



Landscape Master Plan

Red Fox Hills Townhomes



LandCurrent
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Prepared by LandCurrent



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A Comprehensive Landscape Plan for
Red Fox Hills Townhouse Association
3000 Bonniebrae Drive, Lake Oswego, OR 97034.

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Introduction

Red Fox Hills Townhomes is located in a secluded area in Lake Oswego, Oregon, adjacent to Tryon Creek State Natural Area. Red Fox Hills Townhomes was built in 1969 and consists of 107 individual units in 15 buildings, spread across 12-plus acres. Most of the units are two-story, with a handful of one-story units. The property exhibits mature landscaping, and has a volunteer garden area, a clubhouse, and a pool. Red Fox Hills Townhomes prides itself on its high level of community management. The Home Owners Association, and various committees, including the Landscape Committee are managed by residents. The Landscape Committee is responsible for the management and maintenance of common areas, such as the planting beds surrounding the units, and lawns. They are also responsible for the maintenance of the trees, shrubs, plants, and irrigation system. However, the Landscape Committee's responsibilities exclude plants on the residents' porches and patios.

In 2015 the Landscape Committee recognized that the landscape at Red Fox Hills Townhomes had aged, and that over time the planting had lost coherence. This lack of coherence was in part due to the different agendas, planting preferences, and maintenance philosophies of the different residents and maintenance companies at Red Fox Hills Townhomes. The Landscape Committee requested proposals, and interviewed several landscape architecture firms to help develop a Landscape Master Plan. The request for proposals developed by the Landscape Committee is attached as Appendix A. LandCurrent was selected and hired in June 2015 to develop a Landscape Master Plan. In accordance with the community-centered philosophy of Red Fox Hills Townhomes, input from residents was key to the development of this plan. The result of these efforts is this manuscript.

Community Input

The goal of community input was to gauge the wishes of the residents, and to reach a consensus about the future direction for the grounds at Red Fox Hills Townhomes. LandCurrent proposed a variety of methods to seek input from residents so that many voices could be heard. These methods included a site walk with several residents, an online survey, and two community workshops. In addition, all workshop presentations and handouts were available on LandCurrent's website, and residents had the opportunity to contact LandCurrent through email. Survey results and workshop meeting notes are attached in appendix B.



Image 01: Residents at work during a workshop

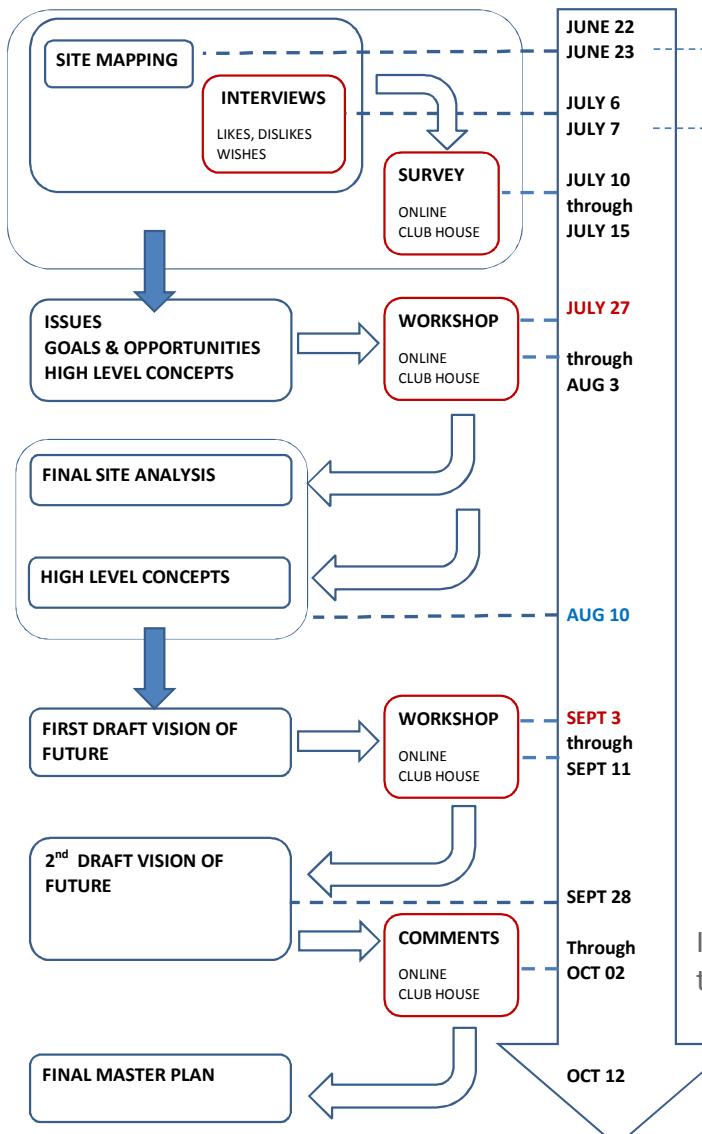


Image 02: Time table for the development of the Landscape Master Plan

History

Red Fox Hills was developed as a Planned Unit Development (PUD). The plans for development were approved in 1967 when a PUD approach was new and innovative. The PUD was conceived as an integrated development with townhouses, single family homes, streets, open spaces and pedestrian walkways in a park-like setting. This Landscape Master Plan only pertains to the townhomes portion of the original PUD.

In general, a PUD development allows for greater design and planning flexibility. PUDs give developers the tools necessary to better provide amenities and infrastructure improvements, and allow them to address environmental and scenic attributes with greater ease. PUDs are typically approved by the local legislative body after a comprehensive review by the planning commission. One or more public hearings are also typically part of the planning process (Making Great Communities Happen, PAS QuickNotes no.22, American Planning Association)

Red Fox Hills was one of the first PUDs created in the wider Portland area. It includes single family homes on a radiating street pattern, which leads to a central area with townhomes. Continuous open spaces and pedestrian walkways were included throughout the site, and contribute to the park like character of the PUD. A landscape plan was not part of the city approved PUD documents. Nonetheless, a landscape architect developed a plan to ensure a high quality green environment. Copies of the landscape plan could not be retrieved. However, historic promotional material shows how large deciduous trees and conifers were seen as an essential component of the development. The promised view on Mt. Hood depicted in the historic material is not there, perhaps it is now obscured by large trees outside the Red Fox Hills PUD.



Image 04: Historic promotional material for Red Fox Hills Townhomes.

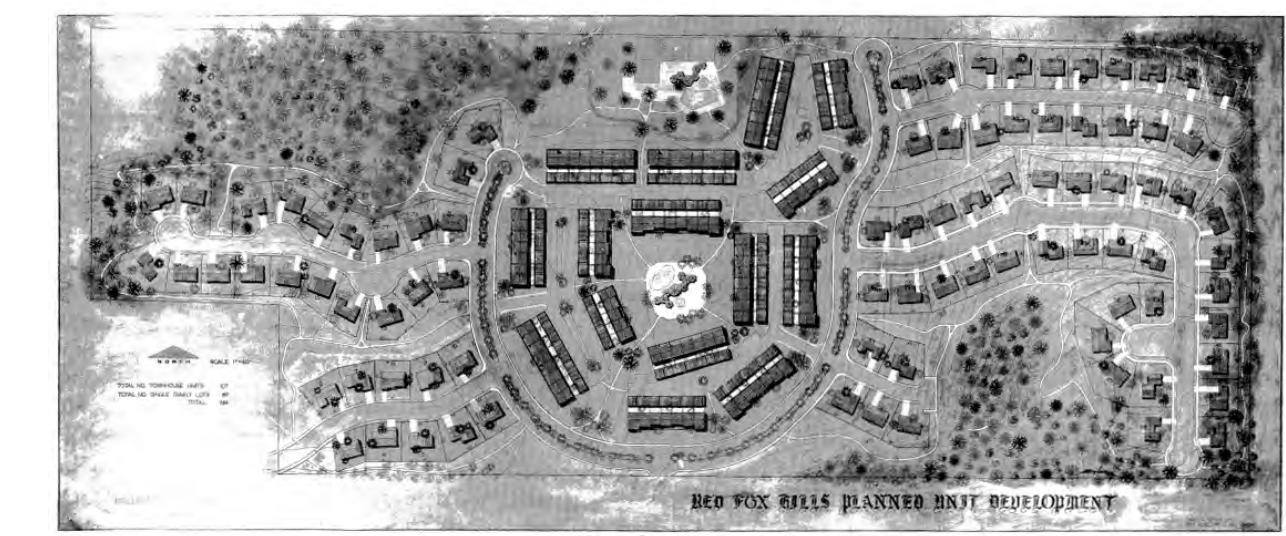


Image 03: Concept drawing for Red Fox Hills Planned Unit Development

Existing Situation

Great Location and Potential

Red Fox Hills is a suburban community located in Lake Oswego, Oregon, a beautiful town with approximately 37,000 residents. The landscapes in Lake Oswego are well-crafted and maintained, and include lakefront parks and sculpture walks. Lake Oswego's schools are top-tier, and the town includes many specialty shops and businesses. Though Red Fox Hills is near to downtown, with its shops, restaurants, and businesses, its forested location near Tryon Creek State Natural area gives it a quiet feel. In this way, Red Fox Hills is the perfect combination of two worlds: the culture and schools of Lake Oswego, and the quiet repose of a beautiful nature area. (Image 05 and 06)

Tryon Creek State Natural Area is a large wooded state park that provides spaces for multiple activities and adventures. The natural area spans over 658 acres, and includes over 8 miles of hiking trails, 3.5 miles of horse trail, 3 miles of bicycle trails, a Nature Center, and Glenn Jackson shelter. These spaces facilitate many nature walks, educational field trips, talks, Junior Ranger activities, and day camps. Additional special events make Tryon Creek State Park an area that is truly teeming with activity. Many of these activities are funded and facilitated by Friends of Tryon Creek, who help maintain the trails, bridges, and boardwalks, and provide volunteer programs for those interested in protecting this natural area. Together with Oregon State Parks, Friends of Tryon Creek make the area a truly valuable resource for many people, including the residents of Red Fox Hills.

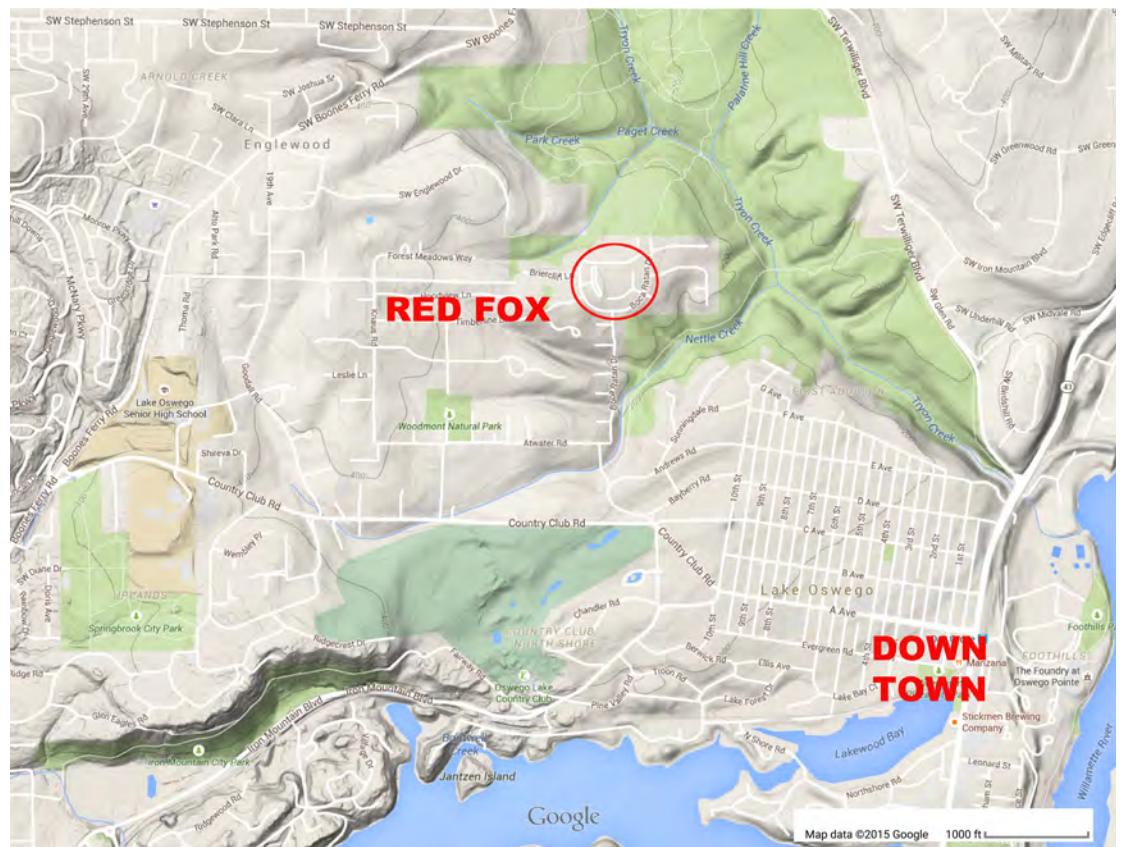


Image 05

Existing Situation

Though it is a valuable resource for education and recreation, the close proximity to Tryon Creek gives certain responsibilities to the nearby residents. The impervious surfaces in suburbs, such as paved roads and parking lots, create large, sudden amounts of storm water when it rains. This storm water, which would have normally slowly seeped out of the soil, now runs in large, sudden amounts into the Tryon Creek watershed, damaging the stream bed, and carrying pollutants and fine sediments. All of this negatively affects the habitats and lives of the fish and aquatic insects of the Tryon Creek Area.

One of the ways to reduce storm water problems is with large trees. When it rains, trees capture water, and let it drip slowly down from their branches. In this way, trees can mediate the damage caused by heavy rainfall, and decrease massive storm water drainage. Large trees can retain about 50 Olympic swimming pools worth of water. One of the assets of Red Fox Hills Townhomes is their multiple large trees.

Mature trees also help tie the landscape at Red Fox Hills Townhomes together. These trees were conceived of in the original development plan and help create the lush, quiet atmosphere that defines the current landscape at Red Fox Hills. This landscape provides a great canvas for future initiatives, and ensures that no major landscape changes need to be implemented in many areas. Many of the residents of the townhomes enjoy the existing state of the grounds, with its large trees, mature shrubs, expansive lawns, and relaxed atmosphere.



Image 06

Existing Situation

Multiple Small Intertwined Issues

Though Red Fox Hills Townhomes has much to offer, normal wear and tear on some of the materials, as well as interconnected, large scale issues, has led to several problems scattered across the site. All of these issues are listed in Table 01. Table 01 Some of these issues, Irrigation Zones, Large Tree Preservation, and Soil and Drainage Issues, are larger issues and will be discussed later. A number of small-scale issues warrant description here.

ISSUE	Maintenance/Cost	Safety	Environmental	Aesthetic
Trees too close to buildings	x			x
Heaving tree roots near buildings > drainage issues	x			x
Large trees crowded by other trees				x
Large tree roots in lawn areas	x	x		x
Large tree roots heave/crack sidewalks & stairs		x		x
Trees too close to sidewalks	x	x		
Old sidewalks with cracks		x		x
Repairs on sidewalks in "white" concrete				x
Large asphalt areas with lots of patches			x	x
Non functional french drains/ drainage issues		x	x	x
Muddy siding	x			x
Unbalanced irrigation zones	x		x	x
Under-used lawns	x		x	
Compacted soils	x		x	x
Large shrubs in front of down stairs windows				x
Deferred shrub replacement				x
Inconsistent planting palette	x			x
Utility boxes, trash areas not screened				x
Desire line path ways to gates and back patios	x			x
In sufficient night lighting		x		
Retaining walls are old and failing		x		x
Drainage issues	x	x	x	x
Crawl space/ foundation issues				Civil engineering issue
				Civil engineering issue

Table 01

Red Fox Hills was built in 1969. Since the average lifespan of concrete walkways is 20-40 years, and the concrete at Red Fox sits on shifting sub grade that sinks, expands, and shrinks, the concrete walks at Red Fox Townhomes has become cracked in many places. Additionally, tree roots heave the pavement in certain areas, creating even more cracks. Uneven and cracked walkways are both an aesthetic and safety issue. The concrete has been repaired over and over, sometimes with patches of white concrete, which make the scars in the pavement more obvious. Similarly, large asphalted areas, such as the parking areas and access drives, have been patched multiple times. The many patchwork surfaces around Red Fox Hills Townhomes decreases the aesthetic appeal of the area, which, in turn, decreases the value of the homes. To amend this problem, Red Fox Hills Townhomes needs to replace its roads and sidewalks. Simply continuing to patch problematic spots will not work, as the pavement will continue to

Existing Situation

crack until it is replaced. The silver lining of this process is that it will allow for certain improvements to be made to the circulation system: large asphalted areas such the parking areas can be re-designed to include planting islands to make the spaces greener and more shady in the summertime. Additionally, the location of concrete pathways can be re-evaluated, so that they are further away from damaging trees and better accommodate pedestrians. Secondary issues such as inadequate night-lighting, and drainage can also be addressed when pathways are replaced.

Additional issues exist with the already-existent planting. Over the years, different aesthetic tastes have accumulated, creating a planting scheme that is incoherent. Some areas have plants that have started to crowd one another. Other areas have bare patches where plants should have been planted – for example, to fill the empty space created when a bench was removed. Previous generations planted English ivy on many of the steep slopes at Red Fox Hills Townhomes, a species that has since been determined to be invasive. The State of Oregon recommends removing English Ivy, as it can damage shrubs and trees. Red Fox Hills Townhomes would benefit financially by removing English Ivy, as it is a labor-intensive plant that requires frequent pruning. Some of the ivy currently prevents erosion on steep slopes, so it should be removed with care. All of these problems can be solved with a coherent planting palette that takes the intertwined issues of irrigation, other nearby plants, soil type, erosion, and aesthetics into account.



Image 08: Patched Asphalt in 2015

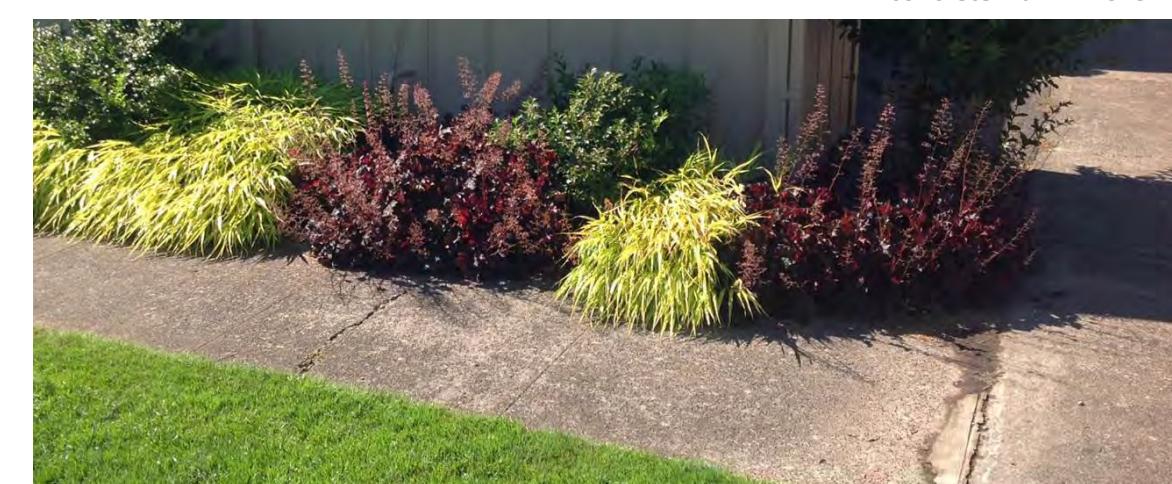


Image 07: Cracked concrete walk in 2015

Existing Situation

Many of the small trees that were planted in the front yard beds have been planted too close to buildings or sidewalks. This has led to both aesthetic and structural problems. Aesthetically, many of the trees look lopsided because they have been pruned away from roofs and drains instead of being pruned with aesthetics in mind. Some of these small trees also create structural issues by causing water to drain towards building foundations. Similarly, several large shrubs have been planted too close to buildings and walkways, and therefore need regular pruning. With exception of some shrubs, severe pruning has resulted in shrubs that are no longer aesthetically pleasing. It is likely that the large shrubs were planted a long time ago as foundation plantings, and were never meant to mature.

Large Tree Preservation

Many of the residents reported loving the lush, green atmosphere at Red Fox Hills Townhomes. This atmosphere is, in part, created by the many large trees. Such large trees take a long time to grow, and are a valuable asset for the neighborhood. However, many of the existing structures at Red Fox do not accommodate the growth of these trees in the given soil type.

Due to the various soil issues at Red Fox Hills (to be discussed later), many of the tree roots remain fairly shallow, and push up existing sidewalks, walkways, and stairs, causing them to crack and become uneven. Uneven steps and sidewalks are both an aesthetic and a safety issue for the residents at Red Fox Hills Townhomes, and decrease the value of their homes. There are several solutions to this problem. Problematic trees should be assessed by an arborist so that their roots can be pruned, or so that they can be properly replaced. Walkways can also be moved to give the trees more growing space for their roots. Areas that already have problematic walks, with many cracks or patches, are prime areas to re-asses walkway location.



Image 09: Severely pruned Rhododendron in 2015

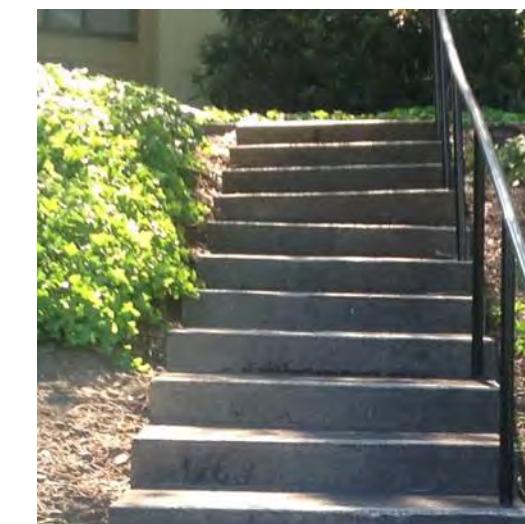


Image 10: Heaving concrete stairs in 2015

Existing Situation

The City of Lake Oswego requires the replacement of any removed trees. This Landscape Master Plan includes directives for replacing large trees. Current soil conditions in many areas compound the already existent problems with many of the trees. Taking current soil conditions into account when replacing trees can prevent many of these issues from re-occurring.

Some mature trees have grown so large that their roots have taken over adjacent lawn areas. Such lawn areas are difficult to mow, and cost maintenance time and effort. These lawn areas are prime candidates to be converted into beds with shrubs. Currently (2015), the trees at Red Fox Hills Townhomes are only pruned for safety reasons. In addition some large trees, are crowding each other, and as a result are growing lopsided. As the large trees are a key asset, additional aesthetic pruning and selective removal where crowding occurs will greatly improve the aesthetic quality of Red Fox Hills Townhomes. Though large trees cause several problems, they are very aesthetically valuable. The vast majority of the residents of Red Fox Hills Townhomes reported that they loved the trees, and wanted to keep as many as possible. In addition the large trees provide environmental benefits; they capture stormwater, improve air quality and keep the units cool. If they are properly maintained, the trees will continue to provide much of the aesthetic appeal of the landscape, and will be enjoyed by Red Fox Hills residents for years to come.



Image 11: Large trees in need of aesthetic pruning in 2015

Existing Situation

Maintenance Issues

Currently (2015), Willamette Landscape Services maintains the grounds at Red Fox Hills Townhomes, though Collier Arbor Care and Barlett Tree Experts maintain trees that are over eight feet tall. However, the maintenance at Red Fox Hills Townhomes has been carried out by two different companies over the years. This switch between service companies, each with differences in priority and aesthetics, still marks the landscape today. For example, several rhododendrons were allowed to overgrow in front of windows and over walkways. Later management decided that this was a safety hazard and, as a result, many large rhododendrons were severely pruned back, greatly reducing the aesthetic appeal of the grounds. Additionally, a variety of maintenance issues has been deferred, or has been subject to ad hoc fixes that have not addressed the underlying issues. In many cases, such underlying issues were outside of the scope of the services that the maintenance company provides. Later parts of this Master Plan include solutions that address the core problems of the site, and are designed to reduce long term maintenance needs.

A large portion of the effort to maintain the landscape goes to pruning ivy and oversized shrubs. In many areas, large shrubs and ivy are undesirable, and should be removed. As previously mentioned, English Ivy is an invasive species, and should be removed. Additionally, several different kinds of shrubs have been placed in spaces that are too small. This Master Plan proposes to remove shrubs that are planted in the wrong place, either immediately or over time. Removing ivy and poorly placed shrubs will lead to fewer high-maintenance plants and improve the overall aesthetics of Red Fox Hills Townhomes.

Another time-consuming task is mowing the small, narrow lawns that are scattered around Red Fox Hills Townhomes. Such lawns are also use a lot of water. Replacing these lawns with different planting beds will decrease maintenance work.

Overall, locations that have been dominated by ad hoc fixes need to be addressed with solutions that respond to the underlying problems. Maintenance efforts need guidance so that all of these solutions gain coherence and aesthetic appeal. Many of the residents at Red Fox Hills Townhomes support landscape changes that save water and several solutions to underlying maintenance problems (such as removing small lawns) align themselves well with this goal. One of the goals of this master plan is to envision solutions that will reduce the maintenance necessities for areas that are low in aesthetic appeal and shift these maintenance efforts where they create the highest aesthetic and environmental effect.

