Appendix C – Sample Certificate of Completion.

CERTIFICATE OF COMPLETION

This certificate is filled out by the project applicant upon completion of the landscape project.

PART 1. PROJECT INFORMATION SHEET

Date 6-22-2022		
Project Name HIGHLANDS ESTATES		
Name of Project Applicant JACK T. CHAMBERLAIN / TICONDEROGA PARTNERS LLC	Telephone No. 650 595 5582	
	~~Fax No.~~ 650 851 1704	
Title MANAGER	Email Address JTUTTLEC@AOL.COM	
Company THE CHAMBERLAIN GROUP	Street Address 990 INDUSTRIAL ROAD	
City SAN CARLOS	State CALIFORNIA	Zip Code 94070

Project Address and Location:

Street Address 1188 CORNICE HILL PLACE	Parcel, tract or lot number, if available. LOT 18	
City SAN MATEO	Latitude/Longitude (optional)	
State CALIFORNIA	Zip Code 94402	

Property Owner or his/her designee:

Name NOEL CHAMBERLAIN HIGHLAND ESTATE DEVELOPMENT I	Telephone No. 650 322 5800	
	Fax No.	
Title MANAGER	Email Address NOEL@NEWGENBUILDERS.COM	
Company NEWGEN	Street Address 225 DEMOCRAT STREET	
City EAST PALO ALTO	State CALIFORNIA	Zip Code 94303

Property Owner

"I/we certify that I/we have received copies of all the documents within the Landscape Documentation Package and the Certificate of Completion and that it is our responsibility to see that the project is maintained in accordance with the Landscape and Irrigation Maintenance Schedule."

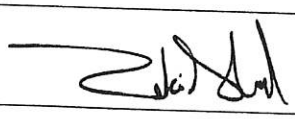
Property Owner Signature _____ Date 6-22-2022

Please answer the questions below:

1. Date the Landscape Documentation Package was submitted to the local agency_____
2. Date the Landscape Documentation Package was approved by the local agency_____
3. Date that a copy of the Water Efficient Landscape Worksheet (including the Water Budget Calculation) was submitted to the local water purveyor_____

PART 2. CERTIFICATION OF INSTALLATION ACCORDING TO THE LANDSCAPE DOCUMENTATION PACKAGE

"I/we certify that based upon periodic site observations, the work has been completed in accordance with the ordinance and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved Landscape Documentation Package."

Signature* 	Date 05/12/22	
Name (print) Zeki Abed	Telephone No. 415-864-1921	
	Fax No.	
Title Landscape Architect	Email Address zeki@valainc.com	
License No. or Certification No. #3402		
Company Van Dorn Abed, Landscape Architect, Inc.	Street Address 81 14th Street	
City San Francisco	State CA	Zip Code 94103

*Signer of the landscape design plan, signer of the irrigation plan, or a licensed landscape contractor.

PART 3. IRRIGATION SCHEDULING

Attach parameters for setting the irrigation schedule on controller per ordinance Section 492.10.

PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

Attach schedule of Landscape and Irrigation Maintenance per ordinance Section 492.11.

PART 5. LANDSCAPE IRRIGATION AUDIT REPORT

Attach Landscape Irrigation Audit Report per ordinance Section 492.12.

PART 6. SOIL MANAGEMENT REPORT

Attach soil analysis report, if not previously submitted with the Landscape Documentation Package per ordinance Section 492.6.

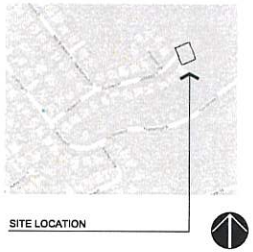
Attach documentation verifying implementation of recommendations from soil analysis report per ordinance Section 492.6.

HIGHLAND ESTATES

LOT 10 – LANDSCAPE PLANS

VICINITY MAP

SITE MAP



SHEET INDEX

REVISION LOG

DATE	SHEET NUMBER	DESCRIPTION

CLIENT
CHAMBERLAIN GROUP
655 Skyway, Suite 230
San Carlos, CA 94070
(650) 595.5582

800.227.2600

VAN DORN ABED
LANDSCAPE ARCHITECTS, INC.
81 14TH ST. SAN FRANCISCO, CA
ZIP 94103 PH (415) 864-9021 FAX(415) 864-4796

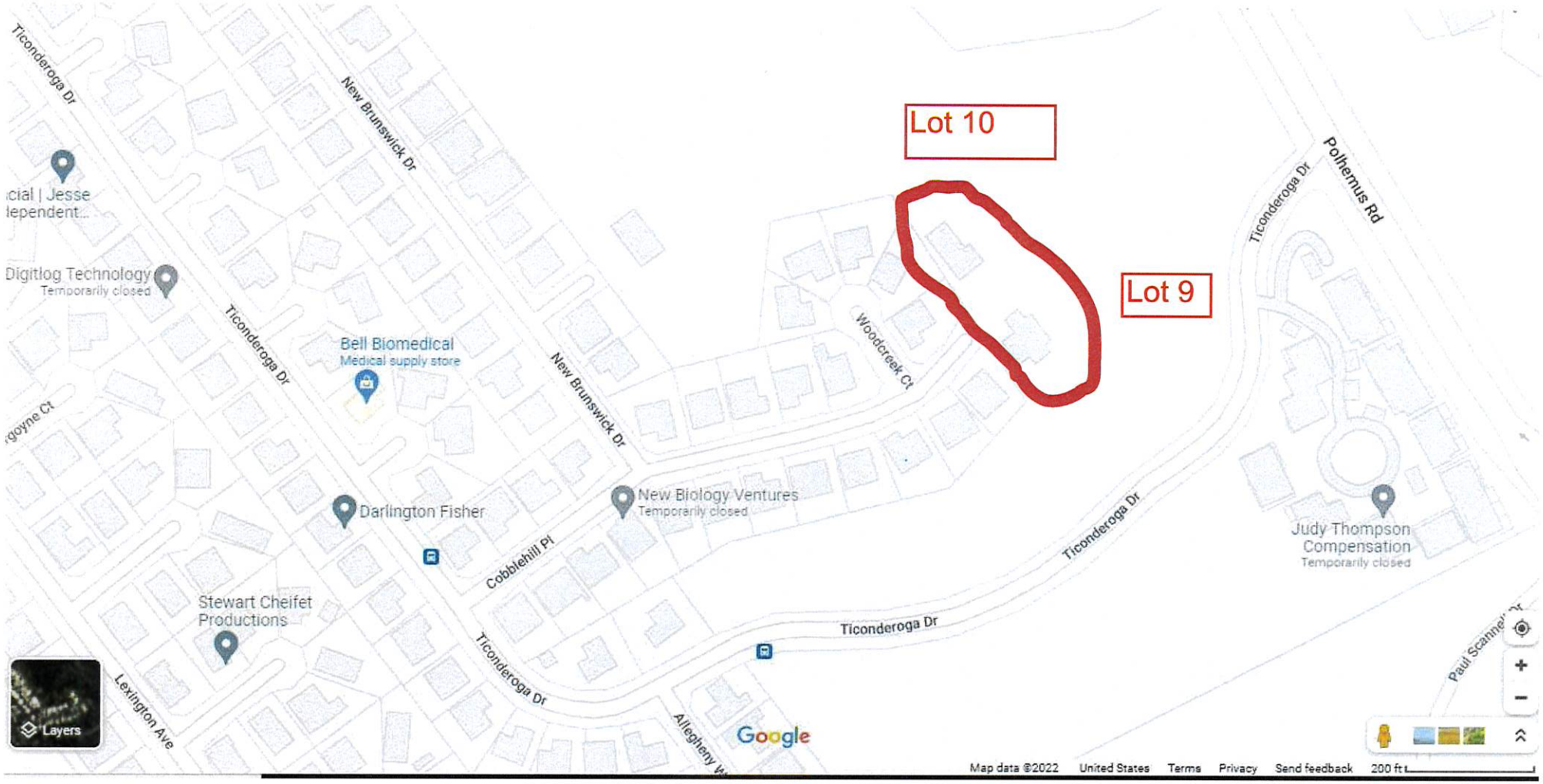
PROJECT NAME/LOCATION:
HIGHLAND ESTATES
SAN MATEO CALIFORNIA

DRAWING TITLE:
LANDSCAPE IMPROVEMENT PLANS
LOT 10

REVISIONS NO.	DESCRIPTION	BY	DATE

SHEET TITLE
COVER SHEET

SCALE:
NTS
ISSUE DATE:
3/17/17
PROJECT NO.
V1355
SHEET NO.
L0.0


Lot 10
Lot 9
Ticonderoga Dr
New Brunswick Dr
Polhemus Rd
Woodcreek Ct
Cobblehill Pl
Digitlog Technology
Temporarily closed
Bell Biomedical
Medical supply store
Darlington Fisher
New Biology Ventures
Temporarily closed
Judy Thompson
Compensation
Temporarily closed
Stewart Cheifet
Productions
Lexington Ave
Layers
Google
Map data ©2022
United States
Terms
Privacy
Send feedback
200 ft

Appendix B – Water Efficient Landscape Worksheet : Lot 10

WATER EFFICIENT LANDSCAPE WORKSHEET

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

Reference Evapotranspiration (ETo): 42.8

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)[e]
Regular Landscape Areas							
#1 Sun	**0.3**	**Drip**	**0.81**	**0.37**	**2575**	**953**	**25282**
#2 Shade	**0.3**	**Drip**	**0.81**	**0.37**	**497**	**184**	**4880**
				Totals	3072	1137	**30162**
Special Landscape Areas N/A							
				Totals	(C)	(D)	
						ETWU Total	**30162**
						Maximum Allowed Water Allowance (MAWA)[e]	**44835**

[redacted]

[a] ***Hydrozone #/Planting Description***
E.g
1.) front lawn
2.) low water use plantings
3.) medium water use planting

[b] ***Irrigation Method***
overhead spray or drip

[c] ***Irrigation Efficiency***
0.75 for spray head
0.81 for drip

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

[e] ***MAWA (Annual Gallons Allowed) =*** *(42.8) (0.62) [(0.55 x LA) + ((1-ETAF) x SLA)]*
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

0.55 used in MAWA calculation.

ETAF Calculations

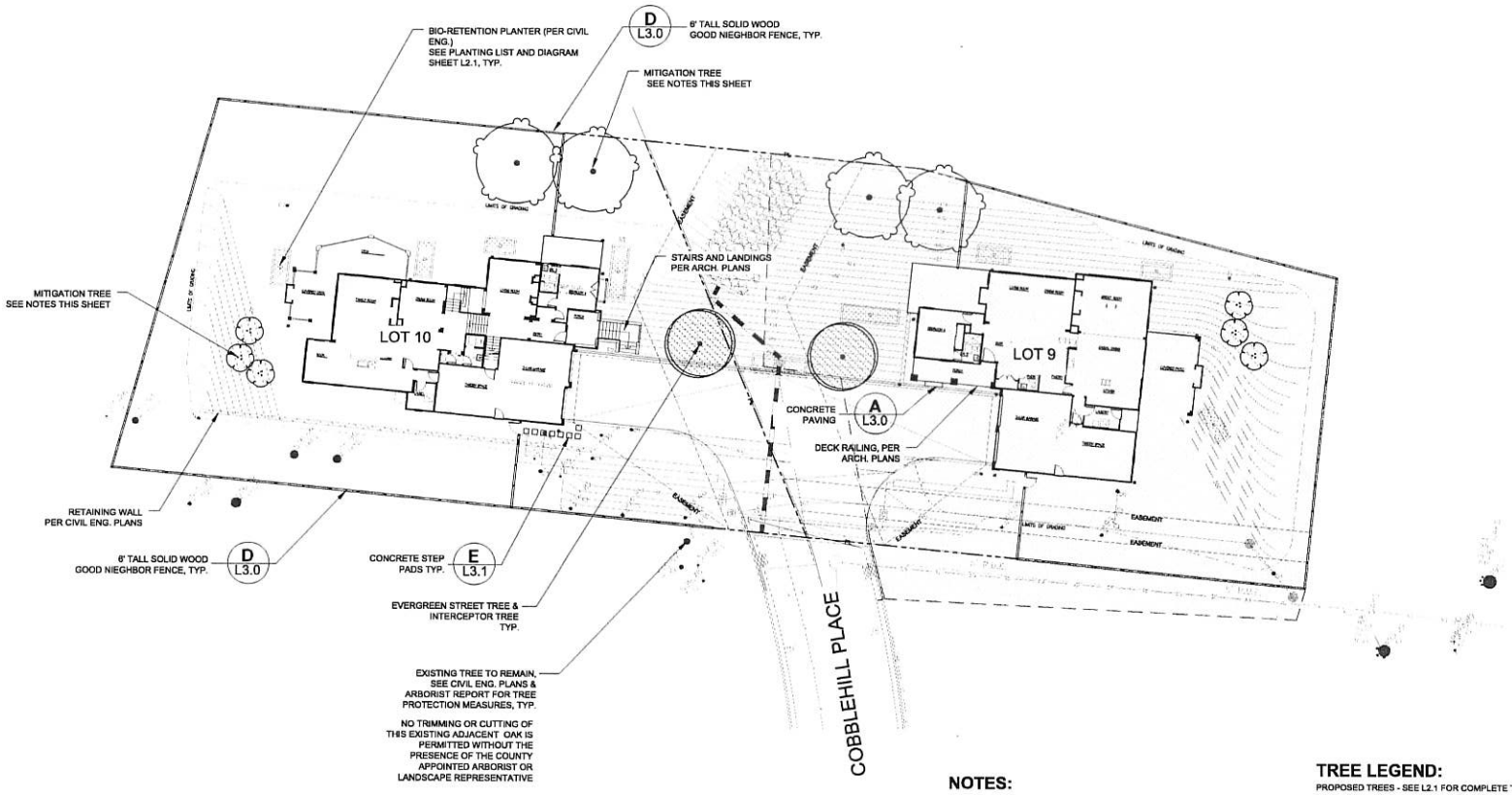
Regular Landscape Areas

Total ETAF x Area	1137
Total Area	3072
Average ETAF	**0.37**

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	1137
Total Area	3072
Sitewide ETAF	**0.37**



NOTES:

1. **NO PLANTING OR IRRIGATION SHALL OCCUR UNDER THE CANOPIES OF THE EXISTING OAK TREES. FIELD ADJUST NEW REPLACEMENT TREES AS NEEDED.**

TREE LEGEND:

PROPOSED TREES - SEE L2.1 FOR COMPLETE TREE SPECIES/LEGEND

	QUALIFIES FOR STORMWATER CREDIT WHEN WITHIN 25' OF IMPERVIOUS SURFACE.
	TOTAL SITE (LOT 5-11): 22 MITIGATION TREES REQUIRED 49 MITIGATION TREES PROVIDED PROVIDED - LOT 9 - LOT 11: 3 = REAR YARD MITIGATION TREES MIN. PROVIDED PER COA AES-1B, EACH LOT 14 TOTAL MITIGATION TREES, WITH MIN. 4 OAKS.
*	EXISTING TREES TO REMAIN, TYP. SEE CIVIL PLANS AND ARBORISTS REPORT FOR TREE PROTECTION MEASURES.

0 8 16 32 64

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PROJECT NAME/LOCATION
HIGHLAND ESTATES
SAN MATEO CALIFORNIA

DRAWING TITLE
LANDSCAPE IMPROVEMENT PLANS
LOT 10

NO	DESCRIPTION	BY	DATE

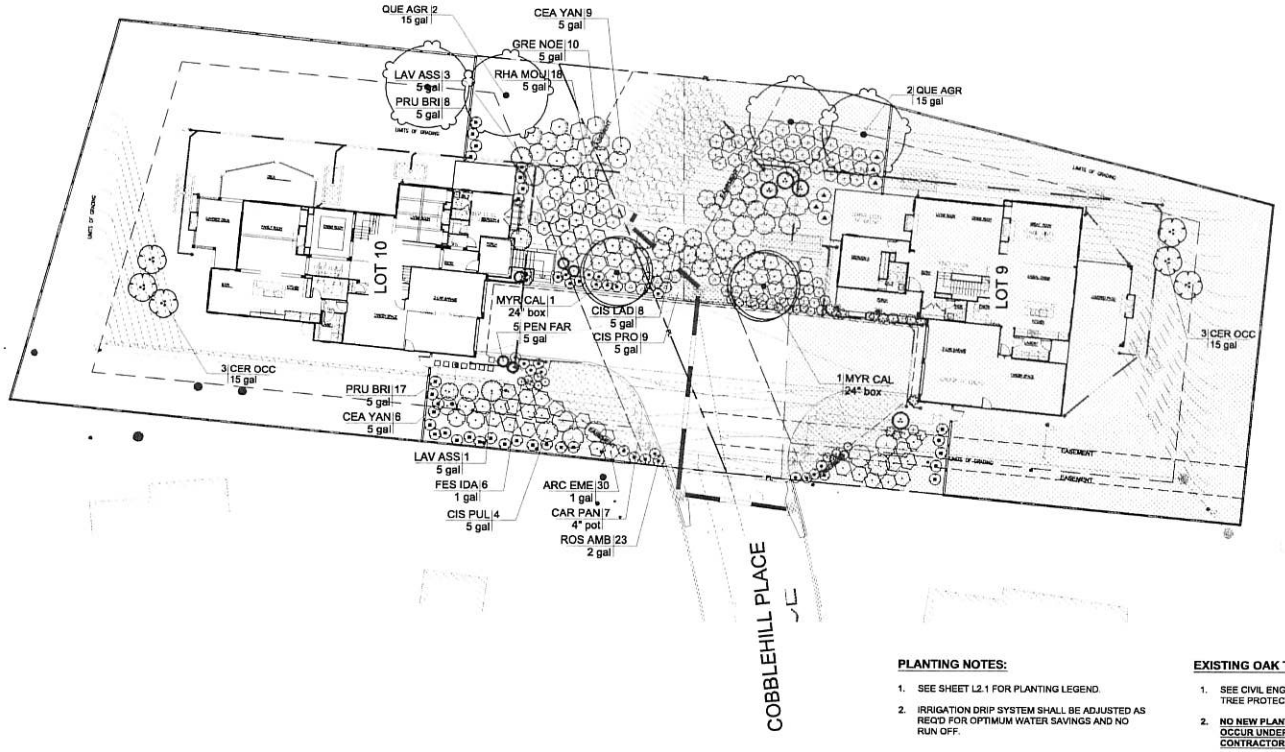
SHEET TITLE
CALLOUT & LAYOUT PLAN

SCALE
1/16" = 1'-0"

ISSUE DATE
3/17/17

PROJECT NO
V1355

SHEET NO.
L1.0



PLANTING NOTES:

1. SEE SHEET L2.1 FOR PLANTING LEGEND.
2. IRRIGATION DRIP SYSTEM SHALL BE ADJUSTED AS REQ'D FOR OPTIMUM WATER SAVINGS AND NO RUN OFF.

EROSION CONTROL NOTES:

1. LEAVE EROSION CONTROL MAT ON ALL SLOPES. CUT HOLES FOR NEW SHRUBS/TREES AS NEEDED.
2. SEE CIVIL IMPROVEMENT PLANS, SHEET C10.10 - C10.90 FOR COMPLETE EROSION CONTROL MEASURES.

EXISTING OAK TREE NOTES:

1. SEE CIVIL ENG. PLANS & ARBORIST REPORT FOR TREE PROTECTION MEASURES, TYP.
2. **NO NEW PLANTING OR IRRIGATION SHALL OCCUR UNDER ANY EXISTING OAK TREES. CONTRACTOR TO FIELD ADJUST AS NECESSARY.**
3. CONTRACTOR SHALL PROTECT EXISTING OAK TREES FROM IRRIGATION & ANY POTENTIAL IRRIGATION RUN OFF.
4. NATIVE LEAF LITTER MULCH SHALL REMAIN UNDER ALL EXISTING OAK TREES . IN ANY BARE AREAS UNDER TREES, CONTRACTOR SHALL APPLY A 3-INCH LAYER OF MULCH AROUND THE BASE OF OAK TREES. APPLY BROADLY. DO NOT PLACE MULCH IMMEDIATELY AGAINST THE TRUNK. KEEP MULCH CLEAR FROM THE TRUNK OF THE OAK TREE BY 12 INCHES.

SAN MATEO COUNTY WATER EFFICIENT LANDSCAPE ORDINANCE COMPLIANCE STATEMENT:

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

ZEKI ABED - LICENSED LANDSCAPE ARCHITECT

0 8 16 32 64

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PROJECT NAME/LOCATION:
HIGHLAND ESTATES
SAN MATEO CALIFORNIA

SHEET TITLE:
LANDSCAPE IMPROVEMENT PLANS
LOT 10

NO	DESCRIPTION	BY	DATE

SHEET TITLE
PLANTING PLAN

SCALE
1/16" = 1'-0"
ISSUE DATE
3/17/17
PROJECT NO
V1355
SHEET NO
L2.0

BIO-RETENTION PLANTERS ON THE
NORTH & NORTHEAST SIDES OF BUILDINGS

5 GAL	CORNUS SERICEA "ISANTI"	QTY: 1
1 GAL	CAREX PRAEGRACILUS	QTY: CAN-TO-CAN FULL

ALTERNATIVE:

5 GAL	CARPENTERIA CALIFORNICA	QTY: 1
1 GAL	CAREX PRAEGRACILUS	QTY: CAN-TO-CAN FULL

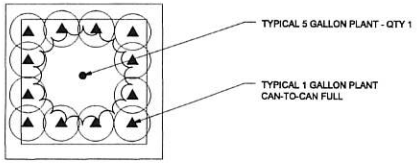
BIO-RETENTION PLANTERS ON THE
SOUTH & SOUTHWEST SIDES OF BUILDINGS

5 GAL	MUHLENBERGIA RIGENS	QTY: 1
1 GAL	MIMULUS AURANTIACUS & CAREX PRAEGRACILUS (ALTERNATING)	QTY: CAN-TO-CAN FULL

NOTES:

1. CONTRACTOR TO HAND WATER PLANTS IN BIO-RETENTION PLANTERS UNTIL ESTABLISHED.
2. SEE CIVIL ENGINEER'S PLANS AND SPECIFICATIONS FOR BIO-RETENTION SOIL MIX.
3. PLANT SPECIES LISTED ABOVE ARE APPROVED FOR USE IN BIO-PLANTERS PER THE SAN MATEO COUNTY STORMWATER MEASURES PLANT LIST

PLANTING DIAGRAM:



TREE PLANTING LIST (lots 5-11)

TREES	CODE	BOTANICAL NAME	COMMON NAME	CONT	QTY	WUCOLS	REMARKS
	ARC MAN	Arctostaphylos manzanita MULTI-TRUNK	Manzanita	15 gal	8	L	Multi-Trunk/Native Mitigation tree
	CER OCC	Cercis occidentalis - MULTI-TRUNK	Western Redbud	15 gal	22	L	Multi-trunk/Native Mitigation Tree
	HET AR2	Heteromeles arbutifolia	Toyon	24"box	8	L	Evergreen/Native Mitigation Tree (Interceptor Tree) Min. install size 9' tall x 5' wide
	MYR CA2	Myrica californica	Pacific Wax Myrtle	15 gal	2	L	Evergreen/Native Tree
	MYR CAL	Myrica californica	Pacific Wax Myrtle	24"box	4	L	Evergreen Tree/Native Tree (Interceptor Tree) Min. install size 9' tall x 5' wide
	QUE AGR	Quercus agrifolia	Coast Live Oak	15 gal	5	L	Single-Trunk/Native Mitigation tree
	SAM MEX	Sambucus mexicana - MULTI-TRUNK	Mexican Elderberry	15 gal	5	L	Multi-Trunk/Native Mitigation tree

SHRUB/GROUNDCOVER PLANTING LIST (Lots 5-11)

SHRUBS	CODE	BOTANICAL NAME	COMMON NAME	SIZE	QTY	IRRIGATION/WATER USE
	ACA COG	Acacia cognata 'Cousin Itt'	River Wattle	5 gal	17	L
	ALY MON	Alyogyne huegelii 'Monterey Bay'	Blue Hibiscus	5 gal	11	L
	ARB ELF	Arbutus unedo 'Elfin King'	Dwarf Strawberry Tree	5 gal	8	L
	ARC EME	Arctostaphylos x 'Emerald Carpet'	Emerald Carpet Manzanita	1 gal	121	L
	CEA YAN	Ceanothus griseus horizontalis 'Yankee Point'	California Lilac	5 gal	102	L
	CEA CON	Ceanothus x 'Concha'	California Lilac	5 gal	7	L
	CIS LAD	Cistus ladanifer	Crimson Spot Rockrose	5 gal	31	L
	CIS PUL	Cistus pulverulentus 'Sunset'	Rockrose	5 gal	34	L
	CIS PRO	Cistus salvifolius 'Prostratus'	Sageleaf Rockrose	5 gal	54	L
	CIS HYB	Cistus x hybridus	White Rockrose	5 gal	58	L
	CIT MEY	Citrus x meyeri	Meyer Lemon	5 gal	3	L
	DIE BIC	Dietes bicolor	Fortnight Lily	1 gal	46	L
	ERI WAY	Erigeron glaucus 'Wayne Roderick'	Seaside Daisy	1 gal	36	L
	GRE NOE	Grevillea x 'Noelii'	Grevillea	5 gal	45	L
	LAV ASS	Lavatera assurgentiflora	Mallow	5 gal	9	L
	PEN FAR	Pennisetum x 'Fairy Tails'	Evergreen Fountain Grass	5 gal	12	L
	PIT TEN	Pittosporum tenuifolium 'Marjorie Channon'	Tawhiwhi	5 gal	30	L
	PIT CRE	Pittosporum tobira 'Cream De Mint' TM	Cream De Mint Dwarf Mock Orange	5 gal	15	L
	PIT WHE L	Pittosporum tobira 'Wheelers Dwarf'	Wheeler's Dwarf Mock Orange	5 gal	34	L
	PRU BRI	Prunus carolniana 'Bright 'N Tight' TM	Bright 'N Tight Carolina Laurel	5 gal	44	L
	RHA MOU	Rhamnus californica 'Mound San Bruno'	California Coffeeberry	5 gal	120	L
	RHA SEA	Rhamnus californica 'Seaview'	California Coffee Berry	5 gal	22	L
	ROS AMB	Rosa x 'Flower Carpet Amber'	Amber Carpet Rose	2 gal	65	L
	ROS RED	Rosa x 'Flower Carpet Red'	Rose	2 gal	35	L
	WES MOR	Westringia fruticosa 'Morning Light'	Morning Light Coast Rosemary	5 gal	9	L

GRASSES	CODE	BOTANICAL NAME	COMMON NAME	SIZE	QTY	REMARKS
	FES IDA	Festuca idahoensis	Idaho Fescue	1 gal	67	L

GROUND COVERS	CODE	BOTANICAL NAME	COMMON NAME	CONT	SPACING	QTY	REMARKS
	CAR PAN	Carex panas	Sanddune Sedge	4" pot	6" o.c.	13 sf	L

PLANTING QUANTITIES SHOWN L2.1 ARE TOTAL QUANTITIES FOR LOTS 5-11.
SEE L2.0 FOR INDIVIDUAL LOT PLANTING PLANS.

