

"EXHIBIT A"
LANDSCAPE REFERENCE DOCUMENTS:

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Table 4. Condition rating as related to life expectancy.

Condition	Life Expectancy (years ¹)	Condition Rating (percent)
Excellent	Over 30	90 - 100
Good	20 - 30	80 - 90
Fair to Good	15 - 20	60 - 80
Fair	10 - 15	40 - 60
Poor to Fair	5 - 10	20 - 40
Poor, rapid decline	0 - 5	0 - 20

¹Years beyond time of inspection.

Table 5. Diminution in condition value related to partial injury.²

Bark and Cambium injury (percent of total trunk circumference)	Diminution of condition value (percent)
Up to 20	At least 20
25	25
30	35
40	70
45	90
50	100

²Percentages taken from Table 75, page 322 in A. Bernatzky. 1978. *Tree Ecology and Preservation*. Elsevier Scientific Publishing Company, Amsterdam.

Table 6. Guide for judging the condition of landscape trees.

Factor	Variation	Points Awarded
Crown Development	Characteristic of species, well-balanced	5
	Lacking natural or desired symmetry	3
	Lacking full crown	1
Trunk	Sound and solid	5
	Section of bark missing	
	Less than ¼ of circumference	4
	¼ to ½ missing	3
	More than ½ missing	1
	Extensive Decay or hollow	0
Major branch structure	No defects	5
	Dieback limited	4
	Few structurally important dead or broken branches	3
	Several structurally important dead or broken branches	1
Twig growth rate	Typical for species and age, usually 4 to 6 inches	5
	Less than ½ normal growth rate	3
	Growth rate greatly reduced, yearly decline	1
Foliage	Normal size and color for species	5
	Minor deficiency/pollution symptoms	3
	Major deficiency/pollution symptoms	1
Insects and diseases	No insects or diseases apparent	5
	Few insects or diseases present and these are controllable	3
	Severe infestation	1

Service Area _____ Address-Number _____ Tree Location _____ Zip _____ Police Report Number _____

Name _____ Home Phone _____ Business Phone _____

Address _____ Priority _____

**PARKS AND RECREATION DEPARTMENT
TREE EVALUATION REPORT**

Date	Taken By	Service Request	Request Assignment	Task
			Tree Preservation & Protection	<input type="checkbox"/> Accident – Repair and Report <input type="checkbox"/> Vandalism – Repair and Report

REASON FOR REPORT:

- Routine
- Complaint
- Removal Request
- Other, Explain _____
- Compensation for Casualty Loss
- Accident Auto-Related
- Vandalism

A. DESCRIPTION AND EVALUATION OF INDIVIDUAL TREES

TREE SPECIES	dbn (inches)	CROSS SECTION AREA (sq. in.)	BASIC VALUE OR REPLACEMENT COST (DOLLARS)	SPECIES FACTOR %	CONDITION FACTOR %	LOCATION FACTOR %	CALCULATED VALUE OF TREE (DOLLARS)

B. CALCULATION OF PARTIAL LOSS

Calculated Value Of Tree in Dollars:	Injury in % of Trunk Circumference or Whole Tree:	Diminution of Value in %:	Calculated Partial Loss In Dollars
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Request Ck'd By _____ Date _____ Calculation _____ Photo Taken _____ Worked By _____ Date _____
 Contact By: Personal Phone Door Tag Letter

C. EQUIPMENT AND MANPOWER ASSIGNED

Total Loss Sustained

- Labor Charges _____
- Labor Overhead () _____
- Calculated Value of Tree _____
- Calculated Partial Loss _____
- Materials _____
- Equipment Charges _____

\$ _____
 \$ _____
 \$ _____
 \$ _____
 \$ _____
 \$ _____

Marked for Replanting By _____
 Notify _____ Division
 Attn: _____
 Date of Evaluation _____
 Signed: _____

Subtotal

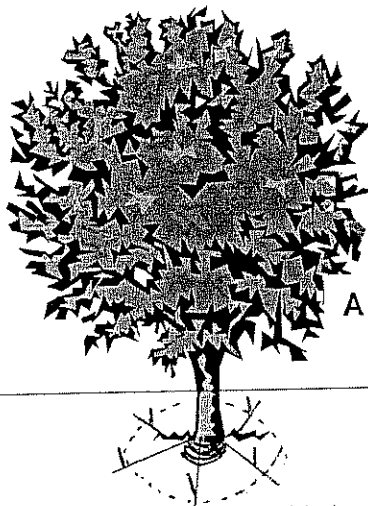
General Overhead()

TOTAL INVOICE

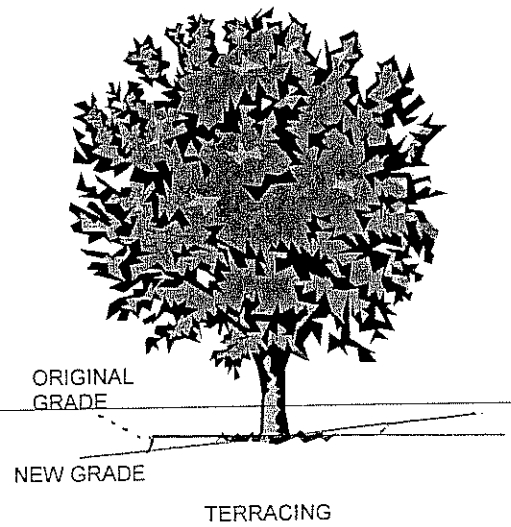
Factor	Variation	Points Awarded
Roots	No root problems apparent	5
	Minor root problems	3
	Severe root problems	1

Scoring Procedure

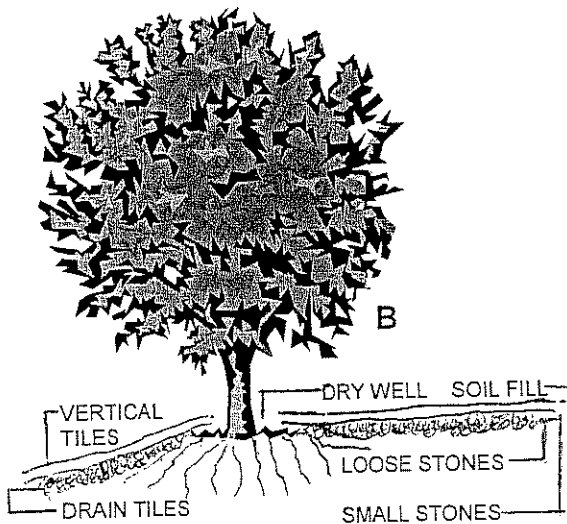
Total Points	Condition	Formula Condition (percent)
30-35	Excellent	90-100
24-29	Good	70- 89
17-23	Fair	50- 69
11-16	Poor	25- 49
6-10	Very Poor	0- 24



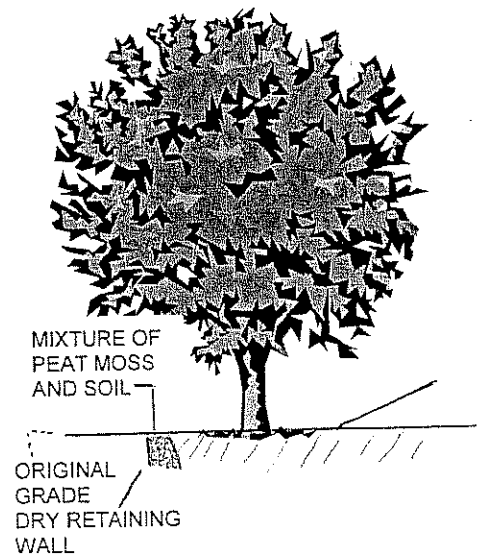
A. The tile is laid out on the original grade, leading from a dry well around the tree trunk.



TERRACING



A tile system protects a tree from a raised grade.
 B. The tile system is covered with small stones to allow air to circulate over the root area.



NEW GRADE RETAINING WALL

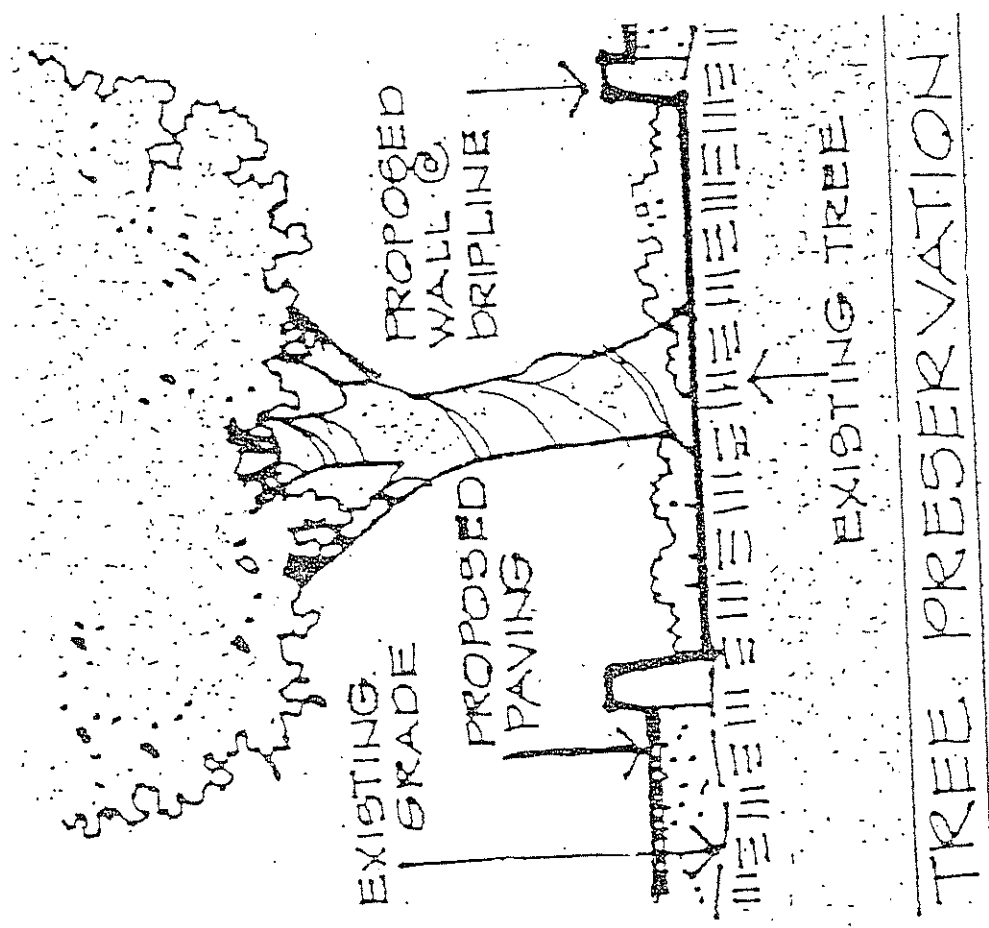
Lowering The Grade

While protecting a tree from a lowered grade is less complicated than protecting it from a raised grade. It can be equally harmful unless proper attention is given to root pruning, pruning branches and stimulating root growth.

