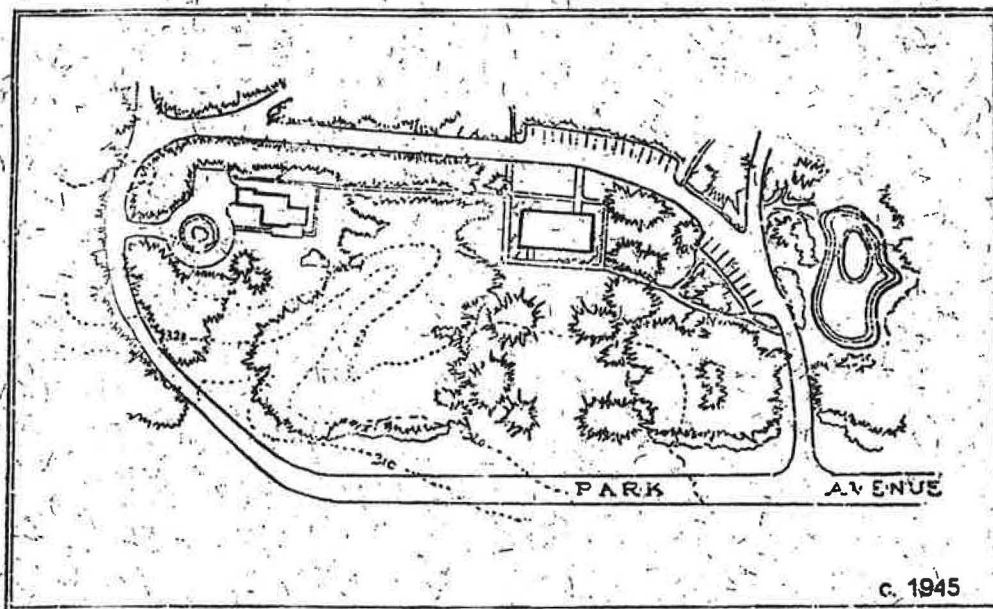




National Park Service
Olympic National Park Headquarters

Landscape Restoration and Management Guidelines



THE
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GROUP
1999

Landscape Restoration and Management Guidelines

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Landscape Restoration and Management Guidelines

Historic Style and Significance

The architecture and landscape at the Olympic National Park Headquarters reflect a design style from the late period of rustic park architecture. The vernacular architectural and use of endemic plants are characteristic of the work completed by the Civilian Conservation Corps (CCC) and the Works Progress Administration (WPA) in the late 1930's and early 1940's. Native building materials including locally quarried stone and cut cedar shakes, along with locally collected rhododendrons, vine maples and sword ferns were combined to create a period of design typified by the use of native materials and rustic architecture. In addition, these materials reflect the intent of the Park headquarters to represent and display the character and resources of the Olympic National Park.

The site has retained significant landscape components. The circular entry drive and pedestrian circulation walks remain. The buildings are surrounded by forested stands of second growth Douglas Fir, Hemlock and Cedar. Foundation plantings consist of rhododendrons, vine maples and ferns. Small scale landscape elements also represent the vernacular design style within light bollards, stone piers, pole lights and stone planters. The complex is perched over the town and the Strait of Juan de Fuca toward Vancouver Island, maintaining the integrity of its grand location and magnificent vistas.

Goals and Objectives

The goals of the Landscape Restoration and Management Guidelines for the Olympic National Park Headquarters are to ensure the preservation and future longevity of the landscape throughout the Headquarters' grounds. To enhance the existing landscape, additional plants have been selected that will provide seasonal interest while supporting the historical significance of the original planting. The guidelines offer both cyclical directives for landscape management and replacement recommendations to rehabilitate the plantings into a maintainable resource. Both phases of management consider the significant elements and characteristics of the original design.

Initially, a pro-active approach to maintenance will be needed in rehabilitating the existing plantings into a manageable landscape. The management guidelines' define and prioritize maintenance zones, and list specific maintenance practices to guide landscape management throughout the Headquarters' grounds. Maintenance priority requirements are greatest close to the buildings and decrease in intensity toward forested areas. Planting plans consider the historical importance and character of the landscape retaining plants significant to the original plan. Additional plants were chosen based on compatibility to the original plan, availability and ease of maintenance.

The Landscape Restoration and Management Guidelines are intended to furnish practical and specific direction toward long-term care and are grounded in the following objectives:

- Provide direction for preserving and maintaining existing trees, shrubs and groundcovers.
- Reduce hazard potential by specifying annual arboriculture inspections and practices.
- Develop planting templates for typical conditions to reinforce and restore the landscape's historical significance.
- Use native plants for restoration plantings that will offer seasonal interest and diversity.
- Provide low-maintenance plantings that are well adapted to the natural conditions of the site.

II. Landscape Management Priorities and Practices

This section of the Landscape Restoration and Management Guidelines outlines maintenance tasks to be addressed as part of the rehabilitation of the landscape. In addition, these practices are an integral part of the long-term landscape management plan. Plan L.1 locates Maintenance Zones included in this scope of work. Specific maintenance tasks within these zones are identified within the Landscape Maintenance Matrix. Maintenance priorities are indicated by a numerical system on Plan L.1. Maintenance priorities are greatest close to the buildings and decreases in intensity toward forested areas.

TREE MANAGEMENT

Pruning

Natural stands of native Douglas firs (*Pseudotsuga menziesii*) frame the site and provides the backbone of the Coast Forest Zone plant community. Douglas firs typically shed limbs throughout their life-cycle reducing competition from co-dominant limbs. Research has proven that the health and vigor of Douglas firs benefit from occasional light pruning to remove, excessive co-dominant limbs, and accumulated dead wood. Crown thinning reduces wind resistance and therefore minimizes hazard potential. Pruning also improves the quality of the understory vegetation by providing more light and air flow. See CSI 02935 for Pruning Specifications.

Removals

Trees recommended for removal will be flagged and identified with paint on their north side. Trees identified for removal have developed one or more of the following criteria: age, poor location interfering with original design intentions, obstructing visibility, poor health or structural conditions. Trees growing within five feet of buildings or growing within the first five feet of island beds or forest-shrub transition zones should be removed as a regular part of a long-term maintenance plan. Trees marked for removal should be removed to ground level. All wood and brush should be removed from the site.

Hazardous Tree Evaluation

A Hazardous Tree Evaluation should occur every two years on all trees in close proximity to buildings, parking, and pathways. Hazardous tree evaluations verify live-crown ratios, identify structural defects and observe annual shoot growth while assessing site factors to determine the trees condition and potential for failure. Pruning may be required to remove dead, diseased, or dying limbs. Hazardous Tree Evaluations should be completed by a certified arborist with verified credentials from the International Society of Arboriculture (I.S.A.).

Maintenance

English ivy is to be removed from the base and trunk of all trees to prevent girdling and growth restrictions. The roots of ivy should also be removed adjacent to trees to keep ivy populations around trees to a minimum. See

the recommendations for Weed Removal under Shrub-Bed Maintenance for additional weed control within forested areas.

Trees growing in rhododendron islands benefit from mulching with $\frac{1}{2}$ minus wood chips or partially decomposed hardwood mulch to maintain soil quality, weed control and to define the edge between the lawn and the planting bed. A 2-3 inch layer of mulch should be applied every three years.

Remove accumulated deadwood from forest-shrub transition zones. Any deadwood or fallen branches that accumulate within the forest zone should be cut and placed in contact with the soil to encourage regeneration and decomposition.

SHRUB BED MANAGEMENT

All understory vegetation located within scope of work as defined on Plan L.1 Maintenance Zones should be included in the proposed sequence of work. Maintenance practices will include; weed removal, clearing of excessive leaf build-up, and pruning, turf management, weed control, pest management practices, planting bed delineation, 'dead-heading, soil amending and mulching. Each of these practices is described in detail below.

Weed Removal

Weed removal is based on eliminating competition from unwanted or invasive species that have established themselves in planting beds or within forested areas. Weeding procedures should include the removal of all plant parts including the root to prevent the potential for re-establishment. Weed debris should be disposed of off-site. If any of the following species are identified on the Headquarters' grounds, they should be a part of annual weed removal:

Cotoneaster
Canadian Thistle
English Holly
Foxglove
Hawthorns

Himalayan Blackberry
Japanese Bamboo
Robert's Geranium
Scotch Broom

Leaf Duff Removal

Leaf duff removal will reduce habitat for pathogen establishment such as root weevils and fungus. In addition, removing leaf debris will expose the soil for integrating organic amendments to improve soil quality and productivity. This preparation will also be necessary in order to plant additional shrubs and groundcovers within foundation beds adjacent to buildings.

