



M A S T E R S I T E P L A N



OVERVIEW

This Master Site Plan is a long-term guiding document to assist the development of the Kruckeberg Botanic Garden. It provides broad concepts and recommendations and provides a baseline for decision-making as the Garden transitions from private to public ownership. It can serve as a management tool and provides focus to various perspectives and constituencies. Though nothing can replace the vision and intentions of the founders, this document will be a valuable tool as the Foundation and the City of Shoreline work together to manage the Garden into the future.

Master site plans do not remain static. They necessarily change as gardens, programs, plant collections, and the interests and talents of its stakeholders all change. Funding opportunities may also reorganize priorities and thereby alter the course currently anticipated. Therefore, the principles and recommendations written into this document are intended to be tested, reaffirmed, and updated as phases of work are constructed, operating income and expenses analyzed, and management practices observed. It is recommended that this Master Site Plan be revisited and updated every five to 10 years.

EXPERIENCING THE GARDEN

Approaching from the south along 15th Avenue NW, the Garden is shielded from direct view by the retained stand of towering Douglas firs. Safe egress from school buses stopped along the off-loading lane and a five foot sidewalk will provide access to the entry. Those arriving by car will enter a one-way semi-circular drive that leads to a modest number of parking spaces. A raised entry court will preserve tree roots under the decking and allows roots to remain undisturbed at its perimeter. A small gatehouse at the north end of the deck will pro-

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vide information and ticketing and serve as a small office. The intimate but ample deck space will allow groups to assemble for tours, provide storage for bikes and plant sale wagons, and offer orientation and interpretive graphics.

The entry walk will feel similar to the existing entry path as one passes the cornelian cherry and overarching stewartia. These important trees will be saved from potential damage as the current vehicle drive will be removed. The shade garden will retain its understory beauty. Previous staff parking spaces will be turned back into garden and occupied by a discovery cart. The ironwood tree, once pressed by the cabin, will now have more space and the cabin is replaced with a two-story Environmental Learning Center. As a multi-use space, it can serve school groups, fundraising events, or offer rental opportunities. The second floor will provide accessible staff offices, meeting space, and supply storage.

On the south side of the entry path, the residence will remain standing as a legacy to Art and Mareen Kruckeberg. Updated with new siding and porch and freshened with needed repairs, it will welcome arriving visitors. Inside, the dining room and study will become the Kruckeberg Legacy Library. The living room will house exhibits showcasing this legacy and the history of the Garden.

Attached to the converted residence will be The Commons. This greenhouse-type structure is the hub of the Garden’s active areas and will be oriented to the central court. Here staff or other groups can hold meetings, visitors can ask questions, plants or gifts can be purchased, and a cup of coffee or light snack enjoyed. It will be a place of conversation, relaxation, or simply a refuge from the cold on a rainy winter day.

The central court will be formed around a large walnut tree, recently exposed by relocating the greenhouse. This court will be contained by a short wall that edges the steep slope to the east, allowing a view into the lower garden. The unit-paved court will form the ground plane for groupings of Mareen Kruckeberg’s container plants, plant sale tables, and benches. On the southern border, a new greenhouse will house plant propagation tables and a headhouse for potting, plant record keeping, pest and disease diagnosis, and storage.

A feature of the court will be a small pond and stream that descends the slope to the rain garden and bog below. Though it will offer a visual quality and an ambiance that only running water can provide, it is also functional, collecting storm water runoff from the court and roofs.

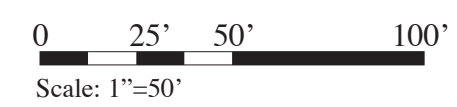
The lower garden will be reached through an opening in the wall leading to an ADA-accessible boardwalk. The switchback boardwalk trail will be carefully sited to focus on prominent trees and enhance interpretation of plants growing on the slope. This is a unique opportunity to bring visitors close to trees with views into the canopy. Along the route, pull-out decks will provide seating and interpretive nodes. At the bottom will sit a deck at the edge of the pond and bog where visitors can watch for birds, insects, and other wildlife. This will add a completely new habitat to the Garden.

Visitors will continue to experience the lower garden as they do today. It will remain quiet, contemplative, and explorative. But unlike today, ADA-accessible paths will direct people through the garden and ensure that significant garden zones and interpretive opportunities are afforded to all visitors. Other more intimate trails, surfaced in soft materials, will encourage visitors to wander among the trees, sculptures, and meadows. New areas of the garden can be opened up, adding to the diversity of experiences. A small shelter will provide small groups the chance to step out of the rain or engage in a volunteer-led plant discussion. Outdoor art installations placed in the lower garden will enhance the visitor’s experience.

As visitors return to the central court, their experience will be directed specifically to the season, focused on a particular plant community, or oriented to a particular garden habitat or plant type. They will now be able to apply this new knowledge to their own garden or to share it with others. Visitors look forward to returning to learn more!

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MASTER SITE PLAN



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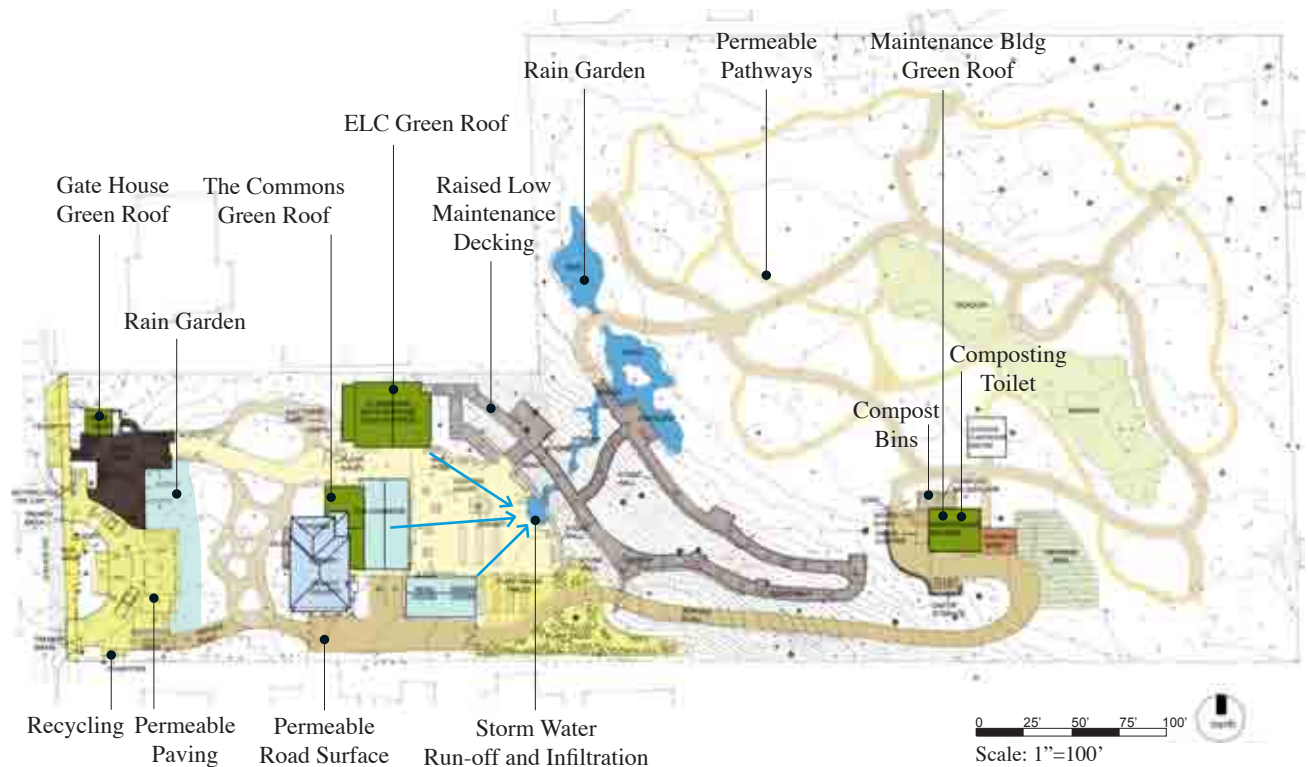
Art in the Garden

Thanks to its 1% for public Art Program, Shoreline has installed permanent public art at several parks in the past year. Temporary public art is another means of increasing opportunities for observers and artists and the City sees the inclusion of artwork at the Kruckeberg Botanic Garden as an exciting beginning.

Unique installations at the Garden have a relationship with and enhance the natural environment. The intent of artwork in the Garden is to draw the viewer in, to encourage reflection and conversation, as well as lead visitors to observe more closely what the Garden expanse has to offer. A few pieces may be installed at the top of the Garden as hints of what is to come but the majority of the structures will be in the lower meadow portion of the park with an eye for balance but with a hint of mystery to encourage exploration.

Along with the sales of plants, the Garden also offers a unique setting for plein-air artists to work and for the sale of paintings and other garden-related artwork. Mareen Kruckeberg envisioned the property as an art-filled garden and these initial goals honor that wish.

Kruckeberg Botanic Garden Sustainability Plan



SUSTAINING THE GARDEN

Sustainability is intrinsic to the philosophy behind this plan. In addition to its primary role and mission as a botanic garden with a strong focus on education, the Kruckeberg Botanic Garden is in a unique position to lead Shoreline’s sustainability effort and educate its citizens on the topic. Its small size, its role as a provider of environmental education, its sustainable site development opportunities, and its being a unique wildlife habitat within the City’s boundaries all point to the Garden as a teaching tool for sustainability education. Its source and inspiration is the City of Shoreline’s “Environmental Sustainability Strategy” approved by the City Council in 2008. Ten guiding principles were recognized by the City. These same principles are embodied in the operations of KBG:

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- Sustainability will be a key factor in policy development.
- The Garden will lead by example and learn from others.
- Environment, economics, human health, and social benefits are interrelated systems.
- Community education, participation and responsibility are key elements.
- The Garden will commit to continuous improvement.
- The Garden will manage expected growth in a sustainable way.
- Impacts of past practices will be addressed.
- Ecosystems will be proactively managed and protected.
- The Garden will improve and expand waste reduction and resource conservation programs.
- Energy solutions are key to reducing our carbon footprint.

