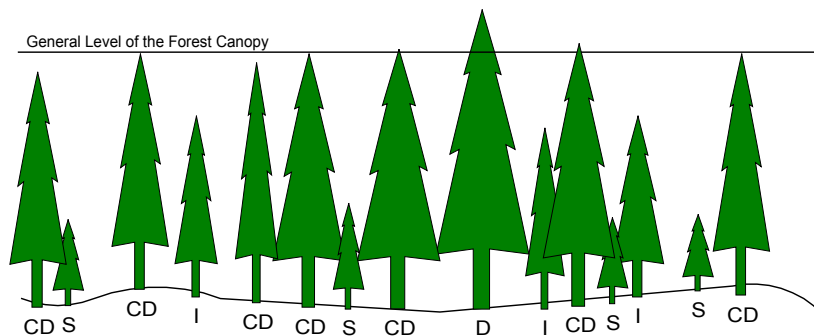


Approved WOODLOT LICENCE W1832 SITE PLAN

Woodlot Licence	W1832	Cutting Permit	A		Block	1	Opening #	
Total Area (ha)	21.0	Net Area to be Reforested (NAR) (ha)	16.4		Non-Productive - Natural (ha)	1.0	Non-Productive - Un-Natural (ha)	1.4
Area of Reserve (ha)	2.2	Type of Reserve	Wildlife Tree Patches (WTP) and Riparian Reserve Zones (RRZ)			Air Photo #s	BCC98051 #174-175	
Harvest Method	Ground Based: Small Cat on pre-located permanent skid trails.							
Silvicultural System	Single Tree Selection The silvicultural system will be implemented by faller selection. The W1832 planning and logging staff jointly developed the silvicultural prescription for this block in the field, and are in agreement on tree selection parameters.							
SU	NAR (ha)	Biogeoclimatic Ecosystem Classification			Regeneration Method	Preferred Species	Acceptable Species	
		Zone	Variant	Site Series				
1	12.8	ICH	Dw	01a	Natural regeneration with fill-in planting	Fd, Lw, Pl, Py	Cw, Hw, Sx, Bg, Pw	
2	4.7	ICH	Dw	03	Natural regeneration	Fd, Lw, Cw, Hw	Bg, Sx, Pw	
Comments:		Fill-in planting will likely be required to meet stocking standards in portions of SU 1 which currently have low stocking densities, and in the small openings which will result from combinations of harvest activity and bark beetle mortality. We estimate that fill-in planting may be required on approximately 3 hectares, at an average planting density of 500 stems per hectare. Post logging regeneration surveys will determine if fill-in planting is required or if natural regeneration will meet stocking targets.						
Elevation range if planting is specified		940 to 980 meters						
The free growing stand will be established in accordance with the stocking specifications in the Woodlot Licence Forest Management Regulation (November, 1998) Division 2 of Part 6 and Table B of Schedule A.								

Explanation of Terms

The discussion of trees harvested and trees retained in the stand is organized by tree height class. The diagram below illustrates these terms.



The height classes are defined as:

- D - Dominant: A tree which extends well above the general canopy of the forest.
- CD - Co-dominant: A tree which is part of the general canopy of the forest. The co-dominant layer occupies the most canopy area in the stand, and receives direct sunlight to the top and sides of the crown.
- I - Intermediate: A tree that is below the general canopy layer of the forest, but extends into the canopy and receives direct sunlight only on the top of the crown. Intermediate trees may be in this crown position because they are losing the competition for growing space in the stand, or because they are younger trees which germinated in the shade of the co-dominant layer and are now growing up through the canopy.
- S - Suppressed or Shaded: A tree that is well below the general canopy of the forest, and that is at a competitive disadvantage for growing space. The dynamics of suppressed trees in the forest are the same as those of intermediate trees.
- R - Regeneration: Small trees, generally less than 5 meters tall.

Snags are standing dead trees. These structures provide important habitat for many wildlife species.

Coarse Woody Debris (CWD) refers to large pieces of dead wood, generally fallen to the ground. CWD also provides wildlife habitat, and is directly linked to soil ecosystem processes which maintain site fertility and influence soil moisture holding capacity.

