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REDWOOD SHORES LAGOON BANK POLICY & CONSTRUCTION GUIDELINES

(July 24, 2006)

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I. Purpose & Findings:

The purpose of the policy is to maintain the integrity of the slopes of the Redwood Shores lagoon (interior waterway)¹, assist in the maintenance of a clean water way, protect the public health and safety of Redwood Shores residents, as well as to preserve the aesthetic quality of the lagoon and surrounding neighborhoods. The slopes on the interior waterways in Redwood Shores were designed and constructed to maintain stable conditions under a range of environmental circumstances, including seismic, and to allow the lagoon to be used for aesthetic viewing, recreational activities and storm water retention. Any new construction and/or maintenance/repair of existing construction which alters these stable conditions (for example installing retaining walls too close to the slope) could affect stability in this area.

Furthermore, many of the existing improvements are now in need of repair and/or waterfront property owners wish to construct new improvements on their property. The proposed policy and construction guidelines are intended to encourage properly designed improvements which contribute to the value of the Redwood Shores Community without compromising the integrity of the Redwood Shores lagoon. The intent is also to develop a policy that can be consistently applied over time by all City Departments that will result in consistent and fair treatment of residents who own waterfront property.

II. Zoning and Land Use Information:

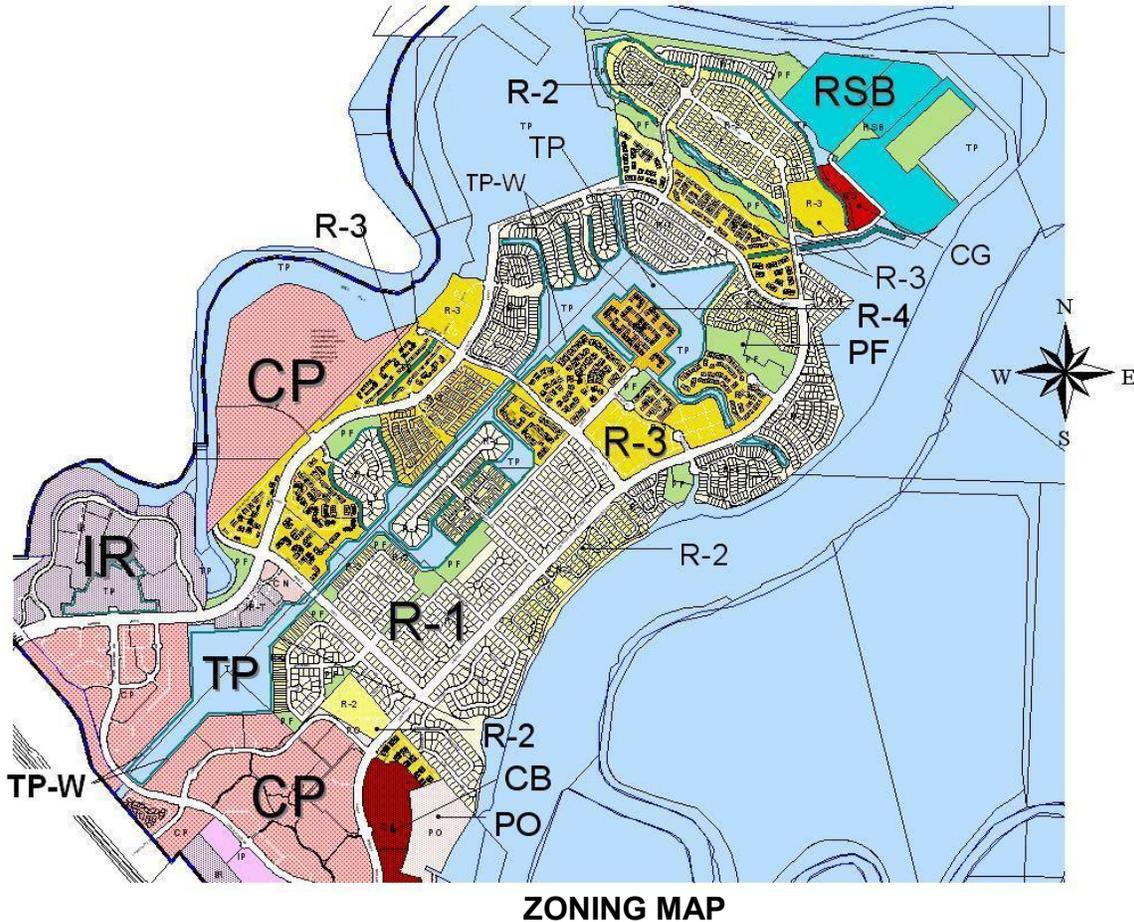
The interior waterway (Redwood Shores lagoon) which is owned and maintained by the City of Redwood City is within the Tidal Plain “TP” Zoning District. The City also maintains a stormwater easement that extends from the property line (approximately bottom of slope) towards the top of slope ranging between 15 and 21 linear feet. (Refer to Figures 1 and 2, Typical Lagoon Bank Sections). Although the property within this easement is owned by the individual waterfront property owner, the City maintains the stormwater easement as an essential part of preserving the interior waterway and sustaining acceptable water quality levels.

