUM 4" DEPTH.
10. BALL VALVE - SEE LEGEND FOR TYPE. INSTALL SHUTOFF HANDLE PERPENDICULAR TO BOX LID.
11. PLASTIC RECTANGULAR VALVE BOX WITH LOCKING COVER WITH STAINLESS STEEL BOLT AND WASHER. HEAT BRAND "BV" ONTO LID.

NOTES:

A. SCH 80, 45 DEGREE ELBOW FITTINGS, SHALL BE USED TO RAISE MAINLINE WITHIN 12" OF FINISHED GRADE. (FOUR REQUIRED)
B. PLACE VALVE BOX IN GROUNDCOVER AND SHRUB AREAS WHENEVER POSSIBLE.
C. USE TEFLON TAPE ON ALL THREADED FITTINGS, TYPICAL.
D. VALVE BOX TO BE INSTALLED AS TO ALLOW FOR PROPER OPERATION OF BALL VALVE. INSTALL AT RIGHT ANGLE TO HARDSCAPE EDGE - INSTALL VALVE CENTERED IN BOX.
E. BOLTDOWN VALVE BOX COVER WITH STAINLESS STEEL BOLT AND WASHER.
F. ALL MAINLINE AND VALVE FITTINGS SHALL BE SCHEDULE 80 FITTINGS.

(Z) THRUST BLOCK

NOT TO SCALE



LEGEND:

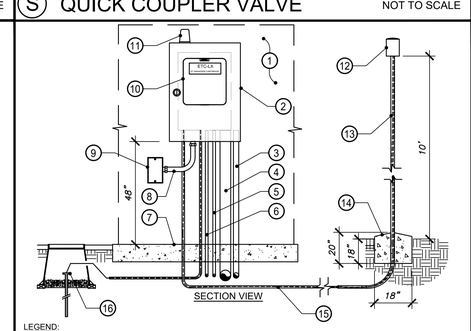
1. CONCRETE THRUST BLOCK, TYPICAL.
2. MAINLINE PIPE, TYPICAL - SEE LEGEND FOR TYPE.
3. UNDISTURBED SOIL, TYPICAL.

NOTES:

A. ALL THRUST BLOCKS AND MAIN LINES SHALL BE INSTALLED, SIZED AND TESTED ACCORDING TO THE MANUFACTURE'S RECOMENDATIONS WHICH SHALL BE A PART OF THE INSTALLATION SPECIFICATIONS.
B. THRUST BLOCKS TO BE MINIMUM 1 (ONE) CUBIC FEET OF CONCRETE.
C. THRUST BLOCKS TO BE USED FOR MAINLINE PVC PIPE 2-1/2" AND LARGER.
D. WRAP PLASTIC PIPE FITTINGS WITH 10 MILL UPC PIPE WRAP.
E. ALL CONCRETE TO BE PORTLAND CEMENT 420-C-2000.

(W) WIRE CONNECTION

NOT TO SCALE

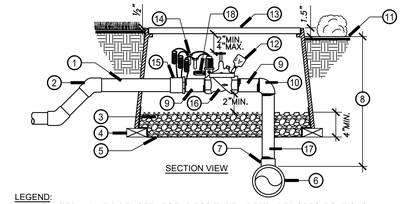


LEGEND:

1. BUILDING WALL, VERIFY EXACT LOCATION IN FIELD.
2. WALL-MOUNT CONTROLLER - SEE LEGEND FOR SPECIFICATIONS.
3. 1" RIGID METAL ELECTRICAL CONDUIT WITH SWEEP ELL FOR MASTER CONTROL VALVE WIRES.
4. 3" RIGID METAL ELECTRICAL CONDUIT WITH SWEEP ELL FOR DIRECT BURIAL CONTROL WIRES.
5. 1" RIGID METAL ELECTRICAL CONDUIT WITH SWEEP ELL FOR FLOW SENSOR CABLE.
6. 1" RIGID METAL ELECTRICAL CONDUIT WITH SWEEP ELL FOR GROUND ROD CABLE. (1) ⅝" X 8' COPPER GROUND ROD MINIMUM W/ #10 GROUND WIRE AND CLAMP. INSTALL INSIDE A 10" ROUND VALVE BOX - GROUND ROD TO BE LOCATED WITHIN 15' OF CONTROLLER. CONTRACTOR SHALL INSTALL ACTUAL GROUNDING EQUIPMENT PER MANUFACTURER'S SPECIFICATIONS.
7. FINISHED GRADE OR BUILDING FLOOR, COORDINATE CONDUIT ROUTING.
8. 1" RIGID METAL ELECTRICAL CONDUIT.
9. 120 VOLT POWER SUPPLY IN J-BOX.
10. "ET" MANAGER CARTRIDGE, SEE LEGEND FOR TYPE.
11. REMOTE ANTENNA MOUNT.
12. RAIN SENSOR WITHIN STAINLESS STEEL ENCLOSURE. LOCATE IN AREA WITH NO OBSTRUCTIONS. VERIFY EXACT SENSOR LOCATION IN FIELD WITH OWNER, SEE LEGEND FOR TYPE.
13. 2" x 12' GALVANIZED STEEL MOUNTING PIPE.
14. POURED CONCRETE BASE – 20" MINIMUM THICKNESS WITH ⅓% SLOPE FOR DRAINAGE.
15. METAL ELECTRICAL CONDUIT FROM "ET" SYSTEM SENSOR TO "ET" SYSTEM MODULE.
16. (1) ⅝" X 8' COPPER GROUND ROD MINIMUM W/ #10 GROUND WIRE AND CLAMP. INSTALL INSIDE A 10" ROUND VALVE BOX - GROUND ROD TO BE LOCATED WITHIN 15' OF CONTROLLER. CONTRACTOR SHALL INSTALL ACTUAL GROUNDING EQUIPMENT PER MANUFACTURER'S SPECIFICATIONS.

(T) WALL-MOUNT CONTROLLER

NOT TO SCALE



LEGEND:

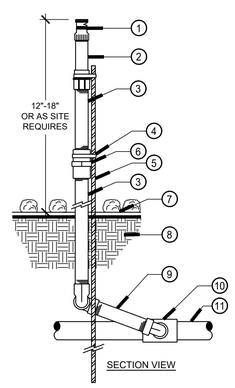
1. PVC LATERAL LINE PIPE. SEE LEGEND FOR TYPE - DEPTH PER SPECIFICATIONS.
2. PVC SCH 40, 45 DEGREE ELL - TYP. (2X).
3. 1/2" ROUND WASHED PEA GRAVEL - MINIMUM 4" DEPTH.
4. NOMINAL SIZE SOLID BRICK (4 REQUIRED - ONE AT EACH CORNER OF VALVE BOX).
5. LANDSCAPE FABRIC.
6. PVC MAINLINE. SEE LEGEND FOR TYPE, DEPTH PER SPECIFICATIONS.
7. PVC SCH 80 TEE OR ELL ON MAINLINE OR MANIFOLD.
8. SEE SPECIFICATIONS AND TRENCHING DETAIL FOR MAINLINE DEPTH.
9. SCH 80 PVC NIPPLE - LENGTH AS REQUIRED. (2 REQUIRED)
10. SCH 80 PVC THREADED ELL.
11. FINISHED GRADE. SET TOP OF VALVE BOX ½" ABOVE FINISHED GRADE IN TURF AREAS, AND 1-1/2" IN SHRUB / GROUND COVER AREAS.
12. CHRISTY'S VALVE STATION # I.D. TAG ATTACHED TO VALVE BONNET BOLT.
13. PLASTIC RECTANGULAR VALVE BOX WITH LOCKING COVER, USE STAINLESS BOLT, NUT, AND WASHER. HEAT BRAND "RCV" & CONTROLLER STATION NUMBER ONTO LID.
14. CONTROL WIRE CONNECTIONS, PRE-FILLED WITH WATER PROOF INSULATING GEL SEALANT. SEE LEGEND FOR TYPE. PROVIDE MINIMUM 24" WIRE EXPANSION COILS AT VALVE.
15. SCH 80 PVC FEMALE ADAPTER.
16. REMOTE CONTROL VALVE. SEE LEGEND FOR TYPE.
17. SCH 80 PVC RISER - LENGTH AS REQUIRED.
18. PRESSURE REGULATOR, IF SPECIFIED.

NOTES:

A. USE SCH 80 PVC FITTINGS ON UPSTREAM PRESSURE SIDE OF VALVE.
B. USE SCH 40 PVC FITTINGS ON NON-PRESSURE SIDE OF VALVE.
C. SET TOP OF VALVE BOX ½" ABOVE FINISHED GRADE IN TURF AREAS AND 1-1/2" ABOVE FINISHED GRADE IN GROUNDCOVER AND SHRUB AREAS.
D. SET VALVE BOX AND VALVE ASSEMBLY IN GROUNDCOVER / SHRUB AREAS WHERE POSSIBLE. INSTALL IN TURF ONLY IF THERE IS NO ADJACENT GROUNDCOVER.
E. USE TEFLON TAPE ON ALL THREADED FITTINGS, TYPICAL.
F. INSTALL 45 DEGREE ELLS AS REQUIRED TO ACHIEVE PROPER VALVE INSTALLATION ABOVE LATERAL LINE DEPTH.

(Q) REMOTE CONTROL VALVE

NOT TO SCALE



NOTES:

A. INSTALL SPRINKLER HEADS 12" FROM FENCES, WALLS, OR BUILDINGS.

B. DO NOT INSTALL SPRINKLER HEAD WITHIN 72" OF PAVING, CURBS, OR TURF EDGES.

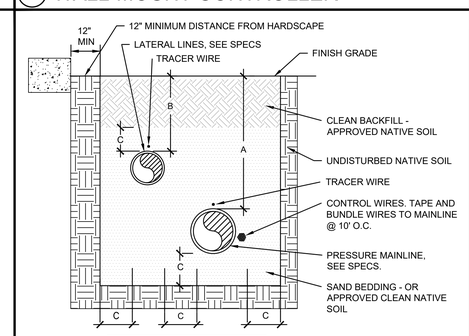
C. INSTALL SPRINKLER HEADS PLUMB. ADJUST SPRAY TO COVER LANDSCAPE AREA WITHOUT OVERSPRAY ONTO PAVING, FENCES, WALLS, OR BUILDINGS.

D. USE TEFLON TAPE ON ALL THREADED FITTINGS, TYPICAL.

E. ABSOLUTELY NO LOW HEAD DRAINAGE ALLOWED.

(X) SPRAY HEAD ON RISER

NOT TO SCALE



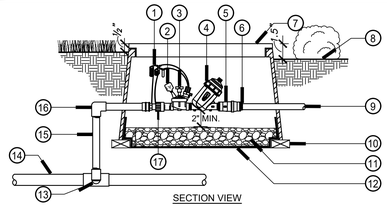
DIMENSION	A	B	C
1/2" - 2 1/2"	18"	12"	6"
3" - 4"	24"	X	6"
6"	36"	X	6"

NOTES:

A. LINES MUST HAVE MINIMUM CLEARANCE OF 6" FROM EACH OTHER AND 24" FROM OTHER TRADES.
B. TIE A 24" LOOP IN ALL WIRING AT CHANGES IN DIRECTION.
C. CONTRACTOR MUST ADJUST MAINLINE AROUND ALL STREET LIGHT LOCATIONS.
D. PIPE SHALL BE SNAKED FROM SIDE-TO-SIDE ON TRENCH BOTTOM TO ALLOW FOR EXPANSION AND CONTRACTIONS.
E. REMAINING BACKFILL CAN BE APPROVED ON-SITE SOIL WITH STONES AND CLODS NOT TO EXCEED 1" IN DIAMETER.
F. PIPE AND WIRE TO BE INSTALLED IN SLEEVES UNDER ALL PAVING AND EXTEND 12" PAST EDGE OF PAVING.

(U) PIPE INSTALLATION

NOT TO SCALE



INSTALL 1" VALVE ASSEMBLY FOR DEMANDS (1 - 19) GPM.
INSTALL 1-1/2" VALVE ASSEMBLY FOR DEMANDS (20 - 55) GPM.

LEGEND:

1. CONTROL WIRES WITH WATER PROOF WIRE CONNECTORS, SEE LEGEND FOR TYPE. PROVIDE MINIMUM 24" COIL OF WIRE AT VALVE.
2. CHRISTY'S VALVE STATION # I.D. TAG ATTACHED TO VALVE BONNET BOLT.
3. REMOTE CONTROL VALVE - SEE LEGEND FOR TYPE, SEE PLAN FOR SIZE.
4. WYE FILTER - SEE LEGEND FOR TYPE, SEE PLAN FOR SIZE.
5. PRESSURE REGULATOR - SEE LEGEND FOR TYPE.
6. PVC SCH 80 SxT MALE ADAPTER.
7. PLASTIC RECTANGULAR "JUMBO" VALVE BOX WITH LOCKING COVER, USE STAINLESS BOLT, NUT, AND WASHER. HEAT BRAND "RCV" & CONTROLLER STATION NUMBER ONTO LID.
8. FINISHED GRADE - SET TOP OF VALVE BOX ½" ABOVE GRADE IN TURF AREAS AND 2" ABOVE GRADE IN SHRUB / GROUND COVER AREAS.
9. PVC LATERAL LINE TO DRIP SYSTEM - SEE LEGEND FOR TYPE.
10. NOMINAL SIZE SOLID BRICK - 4 REQUIRED, ONE AT EACH CORNER OF VALVE BOX.
11. PEA GRAVEL - MINIMUM 4" DEPTH WITH 2" VALVE CLEARANCE.
12. LANDSCAPE FABRIC.
13. PVC SCH 80 NIPPLE (2" LENGTH, HIDDEN) AND PVC SCH 40 ELL.
14. PVC MAINLINE. SEE LEGEND FOR TYPE - DEPTH PER SPECIFICATIONS.
15. PVC SCH 80 NIPPLE - LENGTH AS REQUIRED.
16. PVC SCH 80 ELL.
17. DURA MANIFOLD SYSTEM COUPLING (SWIVEL x O-RING MIPT) (VALVE SIZE) WITH REDUCING BUSH IF REQUIRED.

NOTES:

A. WIRES MUST EXTEND MINIMUM 24" ABOVE VALVE BOX FOR SERVICE.
B. SET TOP OF VALVE BOX 1-1/2" ABOVE FINISHED GRADE IN GROUND COVER AND SHRUB AREAS AND 1/2" ABOVE FINISHED GRADE IN TURF AREAS.
C. USE TEFLON TAPE ON ALL THREADED FITTINGS TYPICAL.
D. USE SCH 80 PVC FITTINGS.

