

SITE ANALYSIS



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AGENDA

- ADDRESS CLIENTS' NEEDS
- CREATE A SITE PLAN
- COLLECT DATA AT THE SITE
- PROVIDE SOLUTION

PRO TIPS FOR COMMERCIAL LANDSCAPING

Your landscape is a long-term investment. Use these tips, and check commercial codes for any landscape requirements or restrictions before getting started

LANDSCAPE MAINTENANCE SUGGESTIONS

LONG-TERM MAINTENANCE

If working with a contractor, get maintenance estimates as well as landscape design and installation costs

SELF-MULCHING PLANTS

Leave plant droppings and seedlings on the ground. These enrich and amend your soil.

BEWARE OF OVER MAINTENANCE

Schedule maintenance less frequently. Many landscapes are over-pruned which can damage plants. Less maintenance is environmentally friendly. Over landscaping creates debris that must be hauled away.

PLANT SUGGESTIONS

CHOOSE STURDY

Select plants that require less water and maintenance and are sturdy enough to handle your heaviest visitor traffic.

PLANT SMALL

Purchase smaller, starter plants—which are more cost-efficient—and space them out to leave room for growth.

MAXIMIZE SHADE

Place trees in areas that can shade buildings, to reduce power costs, as well as parking areas or visitor pathways.

THINK FORWARD

Plan for the mature size of plants and trees so they will not obstruct power lines, walkways and other areas.

USER FRIENDLY

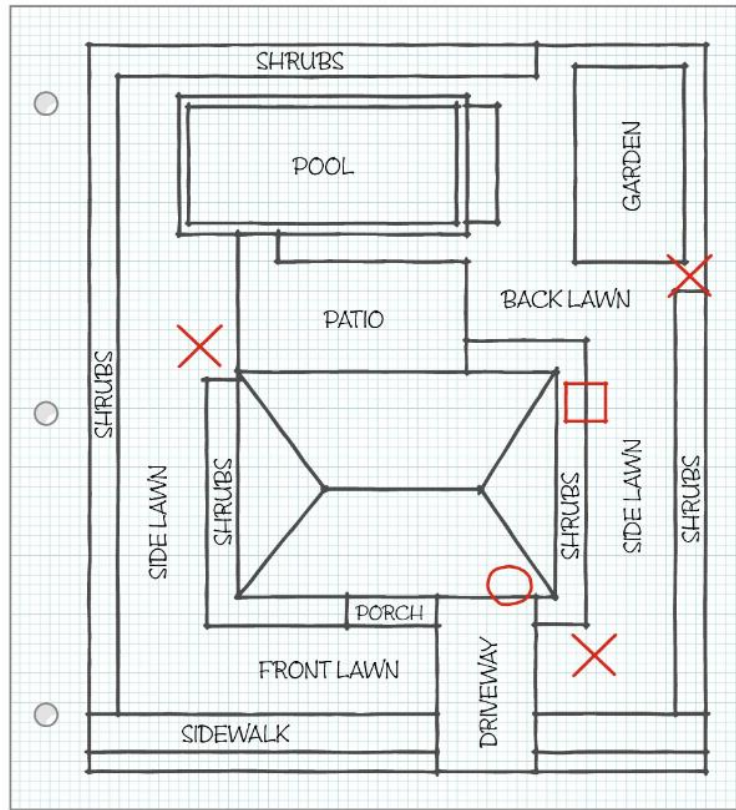
Avoid poking or spreading plants that can obstruct visitor walkways or snag clothing or scratch cars in parking lots.

ADDRESS THE CLIENTS' NEEDS

- WHAT IS THE PROBLEM?
- WHAT IS THE BUDGET?
- WHAT IS THE TIMELINE?






CREATE A SITE PLAN



(EXAMPLE)

MARK:

-  Water Meter or Pump Location
-  Timer Location
(where you want it placed)
-  Valve Locations
(where you want them placed)



CREATE A SITE PLAN

- FREE AERIAL IMAGES

- GISMO

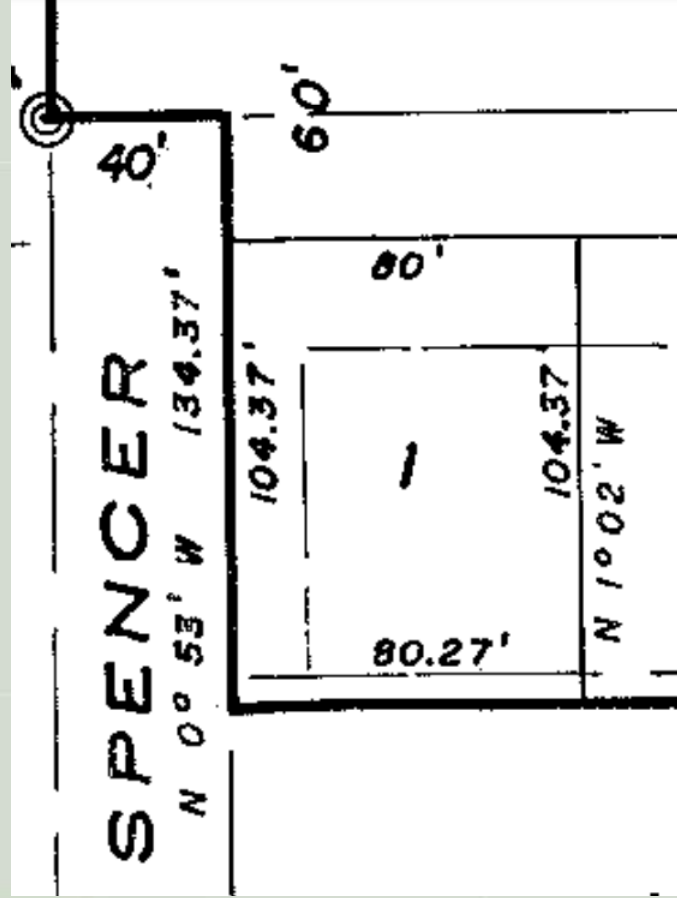
- <https://maps.clarkcountynv.gov/ow/?@782884,26762114,6>

