

Appendix A

Legal Description

Conservation Easement Deed

LEGAL DESCRIPTION---THE PROPERTY

That portion of Section 31, Township 23 North, Range 7 East, W.M., in King County, Washington, lying Southerly and Easterly of Primary State Highway No. 2 (State Route 18) as conveyed by deed recorded under Recording No. 5244167;

EXCEPT that the portion of the North half of said Section 31, lying Southerly of State Route 18 (Primary State Highway No. 2), Northwesterly of the West bank of Holder Creek and Northerly of a line which is 2,200 feet South of and parallel with the North line of the Northwest quarter of said Section;

AND

The West half of Section 33, Township 23 North, Range 7 East, W.M., in King County, Washington;

AND

The North half of Section 32, Township 23 North, Range 7 East, W.M., in King County, Washington;

AND

The Southeast quarter of Section 32, Township 23 North, Range 7 East, W.M., in King County, Washington;

EXCEPT the West 450 feet of the Northwest quarter of the Southeast quarter of said Section 32;

AND

The South half of the Southwest quarter of Section 32, Township 23 North, Range 7 East, W.M., in King County, Washington;

AND

Government Lots 1, 2, 3 and 4 and the South half of the North half and the North half of the South half of Section 5, Township 22 North, Range 7 East, W.M., in King County, Washington.

AND

A strip of land sixty (60) feet in width in the Southeast Quarter of the Southwest Quarter (SE $\frac{1}{4}$ of SW $\frac{1}{4}$), being thirty (30) feet on each side of the North-South centerline of said Southeast Quarter of the Southwest Quarter (SE $\frac{1}{4}$ of SW $\frac{1}{4}$), extending from the North line to the South line thereof as conveyed by the instrument recorded in Volume 4236, Page 437, of King County Records, under Auditor's File No. 5381250.

Subject to and together with easements and reservations of record.

Appendix B

Soils Map (Figure 8)

Soil Descriptions

SOIL AND ENVIRONMENTAL CHARACTERISTICS-TAYLOR MOUNTAIN FOREST

SOIL NAME	Tokul Silt Loam and Gravelly loam	
SOIL PHASE	0-30%	30-65%
STATE SOIL SYMBOLS	8102-8107 8108, 8109 8110-8111	
Major Tree Species	Douglas-fir, red alder and western hemlock.	
Site Index	DF=130	DF=126
Landform	Till plains Escarpments and hillsides	
Slope Shape	Concave-Convex	
Parent Material	Volcanic ash over till	
Elevation Range	200-1600 feet	
Precipitation Range	45-65 inches	
Organic Layer Thickness	1-3 inches	
Top Soil (Typical)	Dark brown silt loam	
Underlying Soil Layers	Brown gravelly sandy loam (average)	
% Rock Fragments (Average)	20% hard gravels	
Restrictive Layer	Indurated till	
Soil Depth (Average)	20-40 inches	
Drainage	Moderately well drained	
Permeability	Moderate	
Average Water Capacity	Moderate	
Rooting Depth	20-40 inches	

Depth to Water Table 18-36 inches November-May

Incidence of Flooding N/A

Soil Phase 0-30 % to 30-65%

SLOPE STABILITY

Natural Stable

Disturbed Stable to Unstable

Tokul Silt Loam and Gravelly Loam Continued

Slope Phase 0-30% 30-65%

Cut Slope, Fill & Sidecast Hazard Moderate

Ballast Requirement Poor

TIMBER HARVEST

Logging System Limitation Moderate

Compaction Potential (Moist) High

Displacement Potential (Dry/Moist) Low/Medium/High

Puddling Potential (Wet) High

Erosion Potential Low to Medium

Rockiness Limitation N/A

SITE PREPERATION

Scarification Damage Severe N/A

Prescribed Burning Damage Medium

REGENERATION

Drought Potential Medium

Plant Competition Severe

Water Table & Flooding Hazard N/A

Frost Action Damage Potential N/A

Windthrow Potential Medium

SOIL AND ENVIRONMENTAL CHARACTERISTICS-TAYLOR MOUNTAIN

SOIL NAME	Chuckanut Gravelly Loam and Loam
SLOPE PHASE	8-30% to 30-65%
STATE SOIL SYMBOLS	1084, 1086* 1085, 1087*, 1328, 1329, 1330 *"Exposed" phase with 25 ft. lower site index
Major Tree Species	Douglas fir and red alder
Site Index	DF=127
Landform	Broad ridgetops, benches and Mountainsides Hills
Slope Shape	Concave-Convex
Parent Material	Volcanic ash over till and sandstone
Elevation Range	400-1500 feet
Precipitation Range	30-50 inches
Organic Layer Thickness	6-12 inches
Top Soil (Typical)	Dark yellowish brown gravelly loam
Underlying Soil Layers (Average)	Light olive brown gravelly sandy loam
% Rock Fragments (Average)	25%
Restrictive Layer	Bedrock
Soil Depth (Average)	40-60 inches
Drainage	Well drained
Permeability	Moderate
Average Water Capacity	Moderate

Rooting Depth	40-60 inches
Depth to Water Table	40-60 inches December-March
Incidence of Flooding	N/A
Slope Phase	8-30% to 30-65%

SLOPE STABILITY

Natural	Stable
Disturbed	Stable to Unstable

ROAD CONSTRUCTION

Cut Slope, Fill & Sidecast	Moderate
Hazard	

Ballast Requirement	Medium
Ballast Suitability	Fair

TIMBER HARVEST

Logging System Limitation	Moderate
Compaction Potential (Moist)	Low/Medium/High
Displacement Potential (Dry/Moist)	Low/Medium/High
Puddling Potential (Wet)	High
Erosion Potential	Low to Medium
Rockiness Limitation	N/A Slight

SITE PREPERATION

Scarification Damage	Severe
Prescribed Burning Damage Potential	Medium

REGENERATION

Drought Potential	Medium
Plant Competition	Severe
Water Table & Flooding Hazard	N/A
Frost Action Damage Potential	N/A
Windthrow Potential	Low to Medium