(R) DRIP REMOTE CONTROL VALVE

NOT TO SCALE

RLA
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RIDGELA.COM

Client

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1732 AVIATION BLVD.,
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90278

Project

TROJAN STORAGE
CALABASAS
5050 SCANDIA LANE,
CALABASAS, CA 91302

△	Issue	Date & Issue Description
--	--	02/03/21
		1ST CITY SUBMITTAL
--	--	05/07/21
		2ND CITY SUBMITTAL

Seal/Signature

REGISTERED LANDSCAPE ARCHITECT
NICHOLAS J. BUSCH
No. 5204
05/07/21
05/31/23
STATE OF CALIFORNIA

Project Number

19076

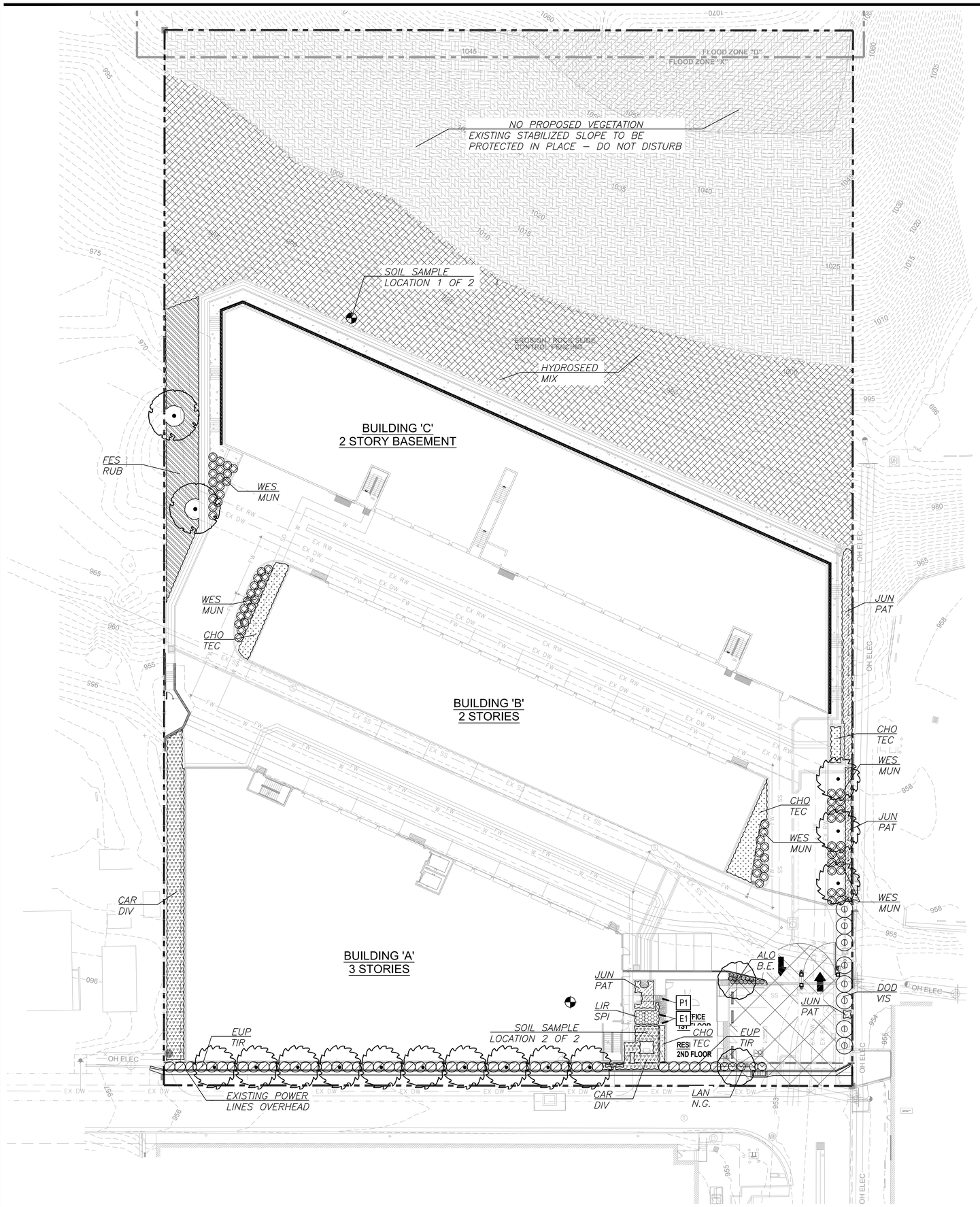
Drawn By / Checked By

RLA / RLA

Description

IRRIGATION DETAILS

L3.2



PLANT SCHEDULE

TREES

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE / FORM	HT. X SPRD. X CAL. (MIN)	WATER USE	DESCRIPTION	DETAIL	QTY.
	CHITALPA TASHKENTENSIS	DESERT WILLOW	24" BOX STD.	6'H X 3'W X 1.5"C	L	SCREENING TREE	A,B, L5.1	2
	PINUS ELDARICA	MONDELL PINE	24" BOX STD.	9'H X 4'W X 2"C	L	SCREENING TREE	A,B, L5.1	13
	QUERCUS AGRIFOLIA	COAST LIVE OAK	24" BOX STD.	9'H X 3'W X 1.5"C	VL	SCREENING TREE	A,B, L5.1	2

SHRUBS, GRASSES, & GROUNDCOVERS

SYMBOL	KEY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	WATER USE	DESCRIPTION	DETAIL	QTY.
	FES RUB	FESTUCA RUBRA 'MOLATE'	RED FESCUE	1 GAL.	24" O.C.	M	ORNAMENTAL GRASS	C,D,E, L5.1	535
	ALO B.E.	ALOE 'BLUE ELF'	BLUE ELF ALOE	1 GAL.	24" O.C.	L	SUCCULENT ACCENT	C,D,E, L5.1	16
	EUP TIR	EUPHORBIA TIRUCALLI	FIRE STICKS	5 GAL.	60" O.C.	VL	SCREENING SUCCULENT	C,D,E, L5.1	48
	CHO TEC	CHONDROPETALUM TECTORUM	SMALL CAPE RUSH	5 GAL.	24" O.C.	L	ORNAMENTAL GRASS	C,D,E, L5.1	186
	LIR SPI	LIRIOPE SPICATA	CREEPING LILY TURF	1 GAL.	24" O.C.	L	LOW FLOWERING SHRUB	C,D,E, L5.1	22
	DOD VIS	DODONAEA VISCOSA	HOPSEED BUSH	5 GAL.	96" O.C.	L	SCREENING SHRUB	C,D,E, L5.1	8
	JUN PAT	JUNCUS PATENS	CALIFORNIA GRAY RUSH	1 GAL.	24" O.C.	L	BIORETENTION PLANTER	C,D,E, L5.1	201
	LAN N.G.	LANTANA 'NEW GOLD'	NEW GOLD LANTANA	1 GAL.	48" O.C.	VL	LOW FLOWERING SHRUB	C,D,E, L5.1	5
	CAR DIV	CAREX DIVULSA	BERKELEY SEDGE	1 GAL.	24" O.C.	L	ORNAMENTAL GRASS	C,D,E, L5.1	446
	WES MUN	WESTRINGIA F. MUNDI	MUNDI COAST ROSEMARY	1 GAL.	48" O.C.	L	LOW GROUND COVER	C,D,E, L5.1	67

WATER USE KEY:
VL = VERY LOW WATER USE, L = LOW WATER USE, M = MODERATE WATER USE, H = HIGH WATER USE. WATER USE STATED IS PER 'WATER USE CLASSIFICATION OF LANDSCAPE SPECIES' (ALSO REFERRED TO AS WUCOLS IV) FOR THE CITY OF CALABASAS.

NOTE: ALL PROPOSED PLANTS ARE FIRE RESISTANT AS LISTED IN THE LACFD FUEL MODIFICATION PLANT LIST AND APPROPRIATELY SPACED.

EXISTING PLANTING

	EXISTING SLOPE TO REMAIN - ANNUAL BRUSH CLEARANCE TO BE PERFORMED AS DIRECTED BY L. A. COUNTY FIRE DEPARTMENT.
	DENOTES SOIL SAMPLE LOCATION - REFER TO PLANTING NOTE '9' FOR ADDITIONAL INFORMATION.

PAVING SCHEDULE

KEY	DESCRIPTION	DETAIL	MFR. / SUPPLIER	COLOR	FINISH	JOINTS	COMMENTS
P1	NATURAL STONE COBBLE	F, L5.1	SOUTHWEST BOULDER & STONE (760) 466-3277	SIERRA COBBLE	WHITE AND BLACK	--	4" - 8" DIA. (12" MINIMUM LAYER)

NOTES:
A. CONTRACTOR SHALL PREPARE MOCK-UPS FOR PAVING. SEE 'MOCK-UP REQUIREMENTS', SHEET L0.0.
B. PROVIDE AN ISOLATION JOINT WHERE PAVING ABUTS VERTICAL SURFACES SUCH AS BUILDINGS, WALLS, STEPS, OR, AS NOTED IN THESE DRAWINGS.
C. CONTRACTOR TO PROVIDE A DETECTABLE WARNING PRODUCT SAMPLE TO THE BUILDING INSPECTOR FOR APPROVAL OF COLOR CONTRAST WITH FINISH SURFACE.

EDGING SCHEDULE

KEY	DESCRIPTION	DETAIL	MFR. / SUPPLIER	MODEL	COLOR	FINISH	COMMENTS
E1	CONCRETE MOW CURB	F, L5.1	N/A	N/A	NATURAL GRAY	LIGHT BROOM	PROVIDE SAWCUT JOINTS 5' O.C. AND AT CHANGES IN DIRECTION

IRRIGATED HYDROSEED MIX / CALIFORNIA FUEL MODIFICATION ZONE MIX

SPECIES	COMMON NAME	BULK #'s/ACRE	MIN % PLS*
Achillea millefolium	Yarrow	2.00	85
Acmispon glaber	Deerweed	4.00	76
Acmispon heermannii	Hermann's lotus	3.00	70
Camissoniopsis cheiranthifolia	Beach evening primrose	2.00	86
Eschscholzia californica	California poppy	1.00	83
Festuca microstachys	Small fescue	4.00	90
Lasthenia californica	Dwarf goldfields	0.50	68
Layia platyglossa	Tidy tips	0.50	77
Lupinus bicolor	Bicolor lupine	2.00	83
Melica imperfecta	Coast melic	2.00	70
Mimulus aurantiacus longiflorus	Sticky monkeyflower	2.00	3
Mimulus aurantiacus puniceus	Mission red monkeyflower	1.00	3
Muhlenbergia microsperma	Littleseed muhly	1.00	48
Sisyrinchium bellum	Blue eyed grass	3.00	78
Stipa lepida	Foothill needlegrass	2.00	70
		30.00	

* MIN % PLS (Pure Live Seed) = Seed Purity x Germination Rate

Seeding rate: 30 lbs per acre

FOR IRRIGATION DETAILS & NOTES - SEE SHEETS ####
FOR LANDSCAPE SPECIFICATIONS - SEE SHEET L6.1 - L6.3

0 10 20 40 60

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Client

TROJAN STORAGE
1732 AVIATION BLVD.,
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Project

TROJAN STORAGE
CALABASAS
5050 SCANDIA LANE,
CALABASAS, CA 91302

Issue		Date & Issue Description
--	--	02/03/21
		1ST CITY SUBMITTAL
--	--	05/07/21
		2ND CITY SUBMITTAL
--	--	05/24/21
		LAFD 2ND SUBMITTAL
		06/03/24
		3rd CITY SUBMITTAL