- GOOGLE EARTH

- <https://earth.google.com/web/@33.7382789,-117.7446231,-74585.00653102a,75303.30682067d,35y,-0.00190229h,5.63216025t,-0r>

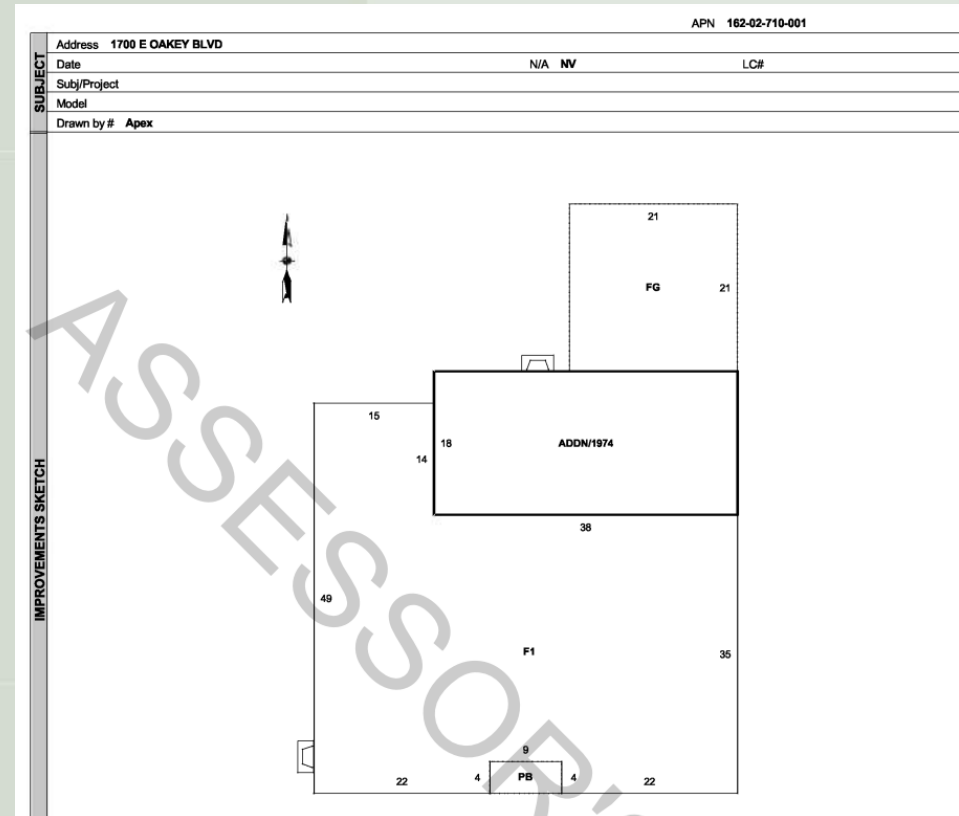
GISMO

- PLAT MAP



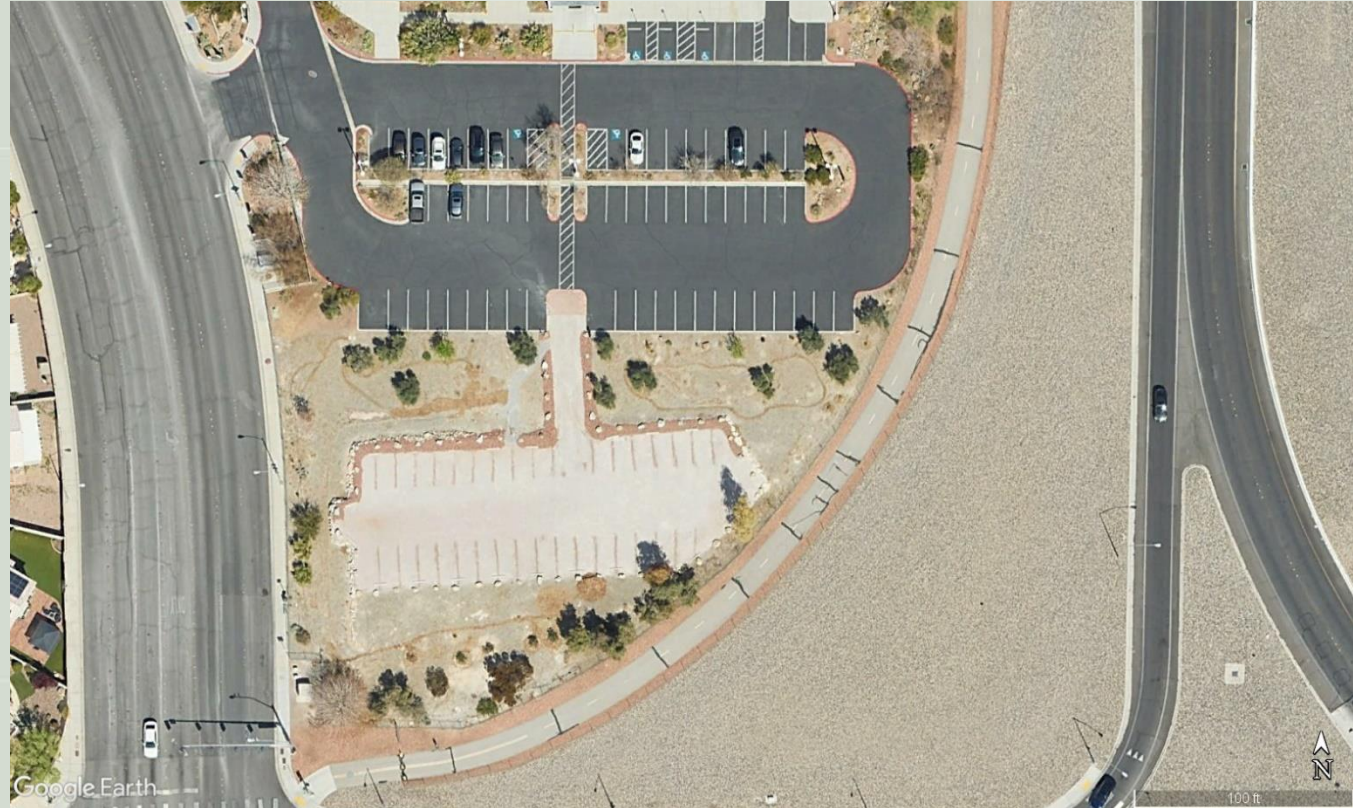
GISMO

■ BUILDING SKETCH



SITE DATA

- PROJECT NAME
- ADDRESS
- ZIP CODE
- SOIL TYPE
- WATER SOURCE
- METER SIZE
- STATIC PRESSURE
- VALVES
- POC
- VISIBLE SITE PROBLEMS



SITE DATA

- PROJECT NAME
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SITE DATA

1 PROJECT NAME:

ADDRESS:

CITY/ZIP CODE:

2 SOIL TYPE:
COARSE: MEDIUM FINE:

3 WATER SOURCE:
CITY WELL

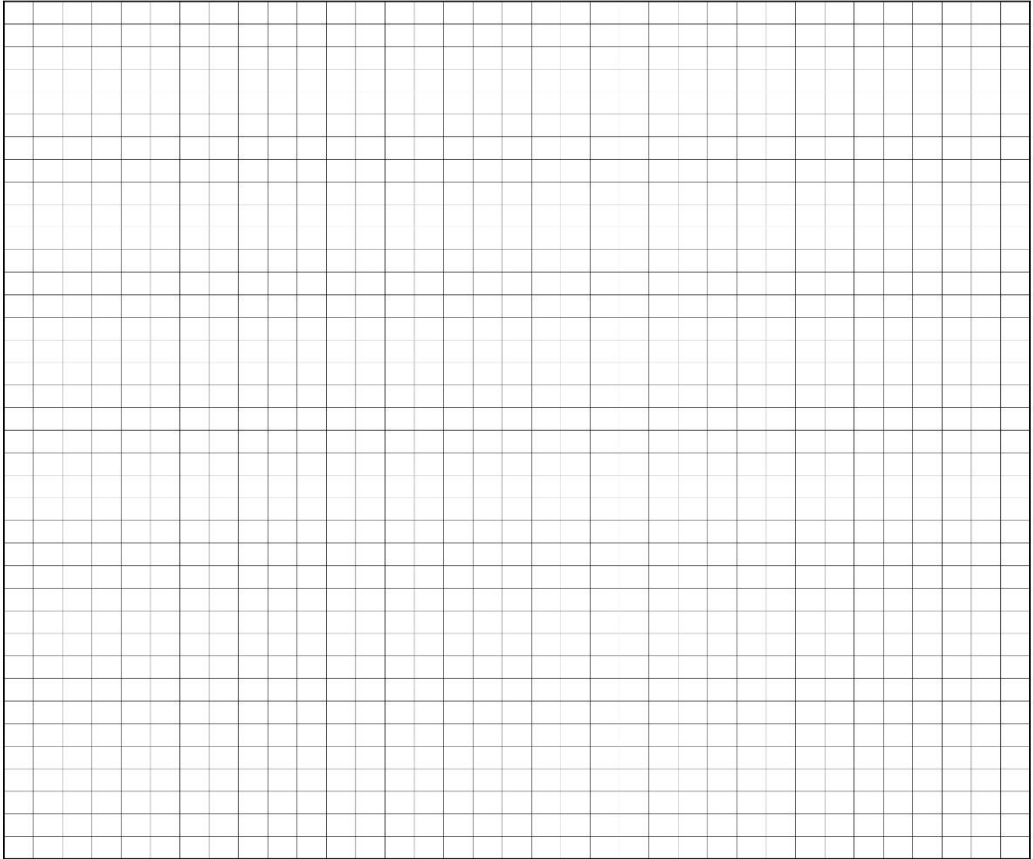
METER SIZE:
LOCATE ON SKETCH

STATIC PRESSURE:
PSI

4 VALVE(S):
LOCATE ON SKETCH

5 POC:
APPROXIMATE 1/4 IN LOCATION

6 VISIBLE SITE PROBLEMS:



SITE DATA

■ SOIL TYPE

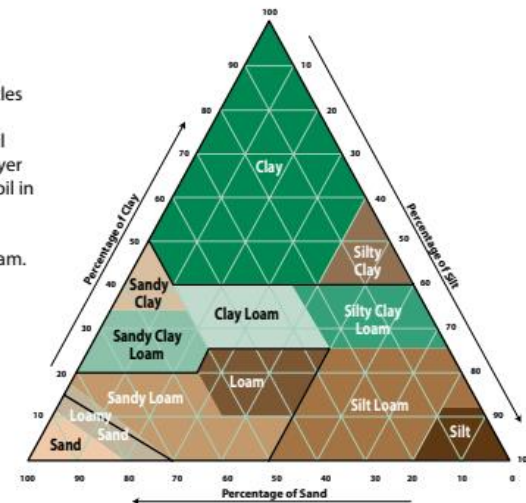
■ SOIL TYPE TEST

1. Remove 1 to 2 cups of soil from the zone to be irrigated.
2. Place into a glass jar, like a mason jar.
3. Fill the jar half way with water. Shake and let sit for 2 hours so the particles can settle. The heavier sand particles will settle to the bottom, then silt, then clay on top.