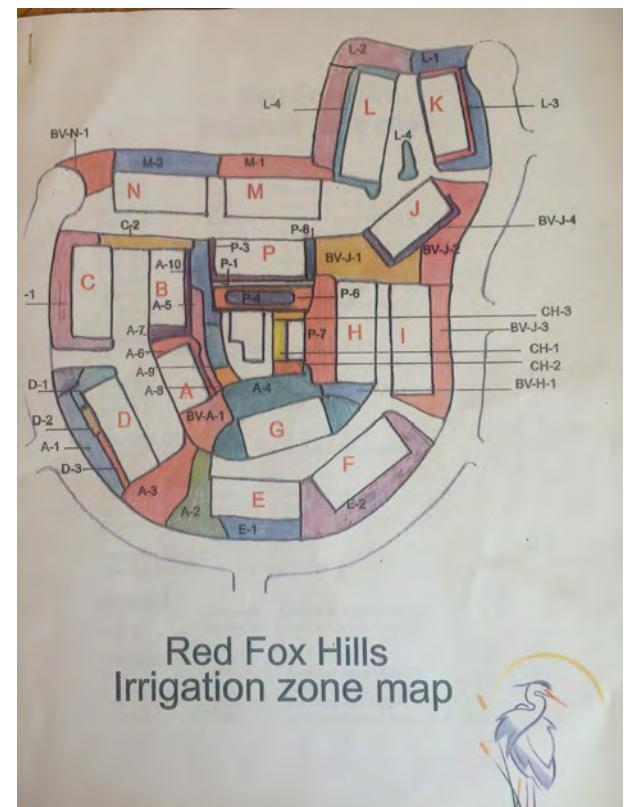
Existing Situation

Irrigation Zones

The Irrigation system at Red Fox Hills Townhomes has aged, causing several different irrigation-related issues. Though different updates and improvements in the past few years have aided many of these issues, there are still several problems with the irrigation system that need to be addressed.

Different plants require different levels of irrigation. In many areas at Red Fox Hills Townhomes, shrub beds receive the same amount of water as lawns, despite the fact that shrub beds and lawns have very different irrigation needs. Similarly, some planting beds contain different kinds of plants which require completely different amounts of water.

The plant selection and placement proposed in this Master plan will alleviate some of these irrigation issues. Replacing smaller lawns with shrub beds will help the situation, as those beds will only require the more minimal shrub irrigation. In addition, the plan places plants with similar irrigation needs in the same beds. Poor zoning is not easy to fix, and the changes over the years have created areas that need irrigation but don't have it, and vis-versa some areas are irrigated which no longer have plants. Though helpful, situational fixes cannot reach the core of the problem: Red Fox Hills Townhomes needs to take the entire irrigation system into account rather than focusing on individual issues. The new landscape plan has taken the existing irrigation zones into consideration and makes it relatively easy for new zones to be created along with the other proposed landscape changes.



Existing Situation

Soil and Drainage Issues

Several of the problems around Red Fox Hills Townhomes are indicative of poor soils. These problems include the poor health of some of the plants, cracked pavement, "exploding" or muddy soil, clogged drains and a variety of drainage issues. Soil and drainage information is included as Appendix C.

According to the USDA and the Natural Resources Conservation Service, the soil type at Red Fox Hills is Silt-Loam, which is not a problematic soil type in and of itself. However, the USDA information shows that there is also a nearly impervious layer of soil, called Fragipan, located 20-40 inches deep at Red Fox Hills. (source: Web Soil Survey, National Cooperative Soil Survey, Natural Resources Conservation Service) This layer prevents water from draining away adequately, contributing to a variety of drainage issues. USDA information shows that the area might have a perched water table residing at 18-37 inches depth. Engineering Department staff at the city of Lake Oswego confirmed the existence of Fragipan in the area, though city staff did not think the layer is completely impervious to water penetration but described the soil as having extremely low permeability. In addition, engineering staff pointed out that the soil is very brittle and highly susceptible to slope failure.

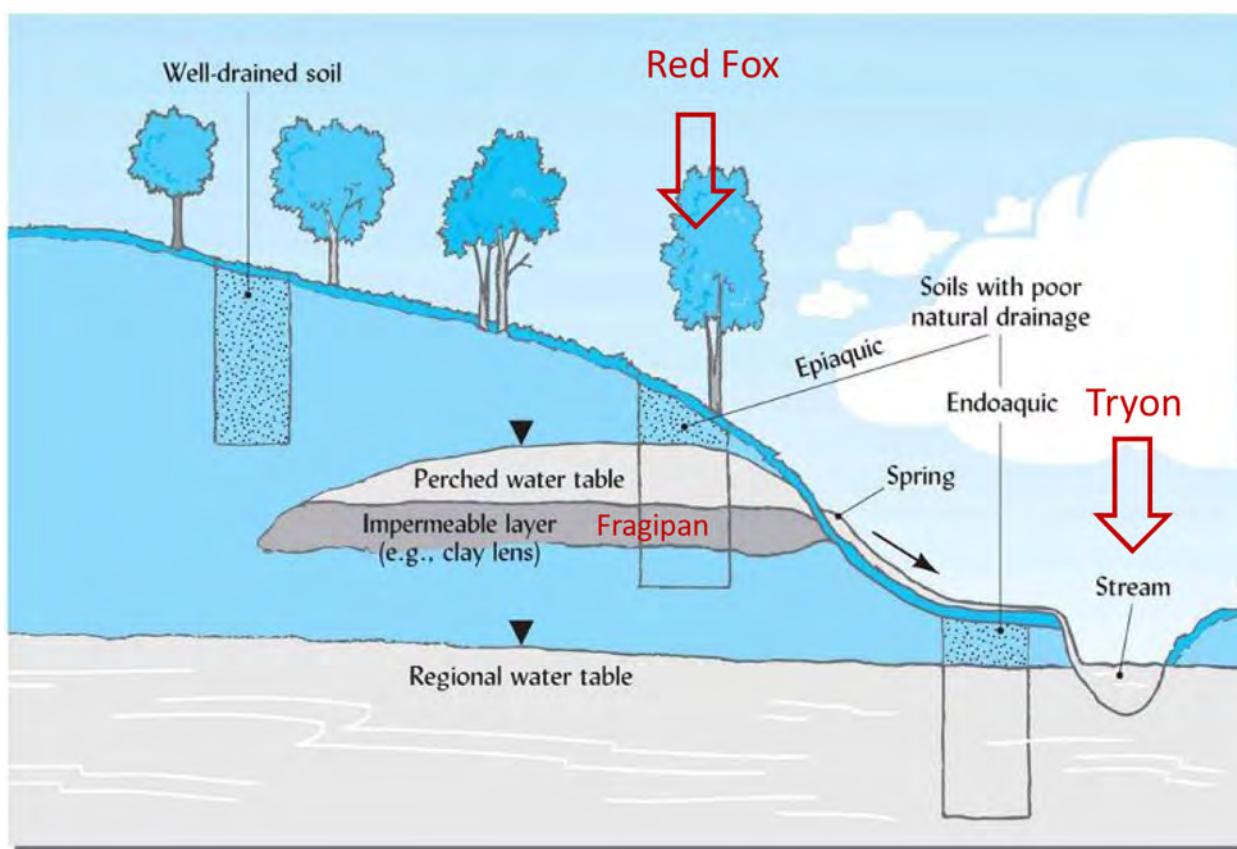


Image 13: Fragipan and perched water table

Existing Situation

During our analysis of Red Fox Hills Townhomes, LandCurrent noticed that much of the soil around Red Fox Hills is yellow, hard, and brittle. These features indicate that the surface material at Red Fox Hills Townhomes may be composed of the silty material found in Fragipan layers. The silty soil may have been brought to the surface at the time when Red Fox Hills Townhomes was constructed. To test this hypothesis, LandCurrent took several different soil samples around the site and conducted a simple soil test. The soil samples taken at Red Fox Hills Townhomes contained high amounts of silt, which suggests that some of the silty soil from the Fragipan layer currently exist at the surface.

Several issues around Red Fox Hills Townhomes can be explained by the extreme low permeability of the silty soil found on the surface, the Fragipan layer, and potential existence of a perched water table. For example, the heaving roots that disturb many of the lawns and sidewalks could be caused by the Fragipan layer: since Fragipan is hard for roots to penetrate, trees will start to expand their roots near the surface, disturbing lawns and walkways, instead of growing deep. A perched water table only exacerbates this effect. Soil tests from samples taken around Red Fox Hills Townhomes verify the existence of pathogens that thrive in water logged soil (source: Diagnostic Report, March 25, 2015, sample 235751 by Bartlett Tree Research Laboratories). These pathogens are detrimental to plant growth, as are the extremely wet environments that they indicate. Additionally, silt particles are small and highly soluble; they often clog up drains, a prevalent issue at Red Fox Hills Townhomes. Even the muddy sidings throughout the site could be caused by the silts' response to rain, as it "explodes" when it gets wet.

There are several ways to alleviate the problems caused by the soil at Red Fox Hills Townhomes. Removing the silty soil and replacing it with good topsoil to the depth of typical root growth will help plant growth. Connecting roof down spouts so that they no longer drain near building foundations will protect buildings and minimize the amount of water that can flood the front yard planting beds. Mulching will help many of these issues, as it aids plant growth and can provide a cover for the silt. Adding areas with dense planting will also help, because plants intercept rain drops, and reduce the amount of water that penetrates the soil. Other drainage issues require the involvement of a civil engineer, and possibly, a geotechnical engineer. Experts need to confirm the nature of the soil at Red Fox Hills Townhomes. Engineers can design new drainage systems that adequately address the problems caused by the soil. This Landscape Master Plan includes several principles that improve surface drainage, such as positive drainage away from buildings, and constructing bioswales or rain gardens. An engineered drainage plan should evaluate these principles and build upon the Landscape Master Plan. In addition, the city of Lake Oswego is currently (2015) developing a Stormwater Manual. Any new drainage plan will need to adhere to provisions in the new Stormwater Manual. Finally, the silty soil type warrants an engineers' opinion on the structural base layers of any new pavement.

Existing Situation

Lake Oswego Code

Red Fox Hills Townhomes is part of a Planned Unit Development that was approved in 1967. As such, any changes to the originally approved plans and conditions need to be submitted to the City of Lake Oswego for approval. For example, any changes made to the width of access driveways need to be approved by the city. A landscape plan was not part of the original approved documents.

Additionally, any changes to access driveways need to adhere to the minimum width requirement of LOC 15.06.610 (Oregon Fire Code Adopted) and LOC 50.06.002, Parking. The City of Lake Oswego is located in a forested area, and the many trees around the city help maintain a fresh, forested feel. Additionally, trees retain rain water and alleviate storm water drainage issues. To preserve the tree population, the city requires that every tree removed be replaced, though trees that die from natural causes do not have to be replaced.

City policies also exist to minimize erosion and to maintain water quality. A permit is required for any construction project that exceeds 500 square feet. Large projects disturb the land and can cause erosion and other hazardous or undesirable situations.

New codes and requirements may be developed in the future and any construction project should go through a comprehensive code analysis. For example, the city of Lake Oswego is currently (2015) working on a Stormwater Manual. Though this manual is in draft format and has yet to be adopted by city council, Red Fox Hills may have to consult it when working on future projects. The current draft of the manual states that projects that exceed 1000 square feet of contributing impervious surface area can trigger engineering and permitting requirements.

Conclusion

Red Fox Hills Townhomes is a valuable site with many important assets. Its location near downtown Lake Oswego and Tryon Creek Natural Area make it ideal for people with a variety of interests and tastes. However, soil issues, as well as normal wear and tear from the past forty-five years have taken their toll. Many of these issues are intertwined; for example, the soil conditions cause drainage issues and heaving of tree roots, the heaving tree roots cause maintenance issues and cracked pavement, which in turn exacerbates drainage issues. Proper attention to the core issues of soil, drainage, irrigation, and large trees, can help with many of the problems around Red Fox Hills Townhomes. If dealt with properly, the solutions to these issues will not only solve problems but greatly improve the appeal of Red Fox Hills Townhomes. If they are neglected, the situation will worsen and subsequently the appeal of the site will diminish. Addressing the issues requires an initial investment, but over time these measures will lead to cost savings, as irrigation and maintenance costs are reduced. These savings can be applied to affect the aesthetic appeal of the complex. This Master Plan outlines an integrated set of solutions to increase the aesthetic coherence, sustainability, and financial equity of the site. The solutions are envisioned to be implemented over a ten year period.

Vision for the Future

Goals and Objectives

The Landscape Committee developed several goals and opportunities to be addressed in the Landscape Master Plan. These goals and opportunities were subsequently augmented and revised based upon community input.

1. Enhance the Red Fox Hills Townhomes Landscape and increase “curb appeal”.
2. Respect the location next to Tryon Creek State Park.
3. Create landscape continuity throughout the complex, yet have variety in plant selection tailored to fit the variety of environments within the complex.
4. Build off the mature landscape of Giant Sequoias and English Plane trees.
5. Support current and future water conservation goals through the selection of water-wise planting, and implementing recommended adjustments for the existing irrigation system.
6. Address large swatches of the complex that are water and labor intensive, yet add little overall value to the community: reduce lawn areas and/or convert to water-wise lawn, reduce ivy areas.
7. Integrate solutions to solve planting issues, drainage issues, irrigation issues, and infrastructure (cracked concrete) and lighting issues simultaneously.
8. Facilitate incremental change.
9. Create a naturalistic planting scheme which can be relatively easily maintained so the property looks well cared for.
10. Select a planting palette that requires low maintenance, is water-wise with many native plantings, some ornamental grasses esp. Japanese Forest Grass, and some Rhododendrons. Add lots of seasonal variation and planting that attracts butterflies, birds, and bees. Add a few edible plants. Add some rocks and rocky areas.
11. Add more foliage to garage areas.
12. Create a more deliberate park like feel for the central area.
13. Increase or preserve privacy at units.

Vision for the Future

Overall Concept: English Landscape

Capability Brown (ne. Lancelot Brown 1716-1783) was one of England's greatest Landscape Architects, and had vast influence in developing the English Landscape Style. It is this style that people often recognize as the quintessential park. As "living in a park" was central to the concept of Red Fox Hills in 1967 it is fitting to bring key English Landscape design components back. Landscapes designed by Capability Brown consist of expansive views over rolling lawns with groves of limbed-up large trees. The views are framed by forest edges or large shrubs. In addition the landscapes often contain wilder forested areas with rock outcroppings or canyon-like features, as well as more ornamental and flowery areas around a central area or structure. At Red Fox Townhomes various landscape zones can be discerned and these zones can be seen as different components of a Capability Brown English Landscape Park. The zones are shown on image 18. This conceptual framing of the landscape at Red Fox Hills Townhomes addresses goal 3 by providing landscape continuity while maintaining variety in plant selection. It allows for diversity in planting schemes so that they can be tailored to fit the variety of environments within the complex. It also addresses goal 2 by seeing the edge with Tryon Creek State Park as one of the landscape zones. Goal 4 (preserving and building on existing large trees) can also be addressed by this conceptual framework, as the large Sequoia and Plane trees can be aesthetically pruned and limbed up to provide an essential English Landscape component. The English Park landscape at Red Fox Hills Townhomes can have a distinct regional feel by the preservation and enhancement of its large conifers and by including many native plantings.



Image 14: English Landscape with rolling lawns and long views, framed by forested areas.



Image 15: Limbed up large trees in an English landscape provides long views.



Image 16: English landscape forested edge.



Image 17: English landscape central space with flower gardens.

Vision for the Future



Image 18: Landscape zones at Red Fox Hills Townhomes.

Vision for the Future

For Red Fox Hills Townhomes, each Landscape zone has its own set of principles and planting palette meant to enhance characteristics that are already latently present. An exception to this principle is the planting palette for the front yard beds adjacent to the housing units. These planting beds are conceptually seen as private gardens that reside within a larger landscape zone. Thus, a shady front yard bed in the Forest zone uses the same planting palette as a shady front yard bed in the Canyon or around the Center. This ensures further consistency within variation (goal 3). Walkways near to the units (addressed as secondary walkways in the following paragraph) are to be reconfigured. This reconfiguration allows in many cases for plantings on both sides of the walkways, in this manner these walkways become part of the front yards.



Image 19: Collage of concept front yards with secondary walkway set in a background forest zone

Vision for the Future

seen as an essential component of the park-like character at Red Fox Hills. Smaller secondary walkways are intended to provide access to the individual units and have been redesigned to be non-continuous. As these reconfigured walks only lead to a few units they will only be useful for a person visiting those units, as such this reconfiguration of pathways helps provide privacy to the housing units (Goal 13).

Circulation

The proposed new walkway configuration enhances the English Landscape character, integrates several issues related to drainage, heaving tree roots, lighting and planting (goal 7), and addresses incremental change (goal 8) and privacy needs (goal 13).

Currently (2015) it is unclear where the main entrance to Red Fox Hills Townhomes is located. Four driveways give access to the property and not one is distinct from the other. The entrance that leads to the club house can be defined as the main entrance if it is enhanced with distinct pavement, a new sidewalk, and if we extend the more flowery central planting palette so that it is visible from this entrance.

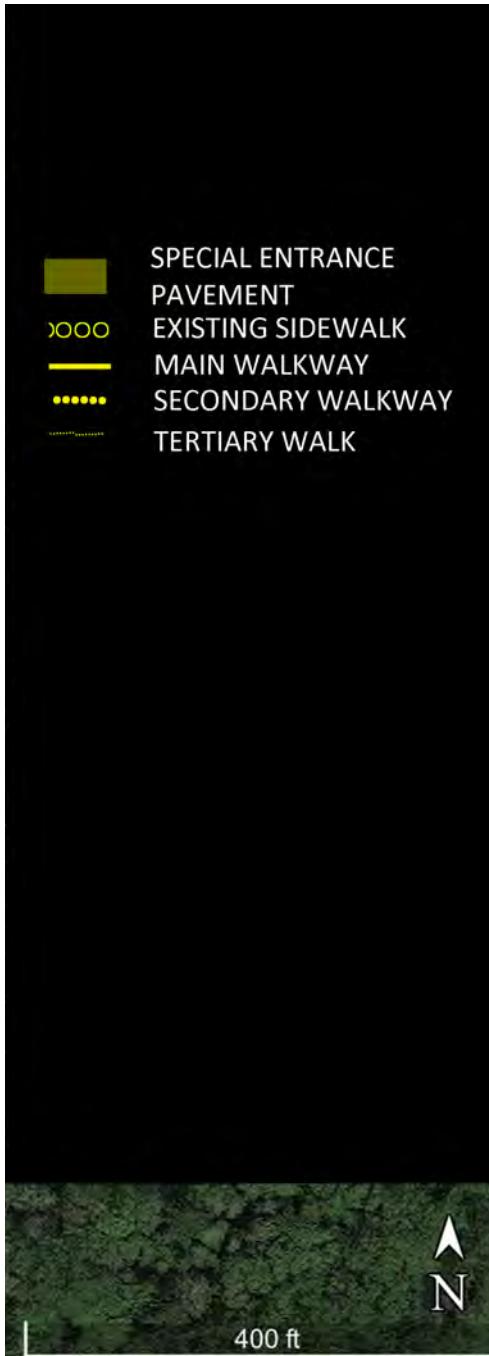
The proposed circulation provides broad, main walkways intended to move residents through common areas. Such main walkways were originally conceived in the plans from 1967 and were

Vision for the Future



Image 20: Circulation diagram

Vision for the Future



Vision for the Future



Image 21: photo of meandering walkway with brick strips

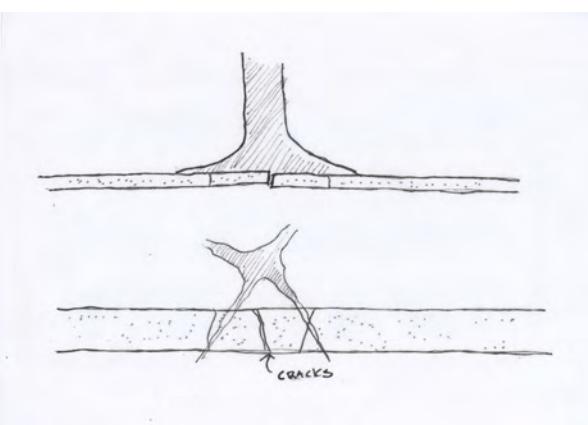


Image 22: Existing conflicting situation walkway and tree roots

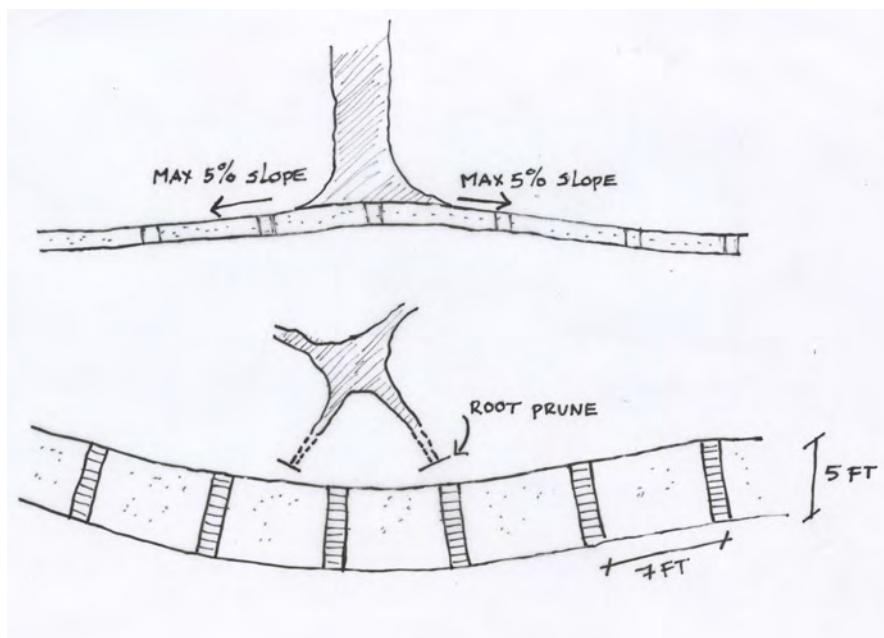


Image 23: Proposed main walkway solution

The new configuration of walkways also helps to preserve large trees, as it enables steering paths away from the large tree roots that cause so much damage. The high importance of trees means that the exact layout of walkways needs to be determined together with a certified arborist who can determine the extent of root pruning that is needed and possible for each existing tree.

Main walkways are to be at least five feet wide, six feet wide where possible. They meander both vertically and horizontally to go around and over tree roots. Vertical slope within a walkway shall be kept as close to five percent as possible and should never exceed 12:1. See image 22.

Walkway pavement needs to continue where main walkways cross over driveways. Keeping the walkway raised will allow it to double as a speed bump for traffic. This design gives clear priority to pedestrians.

Inserting strips of brick in the main walkway will allow it to be expanded over time without there being obvious differences between newer and older concrete sections. This

facilitates incremental change (goal 8) and makes future repairs and adjustments easier. Removing and repaving entire sections between brick strips will ensure that the path will not look patched and repaired over time, though it is imperative that each new walkway section matches the color and finish of previous sections as much as possible. When large cracks appear in the future, the underlying issues need to be addressed first. Solutions to these issues can include root pruning or moving the path further away from trees. After addressing the underlying issues one or several sections between the brick strips can be removed and new sections constructed.

Alternatively, the main walkway can be entirely paved with asphalt. This option is likely more cost effective when constructing the entire main walkway at once. Asphalt walks should periodically be resurfaced with a new top layer so it doesn't look patched and repaired over time.

If the pavement project is over 1,000 square feet it may trigger city of Lake Oswego stormwater management requirements and permitting requirements.

Lights along the main walkway should be low bollard LED lights. Such lights are designed with a full cutoff, ensuring safe, glare-free illumination of ground surfaces while reducing light pollution.



Image 24: Suggested LED pathway bollard for main walkways.
Manufacturer: Bega.

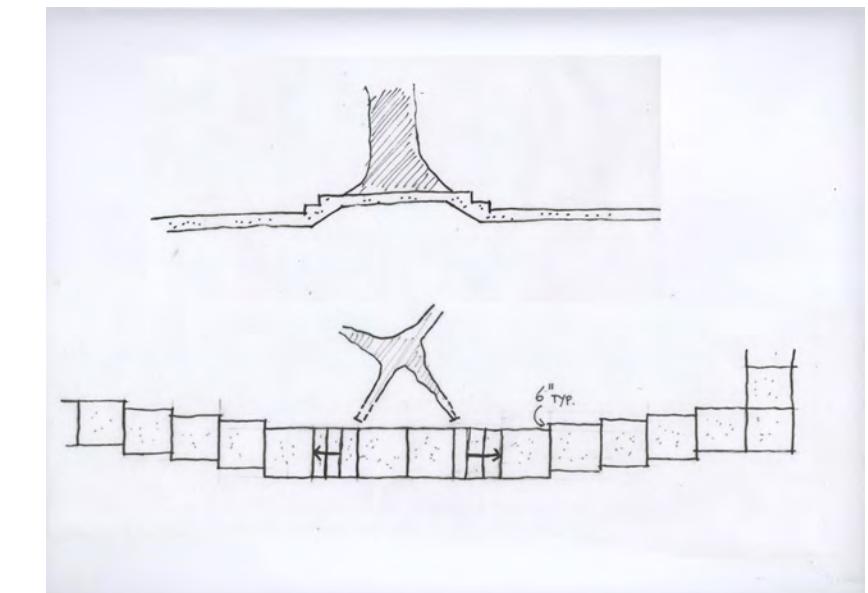


Image 25: Proposed secondary walkway solution.

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To ensure proper and safe illumination, bollards need to be spaced according to the specifications. (See Appendix D for suggested Landscape Lights). Secondary walkways shall be four feet wide and avoid tree roots. Near trees, the exact location of these walkways shall be determined with a certified arborist and be developed concurrently with the tree root pruning plan. Secondary walkways consist of square slabs and have control, expansion or construction joints every four (4) feet. These slabs should be configured in straight sections or a zig-zag pattern, though the original half rounded configuration should be used in some areas, as indicated on the Circulation Diagram (image 20).