Seal/Signature

REGISTERED LANDSCAPE ARCHITECT
JESS J. RUIZ
No. 5104
05/24/21
(Date)
06/03/24
(Exp. Date)
STATE OF CALIFORNIA

Project Number

19076

Drawn By / Checked By

RLA / RLA

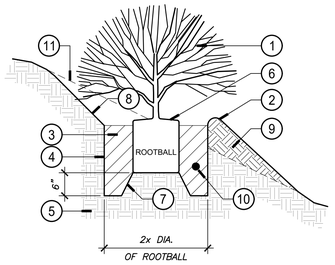
Description

PLANTING PLAN & SCHEDULE

L4.1

PLANTING NOTES

1. REFER TO PLANTING SPECIFICATIONS AND DETAILS FOR SOIL PREPARATION, FERTILIZATION, MULCHING AND OTHER PLANTING INFORMATION.
2. NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE AND THE CITY INSPECTOR 48 HOURS PRIOR TO COMMENCEMENT OF WORK TO COORDINATE PROJECT INSPECTION SCHEDULES.
3. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS BEFORE PROCEEDING WITH THE WORK. NOTIFY LANDSCAPE ARCHITECT IMMEDIATELY SHOULD FIELD CONDITIONS VARY FROM THOSE SHOWN ON PLAN.
4. REPORT DISCREPANCIES IN THE DRAWINGS OR BETWEEN THE DRAWINGS AND ACTUAL FIELD CONDITIONS TO THE LANDSCAPE ARCHITECT. CORRECTED DRAWINGS OR INSTRUCTION SHALL BE ISSUED PRIOR TO THE CONTINUATION OF THIS WORK. ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY CORRECTIONS DUE TO FAILURE TO REPORT KNOWN DISCREPANCIES.
5. LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT AND PROTECT THEM FROM DAMAGE. NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY AND ASSUME FULL RESPONSIBILITY FOR EXPENSE OF REPAIR OR REPLACEMENT IN CONJUNCTION WITH DAMAGED UTILITIES.
6. LOCATION OF N.I.C. CONSTRUCTION ELEMENTS SUCH AS LIGHTS, SIGNS, VENTS, HYDRANTS, TRANSFORMERS, ETC. ARE APPROXIMATE. NOTIFY THE LANDSCAPE ARCHITECT IMMEDIATELY SHOULD THE LOCATION OF THESE ITEMS INTERFERE WITH THE PROPER EXECUTION OF WORK.
7. PROVIDE PRE-PLANT WEED CONTROL IN ALL PROPOSED PLANTER AREAS, PER SPECIFICATIONS, PRIOR TO START OF PLANTING. WEED CONTROL INCLUDES ERADICATION OF ALL EXISTING WEED PLANTS, AS WELL AS VIABLE SEEDS AND ROOTS. USE A NON-SELECTIVE SYSTEMIC CONTACT HERBICIDE, APPLIED PER MANUFACTURER'S RECOMMENDATIONS AND LEAVE SPRAYED PLANTS INTACT FOR AT LEAST 14 DAYS BEFORE REMOVING BY MOWING OR GRUBBING. APPLY WATER BY IRRIGATION OR BY HAND FOR 10 DAYS AS REQUIRED TO ACHIEVE WEED GERMINATION, AND THEN RE-APPLY CONTACT HERBICIDES PER ABOVE. REPEAT AS REQUIRED TO ELIMINATE ALL WEEDS PRIOR TO PROCEEDING WITH PLANTING OPERATIONS.
8. OBTAIN ALL SOIL FOR LANDSCAPE PLANTING AREAS OR BERMS FROM ON-SITE EXCAVATIONS. SHOULD IMPORT SOIL BE NECESSARY, SUBMIT IMPORT SOIL TESTING RESULTS FOR APPROVAL PRIOR TO IMPORTATION. SOIL SHALL BE SANDY LOAM CONTAINING NO TOXIC CHEMICALS OR ELEMENTS WHICH MAY INHIBIT OR RETARD NORMAL PLANT GROWTH.
9. AFTER ROUGH GRADES HAVE BEEN ESTABLISHED IN PLANTING AREAS, HAVE SOIL SAMPLES TAKEN AT THE LOCATIONS INDICATED ON PLANTING PLAN. HAVE SAMPLES TESTED BY WAYPOINT ANALYTICAL, (800) 264-4522, FOR SOIL FERTILITY. TAKE TWO SAMPLES AT EACH LOCATION: (1) GROUND LEVEL TO 10" DEEP, (2) 24" TO 36" DEEP. EACH SAMPLE SHALL CONTAIN APPROXIMATELY 1 QUART OF SOIL TO BE LABELED PER LOCATION AND DEPTH. INSTALL SOIL PREPARATION AND BACK FILL MIX TO CONFORM TO THESE RECOMMENDATIONS ONLY UPON RECEIPT OF WRITTEN CHANGE ORDER FROM THE OWNER. SUBMIT SOIL REPORT TO LANDSCAPE ARCHITECT PRIOR TO PLANTING.
10. ENSURE THAT ROUGH GRADING HAS BEEN CERTIFIED BY CIVIL ENGINEER AND THAT CIVIL ENGINEER OR OWNER'S AUTHORIZED REPRESENTATIVE HAS APPROVED FINE GRADING TO $\frac{1}{10}$TH OF A FOOT PRIOR TO BEGINNING SOIL PREPARATION OPERATIONS. PROVIDE FOR INCLUSION OF ALL AMENDMENTS, SETTLING, ETC. IN DETERMINATION OF FINAL GRADES.
11. ASSURE POSITIVE DRAINAGE IN ALL PLANTING AREAS, 2% MINIMUM.
12. LOCATE AND TAG ALL PLANT MATERIAL. MATERIAL SHALL BE IN CONFORMANCE WITH PLANTING PLAN DESCRIPTIONS AND SPECIFICATIONS. ALL PLANT MATERIAL IS SUBJECT TO REVIEW AND APPROVAL PRIOR TO INSTALLATION. PROVIDE PHOTOS OF REPRESENTATIVE EXAMPLES OF EACH TAGGED BLOCK TO LANDSCAPE ARCHITECT MINIMUM 21 DAYS BEFORE ANTICIPATED DELIVERY. PHOTOS SHALL INCLUDE A PERSON FOR SCALE PURPOSES. LANDSCAPE ARCHITECT MAY OPT TO REVIEW MATERIAL AT GROWING NURSERY. MATERIAL DELIVERED TO THE SITE MAY BE REJECTED BASED ON UNHEALTHY APPEARANCE OR NON-CONFORMANCE WITH SPECIFICATIONS EVEN IF PREVIOUSLY REVIEWED BY THE LANDSCAPE ARCHITECT OR THE OWNER.
13. FINAL LOCATION OF ALL PLANT MATERIALS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER'S AUTHORIZED REPRESENTATIVE.
14. PLANTING QUANTITIES ARE GIVEN FOR CONVENIENCE ONLY. PLANT SYMBOLS AND SPECIFIED SPACING SHALL TAKE PRECEDENCE.
15. AT EDGES OF PLANTING AREAS, THE CENTER LINE OF THE LAST ROW OF SHRUBS AND/OR GROUND COVER SHALL BE LOCATED AT ONE-HALF THE SPECIFIED ON CENTER SPACING FROM THE EDGE.
16. INSTALL GROUND COVER AND/OR SHRUB MASSES WITH TRIANGULAR SPACING UNLESS OTHERWISE INDICATED.
17. ALL CURVE TO CURVE AND CURVE TO TANGENT LINES SHALL BE NEAT, TRIM, SMOOTH AND UNIFORM.
18. REMOVE ALL NURSERY STAKES AND ESPALIER RACKS IMMEDIATELY AFTER INSTALLATION UPON PROVIDING SUPPORT PER PLAN.
19. DURING THE LENGTH OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER STAKING AND/OR GUYING OF TREES TO ENSURE STABILITY.
20. MULCH ALL LANDSCAPE AREAS (EXCLUDING TURF AND BIO-RETENTION BASIN BOTTOMS) WITH A 3" DEEP LAYER OF .5"-1.5" FOREST FLOOR BARK MULCH BY AGUINAGA GREEN OR APPROVED EQUAL, AT THE CONCLUSION OF PLANTING OPERATIONS. SUBMIT SAMPLE TO LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
21. KEEP BARK MULCH 4-INCHES CLEAR FROM BASE OF TREES, SHRUBS, GRASSES, AND SUCCULENTS.
22. CONTRACTOR SHALL REPLACE ANY EXISTING PLANT MATERIAL WHICH IS DAMAGED BY CONSTRUCTION OPERATIONS. REPLACEMENT PLANT MATERIAL MUST BE OF MATCHING SPECIES, INSTALLED FROM THE FOLLOWING MINIMUM SIZE: 15-GALLON TREE, 1-GALLON SHRUB, FLATTED GROUNDCOVER AND SODDED TURF.
23. INSTALLATIONS THAT ARE ADJACENT OPEN SPACE, NATURALIZED SLOPES OR UNDEVELOPED LAND ARE SUBJECT TO DAMAGE BY RODENTS OR DEER AND SHALL BE TREATED WITH AN APPROPRIATE REPELLENT IN A SPRAY AND/OR TABLET FORM. REPELLEX BY GROPOWER OR APPROVED EQUAL, THAT PROVIDES IMMEDIATE AND LONG TERM PROTECTION, SHALL BE USED.
24. INSTALL TEMPORARY EROSION CONTROL MATTING (SC-150 BY NORTH AMERICAN GREEN OR APPROVED EQUAL) ON ALL SLOPES 3:1 AND STEEPER AND 3' AND GREATER IN HEIGHT. SECURE NETTING IN PLACE WITH 9" LONG GALVANIZED SOIL STAPLES AT 12" O.C. ALONG THE TOP OF THE SLOPE AND 5' O.C. DOWN THE SLOPE IN BOTH DIRECTIONS. PROVIDE MINIMUM 24" OVERLAP AT TOP AND BOTTOM AND 36" OVERLAP ALONG THE SIDES.
25. ROOT BARRIERS SHALL BE INSTALLED AT ALL TREES WITHIN 5 FEET OF ANY HARDSCAPE, PAVEMENT OR CURB. ROOT BARRIERS ARE TO BE 'UB24-2' BY DEEP ROOT CORPORATION, (800) 458-7668, INSTALLED PER MANUFACTURER'S SPECIFICATIONS. NOTE: ROOT BARRIERS SHALL NOT BE WRAPPED AROUND THE ROOTBALL. ROOT BARRIERS INSTALLED ADJACENT TO A BIOSWALE SHALL NOT INTERFERE WITH DRAINAGE TO OR FROM THE BIOSWALE SYSTEM.
26. ANNUAL COLOR TO BE SELECTED BY LANDSCAPE ARCHITECT AT TIME OF INSTALLATION. REQUEST RECOMMENDATION A MINIMUM OF 48 HOURS IN ADVANCE OF NEED FOR DELIVERY.



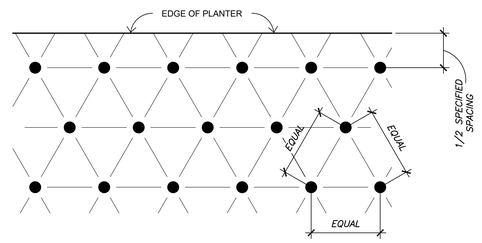
SECTION:

LEGEND:
1. SHRUB - PLUMB AND CENTER IN PIT.
2. WATER BASIN - 3" MINIMUM DEPTH. REMOVE BASIN IN LAWN AREAS AND AS DIRECTED BY LANDSCAPE ARCHITECT.
3. AMENDED BACKFILL PER SPECIFICATIONS.
4. SCARIFY SIDES AND BOTTOM OF SHRUB PIT.
5. NATIVE UNDISTURBED SOIL.
6. AFTER SETTLING SHRUB, SET TOP OF ROOTBALL 1" ABOVE SURROUNDING FINISH GRADE AND SLOPE GRADE FOR DRAINAGE.
7. CREATE A 45 DEGREE CHAMFERED PEDESTAL FROM UNDISTURBED NATIVE SOIL TO REDUCE TREE SETTLEMENT.
8. CUT SLOPE TO MEET PLANT PIT.
9. NEW FILL - COMPACT TO 85% RELATIVE COMPACTION.
10. PLANT TABLET PER SPECIFICATION.
11. FINISH GRADE OF SLOPE BEYOND.

NOTES:
A. FINISH GRADE OF SLOPE AFTER PLANTING SHALL NOT EXCEED 1:1 GRADIENT. INSTALL EROSION CONTROL FABRIC AS REQUIRED TO CONTROL EROSION DURING PLANT ESTABLISHMENT. SEE PLANTING NOTES FOR INFORMATION REGARDING EROSION CONTROL FABRIC.
B. KEEP MULCH 4" CLEAR OF CROWN, TYPICAL.
C. ROOTS MUST NOT BE ROOT BOUND. LOOSEN ANY TIGHTLY PACKED ROOTS.

(D) SHRUB PLANTING ON SLOPE

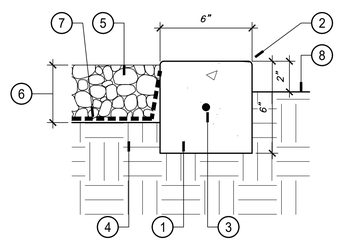
SCALE: N.T.S.



NOTES:
A. ALL SHRUBS / GROUND COVERS TO BE PLANTED AT EQUAL SPACING (TRIANGULAR) UNLESS OTHERWISE INDICATED ON PLANS. SEE LEGEND FOR SPACING REQUIREMENTS.
B. PLANT MATERIAL AT THE EDGE OF PLANTER AREAS SHALL BE LOCATED ½ OF THE ON-CENTER SPACING DISTANCE INDICATED IN THE LEGEND. FOR EXAMPLE, IF SPACING IS INDICATED AS 24" ON CENTER, PLANTS AT THE EDGE OF THE PLANTER SHALL BE LOCATED 12" FROM THE EDGE.
C. PLANT SPACING INDICATED IN THE PLANTING LEGEND IS THE MAXIMUM ALLOWED SPACING. IN NARROW PLANTER AREAS, SPACING MAY NEED TO BE REDUCED IN ORDER TO MAINTAIN THE MAXIMUM ON-CENTER SPACING AND SPACING FROM EDGE OF PLANTER AS INDICATED ON THIS DETAIL.

(E) SHRUB & GROUNDCOVER SPACING

SCALE: N.T.S.

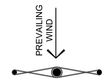


LEGEND:
1. CONCRETE MOW CURB - SEE HARDSCAPE SHEET FOR COLOR AND FINISH.
2. 1/4" RADIUS ON EDGES, TYPICAL.
3. CONTINUOUS #4 REBAR CENTERED IN CURB.
4. 90% COMPACTED SUBGRADE.
5. DECORATIVE COBBLE / DECOMPOSED GRANITE - SEE HARDSCAPE SHEETS FOR COLOR AND SUPPLIER.
6. PROVIDE MINIMUM 4" OF COVER OVER PROPOSED FINISH GRADE.
7. SINGLE LAYER OF MIRAFI 140N FILTER FABRIC SOIL SEPARATOR. WRAP FABRIC UP VERTICAL EDGES MINIMUM OF 2" AND SECURE WITH SOIL STAPLES AT 18" O.C. TO PREVENT VERTICAL MOVEMENT. OVERLAP SPLICES 12" MINIMUM.
8. FINISH GRADE OF SHRUB AREA.

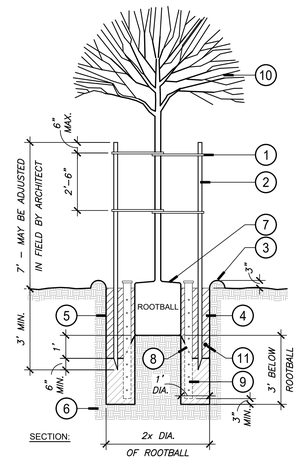
NOTES:
A. PROVIDE 1/8" WIDE BY 1-1/2" DEEP SAWCUT CONTRACTION JOINTS AT +/- 5' O.C. AND AT CHANGES OF DIRECTION. JOINT SPACING TO BE EQUAL THROUGHOUT.
B. PROVIDE MAXIMUM 1/4" ELEVATION CHANGE BETWEEN TOP OF CURB AND FINISH SURFACE OF D.G.,

(F) CONCRETE MOW CURB

SCALE: 3" = 1'-0"



STAKE LOCATION - PLAN VIEW



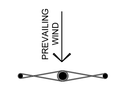
SECTION:

LEGEND:
1. (4) VIT RUBBER "CINCH TIES" - ATTACH TO WOOD STAKES IN A FIGURE EIGHT PATTERN WITH GALVANIZED ROOFING NAILS.
2. (2) 2" DIA. X 10' WOOD STAKES FOR 24" BOX AND SMALLER TREES OR (2) 3" DIA. X 10' WOOD STAKES FOR 36" BOX AND LARGER TREES. STAKES TO BE UNTREATED LODGEPOLE PINE WITH TAPERED POINTS AND CHAMFERED TOPS. EMBED STAKES 3' MINIMUM BELOW FINISH GRADE OR 6" BELOW BOTTOM OF PLANTING PIT. WHICHEVER IS GREATER. CUT TOP OF STAKES IF DIRECTED BY LANDSCAPE ARCHITECT. DO NOT ALLOW TOP OF STAKES TO EXTEND INTO TREE CANOPY. LONGER 12' LONG STAKES ARE TO BE USED, AS NECESSARY, TO PROVIDE ADDITIONAL SUPPORT FOR TALL AND/OR TOP-HEAVY TREES
3. WATER BASIN - 3" MINIMUM DEPTH. REMOVE BASIN IN LAWN AREAS AND AS DIRECTED BY LANDSCAPE ARCHITECT.
4. AMENDED BACKFILL PER SPECIFICATIONS.
5. SCARIFY SIDES AND BOTTOM OF PLANTING PIT.
6. NATIVE UNDISTURBED SOIL.
7. AFTER SETTLING TREE, SET TOP OF ROOTBALL 3" ABOVE SURROUNDING FINISH GRADE AND SLOPE GRADE FOR DRAINAGE.
8. CREATE A 45 DEGREE CHAMFERED PEDESTAL FROM UNDISTURBED NATIVE SOIL TO REDUCE TREE SETTLEMENT.
9. INSTALL (2) 4" DIA. SDR 35 PERFORATED PVC STANDPIPE WITH DRAIN SOCK AT OPPOSITE SIDES OF PLANTING PIT. PAINT TOP 6" OF STANDPIPE BLACK. TERMINATE TOP OF STANDPIPES WITH BLACK NDS #11 (4" ROUND) GRATES. INSTALL TOP OF GRATE 2" ABOVE FINISH GRADE. ORIENT STANDPIPES IN SAME LOCATION AT EACH TREE GROUPING TO FACILITATE VERIFICATION AND MAINTENANCE. PLANTING PIT TO DRAIN TOWARD STANDPIPES.
10. TREE - PLUMB AND CENTER IN PIT.
11. PLANT TABLET PER SPECIFICATION.

