

Chapter IV: Landscape

PART ONE: NEIGHBORHOOD-WIDE REQUIREMENTS

IV.1 LANDSCAPE REQUIREMENTS

High quality open space and streetscape is required to create a transit-oriented neighborhood. Bay Meadows Phase II creates a memorable and comprehensive network of pedestrian oriented streetscapes which connect public transit, residences, and mixed-use programming to unique and sustainably designed open space destinations.

Bay Meadows Phase II open spaces and streetscapes foster green design practices through careful selection of plant material, stormwater treatment infrastructure and conscientious site planning. Large trees within the streetscapes and open spaces serve to decrease potential heat island effects. Drought-tolerant and habitat-oriented planting reduces sitewide water consumption and provides valuable habitat for migrating birds and pollinating bees and butterflies. Stormwater treatment systems are designed to be integral to sidewalk infrastructure, treating street runoff before it enters the on-site treatment pond.

Bay Meadows Phase II open spaces and streetscapes provide vibrant, program-oriented destinations, beautiful to walk through and offering a wealth of outdoor social spaces to the surrounding community.

Part One of this chapter describes the neighborhood-wide systems and requirements while Part Two includes requirements for individual streets, open spaces and edges. Throughout this chapter, plant and tree species listed are not exhaustive or exclusive, but rather indicate intent.



Figure IV-1
Landscape Key Plan

IV.1.1 Street Tree Plan

This diagram illustrates the preferred street tree planting for Bay Meadows Phase II. Preferred species and permitted alternatives are listed by street in section IV.4. Species listed are not exclusive, but rather indicate intent. Relocation of existing site trees is encouraged for streets, open spaces or Blocks. Root control is required at all tree planting conditions located adjacent to or within pedestrian walkways, as well as infrastructural concrete and curbs which could be impacted by upward root growth. Final tree planting detail to be determined during the SPAR process. Tree grates or other tree root protection designed to minimize sidewalk tripping hazards will be selected according to city of San Mateo standards and approved during the SPAR process.