Source of Information

The estimates of volume, basal area, stems per hectare, tree size, snag density, and harvest profile presented in this site plan are derived from twenty one 7.99 meter circular silviculture inventory plots established within the block. Trees in the neighborhood of the plots were "marked to cut", therefore the inventory provides information on the effect of the silvicultural prescription on the forests in Block 1. This sampling intensity is expected to produce reliable results, but some variance from the estimates is expected.

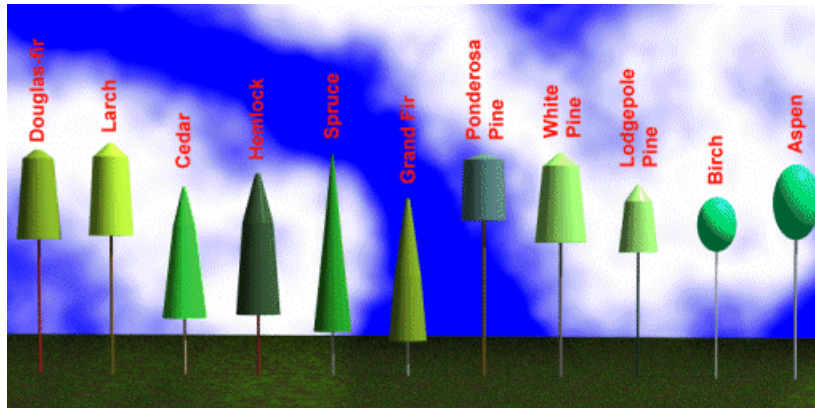