The City of Shoreline has chosen to focus “sustainability” decisions and actions on the following areas:

- City operations, practices, and outreach
- Energy conservation and carbon reduction
- Sustainable development and green infrastructure
- Waste reduction and resource conservation
- Ecosystem management and stewardship

Sustainable strategies are divided into two categories. Site planning strategies include land use, excavation, tree preservation, building siting, and stormwater runoff. Structure and energy-related strategies will be addressed more concretely during actual construction phases. These are primarily items from the LEED checklist for New Construction. This Checklist can serve as a guide for sustainability whether or not the project pursues LEED certification. The strategies are discussed further on Page 45.

Sustainable Strategies

Public buildings and intensive site activities will be concentrated in the upper portion of the site to leave the remainder for passive Garden enjoyment. Building areas will be compact, dense, and as small as the modest program allows. Building footprints will be minimized in order to maximize open space and protect existing trees. Designed into the site are opportunities for visitors to arrive by ways other than automobile. These include motorcycle parking and bike racks placed in the northwest corner of the site near the gatehouse. In addition, street improvements along the east side of 15th Avenue NW will include a sidewalk for safe access to the Garden.

Biodiversity in the Garden is of utmost concern. Existing plantings will be given priority in the Master Site Plan and will be protected and preserved as much as possible by designing around important plants and transplanting plants small enough to survive. Platform and boardwalk decking systems will be on pier supports so they span roots and minimize excavation and root cutting. Materials for parking and pedestrian surfaces will minimize excavation and compaction. They will be pervious in order to protect tree roots and allow air and water to reach roots.

Stormwater strategies include reducing impervious surfaces; using on-site infiltration through pervious paving; and capturing rainwater to be reused for irrigation, water features, and rain gardens.

Waste disposal is another opportunity to educate visitors about protecting natural habitat. Waste management starts with reducing how much is produced. The Garden will wash and reuse plastic pots, compost yard waste onsite, analyze purchasing decisions, recycle office paper, and provide recycle bins in public spaces. Recycling, composting, and waste management will comply with local laws and contracts.

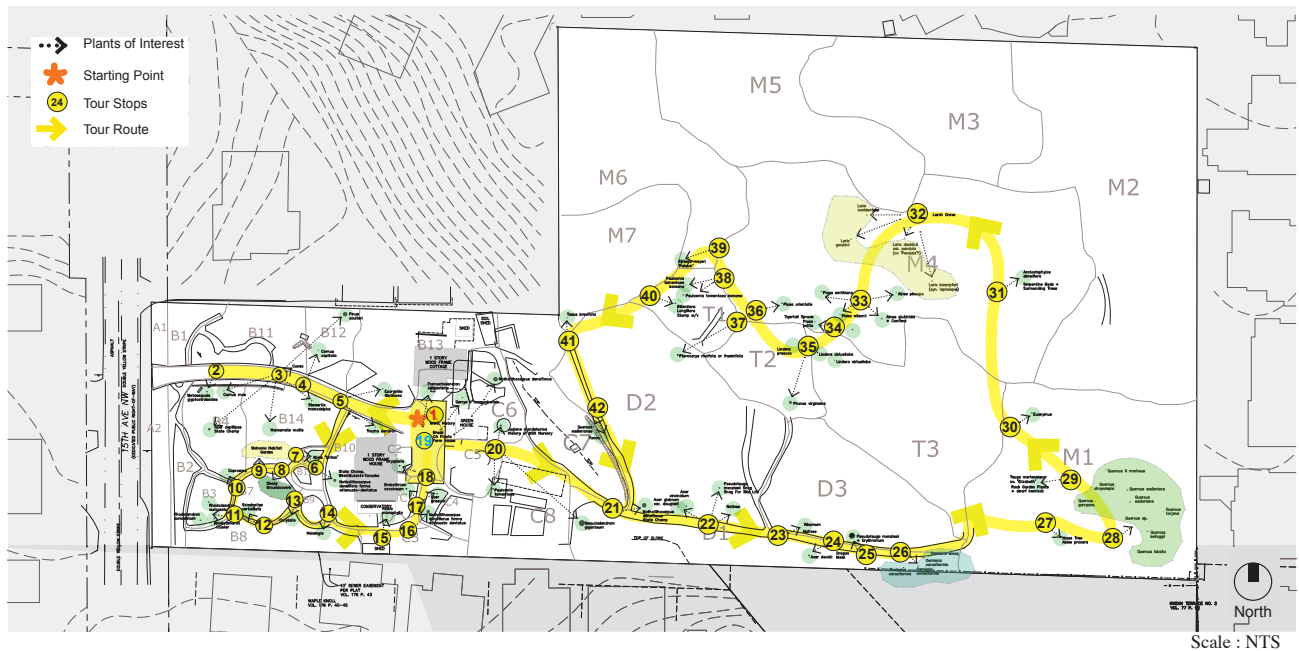
The Garden will reuse the existing Kruckeberg residence but remodel it to accommodate new uses and energy efficiency. The existing structural frame will be maintained as will non-structural elements such as doors. New Garden buildings will be designed to take advantage of daylight and views. Green roofs will reduce runoff, heat gain, and visual presence of structures while increasing plant diversity and wildlife habitat.

Where existing trees cannot be preserved in place or transplanted, they will be salvaged, milled offsite, and used during construction or donated/sold to be used elsewhere. It is the intent that no trees be removed and remain unused. Any wood products to be purchased will be FSC (Forest Stewardship Council) certified.

EDUCATION AND INTERPRETIVE SITE PLAN

The interpretive site plan shown on the follow page originated from the Garden’s docent training program and standard tour given to most groups. Orientation starts at the existing courtyard, where the docent leader introduces the garden to the group. The tour backtracks to the entry gate and proceeds into the shade garden, loops around the house and returns to the court. A single loop through the lower garden follows the slope into the meadow, past the rockery, oaks, serpentine beds, and conifers and traverses the slope back to the central court. The plan below depicts a summarized current garden tour. Tour guides lead a maximum of 15 people through the Garden, and tours feature 40 to 50 plants. Tour stops relate to individual plants and a variety of overarching topics. Shown below are the interpretive themes covered.

Kruckeberg Botanic Garden Current Tour



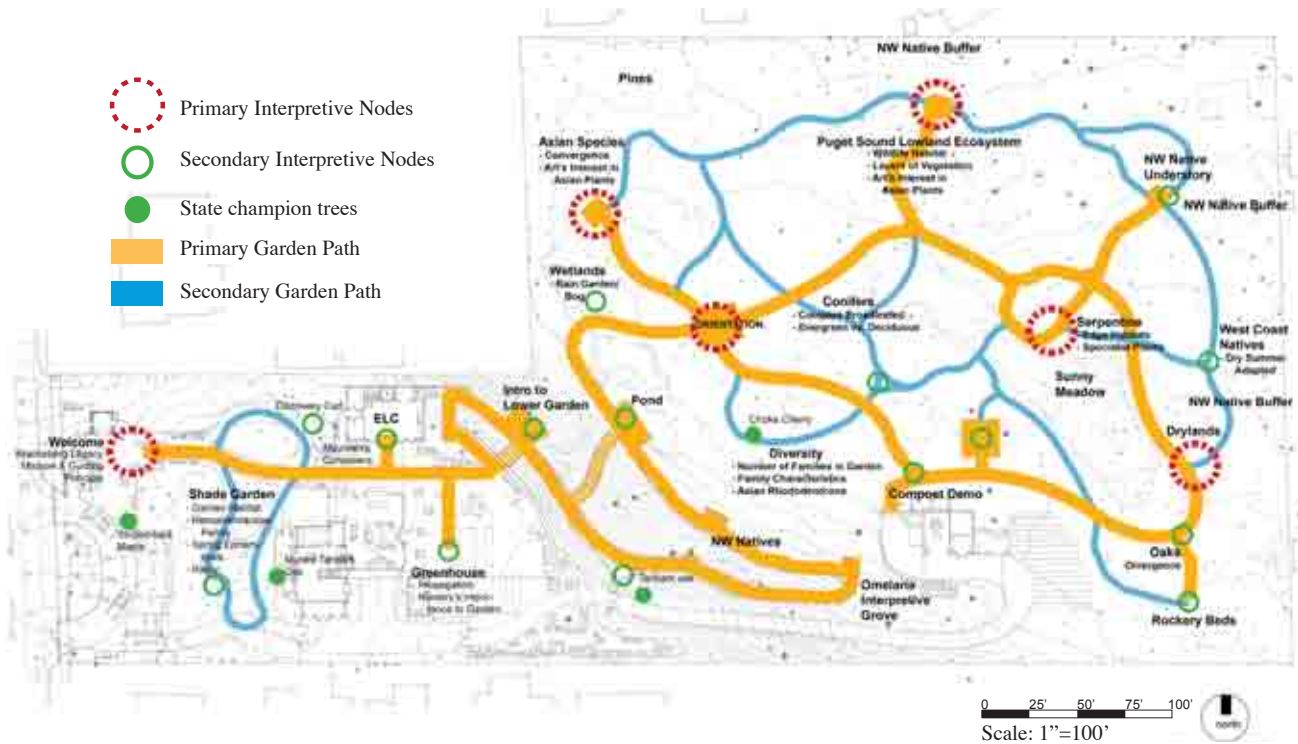
Kruckeberg Botanic Garden Standard Tour Themes

Theme	Stop #1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42												
Botany - The Plants																																																						
History / Kruckeberg Legacy																																																						
Seasonal Interest																																																						
Shade affecting the plant																																																						
Habitat																																																						
Plants & Human Culture																																																						
NW Natives																																																						
Champions / Big Plants																																																						
Home Garden Use																																																						

The chart above categorizes the 42 stops along the standard Kruckeberg Garden tour. Many of these themes are appropriate for additional specialized tours. The goal is to include more of the plant collection in an overall education program. It is important to allow the interpretive and education staff to work with the Garden Committee and horticultural staff in plant collection decisions. Two examples of specialized tours using the current collections of oaks and conifers are shown on page 33.