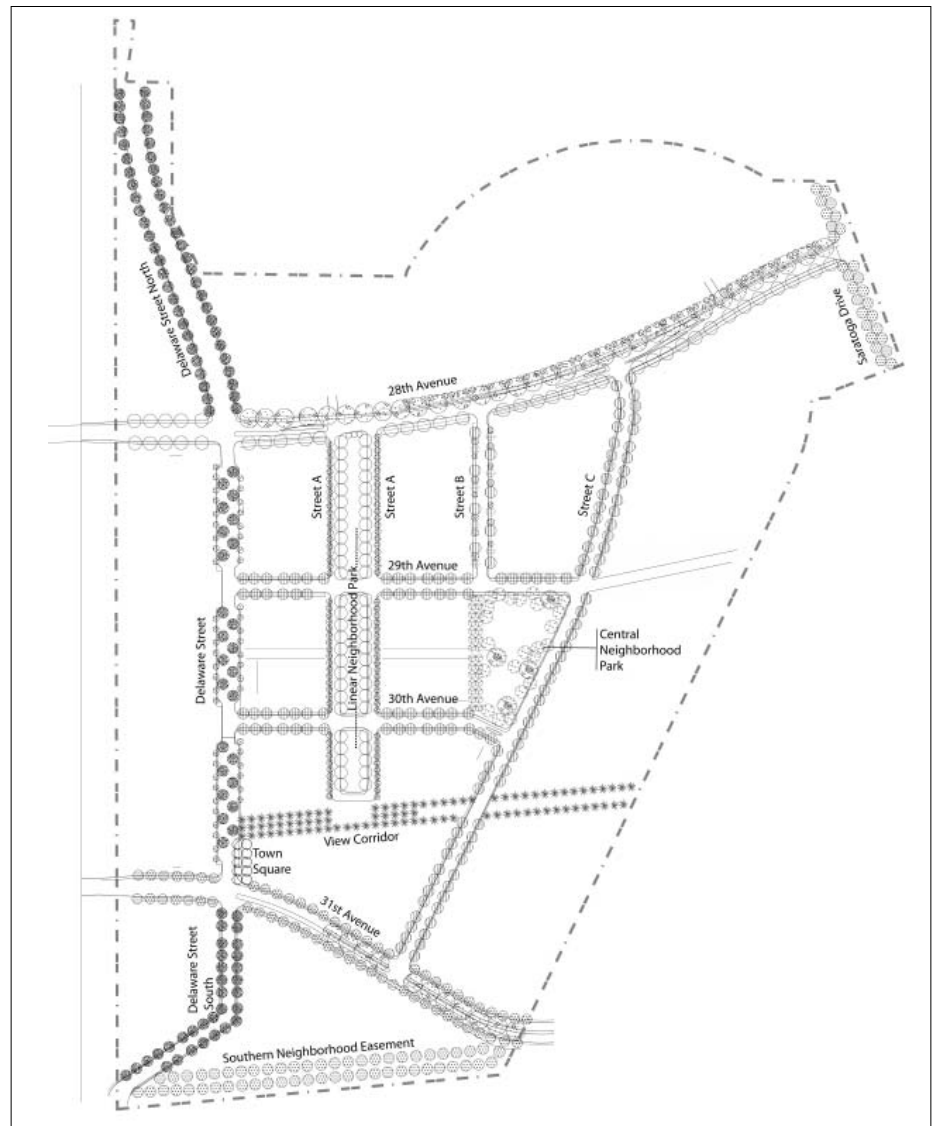


Figure IV-2
Street Tree Plan

Bay Meadows Phase II Design Guidelines and Development Standards

STREET	MATURE SIZE	TREE CHARACTER	RECOMMENDED SPECIES
Delaware Street North and South and Central Bulb-out	medium-large	Urban character with light shade	Maidenhair, <i>Ginkgo biloba</i> Kentucky Coffee Tree, <i>Gymnocladus dioicus</i> Patmore Green Ash, <i>Fraxinus pennsylvanica</i> 'Patmore'
Delaware Street - Central Planting Strip	small-medium	Flowering with delicate branching	Eastern Redbud, <i>Cercis canadensis</i> Flowering Cherry, <i>Prunus serrulata</i> Akebono Cherry, <i>Prunus yeodensis</i> 'Akebono' Crape Myrtle, <i>Lagerstroemia faurei</i>
28th Avenue Residential side	large	Upright with light shade	Sycamore, <i>Platanus acerifolia</i> 'Columbia' Red Horsechestnut, <i>Aesculus X Carnea</i> Shumard Oak, <i>Quercus shumardii</i>
28th Avenue Park side - planting strip	large	Broad grand stature	Valley Oak, <i>Quercus lobata</i> Southern Live Oak, <i>Quercus virginiana</i> English Oak, <i>Quercus robur</i>
31st Avenue Center divider	large	Broad grand stature	Same as 28th Avenue - Park Side
31st Avenue Planting strip	medium	New trees conform to existing	
Residential Streets	large	Upright with light shade shade and fall color	Tupelo, <i>Nyssa Sylvatica</i> European Hackberry, <i>Celtis australis</i> Autumn Purple White Ash, <i>Fraxinus Americana</i> 'Autumn Purple'
Linear Neighborhood Park Residential side	small-medium	Flowering, delicate branching	Eastern Redbud, <i>Cercis canadensis</i> Flowering Cherry, <i>Prunus serrulata</i> Akebono Cherry, <i>Prunus yedoensis</i> 'Akebono' Crape Myrtle, <i>Lagerstroemia faurei</i>
Linear Neighborhood Park Park side	large	Upright with graceful branching	Sycamore, <i>Platanus acerifolia</i> 'Columbia' Red Horsechestnut, <i>Aesculus X Carnea</i> Shumard Oak, <i>Quercus shumardii</i>
Central Neighborhood Park	large-small	Broad shade trees & small flowering trees with decorative bark	Alexandrina Saucer Magnolia, <i>Magnolia soulangeana</i> 'Alexandria' California Buckeye, <i>Aesculus californica</i> Sterling Silver Linden, <i>Tilia americana</i> 'Sterling' Jacaranda, <i>Jacaranda mimosifolia</i>
Garden Street B	mixed species	Habitat attracting	Pittosporum, <i>Pittosporum undulatum</i> Catalina cherry, <i>Prunus lyonii</i> Chitalpa, <i>Chitalpa tashkentensis</i>
Town Square	medium-large	Elegant branching structure	Sawleaf Zelkova, <i>Zelkova serrata</i> Chinese Hackberry, <i>Celtis sinensis</i> Drake Chinese Elm, <i>Ulmus parvifolia</i> 'Drake'
View Corridor	large	Tall, upright with light shade	Red Oak, <i>Quercus rubra</i> Red Maple, <i>Acer rubrum</i> Sycamore, <i>Platanus acerifolia</i> 'Columbia'
Southern Bikeway	medium-large	Existing trees to remain	
Saratoga Drive	medium	Trees shall conform to existing	

Table IV-1
Street Tree Characteristics



Figure IV-3
Main Street, Los Altos
Crosswalk with contrasting pavers

IV.1.2 Street Corners & Sidewalks

The following examples reflect the design intent for street corners and sidewalks and are based on the City of San Mateo construction standards. See IV.4 street sections for exceptions to these standards.

Crosswalks

- Contrasting finish grade rectangular concrete or precast pavers on Delaware Street and the Neighborhood Linear Park are encouraged.
- Crosswalks per City standards are encouraged at all other specified locations.

Sidewalk

- Finish-grade concrete with broom finish is the recommended Phase II standard.

Ramps

- Curb ramps shall be per the 2006 Caltrans Standard Plans, including the use of a truncated dome field in the body of the ramp, provided, however, that truncated domes shall contrast with the color of the adjacent walking surface using a typical paving color (but not bright yellow or other colors not found in unglazed masonry).

IV.1.3 Private Open Space

The Bay Meadows Phase II Specific Plan Amendment requires that open space be provided in Townhouse/Rowhouse developments and in Apartment, Condominium and Loft developments. Dimensional requirements are specified in the Specific Plan Amendment. A specified square footage of open space is not required in Small Lot Single Family zones. However, all residential developments should include open space that is usable by the residents and is visually pleasing.

Where open space is required by the Specific Plan Amendment, it can be provided in raised decks, balconies, porches, loggias, Raised Yards, patios, lawns, rooftops and the like, collectively called “balconies” in this section (IV.1.3). Required open space can also be provided at grade in Setbacks and other non-auto areas.

Open space should be developed as a mixture of walkable and landscaped areas in order to be usable to residents and aesthetically contribute to the character of the neighborhood. When open space or Setbacks are completely landscaped with groundcover or shrubs, few recreational opportunities are available. If the open space is all paved, it will lack the landscaping common to San Mateo neighborhoods that softens the appearance of buildings. For these reasons, the open space should be a mix of walkable and planted areas that are aesthetically arranged and can be used for passive and active recreation. Stormwater treatment options as described in IV.1.7 are encouraged.