SOIL AND ENVIRONMENTAL CHARACTERISTICS –TAYLOR MOUNTAIN FOREST

SOIL NAME	Ragnar Fine Sandy Loam and Sandy Loam
SLOPE PHASE	0-8% 8-30% 30-45%
STATE SOIL SYMBOLS	6603, 6601, 6610, 6605-6608, 6609 6611, 6878*, 6879* *"Exposed" Phase
Major Tree Species	Douglas fir and western hemlock
Site Index	DF=126 DF=126 DF=126
Landform	Rolling areas of esker and kame relief
Slope Shape	Level to undulating Rolling Complex
Parent Material	Glacial outwash
Elevation Range	300-1000 feet
Precipitation Range	35-65 inches per year
Organic Layer Thickness	1-2 inches
Top Soil (Typical)	Very dark grayish brown fine sandy loam
Underlying Soil Layers (Average)	Yellowish brown light sandy loam over olive brown sand
% Rock Fragments (Average)	0-15% pebbles
Restrictive Layer	None
Soil Depth (Average)	Greater than 60 inches
Drainage	Well drained
Permeability	Rapid
Available Water Capacity	Moderate

Rooting Depth	Greater than 60 inches
Depth to Water Table	N/A
Incidence of Flooding	N/A
SLOPE PHASE	0-8% 8-30% 30-45%
SLOPE STABILITY	
Natural	Stable
Disturbed	Stable to Unstable
ROAD CONSTRUCTION	
Cut Slope, Fill & Sidecast Hazard	N/A Moderate Severe
Ballast Requirement	Medium to Severe
Ballast	N/A
TIMBER HARVEST	
Logging System Limitations	Moderate
Compaction Potential (Moist)	Medium
Displacement Potential (Dry/Moist)	Low to Medium
Puddling Potential (Wet)	Medium
Erosion Potential	Low to Medium
Rockiness Limitation	N/A
SITE PREPERATION	
Scarification Damage	Severe
Prescribed Burning Damage Potential	High

REGENERATION

Drought Potential

Medium

Plant Competition

Moderate

Water Table & Flooding Hazard

N/A

Frost Action Damage Potential

N/A

Windthrow Potential

Low

SOIL AND ENVIRONMENTAL CHARACTERISTICS-TAYLOR MOUNTAIN FOREST

SOIL NAME	Beausite Gravelly Sandy Loam
SLOPE PHASE	0-30% 30-65% 65-90%
STATE SOIL SYMBOLS	0642, 0643, 0460* 0465, 0466, 0461* 0174 *“Exposed” phase with 20 ft. lower site index
Major Tree Species	Douglas fir
Site Index	DF-119
Landform	Foothills and Mountainsides
Slope Shape	Concave-Complex Convex
Parent Material	Glacial drift and volcanic ash over sandstone
Elevation Range	50-1,500 feet
Precipitation Range	30-50 inches per year
Organic Layer Thickness	1-3 inches
Top Soil (Typical)	Dark Yellowish Brown Gravelly Sandy Loam
Underlying Soil Layers (Average)	Light Olive Brown Gravelly Sandy Loam
% Rock Fragments (Average)	50%
Restrictive Layer	Sandstone Bedrock
Soil Depth (Average)	20-40 inches
Drainage	Well Drained
Permeability	Moderate Above Bedrock

Available Water Capacity	Low
Rooting Depth	20-40 inches
Depth to Water Table	N/A
Incidence of Flooding	N/A
SLOPE PHASE	0-30% 30-65% 65-90%
SLOPE STABILITY	
Natural	Stable
Disturbed	Stable
ROAD CONSTRUCTION	
Cut Slope, Fill & Sidecast Hazard	Slight
Ballast Requirement	Low
Ballast Suitability	Good
TIMBER HARVEST	
Logging System Limitations	Slight
Compaction Potential (Moist)	Medium
Displacement Potential (Dry/Moist)	Low
Puddling Potential (Wet)	Medium
Erosion Potential	Low to Medium
Rockiness Limitation	Slight
SITE PREPERATION	
Scarification Damage	Severe N/A
Prescribed Burning Damage Potential	High

REGENERATION

Drought Potential

High

Plant Competition

Moderate

Water Table & Flooding Hazard

N/A

Frost Action Damage Potential

Slight

Windthrow Potential

Low

SOIL AND ENVIRONMENTAL CHARACTERISTICS-TAYLOR MOUNTAIN FOREST

SOIL NAME	Everett Gravelly Sandy Loam and Stony Sandy Loam
SLOPE PHASE	0-30% 30-70%
STATE SOIL SYMBOLS	1983-1985, 1986*, 1987* 2003 1989-1991, 1995-2001 2005, 1992 *"Exposed" phase
Major Tree Species	Douglas fir
Site Index	DF=100 (DF=80 on "Exposed" phases)
Landform	Glacial outwash terraces and terrace escarpments
Slope Shape	Complex
Parent Material	Glacial outwash
Elevation Range	Sea level to 700 feet
Precipitation Range	30-50 inches per year
Organic Layer Thickness	0-1 inch
Top Soil (Typical)	Very gravelly sandy loam
Underlying Soil Layers	Average-Extremely gravelly sand
% Rock Fragments	35-70% rock fragments
Restrictive Layer	None
Soil Depth (Average)	60 inches or greater
Drainage	Somewhat excessively drained
Permeability	Rapid

Available Water Capacity	Low
Rooting Depth	60 inches or greater
Depth to Water Table	N/A
Incidence of Flooding	N/A
Slope Phase	0-30% to 30-70%
SLOPE STABILITY	Stable
Disturbed	Stable to Unstable

ROAD CONSTRUCTION

Cut Slope, Fill & Sidecast Hazard	Moderate
Ballast Requirement	Low
Ballast Suitability	Good

TIMBER HARVEST

Logging System Limitation	Slight to Moderate
Compaction Potential (Dry/Moist)	Low
Displacement Potential (Dry/Moist)	Low to Medium
Puddling Potential (Wet)	Low
Erosion Potential	Low to Medium
Rockiness Limitation	N/A

SITE PREPERATION

Scarification Damage	Severe N/A
Prescribed Burning Damage Potential	High

REGENERATION

Drought Potential	High
Plant Competition	Moderate
Water Table & Flooding Hazard	N/A
Frost Action Damage Potential	N/A
Windthrow Potential	Low

