

PART D: DESIGN DEVELOPMENT

INTRODUCTION

Preservation treatment for the Fort Lewis Historic District is based on the identification of significant historic landscape resources documented in the research, analysis and evaluation portions of this report. They have been prepared using The Guidelines for the Treatment of Historic Landscapes (draft 1992), preservation treatment standards prepared as part of the *Secretary of Interior's Standards for Historic Preservation Projects*. Site treatment options for the Ft. Lewis Historic District include *preservation* and *rehabilitation*. These terms are defined as follows:

Preservation maintains the form, materials, and features of the landscape as it has developed over time, acknowledging its growth, loss, and change.

Rehabilitation retains the landscape as it has evolved historically by maintaining and repairing historic features, while allowing additions and alterations for contemporary and future uses.

Preservation treatments are based on the Historic Management Zones identified in Phase C, and are presented in three sections, General, Management Zone I, and Management Zone II Preservation Treatments. The General Preservation Treatment section provides the overall preservation philosophy for the Historic District. The following two sections identify treatments which are specific to the two historic management zones. In addition, design treatments for historic vegetation in Zone I have been developed to provide more detailed information for preserving historic vegetation. This section includes preservation treatments, plant replacement guidelines, and drawings for typical planting design scenarios.

All three preservation treatment sections are organized into six program areas based on character-defining features: Response to Natural Features, Spatial Organization and Land Use, Circulation, Vegetation, Views and Vistas, and Small-Scale Features.

Any undertakings (projects, activities, or programs) planned for the Historic District that do not or cannot follow these preservation treatments, require consultation with the Ft. Lewis Cultural Resource Manager for compliance under the National Historic Preservation Act of 1966.

GENERAL PRESERVATION TREATMENTS

GENERAL PRESERVATION TREATMENTS

Treatment for Overall Historic District

RESPONSE TO NATURAL FEATURES

REQUIRED	NOT PERMITTED
<p>a. Evaluate existing or potential threats to natural features prior to any site alterations.</p> <p>b. Preserve the relationship between Jackson's Prairie and the surrounding forested hills by: 1) protecting existing open areas on Jackson's Prairie and restoring areas that were historically open spaces; and 2) preserving the forest along 6th Engineers Bluff and maintaining a wooded buffer between Davis Hill and the District. If feasible, expand the buffer on Davis Hill.</p> <p>c. Preserve the natural and designed grades. For example, the historical topography of the developed area which consists of the level slope of Jackson's Prairie, and the hills north and south of the prairie.</p>	<p>a. Initiate new construction or intensive land use practices that adversely affect important natural resources. For example, the adverse effects of new construction on wildlife and native vegetation.</p> <p>b. Introduce new development into areas that were historically open spaces. And, conversely, introduce new development into forested areas such as into 6th Engineer's Bluff.</p> <p>Remove the forest vegetation from Engineer's Bluff and wooded buffer from Davis Hill.</p> <p>c. Allow construction that severely alters the historic grade, such as major cutting and filling.</p> <p>Create berms as visual screens or as building platforms.</p>

OVERALL ORGANIZATION AND LAND USE

REQUIRED	NOT PERMITTED
<p>a. Preserve the historic patterns and layouts of the overall designed landscape (U-shaped standard plan) and of the individual land use areas. For example, maintain the overall circulation systems; land uses, and design relationships between the different land use areas; as well as maintain the layouts, orientations, and setbacks of buildings; open space and developed area relationships; vegetative patterns; and road and sidewalk configurations of distinct housing areas such as the General's quarters, Broadmoor, Greenwood, and the Barracks.</p> <p>b. If possible, maintain the functional use of the individual historic land use areas; for example, housing, operations, administration, service, and open space, land use areas.</p> <p>c. Preserve important historic elements that help define the boundaries of distinct land use areas such as roads, street trees, vegetative screens, and open spaces.</p> <p>d. Preserve the formal and informal characteristics of the historic landscape. For example, the open spaces as well as the treatment of the space in front of and behind buildings have distinct characters. In general, spaces in front of buildings are formal in character and in the rear are utilitarian and/or informal in character.</p>	<p>a. Alter historic layouts, such as adding new buildings with setbacks that differ from historic setbacks, construct new features in an open space, remove or alter the circulation features that define the layout and organization of the area, and demolish historic structures which changes the historic landscape patterns.</p> <p>b. Alter the functions of a historic land use area in a way that changes other historic character-defining features such as building setbacks and layouts, roads and sidewalks, and vegetation.</p> <p>c. Change existing or introduce new features between historic land use areas. For example, remove or reroute a road that acts as a dividing line between a housing area and an operations area; add a vegetative screen or a wall in a historically open area; or likewise, remove street trees that contribute to the overall organization of the landscape.</p> <p>d. Change the historic formal or informal design character of an area or building. For example, add parking, clotheslines and garbage cans, or site furniture to the front (formal) side of buildings.</p>

CIRCULATION:

Roads, sidewalks, parking spaces, and driveways

REQUIRED	NOT-PERMITTED
<p>a. Preserve historic circulation features such as roads, sidewalks, parking spaces, and driveways. Maintain their historic characteristics including the following actions:</p> <p>b. Preserve the historic surface material for circulation features, primarily concrete roads, exposed aggregate concrete sidewalks, and driveways. Repair and replace the historic surface material with material that matches historic colors, textures, and compositions.</p> <p>c. Preserve historic curbs during resurfacing by maintaining the historic height or finish elevation of the road.</p> <p>d. Maintain road profiles and drainage systems such as crowned roads with roadside gutters and catch basins/drain inlets when possible.</p> <p>e. Protect, maintain, and replace when necessary, street trees or other plantings which contribute to the character of roads and sidewalks through a regular program of pruning, mowing, weeding, and pest management.</p> <p>f. Reuse historic circulation features such as roads, sidewalks, parking spaces, and driveways as the landscape is upgraded for contemporary uses.</p>	<p>a. Fail to preserve historic roads, sidewalks, parking, and driveways.</p> <p>b. Fail to repair or replace deteriorated historic surfaces with historic materials. For example, patch or resurface a concrete road with asphalt.</p> <p>c. Remove historic curbs or alter the relationship of the road surface and the curb by adding height or thickness to the road.</p> <p>d. Fail to clean and maintain drainage features so that damage to historic circulation features occurs from flooding or erosion.</p> <p>e. Fail to maintain and replace character-defining vegetation bordering historic roads such as historic street trees lining streets in Ft. Lewis.</p> <p>f. Add new roads, sidewalks, parking spaces or driveways when historic features could have been reused.</p>

CIRCULATION CONTINUED. . .

REQUIRED	NOT-PERMITTED
<p>g. Preserve the historic alignment and widths of circulation features. For example, preserve the curvilinear street alignments in Broadmoor.</p> <p>h. Place new utilities underground or site them so they do not damage historic features and are not visually intrusive.</p> <p>i. Limit the addition of new curb cuts, driveways, and access routes (paths, sidewalks).</p> <p>j. Provide the highest level of barrier-free access to the landscape with the least amount of impact by selecting areas where the fewest alterations to the historic features and materials are required. Study a range of design solutions in order to minimize adverse impacts.</p>	<p>g. Alter the historic alignment and width of a road, sidewalk, or driveway. For example, straighten or widen the curvilinear roads of Broadmoor.</p> <p>h. Construct new telephone and electrical lines above ground they have a negative visual impact on the character of the historic circulation system.</p> <p>i. Add curb cuts, driveways, paths and sidewalks to the extent that they alter the character of the historic circulation system. Construct new features with materials that are compatible with historic material but are not exact replicas.</p>

STRUCTURES:

SEE MAINTENANCE AND REPAIR MANUAL FOR HISTORIC STRUCTURES:
FORT LEWIS. Seattle District, Corps of Engineers, Walter Greissinger Architects,
Contract Number: DAC A67 - 86 - C - 0129.

REQUIRED	NOT-PERMITTED
a. Preserve and maintain historic buildings according to Secretary of Interior's Standards for Rehabilitation.	a. Fail to preserve or maintain historic structures according to Secretary of Interior's Standards for Rehabilitation.

VEGETATION:

trees, shrubs, lawns, street trees, hedges, planting beds

REQUIRED	NOT-PERMITTED
<p>a. Preserve, maintain, and restore the historic, character-defining form, arrangement, and species of vegetation through regular and cyclical maintenance. For example, maintain historic foundation plant material at its appropriate height and shape through pruning or removing volunteer plant material.</p> <p>b. Maintain the informal character of foundation planting beds by using hand-tooled edges. If edging must be added, use thin, flexible aluminum or steel edging which is not visually intrusive.</p>	<p>a. Allow vegetation to grow beyond its intended design scale so that it alters the character of other significant historic features. For example, allow foundation plants to grow until they obscure major portions of a historic building.</p> <p>Prune a tree excessively and/or incorrectly (topping) without regard to its health, or shape.</p> <p>Prune vegetation into an inappropriate form, such as shaping a shrub into a geometric form when it was not shaped in this manner historically.</p> <p>b. Change the historic character of foundation planting beds by adding inappropriate edging material such as timbers and stones.</p> <p>Replace a deteriorating or missing vegetation feature with inappropriate plant material in a way that alters the historic appearance.</p> <p>Introduce an incompatible new vegetation feature. For example, plant flower beds at the barracks when they were not planted historically; add foundation planting to the warehouses in the operations area; or add vegetation to an area that was historically an open area, lawn, or vista.</p>

VEGETATION CONTINUED. . .

REQUIRED	NOT PERMITTED
<p>c. Replace historic vegetation, when necessary, with the same species, if it is technically and environmentally feasible. If the same species cannot be used due to maintenance or safety concerns, replace vegetation with material that replicates the design intent, shape, form, and function of the historic vegetation features. Native species that replicate the historic design character are considered appropriate replacement species.</p> <p>d. Consider the addition of vegetation features to screen visually incompatible, non-historic elements or new construction. New vegetation features are to be compatible with the historic character of the landscape.</p> <p>e. Plant replacement vegetation in the same location unless technical or environmental reasons make this unsuitable or unsafe. For example, if a historic tree is planted so close to other historic features that it is causing damage to the features and the tree, it should be replaced in an alternative location. However, the new location should be as close as possible to the original location and should preserve the relationship between the planting and the other historic elements.</p>	<p>c. Replace vegetation in a way that alters the historic design intent and function. For example, remove historic foundation vegetation and planting new beds away from a structure, or using round-shaped, deciduous plants to replace columnar-shaped coniferous plants.</p> <p>d. Fail to screen incompatible contemporary features such as new parking lots with vegetation. Screen incompatible features with inappropriate materials such as fences or walls. Or, use tall, dense hedges as screens rather than more informally and less densely planted trees and shrubs.</p>

VEGETATION CONTINUED. . .

REQUIRED	NOT-PERMITTED
f. Evaluate the condition of vegetation to determine appropriate maintenance practices such as pruning, integrated pest management practices, and environmentally sensitive fertilization.	f. Allow historic vegetation to die or become unhealthy due to inappropriate maintenance practices or through neglect.

VIEWS AND VISTAS

REQUIRED	NOT-PERMITTED
<p>a. Retain important visual connections between spaces or areas within the landscape by maintaining roads, sidewalks, open areas, and topography which contribute to these visual relationships.</p> <p>b. Retain the form and shape of significant open spaces such as the length and width of the parade ground, or designed open spaces in housing areas.</p> <p>c. Retain historic views through the control or removal of invasive or volunteer plant material or by pruning vegetation that has grown large enough to obscure historic views.</p> <p>d. Construct new features in areas of the landscape that do not impede on historic views.</p>	<p>a. Alter or change visual connections by adding walls, fences, or vegetation that blocks historic views such as views from the parade ground toward Mt. Rainier.</p> <p>Introduce vegetation to historically open spaces.</p> <p>b. Change the configuration, alignment, or width of open spaces which diminishes the historic character of the landscape. For example, narrow or shorten the dimensions of the parade ground, or historic open spaces in housing areas.</p> <p>c. Fail to remove or prune vegetation that obscures historic views.</p> <p>d. Locate new features such as constructing large parking lots or buildings in areas that block historic views.</p> <p>e. Expose non-historic views through the removal of significant plant material. For example, remove and not replace historic trees in open spaces found in housing areas.</p>

SMALL-SCALE FEATURES:

Cast iron guardrails and clothesline posts, wrought iron stair handrails

REQUIRED	NOT-PERMITTED
<p>a. Preserve historic small-scale features and repairing deteriorated parts of features through limited replacement in kind. If using historic materials is not possible, use substitute materials with the same historic appearance.</p> <p>b. Install new small-scale features, if necessary for contemporary uses, as long as their design, placement, color, and quantity do not alter the character of the landscape. For example, a limited number of non-permanent site furnishings such as a bench or picnic table may be added to buildings in housing areas. However, construct them with materials that are compatible with historic materials (exposed aggregate concrete, cast or wrought iron) and locate them only at the rear of houses to correspond to the informal character of back yards.</p> <p>New features should not be historic-looking designs or reproductions of features that never existed in the landscape.</p> <p>c. Consider the replacement of modern light standards and poles in areas which historically had lighting. Base the design on the design used at Ft. Lewis during the historic period, see detail sheet.</p>	<p>a. Fail to identify, evaluate, and treat cumulative effects of neglect, use, and climatic conditions so that small-scale features are lost.</p> <p>Repair or replace features with inappropriate materials. For example, use wood to replace cast iron guardrails and clothesline poles. Or, paint replacement metal features with non-historic colors, e.g. a color other than black.</p>

GENERAL PRESERVATION TREATMENTS

RESPONSE TO NATURAL FEATURES

REQUIRED	NOT PERMITTED
<p>a. Evaluate existing or potential threats to natural features prior to any site alterations.</p> <p>b. Preserve the relationship between Jackson's Prairie and the surrounding forested hills by: (1) protecting existing open areas on Jackson's Prairie and restore areas that were historically open spaces and (2) preserving the forest along 8th Engineers Bluff and maintain a wooded buffer between Davis Hill and the District. If feasible, expand the buffer on Davis Hill.</p> <p>c. Preserve the natural and designed grades. For example, the historical topography of the developed area which consists of the level slope of Jackson's Prairie, and the hills north and south of the prairie.</p>	<p>a. Initiate new construction or intensive land use practices that adversely affect important natural resources. For example, the adverse effects of new construction on wildlife and native vegetation.</p> <p>b. Introduce new development into areas that were historically open spaces. And, conversely, introduce new development into forested areas such as into 8th Engineer's Bluff.</p> <p>Remove the forest vegetation from Engineer's Bluff and wooded buffer from Davis Hill.</p> <p>c. Allow construction that severely alters the historic grade, such as major cutting and filling.</p> <p>Create berms as visual screens or as building platforms.</p>

OVERALL ORGANIZATION AND LAND USE

REQUIRED	NOT PERMITTED
<p>a. Preserve the historic patterns and layouts of the overall developed landscape (1) show standard plans and of the individual land use areas. For example, maintain the overall circulation systems, land uses, and design relationships between the different land use areas as well as maintain the layouts, orientations, and setbacks of buildings, open space and developed area relationships; vegetative patterns and roads and sidewalk configurations of distinct housing areas such as the General's quarters, Broodmoor, Greenwood, and the Barracks.</p> <p>b. If possible, maintain the functional use of the individual historic land use areas for example, housing, operations, administration, service, open space, and medical land use areas.</p> <p>c. Preserve important historic elements that help define the boundaries of distinct land use areas such as roads, street trees, vegetative screens, and open spaces.</p> <p>d. Preserve the formal and informal characteristics of the historic landscape. For example, the open spaces as well as the treatment of the space in front of and behind buildings have distinct character. In general, spaces in front of buildings are formal in character and in the rear are utilitarian and/or informal in character.</p>	<p>a. Alter historic layouts, such as add new buildings with setbacks that differ from historic setbacks, construct new features in an open space, remove or alter the circulation features that define the layout and organization of the area, and demolish historic structures which change the historic landscape patterns.</p> <p>b. Alter the functions of a historic land use area in a way that changes other historic character-defining features such as building setbacks and layouts, roads and sidewalks, and vegetation.</p> <p>c. Change existing or introduce new elements between historic land use areas. For example, remove or reroute a road that acts as a dividing line between a housing area and an operations area; add a vegetative screen or a wall in a historically open area or likewise, remove street trees that contribute to the overall organization of the landscape.</p> <p>d. Change the historic formal or informal character of an area or building. For example, add parking, clotheslines and garbage cans, or site furniture to the front formal side of buildings.</p>

CIRCULATION—roads, sidewalks, parking spaces, and driveways

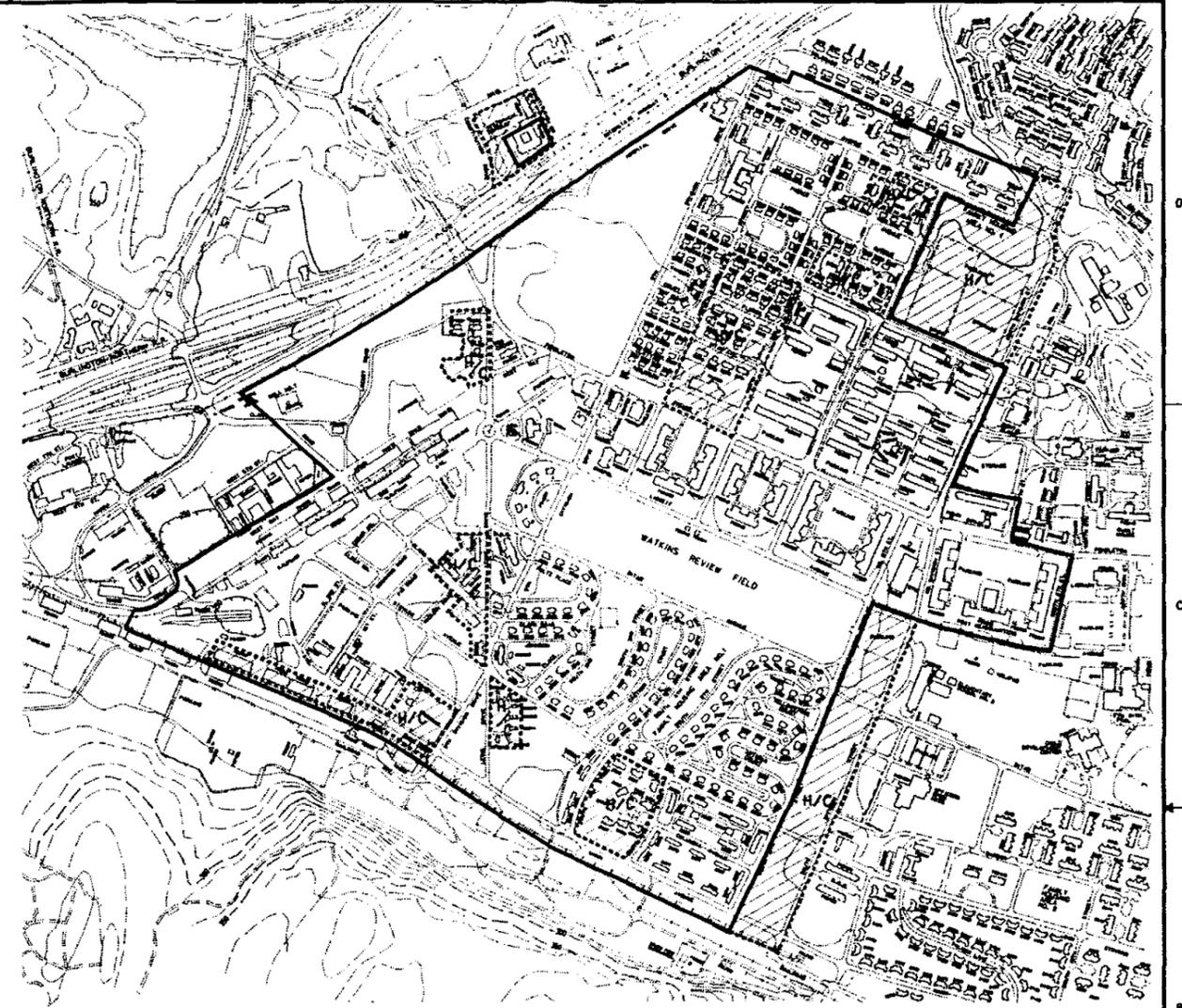
REQUIRED	NOT PERMITTED
<p>a. Preserve historic circulation features such as roads, sidewalks, parking spaces, and driveways. Maintain their historic characteristics including the following recommendations:</p> <p>b. Preserve the historic surface material for circulation features, primarily concrete roads, sidewalks (exposed aggregate concrete), and driveways. Repair and replace the historic surface material with material that matches historic colors, textures, and compositions.</p> <p>c. Preserve historic curbs during resurfacing by maintaining the historic height or finish elevation of the road.</p> <p>d. Maintain road profiles and drainage systems such as crowned roads with roadside gutters and catch basins/drain inlets, when possible.</p> <p>e. Protect, maintain, and replace, when necessary, street trees or other plantings which contribute to the character of roads and sidewalks through a regular program of pruning, mowing, weeding, and pest management.</p> <p>f. Reuse historic circulation features such as roads, sidewalks, parking spaces, and driveways as the landscape is upgraded for contemporary uses.</p> <p>g. Preserve the historic alignment and width of circulation features. For example, preserve the curvilinear street alignments in Broodmoor.</p>	<p>a. Fail to preserve historic roads, sidewalks, parking, and driveways.</p> <p>b. Fail to repair or replace deteriorated historic surfaces with historic materials. For example, patch or resurface a concrete road with asphalt.</p> <p>c. Remove historic curbs or alter the relationship of the road surface and the curb by adding height or thickness to the road.</p> <p>d. Fail to clean and maintain drainage features so that damage to historic circulation features occurs from flooding or erosion.</p> <p>e. Fail to maintain and replace character-defining vegetation bordering historic roads such as historic street trees lining several streets in Ft. Lewis.</p> <p>f. Add new roads, sidewalks, parking spaces or driveways when the historic feature could have been reused.</p> <p>g. Alter the historic alignment and width of a road, sidewalk or driveway. For example, straighten or widen the curvilinear roads of Broodmoor.</p>

CIRCULATION CONTINUED...