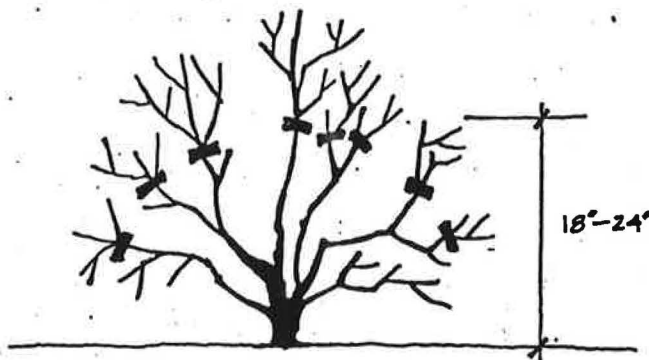
Pruning Techniques

Shrub pruning objectives should be determined prior to choosing a pruning technique. Pruning practices not only affect the initial appearance of plants but also to a large extent, determine the plant growth. Refer to the Landscape Maintenance Matrix for specified locations for pruning practices. The following two pruning

techniques will be used to prune the rhododendrons and other understory shrubs for their preservation and maintenance:

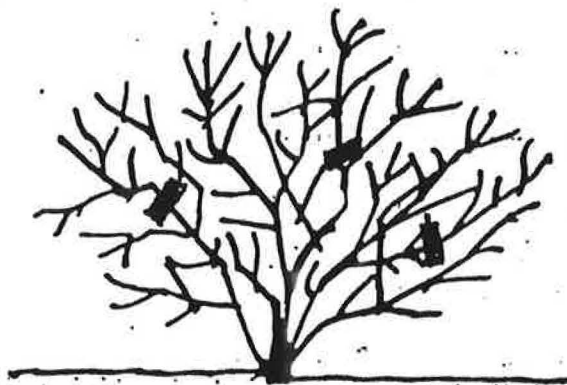
Type I Pruning - Heading Back – This technique will be used on shrubs to reduce their size and the 'leggy' elongated growth that has occurred during their development. Heading cuts will be made back to a bud on old wood approximately 18-24 inches above grade level, to stimulate bud development and new growth, while removing dead/diseased branches. This technique will encourage the development of new growth that will be more compact and to a size appropriate to the location.

Type I pruning will be used where plant growth has occurred in shady locations or where current vegetation blocks views through windows from inside offices.



Type II Pruning - Thinning Cuts for Shoot Renewal – This technique reduces the size and density of shrub by 1/3, while removing dead/diseased branches. Through selective branch removal, this technique reduces sparse leggy growth while encouraging new bud development. Cuts are made equally throughout the crown. The process generally occurs over a three-year period to fully reduce the size of the plant while encouraging new growth.

This technique is less 'radical' than Type I and will be used in areas where plant growth has been more compact as a result of adequate light, and where visibility concerns from inside offices are not as much a concern.



INTEGRATED TURF MANAGMENT

Moss removal

Moss encroachment is generally associated with the following: thin turf, low fertility, highly acidic soils, shade, wet soils, turf injury from insects, diseases, chemicals or cultural practices. Moss reduction should be approached through an integrated pest management approach by improving cultural practices and applying commercially available chemical materials that contain the metal iron (Fe), as the active ingredient. Iron stains concrete and should therefore be applied with care.

Cryptocidal soaps such as Safer's Moss Attack is also available. They are slower working than moss killers that contain iron, and often require more frequency of application. Considering the constraints on maintenance budget and personnel, a fast-acting, minimal labor approach is recommended.

Re-seeding

Re-seed annually with a shade turf mix such as 'Show and Shade' which is a blend of perennial Ryegrasses, Fescue varieties and Kentucky Bluegrass. Do not use any mixes containing annual ryegrass. Shade situations do not often foster dense turf development because of a lack of light, and diminished air and water movement. Reseed after moss control and aeration. Wait a minimum of 3 weeks before seeding after chemical moss control. Apply lime after seeding. To improve the success of growing turf in shade:

- prune trees to maximize light to understory below
- aerate and top dress with course sand
- improve soil drainage by regular thatching practices
- plant shade tolerant species: using a 50% mix with fine fescues (red fescue, chewing fescue and hard fescue), or use 'Show and Shade Mix' obtained from D.F. Marks Seed Supplier 1-800-767-3802
- Fertilize annually alternating between dolomite lime application at 40lbs/1,000 sq. ft. in the fall or winter and an evenly balanced fertilizer that includes iron (Fe) on alternate years. Suggested ratios of nitrogen, phosphorus and potassium are 12-10-10 or 10-10-10.
- Mow often since grass plants tend to stress when more than 1/3 of the leaf surface is removed at a time. Clippings are to remain in place following mowing.

Aeration and thatching cycle

Thatching removes the plant debris build-up that occurs within the root and crown area. The thatch creates a favorable environment for the development of fungi and hinders air and water movement into the soil below. Equipment used for reducing thatch can also increase the aeration qualities of the soil, improving turf quality and management.

Sound Mowing Practices

Maintain sharp mowing equipment that cuts grass cleanly without leaf damage to protect the lawn from microbial invasion. For shade turf mow when grass is at a height of 2 ¼ inches if the mowing height is set at 1 ½ inches. When light is diminished as in shade locations, more leaf blade is needed to absorb available light. Do not cut grass shorter than 1-½ inches in height.

Broadleaf Weed Control

- To control broad-leaf weeds in turf and planting beds, use DOW-1 CONFRONT for areas where hand eradication is not possible. When hand-pulling weeds, the entire plant structure, including the roots should be removed from the site. This will help to prevent the establishment of invasive species.
- To eradicate Himalayan Blackberry from the lower meadow and along the roadway without eliminating the grass below, follow one of the first two recommended procedures described below. Do NOT remove vegetation prior to spraying in either case. Eradication is recommended rather than annual or semi-annual hand removal based on labor limitations. Once the weed is eliminated, proper cultural practices will be necessary to keep it from reestablishing itself over time. Each of the methods for eradication is based on the time of year of application.
 - ✓ In late spring to June, spray brambles with GARLON 4 (Triclopyr). A one time treatment will be adequate if care is taken with thorough coverage during the application. Vegetation will wilt and it takes approximately 6-8 weeks to complete translocation to the roots. After 2 months remove all brush from site.
 - ✓ Spray in mid-summer to fall with ESCORT. A one-time treatment will be adequate if care is taken with thorough coverage during the application. Vegetation will go through a slower senescence before final translocation to roots occurs. Brush can be removed within 8-12 weeks.
 - ✓ For fall application use Crossbow with the surfactant Syltac. The application must be applied after a light frost but before a heavy frost. It often takes two applications or years for complete eradication to occur. This method of eradicating Himalayan Blackberries will also eliminate the grass below, requiring a re-seeding step to restore the meadow with grasses.

OTHER MAINTENANCE PRACTICES

Integrated Pest Management

Root weevil infestation on rhododendrons needs immediate attention to control the spread to new leaves as they develop following pruning. The

symptoms are chewed leaf margins interfering with the aesthetic appearance of the plant, and ultimately reducing the food-making ability causing its decline. In addition to cleaning-out and renovating the planting beds, the only successful approach to root weevil control is through the use of the chemicals. The product Orthene has proven effective in eradicating the insect as well as synthetic pyrethroid chemicals such as Merit or Talstar. Root weevils are night-feeders and survive at the base of the plant within the upper layers of the soil/mulch. The chemicals are applied in powder-form at the base of the plant, preventing their night feeding and reproduction. Rate (amount per plant) and frequency of applications should follow recommendations specified on the label.

Mulching (3-year cycle)

Mulch Foundation Planting Bed Zones and Douglas Fir-Rhododendrons Island Zones every 3 years. Mulching material should be a course, partially decomposed bark, free of weed seeds and dark in color. Mulching practices will help to maintain the health of the soil, prevent weed establishment and minimize watering requirements. See CSI 02912 for Soil Preparation for mulching source recommendations.

Planting Bed Delineation

Outline the edge of all planting beds within lawns by removing encroaching grass and weeds. This maintenance practice should occur on an annual basis. Apply mulch to reinforce the definition between the planting beds and turf areas. Clarifying the edges of planting beds will help to direct appropriate locations for re-seeding of lawns and mowing operations.

Flower Removal on Rhododendrons

Rhododendrons should be 'dead-headed' annually by removing the flowers from the shrubs following the blooming period. This procedure helps to maintain an appropriate height, encourages vigor and prevents seed development from occurring. Fertilize rhododendrons every three years following deadheading. Use a formulated fertilizer with an approximate ratio of 8-12-12 with trace minerals.

LANDSCAPE MAINTENANCE LABOR PLAN

Preservation maintenance work has been divided into types of labor on Plan L.2. Both volunteers and contracted landscape professionals will complete the initial landscape maintenance effort. The plan locates maintenance tasks that lend themselves to volunteer labor, and those areas requiring a contracted landscape professional completion. For consistency and quality assurance, work performed by volunteers should be under the direction of qualified park staff or a contracted landscape professional.