Appendix C

Forest Stand Analysis, Recommended Treatments, And Management Timeline For Forest Stands 1-20

Forest Stand Analysis and Recommended Treatments

The Taylor Mountain Forest Treatments is presented in Figure 9. There are 19 Forest Types described in this revised version, with a revised recommended treatment for each type. The table associated with Figure 9 details the 10 year revenue projections based on recommended forest treatments in Forest Type 2,3,15, and 19

Forest Type 1-(51 Acres)

This forest type is composed of seven small areas homogenous enough to be considered one type. These areas range in size from 3 to 16 acres. They are predominantly Douglas-fir with lesser components of western red cedar, western hemlock, and red alder. The soil types of the sub-stands vary, but are primarily Beausite gravelly sandy loam, Chuckanut loam, and Ragner fine sandy loam. The mean stand diameter at breast height (Dbh.) of the dominant stems is 19 inches, with the entire stand averaging 14.6 inches. The stocking level is 261 square feet of basal area with 226 trees per acre. The site class is II (based on a Douglas-fir 100-year site index of 135). Site class and site index are indicators of site productivity based on tree height at either 50 or 100 feet. The average age is in excess of 90 years old. The current volume per acre is 48,000 board feet (BF).

The stands are dense but tree condition is very good. This advanced second growth is advancing towards a higher composition of western hemlock and western red cedar. Douglas-fir will remain a dominant component of this developing mature forest.

Recommended Treatment:

The large conifers in this stand are very desirable for shade and for future use in in-stream fish habitat structures. In addition they provide species and age diversity across the landscape as well as vertical diversity given their height of up to 150 feet. This stand should be re-evaluated in approximately 30-40 years (2030-2040) for creation of an uneven aged condition.

Forest Type 2-(34 Acres)

This forest type is composed of two stands of red alder that have a significant component of western hemlock. There is a 23 acre area just south of the Hobart gate, and an 11 acre area in the south eastern corner of the property about 600 feet north of Carey Creek. The 1999 inventory stratified these two areas together as similar in composition, but field reconnaissance in 2002 indicated differences distinct enough to warrant different treatments (see below). The soil type of the 23 acre area is Everett gravelly, sandy, loam. The soils of the 11 acre area are Chuckanut loam. Stand density is high with a basal area of 182 square feet per acre and 352 trees per acre. The site class is III (based on a Douglas-fir 100-year site index 135). The mean stand diameter is less than 10 inches Dbh. The stand is in fair condition, with some mortality occurring from the lack of growing space and storm damage to the red alder. This stand is approximately 50 years old. The current volume per acre is 21,000 BF/Ac. This stand will be dominated by

Figure 9

10 Year Revenue Projection Based on Recommended Treatments^a

Stand	Year	Harvest Acres	Volume/Acre ^b (BF)	Stand Volume ^b (BF)	Tree Species	Mill Value/ MBF	Projected Logging Expense ^c / MBF	Stumpage ^d	Percent Harvested	Gross Income	Net Income
Stand 15	2005	46	9,800	450,800	RA	\$450.00	\$225.00	\$225.00	50	\$101,250.00	\$101,250.00
Stand 3	2003	71	16,000	1,136,000	RA	\$450.00	\$180.00	\$270.00	90	\$460,080.00	\$276,048.00
Stand 3	2004	43	16,000	688,000	RA	\$450.00	\$180.00	\$270.00	70	\$216,720.00	\$130,032.00
Stand 3	2005	45	16,000	720,000	RA	\$450.00	\$180.00	\$270.00	70	\$226,800.00	\$136,080.00
Stand 19	2005	8	30,900	247,200	DF	\$600.00	\$300.00	\$300.00	50	\$74,160.00	\$37,080.00
Stand 2	2007	23	21,000	483,000	RA	\$450.00	\$225.00	\$225.00	50	\$108,675.00	\$54,337.00

^a This revenue projection is based on timber inventory data included in Existing Conditions, Opportunities and Constraints Report (Jones and Jones, 1999). The volume per acre was not provided by species or log grade. This made it difficult to estimate what the species composition, and Mill Values of the various stands are. These values are accurate enough for management planning purposes, but are not a formal appraisal.

^b All volumes are based on Scribner log rule.

^c Logging expenses consist of cutting, yarding, hauling, timber tax, road building and temporary maintenance, forest practice permits, and reforestation.

^d Defined as the value of a trees as they stand uncut in the woods.

western hemlock, as red alder mortality increases. Over time, an understory of western hemlock and western red cedar will become established.

Recommended Treatment:

The high stand density and maturity of Red Alder indicates the need for thinning. Field reconnaissance in summer of 2002 determined that the 11 acre area lacked sufficient timber resources to make it a viable commercial thinning operation in the near future. The presence of wetlands and distance from existing roads will make it necessary to treat the 11 acre area in conjunction with type 10. The 23 acre area has an overstory consisting of mature Red alder with associated hemlock and Douglas-fir. This 23 acre area should be thinned concentrating on removing competing red alder from co-dominant western hemlock. Approximately 10 percent of the Alder component should be retained for wildlife habitat, soil productivity, and general forest health. This amounts to a residual density of 194 trees/acre. This will accelerate natural succession towards a climax type of mature conifers. This thinning should occur within 5 years (2003-2007) in conjunction with the harvest of Type 3, which is adjacent. Even though the treatment is intended as a thinning, there may be some natural regeneration of western hemlock and western red cedar. If so, it maybe necessary to control the alder reproduction 5 years or so after the thinning.

Forest Type 3-(278 Acres)

This mature stand of 50 year old red alder is comprised of 3 non-contiguous, but similar areas. The main stand is 250 acres and is located between the Hobart gate and the central in-holdings. In addition, there is a 9 acre area along Issaquah Hobart Road, and a 19 acre area along the western property boundary with the City of Seattle Cedar River Watershed. The terrain of the stand consists of a series of ridgelines of varying moderate slopes. The primary soils type is Beausite gravelly, sandy, loam with smaller areas of Tokol gravelly loam and Everett gravelly, sandy, loam. The mean stand diameter is 12 inches Dbh. The stand density is 229 trees per acre with a basal area of 178 sq.ft. /ac. The site class is III (based on a Douglas-fir 100-year site index of 150). Due to the large area of the stand and variety of the terrain, there is variation in drainage and hydrological function. A dense shrub layer of salmonberry in lower, moister areas has excluded new tree regeneration. The current volume per acre is 16,000 BF/Ac.