Generally protection is achieved by terracing the grade, if the space is available. Another way to protect a tree from a lowered grade is to build a retaining wall. This is an effective way of achieving a grade difference to save a tree, if it is less than 2'.

Excavating

Trees need to be protected from excavations for utilities because the soil moisture content is altered and the number of roots are decreased. If the route of the utilities can't be kept from underneath the tree then tunneling should be done to reduce damage to the roots. Tunneling should be done from both sides. Start tunneling below the main lateral roots as soon as a 1" diameter root is encountered.



TREE PRESERVATION GUIDELINES

A. Existing Trees:

Existing trees over six inches in trunk diameter; measured four and one half feet above ground level (DBH), shall be retained in accord with following:

1. Notification:

Contact the City of Manteca, Parks and Recreation Department or Community Development Department for assistance and/or refer to a tree expert or arborist to analyze the location, species, size, age, and vigor of each tree and to evaluate which healthy mature tree(s) shall be saved. Refer to Text references; The City of Manteca Landscape Reference document, the International Society of Arboriculture Handbook, "Valuation of Landscape Trees, Shrubs and other Plants", seventh edition, January 1988

2. Protection:

Existing trees must be protected from the following:

- a. Construction equipment
- b. Grade changes
- c. Excavation for utilities
- d. Paving
- e. Footers for the proposed structure of wall

3. Protection from Machinery:

Construct a protective fence or barrier, which encloses the entire area beneath the tree canopy. All exposed roots must be enclosed in this area.

Most of the damage caused by machinery occurs to the root system from compaction although there is some damage to the trunk and low hanging branches. Because root systems can go beyond the tree canopy, make sure all exposed roots are enclosed in this protection zone. Refer to Landscape Reference Document, Protection Zone.

4. Protection from Grade Changes:

Grade changes, either raising or lowering the grade must be approved by the Community Development Department prior to any grading taking place. Refer to Landscape References; Grading and Excavation, Root System and Protection Zone documents.

When raising the Grade:

Fill added around a tree prevents normal air and water circulation in the original soil and will damage the roots. Minor fills - less than 6" will not harm most species, if the fill

is high in organic matter. Be sure that a particular species can survive this change before fill is added.

Major fill around a tree requires that air be supplied to the roots and that excess water be removed. Consult an expert for the installation of a tile drain system.

B. Requests for removal of an existing tree:

Requests for the proposed replacement of an existing tree as identified in (A) above, shall be subject to Community Development Director approval. Replacement of an existing tree shall be with a minimum 24 inch box tree, of compatible species for the development site and consistent with Section 17. 19.030.

C. Location of Trees:

The location of each tree(s) should be analyzed with respect to its relative location in landscape. Before building a structure near trees refer to the following:

1. Will the tree provide shade where it is wanted or will it block out desired sunlight?
2. Will the tree protect the structure from winter winds or will it block out the summer breeze?
3. Will the tree screen an unpleasant view or will it block out a desirable view?
4. Can retaining or mature trees (Native/Non-native) provide my project with necessary air quality, parking lot shading noise buffering mitigations?

D. Species:

The tree species is considered to determine if its characteristics are desirable for the proposed situation. Shall rooted trees hinder the growth of lawns, gardens, storm or sanitary sewer lines. Some trees are susceptible to diseases and insects, which may make saving them uncertain. Consult the above referenced document, ask a specialist and then consult the City of Manteca Community Development or Parks and Recreation departments before submitting landscape plans.

E. Size, Age, Vigor:

When considering the size, age and vigor of a tree refer to the following:

1. Large and old trees do not adapt well to changes in their environment, hence should have minimal changes.
2. A small tree can be replaced easily and replacing it may be cheaper than saving it.
3. Annual twig growth, amount of dead material and the size and color of leaves are indications of health and vigor. Compare the tree with other trees of the same species.

Consult the Manteca Community Development Department or Parks Department prior to removal of any trees. Use of a professional with experience in tree removal is required so the protected tree(s) will not be damaged.

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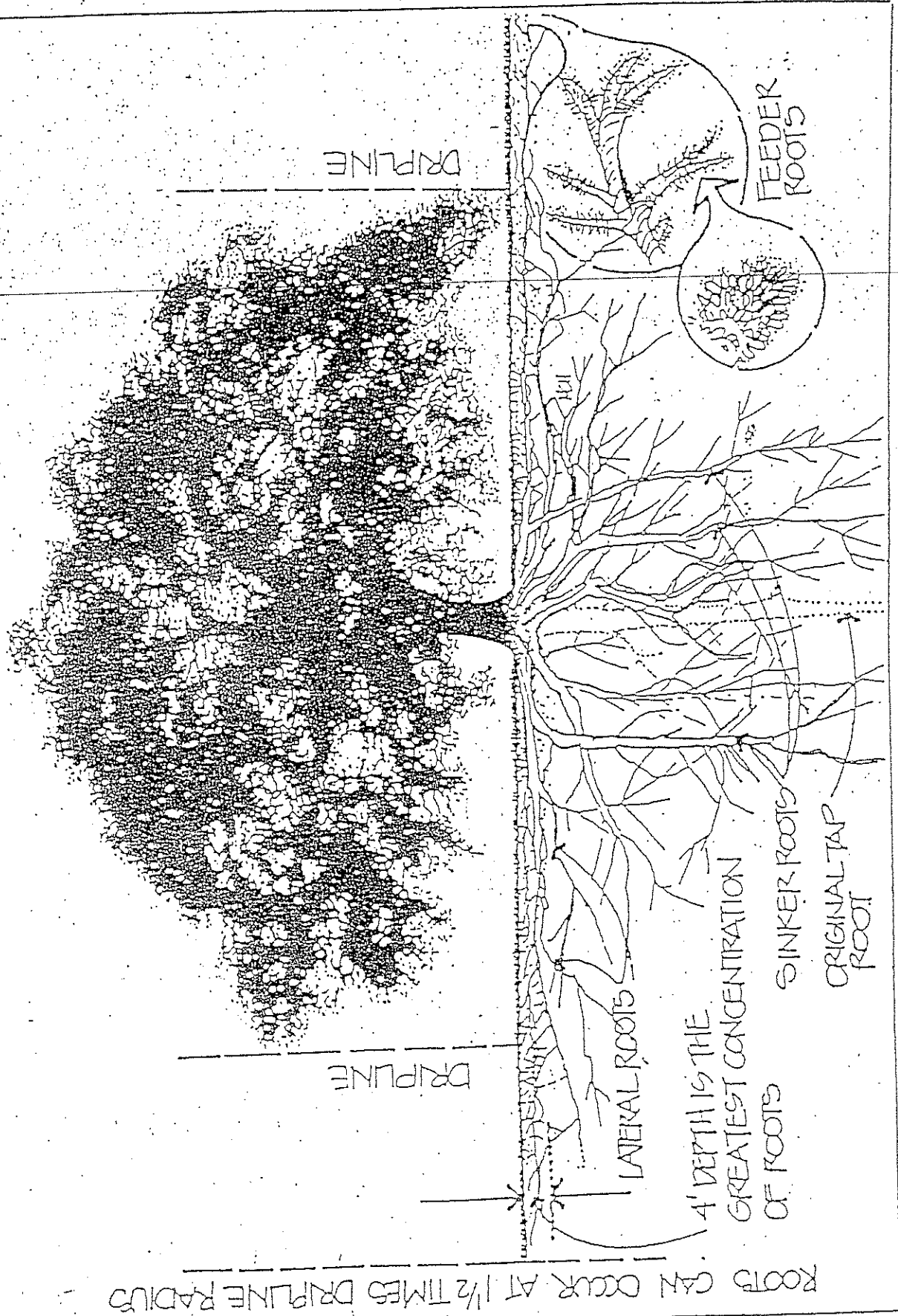
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Diagram: Root System



TREE SHADING INFORMATIONAL LIST

The following list of trees for parking lot shading and screening was compiled to aid in specific selection. Selection of the trees listed is based on adaptability to site conditions. The following tree conditions and characteristics are information to help select an appropriate tree and are references to columns 2 through 9 on the attached list:

1. Recommended minimum planter width.
2. Approximate tree height
3. Growth rate

4. Root growth and depth.
5. Suggested soil type
6. Significant flowers and/or fruit
7. Color of leaves during fall
8. Remarks - deciduous, evergreen, miscellaneous information.

The species listed are not foolproof for all situations. Consultation with a landscape architect or nurseryman is desirable before any selections are made. Professional guidance is recommended to assure that the optimal design is achieved to meet the needs of each project. Proper planting procedures, optimal spacing distance, soil, water requirements, and maintenance programs should be ascertained at the start of the landscape project. It is important to note that proper planting procedure may include digging past the hardpan layer to assure deep-rooting and proper growth.

Note: Symbols have been placed in front of certain species to indicate that particular tree's suitability for shade or screening purposes. A circle indicated that the tree is a desirable screen tree. A check mark is used to denote good shade trees.

30-35' DIAMETER TREES 100% = 962 SQ. FT. 50% = 481 SQ. FT. 25% = 240 SQ. FT.