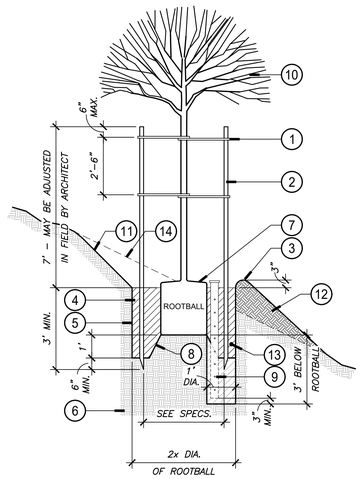
NOTES:
A. ENSURE THAT TREE TIES ARE INSTALLED LOOSE ENOUGH TO ALLOW FOR ADEQUATE TRUNK MOVEMENT.
B. INSTALL STANDPIPE FOR 24" BOX TREES AND LARGER TREES ONLY.
C. SLOPE BOTTOM OF PLANTING PIT TO SUMP AT 2% MINIMUM.
D. KEEP MULCH 4" CLEAR OF TRUNK, TYPICAL.
E. AT TURF AREAS, MAINTAIN TURF AT 12" CLEAR FROM BASE OF TRUNK AND INSTALL 'ARBOR GARD' TRUNK PROTECTOR.

(A) TREE PLANTING

SCALE: N.T.S.



STAKE LOCATION - PLAN VIEW



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10. TREE - PLUMB AND CENTER IN PIT.
11. CUT SLOPE TO MEET PLANTING PIT.
12. NEW FILL - COMPACT TO 85% RELATIVE COMPACTION.
13. PLANT TABLET PER SPECIFICATION.
14. FINISH GRADE OF SLOPE BEYOND.

NOTES:
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B. INSTALL STANDPIPE FOR 24" BOX TREES AND LARGER TREES ONLY.
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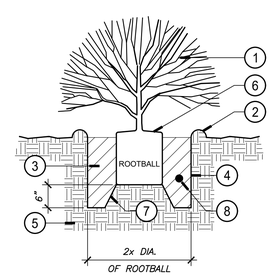
D. KEEP MULCH 4" CLEAR OF TRUNK, TYPICAL.
E. FINISH GRADE OF SLOPE AFTER PLANTING - SHALL NOT EXCEED 1:1 GRADIENT. INSTALL EROSION CONTROL FABRIC AS REQUIRED TO CONTROL EROSION DURING PLANT ESTABLISHMENT. SEE PLANTING NOTES FOR INFORMATION REGARDING EROSION CONTROL FABRIC.

(B) TREE PLANTING ON SLOPE

SCALE: N.T.S.



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NOTES:
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B. ROOTS MUST NOT BE ROOT BOUND. LOOSEN ANY TIGHTLY PACKED ROOTS.

(C) SHRUB PLANTING

SCALE: N.T.S.

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Client

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Project

TROJAN STORAGE
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5050 SCANDIA LANE,
CALABASAS, CA 91302

△	Issue	Date & Issue Description
--	--	02/03/21
		1ST CITY SUBMITTAL
--	--	05/07/21
		2ND CITY SUBMITTAL

Seal/Signature

REGISTERED LANDSCAPE ARCHITECT
JAMES J. RIDGELA
LICENSE #3868
05/07/21
(Exp. date)
STATE OF CALIFORNIA

Project Number

19076

Drawn By / Checked By

RLA / RLA

Description

PLANTING DETAILS & NOTES

L5.1

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. It is the intent of the specifications and drawings that the finished system is complete in every respect and shall be ready for operation satisfactory to the Owner.

B. The work shall include all materials, labor, services, transportation, and equipment necessary to perform the work as in these specifications, and as necessary to complete the contract.

1.2 CONSTRUCTION DRAWINGS

A. Due to the scale of the 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 his work accordingly, furnishing such fittings, etc. as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting, site utilities and architectural features.

B. All work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications. When an item is shown on the plans but not shown on the specifications or vice versa, it shall be deemed to be as shown on both. The Landscape Architect shall have final authority for clarification. When a conflict occurs between an item shown on the plan and as shown on the specifications, the Landscape Architect shall have final authority for clarification.

C. 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 the design. Such obstructions or differences should be brought to the attention of the Landscape Architect as soon as detected. In the event this notification is not performed, the Irrigation Contractor shall assume full responsibility for any revisions necessary.

1.3 QUALITY ASSURANCE

A. Provide at least one English speaking person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the manufacturer's recommended methods of installation and who shall direct all work performed under this section.

B. Manufacturer's directions and detailed drawings shall be followed in all cases where the manufacturer of articles used in this contract furnishes directions covering points now shown in the drawings and specifications.

C. All local, municipal and state laws, rules and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these specifications, and their provisions shall be carried out by the Contractor. Anything contained in these specifications shall not be construed to conflict with any of the above rules and regulations of the same. However, when these specifications and drawings call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by the above rules and regulations, the provisions of these specifications and drawings shall take precedence.

D. All materials supplied for this project shall be new and free from any defects. All defective materials shall be replaced immediately.

1.4 SUBMITTALS

A. Materials List:

1. After award of contract and before any irrigation system materials are delivered to the job site, submit to the Landscape Architect a complete list of all irrigation systems, materials, or processes proposed to be furnished and installed as part of this contract.
2. Show manufacturer's name and catalog number for each item, furnish complete catalog cuts and technical data, and furnish the manufacturer's recommendations as to the method of installation.
3. No substitutions will be allowed without prior written acceptance by the Landscape Architect or Owner's authorized representative.
4. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

B. Substitutions:

If the Contractor wishes to substitute any equipment or materials for those listed on the irrigation drawings and specifications, he may do so by providing the following information to the Landscape Architect for approval:

1. A written statement indicating the reason for making the substitution and the difference in installed price if the item is accepted.
2. Catalog cut sheets, technical data and performance information for each substitute item.

1.5 EXISTING CONDITIONS

A. The Contractor shall verify and be familiar with the locations, size and detail of points of connection provided as the source of water, electrical supply, and telephone line connection to the irrigation system.

B. Irrigation design is based on the available static pressure shown on the drawings. Contractor shall verify static water on the project prior to the start of construction. Should a discrepancy exist, notify the Landscape Architect and Owner's authorized representative prior to beginning construction.

C. Prior to cutting into the soil, the Contractor shall locate all cables, conduits, sewer lines, and other utilities as are commonly encountered underground and he shall take proper precautions not to damage or disturb such improvements. If a conflict exists between such obstacles and the proposed work, the Contractor shall promptly notify the Landscape Architect who will arrange for relocations. The Irrigation Contractor will proceed in the same manner if a rock layer or any other such conditions are encountered.

D. The Contractor shall protect all existing utilities and features to remain on and adjacent to the project site during construction. Contractor shall repair, at his own cost, all damage resulting from his operations or negligence.

E. The Irrigation Contractor shall coordinate with the General Contractor for installation of required sleeving as shown on the plans.

1.6 INSPECTIONS

A. The Landscape Architect shall be permitted to visit and inspect at all times any part of the work and shall be provided safe access for such visits.

B. Where the specifications require work to be tested by the Contractor, it shall not be covered over until accepted by the Landscape Architect, Owner's authorized representative, and/or governing agencies. The Irrigation Contractor shall be solely responsible for notifying the Landscape Architect, Owner, and governing agencies, a minimum of 48 hours in advance, where and when the work is ready for testing. Should any work be covered without testing or acceptance, it shall be, if so ordered, uncovered at the Irrigation Contractor's expense.

C. Inspections will be required for the following at a minimum. Landscape Architect may opt to review photographs of pressure test (with image of pressure gauge and time stamps) and sample dripline layout.

1. Pressure test of irrigation main line (Three hours at 150 PSI)
2. Sample layout of dripline irrigation.
3. Coverage test of irrigation sprinkler system.
4. Final inspection prior to start of maintenance period
5. Final acceptance

D. Site observations and testing will not commence without the record drawings a prepared by the Irrigation Contractor. Record drawings must be complete and up to date for each site visit.

E. Work which fails testing and is not accepted will be retested.

1.7 STORAGE AND HANDLING

A. Use all means necessary to protect irrigation system materials before, during, and after installation and to protect the installation work and materials of all other trades. In the event of damage, immediately make all repairs and replacements necessary to the acceptance of the Landscape Architect and Owner.

B. Exercise care in handling, loading, unloading, and storing plastic pipe and fittings under cover until ready to install. Transport plastic pipe only on a vehicle with a bed long enough to allow the pipe to lay flat to avoid undue bending and concentrated external load.

1.8 CLEANUP AND DISPOSAL

A. Dispose of waste, trash, and debris in accordance with applicable laws and ordinances and as prescribed by authorities having jurisdiction. Bury no such waste material and debris on the site. Burning of trash and debris will not be permitted. The Contractor shall remove and dispose of rubbish and debris generated by his work and workmen at frequent intervals or when ordered to do so by the Owner's authorized representative.

B. At the time of completion the entire site will be cleared of tools, equipment, rubbish and debris which shall be disposed of off-site in a legal disposal area.

1.9 TURNOVER ITEMS

A. Record Drawings:

1. Record accurately on one set of contract drawings all changes in the work constituting departures from the original contract drawings.
2. The changes and dimensions shall be recorded in a legible and workmanlike manner to the satisfaction of the Landscape Architect. Prior to final inspection of work, submit record drawings to the Landscape Architect for review and approval.
3. Dimensions from/to permanent points of reference such as buildings, sidewalks, curbs, etc. shall be shown. Data on record drawings shall be recorded on a day to day basis as the project is being installed. All lettering on drawings shall be minimum 1/8 inch in size.
4. Show locations of the following items:
   a. Point of connection (including water meters, backflow preventors, master control valves, etc.)
   b. Routing of sprinkler pressure lines (dimensions shown at a maximum of 100 feet along routing and at all changes in direction)
   c. Gate valves
   d. Automatic remote control valves
   e. Quick coupling valves
   f. Routing of control wires
   g. Irrigation controllers
   h. Related equipment (as may be directed)
5. Maintain record drawings on site at all times. Upon completion of work, transfer all as-built information and dimensions to a clean set of bond prints, using red, waterproof ink.

B. Controller Charts:

1. Record drawings must be approved by Landscape Architect before controller charts are prepared.
2. Provide one controller chart for each automatic controller. Chart shall show the area covered by the particular controller.
3. The chart is to be a reduced copy of the actual "record" drawing. In the event the controller sequence is not legible, when the drawing is reduced, it shall be enlarged to a readable size. Print shall be black and white, with a different color used to indicate the area of coverage for each station.
4. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 10 millimeters in thickness, with a matte finish.

C. Operation and Maintenance Manuals:

1. Two individually bound copies of operation and maintenance manuals shall be delivered to the Landscape Architect or Owner's authorized representative at least 10 calendar days prior to final inspection. The manuals shall describe the material installed and the proper operation of the system.
2. Each complete, bound manual shall include the following information:
   a. Index sheet stating Contractor's address and telephone number, duration of guarantee period, list of equipment including names and addresses of local manufacturer representatives.
   b. Operating and maintenance instructions for all equipment.
   c. Spare parts list and related manufacturer information for all equipment.
   d. Guarantee Statement.

D. Equipment:

1. Supply as a part of this contract the following items:
   a. One (1) tool for disassembly and adjustment of each type of sprinkler head used in the irrigation system.
   b. Padlock and two (2) keys for backflow enclosure (if used).
   c. Two keys for each automatic controller.
   d. Two quick coupler keys with a 3/4 inch bronze hose bib, bent nose type with hand wheel and two coupler lid keys.
   e. One valve box cover key or wrench.
   f. One 5-foot tee wrench for operating butterfly valves (if used).
   g. Two (2) extra sprinkler heads of each size and type.
2. The above equipment shall be turned over to Owner's authorized representative at the final inspection.

1.10 COMPLETION

A. At the time of the pre-maintenance period inspection, the Landscape Architect, Owner's authorized representative, and governing agencies will inspect the work, and if not accepted, will prepare a list of items to be completed by the Contractor. At the time of the post-maintenance period or final inspection, the work will be reinspected and final acceptance will be in writing by the Landscape Architect, Owner's authorized representative, and governing agencies.

B. The Owner's authorized representative shall have final authority on all portions of the work.

C. After the system has been completed, the Contractor shall instruct Owner's authorized representative in the operation and maintenance of the irrigation system and shall furnish a complete set of operating and maintenance instructions.

D. Any settling of trenches which may occur during the one-year period following acceptance shall be repaired. Repairs shall include the complete restoration of all damage to planting, paving or other improvements of any kind as a result of the work.

1.11 GUARANTEE

A. The entire sprinkler system, including all work done under this contract, shall be unconditionally guaranteed against all defects and fault of material and workmanship, including settling of backfilled areas below grade, for a period of one (1) year following the filing of the Notice of Completion.

Should any problem with the irrigation system be discovered within the guarantee period, it shall be corrected by the Contractor at no additional expense to Owner within ten (10) calendar days of receipt of written notice from Owner. When the nature of the repairs, as determined by the Owner, constitutes an emergency (i.e. broken pressure line) the Owner may proceed to make repairs at the Contractor's expense. Any and all damages to existing improvements, resulting either from faulty materials or workmanship, shall be repaired at the Contractor's expense.

B. Guarantee shall be submitted on Contractor's own letterhead as follows:

GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM

We hereby guarantee that the sprinkler irrigation system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse, or neglect excepted. We agree to repair or replace any defective material during the period of one year from date of filing of the Notice of Completion and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the Owner. We shall make such repairs or replacements within 10 calendar days following written notification by the Owner. In the event of failure to make such repairs or replacements within the time specified after receipt of written notice from Owner, we authorize the Owner to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.

PROJECT NAME:

PROJECT LOCATION:

CONTRACTOR NAME:

ADDRESS:

TELEPHONE:

SIGNED:

DATE:

PART 2 - PRODUCTS

2.1 SUMMARY

Use only new materials of the manufacturer, size and type shown on the drawings and specifications. Materials or equipment installed or furnished that do not meet Landscape Architect's, Owner's, or governing agencies standards will be rejected and shall be removed from the site at no expense to the Owner.

2.2 PIPING

A. Pressure supply line from point of connection through basket strainer unit shall be Type "K" copper or brass pipe.

B. Pressure supply lines 3 inches in diameter and larger shall be Class 200 PVC with bell-and-gasket joints. Piping shall conform to ASTM D2241.

C. Pressure supply lines 2 inches to 2-1/2 inches in diameter shall be Class 315 solvent weld PVC. Piping shall conform to ASTM D1784.

D. Pressure supply lines 1-1/2 inches and smaller in diameter shall be Schedule 40 solvent weld PVC. Piping shall conform to ASTM D1784.