Landscape Maintenance Matrix

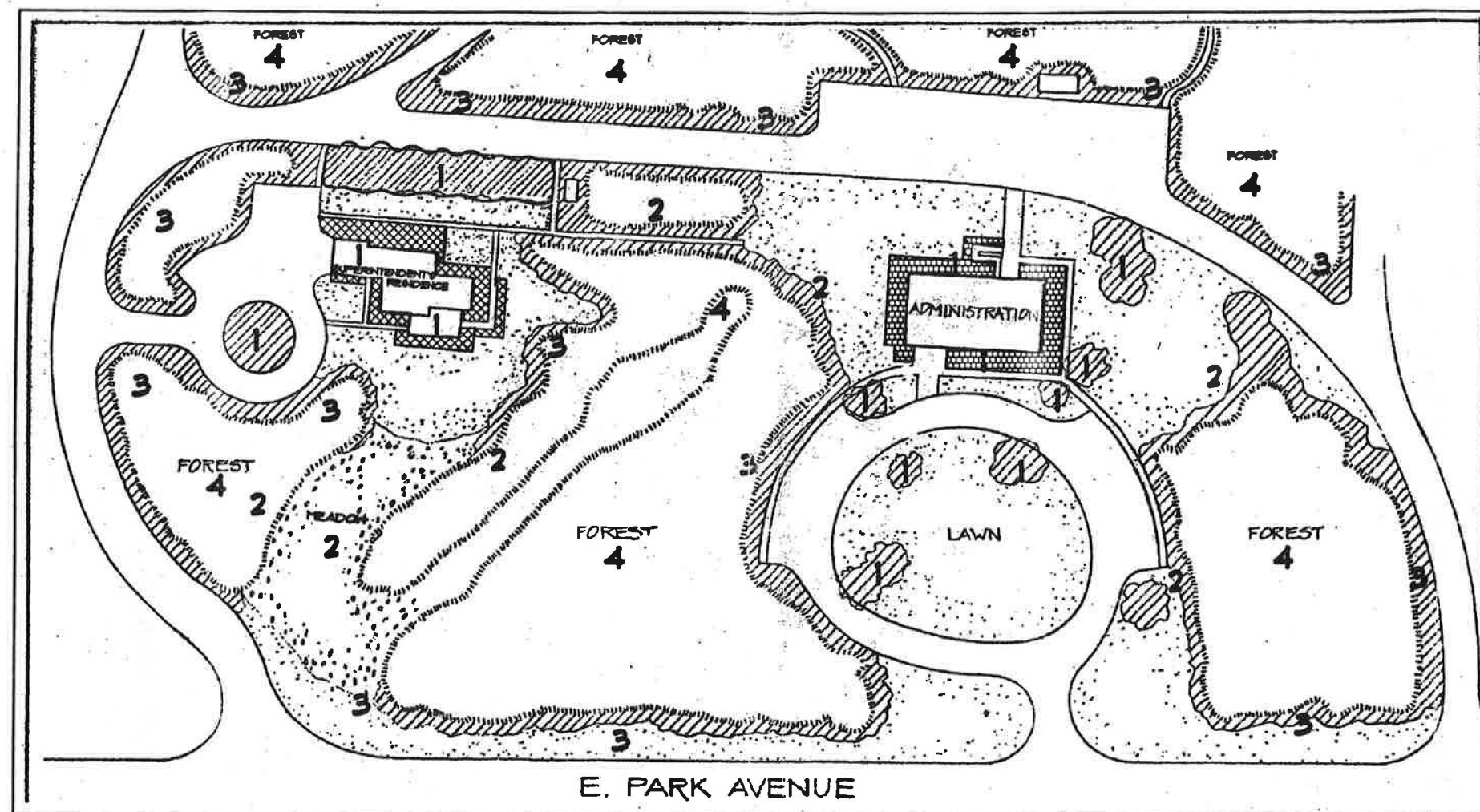
The following matrix identifies the five major maintenance zones with detailed vegetation management recommendations. Recommended actions are grouped according to primary landscape components, trees and understory. Locations of maintenance zones are identified on Plan L.1.

	Administration Building Foundation Plantings	Douglas Fir /Rhododendron Island Beds	Forest-Shrub Transition Zone	Superintendents Residence Foundation Plantings	Meadow - Forest Edge
TREES Schedule a Hazard Tree Evaluation on all trees in zones adjacent to parking, buildings and walkways by a certified arborist every 2-years.	Remove any seedlings or young trees that have established themselves in foundation planting beds.	Remove ivy from trunk and base of all trees. Prune all Douglas Firs to remove deadwood, stubs, and co- dominant limbs to provide light to understory and increase health and longevity of trees	Redefine site-line along footpath between Admin. Bldg. and Supt. House by thinning trees and removing lower limbs to 6' clearance. Remove ivy from trunks and bases of all trees. Prune all Douglas Firs to remove deadwood, stubs, and co- dominant limbs to provide light to understory and increase health and longevity of trees.	Remove any seedlings or young trees that have established themselves in foundation planting beds. Retain fruit trees in island planting bed behind SW corner of house. Remove lower limbs to 8' on hemlock growing on the NW corner of the house for clearance.	Remove Alders Bittercherry and Maples from edge of meadow back to native conifers to expand and maintain view corridor. Maintain open meadow, removing trees every two years as they establish
UNDERSTORY Remove leaf litter and bark chips from all beds.	Remove Holly, Cotoneaster, Blackberry, Hawthorns, Ocean Spray and other non-natives. Type I pruning on Salal every 5 years. <u>North side of building.</u> Type I pruning on rhododendrons, head-back to 2' restoring visibility from windows. Remove dead fronds from Sword ferns. Remove and transplant rhododendrons from both planters at entry to open void areas west of entry <u>East side of building.</u> Type II pruning on rhododendrons to rejuvenate over 3 year period. Prune back ferns to 6-8" for regeneration. Prune on a 3-4 year cycle. <u>South side of building.</u> Type II pruning on rhododendrons, to rejuvenate over 3 year-period Remove dead fronds from Sword and Bracken ferns. Remove and transplant Rhododendrons from both planters at entry to open void areas east of entry. Remove and replace all cultivated ornamental plants with native plants. <u>West side of building.</u> Type I pruning on rhododendrons, head-back to 2' restoring visibility from windows. Prune back ferns to 6-8 inches for regeneration. Prune on a 3-4 year cycle.	Remove invasive species: Holly, Robert's Geranium, Cotoneaster, Blackberry, Hawthorns and other non-natives. Remove Ocean Spray within island beds. Clearly define lawn edge at base of shrubs for soil preparation and groundcover planting. Clear small trees and large shrubs growing within a 4' border from lawn edge. Type II pruning on rhododendrons to rejuvenate over 3 year period. Weed out dead plant debris from all areas annually. Type I pruning on Salal every 5 years. Type I pruning on Snowberries every 5 years. Edge grass around perimeter of beds. Transition area south of Supt. House should be weeded to remove all invasive plants, while maintaining Apples, Cherries, Sword ferns, Rhodies and Mahonia	Remove Holly, Cotoneaster, Blackberry, Hawthorns and other non-natives. Remove invasive weeds, i.e. Robert's Geranium Type II pruning of Ocean Spray and Rhododendrons. Define forest and shrub edge by clearing small trees and large shrubs within a 6' border from lawn or paving edge. Weed dead plant debris from all areas Weed understory vegetation covering stone path and benches on footpath Between Supt. House and Admin. Bldg. Extend forest-shrub transition zone into lawn area at pathway from Hdqtr Bldg. to Superintndnts House Extend walkway between buildings on Administration Building side. Mow to extend walk way as shown on the plan L.1. Edge grass around perimeter of beds.	Remove leaf litter and bark chips from all beds. Remove Blackberries, Holly, Cotoneaster, and Ocean Spray from beds. Remove invasive weeds, i.e. Robert's Geranium Type II pruning on rhododendrons over 3 year period. Remove dead fronds from Sword and Bracken ferns. Thin clumps of iris from the north side of house and divide and relocate to sunny locations on south and east sides of house. Prune Forsythia for form and vigor; remove deadwood - Type II pruning. Prune roses, by removing deadwood, Type II pruning. Clean out all dead plant debris from plants and beds. Type II pruning on all large rhododendrons adjacent to lawn. Prune over a 3-year period.	Weed 'volunteer' Holly, Laurel, Cotoneaster, and other invasives Aggressively eradicate Himalayan Blackberry infestations within meadow and forested areas. Type II pruning on rhododendrons at edge of forest over a 3 year period. Mow annually.

Landscape Maintenance Schedule

The following schedule identifies four distinct time periods for scheduling on-going maintenance of the grounds and landscape at the Olympic Park National Headquarters'. The schedule organizes maintenance tasks by frequency: routine (several times a year), annual (once a year tasks), two-year cycle maintenance, and three-year cycle maintenance. The schedule separates maintenance requirements for trees and understory. Locations of maintenance zones are identified on Plan L.1.

	Routine Maintenance	Annual Maintenance	Two-year cycle maintenance	Three-year cycle maintenance	
TREES	Rake and remove conifer branches and leaf duff along roads, paths and lawn areas throughout winter months	Remove ivy from trunk and base of all trees, including roots; dispose off-site.	Schedule a Hazardous Tree Evaluation by I.S.A. Certified Arborist for all trees growing near buildings, roads, walkways and parking. Remove deciduous trees along edge of meadow	Evaluate forest edge for tree removal of young seedlings. Cut fallen trees and limbs within forest into sections to provide soil contact for decomposition and regeneration.	
UNDERSTORY	Mow lawns	Remove leaf litter from foundation planting beds. Edge grass around perimeter of beds adjacent to foundation plantings, fir-island beds and forest edge. Mow open meadow. 'Dead-head' rhododendron flowers following blooming period. Control moss and broadleaf weeds in lawn. Weed all planting beds, and Douglas Fir-Rhododendron Islands of invasive weed species.	De-thatch, top-dress and fertilize and re-seed lawn Eradicate Himalayan blackberries from beds, meadow and forested areas. Weed dead wood and plant debris on footpath between Headquarters Bldg. And Superintendent's House.	Fertilize rhododendrons after blooming. Mulch all foundation beds and fir/island beds with coarse decomposed fir bark mulch. Divided perennials and replant. Prune 1/3 of all ferns on Headquarters' grounds to encourage vigor. Continue on a 3-year cycle.	