Botanical Name COMMON NAME	Planter size	Height	Growth	Roots	Soil	Flowers / fruit	Fall color	Remarks
<i>Acer glabrum</i> FRONTSIDE PLANE TREE	8'	70'	Rapid	Shallow Spreading	Most Deep	-	Brown	Deciduous, has red spider, powdery mildew, anthracnose, use bloodgood or yanwood varieties, summer litter
<i>Quercus agrifolia</i> COAST LIVE OAK	8'	70'	Moderate	Deep	Most Dry or Moist	Acorn	-	Evergreen, has caterpillars in spring
<i>Quercus coccinea</i> SCARLET OAK	6'	60'	Rapid	Deep Spreading	Dry, Rocky, Sandy	Acorn	Scarlet	Deciduous
<i>Quercus ilex</i> HOLLY OAK	6'	70'	Moderate	Deep	Most Soils	Acorn	-	Evergreen, has caterpillars, takes pruning
<i>Quercus lobata</i> WALLEY OAK	8'	70'	Moderate	Deep	Deep	Acorn	Yellow	Deciduous, has oak balls, litters
<i>Quercus rubra</i> RED OAK	8'	90'	Fast	Deep	Deep Moist	Acorn	Red/Brown/ Orange	Deciduous
<i>Quercus suber</i> CORK OAK	8'	100'	Moderate	Deep	Most Drained	Acorn	-	Cork bark, evergreen
<i>Quercus virginiana</i> SOUTHERN LIVE OAK	8'	60'	Moderate to Rapid	Deep	Most soils Moist	Acorns	-	Evergreen
<i>Robinia pseudoacacia</i> BLACK LOCUST	8'	75'	Rapid	-	Most soils	-	Yellow	Deciduous, messy pods, thorns
<i>Albizia julibrissin</i> CHINESE TALLOW TREE	6'	35'	Moderate	Medium	Needs deep soil, to avoid root problems Most Soils moist	Yellow Spikes	Red/Yellow Orange	Deciduous, likes acid soil, surface roots
<i>Schinus molle</i> CALIF. PEPPER TREE	8'	40'	Rapid Invasive	Shallow	Most soils	Yellow berries	-	Evergreen
<i>Tilia americana</i> AMERICAN LINDEN	6'	60'	Rapid	Deep	Fertile, Moist	Small Nutlets	-	Deciduous
<i>Ulmus americana</i> SAWLEAF ZELKOVA	8'	90'	Rapid	Shallow Surface	Most Soils	-	Red Yellow	Deciduous, elm leaf beetle, susceptible to dutch elm disease, can be top heavy, requires thinning

100% = 481 SQ. FT. 25% = 240 SQ. FT.

100% = 962 SQ. FT. 25% = 240 SQ. FT.

100% = 962 SQ. FT. 25% = 240 SQ. FT.

Botanical Name COMMON NAME	Planter Size	Height	Growth	Roots	Soil	Flowers / fruit	Fall color	Remarks
<i>Albizia melanoxylon</i> BLACKWOOD ACACIA	6'	70'	Rapid	Shallow Spreading	Dry/Well Drained	White/Pod	—	Evergreen, short lived, litters, drought tolerant spits
<i>Acer platanoides</i> RED MAPLE	8'	50'-60'	Rapid	Medium	Moist Drained	Winged Pod	Yellow	Deciduous, voracious root system, some aphids, mistletoe
<i>Acer rubrum</i> RED BIRCH	6'	40'-80'	Rapid	Shallow Invasive	Wet or Boggy	Insig. Cones	—	Deciduous
<i>Thuja occidentalis</i> GREEN CEDAR	8'	50'-90'	Slow	Deep Lateral	Most Soils Poor	Small Cones	—	Evergreen, drought tolerant, foliage is aromatic
<i>Thuja occidentalis</i> GREEN CEDAR	8'	80'	Fast	Deep	Most Soils	Cones	—	Evergreen
<i>Vaccinium corymbosum</i> BLUEBERRY	6'	80'	Moderate	Medium to Deep	Most Soils	Small Purple Berries	—	Deciduous
<i>Vaccinium corymbosum</i> BLUEBERRY	6'	60'	Moderate	Medium to Deep	Most Soils	Small Purple Berries	—	Deciduous
<i>Amorpha canescens</i> BAMBOO	8'	50'	Slow	Surface to Shallow	Most Soils	—	—	Evergreen, root problems, turns yellow-green in winter, prone to verticillium wilt
<i>Asplenium platyneuron</i> WETLAND SPERMATOPHYTES	6'	40'	Moderate to Fast	Shallow	Most Soils	—	Bright Yellow	Deciduous, prone to insect and disease damage
<i>Asplenium platyneuron</i> WETLAND SPERMATOPHYTES	6'	40'	Fast	Shallow	Most Soils	—	—	Deciduous, no seeds, prone to insect and disease damage
<i>Asplenium platyneuron</i> WETLAND SPERMATOPHYTES	6'	35'	Fast	Medium	Most Soils	—	Purple Red	Deciduous, prone to insect and disease damage
<i>Asplenium platyneuron</i> WETLAND SPERMATOPHYTES	6'	70'	Fast	Medium	Most Deep Drained	—	—	Evergreen, prone to insect and disease damage
<i>Asplenium platyneuron</i> WETLAND SPERMATOPHYTES	8'	50'	Slow	Deep	Most Soils	—	Bright Yellow	Deciduous, "Autumn Gold", good fall color
<i>Asplenium platyneuron</i> WETLAND SPERMATOPHYTES	8'	80'	Moderate	Deep Spreading	Deep moist	Brown Cone	Yellow Brown	Deciduous, unusual lyre shaped leaf has scale, aphid (drips)
<i>Asplenium platyneuron</i> WETLAND SPERMATOPHYTES	8'	60'	Slow	Deep	Deep moist	White Flower	—	Evergreen, litters
<i>Asplenium platyneuron</i> WETLAND SPERMATOPHYTES	6'	60'	Slow	Deep	Most Soils	—	Orange Red	Deciduous

25-30' DIAMETER TREES 100% = 707 SQ. FT. 50% = 354 SQ. FT. 25% = 177 SQ. FT.

Botanical Name COMMON NAME	Planter size	Height	Growth	Roots	Soils	Flowers/ fruit	Fall color	Remarks
<i>Pinus ponderosa</i> PONDEROSA PINE	6'	50'	Moderate	Deep	Most Soils	3"-5" Cones	-	Evergreen, Conifer, Drought Tolerant, site clearance problem
<i>Pinus sylvestris</i> SCOTCH PINE	6'	50'	Moderate	Deep	Poor Sandy	2" Cones	-	Evergreen, Conifer, Site clearance problem
<i>Pinus thunbergiana</i> JAPANESE BLACK PINE	8'	80'	Moderate	Deep	Any Soil	3" Cones	-	Evergreen, Conifer, Site clearance problem
<i>Pinus calleryana</i> BRADFORD PEAR	6'	50'	Moderate to Fast	Deep	Most Soils Moist	White clusters	Scarlet Red	Deciduous, Resists Fireblight
<i>Quercus palustris</i> PIN OAK	6'	50'	Rapid	Shallow Fibrous	Rich Most Drained	Acorn	Scarlet	Deciduous, No alkali soil, Brown leaves hang on during winter
<i>Liquidambar styraciflua</i> COAST REDWOOD	8'	90'	Rapid	Shallow	Deep Moist	1" Cones	-	Evergreen, Conifer, Site Clearance Problem
<i>Tilia cordata</i> LITTLE LEAF LINDEN	6'	50'	Rapid	Deep	Fertile Moist	Nutlet	-	Deciduous, Aphid Drip

20'-25' DIAMETER TREES 100% = 491 SQ. FT. 50% = 246 SQ. FT. 25% = 125 SQ. FT.

Botanical Name COMMON NAME	Planter size	Height	Growth	Roots	Soils	Flowers/ fruit	Fall color	Remarks
<i>Alnus incana</i> EUROPEAN HORNBEAN	6'	50'	Slow	Medium	Most soils	Winged seeds	Yellow	Deciduous, availability problems
<i>Geijera parviflora</i> AUSTRALIAN WILLOW	6'	30'	Moderate	Shallow	Well drained	Yellow Fragrant	-	Evergreen, drought tolerant
<i>Malus baccata</i> SWEET BAY	6'	40'	Slow	Deep	Moist sandy	Yellow flower Black berry	-	Evergreen
<i>Prunus sekoyama</i> (kwanzan) FLOWERING CHERRY	6'	30'	Moderate	Medium	Well drained	Double pink	-	Deciduous, purple leaves
<i>Prunus cerasifera pissardii</i> PURPLE LEAF PLUM	6'	30'	Fast	Medium	Most soils	White	-	Deciduous, purple leaves, top heavy (thin out) messy fruit problems
<i>Zizyphus jujuba</i> JUJUBE CHINESE DATE	6'	30'	Moderate	Deep	Deep moist	Small date	-	Deciduous, some drought tolerance.

100% = 962 SQ. FT. 25% = 240 SQ. FT.

Botanical Name COMMON NAME	Planter size	Height	Growth	Roots	Soil	Flowers / fruit	Fall color	Remarks
<i>Quercus parvifolia</i> CHINESE ELM	6'	50'	Rapid	Medium	Most Soils	—	Red in cold winter	Evergreen-deciduous
<i>Ulmus laevis</i> AMERICAN ELM	6'	70'	Rapid	Medium	Most Moist	Yellow Clusters/ Olive Fruit	—	Evergreen, drought tolerant

25-30' DIAMETER TREES 100% = 707 SQ. FT. 50% = 354 SQ. FT. 25% = 177 SQ. FT.