As with the main walkways, underlying issues should be addressed if large cracks appear, entire square slabs should be removed and repaved so the walkways do not look patched over time, and any new concrete should match the color and finish of adjacent concrete slabs. Secondary walkways should have a slope that is less than five percent; however, these walkways can incorporate steps, as shown in image 25. Adding a brick row to the steps will make them much more visible and therefore safer. Similar brick rows are already present in the steps up to the porches.

The secondary walkways shall be illuminated with low LED path lights with a full cutoff. Lights need to be spaced per specifications to ensure the proper and safe illumination of the walkway. Steps need to be well-lit, and at least one light needs to be directed to the steps.



Image 26: Brick row at steps



Image 27: Suggested low LED pathway light for secondary walkways. Manufacturer: SLV Lighting

Vision for the Future

Retaining Walls

Red Fox Hills Townhomes has several timber retaining walls that have aged and need to be replaced. Additionally, there are several steep slopes that can be reduced in steepness by adding a low retaining wall or by including basalt boulders. Retaining walls that are under four feet high (as measured from the bottom of the footing to the top of the wall), and that do not have a slope at the back, do not require a permit. All other retaining walls require a building permit and the involvement of an engineer.

As old concrete walkways are removed, their slabs can be cut and reused for new retaining walls, as illustrated in image 28.



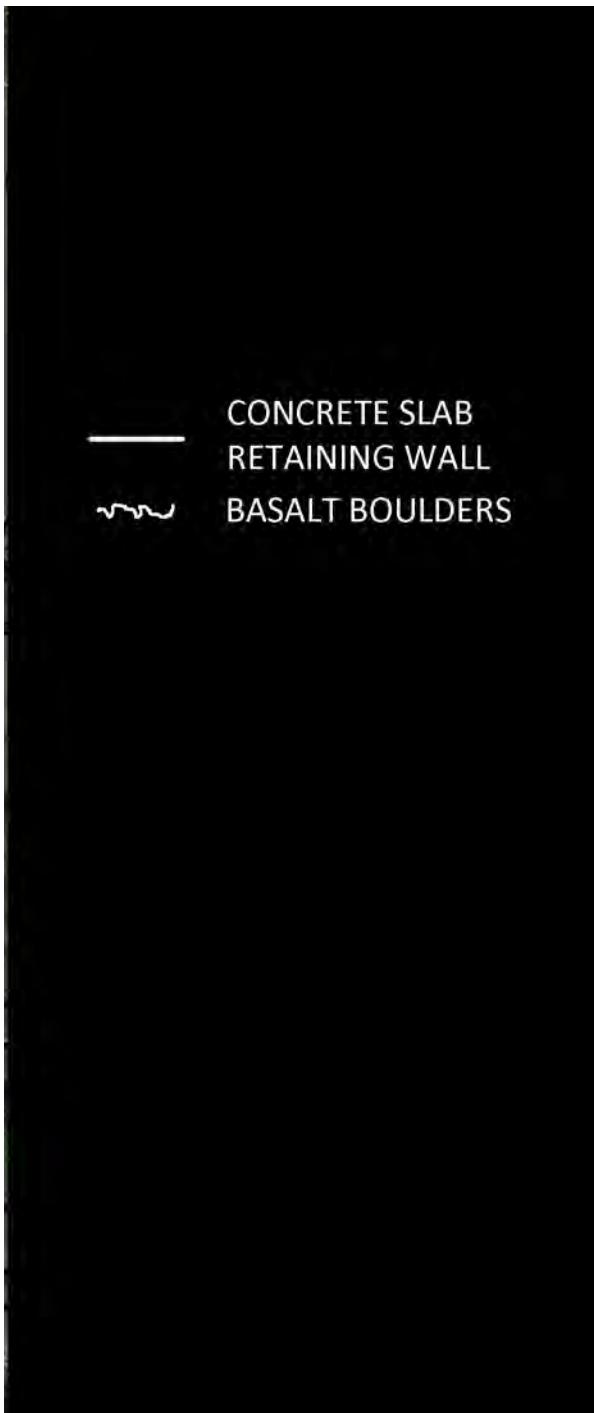
Image 28: retaining wall made of stacked recycled concrete slabs

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Image 29: Map boulders retaining slopes and concrete slab retaining walls.

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Screening

The planting principles for each zone indicates areas for shrub beds with higher plants. These higher shrubs are intended to screen views to garages and asphalt driveways, and to hide utility boxes.

Garage Areas

The original PUD plans show a 30 feet wide cross section for access driveways. As-built drawings prepared by Wilsey & Ham Inc. in 1968 show that of that section a twenty feet wide zone was seen as the actual driving zone. Both the original plans and the as-built drawings show a parallel parking strip along the green median behind buildings A and B (Image 30,section B'-B''). Current residents and visitors at Red Fox Hills Townhomes park cars in the designated visitors parking bays or in the garages and the parallel parking area is not used. Therefore, it is possible to reduce the width of the asphalt surface behind buildings A and B and turn the space originally planned for parallel parking into a green strip. Adding this strip to the steeply sloped median will also allow for an easing of the slope.

In many areas at Red Fox Hills Townhomes the 8 foot "ramp" shown on the as-built drawing slopes only slightly. This means that it is possible to move driveways closer to the garages (with no or minimal re-grading), freeing up additional planting space. Adding additional planting within the access driveway areas is consistent with goal 11. Changes to the private driveways and parking designation requires a municipal approval process as these plans change the originally approved PUD plans. The driving zone will have to be at minimum twenty feet wide to be in accordance with Oregon's Fire Code and local parking code. Parallel parking is prohibited

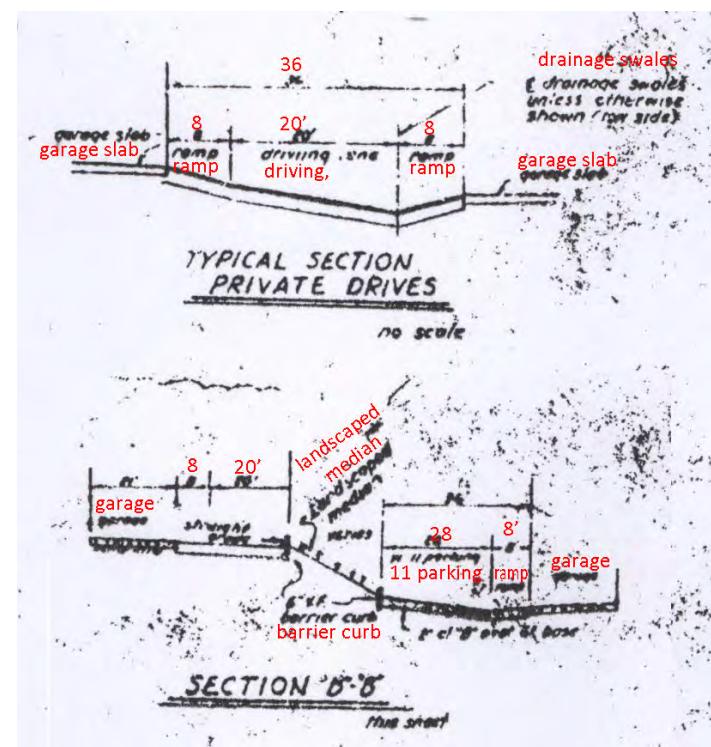


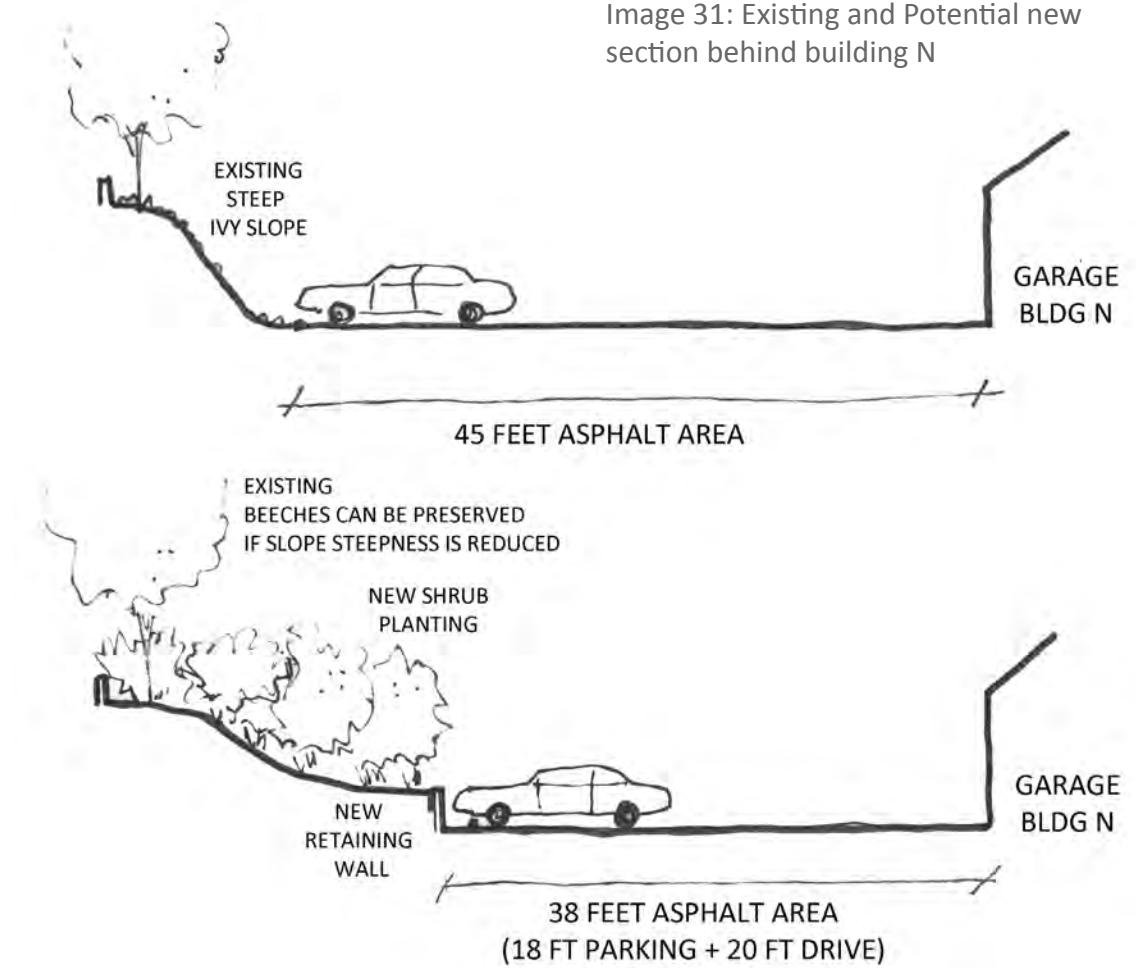
Image 30: As-built sections from 1968 by Wilsey & Ham Inc., red annotation added for clarity

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along 20 feet wide driveways, and this needs to be indicated with signs and/or curb paint. Image 32 shows areas where asphalt can potentially be removed. A detailed site plan for asphalt removal shall developed and be based on a land survey by a certified surveyor, pavement slope requirements and vehicle maneuvering.

The islands in between buildings L, K, J and between E, G,F shall be planted according to the low shrub English Landscape s palette as described further along in this Landscape Master Plan. The island in between buildings A,B,C,D is currently a steep slope planted with ivy. If asphalt removal is not attainable, this slope shall be vegetated with slope stabilization planting according to the 'Ivy removal and slope stabilization' paragraph described further along in this Landscape Master Plan. If the asphalt is removed and the slope can be eased to at least 3:1, the area shall be planted according to the low shrub English Landscape Principles and Palette as described further along in this Landscape Master Plan. Similarly, the steep ivy slope across the access drive behind building N can be made less steep when the asphalted area is reduced in width, and low shrubs from the English Landscape Palette can be added. If the asphalted area cannot be reduced, the ivy on this slope needs to be replaced with slope stabilization vegetation. In addition, the two Beech trees planted on top of this slope should be evaluated by a certified arborist and might need to be removed, as the roots of those trees could start undermining the stability of the steep slope.

Image 31: Existing and Potential new section behind building N



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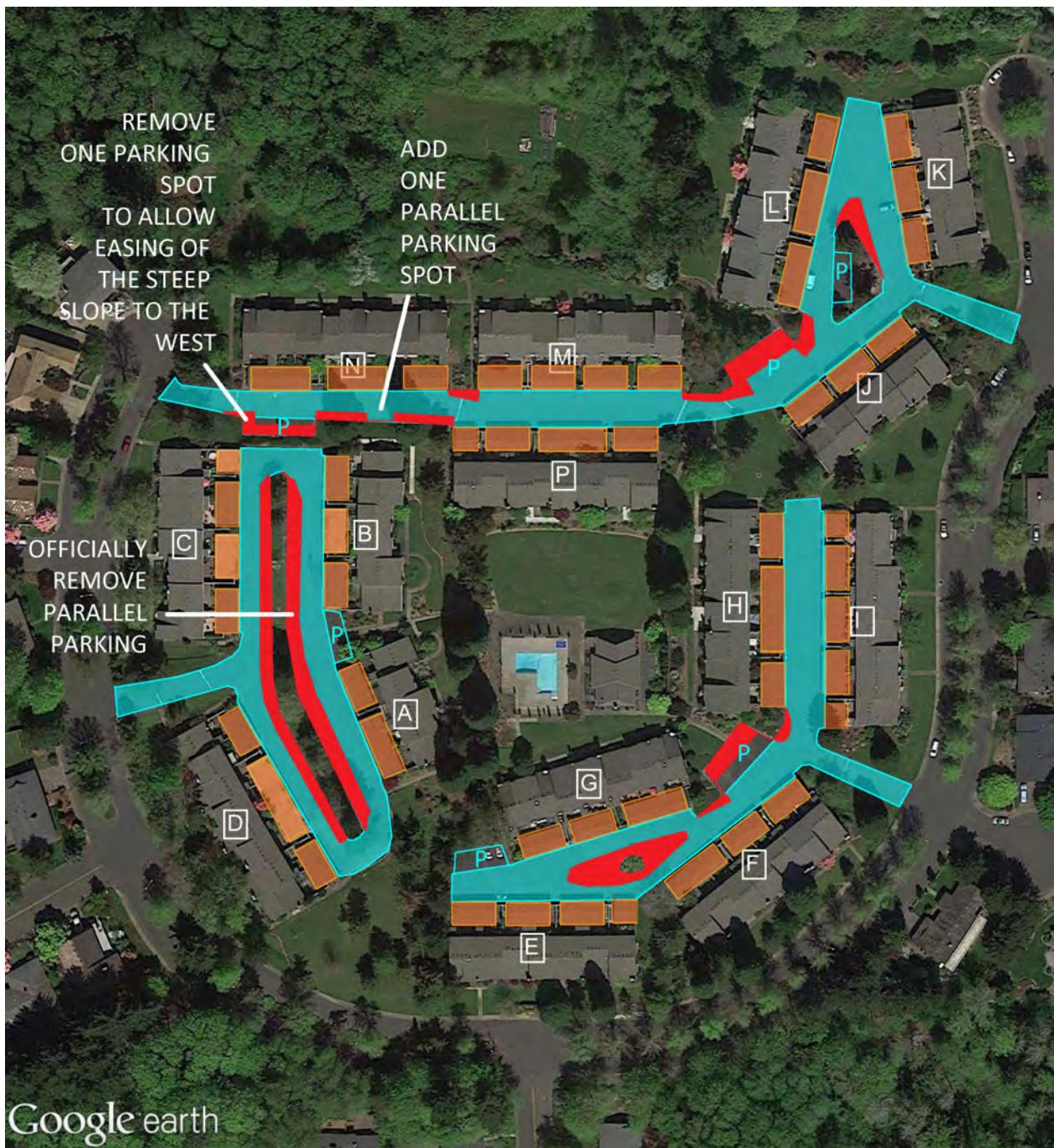


Image 32: Potential asphalt removal

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To further green the garage areas, plants should be added in between the patio gates. Each small planting area should contain a high shrub that can be pruned. Where such a shrub does not exist the following new shrubs can be planted: Vine Maple (*Acer circinatum*) or Green Spire Euonymus (*Euonymus japonicas* 'green spire'). Plants from the Center Low Shrub Principles and Palette should be planted in front of these tall shrubs.



Greenspire Euonymus



Image 33: Example of variation in pavement to break up large asphalt areas.

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The Large Tree Plan described in this Master Plan on page 38 calls for adding large canopy trees in the garage areas to help add more greenery and to reduce the heat captured by large expanses of asphalt.

Lastly, a three to eight foot wide concrete apron along both sides of the driveway could be added to reduce the asphalted area to a 16 -20 foot wide zone. This makes the paved areas seem less large and reduces the heat of the asphalt in the summer time.



Vine Maple

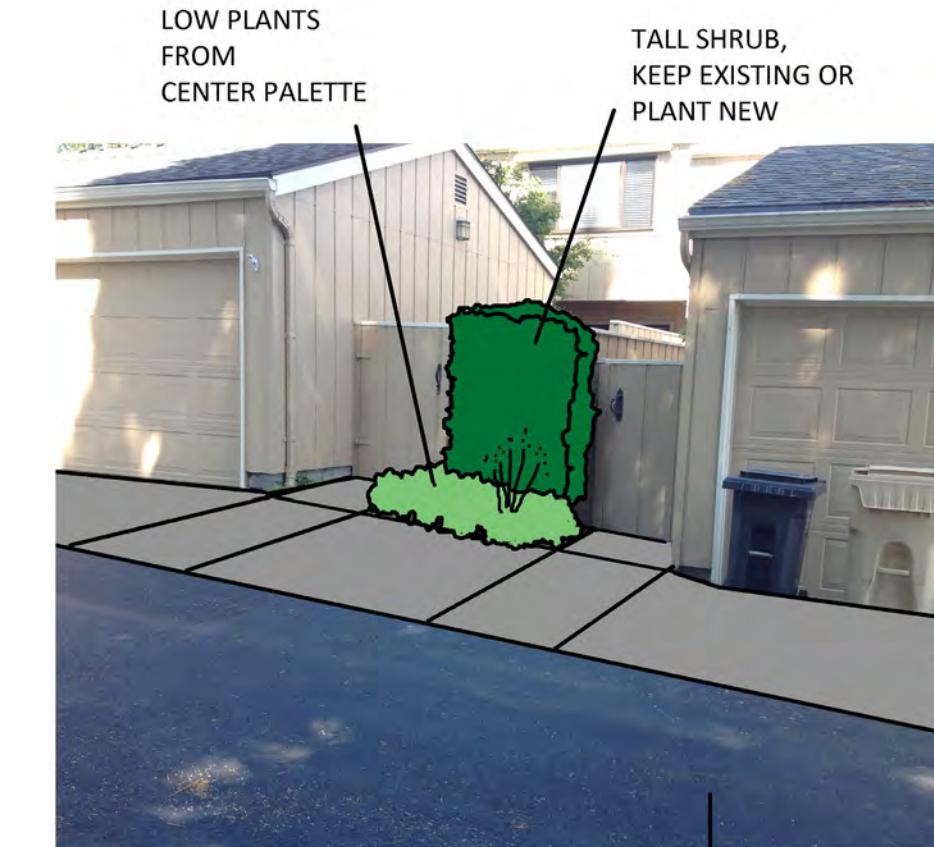


Image 34: Planting in between patio doors

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Lawn conversion

In general, lawns have higher irrigation needs than shrub or perennial beds. In an effort to reduce water demands, the residents at Red Fox Hills Townhomes looked closely at existing lawn areas (goal 5). Residents chose to eliminate small and difficult to maintain lawns, lawns that are invaded with tree roots, and lawns that are hard to irrigate without substantial and costly adjustments to the current (2015) irrigation system. In addition, several large lawn areas are to be reduced in size, and the lawns are to be changed to more water-wise lawn species. The lawns at Red Fox Hills Townhomes are old; any new lawn species will reduce irrigation needs as the lawn industry has made great progress over the last decades to introduce less water intense lawn varieties. Among the most water-wise lawns are the micro-clover lawns and fine fescue lawns.

Micro-clover lawns consist of deep rooting, drought resistant, turf mixed with nitrogen-fixing mini clover. The name micro-clover lawn is used for several lawn mixtures that are commercially available, and not all mixtures meet the objectives of this Master Plan. A micro-clover lawn that meets expectations for Red Fox Hills is PT 769 Rough & Ready Eco-Turf Mix by Pro Time Lawn Seed. This lawn mixture is an eco-friendly, low maintenance, sustainable lawn which also holds up well to wear. Once established, it requires little supplemental irrigation or fertilizer and tolerates acidic and shady planting sites. The micro-clover in the mix feeds the companion grasses with nitrogen, making them look great all year long. The extremely drought-tolerant micro-clover maintains a nice dark green color, and should not require irrigation in most climates. Micro-clover also allows the soil to retain more moisture in dry periods, which helps the lawn sustain its green appearance throughout the summer. (source: [www. http://protimelawnseed.com/collections/eco-and-alternative-lawns/products/rough-ready](http://protimelawnseed.com/collections/eco-and-alternative-lawns/products/rough-ready), accessed September 2015.)

At Red Fox Hills Townhomes micro-clover lawns will look and perform very well in the Center Zone and in the English Landscape Zone along Boco Ratan. These lawns are the most visible, and improving these lawns will greatly enhance the landscape while simultaneously reducing irrigation needs.



Image 35: Micro-clover lawn

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Fine fescue lawns are being promoted as no-mow lawns, as they do not require mowing. However, they can be mowed to achieve a more conventional look. Fescue grass grows well in full sun to partial shade. Once established a fescue lawn needs small to moderate amounts of water. Un-mowed fescue will grow to be a tall meadow grass of about 2-3 feet high. Along Tryon Creek View Edge mowed fescue lawn can transition into an un-mowed fescue edge thereby creating a seamless transition from Red Fox Hills into the Tryon Creek Natural Area. The un-mowed edge also eliminates the need to create a mowing edge.



Image 36: mowed fescue lawn



Image 37: un-mowed fescue lawn

There are two procedures to convert the existing lawns to either micro-clover lawn or fescue. The first is full removal and replacement of the existing lawn. To get the full benefit of a newly planted lawn, it is best to start with a traditional full sod removal followed by soil preparation and seeding.

The second method is a lawn renovation. In this method the lawn area is dethatched, raked, core aerated and mulched with compost before over-seeding the existing lawn with the desired seed mix or micro clover. Lawn renovation is the less expensive option, but it comes with compromises. Lawns done in this way are more likely to fail, especially on poorly drained soils. Because the lawn will have the original grass varieties mixed with the new lawn varieties, it will never be as efficient as a lawn installed with a full removal. It may or may not require less water and fertilizer. Appendix E shows lawn conversion methods as published by ProTime

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Image 38: Large Tree preservation map

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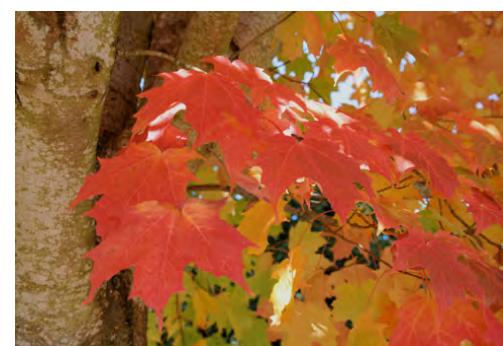
Large tree preservation and removal

There is a conflict between the existing (2015) walkways and the placement of large trees. Though the new circulation system allows walkways to move further away from the large trees, root systems can expand to several times the drip zone of the tree, making it impossible to move walkways entirely outside of the root zone. In most cases, additional root pruning will be needed to minimize future conflict between tree roots and walkways. A certified arborist will need to recommend and execute root pruning and help determine the layout of new walkways. Most of the large Pines at Red Fox Hills Townhomes are near or at their life expectancy. These Pines should continue to be pruned for safety, but no other expenditure should be made while these trees are allowed to naturally die. The Pines that will naturally die off are not shown on the tree plan, as they will disappear over time. Several different pines are to be preserved, and are indicated on the Large Tree Preservation Map (image 38). When these pines die they should be replaced with deodar cedar (*Cedrus deodara*) or black tupelo (*Nyssa sylvatica*). Giant Sequoia trees should be replaced with new Sequoia trees when they die, or are removed for safety reasons. Similarly, Plane trees should be replaced with Sugar Maples if they die or are removed for safety. The tree plan shows which trees to remove and which trees to keep. A certified arborist should determine when and how trees shall be removed. Additionally, the number of trees should be reduced in areas where large trees are crowding each other. An arborist should decide which trees should be removed where specific trees are not indicated in the tree plan. All trees to be preserved shall be pruned for safety and aesthetics. New large trees shall be planted according to the general planting principles. Large canopy trees to be planted in the garage areas included Red Oak (*Quercus rubra*) and Acer saccharum (Sugar maple).

Large Tree Palette

Acer saccharum
Quercus rubra
Nyssa sylvatica
Cedrus deodara

Sugar maple
Red Oak
Black Gum
Deodara Cedar



Sugar maple



Nyssa sylvatica

Small tree preservation and removal

Many of the small trees at Red Fox Hills Townhomes have been planted too close to the building façade, thus requiring regular pruning to keep branches away from building sidings and roofs. Any tree within a seven foot zone of a building façade is planted too close. Nonetheless, these existing small trees have aesthetic value.

The existing Cherry trees are close to their life expectancy. Their round crowns with stiff branches and their bulging roots have caused maintenance issues. All Cherry trees within seven feet of a building shall be removed. Cherry trees shall be replaced by a new small tree selected from the planting palette. The new tree shall be planted near the tree that is removed according to the planting principles.