In 1977, the City established a combining zoning district, Tidal Plain – Water “TP-W”, in an effort to permit and regulate development in, on, and over water bodies in the City (including the Redwood Shores lagoon). The TP-W combining district regulates any permits for construction in the waterway or within a 10-foot band in-board of high water line² by requiring waterfront property owners to secure a Planned Development Permit from the City prior constructing any improvements. The TP-W combining district can be reference on the City’s Zoning Map by a solid line that traverses the entire perimeter of the Redwood Shores lagoon. (Refer to the Zoning Map below).

¹ The terms “Redwood Shores Lagoon” and “interior waterway” are used interchangeably throughout this document.

² High water line may vary due to seasonal fluctuations and stormwater retention.

Surrounding land uses (in-board of the TP-W) are predominantly residential, with some commercial and light industrial near the southwest end of the lagoon, and public facilities (parks and schools) interspersed throughout. (Refer to the Zoning Map below).



III. Definitions:

Terms used in this policy, which are not defined below, shall have the same meaning as those contained in the Redwood City Zoning Ordinance. Please be advised that this policy as well as the Zoning Ordinance may be amended from time to time.

Bearing Pressure: *The amount of weight supported.*

Bulkhead: *A boxlike structure, which provides an anchor point to a ramp or boat dock, or which acts as a retaining wall.*

Cut: *the removal or extraction of materials (including, but not limited to soil, clay, dirt, mud, rock, sand, or other materials) for the purpose of decreasing the existing grade.*

Fill: *the addition of materials (including, but not limited to soil, clay, dirt, mud, rock, sand, or other materials) for the purpose of increasing the existing grade.*

Footings: *A base foundation to provide structural stability, usually to a wall and/or column.*

Gangways / Ramps: *A walkway anchored to the lagoon bank providing access to a boat dock.*

Improvements: *Improvements shall include, but not be limited to, boat docks, retaining walls, garden walls, decks, patios, benches, seating walls, flower beds, planter boxes, steps, walkways, fences, railings and/or cut and fill which alters the existing grade.*

Maximum Allowable Bearing Pressure: *The maximum allowable amount of weight vertically supported by the underlying soil in term of pounds per square foot of pressure on the soil.*

Maximum Allowable Passive Pressure: *The maximum allowable amount of weight laterally supported by the soil in term of pounds per square foot of pressure on the soil.*

Pier: *A pillar or post supporting vertical pressure.*

Retaining Wall: *A structure (wood/concrete/stone) which supports earth fill.*

Rip Rap: *An aggregate rockslope designed to protect the lagoon bank from erosion; which typically extends below low water elevation and above high water elevation.*

Staylines: *Cables used to stabilize structures, typically floating boat docks.*

Toe of Slope: *The base or terminus of the slope; i.e., the theoretical point at which the slope transitions to the lagoon bottom.*

Top of Slope (Top of Bank): *The peak or apex of the slope; i.e., the theoretical point at which the slope transitions to a flat surface. (Reference Figure 1)*

Upper Slope: *The portion of slope between the rip rap and top of slope.*

IV. “New” Improvements:

The term “new” refers to any and all waterfront improvements / construction that occur after the implementation of this policy.