4. Measure the combined height of all three layers of the soil then the height of each layer; divide the height of each layer by the total height to figure out the percentage of each soil in the jar.
5. Apply these figures to the "Soil Classification" chart. In the example, now you know the landscape soil is silt loam.

Measure total height and layer heights



For Example:

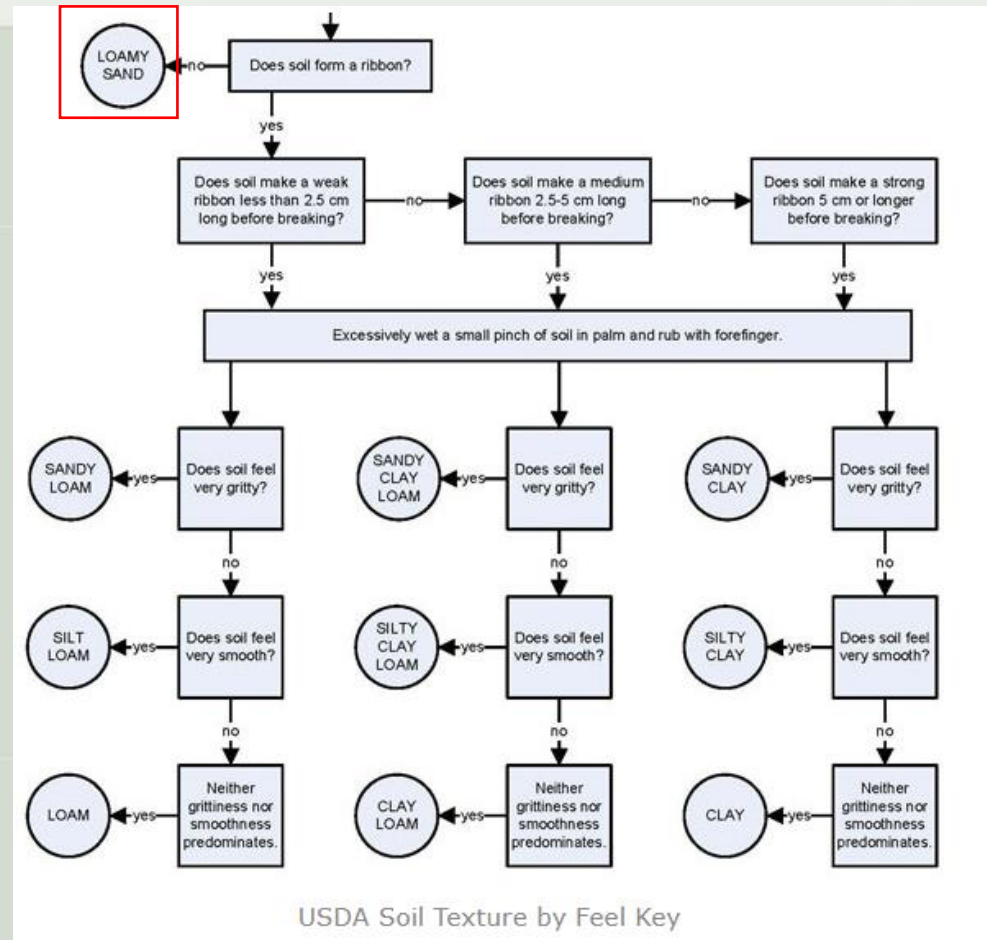


SITE DATA

■ SOIL TYPE

■ Ribbon Test

- balling soil and water in hand



SITE DATA

- METER SIZE (Backflow)
 - Maximum Flow

Pressure loss through water meters
AWWA standard pressure loss
Pressure loss: psi
Nominal Size