Due to the maturity of the alder overstory and a lack of conifer regeneration, if this stand is not harvested, it will go through the stages of stagnation for red alder and break-up of the canopy with a long delay in the establishment of desirable regeneration. As the red alder dies, salmonberry density will increase preventing trees from re-establishing.

Recommended Treatment:

There will be some small areas unable to be harvested due to state forest practice regulations regarding riparian zones, wetlands, and their associated buffers. Based on the declining canopy which will be followed by stem rot and a corresponding decline in the timber value of the red alder, this stand should receive regeneration treatments over the next 5 years. This treatment should utilize the following method to regenerate native conifers.

A variable retention harvest should be implemented in phases over the next 5 years (2003-2008). This treatment would remove approximately 80 percent of the existing deciduous cover with the residual trees mostly aggregated. This treatment will result in varying density of alder retained over the site. For example some areas will actually be 100 percent Red Alder residual, and some areas will be clear cut. The average tree/acre distributed across the stand will be 23 trees/acre. Higher, well-drained areas should receive small patch cuts approximately 5 acres in size. Given the vigorous salmonberry understory, some sort of site preparation and vegetation management treatment will be necessary to ensure the success of reforestation. These areas will be reforested with primarily Douglas-fir (approximately 40%), with minor amounts of Western red cedar (approximately 30%), and western hemlock (approximately 30%). Some type of browse protection will be necessary to protect the cedar seedlings. If pine is planted, seedlings that are resistant to white pine blister rust should be used. Careful layout and orientation of these cuts may avoid excessive visual impacts from Highway 18. The remainder of the type should be harvested with a future diversity of species and age classes in mind. This variable density harvest method with the retention of 10-20 percent of the red alder will result in the restoration of the health and diversity of the forest.

The harvest of each area should be followed by reforestation of Douglas-fir, Western red cedar, western hemlock, and western white pine. The density of the re-planting will vary from 430 seedlings per acre in clear-cut areas to approximately 200 seedlings per acre in the areas of total alder retention. The species planted should also reflect site factors such as percent shade and soil moisture. This planting should occur as soon after the logging as possible to avoid excessive development of shrub competition. Given the aggressive salmonberry already present, it will be necessary to incorporate vegetation control measures where shade intolerant Douglas-fir is planted. The newly planted trees should be evaluated for mortality, growth and vigor at the end of the first, third and fifth year following reforestation. This monitoring will determine when and how to control the competing vegetation.

The remaining 10-20 percent Red alder will be retained to provide biologically important standing and down, dead wood. These future rotting trees, logs and stumps will provide habitat for plants, animals and insects and a source of nutrients for soil development.

Forest Type 4-(65 Acres)

This 50 year old stand is the riparian forest type occurring along Holder Creek. It occurs in the floodplain and out-wash plain with steep terrain on the upper slopes. The soil types are Pilchuck loamy, fine, sand and Blethen gravelly loams. It is a mixed deciduous stand, dominated by red alder and bigleaf maple, with scattered conifers. Tree conditions are variable, with many of the bigleaf maples and red alders showing crown decline and mortality due to biological maturity. The mean stand diameter is 14.5 inches Dbh. The stand is stocked with 160 trees per acre and a basal area of 185 sq.ft. /acre. The site class is III (based on a Douglas-fir 100-year site index of 150). The current volume per acre is 17,500 BF /Ac.

A variety of conifers has been underplanted in portions of this stand in 1999 & 2000 along Holder Creek. Succession to an old growth forest will be slow due to the high stocking of deciduous trees in the stand.

Recommended Treatment:

The understory plantings should be monitored every 2 years by volunteers for 5 years. If there is excessive mortality, consider re-planting.

Forest Type 5-(6 Acres)

This small 50 year old forest type occurs at the mouth of a seasonal stream. The topography flattens out to create a small alluvial fan that is occupied by large black cottonwood, with smaller red alder and red cedar intermixed. Puyallup fine, sandy, loam soils are present. The stand density is variable, but averages 222 trees/acre with a basal area of 192 sq.ft. /ac. and a mean stand diameter of 12.6 inches Dbh. The site class is II (based on a Douglas-fir 100-year site index 165). This stand is mature and in decline. The volume is 18,000 BF/Ac.

This stand will begin to exhibit old growth characteristics in 40-80 years. Volunteer groups have underplanted conifers in portions of this stand in 1999 & 2000 along Holder Creek

Recommended Treatment:

The understory planting should be monitored every 2 years by volunteers until 2005. Re-plant if there is excessive mortality.

Forest Type 6-(10 Acres)

This stand is dominated by large old trees located on a steep, north-facing slope. Western red cedar and bigleaf maples are the predominant species. The tree density is light and stem quality is low due to over-mature bigleaf maples of sprout origin. The soil type is Beausite gravelly, sandy, loam. The site class is III (based on a Douglas-fir 100-year site index 150). Some quality Douglas-fir is intermixed into the stand. The current volume per acre is 22,700 BF. /Ac.

Recommended Treatment:

Due to the steep slopes and probability of erosion this type will not receive forestry treatments.

Forest Type 7-(583 Acres)

This is the stand that resulted from the early 1980 harvesting. There are six non-contiguous areas of 20 year old red alder saplings, which will be managed as this type. The largest area is a 298 acre irregularly shaped area in the eastern side of the property. The second largest area is 139 acres due south and adjacent to the central in-holdings. The other areas are 58 acres, 38 acres, 35 acres, and 15 acres in size. The primary soils

present in the type are Tokul gravelly loam and Chuckanut loam. Less extensive areas of Ragner fine, sandy, loam; Ragner-Indianola complex; and Tokul-Pastik complex are present. Red alder saplings and poles at densities exceeding 742 trees per acre dominate the tree populations. Those areas of the stand that were re-planted with Douglas fir were never treated to remove competing stems. Therefore there are very few Douglas fir in the current stand. There are some residual hemlock and cedar with bigleaf maples interspersed. Many of the residual maples have developed into 'wolf trees'; taking up growing space that normally would be occupied by 5-6 conifers. The site class is II (based on a Douglas-fir 100-year site index 135). Red alder sapling mortality is high due to the high stand density. The current volume per acre is 3,600 BF/Ac.

