Oak Grove Open Space & Common Areas Design Guidelines

Pleasanton, California
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Open Space & Common Areas Design Guidelines

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Introduction

Vision

Oak Grove is situated on a beautiful, natural site with grassy, gently rolling hills and large stands of mature Oak trees. It has been envisioned and planned as a quiet, enviornmentally integrated neighborhood situated within an open space preserve of native California Oak woodlands and grasslands. Home sites were selected to best preserve the natural experience for both Oak Grove homeowners and local residents, and the development provides for the offer of a dedication of nearly 500 acres of open space parkland.

The general development goals of Oak Grove envision the residential neighborhood in terms of habitat enhancement and low-impact design, and are as follows:

Goal #1: To enhance homeowner and public access to the natural settings at Oak Grove.

Goal #2: To ensure that, where noticeably visible to neighbors and off-site viewpoints, individual homes settle gracefully into their sites.

Goal #3: To ensure that revegetation, fencing, trails and pathways, lighting and other site design elements establish the qualities of a rural neighborhood and where appropriate, ease transitions to neighboring properties and/or adjacent open space.

Goal #4: To ensure that urbanized areas outside Oak Grove are minimally impacted visually by the project.

Design Guidelines

The Oak Grove Design Guidelines exist to preserve the beauty of Oak Grove's natural environment and to integrate the architecture and landscape with this unique setting. They will ensure that the development team, custom homebuilders and individual homeowners have the guidance necessary to achieve the goals set forth above. They are also a tool to inform individual buyers and future Oak Grove residents of the requirements and special characteristics of individual Lots, as well as of the project as a whole. The purposes underlying the parameters of the Oak Grove Design Guidelines include: the preservation of open space, encouragement of green design practices, reduction of building bulk and mass, minimization of the visual impacts of man-made elements, and harmony of site layout and landform.

The Oak Grove Design Guidelines are composed of two books that work towards the same goals: the Open Space & Common Areas Design Guidelines and the Residence Lot Design Guidelines. The Residence Lot Design Guidelines for Oak Grove are divided into three sections: General Architectural Design Guidelines, Lot Specific Architectural Design Guidelines and Landscape Design Guidelines.

While the Residence Lot Design Guidelines pertain to development on lots, the Open Space & Common Areas Design Guidelines ensure that the dedicated open space, common areas, and streetscapes are developed in line with the vision for Oak Grove.

Goals for Open Space & Common Area Design

Landscape Vision

By setting standards for sustainable landscape architectural, environmental and lot-specific architectural design practices, Oak Grove will achieve a memorable identity and ecological fit. The Open Space and Common Area Guidelines recognize the value of the existing heritage landscape of oak woodlands; having been in existence for several hundred years, it dominates the residential and open space experience. The Project will preserve and expand these habitats as residential lots are developed. New plantings within the public common areas as well as on residence lots will be organized so that existing natural groves are expanded, or new groves created. Ornamental landscape character will be kept to a minimum so that when viewed from streets, trails and surrounding neighborhoods, the native landscape remains dominant.

Open Space

Almost ninety percent of the Project area [495 acres] will be set aside as open space. Grazing in some areas of the open space preserve may be allowed to help keep vegetation undergrowth to a minimum. Grazing would be carefully managed within and near pristine oak woodlands so that the next generation of oak trees and other native vegetation can establish itself successfully. Provisions in these Guidelines will protect existing trees, grasslands, and wetlands that, while not developed, may be directly or indirectly disturbed by proposed devlopement in Oak Grove.

Streetscape & Common Area Improvements

A minimalist approach to streetscape design will be implemented at Oak Grove. Public streets will have curbs and gutters, and a separated sidewalk on only one side of each street. This sidewalk will link to trails, allowing residents access to open space. On-street parking will not be allowed, except at designated parking pockets. Additional owner and visitor parking requirements will be provided on individual lots. Mailboxes will be clustered at strategic locations throughout the neighborhood.

Street lighting will consist of pedestrian-scaled, pole-mounted lights. The light fixtures will have bulb shields to direct the glow downward and minimize glare. Traditional street tree patterns of formal rows and equal spacing will be replaced with clusters of Valley and Coast Live Oak trees in the front gardens of each individual lot. Other design features will be required in the front yard setback that will unify the streetscape image. This approach will create a landscape setting that extends the streetscape to the front of the houses. Street trees will be arranged in natural clusters rather than lining up against the edges of the road. Lots are arranged in clusters as well, so that open spaces will separate lots or abut single-loaded streets.

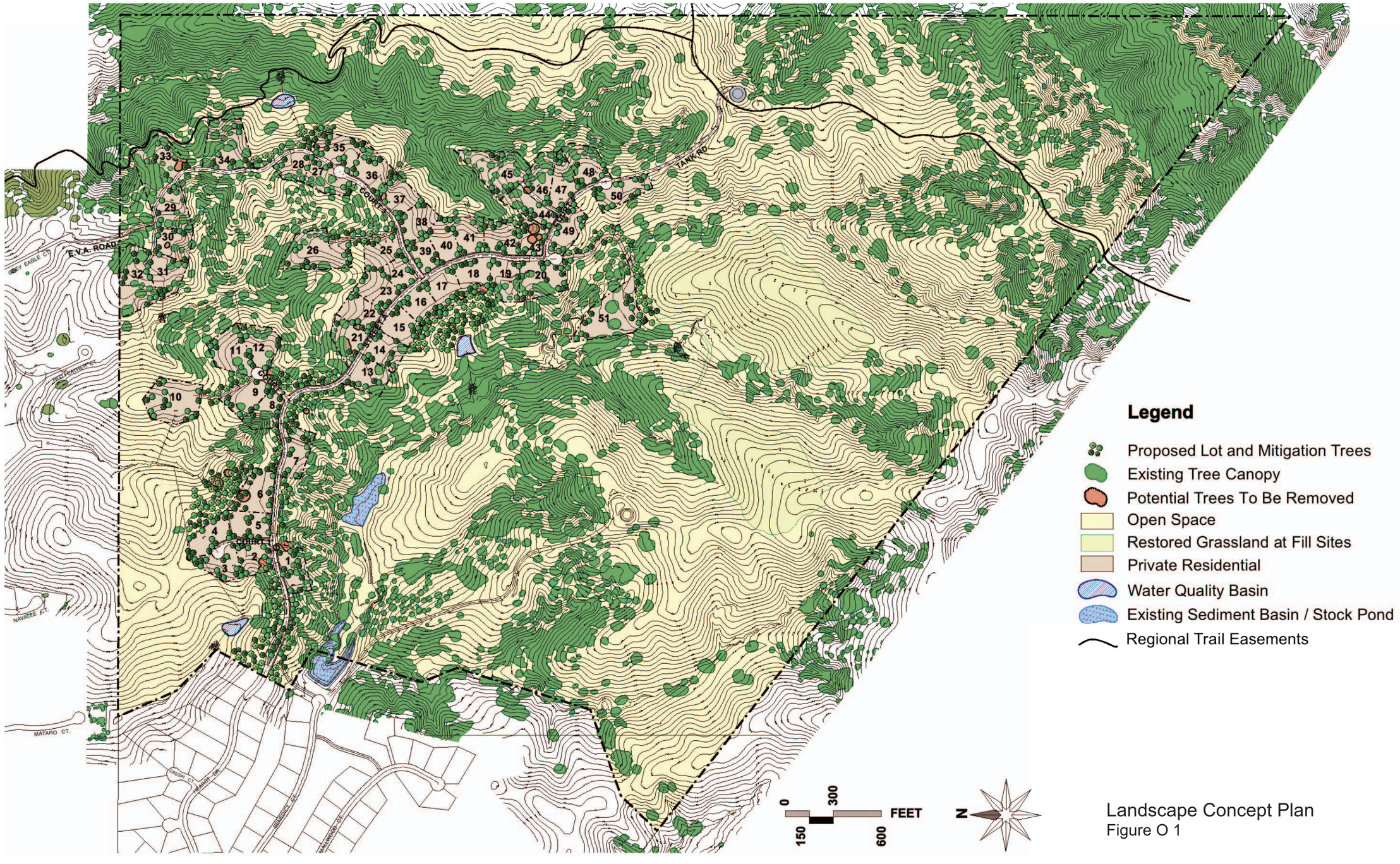
Open Space & Common Areas Design Guidelines

Introduction

Revegetation

The existing woodlands are composed of four species: Valley Oak, Blue Oak, Coast Live Oak and California Buckeye. The Buckeye and Blue Oaks are deciduous trees found within the steeper, north and east facing ravines. Blue Oaks are the dominant species, representing 69% of surveyed trees within the Oak Grove project area. Valley Oaks and Coast Live Oaks are found at the edges of ravines and closer to ridgelines. Existing Blue Oaks and Buckeye trees are growing in the ravines. Revegetation strategies will focus on using these four trees, arranged according to naturally occurring patterns and proportions. Other compatible species may be introduced.

There are two categories of revegetation. Mitigation planting, required as replacement for trees removed for road construction and lot grading, will occur in the open space preserve, adjacent to residence lots or at focal points within the public common areas. This planting will expand existing groves or create new groves. These new tree plantings will be located to provide visual buffers to lots visible from off-site vantage points. Mitigation planting will match the percentages of tree species being removed for new streets and homes.



Landscape Concept Plan
Figure O 1

Open Space & Common Areas Design Guidelines

Common Public Space Landscape Design Guidelines

O1 Open Space & Common Areas Design Guidelines

Four major design goals have been established to guide in the development of Oak Grove. One of these goals is to enhance public access to existing natural site features and settings. The Open Space and Common Areas Guidelines establish minimum requirements for streets, trails, parks and revegetation throughout the open space preserve, within the project boundary. Guidelines for preserving the existing vegetation and habitats are also included.