There are several recently planted trees that are 2-inch caliper or less. Many of these newer trees were planted within seven feet of the buildings. These trees shall be re-planted near to their current location while following the planting principles. New trees (2-inch caliper or smaller) that cannot be replanted shall be replaced by a small tree selected from the front yard planting palette. Replacement trees must be planted according to the planting principles. If a new small tree cannot be planted in a front yard it can be replaced with a small tree within the proposed bioswale near building P (see image 56 Center Plan)

The following rules shall be used in order to determine which small trees are worth preserving. These rules do not apply to the small trees that exist in the beds located directly in front of the brick chimneys.

Tree is not a Cherry (all Cherry trees in front yards shall be removed).

Tree is healthy and has at least a 5 year life expectancy according to a certified arborist

It is possible to prune roots to keep them at least 12" away from foundations and walkways, as determined by a certified arborist.

Tree is at minimum 2" caliper; smaller trees shall be transplanted or replaced 1:1 in the same front yard at an appropriate distance from the foundation according to the planting principles.

Heaving bulge of tree roots as measured at existing grade shall be no more than 18" in diameter measured in all directions.

If soil has to slope away from the tree the slope will be a maximum of 3:1 and slope shall end at a distance of 12" from foundations and walks.

After root pruning and regrading, the area around the tree that has a soil depth of less than 6" is a maximum of 6 feet in diameter.

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The following rules shall be used in order to determine which of the small trees in front of the brick chimneys can be preserved.

Tree is healthy and has at least a 5 year life expectancy according to a certified arborist.

Tree is at minimum 2" caliper: smaller trees will be transplanted or replaced 1:1 in the same front yard at an appropriate distance from the foundation.

Once the preserved small trees that are within seven feet of building die, they shall be replaced with a small tree from the front yard planting palette, planted according to the planting principles. Existing small trees are noted on Image 39.

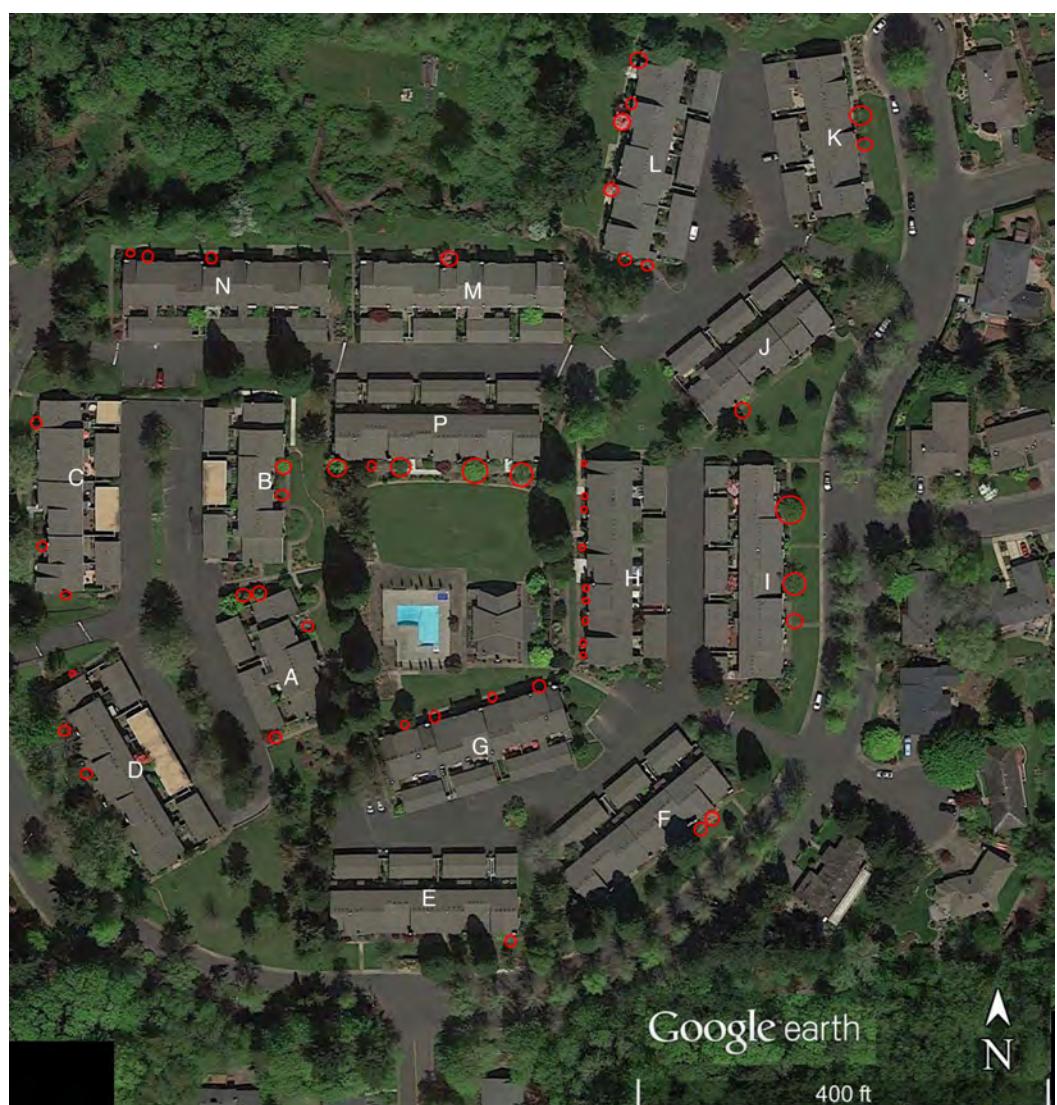


Image 39: Small Tree Location map

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Shrub And Plant Preservation

Red Fox Hills Townhomes has some large well established shrubs (2015) that have taken decades to mature and should be considered for preservation. These shrubs protect soil, and contribute to the overall aesthetic of the landscape. There may also be a benefit to keeping some established ground covers or perennials for similar reasons. In many cases soil preparation, installation of drainage systems or other construction may require these plants to be replaced, but when possible they should be retained for the value they bring to the landscape. Below is a list of existing plants that do not appear in the zone palettes but that can potentially be left in place, if they meet the following requirements:

The plant is healthy and looks attractive

The plant does not require chemical spraying to remain healthy

The plant does not require excessive pruning to fit into the space

The plant fits with general planting principles e.g.: it does not touch the building or overhang the walkway by more than 6 inches etc.

In front yards, the resident can indicate if they would like to keep certain mature shrubs at their unit. These mature shrubs must adhere to the requirements above and be listed below.

Existing plants to consider keeping that do not appear on plant palettes

General Areas

Acer japonicum
Buxus sp.
Convallaria majalis
Cupressus sempervirens (by Pool)
Euonymus alatus
Erica or Calluna sp.
Hydrangea macrophylla
Ilex sp.
Juniperus conferta
Lagorstromia indica
Picea abies 'Nidiformis'
Pieris sp.
Pinus mugo
Pyracantha sp.
Spiraea sp.
Viburnum sp.

Front Yards

Buxus sp.
Berberis sp.
Arctostaphylos uva-ursi
Camellia sp.
Carex sp.
Chamaecyparis pisifera
Gardenia sp.
Heuchera sp.
Hydrangea macrophylla
Ophiopogon planiscapus 'Nigrescens'
Rhododendron sp.

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Ivy Removal and Slope Stabilization

English ivy is an aggressive invasive species that threatens nearly all forested habitat types in the northwestern U.S. English ivy cover is rapidly reaching catastrophic levels, especially in urban and near urban areas of the Pacific Northwest. The state of Oregon recommends ivy removal and replacement, especially near forested areas.

The ivy ground cover at Red Fox Hills grows primarily as a monoculture on steep, erosion prone slopes. Because of these conditions, chemical removal is recommended over the more expensive hand removal. Hand removal is only recommended where there are existing native plants and access to large groups of volunteers. Correctly applied herbicides are a safe and effective way to remove ivy. (Source: Controlling English Ivy in the Pacific Northwest Jonathan Soll The Nature Conservancy)

Removing ivy starts with cutting (using a nylon cord weed-eater to cut to the stem surface just before treatment) followed by an application of an approved herbicide. Alternatively, some sources recommend cutting the ivy and allowing young leaves to regrow before spraying. Both methods allow increased uptake of herbicide to the roots of the ivy. All herbicide applications should be applied by a licensed applicator.

The Nature Conservancy recommends an initial treatment of herbicide followed by a second treatment at least 6 months later. Because ivy may take several months to die, planting should begin the first fall after the first treatment. If performed carefully, follow-up "spot" treatment with herbicide or hand removal can be done with negligible impact to any planted vegetation. Planting the site before winter rain storms, as soon as possible with native vegetation is critical to maintaining good erosion control.

Erosion control will be a critical element of ivy removal at Red Fox Hills. Coir matting should be applied to all slopes after ivy removal. Coir is a natural product made from coconut fiber. Because coir is natural, it is also biodegradable. Coir supports growth of vegetation and can be used for short term, temporary, or semi-permanent applications. Choose a coir matting rated for the correct slope, and one that has an open weave to support planting and plant growth.

Plant selection is an important part of slope stabilization. Since irrigation can undermine a slope, native plants that are adapted to our climate and rainfall are the best choice. The Slope Stabilization Palette consists of a plant selection that provides a variety of root depth and plant structure. This variety is critical to provide good slope stabilization. The palette provides a variety of plant types from ground cover to shrubs. The plant spacing for erosion control should be determined by a landscape professional, and depends on the size of the plants at the time of purchase rather than mature size. Follow the plant palette and planting guidelines for all areas indicated as areas to be planted with slope stabilization plants.

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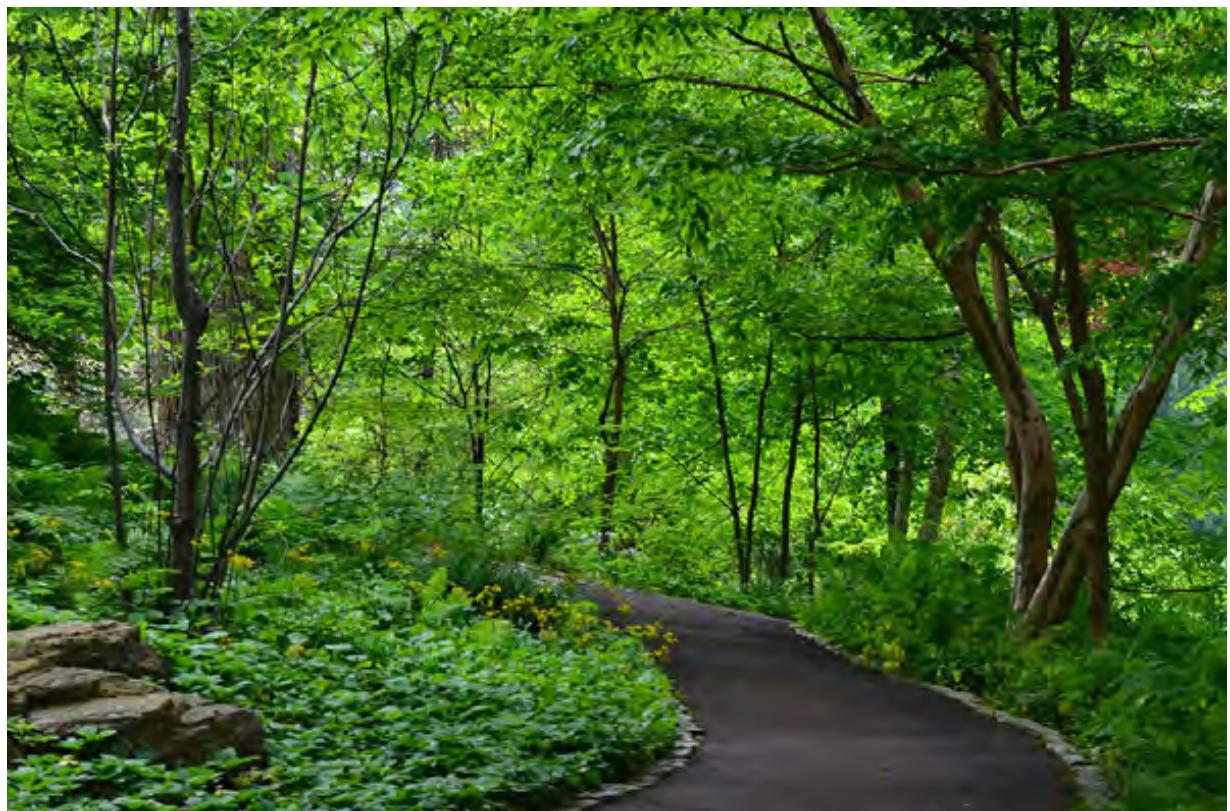
A sample schedule might look like this:

1. Cut all ivy to be removed with a cord weed-eater. Scaring the leaves can help the herbicide penetrate more readily. Alternatively, spray when new leaves are emerging.
2. Application on a clear spring day with temperatures over 65 degrees with a 2-5% v/v solution of triclopyr or glyphosate or as recommended by your licensed applicator.
3. When ivy has died back, grade soil as needed and apply biodegradable coir matting with an open weave structure that allows vegetative growth and is recommended for slopes up to 2:1. Follow manufacturer's installation instructions.
4. Replant using the slope stabilization plant list. Plant in the fall to take advantage of cool rainy weather to support plant establishment.
5. Spot spray as needed to control residual ivy.
6. Young plants may require a temporary irrigation system for establishment for the first two years. A permanent irrigation system is not recommended as irrigation can potentially undermine slope stability.
Areas over 500 sq/ft may require an erosion control permit from the city of Lake Oswego, be sure to review all ivy removal plans with the city for current permit requirements.

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Slope Stabilization Palette

Part shade/shade	Full sun	Ground covers/shade
<i>Arctostaphylos columbiana</i>	<i>Ceanothus thyrsiflorus</i>	<i>Carex obnupta</i>
<i>Gaultheria shallon</i>	<i>Arctostaphylos uva-ursi</i>	<i>Fragaria virginiana</i>
<i>Mahonia nervosa</i>	<i>Mahonia repens</i>	<i>Fragaria vesca</i>
<i>Myrica californica,</i> <i>Oemleria cerasiformis</i>	<i>Myrica californica</i>	<i>Iris Tenax</i>
<i>Physocarpus capitatus</i>	<i>Philadelphus lewisii</i>	<i>Iris douglossii</i>
<i>Rhus glabra 'Laciniata'</i>	<i>Rhus glabra 'Laciniata'</i>	<i>Polystichum munitum</i>
<i>Ribes sanguineum</i>	<i>Spiraea betulifolia var. lucida</i>	<i>Tolmiea menziesii</i>
<i>Symphoricarpos albus</i>	<i>Tsuga mertensiana, mountain hemlock</i>	<i>Vancouveria hexandra</i>
<i>Symphoricarpos mollis</i>		
<i>Vaccinium ovatum</i>	<i>Vitex agnus-castus</i>	



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Bioswales and Rain Gardens

Bioswales and rain gardens are small depressions that allow stormwater runoff to be slowed and filtered by plant material. Additionally, the plants inside the bioswales will uptake some stormwater during their growing season. Slowing and reducing stormwater run-off helps to protect natural areas and streams. This is particularly relevant as Red Fox Hills is located adjacent to and upstream from Tryon Creek State Park. Creating bioswales and raingardens at Red Fox Hills Townhomes is consistent with goal 2 of this master plan and is consistent with the goals of the draft Stormwater Manual for the city of Lake Oswego (2015). Rain garden and bioswale design, planting, and maintenance should follow the most current version of the Lake Oswego Stormwater Manual. The location of the bioswales and rain gardens in this Landscape Master Plan are based on aesthetic considerations, and their locations enhance the character of the various zones. These locations can inform the civil engineer in charge of developing a comprehensive drainage plan, and as such, are subject to change based on engineering criteria.

Soil Amendment and Mulching

A soil amendment is any material added to a soil to improve its physical properties, such as water retention, permeability, water infiltration, drainage, aeration and structure. The goal is to provide a better environment for roots. Amending a soil is not the same thing as mulching, although many types of mulch also are used as amendments. Mulch is left on the soil surface. Its purpose is to reduce evaporation and runoff, inhibit weed growth, and create an attractive appearance.

Amending soil is not only important for healthy plant growth, it also helps the soil's capacity to store stormwater, and will slow down runoff to Tryon Creek State Park, thus being consistent with goals 2 and 5 (Respect Tryon Park and Water Conservation).

The soil at Red Fox Hills is very compacted and only percolates (lets water through) very slowly. It is extremely difficult to amend this type of soil. The soil is almost completely devoid of organic content and the structure of the soil needs to be substantially changed. Bringing in small amounts of soil amendment will only help minimally, and will take decades to have measurable effects. The only short term solution is to remove some of the existing silty soil and bring in well graded, high quality, topsoil. This is a costly process and comes with an environmental cost as transporting topsoil comes with a carbon footprint as these soils are either manufactured or are taken from other areas.

Importing topsoil at Red Fox Hills Townhomes should be limited to the most important and most visible beds; these include the Front Yards, the Center Beds and Low Planting Beds in the Center area. In addition bioswales and rain gardens require imported topsoil.

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The procedure to amend these beds is as follows:

(source <http://www.ext.colostate.edu/pubs/garden/07235.html>) September 2015

Remove soil to eight inches below new grade (or at bioswales and rain gardens to allow for topsoil depth indicated in the most current version of the Lake Oswego Stormwater Manual)

Scarify top four inches of remaining native soil and mix topsoil through those four inches

Add topsoil to new grade level

Rake to new grade and ensure proper slopes

Add two inches of mulch

Prior to new plantings all other areas should be amended with a minimum of 3" of garden, bark or mint straw based compost. To do its work, an amendment must be thoroughly mixed into the soil. The compost should be well blended into the top 8" of soil.

All beds should be top-dressed (mulched) with two inches of a plant based mulch such as fir, hemlock bark or similar or with compost.



Image 40: soil amendment front yard beds, center beds and bioswales

Irrigation

The Landscape Master Plan was developed to reduce irrigation requirements and to facilitate the creation of logical irrigation zones. Front yard beds will require slightly more water compared to all other beds and are recommended to be on a separate irrigation zone. Though the new lawns are less water intensive than current lawns, they will still benefit from being on a separate irrigation zone. Areas with steep slopes are noted on the plans as "slope stabilization", and should not have permanent irrigation, as those slopes are susceptible to collapse if water is introduced.

The forest (see Forest Landscape Plan) and the Tryon Edge (see Tryon Creek View Edge) consist of native plantings; these beds will not require any permanent irrigation.

The irrigation system should be built with drip irrigation or micro sprays for shrub beds.

Vision for the Future

General Planting Principles

- Many of the plants at Red Fox Hills are spaced at a relatively large distance from each other (2015). Dense planting along with adequate mulch will help to preserve the soil structure and limit compaction. This is especially important at Red Fox Hills because the native silty soil is highly susceptible to compaction. Plants at Red Fox Hills should be planted in dense groups or drifts of the same plant with an occasional single specimen plant. In order to achieve this, plants need to be spaced at their mature width planting distances as indicated on the plant palettes. In this manner plants either touch each other or slightly overlap each other as shown on the diagram below (image 41). All planting beds need to achieve 90% coverage based on mature planting size.

- To better protect the soil, shrubs and groundcovers can share space. Shrubs that do not have branches that reach the ground shall be under-planted with groundcovers.
- The mature planting size shall also be used to ensure that plantings do not touch buildings and do not overhang walkways. Plantings shall remain at a 12 inch distance from building foundations and overhang walkways no more than 6 inches. (see image 41 and example planting plans)

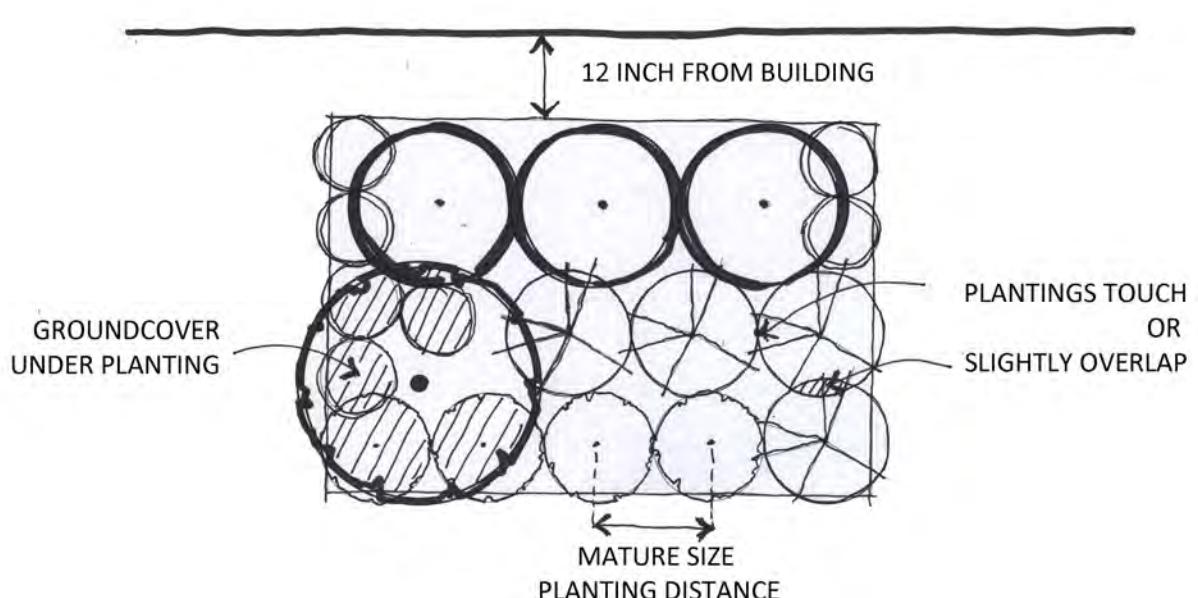


Image 41: Planting spacing principle

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- Soil in plant beds shall be a minimum of 6 inches below wood siding and shall slope away from buildings at 2% over at least five feet.
- All planting beds shall be amended (see “soil amendment” page 45) and covered with at least 2-inch mulch .
- Small trees shall be planted at minimum eight feet from building roofs and two feet from walkways. Verify utility locations and easement rules before planting any trees.
- Large trees shall be planted at minimum twenty feet from building roofs and six feet from walkways. Verify utility locations and easement rules before planting any trees.
- Planting details shown in images 42,43 and 44 shall be used.