Botanical Name COMMON NAME	Planter size	Height	Growth	Roots	Soils	Flowers/ fruit	Fall color	Remarks
<i>Quercus cordata</i> ALIAN ALDER	6'	40'	Rapid	Shallow Invasive	Wet Boggy	Cones	—	Deciduous, roots more restrained than almus rhumbefolia
<i>Ulmus glutinosa</i> BLACK ALDER	6'	50'	Moderate	Shallow Invasive	Wet Boggy	Cones	—	Deciduous
<i>Alnus siliqua</i> ALB BIRCH	6'	40'	Moderate	Surface to Shallow	Most Soils	Long Messy Pods	—	Evergreen, use male tree only
<i>Eucalyptus nicholii</i> WILLOW LEAFED	6'	40'	Fast	Shallow Invasive	Light Drained	White Flower Capsules	—	Evergreen, drought tolerant, thin top to prevent toppling
<i>Alnus incana</i> OLDEN RAIN TREE	6'	35'	Slow/ Moderate	Deep	Most Soils Drained	Yellow Flowers/ Capsules	—	Deciduous, drought, messy
<i>Alnus glutinosa</i> AMERICAN SWEET GUM	6'	40'	Moderate	Shallow Surface	Deep Moist	1" Round Burs	Crimson Yellow	Deciduous, litters burs, cork twigs, can break pavement, site clearance problem
<i>Alnus sylvatica</i> DUPELO OR SOUR GUM	6'	60'	Moderate	Deep	Most Soils Wet	White Flowers/ Small Plum Like	Scarlet Orange	Deciduous, take mulch or little water
<i>Pinus canariensis</i> CANARY ISLAND PINE	6'	60'	Rapid	Deep	Poor Sandy	8" Cones	—	Evergreen, conifer, blue green needles, drought, pruned, site clearance problem
<i>Pinus densiflora</i> JAPANESE RED PINE	6'	80'	Rapid	Deep	Poor Sandy	2" Cones	—	Evergreen, conifer, mites, site clearance problem.
<i>Pinus eldredgei</i> MONDELL PINE	6'	80'	Fast	Deep	Most Soils Dry	4" Cones	—	Evergreen, conifer, good for erosion control, site clearance problem
<i>Pinus halepensis</i> MEDITERRANEAN PINE	6'	60'	Rapid	Deep	Most Dry	4" Cones	—	Evergreen, conifer, wind break, erosion control, site clearance problem

PRELIMINARY PLANT LIST

TREES

T-1	Cinnamomum camphora	Camphor Tree
T-2	Ginkgo biloba 'Fairmount'	Maidenhair Tree
T-3	Lagerstroernia 'Lavender'	Crape Myrtle
T-4	Liquidambar 'Palo Alto'	Sweet Gum
T-5	Platanus acerifolia 'Bloodgood'	London Plane

SHRUBS AND GROUND COVERS

S-1	Abelia grandiflora	Glossy Abelia	5 Gal
S-2	Agapanthus africanus 'Peter Pan'	Lily of the Nile	1 Gal
S-3	Arctostaphylos 'Howard McMinn'	Manzanita	5 Gal
S-4	Escallonia 'Compacta'	Escallonia	5 Gal
S-5	Hemerocallis aurantiaca	Daylily	1 Gal
S-6	Nerium oleander 'Petite Pink'	Dwarf Oleander	5 Gal
S-7	Photinia fraseri	Photinia	5 Gal
S-8	Pittosporum tobira 'Wheeler's Dwarf'	Dwarf Pittosporum	5 Gal
S-9	Tulbaghia violacea	Society Garlic	1 Gal
GC-1	Gazania 'Burgundy & White'	Gazania	Flats
GC-2	Rosmairnus 'Huntington Blue'	Rosemary	1 Gal

SHADING BY LOCATION INSTRUCTIONS:

Reference type of tree with Shading By Location Criteria, pages 11-18, for the appropriate tree size category. Then apply the percentage of credit based on the location of tree. Multiply the number of trees with the applicable credit and total the square foot credit for the entire parking lot area. The Shading requirement total should be 50% or greater than the parking lot square footage area.

Formula Example:

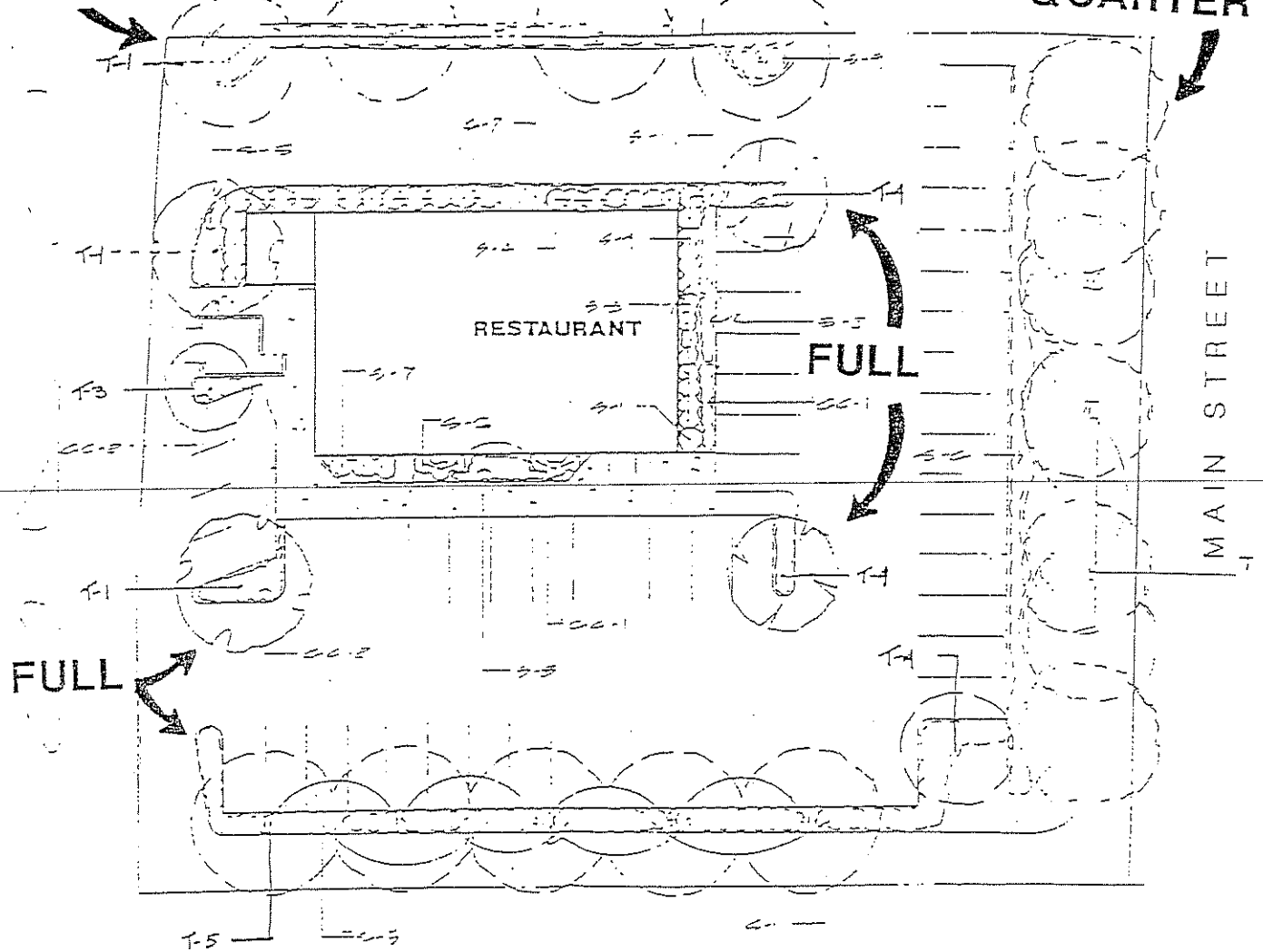
T-1, Cinnamonomum camphora is categorized as a 30-35' tree. The parking lot shading credit for full (100%) is 962 square feet for a half (50%) is 481 square feet and for a quarter (25%) 240 square feet. Multiply the number of each tree by the credit and total for all trees. The sum should be equal or greater than 50% of the parking area square footage.

15' - 20' DIAMETER TREES 100% = 314 SQ. FT. 50% = 157 SQ. FT. 25% = 75 SQ. FT.

Botanical Name COMMON NAME	Planter size	Height	Growth	Roots	Soils	Flowers/ fruit	Fall color	Remarks
<i>Acer palmatum</i> JAPANESE MAPLE	4'	25'	Slow	Shallow	Moist drained	Small winged	Red	Deciduous, afternoon shade, wilt, fungus, multiple trunk
<i>Acer buergerianum</i> FRIDENT MAPLE	4'	25'	Moderate	Shallow	Moist drained	Small winged	Red	Deciduous
<i>Aceris canadensis</i> EASTERN REDBUD	4'	35'	Moderate	Medium	Most soils	Red, spring	Yellow to red	Deciduous, drought
<i>Aceris occidentalis</i> WESTERN REDBUD	4'	20'	Moderate	Medium	Most soils	Red, spring	Yellow to Red	Deciduous, usually a small tree, multiple trunk
<i>Agavestroemia Indica</i> GRAPE MYRTLE	4'	25'	Slow	Shallow	Most soils	Pink to red flowers	Red to gold	Deciduous, need full sun all day, mildew, aphids
<i>Aylenus boaria</i> MAYTEN TREE	4'	30'	Slow to moderate	Deep	Most moist drained	-	-	Evergreen, weeping habit, must have well drained soil
<i>Ayryrus kawakamii</i> EVERGREEN PEAR	4'	30'	Moderate	Medium to deep	Most soils	White flowers	-	Semi-evergreen, fire-blight
<i>Ahus lancea</i> AFRICAN SUMAC	4'	25'	Slow	Medium	Most drained	Small red berries	-	Evergreen, drought tolerant, messy berries
<i>Arunus blireiana</i> FLOWERING PLUM	4'	25'	Moderate	Medium	Most soils	Pink to Rose	-	Deciduous, purple leaves, aphids
<i>Arunus c. thundercloud</i> FLOWERING PLUM	4'	20'	Moderate	Medium	Most soils	Pink to White	-	Deciduous, dark purple-coppery leaves, aphids
<i>Arunus C. krauter</i> FLOWERING PLUM	4'	20'	Moderate	Medium	Most soils	Pink	-	Deciduous, dark purple leaves, aphids
<i>Arunus thunbergiana</i> JAPANESE BLACK PINE	8'	50'	Moderate	Deep	Any Soil	3" cones	-	Evergreen, conifer, site clearance problem
<i>Ayrtus Calleryana</i> BRADFORD PEAR	6'	50'	Moderate to Fast	Deep	Moist Soils	White Clustera	Scarlet Red	Deciduous, resists fireblight
<i>Auercus Palustris</i> IN OAK	6'	50'	Rapid	Shallow Fibrus	Rich Most drained	Acorn	Scarlet	Deciduous, no alkali soil, brown leaves hang on during winter
<i>Aequoia sempervirens</i> COAST REDWOOD	8'	90'	Rapid	Shallow	Deep Moist	1" cones	-	Evergreen, conifer, site clearance problem
<i>Ailia Cordata</i> LITTLE LEAF LINDEN	6'	50'	Rapid	Deep	Fertile Moist	Nutlet	-	Deciduous, aphid drip

HALF

QUARTER



SHADING BY LOCATION EXAMPLE

TREE DIAMETER	CREDIT IN SQUARE FEET		
	100% FULL	50% HALF	25% QUARTER
15-20'	314	157	79
20-25'	491	246	123
25-30'	707	354	177
30-35'	962	481	240

Size		Percentage of Square Footage Credit (QUANTITY AT %)
T-1	30-35'	2 @ Full (296) = 1,924
T-1	30-35'	4 @ Half (481) = 1,924
T-2	30-35'	7 @ .25 (240) = 1,680
T-3	15-20'	1 @ Full (314) = 314
T-4	25-30'	3 @ Full (707) = 2,121
T-4	25-30'	1 @ Half (354) = 354
T-5	30-35'	5 @ Full (962) = 4,810

Totals = 13,127

TOTAL CREDIT FOR SHADING = 13,127
 PARKING LOT AREA = 23,607
 50% SHADING REQUIREMENT = 11,804

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

The following is a list of plants that are commonly used in landscape designs with water requirement classifications of low (L), medium (M), or high (H).

