Water Efficiency Review

SECTION 31 REGULATIONS AND MWELO COMPLIANCE

Outdoor Water Use

Landscape Plans and Specifications

Water Efficiency Review

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Contents

Water Efficiency Review

Outdoor Water Use
Landscape Plans and Specifications

The District will review applications for new services and determine the applicability of, and compliance with, water-efficiency requirements. All applicants shall comply with Section 31 water efficiency regulations and those required by applicable local, state and/or federal law, including the California Green Building Standards Code (CALGreen) and the Model Water Efficient Landscape Ordinance (MWELO).

Applicants shall maintain design documents and construction records and furnish a copy of these documents and records to the District upon request. Landscape design and construction must meet the requirements outlined below.

Checklist of Requirements:

Landscape projects 0-499 SF in area

Applicants must submit, at a minimum, an annotated site plan that includes the following elements:

_____Property address
_____Scale bar and north arrow
_____Property boundaries
_____Hardscape, including structures, roads, driveways, walkways, patios, decks, etc.
_____New landscaping, including planted areas, pools and water features
_____Existing landscaping or unmodified open space to remain
_____Location of all hose bibs

Landscape projects 500 SF or more in area

Applicants must submit an MWELO-compliant landscape documentation package for projects that are 500 square feet or more in area, meeting the following minimum requirements:

Planting Plan

_____MWELO compliance statement signed and dated by applicant
_____Plant legend identifying botanical name and water needs of each species
_____Location of all plants
_____Plants color coded by water needs and grouped by hydrozone
_____Notes requiring compost incorporated at a rate of 4 cubic yards per 1,000 sf into the top 6 inches of soil or compost per horticultural soil report recommendations
_____Notes and/or details requiring a minimum of 3 inches of organic mulch on exposed soils except where contraindicated
_____Lawn/turf not to exceed 25% of landscape area or planted on slopes greater than 25%

Grading Plan (or sufficient topographic information on planting or irrigation plans)

_____Contours
_____Spot elevations
_____Drainage patterns

Water Service Application

Outdoor Water Use
Landscape Plans and Specifications

Irrigation Plan

_____Irrigation legend with make, model and description of each irrigation component
_____Smart, weather-based irrigation controller with a rain or soil sensor
_____EBMUD meter location (meter dedicated to irrigation required for non-residential projects 5,000 SF or more)
_____Point of connection
_____Manual shutoff valve
_____Reduced pressure backflow prevention device (automatic valves that feature a backflow prevention device may be substituted if installed properly; double check valves are not allowed)
_____Pressure regulation (if conditions require)
_____Private sub-meter installed by applicant (for non-residential landscapes 1,000 SF or more and residential landscapes 5,000 SF or more or as determined by EBMUD)
_____Flow sensor with master shutoff valve (for non-residential landscapes 500 SF or more and residential landscapes 5,000 SF or more)
_____Irrigation mainline and laterals
_____Remote control valves with flow rate of each zone/valve
_____Emission devices (drip, bubblers, spray, etc.)
_____Flush valves at hydraulic opposite end of drip zones
_____Air relief valves (if conditions require)
_____Irrigation zone boundaries match hydrozones
_____Irrigation zones are designed with uniform precipitation across the entire zone
_____Emission devices have fixed flow rates and are of the same type within a zone (adjustable/variable flow rate emitters are not allowed)
_____No overhead spray in areas less than 10 feet across or within 2 feet of impervious surfaces
_____Spray heads spaced to provide head to head coverage

Water Budget Calculations (required for landscapes 2,500 SF or more in area; see EBMUD Water Efficient Landscape Worksheet)

_____Appropriate reference evapotranspiration rate (ETo)
_____Appropriate plant factors
_____Appropriate irrigation efficiencies
_____Estimated Total Water Use (ETWU)
_____Maximum Applied Water Allowance (MAWA)
_____Pass/Fail (ETWU must not exceed MAWA)

Subdivisions

Landscaping for each lot and all common area within a subdivision must meet the above requirements. In addition, applicants must submit a detailed site map of the entire subdivision, featuring the following elements:

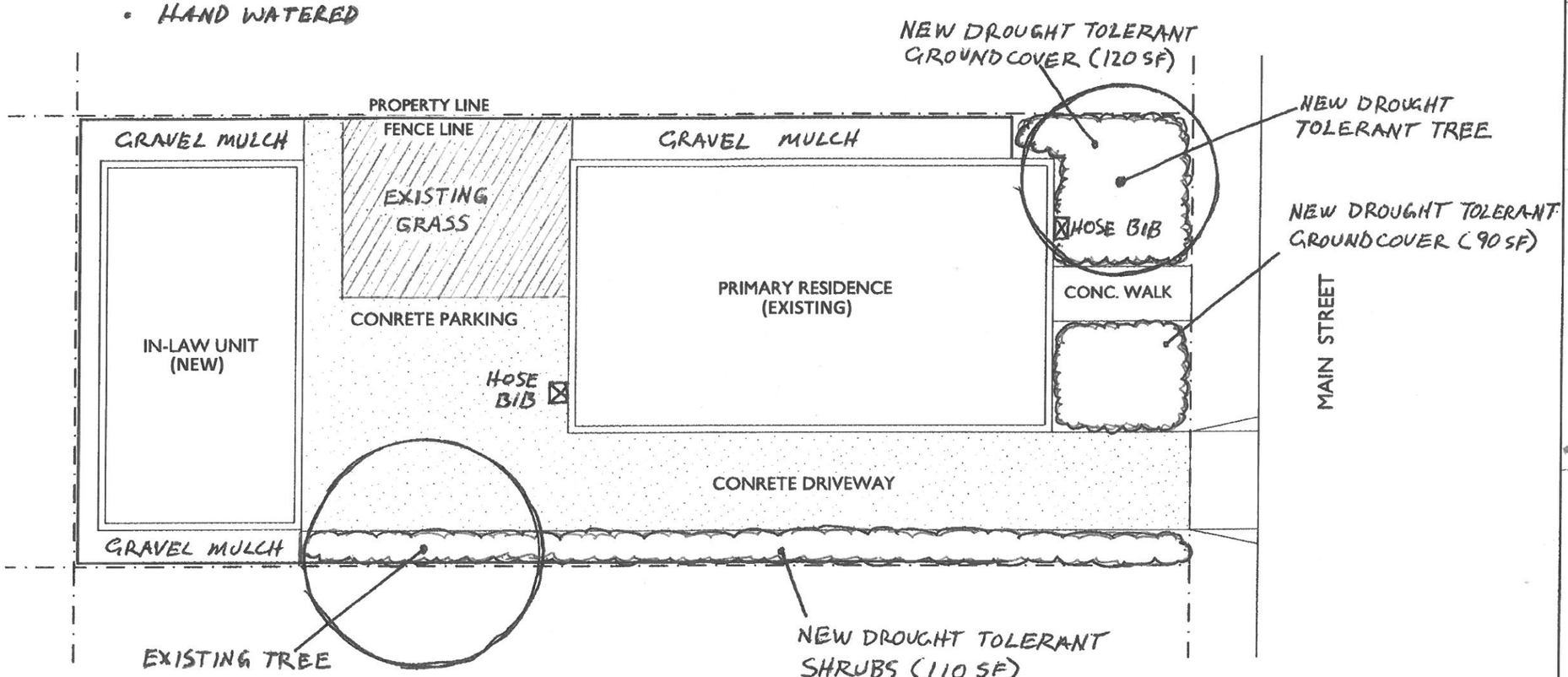
_____Location of all lots with lot numbers and boundaries
_____Street names
_____Location of each irrigation meter
_____Boundary of the area to be served by each meter

SAMPLE SITE PLAN

(FOR LANDSCAPING 0 – 499 SQUARE FEET IN AREA)

ANNOTATED SITE PLAN

- 320 SF OF NEW LANDSCAPING
- HAND WATERED



TLA

DESIGNER CONTACT INFORMATION

SCALE: 1/4" = 1'

PROJECT TITLE AND SITE ADDRESS

SITE PLAN

A

1.0

SAMPLE RESIDENTIAL LANDSCAPE PLANS

(FOR LANDSCAPING 500 – 4,999 SQUARE FEET IN AREA)

3 | VIT VIN
0.3

N/A | VEGETABLES
1.0

GRAVEL MULCH

388

FENCE

HET ARB | 4
0.2

ORGANIC WOOD MULCH

LUP ALB | 4
0.1

12 | MIM AUR
0.1

FRA LAT | 1
0.5

NAT TURF | 600
0.5

CEA CON | 10
0.2

392

391

390

389

PHY NOD | SOD
0.3

RESIDENCE

387

LOW POINT +
386.5'
RAIN-WATER BASIN

WOO FIM | 1
0.5

HEU MIC | 50
0.5

GRAVEL MULCH

WOOD DECK

CONC WALK

WOOD PORCH

5 | MAL DOM
0.6

FOUNTAIN

PLAY STRUCTURE

60 | HEU MIC
0.5

ACE CIR | 1
0.5

LUP ALB | 7
0.1

CEA CON | 4
0.2

MIM AUR | 12
0.1

PERVIOUS CONCRETE DRIVEWAY

ORGANIC WOOD MULCH

GRAVEL MULCH

PLANT LABEL KEY

QUANTITY

5 | LUP ALB — SYMBOL (SEE PLANT LEGEND)

0.5 — WUCOLS PLANT FACTOR

HYDROZONE KEY

- LOW AND VERY LOW WATER USE
- MODERATE WATER USE
- HIGH WATER USE
- SPECIAL LANDSCAPE AREA (EDIBLES)

POTTING SHED

ACE CIR | 2
0.5

LUP ALB | 5
0.1

MIM AUR | 20
0.1

PERVIOUS CONCRETE WALKWAY

CEA CON | 7
0.2

12 | HET ARB
0,2

HET ARB | 10
0.2

DESIGNER CONTACT INFORMATION

ORIGINAL SCALE: 1/4" = 1'

0 5 10

PROJECT TITLE AND SITE ADDRESS

PLANTING AND HYDROZONE PLAN

DATE: 05/21/2018

REVISIONS:

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1.0

SAMPLE PLANT LEGEND

(BOTANICAL NAME AND WATER USE DESIGNATION REQUIRED)

SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SIZE	NOTES	WUCOLS
TREES:						
ACE CIR	ACER CIRCINATUM	VINE MAPLE	3	15 GAL.	NATIVE, MULTI-STEM	M
FRA LAT	FRAXINUS LATIFOLIA	OREGON ASH	1	24" BOX	NATIVE, STANDARD	M
MAL DOM	MALUS DOMESTICA 'FUJI'	FUJI APPLE	4	15 GAL.	EDIBLE, STANDARD	M
SHRUBS:						
CEA CON	CEANOTHUS CONCHA	MOUNTAIN LILAC	20	5 GAL.	NATIVE, REDUCED SUMMER WATER	L
HET ARB	HETEROMELES ALBUTIFOLIA	TOYON	16	5 GAL.	NATIVE, REDUCED SUMMER WATER	L
LUP ALB	LUPINUS ALBIFRONS	SILVER BUSH LUPINE	17	1 GAL.	NATIVE, REDUCED SUMMER WATER	VL
MIM AUR	MIMULUS AURANTIACUS	STICKY MONKEY FLOWER	29	1 GAL.	NATIVE, REDUCED SUMMER WATER	VL
VIT VIN	VITIS CALIFORNICA 'RODGER'S RED'	WILD GRAPE	3	1 GAL.	NATIVE HYBRID	L
WOO FIM	WOODWARDIA FIMBRIATA	GIANT CHAIN FERN	1	5 GAL.	NATIVE	M
GROUNDCOVERS:						
HEU MAX	HEUCHERA MICRANTHA	CREVICE ALUM ROOT	110	4 INCH	NATIVE	M
PHY NOD	PHYLA NODIFLORA	KURAPIA	675 SF	SOD	NATIVE CULTIVAR	L
NAT TURF	F.OCCIDENTALLIS, F. RUBRA, F. IDAHOENSIS	NATIVE FESCUE BLEND	600 SF	SOD	NATIVE	L

SAMPLE NOTES

(REQUIRED MEASURES)

PLANTING

1) TURF IS LIMITED TO 25 PERCENT OF THE TOTAL IRRIGATED AREA (EXCEPT WHERE NON-RESIDENTIAL PLAY FIELDS ARE A PROGRAM REQUIREMENT) AND NOT PLANTED ON AREAS SLOPING MORE THAN 25 PERCENT.
2) PLANTINGS MUST BE GROUPED INTO HYDROZONES BASED ON MICROCLIMATE, SOIL TYPE, PLANT TYPE, AND WATER USE CLASSIFICATION (SEE WUCOLS: WWW.UCNR.EDU/SITES/WUCOLS/).

IRRIGATION

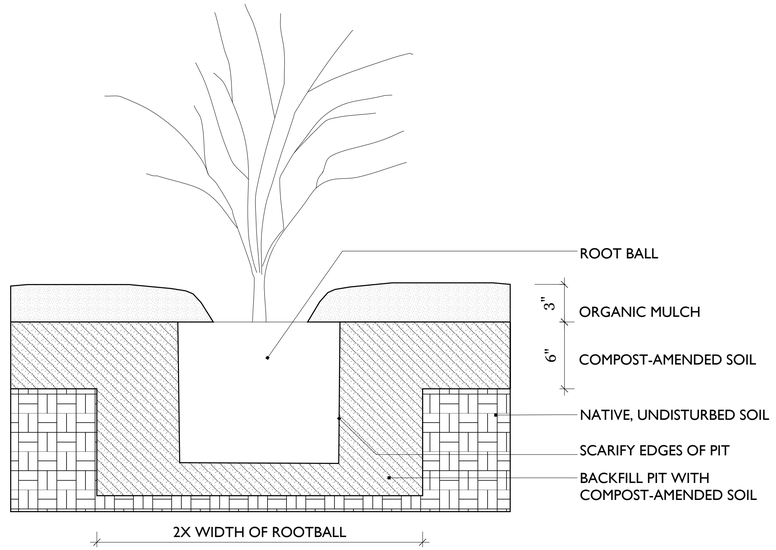
3) PRECIPITATION RATES MUST BE UNIFORM ACROSS EACH ZONE.
4) EMITTERS MUST BE FIXED RATE AND OF THE SAME TYPE WITHIN A ZONE. NO VARIABLE OR ADJUSTABLE FLOW RATE EMITTERS ARE ALLOWED. MIXING EMITTERS WITHIN A ZONE IS NOT ALLOWED.
5) OVERHEAD SPRAY IS NOT ALLOWED IN AREAS LESS THAN TEN FEET ACROSS IN ANY DIMENSION.
6) OVERHEAD SPRAY NOZZELS MUST BE SET BACK A MINIMUM OF TWO FEET FROM ADJACENT IMPERVIOUS SURFACES.

COMPOST

7) INCORPORATE COMPOST AT A RATE OF FOUR (4) CUBIC YARDS PER 1,000 SQUARE FEET INTO THE TOP SIX (6) INCHES OF SOIL OR COMPOST PER HORITICULTURAL SOIL REPORT RECOMMENDATIONS.