flow					
gpm	½ in	¾ in	1 in	1½ in	2 in
1	0.2	0.1			
2	0.3	0.2			
3	0.4	0.3			
4	0.6	0.5	0.1		
5	0.9	0.6	0.2		
6	1.3	0.7	0.3		
7	1.8	0.8	0.4		
8	2.3	1.0	0.5		
9	3.0	1.3	0.6		
10	3.7	1.6	0.7		
11	4.4	1.9	0.8		
12	5.1	2.2	0.9		
13	6.1	2.6	1.0		
14	7.2	3.1	1.1		
15	8.3	3.6	1.2		
16	9.4	4.1	1.4	0.4	
17	10.7	4.6	1.6	0.5	
18	12.0	5.2	1.8	0.6	
19	13.4	5.8	2.0	0.7	
20	15.0	6.5	2.2	0.8	
22		7.9	2.8	1.0	
24		9.5	3.4	1.2	
26		11.2	4.0	1.4	
28		13.0	4.6	1.6	
30		15.0	5.3	1.8	
32			6.0	2.1	0.8
34			6.9	2.4	0.9
36			7.8	2.7	1.0
38			8.7	3.0	1.2
40			9.6	3.3	1.3

SITE DATA

- LVVWD WATER RATES
 - EXCESSIVE USE CHARGE BASED ON METER SIZE

Examples of Single Family Residential Rates with Tier Equalization and Excessive Use Charge

	January Bill	April Bill	July Bill	September Bill
5/8" meter Average water use (8,600 gal/month)	\$48.48	\$48.48	\$48.48	\$48.48
5/8" meter High water use (38,000 gal/month)	\$429.58	\$411.54	\$303.27	\$321.31
1" meter Average water use (26,900 gal/month)	\$290.18	\$272.14	\$173.79	\$181.91
1" meter High water use (46,000 gal/month)	\$583.72	\$565.68	\$457.41	\$475.45

SITE DATA

■ WATER USAGE

Service Address: 1700 E OAKEY BLVD

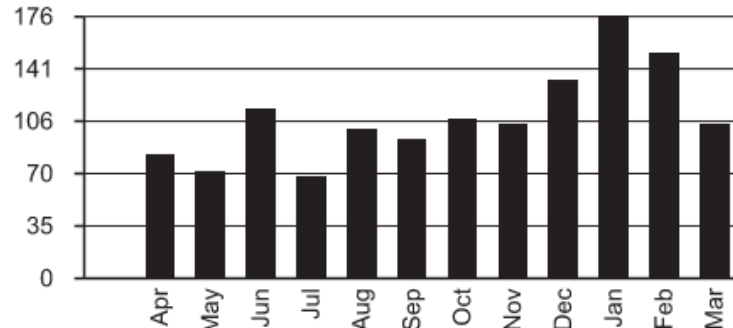
This Service is in Watering Group D

Meter#	Size	Current Reading	Current Read Date	Previous Reading	Previous Read Date	Usage in 1000 Gallons
1130774	5/8"	48	03/26/24	45	02/26/24	3