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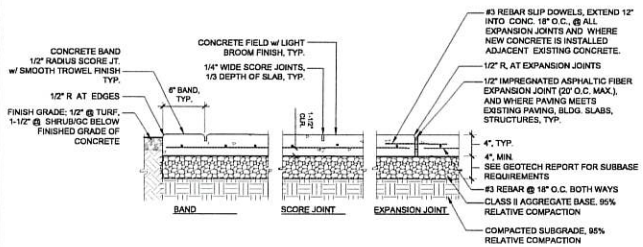
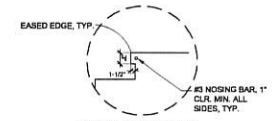
PROJECT NAME/LOCATION
HIGHLAND ESTATES
SAN MATEO CALIFORNIA
DRAWING TITLE
LANDSCAPE IMPROVEMENT PLANS

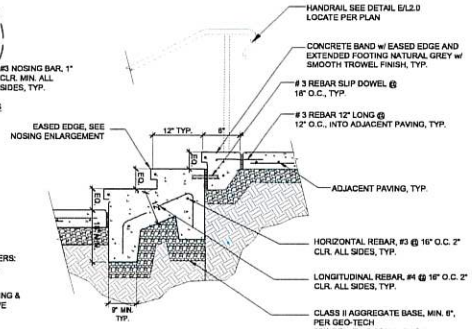
MARK/NO.	DESCRIPTION	DATE
1		
2		
3		

SHEET TITLE
PLANTING LEGEND
SCALE
NTS
ISSUE DATE
3/17/17
PROJECT NO.
V1355
SHEET NO.
L2.1



A CONCRETE PAVING
1" = 1'-0"





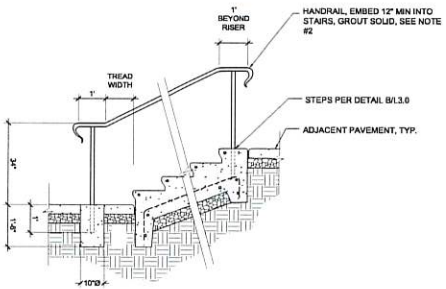
NOTES:

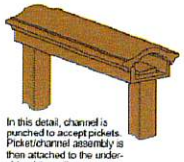
1. CONCRETE STAIRS TO HAVE LIGHT BROOM FINISH.
2. COLOR TO MATCH THE ADJACENT PAVING.
3. SEE PLAN FOR GENERAL STEP LAYOUT. RISERS: 5" MIN. TO 7-3/4" MAX AND EQUAL. SEE CIVIL GRADING PLANS FOR RISER HEIGHTS.
4. MAXIMUM 2% DIRECTIONAL SLOPE ON LANDING & WALKS IN ANY DIRECTION. PROVIDE POSTIVE DRAINAGE ON STAIRS.

B CONCRETE STEPS
3/4" = 1'-0"

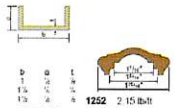
CONCRETE NOTES:

1. SCORING PATTERN TO MEET ALL ACI INTERNATIONAL GUIDELINES.
2. ALL FORMWORK/SCORING/PROPOSED JOINT SPACING TO BE APPROVED AND REVIEWED BY OWNERS' REPRESENTATIVE PRIOR TO POURING.
3. ALL SCORING/CONTRACTION JOINTS TO BE MINIMUM 1/3 DEPTH OF SLAB.
4. DISTANCE BETWEEN CONTRACTION JTS TO BE MAXIMUM 24 TIMES SLAB THICKNESS. ALL CONTRACTION JTS TO BE CONTINUOUS,NOT STAGGERED OR OFFSET. REFER TO ACI INTL. CCS-1 SERIES GUIDELINES FOR ALL CONCRETE WORK. ANY DISCREPANCIES WITH DRAWINGS TO BE BROUGHT TO ATTENTION OF OWNER/ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
5. CONCRETE PANELS TO BE AS SQUARE AS PRACTICAL. NEVER MAKE LONG SIDE MORE THAN 1-1/2 TIMES LENGTH OF SHORT SIDE. NO ONE PANEL TO BE MORE THAN 100 SQ. FT.
6. INSTALL EXPANSION JOINTS WHERE NEW PAVING MEETS EXISTING PAVING, WALLS, CURBS, FOUNDATIONS, OR OTHER FIXED OBJECTS, AND CHANGES IN WALK DIRECTIONS.
7. CONCRETE COLOR TO BE NATURAL GRAY.
8. BROOM FINISH SHALL BE PERPENDICULAR TO PATH OF TRAVEL.
9. CONTRACTOR SHALL COORDINATE INSTALLATION OF REBAR SLIP DOWELS WHERE DRIVEWAY MEETS GARAGE CONCRETE PAD WITH OWNER'S REPRESENTATIVE AND PROJECT STRUCTURAL ENGINEER. DOWELS SHALL BE #4 REBAR SPACED 24" O.C. EXTENDING 12" INTO DRIVEWAY AND GARAGE PAD, OR AS SPECIFIED BY STRUCTURAL ENGINEER. CONTRACTOR SHALL ONLY INSTALL REBAR DOWELS IF APPROVED BY OWNER'S REPRESENTATIVE AND PROJECT STRUCTURAL ENGINEER. SUBMIT TO OWNER'S REPRESENTATIVE PROPOSED DOWEL LOCATIONS.
10. FOR ALL PAVING DETAILS SHOWN, THE PAVING PROFILE, AGGREGATE, SUBBASE PREPARATION & COMPACTION PER GEOTECH ENGINEER, TYP. PROFILES ARE SHOWN FOR DESIGN INTENT & BIDDING PURPOSES ONLY. SEE GEOTECH REPORT FOR PAVING & SUBBASE REQUIREMENTS.





HANDRAIL, CHANNEL & POST



HANDRAIL MAKE AND MODEL

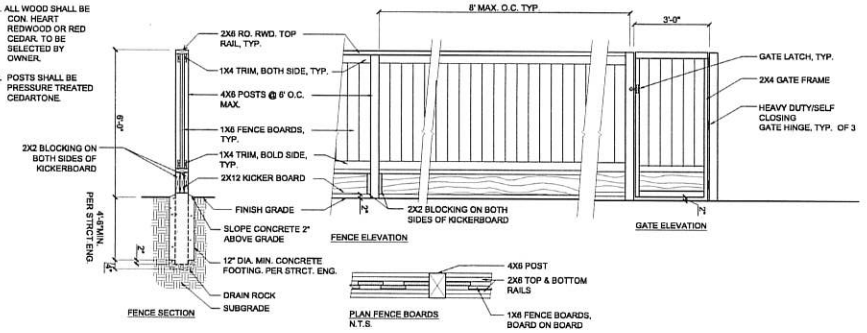
HANDRAIL NOTES:

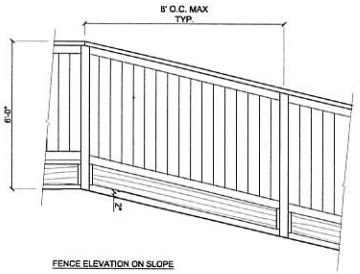
1. HANDRAILS TO BE 1-9/16" MODEL H2901 ALUMINUM HANDRAIL WITH LAMBS TONGUE TERMINUS AS SHOWN. ALUMINUM CHANNEL SHALL BE MODEL C2100512. POSTS SHALL BE 1" SQUARE STEEL BAR WELDED TO BASE OF CHANNEL.
2. PRIME AND PAINT WITH ZINC-RICH PRIMER AND 2 COATS ENAMEL. COLOR TO BE DARK BRONZE. SUBMIT PAINT SAMPLE TO OWNER FOR APPROVAL.
3. AVAILABLE THROUGH R&B WAGNER, INC. (888) 243-6914.

C HANDRAIL
1/2" = 1'-0"

NOTES:

1. ALL WOOD SHALL BE CON. HEART REDWOOD OR RED CEDAR, TO BE SELECTED BY OWNER.
2. POSTS SHALL BE PRESSURE TREATED CEDARTONE.





D 6' TALL WOOD FENCE & GATE
NTS

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LANDSCAPE ARCHITECTS, INC.
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ZIP 94103 PH (415) 864-1011 FAX (415) 864-4796

PROJECT MANAGER:
DRAWN BY:
CHECKED BY:

PROJECT NAME/LOCATION:
HIGHLAND ESTATES
SAN MATEO CALIFORNIA

DRAWING TITLE:
LANDSCAPE IMPROVEMENT PLANS

NO.	DESCRIPTION	BY	DATE

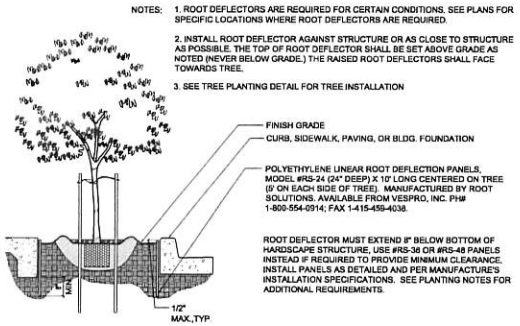
SHEET TITLE:
LANDSCAPE DETAILS

SCALE:
AS NOTED

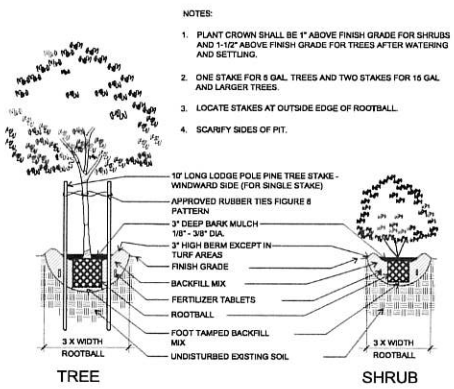
ISSUE DATE:
3/17/17

PROJECT NO.
V1355

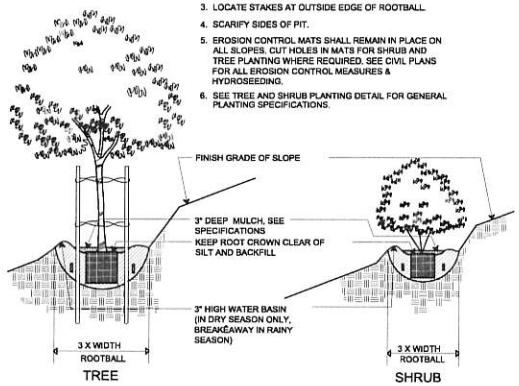
SHEET NO.
L3.0



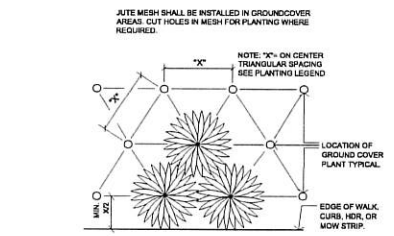
A ROOT DEFLECTOR
NTS



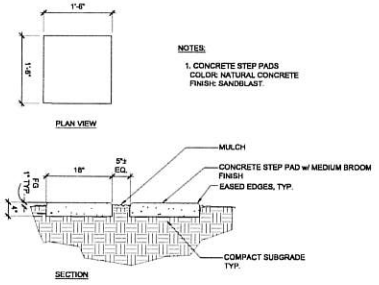
B TREE AND SHRUB PLANTING
NTS



C HILLSIDE TREE AND SHRUB PLANTING
NTS



D GROUNDCOVER PLANTING
NTS



E CONCRETE STEP PADS
3/4" = 1'-0"

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PROJECT MANAGER:
DRAWN BY:
CHECKED BY:
DATE:

PROJECT NAME/LOCATION:
HIGHLAND ESTATES
SAN MATEO CALIFORNIA

DRAWING TITLE:
LANDSCAPE IMPROVEMENT PLANS

NO.	DESCRIPTION	DATE
1		

SHEET TITLE:
LANDSCAPE DETAILS

SCALE:
AS NOTED

ISSUE DATE:
3/17/17

PROJECT NO:
V1355

SHEET NO.
L3.1

GENERAL NOTES:

1. THIS DESIGN IS DIAGRAMMATIC. ALL PIPING, VALVES, ETC., SHOWN WITHIN PAVED AREAS ARE FOR DESIGN CLARIFICATION ONLY AND SHALL BE INSTALLED IN PLANTING AREAS WHERE POSSIBLE, UNLESS OTHERWISE NOTED. AVOID ANY CONFLICTS BETWEEN THE IRRIGATION SYSTEM, PLANTING AND ARCHITECTURAL FEATURES.

2. CONTRACTOR SHALL PERFORM PRESSURE TESTS (STATIC & DYNAMIC) AND FLOW TESTS (GPM) AT POINT OF CONNECTION (P.O.C.) PRIOR TO BEGINNING WORK. SEE IRRIGATION NOTES FOR PRESSURE AND FLOW TEST REQUIREMENTS AND PROCEDURES. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CORRECTIVE MEASURES REQUIRED TO IRRIGATION SYSTEM, AT NO ADDITIONAL COST TO THE OWNER, IF IRRIGATION SYSTEM IS INSTALLED WITHOUT REQUIRED TESTS, AND DISCREPANCIES IN PRESSURE AND FLOW AT THE P.O.C. ARE DISCOVERED THAT PREVENT THE IRRIGATION SYSTEM FROM FUNCTIONING CORRECTLY.

WATER PRESSURE AT P.O.C. NOTES:

1. CONTRACTOR SHALL VERIFY WATER PRESSURE ON SITE. IF PRESSURE IS 65 PSI OR HIGHER AT P.O.C., CONTRACTOR SHALL INSTALL A PRESSURE REDUCER AS SHOWN, AND SET PRESSURE REDUCER TO 65 PSI. PRESSURE REDUCER SHALL BE 1-1/4" WILKINS LEAD FREE 500XL-YSBR (INCLUDES PRESSURE REDUCER & FILTER), SEE IRRIGATION DETAILS.

2. IF PRESSURE IS LESS THAN 65 PSI OMIT PRESSURE REDUCER.

3. IF PRESSURE IS LESS THAN 55 PSI NOTIFY OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT FOR CORRECTIVE MEASURES.

SLEEVE NOTES:

1. FOR DESIGN CLARITY, NOT ALL SLEEVES SHOWN. CONTRACTOR SHALL SLEEVE ALL PIPES CROSSING UNDER PAVED AREAS.

2. WHERE LATERAL LINES WITH SLEEVES CROSS ROADS OR DRIVEWAYS, CONTRACTOR SHALL INSTALL ONE SPARE 4" CLASS 315 PVC SLEEVE.

3. WHERE MAIN LINES WITH SLEEVES CROSS ROADS OR DRIVEWAYS, CONTRACTOR SHALL INSTALL ONE SPARE 6" CLASS 315 PVC SLEEVE.

SPECIAL REQUIREMENTS AT EXISTING TREES

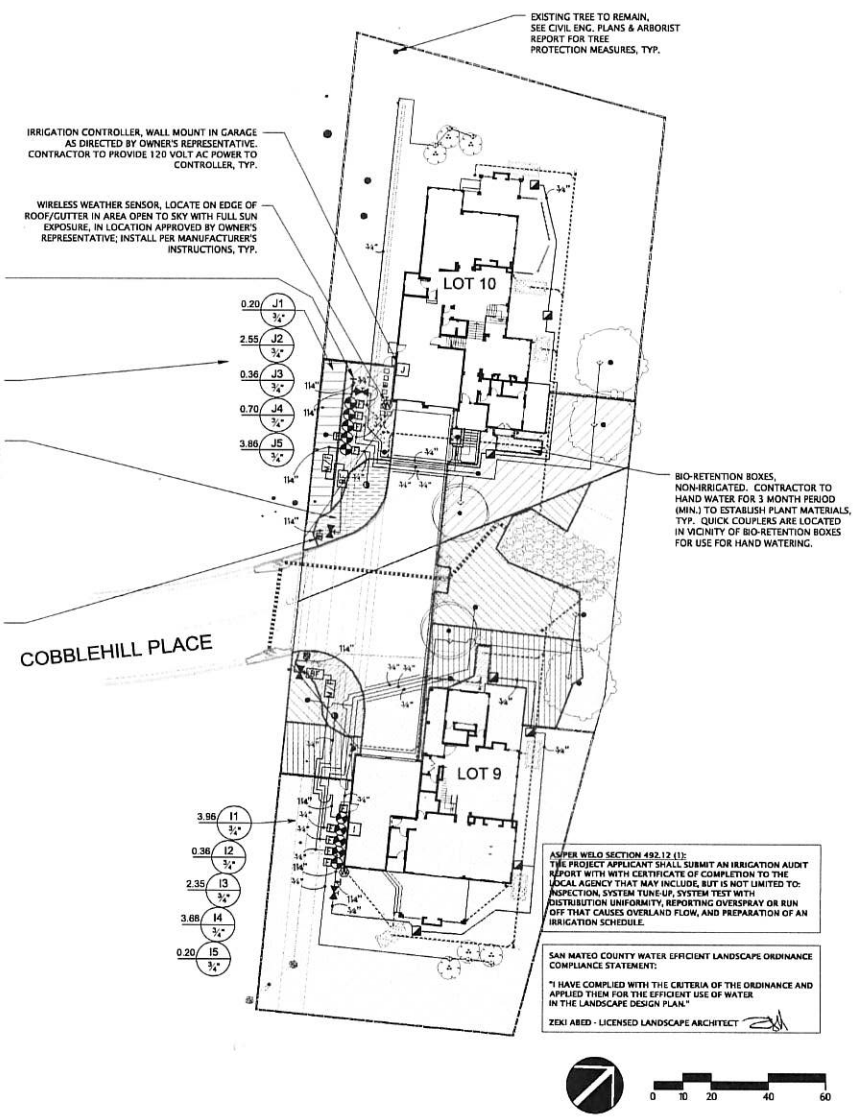
1. ALL UNDERGROUND IRRIGATION LINES SHALL BE ROUTED OUTSIDE THE DRIP LINES WHERE POSSIBLE.

2. IF UNDERGROUND IRRIGATION LINES MUST TRAVERSE THROUGH THE DRIP LINE AREA, LOCATION OF IRRIGATION LINES SHALL BE REVIEWED WITH PROJECT ARBORIST AND MODIFIED AS NEEDED PRIOR TO INSTALLATION. WHEN LINES ARE PROPOSED WITHIN A DISTANCE FROM THE TRUNKS OF FIVE (5) TIMES THEIR DIAMETER, THE PROJECT ARBORIST MAY RECOMMEND THAT A PNEUMATIC AIR DEVICE IS USED TO EXCAVATE THE TRENCH.

EXISTING OAK TREE NOTES:

1. SEE CIVIL ENG. PLANS & ARBORIST REPORT FOR TREE PROTECTION MEASURES, TYP.
2. **NO NEW PLANTING OR IRRIGATION SHALL OCCUR UNDER ANY EXISTING OAK TREES. CONTRACTOR TO FIELD ADJUST AS NECESSARY.**
3. **CONTRACTOR SHALL PROTECT EXISTING OAK TREES FROM IRRIGATION & ANY POTENTIAL IRRIGATION RUN OFF.**

NOTE: CONTRACTOR SHALL FIELD STAKE ALL TREE LOCATIONS PRIOR TO INSTALLATION OF IRRIGATION SYSTEM TO AVOID CONFLICTS WITH TREE LOCATIONS AND MAIN LINES/LATERAL LINES. IRRIGATION LATERAL LINES AND MAIN LINES SHALL BE LOCATED 3' MINIMUM HORIZONTALLY FROM TREE LOCATIONS. FIELD ADJUST ROUTING OF IRRIGATION LINES AS NECESSARY TO MEET MINIMUM CLEARANCE NOTED ABOVE.



AS PER WELO SECTION 492.12 (1):
THE PROJECT APPLICANT SHALL SUBMIT AN IRRIGATION AUDIT REPORT WITH WITH CERTIFICATE OF COMPLETION TO THE LOCAL AGENCY THAT MAY INCLUDE, BUT IS NOT LIMITED TO: INSPECTION, SYSTEM TUNE-UP, SYSTEM TEST WITH DISTRIBUTION UNIFORMITY, REPORTING OVERSPRAY OR RUN OFF THAT CAUSES OVERLAND FLOW, AND PREPARATION OF AN IRRIGATION SCHEDULE.

SAN MATEO COUNTY WATER EFFICIENT LANDSCAPE ORDINANCE COMPLIANCE STATEMENT:

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

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PROJECT MANAGER: XYZ
DRAWN BY: ZA
CHECKED BY: ZA

PROJECT NAME/LOCATION: HIGHLAND ESTATES
SAN MATEO CALIFORNIA
DRAWING TITLE: LANDSCAPE IMPROVEMENT PLANS LOT 10

REVISIONS NO.	DESCRIPTION	BY	DATE

SHEET TITLE: IRRIGATION PLAN
SCALE: 1" = 20'-0"
ISSUE DATE: 3/17/17
PROJECT NO: V1355
SHEET NO: L4.0

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
•	PVC lateral line to drip area with Rainbird 8-outlet emitter units. Route PVC lateral line thru drip area and install required quantity of Xeri-Bird 8 Multi Outlet devices necessary to irrigate plants in the drip area.
	Rain Bird XBT-6 Six multi-outlet drip emitter/bubbler Six-Outlet, Pressure Compensating, with 1.0 GPH Black Drip Emitters at each emitter outlet. Comes with 1/2" FPT Inlet x Barb Outlet. Install DBC-025 Diffuser Bug Caps at end of each emitters 1/4" distribution line. Install 4 (four) 1/4" distribution lines with Diffuser Bug Caps at 5Gal & 15Gal trees; Install 6 (six) 1/4" distribution lines with Diffuser Bug Caps at 24"Box trees. Plug unused emitter outlets.
A1 A1 A1 A1 CONTROLLER VALVE CIRCUIT NO. NOTE: DRIP AREA PATTERNS VARY FOR DESIGN CLARITY	Area to Receive Drip Emitters Rain Bird XBD81-PRS w/XB-10 Xeri-Bird 8 Multi Outlet Emission Device with Xeri-Bug emitters at 1gph each, with built-in 200 mesh filter, Pressure Regulator in-stem. Emitter Notes: OCT8-16 emitters (1 assigned to each 1 gal plant) OCT8-16 emitters (4 assigned to each 15 gal plant) OCT8-16 emitters (2 assigned to each 2 gal plant) OCT8-16 emitters (6 assigned to each 24"box plant) XB10PC emitters (1 assigned to each 4" pot plant) OCT8-16 emitters (2 assigned to each 5 gal plant)
A1 A1	Area to Receive Dripline Toro RGP-212 (12) Rootguard and 0.53 gph emitters at 12" o.c., or approved equivalent. Dripline spacing shall be as follows: Dripline lateral rows shall be spaced at 12" apart, with emitters offset for triangular pattern. See notes on irrigation plans and details for spacing at sloped areas.