A. Boat Dock Design Criteria:

1. The size allowed for a private boat dock shall be determined on a case-by-case basis subject to the following restrictions. At no point shall the unobstructed width of a waterway be reduced to less than thirty (30) feet.
 - a. On parcels with a width equal to or greater than 50 feet wide, the maximum width (parallel to the shore) of the boat dock shall not exceed forty (40) percent of the lot width; and the maximum length (perpendicular to the shore) shall be between ten (10) feet and twelve (12) feet depending on location and site conditions.

- b. On parcels with a width less than 50 feet wide, the maximum width (parallel to the shore) of the boat dock shall not exceed sixty (60) percent of the lot width; and the maximum length (perpendicular to the shore) shall be between eight (8) feet and ten (10) feet depending on location and site conditions.
2. The width of the boat dock shall be defined as those sides of the structure which run parallel, or approximately parallel, to the shoreline / retaining wall. The length shall be defined as those sides of the structure projecting into the water and running perpendicular, or approximately perpendicular to the shoreline / retaining wall. All docks shall be placed with their width parallel to the shoreline.
3. Where boat docks are proposed to be installed by or next to the lagoon's reinforced concrete retaining wall, the boat docks shall not be anchored to the wall nor shall they be allowed to make direct contact with the wall. (The use of fenders or other protection devices shall be employed to protect the wall).
4. All boat docks shall be constructed as floating docks with hinges at the gangway connection points (i.e., where the gangway connects to the boat dock and where the gangway connects with the bulkhead). Due to the seasonal fluctuations of the lagoon water level, the boat dock shall be hinged with a minimum of two-foot (2') lift/drop capability.
5. In order to provide dock flotation, Styrofoam³ or similar plastic material shall be used. Metal tanks and/or wood shall not be used for flotation purposes in the construction or reconstruction of boat docks.
6. No portion of a private boat dock shall be allowed to extend into a publicly owned water area.
7. All metal used in construction of boat docks or used to fasten a dock shall be stainless or galvanized steel.

B. Deck Design Criteria:

1. For single family residences on the waterfront the maximum allowable width of a deck shall not exceed the width of the

³ Styrofoam shall be wrapped, coated or otherwise contained to avoid abrasion and/or deterioration.

residence (i.e., the width of the deck shall be proportional to the width of the house).

2. For multi-family residential properties, common areas within a homeowner's association, and/or commercial properties the maximum allowable width of a deck shall be determined on a case-by-case basis subject to the proposed location and site conditions as determined by City staff.
3. The colors and materials of the deck shall be consistent with the existing residence and/or building.
4. All decks shall be designed to not place any additional stress on the lagoon bank or within the required transitional zone, with any post, pier, footing or foundation.
5. No deck shall be constructed higher than the finish floor level (on the ground floor) of the residence / building. Changes in levels to avoid unnecessary height near the waterfront are permitted if the change in level can be constructed without placing any posts, piers, footing or foundations on the lagoon bank or within the required transitional zone.

C. Retaining / Garden Wall Criteria:

1. Retaining / Garden walls shall be constructed out of materials that are consistent with the architectural style of the subject property. For example, walls constructed on residential property shall be constructed of residential type materials such as flagstone, cobble stone, brick, wood, or finished with stucco, etc. Commercial properties may be constructed with more commercial type materials such as concrete block; however, the wall shall be treated to match the existing building.
2. A Building Permit is required for all retaining walls in excess of four (4) feet in height. The overall height shall include below grade footings, peak height of pilasters and all other projections.
3. At no time shall a retaining wall, garden wall, or any other type of construction be built on the lagoon bank, regardless of the size. For further information on location of improvements see the following requirements listed under Location Criteria, below.

D. Location Criteria:

TP-W: The Tidal Plain – Water combining district traverses the entire perimeter of the Redwood Shores Lagoon establishing an area in which any permits for construction in the waterway or within a ten (10) foot band

in-board of high water line, effectively the top of slope, will require a Planned Development Permit. This area *typically* has a 3:1 slope, which includes the toe of slope, rip rap, upper slope up to the top of bank.⁴ (See Figure 1 – Typical Lagoon Bank Sections).