Larger multi family developments should provide a variety of recreation options for residents. Private balconies are good for sitting but their usefulness is limited by size and sun exposure. Developments with 20 or more units should provide some common

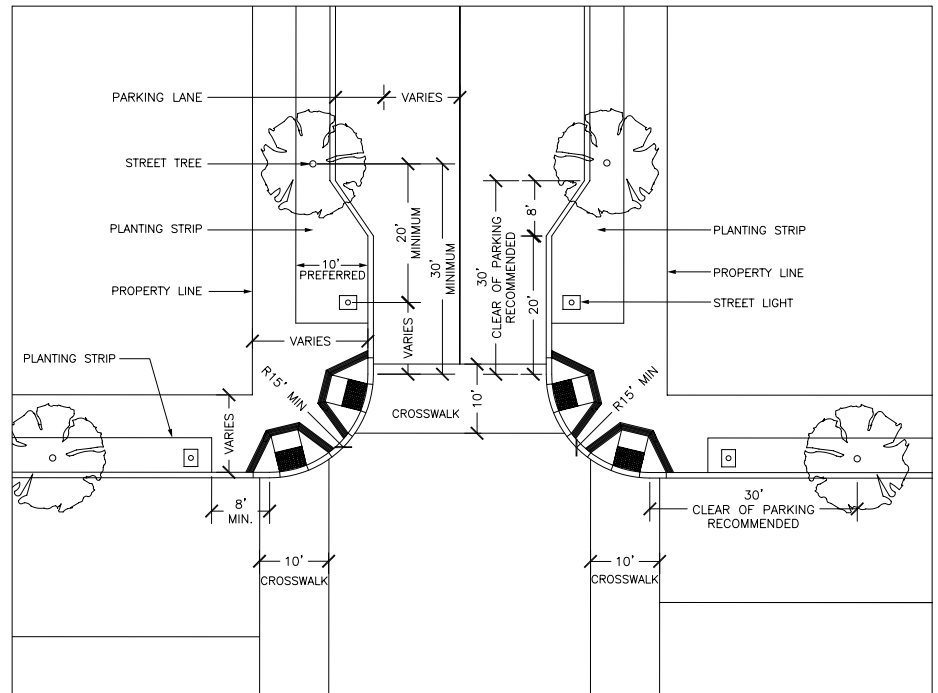


Figure IV-4
Recommended standard bulb-out

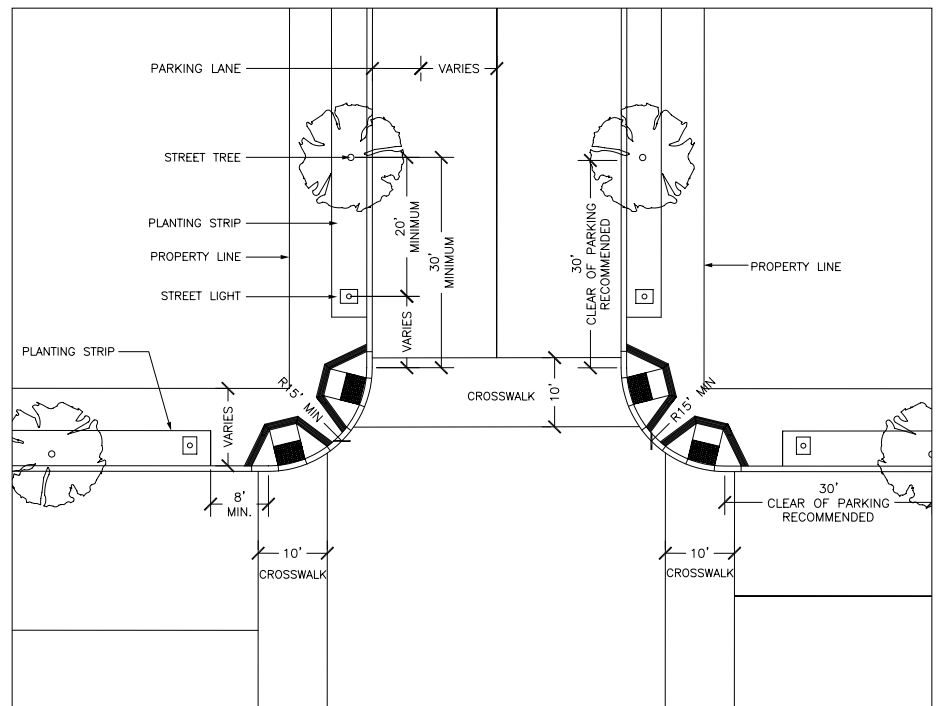


Figure IV-5
Recommended standard corner

outdoor recreation facilities that meet the broader needs of the residents. Facilities may include: picnic area, barbeque area, play structure, multi-use court, open lawn area, swimming pool, or a courtyard usable for different outdoor activities. Privacy of residents and neighbors should be considered when locating recreation facilities. Choice of recreation facility is at the discretion of the developer of the building it serves.

The Setback may be used as a small patio or recreational lawn area, such as a Raised Yard (see Glossary). This provides a slight separation of the private space from the public way and increases the desirability of using the open space. In addition, the raised area may allow unobstructed access between the interior of the residence and the open space for persons with disabilities. A wall, fence, or hedge located at the sidewalk edge can provide a comfortable separation of private space from the public sidewalk when low enough to allow surveillance of the street from within the home, which is important for maintaining safe neighborhoods.

Open swimming pools and spas are permitted in at-grade private open spaces for all residential uses. Open swimming pools and spas may encroach into rear yards, side yards, and designated Setbacks.