MULCH

8) APPLY ORGANIC MULCH TO A MINIMUM DEPTH OF THREE (3) INCHES ON ALL EXPOSED SOIL IN THE PLANTED AREA EXCEPT WHERE CONTRAINDICATED.



SAMPLE PLANTING DETAIL

NOT TO SCALE

DESIGNER CONTACT INFORMATION

PROJECT TITLE AND SITE ADDRESS

PLANT LEGEND, NOTES AND DETAILS

DATE: 05/21/2018

REVISIONS:

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GRAVEL MULCH

FENCE

RESIDENCE

WOOD DECK

VALVE INFORMATION
(SEE IRRIGATION LEGEND)

POC
85 PSI
(SEE DETAIL SHEET L2.1)

WOOD PORCH

CONC. WALK

FOUNTAIN

WFV

PLAY STRUCTURE

GRAVEL MULCH

POTTING SHED

PERVIOUS CONCRETE WALKWAY

PERVIOUS CONCRETE DRIVEWAY

ZONE/VALVE NUMBER

1	2.0	2	2.5	3	1.2	4	6.7	5	0.9	6	0.8	7	1.2	8	1.6
1"	450	1"	560	1"	125	1"	675	1"	90	1"	185	1"	125	1"	160

9	5.0	10	1.0	11	1.2	12	0.9	13	2.4	14	1.5	15	5		
1"	500	1"	100	1"	120	1"	90	1"	245	1"	350	.5"	35		

DESIGNER CONTACT INFORMATION

ORIGINAL SCALE:
1/4" = 1'
0 5 10

PROJECT TITLE AND SITE ADDRESS

IRRIGATION PLAN

DATE:
05/21/2018

REVISIONS:

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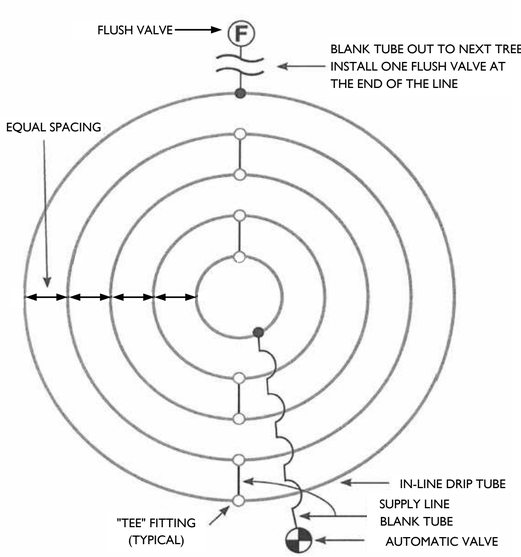
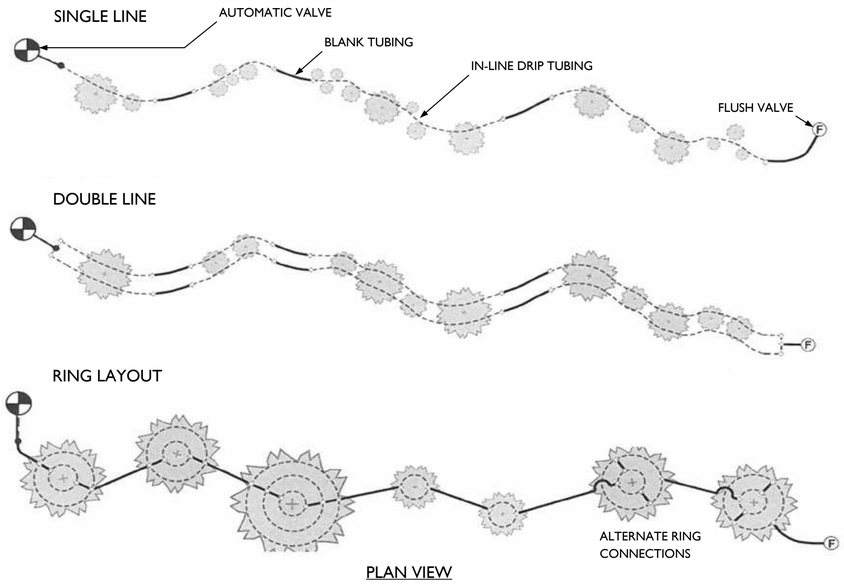
SAMPLE DRIP IRRIGATION DETAILS