Average Daily Use in Gallons

Previous Billing Period
151

This Billing Period
103



Meter Read Date

Billing Period: 02/27/24 - 03/26/24

Total # of Days: 29

Meter #: 1130774

Billed Usage 3

Service Charge \$0.4379 x 29 Days

12.70

Tier #1 3 x \$1.52

4.56

SNWA Commodity Charge 3 x \$0.61

1.83

SNWA Infrastructure Charge 29 x \$0.5286

15.33

SNWA Reliability Surcharge x 0.25%

0.05

Subtotal

\$34.47

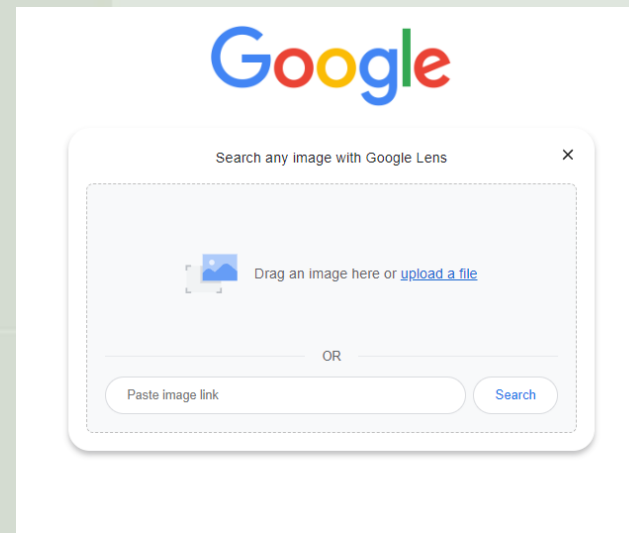
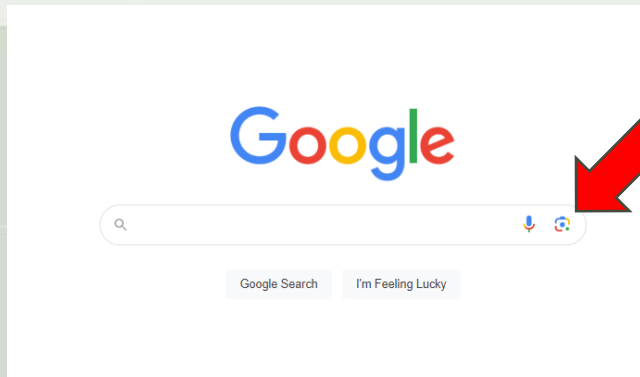
SITE DATA

- STATIC PRESSURE
 - QUICK COUPLER
 - HOSE BID



SITE DATA

- LANDSCAPE WATER NEEDS
 - DETERMINE TREE TYPE
 - SMART Phone App
 - Reverse Google Image Search



SITE DATA

- LANDSCAPE WATER NEEDS
 - DETERMINE WATER NEEDS AND SF COVERAGE
 - <https://www.snwa.com/assets/pdf/water-smart-plant-list.pdf>

<i>Eucalyptus camaldulensis</i>		Red River Gum	4★	X	55	40	942	E	M	M	---	N	H	N	N	Y	240	1600	N	Y	N	5
<i>Eucalyptus gunnii</i>		Cider Gum	3★	L	45	25	368	E	M	M	---	N	H	Y	Y	Y	200	700	Y	N	N	5
<i>Eucalyptus microtheca</i>		Coolibah	4★	L	40	25	368	E	M	L,M	---	N	H	Y	Y	Y	200	700	Y	N	N	5
<i>Eucalyptus nicholii</i>		Willow Leaf Peppermint Gum	3★	L	35	25	368	E	F	M	---	N	H	N	N	Y	200	700	N	N	N	1,5
<i>Eucalyptus polyanthemos</i>		Silver Dollar Gum	3★	L	40	30	530	E	F	L,M	---	N	H	N	N	Y	200	1000	N	N	N	1
<i>Eucalyptus rudis</i>		Desert/Flooded Gum	4★	L	45	25	500	E	M	M	---	N	H	N	Y	Y	240	1000	N	N	N	

SITE DATA

- LANDSCAPE WATER NEEDS
 - CALCULATE WATER NEED

BOTANICAL / COMMON NAME	SIZE	QTY	UNIT	COVERAGE (SF)	TOTAL (SF)
MODERATE WATER USE TREES					
EUCALYPTUS CAMALDULENSIS RED RIVER GUM	EXISTING	1	ea	942	942
	EXISTING	1	ea		0
				TOTAL	942
LOW WATER USE TREES					
EUCALYPTUS MICROTHECA COOLIBAH	EXISTING	1	ea	368	368
	EXISTING	1	ea		0
				TOTAL	368
TOTAL PLANT MATERIAL COVERAGE MODERATE WATER USE (SF)					942
TOTAL PLANT MATERIAL COVERAGE LOW WATER USE (SF)					368
PLANTING AREA	AREA	4,795	sf		
TOTAL PLANTING AREA (SF)		4,795			

SITE DATA

- LANDSCAPE WATER NEEDS
 - SPECIFY EMITTERS FOR THE WATER DEMAND FOR THE MONTH OF JUNE

Distribution Uniformity Low Quarter (DU_LQ): A measure of the average of the lowest quarter of samples, divided by the average of all samples expressed as percentage.

Landscape Coefficient: A factor used to modify ETo that factors in the different vegetation species planted.

Ref Eto: Reference Evapotranspiration

Evapotranspiration (ET): Water loss in the soil due to evaporation.

Landscape Water Requirement (LWR): Amount of water needed to maintain a given landscape type.