Construction within the TP-W zone shall be limited to Floating Boat Docks.⁵ No other construction and/or improvements are permitted in, on, or over the lagoon bank. Decks, fences, and other improvements that extend into the TP-W zone shall be entirely supported by structural elements **outside** of the area. Landscaping is permitted on the upper slope, but is limited to non-invasive slope stabilizing vegetation. No additional below grade (in ground) irrigation is permitted within this zone beyond that installed during original construction. (See the “All Zones” discussion below)

For properties with a vertical retaining wall (see Figure 2 - Typical Lagoon Bank Sections) the TP-W zone shall extend in-board equal to the depth of the vertical retaining wall. As previously mentioned, Floating Boat Docks are the only improvement allowed within the TP-W zone. The boat docks must be supported / anchored by means other than the vertical retaining wall and the boat dock shall not be allowed to come into direct contact with the wall. No other construction and/or improvements are permitted within this zone.

Pulling boats up onto the lagoon bank is strongly discouraged. This repeated activity can dislodge rip rap and/or cause additional erosion to the lagoon bank.

⁴ Where there is no determinable top of bank the City Engineer or designee shall establish a theoretical top of bank.

⁵ A Floating Dock System generally consists of a floating deck, a gangway / ramp, bulkhead or block, and cable staylines. Anchor points (i.e. the bulkhead and cable staylines) may be constructed on the Lagoon Bank, subject to the review and approval by the City of Redwood City. Gangways / ramps shall be hinged or otherwise allow for enough flexibility to adjust to rising and lowering water levels. Piles, piers, footings, or any other fixed anchor points (except those previously identified) are not allowed on the Lagoon Bank.

Figure 1 - Typical Lagoon Section

NOT TO SCALE

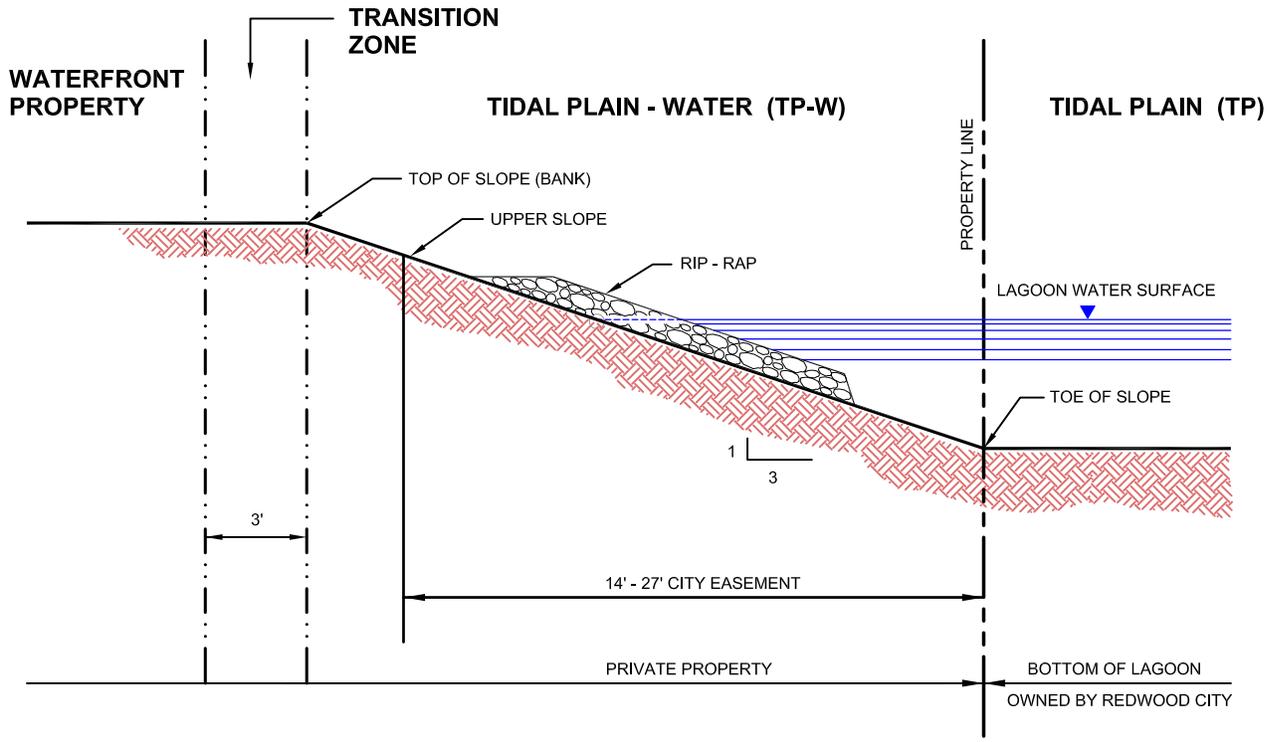
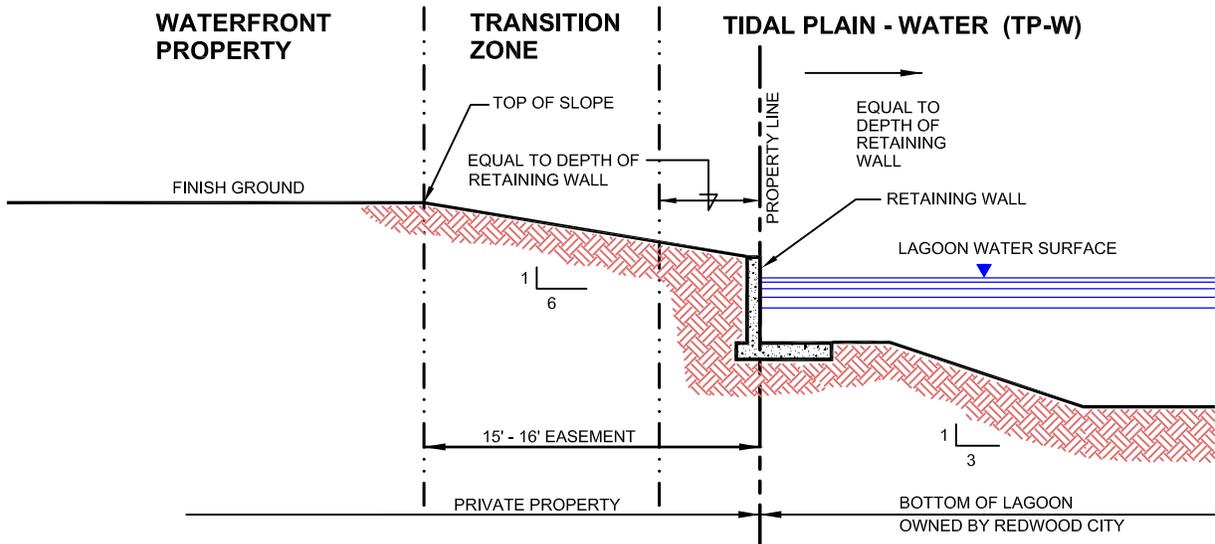