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Interpretive Plan



2010 Education Programs

Children’s education in 2010 involves outreach to Shoreline schools. Programs include a classroom visit by Garden staff and volunteers to teach a plant-related topic, followed by a field trip to the Garden. A drop-in Garden Tots program during the summer targets families on Friday mornings; camp, school, and child-care groups visit on Thursdays. Adult hands-on workshops are scheduled monthly in 2010 with outreach through the Shoreline and Edmonds Parks Departments.

Existing interpretive themes and pathways emerged over time as the Garden was developed. The Interpretive Plan above builds upon the Kruckeberg’s original plant layout and shows the ADA-accessible main trails and non-accessible minor ones. Main trails will link up with interpretive nodes that describe the major plant types and interpretive themes. The Garden’s four champion trees are along the main trail system. Minor trails will lead from these nodes to the rest of the Garden and will be more intimate. They will be surfaced in wood chips, grass, or decomposed granite and are two to three feet wide with plants growing close by.

The boardwalk, leading from the upper to the lower Garden, will be laid out along the slope and connect with both native plants on the slope and non-natives near a new wetlands area. In the lower Garden, diversity will be an important theme and feature the serpentine bed, rockery beds, and the oak collection developed from Art Kruckeberg’s research interests. The great mass of native Douglas firs in the northeast are an ideal location to expand the native plant collection and associated interpretive themes. A compost demonstration area is planned for the north side of the small maintenance/restroom compound in the lower garden.

Beyond the Garden

Kruckeberg Botanic Garden is in an ideal position to partner with the City to develop demonstration or display gardens elsewhere in Shoreline that will feature plants and design elements of the KBG. This will serve to extend the reach of the Garden into the community in ways that are not possible onsite. Further development of the website will also allow the Garden to reach out beyond its boundaries.

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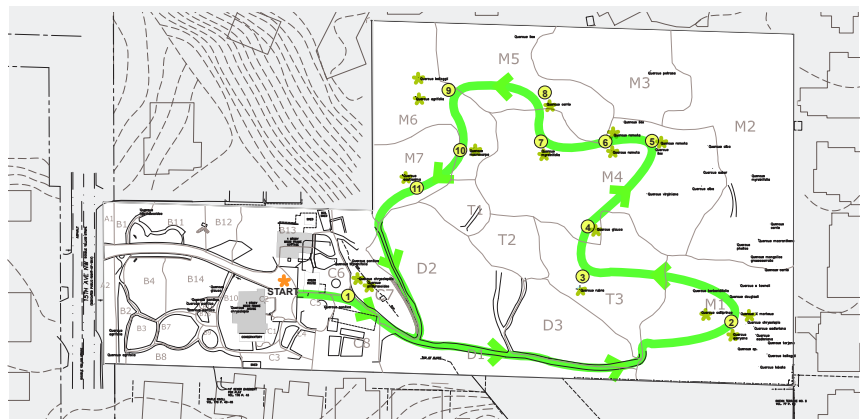
Suggested Interpretive Themes

Additional interpretive themes are suggested here to facilitate both guided and self-guided tours, to present an ever-changing interpretation of the Garden, to foster return visits, to assist information retention, to organize educational resources, and to strengthen the plant collection. These themes can help add depth to the Talking Trees cell phone system, provide topics for Garden fact sheets and interpretive brochures, enhance the Garden’s website, and create special themed events or themed days.

- Garden History and the Kruckeberg Legacy
- Plants with Seasonal Interest
- Plants and Human Culture (Ethnobotany)
- Pacific Northwest Natives
- Why Some Plants are Rare and Some Plants are Weeds
- Champions in the Garden (big trees)
- Great Plants for Home Gardens
- Unusual Rhododendrons for Home Gardens
- Kruckeberg’s Oak Collection
- Birds in the Garden
- Gardening for Wildlife
- Plants of Asia (Europe, Chile, Australasia, etc.)
- Shade Gardening
- Rock Gardening
- The Story of Conifers
- Geology and Plants

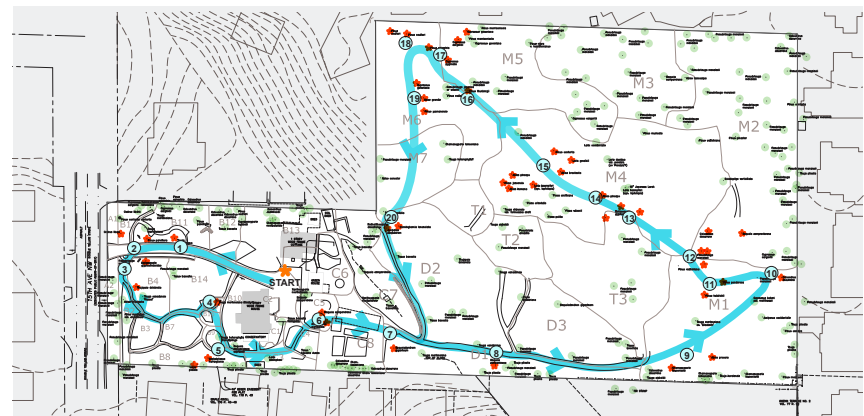
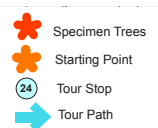
Possible Tour Routes

Tour of Oaks



Scale : NTS

Tour of Conifers



Scale : NTS

MASTER SITE PLAN

PLANT COLLECTION

The Kruckebergs intended their garden to be natural in character, not driven by design but by the plants they chose to collect, grow, and study. Their focus was on using natives, along with appropriate exotic plants, and to test plants' abilities to grow in Puget Sound's climate.

The principle guiding documents for current and future collections management are the Guiding Principles for the Kruckeberg Botanic Garden (see Appendices), the Grant Deed of Conservation Easement and the KBGF/City of Shoreline Botanic Garden Service Agreement.

John Swanson Design Studio worked with the Garden Committee, Garden Director Sarah Baker, and Dr. Kruckeberg to assess the existing plant collection for this Master Site Plan. The 3.79 acre Garden includes more than 1620 plants, an astounding 400+ plants per acre. Most are trees and shrubs. The City hired a survey firm to locate all plants over three inches in diameter and place them onto a plan. Over 50% of the collection plants (800+) were excluded from the plan due to size, but as they mature they will certainly impact the Garden's design, management, and educational value.

The current plant list, as shown in the Appendices, identifies 1619 plants in the plant collection. Of those, half are on the survey. Of the half not on the survey, 165 have accession numbers. It is assumed that the rest are trees or shrubs too small to be surveyed, herbaceous plants, or dead or duplicate plants. Roughly one third are Northwest natives with an additional 18 percent native to states along the West Coast of North America, totaling 51% of the plant collection. 27% of the collection is Asian. All of these plants are on the survey and are assumed to be the oldest plants in the Garden, aside from the natives.

The most numerous species on the property is the Douglas fir, with 106 individual trees. Approximately 110 rhododendrons are on the property, many of which remain unidentified. The Garden has 26 of the world's total of 68 conifer genera. It also has 84 oaks, representing 40 species or cultivars; 39 pines, representing 21 species; and 32 native madrones. The Ericaceae, or heath, family has 13 genera and 166 individuals, of which rhododendrons are the most numerous. The Fagaceae, or beech, family is represented by five genera, with oaks predominating.

Collection Management Priorities

At the time this Master Site Plan was written, Dr. Kruckeberg was still actively contributing to the management and operation of the Garden. As time goes on, the principles outlined in the documents cited above shall govern future management and development of the Garden. The following priorities for collections management are suggested:

Update Plant Records. Because of the importance of the plant collection to this Garden, ensure the completeness and accuracy of the existing plant list. Where plant identification is incomplete or tentative, bring in outside experts to assist. Once the plant list is accurate, make sure plants are located accurately on all maps and update the list regularly. The plant list's usefulness as a tool for planning cannot be emphasized enough.

Plan for the Future. Develop short, mid, and long-term plans for collections development. Allow flexibility as plant, climate, community, and interpretive goals change over time.

Manage for Education. Future changes in garden design and plant locations should consider interpretive themes and the founders' original intent while respecting species' needs for optimal light, space, soil, and water.

Expand Native Collection. Develop the northeast portion of the Garden as a native plant garden, emphasizing understory plants compatible with a conifer forest. Develop ex situ propagation of, and programs to promote

and educate about, rare and endangered species from the Pacific Northwest region.

Emphasize Diversity. The Garden’s high species density emphasizes the importance of biodiversity as a theme. This should be continued as a priority when selecting species to add to the collection.

Select and Cull Plants Carefully. The density of plants in the Garden at 400+ per acre will require hard choices over the years. The upper garden is an acknowledged shade garden, but the lower garden was a source of disagreement between the Kruckebergs regarding plant placement. A January 2009 article in the *Seattle Times* quotes Art Kruckeberg as saying “ that he and Mareen agreed to disagree on some points, creating what he calls ‘his-and-hers’ gardens. If I had done it all, it would be overgrown by now,” he says. “See how open this is here?” She said, ‘Leave space.’” In a 1993 article in the *NHS publication, Garden Notes*, Mareen is quoted as saying, “It is very important to keep the plants open, with good air circulation not only within each plant but also between all the plants. If I see that a plant is creating a problem of any kind, whether it’s a crowded look or certainly any kind of disease, out it goes!”



KBG Camassia quamash

It is highly recommended that judicious culling of plants, whether by pruning, relocation, or removal, be done gradually and with the goal of respecting the legacy and intentions of both the founders of this Garden. The meadow in the lower garden is recognized in the Guiding Principles as an important habitat for sun-loving plants in the serpentine display and rock garden. Trees planted in the last 20 years have grown to the point where they have almost entirely eliminated the meadow and blocked the sunlight. It is recommended that plans be made to re-establish, if not expand, the important sun-requiring plant collections in the lower garden.

Expand Container Garden Program. Feature and expand upon Mareen Kruckeberg’s style of container gardening in a central location where sales and garden orientation are conducted.