NOTE: TUBING INSTALLED ON GRADE, SEE DRIP DETAILS. FLUSH VALVE AND AIR RELIEF VALVES NOT SHOW ON PLANS FOR DESIGN CLARITY, SEE DRIP DETAILS FOR TYPICAL INSTALLATION LOCATIONS AT EACH DRIP CIRCUIT.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Irritrol 700 with OMR-100 Electric Remote Control Valve, with Omni-Reg 5-100psi regulator. Set pressure regulator at 40 PSI.
	Rain Bird 33-DRC 3/4" Brass Quick-Coupling Valve, with Corrosion-Resistant Stainless Steel Spring, Thermoplastic Rubber Cover, Double Track Key Lug, and 2-Piece Body. Provide two 33-DK 3/4" valve key with SH-0 3/4" hose swivels to Owner for each lot.
	Nibco T-113-LF Lead free Class 125 bronze gate shut off valve with wheel handle, same size as mainline pipe diameter at valve location. Size Range - 1/4" - 3"
M/F	Master Valve & Flow Sensor: 1-1/4" Griswold 2160JE - 1-1/4" Solenoid, Normally Open Master Valve. Epoxy Coating. Cast Iron and Bronze Material. NPT End Connection & Creative Sensor Technology FSI-T10-001 - 1" (25mm) PVC tee type flow sensor w/socket ends, custom mounting tee and ultra-lightweight impeller enhances low flow measurement, 2 wire digital output compatible w/all irrigation controllers. Flow range: .86-52 GPM.
BF	Febco LF825Y 1" Lead Free Reduced Pressure Backflow Preventer
E	Irritrol MC-12-E 12- Station, Commercial-Grade, Outdoor/Indoor Controller. Equipped in a rugged, lockable, vandal-proof, weather resistant steel cabinet. Wall mounted. Connect Flow Sensor and Climate Logic receiver unit per manufacturers specifications.
F	Irritrol MC-12-E 12- Station, Commercial-Grade, Outdoor/Indoor Controller. Equipped in a rugged, lockable, vandal-proof, weather resistant steel cabinet. Wall mounted. Connect Flow Sensor and Climate Logic receiver unit per manufacturers specifications.
G	Irritrol MC-12-E 12- Station, Commercial-Grade, Outdoor/Indoor Controller. Equipped in a rugged, lockable, vandal-proof, weather resistant steel cabinet. Wall mounted. Connect Flow Sensor and Climate Logic receiver unit per manufacturers specifications.
H	Irritrol MC-12-E 12- Station, Commercial-Grade, Outdoor/Indoor Controller. Equipped in a rugged, lockable, vandal-proof, weather resistant steel cabinet. Wall mounted. Connect Flow Sensor and Climate Logic receiver unit per manufacturers specifications.
I	Irritrol MC-12-E 12- Station, Commercial-Grade, Outdoor/Indoor Controller. Equipped in a rugged, lockable, vandal-proof, weather resistant steel cabinet. Wall mounted. Connect Flow Sensor and Climate Logic receiver unit per manufacturers specifications.
J	Irritrol MC-12-E 12- Station, Commercial-Grade, Outdoor/Indoor Controller. Equipped in a rugged, lockable, vandal-proof, weather resistant steel cabinet. Wall mounted. Connect Flow Sensor and Climate Logic receiver unit per manufacturers specifications.
K	Irritrol MC-12-E 12- Station, Commercial-Grade, Outdoor/Indoor Controller. Equipped in a rugged, lockable, vandal-proof, weather resistant steel cabinet. Wall mounted. Connect Flow Sensor and Climate Logic receiver unit per manufacturers specifications.
W	Irritrol CL Wireless Weather Sensing System, 100-Receive and Transmitter Kit. Outdoor sensor, and receiver attaches to Irritrol Controller. Compatible with Rain Dial-R, Total Control-R, KwikDial, adn MC-E controllers. Monitors weather data.
F	Amiad 150 mesh Y-Filter with flush valve, or approved equivalent, at drip remote control valves. Select filter size with gpm flow rate compatible with valve circuit gpm flow rate.
WM	Water Meter 1"
	Irrigation Lateral Line: PVC Class 200 SDR 21 with solvent weld Sch.40 fittings. Only lateral transition pipe sizes 1" and above are indicated on the plan, with all others being 3/4" in size. 12" min. burry.

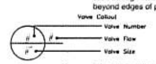
NOTE: INSTALL ONE TORO T-DL-MP9 DL2000 POP-UP OPERATION INDICATOR AT EACH RCV TORO DRIPLINE VALVE CIRCUIT. LOCATE AT END OF DRIPLINE CIRCUIT AT FLUSH VALVE.

FOR MOUNTING INFO, SEE NOTES ON PLANS

Y-FILTER TO BE INSTALLED AT DRIP CIRCUITS.

NOTE: SEE P.O.C. NOTES ON IRRIGATION PLANS.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Irrigation Mainline: PVC Schedule 40 and Class 315 with solvent weld Sch.40 fittings. PVC Schedule 40 to 1-1/2". PVC Class 315 SDR 13.5 for pipes 2" and larger. 18" min. bury.
	Pipe Sleeve: PVC Class 315 SDR 13.5 Typical pipe sleeve for irrigation pipe. Pipe sleeve size shall allow for irrigation piping and their related couplings to easily slide through sleeving material. Extend sleeves 18 inches beyond edges of paving or construction. 24" min. bury.



SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Drip zone connection point: PVC lateral line connection to subsurface dripline tubing manifold. Note-location diagrammatic, see drip details for PVC lateral to drip tubing.
	Cap main line for Homeowner's future use. Contractor shall route low voltage control wires from lot controller's unused stations to cap location for Homeowner's future use. Locate control wires in 9" round plastic valve box (e.g., if lot has 5 valve/controller stations used, Contractor shall route low voltage control wires for the remaining 7 unused stations to main line cap location).

IRRIGATION RUN TIME SCHEDULE NOTES:

1. IRRIGATION CONTROLLER RUN TIMES ARE NOT INCLUDED ON LANDSCAPE PLANS. IRRIGATION CONTROLLERS ARE ET BASED SMART CONTROLLERS THAT GENERATE OPTIMUM RUN TIME SCHEDULES BASED UPON LOCAL WEATHER CONDITIONS.
2. CONTROLLERS ARE INITIALLY PROGRAMMED WITH IRRIGATION SYSTEM COMPONENT INFORMATION, PLANT MATERIAL WATER USE REQUIREMENTS, SOIL TYPE, AND LOCAL MICRO CLIMATIC INFORMATION. CONTROLLERS AUTOMATICALLY GENERATE RUN TIME SCHEDULES FROM THIS INFORMATION. EACH DAY CONTROLLERS RECEIVES LOCAL WEATHER CONDITION DATA WIRELESS WEATHERS SENSORS, AND AUTOMATICALLY ADJUST THEIR WATERING SCHEDULES FOR OPTIMUM WATER CONSERVATION. EACH CONTROLLER HAS IT'S OWN WIRELESS WEATHER SENSOR, LOCATED ON-SITE.
3. CONTRACTOR SHALL PROGRAM CONTROLLER'S FLOW MONITORING FEATURE TO DETECT FLOWS OF 5 GPM ABOVE PEAK RECORDED GPM FLOW FOR MAIN LINE AND LATERAL LINES/RCVS. CONTROLLER SHALL BE SET TO SHUT MASTER VALVE AND CONTROLLER OFF IN THE EVENT OF AN OVERFLOW CONDITION (MAIN LINE OR LATERAL LINE BREAK).

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PROJECT MANAGER: MW
DRAFTED BY: EO
CHECKED BY: ZA

PROJECT NAME/LOCATION: HIGHLAND ESTATES
SAN MATEO CALIFORNIA
DRAWING TITLE: LANDSCAPE IMPROVEMENT PLANS

REVISIONS: NO. | DESCRIPTION | BY | DATE

SHEET TITLE: IRRIGATION LEGEND
SCALE: NA
ISSUE DATE: 3/17/17
PROJECT NO: V1355
SHEET NO: L4.1

Appendix B – Water Efficient Landscape Worksheet : Lot 10

WATER EFFICIENT LANDSCAPE WORKSHEET

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

Reference Evapotranspiration (ETo): 42.8

Hydrozone # /Planting Description*	Plant Factor (PF)	Irrigation Method*	Irrigation Efficiency (IE)*	ETAF (PF/IE)	Landscape Area (sq. ft.)	ETAF x Area	Estimated Total Water Use (ETWU)*
Regular Landscape Areas							
#1 Sun	0.3	Drip	0.81	0.37	2575	953	25262
#2 Shade	0.3	Drip	0.81	0.37	497	184	4880
				Totals	3072	1137	30162
Special Landscape Areas N/A							
				Totals	(C)	(D)	
						ETWU Total	30162
				Maximum Allowed Water Allowance (MAWA)*			44835

Hydrozone #/Planting Description
E.g.
1.) front lawn
2.) low water use plantings
3.) medium water use planting

Irrigation Method
overhead spray or drip

Irrigation Efficiency
0.75 for spray head
0.81 for drip

ETWU (Annual Gallons Required) = Eto x 0.62 x ETAF x Area
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.

MAWA (Annual Gallons Allowed) = (42.8) (.62) ((0.55 x LA) + ((1-ETAF) x SLA))
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

0.55 used in MAWA calculation.

ETAF Calculations

Regular Landscape Areas

Total ETAF x Area	1137
Total Area	3072
Average ETAF	**0.37**

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

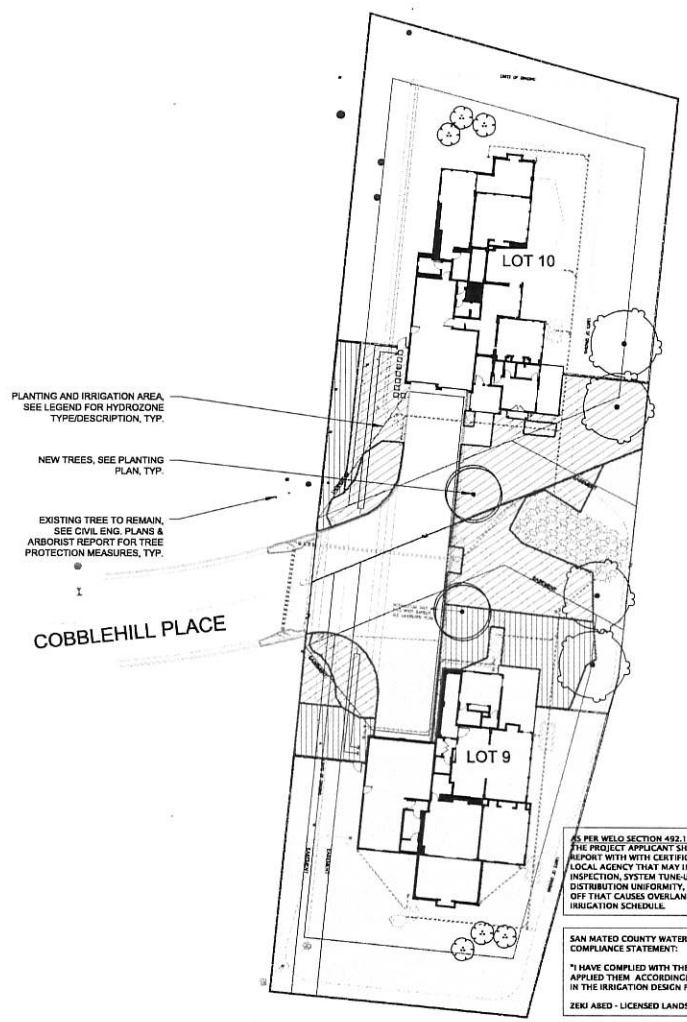
Total ETAF x Area	1137
Total Area	3072
Sitewide ETAF	**0.37**

WATER EFFICIENT LANDSCAPE WORKSHEET NOTES:

1. THE LANDSCAPE WATER USE CALCULATIONS ARE PER THE SAN MATEO COUNTY WATER EFFICIENT LANDSCAPING ORDINANCE (WELO).
2. THIS PROJECTS WATER USE IS LESS THAN THE MAXIMUM PERMITTED, THEREFORE THIS PROJECT IS A WATER CONSERVING LANDSCAPE DESIGN.

HYRDOZONE AREA LEGEND

SYMBOL	HYDROZONE	DESCRIPTION	IRRIG. METHOD	SF AREA	%LANDSCAPE AREA
	1	LOW WATER USE, SUN EXPOSURE, DRIP IRRIGATED TREE, SHRUB & GROUND COVER AREAS	DRIP	2,575 SF	83.8%
	2	LOW WATER USE, SHADE EXPOSURE, DRIP IRRIGATED TREE, SHRUB & GROUND COVER AREAS	DRIP	497 SF	16.2%
			TOTAL SF AREA =	3,072 SF	100%



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SAN MATEO COUNTY WATER EFFICIENT LANDSCAPE ORDINANCE COMPLIANCE STATEMENT:

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

ZEKI ABED - LICENSED LANDSCAPE ARCHITECT

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CHECKED BY: ZA

PROJECT NAME/LOCATION
HIGHLAND ESTATES
SAN MATEO CALIFORNIA
DRAWING TITLE
LANDSCAPE IMPROVEMENT PLANS
LOT 10

NO	DESCRIPTION	BY	DATE

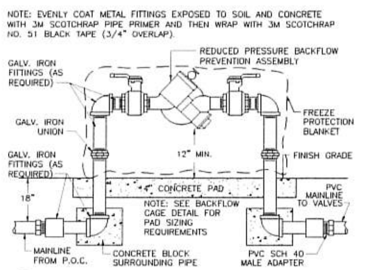
SHEET TITLE
HYDROZONE PLAN & WATER CALCS

SCALE
1" = 20'-0"

ISSUE DATE
3/17/17

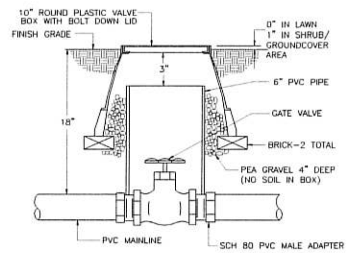
PROJECT NO.
V1355

SHEET NO.
L4.2

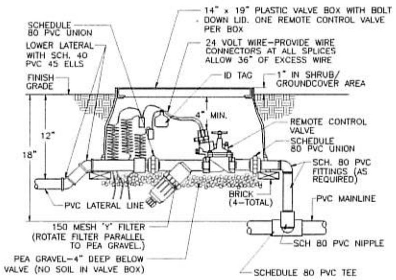


NOTE: EVENLY COAT METAL FITTINGS EXPOSED TO SOIL AND CONCRETE WITH 3M SCOTCHRAP PIPE PRIMER AND THEN WRAP WITH 3M SCOTCHRAP NO. 51 BLACK TAPE (3/4" OVERLAP).
REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY
GALV. IRON FITTINGS (AS REQUIRED)
GALV. IRON UNION
GALV. IRON FITTINGS (AS REQUIRED)
FREEZE PROTECTION BLANKET
12" MIN.
FINISH GRADE
4" CONCRETE PAD
NOTE: SEE BACKFLOW CAGE DETAIL FOR PAD SIZING REQUIREMENTS
PVC MAINLINE TO VALVES
18"
MAINLINE FROM P.O.C.
CONCRETE BLOCK SURROUNDING PIPE
PVC SCH 40 MALE ADAPTER

1 REDUCED PRESSURE BACKFLOW PREVENTER DETAIL
NOT TO SCALE

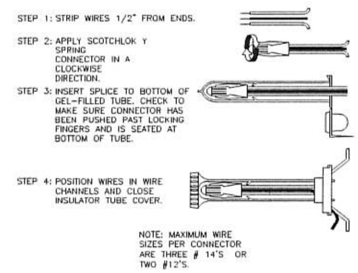


2 GATE VALVE DETAIL
NOT TO SCALE



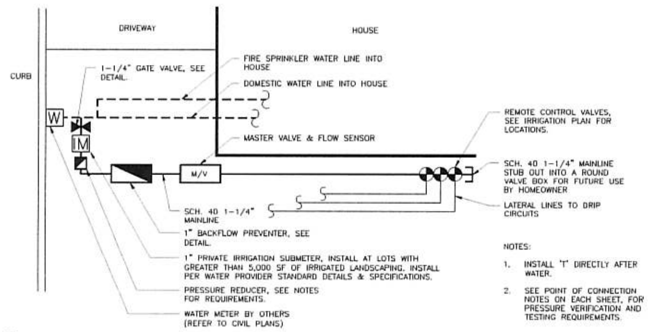
14" x 19" PLASTIC VALVE BOX WITH BOLT DOWN LID. ONE REMOTE CONTROL VALVE PER BOX
SCHEDULE 80 PVC UNION
LOWER LATERAL WITH SCH. 40 PVC 45 ELLS
24 VOLT WIRE-PROVIDE WIRE CONNECTORS AT ALL SPLICES ALLOW 36" OF EXCESS WIRE
FINISH GRADE
ID TAG
1" IN SHRUB/GROUNDCOVER AREA
4" MIN.
REMOTE CONTROL VALVE
SCHEDULE 80 PVC UNION
12"
18"
SCH. 80 PVC FITTINGS (AS REQUIRED)
BRICK (4-TOTAL)
PVC LATERAL LINE
PVC MAINLINE
150 MESH 'Y' FILTER (ROTATE FILTER PARALLEL TO PEA GRAVEL.)
SCH 80 PVC NIPPLE
PEA GRAVEL-4" DEEP BELOW VALVE (NO SOIL IN VALVE BOX)
SCHEDULE 80 PVC TEE

3 REMOTE CONTROL VALVE & 'Y' FILTER DETAIL
NOT TO SCALE



STEP 1: STRIP WIRES 1/2" FROM ENDS.
STEP 2: APPLY SCOTCHLOK Y SPRING CONNECTOR IN A CLOCKWISE DIRECTION.
STEP 3: INSERT SPLICE TO BOTTOM OF GEL-FILLED TUBE. CHECK TO MAKE SURE CONNECTOR HAS BEEN PUSHED PAST LOCKING FINGERS AND IS SEATED AT BOTTOM OF TUBE.
STEP 4: POSITION WIRES IN WIRE CHANNELS AND CLOSE INSULATOR TUBE COVER.
NOTE: MAXIMUM WIRE SIZES PER CONNECTOR ARE THREE # 14'S OR TWO #12'S.

4 WIRE CONNECTION DETAIL
NOT TO SCALE

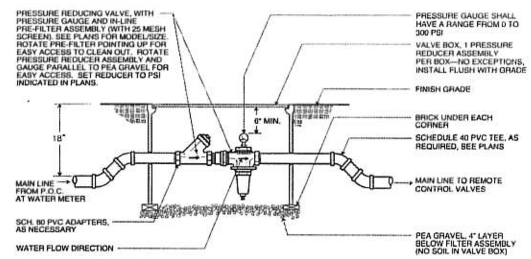


DRIVEWAY
HOUSE
CURB
1-1/4" GATE VALVE, SEE DETAIL.
FIRE SPRINKLER WATER LINE INTO HOUSE
DOMESTIC WATER LINE INTO HOUSE
MASTER VALVE & FLOW SENSOR
W
M
M/V
REMOTE CONTROL VALVES, SEE IRRIGATION PLAN FOR LOCATIONS.
SCH. 40 1-1/4" MAINLINE STUB OUT INTO A ROUND VALVE BOX FOR FUTURE USE BY HOMEOWNER
LATERAL LINES TO DRIP CIRCUITS
SCH. 40 1-1/4" MAINLINE
1" BACKFLOW PREVENTER, SEE DETAIL.
1" PRIVATE IRRIGATION SUBMETER, INSTALL AT LOTS WITH GREATER THAN 5,000 SF OF IRRIGATED LANDSCAPING. INSTALL PER WATER PROVIDER STANDARD DETAILS & SPECIFICATIONS.
PRESSURE REDUCER, SEE NOTES FOR REQUIREMENTS.
WATER METER BY OTHERS (REFER TO CIVIL PLANS)
NOTES:
1. INSTALL 'T' DIRECTLY AFTER WATER.
2. SEE POINT OF CONNECTION NOTES ON EACH SHEET, FOR PRESSURE VERIFICATION AND TESTING REQUIREMENTS.

5 IRRIGATION SYSTEM P.O.C. AT EACH LOT DETAIL
NOT TO SCALE

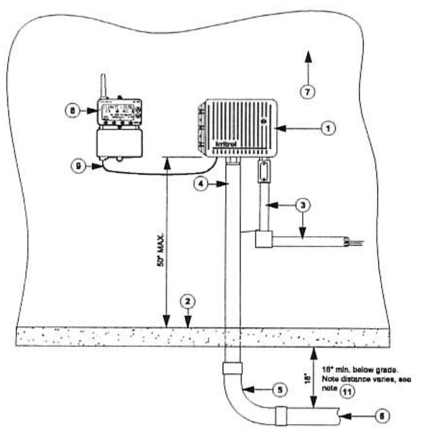
NOTES:

PRESSURE REDUCER SHALL BE 1-1/4" LEAD FREE WILKINS 500XLYSBR (INCLUDES PRESSURE REDUCER & FILTER), SET AT 50 PSI. SEE NOTES ON IRRIGATION PLANS FOR INSTALLATION REQUIREMENTS.

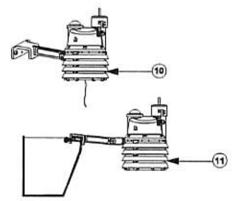


PRESSURE REDUCING VALVE, WITH PRESSURE GAUGE AND IN-LINE PRE-FILTER ASSEMBLY (WITH 25 MESH SCREEN). SEE PLANS FOR MODEL/SIZE. ROTATE PRE-FILTER POINTING UP FOR EASY ACCESS TO CLEAN OUT. ROTATE PRESSURE REDUCER ASSEMBLY AND GAUGE PARALLEL TO PEA GRAVEL FOR EASY ACCESS. SET REDUCER TO PSI INDICATED IN PLANS.
PRESSURE GAUGE SHALL HAVE A RANGE FROM 0 TO 300 PSI
VALVE BOX, 1 PRESSURE REDUCER ASSEMBLY PER BOX—NO EXCEPTIONS, INSTALL FLUSH WITH GRADE
FINISH GRADE
6" MIN.
18"
BRICK UNDER EACH CORNER
SCHEDULE 40 PVC TEE, AS REQUIRED, SEE PLANS
MAIN LINE FROM P.O.C AT WATER METER
MAIN LINE TO REMOTE CONTROL VALVES
SCH. 80 PVC ADAPTERS, AS NECESSARY
WATER FLOW DIRECTION
PEA GRAVEL, 4" LAYER BELOW FILTER ASSEMBLY (NO SOIL IN VALVE BOX)

6 PRESSURE REDUCER DETAIL
NOT TO SCALE



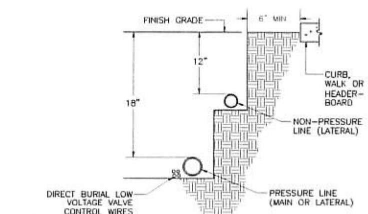
1. Irrigation controller. Install controller in location as directed by Owner's Representative.
2. Garage finish surface.
3. 1/2" UL approved electrical conduit, ring nut and junction box for 120V AC electrical power. Contractor to proved 120 volt AC electrical power to controller, see notes on Irrigation Plans.
4. PVC schedule 40 control wire conduit (size as required)
5. PVC sweep ell to conduit through bldg. to exterior planting area 18" below grade.
6. End conduit 12" beyond edge of bldg., 18" below grade.
7. Interior wall in garage area.
8. Climate Logic™ receiver module mounted near the compatible controller. Mount with screws at eye level.
9. Single connection cord plugged into controllers remote port.
10. Climate Logic™ weather sensor mounted outdoors on flat surface using screws, , see notes on Irrigation Plans.
11. Climate Logic™ weather sensor mounted on a rain gutter using QuickClip™ guttermount, see notes on Irrigation Plans.
11. Note: at lots where garage areas are elevated above grade, route conduit down side of bldg./structural piers out site where possible, to 18" below grade. Paint exposed conduit to match house color as directed by Owner's Representative.