The list should not be considered a complete list of plants that can be used in landscape projects. The list is provided to assist the landscape designer in choosing species of appropriate water demands to meet the requirements of Section 17.19.080, and to group species of similar water demands to facilitate efficient irrigation. To use species other than those listed, the designer may provide the City with information indicating the water requirement of the species. Information may include the listing of a plant in an acceptable reference stating its water requirement characteristics, comparing it to a species in the plant list, field data, etc. Acceptable references include the "Sunset Western Garden Book;" "Trees and Shrubs for Dry California Landscapes," Robert Perry, and "Water Wise Gardening, E.B.M.U.D. or WUCOLS Plant List, U.C. Davis.

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

GENUS	SPECIES	CULTIVAR OR VARIETY	WATER REQUIREMENTS
Akebia	Quinata		M
Albizia	Julibrissin		L
Allmanda	Cathatica		M
Alnus	Cordata		M
	Oregona		H
	Rhombifolia		H
Alnus	Glutinosa		H
Alocasia	Odora		H
Aloe	Arborescens		L
Aloe	Vera		M
Alpinia	zerumbet		H
Alsophilla	Australis		H
Alyogyne	Huegelii		L
Ampelopsis	Veitchi		M
Andromeda	polifolia		H
Aralia	Elegantissima		H
	Sieboldii		H
Araucaria	Bidwillii		M
	Heterophylla		M
Arbutus	Menziesii		L
	Unedo		M
Archonzophoenix	Cunninghamiana		M
Arctostaphylos		"Emerald Carpet"	L
		"Green Sphere"	L
		"Howard McMinn"	L
	Bakeri	"Louis Edmunds"	L
	Densiflora	"Sentinel"	L
	Edmundsii	"Carmel Sur"	L
	Hookeri	"Monterey Carpet"	L
	"	"Wayside"	L
	Manzanita	"Dr. Hurd"	L
	Uva-ursi		L
	Uva-ursi	"Pacific Mist"	L
	"	"Point Reyes"	L
	"	"Radiant"	L
	"	"Woods Compact"	L
Arctotheca	Calendula		M
Arecastrum	Romanzoffianum		M
Arenaria	Verna		H
Artemisia	Arborescens		L
	Pycnocephala	"David's Choice"	L
	Stelleriana	"Silver Brocade"	L
Asparagus	Densiflorus	"Sprengeri"	M
	Plumosus		M
Aspidistra	Elatior		H
Asplenium	Nidus		H
Atriplex	Lentiformis		L
	"	Breweri	L
Aucuba	Japonica		H
	"	Variegata	H
Azalea	Indica		H
Baccharis	Pilularis		L
	"	"Twin Peaks"	L

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

GENUS	SPECIES	CULTIVAR OR VARIETY	WATER REQUIREMENTS	
Berberis	Variegata		M	
	Julianae		L	
	Mentorensis		L	
	Thunbergii		L	
Berginia	Cordifolia		M	
Betula	Pendula		H	
	"	"Dalecarlica"	H	
	Verrucosa		H	
Bougainvillea		"Barbara Karst"	M	
		"San Diego Red"	M	
Brunfelsia	Calycina		H	
	Pauciflora		H	
Buxus	Hariandii		M	
	Microphylla		M	
Calliandra	"	Japonica	M	
	Sempervirens		M	
	Tweedii		L	
	Callistemon	citrinus		L
		"	"Jeffersii"	L
Calocedrus	Lanceolatus		L	
	Viminalis		L	
	Decurrens		M	
	Occidentalis		H	
Calycanthus	Hiemalis		H	
	Japonica		H	
	Sasanqua		H	
Camellia	poscharskyana		H	
	Radicans		M	
Campanula	Grandiflora		M	
Campsis	Californica		L	
Carissa	"	"Elizabeth"	L	
			M	
Carpenteria	Edulis		M	
Carpobrotus	Artemisioides		L	
	Leptophylla		L	
Cassia	Glauca		L	
	Stricta		L	
Casaurina	Speciosa		M	
		"Blue Jeans"	L	
Catalpa		"Concha"	L	
		"Dark Star"	L	
		"Frosty Blue"	L	
		"Joyce Coulter"	L	
		Julia Phelps"	L	
		"Ray Hartman"	L	
		"Sierra Blue"	L	
		"Skylark"	L	
		"Tilden Park"	L	
		"Blue Buttons"	L	
		Cordulatus		L
		Gloriosus		L
		"	"Anchor Bay"	L
		"	Exaltatus "Emily Brown"	L
	"	Var. porrectus	L	
Ceanothus	Griseus	Horizontalis	L	
	"	Horizontalis "Yankee Point"	L	
	"	"Santa Ana"	L	
	Hearstiorum		L	

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

GENUS	SPECIES	CULTIVAR OR VARIETY	WATER REQUIREMENTS
	Rigidus	"Snowball"	L
	Thyriflorus	Repens	L
		"Snow Flurry"	L
Cedrus	Atlantica		L
	"	"Glauca"	L
	Deodara		L
	Libani		L
Celtis	Australis		L
	Sinensis		L
Centaurea	Cineraria		L
Cephalanthus	Occidentalis	Var. californicus	H
Cerotonia	Siliqua		L
Cercidium	Floridum		L
Cercis	Canadensis		L
	Occidentalis		L
Cercocarpus	Betuloides		L
Cestrum	Nocturnum		H
Chaenomeles	Japonica		M
Chamaecyparis	Obtusa		M
	"	"Nana"	M
	Pisifera		M
Chamaerops	Humilis		M
Cheiranthus	Variegata		L
Choisya	Ternata		H
Cinnamomum	Camphora		M
Cissus	Antarctica		H
	Rhombifolia		H
Cistus		"Sunset"	L
		"Warley's Rock Rose"	L
	Crispus		L
	Hybridus		L
	Landanifer		L
	Purpureus		L
	Salvifolius	"Prostratus"	L
	Skarbergi	"Low Pink"	L
Citrus	Limon		L
Clematis	Armandii		H
Clivia	Miniata		H
Clytostoma	Callistegioides		M
Cocculus	Laurifolius		H
Cocos	Plumosa		M
Coleonema	Pulchrum		M
Convolvulus	Cneorum		L
Coprosma	Kirkii		L
Coprosma	Repens		L
Cordyline	Indivisa		H
Cornus	Florida		H
	Stolonifera		H
Correa	Alba		L
	Pulchella		L
Cortaderia	Selloana		L
Corylus	Avellana		M
	Cornuta		H
Cotinus	Coggygria		L
Cotoneaster		"Lowfast"	L

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

GENUS	SPECIES	CULTIVAR OR VARIETY	WATER REQUIREMENTS
	Apiculatus		L
	Dammeri		L
	Horizontalis		L
	Lacteus		L
	Microphyllus		L
	"	Thymifolius	L
	Parneyi		L
Crataegus	Lavellei		M
	Oscantha	"Paul's Secret"	M
	Phaenapyrum		M
Cupaniopsis	Amacardioides		M
Cupressocyparis		"Gold Cup"	M
	Leyandii		M
Cupressus	Glabra		L
	Macrocarpa		L
	Sempervirens		L
	Revoluta		M
Cycas	Alternifolius		H
Cyperus	Papyrus		H
	Praecox		L
Cytisus	Purpureus	Arropurpureus	L
	Racemosus		L
	Scoparius		L
	"	"Lilac Time"	L
Deutzia	Gracilis		M
Dianthus	Alpinus		M
Diascia		"Ruby Field"	M
	Fetcaniensis		M
	Rigescens		M
Dicksonia	Antarctica		H
Dietes	Bicolor		L
	Vegeta		L
Diosma	Pulchrum		M
Diplacus	Aurantiacus		M
Districtis	Buccinatoria		H
Dodonaea	Viscosa	"Purpurea"	L
Doxantha	Unguis-cati		M
Duchesnea	Indica		H
Echium	Fastuosum		L
Elaeagnus	Angustifolia		L
	Pungens	"Maculata"	L
Eriobotrya	Deflexa		M
	Japonica		M
Eriogonum	Arborescens		L
	Crocatum		L
	Fasciculatum		L
	Giganteum		L
	Umbellatum	Polyanthum	L
Erythrina	Carrfa		M
	Coralloides		M
Escallonia		"Fredesii"	M
		"Red Elf"	M
	Rubra		M
	X	"Newport Dwarf"	M
Eucalyptus	Camaldulensis		L
	Cinerea		L
	Cladocalyx		L
	Globulus	"Compacta"	L

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

GENUS	SPECIES	CULTIVAR OR VARIETY	WATER REQUIREMENTS
Eucalyptus	Grandis		L
	Gunnii		L
	Leucoxydon		L
	Maculata		L
	Microtheca		L
	Nicholii		L
	Nitens		L
	Polyanthemos		L
	Rudis		L
	Sideroxydon		M
Euonymus	Torquata		L
	Alata	"Compacta"	M
Euryops	Fortunei		M
	Japonica		M
	Patens		M
Fatsia	Pectinatus		L
	" "	"Virides"	L
Fatshedera	Lizei		H
	Japonica		H
Fatsia	Japonica		H
Feijoa	Sellowiana		M
Felicia	Ameloides		M
Festuca	Ovina	"Glauca"	L
Ficus	Pumila		H
Forsythia	Intermedia		M
	Ovata		M
Fragaria	Chiloensis		H
Fraxinus	Americana		H
	Holotricha		M
Fraxinus	Latifolia		H
	Oxycarpa		M
	" "	"Raywood"	M
	Pennsylvanica		M
	Uhdei		M
	" "	"Orange County"	M
Fremontodendron	Velutina		M
	" "	"California Glory"	L
Gadvezia	" "	"Pacific Sunset"	L
	Speciosa		L
Gardenia	Jasminoides		H
Garrya	Elliptica	"James Roof"	M
Gaultheria	Shallon		M
Gazania	" "	"Burgundy"	L
	" "	"Copper King"	L
	" "	"Fiesta Red"	L
	" "	"Gold Rush"	L
	" "	"Sunrise Yellow"	L
Geijera	Parviflora		M
Gelsemium	Sempervirens		M
Genista	Lydia		L
	Pilosa	"Vancouver Gold"	L
Ginkgo	Biloba		M
Gleditsia	Triacanthos		M
	" "	"Aurea"	M
	" "	"Moraine"	M
	" "	"Shademaster"	M
Grevillea	" "	"Canberra"	M
	" "	"Noelii"	M
Lanigera	" "	" "	L
	" "	" "	L