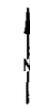
REQUIRED	NOT PERMITTED
<p>h. Place new utilities underground or site them so they do not damage historic features and are not visually intrusive.</p> <p>i. Limit the addition of new curb cuts, driveways, and access routes (paths, sidewalks). Construct new features with materials that are compatible with historic material but are not exact replicas.</p> <p>j. Provide the highest level of barrier-free access to the landscape with the least amount of impact by selecting areas where the fewest alterations to the historic features and materials are required. Study a range of design solutions in order to minimize adverse impacts.</p>	<p>h. Construct new telephone and electrical lines above ground so they have a negative visual impact on the character of the historic circulation system.</p> <p>i. Add curb cuts, driveways, paths and sidewalks to the extent that they alter the character of the historic circulation system.</p>

STRUCTURES: SEE MAINTENANCE AND REPAIR MANUAL FOR HISTORIC STRUCTURES: FORT LEWIS. Seattle District, Corps of Engineers, Walter Gressinger Architects, Contract Number: DAC A67 - 86 - C - 0129.

REQUIRED	NOT PERMITTED
<p>a. Preserve and maintain historic buildings according to Secretary of Interior's Standards for Rehabilitation.</p>	<p>a. Fail to preserve or maintain historic structures according to Secretary of Interior's Standards for Rehabilitation.</p>



SCALE: 1" = 400'



LEGEND	
	NATIONAL REGISTER HISTORIC DISTRICT BOUNDARY
	H/C HISTORIC CONTEXT MANAGEMENT AREA

REDUCED TO SIZE OF FULL SIZE
 U.S. ARMY ENGINEER DISTRICT, SEATTLE
 CORPS OF ENGINEERS
 SEATTLE, WASHINGTON
 LANDSCAPE DEVELOPMENT PLAN
 DESIGN DEVELOPMENT
 GENERAL PRESERVATION TREATMENTS

FORT LEWIS		WASHINGTON	
DATE	9/JAN/31	DATE	L/1
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GENERAL PRESERVATION TREATMENTS - CONTINUED

VEGETATION, trees, shrubs, lawns, street trees, hedges, planting beds, informal vegetative screens

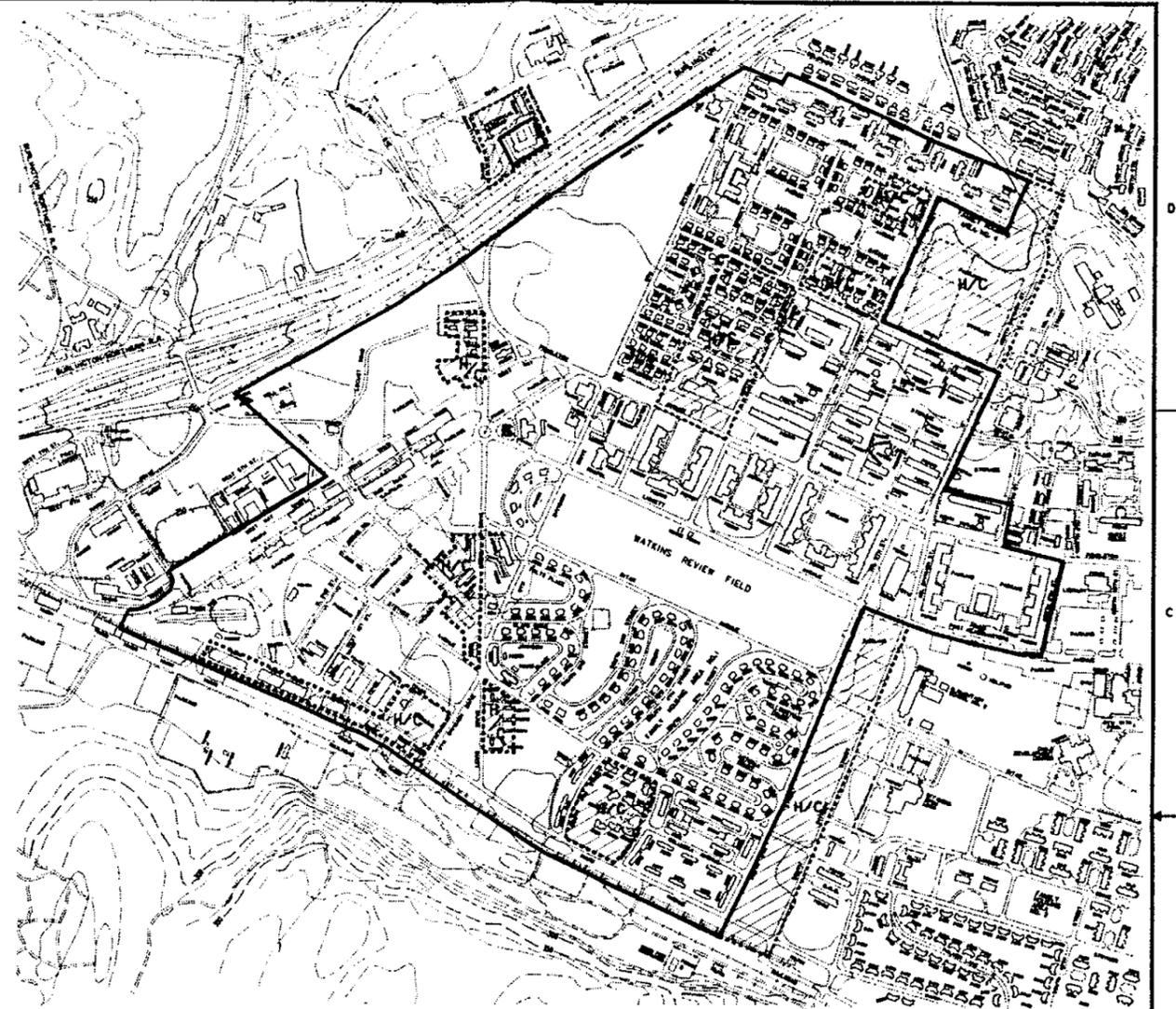
REQUIRED	NOT PERMITTED
<p>a. Preserve, maintain, and restore the historic character-defining form, arrangement, and species of vegetation through regular and cyclical maintenance. For example, maintain historic foundation plant material at its appropriate height and shape through pruning or remove volunteer plant material.</p>	<p>a. Allow vegetation to grow beyond its intended design scale so that it alters the character of other significant historic features. For example, allow foundation plants to grow until they obscure major portions of a historic building.</p> <p>Prune a tree excessively and/or incorrectly (top) without regard to its health, or shape.</p> <p>Prune vegetation into an inappropriate form, such as shape a shrub into a geometric form when it was not shaped in this manner historically.</p>
<p>b. Maintain the informal character of foundation planting beds by using hand-tooled edges. If adding edging is necessary, use thin, flexible aluminum or steel edging which is not visually intrusive.</p>	<p>b. Change the historic character of foundation planting beds by adding inappropriate edging material such as timbers and stones.</p> <p>Replace a deteriorating or missing vegetation feature with inappropriate plant material in a way that alters the historic appearance.</p> <p>Introduce an incompatible new vegetation feature. For example, plant flower beds at the barracks when they were not planted historically; add foundation planting to the warehouses in the operations area or add vegetation to an area that was historically an open area, lawn, or vista.</p>
<p>c. Replace historic vegetation, when necessary, with the same species. If it is technically and environmentally feasible, if the same species cannot be used due to maintenance or safety concerns, replace vegetation with material that replicates the design intent, shape, form, and function of the historic vegetation features. Native species that replicate the historic design character are considered appropriate replacement species.</p>	<p>c. Replace vegetation in a way that alters the historic design intent and function. For example, remove historic foundation vegetation and plant new beds away from a structure, or use round-shaped, deciduous plants to replace columnar-shaped coniferous plants.</p>
<p>d. Consider the addition of vegetation features to screen visually incompatible, non-historic elements or new construction. New vegetation features are to be compatible with the historic character of the landscape.</p>	<p>d. Fail to screen incompatible contemporary features such as new parking lots with vegetation. Screen incompatible features with inappropriate materials such as fences or walls. Or, use tall, dense hedges as screens rather than more informally and less densely planted trees and shrubs.</p>
<p>e. Plant replacement vegetation in the same location unless technical or environmental reasons make this unfeasible or unsafe. For example, if a historic tree is planted so close to other historic features that it is causing damage to the features and the tree, it should be replaced in an alternative location. However, the new location should be as close as possible to the original location and should preserve the relationship between the plant and the other historic elements.</p>	
<p>f. Evaluate the condition of vegetation to determine appropriate maintenance practices such as pruning, integrated pest management practices, and environmentally sensitive fertilization.</p>	<p>f. Permit historic vegetation to die or become unhealthy due to inappropriate maintenance practices or through neglect.</p>

VEWS AND VISTAS

REQUIRED	NOT PERMITTED
<p>a. Retain important visual connections between spaces or areas within the landscape by maintaining roads, sidewalks, open areas, and topography which contribute to these visual relationships.</p>	<p>a. Alter or change visual connections by adding walls, fences, or vegetation that blocks historic views such as views from the parade ground toward Mt. Rainier.</p> <p>Introduce vegetation to historically open spaces.</p>
<p>b. Retain the form and shape of significant open spaces such as the length and width of the parade ground, or designed open spaces in housing areas.</p>	<p>b. Change the configuration, alignment, or width of open spaces which diminishes the historic character of the landscape. For example, narrow or shorten the dimensions of the parade ground, or historic open spaces in housing areas.</p>
<p>c. Retain historic views through the control or removal of invasive or volunteer plant material or by pruning vegetation that has grown large enough to obscure historic views.</p>	<p>c. Fail to remove or prune vegetation that obscures historic views.</p>
<p>d. Construct new features in areas of the landscape that do not impede on historic views.</p>	<p>d. Locate new features such as constructing large parking lots or buildings in areas that block historic views.</p> <p>e. Expose non-historic views through the removal of significant plant material. For example, remove and not replace historic trees in open spaces found in housing areas.</p>

SMALL-SCALE FEATURES, cast iron guardrails and clothesline posts, wrought iron stair handrails

REQUIRED	NOT PERMITTED
<p>a. Preserve historic small-scale features and repair deteriorated parts of features through limited replacement in kind. If using historic materials is not feasible, substitute materials may be used if they have the same appearance.</p>	<p>a. Fail to identify, evaluate, and treat cumulative effects of neglect, use, and climatic conditions so that small-scale features are lost.</p> <p>Repair or replace features with inappropriate materials. For example, use wood to replace cast iron guardrails and clothesline posts. Or, paint replacement metal features with non-historic colors, e.g. a color other than black.</p>
<p>b. Install new small-scale features, if necessary for contemporary uses, as long as their design, placement, color, and quantity do not alter the character of the landscape. For example, a limited number of non-permanent site furnishings such as a bench or picnic table may be added to buildings in housing areas. However, construct trees with materials that are compatible with historic materials (exposed aggregate concrete, cast or wrought iron) and locate them only at the rear of houses to correspond to the informal character of back yards.</p> <p>New features should not be historic-looking designs or reproductions of features that never existed in the landscape.</p>	
<p>c. Consider the replacement of modern light standards and poles in areas which historically had lighting. Base the design on the design used at Ft. Lewis during the historic period, see detail sheet.</p>	



SCALE: 1" = 400'

LEGEND	
	NATIONAL REGISTER HISTORIC DISTRICT BOUNDARY
	W/C HISTORIC CONTEXT MANAGEMENT AREA

REDUCED TO SIZE OF FULL SIZE			
U.S. ARMY ENGINEER DISTRICT, SEATTLE			
CORPS OF ENGINEERS			
SEATTLE, WASHINGTON			
LANDSCAPE DEVELOPMENT PLAN			
DESIGN DEVELOPMENT			
GENERAL PRESERVATION TREATMENTS			
FORT LEWIS		WASHINGTON	
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**ZONE I: HOUSING AND ADMINISTRATION AREA
PRESERVATION TREATMENTS**

**ZONE I: HOUSING AND ADMINISTRATION AREA
PRESERVATION TREATMENTS**

RESPONSE TO NATURAL FEATURES

REQUIRED	NOT PERMITTED
<p>a. Preserve the size, alignment, and vegetation (native trees) of open spaces.</p> <p>b. Preserve the historic grade.</p>	<p>a. Introduce new development into open spaces or modify the shape or size of the open spaces.</p> <p>Remove native trees and failing to replace them.</p> <p>b. Allow construction that severely alters the historic grade, such as major cutting and filling.</p> <p>Create berms as visual screens or as building platforms.</p>

OVERALL ORGANIZATION AND LAND USE

REQUIRED	NOT PERMITTED
<p>a. Preserve the historic site plan including the circulation system, and the location, layout, and design relationships of landscape features such as the orientations and setbacks of buildings, open spaces, roads and sidewalks. Important landscape patterns include U-shaped and curvilinear circulation systems and building layouts.</p> <p>b. Maintain the historic land use of each character area when possible.</p> <p>c. Preserve important historic elements that help define the boundaries of the residential area such as roads, street trees, vegetative screens, and open spaces.</p> <p>d. Preserve the formal and informal characteristics of historic features. For example, the open spaces as well as the treatment of the space in front of and behind buildings have distinct characters. In general, spaces in front of buildings are formal in character and in the rear are utilitarian and/or informal in character.</p>	<p>a. Alter historic layouts such as adding new buildings with setbacks that differ from historic setbacks; constructing new features in an open space, removing or altering the circulation features that define the layout and organization of the area; and demolishing historic structures which changes historic landscape patterns.</p> <p>b. Introduce non-historic land uses for example, add non-residential features into the housing area. Or introduce non-residential features in a housing area in a way that alters significant character-defining elements such as building setbacks and layouts, building materials, road and sidewalk alignments, and vegetation.</p> <p>c. Change existing or introduce new elements between historic land use areas. For example, remove or reroute a road that acts as a dividing line between a housing area and an operations area, or add a vegetative screen, fence, or a wall in a historically open area. Likewise, remove and not replace street trees or vegetative screens that contribute to the overall organization of the landscape.</p> <p>d. Change the historic formal or informal design character of an area or building. For example, add parking, play ground equipment, site furniture, or utilitarian features such as clotheslines and garbage cans to the front (formal) side of buildings or to formal open spaces.</p>

CIRCULATION:

Roads, sidewalks, parking spaces, and driveways

REQUIRED	NOT-PERMITTED
<p>a. Preserve historic circulation features (roads, sidewalks, parking spaces, and driveways) and maintain their historic characteristics including the following:</p> <p>b. Preserve the historic surface material for circulation features, concrete roads, exposed aggregate concrete sidewalks, and driveways. Repair and replace the historic surface material with material that matches the old in color, texture, and composition.</p> <p>c. Preserve historic curbs during resurfacing by maintaining the historic curb height and finish elevation of the road.</p> <p>d. Maintain road profiles and drainage systems such as crowned roads with roadside gutters and catch basins/drain inlets when possible.</p> <p>e. Protect, maintain, and replace, when necessary, historic street trees or other historic plantings which contribute to the character of roads and sidewalks through a regular program of pruning, mowing, weeding, pest management, and replacement. See detailed recommendations on street trees on sheet L.8.</p>	<p>a. Fail to preserve historic roads, sidewalks, parking, and driveways.</p> <p>b. Fail to repair or replace deteriorated historic surfaces with historic materials. For example, patch or resurface concrete roads or sidewalks with asphalt.</p> <p>c. Remove historic curbs or alter the relationship of the road surface and the curb by adding height or thickness to the road.</p> <p>d. Fail to clean and maintain drainage features so that damage to historic circulation features occurs from flooding or erosion.</p> <p>e. Fail to maintain and replace character-defining vegetation bordering historic roads such as historic street trees.</p>

CIRCULATION (CONT.)

REQUIRED	NOT-PERMITTED
<p>f. Reuse historic circulation features such as roads, sidewalks, parking spaces, and driveways as the landscape is upgraded for contemporary uses.</p> <p>g. Not allowing the construction of new parking lots. Not allowing parking spaces in front of buildings.</p> <p>h. Preserve the historic hierarchy and function of roads. For example: <u>primary roads</u>-Bitar Ave., Stryker Ave., S. 6th St., 9th Division Drive, N. Division St., Pendleton Ave., Liggett Ave., N. 6th St., and Lewis Drive; <u>secondary roads</u>-Crary Ave., Idaho Ave., N. 2nd Street, N. 3rd Street, N. 4th Street; <u>local access roads</u>-S. 2nd Street, S. 3rd St., S. 4th St., S. 5th St., Columbia Ave., Clattam, Utah, Vander Court, Tacoma Ave., Pierce Ave., Colorado Ave.; and <u>service roads</u>-Foltz Place, Johnson Place, Yellowstone Court, Astoria Court, service lanes-Adkinson, Ekstrom, Lancaster and other unnamed service roads.</p> <p>i. Preserve the historic alignment and widths of circulation features. For example, preserve the curvilinear alignment of residential roads in Broadmoor or the U-shaped organization of roads in Greenwood.</p> <p>j. Place new utilities underground or site them so they do not damage historic features and are not visually intrusive.</p>	<p>f. Add new roads, sidewalks, parking spaces or driveways when the historic feature could have been reused.</p> <p>g. Construct parking lots or add parking spaces in front of buildings.</p> <p>h. Change the historic road hierarchy, for example, widen a local access road and increase the speed limit so that it functions as a secondary road.</p> <p>i. Alter the historic alignment and width of a road, sidewalk, or driveway. For example, straighten, widen, or reroute roads or sidewalks. Create entry plazas for buildings, or create dead-ends or cul-de-sacs for roads that were historically through streets.</p> <p>j. Construct new telephone and electrical lines above ground so they have a negative visual impact on the character of the historic circulation system.</p>

CIRCULATION (CONT.)

REQUIRED	NOT-PERMITTED
<p>k. Not allow the construction of new roads and limit the addition of new curb cuts, driveways, paths, and sidewalks.</p> <p>l. Provide the highest level of barrier-free access to the landscape with the least amount of impact by selecting areas where the fewest alterations to the historic features and materials is required. Study a range of design solutions in order to minimize adverse impacts. Use construction materials that are compatible with historic materials.</p>	<p>k. Add curb cuts, driveways, paths and sidewalks to the extent that they alter the character of the historic circulation system. Construct new roads. New features should be constructed of materials that are compatible with historic materials.</p> <p>l. Fail to limit the visual and physical impact of providing barrier-free access to the historic landscape. For example, fail to consider the use of a lift at a building rather than ramp when the grade change requires a long ramp with switchbacks. Use incompatible materials such as wood handrails at ramps instead of round metal rails, painted black.</p>

STRUCTURES:

SEE MAINTENANCE AND REPAIR MANUAL FOR HISTORIC STRUCTURES: FORT LEWIS. Seattle District, Corps of Engineers, Walter Greissing Architects, Contract Number: DAC A67 - 86 - C - 0129.

REQUIRED	NOT-PERMITTED
<p>a. Preserve and maintain historic buildings according to Secretary of Interior's Standards for Rehabilitation.</p> <p>b. Not allow the construction of new buildings in the zone, if possible. If new buildings must be added, they should be compatible with the historic character of the zone. For example, new buildings should be similar to historic buildings in materials, size, scale, architectural style and layout (setbacks and building orientation). See "Installation Design Guide: Ft Lewis, Washington" (1987) pp. 9-18, 28-29.</p> <p>c. Consider the removal of non-historic housing in Greenwood and Broadmoor and restoring it to open space. If these areas must be used for buildings, construct new housing that is compatible with the historic housing (see above). Do not introduce non-residential structures into the area.</p> <p>Consider the removal of the non-contributing storage area east of Greenwood and restoring the area as open space.</p>	<p>a. Fail to preserve or maintain historic structures according to Secretary of Interior's Standards for Rehabilitation.</p> <p>b. Construct new, incompatible buildings in the zone.</p> <p>c. Construct new buildings that are incompatible with the historic character of the zone.</p>

VEGETATION:

SEE SHEETS L.5-L.8 FOR DRAWINGS DETAILING THE FOLLOWING SECTION.