Tree Protection and Preservation during Development

Preservation and protection of the plant collection is a high priority in this Master Site Plan. Future development of the Garden will take existing plants into account as structures, parking lots, boardwalk, pathways, and service roads are located. The reality is that some plants will have to be moved, but this will be minimized. Future decks, the boardwalk, and parking lot will be built to sit lightly over preserved tree roots (see illustration on page 39). Where appropriate, structures may utilize a pin foundation to minimize trenching near tree roots. Unfortunately, some trees are simply in the way, are too big to be moved, and should be propagated in advance in order to preserve them. Priority for preservation are trees that are:

- important to the story of the Kruckebergs,
- large and prominent in the Garden,
- deemed healthy and able to survive construction impacts,
- rare, either in terms of species or in terms of number of individuals in the Garden,
- unable to be transplanted or propagated.

Current methods of tree protection include providing ample space between trees and protection fencing. Ideally, protection fencing is placed at least one foot per inch of trunk diameter away from the trunk. Trees in groves should be preserved as a grove. An air spade could be used to learn where roots are located so that parking lot posts can be placed between



KBG Lewis

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roots. An assessment of tree health should be undertaken before construction since healthy trees have a better chance of surviving construction than diseased trees.

Nursery and Plant Propagation Priorities

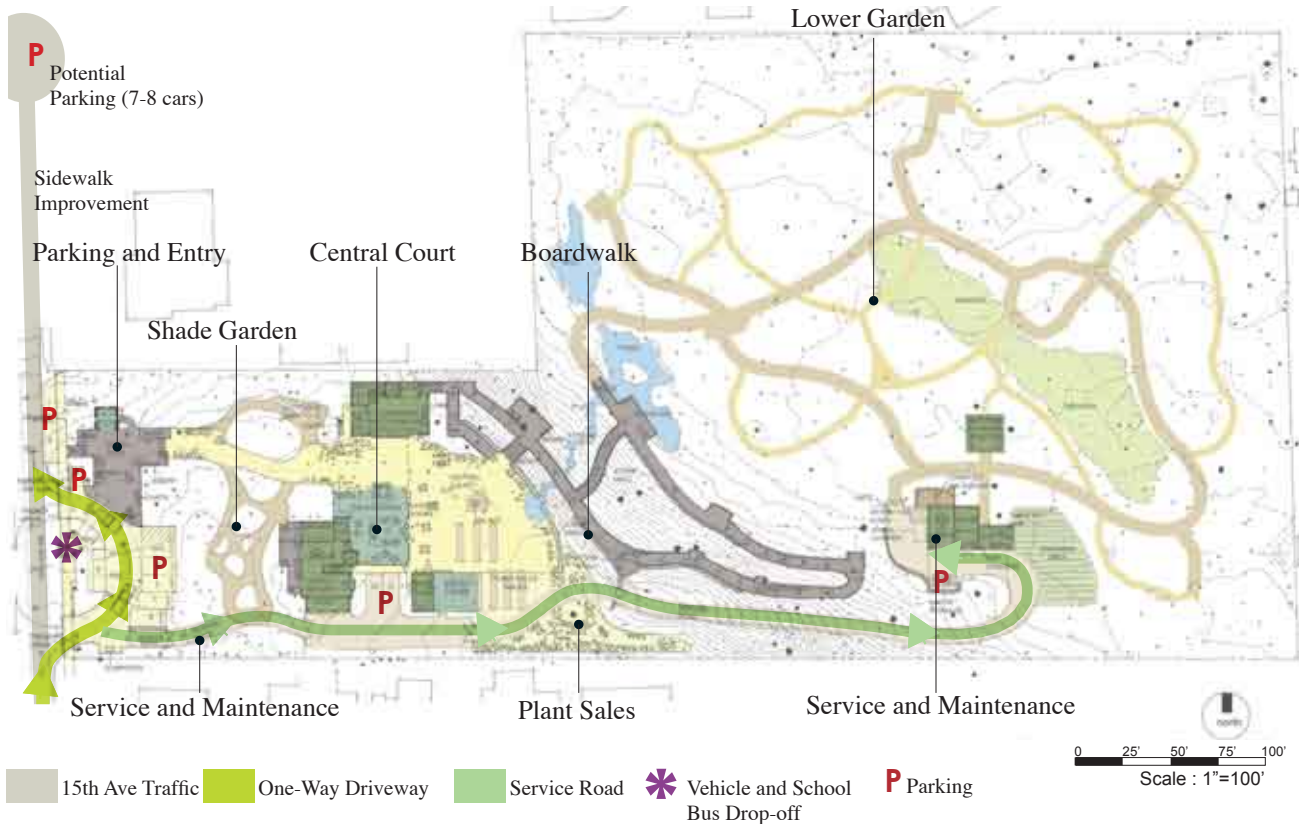
This Master Site Plan recognizes the importance of the MsK Rare and Native Plant Nursery to the Kruckeberg Garden. It is unique among botanical gardens in that the Nursery is integral to the Garden's education focus. To that end, space, funding, and consideration to Nursery operations is vital as the Garden develops as a public resource. It is a priority for the Nursery and its plant propagation facilities to establish an offsite facility to propagate and grow plants for sale. This will reduce the amount of garden space occupied by the Nursery and help make up for space lost to new or larger buildings.

E L E M E N T S O F T H E P L A N

The title is centered and set against a background of several autumn leaves in shades of yellow, orange, and red. Below the title are three horizontal lines: a thick black line, followed by two thinner yellow lines.

Master Site Plan concepts are presented in the order they are experienced as one visits the Garden. They are presented in the following seven sections:

- Parking and entry**
- Shade garden**
- Central court**
- Boardwalk**
- Plant sales**
- Lower garden**
- Service and maintenance**



PARKING AND ENTRY



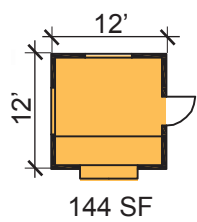
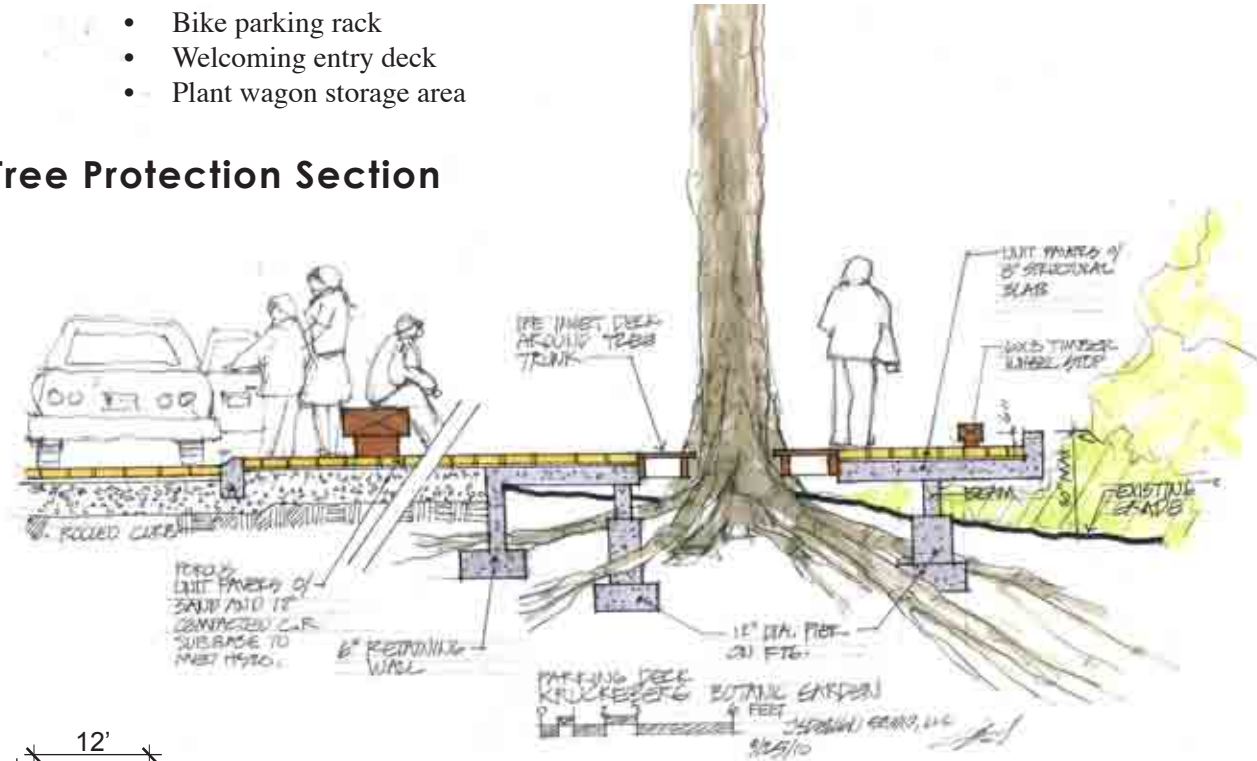
The Garden entrance is currently on 15th Avenue NW and will remain on the same street. A new sidewalk will be built along the east side of the street to enhance pedestrian safety and link to a future parking area at the top of the hill. An extra lane will be added at the Garden to provide for vehicle and bus drop-off. A new parking lot, entry deck, and gatehouse to accommodate information, admission, and office space will be located just inside the west boundary. They will be carefully sited to preserve existing trees while decreasing the number of visitor cars parked in the neighborhood. Plans are under way to purchase a portion of property at the top of the hill along the east side of 15th so that seven or eight back-in angled parking spaces can be added. These strategies, along with three additional parking spaces in the Garden near the house, will accommodate parking for 19 to 21 cars at one time.



- Features**
- 10 parking stalls
 - One-way driveway
 - Gatehouse (info and ticketing)
 - ADA access to upper garden
 - School bus drop off area

- Bike parking rack
- Welcoming entry deck
- Plant wagon storage area

Tree Protection Section



Proposed Gatehouse

The gatehouse will accommodate workspace for one to two desks, ticketing, and an information counter.

Material Examples

The drawing and photos on this page show how valuable trees in parking and hard surface areas can be protected from root damage caused by excavation and compaction. The right side of the drawing above shows a cantilevered structural slab built on piers spaced to align between roots and not disturb existing soil. The photos below and the left side of the sketch above represent a Cell-Tek Geosynthetic system that rests on existing soil, forming a honeycomb grid filled with porous aggregate and topped with unit pavers. This system allows air and water to reach the roots. Other systems will be explored during design and construction development.