O-1.1 Existing Vegetation and Natural Features

Over 12,000 existing trees of significant character, condition and size exist on the property. A tree inventory has identified 924 trees to be impacted by proposed improvements. These trees have been surveyed and identified for removal or preservation during construction of public/site improvements. 99% of the existing trees and 87% of the inventoried trees are to be preserved. See Figure O 3. In instances where trees to be preserved occur near grading limits, the following protective measures shall apply:

A. Prior to the start of grading operations, grading limit lines shall be staked in the field and high visibility orange tree protection fencing shall be installed at the drip line of the preserved trees nearest the edge of grading operations. The protection fencing shall be installed on steel “T” posts, spaced at a maximum of 8 feet apart. The City and the Project Forester or Arborist shall approve installation methods. Do not move or remove fencing for any reason without prior written notice, and until after construction is completed.

B. There may be additional existing oak and native specimen trees with caliper of less than six inches that were not surveyed and tagged but are present within improvement areas. A selection of these trees may have specimen characteristics and could be transplanted to more prominent and/or protected locations.

C. Trees to be preserved within developed areas, including trees and heritage trees on residence lots, shall be permanently identified by a metal numbered tag and surrounded by orange tree protection fencing prior to any grading or construction.

1. The fence shall in all cases be located at or beyond the drip line of the tree.
2. Tree clusters to be preserved must be protected with a fence surrounding the entire tree cluster.
3. Trees to be removed within the developed areas shall have a permanent marking either with spray paint or survey flag and shall not be protected with fences.

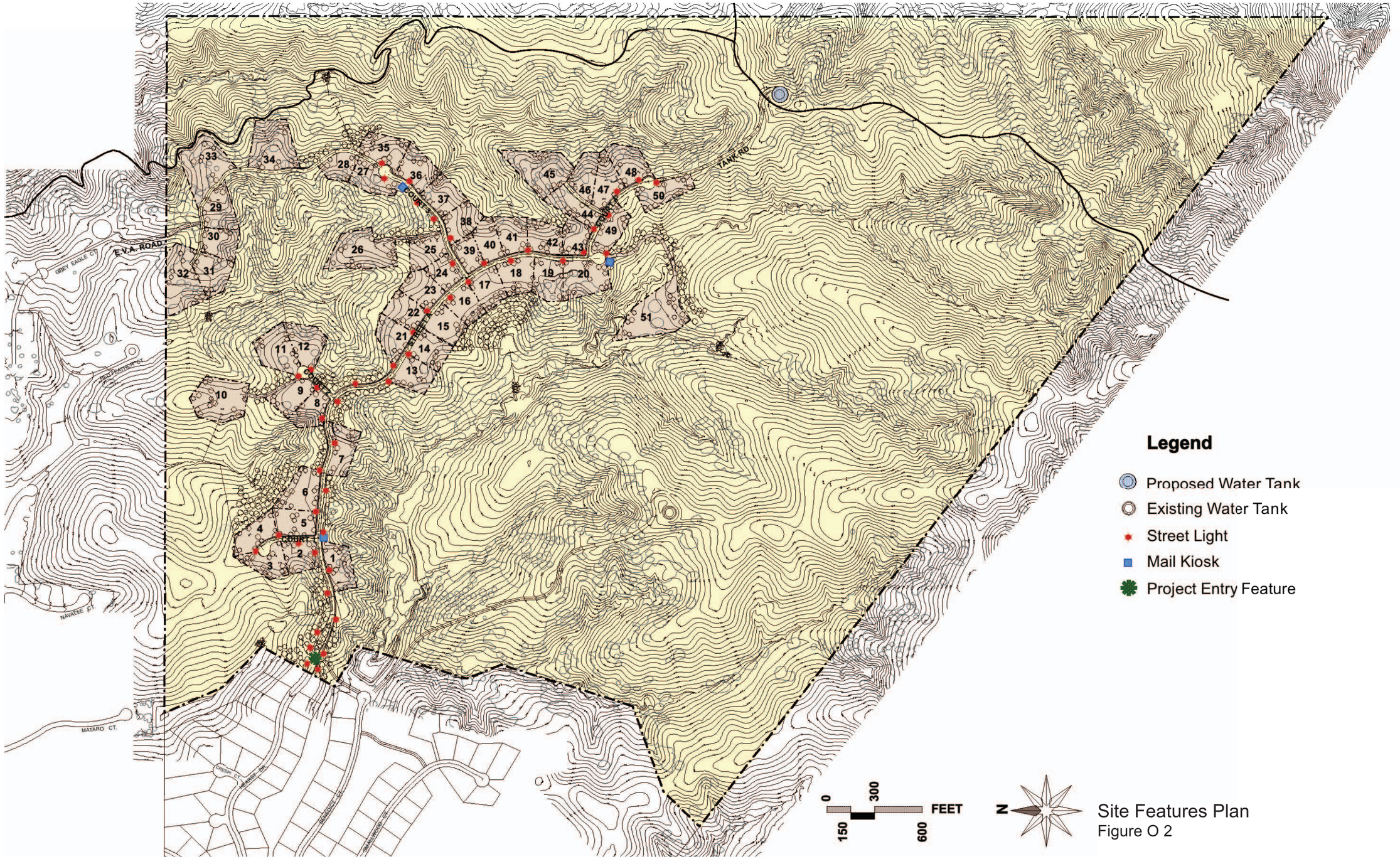
D. The following activities will not be allowed within the drip line of existing oaks to be preserved without prior approvals:

1. Trenching, grade cutting, filling, drainage changes, soil compaction, or roto-tilling. Grading that requires removal of more than 30% of a tree root system will be considered a tree removal.
2. Storage or parking of vehicles, building materials, refuse, excavated soils or dumping of poisonous materials on or around trees and roots are prohibited. Poisonous materials include but are not limited to paint, petroleum products, concrete or stucco mix, dirty water or any other material that may be deleterious to tree health.
3. Using tree trunks as a winch support, anchorage, as a temporary power pole, sign post or other similar function.
4. Landscaping with plant materials, which require spray irrigation. Bubbler or temporary drip irrigation may be permitted.
5. Landscaping that poses a fire hazard or provides spatial continuity from the ground to the tree canopy. The mature height of new or existing plants within the drip line of existing oaks and other native trees must not exceed one-third the distance between the ground and the canopy. For example, if the oak canopy starts at eight feet off the ground, mature heights of plants underneath shall not exceed 2 feet, 6 inches.
6. Paving with materials of limited permeability. Use of porous materials such as brick over sand are encouraged to allow sufficient water penetration, oxygen/carbon dioxide exchange and healthy soil evolution.
7. Newly constructed barriers [concrete foundations, swimming pools, garden walls] can act as dams that trap water. Should such a barrier be proposed in the vicinity of a preserved or native tree, a certified arborist or forester shall be consulted to determine if any special remedial measures must be undertaken.
8. Some limited filling under existing oaks may be allowed only if an arborist/forester proposes remedial procedures. Boring or hand digging [rather than trenching] may limit damage to tree roots if a pipe or electrical line must be installed.

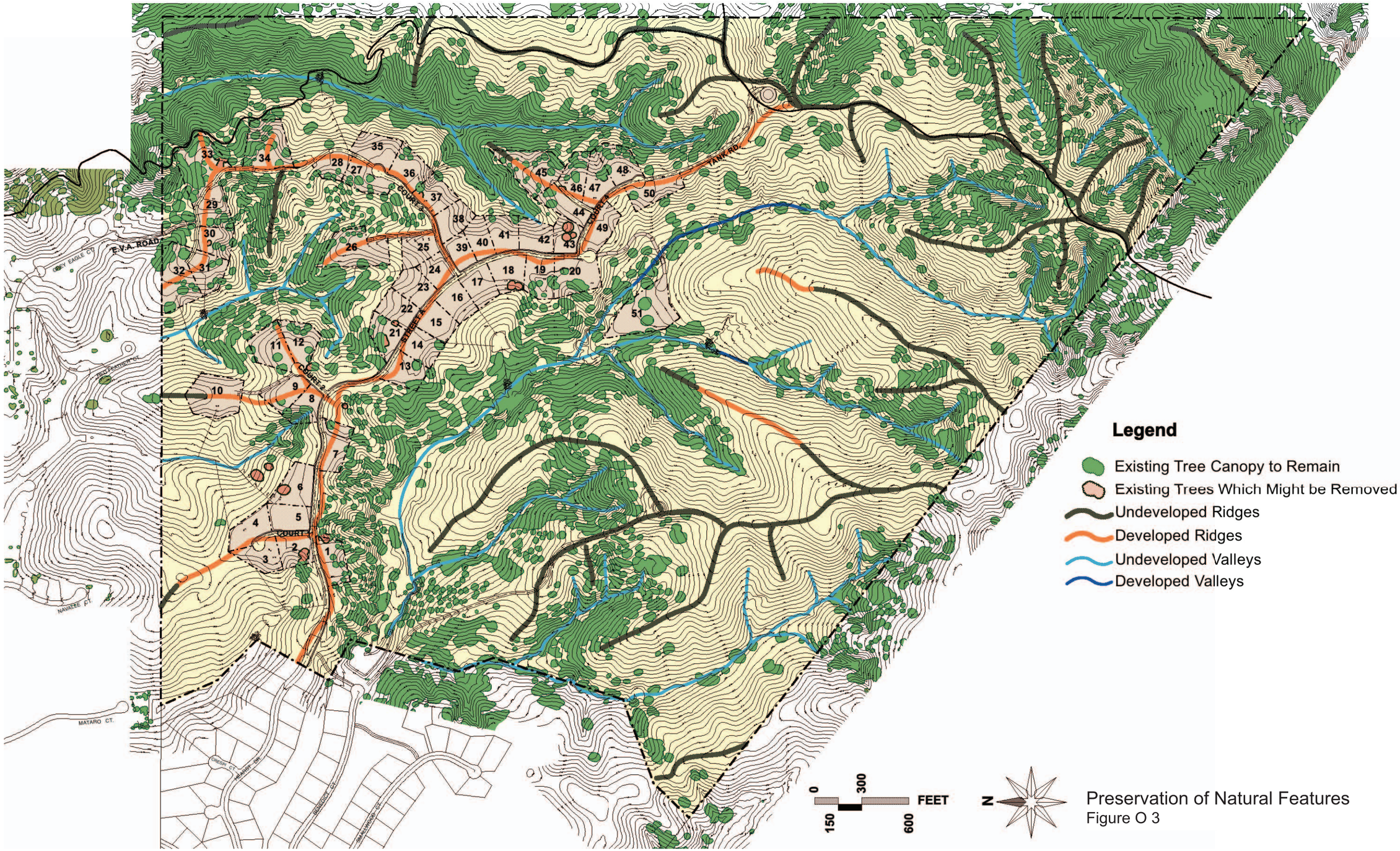
E. All other measures for Tree Protection described in the Tree Report for the Kottinger Hills Subdivision, prepared by Ralph Osterling Consultants, Inc., dated October 8, 2003, apply to this section.