REQUIRED	NOT-PERMITTED
<p>a. Preserve and restore significant historic vegetation by following the historic landscaping design principles such as maintaining: a) foundation planting; b) vegetation used for spatial definition; c) open space; and d) street trees. See analysis and evaluation for in-depth description.</p> <p>b. Maintain the historic, character-defining form, arrangement, and species of vegetation through regular and cyclical maintenance. For example, maintain historic foundation plant material at it's appropriate height and shape through pruning or removing volunteer plant material.</p> <p>c. Replace existing or missing historic vegetation in kind if it is technically and environmentally feasible. Vegetation should be removed only for safety, significant maintenance reasons, or declining plant health that cannot be recovered through proper maintenance.</p> <p>If the same species cannot be used due to maintenance or safety concerns, replace vegetation with material that replicates the design intent, shape, form, and function of the historic vegetation features.</p>	<p>a. Fail to preserve and maintain historic vegetation. Allow vegetation to grow beyond its intended design scale such that is alters the character of other significant historic features. For example, allow foundation plants to grow until they obscure major portions of a historic building or cause damage to other historic features.</p> <p>b. Prune a tree or shrub excessively and/or incorrectly (topping) without regard to its health, or shape. Prune vegetation into an inappropriate form, such as shaping a shrub into a geometric form when it was not shaped in this manner historically.</p> <p>c. Replace vegetation in a way that alters the historic design intent and function. For example, remove historic foundation vegetation and planting new beds away from a structure, or using round-shaped, deciduous plants to replace columnar or pyramidal-shaped coniferous plants.</p> <p>Replace a deteriorating or missing vegetative feature with inappropriate plant material in a way that alters the historic appearance. For example, replace shrubs in a foundation planting with ground cover.</p> <p>Introduce incompatible vegetation such as planting flower beds where they were none historically; add hedges as privacy screens between yards instead of planting informal shrub masses; or add shrubs to the formal open spaces which historically consisted of lawns with coniferous trees.</p>

VEGETATION (CONT.)

REQUIRED	NOT PERMITTED
<p>d. Maintain the character of planting beds by using hand-tooled edges. If edging is necessary, use thin, metal edging which is not visually intrusive.</p> <p>e. Add vegetative features to screen visually incompatible, non-historic elements or new construction. For example, screen existing parking lots in the open spaces behind the historic barracks. New vegetative features need to be compatible with the historic character of the landscape.</p> <p>f. Replace historic vegetation in its original location unless safety, technical, or environmental reasons make it necessary to change the location. For example, if a tree in a foundation planting is planted so close to the building that it is causing damage to the building or compromising the health of the tree, it should be moved far enough away from the building to accommodate the <u>mature</u> size of the plant but maintain the same historic relationship in the foundation planting.</p> <p>g. Evaluate the condition of vegetation to determine appropriate maintenance practices such as pruning, watering, integrated pest management practices, or environmentally sensitive fertilization.</p> <p>Provide information and assistance for housing residents on appropriate practices for maintaining the lawns and vegetation in their yards.</p>	<p>d. Change the historic character of foundation planting beds by adding inappropriate edging material such as timbers, bricks, and stones.</p> <p>e. Fail to screen incompatible contemporary features such as new parking lots with vegetation. Screen incompatible features with inappropriate materials such as fences or walls. Or, use hedges rather than using informally, less densely planted trees and shrubs as screens.</p> <p>f. Fail to replace historic vegetation in its original location if there are no safety, technical or environmental reasons to do so. Or, replant vegetation so far from the historic location that the historic character is lost. For example, replant a foundation tree in the lawn instead of in the foundation planting bed.</p> <p>g. Permit historic vegetation to die or become unhealthy due to inappropriate maintenance practices or through neglect.</p>

VEGETATION PRESERVATION TREATMENT

In addition to the Secretary of Interior preservation treatments presented in the previous section, more detailed information on preserving the historic vegetation has been developed. This includes an overview of the historic planting design intent and the function of vegetation in the landscape, guidelines for replacing historic plant material, and typical planting designs and guidelines for preserving and restoring vegetation.

PLANTING DESIGN FUNCTIONS

The key to preserving the historic character of the vegetation at Ft. Lewis lies in maintaining the four planting design functions established during the primary historic period (1926-1939) and identified in the Analysis and Evaluation. These four design functions, foundation planting, spatial definition, open space, and street trees, are explained below and illustrated on sheets L.5-L.8.

a. Foundation Planting:

Foundation planting was a landscape design concept popular in the 1920s in the United States. It consisted of planting vegetation along building foundations that served to: connect and blend the building with the grounds and surrounding vegetation; enhance the architecture and soften any harsh architectural lines; and screen objectionable building features such as unattractive foundation walls, etc. Foundation planting emphasized the use of the largest or most conspicuous plants (colorful, distinctive form, large texture) at accent points--entries and building

corners--with smaller, finer textured species planted in between accent plants.

At Fort Lewis, a common plant palette was used throughout the base and helped create a cohesive appearance in all land use areas. Columnar-shaped (term also refers to pyramidal and fastigiata-shaped) conifers were commonly used as accent plants at building corners and entries. The overall design was generally informal as most plants, except for a few hedges, were not sheared into formal geometric shapes. Likewise, foundation planting beds had hand-tooled edges rather than being lined or edged with brick, stone, wood, etc. Just as the size, scale, and ornamentation of buildings varied according to military rank, the level of planting varied for different housing areas. The Generals' quarters had the most luxuriant plantings with foundation trees and shrubs extending well out into the lawns, while plantings in Greenwood (NCO quarters) were much more sparse. Foundation planting for the barracks consist primarily of columnar-shaped conifer with some larger-growing shrubs. See plant lists in Appendix B.

Maintain foundation planting under High maintenance zone guidelines.

b. Vegetation used for spatial definition:

Historic trees and shrubs were used for both functional and aesthetic purposes at Fort Lewis. Vegetation was used as visual screens to hide and/or separate incompatible land use areas, control pedestrian circulation, and frame views. In the housing areas, informal use of trees and shrubs was essential in creating private spaces between houses. Trees and shrubs planted in informal

arrangements between buildings helped integrate the buildings with their surroundings and break up the more formal appearance of foundation planting. The extensive use of lawns in conjunction with trees and shrubs helped create a homogenous park-like appearance. Species used for spatial definition included deciduous, broad-leaf evergreen, and coniferous trees and shrubs. See plant lists in Appendix B.

Maintain vegetation used for spatial definition under High maintenance zone guidelines.

c. Open space

Open spaces or “parks” played an important role in separating and defining different land use areas as well as creating a park-like setting. Historically, most of these areas were planted with coniferous trees or they incorporated existing clusters of native Douglas-fir and Oregon oak trees. Existing trees were commonly incorporated in the open spaces located in family housing areas; for example, in Broadmoor and Greenwood. In the open space behind the General’s Quarters, vegetation consisted of both trees and shrubs and included deciduous, coniferous, and broadleaf-evergreen species. The Parade Ground was a large expanse of turf bordered on the north and south sides by a screen of fir and spruce trees.

Over the years, some development of historic open space include areas of W.W.II temporary buildings, parking lots and storage areas. Efforts should be made to mitigate the impact of these intrusions. For example, as W.W.II buildings are removed, restore these areas to open space and remove parking

lots and storage areas or screen them with vegetation. Do not allow new development in open spaces in Management Zone I and limit and mitigate intrusions in Zone II.

Maintain open space vegetation under High, Medium, and Low maintenance zone guidelines depending on the location.

d. Street Trees:

Street trees were an important unifying feature of the designed landscape and were planted in many areas of the base including Broadmoor, the Barracks, Greenwood, and along several primary roads. American elm (*Ulmus americana*) trees were the most common street trees planted at Fort Lewis. Planted at fairly regular spacing, these elms provided an almost continuous tree canopy across the roads and created a distinct visual identity in the District. Other species planted as street trees in Broadmoor and Greenwood included hawthorns, gray poplars, and mountain ash. All historic street trees were planted in planting strips (between streets and sidewalks).

Maintain street trees under High maintenance zone guidelines.

HISTORIC VEGETATION REPLACEMENT GUIDELINES

Use the Historic Landscape Preservation Guidelines and replacement strategies presented below to manage and preserve existing vegetation. Over the years, some historic vegetation was removed and not replaced. Use the typical planting plans found on sheets L.5 through L.8 as conceptual design guides to restore (re-introduce) historic vegetation. Use the lists of common historic plants for individual character areas to assist in vegetation restoration.

To preserve and maintain the historic character of the vegetation, replace historic plant material in a systematic and consistent manner. To assist in reaching this goal, use the following three steps: A) determine the reason to replace vegetation; B) determine replacement strategy; and C) record the preservation action on Condition Assessment Sheets for historic preservation compliance.

Vegetation Replacement Philosophy: Preserving the design intent of the historic vegetation at Ft. Lewis is the primary goal when considering a vegetation replacement strategy. This means choosing plant material that will maintain the four previously identified design principles used at Ft. Lewis: a) foundation planting, b) trees and shrubs used for spatial definition, c) street trees, and d) trees and lawns of designed open spaces. However, there are also cultural reasons to consider when replacing plant material. For example, a number of historic species planted during the historic era were common or popular species during the 1930s and 1940s and are not used as frequently

in contemporary design. Sometimes referred to as 'old fashion,' these plants often have less tangible but still important associative feelings linked to this earlier time period; continue to use historic species when feasible. The replacement strategy developed for Ft. Lewis incorporates both of these preservation goals.

A. Reason for replacement:

Replace vegetation on the basis of meeting one or more of the following criteria. The plant is:

1. Hazardous. Identified as a safety hazard by qualified personnel (arborist, horticulturist, urban forester).
2. Diseased or pest damaged and does not respond to a comprehensive treatment program (cultural, biological, and chemical control).
3. Declining or senescent and does not respond to restoration practices (renovative pruning, fertilizing, mulching, watering program).
4. Neglected and Overgrown. Too large for location and the size was not moderated by renovation pruning practices. Consider transplanting to better location if feasible.

B. Replacement sequence:

Use the following sequential guidelines when determining replacement species in the historic district.

1. Replace in-kind.

Restore removed vegetation with the same species whenever possible: this ensures a continuity of historic materials and design intent.

2. Replace with species similar to historic species.

Not replacing species in-kind should occur if significant maintenance or safety reasons exist, or the species is no longer available. For example, reoccurring untreatable pest infestations or diseases such as dogwood anthracnose may justify the choice of a different replacement species. Use disease or pest resistant varieties when available. Replacement species should have physical characteristics that are as similar to the historic species as possible; for example, similar size, shape, color, texture, leaf morphology, and flowering/fruitletting color and timing. In some instances, the inappropriate size of historic species such as the use of large trees as foundation plantings at the historic barracks, warrants replacing the species with one that has similar historic characteristics but will be smaller at maturity.

3. Replace with a historic plant species common to Ft. Lewis.

When there is no suitable replacement species or the identity of a plant removed in the past is unknown, use the list of common historic species as a source for replacements. For example, over the years, many of the foundation plants were removed but their identity's were not recorded; common historic species (for specific character areas if available) should be used to restore these plants.

C. Documenting change over time:

Record replacement strategies and species on the Condition Assessment Sheets. These sheets are a legal compliance tool. These records document how the landscape evolved under an ongoing maintenance plan, and under different maintenance and management staffs.

STREET TREE RECOMMENDATIONS:

Street tree recommendations have been developed to address maintenance concerns in the Historic District including damage from tree roots and replacement species for historic trees. The goal of the street tree preservation recommendations is to preserve the historic trees, sidewalks and curbs (ensure correct repair and replacement, and retain historic alignments), as well as create a safe environment.

Historic Street Tree Replacement Recommendations

The majority of street trees in the Historic District are *Ulmus americana*, American elm trees. Prior to the 1930s, the American elm was a highly popular ornamental tree in America, an unofficial natural symbol of patriotism. The fungus *Ophiostoma ulmi*, commonly known as Dutch Elm Disease (DED), arrived in North America from Asia about 1930. It quickly spread and devastated American elm populations across the eastern and midwestern portions of the United States. The disease spread more slowly to and along the west coast. Although the Fort Lewis American elm population has remained unaffected by the disease to date, the disease was detected in Tacoma and Bellvue, Washington in 1994. While there are no known cures for the fungus, Dutch Elm Disease management programs to slow or stop the spread of the disease have been developed and implemented across the country. See Vegetation Preservation Guide for more information.

Except for DED, the virtues of American elms make them a highly desirable street tree. They are fast growing, easily transplanted, tolerant of urban conditions, and long-lived compared to most other potential street trees. They are prized for their soaring height, graceful branch habit and vase-like shape. Their high-growing canopy causes little street-level conflict and turf can tolerate the light shade they cast. At Ft. Lewis these characteristics have created a distinct visual quality in the Historic District. To date, no other trees have been identified that duplicate the unique characteristics of the American elm. However, some disease resistant cultivars of *Ulmus americana* ('Homestead', 'Pioneer', etc.) that come close to resembling the American elm street trees have been developed and are continuing to be developed.

Preserve and maintain American elms as street trees in the Historic District; they are significant features for historic, aesthetic, and botanical reasons. Preservation treatments include a comprehensive Dutch Elm Disease program, and replacement with disease resistant American elm cultivars when trees die or become hazardous and must be removed.

Other types of street trees at Ft. Lewis include *Populus canescens*-gray poplar, *Crataegus oxyacantha* and *Crataegus monogyna*-pink and common hawthorn, and *Sorbus aucuparia*-European mountain ash. According to the 1990 Hazard Tree Survey, many of the existing gray poplars are in declining condition due to lack of maintenance, incorrect pruning, and damage from root pruning. The inventory recommends a

phased removal schedule for some of these trees. Most species in the poplar family are not recommended as street trees due to brittle wood (creating potential safety problems if not pruned regularly) and aggressive roots. When it is necessary to remove hazardous gray poplars, it may be practical to replace with a species that is similar in character but does not have the same problems. For example, *Acer pseudoplatanus*-sycamore maple, may be a suitable replacement.

Pink (English) hawthorn -*Crataegus oxyacantha* (laevigata) is heavily infested with leaf blight (spot) fungus in the Historic District. If an aggressive cultural and biological program cannot bring the fungus under control, consider replacing trees that must be removed with disease resistant varieties such as *C. laevigata* 'Crimson Cloud'. It has good red single flowers and resistance to leaf blight. Other possible replacements include disease resistant varieties of flowering crabapple (*Malus sp.*) with pink flowers such as 'Adams', 'Centurion', 'Prairifire', 'Robinson', 'Strawberry Parfait'.

Sidewalk Repair and Replacement:

In the past when sidewalks were replaced, trees were root pruned. Root pruning can severely damage or kill mature trees and decreases their stability. Experience has shown that most street trees lost in wind storms had been root pruned. Do not root prune. It will endanger the life of the tree and/or destabilize the tree, creating a safety hazard. It is especially critical not to root prune or otherwise wound American

elm trees because of the danger of Dutch Elm Disease.

Minor sidewalk uplifting from tree roots that does not exceed 1/2 inch in vertical displacement, can be repaired by creating a sloped patch that bridges over the vertical displacement. Match concrete patch materials with existing concrete materials, see Circulation Maintenance Guide section.

To repair major sidewalk damage, remove the root damaged section and construct new "ramped" sidewalk sections. This consists of slightly elevating the walk over the critical root zone with an aeration layer (sand) beneath the concrete. See details on Sheets L.10 and L.11. Place expansion joints every five feet; creating five foot sidewalk segments. Extend ramped segments a minimum of fifteen feet on each side of the tree trunk. This allows the sidewalk to be repaired without changing the historic sidewalk alignment and protects existing roots by reducing soil compaction and allowing water and air to reach the roots. If the tree is still vigorous and its roots are continuing to grow in circumference, place an herbicide impregnated root barrier horizontally beneath the sidewalk to reduce potential future root damage.

Install concrete sleeves around damaged sewer and water lines if necessary. Repair any leaks in the lines; roots will grow toward this water source. The majority of street trees in the District are located only on one side of the street. If major repairs are being made to roads, consider moving water and sewer lines away from trees by creating a center or sloped drainage road profile.



Trees in Greenwood blown over during the 1962 "Columbus Day Storm" due to the destabilizing effect of root pruning.

When planting new or replacement trees, place a root barrier vertically (8-12" below the surface) in a linear trench along the curb and sidewalk. Use a permeable root barrier that is impregnated with herbicides. Roots of mature trees are less likely to grow more in circumference and may not require root barriers. The decision to use a root barrier can be decided on a case by case basis by a licensed arborist.

See Appendix D: Trees, Sidewalks, and Construction for more information on trees and sidewalk conflicts, and protecting trees from construction damage.

For a longer-term solution, move the sidewalk 4-6 feet (existing strips are 6-8 ft.) to create a 12 ft. wide planting strip. This recommendation is consistent with the 12 ft. minimum planting strips recommended by the Ft. Lewis Installation Design Guide (1987). The new sidewalk will have to be "ramped" over existing roots as described above. New trees should be planted in the center of the planting strip and a root barrier placed vertically (8-12" below the surface) in a linear trench along the curb and sidewalk. This solution will reduce sidewalk damage in the future and create a better planting environment for trees.

VIEWS AND VISTAS

REQUIRED	NOT-PERMITTED
<p>a. Retaining visual connections within and between areas by preserving the historic roads, sidewalks, open spaces, and topography which contribute to these visual relationships. For example, maintaining open front yards, and views across roads to open spaces, views to and from the 91st Division Monument, parade ground, and Mt. Rainier.</p> <p>b. Retain the form and shape of designed open spaces.</p>	<p>a. Alter or change visual connections by constructing structures, walls, earthen berms, fences, or vegetative screens in front yards, along roads, or in open spaces.</p> <p>Expose non-historic views through the removal of significant plant material. For example, remove and not replace historic trees in open spaces.</p> <p>b. Change the configuration, alignment, or size of open spaces.</p>

SMALL-SCALE FEATURES:

Cast iron guardrails and clothesline posts, wrought iron handrails

REQUIRED	NOT-PERMITTED
<p>a. Preserve historic small-scale features such as cast iron guardrails, clothesline posts, and wrought iron handrails.</p> <p>b. Repair deteriorated parts or components of small-scale features through limited replacement in kind. If using historic materials is not feasible, substitute materials may be used if they have the same historic appearance. Metal features should be painted black.</p> <p>c. Restrict the introduction of non-historic small-scale features.</p> <p>d. If necessary to add features for contemporary use, their design, placement, color, and quantity should not alter the character of the landscape. For example, a limited number of non-permanent site furnishings such as a bench or picnic table may be used at houses. However, they should not be historic-looking designs or reproductions but should be constructed of materials that are compatible with historic materials (exposed aggregate concrete, cast or wrought iron). Locate them only in back yards or in informal open spaces to correspond to the informal historic character of these areas.</p>	<p>a. Fail to identify, evaluate, and treat cumulative effects of neglect, use, and climatic conditions so that small-scale features are lost.</p> <p>b. Repair or replace features with inappropriate materials. For example, use wood to replace cast iron guardrails and clothesline poles. Not painting replacement metal features black.</p> <p>c. Introduce non-historic permanent small-scale features to houses.</p> <p>d. Add non-permanent features that are not compatible with historic materials such as Victorian style wooden benches or picnic tables that are located in open spaces or in front of buildings.</p> <p>Introduce features which have no historic precedent such as fences, patios, gazebos, arbors, trellises, planters, sculpture, and water features.</p>

SMALL-SCALE FEATURES (CONT.)

REQUIRED	NOT-PERMITTED
<p>Locate playgrounds, if they are introduced, in informal open spaces when possible. For example, in Broadmoor in Foltz Place, Johnson Place, Castner Court. If they must be added to open spaces between S. 2nd Street and S. 3rd Street, and between S. 4th St. and S. 5th Street, locate them at the south end of the area, away from Bitar Avenue. Locate playgrounds in Greenwood between Tacoma Ave. and Crary Ave., and between Tacoma Ave. and Pierce Ave. when possible.</p> <p>Design playgrounds that are informal in character (constructing no hard surfaces in areas such as access sidewalks etc.), and as visually non-intrusive as possible.</p> <p>Maintain the passive recreation character of open spaces.</p> <p>Consider restoring historic light standards and poles in the following locations: In Broadmoor, in front of the historic hospital (bldg. 4290), and along Liggett Ave. Base the design on lighting used at Ft. Lewis during the historic period, see detail sheet.</p>	<p>Introduce playgrounds or play equipment to formal areas such as front yards, formal spaces bordering Bitar Avenue, in Yellowstone Court, or Astoria Court.</p> <p>Design large, formally delineated playgrounds, with courtyards, sidewalks, or large-scale, timber materials.</p> <p>Introduce athletic courts or athletic fields to open spaces.</p> <p>Replace existing lighting with a historic style that never existed in the landscape.</p>

ZONE I: HOUSING AND ADMINISTRATION AREA PRESERVATION TREATMENTS

RESPONSE TO NATURAL FEATURES

REQUIRED	NOT PERMITTED
a. Preserve the size, alignment, and vegetation of native trees of open spaces.	a. Introduce new development into open spaces or modify the shape or size of the open spaces. Remove native trees and failing to replace them.
b. Preserve the historic grade.	b. Allow construction that severely alters the historic grade, such as major cutting and filling. Create berms as visual screens or as building platforms.