IV.1.4 Framework Street Setbacks

- Street Setbacks should be attractively landscaped. Planted treatments are preferred.
- See Chapter II Block criteria for Setback dimensions.
- Street Setbacks are encouraged to incorporate stormwater treatment options as described in IV.1.7.
- Maximum recommended mature tree height in a Setback is 25 feet.
- Final Setback treatment to be determined during SPAR.



Figure IV-6

Bryant Street, Palo Alto

This planted Setback demonstrates the preferred lush planting characteristic of residential Peninsula neighborhoods



Figure IV-7

Appropriate example of Raised Yards

IV.1.5 Plant Palette for Open Spaces

Plants within parks, setbacks and private courtyards shall be selected for drought tolerance, hardiness, beauty and ability to support regional habitat, including pollinators and bird species. The list below illustrates types of plants that can achieve these performative goals. Other plants are permitted. Final plant palettes may vary according to availability and site design.

Plants recommended for habitat value. Also have attractive flowers and foliage. These plants are not recommended for use in private courtyards.

Manzanita sp. *Arctostaphylos spp.*

California black-flowering sedge, *Carex nudata*

Western redbud, *Cercis occidentalis*

Toyon, *Heteromeles arbutifolia*

Oregon grape, *Mahonia aquifolium*

Monkeyflower, *Mimulus spp.*

Red-flowering currant, *Ribes sanguineum*

California wild rose, *Rosa spp.*

Thimbleberry, *Rubus parviflorus*

California huckleberry, *Vaccinium ovatum*

Plants recommended for their attractive qualities such as colorful blossoms, unique foliage, and seasonal qualities. Most also have habitat value. These plants are recommended for use in private courtyards as well as parks and setbacks.

Butterfly Bush, *Buddleja spp.*

Australian Fuschia, *Correa spp.*

Coral Bells, *Heuchra micrantha*

Lantana, *Lantana davidii*

Lavender, *Lavandula spp.*

Lion's Tail, *Leonurus spp.*

Pittosporum, *Pittosporum spp.*

Matilija poppy, *Romneya coulteri*

Sage (*Salvia spp.*)



Figure IV-8
Toyon, *Heteromeles arbutifolia*



Figure IV-9
Lavender, *Lavandula spp.*



Figure IV-10
Lantana, *Lantana spp.*

IV.1.6 Plant Palette - Biofiltration Planters, Biofiltration Units & Swales

Biofiltration and swale plant species shall be selected for inundation tolerance, attractiveness, size, hardiness, and habitat value. Because these plants are necessarily selected for inundation tolerance, they require moderate watering in dry months. The following list was adapted from the Bay Area Stormwater Management Agencies Association's list of Plant Species for Infiltration Areas and the Brooklyn Botanic Garden's list of California Rain Garden plants. The list below illustrates types of plants that can achieve these goals. Other plants are permitted. Final plant palettes may vary according to availability and site design.

Elk clover, *Aralia californica*
Pipevine, *Aristolochia californica*
Western spicebush, *Calycanthus occidentalis*
California black-flowering sedge, *Carex nudata*
Hazelnut, *Corylus cornuta* 'Californica'
Umbrella plant, *Darmera peltata*
California gray rush, *Juncus patens*
Monkeyflower, *Mimulus spp.*
Ninebark, *Physocarpus capitatus*
California polypody, *Polypodium californicum*
Red-flowering currant, *Ribes sanguineum*
Salmonberry, *Rubus spectabilis*
Coneflower, *Rudbeckia californica*
California huckleberry, *Vaccinium ovatum*



Figure IV-11
Calif. black-flowering sedge, *Carex nudata*



Figure IV-12
Red-flowering currant, *Ribes sanguineum*



Figure IV-13
Western spicebush, *Calycanthus occidentalis*

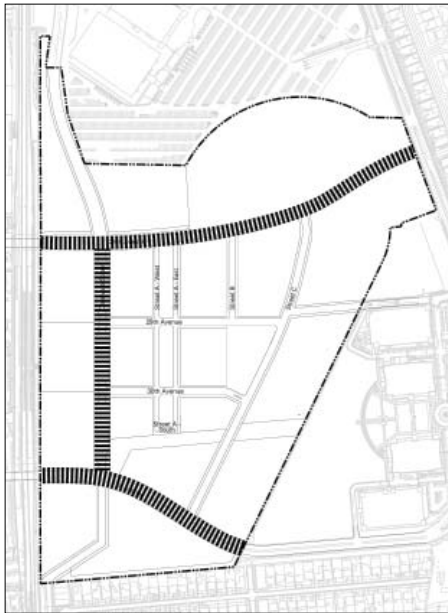


Figure IV-14
Key Plan - Biofiltration units and planters

IV.1.7 Stormwater Management Strategy

Best Management Practices such as biofilters, rain gardens, permeable paving and swales should be integrated into the streetscape and open space plans.

(a) Stormwater Quality Strategy in Streetscape

The run-off from the public right-of-way in 28th Avenue, 31st Avenue and Delaware Street (between 28th Avenue and 31st Avenue) shall be treated using one or more of the following (or equivalent) methods in order to treat pollutants typically found in run-off from streets, such as heavy metals, sediments, nutrients, trash, oils and greases.

Filtterra® catchbasins (or equivalent)

These units shall consist of a concrete box, a mulch layer, approximately 1.5 to 3.5 feet of a unique soil filter media, an observation/cleanout pipe, an under-drain system and an appropriate type of plant i.e., flowers, grasses, shrub, or tree. The top of the unit shall be recessed to permit the specified sidewalk material to be laid on top of the box.