Benefits

- Reduction of runoff
- Recharging of groundwater
- Roof water management
- Management of oil contaminants
- Filtering and treatment of pollutants
- LEED® Green Building Rating System
- Slip and skid resistance

Images: www.celltekdirect.com

ELEMENTS OF THE PLAN



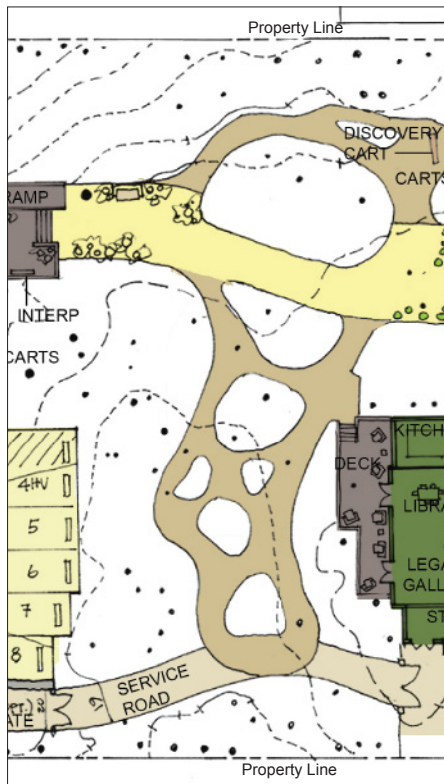
Garden Entry at School Bus Drop-off Area



Entry Deck and Drop-off

E L E M E N T S O F T H E P L A N

SHADE GARDEN



Shade Garden Layout Plan Scale : 1"=40'
0 10' 20' 30' 40'

West of the house is the Shade Garden. Existing trees are dense and tall, requiring judicious management so that appropriate understory species survive over the long term.

A new entry path will separate visitors from vehicles. Signage will show the way toward the Central Court and services. Plant labels and interpretative signs will teach about shade-adapted plants and other topics. Valuable collection trees, such as the stewartia shown in the photo to the right, will be preserved. And access to this part of the Garden will be enhanced by resurfacing existing pathways with new ADA-compliant porous surfaces.



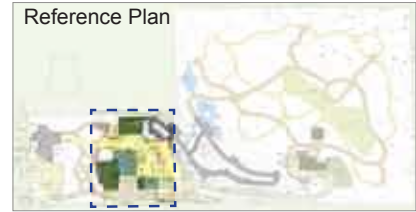
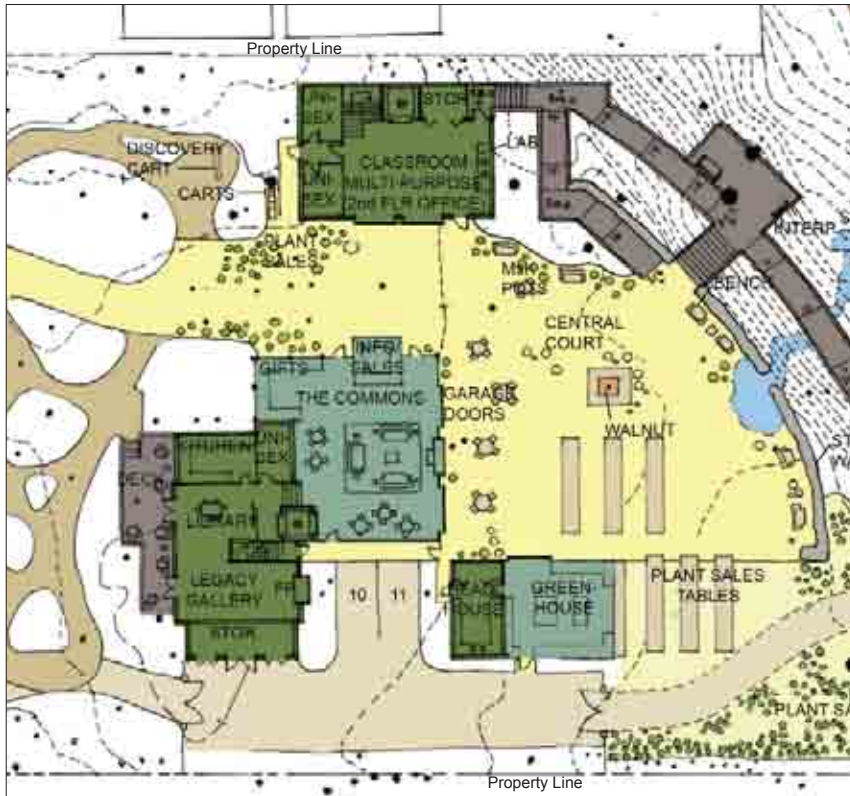
KBG Existing Garden



Garden Main Path

E L E M E N T S O F T H E P L A N

CENTRAL COURT



Features

- Central Court
- Environmental Learning Center (ELC)
- The Commons
- Legacy Center
- Headhouse
- Greenhouse
- Stone wall
- Parking for two staff vehicles
- Nursery sales

Shade Garden Layout Plan

Scale : 1"=40'
0 10' 20' 30' 40'

ELEMENTS OF THE PLAN



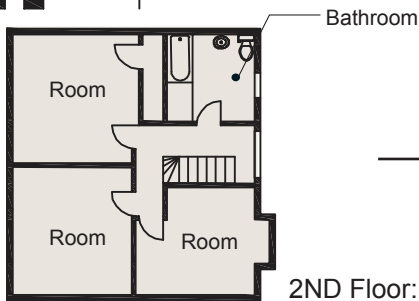
The Commons

Most of the buildings on the property will be clustered around the Central Courtyard within the boundary allowed by the Conservation Easement. It is intended that the existing residence be remodeled into a Legacy Center with library and display room, a public restroom, kitchen, storage in the basement, and a caretaker's apartment on the second floor. A Commons will be added to the east side of the residence to provide an indoor place for an information and ticketing desk, gift sales, refreshments, and wi-fi hookups. The existing cottage will be demolished and a two-story environmental learning center, with first-floor classroom for 30 students and public restrooms, plus second-floor staff offices, built in its place. The existing greenhouse will be replaced with a 750 square foot greenhouse including headhouse. It will move closer to the south boundary for access to more sunlight and the service road.

Floor Plans

Existing Residence

Scale : 1"=20'



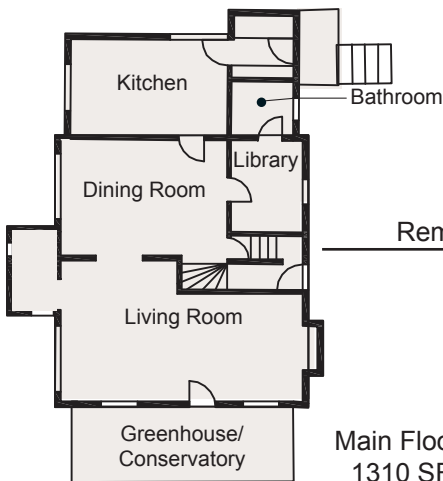
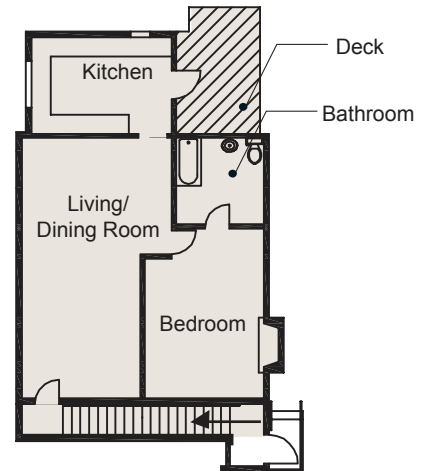
2ND Floor:
760 SF

Legacy Center Concept Plan

Remodel →

Caretaker Residence

2ND Floor:
1012 SF

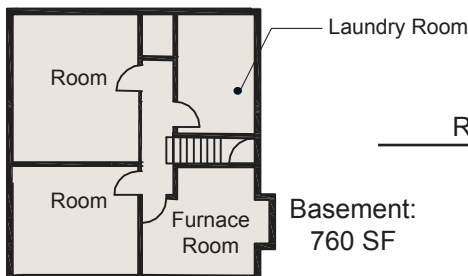
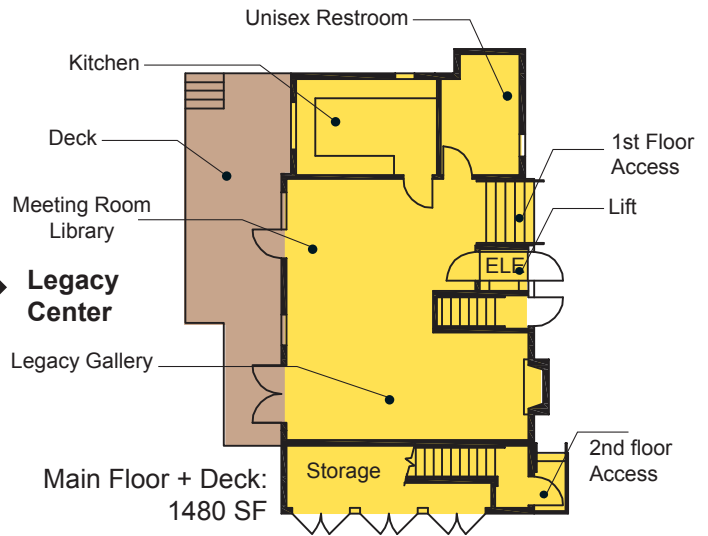