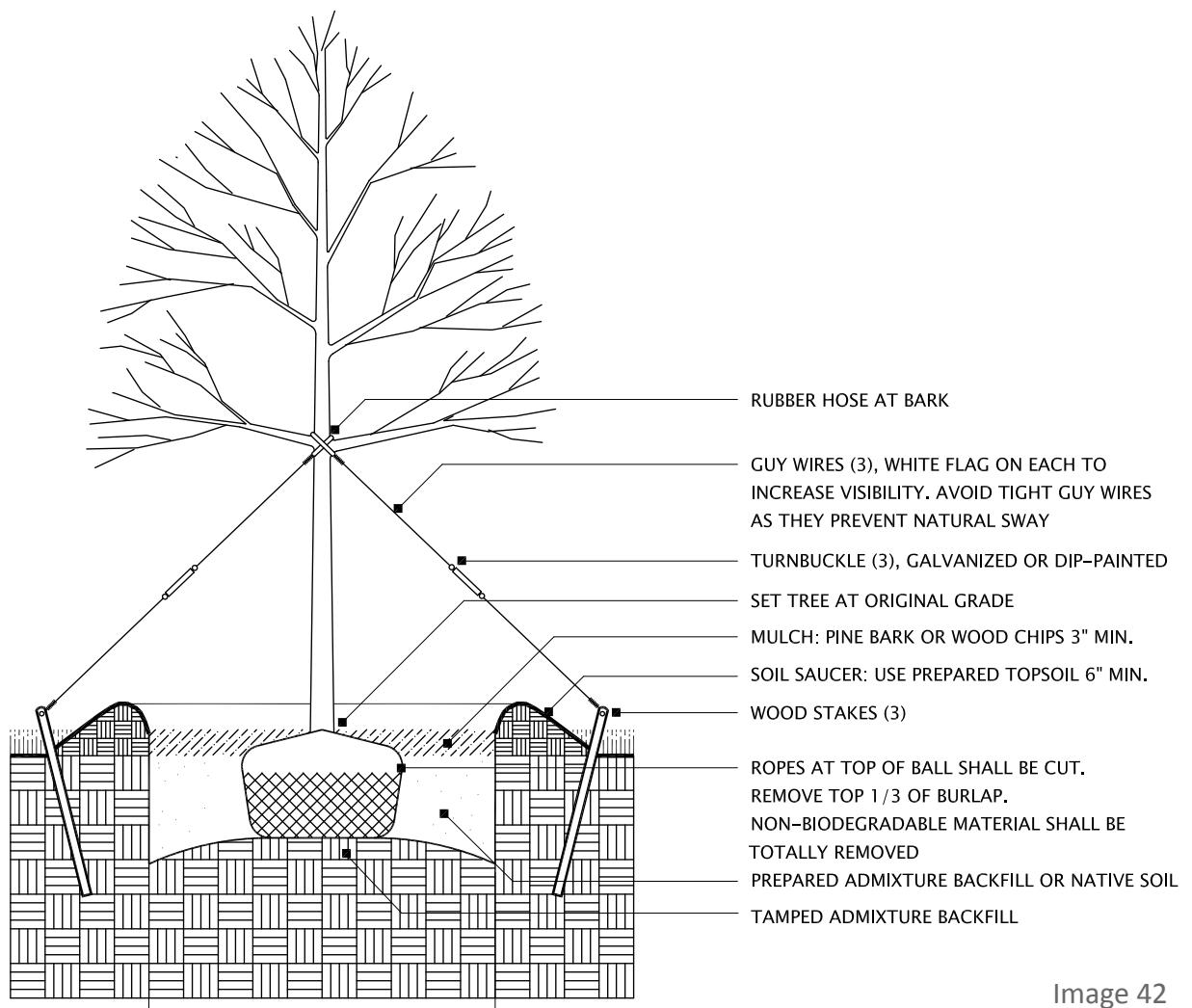


Image 42

Vision for the Future

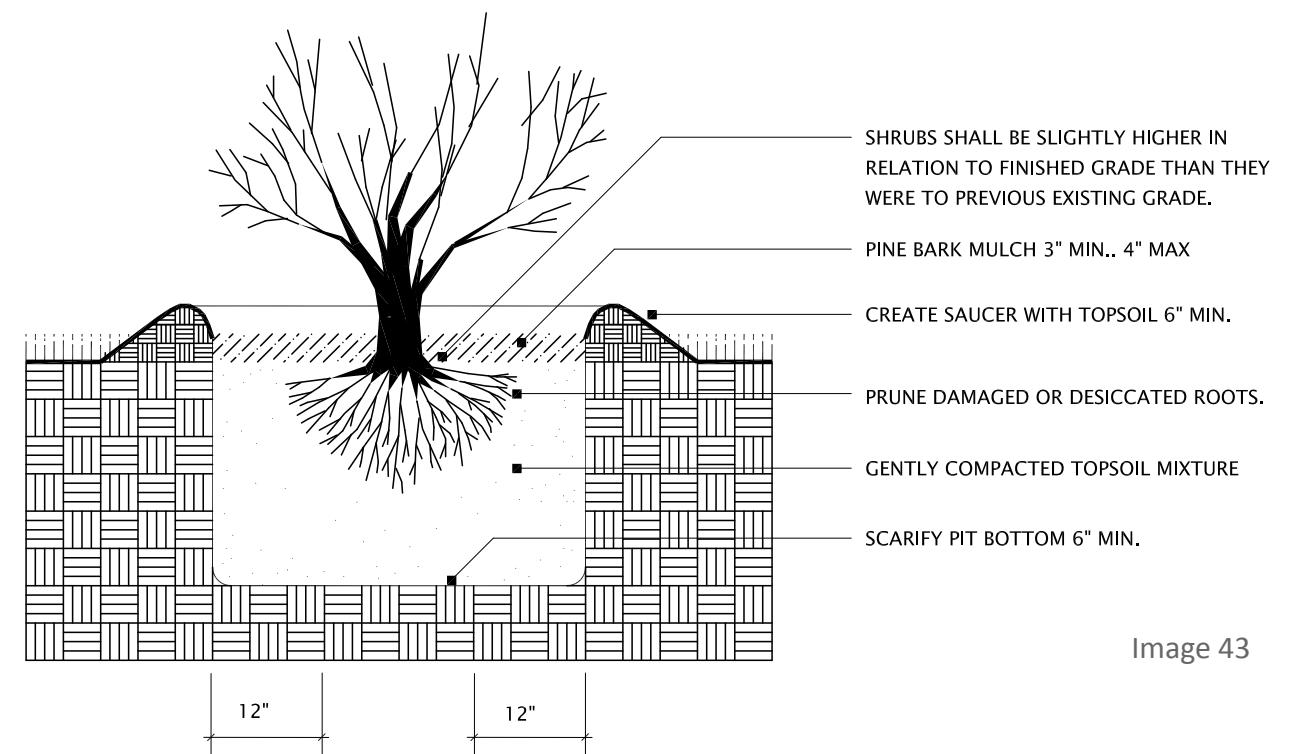


Image 43

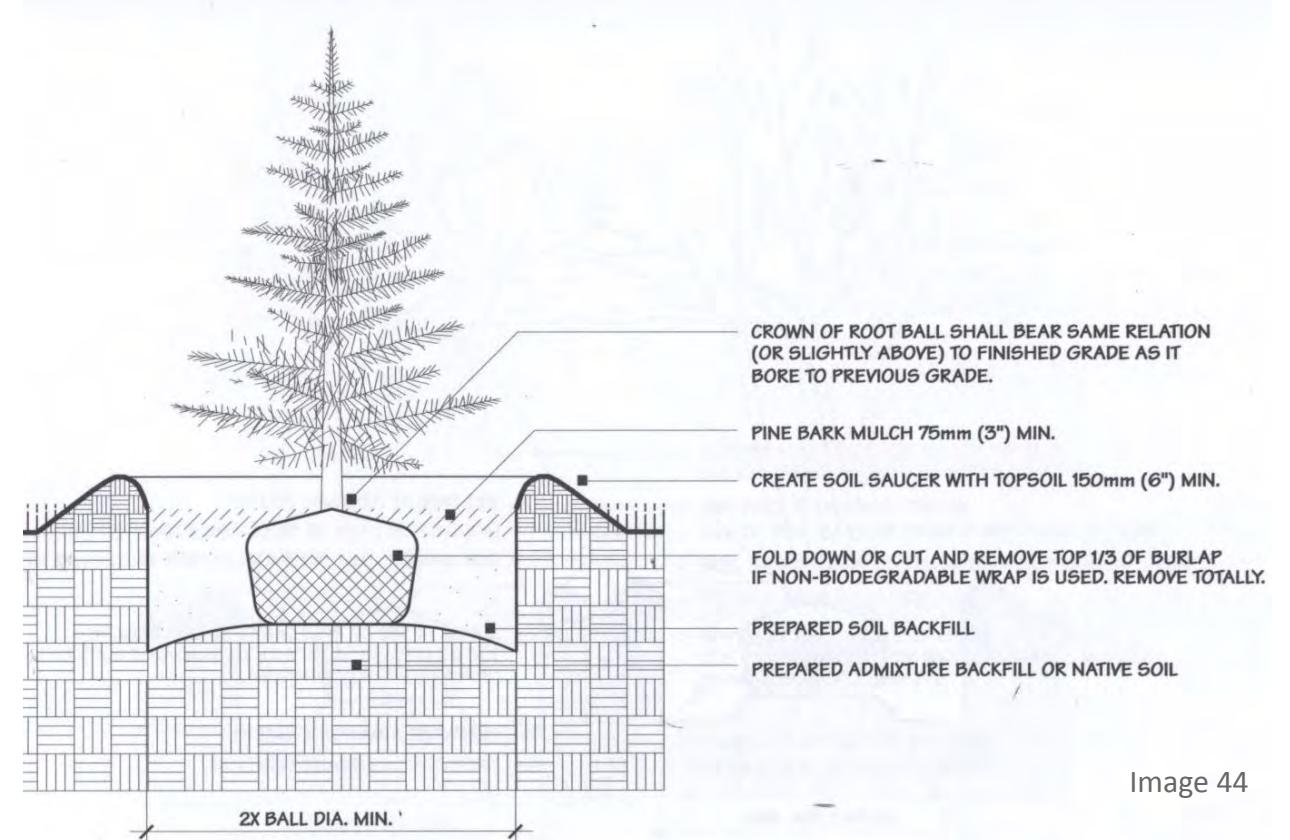


Image 44

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Plant Selection Criteria

A long list of criteria informed the plant selection for Red Fox Hills Townhomes. These criteria include goals 9 and 10:

- Water Wise/tolerates drought in summer
- Tolerant of hard or heavy soils
- Tolerant of wet soils in winter
- Deer Resistant
- Attracts Birds and /or Butterfly's
- Four season interest: flowers, fall color, winter interest, fragrance
- Fits into maintenance practice/ low maintenance
- Disease resistant
- Native
- Fits aesthetic intention of zone
- Fits into overall cohesive aesthetic
- Readily available/cost effective
- Allows for some of the existing plants to remain

Vision for the Future

Front Yard Principles

The front yards will be transformed into areas with year round interest with flowers and evergreen shrubs and an occasional small tree.

- All general planting principles apply unless otherwise noted.
- Finish grade shall be six inch below the wood siding and shall slope away from buildings at a 2% slope within a five feet zone from the building, beyond this the grade shall continue to slope away until stormwater is captured in a stormwater facility (see section). If a drainage plan prepared by a licensed civil engineer deviates from the above, the civil engineering plan shall prevail. Remove small trees as noted on page 39
- Residents shall have the option to indicate preferred plants from the front yard planting palette for their own address.
- Residents shall have the option to indicate if they would like to keep selected mature shrubs until those shrubs naturally die or are no longer healthy. Provided that the mature shrubs meet the criteria described in the 'Shrub and Plant Preservation' paragraph on page 41. The landscape professional needs to include substitution plants for these shrubs when creating the planting plan.

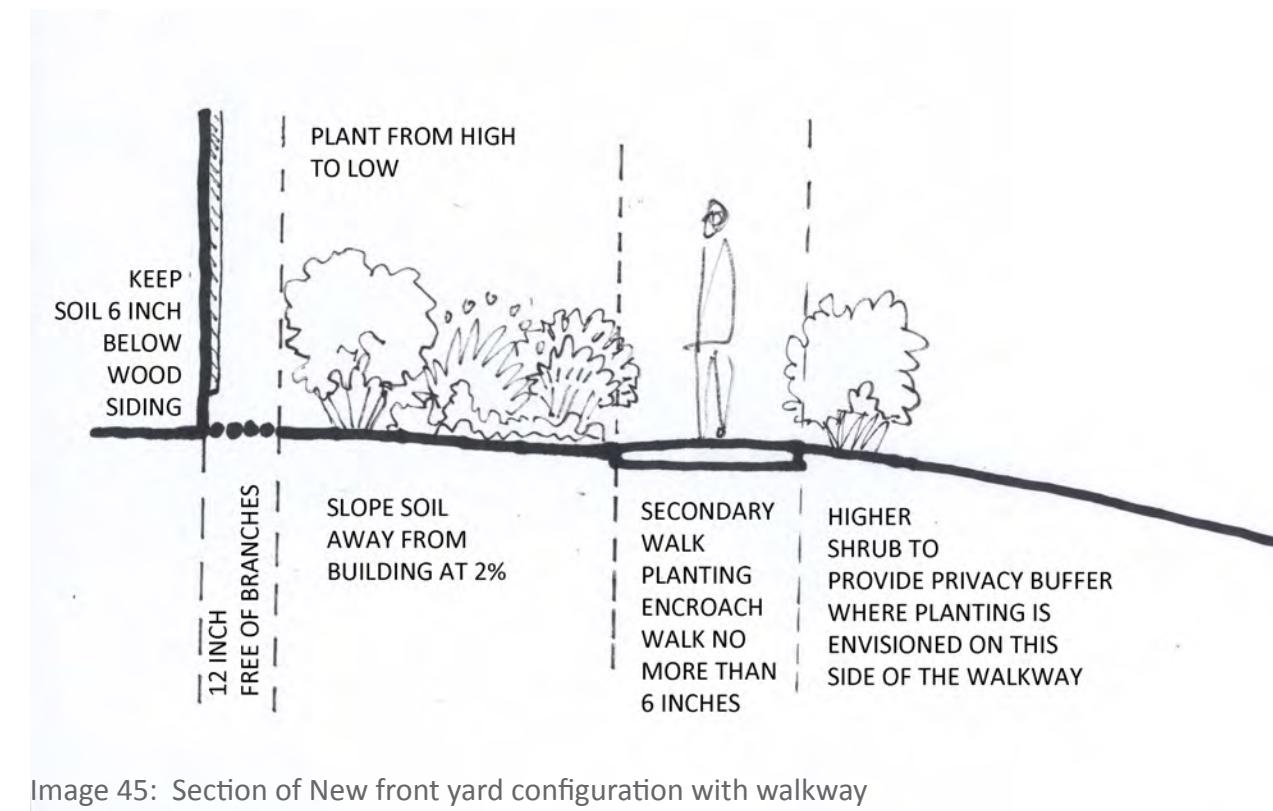


Image 45: Section of New front yard configuration with walkway

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- Number of different plants per plant bed shall be the area of the plant bed in square feet divided by 25. Half the number of plants shall be shrubs and half shall be other plants. For example: a plant bed is 8 ft by 25 ft = 200 sqft. $200/25=8$ thus this bed shall have 8 different plants: 4 shrubs and 4 other plants. Thus the resident of this particular address has the option to indicate 4 shrubs and 4 other plants on the plant palette to be used in his or her front yard bed. If the resident is not interested in selecting plants a landscape professional shall select 4 shrubs and 4 other plants to be used in this particular bed (see also planting plan examples for more information on how this works). For large beds, the number of plants following the calculation might be larger than the number of plants available on the palette, in those cases the number of plants on the palette suitable for the light conditions is the number of plants that will be used.
- Plant shrubs as two (2) or three (3) clumped together or as single specimen. Plant all other in clumps three (3) to seven (7) together.
- Plant from highest plants closest to building to lowest plants furthest from building, except for a maximum of one (1) single specimen shrub per plant bed which can be surrounded by lower plants (see section).
- Keep new plants from covering the center of windows as indicated on the window diagram (image 46) by determining the mature height and width of the selected plants.

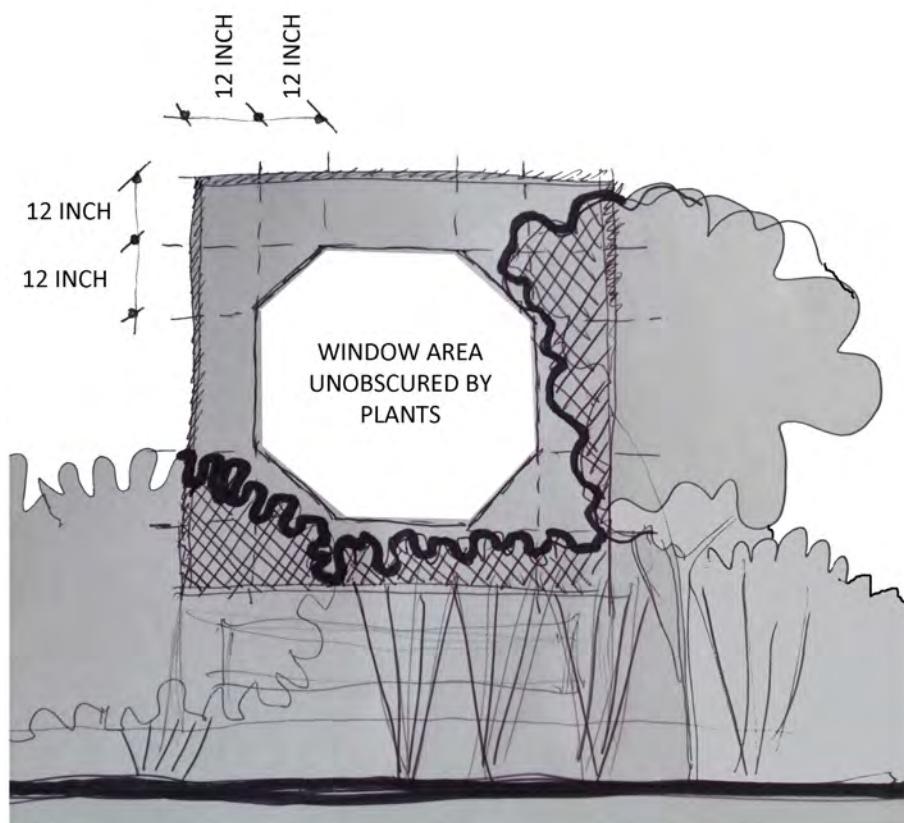


Image 46: Principle of plantings at windows

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Front Yard Planting Palette

Latin Name

Common Name

Spacing on Center

Acorus calamus 'Variegatus'
Actaea racemosa
Carex divulsa
Epimedium 'Frohnleiten'
Epimedium rubrum
Heuchera x 'Amethyst Mist'
Hellebore orientalis
Hosta sieboldiana 'Hudson Bay'
Iris japonica 'Eco Easter'
Iris douglasiana Douglas Iris
Liriope muscari 'Big Blue'
Liriope spicata 'Silver Dragon'
Polystichum munitum
Polystichum setiferum

Sweet Flag
Black cohosh
Berkely Sedge
Barrenwort
Red Barrenwort
Coral Bells
Lenton Rose
Hosta
Japanese Iris
Douglas Iris
Liriope
Silver Dragon Liriope
Sword Fern
Sheild Fern

18"
18"
2'
18"
12"
18"
24"
24"
18"
12"
18"
18"
2'
2'



Actaea racemosa



Berkely Sedge



Red Barrenwort



Hosta



Japanese Iris



Douglas Iris



Coral Bells



Sword Ferns



Silver Dragon Liriope

Vision for the Future

Front Yard Planting Pallete Sun Perennials and Small Trees

Latin Name	Common Name	Spacing on Center
<i>Carex divulsa</i>	Berkely Sedge	2'
<i>Geranium sanguineum 'Lancastriense'</i>	Hardy Geranium	18"
<i>Hemerocallis x 'Happy Returns'</i>	Day lily	2'
<i>Lavandula angustifolia 'Hidcote Blue'</i>	Hidcote Blue Lavender	3'
<i>Liriope spicata 'Silver Dragon'</i>	Silver Dragon	18"
<i>Sedum 'Autumn Joy'</i>	Autumn Joy	2'
<i>Pennisetum alopecuroides 'hameln'</i>	Dwarf Fountain Grass	2'
Small Trees		
<i>Acer japonicum</i>	Japanese Maple	
<i>Chamaecyparis obtusa</i>	Hinoki	
<i>Styrax japonicum</i>	Snowbell	
<i>Tsuga mertensiana</i>	Mountain Hemlock	



Berkely Sedge



Hardy Geranium



Daylily



Silver Dragon Liliy turf



Autumn Joy Sedum



Dwarf Mountain Grass



Hidcote Blue lavender

Vision for the Future

Front Yard Planting Pallete Full Shade and Part Shade Shrubs

Latin Name	Common Name	Spacing on Center
Full Shade		
<i>Aucuba japonica</i>	Acuba	6'
<i>Daphne x transatlantica 'Summer Ice'</i>	Summer Ice Daphne	3'
<i>Leucothoe fontanesiana 'Zeblid'</i>	Fetterbush	4'
<i>Sarcococca ruscifolia</i>	Sweet Box	3'
<i>Vaccinium ovatum</i>	Evergreen Huckleberry	5'
Part Shade		
<i>Acer circinatum</i>	Vine Maple	12'
<i>Chamaecyparis pisifera 'Curly Tops'</i>	Dwarf Sawara Cypress	4'
<i>Daphne x transatlantica 'Summer Ice'</i>	Summer ice Daphne	3'
<i>Ilex crenata 'Hoogendorn'</i>	Japanese Holly	3'
<i>Rhaphiolepis umbellata 'Minor'</i>	Dwarf Yeddo Hawthorn	5'
<i>Spiraea betulifolia var. lucida</i>	Shiny Leaf spirea	3'



Summer Ice Daphne



Fetterbush



Sweet Box



Dwarf Sawara Cypress



Japanese Holly



Dwarf Yeddo Hawthorne



Acuba



Shiny Leaf Spirea



Vine Maple

Vision for the Future

Front Yard Planting Palette Sun Shrubs

Latin Name	Common Name	Spacing on Center
<i>Chamaecyparis pisifera</i> 'Curly Tops'	Dwarf Sawara Cypress	3'
<i>Daphne x transatlantica</i> 'Summer Ice'	Summer Ice Daphne	4'
<i>Callicarpa</i> 'Profusion'	Beauty Berry	5'
<i>Euonymus japonica</i> 'Greenspire'	Greenspire Euonymus	3'
<i>Deutzia gracilis</i> 'Nikko'	Dwarf Deutzia	2'
<i>Rhaphiolepis umbellata</i> 'Minor'	Dwarf Yeddo Hawthorne	5'
<i>Vaccinium ovatum</i>	Evergreen Huckleberry	4'
<i>Vaccinium corymbosum</i> 'Patriot'	Blueberry	4'
<i>Vaccinium corymbosum</i> 'North Country'	Lowbush Blueberry	3'
<i>Ilex crenata</i> 'Hoogendorn'	Japanese Holly	3'
<i>Spiraea betulifolia</i> var. <i>lucida</i>	Shiny Leaf Spirea	3'
<i>Spiraea japonica</i> 'Neon Flash'	Neon Flash Spirea	3'
<i>Rhododendron x</i> 'Ramapo'	Ramapo Rhododendron	4'



Beauty Berry



Greenspire Euonymus



Dwarf Duetzia



Evergreen Huckleberry



Blueberry



Shiny Leaf Spirea



Neon Flash Spirea



Ramapo Rhododendron

Vision for the Future

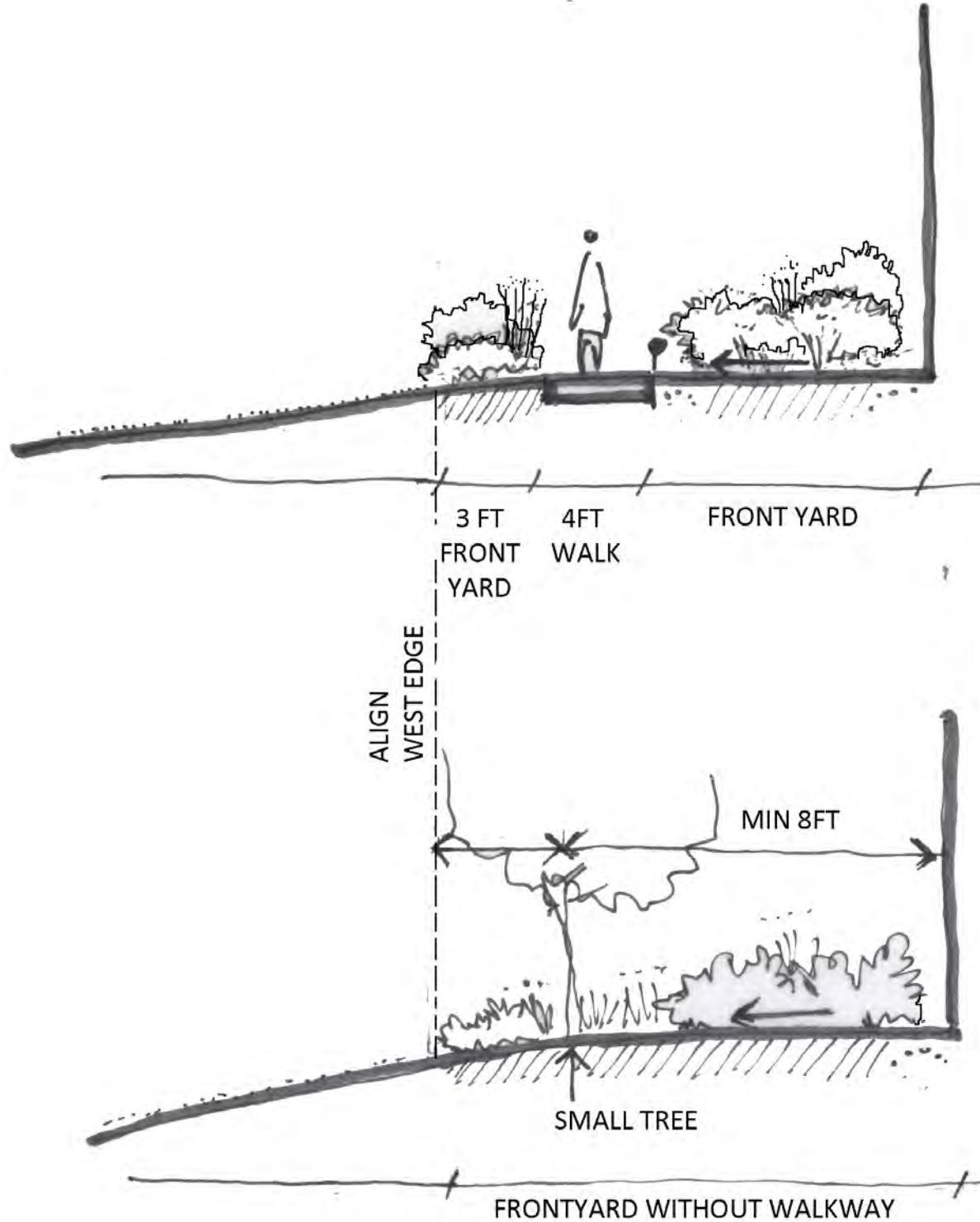
English Landscape Principles

A modernized English landscape style fits well for key spaces at Red Fox Hills Townhomes, and the survey and workshops indicate this style will be appreciated by most of the residents. As rolling lawns are a key element of this style it can be easily applied to the areas where lawns are to be kept (albeit transformed into micro clover lawn).