Recommended Treatment:

Based on research findings, this stand is currently beyond the age that the investment in a pre-commercial thinning will yield a significant increase in growth rates. As the trees reach merchantable size, the feasibility of commercial treatment improves. Therefore, the initial treatment of this stand should occur in about 15-20 years (2017-222). In order to meet a variety of ownership goals this treatment will initiate the regeneration of a stand with a higher percentage of coniferous species.

Over a 2 phased harvest, this regeneration treatment will remove about 90 percent of the Alder canopy using an aggregated variable retention harvest system. The first phase will remove about 50 percent (80 trees/acre) of the overstory. The second phase of this harvest will be done 10 years after the first. Following the second stage of the harvest and subsequent reforestation the new stand will contain 4 age classes (35 year old alder, 45 year old alder, 5 year old coniferous regeneration, and the most recently planted trees). The alder, which is retained, will provide biological functions through decomposition processes, which will provide habitat for plants, animals and insects and a source of nutrients for soil development. These alder areas will slowly naturally regenerate to shade tolerant Western hemlock and Western red cedar.

This recommended treatment is scheduled early based on the standard biological and economic rotation of red alder. This was scheduled early in order to treat the stand over time. Flexibility is the key, and if market conditions are considerably softer than 2002 the harvest timing can be adjusted.

The re-planting efforts should consist of Douglas-fir, western red cedar, and western hemlock. Where the site and post-harvest stem density allows, the incorporation of Sitka spruce and Western white pine into reforestation efforts may promote species and age diversity which is lacking in the current stand.

Forest Type 8-(60 Acres)

This riparian forest type follows along the lower portion of Carey Creek. There is a 45 acre area and a 4 acre area separated by a small section of Type 12. An additional 11 acres near the inholdings along Carey Creek are classified as Forest Type 8. It includes many large diameter red alders, with red cedar and occasional black cottonwoods. The soil type is Ragner, fine, sandy loam. The stand diameter is high, with most dominant

trees exceeding 15 inches. The understory is dense with salmonberry and vine maple due to adequate sunlight in the 125 tree per acre stand. The site class is II (based on a Douglas-fir 100-year site index 165). Due to the mature condition of the red alder, this stand is in decline, though many healthy trees of other species occur. The current volume per acre is 17,800 BF/Ac.

Recommended Treatment:

This stand was under-planted with cedar, hemlock and spruce in 1998. The goal of this planting was riparian habitat restoration. Initial informal monitoring found the Sitka spruce doing well. It would be beneficial to evaluate the survival in 2004. Depending on the rate of survival, it may be appropriate to plant some more conifers. It also should be determined by monitoring if the planted conifers need to be freed of competing shrub vegetation. Given the riparian nature of the stand, no harvesting is appropriate.

Forest Type 9-(15 Acres)

This stand is unique due to the large, scattered, high-quality Douglas-fir residuals with interspersed red cedars. This overstory is approximately 70 years old, with a 15-20 year old sapling sized red alder understory. The conifer density is low, but the red alder sapling density exceeds 270 trees per acre. The soil type is Ragner, fine, sandy loam. The site class is II (based on a Douglas-fir 100-year site index 165). The stand condition is very good, due to the quality conifers and the higher quality red alder saplings. The current volume per acre is 20,000 BF/Ac.

Recommended Treatment:

The overstory should be allowed to develop another 30 years (2032). At that age most of the red alder should be removed with approximately 150 trees/acre planted. This will allow for a multi-aged stand to become established. Approximately 20 years after this harvest, about 90 percent of the conifer overstory should be removed to initiate the next rotation of upland conifers. The residual 10 percent of the current stand will remain to provide vertical diversity, snags, and a future supply of large woody debris.

Forest Type 10-(143 Acres)

This stand has its origin in early 1975, and is a mixture of red alder and black cottonwood with some conifers. There are 102 acres of the stand north of Carey Creek, and 41 acres of the stand south of Carey Creek. The soil type of the 102 acre area is primarily Chuckanut with smaller areas of Beausite gravelly, sandy loam. The 41 acre sub-stand consists of Beausite gravelly sandy, loam soils and Ragner, fine, sandy loam. The current stand density is 744 trees per acre. The site class is III (based on a Douglas-fir 100-year site index 150). The stand quality is low. Forest inventory work in 1999 found evidence that laminated root rot occurred in the previous stand. The current volume per acre is 2000 BF/Ac. based on the inventory done in 1999. Field observations in 2002 indicated a potentially higher volume per acre based on the black cottonwood component.

Recommended Treatment:

Due to seasonally wet soils, the slopes greater than 30 percent in the southern area of this stand should be only harvested with cable logging methods. These stand is similar to Type 7 in that the planted Douglas-fir were never adequately managed to provide sufficient sunlight for proper growth. At a current age that exceeds 25 years old, the alder will not respond to release. Therefore it is not economically justified to pre-commercially thin the alder.

Therefore, it is recommended that the stand be allowed to grow unmanaged to an age of 65-70 years (2042-2047). It is recommended that specialty markets for black cottonwood be investigated and monitored. Current market conditions for this species are soft, but may be improving.

Forest Type 11-(8 Acres)

This small unique stand is dominated by red cedar and Douglas-fir that averages more than 17 inches in diameter. It occurs in two areas, a 3 acre island along the main road south of the central in-holdings, and a 5 acre area along the east side of the road just inside the 295th Place gate. Soils of the 5 acre area are Ragner fine, sandy, loam, while the 3 acre area is Chuckanut loam. The approximate date of origin of this type is 1930. The density of trees in this stand is 145 trees per acre; stand condition is good. The site class is II (based on a Douglas-fir 100-year site index 170). The current volume per acre is 19,000 BF/Ac.