UNR COOPERATIVE EXTENSION LANDSCAPE WATER REQUIREMENTS

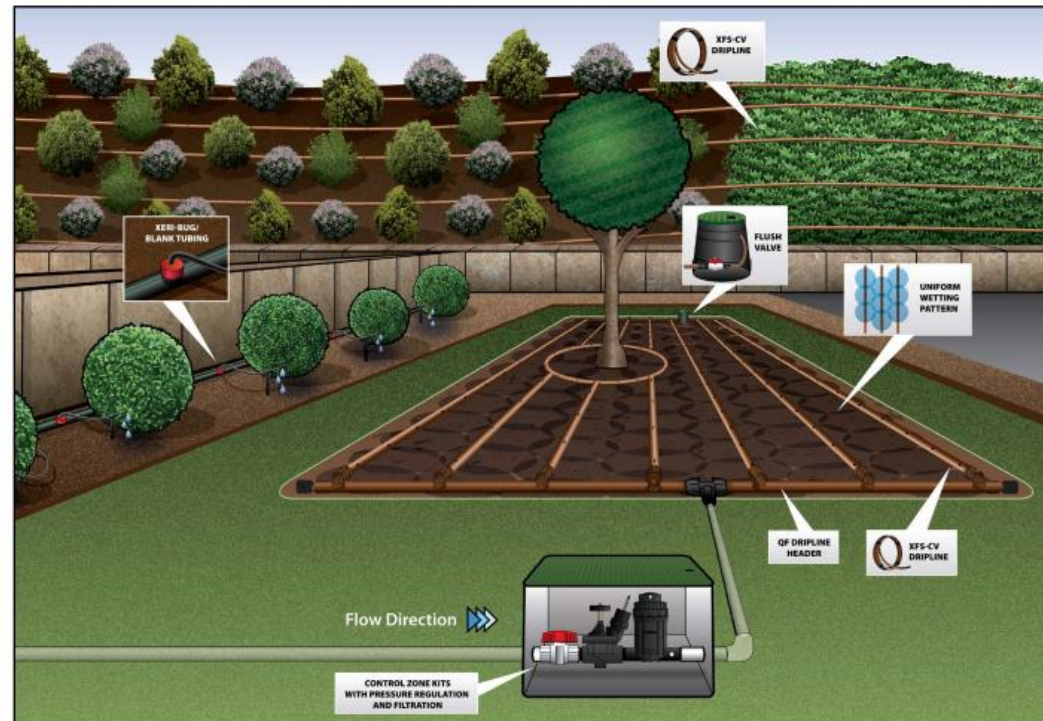
Month	Plant Material Water Needs	1/.90 DU_LQ	Landscape Coefficient	Allowable Rainfall (25% of Average Peak)	Coverage (sf)	Conversion Factor (from in. to gallons)	Local Ref Eto (in/mo)	Landscape ET	LWR By Type (gallons)	Monthly LWR (gallons)
January	MODERATE	1.11	0.5	0.19	942	0.6233	3.63	1.63	1,061	1,198
	LOW		0.2		368			0.54	137	
February	MODERATE	1.11	0.5	0.20	942	0.6233	4.53	2.07	1,347	1,528
	LOW		0.2		368			0.71	180	
March	MODERATE	1.11	0.5	0.24	942	0.6233	6.31	2.92	1,903	2,165
	LOW		0.2		368			1.03	261	
April	MODERATE	1.11	0.5	0.06	942	0.6233	7.98	3.93	2,561	2,952
	LOW		0.2		368			1.54	391	
May	MODERATE	1.11	0.5	0.06	942	0.6233	10.48	5.18	3,376	3,894
	LOW		0.2		368			2.04	518	
June	MODERATE	1.11	0.5	0.02	942	0.6233	11.71	5.84	3,803	4,394
	LOW		0.2		368			2.32	591	
July	MODERATE	1.11	0.5	0.14	942	0.6233	11.60	5.66	3,690	4,246
	LOW		0.2		368			2.18	556	
August	MODERATE	1.11	0.5	0.23	942	0.6233	9.79	4.67	3,042	3,483
	LOW		0.2		368			1.73	441	
September	MODERATE	1.11	0.5	0.16	942	0.6233	8.30	3.99	2,602	2,985
	LOW		0.2		368			1.50	383	
October	MODERATE	1.11	0.5	0.07	942	0.6233	5.95	2.91	1,893	1,950
	LOW		0.2		368			1.12	57	
November	MODERATE	1.11	0.5	0.12	942	0.6233	3.49	1.63	1,061	1,090
	LOW		0.2		368			0.58	30	
December	MODERATE	1.11	0.5	0.12	942	0.6233	2.47	1.12	728	824
	LOW		0.2		368			0.38	96	
ANNUAL TOTAL GALLONS										30,709

SOLUTION

- REPAIR OR REPLACE?
- BUDGET DRIVEN



■ EXAMPLE OF A SUBSURFACE DRIPLINE SYSTEM LAYOUT





SOLUTION

- CALCULATE CORRECT EMITTER SPACING TO SUSTAIN THE TREES

■ TABLE 2: XF SERIES DRIPLINE RECOMMENDATION TABLES

XF Series Dripline Recommendations (English)			
Soil Type	Clay	Loam	Sand
Emitter Flow Rate (gallons per hour)	0.4 GPH	0.6 GPH	0.9 GPH
Emitter Spacing (inches)	18"	18"	12"
Dripline Lateral Spacing (inches)	18" - 24"	16 - 22"	12" - 18"

SOLUTION

■ APPLICATION RATE

■ HOW DO I DETERMINE THE APPLICATION RATE?