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

GENUS	SPECIES	CULTIVAR OR VARIETY	WATER REQUIREMENTS
Grevillea	Robusta		M
Grevia	Caffra		H
Hakea	Suaveolens		L
Hebe		"Blue Elf"	M
		"Co-Ed"	M
		"Patty's Purple"	M
	Buxifolia		M
	Menziesii		M
Hedera	Canariensis		H
	Helix		M
Helianthemum	Nummularium	"Apricot"	L
	"	"Stoplite"	L
	"	"Wisley Pink"	L
Helxine	Soleirollia		H
Hemerocallis	Sp		M
Herniaria	Glabra		H
Heteromeles	Arbutifolia		L
	"	"Yellow Berry"	L
Heuchera	Maxima		M
Heuchera	Sanguinea		M
Hibiscus	Rosa-sinensis		H
Hydrangea	Macrophylla		M
Hymenosporum	Flavum		M
Hypericum	Patulum		M
Iberis	Sempervirens		M
Ilex	Aquifolium		H
	Cornuta		H
	Crenata		H
	Dimorphophylla		H
	Vomitorea	"Nana"	H
	X	Altaclarensis	H
Iris	Douglasiana		H
Jacaranda	Acutifolia		M
Jasminum	Mesnyi		L
	Polyanthum		M
Juglans	Nigra		L
Juniperus	Chinensis		L
	Conferra		H
	Excelsa		M
	Horizontalis		M
	Procumbens		M
	Sabina		L
	Scopulorum		L
	Shimpaku		M
	Squamata		L
	Virginiana		L
Kniphofia	Uvaria		L
Koelreuteria	Bipinnata		M
	Paniculata		M
Laburnum	Wateri		H
Lagerstroemia	Faureri		L
	Indica		L
Lantana	Camara		M
	Sallowiana		M
Laurus	Nobilis		L
Lavandula	Angustifolia		L
	"	"Hidcote"	L
	"	"Munstead"	L

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

GENUS	SPECIES	CULTIVAR OR VARIETY	WATER REQUIREMENTS
Leptospermum	Scopiarum		L
Leucophyllum	Frutescens		L
	"	"Compactum"	L
Ligustrum	Japonicum		H
	"	"Texanum"	H
	Lucidum		H
	Vulgare		H
Limonium	Perezii		M
Lippia	Canescens		L
Liquidambar	Styraciflua		M
	"	"Burgundy"	M
	"	"Festival"	M
Liquidambar	Stryaciflua	"Palo Alto"	M
Liriodendrum	Tulipifera		H
Liriope	Gigantea		M
	Muscari		H
	Spicata		M
Lithodora	Diffusa		M
Lonicera	Heckrottii		M
	Japonica	"Halliana"	M
	Tatarica		M
Lupinus	Albifrons		L
Macfadyena	Unquis-cati		M
Magnolia	Grandiflora		M
	"	"Majestic Beauty"	M
	Soulangiana		H
	Stellata		H
Mahonia	Aquifolium		L
	Lomariifolia		L
	Nevinii		L
	Pinnata		L
	Repens		L
Malus	Floribunda		H
	loenis		H
	Purpurea		H
	Zumi		H
Maytenus	Boaria		M
Malaleuca	Linariifolia		L
	Nesophila		L
	Quinquenervia		L
Metasequoia	Glyptostroboides		H
Metrosideros	Excelsus		L
Moraea	Bicolor		L
	Iridioides		L
Morus	Alba		M
Myoporum	"	"Pacificum"	L
	Debile		L
	Laetum		L
Myoporum	Parvifolium		L
Myrica	Californica		M
Myrsine	Africana		M
Myrtus	Communis		L
Nandina	Domestica		M
Nephrolepis	Cordifolia		H
Nerium	Oleander		L
	"	"Mrs. Roeding"	L
	"	"Petite Pink"	L

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

GENUS	SPECIES	CULTIVAR OR VARIETY	WATER REQUIREMENTS
Nerium	Oleander	"Petite Salmon"	L
	"	"Sister Agnes"	L
Nyssa	Sylvatica		H
	Berlandieri	"Siskiyou"	L
Oenothera	Stubbei		L
	Europaea		L
Olea	Japonicus		H
Ophiopogon	Fragrans		M
Osmanthus	Illicifolius		M
	Terminalis		M
Pachysandra	Aculeata		L
Parkinsonia	Quinquefolia		M
Parthenocissus	Tricuspidata		M
	Pfordtii		M
Passiflora	Aculeata		L
Pennisetum	Gloxinioides		L
Penstemon	Buccinatorius		M
Phaedranthus	Virginalis		M
Philadelphus	Selloum		H
Philodendron	Canariensis		L
Phoenix	Reclinata		M
	Roebelenii		M
	Tenax		M
Phormium	"	"Bronze"	M
	"	"Variegatum"	M
Photinia	Fraseri		M
	Serrulata		M
Phyla	Nodiflora		M
	Aurea		M
Phyllostachys	Abies		H
	Picea		H
Pieris	Glauca		H
	Pungens		H
	Forestii		M
Pinus	Japonica		M
	Canariensis		M
Pistacia	Contorta		H
	Densiflora		L
	Eldarica		L
	Haldepensis		L
	Jeffreyi		L
	Mugo		M
	Nigra		H
	Patula		M
	Pinea		L
	Ponderosa		L
	Radiata		M
	Roxburghii		M
	Sabiniana		L
	Strobus		M
	Sylvestris		L
	Thunbergii		L
Torreyana		L	
Pittosporum	Chinensis		L
	Vera		M
Pittosporum	Crassifolium		M
	Eugenioides		M
Pittosporum	Tenuifolium		M
	Tobira		M

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

GENUS	SPECIES	CULTIVAR OR VARIETY	WATER REQUIREMENTS
Pittosporum	"	"Variegata"	M
	"	"Wheeler's Dwarf"	M
Pittosporum	Undulatum		M
Platanus	Acerifolius		M
	"	"Bloodgood"	M
	"	"Yarwood"	M
	Cashmeriana		M
	Occidentalis		M
	Orientalis		M
	Racemosa		M
Plumbago	Auriculata		M
	Capensis		M
Podocarpus	Gracilior		H
	Macrophyllus		M
	"	"Maki"	M
Polygala	Dalmasiana		M
Polystichum	Munitum		H
Populus	Balsamifera		M
	Bolleana		M
	Canadensis		H
	Fremontii		H
	Nigra		H
	"	"Italica"	M
	Tremuloides		H
	Trichocarpa		H
Potentilla	Fruticosa		H
	Veitchii		H
	Verna		H
Prunus	Blieriana		M
	Caroliniana		M
	Cerasifera		M
	Cistena		M
	Glandulosa		M
	Laurocerasus		H
	Lyonii		L
	Serrulata		H
	Subhirtella		H
	Yedoensis		H
Psidium	Cattelianum		M
Punica	Granatum		L
Pyracantha	Coccinea		L
	Fortuneana		L
	Koidzumii		L
Pyrus	Calleryana		H
	"	"Aristocrat"	M
	"	"Bradford"	M
	Kawakami		M
Quercus	Agrifolia		L
Quercus	Coccinea		M
	Douglasii		L
	Ilex		L
	Kelloggii		M
	Lobata		L
	Palustris		M
	Robur		M
	Rubra		M
	Shumardii		M
	Suber		L

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

GENUS	SPECIES	CULTIVAR OR VARIETY	WATER REQUIREMENTS
Quercus Raphiolepis	Virginiana		M
	Wislizenii		L
	Indica		L
	"	"Jack Evans"	L
	"	"Pink Dancer"	L
	"	"Pink Lady"	L
	"	"Pinkie"	L
	"	"Rosea"	L
	"	"Snow White"	L
	"		L
Rhamnus	Umbellata		L
	X	"Majestic Beauty"	L
Rhus	Alaternus		L
	California	"Eve Case"	L
	Californica		L
	Crocea	Illicifolia	L
	Integrifolia		L
	Lancea		M
	Ovata		L
	Typhina		L
	Aureum	Var. gracillimum	M
	Sanguineum		M
Ribes	"	Glutinosum "Claremont"	M
	"	"White Icicle"	M
	"		M
	Viburnifolium		L
	Ambigua		L
Robinea Robinia	Pseudoacacia		L
	X	"Idaho Pink"	L
	"	"Purple Robe"	L
Romneya Rosa	Coulteri		M
	Banksiae		M
Rosmarinus	Californica		H
	Officinalis		L
	"	"Lockwood de Forest"	L
	"	"Prostratus"	L
Sagina Salix	"	"Tuscan Blue"	L
	Subulata		H
	"	"Allen Chickering"	H
Salix Salvia	Abla		H
	Babylonica		H
	Hindsiana		H
	Lasiandra		H
	Matsudana		H
	Clevelandii		L
	Greggii		L
	"	"Coral"	L
	"	"Pink"	L
	"	"Purple"	L
"	"Red"	L	
"	"White"	L	
Sambucus	Leucantha		L
	Leucophylla		L
	"	"Pt. Sal"	L
	"		L
	Mellifera		H
Santolina	Caerulea		H
	Mexicana		L
Sapium	Chamaecyparissus		L
	Virens		L
	Sebiferum		M