Recommended Treatment:

This maturing conifer stand should be allowed to develop naturally for another 30-40 years. This will provide much needed ecological and visual diversity. By this time some of the younger stands will have developed conifer components through restoration practices. In the year 2030, a partial thinning should occur. This thinning will remove about a third of the overstory concentrating on the dominant and intermediate crown classes. This thinning may be done in conjunction with the treatment of stands 1, 9, 13, 16, and 20.

Forest Type 12-(64 Acres)

This type consists of 3 separate areas (48, 9, and 7 acres) which are close in proximity and will be managed as one stand. This type comprises the densest stands in the forest, averaging more than 1,040 trees per acre. The higher stocking levels of black cottonwood, mixed with the red alder saplings, makes this type unique and accounts for the higher density. The predominant soil is Chuckanut loam with lesser areas of Everett gravelly, sandy, loam and Ragner fine sandy loam. The site class is II (based on a Douglas-fir 100-year site index 170). The current volume per acre is 14,800 BF/Ac.

Recommended Treatment:

This overstocked stand should be thinned within 7 years (2003-2009) if sufficient markets for Black cottonwood exist. The cottonwood markets should be monitored so the treatment can be scheduled accordingly. This thinning will remove mostly black

cottonwood as the rest of the stand is not of merchantable size. This will leave a heavily stocked pole timber stand with about 600 trees/acre. This thinning will help to release some of the shade tolerant hemlock and cedar saplings in the understory. The stand is easily accessed from the existing main gravel road. Care should be utilized in those areas with high soil moisture levels.

Forest Type 13-(6 Acres)

This is a unique stand that is dominated by large western red cedars and western hemlocks averaging more than 21 inches in diameter. The stand age is more than 85 years old with 129 trees per acre. The soil type is Chuckanut loam. The site class is II (based on a Douglas-fir 100-year site index 170). This stand is small, but will exhibit old growth characteristics in the near future, as the hemlock begins to decline. The understory is barren due to shading. The current volume per acre is 45,900 BF/Ac.

Recommended Treatment:

Even though the stand is approaching maturity, the stand should be retained due to the diversity it provides in stand structure, species composition, and volume per acre. This stand does have economic value, but it is insignificant given the small size of the stand. The ecological values it provides are critical given the abundance of young deciduous stands across the property. This stand should be re-evaluated in approximately 30-40 years for a creation of an uneven aged condition.

Forest Type 15-(103 Acres)

This advanced second growth stand is similar to the adjacent stand 3, but it has a higher concentration of coniferous species. The main portion of the stand is 98 acres with an associated 5 acre southwest of this main stand. This 1940s origin stand is stocked with red alder and residual patches of Douglas-fir. The density is 159 trees per acre. The predominant soil type is Blethen gravelly loam with smaller areas of Chuckanut loam and Beausite gravelly, sandy, loam. The site class is II (based on a Douglas-fir 100-year site index 170). The red alder averages over 14 inches in diameter and is mature and in decline. Many trees exhibit top dieback. Trees occurring in more densely stocked areas are in better condition than the more open-grown trees. The salmonberry understory is excluding desirable regeneration. The current volume per acre is 9,800 BF/Ac.

Recommended Treatment:

This stand is one of the few on the property that contains marketable timber. It is desirable to harvest the mature red alder in this stand as alder markets are at a historic high. If this is not done within the next 5 years (2003-2008) the majority of the value will be lost to stem rots due to the natural decline of this short lived species. Given the high percentage of young stands that will not generate income for at least 15 years, it is important to capture the timber income from this stand. The treatment of this type should concentrate on removing approximately 80 percent of the mature alder. This area is visible from Highway 18 and it will be advisable to carefully design and lay out these

cuts to accomplish the management objectives without significantly impacting forest aesthetics.

Forest Type 16-(6 Acres)

Large red cedar, Douglas-fir, and western hemlock dominate this six-acre stand, which occurs on the first bench above upper Carey Creek. Tree diameters average over 24 inches, and tree quality is high. The soil type is Chuckanut loam. The density is 91 trees per acre. The site class is II (based on a Douglas-fir 100-year site index 170). The understory stocking is sparse. The current volume per acre is 33,000 BF/Ac.

Recommended Treatment:

The stand should be retained due to the diversity it provides in stand structure, species composition, and volume per acre. This stand does have economic value, but it is insignificant given the small size of the stand. The ecological values it provides are important given the abundance of young deciduous stands across the property. This stand should be re-evaluated in approximately 30-40 years for thinning followed by the initiation of regeneration to perpetuate a coniferous stand. This will establish an uneven aged condition with a layered canopy.

Forest Type 17-(18 Acres)

This forest type is located in the southeast corner of the property adjacent to the City of Seattle Cedar River Watershed. There is a 16 acre area and a 2 acre area, which are almost contiguous. This 100 year old stand (1900) stand has the highest volumes per acre of all stands in the forest. Dominant tree heights exceed 150 feet with tree densities of more than 427 stems per acre. Tokul gravelly loam soils and Tokul-Pastik complex are the soil types present. The site class is II (based on a 100-year site index 170). The dominant overstory tree is Douglas-fir with many trees with diameters in excess of 24 inches. Western hemlock exceeds Douglas-fir in stocking, but the trees are much smaller (avg. 13 inches). The hemlock occurs as co-dominant and intermediate trees. The stand is located on a steep hill with a seasonal stream. The current volume per acre is 79,500 BF/Ac.

Recommended Treatment:

This stand will benefit from a thinning to lessen competition. Currently there are too many trees per acre. This thinning should concentrate on removing those hemlocks in intermediate and co-dominant crown positions. The goal of the thinning is to remove approximately a third of the overstory resulting in a residual stand of 280 trees/acre. To protect against wind throw and facilitate yarding operations utilize group selection methods. By thinning in small patches, logging is facilitated and less damage is done to the residual stems. This initial thinning should be scheduled to occur in about 10 years (2011). Some sort of high-lead will be necessary due to the steep slopes. Follow up, the thinning with the reforestation of shade tolerant conifers, such as western red cedar and western hemlock.