Stormwater runoff shall drain directly from the impervious right-of-way surfaces through an inlet structure in the concrete box and flow through the mulch, plant, and soil filter media. Treated water shall flow out of the system via an under-drain connected to a storm drain pipe or other appropriate outfall - refer to Figure IV-16. Filtterra® units shall not be placed in sump conditions. Filtterra® cannot be used as a stand alone inlet. A downstream catchbasin shall be provided for effective bypass of flows during higher intensity rainfall events.

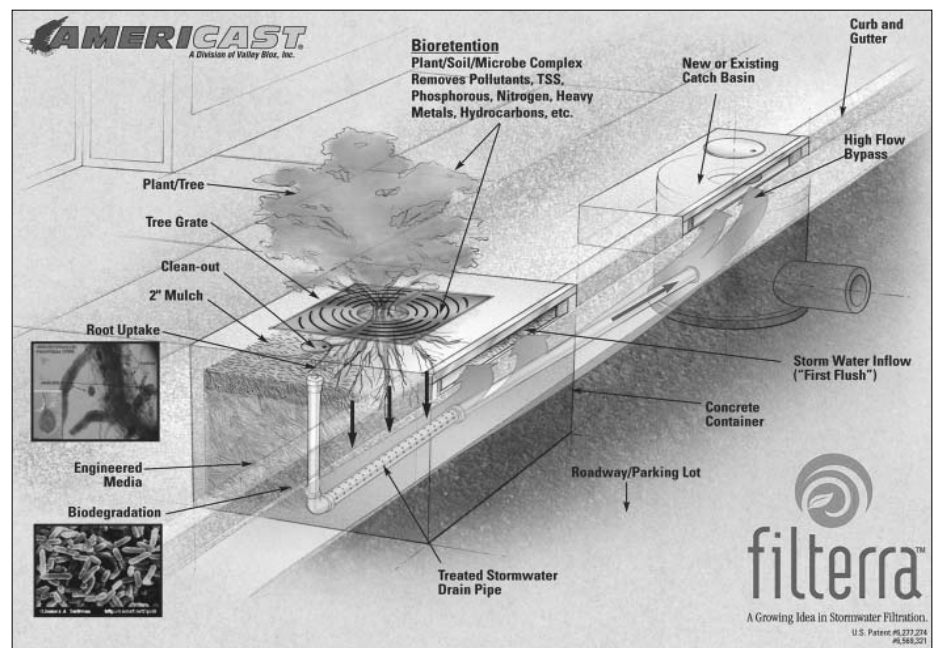


Figure IV-15
Typical Filtterra® layout

Surface flow shall not be directed to Filterra® in a “head-on” configuration. The preferred configuration is a cross linear flow (left-to-right or right-to-left) in the gutter in front of the unit - refer to Figure IV-16.

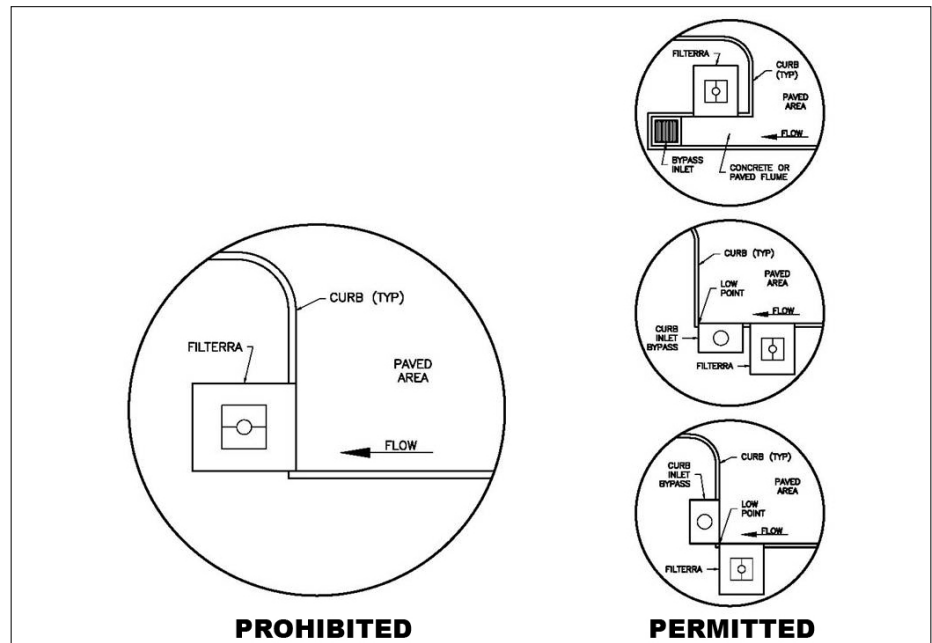


Figure IV-16

Filterra® orientation - Plant types and tree grates shall be consistent with the adjacent street landscape



Figure IV-17

Example of permitted biofiltration planter box



Figure IV-18

Example of permitted biofiltration planter box

Biofiltration Planters in Landscape Strip

Planters in the landscaping strip within the public right of way shall be configured to permit stormwater flow in the gutter to enter the planter at the upstream end - refer to Figure IV-17 and Figure IV-18. Water shall filter through the soil media during low flow events. During higher flow events, water shall exit the planter, either via an overflow drain connected to the storm drain system within the planter, or return to the gutter via an outlet.

Treated water shall flow out of the system via an under-drain connected to a storm drain pipe or other appropriate outfall.

The planters cannot be used as standalone drainage facilities. Traditional catchbasins shall be located downstream for effective bypass of flows during higher intensity rainfall events.

Refer to Section IV.1.6 for suggested biofiltration planting species.