E. Non-pressure lines 3/4 inches in diameter and larger downstream of the remote control valve shall be Schedule 40 PVC or as stated on Irrigation Materials Legend on plans. Non-pressure lines 1 inch and larger to conform to ASTM D1784.

2.3 METAL PIPE AND FITTINGS

A. Brass pipe shall be 85 percent red brass, ANSI, IPS Standard 125 pounds, Schedule 40 screwed pipe.

B. Fittings shall be medium brass, screwed 125-pound class.

C. Copper pipe and fittings shall be Type "K" sweat soldered.

2.4 PLASTIC PIPE AND FITTINGS

A. Pipe shall be marked continuously with manufacturer's name, nominal pipe size, schedule or class, PVC type and grade, National Sanitation Foundation approval, Commercial Standards designation, and date of extrusion.

B. All plastic pipe shall be extruded of an improved PVC virgin pipe compound in accordance with ASATM D2241 or ASTM D1784.

C. All PVC fittings shall be standard weight Schedule 80 for constant-pressure mainline fittings and screwed fittings, and Schedule 40 for non-pressure lateral fittings and shall be injection molded of an improved virgin PVC fitting compound. Slip PVC fittings shall be the "deep socket" bracketed type. Threaded plastic fittings shall be injection molded. All tees and ells shall be side gated. All fittings shall conform to ASTM D2466 and D2467.

D. All threaded nipples shall be standard weight Schedule 80 with molded threads and shall conform to ASTM D1785.

E. All solvent cementing of plastic pipe and fittings shall be a two-step process, using primer and solvent cement applied per the manufacturer's recommendations. Cement shall be of a fluid consistency, not gel-like or ropy. Solvent cementing shall be in conformance with ASTM D2564 and ASTM D2855.

F. When connection is plastic to metal, female adapters shall be hand tightened, plus one turn with a strap wrench. Joint compound shall be non-lead base Teflon paste, tape, or equal.

2.5 VALVES

A. Gate Valves:

1. Gate valves shall be of the manufacturer, size, and type indicated on the drawings.
2. Gate valves shall have threaded ASTM B-62 bronze body, bonnet and wedge, silicon bronze stem, and malleable iron handwheel.
3. All Gate valves shall have a minimum working pressure of not less than 150 psi and shall conform to AWWA standards.

B. Quick Coupler Valves:

1. Quick coupler valves shall be of the manufacturer, size, and type indicated on the drawings.
2. Quick coupler valves shall be brass with a wall thickness guaranteed to withstand normal working pressure of 150 psi without leakage. Valves shall have ¾ female threads opening at base, with two-piece body. Valves to be operated only with a coupler key, designed for that purpose. Coupler key is inserted into valve and a positive, watertight connection shall be made between the coupler key and valve. Hinge cover shall be the locking type constructed of brass with a rubber-like vinyl cover.

C. Automatic Control Valves:

1. Automatic control valves shall be of the manufacturer, size, and type indicated on the drawings.
2. Automatic control valves shall be electrically operated.
3. Automatic control valves shall include manual flow adjustment.

D. Anti-drain Valves:

1. Anti-drain valves shall be of the manufacturer, size and type indicated on the drawings.
2. Anti-drain valves shall have 18-8 stainless steel springs and valve stems with Buna-N seals.
3. Anti-drain valves will have threaded connections the size of the riser or pipe they are to be installed onto, or the next available size. No slip connection anti-drain valves are allowed.

2.6 VALVE BOXES

A. Valve boxes shall be fabricated from a durable, weather-resistant plastic material resistant to sunlight and chemical action of soils.

B. The valve box cover shall be green in color and secured with a hidden latch mechanism or bolts.

C. The cover and box shall be capable of sustaining a load of 1,500 pounds.

D. Valve box extensions shall be by the same manufacturer as the valve box.

E. Automatic control valve boxes shall be 16 inch x11 inch x12 inch rectangular size. Valve box covers shall be marked "RCV" with the valve identification number "heat branded" onto the cover in 2-inch high letters/numbers.

F. Ball valve and quick coupler valve boxes shall be 10-inch diameter circular size. Valve box covers shall be marked with either "BV" or "QCV" with the valve identification "heat branded" onto the cover in 2-inch high letters.

2.7 AUTOMATIC CONTROLLER

A. Automatic controller shall be of the manufacturer, size, and type indicated on the drawings.

B. Automatic controller enclosures shall be of the manufacturer, size, and type indicated on the drawings. Enclosure shall be vandal-resistant, ventilated and waterproof.

2.8 ELECTRICAL

A. All electrical equipment shall be NEMA Type 3, waterproofed for exterior installations.

B. All electrical work shall conform to local codes and ordinances.

2.9 LOW VOLTAGE CONTROL WIRING

A. Remote control wire shall be direct-burial AWG-UF type, size in no case smaller than 14 gauge.

B. Connections shall be either epoxy-sealed packet type or Penn-Tite connectors.

C. Ground wires shall be white in color. Control wires shall be red (where two or more controllers are used, the control wires shall be a different color for each controller. These colors shall be noted on the "Record Drawings" plans located on controller door).

2.10 IRRIGATION HEADS

A. Sprinkler heads shall be of the manufacturer, size, type, with radius of throw, operating pressure and discharge rate indicated on the drawings.

B. Pop-up heads and riser heads shall be used.

2.11 DRIP IRRIGATION COMPONENTS

A. Dripline tubing shall be of the manufacturer, model number and distribution (emitter flow and spacing) indicated on the drawings.

B. Drip emitters, bubblers and micro-sprays shall be of the manufacturer and model number indicated on the drawings.

C. Distribution tubing, connectors and insert or compression fittings shall be of the manufacturer and type indicated on the drawings.

2.12 RAIN SENSOR

A. Rain sensor shall be of the manufacturer, size and type indicated on the drawings.

PART 3 - EXECUTION

3.1 SITE CONDITIONS

A. Inspections:

1. Prior to all work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
2. Verify that irrigation system may be installed in accordance with all pertinent codes and regulations, the original design, the referenced standards, and the manufacturer's recommendations.

B. Discrepancies:

1. In the event of discrepancy, immediately notify the Landscape Architect or Owner's authorized representative.
2. Do not proceed with installation in areas of discrepancy until all discrepancies have been resolved.

C. Grades:

1. Before starting work, carefully check all grades to determine that work may safely proceed, keeping within the specified material depths with respect to finish grade.
2. Final grades shall be accepted by the Engineer before work on this section will be allowed to begin.

D. Field Measurements:

1. Make all necessary measurements in the field to ensure precise fit of items in accordance with the original design. Contractor shall coordinate the installation of all irrigation materials with all other work.
2. All scaled dimensions are approximate. The Contractor shall check and verify all size dimensions prior to proceeding with work under this section.
3. Exercise extreme care in excavating and working near existing utilities. Contractor shall be responsible for damages to utilities which are caused by his operations or neglect.

E. Diagrammatic Intent:

The drawings are essentially diagrammatic. The size and location of equipment and fixtures are drawn to scale where possible. Provide offsets in piping and changes in equipment locations as necessary to conform to structures and to avoid obstructions or conflicts with other work.

F. Layout:

1. Prior to installation, the Contractor shall stake out all pressure supply lines, routing and location of sprinkler heads, valves, backflow preventor, and automatic controller.
2. Layout irrigation system and make minor adjustments required due to differences between site and drawings. Where piping is shown on drawings under paved areas, but running parallel and adjacent to planted areas, install the piping in the planted areas.

G. Water Supply

Connections to, or the installation of, the water supply shall be at the locations shown on the drawings. Minor changes caused by actual site conditions shall be made.

H. Electrical Service:

1. Connections to the electrical supply shall be at the locations shown on the drawings. Minor changes caused by actual site conditions shall be made.
2. Contractor shall make 120 volt connection to the irrigation controllers. Electrical power source to controller locations shall be provided by others.

3.2 TRENCHING

A. Excavations shall be straight with vertical sides, even grade, and support pipe continuously on bottom of trench. Trenching excavation shall follow layout indicated on drawings to the depths below finished grade and as noted. Where lines occur under paved area, these dimensions shall be considered below subgrade.

B. Provide minimum cover of 24 inches on pressure supply lines 4 inches and larger. Provide minimum cover of 18 inches on pressure supply lines 3 inches and smaller.

C. Provide minimum cover of 18 inches for control wires.

D. Provide minimum cover of 12 inches for non-pressure lines.

E. Pipes installed in a common trench shall have a 6-inch minimum space between pipes.

3.3 BACKFILLING

A. Backfill material on all lines shall be the same as adjacent soil free of debris, litter, and rocks over 1/2 -inch in diameter

B. Backfill shall be tamped in 4-inch layers under the pipe and uniformly on both sides for the full width of the trench and the full length of the pipe. Backfill materials shall be sufficiently damp to permit thorough compaction, free of voids. Backfill shall be compacted to dry density equal to adjacent undisturbed soil and shall conform to adjacent grades.

C. Flooding in lieu of tamping is not allowed.

D. Under no circumstances shall truck wheels be used to compact backfill.

E. Provide sand backfill a minimum of 6 inches over and under all piping under paved areas.

3.4 PIPING

A. Piping under existing pavement may be installed by jacking, boring, or hydraulic driving. No hydraulic driving is permitted under asphalt pavement.

B. Cutting or breaking of existing pavement is not permitted, unless specifically indicated on the drawings.

C. Carefully inspect all pipe and fittings before installation, removing dirt, scale, burrs and reaming. Install pipe with all markings up for visual inspection and verification.

D. Remove all dented and damaged pipe sections.

E. All lines shall have a minimum clearance of 6 inches from each other and 12 inches from lines of other trades.

F. Parallel lines shall not be installed directly over each other.

G. In solvent welding, use only the specified primer and solvent cement and make all joints in accordance with the manufacturer's recommended methods including wiping all excess solvent from each weld. Allow solvent welds at least 15 minutes setup time before moving or handling and 24 hours curing time before filling.

H. PVC pipe shall be installed in a manner which will provide for expansion and contraction as recommended by the pipe manufacturer.

I. Centerload all plastic pipe prior to pressure testing.

J. All threaded plastic-to-plastic connections shall be assembled using Teflon tape.

K. For plastic-to-metal connections, work the metal connections first. Use a non-hardening pipe dope on all threaded plastic-to-metal. All plastic-to-metal connections shall be made with plastic female adapters.

L. All solvent weld mainline piping is to be secured with minimum one cubic foot thrust blocks at all directional changes. Bell and gasket pipe to have a Leemco joint restraint system installed on all fittings in lieu of thrust blocks.

3.5 CONTROLLER

A. The exact location of the controller shall be approved by the Landscape Architect or Owner's authorized representative before installation. The electrical service shall be coordinated with this location.

B. The Irrigation Contractor shall be responsible for the final electrical hook up to the irrigation controller.

C. The irrigation system shall be programmed to operate during the periods of minimal use of the design area or in accordance with the irrigation schedule provided.

3.6 CONTROL WIRING

A. Low voltage control wiring shall occupy the same trench and shall be installed along the same route as the pressure supply lines whenever possible.

B. Where more than one wire is placed in a trench, the wiring shall be taped together in a bundle at intervals of 10 feet. Bundle shall be secured to the mainline with tape at intervals of 20 feet.

C. All connections shall be of an approved type and shall occur in a valve box. Provide an 18-inch service loop at each connection.

D. An expansion loop of 12 inches shall be provided at each wire connection and/or directional change, and one of 24 inches shall be provided at each remote control valve.

E. A continuous run of wire shall be used between a controller and each remote control valve. Under no circumstances shall splices be used without prior approval.

F. Pull boxes for low voltage control wires shall be provided at a spacing of 480 feet on center along the wire route. An expansion loop of 24 inches shall be provided at each control wire pull box.

3.7 VALVES

A. Automatic control valves, manual valves, gate valves, and ball valves are to be installed in the approximate locations indicated on the drawings.

B. Valve shall be installed in shrub areas whenever possible.

C. Install all valves as indicated on the drawings.

D. Valves to be installed in valve boxes shall be installed one valve per box.

3.8 VALVE BOXES

A. Valve boxes shall be installed in shrub areas whenever possible.

B. Each valve box shall be installed on a foundation of 3/4 inch gravel backfill, 3 cubic feet minimum. Valve boxes shall be installed with their tops 1/2 inch above the surface of surrounding finish grade in lawn areas and 2 inches above finish grade in ground cover areas.

3.9 SPRINKLER HEADS

A. Sprinkler heads shall be installed as indicated on the drawings.

B. Spacing of heads shall not exceed maximum indicated on the drawings.

C. Riser nipples shall be of the same size as the riser opening in the sprinkler body.

D. Pop-up sprinkler heads shall not be installed using side outlet openings.

3.10 DRIP IRRIGATION

A. Provide sample layout for one complete drip valve control zone, including all components, dripline and/or emitter spacing for review and approval by Landscape Architect.

B. Thoroughly flush all driplines and distribution tubing prior to installing drip emitters, air relief valves, flush valves and similar components.

C. All drip irrigation shall be installed prior to installation of plant material.

3.11 MISCELLANEOUS EQUIPMENT

A. Install all assemblies specified herein according to the respective detail drawings or specifications, using best standard practices.

B. Quick coupler valves shall be set approximately 12 inches from walks, curbs, header boards, or paved areas where applicable.

C. Unless designed as an integral part of the irrigation head, anti-drain valves will be installed under every head. The anti-drain valve will be the same diameter as the riser and be integral to the riser assembly.

D. Install rain sensors as indicated on the drawings and as recommended by the manufacturer.

3.12 FLUSHING THE SYSTEM

A. Prior to installation of sprinkler nozzles, the valves shall be opened and a full head of water used to flush out the lines and risers.

B. Sprinkler nozzles shall be installed after flushing the system has been completed.

3.13 ADJUSTING THE SYSTEM

A. Contractor shall adjust valves, align heads, and check coverage of each system prior to coverage test.

B. If it is determined by the Landscape Architect or Owner's authorized representative that additional adjustments or nozzle changes will be required to provide proper coverage, all necessary changes or adjustments shall be made prior to any planting.

C. Automatic control valves are to be adjusted so that the sprinkler heads operate at the pressure recommended by the manufacturer.

3.14 TESTING AND OBSERVATION

A. Do not allow or cause any of the work of this section to be covered up or enclosed until it has been observed, tested and accepted by the Landscape Architect, Owner, and/or governing agencies.

B. The Contractor shall be solely responsible for notifying the Landscape Architect, Owner, and governing agencies, a minimum of 48 hours in advance, where and when the work is ready for testing.

C. When the sprinkler system is completed, the Contractor shall perform a coverage test of each system in its entirety to determine if the water coverage for the planted areas is complete and adequate in the presence of the Landscape Architect.

D. The Contractor shall furnish all materials and perform all work required to correct any inadequacies of coverage due to deviations from the plans, or where the system has been willfully installed when it is obviously inadequate, without bringing this to the attention of the Landscape Architect.

E. Final inspection will not commence without completed record drawings as prepared by the Irrigation Contractor.

3.15 MAINTENANCE

A. Maintenance period does not start until all elements of construction, planting, and irrigation for the complete project are in accordance with the contract documents for this project.