Forest Type 18-(251 Acres)

There are 4 similar areas (205 acres, 31 acres, 11 acres, and 3 acres) in the eastern ¼ of the property that will be managed as a unit. These areas are similar with Type 7, but have a stocking rate of residual conifers (25 trees per acre). The two main soil types are Chuckanut loam and Tokul gravelly loam. Lesser amounts of Everett gravelly, sandy, loam and Elwell silt loam are present. The site class is II (based on a Douglas-fir 100-year site index 170). Some of the conifers are large, open grown, poor quality trees. The tree diameters average more than 8.4 inches with 271 total trees per acre. Many scattered red alder saplings are intermixed with the conifers, resulting in a two-aged stand. Overall, tree quality is low in this type. The current volume per acre is 9,300 BF/Ac.

Recommended Treatment:

This is a two-aged stand. The conifer component of the type should be retained for its ecological values. The red alder appear to be rapidly growing to merchantable size. The stand should be evaluated in 15 years (2017) to determine the suitability for initiation of a new stand. If alder markets are conducive, 90 percent of the deciduous species should be harvested using a 2-stage system. This 2 phased harvest will remove 90 percent of the red alder resulting in a residual of 50 trees/acre evenly split between conifer and deciduous species. The second stage should follow the first by at least 5 years.

Forest Type 19-(21 Acres)

This predominantly conifer type averages over 14 inches in diameter with 285 trees per acre. Blethen gravelly loam is the major soil type with minor occurrences of Beausite gravelly, sandy, loam. The site class is III (based on a Douglas-fir 100-year site index 140). Red cedar is the dominant species with significant numbers of western hemlock, Douglas-fir and red alder at the edges of the site. Based on a rotation age of 100 years, the stand will be mature in 30 years. The current volume per acre is 30,900 BF/Ac.

Recommended Treatment:

This stand does contain some laminated root rot pockets. It is advisable to thin the stand and remove those pockets. There does appear to be a high enough percentage of red cedar that the stand can be effectively managed to lessen the impact of the root rot. Concurrent with the removal of the diseased trees, the stand should be thinned. This dual treatment should occur within the next 5 years (2002-2008) to lessen competition and improve growth rates. The residual stand will be stocked with approximately 140 trees/acre following this root rot treatment and thinning. The root rot pockets should be replanted to root rot resistant species such as cedar and/or red alder.

Forest Type 20-(16 Acres)

This unique type is beginning to exhibit characteristics of a mature forest. The stand originated about 1900 and is dominated by western hemlock with western red cedar and a few scattered Douglas-fir and red alder. The main soil type is Chuckanut loam with lesser amounts of Blethen gravelly loam. The stand diameter averages just over 15 inches with

207 trees per acre, but is quite variable. The site class is II (based on a Douglas-fir 100-year site index 170). The current volume per acre is 32,400 BF/Ac.

The older, larger western hemlocks are showing significant decline and mortality, creating gaps in the stand. Numerous insect and disease problems occur in this stand. The understory is mostly sparsely vegetated with the exception of a few canopy gaps that allow sunlight to reach the forest floor.

Recommended Treatment:

This stand provides similar ecological functions to Types 11 and 13. Given the fact that there is a lack of large decadent conifers across the property, these areas are best managed for habitat. Therefore, this mature, declining hemlock should be retained for future snag and down woody debris. This stand should be re-evaluated in approximately 30-40 years (2032-2042) for thinning.

FOREST MANAGEMENT TIMETABLE

YEAR	MANAGEMENT ACTIVITY	PRIORITY
2003	Develop trail maintenance and relocation plan.	1
2003	Develop road maintenance and abandonment plan. (RMAP)	2
Ongoing	Stay current with developments in the Non-Timber Forest Products markets. Be on the look out for feasible, cost effective opportunities for value added production of products.	3
2003-2008	Forest Type 3: Regeneration treatments to re-establish coniferous species.	4
2003-2008	Forest Type 15: Regeneration treatments to establish native conifers.	5
2003-2008	Forest Type 19: Thinning (in conjunction with Type 3) to improve forest health. Follow with the planting of root rot tolerant species.	6
2003-2004	Forest Type 8: Monitor the seedling survival of 1998 conifer under planting. Replant if necessary.	7
2003-2004	Forest Type 4: Monitor the survival of 1999 conifer under planting. Replant if necessary.	8
2003-2004	Forest Type 5: Monitor the survival of 1999 conifer under planting. Replant if necessary.	9
2003-2013	Forest Type 10: Monitor Cottonwood markets for improvement. If they improve significantly, harvest merchantable Black Cottonwood.	10
2003-2008	Forest Type 2: Thinning of 23-acre portion of stand to accelerate forest succession.	11
2004-2006	Forest Type 12: Commercial thinning of Cottonwood in overstory if cottonwood markets improve.	12
2011	Forest Type 17: Thinning to lessen competition and promote forest health.	13
2012	Forest Type 18: Re-evaluate stand to determine if stand and market conditions warrant harvest and initiation of new stand.	14

2017-2022	Forest Type 7: Initiate stand regeneration to a stand containing a higher percentage of coniferous species.	15
2030-2040	Forest Type 1: Re-evaluate for thinning to perpetuate coniferous forest cover.	16
2030-2040	Forest Type 9: Re-evaluate for harvest to perpetuate coniferous forest cover.	17
2030-2040	Forest Type 11: Re-evaluate for thinning to perpetuate coniferous forest cover.	18
2030-2040	Forest Type 13: Re-evaluate for thinning to perpetuate coniferous forest cover.	19
2030-2040	Forest Type 16: Re-evaluate for treatment to perpetuate a coniferous stand.	20
2030-2040	Forest Type 20: Re-evaluate for treatment to perpetuate a coniferous stand.	21