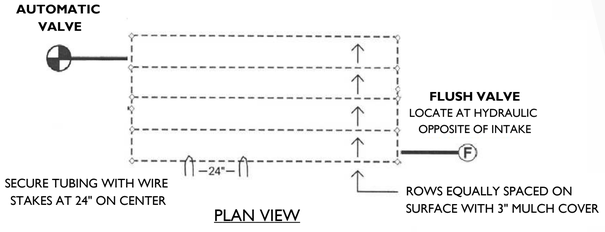
PLAN VIEW

IN-LINE DRIP RING LAYOUT



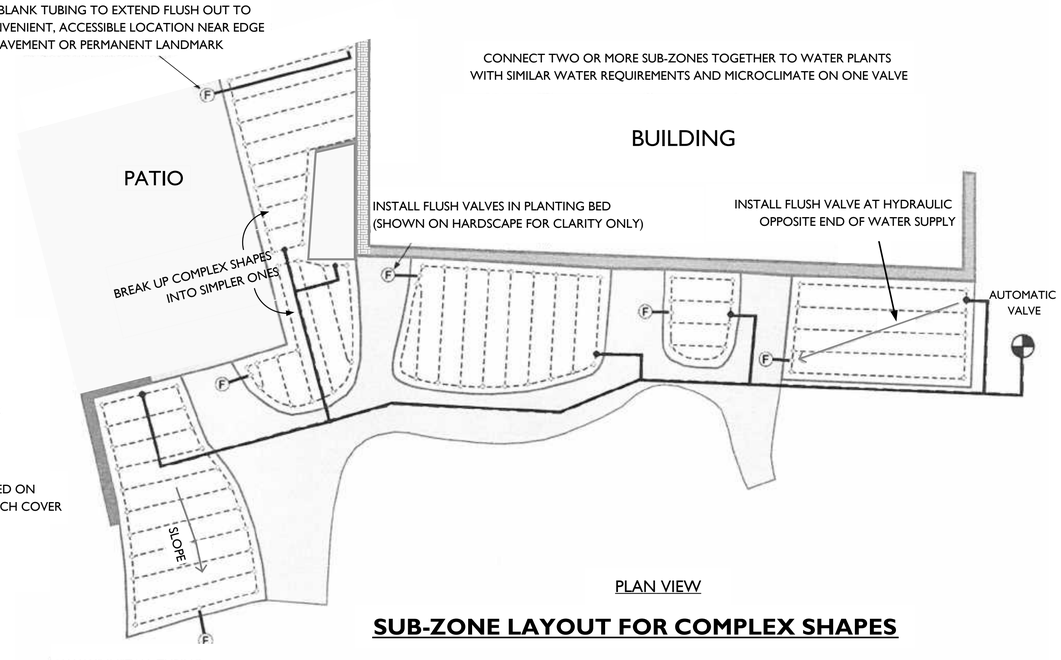
PLAN VIEW

IN-LINE DRIP SNAKE LAYOUTS



PLAN VIEW

IN-LINE DRIP TUBING ZONE LAYOUT



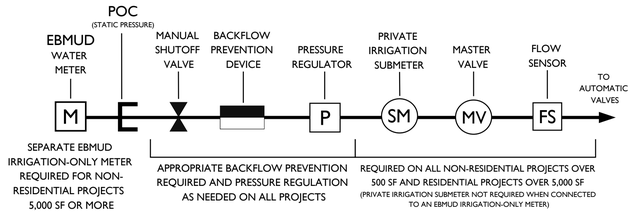
PLAN VIEW

SUB-ZONE LAYOUT FOR COMPLEX SHAPES

SAMPLE IRRIGATION LEGEND

(MAKE AND MODEL OF EACH COMPONENT REQUIRED)

SYMBOL	COMPONENT MAKE, MODEL, TYPE, AND DESCRIPTION
M	EBMUD INSTALLED METER
C	WEATHER-BASED, AUTOMATIC IRRIGATION CONTROLLER
S	RAIN (*OR SOIL*) SENSOR
POC (STATIC PRESSURE)	POINT OF CONNECTION AND STATIC PRESSURE
	MANUAL BALL (*OR GATE*) VALVE
	REDUCED PRESSURE BACKFLOW PREVENTION DEVICE *(ANTI-SIPHON VALVES MAY BE SUBSTITUTED IF INSTALLED PROPERLY; DOUBLE CHECK VALVES ARE NOT ALLOWED)*
P	PRESSURE REGULATOR (*IF CONDITIONS REQUIRE*)
	AUTOMATIC VALVE
6 / 1" / 1.2 / 185	VALVE/ZONE NUMBER FLOW RATE IN GALLONS PER MINUTE ZONE AREA IN SQUARE FEET VALVE SIZE
	MAIN LINE DIAMETER AND TYPE
	LATERAL LINE DIAMETER AND TYPE
	SLEEVE DIAMETER AND TYPE
	SURFACE 1/2" IN-LINE DRIP TUBING 0.6 GPH, 12" EMITTER SPACING, 12" ROW SPACING (*MINIMUM SPACING RECOMMENDED FOR WELL DRAINED SOIL, RAISED BEDS AND STORMWATER TREATMENT FACILITIES*)
	SUB-SURFACE 1/2" IN-LINE DRIP TUBING 0.6 GPH, 12" EMITTER SPACING, 12" ROW SPACING (*MINIMUM SPACING RECOMMENDED FOR WELL DRAINED SOIL, RAISED BEDS AND STORMWATER TREATMENT FACILITIES*)
	SURFACE 1/2" IN-LINE DRIP TUBING 0.6 GPH, 18" EMITTER SPACING, 18" ROW SPACING (*MINIMUM SPACING RECOMMENDED FOR WELL DRAINED SOIL, RAISED BEDS AND STORMWATER TREATMENT FACILITIES*)
F	FLUSH VALVE AND POP-UP DRIP ZONE INDICATOR
A	AIR VACUUM RELIEVE VALVE (*IF CONDITIONS REQUIRE*)
WFV	WATER FEATURE VALVE TYPE (*I.E. FLOAT VALVE*) AND FLOW RATE
	HOSE BIB