B. Request an inspection to begin maintenance period after all landscape elements have been completed in accordance with the contract documents. Maintenance period commences after date of Substantial Completion as determined by the Landscape Architect and confirmed in written notification by the Owner and continues for a minimum period of 90 days.

C. During the maintenance period the Contractor shall adjust and maintain the irrigation system in a fully operational condition providing complete irrigation coverage to all intended plantings.

3.16 COMPLETION CLEANING

Clean-up shall be made as each portion of the work progresses. Refuse and excess dirt shall be removed from the site, all walks and paving shall be broomed, and any damage sustained on the work of others shall be repaired to original conditions.

END OF SECTION 328400

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Client

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90278

Project

TROJAN STORAGE
CALABASAS
5050 SCANDIA LANE,
CALABASAS, CA 91302

△	Issue	Date & Issue Description
--	--	02/03/21
		1ST CITY SUBMITTAL
--	--	05/07/21
		2ND CITY SUBMITTAL

Seal/Signature

REGISTERED LANDSCAPE ARCHITECT
NICHOLAS J. RUDY
No. 5102
05/07/21
Date
05/31/23
(Exp. Date)
STATE OF CALIFORNIA

Project Number

19076

Drawn By / Checked By

RLA / RLA

Description

LANDSCAPE SPECIFICATIONS

L6.1

PLANTS 329300 - 18

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Soil Preparation.
2. Planting.
3. Staking.
4. Hydroseeding.
5. Clean up.

B. Related Sections:
1. Section 328400 - Planting Irrigation
2. Section 329113 - Soil Preparation
3. Section 329200 - Turf and Grasses

1.2 DEFINITIONS

A. Backfill: The earth used to replace or the act of replacing earth in an excavation.

B. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.

C. Finish Grade: Elevation of finished surface of planting soil.

D. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.

E. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

F. Pests: Living organisms that occur where they are not desired, or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

G. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

H. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

I. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

J. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

K. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.3 ACTION SUBMITTALS

A. Product Data: Prior to installation submit for review and approval specifications and product information on items being used on project. Submit bound with list of items as cover sheet. Conform to Section 01300. For each type of product indicated, including soils.
1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.
2. Pesticide and Herbicides: Include product label and manufacturer's application instructions specific to the Project.
3. Plant Photographs: Include color photographs in digital format of each required species and size of plant material as it will be furnished to the Project. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. For species where more than 20 plants are required, include a minimum of three photographs showing the average plant, the best quality plant, and the worst quality plant to be furnished. Identify each photograph with the full scientific name of the plant, plant size, and name of the growing nursery

B. Samples of mineral and / or organic mulch.

1.4 INFORMATIONAL SUBMITTALS

A. Product certificates.

B. Material test reports.

C. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of plants during a calendar year.

1.5 OBSERVATION SCHEDULE

A. Notify Architect in advance for the following inspections, according to the time specified:
1. Pre-Job conference - 7 days
2. Final grade review - 48 hours
3. Plant material review - 48 hours
4. Plant layout review - 48 hours
5. Soil preparation and planting operations review - 48 hours
6. Pre-maintenance - 7 days
7. Final inspection - 7 days

B. No site visits shall commence without all items noted in previous observation reports either completed or remedied unless such compliance has been waived by the Architect.

1.6 QUALITY ASSURANCE

A. Soil Analysis: For each un-amended soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory.
1. The soil-testing laboratory shall oversee soil sampling.
2. Report suitability of tested soil for plant growth.
   a. State recommendations for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.
   b. Report presence of problem salts, minerals, or heavy metals; if present, provide additional recommendations for corrective action.

B. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.

C. Source Quality:
1. At least 60 days prior to planting submit documentation that all plant materials are available. Materials are subject to inspection after confirmation of ordering.
2. Materials are subject to inspection at place of growth and upon delivery for conformity to specifications. Inspection, approval and rejection can also take place at other times during progress of work.
3. Request, in writing, inspection of plant materials at place of growth. Identify place of growth and quantity of plants to be inspected.
4. As described in the planting notes for tree tagging, the Architect may opt to either visit the tree nursery or review photographs submitted by the Contractor. In either case, visit the nursery and select trees conforming to specifications prior to review by the Architect.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

B. Handle planting stock by root ball.

C. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

D. Deliver fertilizer to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trade mark, and conformance to State law.

E. Provide copies of receipts for all amendments specified in these specifications or in the agronomic Soils Report.

F. Deliver plants with legible identification labels. Label trees, evergreens, bundles of containers of like shrubs and groundcover plants. State correct plant name and size indicated on plant list. Use durable waterproof labels with water-resistant ink which will remain legible for at least 60 days.

G. Protect plant material during delivery to prevent damage to root ball or desiccation of leaves.

H. Notify Architect 7 days in advance of delivery of plant materials and submit itemization of plants in each delivery.

I. Store plants in shade and protect from weather.

J. Maintain and protect plant material in a healthy, vigorous condition.

K. Exercise care in handling, loading, unloading and storing of plant materials. Replace damaged materials.

1.8 WARRANTY

A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
1. Warranty Periods from date of end of 90-day maintenance period:
   a. Trees: 12 months.
   b. Shrubs, Vines, Ornamental Grasses, Ground Covers, Biennials, and Perennials: 90 days.
   c. Annuals: 90 days.

1.9 MAINTENANCE SERVICE

A. Initial Maintenance Service: Provide maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established but for not less than maintenance period below.
1. Maintenance Period for Trees and Shrubs: 90 days from date of Substantial Completion.
2. Maintenance Period for Ground Cover and Other Plants: 90 days from date of Substantial Completion.Revise minimum maintenance period in subparagraphs below to suit Project.

B. Continuously maintain all site areas involved in this contract during the progress of work and during the maintenance period until final acceptance of the work by City. Improper maintenance or possible poor condition of the project at the termination of the scheduled maintenance period may cause postponement of the final completion date of the Contract. Continue maintenance until acceptable to the Owner.

C. Provide sufficient numbers of workers and adequate equipment to perform work during maintenance period.

D. Maintenance period does not start until all elements of construction, planting, and irrigation for the complete project are in accordance with the contract documents for this project.

E. Request an inspection to begin maintenance period after all planting and related work has been completed in accordance with other contract documents. Maintenance period commences after date of Substantial Completion as determined by Landscape Architect and confirmed in written notification by the Owner.

F. Prior to commencement of maintenance period, ensure that all ground cover and lawn areas have been planted and that all lawn areas show an even, healthy stand of grass seedlings or sod, grass having been mown twice.

G. Any day or days that there is failure to properly maintain plantings, replace suitable plants, perform weed control or maintain hardscape areas will not be credited as part of the 90 days maintenance. The project will not be segmented into maintenance phases.

H. Keep paved areas free of silt, dirt, leaves and other planting area debris. Maintain these areas at least broom clean through the duration of the maintenance period, cleaning no less often than once per week.

I. Guarantee: Guarantee plant material against any and all poor, inadequate or inferior materials and workmanship for one year. Replace plants found to be dead or in poor condition due to faulty materials or workmanship, at no extra cost to owner.

J. Replacement: Replace materials found to be dead, missing or in poor condition during the maintenance period immediately. The Architect is the sole judge of the acceptability of condition. Make replacements of materials within 15 days after condition develops or written notification from Architect has been sent. Architect has the right to make emergency repairs without releasing Contractor's guarantee and warranty to Architect.

K. Prior to date of final inspection, acquire approved reproducible prints and finally record from the job record set, all changes made during construction and deliver them to Architect.

L. Deliver guarantees to Architect.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant Legend shown on Drawings and complying with ANSI Z60.1. Provide plant materials in accordance with the State Department of Agriculture's regulation for nursery inspections, rules and ratings. Provide plants with a normal habit of growth, sound, healthy, vigorous and free from insect infestations, plant diseases, sunscalds, and other disfigurements. Ensure tree trunks are sturdy and have well-hardened systems and vigorous and fibrous root systems which are not root or pot-bound. In the event of disagreement as to condition of root system, the root conditions of the furnished plants in containers will be determined by removal of earth from the roots of not less than two plants, or more than 2 percent of the total number of plants of each species or variety. Where container grown plants are from several sources, roots of not less than two plants of each species or variety from each source will be inspected. In the event that the sample plants inspected are found to be defective, the entire lot or lots of plants represented by the defective samples may be rejected. Plants rendered unsuitable for planting due to this inspection will be considered samples and will be provided at no cost to the Owner.

B. Size of plants will comply with ANSIZ60.1 and correspond with that normally expected for species and variety of commercially available nursery stock or as specified on drawings. The minimum acceptable size of plants measured before pruning with the branches in normal position, must conform to the measurements specified in the plant list. If approved by the Owner, larger sized plants may be used. If larger plants are approved for use, the ball of earth or spread of roots for each plant will be increased proportionately.

C. Plants not meeting requirements of these specifications are considered to be defective whether in place or not. They must be immediately removed and replaced with new acceptable and approved plants of the required size, species and variety.

D. Pruning: Do not prune, trim, top or alter the shape of trees or plants except as approved.

E. Provide plant material true to botanical and common name and variety as specified in Annotated Checklist of Woody Ornamental Plants in California, Oregon and Washington, published by University of California School of Agriculture (latest edition).

F. Nursery Grown and Collected Stock: Grow under climatic conditions similar to those in locality of project; container-grown stock in vigorous, healthy condition, not root-bound or with root system hardened off. Use only liner stock plant material which is well established in removable containers or formed homogenous soil sections.

G. Select trees which are aesthetically desirable and are good examples of the species. Trees with gashes, misshapen trunks or branches, topped leaders, structural defects, badly crossed branches, or other visual defects will not be accepted. If formal arrangements or consecutive order of plants is shown on Drawings, select stock for uniform height and spread to assure symmetry in planting.

H. Seed: Label seed and provide in sealed containers with signed copies from vendor certifying that each container is fully labeled in compliance with State Agricultural Code and is in compliance with minimum requirements of these specifications. Wet, moldy or damaged seed will not be permitted. Provide seed mix per plan.

2.2 PLANTING SOILS

A. Planting Soil (Import or Amended Top Soil) Ensure silt plus clay content of top soil does not exceed 20 percent by weight, with a minimum 95 percent passing the 2.0 mm sieve. Do not allow the sodium absorption ratio SAR to exceed 6. The electrical conductivity (ECE) of the saturation extract cannot exceed 3.0 millimohs per centimeter at 25 degrees C. Ensure boron content is less than 1 part per million as measured on the saturation extract. To ensure compliance with these requirements submit samples of soil for analysis prior to and following backfilling.

2.3 PLANTER MIX

A. Planter Mix for all on-structure planters and plant container: provide custom topsoil ("Disney") Mix by EarthWorks Soil Amendments, Inc., (951) 782-0260, to include the following pre-blended items:
85 percent sandy loam topsoil
15 percent peat moss
0.5 pounds / cy Triple Super Phosphate (0-45-0)
0.25 pounds/ cy Potassium Sulfate (0-0-50)
1.0 pound/cy Agricultural Gypsum
0.2 pounds/cy P.A.M. (soil aggregating polymer)

B. Roof Deck Soil Mix
1. On-structure Planter Soil (Mix "A") - (bottom of planter to 8-inches below finish grade) - per cubic yard of mix.
   a. 80% Over-structure Planter Sand (optional - 100% sand if weight is not a consideration).
   b. 20% pumice (optional no pumice).
   c. 2 lbs. Nitroform (38-0-0, 27% WIN).
   d. 2 lbs. 12-12-12 General Planting Fertilizer.
   e. 1 lb. iron sulfate.
   f. 2 lbs. dolomite lime.
   g. 2 lbs. calcium carbonate limestone.
   h. Thoroughly blend mix before placing soil in 12" lightly compacted lifts.
2. On-structure Planter Soil (Mix "B") - (8-inch layer - place on top of On-structure Planter Soil (Mix "A") up to finish grade) - per cubic yard of mix:
   a. 70% Over-structure Planter Sand.
   b. 30% Organic Amendment.
   c. 2 lbs. Nitroform (38-0-0, 27% WIN).
   d. 1 lb. iron sulfate.
   e. 2 lbs. dolomite lime.
   f. 2 lbs. calcium carbonate limestone.
   g. Thoroughly blend soil mix before placing soil in one lightly compacted lift.
3. Over-structure Planter Sand:
   a. Washed nursery sand which meets following U.S. Standard Sieve criteria:

Sieve No. (U.S. Standard)	Weight Percent Passing
10	100
18	100
35	92
60	16
100	2.1
140	1.3
270	0.1

2.4 MULCHES

A. Organic Mulch: Provide medium grind bark, consisting of organic, fibrous, woody bark mixture of varied particle size such that 90 to 100 percent passes 1 inch sieve, 80 to 100 percent passes 1/2 inch sieve, and 20 to 60 percent passes 1/4 inch sieve, or approved equal. Mulch shall be free of contaminants and weed seed and shall have a pleasant musty or moldy soil-like odor. Putrid, ammonia and sour-smelling materials will be deemed unacceptable. Recycled construction materials will not be permitted.

2.5 HYDROSEEDING FIBER MULCH

A. Provide Hydro-mulch as manufactured by Conwed, or other approved equal, composed of wood cellulose fiber and containing no germination or growth inhibiting factors. Ensure a consistent texture which disperses evenly and remains suspended in agitated water. Provide with a temporary green dye and the following percentage property analysis: moisture content 9 plus or minus 0.8; 3 o.d. basis, organic matter 99.2 plus or minus 0.8; ash content 0.8 plus or minus 0.2; pH 4.8 plus or minus 0.5; water holding capacity (grams of H20 per 100 grams of fiber) 1150 minimum.

HYDROSEEDING ADDITIVE (BINDER)

B. Provide Ecology Control-M-Binder organic seeding additive.

2.6 GUYING AND STAKING MATERIALS

A. Wood Tree Stakes: lodge pole pine, full treated with Coppernaphthanate Wood Preservative in strict accordance with FS TT-W-572 Type I, Composition B, 2-inch minimal normal size diameter by 10 feet long, minimum, with no split stakes.

B. Ties: Provide cinch ties, size corresponding to tree box size as manufactured by VIT Company or other approved.

2.10 LANDSCAPE EDGINGS

A. Wood Edging:
1. Provide 2-inch by 4-inch pressure treated Douglas Fir or Redwood construction grade headerboards. Make splices with 1-inch by 4-inch pieces no less than 12 inches long. Place 1-inch by 3-inch by 16-inch stakes at intervals of not more than 5 feet. Cut stakes level and set below top of headerboards.
2. On sharp turns and curves, four 1/2 inch by 4-inch laminated boards, or two 1-inch by 4-inch laminated boards may be permitted.
3. Nail stakes and splices with galvanized common nails. Nail as required for solid installation.
4. Provide header as shown on drawings, laid true to line and grade, protect in-place adjacent improvements, shrubbery and other properties. Place stakes on ground cover side of header.

B. Steel Edging: Standard commercial-steel edging, rolled edge, fabricated in sections of standard lengths, with loops stamped from or welded to face of sections to receive stakes.