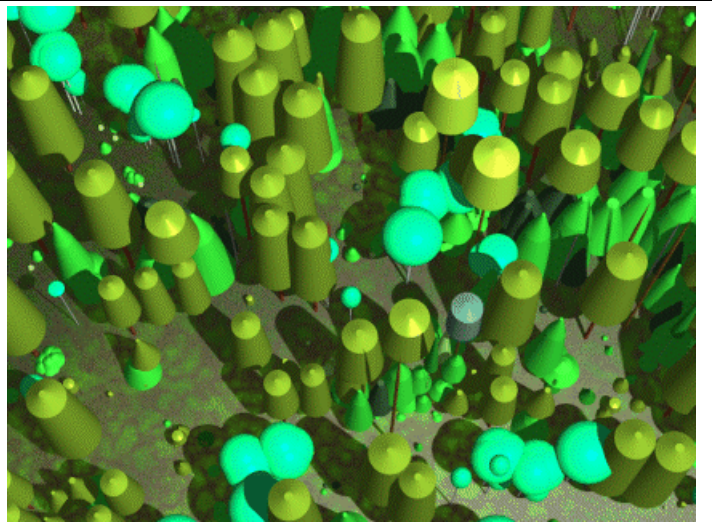
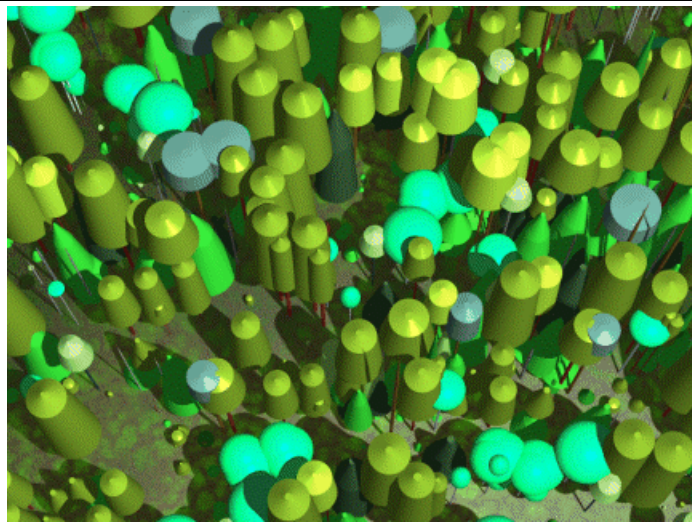
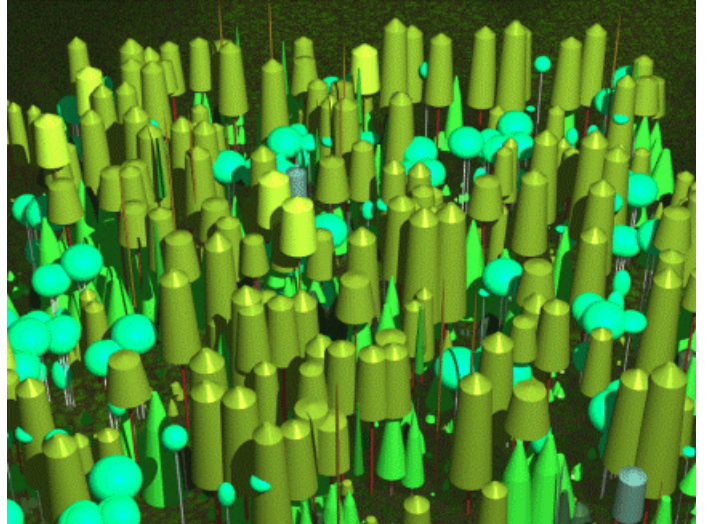
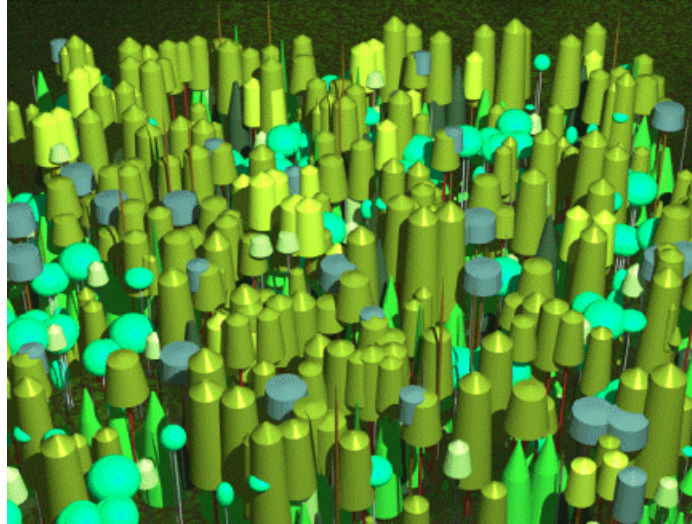
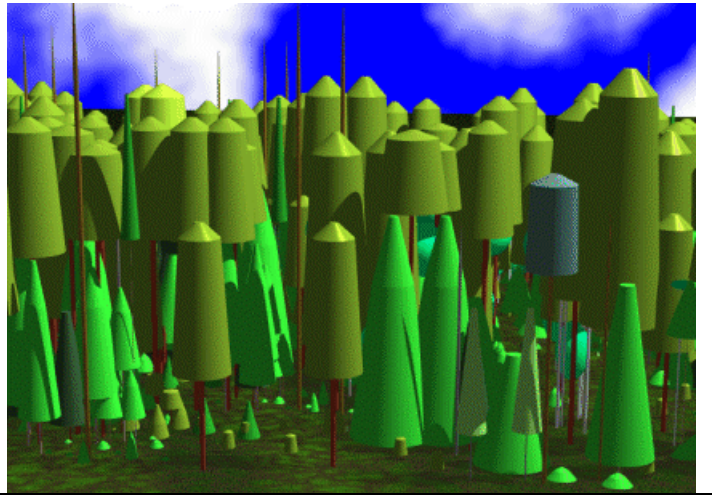
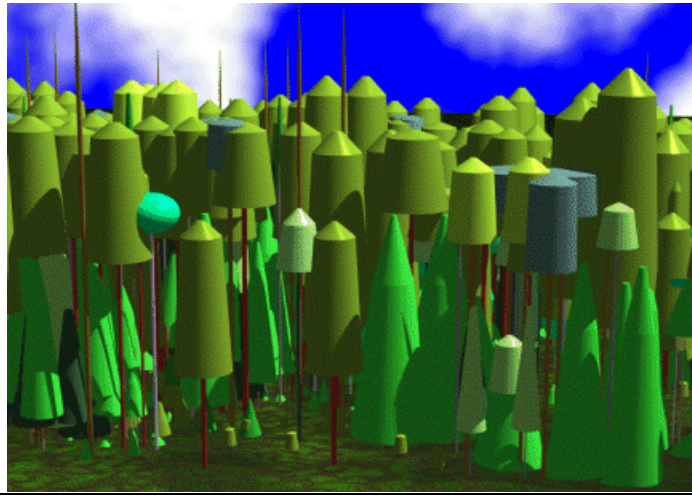
The stand diagrams on the following pages are accurate graphic representations of the diameter, height, spatial distribution, and crown size of the trees in each SU derived from the vegetation inventory plots. The scale and magnification are constant in each pair of diagrams; trees which appear larger are in fact larger, stands which appear more dense are more dense.