O-1.2 Views and Screening

The Oak Grove land plan is sensitive to the natural landscape heritage and beauty of the area. Most lots are situated to optimize the view potential from the site, and have been located on only 33% of the existing ridge lines. Some lots have been identified as highly visible from pre-determined off-site locations. The master plan proposes to plant mitigation trees within the open space preserve to enhance the entry and streetscape, and buffer views to highly visible lots over the long term.



Site Features Plan
Figure O 2



Preservation of Natural Features
Figure O 3

Common Public Space Landscape Design Guidelines

A. Mitigation tree planting shall be concentrated on the view-sensitive side of the highly visible lots in order to reduce off-site visibility. The precise location of mitigation trees shall be determined on-site and based on fire management guidelines and other existing conditions.

B. Planting guidelines for individual lots, found in Section L-1.7 and L-1.8 of the Residence Lot Design Guidelines document, require the planting from 3 to 13 native trees in the back yards of lots to complement off-lot mitigation planting, and to contribute to the landscape buffer of the highly visible lots. See Figure O 10 for mitigation tree planting concept.

C. See Section O-1.9 for open space plant list for complementary trees, shrubs and ground covers to be planted in conjunction with mitigation and buffer trees.

O1.3 Street Character

The streetscape design for Oak Grove is envisioned as an extension of the natural Oak groves. A combination of front garden design and open space revegetation will establish the more natural character to the street landscape image. See Figures O 7 and O 8.

A. Street tree planting will occur within the front yard building setback and will be integrated into the front yard landscape design. Street trees shall be a minimum of 24-inch box in size. See Section L-1 of the Residence Lot Design Guidelines document for minimum quantities of street trees, lot trees and other residence lot requirements.

B. Street trees shall be planted in natural clusters to mimic preserved Oak groves such that the ultimate result will be the enhancement and expansion of the existing Oak woodland character.

C. Street trees are limited to Valley Oaks or Coast Live Oaks and shall be planted in shrub and ground cover areas only.

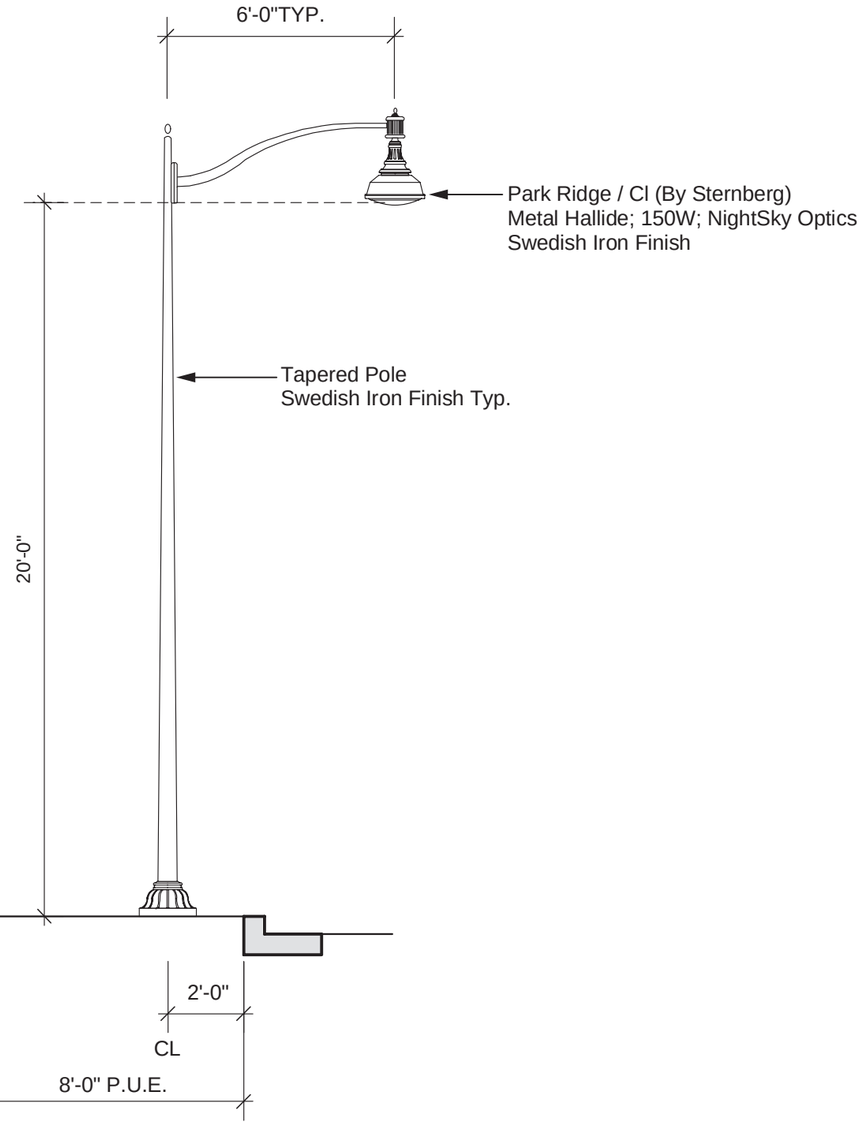
D. Street trees shall be planted a minimum of 8 feet from back of curb and outside the public utility easements.

E. The patterns of lawn, shrubs and ground covers shall blend together from lot to lot so that a more uniform streetscape might be created.

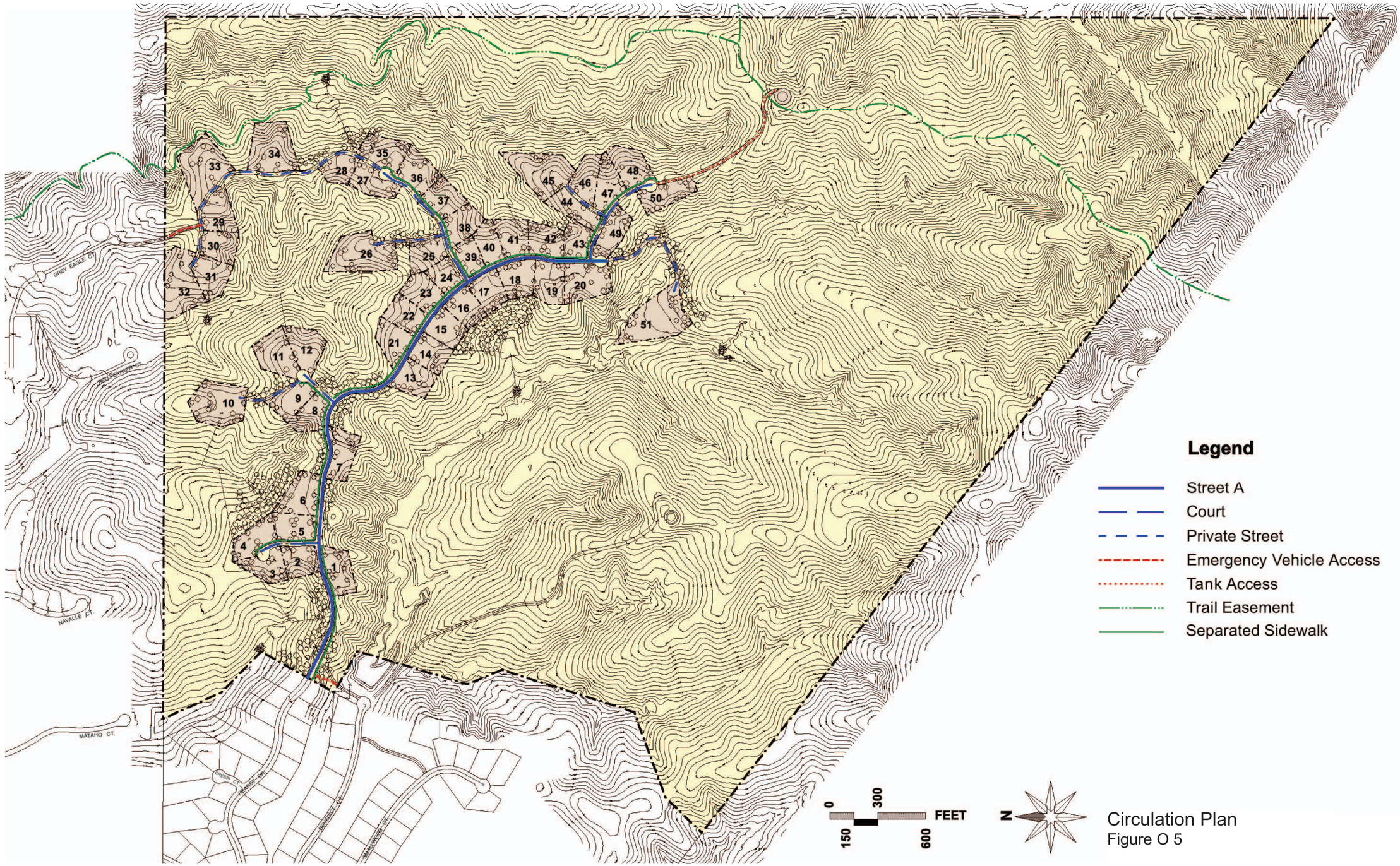
F. A limited palette of naturalized or native plant species shall be used in the front yard setback. See Section O-1.9 for plant lists.