Mechanical Devices

The following mechanical treatment devices (or equivalent) may be used in appropriate locations where approved by Public Works. Mechanical treatment devices which are appropriate for the type of pollutant at issue should be used. For example, a "catch basin insert" is not an appropriate device for the treatment of heavy metals. However, a "catch basin insert" is appropriate for trash removal.

- Oil separators
- Hydrodynamic separators
- Media filters
- Sand filters
- Catch basin inserts
- Wet vaults
- Other emerging technologies

(b) Stormwater Quality Strategy within Private Blocks

Runoff from the building roofs and at-grade hardscape areas should be treated using one or more of the following (or equivalent) methods.

Biofiltration planters

- Biofiltration planters should be located within Setbacks or within courtyards to treat roof run-off - refer to Figure IV-19 for an illustrative planterbox.
- Roof leaders should discharge directly to the planter boxes, using a methodology similar to that shown in Figure IV-23 and Figure IV-24.
- Recessing biofiltration planters into at-grade or podium slabs to allow runoff to enter from adjacent landscape areas is permissible.

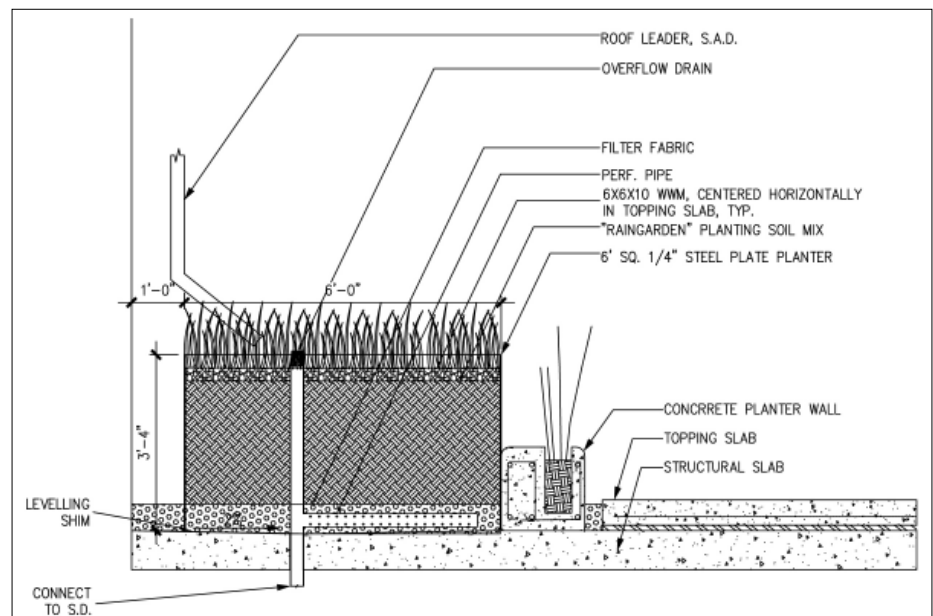


Figure IV-19
Illustrative biofiltration planter

Swales

A swale directs stormwater into a drainage area along the ground surface - refer to Figure IV-20. It can slow the velocity of water, and will improve water quality via filtration with some infiltration.

Swale design strategies shall include:

- Locate swales away from active use areas and buildings such that water is not directed toward foundation structures.
- Gently slope sides of swale to reduce erosion.
- Size swale to meet the capacity requirements. Provide overflow catchbasins along the length of the swale to permit bypass of flow during higher intensity rainfall events.
- Slope the swale towards a storm drainage system structure such as a catchbasin or manhole.
- Avoid compacting the swale subsoils during construction.
- Provide a sub-drain to promote infiltration.
- Use appropriate vegetation

Refer to Section IV.1.6 for suggested swale planting species.

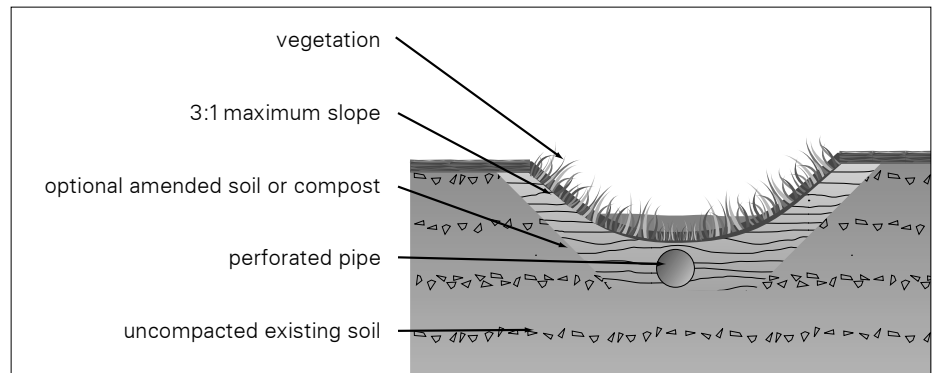


Figure IV-20
Example of permitted swale

Rain Gardens

A rain garden is a shallow, depressed area in the landscape, planted with vegetation that can withstand periodic inundation of water - refer to Figures IV-21 and IV-22.

Rain Garden design strategies shall include:

- Locate rain gardens away from buildings such that water is not directed toward foundation structures.
- Use amended soil and avoid compaction of soil to increase infiltration.
- Provide a sub-drain to promote infiltration.
- Slope the surrounding land towards the rain garden.
- Direct overflow to a discharge point, or provide an overflow drain within the rain garden.