NOTES:

1. Irrigation controller is not shown on the irrigation plan. Irrigation controller to be installed in garage as directed by Owner's Representative.
2. 120 volt AC power to controller per Electrical Plans.
3. Wireless weather sensor unit to be installed on edge of bldg. In area open to sky with full sun exposure, in location approved by Owner's Representative. Locate sensor unit within radio communication range of controller.
4. All electrical work must conform to local codes. Refer to product literature for additional installation requirements.

7 IRRIGATION CONTROLLER & WIRELESS WEATHER SENSOR DETAIL
NOT TO SCALE



NOTES:
1. TRENCHING AND BACKFILLING SHALL BE PER STANDARD SPECIFICATIONS.
2. MINIMUM BACKFILL RELATIVE COMPACTION SHALL BE 90%.
3. BUNDLE CONTROL WIRES TOGETHER AND TAPE AT 10' INTERVALS.
4. 4" MIN. HORIZONTAL DISTANCE BETWEEN PIPES IN COMMON TRENCH.
5. ALL PLASTIC IRRIGATION PIPING TO BE SNAKED IN TRENCHES.

8 IRRIGATION LINE TRENCHING
NOT TO SCALE

CLIENT:
CHAMBERLAIN GROUP
655 Skyway, Suite 230
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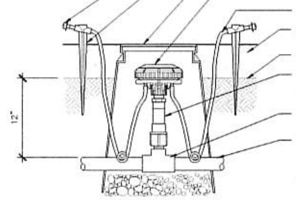
PROJECT MANAGER: MW
DRAFTED BY: EO
CHECKED BY: ZA

PROJECT NAME/LOCATION:
HIGHLAND ESTATES
SAN MATEO CALIFORNIA
DRAWING TITLE:
LANDSCAPE IMPROVEMENT PLANS

REVISIONS: NO.	DESCRIPTION	BY	DATE

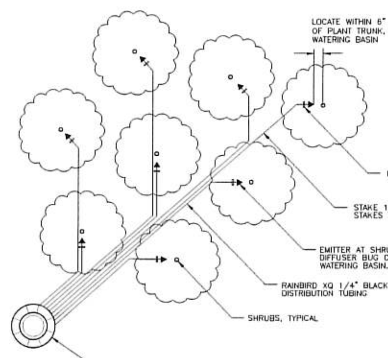
SHEET TITLE: IRRIGATION DETAILS
SCALE: AS SHOWN
ISSUE DATE: 3/17/17
PROJECT NO.: V1355
SHEET NO.: L4.3



SECTION

NOTES:

1. APPLY TEFLON TAPE TO ALL THREADED CONNECTIONS.
2. SEE DRIP LATERAL PIPE SIZING CHART FOR SIZING LATERAL LINES.
3. 1/4" DISTRIBUTION TUBING MAXIMUM LENGTH SHALL NOT EXCEED 20'.



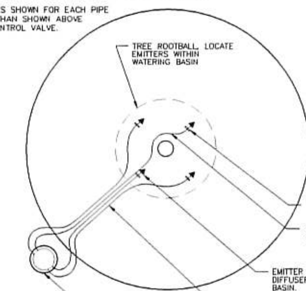
PLAN VIEW – RAINBIRD 8 OUTLET DRIP EMITTER LAYOUT @ SHRUBS/GROUND COVERS

DRIP SHRUB/GC LATERAL PIPE SIZING CHART

GPM FLOW RATES	SIZE OF CLASS 200 PVC PIPE	MAX. QUANTITY OF RAINBIRD 8-OUTLET DRIP EMISSION UNITS (WITH 1.0 GPM EMITTERS)
5 to 8	3/4"	58
9 to 14	1"	102
15 to 20	1-1/4"	150

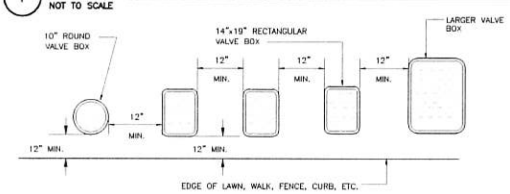
NOTE: DO NOT EXCEED MAXIMUM FLOW RATES SHOWN FOR EACH PIPE SIZE. IF CIRCUITS REQUIRE HIGHER FLOWS THAN SHOWN ABOVE CONTRACTOR SHALL ADD A NEW REMOTE CONTROL VALVE.

INSTALL:
1 EMITTER @ 1 GAL. PLANTS
1 EMITTER @ 2 GAL. PLANTS
2 EMITTERS @ 5 GAL. PLANTS
4 EMITTERS @ 15 GAL. PLANTS
4 EMITTERS @ 24" BOX TREES
4 EMITTERS @ 36" BOX TREES



PLAN VIEW – RAINBIRD 6 OUTLET DRIP EMITTER LAYOUT @ TREES

1 8-OUTLET & 6-OUTLET DRIP EMITTER ON RISER DETAIL
NOT TO SCALE



TOP VIEW

NOTES

1. CENTER BOX OVER VALVE TO FACILITATE SERVICING VALVE.
2. SET BOXES 1" ABOVE FINISH GRADE OR MULCH COVER IN GROUND COVER/SHRUB AREA AND FLUSH WITH FINISH GRADE IN TURF AREA.
3. SET VALVE BOX ASSEMBLY IN GROUND COVER/SHRUB AREA WHERE POSSIBLE. INSTALL IN LAWN AREA ONLY IF GROUND COVER/SHRUB AREA DOES NOT EXIST ADJACENT TO LAWN.
4. SET BOXES PARALLEL TO EACH OTHER AND PERPENDICULAR TO EDGE.
5. AVOID HEAVILY COMPACTING SOIL AROUND VALVE BOX EDGES TO PREVENT COLLAPSE AND DEFORMATION OF VALVE BOX SIDES.
6. VALVE BOXES SHALL HAVE BOLT DOWN LIDS WITH BOLTS INSTALLED.
7. VALVE BOXES SHALL BE BY CARSON, OR EQUIVALENT

2 VALVE BOX LAYOUT DETAIL
NOT TO SCALE

TORO DRIP TUBING MAXIMUM LENGHT OF RUN CHART:

TUBING TYPE: TORO RGP-212(12); 5/8" DIA. TUBING WITH 0.53 GPH EMITTERS AT 12" O.C.

TORO

Performance Specifications (continued)

Maximum length of run

- RGP-212-XX:
250' @ 15 psi (76m @ 1,03 Bar)
360' @ 25 psi (110m @ 1,72 Bar)
400' @ 30 psi (122m @ 2,07 Bar)
460' @ 40 psi (140m @ 2.76 Bar)

TUBING LAYOUT CHART NOTES:

1. CONTRACTOR SHALL FIELD LAYOUT DRIP TUBING ZONE AREAS AS INDICATED ON THE PLANS, AND FIELD VERIFY/CALCULATE EACH ZONES TOTAL GPM DOES NOT EXCEED THE DRIP ZONE VALVE CIRCUIT GPM'S SHOWN ON THE PLANS. IF DRIP ZONE(S) GPM'S EXCEED GPM'S SHOWN ON PLANS, CONTRACTOR SHALL SPLIT DRIP ZONE(S) INTO TWO OR MORE DRIP ZONE VALVE CIRCUITS AREAS TO REDUCE GPM FLOW RATES AS NECESSARY.
2. PSI AVAILABLE AT EACH DRIP CIRCUIT'S TUBING WILL VARY AND DEPEND UPON PSI AT WATER METER/P.O.C AND PSI LOSSES FROM P.O.C TO DRIP TUBING REMOTE CONTROL VALVE. CONTRACTOR SHALL FIELD VERIFY PSI AVAILABLE AT EACH DRIP CIRCUIT'S VALVE, AND SELECT THE APPROPRIATE MAXIMUM TUBING LENGTH RUN FROM CHART BELOW. DO NOT EXCEED MAXIMUM TUBING RUN LENGTHS.
3. WHERE NECESSARY, INSTALL ADDITIONAL PVC LATERAL SUPPLY MANIFOLDS IN DRIP ZONE AREAS TO KEEP TUBING RUN LENGTHS FROM EXCEEDING MAXIMUM RUN LENGTHS.
4. PVC LATERAL SUPPLY MANIFOLDS SHALL BE SAME SIZE AS LATERAL LINE SIZE THAT FEEDS ENTIRE DRIP ZONE AREA.

3 DRIP CIRCUIT MAXIMUM TUBING LENGTH CHART
NOT TO SCALE

TORO

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5825 JASMINE STREET
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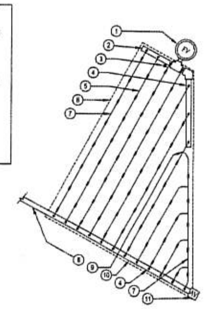
LEGEND

1. TORO DL2000 AUTOMATIC FLUSH VALVE (FCH-H-FIPT) PLUMBED TO FLUSH MANIFOLD AT LOW POINT.
2. PVC FLUSH MANIFOLD.
3. TORO DL2000 OPERATION INDICATOR (DL-MP9), OPTIONAL.
4. TORO DL2000 MANIFOLD-TO-ELBOW CONNECTION (TYP).
5. TORO DL2000 DRIPLINE LATERAL (RGP-XXX-XX).
6. AREA PERIMETER.
7. PERIMETER LATERALS 2" TO 4" FROM EDGE.
8. PVC LATERAL LINE FROM DRIP ZONE KIT.
9. TORO LOC-EZE TEE (FTT16).
10. PVC SUPPLY MANIFOLD.
11. TORO DL2000 AIR/VACUUM RELIEF VALVE (YD-500-34) PLUMBED TO SUPPLY MANIFOLD AT HIGH POINT.

DL2000 DRIPLINE:
RPG212(12)-5/8" DIA.
TUBING WITH 0.53GPH
EMITTERS AT 12" O.C.

NOTE:
THE TOTAL LENGTH OF ALL INTERCONNECTED DRIP LINE SHALL NOT EXCEED THE MAXIMUM RUN LENGTH. SEE TORO SUBSURFACE IRRIGATION DESIGN GUIDE (FORM #ALT111).



PLAN
NOT TO SCALE

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 068-1082

4 DRIP CIRCUIT ODD SHAPE LAYOUT – END FEED DETAIL
NOT TO SCALE

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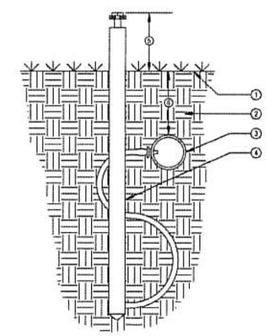

LEGEND
1. FINISH GRADE
2. NATIVE SOIL BACKFILL PER SPECIFICATIONS.
3. TORO DL2000 DRIPLINE (RGP-XXX-XX).
4. TORO DL2000 OPERATION INDICATOR (DL-MP9). USE ONE PER ZONE AND LOCATED AT FLUSH END OF ZONE.
5. 2"-3" ABOVE FINISH GRADE.
6. SEE DRIP DETAILS FOR DEPTH

SECTION/ELEVATION
NOT TO SCALE

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
2. DO NOT SCALE DRAWING
3. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION
4. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE
5. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info AND ENTER REFERENCE NUMBER 085-1069

5 DL2000 DRIPLINE OPERATION INDICATOR
NOT TO SCALE

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PROJECT NAME/LOCATION: HIGHLAND ESTATES
SAN MATEO, CALIFORNIA
DRAWING TITLE: LANDSCAPE IMPROVEMENT PLANS

PROJECT MANAGER: MW
DRAFTED BY: EO
CHECKED BY: ZA

REVISIONS: NO. | DESCRIPTION | BY | DATE

SHEET TITLE: IRRIGATION DETAILS
SCALE: AS SHOWN
ISSUE DATE: 3/17/17
PROJECT NO: V1355
SHEET NO: L4.4

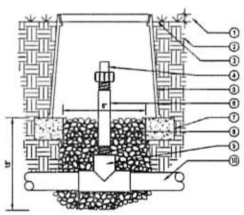
DRIP CIRCUIT NOTES (FOR DETAILS 1-6):

1. ALL PVC LATERALS LINES, INCLUDING PVC FEED LINES SHALL BE INSTALLED 12" BELOW GRADE.
2. SEE IRRIGATION LEGEND FOR TUBING SPECIFICATIONS.
3. SEE NOTES AT EACH DRIP DETAIL FOR ADDITIONAL REQUIREMENTS.
4. SEE "DRIPLINE TUBING NOTES" ON IRRIGATION PLANS FOR ADDITIONAL REQUIREMENT.
5. CONTACT CHRIS STEELE, TORO IRRIGATION SPECIFICATION SALES MANAGER, 559-779-8676, PRIOR TO INSTALLATION OF DRIP TUBING TO REVIEW INSTALLATION REQUIREMENTS.

TORO

LEGEND

1. 1" ABOVE FINISH GRADE.
2. NATIVE SOIL PER SPECIFICATIONS.
3. FINISH GRADE.
4. TORO DL2000 FLUSH VALVE (FCH-H-FIPT).
5. 6" ROUND PLASTIC VALVE BOX. HEAT BRAND "FV" ON LID IN 1" HIGH CHARACTERS.
6. 3/4" SCH 80 PVC NIPPLE (LENGTH AS REQUIRED).
7. BRICK SUPPORTS (2 COMMON BRICKS REQUIRED).
8. PEA GRAVEL SUMP (6" x 18").
9. PVC TEE (SxSxT) WITH 3/4" THREADED OUTLET.
10. PVC PIPING.



SECTION/ELEVATION
NOT TO SCALE

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 065-180a.

1 DRIP CIRCUIT FLUSH VALVE DETAIL
NOT TO SCALE

TORO

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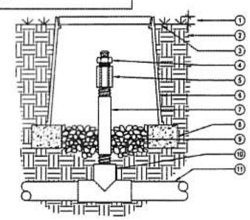
www.toro.com

LEGEND

1. 1" ABOVE FINISH GRADE.
2. NATIVE SOIL PER SPECIFICATIONS.
3. FINISH GRADE.
4. TORO DL2000 AIR/VACUUM RELIEF VALVE (YD-500-34).
5. 1/2" PVC COUPLING (TxT).
6. 6" ROUND PLASTIC VALVE BOX. HEAT BRAND "AR" ON LID IN 1" HIGH CHARACTERS.
7. 1/2" SCH 80 PVC NIPPLE (LENGTH AS REQUIRED).
8. BRICK SUPPORTS (2 COMMON BRICKS REQUIRED).
9. PEA GRAVEL SUMP (6" DEEP).
10. PVC ELL (SxT) WITH 1/2" THREADED OUTLET.
11. PVC PIPING.

NOTE:
USE ONE AIR/RELIEF VALVE FOR EVERY 7 GPM PER ZONE. LOCATE AT HIGH POINTS. REFER TO TORO PUBLICATION #ALT111 FOR SPECIFICATIONS.



SECTION/ELEVATION
NOT TO SCALE

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 065-180g.

2 DRIP CIRCUIT AIR VACUUM RELIEF VALVE DETAIL
NOT TO SCALE

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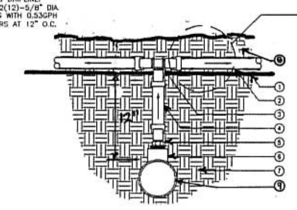
www.toro.com

LEGEND

1. FINISH GRADE.
2. TORO DL2000 DRIPLINE LATERAL (RGP-XXX-XX).
3. TORO LOC-EZE TEE (FTT16).
4. TORO BLUE STRIPE POLY TUBING (EHD1645-XXX).
5. TORO LOC-EZE X 1/2" MPT ADAPTER (FAM16).
6. PVC TEE (SxSxT) WITH 1/2" FPT OUTLET.
7. NATIVE SOIL BACKFILL PER SPECIFICATIONS.
8. 3" BARK MULCH LAYER
9. PVC LATERAL FEED LINE

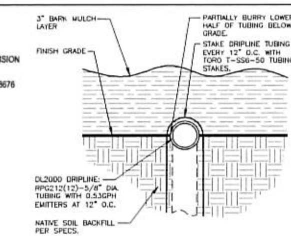
DL2000 DRIPLINE:
RPG212(12)-5/8" DIA.
TUBING WITH 0.53GPH
EMITTERS AT 12" O.C.



SECTION/ELEVATION
NOT TO SCALE

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 065-180a.

3 DRIP CIRCUIT FEED MANIFOLD CONNECTION DETAIL
NOT TO SCALE



ENLARGED TUBING ON GRADE DETAIL
NTS

DRIPLINE TUBING NOTES:

1. DRIPLINE TUBING LAYOUT ON PLANS IS DIAGRAMMATIC. INSTALL DRIPLINE AND COMPONENTS PER MANUFACTURERS INSTRUCTIONS AND INSTALLATION DETAILS.
2. DRIPLINE SPACING SHALL BE AS INDICATED IN IRRIGATION LEGEND. INSTALL DRIPLINE 2" FROM PERIMETER OF PLANTED AREA. THERE SHALL BE A MINIMUM OF TWO DRIPLINE LATERALS IN EACH PLANTED AREA. DRIPLINE SHALL BE INSTALLED AT A CONSISTENT DEPTH THROUGHOUT THE CIRCUIT. SEE IRRIGATION LEGEND AND DRIP CIRCUIT DETAILS FOR DRIPLINE TUBING DEPTH.
3. PLACE AIR/VACUUM RELIEF VALVES AT THE HIGHEST POINTS OF EACH ZONE AND JUST BELOW CHECK VALVES ON SLOPES. INSTALL ONE AIR/VACUUM RELIEF VALVE FOR 7 GPM PER ZONE (OR FOR EVERY 800' OF 0.53 GPH/12" EMITTER SPACING DRIPLINE). SEE DRIP CIRCUIT AIR RELIEF VALVE DETAIL FOR ADDITIONAL REQUIREMENTS.
4. PLACE FLUSH VALVES AT THE HYDRAULIC CENTER OF THE EXHAUST HEADER OR AT LOW POINT ON SLOPES. INSTALL ONE AIR/VACUUM RELIEF VALVE FOR EVERY 7 GPM PER ZONE (OR FOR EVERY 800' OF 0.53 GPH/12" EMITTER SPACING DRIPLINE). SEE DRIP CIRCUIT FLUSH VALVE DETAIL FOR ADDITIONAL REQUIREMENTS.
5. INSTALL IN-LINE CHECK VALVES ON SLOPES GREATER THAN 3% AND WHERE LOW-LINE DRAINAGE COULD CAUSE WET AREAS IN THE LOWEST AREAS OF AN IRRIGATION ZONE. CHECK VALVES SHALL BE PLACED EVERY 4-5 FEET BETWEEN DRIPLINE LATERALS AND BEFORE THE FLUSH VALVE.
6. ON ALL SLOPES AND MOUNDS, PLACE THE DRIPLINE LATERALS PARALLEL TO THE SLOPE CONTOUR WHERE POSSIBLE. INCREASE THE LATERAL SPACING BY 25% ON THE LOWER ONE-THIRD OF THE SLOPE TO AVOID EXCESS DRAINAGE.
7. PVC SUPPLY LATERAL LINE AND DRIP CIRCUIT MANIFOLDS LINES SHALL BE THE SAME SIZE WITHIN THE DRIP CIRCUIT ZONE.
8. SEE "DRIP CIRCUIT MAXIMUM TUBING LENGTH CHART" FOR MAXIMUM DRIPLINE TUBING LENGTHS AND DRIP CIRCUIT PSI AND GPM FIELD VERIFICATION REQUIREMENTS.
9. FITTINGS SHALL BE OF THE SAME MANUFACTURER AS DRIPLINE. SEE DRIP CIRCUIT DETAILS FOR FITTING TYPE.
10. THOROUGHLY FLUSH EACH INSTALLATION SEGMENT TO ENSURE NO DEBRIS CONTAMINATION OCCURS.
11. RUN THE DRIPLINE SYSTEM EVERY DAY OR EVERY OTHER DAY TO ESTABLISH PLANT MATERIAL. MAINTAIN A CONSISTENT MOISTURE BALANCE IN THE SOIL. IT IS IMPORTANT TO KEEP THE SOIL MOIST WITHOUT SATURATION.

TORO

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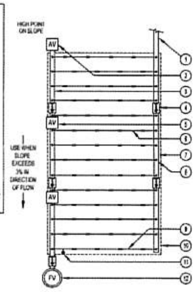
LEGEND

1. PVC LATERAL LINE FROM DRIP ZONE KIT.
2. TORO DL2000 AIR/VACUUM RELIEF VALVE (YD-500-34) PLUMBED TO PVC FLUSH MANIFOLD AT HIGH POINT.
3. PVC FLUSH MANIFOLD.
4. INLINE SPRING CHECK VALVE (JV0500-S2) TO HELP CONTROL LOW-HEAD DRAINAGE (TYP).
5. TORO DL2000 AIR/VACUUM RELIEF VALVE (YD-500-34) PLUMBED TO PVC FLUSH MANIFOLD JUST BELOW EACH CHECK VALVE (TYP).
6. TORO DL2000 DRIPLINE LATERAL (RGP-XXX-XX).
7. PVC SUPPLY MANIFOLD.
8. TORO DL2000 MANIFOLD-TO-ELBOW CONNECTION (TYP).
9. PERIMETER LATERALS 2" TO 4" FROM EDGE.
10. AREA PERIMETER.
11. TORO DL2000 OPERATION INDICATOR (DL-MP9), OPTIONAL.
12. TORO DL2000 AUTOMATIC FLUSH VALVE (FCH-H-FIPT) PLUMBED TO FLUSH MANIFOLD AT LOW POINT.

DL2000 DRIPLINE:
RPG212(12)-5/8" DIA. TUBING WITH 0.53GPH EMITTERS AT 12" O.C.

NOTE:
THE TOTAL LENGTH OF ALL INTERCONNECTED DRIP LINE SHALL NOT EXCEED THE MAXIMUM RUN LENGTH. SEE TORO SUBSURFACE IRRIGATION DESIGN GUIDE (FORM #ALT111).



PLAN
NOT TO SCALE

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 065-180b.

4 DRIP CIRCUIT LAYOUT – SLOPE DETAIL

TORO

TORO-IRRIGATION DIVISION
5825 JASMINE STREET
RIVERSIDE, CA 92504
TOLL FREE: 1-877-345-8676
PHONE: (951) 785-3152
FAX: (951) 359-1870
www.toro.com

LEGEND

1. PVC LATERAL LINE FROM DRIP ZONE KIT.
2. PVC SUPPLY MANIFOLD.
3. TORO DL2000 MANIFOLD-TO-ELBOW CONNECTION (TYP).
4. TORO DL2000 DRIPLINE LATERAL (RGP-XXX-XX).
5. TORO DL2000 AIR/VACUUM RELIEF VALVE (YD-500-34) PLUMBED TO TORO BLUE STRIPE POLY TUBING (EHD1645-XXX) AT EACH HIGH POINT.
6. AIR/VACUUM RELIEF LATERAL. TORO BLUE STRIPE POLY TUBING (EHD1645-XXX) CENTERED ON MOUND OR BERM.
7. PVC FLUSH MANIFOLD.
8. PERIMETER LATERALS 2" TO 4" FROM EDGE.
9. AREA PERIMETER.
10. TORO DL2000 OPERATION INDICATOR (DL-MP9), OPTIONAL.
11. TORO DL2000 AUTOMATIC FLUSH VALVE (FCH-H-FIPT) PLUMBED TO FLUSH MANIFOLD AT LOW POINT.

DL2000 DRIPLINE:
RPG212(12)-5/8" DIA. TUBING WITH 0.53GPH EMITTERS AT 12" O.C.

NOTE:
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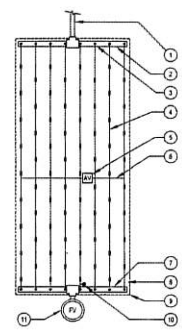

PLAN
NOT TO SCALE

NOTES:
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2. DO NOT SCALE DRAWINGS.
3. CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 065-180h.