TYPICAL IRRIGATION POINT OF CONNECTION

DESIGNER CONTACT INFORMATION

PROJECT TITLE AND SITE ADDRESS

IRRIGATION LEGEND, NOTES AND DETAILS

DATE:
05/21/2018

REVISIONS:

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SAMPLE WATER BUDGET WORKSHEET

(REQUIRED FOR RESIDENTIAL LANDSCAPES OVER 2,500 SQUARE FEET AND NON RESIDENTIAL LANDSCAPES OVER 1,000 SQUARE FEET)

EBMUD - Water Efficient Landscape Worksheet

The purpose of this worksheet is to calculate a project's Estimated Total Water Use and Maximum Applied Water Allowance to determine its compliance with the Model Water Efficient Landscape Ordinance (MWELO). This worksheet is to be filled out by the project applicant and is a required element of the MWELO Landscape Documentation Package.

Property Address: 175 Gil Blas Rd., Danville, 94526

Reference Site (See MWELO Appendix A): Walnut Creek

Annual ETo (Reference Evapotranspiration Rate): 46.2 Inches

ETAF (ET Adjustment Factor) for Landscape Areas: 55.0 %

ETAF for Special Landscape Areas: 100%

NOTES

1) ETo is the reference evapotranspiration rate and represents the water needs of grass at a given location. It is an estimate of the inches of water lost due to evapotranspiration from a field of cool-season grass that is well watered. ETo values can be derived from MWELO Appendix A for locations across the State of California.

2) Use an evapotranspiration adjustment factor (ETAF) of 45% for new non-residential landscapes, 55% for new residential landscapes and 65% for schools. ETAF is a percentage of ETo and establishes the amount of water allowed per year for irrigation.

3) Use an ETAF of 100% for any special landscape areas which are those dedicated solely to edible plants, programmed recreational areas (e.g. public pools and sports fields), areas irrigated with non-potable water (e.g. recycled, grey and rain water) and stormwater treatment facilities that are required by permit (e.g. bio-retention basins, bio-swales, and flow-through planters).

ESTIMATED TOTAL WATER USE (ETWU) = (ETo) x (APF) x (Area) x (0.62) where 0.62 is the coefficient that converts inches to gallons per square foot

ZONE/ VALVE #	PLANTING DESCRIPTION Eg. Medium Trees, Groundcover, Water Feature, etc.	PLANT FACTOR (PF) Water requirements as a % of ETo	IRRIGATION EFFICIENCY (IE) Percent of applied water that reaches its target (e.g. root zone or water feature) by irrigation method	ADJUSTED PLANT FACTOR (APF) (PF/IE) = APF Watering requirements adjusted for irrigation efficiency as a % of ETo	HYDROZONE AREA (AREA) Square Feet	CONVERSION FACTOR The coefficient that converts inches to gallons per square foot	ETWU PER HYDROZONE (ETo)(APF)(Area)(0.62) = Annual gallons required to irrigate this landscape		MAXIMUM APPLIED WATER ALLOWANCE (MAWA) MAWA represents the annual water budget for this landscape. It is the maximum amount of water allowed per year for irrigation
Landscape Areas (LA)									**LA**
1	Shrubs	30%	90%	33%	450	0.62	4241		(ETo)(ETAF)(Total Area)(0.62) = Annual gallons allowed
4	Forbs	30%	90%	33%	675	0.62	6361		
5	Trees	50%	90%	56%	90	0.62	1445		
6	Shrubs	20%	90%	22%	185	0.62	1170		
7	Shrubs	30%	90%	33%	125	0.62	1178		
8	Shrubs	30%	90%	33%	160	0.62	1508		
9	Grasses and Strap-leafed Plants	60%	90%	67%	500	0.62	9610		
10	Trees	60%	90%	67%	100	0.62	1922		
11	Shrubs	30%	90%	33%	120	0.62	1131		
12	Trees	50%	90%	56%	90	0.62	1445		
13	Shrubs	30%	90%	33%	245	0.62	2309		
14	Shrubs	20%	90%	22%	350	0.62	2213		
15	Water Feature	100%	100%	100%	35	0.62	1003		
				Totals:	**3125**	**0.62**	**35536**	**MAWA for LA:**	**49213**
Special Landscape Areas (SLA)									**SLA**
2	Trees			100%	560	0.62	16041		(ETo)(ETAF)(Total Area)(0.62) = Annual gallons allowed
3	Forbs			100%	125	0.62	3581		
				Totals:	**685**	**0.62**	**19622**	**MAWA for SLA:**	**19621**
Controller Controller A						**ETWU Grand Total:**	**55158**	**MAWA Grand Total:**	**68834**

PLANT FACTOR RANGES:

0-10% = Very low; 10-30% = Low; 40-60% = Moderate; 70-100% = High. Water Requirements cited in this ordinance are derived from the publication â€œWater Use Classification of Landscpe Speciesâ€ (ucanr.edu/sites/WUCOLS/).