SCALE: 1" = 40'



MAINTENANCE ZONES



Administration Bldg.
Foundation Plantings



Douglas Fir-
Rhododendron Islands



Forest-shrub
transition zone



Superintendent's Residence
Foundation Plantings



Meadow and Forest
Edge



Forest Zone

MAINTENANCE PRIORITIES/FREQUENCY

- 1 High visibility, routine/annual maintenance required
- 2 Moderate level of maintenance, every 2 years
- 3 Occasional maintenance required, every 3 years
- 4 Remove deadwood debris, and invasive weed species within the Forest Zone, every 3-4 years

NOTES

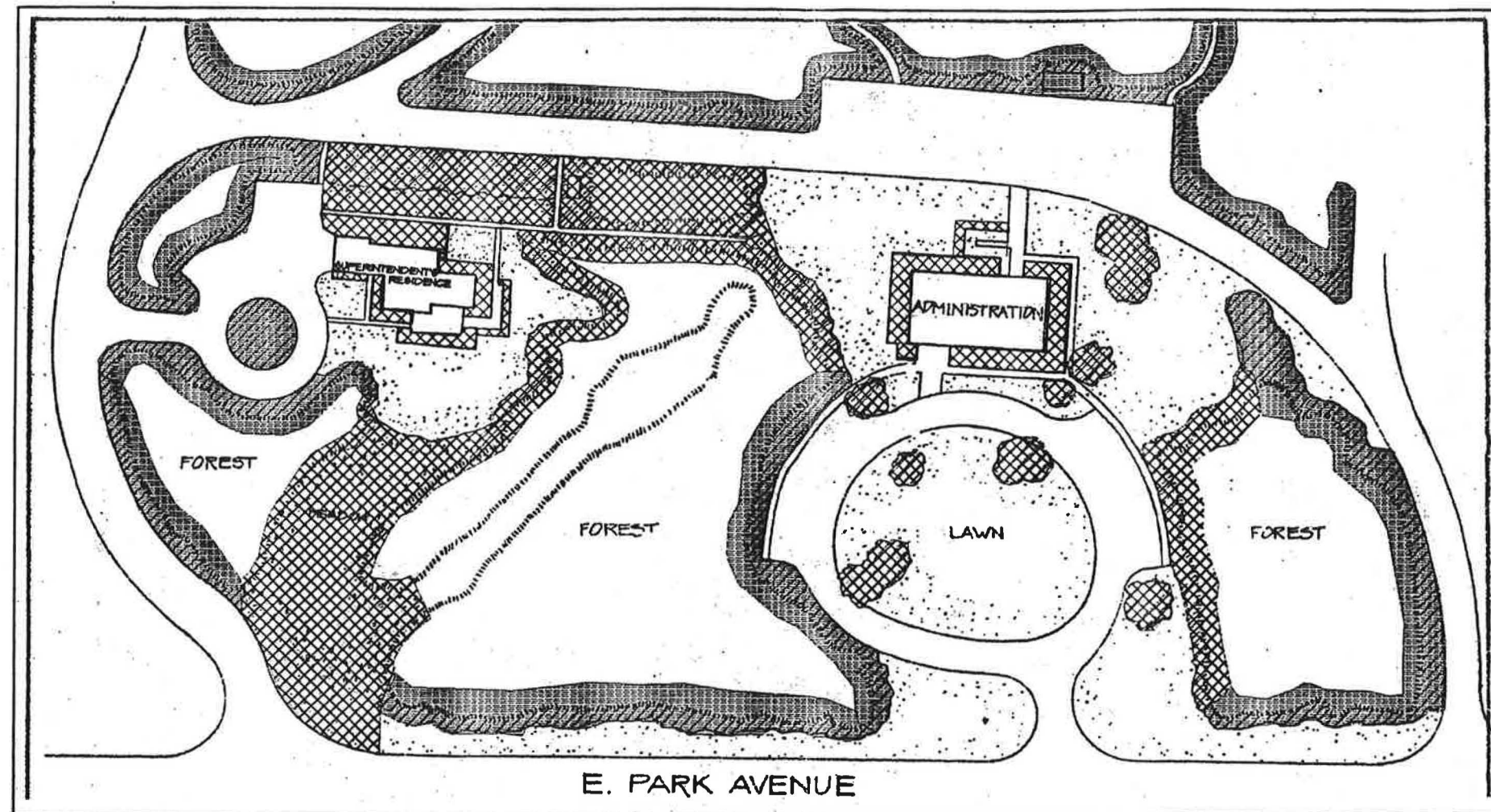
See Landscape Restoration
and Management Guidelines
document for specifications
on maintenance.

DESIGNED:
K. Day
TECH. REVIEW:
DATE:

SUB SHEET NO.

TITLE OF SHEET
Maintenance Zones
Management Priority-
Frequency
National Park Service

DRAWING NO.
149
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SHEET
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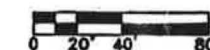


CONTRACTED MAINTENANCE AND
PLANTING LOCATIONS



VOLUNTEER MAINTENANCE LOCATIONS

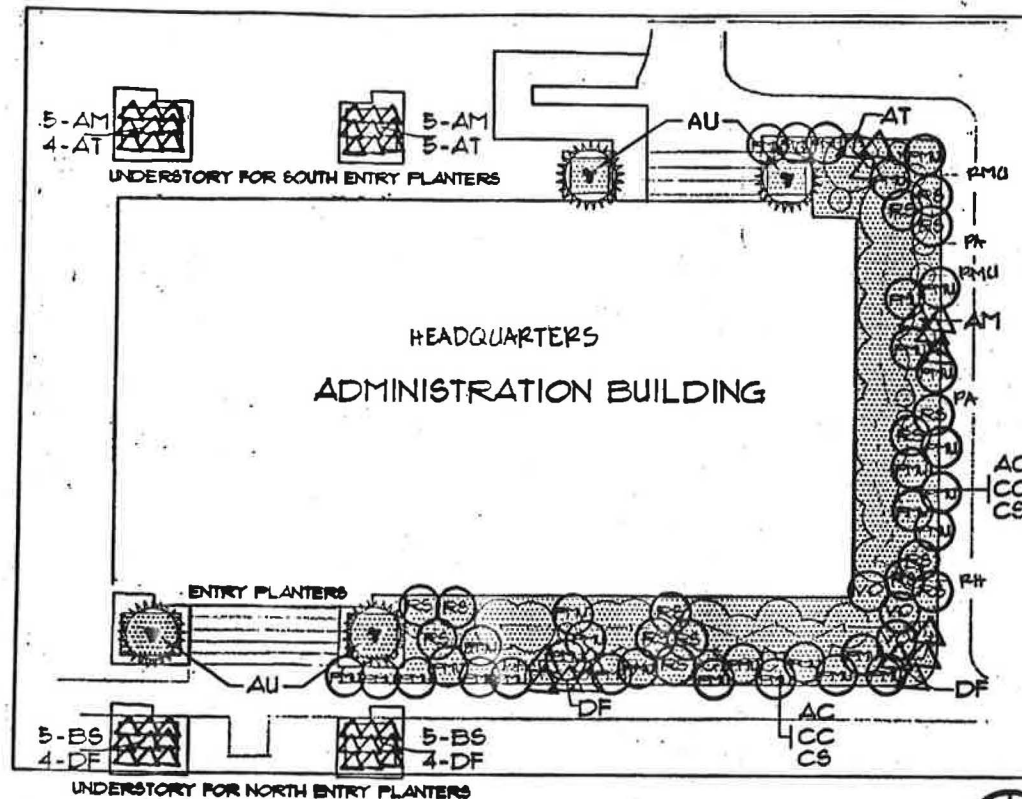
SCALE 1" = 80'