O-1.4 Lighting, Signage and Mailboxes

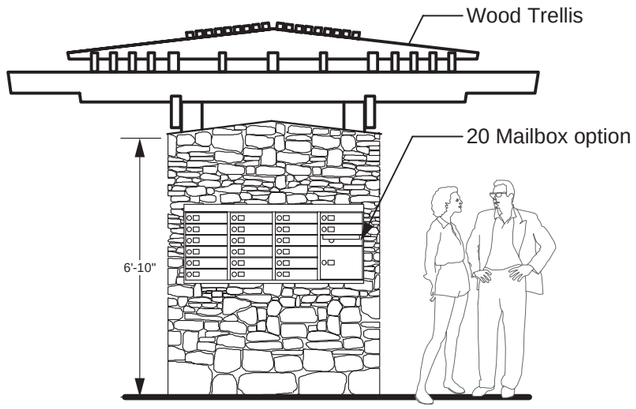
A. Street lighting shall be provided to meet minimum City of Pleasanton illumination standards.



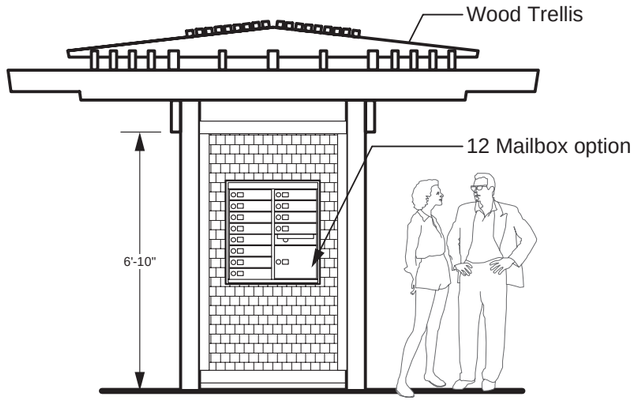
Street Light Detail
Figure O 4



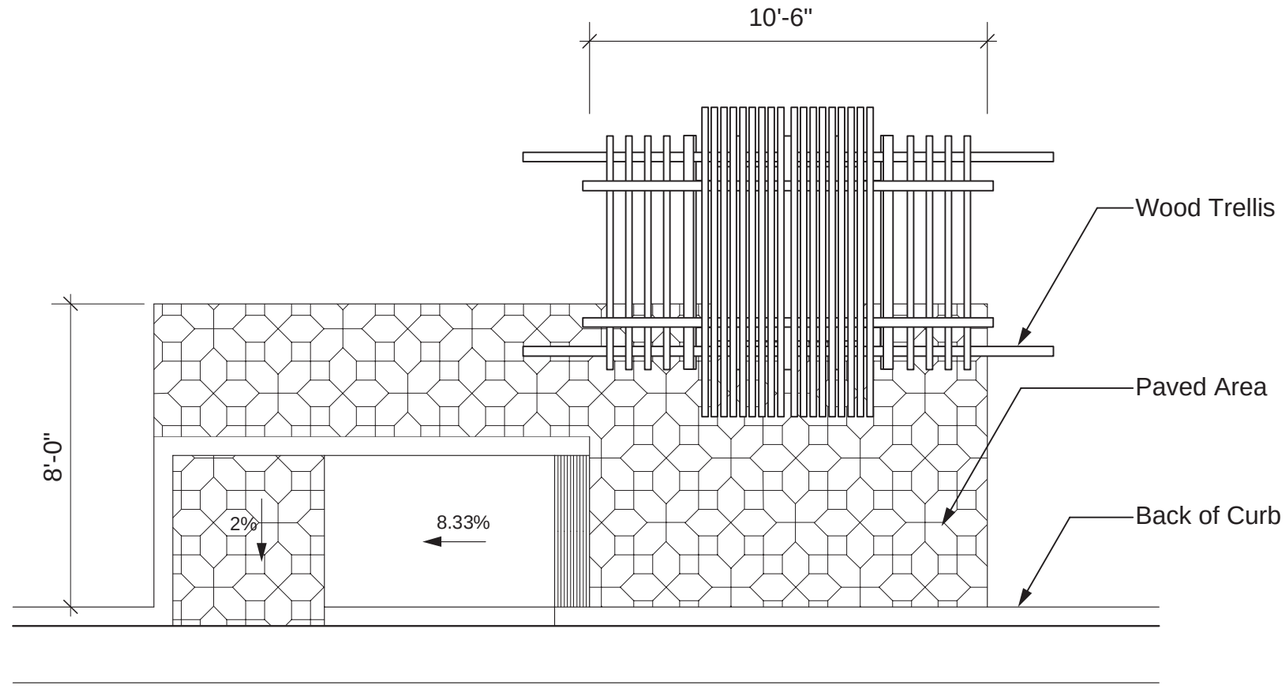
Circulation Plan
Figure O 5



Front Elevation
Stone Veneer Option



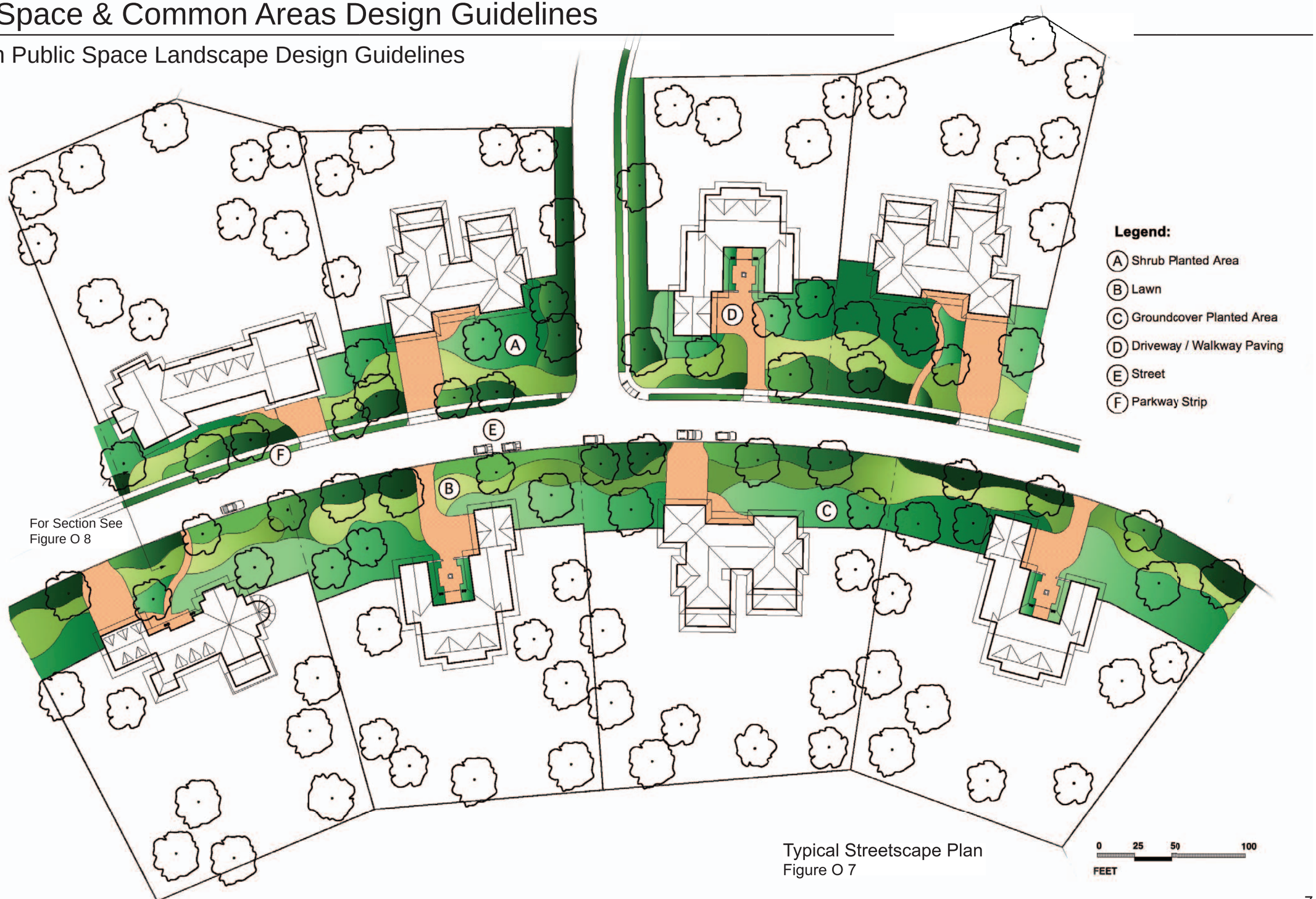
Front Elevation
Shingle Siding Option



Typical Site Plan

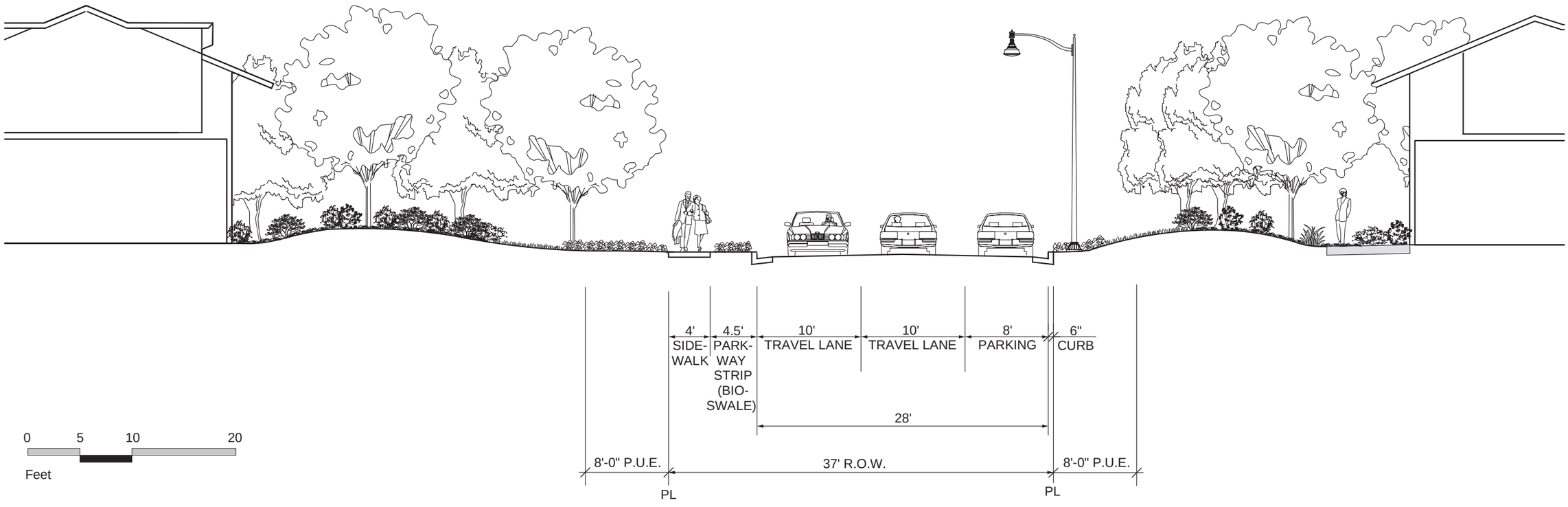
Mail Kiosk Detail
Figure O 6

Common Public Space Landscape Design Guidelines

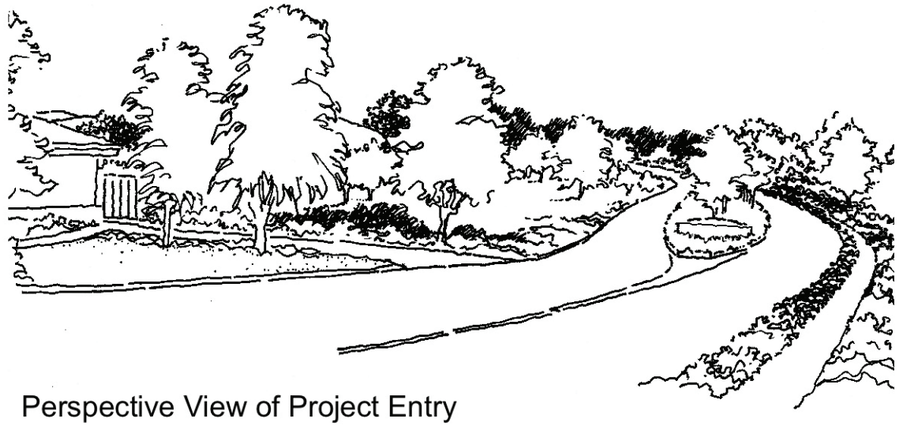


Typical Streetscape Plan
Figure O 7

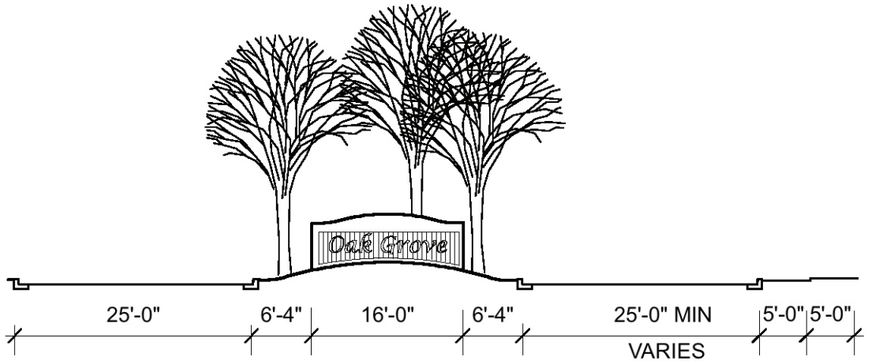
Common Public Space Landscape Design Guidelines



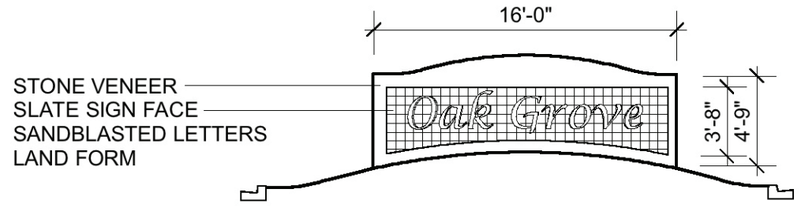
Typical Street Section
Figure O 8



Perspective View of Project Entry



Entry Section 'A'
1/16" = 1'-0"



Precast Concrete Sign Panel
1/8" = 1'-0"

Project Entry Concept
Figure O 9

B. Light fixtures shall be a maximum of 20 feet high, 150 watt, have a metal halide light source, and be spaced to achieve the minimum light levels required by the City of Pleasanton. See Figure O 4.

C. Lights should be located at property lines within the public utility easement, with alternating spacing on opposite sides of the street. Spacing shall result in minimum light level requirements.

D. Light fixtures shall have non-glare features that direct illumination down to the driving surface.

E. Private lanes shall have street light levels, fixture and pole design that are similar to public streets.

F. Signs and building address numbers will comply with City of Pleasanton zoning regulations, which require that street, road and building address signs have a minimum letter height of 4 inches and be ½ inch thick, reflectorized or internally lit, painted a color contrasting with the background color of the sign, and be visible within 100 feet of travel way from both directions.

G. One project entry shall be provided at the end of Hearst Drive. See Figure O 9 for sign and landscape concept.

H. Mailboxes will be clustered at strategic locations to minimize streetscape clutter and provide for a consistent design statement. Kiosks will contain from 12 to 20 mailboxes at each location, providing convenient access for postal service and residences. See Figure O 6 for suggested mail kiosks designs.

O-1.5 Mitigation Tree Requirements