OVERALL ORGANIZATION AND LAND USE

REQUIRED	NOT PERMITTED
a. Preserve the historic site plan including the circulation system, and the location, layout, and design relationships of landscape features such as the orientation and setbacks of buildings, open spaces, roads and sidewalks, important landscape patterns include U-shaped and curvilinear circulation systems and building layouts.	a. Alter historic layouts such as add new buildings with setbacks that differ from historic setbacks, constructing new features into the housing area, or introduce non-residential features in a housing area in a way that alters significant character-defining elements such as building setbacks and layouts, building materials, road and sidewalk alignments, and vegetation.
b. Maintain the historic land use of each character area when possible.	b. Introduce non-historic land uses for example, add non-residential features into the housing area, or introduce non-residential features in a housing area in a way that alters significant character-defining elements such as building setbacks and layouts, building materials, road and sidewalk alignments, and vegetation.
c. Preserve important historic elements that help define the boundaries of the residential area such as roads, street trees, vegetative screens, and open spaces.	c. Change existing or introduce new elements between historic land use areas. For example, remove or reroute a road that acts as a dividing line between a housing area and an operations area, or add a vegetative screen, fence, or a wall in a historically open area. Likewise, remove and not replace street trees or vegetative screens that contribute to the overall organization of the landscape.
d. Preserve the formal and informal characteristics of historic features. For example, the open spaces as well as the treatment of the space in front of and behind buildings have distinct characters. In general, spaces in front of buildings are formal in character and in the rear are utilitarian and/or informal in character.	d. Change the historic formal or informal design character of an area or building. For example, add parking, play ground equipment, site furniture, or utilization features such as clotheslines and garbage cans to the front (formal) side of buildings or to formal open spaces.

CIRCULATION—roads, sidewalks, parking spaces, and driveways

REQUIRED	NOT PERMITTED
a. Preserve historic circulation features roads, sidewalks, parking spaces, and driveways and maintain their historic characteristics including the following:	a. Fail to preserve historic roads, sidewalks, parking, and driveways.
b. Preserve the historic surface material for roads, sidewalks, parking spaces, and driveways. Repair and replace the historic surface material with material that matches the old in color, texture, and composition.	b. Fail to repair or replace deteriorated historic surfaces with historic materials. For example, patch or resurface concrete roads or exposed aggregate sidewalks with asphalt.
c. Preserve historic curbs during resurfacing by maintaining the historic curb height and finish elevation of the road.	c. Remove historic curbs or alter the relationship of the road surface and the curb by adding height or thickness to the road.
d. Maintain road profiles and drainage systems such as crowned roads with roadside gutters and catch basins/drain inlets.	d. Fail to clean and maintain drainage features so that damage to historic circulation features occurs from flooding or erosion.
e. Protect, maintain, and replace, when necessary, historic street trees or other historic plantings which contribute to the character of roads and sidewalks through a regular program of pruning, mowing, weeding, pest management, and replacement. See detailed recommendations on street trees on sheet L.5.	e. Fail to maintain and replace character-defining vegetation bordering historic roads such as historic street trees.
f. Reuse historic circulation features such as roads, sidewalks, parking spaces, and driveways when the historic feature could have been reused.	f. Add new roads, sidewalks, parking spaces or driveways when the historic feature could have been reused.
g. Not allow the construction of new parking lots in housing and core developed areas. Not allow on-street parking in front of buildings.	g. Construct parking lots or add parking spaces in front of buildings.
h. Preserve the historic hierarchy and function of roads. For example, primary roads - Blitar Ave., Stryker Ave., 5th Division Drive, N. Division St., Pendleton Ave., Liggett Ave., N. 8th St., and 1st Drive; secondary roads - Cray Ave., Idaho Ave., N. 2nd Street, N. 3rd Street, N. 4th Street, Colorado Ave., and service roads - Foltz Place, Johnson Place, Yellowstone Court, Astoria Court, Service lanes, Adkinson, Dairman, Lancaster and other unnamed service roads.	h. Change the historic road hierarchy, for example, widen a local access road and increase the speed limit so that it functions as a secondary road.

CIRCULATION CONTINUED...

REQUIRED	NOT PERMITTED
i. Preserve the historic alignment and width of circulation roads. For example, preserve the curvilinear alignment of residential roads in Broadmoor or the U-shaped organization of roads in Greenwood.	i. Alter the historic alignment and width of a road, sidewalk, or driveway. For example, straighten, widen, or reroute roads or sidewalks. Create entry plazas for buildings, or create dead-ends or cut-dead-ends for roads that were historically through streets.
j. Place new utilities underground or site them so they are not visually intrusive.	j. Construct new telephone and electrical lines above ground so they have a negative visual impact on the character of the historic circulation system.
k. Not allow the construction of new roads and limit the addition of new curb cuts, driveways, paths, and sidewalks. New features should be constructed of materials that are compatible with historic materials.	k. Add curb cuts, driveways, paths and sidewalks to the extent that they alter the character of the historic circulation system. Construct new roads.
l. Provide the highest level of barrier-free access to the landscape with the least amount of impact by selecting areas where the fewest alterations to the historic features and materials is required. Study a range of design alternatives in order to minimize adverse impacts. Use incompatible materials that are compatible with historic materials.	l. Fail to limit the visual and physical impact of providing barrier-free access to the historic landscape. For example, fail to consider the use of a lift at a building rather than ramp when the grade change requires a long ramp with switchbacks. Use incompatible materials such as wood handrails of ramps instead of round metal rails, painted block.

STRUCTURES: SEE MAINTENANCE AND REPAIR MANUAL FOR HISTORIC STRUCTURES FORT LEWIS. Seattle District, Corps of Engineers, Walter Grassinger Architects, Contract Number: DAC A67 - 86 - C - 0129.

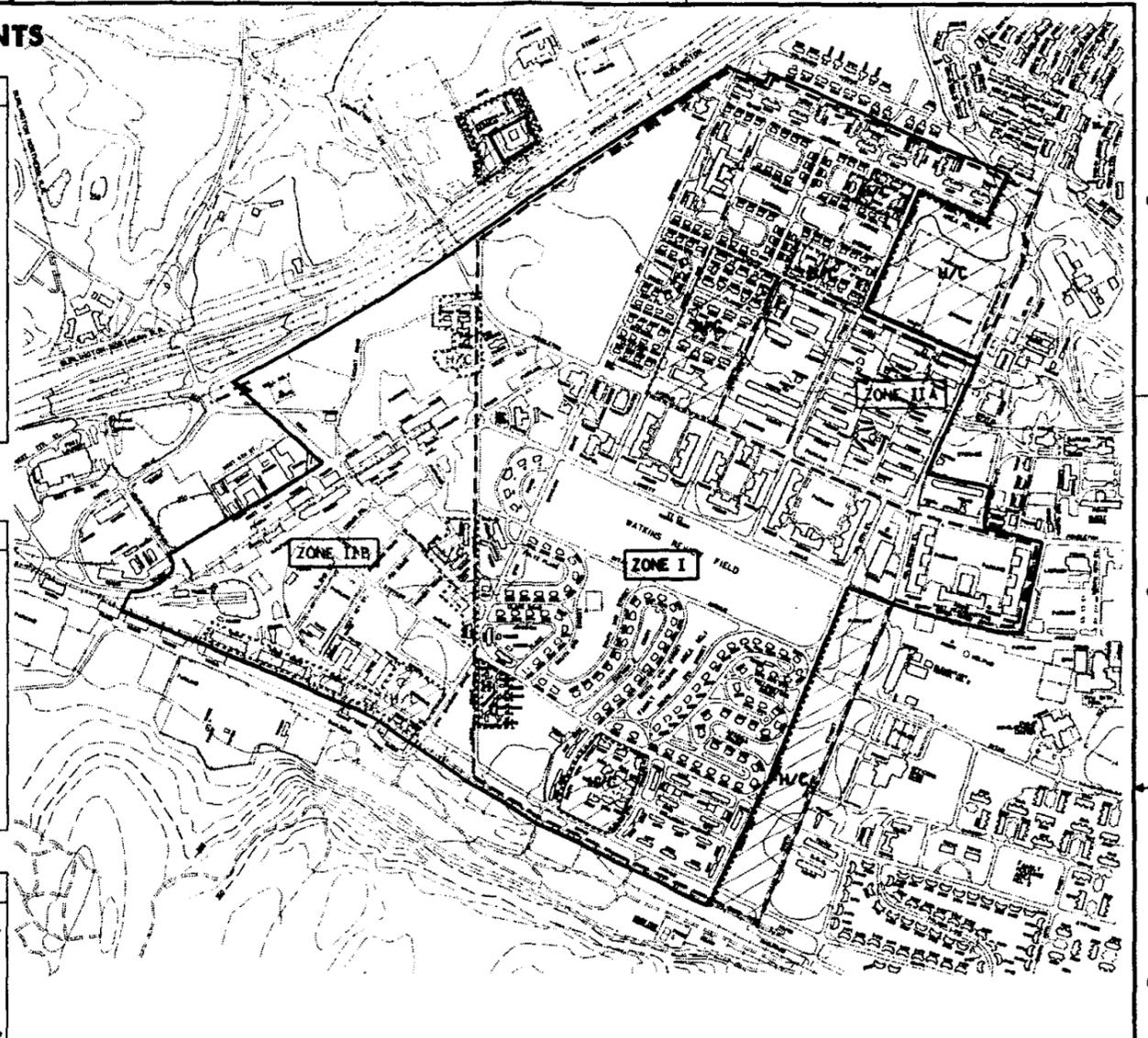
REQUIRED	NOT PERMITTED
a. Preserve and maintain historic buildings according to Secretary of Interior's Standards for Rehabilitation.	a. Fail to preserve or maintain historic structures according to Secretary of Interior's Standards for Rehabilitation.
b. Not allow, if possible, the construction of new buildings in the zone. If new buildings must be added, they should be compatible with the historic character of the zone. For example, new buildings should be similar to historic buildings in materials, architectural style and layout (setbacks and building orientation). See "Installation Design Guide Ft. Lewis, Washington" (1987) pp. 9-18, 28-29.	b. Construct new, incompatible buildings in the zone.
c. Consider the removal of non-historic housing in Greenwood and Broadmoor and restore it to open space. If these areas must be used for buildings, construct new housing that is compatible with the historic housing (see above). Do not introduce non-residential structures into housing areas.	c. Construct new buildings that are incompatible with the historic character of the zone.

VIEWS AND VISTAS

REQUIRED	NOT PERMITTED
a. Retain visual connections within and between areas by preserving the historic roads, sidewalks, open spaces, and topography which insulate the historic materials. For example, maintain open front yards, and view across roads to open spaces, views to and from the 91st Division Monument, parade ground, and Mt. Rainier.	a. Alter or change visual connections by constructing structures, walls, earthen berms, fences, or vegetative screens in front yards, along roads, or in open spaces. Expose non-historic views through the removal of significant plant material. For example, remove and not replace historic trees in open spaces.
b. Retain the form and shape of designed open spaces.	b. Change the configuration, alignment, or size of open spaces.

SMALL-SCALE FEATURES, cast iron guardrails and clothesline posts, wrought iron handrails

REQUIRED	NOT PERMITTED
a. Preserve historic small-scale features such as cast iron guardrails, clothesline posts, and wrought iron handrails.	a. Fail to identify, evaluate, and treat cumulative effects of neglect, use, and climatic conditions so that small-scale features are lost.
b. Repair deteriorated parts or components of small-scale features through limited replacement in kind. If using historic materials is not feasible, substitute materials may be used if they have the same historic appearance. Metal features should be painted black.	b. Repair or replace features with inappropriate materials. For example, use wood to replace cast iron guardrails and clothesline posts. Not painting replacement metal features black.
c. Restrict the introduction of non-historic small-scale features.	c. Introduce non-historic permanent small-scale features to houses.
d. If necessary to add features for contemporary uses, their design, placement, color, and quantity should not alter the character of the landscape. For example, a limited number of non-permanent site furnishings such as a bench or picnic table may be used at houses. However, they should not be historic-looking designs or reproductions but should be constructed of materials that are compatible with historic materials (exposed aggregate concrete, cast or wrought iron). Locate them in back yards or in informal open spaces to preserve the informal historic character of these areas.	d. Add non-permanent features that are not compatible with historic materials such as Victorian style wooden benches or picnic tables that are located in open spaces or in front of buildings. Introduce features which have no historic precedent such as fences, patios, gazebos, arbors, trellises, planters, sculpture, and water features.



NOTE: VEGETATION RECOMMENDATIONS ARE LOCATED ON SHEET L.4.

SMALL-SCALE FEATURES CONT...

REQUIRED	NOT PERMITTED
a. Locate playgrounds, if they are introduced, in informal open spaces when possible. For example, in Broadmoor in Foltz Place, Johnson Place, Coakley Court. If they must be added to open spaces between S. 2nd Street and S. 3rd Street, and between S. 4th St. and S. 5th Street, locate them at the south end of the area, away from Blitar Avenue. Locate playgrounds in Greenwood between Tacoma Ave. and Pierce Ave. when possible.	a. Introduce playgrounds or play equipment to formal areas such as front yards, formal spaces bordering Blitar Avenue, in Yellowstone Court, or Astoria Court.
b. Design playgrounds that are informal in character (construct no hard surfaces in areas such as access sidewalks etc.) and are visually non-intrusive as possible.	b. Design large, formally delineated playgrounds, with courtyards, sidewalks, or large-scale, timber materials.
c. Maintain the positive recreation character of open spaces.	c. Introduce athletic courts or athletic fields to open spaces.
d. Consider restoring historic light standards and poles in the following locations: in Broadmoor, in front of the historic hospital (Old 4250), and along Liggett Ave. Base the design for the historic lighting on lighting used at Ft. Lewis during the historic period; see detail sheet.	d. Replace existing lighting with a historic style that never existed in the landscape.

SCALE: 1" = 400'

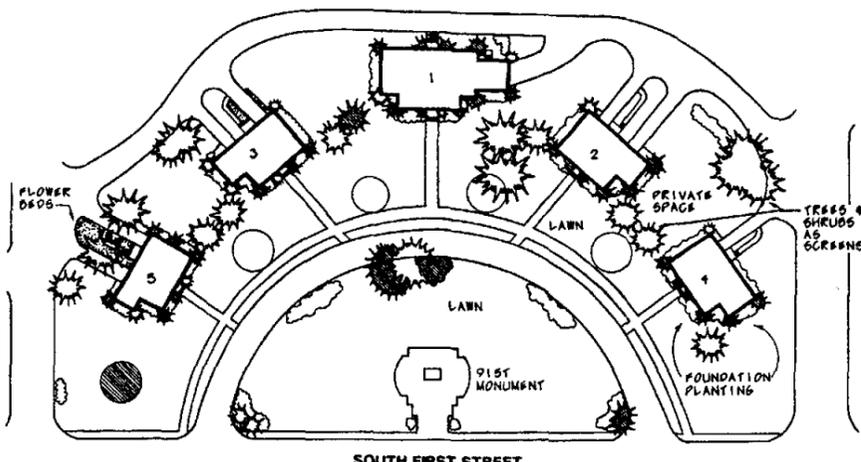
LEGEND	
	NATIONAL REGISTER HISTORIC DISTRICT BOUNDARY
	H/C HISTORIC CONTEXT MANAGEMENT AREA
	ZONE I

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CORPS OF ENGINEERS			
SEATTLE, WASHINGTON			
LANDSCAPE DEVELOPMENT PLAN			
DESIGN DEVELOPMENT			
ZONE I PRESERVATION TREATMENTS			
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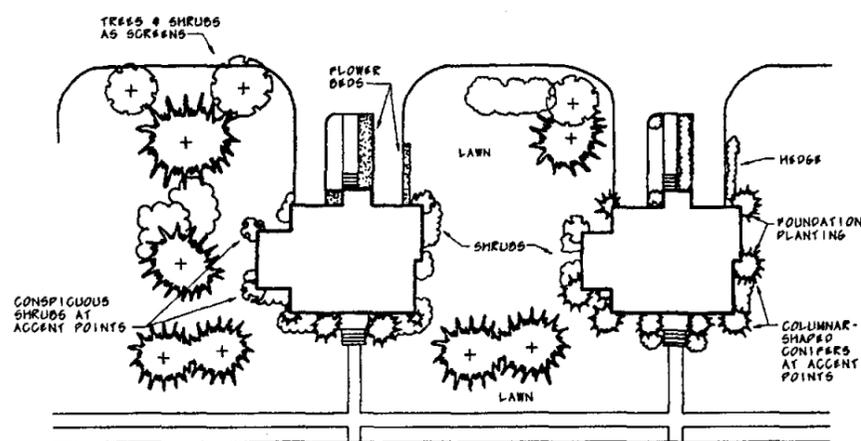
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TYPICAL PLANTING PLANS: FOUNDATION PLANTING AND SPATIAL DEFINITION



GENERAL'S QUARTERS TYPICAL PLANTING PLAN
NOT TO SCALE



BROADMOOR TYPICAL PLANTING PLAN
NOT TO SCALE

TYPICAL PLANT LISTS

GENERALS' QUARTERS

COMMON FOUNDATION TREES:

- + * CHAMAECYPARIS LAWSONIANA-LAWSON CYPRESS
- + * CHAMAECYPARIS PISIFERA-SAWARA CYPRESS
- THUJA OCCIDENTALIS 'PYRAMIDALIS'-ARBORVITAE

COMMON FOUNDATION SHRUBS:

- AUCUBA JAPONICA-AUCUBA
- AZALEA SP.
- BERBERIS THUNBERGII ATROPURPUREA-JAPANESE BARBERRY
- BUXUS SEMPERVIRENS-BOXWOOD
- BERBERIS THUNBERGII-JAPANESE BARBERRY
- CAMELIA SP.
- * CHAENOMELES JAPONICA-JAPANESE QUINCE
- COTONEASTER SP.
- DEUTZIA SP.
- FERNS
- * FORSYTHIA SP.
- HYDRANGEA MACROPHYLLUM-BIGLEAF HYDRANGEA
- JUNIPER SP.
- LONICERA SP.-HONEYSUCKLE
- LIGUSTRUM SP.-PRIVET
- MAHONIA AQUIFOLIUM-OREGON GRAPE
- PIERIS JAPONICA-PIERIS
- * PRUNUS LAUROCERASUS-ENGLISH LAUREL
- * PRUNUS LUSITANICA-PORTUGAL LAUREL
- RHOODODENDRON SP.
- ROSE SP. (SHRUB VARIETIES)
- SPIRAEA SP.
- * SYRINGA VULGARIS-COMMON LILAC
- VIBURNUM SP. including:
 - V. PLICATUM TOMENTOSUM-DOUBLEFILE VIBURNUM
 - + V. RHYTIDOPHYLLUM-LEATHERLEAF VIBURNUM
 - V. OPULUS-EUROPEAN CRANBERRY BUSH
 - V. TINUS-LAURUSTINUS VIBURNUM
 - WEIGELA SP.

OTHER-Iris and Daylilies

BROADMOOR-OFFICERS' HOUSING AREA

COMMON FOUNDATION TREES:

- * CHAMAECYPARIS LAWSONIANA. CV. 'ELLWOODII'-ELLWOOD LAWSON CYPRESS
- TAXUS BACCATA-ENGLISH YEW
- THUJA OCCIDENTALIS 'FASTIGIATA'-FASTIGIATE ARBORVITAE
- THUJA OCCIDENTALIS 'PYRAMIDALIS'-ARBORVITAE

COMMON FOUNDATION SHRUBS:

- ABELIA GRANDIFLORA
- AUCUBA JAPONICA
- AZALEA SP.
- BERBERIS SP.-BARBERRY
- BUXUS SEMPERVIRENS-BOXWOOD
- CHAMAECYPARIS SP.
- * CHAENOMELES SP.-QUINCE
- COTONEASTER SP.
- DEUTZIA SP.
- FERNS
- * FORSYTHIA SP.
- JUNIPERUS SP.-JUNIPER
- LIGUSTRUM SP.-PRIVET
- MAHONIA AQUIFOLIUM-OREGON GRAPE
- PIERIS JAPONICA
- SPIRAEA SP.
- RHOODODENDRON SP.
- VIBURNUM SP. including:
 - V. OPULUS-EUROPEAN CRANBERRY BUSH
 - V. PLICATUM TOMENTOSUM-DOUBLEFILE VIBURNUM
 - + * V. RHYTIDOPHYLLUM-LEATHERLEAF VIBURNUM
 - V. TINUS-LAURUSTINUS VIBURNUM
 - WEIGELA SP.

OTHER-Iris and Daylilies

BROADMOOR-OFFICERS' HOUSING AREA CONT.