- All general planting principles apply unless otherwise noted.
- Trees shall be preserved or removed according the large tree preservation and removal paragraph on page 36-38 and the small tree preservation and removal paragraph on page 39
- Provide long views across length of lawns and over low shrubs (see images 49 and 50)
- Reconfigure walkways and front yards according to English Landscape Plan and Front Yard Principles and Palette and as described in the circulation paragraph (page 18) this includes:
 - removing large sections of the walkway (and steps) in front of building K;
 - adding new 4 ft wide walkways from the street to the front of building K where they are further removed from large trees;
 - Along building J move front yard sidewalk an additional four feet away from the façade, except where roots from a tree that is to be preserved do not allow this (following arborist recommendation).
 - Add an additional three feet of front yard planting to all buildings.
- Reconfigure front yard beds according to the English Landscape Plan and the Front Yard Principles.
- Plant beds on both sides of the driveway between buildings K and I in a similar fashion, to create approximate symmetry by using the same plants on both sides of the driveway. Plant in large drifts of 25 to 60 plants. Drifts are to be oblong at approximately 30 degrees to entrance drive (see image 50).
- Number of different shrubs in a Low Shrub bed shall be the area of the bed in square feet divided by 500, i.e. a 4000 square foot bed will have 8 different shrubs and/or groundcovers. ('Area' sq.ft. /4000 sq.ft.) Use all plants listed on the palette if the number of plants from the calculation exceeds the number of plants listed on the planting palette.
- Trees in Low Shrub beds need to be limbed up as necessary to provide for long views from lawn to lawn (see image 49 and 50)

Vision for the Future

Image 47: English landscape front yard section



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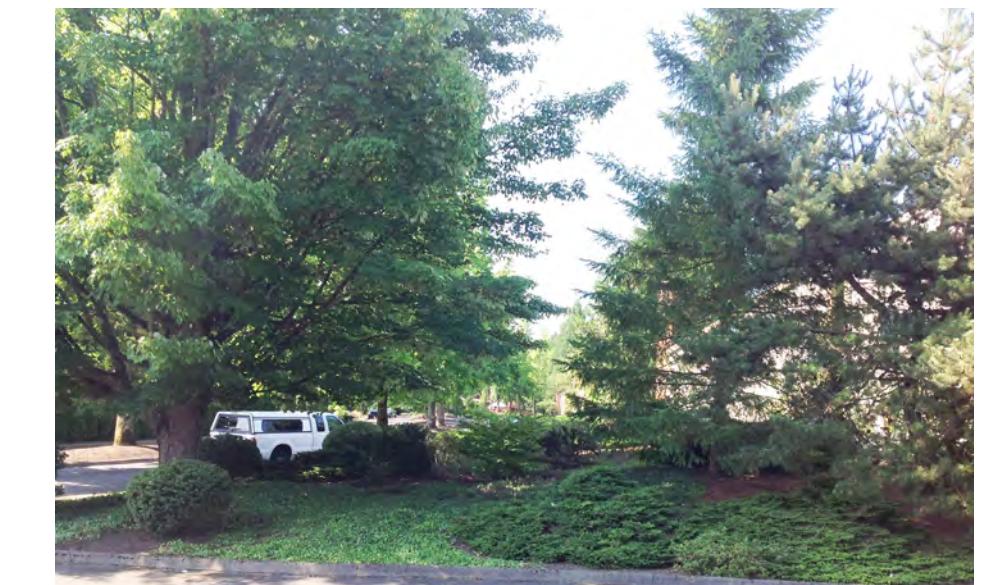


Image 49: Entrance driveway between buildings J and K, existing situation

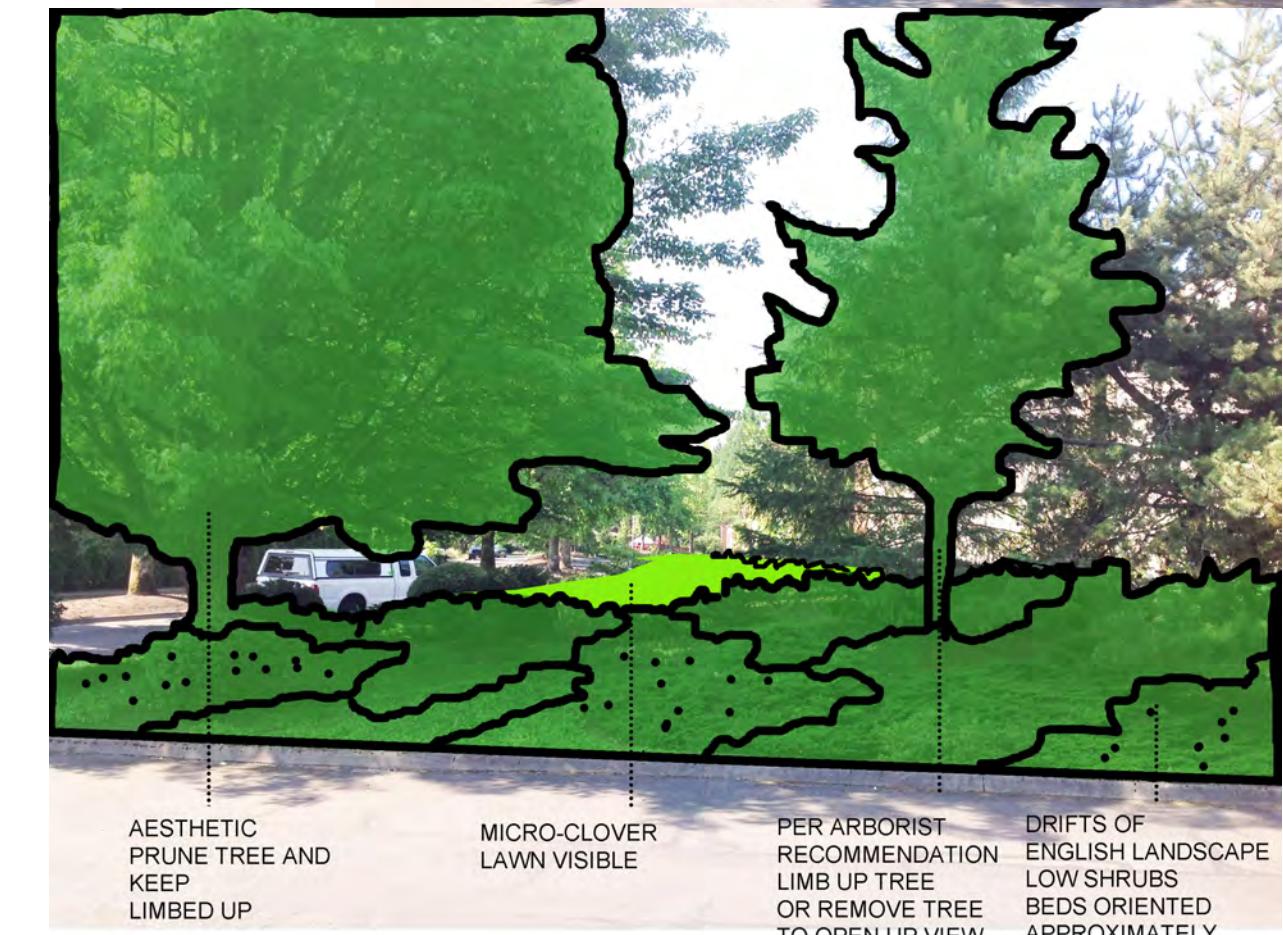


Image 50: Entrance driveway between building J and K, proposed

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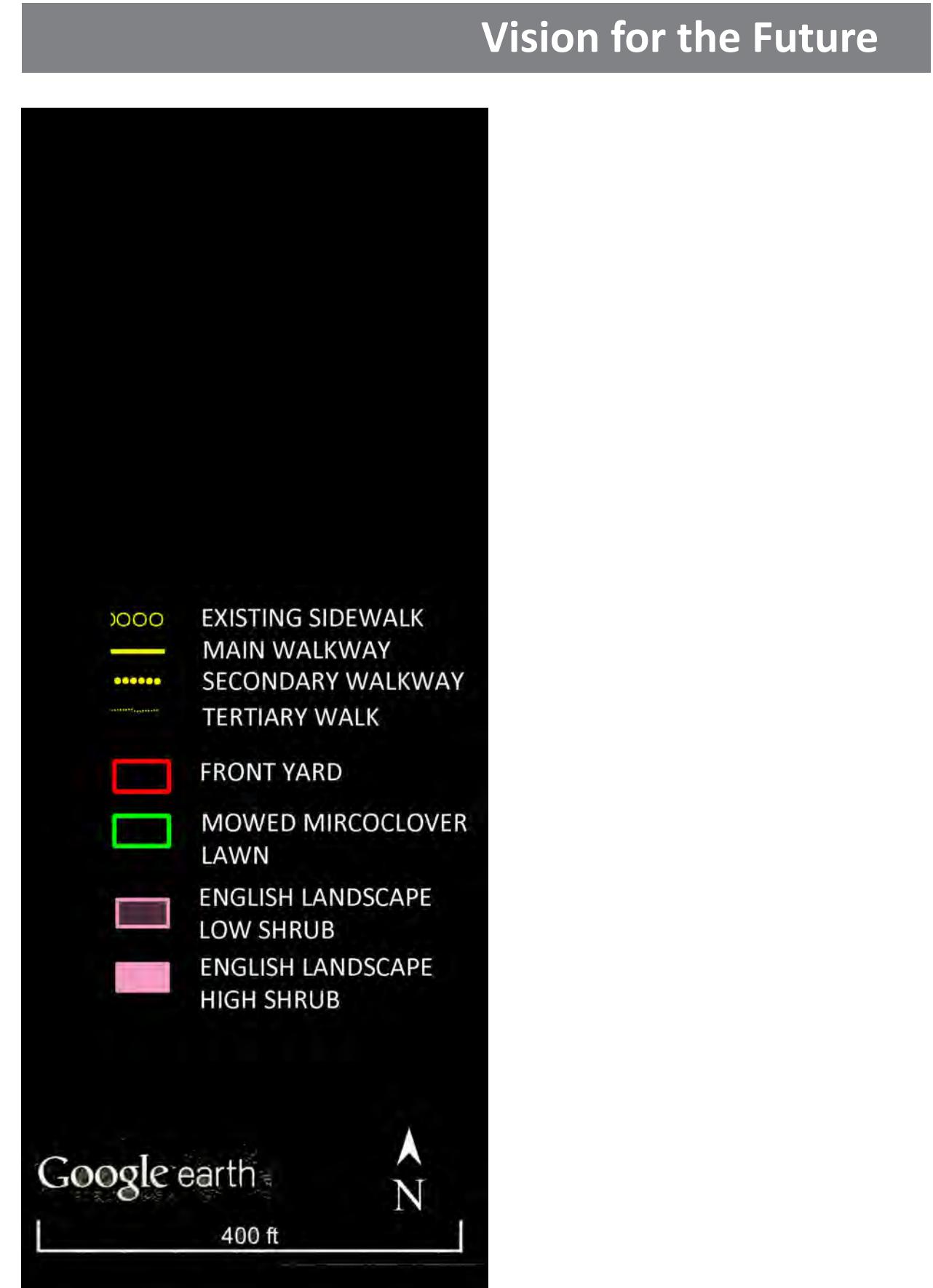
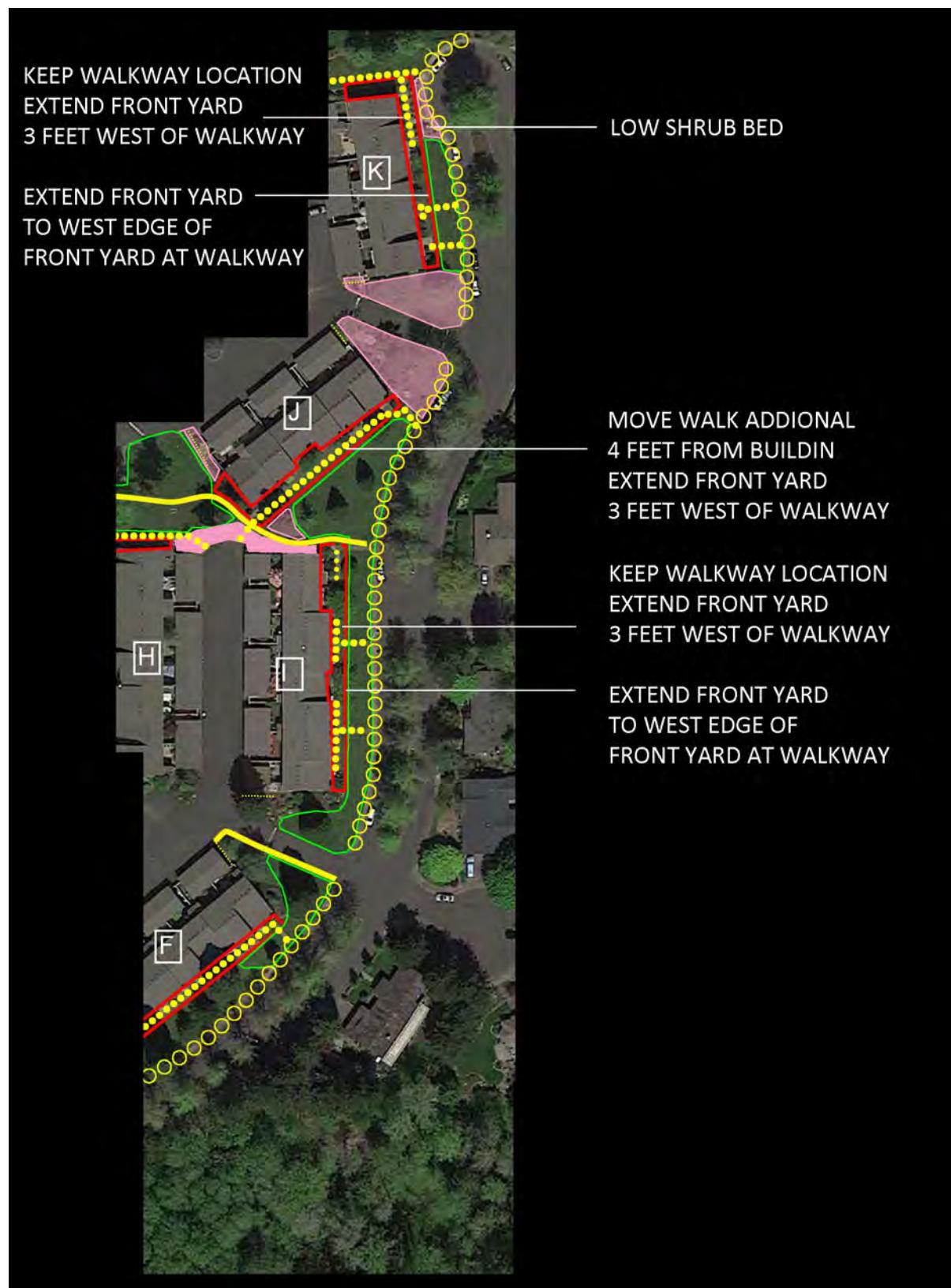


Image 51: English Landscape Plan

Vision for the Future

English Landscape Plant Palette Ground covers and Low Shrubs

Ground covers

Latin Name	Common Name	Spacing on Center
<i>Arctostaphylos uva-ursi</i>	Kinnickinick	18"
<i>Liriope mucari 'Big Blue'</i>	Lily Turf	18"

Low Shrubs

<i>Abelia x grandiflora 'Canyon Creek'</i>	Glossy Abelia	3'
<i>Daphne 'summer ice'</i>	Summer Ice Daphne	3'
<i>Euonymus japonica 'Greenspire'</i>	Green Spire Euonymus	3'
<i>Rhaphiolepis umbellata 'Minor'</i>	Dwarf Indian Hawthorne	3'
<i>Sarcococca ruscifolia</i>	Sweet Box	3'
<i>Taxus baccata 'Repandens'</i>	Repandens English Yew	8'
<i>Vaccinium ovatum</i>	Evergreen Huckleberry	5'
<i>Viburnum davidii</i>	David viburnum	4'



Liriope mucari 'Big Blue'



Kinnickinick



Indian Hawthorne



Dwarf Glossy Abelia



Evergreen Huckleberry



Summer Ice Daphne



Green Spire Euonymus



Repandens English Yew



Sarcococca ruscifolia

Vision for the Future

English Landscape High Shrubs

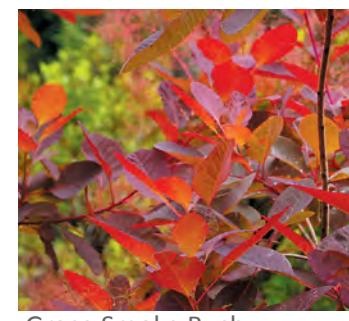
Latin Name	Common Name	Spacing on Center
<i>Cotinus 'Grace'</i>	Grace Smoke Bush	10'
<i>Hydrangea quercifolia</i>	Oakleaf Hydrangea	5'
<i>Myrica californica</i>	Pacific Wax Myrtle	7'
<i>Osmanthus delavayi</i>	Sweet olive	6'
<i>Physocarpus capitatus</i>	Pacific Nine Bark	5'



Oakleaf Hydrangea



Pacific Wax Myrtle



Grace Smoke Bush



Sweet olive



Pacific Nine Bark

Vision for the Future

Center Landscape

The English Landscape Style is modified to build upon the existing planting palette at the club house. The area directly north of the pool and the club house (aka the “putting green”) is envisioned as a small flowery strolling park. Residents wanted benches in this area, and the plan indicates several locations for benches. Near the clubhouse is space for a small water feature, albeit one that should run on harvested rainwater to be consistent with water conservation goals. The envisioned strolling park is smaller than the original putting green because the front yards at building P will be larger. Walkways along the east and west of the original “putting green” should meander away from the slopes to reduce slopes and decrease conflict between the walkways and the roots of large trees.

The new park will have a low hill planted with plants from the center bed palette and a bioswale to help with drainage. The hill will eliminate the need to remove large quantities of soil from the site, as soil removal is expensive. Through the community involvement process some residents indicated that they would like to include a lawn for picnics. Others wanted a place to play with their dog, while others did not want dogs. The final solution shows a small multi-purpose micro-clover lawn area. Micro-clover lawn has excellent wear capabilities so it is ideal for picnics and play. The envisioned lawn is smaller than the pool area. The lawn area is located near the clubhouse and away from most living units, with planting and topography that will screen it from the surrounding housing units.



Image 53: Precedent image, water feature running on harvested and recycled rain water.



Image 52: Precedent image, bridge over bioswale

Vision for the Future

Center Principles

- All general planting principles apply unless otherwise noted.
- Trees shall be preserved or removed according the large tree preservation and removal paragraph (page 36-38) and the small tree preservation and removal paragraph (page 39)
- Reconfigure walkways according to Central Landscape Plan and sections and as described in the circulation paragraph (page 18)
- Add a five foot wide sidewalk along the driveway between buildings I and F.
- Add special pavement between buildings F, I , G and H, see circulation image 20.
- Reconfigure front yard beds according to Center Landscape Plan and sections and front yard principles and palette.
- Use plant palettes as shown on the Center Landscape Plan for beds on both sides of the entrance driveway between buildings I and F and both sides of the entrance parking and walkway between buildings G and H. Create approximate symmetry by using the same plants in similarly sized groups on either side of the entrance driveway and walkway. Plant large drifts of 20 to 50 plants, using the low planting palette. Drifts are to be oblong at approximately 30 degrees to entrance drive (similar to entrance drive in the English Landscape zone, see image 50)
- In the Low Planting and High Planting beds the number of different plants shall be the area of the bed in square feet divided by 500, i.e. a 4000 square feet bed will have 8 different plants. ('Area' sq.ft. /4000 sq.ft.). Use all plants listed on the palette if the number of plants from the calculation exceeds the number of plants listed on the planting palette.
- The High Planting shall be planted in clumps of 3 to 9 plants.
- The number of different plants in the Center Beds shall be the area of the bed in square feet divided by 400, i.e. a 4000 square feet bed will have 10 different plants. Use all plants listed on the palette if the number of plants from the calculation exceeds the number of plants listed on the planting palette. The number of different plants shall be 50% Shrubs, 30% Perennials, 20% Grasses as indicated on the Center Landscape palette. Shrubs shall be planted as single shrubs or two (2) together surrounded by low grasses or perennials, tall grasses shall be planted as a single specimen plant or grouped in twos or threes, perennials shall be planted in clumps of three (3) to five (5) plants.
- Ivy shall be removed and slopes shall be planted according to slope stabilization principles (page 42), boulders shall be added for aesthetic interest, to create planting pockets and to provide additional slope stabilization.

Vision for the Future

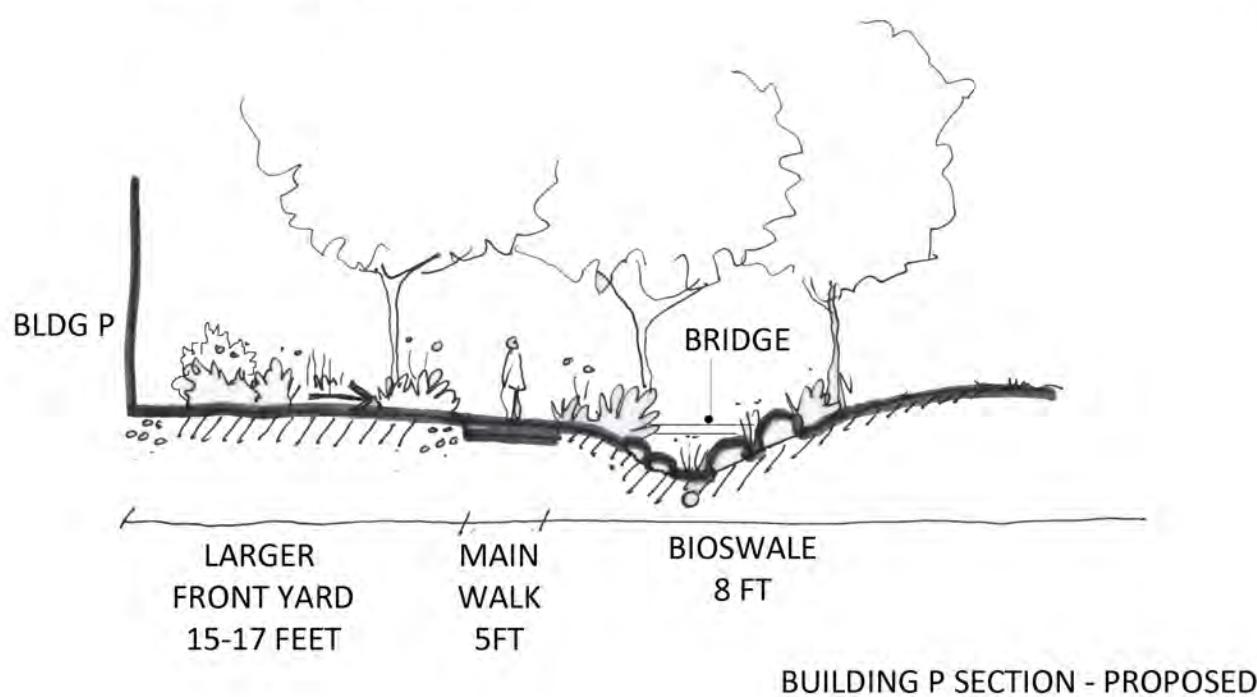
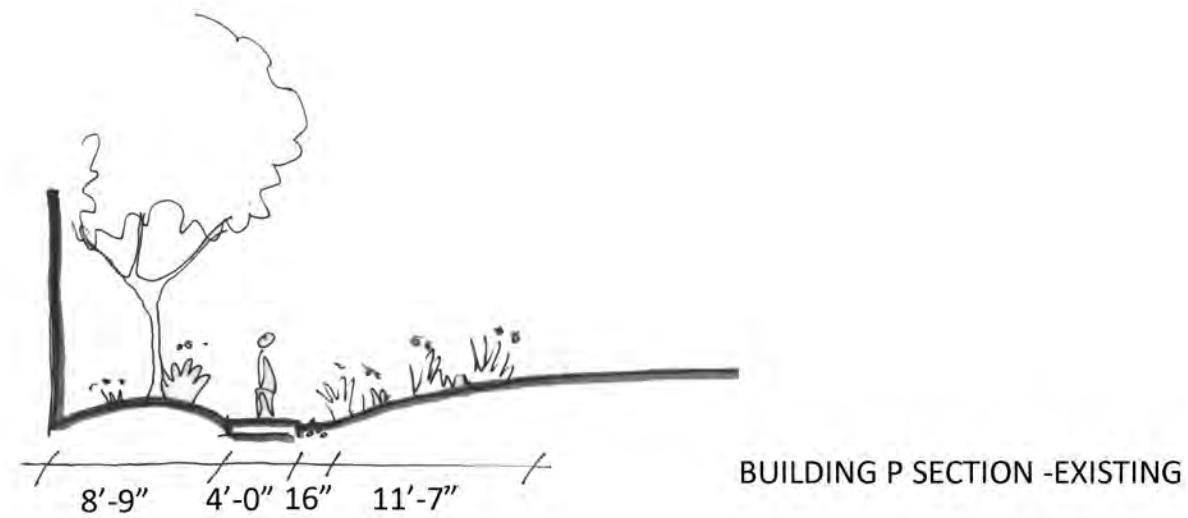


Image 54: New and proposed concept section at building P.