PARTIAL CUTTING PARAMETERS			
Standards Unit 1 – Mesic Fir			
SU 1	Area: 12.8 hectares	BioGeo: ICHdw 01a	Site Moisture: Mesic
Pre-Harvest Stand, Green Standing Coniferous and Deciduous only:	Basal Area: 37 m ² /hectare	Stems per Hectare: 732	Standing Volume: 346 m ³ /hectare
Forest Type	<p>The forest in SU 1 is a classic mesic site Kootenay Mix stand. The main forest canopy regenerated following fire in 1912, and is composed of large stems of Douglas-fir and other fire successional species: larch, white pine, and ponderosa pine, with a significant white birch and aspen component. The stand has a lower crown layer of cedar, Douglas-fir, pines, and aspen, and an extensive low understory of cedar and hemlock.</p> <p>The stand is spatially diverse, and contains small openings and dense areas, and small, dryer microsites on hillcrests and south facing slopes. The stand is also structurally diverse – it is multilayered and contains a wide variety of tree sizes</p> <p>SU 1 contains productive growing sites which are well suited to producing a diverse range of tree species in a complex, multi-layered stand.</p> <p>A significant population of large snags is found in this SU due to pine mortality over the last 25 years from white pine blister rust and endemic pine bark beetle populations.</p> <p>A diverse community of deciduous plants grows beneath the conifer canopy. The understory is more abundant in well lit areas, more sparse in dense canopy areas. Douglas maple, false box, and Shepherdia canadensis are common, with false box forming a continuous ground cover in more open areas.</p>		
Management Objectives	<p>Long-term stand management objectives for this forest area are to:</p> <ul style="list-style-type: none"> • Maintain hydrologically significant forest cover on the site while carrying out commercially viable timber cutting operations. • Maintain wildlife habitat by retaining wildlife tree and coarse woody debris populations. • Enhance the ecological resources in the forest by developing old growth structures. Approximately 15% of long-term net timber growth will be directed to the creation of full cycle trees. • Increase the diversity and value of available timber products by managing to create multi-aged, multi-species stands which will contain a proportion of large diameter, high quality sawlogs. 		
Description of Live Trees to be Removed			
SU 1	Basal Area to be Cut		
	Average: 15 m ² /ha		
	% of Tot: 41%		
	Range: 9 - 21 m ² /ha		
Distribution of Volume to be Cut by Species	Douglas-fir 39%, Ponderosa Pine 15%, Larch 13%, White Pine 12%, Lodgepole Pine 7%, Cedar 6%, Hemlock 4%, Aspen 2%, Spruce 2%		
Details	<p>The silviculture inventory indicates that approximately 40% of the current stand volume, or 150 m³/ha, will be cut. The general silvicultural approach will be thinning from below to create growing space for healthy co-dominant and intermediate trees, and for regeneration. Poorly formed, damaged, and low vigor stems will be removed from all crown classes to increase growing space for healthy residual trees. Dense patches of vigorous trees will also be thinned to create growing space for residual stems.</p> <p>Most lodgepole pine will be cut. This species has reached the end of its life span in this forest, and is rapidly dying off from a combination of low vigor, overtopping by other species, and insect attack. Some lodgepole pine regeneration is expected following logging from cones left on site in logging slash.</p> <p>Most white pine in the stand is already dead from or infected with blister rust. Dead stems will be retained as snags or coarse woody debris. Live trees infected with blister rust will be cut. Uninfected individuals are rare, but will be retained when found.</p> <p>Aspen will be cut where it is in the way of logging operations. Felled aspen stems will be left on site as CWD.</p> <p>Other species will be selected for cutting by the faller based on tree heath and vigor, stand successional dynamics, growing space occupancy, and operational feasibility.</p> <p>An approximate cutting prescription by crown class follows:</p> <ul style="list-style-type: none"> • Approximately 40% of the co-dominant volume, or about 110 m³/ha, will be cut. 70% of the co-dominant trees to be cut have a fair to poor vigor rating, due to limited live crown, stem defects, and low growth potential. These trees are also often not windfirm and not snow load resistant. 45% of the co-dominant volume to be cut is Douglas-fir, 17% is larch, 17% is ponderosa pine, and the remainder is composed of white pine, lodgepole pine, and hemlock. • One-third of the Douglas-fir and two-thirds of the larch co-dominant stems to be cut have a good vigor rating. These stems will be cut to open growing space for other healthy co-dominant stems, or to increase stand diversity by opening up growing space for vigorous intermediate stems. • Approximately 65% of the intermediate volume in this stand will be cut, or 30 m³/ha. Approximately 30% of the intermediate volume to be cut is cedar, and Douglas-fir and lodgepole pine each contribute about 15% of the intermediate volume to be cut. The remainder is composed of aspen, white pine, ponderosa pine, and spruce. The high proportion to be cut is due to the generally poor health of the shade intolerant tree species in the intermediate canopy in many parts of the stand. • Two-thirds of the cedar intermediates to be cut are in good condition. These trees will be cut to open up growing space for other vigorous cedars, or because they are entwined with other larger, poor vigor trees which will be cut. • About 20 suppressed stems per hectare will also be cut. These are poor vigor stems which have been stunted or damaged by growing in low light conditions in the forest understory. Douglas-fir and hemlock are the dominant species. These stems contribute about 5 m³/ha of timber. 		