IRRIGATION METHODS AND EFFICIENCIES:

Spray = 70%; Rotating nozzle = 75%; Bubblers = 80%; Point-source drip = 85%; In-line drip = 90%; Water feature = 100%

Pass: Yes

ETWU shall not exceed MAWA

SAMPLE BASE IRRIGATION SCHEDULE

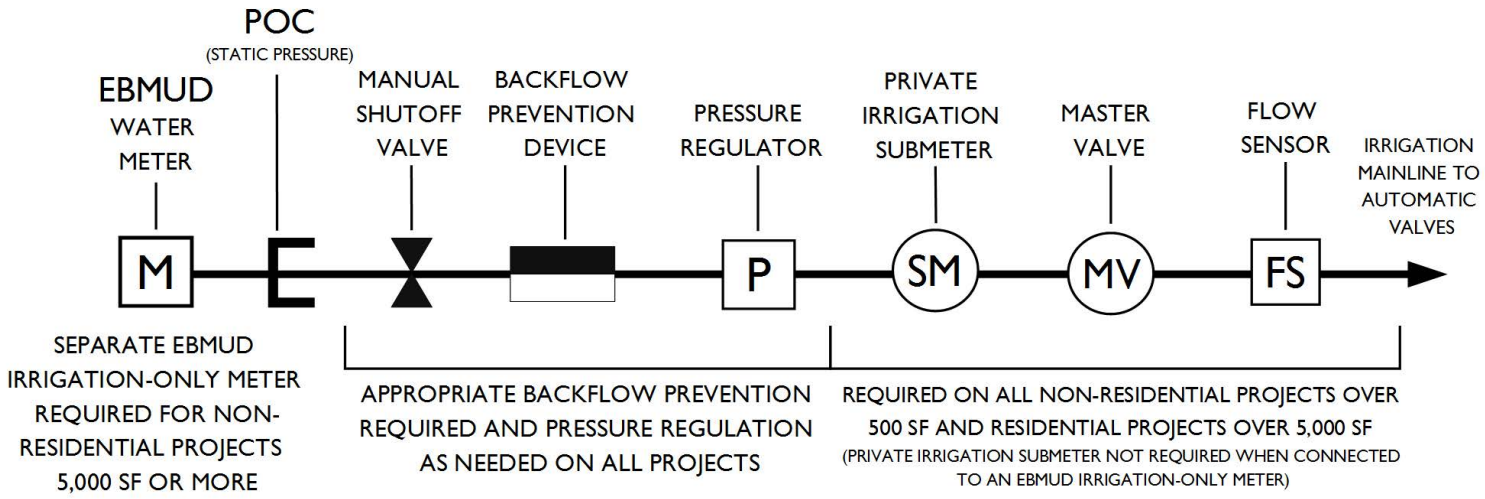
Monthly Irrigation Schedule for the Estimated Water Use Controller Controller A		Monthly ETO Values:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Annual
			0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
ZONE/ VALVE #	**FLOW RATE** Sum of all emitters in a zone in gallons per minute (GPM)	**AVERAGE PRECIPITATION RATE (IN/HR)** (FR x 60 Min per Hr)/(Area in SF/1.6 In per SF)	**Monthly Run Time in Minutes**												
Landscape Areas															
1	2.0	0.43	37	69	133	202	257	308	340	294	216	152	69	46	2121
4	6.7	0.961	16	31	60	90	115	138	152	131	97	68	31	21	949
5	0.9	0.968	28	52	101	153	195	233	257	222	163	115	52	35	1605
6	0.8	0.418	25	48	92	139	177	212	234	203	149	105	48	32	1464
7	1.2	0.929	17	32	62	94	119	142	157	136	100	70	32	21	982
8	1.6	0.968	16	31	59	90	114	137	151	130	96	67	31	20	942
9	5.0	0.968	33	62	121	183	233	279	308	266	195	137	62	42	1921
10	1.0	0.968	33	62	121	183	233	279	308	266	195	137	62	42	1921
11	1.2	0.968	16	31	59	90	114	137	151	130	96	67	31	20	942
12	0.9	0.968	28	52	101	153	195	233	257	222	163	115	52	35	1605
13	2.4	0.948	17	31	60	92	117	140	154	133	98	69	31	21	962
14	1.5	0.415	26	48	93	140	179	214	236	204	150	105	48	32	1475
15	5.0	13.825	3	7	13	19	24	29	32	28	20	14	7	4	201
Special Landscape Areas															
2	2.5	0.432	111	208	403	611	778	931	1028	889	653	458	208	139	6417
3	3.0	2.323	21	39	75	114	145	173	191	165	121	85	39	26	1193
Monthly Budget for the Maximum Applied Water Allowance															
Landscape Areas															
		Inches applied per month	0.4	0.8	1.6	2.4	3.1	3.7	4.1	3.5	2.6	1.8	0.8	0.6	25.4
		Gallons per month	852	1598	3089	4687	5965	7137	7883	6817	5007	3515	1598	1065	49213
		Average gallons per day	27.5	57.1	99.6	156.2	192.4	237.9	254.3	219.9	166.9	113.4	53.3	34.4	
Special Landscape Areas															
		Inches applied per month	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
		Gallons per month	340	637	1232	1869	2378	2845	3143	2718	1996	1402	637	425	19622
		Average gallons per day	11.0	22.8	39.7	62.3	76.7	94.8	101.4	87.7	66.5	45.2	21.2	13.7	
All Landscape Areas															
		Total Gallons per month	**1192**	**2235**	**4321**	**6556**	**8343**	**9982**	**11026**	**9535**	**7003**	**4917**	**2235**	**1490**	**68835**