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

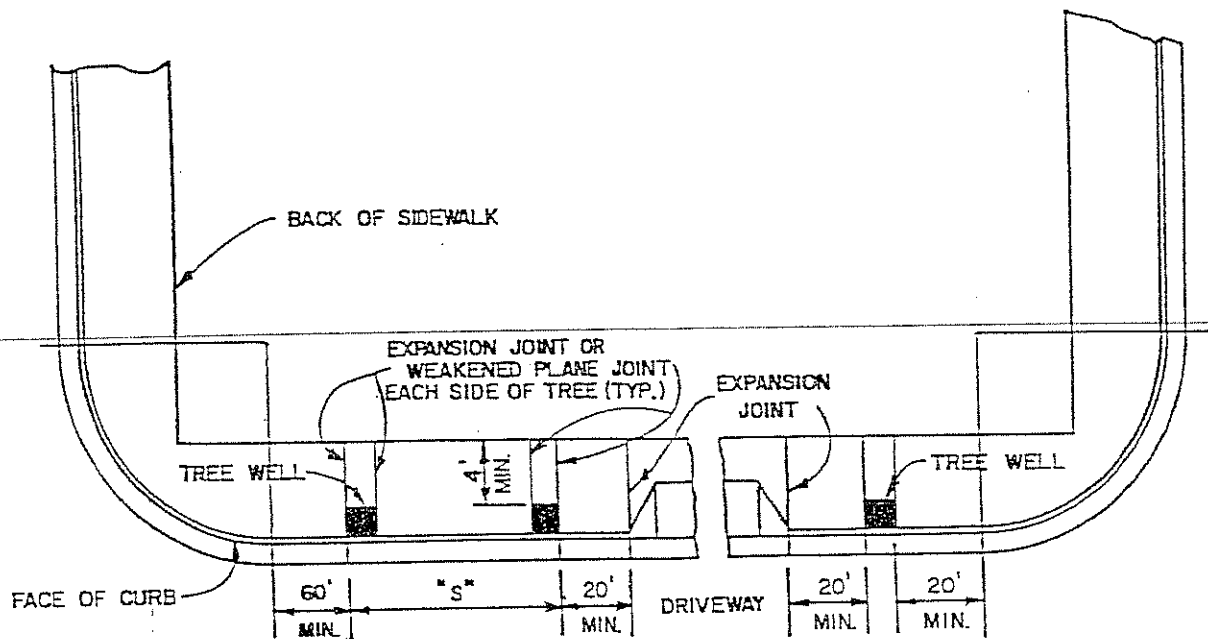
GENUS	SPECIES	CULTIVAR OR VARIETY	WATER REQUIREMENTS
Sarcococca	Ruscifolia		M
Saxifraga	Arendsii		H
	Rosacea		H
	Stolonifera		H
Scabiosa	Anthemifolia		M
Scaevola	Humilus		M
Scaevola		"Mauve Clusters"	M
Schinus	Molle		L
	Terebinthifolius		L
Seaforthia	Elegans		M
Sequoia	Sempervirens		L
	"	"Aptos Blue"	M
	"	"Los Altos"	M
	"	"Santa Cruz"	M
	"	"Soquel"	M
Sequoiadendron	Gigenteum		L
Sisyrinchium	Bellum		H
	"	"Nana"	H
	Californicum		H
	Macounii	"Album"	H
Solanum	Jasminoides		M
	Rantonetti		M
Sollya	Heterophylla		M
Sophora	Japonica		M
Sorbus	Aucuparia		H
Spirea	Bumalda		M
	Cantoniensis		M
	Nipponica		M
	Prunifolia		M
	Thunbergii		M
	Vanhouttei		M
Strelitzia	Nicolai		M
	Reginae		M
Syringa	Persica		H
	Vulgaris		H
Syzygium	Paniculatum		M
Taxus	Baccata		M
	Media		M
Tecomaria	Capensis		M
Ternstroemia	Gymnathera		H
Thelvetia	Peruviana		M
Thuja	Occidentalis		H
	Orientalis		H
Thymus	Albus		L
	Citriodorus		L
	Druceli		L
	Rosea		L
	Serphyllum		L
Tibouchina	Urvilleana		M
Tilia	Cordata		H
Tipuana	Tipu		L
Trachelospermum	Asiaticum		M
	Jasminoides		M
Trachycarpus	Fortunei		M
Trichostema	Lanatum		L
Tsuga	Canadensis		H
Tulbaghia	Violacea	"Variegata"	L

RELATIVE WATER REQUIREMENTS OF COMMONLY USED PLANTS

GENUS	SPECIES	CULTIVAR OR VARIETY	WATER REQUIREMENTS
Ulmus	Americana		H
	Parvifolia		M
	"	"Drake"	M
Umbellularia	Californica		M
Verbena	Tenuifolium		L
Veronica			H
Viburnum	Burkwoodi		M
	Davidii		H
	Opulus		M
	Plicatum		M
	Suspensum		M
	Tinus		L
Vinca	Major		L
	Minor		L
	Rosea		H
Vitis	Californica		H
Washingtonia	Filifera		M
	Robusta		M
Weigela	Florida		H
Westringia	Rosamariniformis		L
Wisteria	Floribunda		M
	Sinensis		M
Woodwardia	Fimbriata		H
Xylosma	Congestum		L
Yucca	Aloifolia		L
	Bervifolia		L
	Filimentosa		L
	Gloriosa		L
	Pendula		L
Yucca	Recurvifolia		L
	Whipplei		L
	Aethiopica		H
Zantedeschia			L
Zauschneria		"Everett's Choice"	L
	Californica		L
Zeldova	Serrata		M

The following books are suggested as a Bibliography reference list for the selection of plants in addition to a plant list:

1. PLANTS FOR CALIFORNIA LANDSCAPES: A CATALOG OF DROUGHT-TOLERANT PLANTS, California Department of Water Resources.
2. TREES AND SHRUBS FOR DRY CALIFORNIA LANDSCAPES, Robert Perry.
3. A SUCCESS LIST OF WATER-CONSERVING PLANTS, Saratoga Horticultural Foundation.
4. SELECT CALIFORNIA NATIVE PLANTS, Saratoga Horticultural Foundation.
5. WATER WISE GARDENING/EAST BAY MUD BOOK.
6. WUCOLS PROJECT LIST, UC DAVIS.
7. LANDSCAPE PLANTS FOR WESTERN REGIONS, Perry.



NOTES:

1. "S" SPACING OF TREEWELLS SHALL BE EQUALLY DIVIDED THROUGHOUT THE BLOCK.
2. "S" SPACING SHALL BE 28 FEET MINIMUM AND 40 FEET MAXIMUM.
3. SIZE OF TREE WELLS SHALL BE 4' x 4' OR AS APPROVED BY THE PUBLIC WORKS DEPARTMENT.
4. ALL TREES SHALL BE PLACED A MINIMUM DISTANCE OF 8' FROM SEWER LATERALS AND WATER SERVICES.
5. PROVIDE BUBBLER SPRINKLER HEAD TO EACH TREE WELL FROM ADJACENT LANDSCAPE AREA OR WATER SOURCE. FOR BACK-UP FRONTAGES, THE LOCATION OF THE VALVE IS TO BE APPROVED BY THE CITY ENGINEER.
6. ALL NEW OR IMPROVED COMMERCIAL FRONTAGE SHALL HAVE TREE WELLS.

NO.	REVISED	BY
1	JAN. 1988	JK
DRAWN BY: C. SABERTON		

STANDARD TREE WELL LOCATION

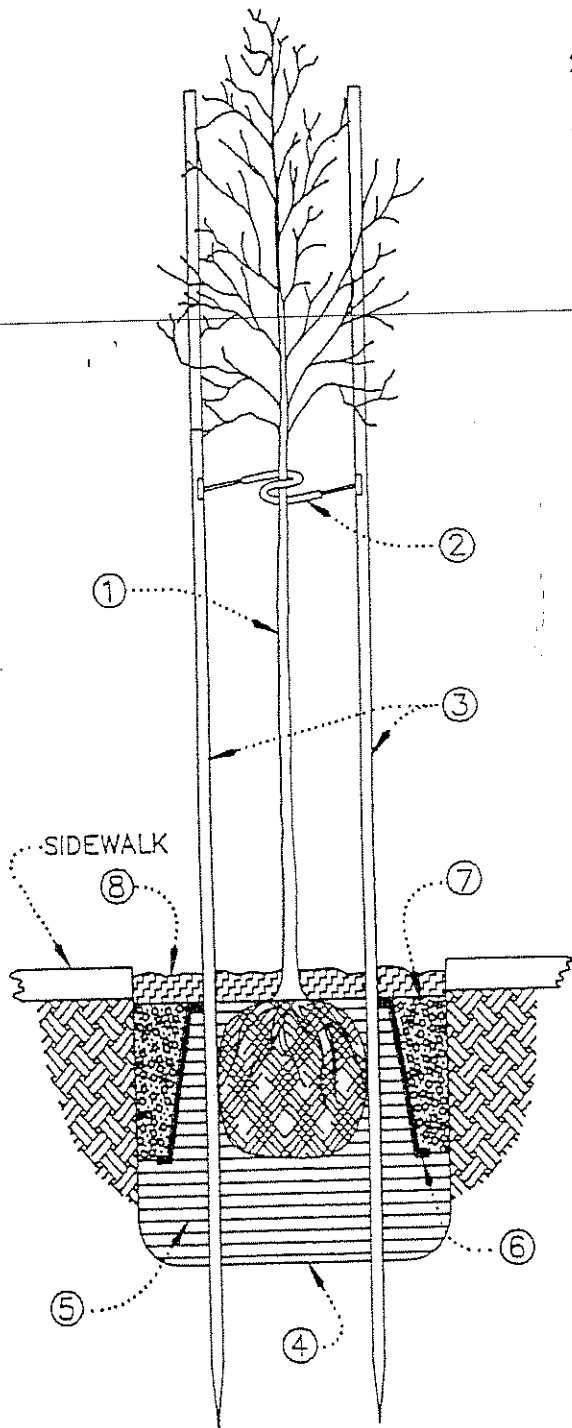
APPROVED BY:

 DIRECTOR OF PUBLIC WORKS

DRAWING NO. _____

NOTES:

1. 15 GALLON TREE (VARIETY SPECIFIED BY THE PARKS AND RECREATION DEPARTMENT)
MINIMUM SIZE REQUIREMENTS:
HEIGHT - 7 FEET
TRUNK CALIPER 3/4 INCH
2. 16 INCH V.I.T. TREE TWIST BRACE NAILED TO TREE STAKES WITH GALVANIZED ROOFING NAILS.
3. TREE STAKES: TWO - 2" X 2" X 12' REDWOOD OR 2" DIAMETER X 12' TREATED LODGEPOLE DRIVEN A MINIMUM OF 4 FEET INTO THE GROUND AND AT OUTSIDE EDGE OF ROOT BALL.
4. EXCAVATION TO BE 30 INCHES DEEP AND TO THE FULL WIDTH AND LENGTH OF TREEWELL (TYPICALLY 4' X 4').
5. PLANTING SOIL MIX SHALL BE 3 PARTS TOPSOIL TO 1 PART NITROGEN STABILIZED HUMUS AND 1/2 LB. "BEST" TURF SUPREME FERTILIZER (16-6-8) OR APPROVED EQUAL.
6. SET ROOT CONTROL BARRIER (DEEP ROOT CORP. # 22-29-18-P OR ROOT BOOSTER # F1-15-BOX) ON COMPACTED BACKFILL SO THAT TOP OF BARRIER IS 4 INCHES BELOW TOP OF SIDEWALK. PLANT TREE IN BARRIER AND BACKFILL WITH SOIL MIX. TREE AND BARRIER SHALL BE CENTERED IN TREEWELL.
7. FILL REMAINDER OF HOLE AROUND OUTSIDE OF BARRIER WITH 3/4 INCH GRAVEL/DRAIN ROCK TO TOP OF BARRIER.
8. INSTALL 3 1/2 INCH LAYER OF BARK MULCH (PROVIDED BY THE CITY - INSTALLED BY THE DEVELOPER) IN TREEWELL TO 1/2 INCH BELOW TOP OF SIDEWALK.
9. DEVELOPER OR CONTRACTOR SHALL WATER THE TREE AT TIME OF PLANTING AND SHALL BE RESPONSIBLE FOR CARE OF THE TREE UNTIL ALL IMPROVEMENTS ARE ACCEPTED BY THE CITY.
10. ALL TREES SHALL BE PLACED A MINIMUM OF 8 FEET FROM SEWER LATERALS AND WATER SERVICES AND A MINIMUM OF 20 FEET FROM STREET LIGHTS.
11. IRRIGATION SYSTEM TO BE PROVIDED PER CITY STANDARD DRAWING NO. W-12 ON BACKUP LOT FRONTAGES. ON COMMERCIAL FRONTAGES, IRRIGATION SYSTEM TO BE CONNECTED TO ON-SITE AUTOMATIC IRRIGATION SYSTEM.

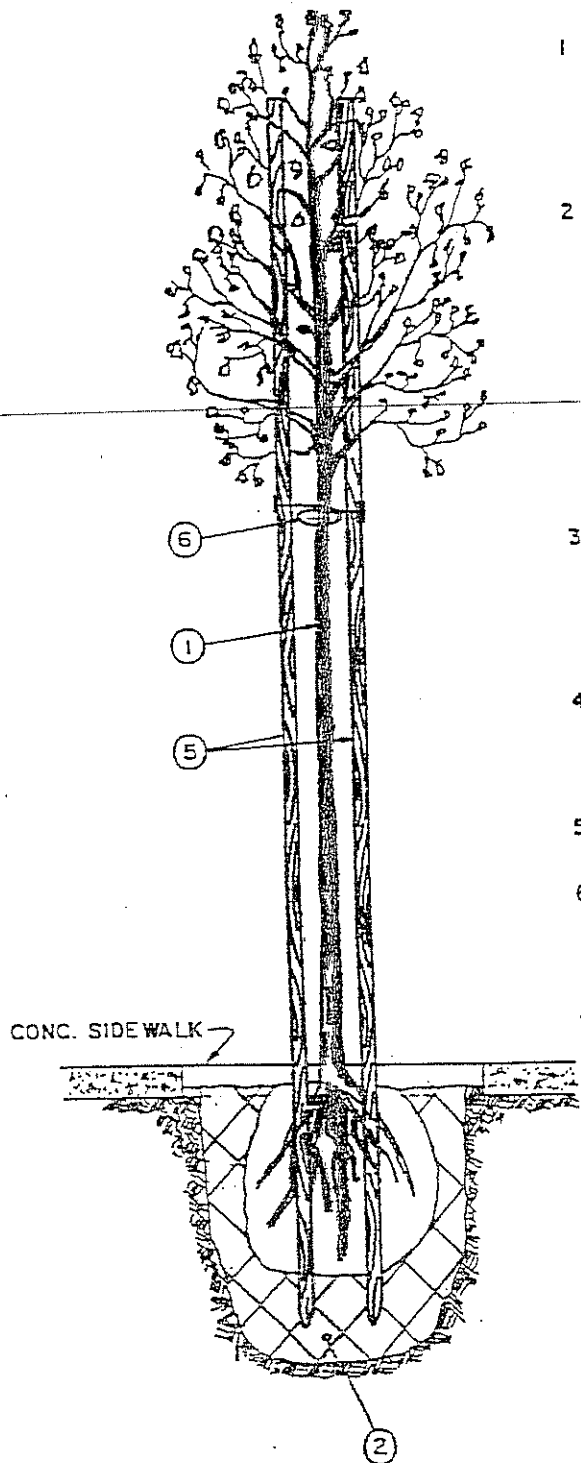


NO.	REVISED	BY
DRAWN BY:	J. HULSEY	
CHECKED BY:	S. HOUX	
	NONE	

ARTERIAL TREE WELL STREET TREE PLANTING

CITY OF MANTECA
DEPARTMENT OF PUBLIC WORKS

APPROVED BY:	<i>Mike B. Brewster</i> DIRECTOR OF PUBLIC WORKS
DRAWING NO.	ST-24
DATE:	AUG. 1992



- 1 MINIMUM TREE SIZE SHALL BE 15 GALLON CONTAINER. MINIMUM TREE HEIGHT SHALL BE 7'-0" FROM TOP OF CONTAINER TO TOP OF TREE. CALIPER OF TREE SHALL BE NO SMALLER THAN 3/4 OF AN INCH.
- 2 ALL SOIL SHALL BE REMOVED TO A DEPTH OF 3 FEET. THE DEVELOPER OR CONTRACTOR SHALL NOTIFY THE PARKS DEPARTMENT 48 HOURS PRIOR TO PLANTING TREE FOR INSPECTION. EXCAVATION SHALL BE INSPECTED PRIOR TO PLANTING. THE SOIL SHALL BE MIXED WITH SOIL RICH MATERIAL (70% REDWOOD - 30% FIR) AT A RATIO OF 2 PARTS SOIL TO ONE PART SOIL RICH. AFTER MIXING ONE FOOT OF MIXTURE WILL BE PLACED IN THE HOLE.
- 3 TREES SHALL BE CENTERED IN THE TREE WELL.
- 4 TWO 2"x2"x12'-0" REDWOOD OR KAPOR HARDWOOD TREE STAKES SHALL BE PLACED FOR EACH TREE. STAKES SHALL DRIVEN THROUGH ROOT AREA OF TREE 4'-0"
- 5 TREE BRACE SHALL BE RIGID METAL WITH RUBBER COVER AND SHALL BE LOCATED NEAR HEAD OF TREE.
- 6 DEVELOPER OR CONTRACTOR SHALL WATER TREE AT TIME OF PLANTING AND SHALL BE RESPONSIBLE FOR CARE OF THE TREE UNTIL ALL IMPROVEMENTS ARE ACCEPTED BY CITY.
- 7 ALL TREES SHALL BE PLACED A MINIMUM OF 8 FEET FROM SEWER LATERALS AND WATER SERVICES AND A MINIMUM OF 20 FEET FROM ELECTROLIERS.
- 8 SEE CITY LIST OF ACCEPTABLE TREES (ST-25).

NO.	REVISED	BY	ARTERIAL STREET TREE PLANTING	APPROVED BY:
				<i>M. Briston</i>
DRAWN BY: J. HULSEY				DIRECTOR OF PUBLIC WORKS
CHECKED BY: J. PODESTA			CITY OF MANTECA	DRAWING NO. ST-24

SUGGESTED LIST OF STREET TREES AS DEFINED IN RESOLUTION NO. R-5051 DATED MAY 5, 1969.

THERE ARE MANY DESIRABLE TREES FOR LAWN AND PATIO IN ADDITION TO THESE LISTED. OTHER TREES MAY BE APPROVED UPON REQUEST TO THE PUBLIC WORKS DIRECTOR. THIS LIST OF STREET TREES IS A SELECTED GROUP OF TREES WITH SPECIAL QUALITIES THAT MAKE THEM DESIRABLE ALONG THE STREET:

SUGGESTED LIST OF STREET TREES	APPROX. HEIGHT AT MATURITY
CAMPHOR-----	(E) -----40'
CREPE MYRTLE-----	(D) -----25'
RAYWOOD ASH-----	(D) -----45'
EVERGREEN PEAR-----	(E) -----30'
MAYTENUS BOARIA-----	(E) -----20'
TULIP TREE-----	(D) -----75'
CANARY ISLAND PINE-----	(E) -----60'
PURPLE LEAF PLUM-----	(D) -----25'
CHINESE SILK TREE (ALBIZZIA)---	(D) -----30'

D-DECIDUOUS

E-EVERGREEN

LIST OF PROHIBITED STREET TREES

THIS LIST OF TREES ARE PROHIBITED AS STREET TREES UNDER ORDINANCE NO. 169 AND ARE PROHIBITED IN THE STREET TREE AREA (PARKING STRIPS AND THE FRONT FIVE (5) FEET OF THE LOT):

- SYCAMORE (PLATANUS) D
- POPULAR (POPULUS) D
- WILLOW (SALIX) D
- AMERICAN ELM (ULMUS AMERICANA) D
- WALNUT (JUGLANS) D
- EUCALYPTUS (MOST VARIETIES) E
- CONIFERS (MOST VARIETIES) E
- PEPPER (SCHINUS OR ZANTHOXY PIPERITUM) E-D
- PALM (MOST VARIETIES)
- ACACIA (MOST VARIETIES) E
- MODESTO ASH (FRAXINUS VELUTINA "MODESTO") D
- FRUITLESS MULBERRY (MORUS) D

NO.	REVISED	BY	<h2 style="margin: 0;">STREET TREES</h2>	APPROVED BY: 
DRAWN BY: J. KOESTER				DIRECTOR OF PUBLIC WORKS
CHECKED BY: J. PODESTA			CITY OF MANTECA	DRAWING NO. ST-25
DATE: NONE			DEPARTMENT OF PUBLIC WORKS	DATE: JAN. 1988