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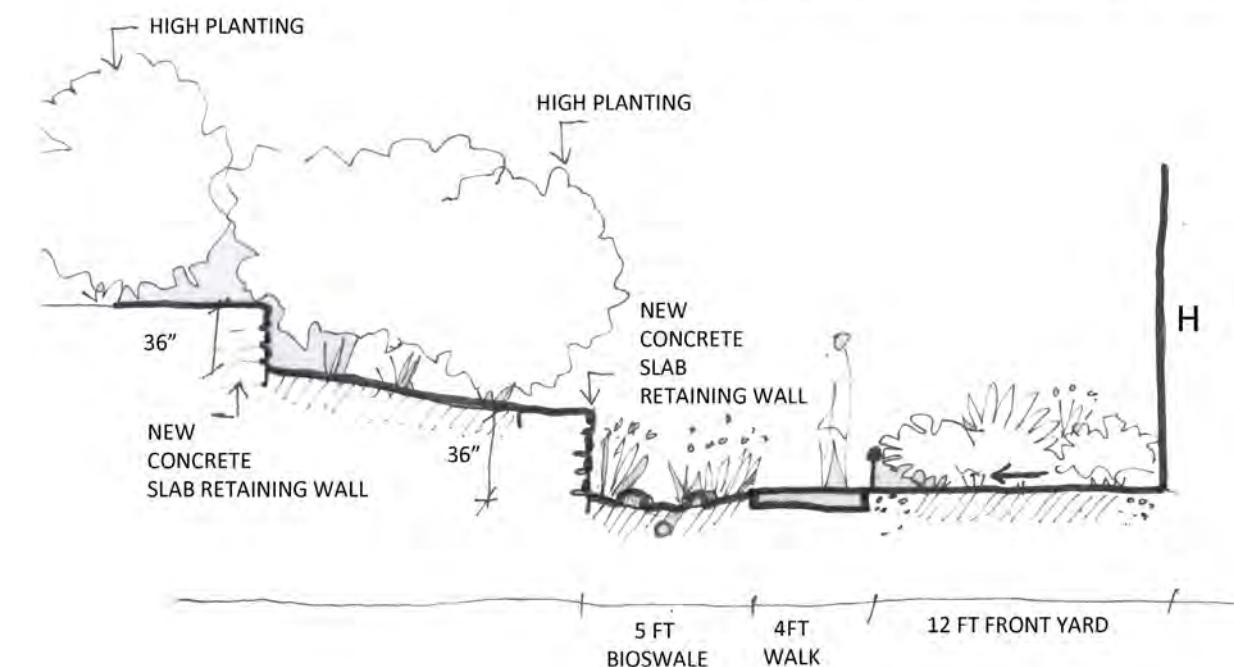
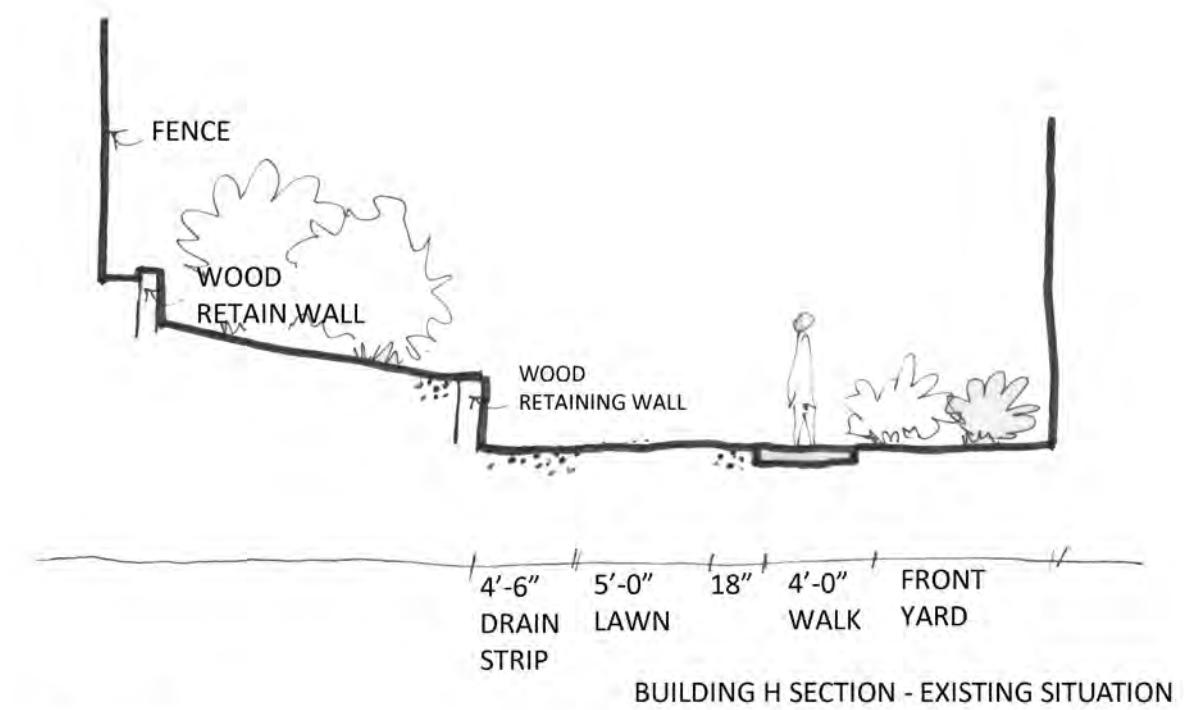


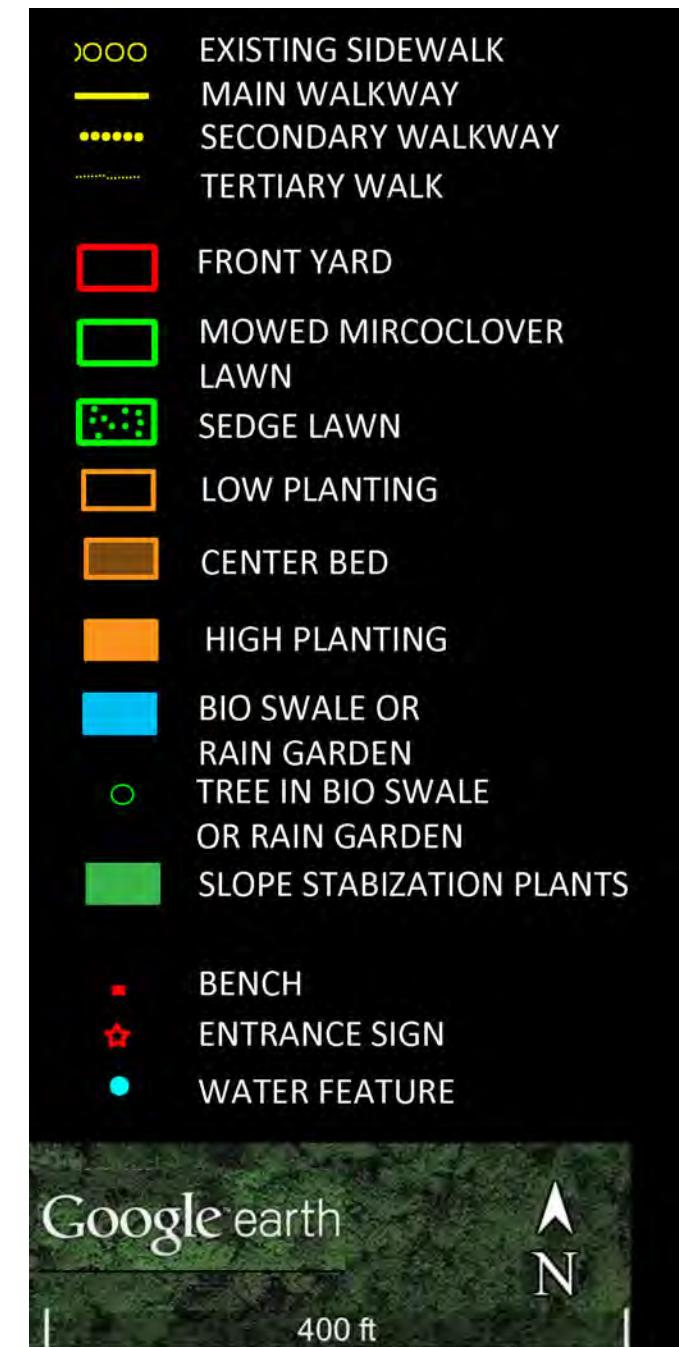
Image 55: New and proposed concept section at building H.

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Image 56: Center Landscape Plan

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Center Landscape Plant Palette

Latin Name	Common Name	Spacing on Center
<i>Calamagrostis x acutiflora 'Karl Foerester'</i>	Feather Reed Grass	3'
Perennials Low		
<i>Crocosmia 'Lucifer'</i>	Montbretia	2'
<i>Hakonechloa macra 'All Gold'</i>	Japanese Forest Grass	2'
<i>Hemerocallis 'Barbary Corsair'</i>	Day Lily	2'
<i>Helianthemum 'Ben Nevis'</i>	Sun Rose	18"
<i>Echinacea purpurea 'Kim's knee High'</i>	Cone Flower	2'
<i>Festuca glauca</i>	Blue Fescue	18"
<i>Rudbeckia fulgida 'Goldsturm'</i>	Black-eyed Susan	2'
<i>Salvia x sylvestris 'May Night'</i>	Salvia	18"
<i>Geranium sanguineum</i>	Hardy Geranium	18"



Feather Reed Grass



Montbretia



Japanese Forest Grass



Day Lily



Sun Rose



Cone Flower



Blue Fescue



Black-eyed Susan



Salvia

High and Low Perennials

Common Name	Spacing on Center
Feather Reed Grass	3'
Montbretia	2'
Japanese Forest Grass	2'
Day Lily	2'
Sun Rose	18"
Cone Flower	2'
Blue Fescue	18"
Black-eyed Susan	2'
Salvia	18"
Hardy Geranium	18"

Center Landscape Plant Palette

Shrubs and Trees

Latin Name	Common Name	Spacing on Center
------------	-------------	-------------------

High Shrubs

<i>Cornus sericea</i>	Red Twigg Dogwood	4'
<i>Euonymus japonicus 'Greenspire'</i>	Greenspire Euonymus	3'
<i>Hammamelis 'Arnolds Promise'</i>	Witch Hazel	12'
<i>Hydrangea paniculata</i>	PeeGee Hydrangea	5'
<i>Hydrangea quercifolia</i>	Oakleaf Hydrangea	5'

Low Shrubs

<i>Itea virginica 'Little Henry'</i>	Little Henry Itea	2'
<i>Ilex crenata 'Green Island'</i>	Japanese Holly	3'
<i>Osmanthus heterophylus 'varigatus'</i>	False Holly	3'
<i>Spiraea japonica 'Neon Flash'</i>	Neon flash Spirea	3'

Trees

<i>Acer japonicum</i>	Japanese Maple	
<i>Styrax japonicum</i>	Snowbell	
<i>Tsuga mertensiana</i>	Mountain Hemlock	
<i>Nyssa sylvatica</i>	Black Tupelo	



Witch Hazel



Oak Leaf Hydrangea



Little Henry Itea



Japanese Holly



Neon Flash Spirea



Rhododendron



False Holly

Vision for the Future

Tryon Creek View Edge

This edge is envisioned as a gradual transition from the Red Fox Hills to the natural plantings and views into Tryon Creek State Park.

- All general planting principles apply unless otherwise noted.
- Trees shall be preserved or removed according the large tree preservation and removal paragraph (page 36-38) and the small tree preservation and removal paragraph (page 39)
- Reconfigure front yards and walkways to create front yards beds that are a minimum of 8 feet wide in front of windows. Apply walkway principles as described in the circulation paragraph (page 18) and apply front yard principles and palette.
- Create a Fescue lawn with an un-mowed strip against planting to make a seamless transition without the need of a dirt mow strip (see section).
- Tryon view edge beds shall be planted where current planting area is located with the additional provision that the planting area shall be at minimum 15 feet wide, extend back as needed (see section).
- Tryon View Edge shall consist of an understory of Low Shrubs and Meadow Plants with High Shrubs at the back and down the slope to obscure the view of back berry bushes. Meander the line between Low Shrubs and Meadow Plants and the High Shrubs. Remove all existing trees except Alders (see Large Tree Preservation Image 38). Trees to be removed shall be replaced 1:1 with Alder trees so that the Tryon View Edge has small clumps of one (1) to three (3) Alders. Alders within a clump shall be planted four (4) of five (5) feet on center. Plant trees in Low Shrub and Meadow Plants zone. New and existing groups of trees should be spaced so that the elevation of Tryon View Edge has no more than 45% of the horizon line covered with trees (see elevation). Limb up all trees to provide a nice framed view onto Tryon Creek State Park (see elevation).
- The number of different plants in all beds within Tryon Creek View Edge, with exception of the Meadow Plant Bed, shall be the area of bed in square feet divided by 500 ('Area' sq.ft. /4000 sq.ft.) i.e a 4000 square feet bed will have 8 different Shrubs and/or Meadow Plants chosen from the palettes that apply to the bed. Use all plants listed on the palette if the number of plants from the calculation exceeds the number of plants listed on the planting palette. High shrubs shall be clumped in groups of three (3) to five (5) plants except for high specimen shrubs, which shall be planted as a single shrub. Low shrubs shall be clumped in groups of three (3) to seven (7) plants. The front edge of Tyron View Edge shall have approximately 30% Meadow Plants and 70% low shrubs.
- The Meadow Plant bed shall consist of approximately 65% Hairgrass interspersed with drifts of 5 to 9 Irises.

Vision for the Future

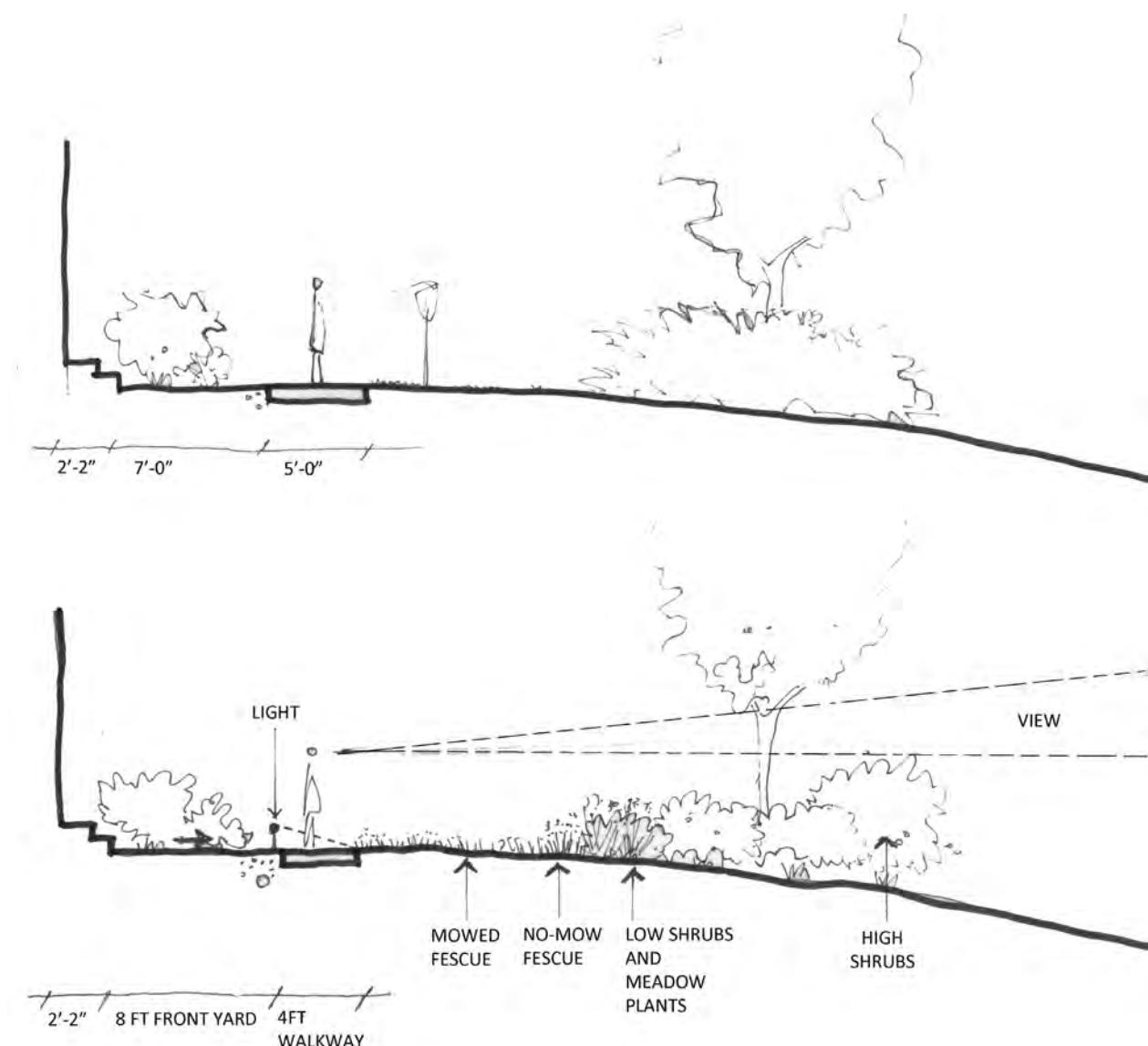


Image 57: Tryon Creek View Edge Existing and Proposed Section

Vision for the Future

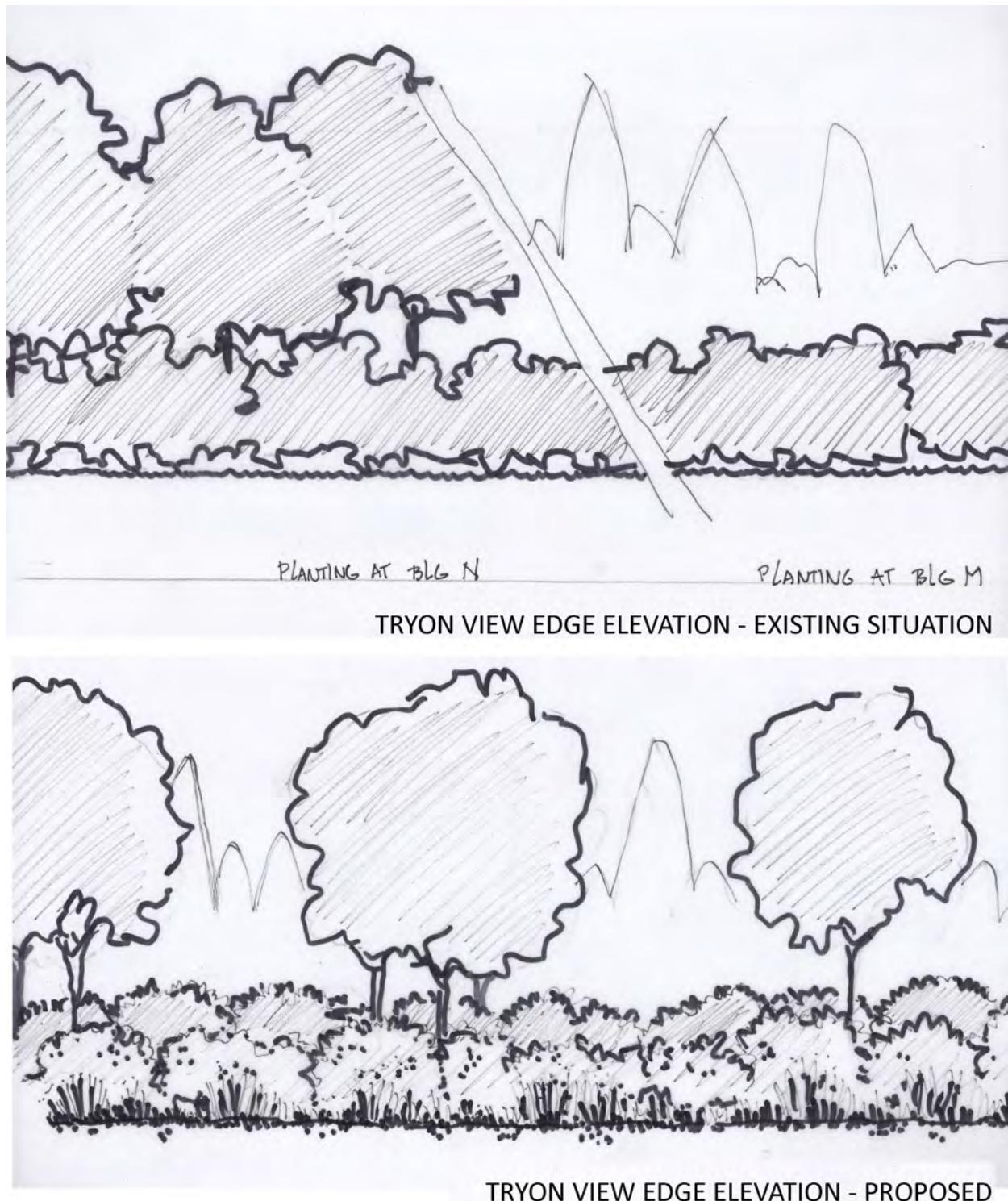
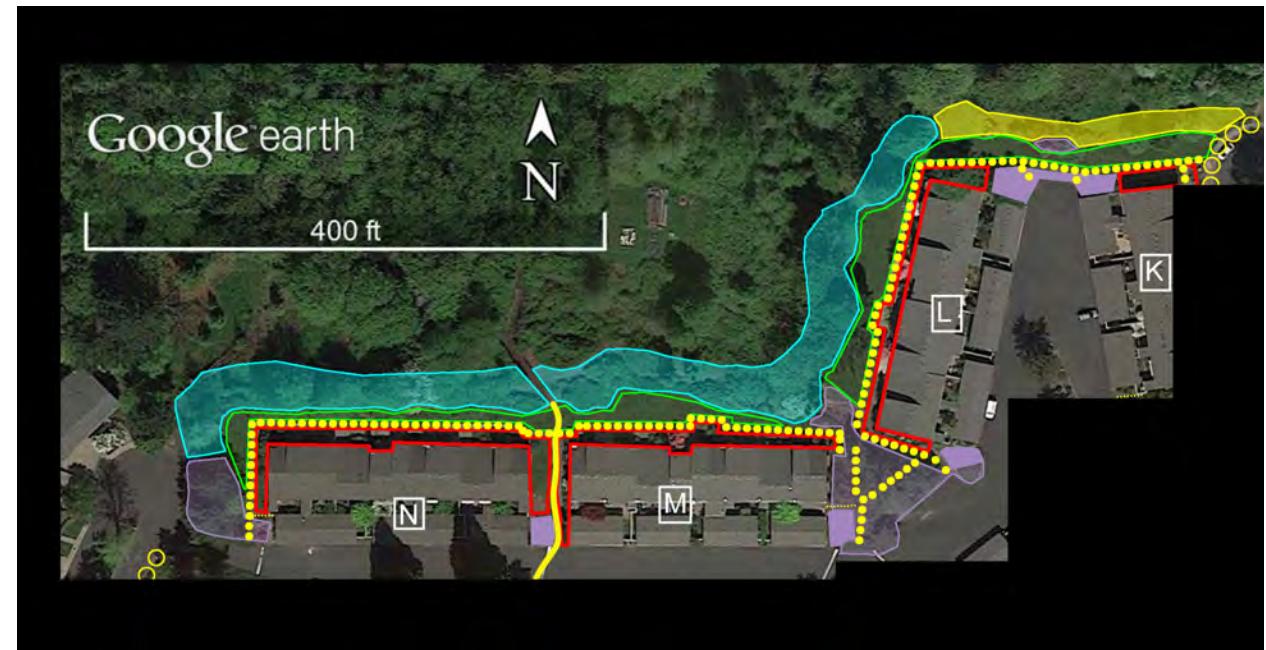


Image 58: Tryon View Edge Bed: Existing and Proposed Elevation

Vision for the Future



Vision for the Future

Tryon View Edge Plant Palette

Latin Name

High Shrubs

Arbutus unedo 'compacta'
Amelanchier alnifolia
Ceanothus thyrsiflorus 'Oregon Mist'
Myrica californica
Rhododendron macrophyllum

Specimen

Garrya elliptica 'James Roof'

Trees

Alnus rubra



Strawberry Bush



Service Berry



Wild Lilac



Silk Tassel



Red Alder

High Shrubs, Specimen and Trees

Common Name

Spacing on Center

Strawberry Bush
 Service Berry
 Wild Lilac
 Pacific Wax Myrtle
 Pacific Rhododendron

6'
 8'
 8'
 6'
 8'

Silk Tassel

8'

4'-5' within a clump

Tryon View Edge Plant Palette

Latin Name

Meadow Plants

Deschampsia cespitosa
Iris douglasiana

Meadow Plants and Low Shrubs

Common Name

Spacing on Center

Tufted Hair Grass
 Douglas Iris

2'
 2'

Low Shrubs

Arctostaphylos densiflora 'Howard McMinn'
Ilex crenata 'Green Island'
Spiraea betulifolia var. lucida
Spiraea x bumalda 'Anthony Waterer'
Vaccinium ovatum

McMinn's Manzanita
 Japanese Holly
 Shiny Leaf Spirea
 Anthony Waterer Spirea
 Evergreen Huckleberry

5'
 3'
 3'
 4'
 4'



Douglas Iris



Tufted Hair Grass



Manzanita



Japanese Holly



Evergreen Huckleberry



Spiraea x bumalda

Vision for the Future

Tryon View Edge Plant Palette

Latin Name

Meadow Plants

Tufted Hair Grass
 Douglas Iris

2'
 2'

Low Shrubs

McMinn's Manzanita
 Japanese Holly
 Shiny Leaf Spirea
 Anthony Waterer Spirea
 Evergreen Huckleberry

5'
 3'
 3'
 4'
 4'

Vision for the Future

Canyon Principles

The canyon has a forested character. To amplify this feel, the steep slope shall be transformed into a woodland canyon with a bioswale or rain garden at the bottom. The bioswale or rain garden will be an aesthetic element reinforcing the canyon feel and will double as a functional drainage component.

- All general planting principles apply unless otherwise noted.
- Trees shall be preserved or removed according the large tree preservation and removal paragraph (page 36-38) and the small tree preservation and removal paragraph (page 39)
- Reconfigure walkways according to the Canyon Plan and sections and apply walkway principles as described in the circulation paragraph (page 18) and apply front yard principles and palette.
- The number of different shrubs in a Shrub bed shall be the area of the bed in square feet divided by 400, i.e. a 4000 square feet bed will have 10 different shrubs ('Area' sq.ft. /4000 sq.ft.). Use all plants listed on the palette if the number of plants from the calculation exceeds the number of plants listed on the planting palette.
- Shrubs are to be planted in clumps of 3 to 7 plants.
- Canyon slopes are to be planted according to slope stabilization principles described (page 42) Boulders shall be added for aesthetic interest, to create planting pockets and additional slope stabilization.
- The bioswale or rain garden shall be shaped and planted according to the latest version of the Stormwater Manual for the city of Lake Oswego. The distance of a bioswale or rain garden from large trees shall be according to an arborists' recommendation. Bioswales or rain gardens in the Canyon Zone shall not include small trees.