Figure 2 - Typical Retaining Wall Lagoon Section

NOT TO SCALE



Transition Zone (Zone B): Identifies the area in which improvements **may be permitted**, subject to City review (please refer to subsection “E”, Engineering Standards & Construction Criteria). Bulkheads with a maximum 4-foot width, two (2) cable stayline anchors, and landscaping header boards (less than 4-inches in height) may be located within this zone. All other structural improvements within this zone require plans to be prepared by a licensed Civil Engineer and are to be reviewed and approved by the City in accordance with this policy. Typically this area extends from the top of bank, three (3’) feet into property. (See Figure 1 - Typical Lagoon Bank Section).

Landscaping is permitted within this zone, but is subject to City review and approval if planter beds or other structural retaining walls are necessary.

For properties with a vertical retaining wall (see Figure 2 – Typical Lagoon Bank Section) the Transition Zone extends from the end of the TP-W Zone (which is equal to the height, the vertical dimension, of the vertical retaining wall) back to the top of slope and identifies an area in which improvements may be permitted subject to City review (please refer to subsection “E”, Engineering Standards & Construction Criteria).

Waterfront Property: Defined as the area in-board of the “Transition Zone” (Zone B) in which improvements may be permitted in accordance with the requirements of the Redwood City Zoning Ordinance and all other applicable Building and Fire Code requirements.

For waterfront properties with a slope this area extends from beyond three (3’) feet from top of bank towards the front of the parcel. For waterfront properties with a vertical retaining wall this area starts beyond the top of slope, typically 15 to 16 feet back from the retaining wall.

All Zones: Cut and/or fill which results in the alteration of the existing grade, as originally engineered, is strictly prohibited unless prior approval is obtained from the City in accordance with provisions of this policy.