5 DRIP CIRCUIT LAYOUT – END FEED DETAIL

TORO

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PHONE: (951) 785-3152
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www.toro.com

LEGEND

1. TORO DL2000 AUTOMATIC FLUSH VALVE (FCH-H-FIPT) PLUMBED TO FLUSH MANIFOLD AT LOW POINT.
2. PVC FLUSH MANIFOLD.
3. TORO DL2000 MANIFOLD-TO-ELBOW CONNECTION (TYP).
4. PVC LATERAL LINE FROM DRIP ZONE KIT.
5. PVC SUPPLY MANIFOLD.
6. TORO DL2000 MANIFOLD-TO-TEE CONNECTION.
7. TORO DL2000 DRIPLINE LATERAL (RGP-XXX-XX).
8. AIR/VACUUM RELIEF LATERAL. TORO BLUE STRIPE POLY TUBING (EHD1645-XXX) CENTERED ON MOUND OR BERM.
9. TORO DL2000 AIR/VACUUM RELIEF VALVE (YD-500-34) PLUMBED TO TORO BLUE STRIPE POLY TUBING (EHD1645-XXX) AT EACH HIGH POINT.
10. PERIMETER LATERALS 2" TO 4" FROM EDGE.
11. AREA PERIMETER.
12. TORO DL2000 OPERATION INDICATOR (DL-MP9), OPTIONAL.

DL2000 DRIPLINE:
RPG212(12)-5/8" DIA.
TUBING WITH 0.53GPH
EMITTERS AT 12" O.C.

NOTE:
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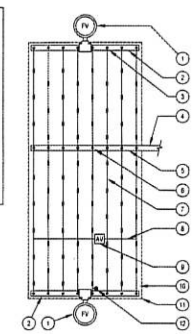

PLAN
NOT TO SCALE

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 065-180g.

6 DRIP CIRCUIT LAYOUT – CENTER FEED DETAIL

CLIENT
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VAN DORN ABED
LANDSCAPE ARCHITECTS, INC.
81 14TH ST, SAN FRANCISCO, CA
ZIP 94103 PH (415) 864-1921 FAX(415) 864-4796

PROJECT NAME/LOCATION: HIGHLAND ESTATES
SAN MATEO CALIFORNIA
DRAWING TITLE: LANDSCAPE IMPROVEMENT PLANS
PROJECT MANAGER: MW
DRAFTED BY: EO
CHECKED BY: ZA

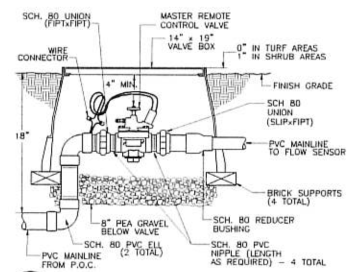
REVISIONS: NO | DESCRIPTION | BY | DATE

SHEET TITLE: IRRIGATION DETAILS
SCALE: AS SHOWN
ISSUE DATE: 3/17/17
PROJECT NO: V1355
SHEET NO: L4.5

IRRIGATION NOTES:

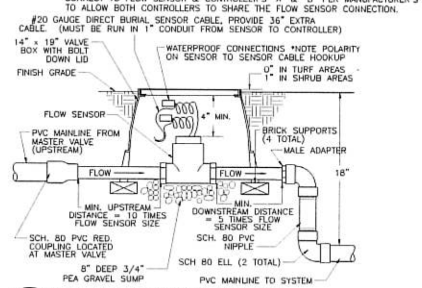
1. Irrigation system shall be installed in conformance with all applicable local codes and ordinances by experienced workmen and a licensed Landscape Contractor who shall obtain all necessary permits and pay all required fees.
2. Prior to the start of construction, the Contractor shall verify with the City, Water District, and/or other governing agency(s) if a reclaimed water source will be available in the future for connection to the irrigation system. If local regulations so stipulate, then the Contractor shall follow all requirements, specifications, construction details, codes, etc., for the installation of irrigation systems utilizing reclaimed water sources for irrigation of landscaping.
3. The Contractor shall be responsible for any damage to existing facilities caused by or during the performance of his work. All repairs shall be made at no cost to the Owner.
4. This design is diagrammatic: install parallel lines in a common trench with minimum horizontal distance of 4" and lines not one above the other. Snake pipe in trenches. All piping, valves, etc., shown within paved areas is for design clarification only and shall be installed in planting areas where possible. Avoid any conflicts between the irrigation system, planting and architectural features.
5. Do not willfully install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences or differences in the area dimensions exist that might not have been considered in the engineering. Such obstructions or differences should be brought to the attention of the Owner's authorized representative. In the event this notification is not performed, the Contractor shall assume full responsibility for any revisions necessary.
6. It is the responsibility of the Contractor to familiarize himself with all grade differences, location of walls, retaining walls etc. Contractor shall coordinate his work with the General Contractor and other Subcontractors for the location and the installation of pipe sleeves through walls, under roadways, paving, structures, etc.
7. 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 system, planting, and architectural features..
8. Notify Landscape Architect of any other aspects of layout which will provide incomplete or insufficient water coverage of plant material and do not proceed until his instructions are obtained.
9. Sprinklers/bubblers/multi-out drip emitters located where low head drainage will cause erosion and excess water run-off, use pop-up bodies with an integral check valve, and shrub risers with King Bros. CV series check valve in lieu of Schedule 80 coupling.
10. Electrical Contractor to supply 120 volt A.C. (2.5 AMP) service to controller location. Contractor to make final connection from electrical stub-out to controller. Paint conduit to controller with 2 coats Rustoleum brown paint if installed outdoors; color to be approved by Owner's representative. 120 volt A.C. J-Box to controller by others. All 120 volt A.C. and 24 volt connections to be made by Contractor.
11. Each controller shall have its own independent ground wire.
12. Program irrigation controller(s) to operate between the hours of 10:00 P.M. and 7:00 A.M.
13. Valve locations shown are diagrammatic. Install in ground cover/shrub areas where possible (not in lawn area).
14. Install valve boxes 12" from and perpendicular to walk, curb, lawn, building or landscape feature. At multiple valve box groups, each box shall be an equal distance from the walk, curb, lawn, etc., and each box shall be 12" apart. Short side of valve box shall be parallel to walk, curb, lawn, etc.
15. Install U.L. approved direct-burial wire #14 minimum and #14 common ground at 16" depth minimum. Splicing of 24 volt wires will not be permitted except in valve boxes. Leave a 24" coil of excess wire at each splice and 100 feet on center along wire run. Tape wire in bundles 10 feet on center. No taping permitted inside sleeves.
16. Install controller wiring as specified on the irrigation plans.
17. Prior to trenching, call Underground Service Alert, 1-800-642-2444 to locate all cables, conduits, and other utilities and take proper precautions not to damage or disturb existing utilities.
18. All Main lines and Lateral lines under paving shall be in PVC sleeves which extend 12" into planting areas. All backfill shall be free of rocks greater than 1" diameter. For ring-tite PVC main line piping inside sleeves use 1120-315 PSI PVC plastic pipe with schedule 40 PVC couplings.
19. When applicable, Schedule 80, ASTM D2466 male adapters to be used where mainline connects to copper pipe service lines installed by others.
20. Copper pipe shall be joined to steel or cast iron pipe with a dielectric union.
21. In addition to the sleeves and conduits shown on the plans the Contractor shall be responsible for the installation of sleeves and conduits of sufficient size under all paved areas.
22. Locate quick coupling valve 12" from hardscape area.
23. The irrigation system design is based on the minimum operating Pressure (PSI) and Flow (GPM) shown on the irrigation drawings (see Irrigation Demand at P.O.C.). The Contractor shall verify the Static and Dynamic water pressure (PSI) and Flow Rate (GPM) at the point of connection (P.O.C.) prior to construction as follows:
   - A. Static Pressure: take PSI reading at P.O.C. with no water flowing.
   - B. Dynamic Pressure: Install at P.O.C. a pressure (PSI) and flow gauge (GPM) assembly of suitable size* to take flow (GPM) readings in the range of the stated Irrigation Demand for the irrigation system design. Open valve or meter at P.O.C. until GPM flow reading equals or exceeds irrigation GPM demand. Note dynamic pressure and flow readings. If the GPM flow does not equal or exceed the GPM demand, note highest flow reading possible.
   - C. Readings shall be taken at the following times: 1PM, 5PM, 9PM, 1AM, 5AM, 9AM.
   - * Irrigation systems with high irrigation demand GPM flow rates, will require large capacity test gauge assemblies.

   Submit to Owner's Representative and Landscape Architect results of Pressure and Flow Tests prior to beginning work. Note any discrepancies of 10 PSI or more or flow rates lower than stated Irrigation Demand on plans to Owner's Representative and Landscape Architect. If there are discrepancies of 10 PSI or more or flow rates lower than stated Irrigation Demand on plans, system may not perform correctly - do not proceed with irrigation system installation until corrective measures are determined. Note, Contractor shall be responsible for any corrective measures required to the irrigation system, at no additional cost to the Owner, if irrigation system is installed without required tests, and discrepancies in Pressure and Flow at the P.O.C. are discovered that prevent the irrigation system from functioning correctly.
24. Meter(s) indicated on the Drawing(s) is supplied and installed by others, unless otherwise indicated. The Contractor is responsible for furnishing all proper fittings.
25. All irrigation piping shall be subjected to hydrostatic pressure tests as follows before backfilling trenches: Valves, pumps, and accurately calibrated recording gauges shall be installed in at least two places. Supply lines shall be tested at 125 psi for at least 4 hours with an allowable loss of 5 psi. Laterals lines shall be tested at the existing static psi for at least 1 hour with an allowable loss of 5 psi. Any leaks shall be corrected and piping re-tested until the system meet the requirements. The Contractor shall notify the Owner's Representative at least 3 days in advance of the time that the irrigation system piping is to be tested. Submit written test results to Owner's Representative and Landscape Architect.
26. Contractor to notify all local jurisdictions for inspection and testing of installed backflow prevention device.
27. Irrigation demand: See Irrigation Plans.
28. The entire irrigation system shall be operating properly before any lawn or ground cover is planted.
29. The Contractor shall provide Owner with a clean set of marked prints of "RECORD DRAWINGS" drawings. Reference all trenches, valves, controllers, splice boxes, quick couplers, backflow preventers, water meters, with dimensions to nearest building or paving.
30. See notes on irrigation plans for additional requirements.
31. Bio-treatment grass areas with buried dripline irrigation tubing shall be hand watered by Contractor until plant material is established.
32. The Contractor shall guarantee the irrigation system will be free of defects of workmanship and materials for a period of one year. All repairs necessary shall be made at no cost to the Owner, with the exception of repairs and labor cost made necessary by vandalism.



1 MASTER REMOTE CONTROL VALVE DETAIL
NOT TO SCALE

NOTES:
1. FLOW SENSOR MUST BE INSTALLED WITH INSERT (TOP) VERTICAL AND BODY (TEE) POSITIONED HORIZONTALLY.
2. INSTALL CREATIVE TECHNOLOGY ISOFLOW MODEL 300 UNIT IN FLOW SENSOR VALVE BOX. CONNECT TO FLOW SENSOR & CONTROLLER'S "A" & "B" PER MANUFACTURER'S SPECS. TO ALLOW BOTH CONTROLLERS TO SHARE THE FLOW SENSOR CONNECTION.



2 FLOW SENSOR INSTALLATION DETAIL
NOT TO SCALE

CLIENT
CHAMBERLAIN GROUP
655 Skyway, Suite 230
San Carlos, CA 94070
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PROJECT MANAGER: MW
DRAFTED BY: EO
CHECKED BY: ZA

PROJECT NAME/LOCATION: HIGHLAND ESTATES
SAN MATEO CALIFORNIA
DRAWING TITLE: LANDSCAPE IMPROVEMENT PLANS

REVISIONS: NO.	DESCRIPTION	BY	DATE

SHEET TITLE: IRRIGATION SPECIFICATIONS & DETAILS
SCALE: AS SHOWN
ISSUE DATE: 3/17/17
PROJECT NO.: V1355
SHEET NO.: L4.6

GENERAL NOTES:

1. Contractor shall verify all existing site conditions prior to beginning construction. Notify Owner's Representative of any discrepancies.

2. The Contractor shall provide all materials, labor and equipment to complete all landscape work as shown on the plans and specifications.

3. If there is a conflict with the utilities and the planting, the Owner's Representative is to be responsible for spotting new plant locations prior to the planting process.

4. The Contractor shall be responsible for any damage to existing utilities, pavement or improvements. All repairs shall be made at no expense to the Owner.

5. The Contractor shall notify the Owner's Representative prior to beginning construction and shall keep the Owner's Representative informed of progress of work throughout landscape construction.

6. All work shall be installed in conformance with all applicable local codes and ordinances by experienced workmen and a licensed Contractor who shall obtain all necessary permits and pay all required fees.

7. Any requirement in the Plans and / or Notes and Specifications shall be considered binding. In case of discrepancies, the Owner's Representative shall be contacted immediately

8. It is the Contractor's responsibility to schedule regular site visits by the Owner's Representative/Landscape Architect throughout landscape construction, at the beginning of the maintenance period, and final site review will be required.

9. Execute weekly cleaning of the site throughout the contract period to remove all waste materials, rubbish, plant containers, etc.

10. See Civil Engineer's improvement plans for all general grading information and notes.

11 All written dimensions supersede scaled distances. All dimensions are taken from back of curb, face of building, face of wall finish or face of fence.

12. Upon award of bid and prior to any construction, the Contractor shall perform the Percolation and Soils Testing as specified in the Planting Notes, if these tests have not already been performed. If drainage is found to be insufficient, or soils test results identify conditions requiring extraordinary or corrective measures, the Contractor shall immediately alert the Owner's Representative and Landscape Architect of any such problems, for corrective action and/or additional drainage treatment.

GRADING NOTES:

1. See Civil Engineer's Grading & Erosion Control Plans.

2. Rough grading and site drainage shall have been completed prior to Landscaping work. Verify all existing site conditions and report any discrepancies to Owner's Representative.

3. Contractor shall be responsible for finish grading. Verify positive drainage at a minimum 2% slope in landscape areas away from buildings and paved surfaces. Shrub areas shall be 1-1/2" below top of adjacent paving, headers, or curbs. No low spots which hold standing water will be permitted.

4. All salvageable, clean top soil from areas to be paved shall be stockpiled to be used as fill in planting areas.

5. Avoid soil compaction in existing and proposed landscaped areas. All equipment or stockpiling should be located away from all proposed landscaping to reduce compaction.

CONSTRUCTION NOTES:

1. Concrete work: Install concrete work as detailed. Layout of concrete work shall be as shown on construction plans and as specified below.

   A. Layout shall be approved by Owner's representative/Landscape Architect prior to concrete pour. Contact Owner's Representative two days in advance.

2. Paving Installation:

   B. Concrete Materials: For paving, concrete shall be a 5 sack mix producing concrete having a 28 day strength not less than 2500 psi. For walls concrete shall be 6 sack mix.

1. Portland cement: Conforming to ASTM. C150, Type I or II. Total alkali content not to exceed 0.60%. Deliver cement and all materials in labeled, unopened containers.

2. Form coatings: Standard product resin type sealer. Do not use form oil or any oil-bearing material.

3. Concrete aggregates: Conform to ASTM C33. Maximum 3/4" size aggregate.

4. Base course aggregates: Conform to ASTM C33. Maximum 3/4" size aggregate.

5. Water: Clean and potable.

6. Forms: Form material is Sub-contractor's option.

7. Admixtures or finish retardants: For workability, where approved by Owner's representative, and admixture may be added in accordance with manufacturer's recommendations. Obtain approval of material prior to use.

8. Expansion joint material: 3/8" thick pre-molded joint filler, conforming to ASTM D1751 or D1752.

9. Reinforcing steel:

   a. Bars: Deformed, intermediate grade, conforming to ASTM A615, Grade 40 for sizes #5 and smaller.

   b. Tie wire: Annealed copper-bearing steel wire, minimum 16 gauge.

10. Welded wire mesh: 6" x 6" x #10.

11. Liquid curing compound as required: Thompson's approved standard product fugitive resin type, or equal conforming to ASTM C309, free of wax or oil, compatible with subsequently applied finishes or coverings, not deleterious to bond of cementitious materials to aggregate

12. Patching mortar: One part Portland cement or equal (part white and part gray adjusted to match color of surrounding concrete) and 2-1/2 parts sand with the least water required to produce a workable mass. Rework this mortar until it is the stiffest consistency that will permit placing.

   C. Concrete Installation:

1. Construct the subgrade true to grade and detail as shown. Compact subgrade to 90% maximum density at optimum moisture content.

2. Set forms with upper edges true to line and grade. Properly brace or tie together to maintain position and shape. Remove side forms not sooner than 12 hours after finishing has been completed. Form curves and straight sections for smooth and continuous lines. Secure Owner's representative's approval of subgrade compaction and moisture content and form alignment prior to pouring concrete.

3. Embedded items: Do not place any concrete until all inserted items such as sleeves, anchor bolts, wood, nails, dowels, etc. are installed in their proper locations, secured against displacement, cleaned, inspected and approved. Furnish ties and supports necessary to keep embedded items in place when concrete is placed.

4. Weather: Do not place concrete during rain unless approved measures are taken to prevent damage to concrete.

5. Deposit concrete evenly, consolidate with mechanical vibrators, particularly at side forms and strike off to indicated elevations and contour.

6. Concrete finishes shall be even surfaces of uniform texture and appearance, free of unsightly bulges, depressions and other imperfections and as follows:

   Medium broom finish: Broom with coarse bristled broom across width of flatwork to a uniformly roughened surface. Finished surface and edges shall be clean with uniform and reasonably straight lines. Submit Sample.

   Light broom finish: Broom with janitor's push broom type, with soft bristles, across width to a uniformly roughened surface. There shall be no deeply incised or obvious lines. Submit sample.

   Steel trowel finish: After floating, and no free water is evident and/or no cement sticks to the finger when touching slab, steel trowel until hard. All trowel marks eliminated. Final trowelling done when a ringing sound is produced as the trowel is moved over the surface.

   Joints: Joints shall be tooled with one-quarter inch (1/4") radius edging tool or as shown on plans.

   Edges: Edge slabs one-half (1/2") inch radius, edge curbs and other structures three-quarters inch (3/4") radius unless otherwise shown.

7. Remove flange marks: Remove flange marks resulting from tooling of edges by carefully trowelling out, unless specifically detailed in plans.

CARPENTRY NOTES:

   A. Wood materials: See details for type of wood for each item.

1. Wood shall be selected for straightness and smoothness, size and grade as shown in plans.

   B. Workmanship: Carefully plan and layout the work as required. Properly accommodate the work of other trades. Accurately saw-cut and fit lumber into the respective locations, true to line, grade, and level, as indicated or required, and permanently secure in proper position with spikes, nails, lag screws, bolts, hangers, or other fastenings to make the work substantial and rigid in all parts and connections.

   C. Connections: Make connections between members tight, accurate and secure. Place fastenings without splitting wood; predrill when required. Drill bolt holes same size as bolt diameter. Drill holes for lag screws same size as thread root diameter; and counterbore, same depth and diameter as shank. Turn lag screws into place; do not drive. Provide bolts and lag screws with washers under every head and nut bearing on wood. Tighten bolts and lag screws at installation; carefully retighten just prior to closing in, or at completion of project.

   D. Finishing: As per plan.

   E. Redwood header layout: All curved sections shall be smooth and continuous. Layout shall be approved by Owner's representative.

2. Hardware:

   A. All metal bolts, nails, screws and other hardware shall be galvanized steel, sized as shown on the plans.

   B. All visible hardware shall be painted with two coats of black rustproof paint or to match architectural colors. Color to be approved by Owner's representative.

   C. All hardware for metal gates to be approved by Owner's representative.

3. Metal:

   A. Provide complete shop drawings for all metal fabrication.

   B. Fabricate all exterior steel work in shop, including all welding. All metal work shall conform to ASTM specifications. Miter corners and angles of moldings or frames unless otherwise noted.

   C. Shop primer: One coat of primer, semi-quick drying. Painting: After material has been properly cleaned, apply shop prime coat of paint to all surfaces. Apply all paint in accordance with manufacturer's directions. Spot paint all abrasions and field connections after assembly.

   D. Installation: Set all work plumb, true, rigid and neatly trimmed out as detailed. Provide all necessary connections, anchor bolts etc. required to fit metal with other work.

   E. Protect all metal from damage to surface, profile or to shape from shop through construction to final acceptance of project.

   F. Color: Color to be approved by Owner's representative, submit sample for approval.

   G. All defective work shall be repaired or replaced as directed Owner's representative.

   H. All exposed site metal for utilities, irrigation, etc., shall be painted with one coat brown rustproof paint.

CLIENT: CHAMBERLAIN GROUP
655 Skyway, Suite 230
San Carlos, CA 94070
(650) 595.5582

CALL BEFORE YOU DIG
800.227.2600

REGISTERED LANDSCAPE ARCHITECT · TEXI R. ABED · STATE OF CALIFORNIA

VAN DORN ABED
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PROJECT MANAGER: MW
DRAFTED BY: MW
CHECKED BY: ZA

PROJECT NAME/LOCATION: HIGHLAND ESTATES
SAN MATEO CALIFORNIA
DRAWING TITLE: LANDSCAPE IMPROVEMENT PLANS

REVISIONS NO.	DESCRIPTION	BY	DATE

SHEET TITLE: LANDSCAPE NOTES & SPECIFICATIONS
SCALE: -
ISSUE DATE: 3/17/17
PROJECT NO: V1355
SHEET NO: L5.0

PLANTING NOTES:

1. Submittals: Contractor shall submit the following items to Owner's Representative and Landscape Architect for review/approval prior to beginning planting installation operations:

   A. Soils tests: initial site soils test & post amendment installation test.

   B. Vendor data for landscape products, including: bark mulch, root barriers, fertilizers, soil amendments, and soil conditioners.

   C. Written results of percolation tests.

3. The Contractor shall verify the availability of all landscape plants within 10 days following award of the contract. Discrepancies or other problems and all plant substitutions shall be resolved at this time. If a substitute is authorized by the Owner's Representative, it must be of the same size, value and quality as the original plant.

4. All trees and representative samples of shrubs/ground covers shall be inspected at the site for approval by the Owner's Representative and meet the following standards:

   A. Quality and size shall conform to the State of California Grading Code of Nursery Stock, No. 1 grade and to the current issue of the American Standard for Nursery Stock published by the American Association of Nurserymen. Use only nursery-grown stock. The Owner's Representative will inspect plants for approval prior to any installation.

   B. Plant material must be selected from nurseries that have been inspected by state or federal agencies.

   C. Nomenclature will be in accordance with Hortus III.

   D. Plant materials will not be accepted that are overgrown, root-bound, or too recently canned so that the root system is not thoroughly established throughout the can. Pruning shall not be done prior to delivery except as authorized by the Owner's Representative.

5. Soil, Mulch, Amendments:

   A. Soil Test: Contractor shall submit three (3) representative soil samples to Soil and Plant Laboratory, Santa Clara or approved equal to be tested for agricultural suitability and fertility with pre-plant and post-plant recommendations, immediately following the completion of rough grading. Soil samples shall be taken from location determined by the Owner's Representative. Soil shall be certified as clean and free of hazardous material or waste contamination. Notify Owner's Representative of any soils problems noted in the soils test report that could potentially affect/impact plant health, including but not limited to the following: high or low soil pH, poor soil drainage, excessive soil compaction, different soil types in the same test sample, deficient or excess nutrient levels, high salt levels, high boron or other elements and compounds toxic to plants, etc. Submit report to Landscape Architect and Owner's Representative for review and approval prior to beginning work. Do not proceed with any amending operations until soils report has been reviewed and approved.

   B. Compost to be used for soil amendment at the rate indicated by the soil analysis to bring the soil organic matter content to a minimum of 3.5% by dry weight or 2" of compost. Contractor may 1) import topsoil to meet organic matter content listed, or 2) submit soils report that identifies existing topsoil meets or exceeds the specified organic matter content. (Bay-Friendly score card item C.7.a.I)

      Compost to be added as follows in all planting areas at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than 6% organic matter in the top six inches of soil are exempt from adding compost and tiling. **(Applied rates of soil amendment and commercial fertilizer shall be <u>used for bidding purpose</u> until determined by soil tests.)**

      Amount per 1000 square feet:

      4 cubic yards Compost

      20 lbs. 6-20-20 fertilizer (Best's Cropmaker)

      10 lbs. 0-25-0 Single super phosphate

      10 lbs. Iron sulfate

   C. Soil amendment in all planting areas shall be uniformly spread and thoroughly incorporated to a soil depth of 6" minimum by repeated rotary hoe cultivation prior to planting.