Figure IV-21
Rain garden example

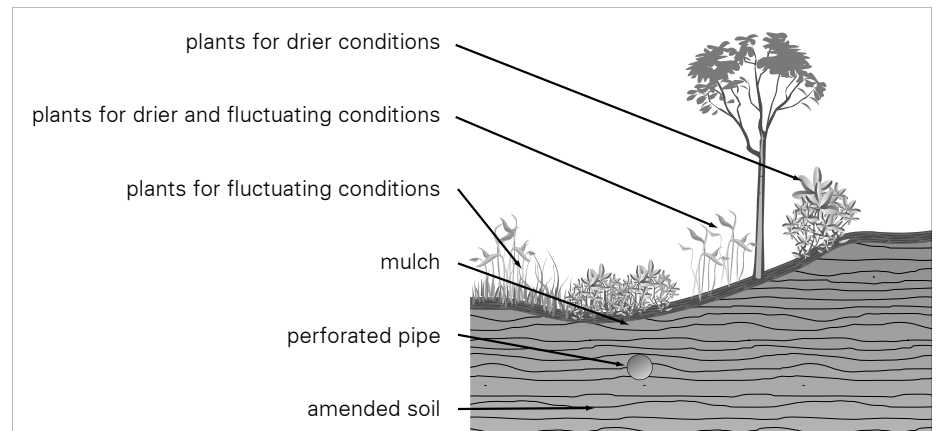


Figure IV-22
Schematic rain garden

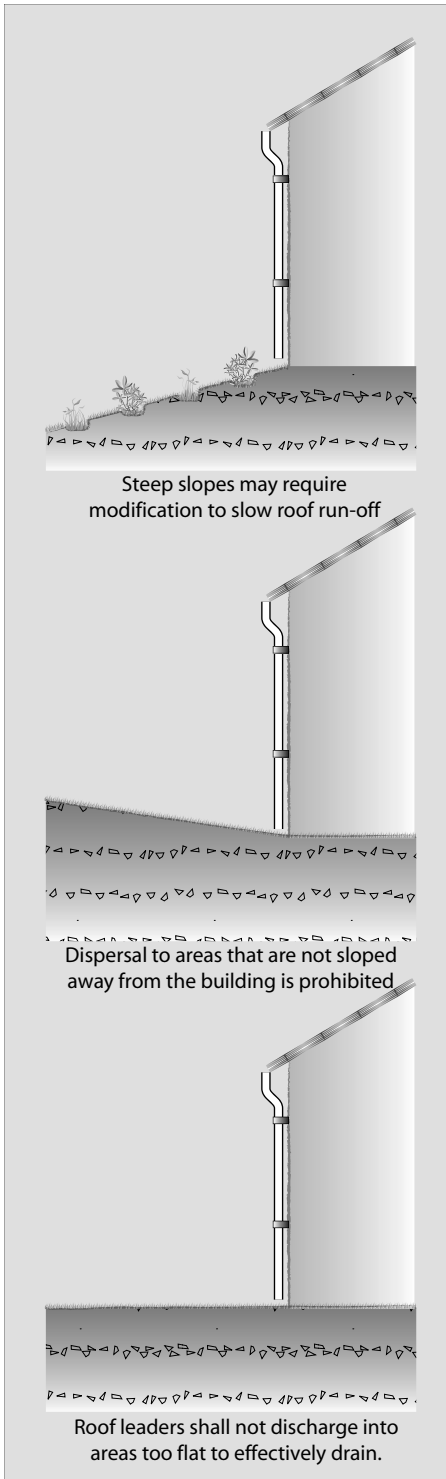


Figure IV-23
Roof leader dispersal

Disconnected Roof Leaders

Splash blocks shall be used to reduce the velocity and impact of water entering rain gardens, planterboxes, swales, etc. from roof leaders - refer to Figure IV-24. Splash blocks shall be constructed from concrete, stone, glass or other durable product. Plastic is not permitted.

Roof Leader design strategies shall include:

- Sloping the ground at least 2% to direct run-off away from the building
- Avoiding the puddling of water next to the building - refer to Figure IV-25.
- Distributing roof drainage to more than one downspout
- Providing measures to mitigate channelization by slowing run-off on steeper slopes. These may include plant material, landscape rocks, graded swales, gravel dams, washed rock pockets, or other approved strategies - refer to Figure IV-23.
- Vector control mitigation measures
- Gutters and downspouts should be aesthetically pleasing and placed in an appropriate location so as not to detract from the building.



Figure IV-24
Example of permitted disconnected roof leader with splash block

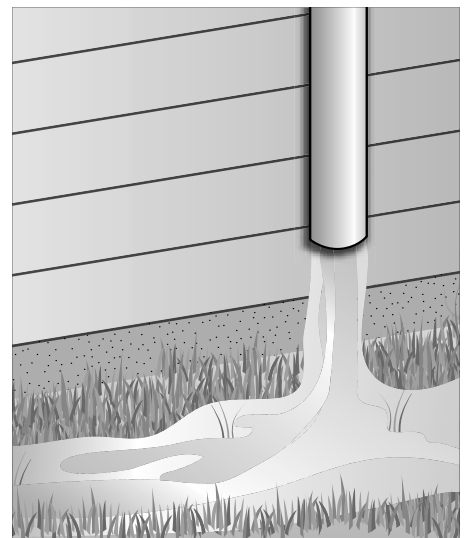


Figure IV-25
Puddling at building edges is prohibited

Permeable Pavement

Use of permeable paving is encouraged in the following areas:

- Driveways (reduced pavement driveways that reduce the impermeable surface area rather than altering the material are also permitted - refer to Figures IV-26 and IV-27).
- Yard areas