SU 1 STAND DIAGRAMS

Before Logging

After Logging



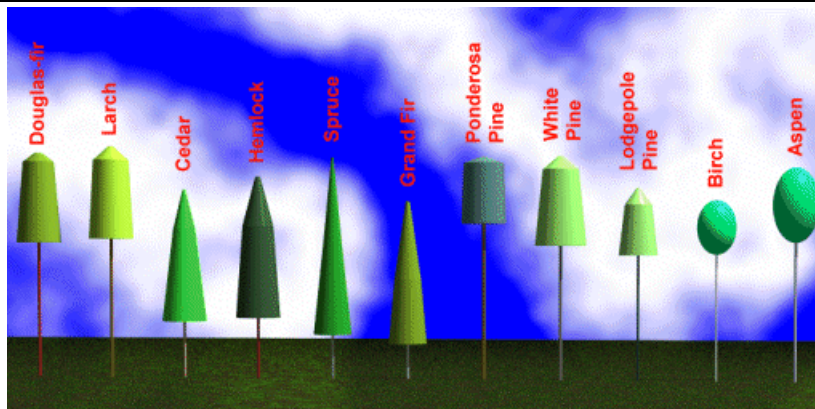
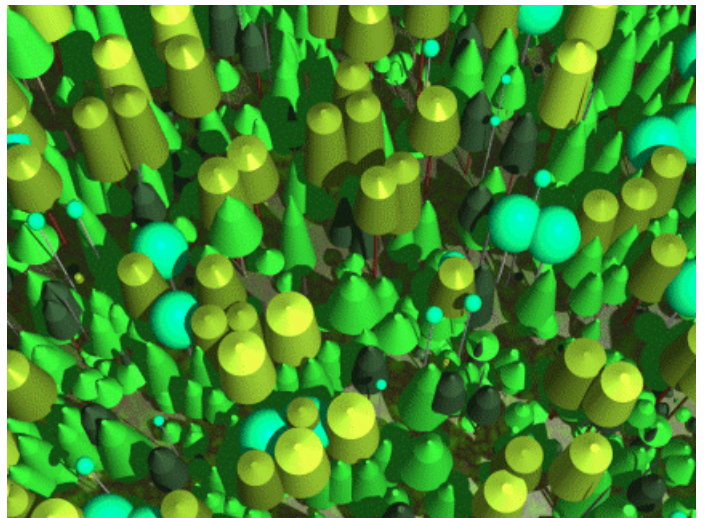
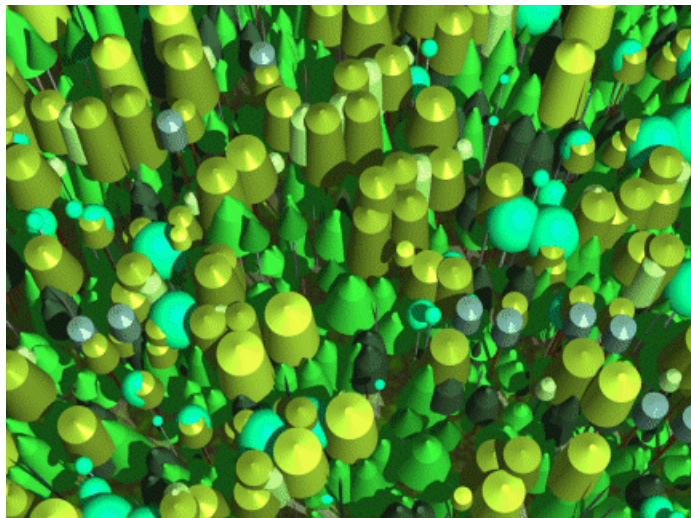
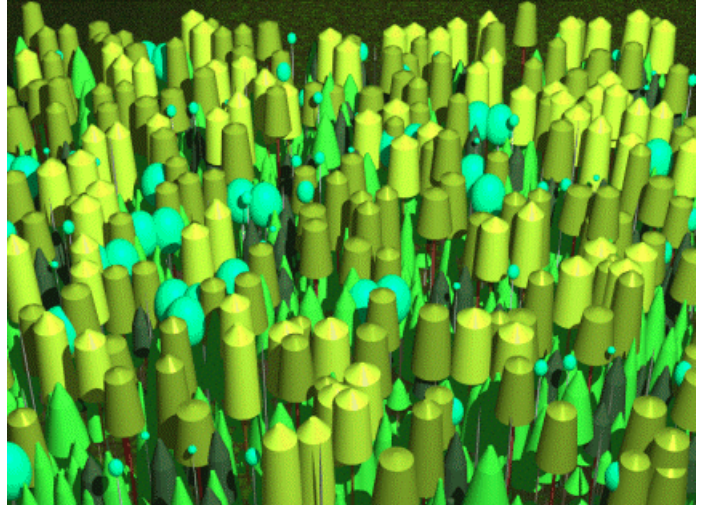
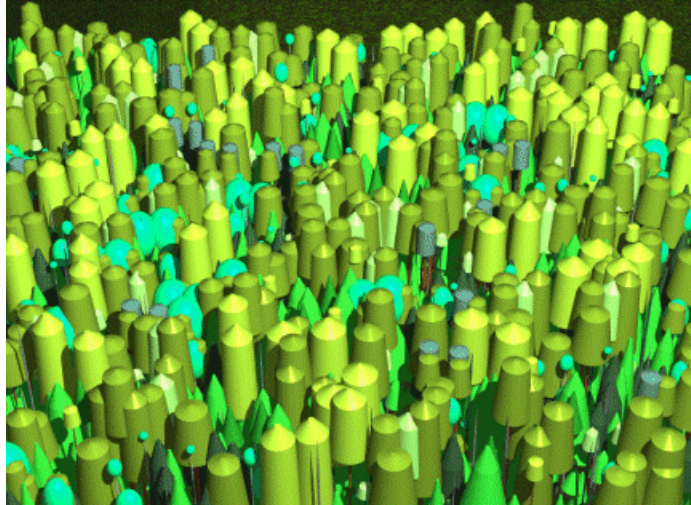
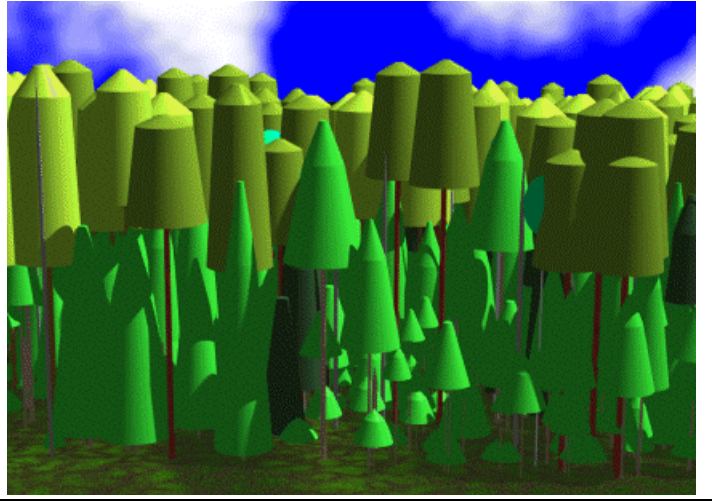
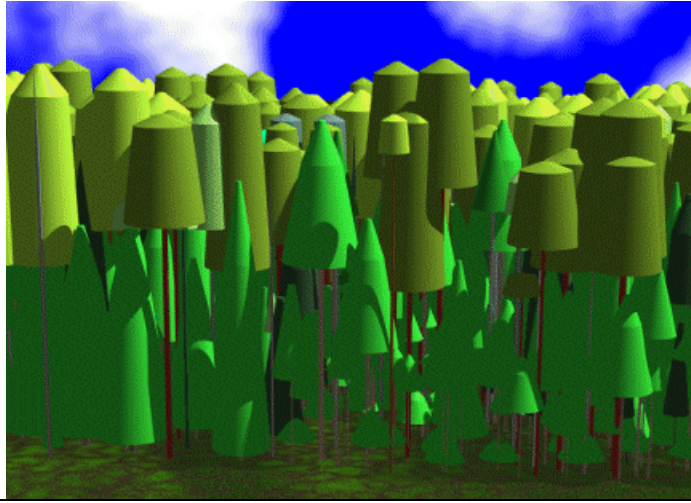
Description of Live Trees to be Retained		
SU 1	Basal Area to be Left	
	Average: 22 m ² /ha	
	% of Tot: 59%	
	Range: 16 - 28 m ² /ha	
Distribution of Volume to be Left by Species	Douglas-fir 76%, Cedar 10%, Larch 4%, Ponderosa Pine 3%, Aspen 3%, White Birch 3%, Hemlock 2% (with incidental White Pine and Spruce)	
Details	<p>Approximately 60% of the current stand volume will be retained after harvesting. Leave trees will be selected wherever possible from the population of the healthiest trees in the stand, but some low vigor stems will be retained due to inter-tree spacing considerations. That is, when a low vigor stem is the only stem growing in an area, it may be kept as a crop tree. Severely deformed and/or damaged stems will not be retained as crop stems, but may be retained as wildlife trees, or may be cut to create growing or regeneration space.</p> <p>Aspen and birch will be retained where they are not in the way of logging operations. The deciduous stems in this forest are in poor health and will likely die in the near future, but have no market potential and are valuable wildlife trees. They will be retained to provide habitat for cavity nesters, bark dwelling creatures, and other wildlife, and to contribute to CWD stocks after their death. Aspen and birch which are cut to facilitate falling and skidding of conifers will be left on site as coarse woody debris.