Main Floor:
1310 SF

Remodel →

Legacy Center

Main Floor + Deck:
1480 SF

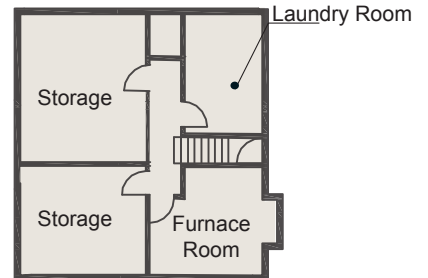


Basement:
760 SF

Remodel →

Storage

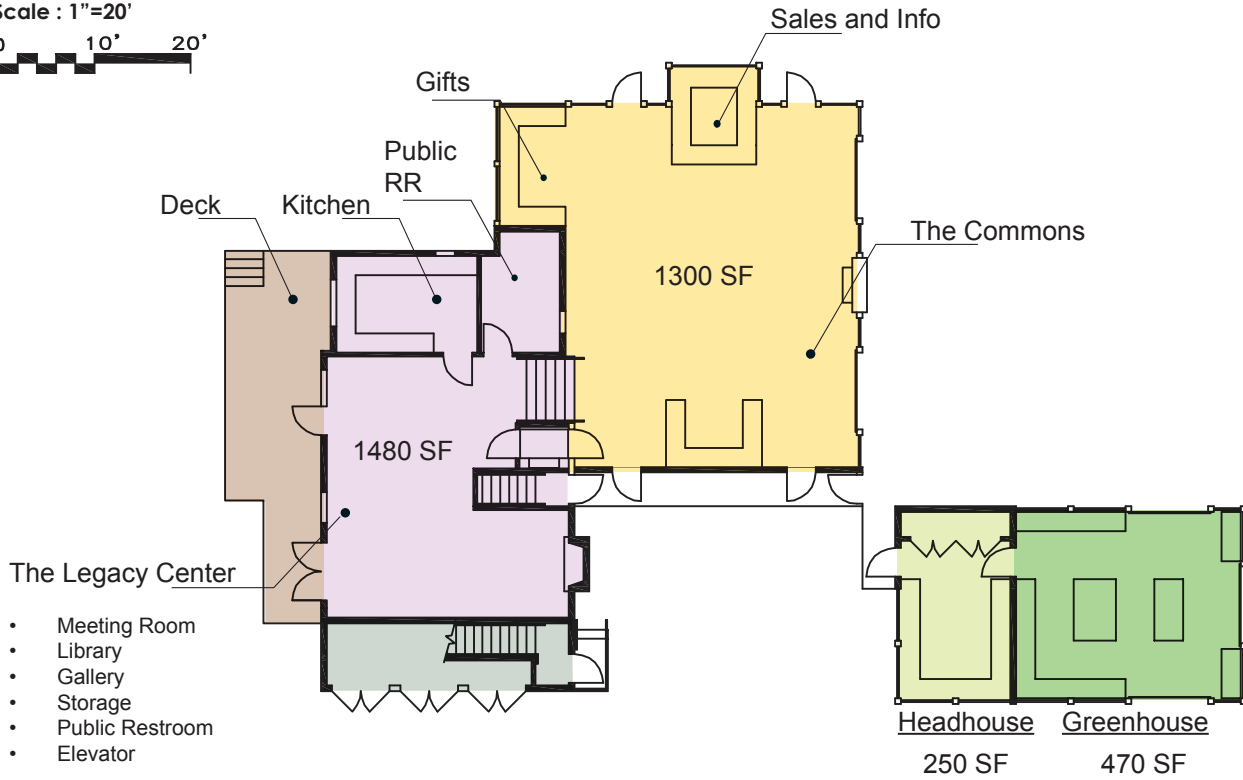
Basement:
760 SF



ELEMENTS OF THE PLAN

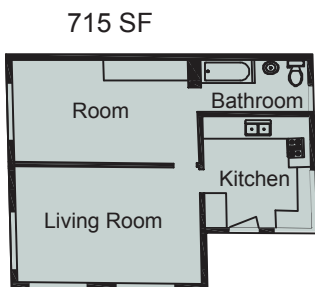
Floor Plans

Scale : 1"=20'

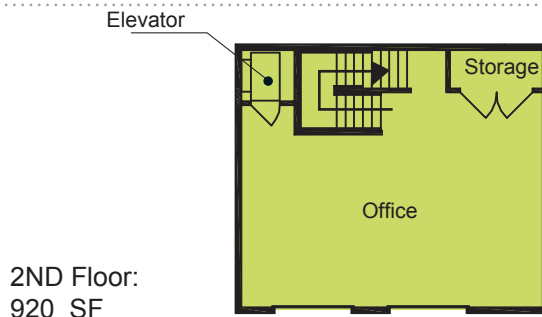
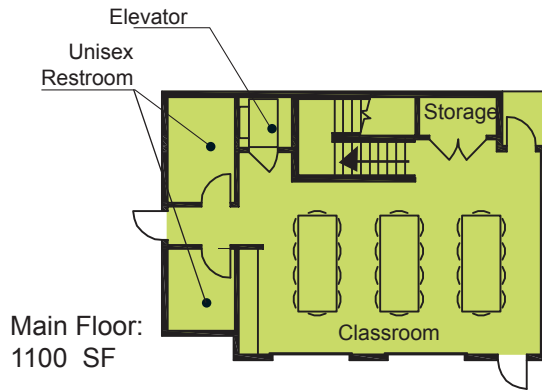


Existing Cottage

ELC Concept Plan



Replace →



ELEMENTS OF THE PLAN

Sustainable Building Strategies

Minimize Construction Impacts. Minimize airborne and noise pollution from on-site machinery. Prevent soil erosion and control sedimentation during construction.

Reduce Heat Gain. Use trees and shading devices to shade hard surfaces and reduce heat gain. Specify hard-scape materials and roofs with a solar reflectance index (SRI) of at least 29. Design pavement to be open-grid. Shade parking spaces and either plant building roofs or cover them with photo-voltaics or solar water heating systems.

Smart Night Lighting. Design exterior lights to promote safety but reduce impact to neighbors and wildlife.

Conserve Water. Specify low-flow plumbing fixtures such as dual-flush toilets, one-pint urinals, front-loading washing machines, and low-flow faucets and shower heads. All plumbing fixtures should meet EPA Water Sense requirements. Use motion sensors at sinks and lavatories. Capture rain and shower and sink water to flush toilets. Consider composting toilets. Irrigate with stormwater runoff, harvested rainwater, recycled wastewater, or other non-potable water sources.

Use Renewable Energy. Install onsite renewable energy systems such as photo-voltaics (PV), solar water heating, wind turbines, and/or geothermal sources. Locate PV and solar water systems where solar orientation and existing trees allow. Tie these systems into the electrical grid for net metering. Purchase at least 35% of the Garden's electricity from renewable sources as identified by the Center for Resource Solutions' Green-e-Energy.

Employ Passive House Strategies. Insulate walls, floors, roofs, and foundations over and above Washington State Energy Code requirements to make buildings as airtight as possible. Then install high efficiency HVAC systems.

Commission Building Systems. Building commissioning ensures that systems are installed correctly and calibrated to the owner's requirements, basis of design, and construction documents. Begin the commissioning process early in design to identify problems early and find solutions.

Develop a Measurement and Verification Plan. Track energy consumption over time so waste can be eliminated. Create an action plan if energy savings are not being achieved.

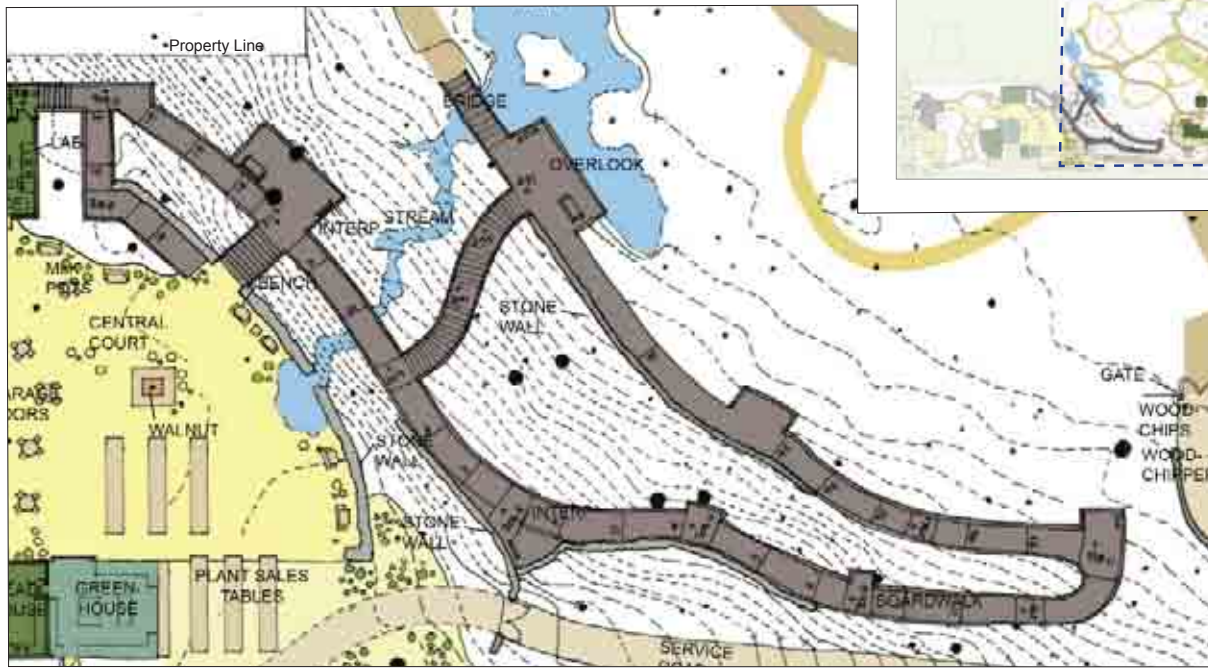
Smart Materials Use. When demolishing an existing building, reuse materials on-site or sell to a salvaged building materials store. Break up concrete and asphalt and use as aggregate in new concrete. Use materials with postconsumer recycled content. Purchase new materials from within 500 miles of the project site. Use rapidly renewable raw materials, such as strawboard or wheatboard.

Maintain High Indoor Environmental Quality. Establish minimum indoor air quality (IAQ) performance standards for both mechanically and naturally-ventilated spaces. Adhere to state law relative to tobacco smoke in and near buildings. Use outdoor air to enhance ventilation indoors. If possible, pre-condition incoming air using a heat exchanger. Develop a plan to reduce IAQ problems during construction. Do not use materials inside the building envelope that have off-gassing volatile organic compounds. These include adhesives, sealants, finishes, paints, coatings, flooring systems, composite wood, and agrifiber products.