In order to construct the Oak Grove project it will be necessary to remove approximately 58 mature trees. Assuming the replacement ratio is to be three times the number of trees removed, the Oak Grove project would be required to plant approximately 174 trees in the open space preserve as mitigation for lost tree value. This design guideline will, however, plant approximately 410 replacement trees, approximately 7 new trees for every one removed by construction.

A. All mitigation trees shall be planted in the open space preserve, at the entry and clustered adjacent to highly visible lots or streets. See Figure O 10 for Mitigation Tree Plan.

B. Newly graded slopes required for street construction or lot preparation will be planted with mitigation trees and additional planting to stabilize soils and provide long-term visual buffers from off-site view sheds.

C. Mitigation trees shall be planted to enhance and expand existing Oak groves whenever possible, while adhering to fire management guidelines. See Section O-1.6 below.

D. Mitigation trees shall be planted at a minimum of 15-gallon size, and shall have temporary bubbler-type irrigation systems.

O-1.6 Open Space Fire Management

These guidelines apply to landscape management practices within the open space preserve to defend against wild fires. See Section L-1.7 for Residence Lot Fire Management Guidelines. See Figure O 10.

A. Use plant material that is fire-resistant, such as plants with minimal volume and density, low and compact form, large and thick leaves, having little dead or dying debris, high-moisture content, low mineral content [non-resinous] and freeze-tolerant.

B. Maintenance programs should specifically prevent the introduction of non-fire-resistant plant species and plan regular removal of biomass, overgrowth, dead foliage or entire plants.

C. All open space areas shall have two points of access suitable for wild land fire apparatus or a minimum of 20 feet unobstructed access width. Access points must be no more than 1,500 feet from the furthest point of open space.

D. Native grasses may be used throughout the defensible space, except within 6 feet of a structure. Native grasses must be kept mowed to a height of 3 to 4 inches.

E. An Urban Wild Land Interface Assessment will be provided for the Project. This Assessment may stipulate additional design, access, and maintenance practices for open space areas. The Assessment may also outline vegetation limitations on individual parcels.

F. Discing of open spaces abutting private property is not permitted.

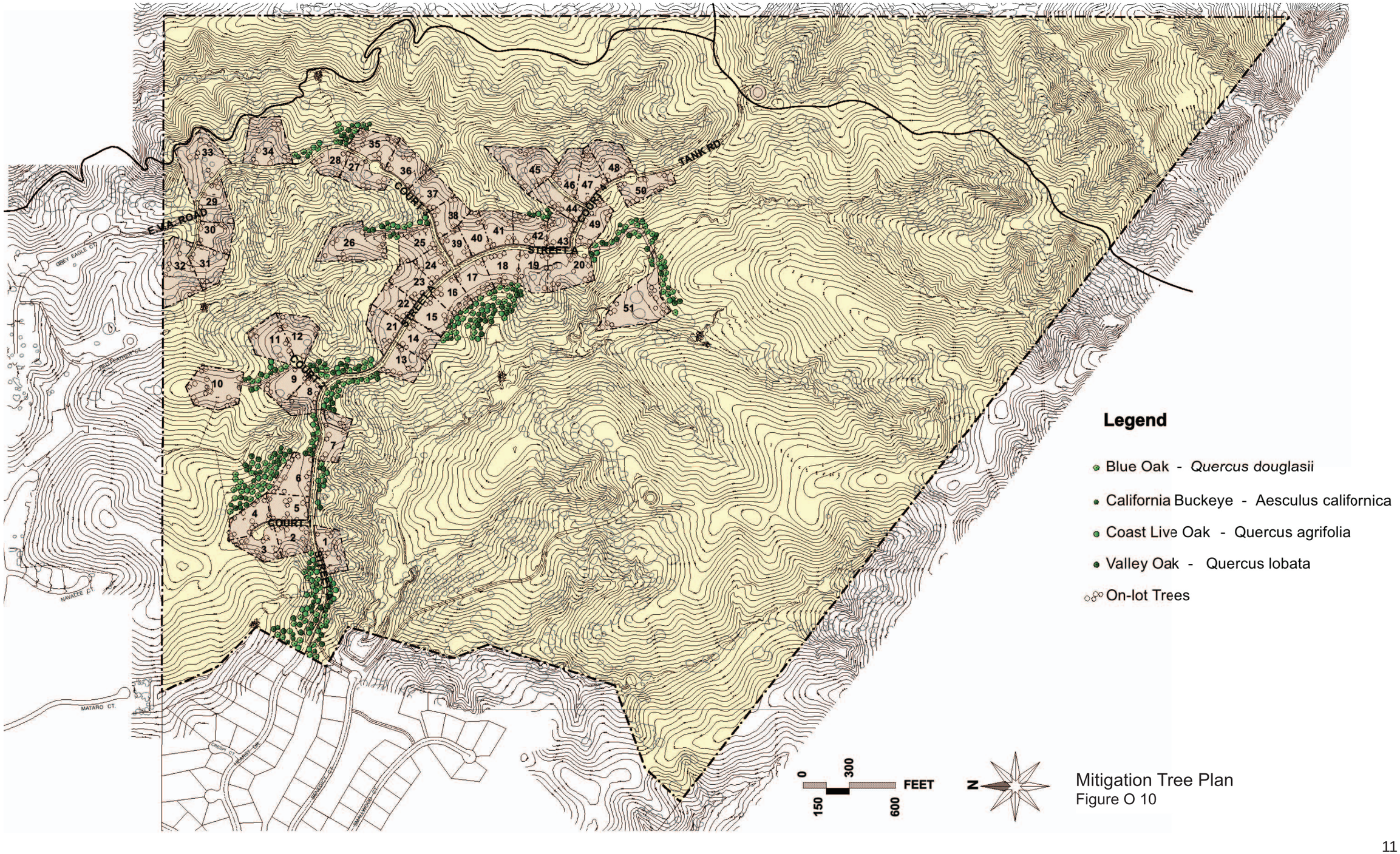
G. Home Owners Association [HOA] shall maintain vacant residence lots until lots are sold. Owners shall maintain their lots prior to construction. Maintenance includes adhering to these fire management guidelines.