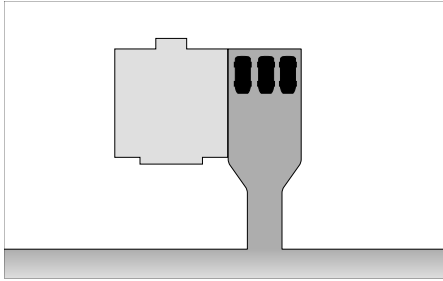


Figure IV-26
Conventional driveway pavement

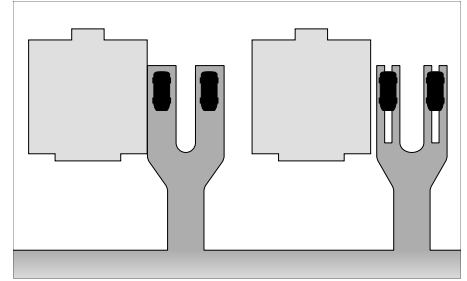


Figure IV-27
Driveway pavement reduction

Where it exists, permeable paving shall be engineered to account for the sub-soil conditions. Design recommendations include the following:

- The bottom of the stone reservoir shall be completely flat to ensure infiltration through the entire surface.
- Porous pavement shall be located at least two to five feet above the seasonally high groundwater table.

Green Roofs

Buildings are encouraged to use green roofs to filter and reduce the volume of stormwater runoff.

Cisterns

Cisterns are permitted to reduce the rate of stormwater run-off from the buildings, provided that:

- They are integrated into the aesthetics of the building.
- If a cistern holds greater than six inches of water, it must be covered securely, or have a top opening of less than four inches.
- The design and maintenance minimizes the potential for clogging by leaves and other debris.
- Vector control mitigation measures are considered in the design of the cistern.

Mechanical Devices

The following mechanical treatment devices (or equivalent) may be used in appropriate locations where approved by Public Works. Mechanical treatment devices which are appropriate for the type of pollutant at issue should be used. For example, a “catch basin insert” is not an appropriate device for the treatment of heavy metals. However, a “catch basin insert” is appropriate for trash removal.

- Oil separators
- Hydrodynamic separators
- Media filters
- Sand filters
- Catch basin inserts
- Wet vaults
- Other emerging technologies



Figure IV-28
Typical pole luminaire



Figure IV-29
Typical luminaire

IV.1.8 Site Lighting

Site lighting should be designed to:

- Provide and control lighting in outdoor public places for public health, safety and welfare.
- Protect drivers and pedestrians from the glare of non-vehicular light sources.
- Protect neighbors and the night sky from nuisance glare and light trespass.
- Promote energy-efficient lighting design and operation.
- Protect and retain the intended visual character of the neighborhood.
- Provide uniform lighting levels to enhance visibility.
- Meet the City of San Mateo lighting level and energy efficiency standards.

(a) Streets

The street lighting design should include the following:

- Mitigation of glare to pedestrians or drivers.
- Street light layouts shall be coordinated with tree planting plans so mature street trees will not block street lighting fixtures.

Street Lighting Equipment Guide

All lighting equipment used should be standardized for energy efficiency, low glare and light pollution features. Spacing and light shielding requirements should fit the application.

The following are standard Street equipment requirements:

- Light poles shall be 14' tall cast aluminum, type Holophane North Yorkshire NY14C/17-CA/RAL 6012 or approved alternative - refer to Figure IV-28.
- Lights shall be cut-off type, metal halide, Holophane Washington Postlite WA 10DMH 24 RAL6004 8 RAL6012 5 F PR F1 or approved alternative - refer to Figure IV-29.
- Combined traffic signal and street light shall be mounted on 30' high steel pole - refer to Figure IV-30.
- Identification number decals shall be provided by the City of San Mateo, for application by the developer to all lighting poles and shall be decipherable from ground level.
- Holiday lighting outlets are allowed on street light poles at 13' elevation. Provide duplex weatherproof 15A rated receptacle on the pole facing the sidewalk.
- All street light poles shall be standardized to Dark Green color (RAL 6012) or approved alternate.
- Banner arms are not permitted unless approved during the SPAR process - refer to Figure IV-31.



Figure IV-30
Typical traffic signal/street light



Figure IV-31
Typical banner arm

(b) Parks and Open Spaces

Parks and open spaces shall be illuminated appropriately for use. The following criteria apply to park and open space lighting design:

- The installation of luminaires with open lamps is prohibited.
- Design should limit up-light and light pollution.
- Design should minimize energy consumption and increase public safety.
- The use of full cut-off luminaires is encouraged.
- The use of non cut-off fixtures should be limited to designated ornamental areas.

(c) Exterior Block Lighting

- The use of unshielded "wall pack" - type security lights is prohibited.

IV.1.9 Site Preparation

The following existing on-site materials should be recycled for re-use on-site wherever feasible:

- The asphalt from the existing parking lots
- The road base from the roads and parking lots
- The concrete from the grandstand, other infield buildings and tunnel
- Topsoil and subsoil from the infield area

Suitable re-use applications include:

- New road construction
- Building pads
- Backfill drain rock
- Trench backfill
- Other suitable purposes

Site material shall be deemed suitable for re-use only through the recommendations of a licensed Geotechnical Engineer.

Any excess material generated that cannot be accommodated on-site shall be made available to the JPB grade separation project.

Existing on-site materials should be salvaged for re-use wherever feasible. Existing on-site materials include:

- Steel frame from the grandstand and other infield buildings
- Infield floodlights
- Copper wire serving the floodlights and the grandstand
- Steel fencing
- Copper plumbing