COMMON TREES USED FOR SPATIAL DEFINITION:

- * CRATAEGUS OXYACANTHA-PINK HAWTHORN
- CEDRUS DEODORA-DEODAR CEDAR
- + CHAMAECYPARIS LAWSONIANA VAR.- Several var. of Lawson cypress including:
 - CHAMAECYPARIS L. 'ALLUMII'-BLUE LAWSON CYPRESS
 - + CHAMAECYPARIS L. 'LUTEA'-GOLDEN LAWSON CYPRESS
 - CHAMAECYPARIS L. 'ELLWOODII'-ELLWOOD LAWSON CYPRESS
 - + CHAMAECYPARIS PISIFERA-SAWARA CYPRESS Several var. of Sawara cypress including:
 - + CHAMAECYPARIS P. 'SOUARROSA'-MOSS SAWARA CYPRESS
 - CHAMAECYPARIS P. 'FILIFERA'-THREAD-BRANCH SAWARA CYPRESS
- ILEX AQUIFOLIUM-ENGLISH HOLLY
- PICEA ABIES-NORWAY SPRUCE
- * PRUNUS SP. -FRUIT TREES
- * POPULUS CANESCENS-GRAY POPLAR
- PRUNUS LAUROCERASUS-ENGLISH LAUREL
- PRUNUS LUSITANICA-PORTUGAL LAUREL
- PSEUDOTSUGA MENZIESII-DOUGLAS-FIR
- SORBUS AUCCUPARIA-EUROPEAN MOUNTAIN ASH
- TAXUS BACCATA-ENGLISH YEW
- THUJA OCCIDENTALIS 'FASTIGIATA'-FASTIGIATE ARBORVITAE
- THUJA OCCIDENTALIS-ARBORVITAE
- THUJA PLICATA-WESTERN RED CEDAR
- THUJA PLICATA ZEBRINA-VARIGATED WESTERN RED CEDAR
- * ULMUS AMERICANA-AMERICAN ELM

COMMON SHRUBS USED FOR SPATIAL DEFINITION:

- ABELIA GRANDIFLORA
- AUCUBA JAPONICA
- AZALEA SP.
- BERBERIS SP.
- BUXUS SEMPERVIRENS-BOXWOOD
- CAMELIA SP.
- CHAENOMELES SP.-QUINCE
- COTONEASTER SP.
- DEUTZIA SP.
- FERNS
- FORSYTHIA SP.
- JUNIPERUS SP.-JUNIPER
- LABURNUM X WATERERI-HYBRID GOLDENCHAIN
- LIGUSTRUM SP.-PRIVET
- MAHONIA AQUIFOLIUM-OREGON GRAPE
- PHILADELPHUS SP.-MOCK-ORANGE
- PIERIS JAPONICA
- * PRUNUS LAUROCERASUS-ENGLISH LAUREL
- * PRUNUS LUSITANICA-PORTUGAL LAUREL
- RHOODODENDRON SP.
- ROSE SP. (SHRUB VARIETIES)
- SPIRAEA SP.
- SYRINGA VULGARIS-COMMON LILAC
- VIBURNUM SP. including:
 - V. OPULUS-EUROPEAN CRANBERRY BUSH
 - V. PLICATUM TOMENTOSUM-DOUBLEFILE VIBURNUM
 - + V. RHYTIDOPHYLLUM-LEATHERLEAF VIBURNUM
 - V. TINUS-LAURUSTINUS VIBURNUM
 - WEIGELA SP.

* These lists represent the most common plants used historically. As with any plant design, the size, location, and disease and pest problems of plants should be considered before they are selected. Species marked with an asterisk (*) indicate some plants that in the past grew too large for their location or had serious pest or disease problems. Species marked with a plus sign (+) may be difficult to find in local nurseries. It may be necessary to use a different species when replacing these plants if these problems cannot be resolved. See replacement philosophy and sequence on Sheet L.4. The lists are arranged by character area and function.

A. FOUNDATION PLANTING:

Foundation planting was a landscape design concept popular in the 1920s in the United States. It consisted of planting vegetation along building foundations that served to connect and blend the building with the grounds and surrounding vegetation; enhance the architecture and soften any harsh architectural lines; and screen objectionable building features such as unattractive foundation walls, etc. Foundation planting emphasized the use of the largest or most conspicuous plants (colorful, distinctive form, large texture) at accent points-entries and building corners-with smaller, finer textured species planted in between accent plants.

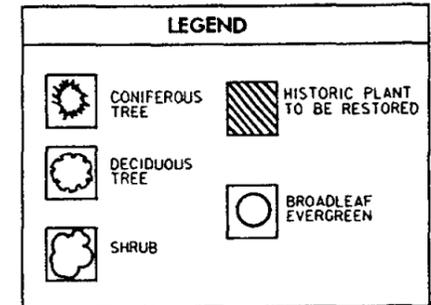
At Fort Lewis, a common plant palette was used throughout the base and helped create a cohesive appearance in all land use areas. Columnar-shaped items also refers to pyramidal and fastigate-shaped conifers were commonly used as accent plants at building corners and entries. The overall design was generally informal as most plants, except for a few hedges, were not sheared into formal geometric shapes. Likewise, foundation planting beds had hand-tooled edges rather than being lined or edged with brick, stone, wood, etc. Just as the size, scale, and ornamentation of buildings varied according to military rank, the level of planting varied for different housing areas. The Generals' quarters had the most luxuriant plantings with foundation trees and shrubs extending well into the lawns, while plantings in Greenwood (NCO quarters) were much more sparse. Foundation planting for the Barracks consist primarily of columnar-shaped conifers with some larger-growing shrubs. See plant lists for commonly used species.

Maintain foundation planting under High maintenance zone guidelines.

B. VEGETATION USED FOR SPATIAL DEFINITION:

Historic trees and shrubs were used for both functional and aesthetic purposes at Fort Lewis. Vegetation was used as visual screens to hide and/or separate incompatible land use areas, control pedestrian circulation, and frame views. In the housing areas, informal use of trees and shrubs was essential in creating private spaces between houses. Trees and shrubs planted in informal arrangements between buildings helped integrate the buildings with their surroundings and break up the more formal appearance of foundation planting. The extensive use of lawns in conjunction with trees and shrubs helped create a homogenous park-like appearance. Species used for spatial definition included deciduous, broad-leaf evergreen, and coniferous trees and shrubs. See plant lists for commonly used species.

Maintain vegetation used for spatial definition under High maintenance zone guidelines.



REDUCED TO 50% OF FULL SIZE

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

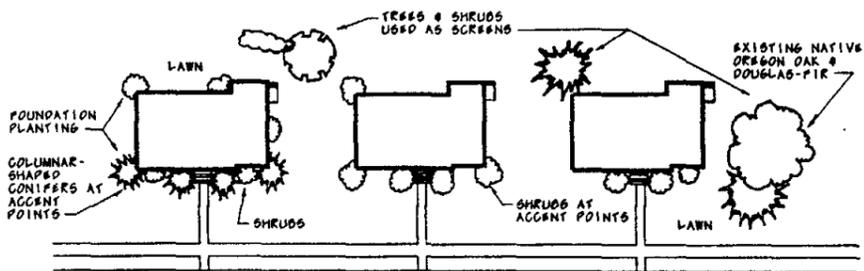
LANDSCAPE DEVELOPMENT PLAN
DESIGN DEVELOPMENT

VEGETATION
PLANTING PLANS: FOUNDATION
PLANTING AND SPATIAL DEFINITION

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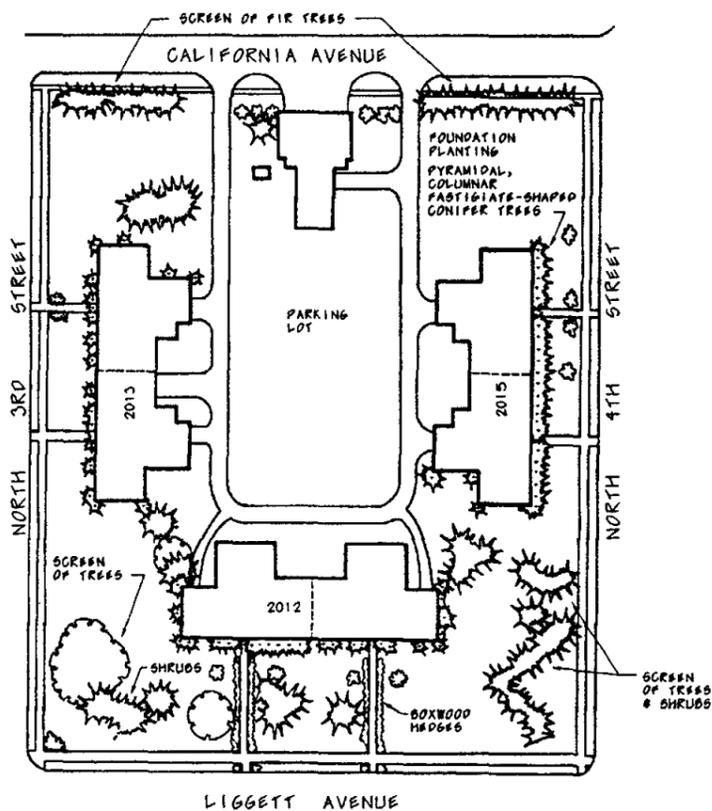
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TYPICAL PLANTING PLANS: FOUNDATION PLANTING AND SPATIAL DEFINITION



GREENWOOD TYPICAL PLANTING PLAN

NOT TO SCALE



HISTORIC BARRACKS TYPICAL PLANTING PLAN

NOT TO SCALE

TYPICAL PLANT LISTS

GREENWOOD-NCO HOUSING AREA

COMMON FOUNDATION TREES:

- TAXUS BACCATA-ENGLISH YEW
- THUJA OCCIDENTALIS 'FASTIGIATA'-FASTIGIATE ARBORVITAE
- THUJA OCCIDENTALIS 'PYRAMIDALIS'-PYRAMIDAL ARBORVITAE

COMMON FOUNDATION SHRUBS:

- ABELIA GRANDIFLORA-ABELIA
- AUCUBA JAPONICA-AUCUBA
- BERBERIS SP.
- BUXUS SEMPERVIRENS-BOXWOOD
- CHAMAECYPARIS SP.
- * CHAENOMELES SP.-QUINCE
- DEUTZIA SP.
- FERNS
- JUNIPERUS SP.
- LIGUSTRUM SP.-PRIVET
- MAHONIA AQUIFOLIUM-OREGON GRAPE
- PHILADELPHUS SP.-MOCK-ORANGE
- PRUNUS LAUROCERASUS-ENGLISH LAUREL
- PYRACANTHA SP.-FIRETHORN
- RHODODENDRON SP.
- SPIRAEA SP.
- * SYRINGA VULGARIS-COMMON LILAC
- THUJA SP.
- VACCINIUM OVATUM-EVERGREEN HUCKLEBERRY
- VIBURNUM SP.
- OTHER-Iris and Daylilies

COMMON TREES USED FOR SPATIAL DEFINITION:

- * ACER MACROPHYLLUM-BIGLEAF MAPLE
- CEDRUS DEODORA-DEODOR CEDAR
- * CHAENOMELES SP.-QUINCE
- * CRATAEGUS MONOGYNA-COMMON HAWTHORN
- + CHAMAECYPARIS LAWSONIANA-LAWSON CYPRESS
- + CHAMAECYPARIS PISIFERA-SAWARA CYPRESS
- DEUTZIA SP.
- FORSYTHIA SP.
- ILEX AQUIFOLIUM-ENGLISH HOLLY
- MALUS DOMESTICUS
- PHILADELPHUS SP.-MOCK ORANGE
- * PRUNUS SP.-CHERRY
- * POPULUS CANESCENS-GRAY POPLAR
- * PSEUDOTSUGA MENZIESII-DOUGLAS-FIR
- * PICEA PUNGENS-BLUE SPRUCE
- QUERCUS GARRIANA-OREGON OAK
- SORBUS AUCUPARIA-EUROPEAN MOUNTAIN ASH
- SALIX X CHRYSOCOMA-GOLDEN WEEPING WILLOW
- SPIRAEA SP.
- SYRINGA VULGARIS-COMMON LILAC
- TAXUS BACCATA-ENGLISH YEW
- THUJA PLICATA-WESTERN RED CEDAR
- THUJA PLICATA ZEBRINA-VARIGATED WESTERN RED CEDAR
- VIBURNUM SP.

COMMON SHRUBS USED FOR SPATIAL DEFINITION:

- CHAENOMELES SP.-QUINCE
- DEUTZIA SP.
- FORSYTHIA SP.
- SPIRAEA SP.
- SYRINGA VULGARIS-COMMON LILAC
- VIBURNUM SP.

HISTORIC BARRACKS AREA

COMMON FOUNDATION TREES:

- + * CHAMAECYPARIS LAWSONIANA-cultivars including:
- * C. LAWSONIANA 'ALLUMII'-BLUE LAWSON CYPRESS
- + * C. LAWSONIANA 'ERECTA VIRDIS'-GREEN COLUMN CYPRESS
- * C. LAWSONIANA 'FLETCHER'
- + * C. LAWSONIANA 'FRASER'
- + * C. LAWSONIANA 'STEWARTII'-STEWART'S GOLDEN LAWSON CYPRESS

- * CHAMAECYPARIS PISIFERA-SAWARA CYPRESS-several cultivars including:
- + * C. PISIFERA 'PLUMOSA'-PLUME SAWARA CYPRESS
- + * C. PISIFERA 'SOUARROSA'-MOSS SAWARA CYPRESS
- * C. PISIFERA 'FILIFERA'-THREAD-BRANCH SAWARA CYPRESS
- * CEDRUS DEODORA-DEODAR CEDAR
- * PICEA PUNGENS-BLUE SPRUCE
- TAXUS BACCATA
- THUJA OCCIDENTALIS 'FASTIGIATA'-FASTIGIATE ARBORVITAE
- THUJA OCCIDENTALIS 'PYRAMIDALIS'-ARBORVITAE
- * THUJA PLICATA-WESTERN RED CEDAR
- * THUJA PLICATA 'ZEBRINA'-VARIGATED WESTERN RED CEDAR

COMMON FOUNDATION SHRUBS:

- BERBERIS SP. including:
- B. JULIANA-WINTERGREEN BARBERRY
- B. STENOPHYLLA-ROSEMARY BARBERRY
- B. THUNBERGII-JAPANESE BARBERRY
- B. THUNBERGII 'ATROPURPUREA'-RED-LEAF JAPANESE BARBERRY
- B. VERRUCULOSA-WARTY BARBERRY
- BUXUS SEMPERVIRENS-BOXWOOD
- CHAENOMELES SP.-QUINCE
- COTONEASTER SP.
- CHOISYA TERNATA-MEXICAN ORANGE
- FERNS
- FORSYTHIA SP.
- JUNIPERUS SP.
- LIGUSTRUM SP. PRIVET
- LIGUSTRUM OVALIFOLIUM-'AUREUM'-GOLDEN PRIVET
- LINDERA BENZOIN-SPICE BUSH
- * PRUNUS LAUROCERASUS-ENGLISH LAUREL
- * PYRACANTHA SP.-FIRETHORN
- SYRINGA VULGARIS-COMMON LILAC
- THUJA SP.
- + VIBURNUM RHYTIDOPHYLLUM-LEATHERLEAF VIBURNUM
- OTHER-Iris and Daylilies

COMMON TREES USED FOR SPATIAL DEFINITION:

- * ACER MACROPHYLLUM-BIGLEAF MAPLE
- ABIES FIRMA-MOMI FIR
- CEDRUS DEODORA-DEODAR CEDAR
- + CHAMAECYPARIS LAWSONIANA-LAWSON CYPRESS
- C. LAWSONIANA 'ALLUMII'-BLUE LAWSON CYPRESS
- + CHAMAECYPARIS PISIFERA-SAWARA CYPRESS
- + C. PISIFERA 'SOUARROSA'-MOSS SAWARA CYPRESS
- ILEX AQUIFOLIUM-ENGLISH HOLLY
- PICEA ABIES-NORWAY SPRUCE
- * PRUNUS SP.-CHERRY
- PRUNUS LAUROCERASUS-ENGLISH LAUREL
- PRUNUS LUSITANICA-PORTUGAL LAUREL
- * PSEUDOTSUGA MENZIESII-DOUGLAS-FIR
- * PICEA PUNGENS-BLUE SPRUCE
- THUJA PLICATA-WESTERN RED CEDAR
- THUJA PLICATA 'ZEBRINA'-VARIGATED WESTERN RED CEDAR

COMMON SHRUBS USED FOR SPATIAL DEFINITION:

- BUXUS SEMPERVIRENS-BOXWOOD
- JUNIPERUS SP.
- LIGUSTRUM OVALIFOLIUM-'AUREUM'-GOLDEN PRIVET
- LIGUSTRUM SP.-PRIVET
- PRUNUS LAUROCERASUS-ENGLISH LAUREL
- SYRINGA VULGARIS-COMMON LILAC
- THUJA SP.
- + VIBURNUM RHYTIDOPHYLLUM-LEATHERLEAF VIBURNUM

* These lists represent the most common plants used historically. As with any plant design, the size, location, and disease and pest problems of plants should be considered before they are selected. Species marked with an asterisk (*) indicate some plants that in the past grew too large for their location or had serious pest or disease problems. Species marked with a plus sign (+) may be difficult to find in local nurseries. It may be necessary to use a different species when replacing these plants if these problems cannot be resolved. See replacement philosophy and sequence on Sheet L.4. The lists are arranged by character area and function.

Many of the species originally planted as foundation trees at the barracks and other buildings may be too large at maturity to be successfully replanted without high maintenance costs. See Appendix C: Restoration Plan for 2012 for list of acceptable replacement foundation trees.

LEGEND

- CONIFEROUS TREE
- DECIDUOUS TREE
- SHRUB

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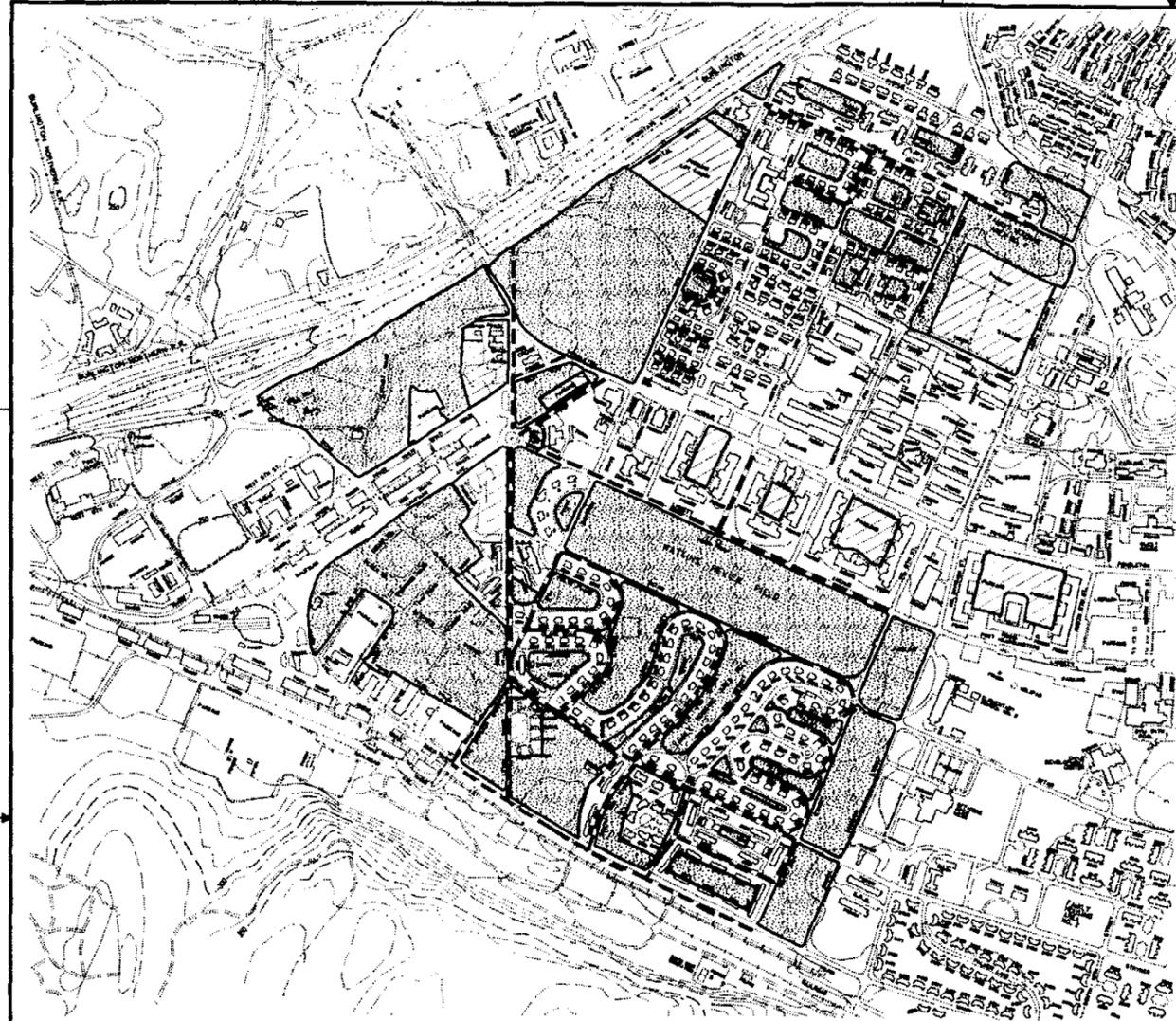
U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

LANDSCAPE DEVELOPMENT PLAN
DESIGN DEVELOPMENT

VEGETATION
TYPICAL PLANTING PLANS: FOUNDATION
PLANTING AND SPATIAL DEFINITION

FORT LEWIS		WASHINGTON	
DATE	DESIGNER	DATE	SCALE
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SHEET 6 OF 12			

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TYPICAL PLANTING PLANS: OPEN SPACE AND STREET TREES

C. OPEN SPACE

Open spaces or "parks" played an important role in separating and defining different land use areas as well as creating a park-like setting. Historically, most of these areas were planted with coniferous trees or they incorporated existing clusters of native Douglas-fir and Oregon oak trees. Existing trees were commonly incorporated in the open spaces located in family housing areas; for example, in Broadmoor and Greenwood. In the open space behind the General's Quarters, vegetation consisted of both trees and shrubs and included deciduous, coniferous, and broadleaf-evergreen species. The Parade Ground was a large expanse of turf bordered on the north and south sides by a screen of fir and spruce trees.