   D. Post Amendment Installation Soil Testing for Compliance: After incorporating amendments, fertilizers and conditioners, Contractor shall take three (3) representative soil samples and have samples tested for Agricultural Suitability and Fertility by an approved soils analysis laboratory for compliance with original soil test report recommendations. Add any additional amendments, fertilizers and conditioners recommended by soils analysis laboratory at no cost to Owner. Notify Owner's Representative of any potential soils problems noted in the report. Submit report for amendment/fertilizer/conditioner compliance to Landscape Architect and Owner's Representative prior to beginning planting operations.

   E. A minimum three inch layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, groundcover, or direct seeding/hydroseed applications. Organic mulch materials made from recycled or post-consumer shall take precedence over inorganic materials or virgin forest products unless organic or recycled, post consumer products are not locally available. Organic mulches are not required where prohibited by local Fuel Modification Plan Guidelines or other applicable local ordinances.

6. Tree and Shrub Planting:

   Prior to digging holes for final planting, the Contractor shall spot all trees as shown on the Drawings for approval by the Landscape Architect.

   A. Soil amendments and fertilizer shall have been incorporated into the soil prior to tree and shrub planting.

   B. Dig pits as shown on Drawings.

   C. After pits are dug, break sides and bottom of holes to open wall of pit for root penetration.

   D. Percolation Test: All plant pits shall be tested for sufficient drainage prior to planting. Representative plant pits shall be dug (at least 2) at site upon award of Bid to test for general site subgrade drainage conditions. Individual planting pits shall also be tested again for sufficient drainage prior to planting. Contractor shall fill plant pits with water, to see if subsoil conditions will cause retention of water within plant pits overnight. If standing water is still observed after 12 hours, then Contractor shall alert Owner's Representative and Landscape Architect of the problem.

   E. Planting backfill mix for trees and shrubs shall be:

      Amount per Cubic Yard:

      3/4 cubic yard On site soil

      1/4 cubic yard compost

      1.5 lbs. 6-20-20 fertilizer (Best's Cropmaker)

      2.5 lbs. 0-25-0 Single super phosphate

      1 lb. Iron sulfate

   (Applied rates of soil amendment and commercial fertilizer shall be used for bidding purpose until determined by soil tests)

   F. Fertilize plants at the time of planting with Agriform 21-gram fertilizer packets, 20-10-5: 2 per 1 gallon can; 3 per 5 gallon can; 4 per 15 gallon can; specimen trees-3 per inch of caliper.

   G. Plants shall be erect after planting, and staked or guyed as detailed at the time of planting. Remove nursery stakes.

   H. Rootball crown shall be 2" above finish grade after watering and settling.

   I. Tree and shrub plantings shall be watered and flooded to eliminate air pockets within 2 hours of the time of planting.

   J. All vines shall be trained to posts, fences or walls by tying select individual branches with plastic covered wire ties as follows: ties shall be attached to wood surfaces with 3/4" galvanized iron staples and attached to stucco or masonry surfaces with epoxy as recommended by manufacturer. See planting details.

   K. All trees shall be planted 10'-0" minimum from buildings including overhangs and 5'-0" minimum from curbs, paving, fences, etc. Orient main branches of trees away from building. Should any discrepancies occur between field conditions and planting plans contact Owner's Representative. All trees closer than 5'-0" from curbs, foundations, sidewalks, or other hardscape items, shall be installed with linear root deflector panels protecting adjacent hardscape items, but never fully surrounding rootball. Install a 10 foot by 24 inch deep section of linear interlocking root deflector panels, centered on tree (5 feet on each side), located at curb, foundation, sidewalks, other hardscape items, unless otherwise indicated. See plans for detail.

   L. All trees shall be planted a minimum of 5'-0" away from storm drain, or other underground utility lines (or per code), and 10'-0" away from sanitary sewer lines (or per code), and 15'-0" minimum away from utility poles or light standards (or per code).

   M. All planting areas to receive 3" layer of bark mulch, natural color, no dyes. Maintain a 6" clear area around base of trees and shrubs to allow for air flow and not to suffocate the new planting with mulch.

   N. All trees and shrubs shall have watering basins around them. Basin diameters shall be the same size as the tree or shrub's rootball. Basins shall be formed with level bottoms and 3 inch high walls.

   O. Soil amendments shall have been incorporated into the soil prior to planting.

   P. Clear planting areas of rocks and debris greater than 1" diameter.

   Q. Apply a pre-emergent herbicide, per manufacturer's directions.

   R. Maintain erosion control mats & hydroseed or mulch on all disturbed slopes as indicated on Erosions Control Plans.

   S. Thirty (30) days after planting, replace all dead plants and fill in bare areas. Top dress with 16-6-8 fertilizer at 7 lbs./1000 sq. ft. when ground is dry and thoroughly irrigate promptly after application

      (Applied rates of soil amendment and commercial fertilizer shall be used for bidding purpose until determined by soil tests)

7. NOT USED

8. Workmanship:

   Precautions shall be taken to avoid damage to existing plants, turf and structures. Any areas damaged shall be restored to their original condition.

9. Clean-up:

   Keep all areas of work clean, neat and orderly at all times. Keep all paved areas clean during planting and maintenance operations.

10. Site Visits and Approvals:

    The Contractor shall contact the Owner's Representative for review and approval of plant materials and plant locations. The maintenance period begins following acceptance of plant installation.

11. Maintenance:

    A. Begin maintenance after each plant is installed and continue until Final Acceptance.

    B. Maintenance Period shall begin upon inspection and approval by Owner's Representative and shall be for 60 calendar days.

    C. Maintenance of new planting shall consist of watering, cultivating, weeding, mulching, re-staking, tightening and repairing of guys, resetting plants to proper grades or upright position, restoration of the planting saucer, and furnishing and applying such sprays and invigorates as are necessary to keep the plantings free of insects and disease and in thriving condition.

    D. Protect planting areas and plants at all times against damage of all kinds, including frost, for duration of maintenance period. Maintenance includes temporary protection fences, barriers, covers during frost and signs as required for protection. If any plants become damaged or injured, treat or replace as directed by Landscape Architect at no additional cost to Owner.

13. Guarantee:

    A. Replacement trees shall be in thriving condition 3 years from the date of final acceptance. Any replacement trees which have lost at least 30% of their normal foliage or are not in vigorous growing condition shall be replaced.

    B. All other trees, shrubs, grasses, ground covers shall be in thriving condition 1 year from the date of final acceptance. Replace any trees which have lost at least 30% of their normal foliage or are not in vigorous growing condition.

CLIENT:
CHAMBERLAIN GROUP
655 Skyway, Suite 230
San Carlos, CA 94070
(650) 595.5582

800.227.2600

VAN DORN ABED
LANDSCAPE ARCHITECTS, INC.
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PROJECT MANAGER: MW
DRAFTED BY: MW
CHECKED BY: ZA

PROJECT NAME/LOCATION:
HIGHLAND ESTATES
SAN MATEO CALIFORNIA
DRAWING TITLE:
LANDSCAPE IMPROVEMENT PLANS

REVISIONS NO.	DESCRIPTION	BY	DATE

SHEET TITLE: LANDSCAPE NOTES & SPECIFICATIONS
SCALE: -
ISSUE DATE: 3/17/17
PROJECT NO: V1355
SHEET NO.: L5.1

Lot 10 Cobble Hill Place, Highland Estates, San Mateo County CA.

Landscape Maintenance Plan

Overview: Using natural landscaping techniques to maintain this property will create a landscape that is healthy, resource-efficient, sustainable, and cost-effective to manage. When natural landscaping techniques are applied in landscape design, construction, and long-term maintenance, there are many benefits, including easier maintenance, lower costs, and higher property values.

It is the Owner's expectation that the Contractor's proposal will comply with these natural landscaping-based standards and specifications. It should be the Contractor's expectation that the Owner will only consider awarding the contract to a Contractor whose bid shows compliance. The Contractor shall also expect to be held to these standards throughout the course of the contract.

The following standard outlines the scope of maintenances services and responsibilities required of the Contractor but may not be inclusive to the entire scope of services. The specifications outline the quantity and category of work required.

Other parts of the contract **(not included here)** provide definitions of terms used and other contract requirements such as insurance and licensing standards, code enforcement, hours of work, work authorizations, site locations, etc.

1. GENERAL MAINTENANCE STANDARDS

1.1. GUARANTEE AND REPLACEMENT

1.1.1. Contractor shall replace, at no additional cost to Owner, any plant materials damaged as a result of improper maintenance attention or procedures. Replacement plant material shall be of the same size and variety as the dead or damaged material. Replacement plant material shall be procured from nurseries that have a Phytophthora management program. Samples of each Plant Material shall be tested for Phytophthora and other pathogens at the nursery prior to ordering and certified by the nursery to be disease free prior to delivery to the job site. Contractor shall reject Plant Materials that are contaminated with Phytophthora and other pathogens. Submit to Landscape Architect and Owner's Representative disease free certifications from nurseries. Replace plant material within two weeks of identification of damage. Alternatives to size, variety and scheduling of replacement only by written permission of Owner.

1.1.2. Contractor is not responsible for losses, repair or replacement of damaged work or plant material resulting from theft, extreme weather conditions, vandalism, vehicular incidents (other than Contractor's vehicles) or the acts of others over whom they have no reasonable control.

1.1.3. Contractor shall inform Owner on a monthly basis of plant losses not covered by warranty and unrelated to the maintenance activities. Provide Owner with the cause of the plant loss, and provide recommendations for replacement along with pricing for replacement.

1.2. CONTRACTOR STAFF TRAINING AND EXPERIENCE

1.2.1. Contractor will provide staff able to perform work at the highest standards of horticultural excellence. Key staff shall have current knowledge of best management practices (BMP's) regarding: safety, hazardous materials spill response, plant health, pruning, integrated pest management, pesticide application, and irrigation maintenance. Owner reserves the right to demand the replacement of Contractor's staff who do not meet the owner's standards for safety, professionalism, or horticultural knowledge.

1.2.2. All work shall be performed under the direct on-site supervision of a qualified landscape professional with a minimum of five years combined horticultural education and experience. Preference will be given to an individual with at least a two year horticultural degree or Certified Landscape Technician (CLT), combined with two years work experience, or greater.

1.2.3. All irrigation maintenance and repairs shall be performed by, or under the direct supervision of, a Certified Irrigation Technician (CIT) or Certified Irrigation Auditor.

1.2.4. All pruning will be performed by, or under the direct on-site supervision of, staff with documented education and training in proper and naturalistic pruning techniques. Pruning of trees greater than six inches DBH will only be performed by an ISA certified Arborist. Regularly decontaminate pruning equipment to prevent spread of disease.

1.3. OWNER/CONTRACTOR COMMUNICATION

1.3.1. Contractor to provide a supervisor to act on Owner's behalf regarding all matters pertaining to the performance of the Landscape Maintenance Service. Contractor must notify Owner when the supervisor will be on vacation or other leave of absence and who will serve as a substitute.

1.3.2. Provide Owner with an emergency contact list identifying the names, positions held, and phone numbers of key maintenance personnel. Provide mobile and pager numbers for the landscape maintenance manager and site supervisor.

1.3.3. Attend meetings and site inspections of the grounds as requested by Owner

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1.4. MAINTENANCE RECORD KEEPING

1.4.1. Contractor shall maintain a computerized log of activities performed, schedules, additional service repairs, and documentation of each application of fertilizer, pesticide (includes herbicides), and/or other chemicals. Provide a written copy monthly.

1.4.2. If Pesticides are determined necessary and only as a last resort, Pesticide application records shall be kept by the Contractor on all pesticide (includes herbicide) applications for a minimum of seven (7) years. Such records shall be completed in accordance with all applicable laws and regulations. The following information shall be recorded at a minimum for each application:

- The location where the pesticide or herbicide was applied.
- The year, month, day, and time the pesticide or herbicide was applied.
- Purpose of application.
- The person or firm who supplied the pesticide or herbicide which was applied.
- Trade name of the pesticide or herbicide which was applied, amount and concentration.
- Method and rate of application.
- The temperature and direction and estimated velocity of the wind at the time the pesticide or herbicide was applied.
- The name and license number of the pesticide or herbicide applicator.
- Applicator apparatus license plate number or equipment number (if applicable).
- Any other information reasonably required by the Owner.

1.4.3. Supply the Owner with written copies of chemical application records monthly.

1.5. LANDSCAPE SERVICE SCHEDULING

1.5.1. Establish a schedule and Gantt (or equal to) chart for regular maintenance activities by area and submit to Owner for review. Contractor to review proposed schedules with Owner at the regularly scheduled meetings and adjust as necessary to avoid conflicts.

2. SCOPE OF WORK

2.1. GENERAL PRACTICE GUIDELINES FOR MATERIALS AND EXECUTION

2.1.1. This document is intended as a benchmark of the Owner's minimum standards for maintenance, repair and improvements. However, the Owner respects the Contractor as a professional and as such, will take under consideration, any and all recommendations made by the Contractor.

2.1.2. Contractor shall furnish all labor, equipment, and materials necessary to complete the maintenance of plantings, as specified herein. It is the intent of the Owner that this site be maintained in a resource-efficient, sustainable, and cost-effective manner.

2.1.3. Maintenance shall consist of soil building, mulch replacement, pruning, irrigation, IPM, weed/ /disease control, litter control and any other procedures consistent with good horticultural practice necessary to ensure normal, vigorous, and healthy growth of landscape plantings and bioswale plantings and functionality.

2.1.4. When performing any work requiring subsurface excavation, Contractor shall take care to avoid damage to existing utilities and vegetation, and shall "Call 811-Before You Dig- Safe Digging Partner or Eq local utility.

2.1.5. Contractor is encouraged to use non-polluting devices like rakes and brooms when feasible. Owner prefers that blowers and other power equipment are preferably electric, low-decibel, or low-fossil fuel consumption, and low-emissions models.

2.1.6. Contractor is encouraged to develop cultural practices which incorporate on-site recycling of organic materials, such as leaves and grass clippings, and the use of recycled materials in its maintenance operations.

3. MATERIALS AND EXECUTION – INTEGRATED PEST MANAGEMENT AND PESTICIDE APPLICATIONS

3.1 INTEGRATED PEST MANAGEMENT:

A. Goals

An integrated pest management program shall be implemented to:

1. maintain healthy, attractive plants, maximize resistance to pests and out-compete weeds;
2. monitor for presence of pests and to evaluate pest impact to plant health and appearance, and nuisance to the public;
3. provide control treatments that have minimal negative effects on all but the pest and that protect air and water quality.

Contractor shall assume pesticides are potentially hazardous to human and environmental health. Preference shall be given to reasonably available non-pesticide alternatives when considering the use of pesticides on Agency property.

B. Insects and diseases

1. Key plant and key pests

Contractor shall identify primary plant species and cultivars in the landscape (key plants) and the pests that commonly cause significant harm to plant health or appearance (key pests).

2. Monitoring

Contractor shall monitor landscape areas to identify presence of beneficial insects and pests, determine populations, life stage, and degree of damage to plants. Key plants:key pests will be monitored closely during normal periods of pest activity. This information will be the basis on which pest control methods are initiated. Records of monitoring activity shall be kept.

3. Controls

"Bay-Friendly Landscaping" seeks to control pests without harming non-target organisms, or negatively affecting air and water quality and public health. It relies on IPM which uses a range of cultural, mechanical, physical, and biological control methods before using pesticides. Chemical controls are applied only when monitoring indicates that preventative and non-chemical methods are not keeping pests below acceptable levels. When pesticides are required, the least toxic and the least persistent pesticide that will provide adequate pest control is applied. Pesticides are not applied on a prescheduled basis.

a. Cultural/Mechanical/physical methods. A number of maintenance practices or modifications of them can make the environment unfavorable for pest reproduction, movement, or survival. Often simply modifying an existing maintenance practice, such as timing of pruning or fertilization, can produce positive results,. Other mechanical or physical practices may specifically combat plant pests or increase host resistance. Key treatments include:

1) Fostering a healthy soil, judicious fertilization only when needed, and managing irrigation appropriately.
2) Pruning to remove infected or infested branches and shoots. Time pruning to avoid periods of insect infestation. For example prune pines and eucalyptus in the winter (December-February) when bark beetles and borers are inactive.
3) Removing fallen twigs, leaves, and fruit that contains disease inoculum.
4) Mulching soil surface to reduce weeds and to reduce splashing and the drops of mud that would protect spores deposited on plant surfaces.
5) Trapping insects using sticky surfaces (also used for monitoring). Mechanical traps can be used to control rodents.
6) Bringing to attention of Agency plants that are disease or insect prone and suggesting resistant plant replacements or those better suited to the site and microclimate

b. Biological methods

Biological controls are pesticides of natural origin that have limited or no adverse effects on the environment or beneficial organisms. Determining the effective biological control and proper timing of application are critical to success in pest control.

The Contractor shall consider the following biological control methods when cultural/mechanical/physical methods are not adequate to lower pest populations to the target level.

1) *Bacillus thuringiensis* (Bt)
2) Parasitic nematodes
3) Pheromone traps
4) Beneficial insect release and conservation

c. Pesticides

The term pesticide applies to insecticides, fungicides and other substances used to control pests. Antimicrobial agents are not included in this definition of pesticides.

1) Least toxic pesticides

When cultural, mechanical, physical and biological controls have provided inadequate pest control, the Contractor may select and apply an appropriate least-toxic pesticide as a last resort. Least-toxic pesticides have a high LD-50, low residual, and narrow range of toxicity. Application must be timed to the appropriate life stage of the pest.

Examples are:

a. insecticidal soaps,
b. horticultural oils,
c. herbicidal soaps,
d. neem,
e. Pyriproxyfen insect growth regulator (e.g. Distance IGR)

2) Restricted chemicals

Organophosphate-containing pesticides have been found to persist in the environment and cause water quality impairment of some creeks, streams, and arroyos in Alameda County. They are restricted from use. Examples include:

a. diazinon, trade names Spectracide®, Knox-out® and
b. chlorpyrifos, trade names Dursban®, Pageant®)

c. malathion and carbaryl (trade name Sevin®)

Water quality agencies recommend against using pyrethroids and pyrethrins containing piperonyl butoxide (PBO). These chemicals are restricted from use.

Pyrethrins are toxic to birds, fish, and beneficial insects, should be used only as a last resort, and carefully applied to avoid runoff and contact with non-target plants.

Contractor shall not apply any Toxicity Category I or II Pesticide Product, any pesticide containing a chemical identified by the State of California as a chemical known to the State to cause cancer or reproductive toxicity pursuant to the California Safe Drinking Water and Toxic Enforcement Act of 1986, and any pesticide classified as a human carcinogen, probable human carcinogen or possible human carcinogen by the United States Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances.

3) All chemical applications shall be performed by a licensed, trained technician. Contractor must be a licensed Pest Control Operator as required by the State of California, registered in Alameda Co., and strictly adhere to all laws.

4. Notice of pesticide use
   a. Signs shall be posted at least three days before application of the pesticide product and remain posted at least four days after application of the pesticide.
      1) Signs shall be posted (i) at every entry point where the pesticide is applied if the pesticide is applied in an enclosed area, and (ii) in highly visible locations around the perimeter of the area where the pesticide is applied if the pesticide is applied in an open area.
      2) Signs shall be of a standardized design that are easily recognizable to the public and workers.
      3) Signs shall contain the name and active ingredient of the pesticide product, the target pest, the date of pesticide use, the signal word indicating the toxicity category of the pesticide product, the date for re-entry to the area treated, and the name and contact number for the City department responsible for the application.
   b. Contractor shall not be required to post signs in right-of-way locations that the general public does not use for recreational purposes. However, Contractor shall notify Agency in writing three days prior to pesticide applications in the right-of-way areas.
   c. Contractor may obtain authorization from the Agency to apply a pesticide without providing a three-day advance notification in the event of a public health emergency or to comply with worker safety requirements. Signs shall be posted for at least four days after application of the pesticide, as described in the Section above, 3.5.B.4.a., *Notice of Pesticide Use*
5. Recordkeeping and reporting
   a. Contractor shall maintain records of all pest management activities. Each record shall include the following information:
      1) target pest;
      2) type and quantity of pesticide used;
      3) site of the pesticide application;
      4) date the pesticide was used;
      5) name of the pesticide applicator;
      6) application equipment used;
      7) prevention and other non-chemical methods of control used.
   b. Contractor shall submit the pest management record to Agency on a monthly basis.

C. Weed management
1. Landscapes shall be maintained in a healthy and attractive manner using" **Bay-Friendly**" methods.

2. Identify key weeds

   Contractor will identify key weeds present and design weed manage program to target those species.

3. Invasive plants

   Invasive plant species may have been included in the plantings inadvertently. Seedlings and/or suckers from those plants shall be removed by the Contractor. Refer to www.bayfriendly.org or www.cal-ipc.org for a list of invasive species. Remove all invasive plants not planted intentionally as noted in the Section below, 3.5.C.4, *Controls*. When invasive plants are an intended part of the landscape please notify Agency and propose a replacement option.

4. Controls

   a. Cultural/Mechanical/physical methods will be used as the first choice in weed management.

      1) Monitor planting areas frequently to identify and eradicate weeds early in the growth stage prior to their setting seed.
      2) Cut or pull weeds by hand or using hand operated equipment where possible.
      3) Mow large areas to reduce weed growth, and eliminate species that are not tolerant of mowing. Mowing is especially effective when done prior to seed set. Mowing also reduces fire hazard in open spaces.
      4) Goats may be used to manage weed growth, where appropriate. Goats must be well managed and plants fenced to avoid damage to non-target plants.
      5) Mulches shall be maintained at all times over soil surface that is not covered by vegetation. (see also Section 3.3 E, *Incorporate Organic Soil Amedments*)
      6) Sheet mulching, a layered system of non-plastic weed barrier overlain by mulch, shall be employed where possible.
      7) Propane-fueled flamers may be used in winter and spring with required permits and approval by the Fire Marshall to kill early-season, non-grass weeds by heating the cells until they burst. The weed quickly wilts and dies.

   b. Least toxic herbicides may be employed by Contractor as a last resort. Examples are:

      1) Fatty acid potassium salts (herbicidal soaps e.g. Safer's Superfast Weed and Grass Killer® Dr. Bronner's Peppermint Anti-Bacterial Soap)[1]
      2) Acetic and citric acids (e.g. Nature's Glory Weed and Grass Killer RTU®)
      3) Clove, citrus, mint and thyme oil (e.g. Matran II®, Xpress®)
      4) Corn gluten
      5) Low-toxic, low-residual herbicide [e.g. glyphosate (Round-up®), glufosinate-ammonium (Finale®), pelargoic acid (Scythe®)

   c. Restricted herbicides that may not be used because they have been identified as ground water contaminants are (trade names in parentheses):

      1) Atrazine (Aatrex)
      2) Simazine (Princep)
      3) Bromacil (Hyvar, Krovar)
      4) Prometon (Pramitol)
      5) Bentazon (Basagran)
      6) Norflurazon (Solicam, Predict, Zorial)

   d. Restricted herbicides that may not be used because they have been identified as a compost contaminant are:

      1) Picloram
      2) Clopyralid

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[1] Trade names are used only as examples and are not intended as an endorsement.

D. Vertebrate pests

1. Identify key pests that significantly affect plant health and appearance. Accurate identification is critical to appropriate control. Common vertebrate pests are:
   a. Rodents including rats, mice, voles, moles, gophers
   b. Deer
   c. Rabbits
2. Controls
   a. Mechanical/physical/cultural methods shall be implemented as a first course of action. Preferred treatments include:
      1) Exclusion – Protect plants from damage by grazing animals with fences or cages.
      2) Habitat modification – Reduce cover at the periphery of the project as needed to solve problem.
      3) Application of repellents that are suitable for use in public areas.
      4) Traps may be used where mechanical/physical/cultural methods have been insufficient to control moles, voles, gophers, rats and mice.
      5) Encouragement of predators – owl boxes

b. Least toxic rodenticides

MATERIALS AND EXECUTION – TREES, SHRUBS, VINES, GROUNDCOVER MAINTENANCE

3.2 TREES, SHRUBS, VINES AND GROUNDCOVER PRUNING

3.2.1. Pruning in general should be avoided as planting design is intended to allow plants to grow to mature size. Pruning must only be performed when necessary by trained personnel in accordance with accepted horticultural practices. Prune to enhance the natural growth and shape of plant materials and intended function of the planting. Plantings are designed to grow together and to the edges of the beds to minimize weed infestation and maximize water conservation. Shearing is only permitted for formal hedges. Prune back branches as needed when interfering with walks, buildings, signage, fire control utilities, site lighting, security/safety visibility, site lighting, and vehicular circulation. Prune dead and broken branches quarterly and more frequently as required. Regularly decontaminate pruning equipment to prevent spread of disease.