O-1.7 Open Space Fencing

Three types of open space fencing will be utilized to provide sufficient levels for both public access and security: rail fence, steel or wire mesh view fence, and barbed wire fence for grazing management. See Figure O 11.

Rail Fencing:

Rail fences are used to define open spaces, control public access and/or establish thematic feature of Oak Grove. Rail fences are used where a solid enclosure is not needed but delineation of a space is desired, such as along the main entry road, shown as ‘Street A’.



Mitigation Tree Plan
Figure O 10

Common Public Space Landscape Design Guidelines

A. Rail fences shall be located at trail nodes to visually identify pedestrian access to open space.

B. Rail fences shall be used along the edges of public and private streets to reinforce view corridors into and through the neighborhood, while limiting vehicular access to open space. The rail fence is also suitable as a barrier around wetlands and water quality basins.

C. The two-rail fence shall be 3’-0” to the top of the post. Distance between fence posts shall not exceed 8’-0” on center. The rail fence shall be precast concrete with simulated wood finish for posts and rails. Each post shall be set in a concrete foundation. See Figure O 14.

View Fencing:

A. View fences provide visibility from residence lots to dedicated open space, which promotes view corridors for the residential lot owner and a visually enhanced link to nature. Two types of view fences may be used: ornamental steel [or wrought iron] and wire mesh. See Figures O 15 and O 16.

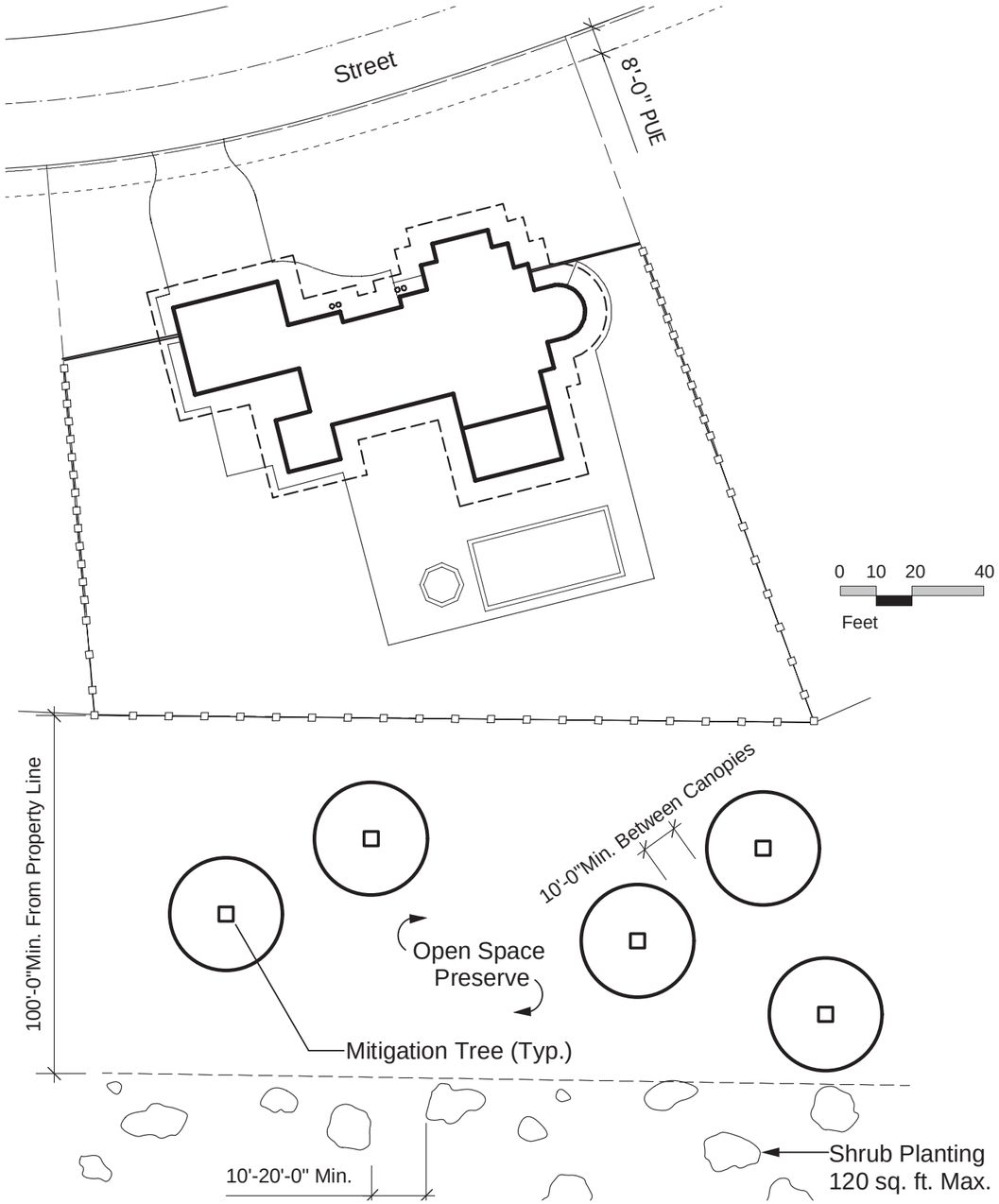
B. View fences in the open space preserve will be located at HOA-maintained boundaries and other public access points where security or safety is a concern. Typically, view fences will be used on residence lots that back or side onto open space. See Section L-1.3 of the Residence Lot Design Guidelines document for lot applications. View fences must be used at highly visible lots.

C. Ornamental steel fence panels shall be constructed with solid steel pickets and tubular steel rails and posts. Posts shall be embedded in concrete footings with adequate drainage. The view fence shall be painted to match a dark trim color on the home, in a matte finish. Use a larger post at major changes in direction, elevation changes of 2 feet, and/or at property corners.

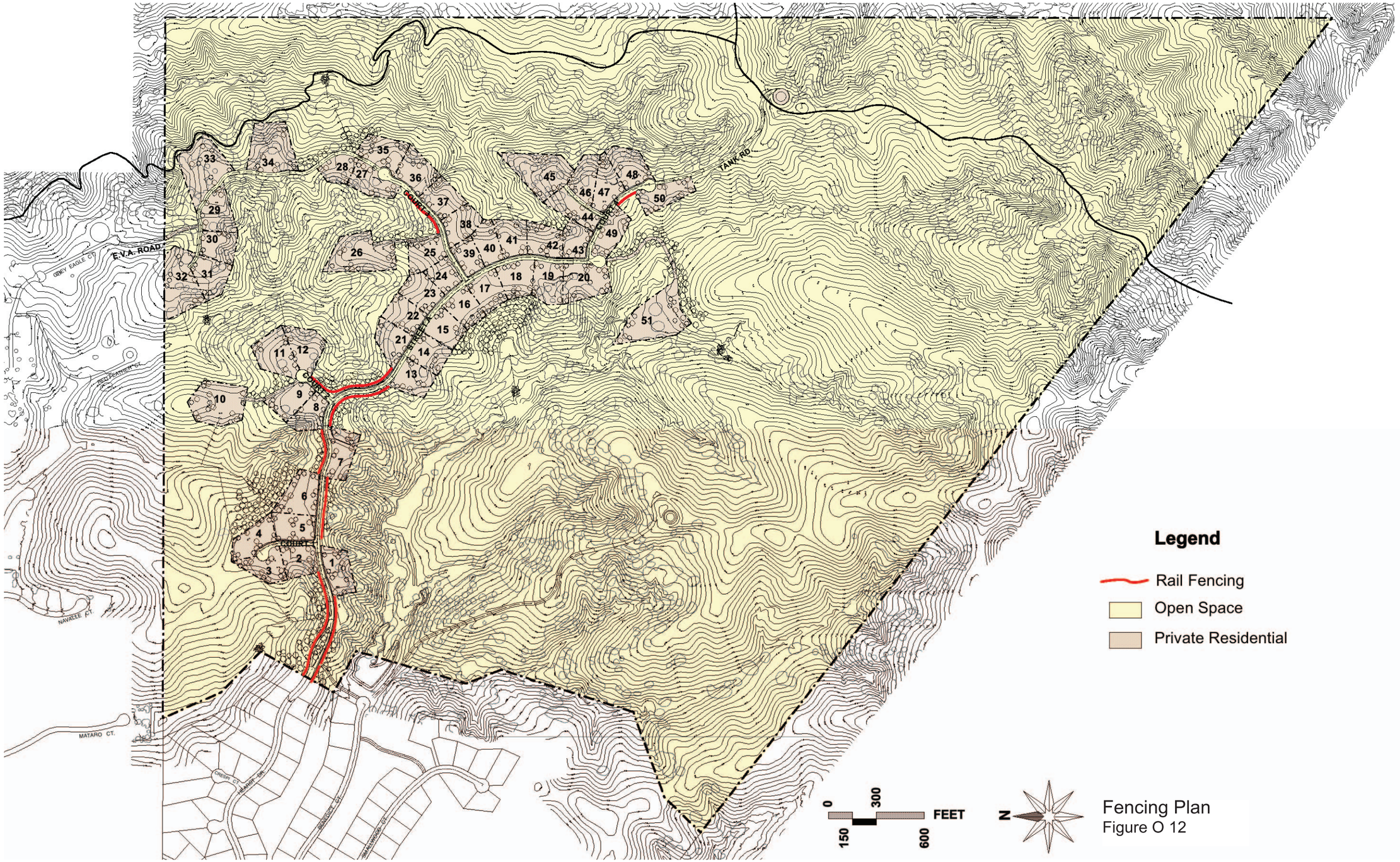
D. Wire mesh fences shall be welded wire with a 2 inch x 4 inch, 4 inch x 6 inch or 6 inch x 6 inch wire pattern and minimum 4 inch x 4 inch wood posts. The 2 inch x 4 inch wire pattern must be used for a pool fence application.