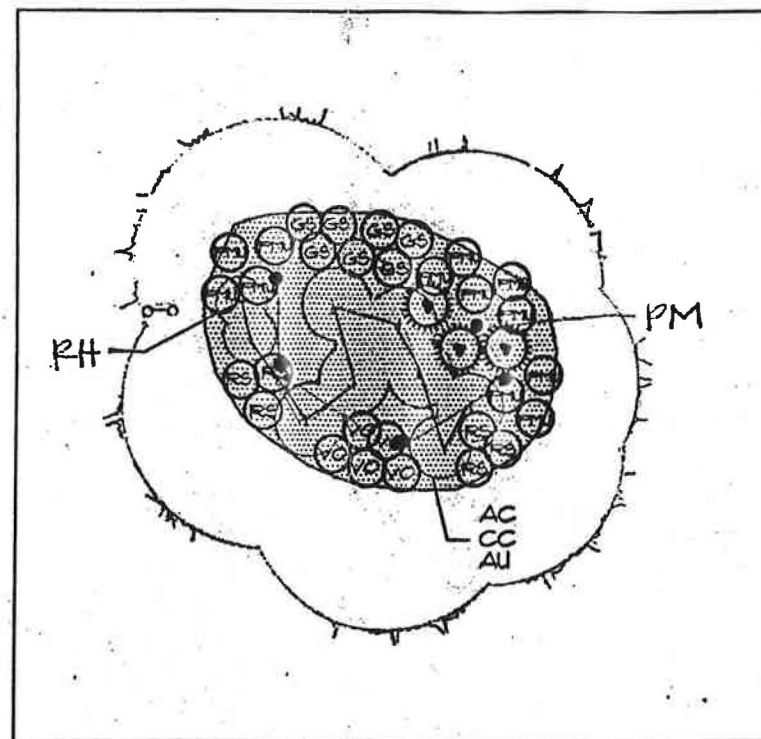
NOTES

See Landscape Restoration
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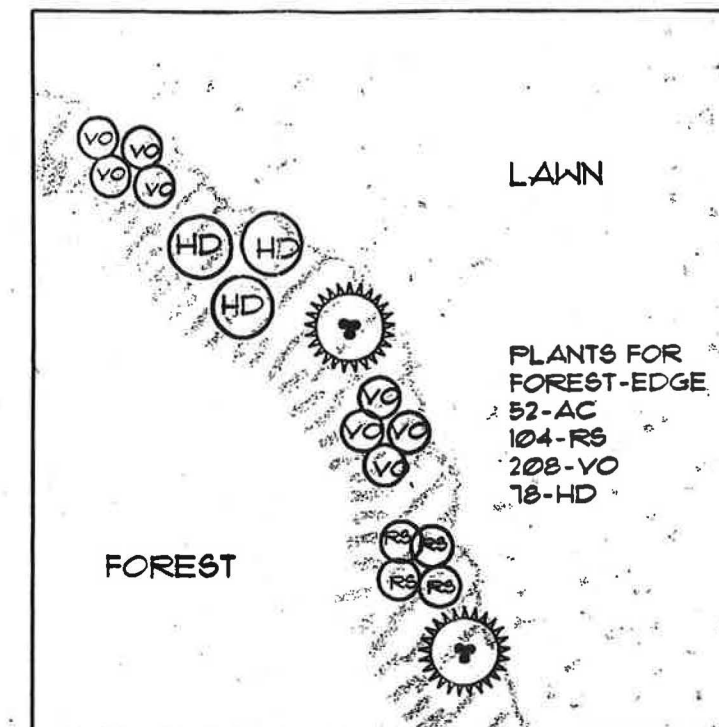
DESIGNED: K. Day	SUB SHEET NO.	TITLE OF SHEET Landscape Maintenance Labor Plan	DRAWING NO. 149 60,181
TECH. REVIEW:		National Park Service Olympic National Park Headquarters	PROG. NO. SHEET L2 OF
DATE: 4/7/90			



1 ADMINISTRATION BUILDING FOUNDATION PLANTING
SCALE: Approx. 1"=20'



2 FIR-RHODODENDRON ISLAND BEDS
SCALE: Approx. 1"=20'
SCALE: Approx. 1"=40'



3 FOREST-SHRUB TRANSITION ZONE
SCALE: Approx. 1/4"=1'
SCALE: Approx. 1/8"=1'

PLANTS FOR ADMIN.
BLDG.
4-AC
30-RS
10-VO
66-PMU
15-AM
20-BB
15-AT
20-DF
30-AU
200-AC
200-CC
200-CS

PLANTS FOR
FIR/RHOD. ISLANDS
35-AC
66-RS
55-VO
132-PMU
500-AU
300-AC
200-CC

PLANTING SCHEDULE

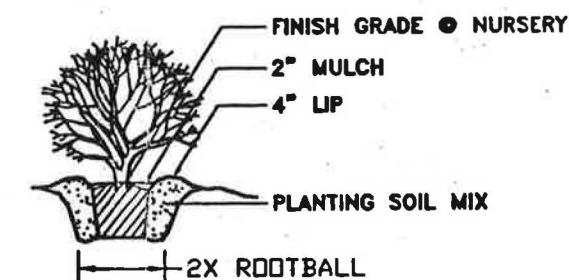
SYMB	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE (ht.)	CONDITION
●	AC	91	TREES			
			<i>Acer circinatum</i>	Vine Maple	5-6' height	multi-stem
●	PM		<i>Pseudotsuga menziesii</i>	Douglas Fir	EXISTING	
○			SHRUBS-FERNS			
	HD	78	<i>Holodiscus discolor</i>	Oceanspray	30-36" height	5 gal.
	Rh		<i>Rhododendron</i> sp.	Rhododendron	EXISTING	
	RS	200	<i>Ribes sanguineum</i>	Flowering Currant	30-36" height	5 gal.
	VO	273	<i>Vaccinium ovatum</i>	Evergreen Huckleberry	30-36" height	5 gal.
	P-MU	198	<i>Polystichum munitum</i>	Sword Fern	15-18" height	1 gal.
△			PERENNIALS			
	AM	15	<i>Achillea millefolium</i>	Yarrow	1 gal.	
	BS	24	<i>Blechnum spicant</i>	Deer Fern	1 gal.	
	AT	15	<i>Aesclepias tuberosa</i>	Butterfly weed	1 gal.	
■			GROUNDCOVERS			
	AU	560	<i>Arctostaphylos uva-ursi</i>	Kinnikinnick	4" pot - 15" OC	
	AC	500	<i>Asarum canadense</i>	Wild Ginger	4" pot - 15" OC	
	CC	200	<i>Cornus canadensis</i>	Bunchberry	4" pot - 15" OC	
■						
	CS	200	<i>Corydalis scouleri</i>	Corydalis	4" pot - 15" OC	

NOTES:

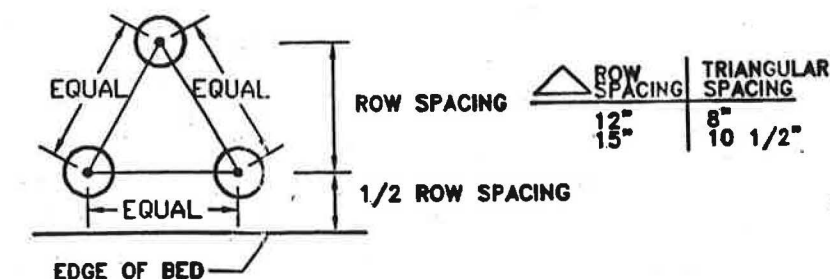
1. Planting plan for Administration Bldg. serves as a template for renovating the foundation beds around the entire building. Quantities in Plant Schedule reflect total number for complete planting.

2. South side of building should reflect the west side of the planting template. East side of the building should reflect the north side of the planting template.

3. See plans L.1 and L.2 for planting/renovation locations under contract.



4 SMALL TREE AND SHRUB PLANTING DETAIL
SCALE: NTS



5 GROUNDCOVER SPACING DETAIL
SCALE: NTS

DESIGNED: K. Day	SUB SHEET NO.	TITLE OF SHEET PLANTING TEMPLATES Admin. Bldg., Island Beds, and Forest Edge	DRAWING NO. 149 60,181
DATE:		National Park Service Seattle National Park Headquarters	SHEET L.3

III. Planting Recommendations – Standards and Specifications

RESTORATION PLANTING

A primary component to the rehabilitation and preservation of this historic landscape is the replanting of areas that have declined over the years. By studying the original plantings and those proposed in the 1984 historic landscape study, four general areas have been described below for renovation and replanting. Planting plans for these locations are found on L.3 and L.4.

- Restoration planting to rejuvenate the foundation beds adjacent to the Administration Building and The Superintendent's Residence. Many of these beds have become void of groundcovers and understory vegetation or overgrown with invasive ornamentals. The intent is to retain the historic character and significance of these areas within the landscape, while introducing seasonally interesting native species that will naturally adapt to their locations.
- Additional planting within the Douglas Fir-Rhododendron Island beds. The restoration planting is to reestablish the layered woodland character, with the evergreen canopy towering above a deciduous tree understory intermixed with broadleaf evergreens and groundcovers.
- Integrating seasonally interesting plants into the Forest-shrub Transition Zone will help to provide definition and distinction to the forest edge, reinforcing the sense of a 'clearing within the forest' as characterized by the original site layout. The planting template for these areas re-introduces a native understory layer with seasonal color and interest, enhanced by the coniferous evergreen background.
- The northern most edge of the meadow, along the roadway needs to be planted following the eradication of the Himalayan Blackberry. Planting this area with a low-shrub buffer will allow visibility to the meadow above while integrating with the adjacent forests to the east and west. This change will provide a welcoming character to the Headquarters' from the road and adjacent neighborhood.

SITE PREPARATION

Soil Amendment

The success of a new planting is often directly related to the quality of the soil and the amount of time put into soil preparation. All new planting locations are to have the existing soil renovated with four to six inches of organic soil amendment spread evenly over all the beds. The organic amendment is to be turned-over several times to mix thoroughly with the existing soil. The goal is to develop a consistent, well-blended, organically rich soil that will support the re-growth of the rhododendrons, while providing an ideal substrate for the new plants. Most of the existing ferns and groundcovers will need to be removed from the beds during soil

renovation and replanted during the planting phase. See CSI 02912 for Soil Preparation and for amendment source recommendations.

PLANT RECOMMENDATIONS

Plant selection is based on the restoration and preservation of the original plantings from the 1940-45 planting. In addition, plants were selected from the 1984 historic landscape study recommendations. Other considerations in plant selection were native plants, low-maintenance requirements, plant availability, and plant adaptability to location and climatic conditions.

PLANTING REQUIREMENTS

Planting in non-irrigated locations is best when our natural precipitation cycle can help to establish the plants in their new locations without frequent labor demands for watering. Site preparation for fall planting is recommended following the initial maintenance renovation of the planting areas.