3.2.2. Street trees shall be pruned to maintain adherence to City or County sight distance requirements, to maintain visibility of street name signs, protect trees from vehicle damage, and maintain pedestrian safety.

3.2.3. Prune plantings bi-annually (only as necessary) on a rotational basis appropriate to site, need, season and plant species. Discuss significant pruning work with Owner prior to work beginning.

3.2.4. Prune clean and just outside the branch collar in accordance with accepted horticultural practices. Pruning must only be performed by trained personnel. Replace plant materials that are disfigured or damaged due to improper pruning at no additional cost to Owner.

3.2.5. Periodically inspect and adjust tree staking and guying to prevent damage to the cambium layer. Remove guys and stakes as soon as trees are established and self-supporting (generally two years or less).

3.2.6. Prune trees as required and appropriate in compliance with ANSI A300 (Part 1), "Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices (Pruning)."

3.2.7. The Additional Services of an ISA-certified arborist are required for pruning on any trees larger than six inches DBH (diameter at breast height as measured at four and one-half feet about the existing grade at the base of the tree) and any branches larger than four inches in diameter. This is considered an additional service.

4. MATERIALS AND EXECUTION - GENERAL AREA MAINTENANCE

4.1 LEAF AND BRANCH REMOVAL

4.1.1. Keep walks, patios, planting beds, roadway, gutters and areas free of leaves and branches on a weekly basis throughout the year.

4.1.2. Leaves shall be mulch mowed or left in planting areas throughout winter, spring and summer when leaf fall is not excessive and plant health is not adversely affected. As much as possible, leaves can be blown or raked under the shrubs or groundcover and into the wood chip mulch.

4.1.3. In autumn leaf removal shall occur at each visit as needed to prevent smothering of turf and groundcovers and excessive clumping when mulch mowing. Owner's preference is that whenever safety and plant health are not compromised that leaves remain on-site and are incorporated into mulch under plantings. Remove leaves from site only as needed to maintain a neat appearance and the health of the planting.

4.1.4. Excessive branch and debris cleanup from storm damage is not included in the contract work and is considered an additional service at Owner's request.

4.2. LANDSCAPE DEBRIS REMOVAL

4.2.1. Remove biodegradable landscape debris (turf clippings (limited to only those times when mulch mowing is not possible), leaves, branches, annuals, dead plant material, etc.) to yard refuse recycling facility. Acceptable sites include topsoil producing facilities and/or other facilities, which utilize yard waste for landscape purposes. No biodegradable material should be disposed of as garbage, except noxious weed debris.

4.2.2. Remove and properly dispose of moss from curbs, stairs and walkways.

4.3. LANDSCAPE TRASH REMOVAL

4.3.1. Remove all trash from landscaping beds, on a weekly basis. For large amounts of trash, or if there is no approved trash container onsite, Contractor shall haul it away for appropriate disposal.

4.4. MULCH REPLACEMENT

4.4.1. Once annually Contractor shall replenish mulch to maintain a depth of no less than three inches (3") in all planting areas. All tree wells to be re-mulched annually. Established beds where plant foliage or groundcover completely covers the soil surface require no additional mulch. Keep mulch at least two to three inches (2 – 3") away from the crown of plants and trees.

4.4.2. Mulch shall be medium or fine natural wood chips, clean arborists wood chips. "Red" or dyed bark mulch, " Gorilla Hair" or dust shall not be used.

4.5. BIOSWALE MAINTENANCE: Employ Best Management Practices whenever possible:

4.5.1. Monthly: Regularly inspect for signs of erosion, obstructions or unhealthy vegetation

4.5.2. Monthly: Remove Weeds and invasive plants shall be removed

4.5.3. Monthly: Remove trash and debris that has washed into the bioretention area or the inlet channels or pipes

4.5.4. Monthly: Check facility a few days after a rain storm to make sure that there is not standing water after 2 days.

4.5.5. AS-NEEDED basis: Cut back dead stems of herbaceous plants in March and remove from the facility

4.5.6. AS-NEEDED basis: Water new plants during initial establishment of plant growth (first 18 months) and extreme droughts.

4.5.7. AS-NEEDED basis: Remove fallen leaves from the areas and Mulch shall be medium or fine natural wood chips, clean arborists wood chips. "Red" bark mulch or dust shall not be used.

5. MATERIALS AND EXECUTION - IRRIGATION

5.1. GENERAL IRRIGATION SYSTEM OPERATION

5.1.1. Contractor is responsible for providing a staff completely trained and familiarized with the setup, monitoring and maintenance of the irrigation system at Owner's sites.

5.1.2. Contractor is responsible for understanding the capacities and capabilities of the irrigation system and ensuring that system modifications do not cause landscape water demand to exceed the hydraulic capacity of the system.

5.1.3. Contractor will establish appropriate time intervals for each valve zone in the irrigation systems and adjust during the operating season as necessary.

- Adjustments should be based on local evapo-transpiration (ET) data as much as possible.
- Operate systems only during night hours. Daytime operation is permitted only when inspecting or testing the system, after fertilizer application, for new installations and during extreme temperatures.
- Run times shall be sufficient to allow for saturation of the root zone without run off. This may require "cycle and soak" scheduling in spray zones. Allow adequate run times in drip irrigation zones.

5.1.4. Contractor will manage all irrigation systems for peak efficiency and water conservation. Check for proper water application rates by inspecting soil moisture and health of plant materials on a weekly basis. Adjust the irrigation frequencies as required to correct over or under watering.

5.1.5. Contractor shall manage irrigation schedules so that irrigation is applied more deeply, but less frequently, rather than small amounts on a daily basis.

5.1.6. Contractor and Owner will work in collaboration during water supply shortages and under drought conditions to develop an irrigation strategy that best preserves and protects the site's landscape investment.

5.2. IRRIGATION SYSTEM MONITORING

5.2.1. Irrigation system monitoring and inspections to include the following:

- Visually inspect all irrigated landscape areas once weekly from April thru September to identify potential leaks as evidenced by water related plant stress, surface water or erosion, broken or damaged equipment, and paved surfaces or building walls/windows affected by irrigation.
- Visually inspect the operation of all irrigation valve zones once monthly from April through September to identify coverage problems, misdirected nozzles, broken or damaged equipment, hard-scape or building overspray, pressure problems and system leaks.

5.2.2. Provide the following written irrigation system management reports to Owner's Project Manager.

- Summary of additional services, system repairs and renovations, general operations and recommendations once monthly from April through September.
- Summary o major renovations, replacements and equipment changes along with proposed renovations/upgrades and associated budget recommendations once annually.

5.3. IRRIGATION SYSTEM MAINTENANCE, WINTERIZATION AND RE-ACTIVATION

5.3.1. Run-off of water from irrigation systems into or onto streets, sidewalks, stairs, or gutters is not permitted. Immediately make adjustments, repairs, or replacements required to correct the source of the run-off.

5.3.2. Clean and adjust bubblers and valves as required. Clean drip irrigation valve strainers as required. Properly prune plantings and/or debris affecting access to valves, and reset/raise valve boxes, which have settled during the winter shutdown months.

5.3.3. Flush out lateral lines and adjust heads and nozzles at the beginning of each operating season.

5.3.4. Contractor shall be responsible for all costs associated with damage resulting from improper irrigation winterization and re-activation procedures, and for all damage resulting from failure to winterize or re-activate in a timely fashion. The Contractor is not responsible for freeze damage to piping left pressurized year around per the direction of Owner.

5.3.5. Provide for inspection and testing of backflow prevention valves annually, as required by law.

5.4. IRRIGATION SYSTEM REPAIR AND RENOVATION

5.4.1. Provide 24 hour per day, 7 days a week emergency response to immediately replace or repair broken, damaged or inoperable irrigation components which pose damage or safety hazards to persons or property. Prepare Proposals for all other repair or replacement work.

5.4.2. All repairs to the system shall be identical to the original installation, unless approved otherwise in advance by the Owner. If a change to the installation will result in lower future maintenance costs, less frequent breakage, or an increase in public safety, request authorization to make the change from the Owner.

5.4.3. Replacement of system components shall be the same manufacturer and model as original equipment, or better as authorized by Owner.

5.4.4. The following repair activities are considered additional services:

- Troubleshooting and repair of controller components.
- Damage by other than Contractor vehicles.
- Pedestrian or vandalism damage.
- Special event damage.
- Construction related damage by other than Contractor's activities.
- Storm related damage.
- Product failure.

5.4.5. Provide the following repair or replacement work at no cost to Owner:

- Damage due to Contractor maintenance activities.
- Damage due to work by Contractor's construction activities.

5.4.6. Inform Owner in shutting off the systems during emergencies.

Redline all irrigation repairs or renovations which represent changes to the existing irrigation on current record drawing prints and submit to Owner.

6. MATERIALS AND EXECUTION – EXISTING AND TRANSPLANTED TREES

6.1. LONG TERM MAINTENANCE

6.1.1. Irrigate trees according to species requirements.

6.1.2. Where turf is present around trees, establish a turf-free area at least 1-foot from the trunk.

6.1.3. Place 4- to 6-inches of wood chips within turf-free area and any landscape beds.

6.1.4. Prune trees as required to maintain good structure. All pruning shall be completed by an ISA Certified Arborist or Tree Worker and adhere to the latest editions of the American National Standards for tree work (Z133 and A300) and International Society of Arboriculture Best Management Practices, Pruning.

6.1.5. For newly installed trees, loosen the support stake after one year. Remove the support stake at the end of the second growing season.

6.1.6. For relocated trees, ensure the surface water drains away from the trunk.

6.1.7. For relocated trees, the soil moisture of the rootball and the surrounding backfill shall be monitored during the first growing season following transplanting. The rootball and backfill should remain evenly moist, but never saturated. The tree should be irrigated when the root zone is dry as determined using a soil probe. Irrigation should be sufficient to wet the root zone to the depth of the planting hole. The contractor shall not rely solely on the automatic irrigation system to water the trees, as hand watering may be required to achieve uniform soil moisture.

6.1.8. Inspect all trees once per month during the growing season for insect, disease and cultural problems. Treat problems that are severe enough to limit performance.

6.1.9. Maintain 1-foot wide clear zone around the trunk of all trees.

6.1.10. Avoid herbicide use in the vicinity of trees. Applicators should check the label for potential movement of the active ingredient to non-target plants such as trees.

6.1.11. Inspect the lower trunk and base following storms and periods of high wind. Look for changes in orientation, soil mounding, and the appearance of cracks in the lower trunk.

SUMMARY

ITEMS INSPECTED

MAINTENANCE ITEM

Irrigation Audit Procedures in WELO

The irrigation audit includes the following procedures:

Visual inspection of irrigation system

Observation of each zone in a sprinkler system and the landscape surrounding sprinkler heads to identify sources of inefficient water use: broken, damaged, or leaking heads; improperly positioned sprinklers watering streets and sidewalks; sprinkler heads too low or off vertical; sprinkler heads improperly spaced or arranged in pentagon patterns instead of water-conserving triangle or square patterns; misting around sprinkler heads (excessive water pressure) or large water droplets falling close to heads.

Observation of each drip zone to identify sources of inefficient water use: broken, damage or leaking pipes: improperly positioned emitters or bubblers, run off, drip line spacing and use of manufacturer recommended or specified equipment.

Evaluation of distribution uniformity (DU)

While many of the problems described above in the sprinkler installation affect DU, a catch can test is routinely used to quantify whether or not irrigation water is being uniformly applied to the landscape. To perform a catch can test place collection containers in a grid pattern on the surface of an irrigated zone, runs the irrigation system through a typical timed cycle, and collect and record the amount of water in each catch container. The data gathered is then used to identify areas of over- and under-irrigation (relative to the targeted application amount); results of a catch can test may also be correlated to observations of plant health in the test area.

Determination of precipitation rate (PR)

Irrigation Audit Procedures in WELO

The irrigation audit includes the following procedures and are highlighted in our Standards of Practice section:

Visual inspection of irrigation system
Evaluation of distribution uniformity (DU)
Determination of precipitation rate (PR)
Determination of landscape's watering needs
Review and development of irrigation schedule

California WELO Ordinance

§ 492.12. Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.

All landscape irrigation audits shall be conducted by a local agency landscape irrigation auditor or a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape.
In large projects or projects with multiple landscape installations (i.e. production home developments) an auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.
For new construction and rehabilitated landscape projects installed after December 1, 2015, as described in Section 490.1:
The project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule, including configuring irrigation controllers with application rate, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming;
The local agency shall administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the Maximum Applied Water Allowance.

Note: Authority cited: Section 65595, Government Code; and sections 11 and 30, Governor's Exec. Order No. B-29-15 (April 1, 2015). Reference: Section 65596, Government Code; and section 11, Governor's Exec. Order No. B-29-15 (April 1, 2015)

I, Andrew Bolt declare that I have performed a third party Irrigation Audit on the property listed above and not affiliated with the property owner, builder or landscape installer. This audit was performed with all guidelines and codes of licensing body that certified me as a landscape irrigation auditor.

Irrigation Auditor Name: **Andrew Bolt** Certification #: **57436**

TABLE OF CONTENTS

ARCHITECTURAL SOLUTIONS
209-404-1746
irrigationaudit@gmail.com
http://www.architecturalsolutions.us.com

LOT 9 - 2185 COBBLEHILL PLACE WELO IRRIGATION INSPECTION

Lots 9 & 10 Cobblehill Place
San Mateo, CA 94402

Noel Chamberlain
JUNE 28, 2022

Inspector
Andrew Bolt
CLIA/CGIA # 57436, ASIC
209-404-1746
irrigationaudit@gmail.com

1: INSPECTION DETAILS

Information

Site Overview: Name of People In Attendance

General Contractor

Attendee Information

1. Name of Company: NexGen Builders
2. Name(s) of attendees: Noel Chamberlain
3. Email Address:
4. Contact Telephone Number:

Site Overview: Project Type

Site

New Project, Residential

Describe Site: New Two Story, Single Family Home built in culda-sac. Landscaping both front and back gardens consisting of trees and shrubs.

Site Overview: Project Status

Post Plant Audit

The project is subject to a WELO Irrigation Inspection. This report must be turned into the required division at the building/planning department.

Site Overview: Weather at Time of Audit

Sunny

Weather conditions have been recorded for the period of time during the audit. If winds exceeds 5 mph we can not conduct any catch can testing.

Site Overview: Site & Landscape Conditions

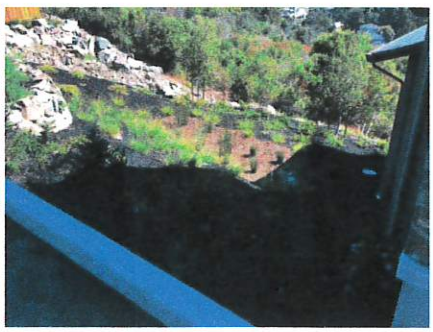
New Landscape Project

New Shubs, New Trees, New Bio Basins, Clay Soil Type, Sloped Site, No Standing Water, 2-3" Bark Mulch Installed

The irrigation that is being audited has been designed by a professional Landscape Architect, Irrigation Consultant or Landscape Contractor and has been approved by the local building/planning department.

All installation has been installed by a professional landscape contractor and is subject to all State and Local codes and ordinances.





Data from a catch can test is also used to determine the rate at which water is applied by the irrigation system. Since individual site conditions, specifically water pressure and sprinkler head spacing, may alter a system's performance, using catch can test results is more accurate than relying on the system manufacturer's performance specifications. Knowing the rate of application is important for developing appropriate irrigation schedules.

Determination of landscape's watering needs

An evaluation of the landscape features present at a site provides a great deal of information about that site's water requirements. Factors to consider in developing a watering schedule include the types of plants present and the depth of their roots; whether they are growing in sun or shade, on flat areas or slopes; the presence or absence of a thatch layer in turf; whether or not non-turf plantings are mulched; soil texture and structure; and evidence of compaction and drainage problems.

Review and development of irrigation schedule

A review of the site's current irrigation schedule (amount of water applied and the interval between watering events), and generate a watering schedule based on catch can test results, soil conditions, and plant water requirements, taking into account local climate and rainfall patterns. An irrigation audit is only a tool, audit findings and recommendations must be put into practice for water conservation to be realized.

I, Andrew Bolt declare that I have performed a third party Irrigation Audit on the property listed above and not affiliated with the property owner, builder or landscape installer. This audit was performed with all guidelines and codes of licensing body that certified me as a landscape irrigation auditor.

Irrigation Auditor Name: **Andrew Bolt** Certification #: **57436**

3.3.1 Irrigation Controller - As Built Map & Zone Schedule Present: Irrigation Schedule

Water Source and Connection: Point Of Connection

Street/House

Hose Bib Pressure Test, Gate Valve installed

- Manual Shut Off Valves such as a gate valves, ball valve or butterfly valve shall be required as close as possible to the point of connection of the water supply to minimize water loss in case of an emergency or routine repair.
- Backflow Prevention Devices shall be required to protect water supply from contamination by the irrigation system.
- Flow Sensors that detect high flow conditions created by system damage or malfunction are required for ALL non residential and residential landscapes of 5000 square feet or large. Local cities may have stricter requirements.
- Master Shut Of Valves are required on all landscapes that make use of technologies that allow the individual control of sprinklers that are pressurized in a system equipped with low pressure shut down features.
- Landscape Water Meters, defined as either a dedicated water service or private submeter, shall be installed for all non residential landscapes of 1000 square feet but no more than 5000 square feet and residential irrigated landscapes of 5000 square feet or greater. A landscape water meter can be either a customer service meter dedicated to landscape use provided by the local water purveyor or a privately owned meter or submeter.
- Static water pressure, dynamic or operating pressure and flow reading of water supply shall be measured at the point of connection.
- If the static pressure is above or below required dynamic pressure of the irrigation system, pressure regulating devices, booster pumps pr other devices shall be installed to meet the dynamic pressure of the irrigation system.

Water Source and Connection: Water Source Type

Potable Water

Irrigation Water Source is from the following:

Potable or Non Potable Water.

IF Non Potable Water may require Purple signage, ID Tags and Purple Equipment. See approved irrigation plans for information.

Backflow Prevention: Backflow Preventer

Backflow Preventer definition: A device that allows water to go through it in one direction, but prevents it from going backwards in the opposite direction.

A backflow preventer is like a one-way gate for water. Most backflow preventers are used to keep unsafe water from reversing flow and entering the clean water supply. Backflow preventers can be as simple as a single check valve that closes when water flow reverses.

Backflow Preventer Model Installed:

Limitations

Landscape Flow/Water Meter

NOT SPECIFIED OR REQUIRED

Contractor or Owner Responsibilties: Prior to Audit Inspection

Contractor /Owner Responsibility

It remains the responsibility of the contractor to have the project 100% complete and irrigation fully operational prior to the time of the inspection.

Irrigation Controller, All Valves, Sensors and other equipment must be fully functional

Contractor or Owner Responsibilties: Audit Inspection & Reporting

Auditor Responsibility

We will only report on the conditions of the irrigation operation, conditions of and compliance to WELO. Any deficiencies of the system will need to be corrected prior to our final sign off.

2: POINT OF CONNECTION

		IN	NS	DE	CI	MI
2.1	Water Source and Connection	X				
2.2	Backflow Prevention	X				
2.3	Landscape Flow/Water Meter		X			
2.4	Master Valve		X			
2.5	Flow Sensor		X			
2.6	Hydrometer		X			

IN = Inspected NS = Not Specified DE = Deficiency CI = Corrected Item MI = Maintenance Item

Information

Water Source and Connection: Booster Pump Installed

Only installed if specified

See section on Booster Pump

Water Source and Connection: Master Valve & Flow Meter Inspection & Conditions

DBYR Connectors

Backflow Prevention: Backflow or Water Source Pressure Test

45 Static PSI

Irrigation Controller Installation: Irrigation Controller Installation

Secured to Wall, On Site Sensor

Irrigation Controller Assembly or Cabinet must be anchored to concrete base or to wall. Install Controller as per Manufacturer requirements

Hunter Controller installed-owner is responsible for set up of controller on WIFI and/or connect On Site Weather sensor and maintaining a weather based adjusted schedule

As Built Map & Zone Schedule Present: As Built Map & Zone Schedule at Controller

Irrigation Controller

Provide owner with copies and place copies at the controller for future use during Maintenance Period

Power Source at Controller: Power Source and Wiring

At Irrigation Controller

Controller Powered, Line Voltage in Conduit, 110 Volt grounding

Controller Power Source must be connected to an approved 110volt connection as per local electrical codes

Programmed with Schedule: Programmed with Schedule

At Irrigation Controller

Program controller with Maintenance Schedule until plants are established enough so that they can be irrigated on an Established Plant Schedule.

Weather Adjusted Scheduling Set Up: Self Adjusted Scheduling Method

At Irrigation Controller or On SW Corner Building

Weather Sensor on Site, On Site Rain Sensor

A Weather Sensor, Connection to Manufacturers Web Server or Central Control must be installed, connected and functioning for WELO Compliance

- Hunter Solar Sync

Master Valve
NOT SPECIFIED OR REQUIRED

Flow Sensor
NOT SPECIFIED OR REQUIRED

Hydrometer
NOT SPECIFIED OR REQUIRED

3: IRRIGATION CONTROLLER

		IN	NS	DE	CI	MI
3.1	Controller Installation Overview	X				
3.2	Irrigation Controller Installation	X				
3.3	As Built Map & Zone Schedule Present		X			
3.4	Power Source at Controller	X				
3.5	Programmed with Schedule	X				
3.6	Weather Adjusted Scheduling Set Up	X				

IN = Inspected NS = Not Specified DE = Deficiency CI = Corrected Item MI = Maintenance Item

Information

Controller Installation Overview: Irrigation Controller Inspection

Controller Powered, Controller Outside, Weather Self Adjusting Based

Automatic Irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for irrigation scheduling in all irrigation systems.

Note Status of Controller. Weather Adjustment programmed.

1. Note Make & Model of Controller. Hunter ProC
2. Note Station Count. 4
3. Note Grounding Method. None

4: REMOTE CONTROL VALVES

		IN	NS	DE	CI	MI
4.1	Irrigation Valve Installation	X				
4.2	Operation of Valve	X				
4.3	Leaks	X				
4.4	Wire Connections	X				

IN = Inspected NS = Not Specified DE = Deficiency CI = Corrected Item MI = Maintenance Item

Information

Irrigation Valve Installation: Valve Installation

Gate Valve Installed, Atmospheric Valve Installed, Silicone Gel Wire Splices

Installation of and Condition of Valves has been inspected. If Standard Details have been provided with Approved Irrigation Plans all Valve Installation must be in accordance with details

Operation of Valve: Operation of Valves

Irrigation Valves

All Valves will be operated and any deficient conditions noted

- All valves operate as intended

Leaks: Examine for Leaks

Irrigation Valve Installation

No Leaks

Review Operation of all Valves and note any leaks at Valves, Unions or Fittings. If Valves are Sticking Open make a note under deficiencies

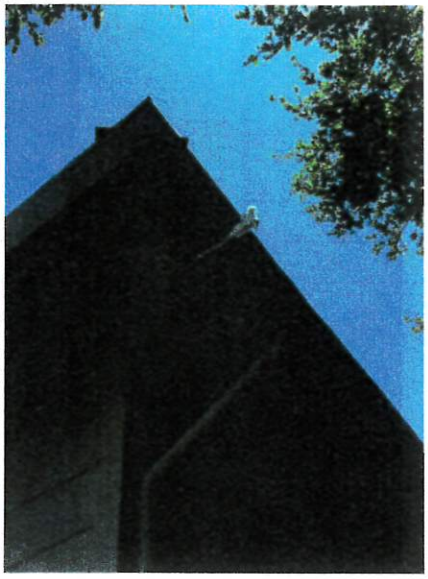
- No leaks found

Wire Connections: Wire Connections Condition

Irrigation Valve Installation

All Wire Connections must be connected with either 3M DBRY Connectors (or equal) or Silicone Filled (Gel) Wire Nuts and secured.