Barbed Wire Fencing:

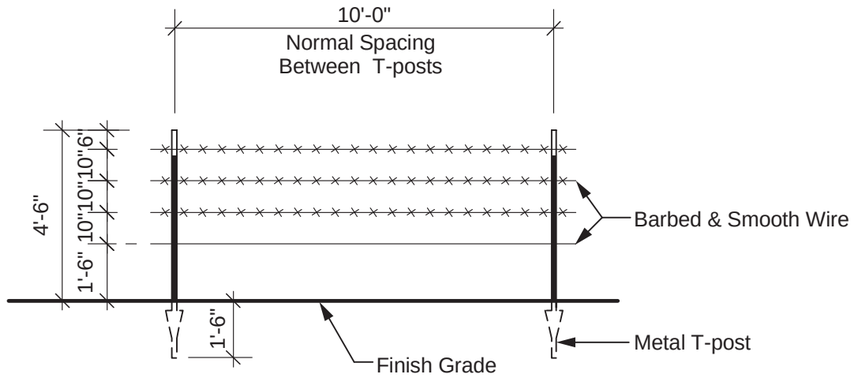
A. This fence shall be used to protect sensitive habitats, mitigation planting and wetlands and water quality basins from grazing animals. See Figure O 13.



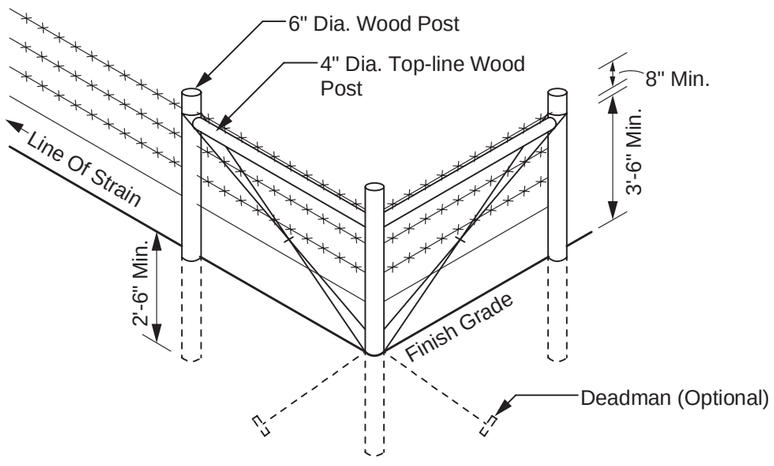
Open Space Fire Management Plan
Figure O 11