WATERING REQUIREMENTS

New plantings will require watering for the first two growing seasons (2 years) before they will be established enough to adapt to our normal seasonal wet and dry cycle. Temporary soaker hoses can be serpentine throughout the planting beds at the foundation of the buildings after planting to assure regular and deep waterings during the summer months. The native plants specified on the planting plans are generally well adapted to our normal climatic conditions and will need little additional water after the first two years.

MULCHING

Mulch newly planted areas with 2-3 inches of decomposed organic matter. Mulching material should be a coarse, partially decomposed evergreen bark, free of weed seeds and dark in color. Mulching new plantings will help to maintain the health of the soil, prevent weed establishment and minimize watering requirements. See CSI 02912 for Soil Preparation for mulching source recommendations.

IV. CSI SITE SPECIFICATIONS

PART ONE - GENERAL

1.01 SUMMARY

- A. **Section Includes:**
This section includes statement of qualifications for contracted work involved in tree and shrub pruning, landscape maintenance and planting.
- B. **Related Sections:**
Section 02912.....Soil Prep
Section 02920.....Lawn Seeding
Section 02936.....Trees, Shrubs, and Groundcovers

1.02 REFERENCES

- A. **Governing Documents:**
UBC (Uniform Building Code), except as modified hereinafter.
- B. **Comply with current State and Federal safety and health standards, acts, codes and ordinances, including, but not limited to, OSHA and WISHA**

1.03 QUALITY ASSURANCE FOR TREE/SHRUB PRUNING

- A. **Arborist Qualifications/Tree Pruning Standards:**
 - 1. Engage a tree service firm that has ISA (International Society of Arboriculture) certified technicians who have successfully completed tree preservation and pruning work similar to that required for this Project.
 - 2. Retain certified arborist to observe/supervise and execute all pruning work which may affect existing trees and shrubs.
- B. **Tree Pruning Standards:**
Comply with the ANSI A300 *for Tree Care Operations - Tree, Shrub and other Woody Plant Maintenance Standard Practices* in accordance with the National Arborist Association's "Pruning Standards for Shade Trees" except where more stringent requirements are indicated herein.
- C. **Protection:**
 - 1. Provide protection in compliance with applicable provisions of current state and federal safety and health standards, and acts, codes and ordinances.
- D. **Pre-maintenance and installation Conference:**
Conduct conference at the Project site at the commencement of the Project.
 - 1. Before commencing tree and shrub pruning, meet with Landscape

- Architect.
2. Review trees to be protected, removed, and pruned and responsibilities within the contracted scope of work.

1.04 QUALITY ASSURANCE FOR TREE/SHRUB/GROUNDCOVER PLANTING

- A. Landscape Contractor Qualifications:
 1. Engage a landscape contractor who has membership in the Washington Native Plant Society, the Washington State Nursery and Landscape Association and the Society for Ecological Restoration, who have successfully completed site preparation and planting similar to that required for this Project.
 2. Retain a certified landscape contractor to execute all site preparation and planting work within existing trees, shrubs groundcovers.
- B. Plant Standards:

Comply with the most current edition of American Standard for Nursery Stock for quality and size of nursery stock.
- C. Protection:
 1. Provide protection in compliance with applicable provisions of current state and federal safety and health standards, and acts, codes and ordinances.
- D. Pre-maintenance and installation Conference:

Conduct conference at the Project site at the commencement of the Project.

 1. Before commencing tree, shrub and groundcover planting, meet with Landscape Architect.
 2. Review trees and shrubs to be protected and preserved within the contracted scope of work for site preparation and planting.

PART TWO - PRODUCTS

NOT USED

PART THREE - EXECUTION

3.01 EXAMINATION

- A Site Visits:
 1. Prior to start of Work, visit the site and verify the location and extent of scope of work for the pruning and maintenance Contract package. Visit site to verify completion of all maintenance work required prior to the commencement of Phase 2-Soil Preparation and Planting

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2. Prior to start of Work, visit the site and verify the location and extent of scope of work for soil preparation and planting shown on Drawings and Specifications which are part of the second phase of a Contract package. Visit site to verify completion of all soil preparation and planting prior for substantial completion.

3.02 PREPARATION

A. Protection

1. Comply with applicable provisions of current local, State and Federal safety and health standards, codes and ordinances.
2. Carefully maintain bench marks, monuments and other reference points. Replace as directed if disturbed or destroyed.
3. Protect or temporarily remove existing improvements to remain; restore damaged or temporarily removed improvements to original condition.
4. Provide, erect, and maintain all fences, barricades, signage, etc. as necessary to prevent accidents.

B. Traffic and Obstruction

Conduct site preparation work to minimize interference with facilities and the work of Headquarters Personnel.

C. Removal of Vegetation for Pruning and Maintenance Contract:

Remove trees specified for cutting to ground level and haul wood and brush from site. All shrub and understory vegetation designated for removal from planting beds, tree islands and forest edge shall be removed in its entirety including roots. All brush is to be removed and disposed of off site.

D. Soil Preparation

Prepare soil by adding organic amendments prior to planting as indicated in the *Landscape Restoration and Management Guidelines* manual.

3.03 WORKING AROUND EXISTING TREES

A. Minimize Compaction:

All heavy equipment should be located away from surface roots to minimize the impact of construction and damage from occurring to existing lawn.

B. Contracted Work Within Drip Line:

Do not excavate within tree drip line. Maintain existing grades. Integrate soil amendment to planting beds without damage to surface or support roots.

C. Utility Locations:

Identify utility locations prior to the commencement of the contract. Maintain or replace any damage that may occur to utilities.

3.04 GRADING AROUND TREES**B. Minor Fills - soil amendment and mulching**

Do not fill more than 4-inches within drip line of existing trees to remain.

3.05 TREE MAINTENANCE PRUNING**A. General:**

1. Prune all conifers trees identified for pruning within the limits of work.
2. Pruning Objectives: to remove deadwood, diseased or dying wood, reduce co-dominant lateral limbs, improve the health and vigor of trees, improve public safety and improve light quality to understory.
3. Remove no more than 20% of the total canopy.
4. All branches to be removed at the branch shoulder or to a lateral leader.

B. Pruning Standards:

Prune trees according to ANSI 300A and the National Arborist Association's Tree Maintenance ANSI 300A Standard Practices.

1. Crown Cleaning
2. Crown Thinning

END SECTION 02935

PART ONE - GENERAL

1.01 DESCRIPTION

- A. Description of Work:**
Furnish labor, equipment, materials and supplies and perform operations required to install imported planting soil and soil amendments and mulch.
- B. Related Work Specified Elsewhere:**
Section 02920 Seeding
Section 02935 Plant Maintenance/Statement of Qualifications
Section 02936 Planting

1.02 QUALITY ASSURANCE

- A. Tests and Inspections:**
 - 1. Provide test results for chemical and physical characteristics of all items listed under submittals.
 - 2. Costs of testing will be paid for by Contractor.
- B. Qualifications of Workers:**
 - 1. Landscape Contractor shall be a member of one or more of the following groups: Washinton Native Plant Society, Washington State Nursery and Landscape Association or the Society of Ecological Restoration.
 - 2. Provide at least one person who shall be present at all times during execution of this portion of the work, who shall be familiar with the type of materials being installed and the proper materials and methods for their installation, and who shall direct all work performed under this section.
 - 3. Staff shall be of sufficient size to be able to furnish required materials, deliver, and install all materials as shown on plans and promptly expedite the work.
 - 4. Submit statement listing quantity and type of equipment proposed for use on the job.

1.03 SUBMITTALS

- A. Plant Materials Lists:**
Within 30 calendar days following receipt of the Notice to Proceed, submit a complete list of plant materials proposed to be furnished and installed

demonstrating conformance with the requirements specified. Include names and addresses of all suppliers with invoices showing quantities sizes.

B. Soil Materials:

Submit 1 Gal. samples of the following at least 15 days prior to beginning work for the approval of the Landscape Architect

1. Soil Amendment: Composted medium-fine fir/hemlock bark
2. Mulch: Course composted fir/hemlock bark

C. Fertilizers:

Submit manufacturer's analysis of all fertilizers for the approval of the Landscape Architect.

1.04 SCHEDULE

A. General:

1. Submit a proposed schedule to the Landscape Architect for approval at least 15 days prior to start of work under this section.
2. After approval, make no modification to this schedule without written authorization by Landscape Architect.

B. Timing of the Work:

1. The work shall proceed as rapidly as the site becomes available, consistent with specified seasonal limitations for the planting and seeding.

1.05 PRODUCT HANDLING

A. Delivery and Storage:

1. Furnish standard products in manufacturer's standard containers bearing original labels showing quantity, analysis and name of manufacturer.
2. Store products with protection from weather or other conditions which would damage or impair the effectiveness of the product.

1.06 CLEAN UP

Keep work areas clean, neat and orderly at all times. Keep paved areas clean during planting and maintenance operations. Clean up and remove deleterious materials and debris from the entire work area prior to Final Acceptance.

1.07 FINAL ACCEPTANCE

A. Inspections:

1. Make written request for inspection after soil installation operations have been completed.
2. Submit written requests for inspections to Landscape Architect at least seven days prior to anticipated inspection date.