Over the years, some development of historic open space include areas of W.W. II temporary buildings, parking lots and storage areas. Efforts should be made to mitigate the impact of these intrusions. For example, as W. W. II buildings are removed, these areas should be restored to open space; parking lots and storage areas should be screened with vegetation, and removed and restored as open space when possible. Do not allow new development in open space in Management Zone I and limit and mitigate intrusions in Zone II.

Maintain open space vegetation under High, Medium, and Low maintenance zone guidelines depending on the location.

D. STREET TREES

Street trees were an important unifying feature of the designed landscape and were planted in many areas of the base including Broadmoor, the Barracks, Greenwood, and along several primary roads. American elm (*Ulmus americana*) trees were the most common street trees planted at Fort Lewis. Planted at fairly regular spacing, these elms provided an almost continuous tree canopy across the roads and created a distinct visual identity in the District. Other species planted as street trees in Broadmoor and Greenwood included hawthorns, gray poplars, and mountain ash. All historic street trees were planted in planting strips (between streets and sidewalks).

Maintain street trees under High maintenance zone guidelines.

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LEGEND	
	ROADS WITH HISTORIC STREET TREES
	HISTORIC OPEN SPACE
	NON-HISTORIC INTRUSIONS INTO HISTORIC OPEN SPACE



SCALE: 1" = 400'

REDUCED TO SIZE OF FULL SIZE

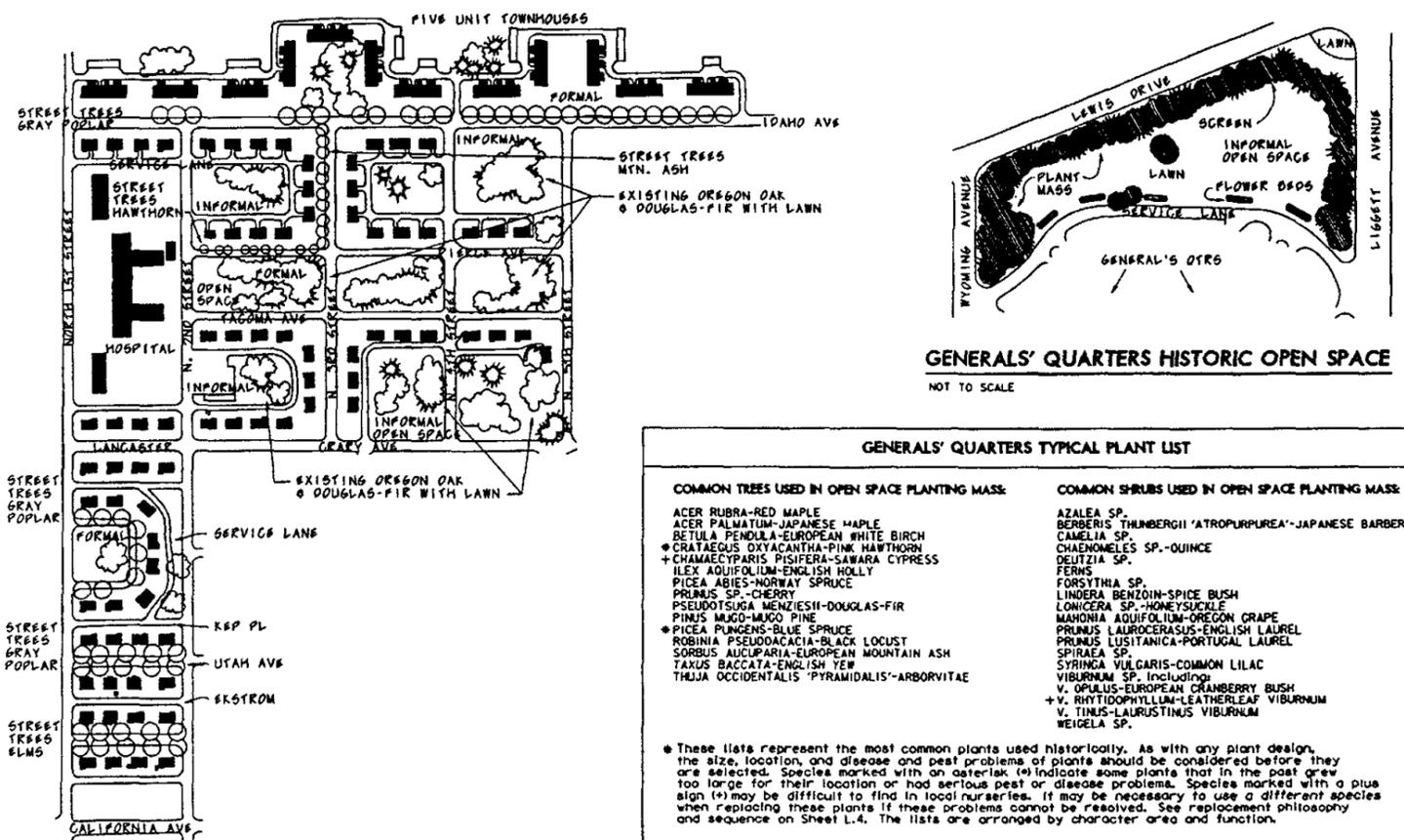
U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

LANDSCAPE DEVELOPMENT PLAN
DESIGN DEVELOPMENT

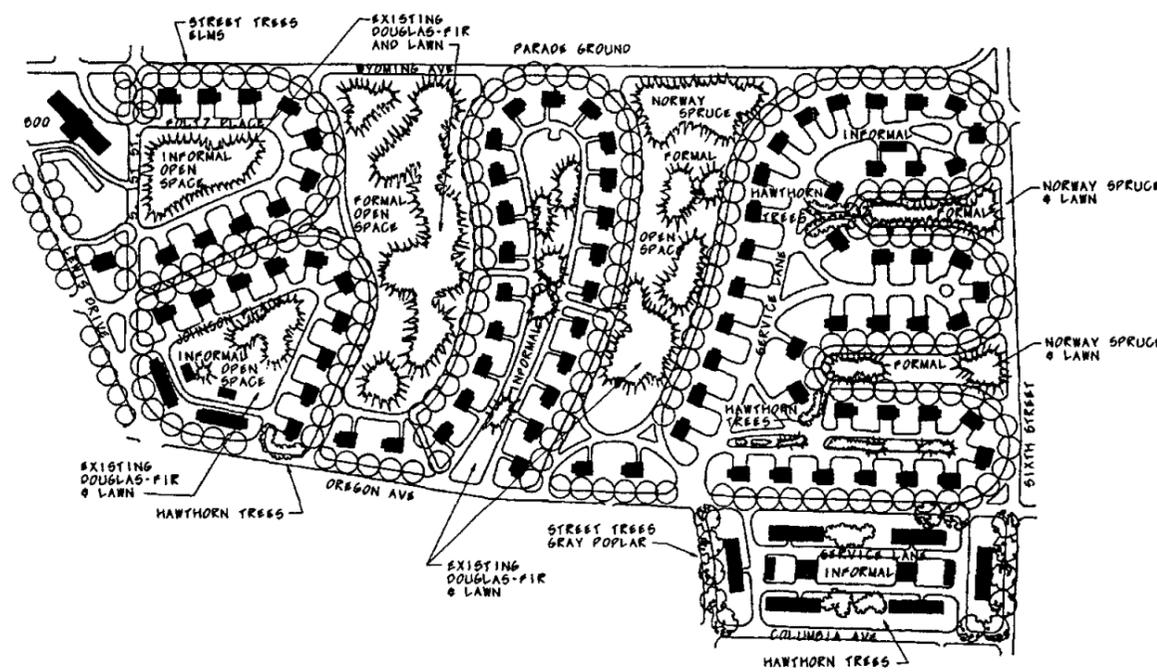
VEGETATION
TYPICAL PLANTING PLANS: OPEN SPACE
AND STREET TREES

FORT LEWIS		WASHINGTON	
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GREENWOOD HISTORIC OPEN SPACE AND STREET TREES
NOT TO SCALE



BROADMOOR HISTORIC OPEN SPACE AND STREET TREES
NOT TO SCALE

GENERAL'S QUARTERS HISTORIC OPEN SPACE
NOT TO SCALE

GENERAL'S QUARTERS TYPICAL PLANT LIST

- | COMMON TREES USED IN OPEN SPACE PLANTING MASS | COMMON SHRUBS USED IN OPEN SPACE PLANTING MASS |
|---|--|
| ACER RUBRA-RED MAPLE | AZALEA SP. |
| ACER PALMATUM-JAPANESE MAPLE | BERBERIS THUNBERGII 'ATROPURPUREA'-JAPANESE BARBERRY |
| BETULA PENDULA-EUROPEAN WHITE BIRCH | CAMELIA SP. |
| *CRATAEGUS OXYACANTHA-PINK HAWTHORN | CHAENOMELES SP.-QUINCE |
| +CHAMAECYPARIS PISIFERA-SAWARA CYPRESS | DEUTZIA SP. |
| ILEX AQUIFOLIUM-ENGLISH HOLLY | FERN |
| PICEA ABIES-NORWAY SPRUCE | FORSYTHIA SP. |
| PRUNUS SP.-CHERRY | LINDERA BENTON-SPICE BUSH |
| PSEUDOTSUGA MENZIESII-DOUGLAS-FIR | LONICERA SP.-HONEYSUCKLE |
| PINUS MUGO-MUGO PINE | MAHONIA AQUIFOLIUM-OREGON GRAPE |
| *PICEA PUNGENS-BLUE SPRUCE | PRUNUS LAUROCERASUS-ENGLISH LAUREL |
| ROBINIA PSEUDOCACIA-BLACK LOCUST | PRUNUS LUSITANICA-PORTUGAL LAUREL |
| SORBUS ALUCUPARIA-EUROPEAN MOUNTAIN ASH | SPIRAEA SP. |
| TAXUS BACCATA-ENGLISH YEW | SYRINGA VULGARIS-COMMON LILAC |
| THUJA OCCIDENTALIS 'PYRAMIDALIS'-ARBORVITAE | VIBURNUM SP. including: |
| | V. OPULIS-EUROPEAN CRANBERRY BUSH |
| | V. RHYTIDOPHYLLUM-LEATHERLEAF VIBURNUM |
| | V. TINUS-LAURUSTINUS VIBURNUM |
| | WEIGELA SP. |

* These lists represent the most common plants used historically. As with any plant design, the size, location, and disease and pest problems of plants should be considered before they are selected. Species marked with an asterisk (*) indicate some plants that in the past grew too large for their location or had serious pest or disease problems. Species marked with a plus sign (+) may be difficult to find in local nurseries. It may be necessary to use a different species when replacing these plants if these problems cannot be resolved. See replacement phytoscopy and sequence on Sheet L.4. The lists are arranged by character area and function.

STREET TREE RECOMMENDATIONS:

Street tree recommendations have been developed to address maintenance concerns in the Historic District including damage from tree roots and replacement species for historic trees. The goal of the street tree preservation recommendations is to preserve the historic trees, sidewalks and curbs (ensure correct repair and replacement, and retain historic alignments), as well as create a safe environment.

Historic Street Tree Replacement Recommendations:

The majority of street trees in the Historic District are *Ulmus americana*, American elm trees. Prior to the 1930s, the American elm was a highly popular ornamental tree in America, an unofficial national symbol of patriotism. The fungus *Ophiostoma ulmi*, commonly known as Dutch Elm Disease (DED), arrived in North America from Asia about 1910. It quickly spread and devastated American elm populations across the eastern and midwestern portions of the United States. The disease spread more slowly to and along the west coast. Although the Fort Lewis American elm population has remained unaffected by the disease to date, the disease was detected in Tacoma and Bellevue, Washington in 1994. While there are no known cures for the fungus, Dutch Elm Disease management programs to slow or stop the spread of the disease have been developed and implemented across the country. See Vegetation Preservation Guide for more information.

Except for DED, the virtues of American elms make them a highly desirable street tree. They are fast growing, easily transplanted, tolerant of urban conditions, and long-lived compared to most other potential street trees. They are prized for their soaring height, graceful branch habit and vase-like shape. Their high-growing canopy causes little street-level conflict and turf can tolerate the light shade they cast. At Ft. Lewis these characteristics have created a distinct visual quality in the Historic District. In North America other species have been identified that approximate the unique characteristics of the American elm. However, some disease resistant cultivars of *Ulmus americana* ('Homestead', 'Pioneer', etc.) that come close to resembling the American elm street trees have been developed and are continuing to be developed.

Preserve and maintain American elms as street trees in the Historic District; they are significant features for historic, aesthetic, and botanical reasons. Preservation treatments include a comprehensive Dutch Elm Disease program, and replacement with disease resistant American elm cultivars when trees die or become hazardous and must be removed.

Other types of street trees at Ft. Lewis include *Populus canescens*-gray poplar, *Crataegus oxyacantha* and *Crataegus mollis*-pink and common hawthorn, and *Sorbus aucuparia*-European mountain ash. According to the 1994 Hazard Tree Inventory, many of the existing gray poplars are in declining condition due to lack of maintenance, incorrect pruning, and damage from root pruning. The inventory recommends a phased removal schedule for some of these trees. Most species in the poplar family are not recommended as street trees due to brittle wood (creating potential safety problems if not pruned regularly) and aggressive roots. When it is necessary to remove hazardous gray poplars, it may be practical to replace with a species that is similar in character but does not have the same problems. For example, *Acer pseudoplatanus*-sycamore maple, may be a suitable replacement.

Pink (English) hawthorn - *Crataegus oxyacantha* (loevigata) is heavily infested with leaf blight (spot) fungus in the Historic District. If an aggressive cultural and biological program cannot bring the fungus under control, consider replacing trees that must be removed with disease resistant varieties such as *C. laevigata* 'Crimson Cloud'. It has good red single flowers and resistance to leaf blight. Other possible replacements include disease resistant varieties of flowering crabapple (*Malus sp.*) with pink flowers such as 'Adams', 'Centurion', 'Prairiefire', 'Robinson', 'Strawberry Parfait'.

Sidewalk Repair and Replacement:

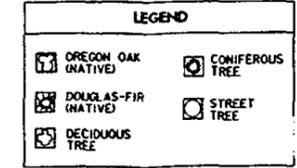
In the past when sidewalks were replaced, trees were root pruned. Root pruning can severely damage or kill mature trees and decreases their stability. Experience has shown that most street trees lost in wind storms had been root pruned. Do not root prune. It will endanger the life of the tree and/or destabilize the tree, creating a safety hazard. It is especially critical not to root prune or otherwise wound American elm trees because of the danger of Dutch Elm Disease.

Minor sidewalk uplifting from tree roots that does not exceed 1/2 inch vertical displacement, can be repaired by creating a sloped patch that bridges over the vertical displacement. Match concrete patch materials with existing concrete materials, see Circulation Maintenance Guide section.

To repair major sidewalk damage, remove the root damaged section and construct new "ramped" sidewalk sections. This consists of slightly elevating the walk over the critical root zone with an operation layer (sand) beneath the concrete. Place expansion joints every five feet; creating five foot-long sidewalk segments. Extend ramped segments a minimum of fifteen feet on each side of the tree trunk. See detail on sheet L.10. This allows the sidewalk to be repaired without changing the historic sidewalk alignment and protects existing roots by reducing soil compaction and allowing water and air to reach the roots. If the tree is still vigorous and its roots are continuing to grow in circumference, place an herbicide impregnated root barrier horizontally beneath the sidewalk to reduce potential future root damage. When planting new or replacement trees, place a root barrier vertically (8-12" below the surface) in a linear trench along the curb and sidewalk. Use a permeable root barrier that is impregnated with herbicides. Roots of mature trees are less likely to grow more in circumference and may not require root barriers. The decision to use a root barrier can be decided on a case by case basis by a licensed arborist.

Install concrete sleeves around damaged sewer and water lines if necessary. Repair any leaks in the lines; roots will grow toward this water source. The majority of street trees in the District are located only on one side of the street. If major repairs are being made to roads, consider moving water and sewer lines away from trees by creating a center drained or sloped drained road profile.

For a longer-term solution, move the sidewalk 4-6 feet (existing strips are 6-8 ft.) to create a 12 ft. wide planting strip. This recommendation is consistent with the 12 ft. minimum planting strips recommended by the Ft. Lewis Installation Design Guide. The new sidewalk will have to be "ramped" over existing roots as described above. New trees should be planted in the center of the planting strip and a root barrier placed vertically (8-12" below the surface) in a linear trench along the curb and sidewalk. This solution will reduce sidewalk damage in the future and create a better planting environment for trees.



REDUCED TO 50% OF FULL SIZE

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

LANDSCAPE DEVELOPMENT PLAN
DESIGN DEVELOPMENT

VEGETATION
TYPICAL PLANTING PLANS: OPEN SPACE
AND STREET TREES

FORT LEWIS		WASHINGTON	
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TAYLOR	HOFF		L.S.
SHEET 8 OF 12			

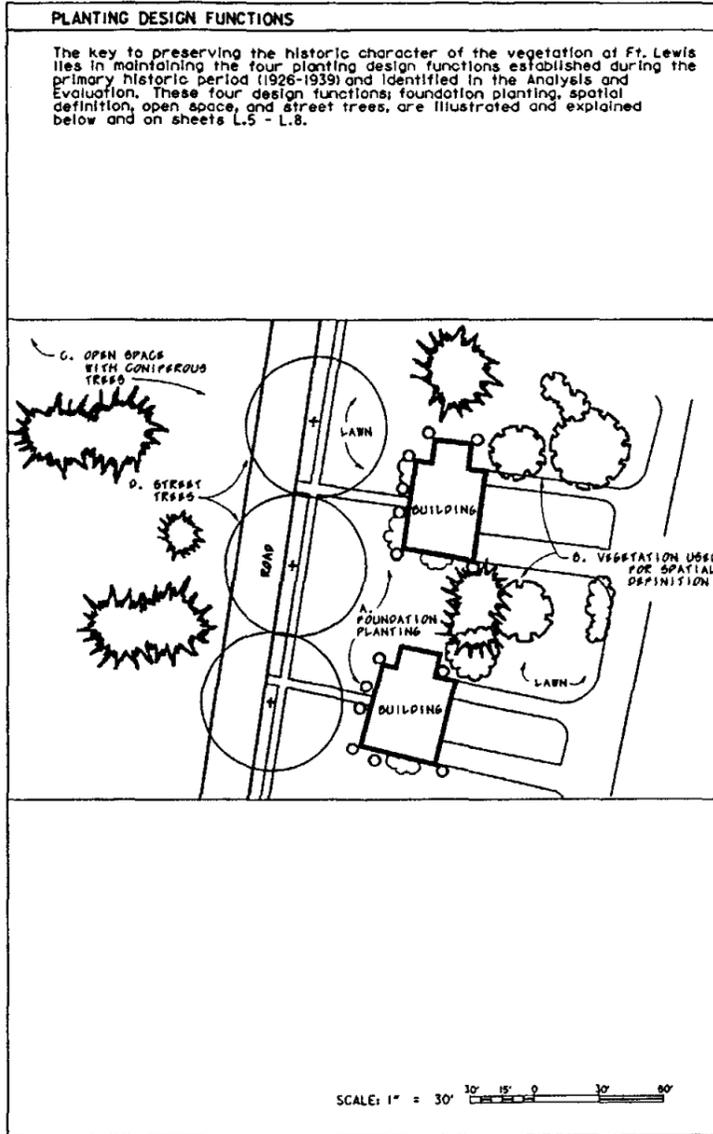
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GENERAL PLANTING DESIGN RECOMMENDATIONS

PRESERVATION TREATMENT FOR VEGETATION

Trees, shrubs, lawns, street trees, hedges, planting beds, informal vegetative screens

REQUIRED	NOT PERMITTED
<p>a. Preserve and restore significant historic vegetation by following the historic landscaping design principles such as maintaining a foundation planting, b) vegetation used for spatial definition in open spaces, and c) street trees. See analysis and evaluation for in-depth description.</p> <p>b. Maintain the historic, character-defining form, arrangement, and species of vegetation through regular and cyclical maintenance. For example, maintain historic foundation plant material at its appropriate height and shape through pruning or removing volunteer plant material.</p> <p>c. Replace existing or missing historic vegetation in-kind if it is technically and environmentally feasible. Vegetation should be removed only for safety, significant maintenance reasons, or declining plant health that cannot be recovered through proper maintenance.</p> <p>If the same species cannot be used due to maintenance or safety concerns, replace vegetation with material that replicates the design intent, shape, form, and function of the historic vegetation features.</p> <p>d. Maintain the character of planting beds by using hand-tooled edges. If edging is necessary, use thin, metal edging which is not visually intrusive.</p> <p>e. Add vegetative features to screen visually incompatible, non-historic elements or new construction. For example, screen existing parking lots in the open spaces behind the historic barracks. New vegetative features need to be compatible with the historic character of the landscape.</p> <p>f. Replace historic vegetation in its original location unless safety, technical, or environmental reasons make it necessary to change the location. For example, if a tree in a foundation planting is planted so close to the building or compromising the health of the tree, it should be moved far enough away from the building to accommodate the mature size of the plant but maintain the same historic relationship in the foundation planting.</p> <p>g. Evaluate the condition of vegetation to determine appropriate maintenance practices such as pruning, watering, integrated pest management practices, and environmentally sensitive fertilization.</p> <p>Provide information and assistance for housing occupants on appropriate practices for maintaining the lawns and vegetation in their yards.</p>	<p>a. Fail to preserve and maintain historic vegetation. Allow vegetation to grow beyond its intended design scale such that it alters the character of other significant historic features. For example, allow foundation plants to grow until they obscure major portions of a historic building or cause damage to other historic features.</p> <p>b. Prune a tree or shrub excessively and/or incorrectly (topping) without regard to its health, or shape.</p> <p>Prune vegetation into an inappropriate form, such as shaping a shrub into a geometric form when it was not shaped in this manner historically.</p> <p>c. Replace vegetation in a way that alters the historic design intent and function. For example, remove historic foundation vegetation and planting new beds away from a structure, or using round-shaped, deciduous plants to replace columnar or pyramidal-shaped coniferous plants.</p> <p>Replace a deteriorating or missing vegetative feature with inappropriate plant material in a way that alters the historic appearance. For example, replace shrubs in a foundation planting with ground cover.</p> <p>Introduce incompatible vegetation such as planting flower beds where there were none historically, add hedges as privacy screens between yards instead of planting informal shrub masses, or add shrubs to the formal open spaces which historically consisted of lawns with coniferous trees.</p> <p>d. Change the historic character of foundation planting beds by adding inappropriate edging material such as timbers, bricks, and stones.</p> <p>e. Fail to screen incompatible contemporary features such as new parking lots with vegetation. Screen incompatible features with inappropriate materials such as fences or walls. Or, use hedges rather than using informally, less densely planted trees and shrubs as screens.</p> <p>f. Fail to replace historic vegetation in its original location if there are no safety, technical or environmental reasons to do so. Or, replant vegetation so far from the historic location that the historic character is lost. For example, replant a foundation tree in the lawn instead of in the foundation planting bed.</p> <p>g. Permit historic vegetation to die or become unhealthy due to inappropriate maintenance practices or through neglect.</p>



HISTORIC VEGETATION REPLACEMENT GUIDELINES

Use the Historic Landscape Preservation Guidelines and replacement strategies presented below to manage and preserve existing vegetation. Over the years, some historic vegetation was removed and not replaced. Use the typical planting plans found on sheets L.5 - L.8 as conceptual design guides for restoring (re-introducing) historic vegetation. Use the lists of common historic plants for individual character areas to assist in restoring vegetation.