Water Efficiency Review

Outdoor Water Use

Typical Irrigation Point of Connection

The diagram below illustrates the irrigation point of connection (POC) and typical sequencing of associated components required to meet EBMUD Section 31 water efficiency regulations and the Model Water Efficient Landscape Ordinance (MWELO). The POC is the point where the irrigation sytem connects to the water supply. For example, in a single family residential setting it is commonly located outside where a hose bib connects but it may also be located anywhere along the water line between the EBMUD water meter and the structure it is supplying.



TYPICAL IRRIGATION POINT OF CONNECTION

Water Efficiency Review

Outdoor Water Use

Water Efficient Landscape Worksheet

The Water Efficient Landscape Worksheet is a required element of the Model Water Efficient Landscape Ordinance (MWELO) landscape documentation package. It must be filled out by the project applicant for landscape projects 2,500 square feet or larger in area. Its purposed is to establish a water budget by calculating a project's Estimated Total Water Use (ETWU) and its Maximum Applied Water Allowance (MAWA).

The ETWU is an estimate of the amount a water a landscape will use in a year based on the landscape design. The MAWA is the maximum amount of water allowed for the landscape in a year and represents the regulatory threshold under the ordinance. The ETWU may not exceed the MAWA.

The attached EBMUD Water Efficient Landscape Worksheet may be used to satisfy this requirement.

EBMUD Water Efficient Landscape Worksheet

The purpose of this worksheet is to calculate a project's Estimated Total Water Use and Maximum Applied Water Allowance to determine its compliance with the Model Water Efficient Landscape Ordinance (MWELO). This worksheet is to be filled out by the project applicant and is a required element of the MWELO Landscape Documentation Package.

Property address: _____

Reference Site (See MWELO Appendix A): _____

Annual ETo (Inches): _____

ET Adjustment Factor (ETAF) for Regular Landscape Areas: _____

ETAF for Special Landscape Areas: 100%

Notes: 1) ETo is the reference evapotranspiration rate and represents the water needs of grass at a given location. It is an estimate of the inches of water lost due to evapotranspiration from a field of cool-season grass that is well watered. ETo values can be derived from MWELO Appendix A for locations throughout the State of California.

2) Use an evapotranspiration adjustment factor (ETAF) of 45% for new non-residential landscapes, 55% for new residential landscapes and 65% for schools. ETAF is a percentage of ETo and establishes the limit on the amount of water allowed per year for irrigation.

3) Use an ETAF of 100% for any special landscape areas which are those dedicated solely to edible plants, programmed recreational areas (e.g. public pools and sports fields), areas irrigated with non-potable water (e.g. recycled, grey and rain water) and stormwater treatment facilities that are required by permit.

Estimated Total Water Use (ETWU) = (ETo)(APF)(Area)(0.62) where 0.62 is the coefficient that converts inches to gallons per square foot

Valve No.	Planting Description E.g. Medium Trees, Groundcover, Water Feature, etc.	Plant Factor [a] (PF) Watering requirements as a percent of ETo	Irrigation Efficiency [b] (IE) Percent of applied water that reaches its target (e.g. root zone or water feature) by irrigation method	Adjusted Plant Factor (APF) (PF/IE) = APF Watering requirements adjusted for irrigation efficiency	Hydrozone Area (Area) Area in square Feet	Conversion Factor (0.62) The coefficient that converts inches to gallons per square foot	ETWU per Hydrozone (ETo)(APF)(Area)(0.62) = Annual gallons required to irrigate this landscape
Landscape Areas (LA)							
						0.62	
						0.62	
						0.62	
						0.62	
						0.62	
						0.62	
						0.62	
						0.62	
						0.62	
						0.62	
						0.62	
						0.62	
				Totals:		**0.62**	
Special Landscape Areas (SLA)							
				100%		0.62	
				100%		0.62	
				100%		0.62	
				Totals:		**0.62**	
					ETWU Grand Total:		

Maximum Applied Water Allowance (MAWA)
MAWA represents the annual water budget for this landscape. It is the maximum amount of water allowed per year for irrigation.

LA

(ETo)(ETAF)(Total Area)(0.62) = Annual gallons allowed

MAWA for LA:

SLA

(ETo)(ETAF)(Total Area)(0.62) = Annual gallons allowed

MAWA for SLA:

MAWA Grand Total:

[a] Plant Factor Ranges

0-10% = Very low; 10-30% = Low; 40-60% = Moderate; 70-100% = High

Water Requirements cited in this ordinance are derived from the publication "Water Use Classification of Landscpe Species" (ucanr.edu/sites/WUCOLS/)

[b] Irrigatin Methods and Efficiencies

Spray = 70%; Rotating nozzle = 75%; Bubblers = 80%;
Point-source drip = 85%; In-line drip = 90%; Water feature = 100%

Pass:	

ETWU shall not exceed MAWA