On-site drainage shall be directed towards the stormwater system within the public right-of-way (i.e., the street) where possible. In situations where the existing drainage system installed during original construction is still operational, drainage may continue to be directed into the lagoon. However, where the original drainage systems have been altered through re-grading or other improvements to the property, so that the existing system does not function properly, the on-site drainage **shall not** be directed over the lagoon bank. Unmanaged drainage will result in further erosion of the lagoon banks and contributes to the threat of slope failure. It can also adversely impact water quality.

E. Engineering Standards & Construction Criteria:

1. Any structural improvements in the TP-W Zone and/or the Transition Zone must be designed by a licensed Civil Engineer. The following standards are provided for this licensed Civil Engineer. The improvement shall be designed with additional consideration for the integrity / stability of the lagoon slope, and shall be substantiated by site-specific geotechnical investigations.
2. Maximum height of fill to be retained is three (3') feet, elevation = 105.5'
3. General Lagoon Information: (All elevations are based on mean sea level 1929 datum + 100')
 - Top of slope elevation –generally 102.5'
 - Water levels vary depending on the season, (high water elevation = 99'; low water elevation = 97').
 - Lagoon Bottom elevation = 92.5' +/- 0.5'.
 - Lagoon Slope is 3 Horizontal : 1 Vertical
 - Lot Lines generally go to bottom of Lagoon Slope.
 - Upper limit of Rip Rap elevation = 101'
 - Lower limit of Rip Rap elevation = 95'
 - Maximum allowable bearing pressure on footings is 1,000 psf*;
 - Maximum passive pressure is 100 psf*.

** The maximum allowable bearing pressure and/or the maximum allowable passive pressure may be subject to change if foundations are on fill or on native clay.*

4. Rip Rap (Rock Slope) Protection
Maintenance, restoration, and/or repair of the Rip Rap (Rock Slope) shall be consistent with Section 02206 "Rockslope Protection" of the City's Engineering Standards. Please contact the City's Engineering & Construction Division for further information (650-780-7380).
5. National Pollutant Discharge Elimination System (NPDES)
The proposed improvements/construction shall comply with all requirements of NPDES and/or any other applicable water quality programs in effect at the time of project approval or enacted hereafter.

V. Existing Improvements:

“Existing” refers to any and all waterfront improvements that were constructed prior to the implementation of this policy. Modifications to existing improvements are subject to the following definitions:

A. Repairs and/or replacements to existing improvements:

A waterfront property owner may repair and/or replace portions of an existing improvement as long as the repairs are contained within the original scope of work (i.e. the repairs do not result in an increase in size or change in configuration to the existing improvements) and the repairs/replacements do not result in any impacts or degradation to the slope. For example, replacing rotting wood on the deck of an existing boat dock or repairing the hinge on the gangway.

For the purpose of evaluating existing fixed boat docks and/or fixed decks, repairs and replacements shall be limited to work that does not require the ***removal of any existing piers and/or footings***.

B. Removal of existing improvements:

Once an existing improvement is removed the non-conforming right is immediately lost and any “new” improvements and/or modifications must conform to all existing applicable codes, requirements, and/or policies. For example, removal of a fixed boat dock, ***including detaching one or more of the piers from the footings***, means that the boat dock must be reconstructed as a floating dock in conformance with this policy. Exceptions may be considered upon review and approval by the City pursuant to this policy.

It is the responsibility of the property owner / applicant to verify with the City whether the scope of the repair, replacement, and/or removal are subject to City review and approval (i.e., a Building Permit, Planned Development Amendment, or other City entitlements.).

VI. Application Procedure:

A: Submittal Requirements:

Planning staff will review all project submittals and determine the necessary entitlement process based on the location of the subject property and the Zone in which the improvements are proposed.

1. Site Plan – drawn to scale and completely dimensioned. The site plan shall show both existing and proposed conditions.
2. Elevations / Cross Sections – drawn to scale and completely dimensioned. The elevations / cross sections shall show both existing and proposed.

3. Site Photos – subject property and adjacent properties.
4. Signed Application (Planned Development Amendment {PDA} Permit for any development within the TP-W and/or Transition Zone or where otherwise required by the Redwood City Zoning Ordinance).
5. Homeowners' Association, Business Association and/or Community Association notification.^{6,7}
6. Proof of ownership / Owner Authorization.
7. Application Fee/Deposit (to be determined by City Council resolution).

B: Subsequent Submittal Requirements:

At project submittal Planning Staff will determine on a project by project basis if the following information is required.