C. Aluminum Edging: Standard-profile extruded-aluminum edging, ASTMB221, Alloy 6063-T6, fabricated in standard lengths with interlocking sections with loops stamped from face of sections to receive stakes.

D. Plastic Edging: Standard black polyethylene or vinyl edging, horizontally grooved, extruded in standard lengths, with 9-inch steel stakes.

E. Concrete Mowstrip: 6 inch wide by 6 inch thick concrete mowstrip with 1/2 inch tooled edging and #3 continuous rebar.

A.11 MISCELLANEOUS PRODUCTS

A. Sand: Provide washed silica sand.

B. Water: Provide clean, potable water.

C. Root Barrier: Provide UB24-2 by Deep Root Corporation, (800) 458-7668. Install at all trees within 5 feet of concrete paving, curbs or mow strips or as shown on plans. Install barrier with vertical ribs facing toward the tree and with the top edge 1/2 inch above finish grade. Provide linear root barrier adjacent to paving or curbing; root barrier shall not circle the rootball.

D. Tree Trunk Protector: Provide ArborGard model AG 9-4 by Deep Root Corporation, (800) 458-7668.

E. Erosion Control Fabric: Provide Rollmax SC-150 rolled erosion control fabric by North American Green, (800) 772-2040.

2.12 QUALITY CONTROL

A. Provide standard, approved and first-grade quality materials, in prime condition when installed and accepted. Deliver commercially processed and packaged materials in manufacturer's unopened containers bearing the manufacturer's guaranteed analysis. Supply a sample of all supplied materials accompanied by analytical data from an approved laboratory source illustrating compliance, or bearing the manufacturer's guaranteed analysis.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Obtain certification that final grades to 1/10 foot have been established prior to commencing landscaping operations. Provide for inclusion of all amendments, settling, etc. Be responsible for shaping all planting areas as indicated on drawings or as required.

B. Inspect trees, shrubs and liner stock plant material for injury, insect infestation and trees and shrubs for improper pruning.

C. Do not begin planting of trees until deficiencies are corrected or plants replaced.

3.2 PLANTING AREA ESTABLISHMENT

A. Soil Preparation: After proper finish grades have been verified or established, cross-rip all planting areas to a depth of 12 inches, condition and fertilize soil in accordance with recommendations of soil testing laboratory.

B. At time of planting, ensure that top 2 inches of all areas to be planted or seeded are free of stones, stumps and other deleterious matter 1 inch in diameter or larger, and free from wire, plaster, concrete, wood and similar materials which would cause hindrance to planting or maintenance.

C. Finish Grading: Make minor modifications to grade as may be necessary to establish required final grade. Ensure that finish grade provides proper drainage of the site and surface drainage is away from building. Final grades are to be 1-inch below adjacent paved areas, sidewalks, valve boxes, headers, clean-outs, drains, manholes, etc., or as shown on drawings or required by City. Eliminate erosion scars prior to commencing maintenance period.

D. Pre-Plant Weed Control:
1. After irrigation system is operational, use a non-selective systemic contact herbicide as recommended and applied by an approved licensed landscape pest control advisor and applicator. Leave sprayed plants intact for at least 15 days.
2. Clear and remove these existing weeds by mowing or grubbing off all plant parts at least 2 inches below surface of soil over entire areas to be planted.
3. After irrigation system is operational, apply water for 10 days as needed to achieve weed germination. Apply contact herbicides and wait as needed before planting. Repeat as required.
4. Maintain weed free site until acceptance by Owner.

3.3 PLANTING INSTALLATION

A. General:
1. The irrigation system shall be operational and approved prior to planting.
2. Perform actual planting only during those periods when weather and soil conditions are suitable and in accordance with locally accepted practice, as approved.
3. Distribute in planting areas only as many plants as can be planted and watered that same day.
4. Ensure that containers which are opened and plants removed are handled with care such that ball of earth surrounding roots is not broken and that plants are planted and watered immediately. Do not open containers prior to placing plants in planting areas.

B. Layout: Mark locations for plants and outlines of areas to be planted before any plant pits are dug. Gain City approval. If underground construction or utility lines are encountered in the excavation of planting areas, other locations for planting may be selected by Owner. Accomplish layout with flagged grade stakes indicating plant names and specified container size on each stake. Confirm location and depth of underground utilities and obstructions.

3.4 EXCAVATION FOR TREES AND SHRUBS

A. Planting Pits and Trenches: Excavate circular planting pits with sides sloping inward at a 45-degree angle. Trim perimeter of bottom leaving center area of bottom raised slightly to support rootball and assist in drainage away from center. Do not further disturb base. Ensure that rootball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
1. Excavate approximately two times as wide as rootball diameter.
2. Do not excavate deeper than depth of the rootball, measured from the root flare to the bottom of the rootball.

B. Subsoil and topsoil removed from excavations may be used as planting soil backfill.

C. Strip and stack approved excavation for planting which is encountered within areas for trenches, tree holes, plant pits and planting beds.

D. Remove from site excess soil generated from planting holes and not used for backfilling.

E. Protect areas from excessive compaction when trucking plants or other materials to planting areas.

3.5 TREE, SHRUB, AND VINE PLANTING

A. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1.

B. Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.

C. Set stock plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
1. Use planting soil for backfill.
2. Container Grown: Cut cans on two sides with acceptable can cutter only. Carefully remove rootball from container without damaging rootball or plant. Superficially loosen edge roots on three sides after removing from can.
3. Boxed Trees: Remove bottom of plant boxes before planting. Remove sides without damage to rootball after positioning plant and partially backfilling.
4. Face plants with fullest growth into prevailing wind.
5. Backfill plants with: 6 parts by volume on-site soil, 4 parts by volume organic amendment, 1 pound 6-20-20 fertilizer mix per cubic yard of mix, 2 pounds iron sulfate per cubic yard of mix. Note: This is for bid purposed only. Specific backfill recommendations are made as a result of the soils testing described on the planting plan.
6. Backfill around rootball in layers, tamping to settle soil and eliminate voids and air pockets. Hold plant rigidly and plumb until soil has been firmed around ball or roots. Raise all plants which settle deeper than the surrounding grade. When planting pit is approximately one-half filled, add water to the top of the planting pit and thoroughly saturate rootball and adjacent soil.
7. Set planting tablets with each plant on top of rootball while plants are still in their containers so the required number of tablets can be verified. After water has completely drained, place planting tablets as follows or in amounts recommended in soil reports from soil-testing laboratory.
   1 tablet per 1-gallon container
   2 tablets per 5-gallon container
   3 tablets per 15-gallon container
   4 tablets per 24-inch box
   6 tablets per 36-inch box
   8 tablets per 48-inch box
   Place tablets beside the rootball about 1-inch from root tips; do not place tablets in bottom of the hole.
8. Continue backfilling process. Construct an earthen basin around each plant after backfilling. Provide basin of depth sufficient to hold at least 2 inches of water. Construct basins with amended backfill. Remove basin in all turf areas after initial watering. Water again after placing and tamping final layer of soil.
9. Limit pruning to minimum necessary. Remove injured twigs and branches. Pruning may not be done prior to delivery of plants. Paint cuts over 3/4 inch in diameter with tree paint.
10. Stake or guy trees immediately after planting. Install stakes plumb. Locate stakes so that a straight line drawn between the stakes is perpendicular to the prevailing wind direction.
11. Do not bring iron sulfate into contact with concrete surfaces due to potential staining. Contractor is responsible for cleaning and replacing stained surfaces.

D. When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the rootball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the rootball.

3.6 TREE, SHRUB, AND VINE PRUNING

A. Remove only dead, dying, or broken twigs or branches. Do not prune for shape. Pruning may not be done prior to delivery of plants.

B. Prune, thin, and shape trees, shrubs, and vines according to standard professional horticultural and arboricultural practices. Unless otherwise indicated by Architect, do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.

3.7 GROUNDCOVER AND OTHER SMALL CONTAINER PLANTING

A. Set out and space ground cover and plants from flats or containers smaller than 1-gallon as indicated on planting plan in even rows with triangular spacing.

B. Ensure that groundcover remains in the flats until transplanting. Flats' soil must contain sufficient moisture so it will not fall apart when lifting plants.

C. Use planting soil for backfill. Plant each rooted plant with its proportionate amount of flat soil.

D. Dig holes large enough to allow spreading of roots.

E. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.

F. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.

G. Protect plants for damage and trampling.

3.8 HYDROSEEDING:

A. Install large trees and shrubs (5 gallon and larger) if they occur in hydroseeded areas.

B. Install trees and shrubs (1 gallon) and groundcovers from flats if they occur in hydroseeded areas.

C. Provide seed mixes as shown on plan.

D. Apply hydroseed by an approved hydro-mulch company.

E. Apply in a form of slurry consisting of cellulose fiber, see, chemical additives, commercial fertilizer and water. When hydraulically sprayed on soil, ensure that hydro-mulch forms a blotter like groundcover impregnated uniformly with seed and fertilizer and allows the absorption of moisture and rainfall to percolate to the underlying soil.

F. Prepare the slurry at the site by first adding water to the tank when the engine is at half throttle. When water level has reached height of agitator shaft, provide full circulation, then add seed, followed by fertilizer, then mulch. Only add the mulch to the mixture after the seed and the tank is at least 1/3 filled with water. By the time the tank is 2/3 to 3/4 full, all mulch shall be in. Commence spraying immediately when tank is full.

G. Spray uniform visible coat by using the green color as a guide. Apply the slurry in a sweeping motion, in an arched stream so as to fall like rain allowing the wood fibers to build on each other until a good coat is achieved and the material is spread at the required rates.

H. Remove slurry not used within two hours from the site.

I. Fill out the daily worksheets by the nozzle main with the following information: Seed type and amount, mulch type and amount, number of loads and amount of water, seeding additive type and amount, area covered and equipment used, capacity and license number.

J. Do not allow any slurry to be sprayed into any reservoir basin or drainage ditches and channels which may impede the flow of rain or irrigation water. Clean up any spilled slurry.

K. After application of hydro-mulch, wash excess material from previously planted materials and architectural features. Avoid washing or eroding mulch materials.

L. Ensure that application equipment has a built-in agitation system and operating capacity sufficient to agitate, suspend and mix a slurry containing not less than 40 pounds of fiber mulch plus a combined total of 7 pounds fertilizer solids for each 100 gallons of water.

M. Slurry distribution lines shall be large enough to prevent stoppage and shall be equipped with a set of hydraulic spray nozzles which will provide a continuous non-fluctuating discharge. Capacity requirements is 1,500 gallons, mounted on a traveling unit, either self-propelled or drawing by a separate unit which will place slurry tank and nozzles within sufficient proximity of areas to be seeded.

N. Hydraulic equipment used for pesticide applications shall consist of a clean 150 gallon capacity fiberglass tank, complete with mechanical agitation. Pump volume shall be 10 gallons per minute, while operating at a pressure of 100 pounds per square inch. Distribution lines shall be large enough to carry the volume of water necessary for even chemical distribution. Spray nozzle must cover a 15-foot swath, with a minimum output of 5 gallons per minute at 80 pounds per square inch.

3.9 PLANTING AREA MULCHING

A. Mulch backfilled surfaces of planting areas with 3 inch layer of mulch except slopes that are 2:1 or steeper, hydroseeded areas, turf areas and bioretention basin bottoms.

3.10 CLEAN-UP

A. After all planting operations are complete; remove all trash, excess soil, empty plant containers, and rubbish from the property. Repair scars, ruts and other marks in the ground and leave ground in a neat and orderly condition.

B. Leave the site in a broom-clean condition and wash down all paved areas within the project site. Leave walks in a clean and safe condition.

3.11 LANDSCAPE MAINTENANCE

A. Weed and cultivate all areas at intervals of not more than 10 days.

B. Perform watering, mowing, rolling, edging, trimming, fertilization, spraying, pest control, and cleaning as may be required.

C. Street gutters and curbs are to be included.

D. Maintain adequate protection for people and property, and be financially responsible for damages and injuries. Notify the Architect immediately should damage occur as a result of maintenance operations and provide repair or remuneration.

E. Between the 15th and 20th calendar day of the maintenance period, reseed or resod all spots or areas within the lawn where normal turf growth is not evident.

3.12 TREE AND SHRUB CARE

A. Watering: Maintain a large enough water basin around plants so that enough water can be applied to establish moisture through the major root zone. When hand watering, use a water wand to break force of water.

B. Pruning:
1. Prior to any pruning, obtain written approval from the Architect to proceed.
2. Trees:
   a. Propose tree pruning to the Architect should there be health or structural reasons for doing so, including the need to eliminate diseased or damaged growth, eliminate structurally unsound growth, reduce potential for wind toppling or wind damage, or maintain growth within limited space.
   b. Tree pruning that is required during the Maintenance Period for tree health or structural reasons, or as directed by the City, shall be performed in accordance with ANSI A-300 ISA standards.
   c. Major pruning of deciduous trees shall be during their dormant season.
3. Shrubs:
   a. The objectives of shrub pruning are the same as for trees. Do not clip shrubs into balled or boxed forms unless such is required by the design.
   b. Make pruning cuts to lateral branches or buds or flush with trunk. Stubbing will not be permitted.

C. Staking and guying: Ensure that stakes and guys remain in place through acceptance and monitor to prevent girdling of trunks or branches and to prevent rubbing that causes bark wounds. All nursery stakes shall be removed.

D. Weed control: Keep all areas free of weeds. Use recommended legally approved herbicides. Avoid frequent soil cultivation that destroys shallow roots. Use mulches per specifications to help prevent weed seed germination.

E. Insect and disease control: Maintain a reasonable control with approve materials.

F. Fertilize as specified by the agronomic soils testing recommendations and as follows for bid purposes:
1. Commencement of maintenance period - 6 pounds per 1,000 square feet with top dress fertilizer.
2. At the end of first 30 days of maintenance period - 6 pounds per 1,000 square feet with top dress fertilizer.
3. At end of maintenance period and at 30 day intervals should maintenance period by extended for any reason - 6 pounds per 1,000 square feet with fertilizer mix.
4. Avoid applying fertilizer to the rootball and base of main stem; rather, spread evenly under plant to dripline. Rates will vary from about a cup of nitrate fertilizer (depending upon nitrogen percentage) around a newly installed small plant to about 1/2 pound of actual nitrogen per inch of truck diameter measured four feet from the ground for mature trees.

G. Replacement of plants: Replace dead, dying and missing plants with plants of a size, condition and variety acceptable to the Architect.

3.13 GROUND COVER CARE

A. Weed control: Control weeds, preferably with pre-emergent herbicides, but also by hand or with selective systemic herbicides. Hoe weeds as little as possible since this may result in plant damage.

B. Watering: Water enough that moisture penetrates throughout root zone and only as frequently as is necessary to maintain healthy growth.