Vision for the Future

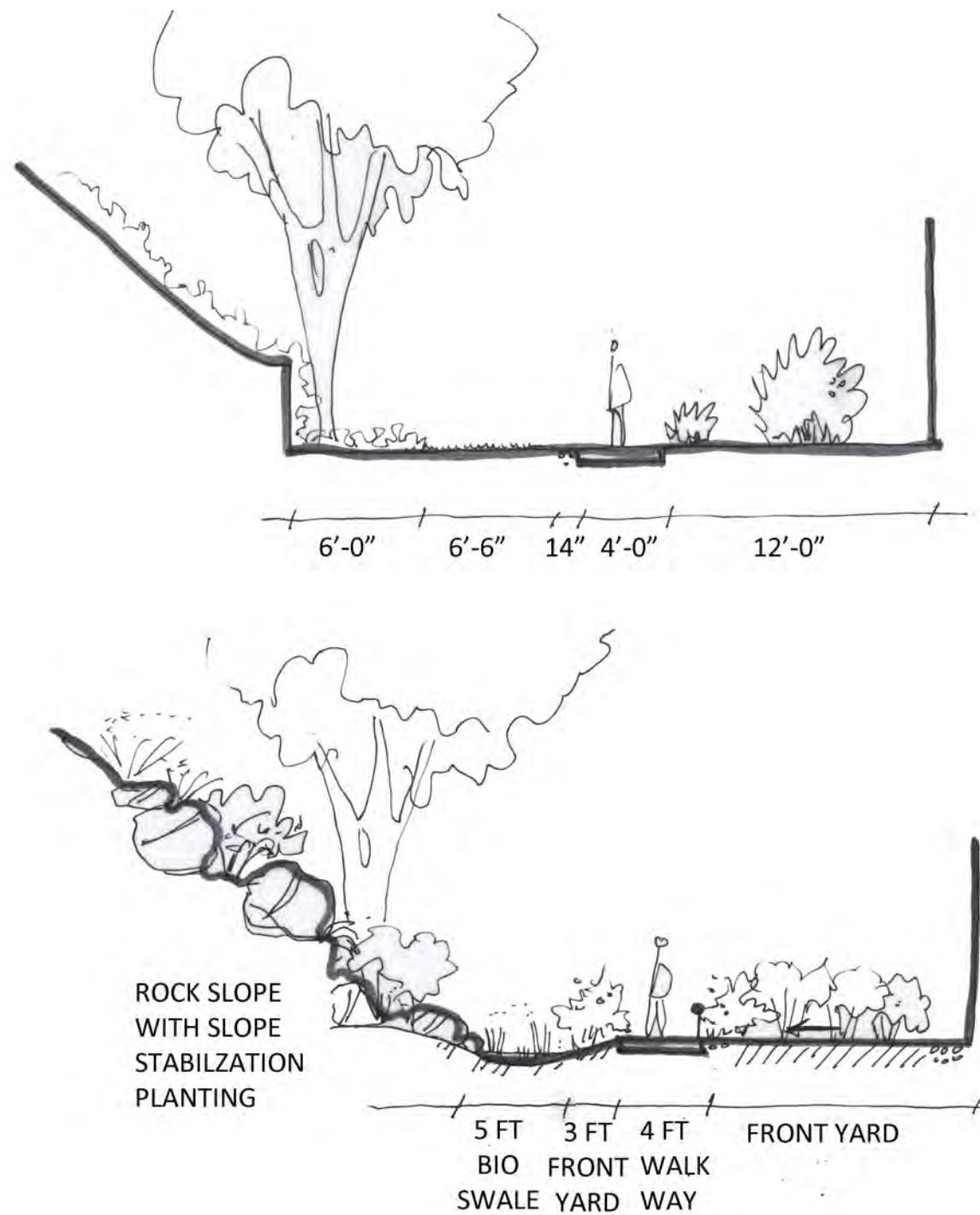


Image 60: Section through building D: existing and proposed

Vision for the Future

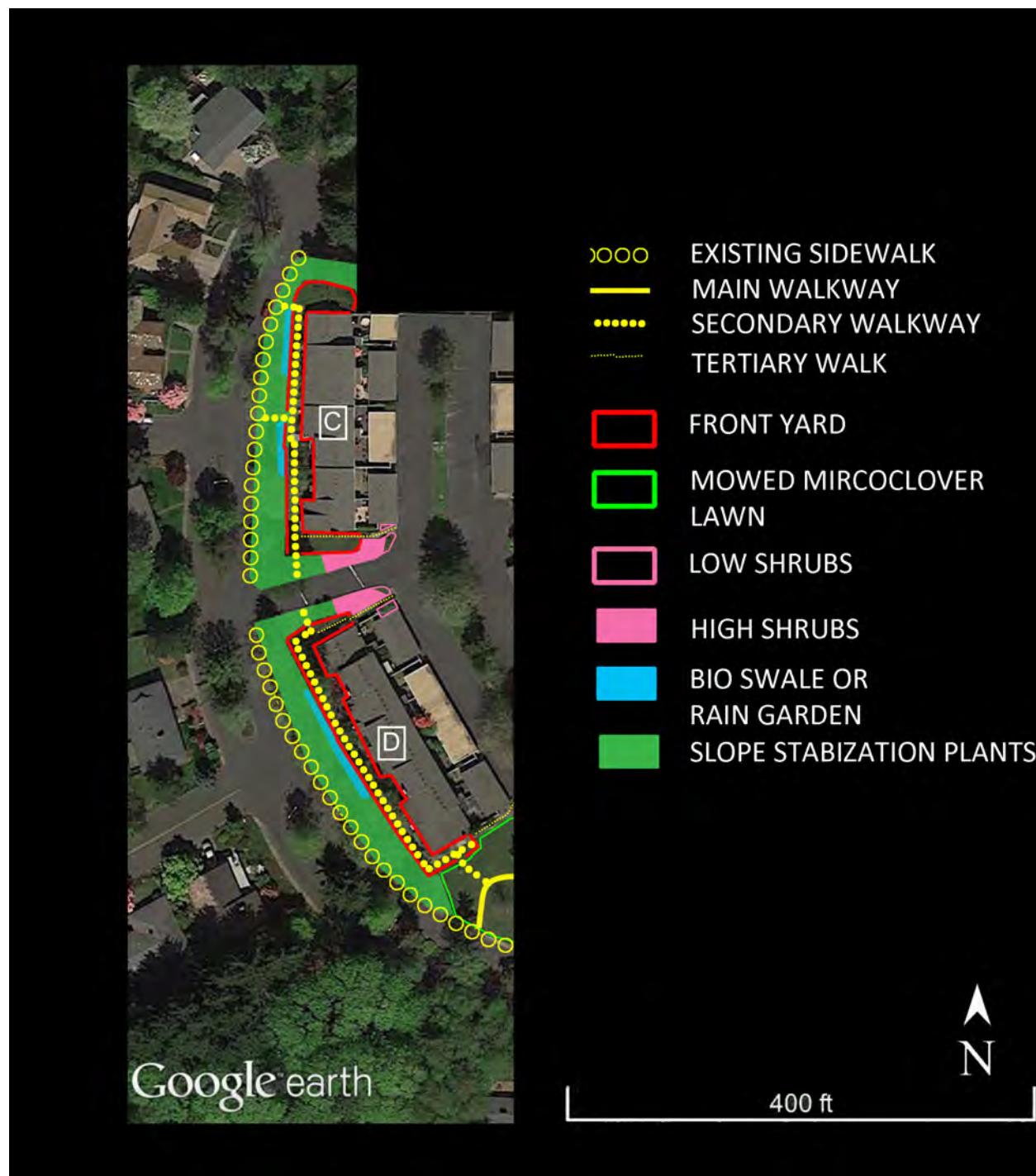


Image 61 Canyon Landscape Plan

Vision for the Future

Canyon Plant Palette Shrubs

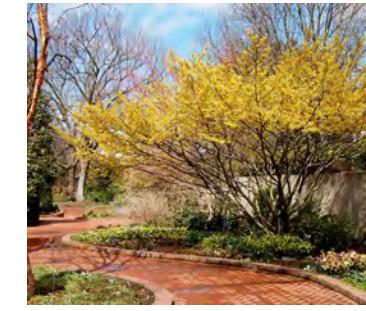
Latin Name	Common Name	Spacing on Center
Low Shrub		
<i>Mahonia nervosa</i>	Low Oregon Grape	3'
<i>Rhus glabra 'Laciniata'</i>	Cut-Leaf Sumac	6'
<i>Spiraea betulifolia var. lucida</i>	Shinyleaf Spirea	3'
<i>Vaccinium ovatum</i>	Evergreen Huckleberry	4'
High Shrub		
<i>Arbutus unedo</i>	Strawberry Bush	8'
<i>Ceanothus thyrsiflorus 'Oregon Mist'</i>	Wild Lilacs	8'
<i>Hamamelis mollis 'Arnold's Promise'</i>	Witch Hazel	10'
<i>Myrica californica</i>	Pacific Wax Myrtle	6'



Strawberry Tree



Oregon Mist



Witch Hazel



Pacific Wax Myrtle



Red Current

Vision for the Future

Forest Principles

The Forest Area will be planted to heighten its forested character and link it to the adjacent woodland landscape across the street.

- All general planting principles apply unless otherwise noted.
- Reconfigure walkways according to the Forest Landscape Plan and general walkway principles.
- Preserve all large trees. Replace trees 1:1 near current location with a new large trees.
- The forest slope shall be planted in any desirable configuration according to the palette.
- Arborist shall assess any large tree that is heaving up the sidewalk along the street. Trees shall not heave up street sidewalks and sidewalk repairs need to be made according to the city of Lake Oswego standards and codes. If a tree needs to be removed, replace it with a new large conifer at the appropriate distance from walkways according to the General Planting Principles (page 47).

Vision for the Future



Image 62: Forest Landscape Plan

Forest Plant Palette

Latin Name	Common Name	Spacing on Center
Gaultheria shallon	Salal	3'
Mahonia nervosa	Creeping oregon grape	3'
Polystichum munitum	Sword fern	3'
Tolmiea menziesii	Piggy Back Plant	18"
Vancouveria hexandra	Inside-Out Flower	18"



Salal



Low Oregon Grape



Sword Fern



Piggy-back Plant



Inside-out Flower

Implementation

General Implementation Practices

Implementation of the Landscape Master Plan will be in phases over a period of ten years. Each phase will require the involvement of several professionals. These include a landscape architect, other landscape professionals such as a master gardener or horticulturalist, licensed engineers, and certified arborists.

Given the difficult soils and new stormwater management regulation in Lake Oswego it is advisable to have a Drainage Plan created for the entire area. The Drainage Plan shall be created by a licensed civil engineer who is familiar with the most recent stormwater management recommendations and regulations in Lake Oswego, especially those recommendations and regulations that pertain to bioswales and rain gardens. It is essential to ensure coordination between the Drainage Plan and the Landscape Master Plan; coordination between the civil engineer and landscape architect is recommended.

For each phase the following general steps shall be followed (these may vary slightly, as each area is slightly different):

1. Determine location of utilities by calling "call before you dig" 866-869-3153 and determine utility easements.
2. Obtain arborists' recommendations for tree removal, root pruning and new location of walkways, bioswales and/or raingardens.
3. Determine layout of walks, lights, beds, swales and new large trees.
4. Determine location of drainage features per civil engineer plan and/or recommendations
5. Determine grading
6. Obtain residents' preferences per address on front yard planting and shrub preservation.
7. Create a planting plan
8. Remove trees as needed.
9. Arborist prune roots and branches as needed
10. Install tree protection per arborist recommendation
11. Adjust irrigation or install new irrigation.
12. Install drainage features
13. Bring in soil amendment and amend soils
14. Build walkways and steps
15. Plant

Implementation

EXAMPLE PLANS

The example plans show a site plan (layout of walkways, beds, bioswales and other landscape features) and a planting plan for selected areas at Red Fox Hills Townhomes. These plans are hypothetical as no information has been gathered about resident's preferences for front yard plants.

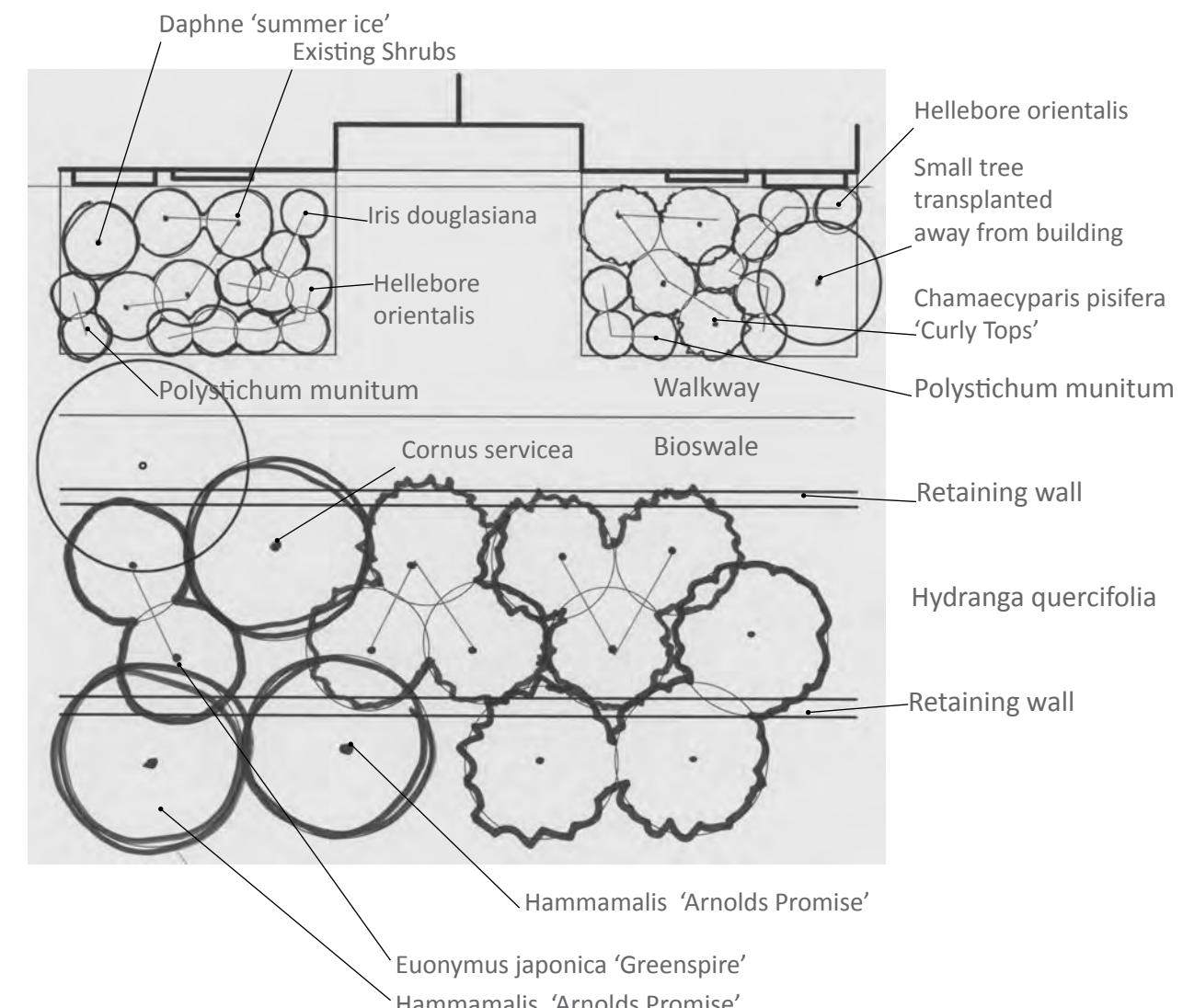
Example Planting Plan Front Yard Building H

Notes:

Keep plants 12" from building siding

Replacement for existing shrubs as necessary: *Leucothoe fontanesiana* 'Zeblid'

Plant bioswale per City of Lake Oswego stormwater manual.

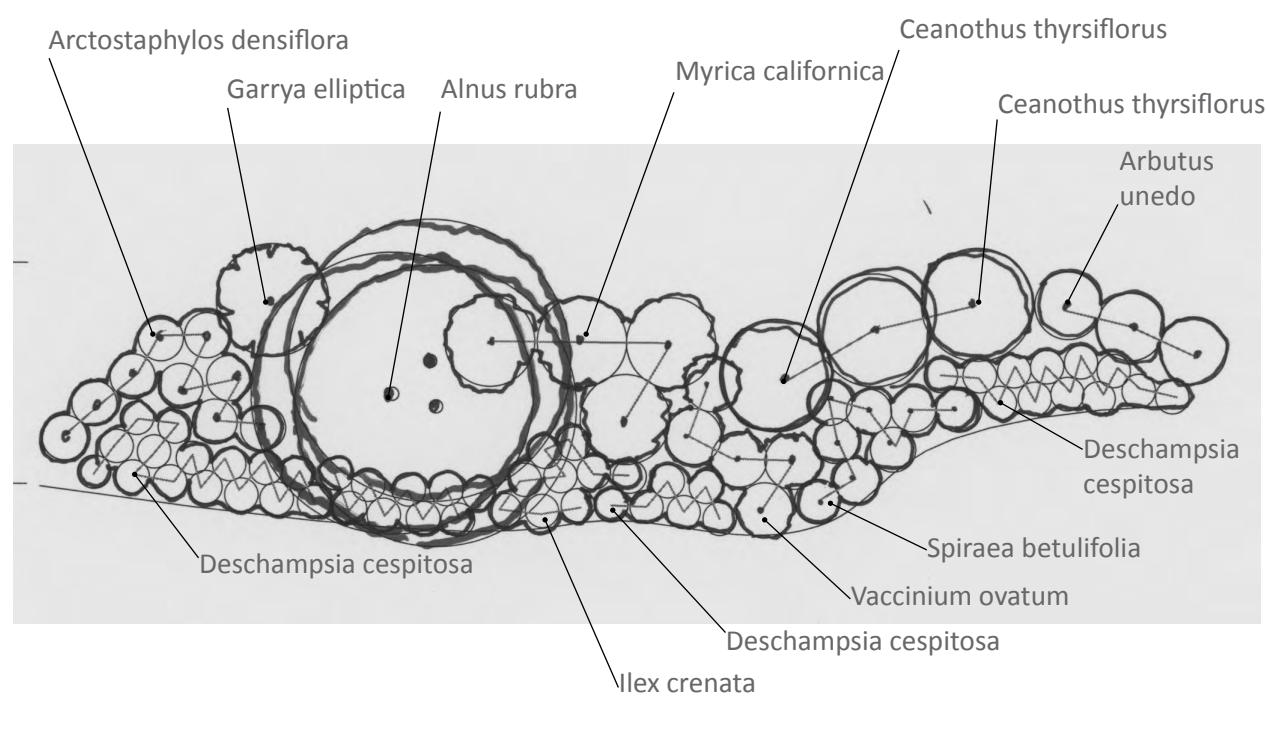


Implementation

Example Planting Plan Tryon View Edge

Notes:

Tryon view edge planting bed must be a minimum of 15' deep



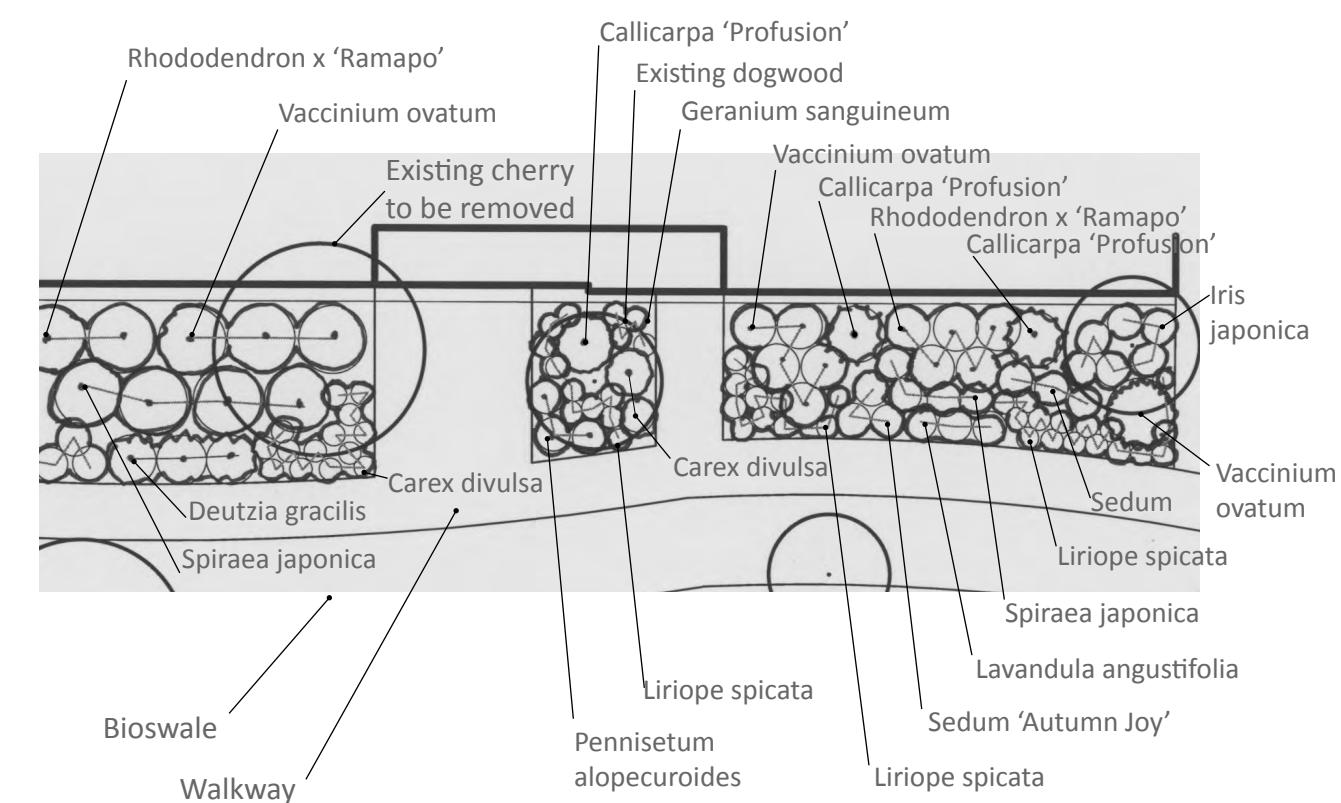
Implementation

Example Planting Plan Front Yard Building P

Notes:

Keep plants 12" from building siding

Plant bioswale per City of Lake Oswego stormwater manual.



Maintenance

The master plan is designed to shift landscape maintenance to less intensive methods by:

- Selecting plants that fit the size of the planting bed and allowing them to grow into a natural shape which reduces pruning needs
- Reducing and consolidating turf areas and changing turf species which reduces mowing, fertilizing and irrigation.
- Soil amendment, soil replacement and mulching which improves plant health and reduces irrigation and fertilizing needs.

Pruning: Pruning should be used for plant health, and maintaining density or height. To protect soil, shrubs should be allowed to touch and grow into their natural shape. The Maintenance Staff should avoid shearing shrubs into individual balls. Shrubs should be thought of as a mass rather than individual plants, and should be allowed to grow together (see image 62). A few plants, like red-twisted dogwood or smoke bush benefit from a periodic hard prune (stooling) to keep them small and bushy, and to prevent them from turning into small trees.

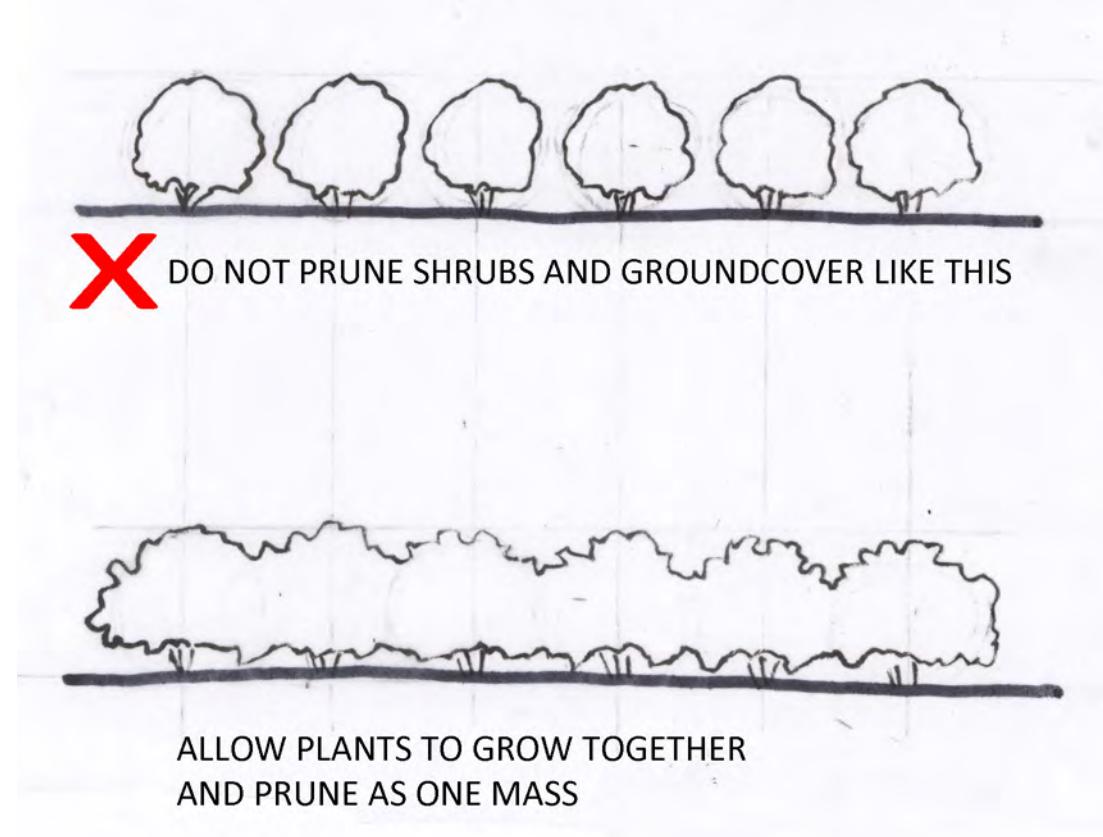


Image 62

Maintenance

Fertilizing: Broadcasting of conventional fertilizers can lead to excessive spring growth that requires more pruning and trimming. It shall be the long-term goal to improve soil health through application of humic-based fertilizers and through amendments and mulching. Limit the use of chemical fertilizers as much as possible.

Mulching: This may be the most important improvement to the maintenance at Red Fox Hills Townhomes. All beds should be mulched 2-3 inches with a plant based mulch or compost. A good layer should be maintained which in general means mulching every two or three years.

Blowing: When using blowers, maintenance staff shall take care not to remove mulch from the beds.



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