</p> <p>White pine stems which appear to be free of blister rust infection are rare in this forest, but do exist and will be retained when found.</p> <p>An approximate description of leave trees by crown class follows:</p> <ul style="list-style-type: none"> • The small population of dominant Douglas-fir in this forest will be retained. There are only about 8 of these stems per hectare, but they contain approximately 20 m³/ha of timber volume. These stems are the largest and healthiest trees in the stand, with large live crowns and good stem form. These trees will continue to grow and rapidly gain in ecological and monetary value, will provide a good seed source for regeneration, and will provide a good source of full cycle trees. • Approximately 57% of the co-dominant volume, or 150 m³/ha, will be retained. 87% of the co-dominant volume to be retained is Douglas-fir, and larch and ponderosa pine each make up 4 to 5% of the co-dom volume to be retained. These are large, healthy trees with large live crowns and good stem form. These trees will continue to grow and rapidly gain in ecological and monetary value, will provide a good seed source for regeneration, and will provide a good source of full cycle trees. 4% of the co-dom volume to be retained is made up of low vigor aspen and birch. • About 15 m³/ha of intermediate stems will be retained. 75% of this volume is cedar, and over 80% of the cedars are in good health, and are desirable crop trees. The remainder of the retained intermediate volume is aspen and birch, which are in poor health but are valuable wildlife trees. This component of the stand will likely die soon and contribute to CWD. • About 13 m³/ha (80 stems/ha) of suppressed stems will also be retained. This understory is predominantly cedar and hemlock, but also contains a diverse