C. Trash: Remove as it accumulates, but no less often than weekly.

D. Edging and trimming: Edge groundcover to keep in bounds.

E. Replace dead and missing plants.

3.14 LAWN AND TURF CARE

A. Turf must be well-established prior to final acceptance.

B. Watering: Water lawns at such frequency as weather conditions required to replenish soil moisture below root zone.

C. Weed control: If needed, control broad leaf weeds with selective herbicides.

D. Mowing:
1. Perform mowing at such times of the day or week as may be requested by the Owner so as not to impede the Owner's operations. Mowing times may be at times other than normal working hours or days. Perform work at Owner's convenience.
2. Clean up grass clippings during and after mowing, and remove legally from site. Use of blowing type equipment in lieu of sweeping or vacuuming is not acceptable.

E. Renovating:
1. If required, remove thatch by verticutting preferable in the Fall of the year, but otherwise in the Spring. At this time, fertilize with nitrate and over-seed if needed. Over-seeding must precede pre-emergent herbicides by at least 4 to 6 weeks. Normally, this means that lawns which have been invaded by crabgrass would be renovated and over-seeded in the Fall and treated for crabgrass control in the following late Winter.
2. Clean up grass clippings during and after mowing, and remove legally from site. Use of blowing type equipment in lieu of sweeping or vacuuming is not acceptable.

3.15 IRRIGATION SYSTEM

A. Inspection: Check all systems for proper operation. Lateral lines must be flushed out after removing the last sprinkler head or two at each end of the lateral. Adjust heads as necessary for unimpeded coverage and no overspray.

B. Controllers: Set and program automatic controllers for seasonal water requirements. Give Owner a key to controllers and instruction on how to turn off system in case of emergency as specified in other sections of these specifications.

C. Repair all damages to irrigation system. Make all repairs within one watering period.

END OF SECTION 329300

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△	Issue	Date & Issue Description
--	--	02/03/21
		1ST CITY SUBMITTAL
--	--	05/07/21
		2ND CITY SUBMITTAL

Seal/Signature

REGISTERED LANDSCAPE ARCHITECT
NICKS J. RIOS
LIC. NO. 6306
05/07/21
(Date)
05/31/23
(Exp. Date)
STATE OF CALIFORNIA

Project Number
19076

Drawn By / Checked By
RLA / RLA

Description
LANDSCAPE SPECIFICATIONS

L6.2

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes planting soils specified by composition of the mixes.

B. Related Requirements:

1. Section 311000 Site Clearing for topsoil stripping and stockpiling.

1.2 DEFINITIONS

A. Duff Layer: A surface layer of soil, typical of forested areas, that is composed of mostly decayed leaves, twigs, and detritus.

B. Imported Soil: Soil that is transported to Project site for use.

C. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.

D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

E. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

F. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

G. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil"; but in disturbed areas such as urban environments, the surface soil can be subsoil.

H. USCC: U.S. Composting Council.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. LEED Submittals:

1. Product Certificates for Credit MR 5: For products and materials required to comply with requirements for regional materials, certificates indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating distance to Project, cost for each regional material, and fraction by weight that is considered regional.

C. Samples: For each bulk-supplied material in sealed containers labeled with content, source, and date obtained; providing an accurate representation of composition, color, and texture.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent, state-operated, or university-operated laboratory; experienced in soil science, soil testing, and plant nutrition; with the experience and capability to conduct the testing indicated; and that specializes in types of tests to be performed.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Regional Materials: Imported soil, manufactured planting soil, and soil amendments and fertilizers shall be manufactured within 500 miles of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site.

2.2 PLANTING SOILS SPECIFIED BY COMPOSITION

A. Planting Soil Type: Existing, on-site surface soil, with the duff layer, if any, retained; modified to produce viable planting soil. Blend existing, on-site surface soil with the following soil amendments and fertilizers in the following quantities to produce planting soil.

B. Planting-Soil Type: Imported, naturally formed soil from off-site sources and consisting of sandy loam soil according to USDA textures; and modified to produce viable planting soil.

1. Sources: Take imported, unamended soil from sources that are naturally well-drained sites where topsoil occurs at least 4 inches deep, not from agricultural land, bogs, or marshes; and that do not contain undesirable organisms; disease-causing plant pathogens; or obnoxious weeds and invasive plants including, but not limited to, quackgrass, Bermuda grass, poison oak, nutsedge, Canada thistle, bindweed, bentgrass, ground ivy, perennial sorrel, and bromegrass.

2. Additional Properties of Imported Soil before Amending: Soil reaction of pH 6 to 7 and minimum of 4 percent organic-matter content, friable, and with sufficient structure to give good tilth and aeration.

3. Unacceptable Properties: Clean soil of the following:

a. Unacceptable Materials: Concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.

b. Unsuitable Materials: Stones, roots, plants, sod, clay lumps, and pockets of coarse sand that exceed a combined maximum of 8 percent by dry weight of the imported soil.

c. Large Materials: Stones, clods, roots, clay lumps, and pockets of coarse sand exceeding 2 inches in any dimension.

4. Amended Soil Composition: Blend imported, unamended soil with the soil amendments and fertilizers in the quantities as recommended in the soils report to produce planting soil.

C. Planting-Soil Type: Manufactured soil consisting of manufacturer's basic topsoil blended in a manufacturing facility with sand, stabilized organic soil amendments, and other materials to produce viable planting soil.

1. Additional Properties of Manufacturer's Basic Soil before Amending: Soil reaction of pH 6 to 7 and minimum of 4 percent organic-matter content, friable, and with sufficient structure to give good tilth and aeration.

2. Unacceptable Properties: Manufactured soil shall not contain the following:

a. Unacceptable Materials: Concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.

b. Unsuitable Materials: Stones, roots, plants, sod, clay lumps, and pockets of coarse sand that exceed a combined maximum of 5 percent by dry weight of the manufactured soil.

c. Large Materials: Stones, clods, roots, clay lumps, and pockets of coarse sand exceeding 2 inches in any dimension.

3. Blend manufacturer's basic soil with soil amendments and fertilizers in the quantities as recommended by the soils report to produce planting soil.

2.3 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:

1. Class: T, with a minimum of 99 percent passing through a No. 8 sieve and a minimum of 75 percent passing through a No. 60 sieve.

2. Class: O, with a minimum of 95 percent passing through a No. 8 sieve and a minimum of 55 percent passing through a No. 60 sieve.

3. Form: Provide lime in form of ground mollusk shells.

B. Sulfur: Granular, biodegradable, and containing a minimum of 99 percent elemental sulfur, with a minimum of 99 percent passing through a No. 6 sieve and a maximum of 10 percent passing through a No. 40 sieve.

C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.

D. Perlite: Horticultural perlite, soil amendment grade.

E. Agricultural Gypsum: Minimum 98 percent calcium sulfate, finely ground with 90 percent passing through a No. 50 sieve.

F. Sand: Clean, washed, natural or manufactured, free of toxic materials, and according to ASTM C 33/C 33M.

2.4 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter produced by composting feedstock, and bearing USCC's "Seal of Testing Assurance," and as follows:

1. Feedstock: Limited to leaves.

2. Reaction: pH of 6.0 to 7.5.

3. Salinity: Ensure that saturation extract conductivity does not exceed 3.5 millimohs per centimeter at 25 degrees c. as determined by saturation extract method.

4. Moisture Content: 35 to 55 percent by weight.

5. Organic-Matter Content: 30 to 40 percent of dry weight.

6. Particle Size: 95 to 100 percent passing through a 6.33 mm standard sieve; 80 to 100 percent passing through a 2.33 mm sieve.

7. Iron Content: Minimum 0.08 percent dilute acid soluble Fe on dry weight basis.

8. Ash: 0 to 6 percent dry weight.

B. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture with 100 percent passing through a 1/2-inch sieve, a pH of 3.4 to 4.8, and a soluble-salt content measured by electrical conductivity of dS/m.

C. Wood Derivatives: Shredded and composted, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.

D. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, debris, and material harmful to plant growth.

2.5 FERTILIZER

A. Planting Fertilizer: Pelleted or granular form consisting of the following percents by weight and mixed by commercial fertilizer supplier: 6-nitrogen, 20-phosphoric acid, 20-potash.

B. Planting Tablets: Provide slow-release type with potential acidity of not more than 5 percent by weight containing the following percents by weight of nutrients listed: 20-nitrogen, 10-phosphoric acid, 5-potash, 2.6 combined calcium, 1.60 combined sulphur, 0.35-iron elemental from ferrous sulfate. Provide in 21 gram tablets manufactured by Agriform or other approved.

C. Hydroseeding Fertilizer: Provide ammonium phosphate which consists of the following percent by weight and mixed by a commercial fertilizer supplier: 16-nitrogen, 20-phosphoric acid, 0-potash.

D. Sulfate of potash: 0-0-50.

E. Single super-phosphate: Commercial product containing 18 to 20 percent available Phosphoric Pentoxide, or other approved.

F. Urea formaldehyde: 38-0-0.

PART 3 - EXECUTION

3.1 GENERAL

A. Place planting soil and fertilizers according to requirements of the Agronomic Soils Report recommendations.

B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.

3.2 BLENDING PLANTING SOIL IN PLACE

A. General: Mix amendments with in-place, unamended soil to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.

B. Preparation: Till unamended, existing soil in planting areas to a minimum depth of 12 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

C. Mixing: Apply soil amendments and fertilizer, if required, evenly on surface, and thoroughly blend them into full depth of unamended, in-place soil to produce planting soil.

1. Mix sulfur with dry soil before mixing fertilizer.

2. Mix fertilizer with planting soil no more than seven days before planting.

D. Compaction: Compact blended planting soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D 698.

E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.3 PROTECTION AND CLEANING

A. Protection Zone: Identify protection zones according to Section 015639 "Temporary Tree and Plant Protection."

B. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:

1. Storage of construction materials, debris, or excavated material.

2. Parking vehicles or equipment.

3. Vehicle traffic.

4. Foot traffic.

5. Erection of sheds or structures.

6. Impoundment of water.

7. Excavation or other digging unless otherwise indicated.

C. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.

1. Dispose of excess subsoil and unsuitable materials on-site where directed by Owner.

END OF SECTION 329113

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--	--	05/07/21
		2ND CITY SUBMITTAL

Seal/Signature

Project Number

19076

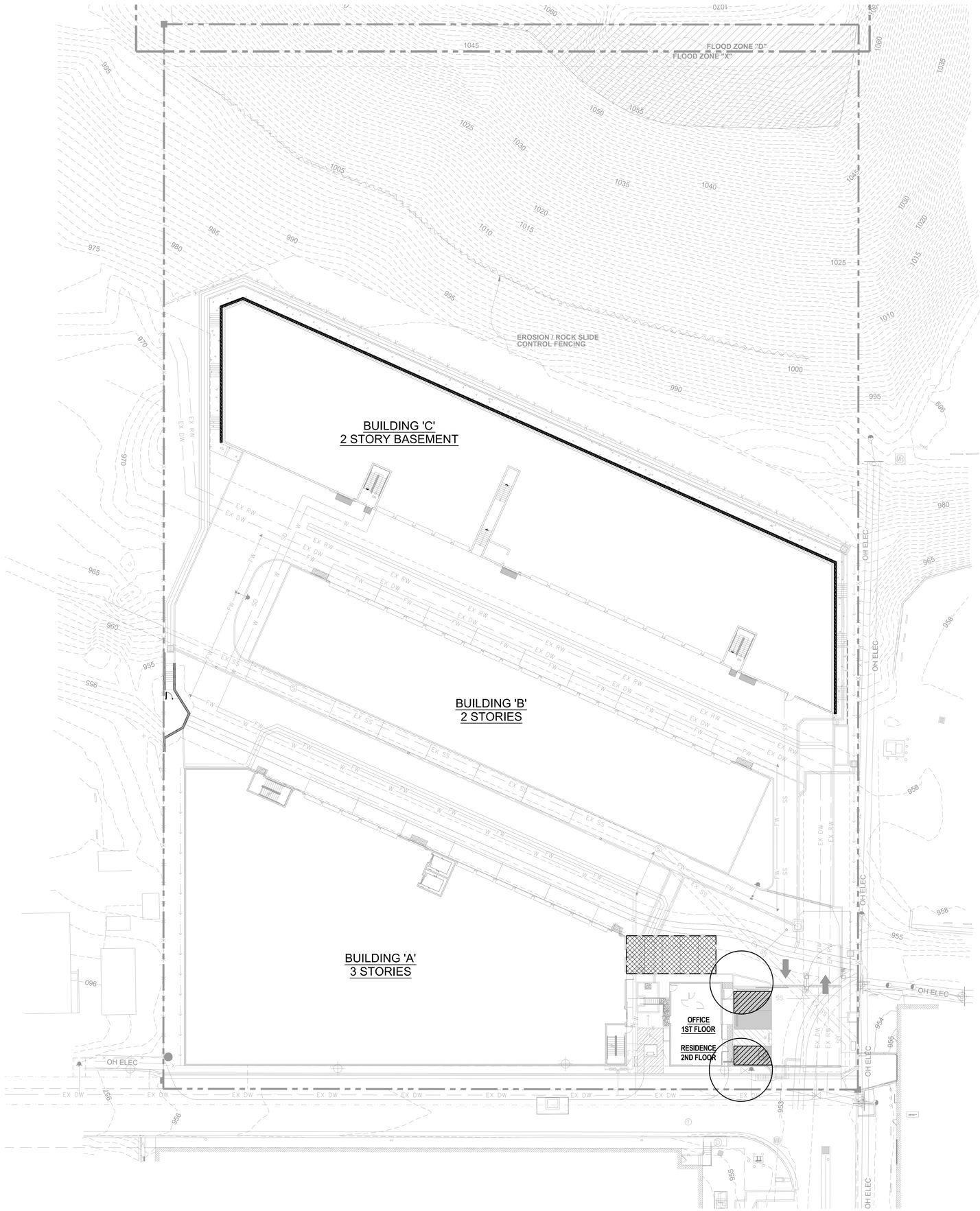
Drawn By / Checked By

RLA / RLA

Description

LANDSCAPE SPECIFICATIONS

L6.3



SHADE CALCULATIONS

PARKING AREA SHADING

AREA OF PARKING STALLS = 488 S.F.
AREA OF SHADE REQUIRED = 244 S.F. (50%)

AREA OF SHADE PROVIDED BY TREES = 300 S.F.

AREA OF PARKING SHADE PROVIDED = **300 S.F.** (61%)

LEDGEND:

- APPLICABLE PARKING STALLS REQUIRING SHADE
- AREA OF SHADE PROVIDED BY TREES AT 15 YEARS GROWTH
- NON-APPLICABLE PARKING STALLS SHADED BY OVERHEAD CANOPY
- PROPOSED TREE LOCATION

0 10 20 40 60

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		2ND CITY SUBMITTAL
--	--	05/24/21
		LAFD 2ND SUBMITTAL
		06/03/24
		3rd CITY SUBMITTAL

Seal/Signature

REGISTERED LANDSCAPE ARCHITECT
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No. 5754
05/24/21
(Date)
06/31/23
(Exp. Date)
STATE OF CALIFORNIA

Project Number

19076

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Description

LANDSCAPE SHADE DIAGRAM

L7.1