PART TWO - MATERIALS

2.01 ORGANIC AMENDMENT

A. General Soil Amendment:

1. Organic amendment shall consist of 100% fertilized and composted medium-fine fir/hemlock bark as manufactured by Spath Landscape Supplies, 11 Washington Harbor Rd., Sequim, WA (360) 681-2275

2.02 ORGANIC MULCH

A. General Mulch:

1. Organic mulch shall consist of 100% partially decomposed coarse fir/hemlock bark as manufactured by Spath Landscape Supplies (Address same as above)

2.03 FERTILIZERS

A. General:

1. Standard agricultural grade of organic fertilizer containing the amounts phosphorus typical for the product
2. Furnish in standard unopened containers with weight, name of plant nutrients and manufacturer's guaranteed statement of analysis clearly marked, in accordance with state and federal laws.

B. Phosphorus Fertilizer:

1. General: Available phosphoric acid specified below.
Bone Meal
2. Bone Meal (1-23-0), Superphosphate (0-20-0) or approved equal.

PART THREE - EXECUTION

3.01 SUBGRADE PREPARATION

A. Subgrade Scarification.

1. Scarify all subgrades to a 4 inch depth.

3.02 SOIL AMENDMENT PLACEMENT

A. General:

1. Place soil amendment in areas designated on the drawings for the installation of plant materials.
2. Place 6 inches of soil amendment on planting beds.
3. Mix thoroughly and uniformly with existing soil prior to planting
4. Uniformly compact to 65 percent maximum density (ASTM D 1557).

3.03 MULCH PLACEMENT

A. General:

1. Place mulch in areas designated on the drawings for the installation of plant materials.
2. Apply 3 inches of mulch following planting.

END SECTION-02920

PART ONE - GENERAL

1.01 DESCRIPTION

A. Description of Work:

1. Furnish all labor, equipment, materials and supplies and perform all operations to install and establish lawn areas until final acceptance.
2. Areas to be seeded are as shown on the drawings.
3. Provide seeding for all disturbed areas whether or not shown on the drawings.

B. Related Work In Other Sections

Section 02920 Soil Preparation

Section 02935 Site Maintenance/Statement of Qualifications

Section 02936 Trees, Shrubs, and Groundcovers

1.02 QUALITY ASSURANCE

A. Seed Standards:

1. Seed Certification:

Meet all requirements for "Certified" grade seed or better as defined by the State of Washington Department of Agriculture "Rules for Seed Certification", latest edition.

2. Seed:

All commercially grown seed shall be certified as true to species and variety.

3. Weed Seed:

All seed shall be free of weed seed listed as Primary Noxious, or Secondary Noxious by the Washington State Seed Law.

4. Analysis:

- a. A complete analysis of the seed shall be submitted to the Landscape Architect for approval including name of producer or seller, lot number, percent of pure live seed, germination, other crop seed both inert and weed, and the germination test date.
- b. All crop seed in excess of one percent must be itemized.
- c. A separate analysis for each grass species in the mixes shall be supplied.

B. Standard Specifications:

1. Conform to all applicable requirements of the latest Edition of the Washington State Chapter of the APWA except as specifically modified herein.

1.03 PRODUCT HANDLING

A. Delivery and Storage:

1. Furnish products in producer's standard containers bearing original labels showing:
 - a. Name of producer
 - b. Analysis of seed mixture
 - c. Percentage of pure live seed
 - d. Year of seed production
 - e. Net weight
 - f. Date and location of packing
2. Store products with protection from moisture and weather or other conditions which would damage or impair the effectiveness of the product.
3. Seed that has become wet, moldy or otherwise damaged will be rejected.

1.04 SEEDING SEASON LIMITS

A. General:

Perform seeding operations during the period beginning April 15 through October 15.

1.05.1 CLEAN UP

Keep work areas clean, neat and orderly at all times. Keep paved areas clean during seeding and maintenance operations. Clean up and remove deleterious materials and debris from the entire work area prior to Final Acceptance.

1.06 MAINTENANCE

A. General:

1. Begin immediately following seeding and continue until Final Acceptance.
2. Continue for a minimum of two mowings.
3. Maintenance shall consist of any necessary watering, mulching, weed control or repair, and reseeding of any damaged or non-germinating areas.
4. Protect seeded areas against damage of all kinds. Such protection may include temporary fences to keep dogs off newly seeded areas, barriers and signs.

5. If seeding become damaged or injured, treat or replace as directed by Owner.

B. Watering:

1. Provide all labor and arrange for all watering necessary for establishment of the seed.
2. In the absence of rainfall, perform daily or as often as necessary and in sufficient quantities to maintain moist soil to a depth of at least 4 inches.

C. Mowing:

1. The first mowing shall take place when the grass reaches 3 inches in height. Cutting height 2 inches. Leave clippings in place.
2. Continue to mow lawn grass when it reaches 3 inches in height until final acceptance by Owner. Cutting height 2 - 2-1/2 inches. Leave clippings in place.

D. Weeding:

1. The Contractor shall be responsible for the elimination of all weeds listed as Primary Noxious and Secondary Noxious which germinate in the seeded areas.
2. Care shall be taken in using chemicals or mechanical weeding methods to insure that neither the adjacent seeding nor existing vegetation are damaged.

1.07 FINAL ACCEPTANCE

A. General:

1. Following the establishment of seeded areas, a minimum of two mowings, schedule a final inspection by the Landscape Architect and Owner in the presence of the Contractor.
2. Schedule the inspection with the Landscape Architect and Owner 72 hours prior to the proposed meeting.

B. Acceptance Standards:

1. Acceptance of grass seeding shall be based on a natural-appearing, uniform distribution of grass and absence of weeds.
2. Areas of one (1) square foot or more which are bare or do not have a natural-appearing, uniform distribution of grass shall be reseeded by the Contractor.
3. Reseeding shall conform to all specification requirements.

PART TWO - MATERIALS

2.01 SEED MIX

- A. Seed General:
 - 1. All seed shall be certified quality.
 - 2. Seed shall be dry and not moldy and shall show no sign of having been wet or otherwise damaged.
 - 3. All weights listed are based upon the weight of pure live seed per acre.
- B. Lawn Seed Mix:
 - 1. Seed mix is by weight of pure live seed:
 - a. DF Marks Company 1-800-767-3802
 - Show & Shade..... 7.0 lbs / 1000 SF
 - 40% Southport Chewing Fescue
 - 20% Elf Perennial Ryegrass
 - 20% Fenway Red Fescue
 - 10% Perennial Ryegrass
 - 10% Kentucky Bluegrass
 - or approved equal.

PART THREE - EXECUTION

3.01 SEEDING

- A. Seeding:

Conform to Standards established in the National Park Headquarters - *Landscape Restoration and Management Guidelines* document.

END SECTION 02930

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PART ONE - GENERAL

1.01 DESCRIPTION

- A. Description of Work:
Furnish labor, equipment, materials and supplies and perform operations required to install and establish the specified plant materials.
- B. Related Work Specified
Section 02912 Soil Preparation
Section 02920 Lawn Seeding
Section 02935 Plant Maintenance and Site Preparation
Statement of Qualifications

1.02 QUALITY ASSURANCE

- A. Standards:
 - 1. General:
Plants and planting materials shall meet or exceed the specifications of Federal, State and County laws requiring inspection for plant disease and insect control.
 - 2. American Standard for Nursery Stock:
Quality and size shall conform to the 1996 Edition of the "American Standard for Nursery Stock" published by the American Association of Nurserymen.
 - 3. Plant Nomenclature:
Plant names shall conform to "Flora of the Pacific Northwest" by Hitchcock and Cronquist, University of Washington Press, 1973.

1.03 SUBMITTALS

- A. Materials Lists:
 - 1. Within 20 days after award of the Contract, submit a complete list of materials proposed to be furnished and installed demonstrating conformance with the requirements specified.
 - 2. Include the names and addresses and phone numbers of all plant material suppliers and growers.

1.04 ORDERING OF PLANT MATERIAL

- A. Documentation:
Submit documentation to Landscape Architect at least 15 days prior to start of work under this section that plant materials have been ordered. Arrange

procedure for inspection of plant material with Landscape Architect at time of submission.

B. Inspection:

1. Plants shall be subject to inspection and approval by Landscape Architect for conformance to specifications upon delivery to project site. Such approval shall not impair the subsequent right of inspection and rejection during progress of the work.
2. The Landscape Architect may elect to inspect plant materials at the place of growth.

1.05 SUBSTITUTIONS

A. General:

1. Substitutions of plant materials will not be permitted unless authorized in writing by Landscape Architect.
2. If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of Contract price.
3. Such proof shall be substantiated and submitted in writing to the Landscape Architect at least 20 days prior to start of work under this section.
4. These provisions shall not relieve Contractor of the responsibility of obtaining specified materials in advance if special growing conditions or other arrangements must be made in order to supply specified materials.

1.06 PLANTING SCHEDULE

A. General:

1. Submit a proposed schedule, coordinated with Landscape Architect for approval at least 20 days prior to start of work under this section.
2. After above approval, no modification shall be made to this schedule without written authorization by Landscape Architect.

1.07 PRODUCT HANDLING

A. Plant Materials:

1. When shipped by truck, pack to provide protection against climate and breakage or drying.
2. When shipped by rail, pack carefully and properly ventilate; prevent damage to bark, branches, and root system.
3. Do not handle individual plants by trunk, limbs, or foliage but only by box, ball, or other container.

4. Install plants immediately upon delivery to project site. If there is unavoidable delay cover rootballs with moist soil or mulch.
5. Immediately remove from site all plants which are not true to name or which do not comply with specified requirements.