mix of all the species in the stand. Half of the cedar and hemlock are in good health, and will likely grow to become crop trees. A further 350 stems/ha of small, non-merchantable trees of varying quality may also be retained after logging. This figure does not count stems less than 0.5 meters tall, which were not tallied in the field surveys. <p>A portion of the retained suppressed and regeneration will be damaged or killed during logging, and the current health and vigor rating on these stems ranges from poor to thrifty. Still, a portion of this group of stems will likely survive logging activity, and release and grow well in the additional light and growing space available after thinning.</p> <p>The suppressed and regeneration layers will be monitored in future surveys to ascertain their suitability for future crop trees. Sanitation spacing may be required at a future date to remove retained stems from this crown class which are badly damaged during logging and/or do not respond and release satisfactorily.</p>	
Spatial Distribution	<p>Leave trees will be distributed across the harvest area, but the density of leave trees will vary significantly, depending on the stand structure at the time of harvest and microsite conditions. Few trees will be left in locations where pine beetle and rust activity have already caused significant openings in the stand, because few leave trees are available in these places. Small clumps of leave trees will be retained in other locations to increase stand diversity.</p> <p>An average basal area to be retained is noted above, with an expected range of variability. We expect that average post-harvest basal area will usually be within the target range. However, it is also expected that due to the natural variability within this forest, the minimum basal area target may not be achieved at every location.</p>	