Appendix D

Road Abandonment and Maintenance

**Taylor Road Costs Estimates for Bringing Up to
Standard, Annual Maintenance, and Abandonment**

**Western Washington Road Cost Estimates/
Road Class Guidelines**

TAYLOR ROAD MAINTENANCE AND ABANDONMENT PLANNING

ROAD A 16678 Feet Total - 166.78 Stations

Estimates for Bringing Up to Standard

		Sta per Prac	Cost per Sta	Practice Cost	Notes	Timing
Reconst	Light	30	\$ 200.00	\$ 6,000.00	Road A will be reconstructed to meet Forest Practice standards including replacement of a 5 foot culvert with a bridge.	2004 - 2006
	Med	35	\$ 550.00	\$ 19,250.00		
	High	0	\$ 900.00	\$ -		
Construct	Light	0	\$ 1,200.00	\$ -		
	Med	0	\$ 1,850.00	\$ -		
	Replace 5'CMP W/Bridge	1	\$ 100,000.00	\$ 100,000.00		
	Total Cost			\$ 125,250.00		

Estimates for Annual Maintenance

		Sta per Prac	Cost per Sta	Practice Cost	Notes	Timing
Active	Light	100.78	\$ 17.00	\$ 1,713.26	Portions of road not used for daily access-maintenance cost will be based on inactive status.	Annual summer-fall
	Med	66	\$ 37.00	\$ 2,442.00		
	High	0	\$ 67.00	\$ -		
	Total Cost			\$ 4,155.26		
Inactive	Light	100.78	\$ 8.00	\$ 806.24	The last 66 stations of the road are the highest cost.	
	Med	66	\$ 21.00	\$ 1,386.00		
	High	0	\$ 51.00	\$ -		
	Total Cost			\$ 2,192.24		

Estimates for Abandonment

		Sta per Prac	Cost per Sta	Practice Cost	Notes	Timing
Inactivate	Light	100.78	\$ 75.00	\$ 7,558.50	Preferred option is reconstruction	
	Med	66	\$ 82.00	\$ 5,412.00		
	Remove 5' CMP	1	\$ 32,000.00	\$ 32,000.00		
	Total Cost			\$ 44,970.50		
Abandon	Light	100.78	\$ 126.00	\$ 12,698.28		
	Med	66	\$ 166.00	\$ 10,956.00		
	Remove 5' CMP	1	\$ 32,000.00	\$ 32,000.00		
	Total Cost			\$ 55,654.28		

Appendix E

Site Maintenance Plan

Taylor Mountain Forest

66 Area I Working Resource

ANNUAL M&O	\$ 22,142
ANNUAL COST, SUPPORT WORK	\$ 8,359
EMERGENCY CONTINGENCY FUND	\$ -
ONE-TIME CAPITAL OUTLAY	\$ 392,000

PARK MAINTENANCE PLAN (PMP)

TASK DESCRIPTION	Non Grow		Grow Season										Non Grow		Total Hours	Comments
	J	F	M	A	M	J	J	A	S	O	N	D				
Total Hours	25	21	46	18	16	71	31	14	71	25	23	22	383.00	Total Recurring & Repair Hours		
PS II	10	6	30	7	3	57	13	3	57	12	12	11	221.00			
518 - Mapping/GIS			3			5							8			
519 - Site Inventory				4		4			4				12			
597- Natural Area Trail Maintenance	2		10			40	5		40				97	volunteers?		
597- Natural Area Trail Maintenance	2		8			8			8				26			
539 - Litter and Garbage Pickup	2	2	3	3	3	3	3	3	3	2	2	2	31			
580 - Drainage Maintenance and Repair	4	4	4							10	10	7	39			
595 - Corridor Structures & Signage			2			2			2			2	8			
PS III	15	15	16	11	13	14	18	11	14	13	11	11	162			
518 - Mapping/GIS PSIII			3			5							8			
523 - Project Planning PSIII	4	2	2			3			3				14	volunteer project		
539 - Litter and Garbage Pickup PSIII	2	2	2	2	2	2	2	2	2	2	2	2	24			
565 - Public and Complaint Resolution PSIII	1	1	1	1	1	1	1	1	1	1	1	1	12			
570 - Site Meetings PSIII		2			2	2				2			8			
594 - Park Inspection PSIII	8	8	8	8	8	8	8	8	8	8	8	8	96			

I. LABOR	HrRate \$ 11,475
PSII - Recurring Resource Employee Average Hourly Rate (w/benefits)	221 Hours at \$ 28.02 \$ 6,192
PSIII - Recurring Resource Employee Average Hourly Rate (w/benefits)	162 Hours at \$ 32.61 \$ 5,283

II. MATERIALS	\$ 8,525
Gravel	\$ 2,000
Signs	\$ 5,000
Garbage Bags	\$ 25
Trees Bareroot	\$ 500
Drain tile	\$ 1,000

III. SERVICES	\$ 42
Garbage Disposal	1 ton 0.5 Months at \$ 83.00 \$ 42
	Months at \$ 65.00 \$ -

IV. EQUIPMENT	\$ 2,100
Power Wheelbarrow	110 Hours at \$ 3.00 \$ 330
Back Pack Blower	Hours at \$ 2.25 \$ -
Chain Saw 14" bar	10 Hours at \$ 3.00 \$ 30
Chain Saw 20" bar	20 Hours at \$ 4.00 \$ 80
Grader (for gravel parking lot)	Hours at \$ 30.80 \$ -
Trailer (large for Grader)	Hours at \$ 12.90 \$ -
10 Yard Ton Dump Truck	Hours at \$ 14.45 \$ -
Pole Pruner, gas, w/extension	10 Hours at \$ 2.55 \$ 26
Push Mower	Hours at \$ 4.00 \$ -
Trailer, single-axle	40 Hours at \$ 2.00 \$ 80
Truck, 1/2 ton P/U	383 Hours at \$ 3.85 \$ 1,475
Weedie	20 Hours at \$ 4.00 \$ 80

VI. OVERHEAD	
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VII. ANNUAL CONTINGENCY FUND	
Provides for Storm Events: hazardous trees and other unexpected and unplanned repairs.	Not available for annual maintenance requirements.

VIII. ONE-TIME CAPITAL COSTS	\$ 392,000
2003. Removal of roadways as described in the site management plan. To meet newly adopted State Forest Management Guidelines	\$ 90,000
2003. Install restrooms and parking lot off of Hobart road entrance. Install interpretive trail and signage	\$ 300,000
2003. Install entry signs at Hobart and 298th.	\$ 2,000