To preserve and maintain the historic character of the vegetation, replace historic plant material in a systematic and consistent manner. To assist in reaching this goal, use the following three steps: A) determine the reason for replacing vegetation; B) determine a replacement strategy; and C) record the preservation action on Condition Assessment Sheets for historic preservation compliance.

Vegetation Replacement Philosophy

Preserving the design intent of the historic vegetation at Ft. Lewis is the primary goal when considering a vegetation replacement strategy. This means choosing plant material that will maintain the four previously identified design functions used at Ft. Lewis: a) foundation planting, b) vegetation used for spatial definition, c) vegetation in open spaces, and d) street trees. However, there are also cultural reasons to consider when replacing plant material. For example, a number of historic species planted during the historic era were common or popular species during the 1930s and 1940s and are not used as frequently in contemporary design. Sometimes referred to as "old fashion," these plants often have less tangible but still important associative feelings linked to this earlier time period. Continue to use historic species when feasible. The replacement strategy developed for Ft. Lewis incorporates both of these preservation goals.

A. Reason for replacement

Replace vegetation on the basis of meeting one or more of the following criteria. The plant is:

- Hazardous. Identified as a safety hazard by qualified personnel (arborist, horticulturist, urban forester).
- Diseased or pest damaged and does not respond to a comprehensive treatment program (cultural, biological, and chemical control).
- Declining or senescent and does not respond to restoration practices (renovative pruning, fertilizing, mulching, watering program).
- Neglected and Overgrown. Too large for location and the size was not moderated by renovation pruning practices. Consider transplanting to better location if feasible.

B. Replacement sequence

Use the following sequential guidelines when determining replacement species in the historic district.

- Replace in-kind. Restore removed vegetation with the same species whenever possible; this ensures a continuity of historic materials and design intent.
- Replace with species similar to historic species. Not replacing species in-kind should occur only if significant maintenance or safety reasons exist, or the species is no longer available. For example, reoccurring untreatable pest infestations or diseases such as dogwood anthracnose may justify the choice of a different replacement species. Use disease or pest resistant varieties when available. Replacement species should have physical characteristics that are as similar to the historic species as possible. For example, similar size, shape, color, texture, leaf morphology, and flowering/fruiting color and timing. In some instances, the inappropriate size of historic species such as the use of large trees as foundation plantings of the historic barracks, warrants replacing the species with one that has similar historic characteristics but will be smaller at maturity.
- Replace with a historic plant species common to Ft. Lewis. When there is no suitable replacement species or the identity of a plant removed in the past is unknown, use the list of common historic species as a source for replacements. For example, over the years, many of the foundation plants were removed but their identities were not recorded. Common historic species (for specific character areas if available) can be used to restore these plants.

C. Documenting change over time

Record replacement strategies and species on the Condition Assessment Sheets. These sheets serve as a compliance tool to ensure correct preservation actions are followed. These records will be used in the future by preservation specialists and managers to understand how the landscape evolved with an ongoing maintenance plan and under different maintenance and management staffs.

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U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

LANDSCAPE DEVELOPMENT PLAN
DESIGN DEVELOPMENT

VEGETATION
GENERAL PLANTING DESIGN RECOMMENDATIONS

PROJECT	DATE	SCALE	SHEET
FORT LEWIS	13-MAR-1996	1" = 30'	4 OF 12

DESIGNED BY: TAYLOR
CHECKED BY: HOF

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ZONE II: OPERATION AREAS:

ZONE II: OPERATION AREAS:

IIA. Site east of Greenwood (historic gun sheds and stables) and IIB. southwest warehouse area.

RESPONSE TO NATURAL FEATURES

REQUIRED	NOT PERMITTED
a. Preserve the historic grade.	a. Allow construction that severely alters the historic grade, such as major cutting and filling. Create berms as visual screens or as building platforms.

OVERALL ORGANIZATION AND LAND USE

REQUIRED	NOT PERMITTED
<p>a. Preserve the historic site plan of the area and its historic land use. For example, maintain the circulation system, and layout and design relationships of landscape features such the orientations and setbacks of buildings, and roads.</p> <p>b. Maintain the operational land use of the area.</p> <p>c. Preserve important historic elements that help define the boundaries of the area such as roads.</p> <p>d. Preserve the utilitarian characteristics of the operations area.</p>	<p>a. Alter historic layouts, such as add new buildings with setbacks that differ from historic setbacks, remove or alter the circulation features that define the layout and organization of the area, and demolish historic structures which changes the historic landscape patterns.</p> <p>b. Construct new features that alter the area's historic character by changing significant character-defining elements such as building setbacks and layouts, road alignments, and building materials.</p> <p>c. Change existing or introduce new elements between historic land use areas. For example, remove or reroute a road that acts as a dividing line between the area and an operations area, or add a vegetative screen or a wall in a historically open area.</p> <p>d. Change the design character of the area by adding formal entries into buildings, site furniture, vegetation, or formalize the circulation system (adding roads or sidewalks) within Zone IIA.</p>

CIRCULATION:

Roads

REQUIRED	NOT- PERMITTED
<p>a. Preserve historic roads such as N. 3rd Street, N. 4th Street, and N. Division Drive in zone IIA and Kaufman Ave., West Way, Clark Rd., Mann Ave., and W. 1st St. in Zone IIB. If possible, preserve the historic railroad tracks and related structures such as loading platforms associated with warehouses and the W.W.I Camp Lewis coal trestle in Zone IIB. Maintain their historic characteristics including the following:</p> <p>b. Preserve the historic surface material for circulation features. Repair and replace the historic surface material with material that matches the old in color, texture, and composition.</p> <p>c. Preserve historic curbs during resurfacing by maintaining the historic curb height and finish elevation of the road.</p> <p>d. Maintain road profiles and drainage systems such as crowned roads with roadside gutters and catch basins/drain inlets if possible.</p> <p>e. Reuse historic circulation features as the landscape is upgraded for contemporary uses.</p>	<p>a. Fail to preserve historic roads.</p> <p>b. Fail to repair or replace deteriorated historic surfaces with historic materials. For example, patch or resurface concrete roads with asphalt.</p> <p>c. Remove historic curbs or alter the relationship of the road surface and the curb by adding height or thickness to the road.</p> <p>d. Fail to clean and maintain drainage features so that damage to historic circulation features occurs from flooding or erosion.</p> <p>e. Add new roads, sidewalks, parking spaces or driveways when the historic feature could have been reused.</p> <p>f. Change the historic road hierarchy, for example, widen a secondary road (Crary Ave.) and increase the speed limit so that it functions as a primary road.</p>

CIRCULATION (CONT.)

REQUIRED	NOT- PERMITTED
<p>g. Preserve the historic alignment and widths of historic roads.</p> <p>h. Place new utilities underground or site them so they do not damage historic features and is not visually intrusive.</p> <p>i. Limit the addition of new curb cuts, driveways, paths, and sidewalks. Construct new features with materials that are compatible with historic materials.</p> <p>j. Provide the highest level of barrier-free access to the landscape with the least amount of impact by select areas where the fewest alterations to the historic features and materials is required. Study a range of design solutions in order to minimize adverse impacts.</p> <p>k. Use construction materials that are compatible with historic materials.</p>	<p>g. Alter the historic alignment or width of historic roads.</p> <p>h. Construct new telephone and electrical lines above ground so they have a negative visual impact on the character of the historic circulation system.</p> <p>i. Add curb cuts, driveways, paths and sidewalks to the extent that they alter the character of the historic circulation system. Construct new roads.</p> <p>j. Fail to limit the visual and physical impact of providing barrier-free access to the historic landscape. For example, fail to consider the use of a lift at a building rather than a ramp requiring switchbacks to accommodate the grade change.</p> <p>k. Use incompatible materials such as wood handrails at ramps instead of round metal rails, painted black. Or construct poorly designed, temporary-looking accessibility features rather than integrate the feature with the overall design of the building or landscape.</p>

STRUCTURES:

SEE MAINTENANCE AND REPAIR MANUAL FOR HISTORIC STRUCTURES: FORT LEWIS. Seattle District, Corps of Engineers, Walter Greissing Architects, Contract Number: DAC A67 - 86 - C - 0129.

REQUIRED	NOT PERMITTED
<p>a. Preserve and maintain historic buildings according to Secretary of Interior's Standards for Rehabilitation.</p> <p>If possible, preserve the W.W.I. warehouses and their raised-concrete loading platforms, and the coal trestle in Zone IIB.</p> <p>b. Not allow the construction of new buildings in Zone IIA if possible. Limit the addition of new buildings in Zone IIB.</p> <p>c. Consider the removal of non-historic roads and restoration of areas with W.W. I. temporary buildings (slated for removal) to the historic use as a park-like open space. If new buildings are added to zone IIB, they should be compatible with the historic character. For example, construct buildings which are similar to buildings in zone IIB in materials, size, scale, architectural style and layout (setbacks and building orientation).</p>	<p>a. Fail to preserve or maintain historic structures according to Secretary of Interior's Standards for Rehabilitation.</p> <p>b. Construct new, incompatible buildings.</p>

VEGETATION

REQUIRED	NOT- PERMITTED
<p>a. Maintain the historic character of the Zone IIA and the central area of Zone IIB. (warehouse corridor along West Way, Kaufman Ave., and Mann Ave.) as areas with <u>no</u> vegetation. Preserve the park-like open space areas outside the warehouse corridor which consists of grass and randomly planted trees.</p>	<p>a. Introduce vegetation to Zones IIA. and the warehouse corridor along West Way, Kaufman Ave., and Mann Ave. in Zone IIB.</p>

VIEWS AND VISTAS

REQUIRED	NOT- PERMITTED
<p>a. Retain visual connections to surrounding land use areas by preserving the historic roads, topography, and lack of vegetation which contribute to these visual relationships.</p>	<p>a. Alter or change visual connections by constructing walls, earthen berms, solid fences, walls, or vegetative screens.</p>

SMALL-SCALE FEATURES

REQUIRED	NOT- PERMITTED
	<p>a. Introduce non-historic small-scale features to the area.</p>

ZONE II: OPERATION AREAS PRESERVATION TREATMENTS

RESPONSE TO NATURAL FEATURES

REQUIRED	NOT PERMITTED
a. Preserve the historic grade.	a. Allow construction that severely alters the historic grade, such as major cutting and filling. Create berms as visual screens or as building platforms.

OVERALL ORGANIZATION AND LAND USE

REQUIRED	NOT PERMITTED
a. Preserve the historic site plan of the area and its historic land use. For example, maintain the circulation system, and layout and design relationships of landscape features such as the orientations and setbacks of buildings, and roads.	a. Alter historic layouts such as adding new buildings with setbacks that differ from historic setbacks; remove or alter the circulation features that define the layout and organization of the area; and demolish historic structures which change historic landscape patterns.
b. Maintain the operational land use of the area.	b. Construct new features that alter the area's historic character by changing significant character-defining elements such as build setbacks and layouts, road alignments, and building materials.
c. Preserve important historic elements that help define the boundaries of the area such as roads.	c. Change existing or introduce new elements between historic land use areas. For example, remove or reroute a road that acts as a dividing line between the area and an operations area, or add a vegetative screen or a wall in a historically open area.
d. Preserve the utilitarian characteristics of the operations area.	d. Change the design character of the area by adding formal entries into buildings, site furniture, vegetation, or formalizing the circulation system (loading roads or sidewalks).

CIRCULATION-roads

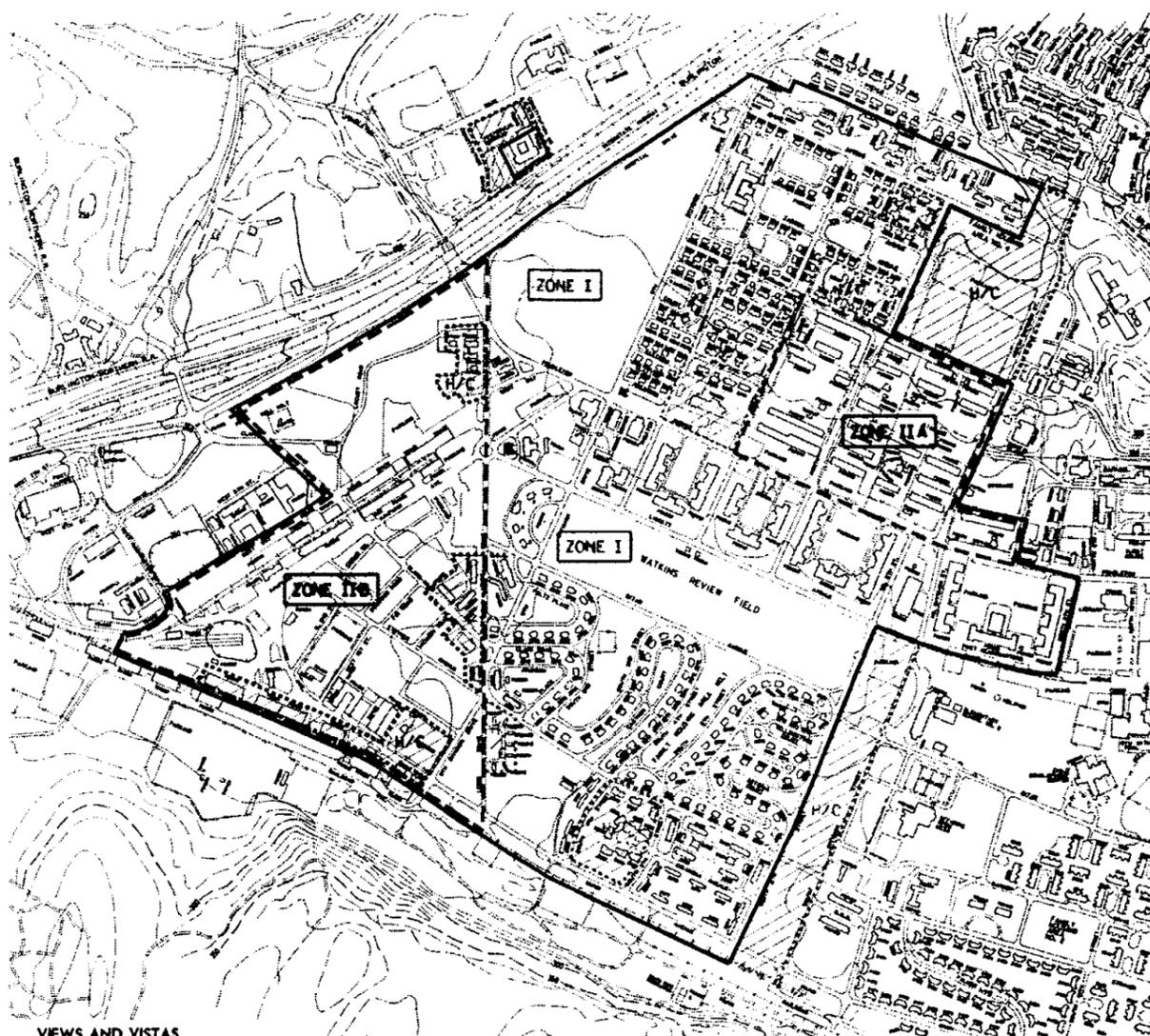
REQUIRED	NOT PERMITTED
a. Preserve historic roads such as N. 3rd Street, N. 4th Street, and N. Division Drive in Zone IIA, and Kaufman Ave., West Bay, Clark Rd., Mann Ave., and W. 1st St. If possible, preserve the historic railroad tracks and related structures, such as loading platforms associated with warehouses and the W.W. I Camp Lewis coal trestle in Zone IIB. Maintain their historic characteristics including the following: b. Preserve the historic surface material for circulation features. Repair and replace the historic surface material with material that matches the old in color, texture, and composition. c. Preserve historic curbs during resurfacing by maintaining the historic curb height and finish elevation of the road. d. Maintain road profiles and drainage systems such as crowned roads with roadside gutters and catch basins/grain inlets. e. Reuse historic circulation features as the landscape is upgraded for contemporary uses. f. Preserve the historic hierarchy and function of roads. For example, in Zone IIA primary roads - N. Division Street and secondary roads - N. 4th Street, N. 5th Street and Cray Avenue. And in Zone IIB, primary roads-Kaufman Ave., West Bay, Clark Rd. and Mann Ave.; local access - W. 1st St. g. Preserve the historic alignment and width of historic roads. h. Place new utilities underground or site them so they do not damage historic features and are not visually intrusive. i. Limit the addition of new curb cuts, driveways, paths, and sidewalks. Construct new features with materials that are compatible with historic materials. j. Provide the highest level of barrier-free access to the landscape with the least amount of impact by selecting areas where the fewest alterations to the historic features and materials is required. Study a range of design solutions in order to minimize adverse impacts. k. Use construction materials that are compatible with historic materials.	a. Fail to preserve historic roads. b. Fail to repair or replace deteriorated historic surfaces with historic materials. For example, patch or resurface concrete roads with asphalt. c. Remove historic curbs or alter the relationship of the road surface and the curb by adding height or thickness to the road. d. Fail to clean and maintain drainage features so that damage to historic circulation features occur from flooding or erosion. e. Add new roads, sidewalks, parking spaces or driveways when the historic features could have been reused. f. Change the historic road hierarchy, for example, widen a secondary road (Cray Ave.) and increase the speed limit so that it functions as a primary road. g. Alter the historic alignment or width of historic roads. h. Construct new telephone and electrical lines above ground so they have a negative visual impact on the character of the historic circulation system. i. Add curb cuts, driveways, paths and sidewalks to the extent that they alter the character of the historic circulation system. Construct new roads. j. Fail to limit the visual and physical impact of providing barrier-free access to the historic landscape. For example, fail to consider the use of a lift at a building rather than a ramp which requires switchbacks. k. Use incompatible materials such as wood handrails or ramps instead of round metal rails, painted black. Or construct poorly designed, temporary-looking accessibility features rather than integrate the feature with the overall design of the building or landscape.

STRUCTURES: SEE MAINTENANCE AND REPAIR MANUAL FOR HISTORIC STRUCTURES: FORT LEWIS Seattle District, Corps of Engineers, Walter Graessinger Architects, Contract Number: DAC A67 - 86 - C - 0129.