1.08 PLANTING SEASON LIMITS

A. General:

1. Planting shall occur with timing of natural precipitation cycle in fall
2. At no time shall bare root material be planted after leafing out
3. Boxed, balled, or container material may be installed at any time.

B. Air Temperature:

Do not install plant materials during freezing weather or when the ground is frozen.

1.09 CLEAN UP

A. General:

Keep work areas clean, neat and orderly at all times. Keep paved areas clean during planting and maintenance operations. Clean up and remove deleterious materials and debris from the entire work area prior to Final Acceptance.

1.10 FINAL ACCEPTANCE

A. General:

Work under this section will be accepted by Landscape Architect upon satisfactory completion, including maintenance, but exclusive of replacement of plant materials under the Warranty Period. Upon Final Acceptance, the Owner will assume responsibility for maintenance of the work.

B. Inspections:

1. Make written request for inspection after planting operations have been completed. Such inspection is for the purpose of establishing the Warranty Period.
2. Submit written requests for inspections to Landscape Architect at least 7 days prior to anticipated inspection date.

1.11 WARRANTY PERIOD AND REPLACEMENTS

A. General:

Contractor shall warrant that all plants installed under this Contract will be healthy and in flourishing condition of active growth one year from date of Final Acceptance.

B. Plant Replacements:

1. Replace, without cost to the Owner, and as soon as weather conditions permit, all dead plants and all plants not in a vigorous, thriving condition, during, and at the end of the Warranty Period. Plants shall be free of dead or dying branches and branch tips, and shall bear foliage of a normal density, size and color. Replacements shall closely match adjacent specimens of the same species and shall be subject to all requirements of this specification.
2. Rejected plants may be retained in place or be required to be removed at the discretion of the Owner.
3. Contractor shall not be held responsible for failures due to neglect by the Owner or vandalism during Warranty Period. Report such conditions to Owner in writing.
4. Warranty shall not include damage or loss of plant materials caused by fires, floods, freezing rains, lightning storms, winds over seventy-five (75) MPH, or winter kill caused by extreme cold and severe winter conditions not typical of the project site.
5. Plant replacement during the warranty period shall be limited to one replacement unless the prior plant installation did not meet the requirements of these specifications.

1.12 WARRANTY INSPECTION

A. General:

A final inspection will be held in presence of Contractor, the Landscape Architect, and the Owner at the end of the one-year period. It shall be the Contractor's responsibility to notify the Landscape Architect and Owner 10 days prior to the anticipated meeting.

PART TWO - MATERIALS

2.01 PLANTS

A. General:

Plants shall be nursery grown in accordance with good horticultural practices under climatic conditions similar to or more severe than those of project.

B. Plant Health:

Plants must be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs or larvae, and shall have healthy, well developed root systems. They shall be free from physical damage or any adverse conditions that would prevent thriving growth.

C. Plant Size:

1. Plants shall be true to species and variety and shall conform to sizes specified except that plants larger than specified may be used if approved by Owner.
2. Use of such plants shall not increase the Contract price.
3. If larger plants are used, the container shall be increased in proportion to the size of the plant.
4. Height and spread dimensions specified refer to main body of plant and not branch tip to tip.
5. Plant dimensions shall be measured when their branches are in their normal position.
6. Caliper measurement will be taken at a point on the trunk 6-inches above natural ground line for trees up to 4-inches in caliper and at a point 12-inches above the natural ground line for trees above 4 inches in caliper.
7. If a range of size is given, no plant shall be less than the minimum size and not less than 75% of the plants shall be as large as the maximum size specified.
8. The measurements specified are the minimum size acceptable and are the measurements after pruning, where pruning is required.

D. Labels:

Label plants with durable, legible labels stating correct plant name and size. Attach securely to 10 specimens of each plant. Plants supplied in flats shall have one label per flat.

E. Container Grown Plants:

1. Shall have grown in the containers in which delivered for at least six months, but not over two years.
2. Samples must prove no root-bound conditions exist.
3. Root-bound plants and container plants that have cracked or broken balls of earth when taken from container shall not be planted.

F. Balled and Burlapped Plants:

Firm, natural balls of soil in sizes shown in American Standard for Nursery Stock; wrapped firmly with burlap or approved material; bound carefully with twine, cord, or wire mesh.

G. Specimen Plants:

1. Trees and shrubs listed in the schedule as specimen plants shall be superior in form, extra heavily branched and more vigorous in growth

than plant standards (for the type or species) in AAN American Standard for Nursery Stock.

2. Specimen plants shall be selected and tagged by the Landscape Architect in the nursery and must be labeled as specimen plants.

H. Collected Plants:

1. Plants listed in the schedule as "field collected" shall meet all ANN standards for Collected Plant Materials as well as applicable standards for nursery grown material.
2. Collected plant materials do not have to qualify for ANN status as nursery grown by being nursery held for the period specified by ANN Standards.

2.02 DAMAGED PLANTS

A. General:

1. Plants shall not be pruned before delivery.
2. Trees which have damaged or crooked leaders, or multiple leaders, unless specified, will be rejected.
3. Trees with abrasions of the bark, sunscalds, disfiguring knots, or fresh cuts of limbs over 3/4 inch which have not completely callused, will be rejected.

2.03 PLANT LIST

A. General:

Provide the individual plant species as shown on the drawings.

B. Quantities:

Provide the mix of individual plant species according to the total quantity shown on the drawings for each planting area.

2.04 PLANTING SOIL

A. General:

Planting amendment soil is specified in Section 02912 Soil Preparation.

2.05 MULCH

A. General:

Mulch material is specified in Section 02912 Soil Preparation

1. Mulch shall be partially decomposed course fir-helock bark
2. Free of weed seed and roots, sticks, lumps, and other foreign material.

B. Gradation:

Meet submittal requirements to Landscape Architect for approval

- C. **Approved Products:**
Spath Landscape Supplies (360) 681-2275
for soil amendment and mulch, or approved equal.

2.06 FERTILIZERS

- A. **General:**
1. Standard commercial grade of organic or inorganic fertilizer containing the amounts of total nitrogen, available phosphoric acid and water soluble potash specified below.
 2. Furnish in standard unopened containers with weight, name of plant nutrients and manufacturer's guaranteed statement of analysis clearly marked, in accordance with state and federal laws.
- B. **Planting Fertilizer:**
1. Use Bone Meal in all planting pits according to label specifications for application.

PART THREE - EXECUTION

3.01 GENERAL

- A. **General:**
The placement of planting soil is specified in Section 02920 Soil Preparation.

3.02 LAYOUT AND EXCAVATION OF PLANT PITS

- A. **Layout:**
1. Layout plants or stake positions in locations shown on drawings for Landscape Architect's inspection and approval.
 2. Landscape Architect will adjust locations in the field before planting begins.
 3. Landscape Architect reserves right to refuse such inspection if, in her opinion, an insufficient number of plants are available on site. All plants specified for each area to be planted must be available for layout
- B. **Excavation:**
Excavate plant pits to the following dimensions:
1. Trees less than 4-inch caliper and Shrubs:
To a width 18 inches greater in any dimension than rootball or container and 6 inches greater in depth.

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2. Evergreen and Deciduous Shrubs:
To a width 12 inches greater in any dimension than container and 6 inches greater in depth except where detailed otherwise.
3. Groundcover, Vines and Herbaceous Plants:
For containerized plants, excavate pits to a width 4 inches greater in any dimension than container and 6 inches greater in depth, except where detailed otherwise.
4. Subsoil Removal:
Separate subgrade soils and remove from planting area during planting operations. Loosen subgrade in pits and beds to a depth of 3 inches. Thoroughly scarify sides of planting pits.
3. Proceed with work only after written approval of Landscape Architect.

3.05 PLANT PLACEMENT

- A. General:
 1. Protect plants at all times from sun or drying winds.
 2. Plants that cannot be planted immediately on delivery shall be kept in the shade, protected from wind, and maintained at each species optimum moisture content.
- B. Container Removal:
 1. Canned stock shall be removed carefully after container has been cut on two sides with approved cutter.
 2. Do not lift or handle container plants by tops, stems, or trunks at any time.
 3. After removing plant from container, scarify side of rootball to prevent root-bound condition.
- C. Plant Placement:
 1. Use Planting Soil Mixed evenly with decomposed organic amendment to backfill plant pits.
 2. Place plant and rotate to best advantage from principal viewpoints of adjacent walkways.
 3. Set plant plumb and brace rigidly in position until planting soil has been tamped solidly around the ball and roots.
 4. When plant pits have been backfilled approximately 2/3 full, completely flood with water containing rooting hormone, before installing remainder of the planting soil to top of pit.
 5. Firm soil to eliminate air pockets.
- D. Burlap Removal on Trees:

8/26/04

1. When 2/3 backfilled, cut ball ties, remove burlap from top and sides, cut and adjust to prevent formation of air pockets.
2. Removal burlap from under the balls.

3.06 MULCH PLACEMENT

- A. **Finish Grading:**
Smooth planting area to conform to specified grades after full settlement has occurred.
- B. **Mulch Placement:**
Mulch all pits and beds with a 2 inch layer of mulch.

3.08 PRUNING

- A. **General:**
Prune plants only after planting, in accordance with standard horticultural practice, and only at the direction of the Landscape Architect.
- B. **Pruning of existing trees:**
Pruning to remove dead wood, broken or damaged branches shall be done as directed by and under supervision of the Landscape Architect.

END SECTION 02950