Provide Individual Lighting Controls. Allow building occupants to adjust lighting to suit individual needs.

Provide Individual HVAC Controls. Allow building occupants to control their work space. Doors and operable windows may be provided in lieu of HVAC controls. Design HVAC systems to provide thermal comfort based on activity and occupancy. Monitor HVAC performance. Where possible, incorporate passive solar techniques to provide heat.

BOARDWALK



Boardwalk Layout Plan

Features

- ADA (1:12) Switchback Trail to Lower Garden
- Direct Stair Route
- Overview Platforms
- Interpretive Stations

An ADA-accessible boardwalk will traverse the existing slope in order to provide access to the lower garden for everyone. This boardwalk will expand the number of plants that visitors can view up close by crossing a slope that has been too steep for most visitors to access. It will also help separate visitors from service vehicles and maintenance areas.

Material Example: Boardwalk and Platform

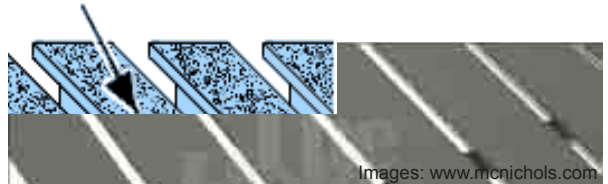
The material system shown at the right is being considered for the boardwalk surfacing. Other materials will be investigated as design and construction phases proceed. The material shown is a Pultruded Fiberglass T Bar grating that has:

- Skid and corrosion resistance,
- Fire retardance,
- High impact strength,
- Low maintenance,
- Low thermal conductivity.



Images: www.mcnichols.com

Grit Surface

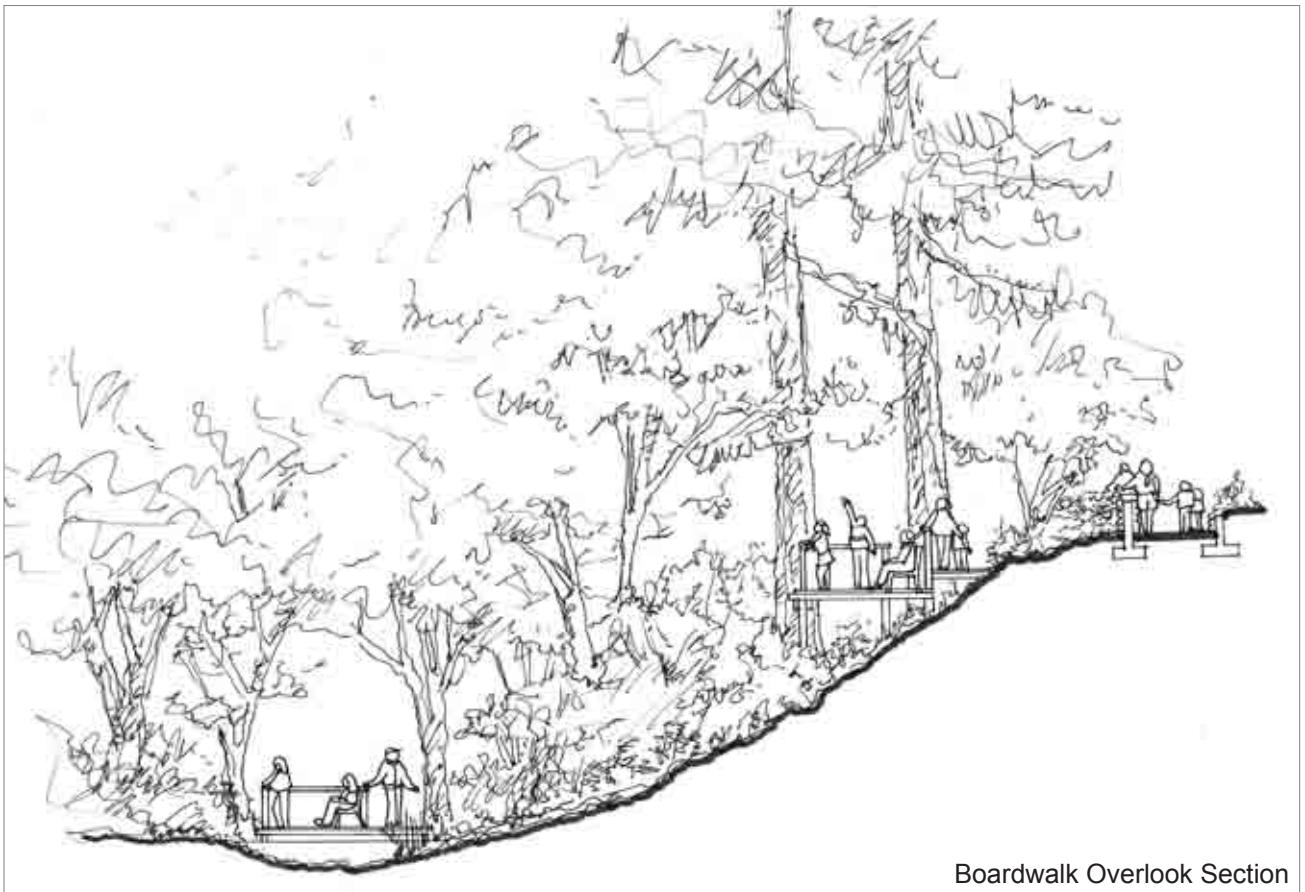


Images: www.mcnichols.com

ELEMENTS OF THE PLAN



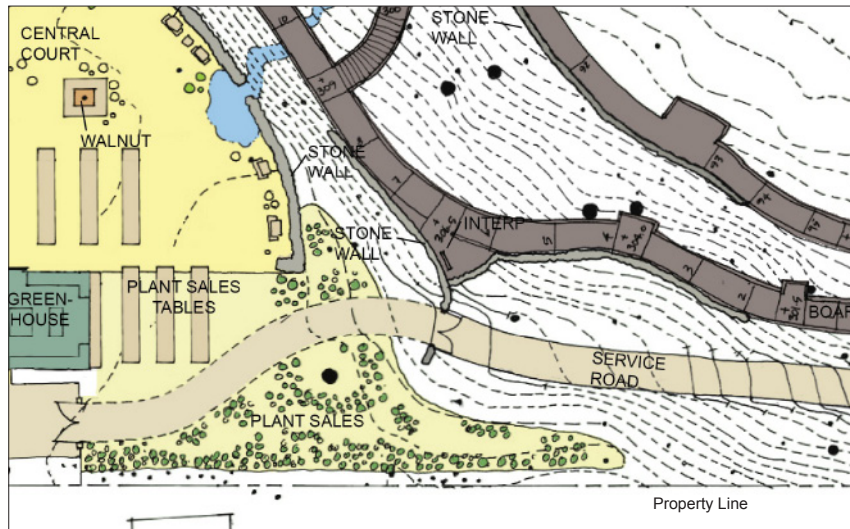
KBG Garden Slope



Boardwalk Overlook Section

E L E M E N T S O F T H E P L A N

PLANT SALES



Plant Sales Area Layout Plan

Scale : 1"=40'

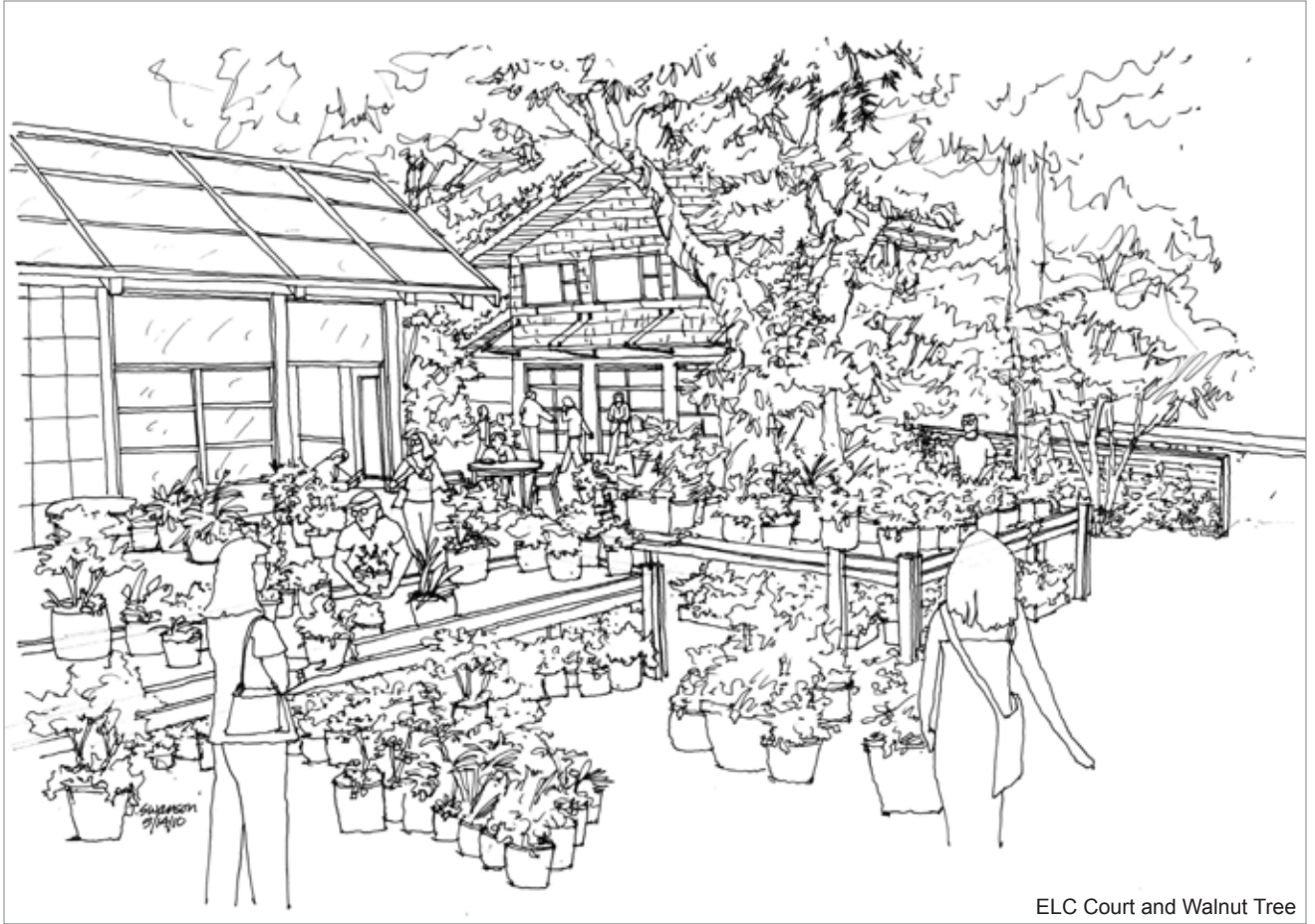


The MsK Rare and Native Plant Nursery is critical to the history and legacy of the Kruckebergs and the Garden. Having a nursery as a prominent feature of a botanical garden is unique in the world of public gardens. For these reasons, the plant sales area will continue to occupy a prominent part of the upper garden and central court. This part of the Garden has provided unusual plants to the regional gardening community for decades. MsK Nursery has helped to increase the diversity of available plants and fosters return visits by gardeners looking for unique additions to their own gardens.