REQUIRED	NOT PERMITTED
a. Preserve and maintain historic buildings according to Secretary of Interior's Standards for Rehabilitation. If possible, preserve W. W. I warehouses and their raised concrete loading platforms, and the coal trestle in Zone IIB. b. Not allow the construction of new buildings in Zone IIA. If possible, limiting the addition of new buildings in Zone IIB. c. Consider the removal of non-historic roads and restore areas with W.W. I temporary buildings (used for removal to the historic use as park-like open space. If new buildings are added to Zone IIB they should be compatible with the historic character. For example, construct buildings which are similar to buildings in Zone IIB in use for storage, warehouse materials, size, scale, architectural style and layout setbacks and building orientation.	a. Fail to preserve or maintain historic structures according to Secretary of Interior's Standards for Rehabilitation. c. Construct new, incompatible buildings in Zone IIB.

VEGETATION

REQUIRED	NOT PERMITTED
a. Maintain the historic character of Zone IIA and the central area of Zone IIB (warehouse corridor along West Bay, Kaufman Ave. and Mann Ave.) as areas with no vegetation. Preserve the vegetation in the park-like open space areas outside the warehouse corridor which consists of grass and randomly planted trees.	a. Introduce vegetation to Zone IIA and the warehouse corridor along West Bay, Kaufman Ave. and Mann Ave. in Zone IIB.



VEWS AND VISTAS

REQUIRED	NOT PERMITTED
a. Retain visual connections to surrounding land use areas by preserving the historic roads, topography, and look of vegetation which contribute to these visual relationships.	a. Alter or change visual connections by constructing walls, earthen berms, solid fences, walls, or vegetative screens.

SMALL-SCALE FEATURES

REQUIRED	NOT PERMITTED
	Introduce non-historic small-scale features to the area.

LEGEND

- NATIONAL REGISTER HISTORIC DISTRICT BOUNDARY
- N/C HISTORIC CONTEXT MANAGEMENT AREA
- ZONE II A AND ZONE II B

SCALE: 1" = 400'

REDUCED TO SIZE OF FULL SIZE

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

LANDSCAPE DEVELOPMENT PLAN
DESIGN DEVELOPMENT

ZONE II PRESERVATION TREATMENTS

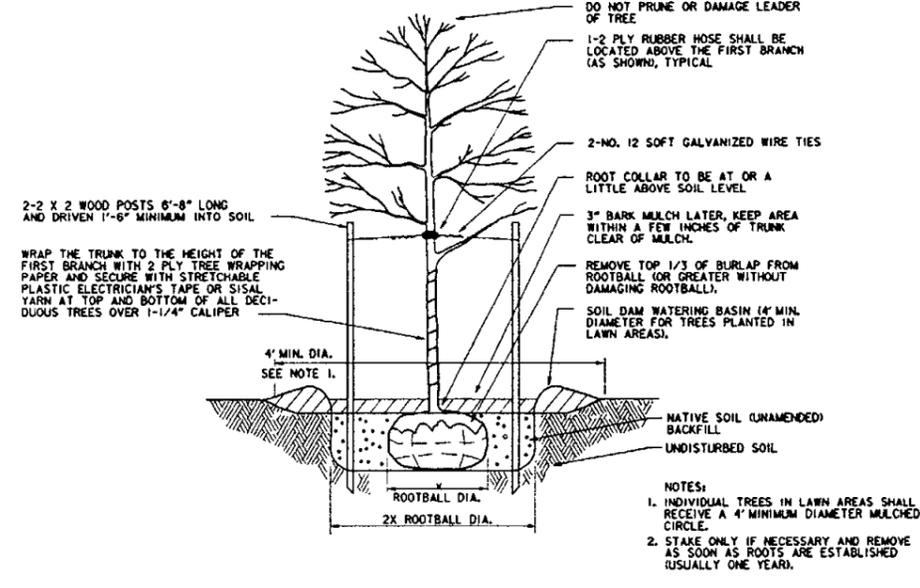
FORT LEWIS WASHINGTON

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CHECKED BY: M. H. F.
SCALE: 1" = 400'

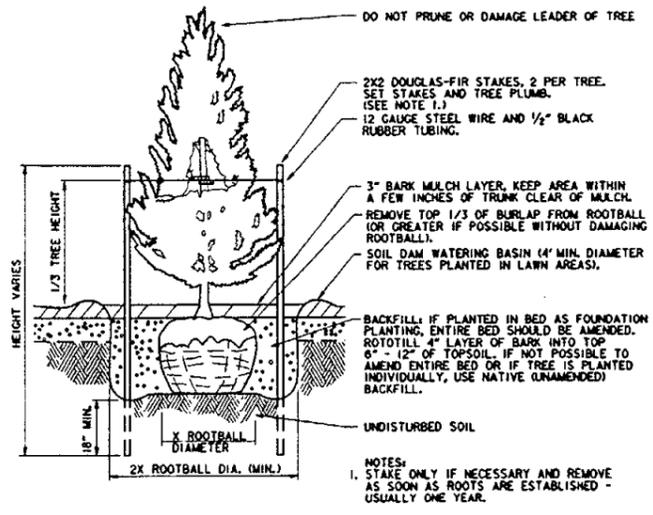
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LANDSCAPE DETAILS

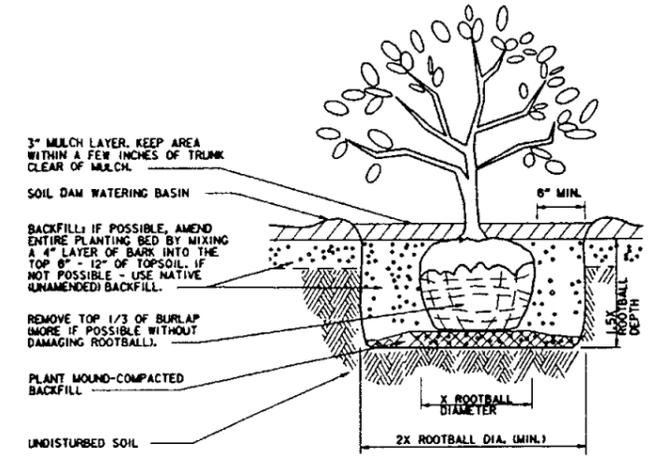
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SYMBOL	DATE	DESCRIPTION	DATE	BY



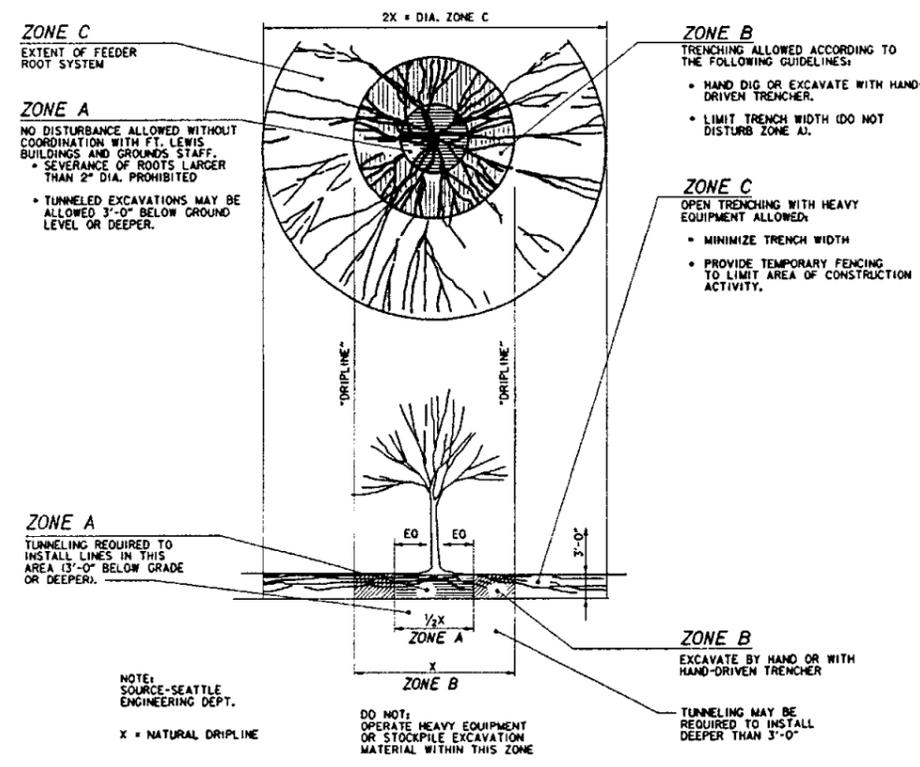
DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE



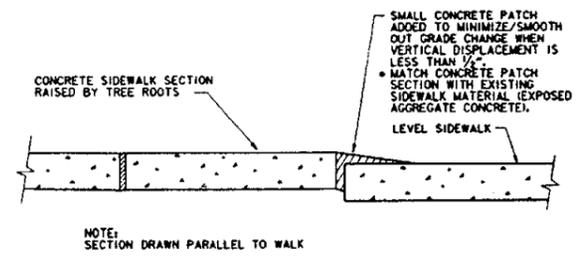
CONIFER TREE PLANTING DETAIL
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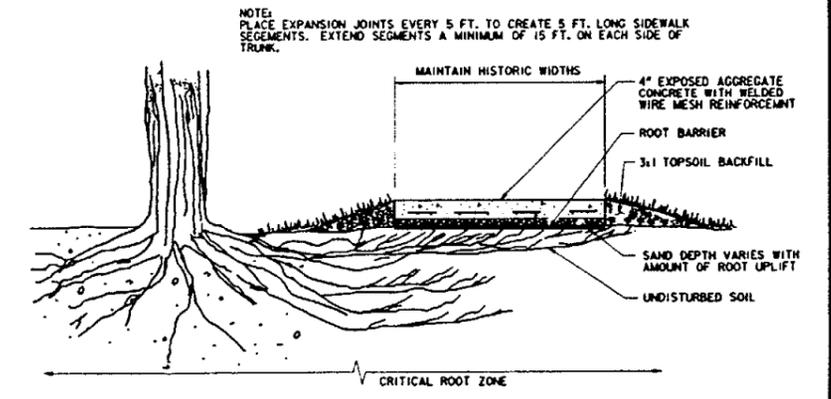
SHRUB PLANTING DETAIL
NOT TO SCALE



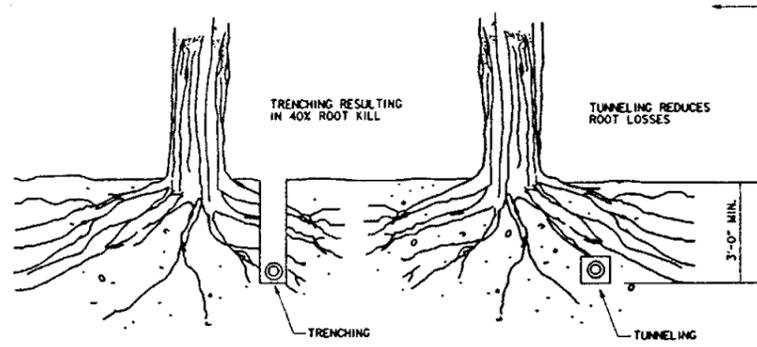
RECOMMENDED METHODS OF TRENCHING, TUNNELING, AND EXCAVATION AROUND EXISTING TREES
NOT TO SCALE



REPAIR ALTERNATIVE FOR MINOR ROOT DAMAGE TO SIDEWALK DETAIL
NOT TO SCALE



CONCRETE WALK REPLACEMENT WHEN WALK EXTENDS OVER CRITICAL TREE ZONE
NOT TO SCALE



TREE ROOT DAMAGE: TUNNELING VS. TRENCHING
NOT TO SCALE

REDUCED TO SIZE OF FULL SIZE

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

LANDSCAPE DEVELOPMENT PLAN
DESIGN DEVELOPMENT

LANDSCAPE DETAILS

FORT LEWIS	WASHINGTON
DATE: 98JAN31	PLANS: L.10
BY: TAYLOR	SHEET 10 OF 22

DATE AND TIME PLOTTED: 18-MAR-1996 06:30 DESIGN FILE: J:\proj\1102zone\1102deta.dgn

REVISIONS		
SYMBOL	DATE	DESCRIPTION

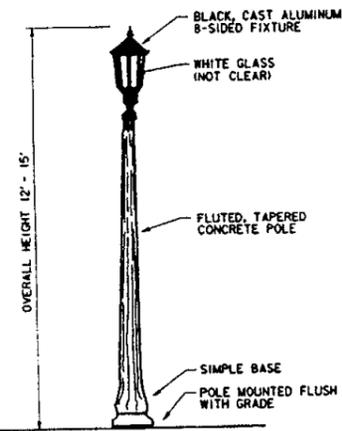
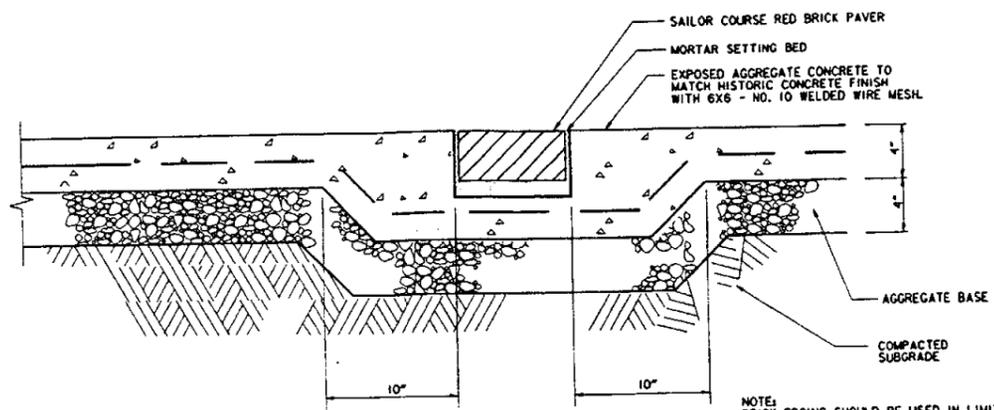


ILLUSTRATION BASED ON PHOTOGRAPH OF HISTORIC LIGHT STANDARD. NEW LIGHT SHOULD MATCH HISTORIC DESIGN CHARACTERISTICS AS CLOSELY AS POSSIBLE.

CONCEPTUAL DESIGN FOR LIGHT STANDARD REPLACEMENT

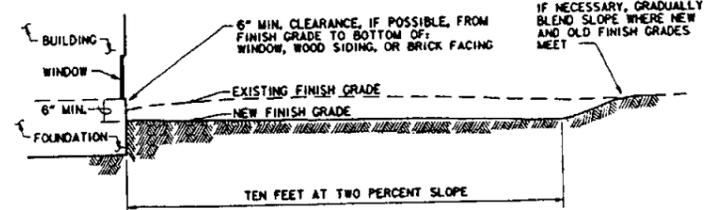
NOT TO SCALE



NOTE: BRICK EDGING SHOULD BE USED IN LIMITED SITUATIONS. FOR EXAMPLE, WHEN NECESSARY TO UPGRADE REAR ENTRIES OF BARRACKS FOR CONTEMPORARY USE (NEW PRIMARY ENTRANCE). BRICK SHOULD BE USED ONLY AS EDGING - BRICK PAVEMENT IS NOT ACCEPTABLE.

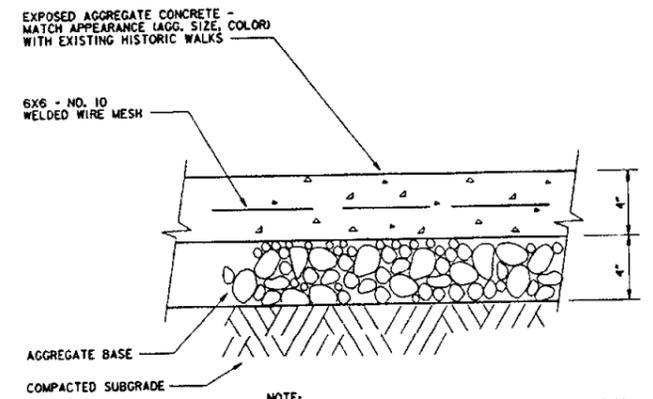
CONCRETE PAVING WITH BRICK EDGING DETAIL

NOT TO SCALE



RECOMMENDED GRADING AT BUILDINGS SECTION

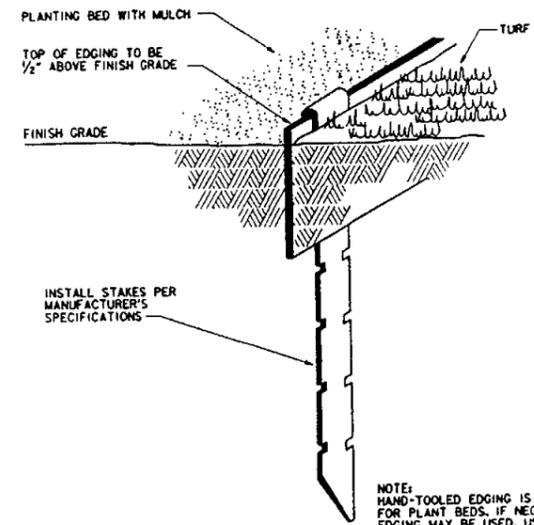
NOT TO SCALE



NOTE: WHENEVER POSSIBLE, MAINTAIN DESIGN CHARACTERISTICS OF HISTORIC ROADS AND WALKS, FOR EXAMPLE: WIDTHS, ALIGNMENTS, SETBACKS, AND MATERIALS. WHEN THERE ARE CONFLICTS BETWEEN TREES AND CIRCULATION FEATURES (ROOT DAMAGE ETC.), IT MAY BE NECESSARY TO MOVE CIRCULATION FEATURES, FOR EXAMPLE: MOVING SIDEWALKS TO CREATE LARGER PLANTING STRIPS FOR HISTORIC STREET TREES.

REPLACEMENT CONCRETE SIDEWALK DETAIL

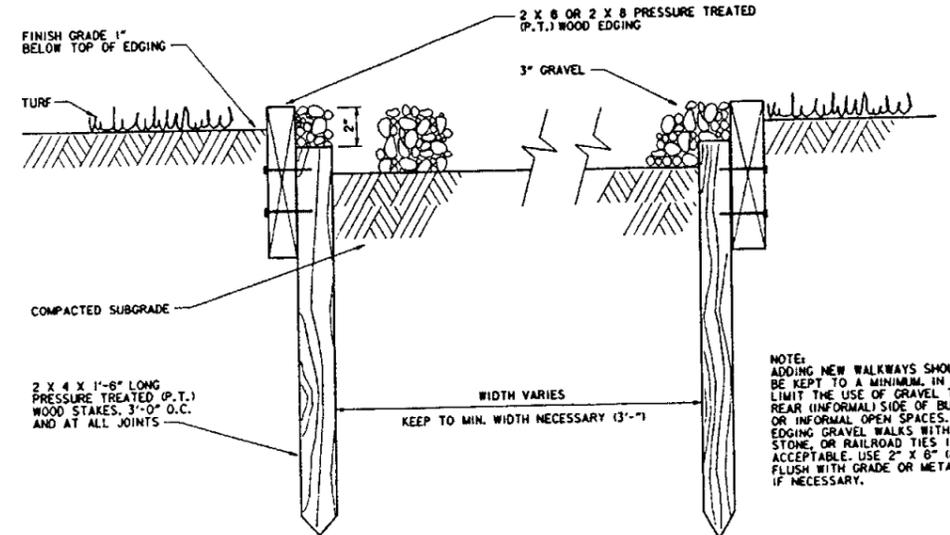
SCALE: 3" = 1'-0"



NOTE: HAND-TOOLED EDGING IS RECOMMENDED FOR PLANT BEDS. IF NECESSARY, METAL EDGING MAY BE USED. USE OF TIMBER, RAILROAD TIES, STONE, BRICK, CONCRETE, OR OTHER WOOD MATERIAL IS NOT ACCEPTABLE.

STEEL OR ALUMINUM EDGING FOR PLANTING BED / LAWN EDGE DETAIL

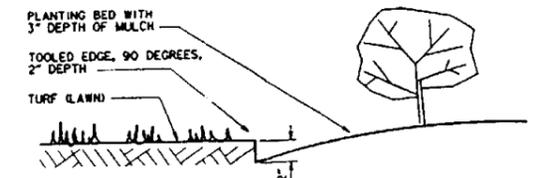
NOT TO SCALE



NOTE: ADDING NEW WALKWAYS SHOULD BE KEPT TO A MINIMUM. IN GENERAL, LIMIT THE USE OF GRAVEL TO THE REAR (INFORMAL) SIDE OF BUILDINGS OR INFORMAL OPEN SPACES. EDGING GRAVEL WALKS WITH TIMBER, STONE, OR RAILROAD TIES IS NOT ACCEPTABLE. USE 2" X 6" (8") WOOD FLUSH WITH GRADE OR METAL EDGING IF NECESSARY.

WOOD EDGING AND GRAVEL WALK DETAIL

NOT TO SCALE



HAND-TOOLED EDGING FOR PLANTING BED / LAWN EDGE DETAIL

NOT TO SCALE



U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

LANDSCAPE DEVELOPMENT PLAN
DESIGN DEVELOPMENT

LANDSCAPE DETAILS

FORT LEWIS		WASHINGTON	
DATE	PROJECT NO.	FILE NO.	PLANS
F			96JAN31 L-11
DRN TAYLOR	COL. INF	HEET 11 OF 12	

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