Fencing Plan
Figure O 12

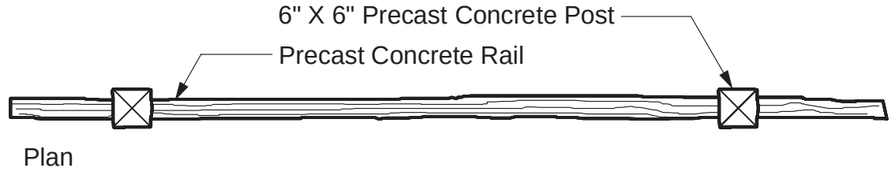


Elevation

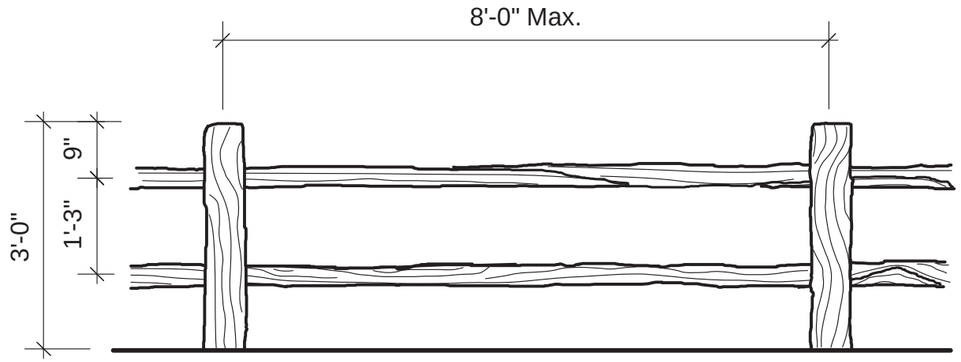


Corner Condition - Isometric View

Barbed Wire Fence Detail
Figure O 13



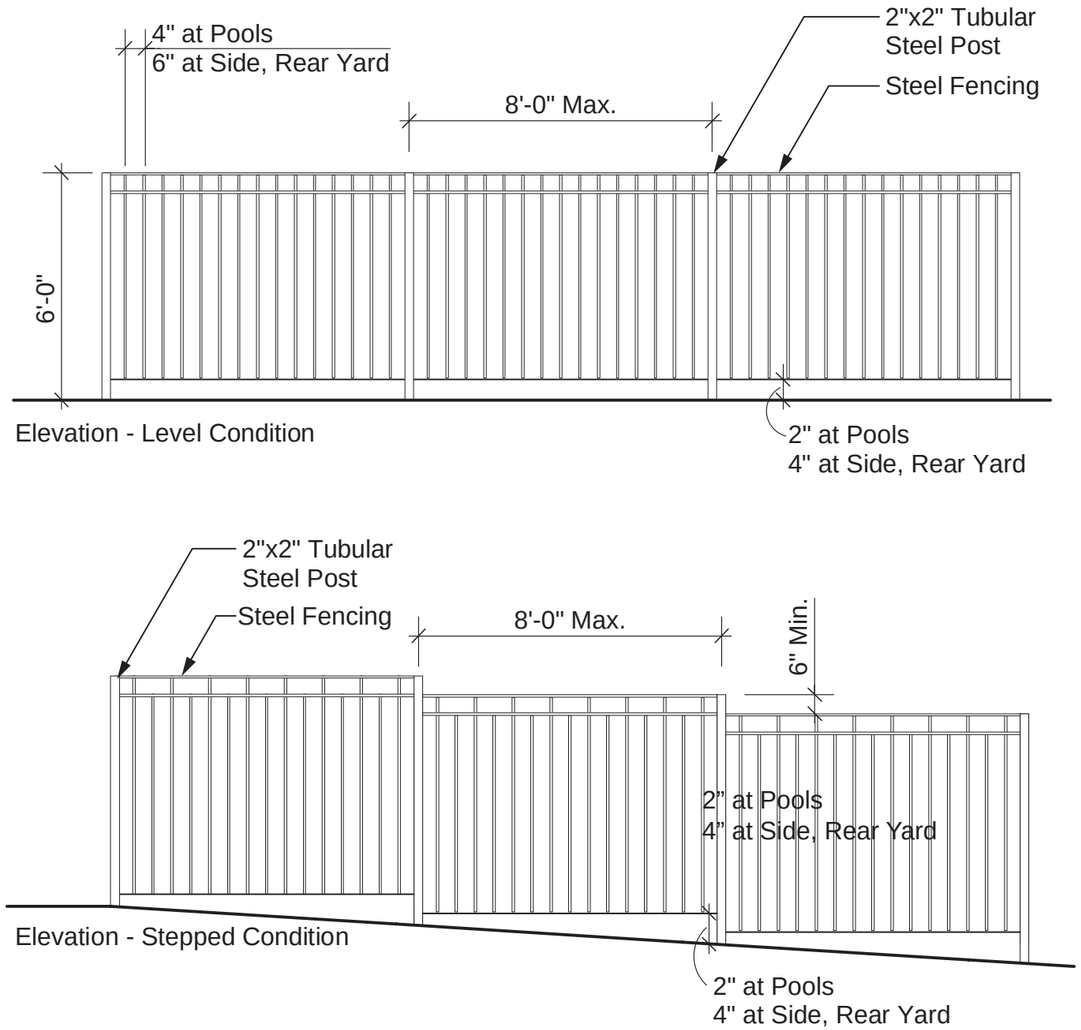
Plan



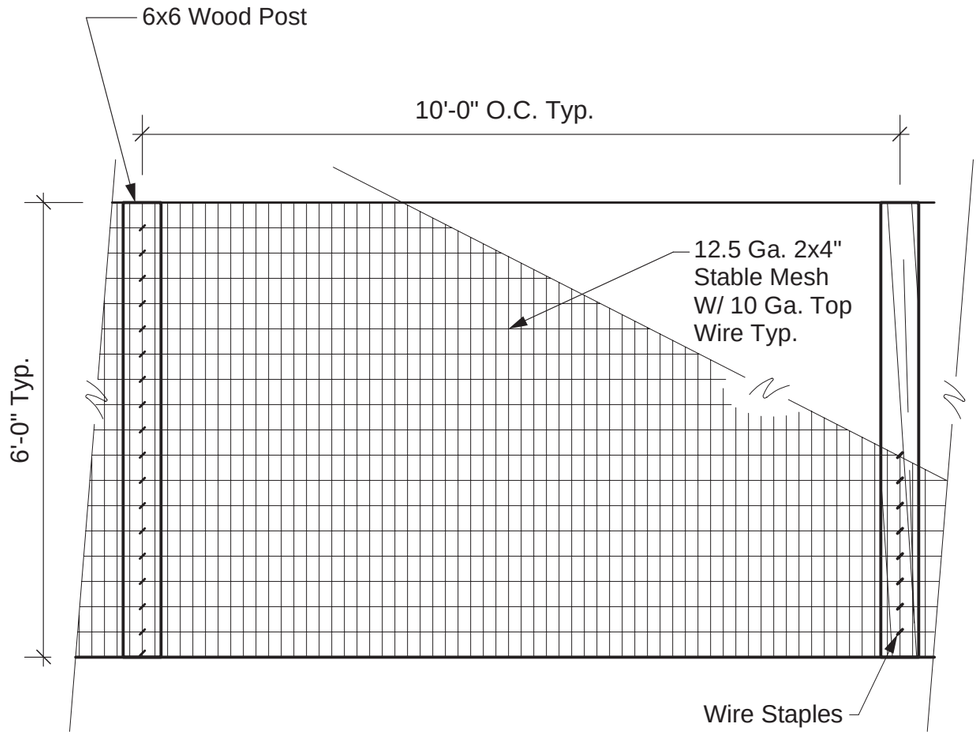
Elevation

Rail Fence Detail
Figure O 14

Common Public Space Landscape Design Guidelines



Steel View Fence Detail
Figure O 15



Wire Mesh Fence Detail
Figure O 16

Common Public Space Landscape Design Guidelines

O-1.8 Special Use Areas within Open Space

Special use areas include water quality basins, storm drain outfalls, and modified stream channels. Water quality basins, sediment basins and modified stream channels shall be revegetated with riparian and upland riparian planting, while balanced cut/fill areas will be restored as grasslands, primarily through hydroseeding. Temporary irrigation may be used at these sites during the plant establishment periods.

O-1.9 Plant List for Common Open Space

The plants listed here are a sample of trees, shrubs, ground covers, vines, perennials and grasses that are compatible with the growing conditions and water use objectives of the Oak Grove Community. Other plants of similar characteristics and growth requirements may be used and should be presented to the OGRB for review prior to planting. Plants from the Open Space list can be used on Residence Lots.

A plant is considered a native if it has been identified in the wildlands of our region. A naturalized plant is a plant that has adapted to our region, even though it has been identified as a native in other parts of the world. The 'SW' and 'NE' in the tables represent south and west, or north and east exposures, respectively. Some plants require direct sunlight while others grow in shadow. Many plants can tolerate both sun and some shadow. The water demand categories are: 'VL' or very low requirement; 'L' or low requirement; and 'M' for moderate requirement. Plants with the same water demand should be planted together. Oak compatibility refers to those plants that share the same growing conditions as Oak trees, are drought and shade tolerant, and are resistent to Oak root fungus.

Lawns and turf planting should be selected based on the growing conditions of the lot. If much of the lawn area is in shadow of the house or trees, use a sod with a blend of Fescues and Blue Grass or some other shade-tolerant grasses. For predominant sun exposures, use a blend of Fescues. Lawns should be planted as sod.

Sudden Oak Death

The Oak Grove development falls in the urban/wild-land interface where the Sudden Oak Death [S.O.D.] disease is especially prevalent. In order to avoid spreading the disease to the existing and proposed oak trees, certain management practices should be followed. Plants that are known vectors of the S.O.D. pathogen [Phytophthora ramorum] should be inspected for the pathogen prior to planting. Commercial nurseries are required to inspect their products for many plant diseases, especially the S.O.D. pathogen. Please consult the California Oak Mortality Task Force [COMTF] website [www.suddendeathoak.org] for new information about the management, detection and spread of Sudden Oak Death and an up-to-date listing of host plants.

Management Practices

Avoid commercial garden mulches of unknown origin [Lavoipiere; 2004]. Use mulch derived from trees that are free of pathogen.

Promote tree health. See Recommendations for the Management of Oaks in Areas Affected by Sudden Oak Death by the University of California Cooperative Extension for general guidelines.

Sources

Lavoipiere, Frederique. 2004. Sudden Oak Death. *Pacific Horticulture.* Oct/Nov/Dec. pg 17-21

Recommendations for the Management of Oaks in Areas Affected by Sudden Oak Death University of California Cooperative Extension, Marin County, Novato CA 94947 [www.suddendeathoak.org]

Open Space Plant List

Trees		Native	Naturalized	Water Demand	Erosion Control	SW / NE Exposure	Oak Compatibility
Aesculus california	California Buckeye	X		VL	X	SW	X
Arbutus menziesii	Madrone	X		VL		SW / NE	X
Cercis occidentalis	Western Redbud	X		VL	X	SW	
Crataegus	Hawthorne		X	L		SW / NE	
Lithocarpus densiflorus	Tanbark Oak	X		L		SW / NE	X
Malus	Flowering Crabapple		X	M		SW / NE	
Platanus racemosa	California Sycamore	X		M	X	SW	
Quercus agrifolia	Coast Live Oak	X		VL	X	SW	X
Quercus lobata	Valley Oak	X		L		SW	X
Quercus douglasii	Blue Oak	X		VL	X	NE	X
Schinus molle	California Pepper		X	L		SW	
Sorbus aucuparia	European Mountain Ash		X	M		SW / NE	
Umbellularia californica	California Laurel	X		M	X	NE	
Shrubs/Ground Covers							
Arctostaphylos	Manzanita	X		VL-L	X	SW / NE	X
Baccharis pilularis	Dwarf Coyote Brush	X		L		SW	
Carpenteria californica	Bush Anemone		X	L		SW / NE	X
Ceanothus species	California Lilac	X		VL-L	X	SW	
Cornus stolonifera	Red Twig Dogwood	X		M		NE	
Eriogonum	Buckwheat	X		L		SW	
Garrya fremontii	Silktassel	X		VL	X	SW / NE	X
Heteromoles arbutifolia	Toyon	X		VL	X	SW	X
Lupinus arboreus	Lupine	X		L	X	SW	
Myrica californica	Pacific Wax Myrtle	X		L	X	SW	
Philadelphus lewisii	Wild Mock Orange	X		M		SW / NE	
Rhamnus c. 'Eve Case'	California Coffeeberry	X	X	L	X	SW / NE	X
Ribes malvaceum	Chapparral Currant	X		L	X	SW / NE	X
Ribes sanguineum	Red Flowering Currant	X		L		SW / NE	
Symphoricarpos albus	Common Snowberry		X	L	X	SW / NE	
Perennials							
Achillea millefolium	Common Yarrow	X		L		SW	
Eschscholzia californica	California Poppy		X	L		SW	
Mimulus a. longiflorus, rutilus	Monkey Flower	X		L	X	SW / NE	X
Romneya coulteri	Matilija Poppy	X		L		SW	
Sisyrinchium bellum	Blue-eyed Grass	X		L	X	SW / NE	X

Open Space & Common Areas Design Guidelines

Oak Grove Glossary

Bioswale – overland water quality drainage channel, planted with grasses or low shrubs, and designed to collect urban runoff. Bioswales are designed to cleanse the runoff water by flowing over the surface for seven to nine minutes through planting or soaking into soil before entering a piped drain system.

Caliper – the diameter of a tree trunk measured at 4 feet above the ground surface.

Defensible Space – the zones surrounding buildings or development lots that are designed and maintained primarily for protecting structures and the public from wild fires. Design and maintenance practices will keep vegetation a safe distance from buildings and other vegetation.

Evapotranspiration – the loss of moisture through plant growth. The rate at which plant materials will lose or give off moisture is measured in inches per day. The rate varies according to temperature, precipitation and wind conditions, and is summarized in monthly and annual averages for each community. This rate (ETo) is used to calculate the amount of irrigation water needed for a particular garden design.

Green Building – a building or landscape design strategy that emphasizes the use of non-toxic, recycled building materials, energy-efficient design and construction methods, and renewable energy sources for heating and cooling, while minimizing environmental impacts.

Hydrozone – the sub-area, or zone of a generalized landscape area, within which plants requiring the same water, soil and sunlight needs are grouped. Hydrozones are modeled after natural habitats that evolve over time so that each plant is compatible with other plants and suited to the local microclimate. Plants in a garden design should be grouped into hydrozones before the irrigation design commences.

L.E.E.D. – The United States Green Building Council has developed green building rating systems that advance energy and material efficiency, and sustainability known as Leadership in Energy and Environmental Design [LEED]. Three certificates of conformance have been defined in order to encourage various levels of involvement. ‘Platinum’ is the highest level of certification, followed by ‘Gold’ and ‘Silver’.

Maximum Annual Water Allocation – also known as the water budget for a given landscape design, this calculation determines the maximum water allowed for landscape irrigation. The allocation is based on a planting design that has an average water requirement.

Estimated Annual Water Use – the anticipated annual amount of irrigation water needed to effectively and efficiently irrigate an installed landscape. The estimated water use should decrease after plant establishment, which is typically in the third or fourth year of plant growth.

Sustainability – the most widely recognized definition of sustainability is to preserve today, the life-giving resources for the benefit of future generations.

Wet Band – the irrigated landscape at the perimeter of a building or residence lot that abuts natural open space. The purpose of a wet band is to stop the spread of wild fires at the edge of property. The width of wet bands is typically 30 feet.

Sudden Oak Death [**S.O.D.**] – the recent plight of California’s native oak woodlands that has been caused by the pathogen [Phytophthora ramorum]. The Oak Grove development falls in the urban/wildland interface where the Sudden Oak Death disease has been occurring. In order to avoid spreading the disease to the existing and proposed oak trees, certain management practices should be followed, including planting new vegetation that has been inspected and cleared of the disease. Please consult the California Oak Mortatlity Task Force [COMTF] website [www.suddenoakdeath.org] for new information about the management, detection and spread of Sudden Oak Death.