All wire must be secure and Pig Tailed as per any attached details



Limitations

Programmed with Schedule

SCHEDULES

Set up post plant schedule after 90 days

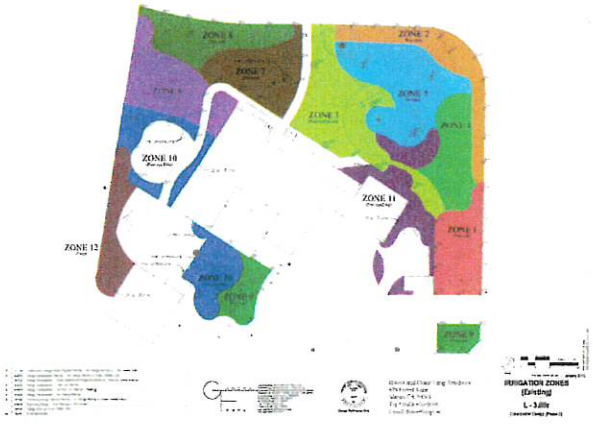
Deficiencies

3.3.1 As Built Map & Zone Schedule Present

Maintenance Item

IRRIGATION SCHEDULE

Place copies of Irrigation Schedule and As Built's at controller and provide customer with copies-Sample copy below of AS Built Irrigation Zoning. Include POC, controller, mainline and valve locations



Recommendation

Contact a qualified landscaping contractor

Bubblers or Drip Rings Overview: **Overview of Bubblers or Drip Ring/Emitter Installation**
Trees & Shrubs

Watering Tubes, Bubblers on Flex Pipe

Installation of Tree and Plant Bubblers as per Approved Irrigation Plans. All Bubblers must be placed at Root Ball so as to adequately Irrigate Plant Root Ball and surrounding Native Soils

Tree Bubblers or Drip Rings: **Bubblers or Drip Rings-Emitters**
Trees

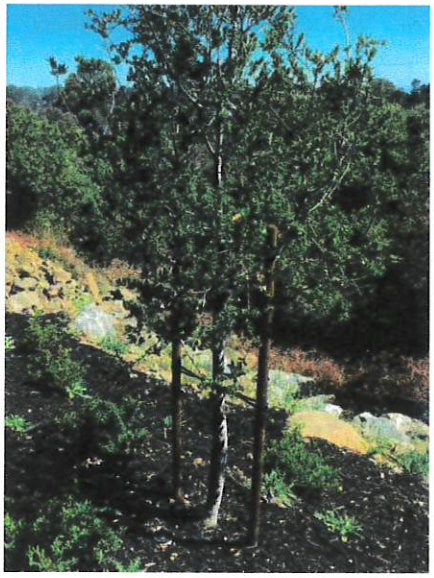
Watering Tubes, Bubblers on Flex Hose

Inspect Conditions and Placement of all Bubblers and/or Drip Rings

Description of irrigation method:

Trees on independent Valve as required by WELO: Yes

Two Count per tree



Drip Irrigation: **Drip-Micro-Low Flow Irrigation**
Planting Areas

Drip Pressure Regulation, Drip Filter(s), In-Line Drip, Drip Flush Valves, Drip Indicators, Drip Line on Grade, Drip Line Covered by Mulch

All Drip Irrigation will be inspected and conditions noted. Leaks will be photographed and noted as a deficiency

Drip Kits: **Drip Filters & Pressure Regulation Installation**
Drip Valves

Drip Filters and Pressure Regulation must be installed for Efficient Operation of all Drip Zones

Drip Line Coverage: **Drip Line Coverage**
Planting Areas

Drip Line must be adequately covered by mulch or buried and staked accordingly. Any exposed Drip Line must be buried under 2-3" of mulch or soil covering. Review Approved Irrigation Plans for detail information

5: SPRAY/ROTOR ZONES

		IN	NS	DE	CI	MI
5.1	Spray Head and Rotors Installation		X			
5.2	24" Set Back		X			
5.3	Coverage		X			
5.4	Nozzles		X			
5.5	Overspray		X			
5.6	Check Valve		X			
5.7	Pressure Regulation		X			

IN = Inspected NS = Not Specified DE = Deficiency CI = Corrected Item MI = Maintenance Item

Information

Spray Head and Rotors Installation: Overhead Irrigation Installation
Turf/Shrub Areas

Not Specified

Inspection of installation of All Rotors and Sprinklers, all Nozzles must be installed per plan or adjusted to best suite Site Conditions, Set back all Overhead Irrigation 24" from Noon Permable hardscape. Exceptions would be ONLY if any overspray stays on site and drains into site landscape

Nozzles: Nozzle Installation
Spray/Rotor Heads

Not specified

Nozzles must be installed as per Approved Plans or to best represent Site Conditions

- Installed per plan

6: LOW FLOW/MICRO & BUBBLER IRRIGATION

		IN	NS	DE	CI	MI
6.1	Bubblers or Drip Rings Overview	X				
6.2	Tree Bubblers or Drip Rings	X				
6.3	Plant Bubblers or Drip Rings		X			
6.4	Drip Irrigation	X				
6.5	Drip Kits	X				
6.6	Drip Line Coverage	X				
6.7	Drip Line Leaks	X				
6.8	Air Relief Valves	X				
6.9	Flush Valves	X				
6.10	Drip Indicators	X				

IN = Inspected NS = Not Specified DE = Deficiency CI = Corrected Item MI = Maintenance Item

Information

STANDARDS OF PRACTICE

Inspection Details

Irrigation Audit Procedures in WELO

The irrigation audit includes the following procedures:

Visual inspection of irrigation system

1. Observation of each zone in a sprinkler system and the landscape surrounding sprinkler heads to identify sources of inefficient water use: broken, damaged, or leaking heads; improperly positioned sprinklers watering streets and sidewalks; sprinkler heads too low or off vertical; sprinkler heads improperly spaced or arranged in pentagon patterns instead of water-conserving triangle or square patterns; misting around sprinkler heads (excessive water pressure) or large water droplets falling close to heads.
2. Observation of each drip zone to identify sources of inefficient water use: broken, damage or leaking pipes: improperly positioned emitters or bubblers, run off, drip line spacing and use of manufacturer recommended or specified equipment.

Evaluation of distribution uniformity (DU)

1. While many of the problems described above in the sprinkler installation affect DU, a catch can test is routinely used to quantify whether or not irrigation water is being uniformly applied to the landscape. To perform a catch can test place collection containers in a grid pattern on the surface of an irrigated zone, runs the irrigation system through a typical timed cycle, and collect and record the amount of water in each catch container. The data gathered is then used to identify areas of over- and under-irrigation (relative to the targeted application amount); results of a catch can test may also be correlated to observations of plant health in the test area.

Determination of precipitation rate

1. Data from a catch can test is also used to determine the rate at which water is applied by the irrigation system. Since individual site conditions, specifically water pressure and sprinkler head spacing, may alter a system's performance, using catch can test results is more accurate than relying on the system manufacturer's performance specifications. Knowing the rate of application is important for developing appropriate irrigation schedules.

Determination of landscape's watering needs

1. An evaluation of the landscape features present at a site provides a great deal of information about that site's water requirements. Factors to consider in developing a watering schedule include the types of plants present and the depth of their roots; whether they are growing in sun or shade, on flat areas or slopes; the presence or absence of a thatch layer in turf; whether or not non-turf plantings are mulched; soil texture and structure; and evidence of compaction and drainage problems.

Review and development of irrigation schedule

1. A review of the site's current irrigation schedule (amount of water applied and the interval between watering events), and generate a watering schedule based on catch can test results, soil conditions, and plant water requirements, taking into account local climate and rainfall patterns. An irrigation audit is only a tool, audit findings and recommendations must be put into practice for water conservation to be realized.

All Standards Of Practice have been followed:

Irrigation Auditor name. Andrew Bolt Certificate #: 57436

Point Of Connection

1. The inspector will inspect the Back Flow Preventer if specified and installed.
2. Static Water Pressure(s) noted at back flow preventer outlet, at quick coupler and or at hose bib.

3. Inspect Master Valve, Flow Sensor and Flow Meter will be inspected, wired connections noted.

Irrigation Controller

1. Inspector will need access to the Irrigation Controller
2. Inspect for Weather Based Operation Mode
3. Inspect for Weather Sensor
4. Inspect for programming of Master Valve, Flow Sensor and Landscape Water Meter(if specified)
5. Inspect for grounding of controller
6. Inspect for Irrigation Schedule and Irrigation Zone As Built Plan

Remote Control Valves

1. Inspect each valve for operation from Irrigation Controller
2. Inspect each valve for correct wire connection method(s). Wire nuts without silicone gel will NOT be accepted
3. Inspect each valve(s) for numbering ID Tags or Branded Numbered Valve Box Lids
4. Two Wire System(s). Inspect for Decoder installation and wire connection techniques.
5. Inspect Two Wire for GROUNDING as required by controller manufacturer standards.
6. Inspect all valve box installations for gravel layer and or gopher wire as specified.

Spray/Rotor Zones

1. Inspect for correct installation of specified spray or rotor as specified.
2. Inspect for installation of correct nozzles, all must me matched precipitation.
3. Inspect for uniform coverage of spray pattern.
4. Inspect for installation of pressure regulation and check valves or as specified.
5. Inspect for overspray of water onto hardscape or into planting areas.
6. Inspect for 24" set back from all non permeable hardscape areas as required by WELO
7. Conduct Catch Can Test, method as per Irrigation Association Guidelines.
8. Record Catch Can results and use to determine Distribution Uniformity and Precipitation Rate.

Low Flow/Micro & Bubbler Irrigation

1. Inspect Drip Valves for leaks, pressure regulation and filtration.
2. Inspect Drip Valves for ID Tags/Branding, gravel in valve boxes.
3. Run Drip Zones and inspect for leaks.
4. Inspect for Drip Flush Valves and boxes
5. Inspect for Drip Air Relief if applicable
6. Inspect for Drip Indicators if specified
7. Inspect for uniformity coverage ensuring that all plants are being adequately irrigated
8. Pressure test at end of drip lines (use flush valves or drip indicators for a pressure test connection point)
9. Inspect for burial of drip line as specified




Drip Line Leaks: Check for Leaks

Planting Areas

Note all Drip Leaks as described under Drip Irrigation Section

- No Leaks found

Air Relief Valves: Air Relief as Specified

Drip Zones

Air Relief Valves must installed at highest point oil drip zone and in valve boxes for inspection. Consult with Approved Irrigation Plans and with Drip Manufacturer for all installation requirements

- Air Relief installed

Flush Valves: Flush Valve Installation

Drip Zones

Flush Valves must be installed and placed in valve boxes for service access at ends of drip zones. Flush Valves are to be used to flush out debris from within the drip from either Dirty Water Conditions or from Line Breaks

- Flush Valves installed

Drip Indicators: Drip Indicators installed as specified

Drip Zones

Drip Indicators are a good way of checking that the Drip System is operating at the required pressures. Any Specified Drip Indicators must installed as per approved plans

- Drip Indicators installed

County of San Mateo

Geotechnical Consultant Approval

County Government Center ▪ 455 County Center, 2nd Floor
Redwood City ▪ CA ▪ 94063 ▪ Mail Drop PLN 122
Phone: 650 ▪ 363 ▪ 4161 Fax: 650 ▪ 363 ▪ 4849

Applicant (Owner): HIGHLAND ESTATES DEVELOPMENT I LLC | Geo. File No. BLD2016- (00158 -- 00160)

Site Address: LOTS 9-11 | APN: 041101430, 041101440, 041101450

Permit Type: Building | Required by: CSA / XL | Date: 12/3/2018

NOTICE TO APPLICANT:
SECTION I of this form must be completed and a copy returned to Geotechnical Section prior to approval of application by the PLanning and Building Department.

SECTION II must be completed and a copy returned to Geotechnical Section prior to final approval of the completed construction by the Planning and Building Department.

IMPORTANT: It is the responsibility of the applicant to ensure that **ALL** geotechnical factors as noted in SECTION I have been observed and approved in SECTION II by the applicants' consultant.

FAILURE TO DO SO WILL RESULT IN UNNECESSARY DELAYS PENDING SUCH APPROVAL.

SECTION I CORNERSTONE EARTH GROUP, Inc. has reviewed the development
(Name of legally qualified geotechnical consultant)

Plans prepared for Ticonderoga Partners, a California LLC by: BKF Engineers

Plan No. C9.10 to C9.93, C10.10 to C10.93, and C11.1 to 11.91

Dated: 10/8/2018 Revision: N/A

and find that such plans are in accordance with the recommendations provided by us or presented in our report(s) No. 230-1-5, dated 10-30-2015 with respect to geotechnical factors affecting or affected by the proposed site development. These include include but are not limited to: grading (cuts / fills), surface and subsurface water control measures, foundation design criteria, seismic hazard consideration, slope stability, "restricted from building" areas, and removal and recompaction of undocumented fill, keyways and benching, placement of subdrians, placement of select fill and rip-rap.

Scott E. Fitinghoff
(Geotechnical Consultant)

12/27/2018
(Date)

REGISTERED PROFESSIONAL ENGINEER * SCOTT E. FITINGHOFF * NO. 2379 EXP. 06/30/20 * GEOTECHNICAL * STATE OF CALIFORNIA

COUNTY APPROVAL
Co. Geol. _____ Date: _____
CC: _____

SECTION II CORNERSTONE EARTH GROUP has observed and approved as
(Name of legally qualified geotechnical consultant)

having been done in accordance with their recommendations for applicable work as noted in SECTION I

NOTE:
Grading Report Required: ☑ Yes ☐ No

DANH T. TRAN
(Geotechnical Consultant)

6/10/2022
(Date)

REGISTERED PROFESSIONAL ENGINEER * DANH T. TRAN * NO. C59705 EXP. 12/31/2023 * CIVIL * STATE OF CALIFORNIA

COUNTY APPROVAL
Co. Geol. _____ Date: _____
CC: _____

CORNERSTONE EARTH GROUP

Date:	June 7, 2022
Project No.:	230-1-10
Prepared For:	Mr. Jack Chamberlain and Mr. Noel Chamberlain **TICONDEROGA PARTNERS, LLC** 655 Skyway, Suite 230 San Carlos, California 94070
Re:	Geotechnical Observation and Testing Services Highland Estates Lot 9 2185 Cobblehill Place San Mateo, California

Introduction

In this letter we summarize the results of our geotechnical observation and testing services at the referenced development. We previously performed a geotechnical investigation for the development and presented the results in our October 30, 2015 report titled, "Updated Geotechnical Investigation Highland Estates Lots 5 through 11, San Mateo, California."

Project Description

Lot 9 is located at 2185 Cobblehill Place, San Mateo, California. The project consisted of construction of a split-level 2 story single family home supported on a drilled pier and grade beam foundation. The upper level has a finished floor at Elevation 500 feet and the lower-level finish floor is at Elevation 491.5 feet. Site work included keyway and benched fill, utilities, flatwork, landscaping, and other improvements necessary for site development.

Earthwork Recommendations

As referenced below, compaction tests were determined relative to the maximum dry density and optimum moisture content established by ASTM Test Designation D1557, latest edition. A general summary of the earthwork recommendations for the project from our October 30, 2015 report and the project plans and specifications is as follows:

1. Site clearing, including stripping of surface vegetation, designated trees and shrubs and associated roots, removal of pavements and abandoned utility lines.

2. Compacting fill as well as scarified surface soils in those areas to receive fill or slabs-on-grade to at least 90 percent relative compaction at a moisture content at least 1 percent above laboratory optimum moisture content, except for expansive clay soils which were to be compacted to between 87 to 92 percent relative compaction at a moisture content at least 3 percent over optimum. Fills greater than 5 feet in depth were to be compacted to at least 95 percent relative compaction for the portion of fill below the upper 5 feet.

3. Compaction of fill material for utility trench backfill to at least 90 percent relative compaction at a moisture content at least 1 percent above laboratory optimum moisture content, except for expansive clay soils which were to be compacted to between 87 to 92 percent relative compaction at a moisture content at least 3 percent over optimum.

4. Foundation excavation in accordance with the recommendations in our geotechnical report and the project plans.

5. Compaction of the upper 6 inches of exterior flatwork subgrade to at least 90 percent relative compaction at a moisture content at least 1 percent above laboratory optimum moisture content, except for expansive clay soils which were to be compacted to between 87 to 92 percent relative compaction at a moisture content at least 3 percent over optimum.

6. Compaction of flatwork aggregate base to at least 90 percent relative compaction at a moisture content slightly above laboratory optimum moisture content.

7. Compaction of the upper 6 inches of pavement subgrade to at least 95 percent relative compaction at a moisture content at least 1 percent above laboratory optimum moisture content, except for expansive clay soils which were to be compacted to between 87 to 92 percent relative compaction at a moisture content at least 3 percent over optimum.

8. Compaction of pavement aggregate base to at least 90 percent relative compaction at a moisture content slightly above laboratory optimum moisture content.

Scope of Services

Our geotechnical observation and testing services began November 21, 2019 and included grading, keyways, subdrains, foundations, and retaining walls, and lasted until October 26, 2020, the date of our last requested site visit. The scope of our construction observation and testing services for geotechnical aspects of this project included a combination of part-time and full-time observation and testing on an on-call basis as set forth in our agreement with you. A general list of construction work involving our geotechnical engineering services is presented below.

1. Site clearing and demolition, including stripping of surface vegetation, designated trees and shrubs and associated roots, removal of foundations, slabs, and pavements, and abandoned utility lines.

2. Over-excavation and re-compaction of undocumented fill.

3. Keyway and bench excavation prior to fill placement.

4. Fill placement and compaction as well as compaction of scarified subgrade soils in those areas to receive fill or slabs-on-grade.

5. Installation of subdrains, including retaining wall drainage, and keyway and benching subdrains.

6. Installation of storm drain outfall structure.

CORNERSTONE EARTH GROUP

Date:	June 10, 2022
Project No.:	230-1-10
Prepared For:	Mr. Jack Chamberlain and Mr. Noel Chamberlain **TICONDEROGA PARTNERS, LLC** 655 Skyway, Suite 230 San Carlos, California 94070
Re:	Geotechnical Observation and Testing Services Highland Estates Lot 10 2185 Cobblehill Place San Mateo, California

Introduction

In this letter we summarize the results of our geotechnical observation and testing services at the referenced development. We previously performed a geotechnical investigation for the development and presented the results in our October 30, 2015 report titled, "Updated Geotechnical Investigation Highland Estates Lots 5 through 11, San Mateo, California."

Project Description

Lot 10 is located at 2184 Cobblehill Place, San Mateo, California. The project consisted of construction of a split-level 2 story single family home supported on a drilled pier and grade beam foundation. The upper level has a finished floor at Elevation 501.5 feet and the lower-level finish floor is at Elevation 496 feet. Site work included keyway and benched fill, utilities, flatwork, landscaping, and other improvements necessary for site development.

Earthwork Recommendations

As referenced below, compaction tests were determined relative to the maximum dry density and optimum moisture content established by ASTM Test Designation D1557, latest edition. A general summary of the earthwork recommendations for the project from our October 30, 2015 report and the project plans and specifications is as follows:

1. Site clearing, including stripping of surface vegetation, designated trees and shrubs and associated roots, removal of pavements and abandoned utility lines.

2. Compacting fill as well as scarified surface soils in those areas to receive fill or slabs-on-grade to at least 90 percent relative compaction at a moisture content at least 1 percent above laboratory optimum moisture content, except for expansive clay soils which were to be compacted to between 87 to 92 percent relative compaction at a moisture content at least 3 percent over optimum. Fills greater than 5 feet in depth were to be compacted to at least 95 percent relative compaction for the portion of fill below the upper 5 feet.

3. Compaction of fill material for utility trench backfill to at least 90 percent relative compaction at a moisture content at least 1 percent above laboratory optimum moisture content, except for expansive clay soils which were to be compacted to between 87 to 92 percent relative compaction at a moisture content at least 3 percent over optimum.

4. Foundation excavation in accordance with the recommendations in our geotechnical report and the project plans.

5. Compaction of the upper 6 inches of exterior flatwork subgrade to at least 90 percent relative compaction at a moisture content at least 1 percent above laboratory optimum moisture content, except for expansive clay soils which were to be compacted to between 87 to 92 percent relative compaction at a moisture content at least 3 percent over optimum.

6. Compaction of flatwork aggregate base to at least 90 percent relative compaction at a moisture content slightly above laboratory optimum moisture content.

7. Compaction of the upper 6 inches of pavement subgrade to at least 95 percent relative compaction at a moisture content at least 1 percent above laboratory optimum moisture content, except for expansive clay soils which were to be compacted to between 87 to 92 percent relative compaction at a moisture content at least 3 percent over optimum.

8. Compaction of pavement aggregate base to at least 90 percent relative compaction at a moisture content slightly above laboratory optimum moisture content.

Scope of Services

Our geotechnical observation and testing services began November 21, 2019 and included grading, benches, subdrains, foundations, and retaining walls, and lasted until October 26, 2020, the date of our last requested site visit. The scope of our construction observation and testing services for geotechnical aspects of this project included a combination of part-time and full-time observation and testing on an on-call basis as set forth in our agreement with you. A general list of construction work involving our geotechnical engineering services is presented below.

1. Site clearing and demolition, including stripping of surface vegetation, designated trees and shrubs and associated roots, removal of foundations, slabs, and pavements, and abandoned utility lines.

2. Over-excavation and re-compaction of undocumented fill.

3. Bench excavation prior to fill placement.

4. Fill placement and compaction as well as compaction of scarified subgrade soils in those areas to receive fill or slabs-on-grade.

5. Installation of subdrains, including retaining wall drainage, and keyway and benching subdrains.

6. Drilled pier and grade beam foundation excavation.

7. Placement and compaction of retaining wall backfill.

8. Observation and testing of surficial soil on Lot 10 for expansive soil. The testing of the surficial soil indicates a Plasticity Index (PI) of 18.

9. Observation of vapor retarder system construction for garage/interior slab-on-grade, including a minimum of 8 inches of non-expansive fill (as recommended in our report) and placement of vapor retarder.

Services Performed

During construction, we provided geotechnical observation services along with periodic field density testing at various locations and elevations across the site. Our observations and field density test results were recorded in the Daily Field Reports (DFR), Nos. 1 through 58, for the period from November 21, 2019 through October 26, 2020. Laboratory testing consisted of six compaction curve tests and two Atterberg Limit (PI) tests. These tests were conducted for the various fill materials used at the site. Records of the field density tests and laboratory testing are kept in our files for a period of three years after completion of the project and are available for your review, if desired.

Meaning of "Observation"

"Observation", as used in this document, means that we observed the progress of the work on an intermittent basis, and performed tests on selected soil and rock materials. Our opinion about the general conformance of geotechnical aspects of construction to our recommendations and project plans and specifications is based on these observations and test results.

Opinion

Based on our field observations and test results, it is our opinion that the geotechnical aspects of the construction for the project that we observed and tested have been performed in general conformance with our recommendations and the project plans and specifications.

Closure

Our geotechnical services, including our professional opinions and conclusions, are made for the sole use of Ticonderoga Partners, LLC, in accordance with generally accepted soil and foundation engineering principles and practices in the San Francisco Bay Area at this time. However, we do not undertake the guarantee of any aspects of the construction that we observed and tested, nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications. No warranties are either expressed or implied.

Should you have any questions, or if we can be of further service, please contact us at your earliest convenience.

Sincerely,

Cornerstone Earth Group, Inc.

Danh T. Tran, P.E.
Senior Principal Engineer

DTT:ram

Copies: Addressee (1 by email)
County of San Mateo (1 by email)
Attn: Camile Leung

7. Drilled pier and grade beam foundation excavation.

8. Placement and compaction of retaining wall backfill.

9. Observation and testing of surficial soil on Lot 9 for expansive soil. The testing of the surficial soil indicates a Plasticity Index (PI) of 18.

10. Observation of vapor retarder system construction for garage/interior slab-on-grade, including a minimum of 8 inches of non-expansive fill (as recommended in our report) and placement of vapor retarder.

Services Performed

During construction, we provided geotechnical observation services along with periodic field density testing at various locations and elevations across the site. Our observations and field density test results were recorded in the Daily Field Reports (DFR), Nos. 1 through 58, for the period from November 21, 2019 through October 26, 2020. Laboratory testing consisted of six compaction curve tests and two Atterberg Limit (PI) tests. These tests were conducted for the various fill materials used at the site. Records of the field density tests and laboratory testing are kept in our files for a period of three years after completion of the project and are available for your review, if desired.

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CORNERSTONE
EARTH GROUP

Should you have any questions, or if we can be of further service, please contact us at your earliest convenience.

Sincerely,

Cornerstone Earth Group, Inc.

Danh T. Tran, P.E.
Senior Principal Engineer

DTT:ram

Copies: Addressee (1 by email)
County of San Mateo (1 by email)
Attn: Camile Leung