Emitter Spacing	Lateral Row Spacing (in Inches)										
	12"	13"	14"	15"	16"	17"	18"	19"	20"	22"	24"
0.4 GPH Emitter Flow (Inches per hour)											
12"	0.67	0.62	0.58	0.54	0.51	0.48	0.45	0.43	0.40	0.37	0.34
18"	0.45	0.41	0.39	0.36	0.34	0.32	0.30	0.28	0.27	0.25	0.22
0.6 GPH Emitter Flow (Inches per hour)											
12"	0.96	0.89	0.83	0.77	0.72	0.68	0.64	0.61	0.58	0.53	0.48
18"	0.64	0.59	0.55	0.51	0.48	0.45	0.43	0.41	0.39	0.35	0.32
0.9 GPH Emitter Flow (Inches per hour)											
12"	1.44	1.33	1.24	1.16	1.08	1.02	0.96	0.91	0.87	0.79	0.72
18"	0.96	0.89	0.83	0.77	0.72	0.68	0.64	0.61	0.58	0.53	0.48

Emitter Flow Rate in GPH x 231.1

Lateral Row Spacing in Inches x Emitter Spacing in Inches

Example:

Emitter Flow Rate 0.6 GPH
Emitter Spacing 12 inches
Lateral Row Spacing 18 inches

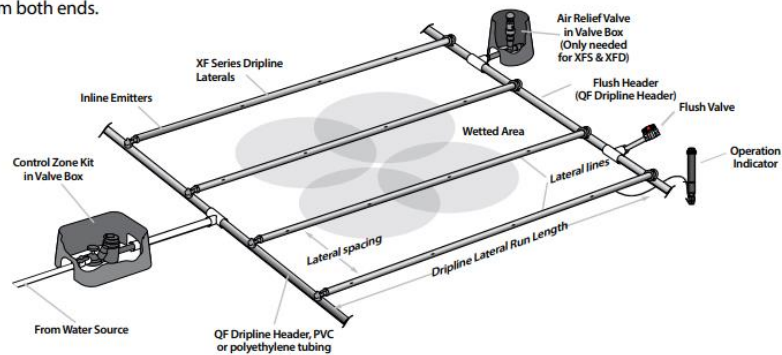
$$\frac{0.6 \times 231.1}{12 \times 18} = 0.64 \text{ inches/hour}$$

SOLUTION

■ DETERMINE LAYOUT

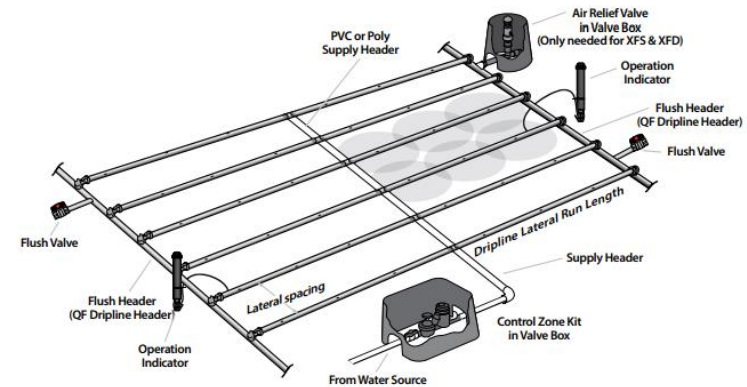
■ END FEED LAYOUT

This Grid layout is primarily used for dense plantings. The layout uses supply headers and flush headers with rows of dripline connected at each end. The supply header and flush header form a continuous loop where all rows of dripline are being supplied from both ends.



■ CENTER FEED LAYOUT

Where layout flexibility exists, it is recommended that Center Feed layouts be used. This allows for the most even flow of water through the zone. Center Feed layouts also potentially allow you to increase the size of the zone by providing lateral runs on both sides of the supply header. Center Feed layouts are an excellent option for median strips, road sides, and other homogenous planting zones.

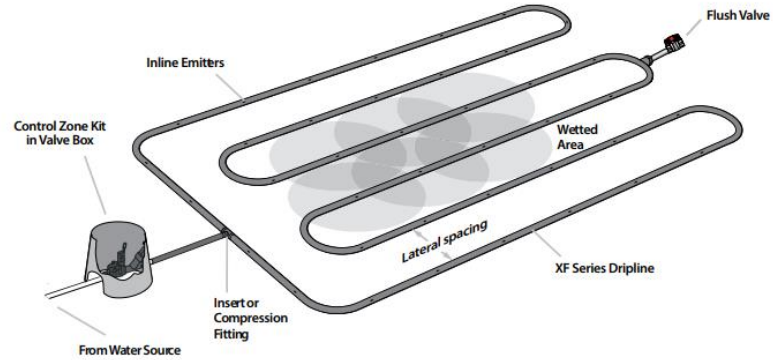


SOLUTION

■ DETERMINE LAYOUT

■ QUICK LOOP LAYOUT

The Loop layout is one continuous loop that weaves back and forth throughout the zone in evenly spaced laterals (rows).



■ CURVED EDGE LAYOUT

The Curved Edge layout is primarily used for dense planting areas. The layout uses supply and flush headers with rows of dripline connected at the end. The supply and flush header form a continuous loop and the dripline can be attached to the adjacent driplines with "tee" fittings to accommodate curved applications.