Numerous tables will be placed in the central court area to showcase flats of smaller plants and starts. Room will also be set aside for larger containers on the ground near the giant sequoia.

Classes on propagation, container gardening, and general plant care will require use of the classroom, the nursery, and the greenhouse. Clustering these facilities is recommended. To facilitate transferring purchased plants to buyers' cars, plant carts will be stored near the sales area and the parking lot.

ELEMENTS OF THE PLANNING



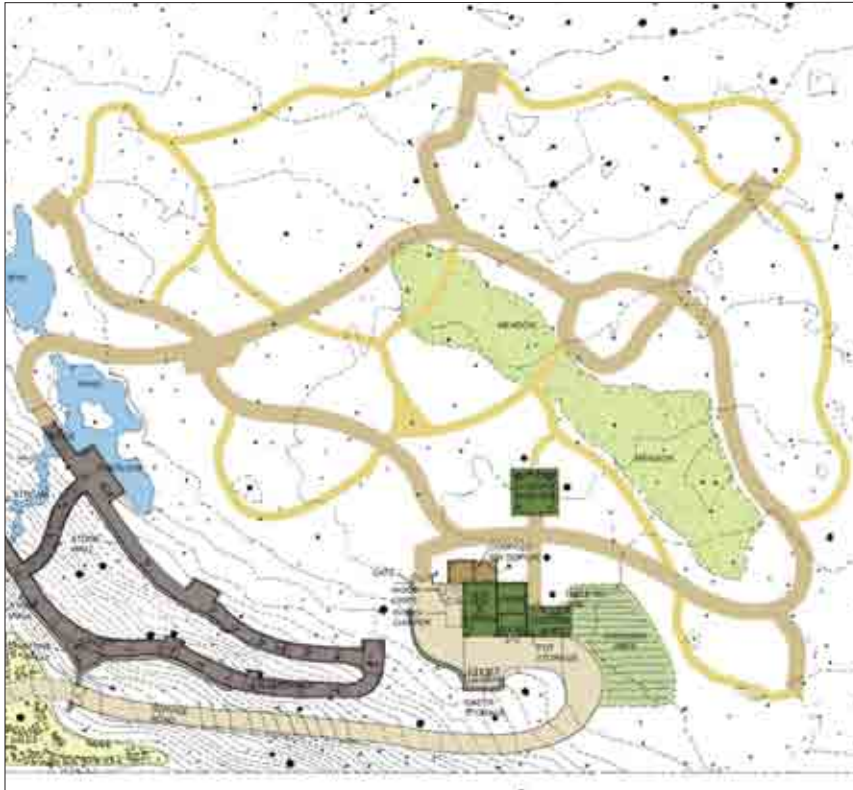
ELC Court and Walnut Tree



Existing KBG Plant Sales

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LOWER GARDEN



Lower Garden Layout Plan

Scale : 1"=40'

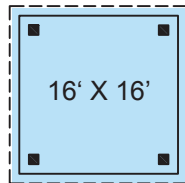


Features

- Garden sculpture
- Pond, rain garden
- Meadow
- Major plant zones

Floor Plan : Outdoor Shelter

Scale : 1"=20'



ELEMENTS OF THE PLAN

The lower garden will retain its current character and ambience, along with ADA-compliant pathway improvements, a rain garden and pond, a small outdoor shelter, compost demonstration area, maintenance shed, and plant nursery near the Garden's south boundary. The large number of potted plants scattered throughout the lower garden will be consolidated, opening up space to expand the Garden's understory.

Formerly a sunny horse pasture, the lower garden is rapidly filling up with trees. This was a source of conflict between the Kruckeborgs and remains unresolved today. Effort should be made to restore the sunlight to this area and expand the plant collection accordingly. This will require moving or removing several of the numerous trees now overtaking the meadow. Because the Serpentine Garden represents Dr. Kruckeberg's primary contribution to science, it is written into the Guiding Principles as a priority and requires sunlight.

The lower garden will remain a tranquil space. It will feature an ADA-compliant main loop pathway system, with interpretive nodes to direct visitors further into the plant collections. Plants in the lower garden include oaks, rock garden plants, plants found on serpentine soils, conifers, Pacific Northwest natives, Asian plants, and many more. The northeast corner features a cathedral-like grove of native Douglas firs. This is an ideal place to expand the Garden's native plant collection.



Existing KBG Juglans mandshuricae



Existing KBG Lower Garden Temporary Public Art

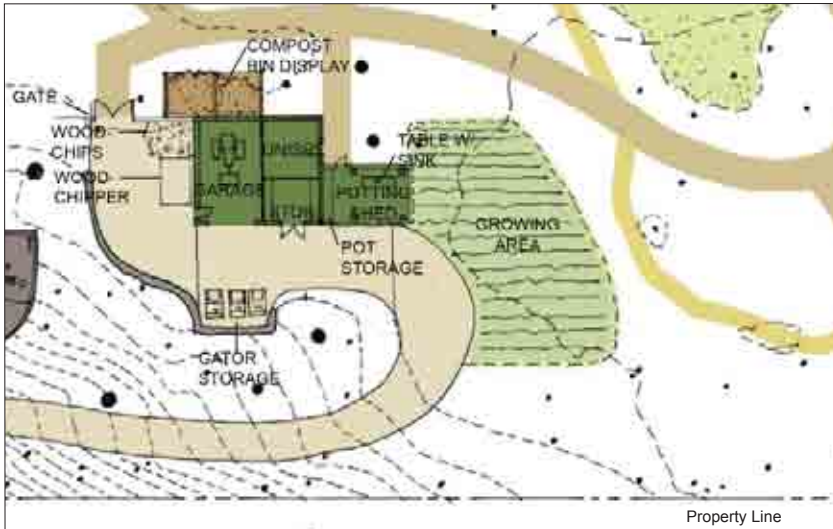
A small shelter near a Douglas fir grove will allow groups to get out of the rain while touring the lower garden. The shelter will be located near a compost demonstration area and a small public restroom, part of the maintenance compound.

The idea for a water feature originated with Mareen Kruckeberg. At the bottom of the boardwalk will be a pond, visible from and linked to the central court by a stream channel. A viewing deck on its west side will allow visitors to pause on a bench or to gather while on tour for an introduction to the lower garden. Just to its north will be a rain garden, designed to enhance the Garden's stormwater management system and to introduce home gardeners to ecological stormwater management. The Garden's ecological value as wildlife habitat is enhanced by both of these water features. Their exact locations and sizes will be determined in future phases and partly depend on the location of existing trees and amount of runoff generated from roofs and impervious surfaces in the upper garden.



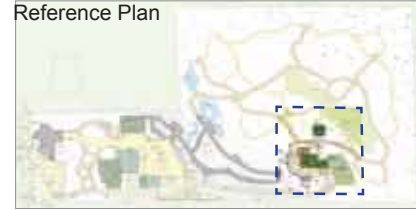
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SERVICE AND MAINTENANCE



Shade Garden Layout Plan

Scale : 1"=40'
0 10' 20' 30' 40'

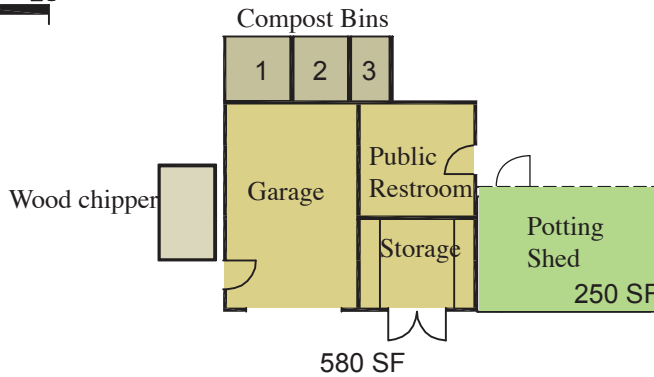


Features

- Garage
- Public restroom
- Potting shed
- Compost bins
- Outdoor shelter
- Propagation area
- Service road connecting upper and lower garden
- Lath house
- Green roof

Floor Plan : Maintenance Bldg.

Scale : 1"=20'



ELEMENTS OF THE PLAN

A new gravel service road along the south edge of the upper garden will connect to the existing service road leading to the lower garden, keeping service vehicles separate from visitor trails. Existing south boundary trees will be preserved in order to screen the road from the south. The new road will join the existing service road near the plant sales area and connect with a small maintenance compound. This compound will include a public restroom, potting shed, garage and storage, and nursery growing space. The wood chipper will be located near the back of this building in order to muffle engine noise. On the north side of the building will be three compost bins plus interpretive graphics to teach about composting. Main paths leading from this area will be five feet wide, designed to accommodate small service vehicle access to the lower garden.