8. Landscaping & Irrigation details.
9. Manufactured Specifications (if installing pre-manufactured products).
10. Civil Engineering Details wet stamped by a licensed Civil Engineer (for improvements in the TP-W and/or Transitional Zone).
11. Foundation & Footing Details.
12. Floatation Details (for all boat dock applications).
13. Statement of Justification for all exceptions.

C: Design Review:

Planning staff will be reviewing the proposed improvements and determining whether or not the proposed improvements contain elements of good design. These elements may include, but are not limited to:

- The use of compatible colors and materials;
- Utilization of high quality materials;
- The size of the proposed improvement and how it relates to the existing residence;
- Ensuring that the improvements complement the architectural style and character of the residence;
- Ensuring that the location of the improvement(s) do not infringe on circulation between the interior and exterior of the residence.

⁶ Prior to submitting plans to the City the applicant shall provide written notification to all applicable homeowner's/business owner's associations identifying the scope of proposed work to be submitted to the City. ***It is the applicant/property owners' responsibility to comply with the associations' Covenants, Conditions and Restrictions (CC&R's). The City does not participate in the enforcement of/or set the requirements for the CC&R's for any development.***

⁷ Verification of the homeowner's/business owner's association notification shall be provided in written form to the City when submitting improvement plans. Applications are not complete unless proof of notification is included. Incomplete applications will not be accepted for review.

- Improvements shall maintain a lower profile closer to the water.
- Rear yard fences and deck or boat dock railings shall remain open to view and shall be minimal in height.

D. Project Consideration:

Upon submittal of a complete application City staff will review the application for compliance with all applicable codes and requirements:

- Any new construction / improvements on waterfront properties within the TP-W Zone and/or Transition Zone requires a Planned Development Amendment (PDA) permit and may be subject to a public hearing, as determined by the Zoning Administrator on a case by case basis.
- Any new construction / improvements on waterfront properties **not** in the TP-W Zone or Transition Zone may be permitted in accordance with the requirements of the Redwood City Zoning Ordinance and all other applicable Building and Fire Code requirements.
- Repairs/Replacements to existing construction / improvements on waterfront properties that maintain the original scope of work do not require the issuance of a Planned Development Amendment (PDA). Depending on the scope of work the repair/replacement may require a Building Permit. The scope of work shall be reviewed on a case by case basis by City staff.
- All landscaping projects that require cut or fill on the slope and/or irrigation are subject to City review.
- All projects that require an exception from this policy are subject to review by the Zoning Administrator and/or the Plan Review Committee (PRC). [The PRC meets weekly and is made up of representatives of different departments including Engineering, Traffic Engineering, Police, Fire, Building, Code Enforcement and Planning].

VII. Exceptions:

Exceptions to this Policy, such as a variation in size, location, height, etc. are subject to review by the Plan Review Committee and approval by the Zoning Administrator following a public hearing. Upon review, the Plan Review Committee (PRC) will provide the Zoning Administrator with a recommendation regarding the justification for providing an exception to this Policy. The justification shall include, but not be limited to:

- a. Identifying the existing condition(s) that prevent(s) or prohibit(s) conforming improvements;
- b. Demonstrating that granting of an exception does not grant a special privilege;
- c. Demonstrating that the improvement will not generate a public health and safety concern for the surrounding residents and/or properties.

VIII. Appeals:

All decisions rendered in reference to the implementation of this policy can be appealed to the Planning Commission. The Planning Commission decision can then be appealed to the City Council pursuant to Article 48 of the Redwood City Zoning Ordinance.

IX. Contact Information and Departmental Roles:

Planning Services:

(650) 780-7234 phone (650) 780-0128 fax

planning@redwoodcity.org

Assists with the entitlement process, design review, landscaping review and staffs the PRC.

Engineering & Construction:

(650) 780-7380 phone (650) 780-7309 fax

Assists with the review of Civil Engineering Details, geotechnical investigations and/or Grading Plans.

Building & Inspection (Code Enforcement):

(650) 780-7350 phone (650) 780-7348 fax

permits@redwoodcity.org

Assists with the review of structural details, site inspections and/or Building Permit Issuance.

Assists with the removal of non-permitted construction. Non-permitted improvements must be removed and/or approved and permitted per all applicable codes, requirements and policies.