Leave Tree Function	<ul style="list-style-type: none"> • To retain an intact, functioning forest canopy and forest ecosystem on the site. • To create a good regeneration environment with a mix of partial shade and well lit patches, an abundant seed source, and distributed minor soil disturbances from logging which will provide a suitable seed bed. • To retain future timber management options by retaining high quality trees on the site to favor development of high quality, large sawlogs. • To retain candidates for selection as full cycle trees. • To provide wildlife habitat for species that utilize large conifers and open forest areas. 	

Standards Unit 2 – SubHygric Mixed Stand			
SU 2	Area: 4.7 hectares	BioGeo: ICHdw 03	Site Moisture: Mesic
(Stand Info for Green Standing Coniferous and Deciduous)	Basal Area: 54 m ² /hectare	Stems per Hectare: 1122	Standing Volume: 507 m ³ /hectare
Forest Type	<p>The forest in SU 2 is a classic moist site Kootenay Mix stand, which contains 11 species of trees. The main forest canopy regenerated following fire in 1912, and is composed of large stems of fire successional species: Douglas-fir, larch, white pine, spruce, and aspen, with a substantial cedar component in the lower main crown and understory.</p> <p>The SU 2 forest is spatially uniform – it is dense and has few or no openings. However, SU 2 surrounds a set of small open wetlands, which provide a high degree of diversity and habitat resources in the center of the forested area.</p> <p>The SU 2 forest is structurally diverse, and has a complex multi-layered canopy with a tall overstory and a well developed, healthy shade tolerant cedar and hemlock understory. SU 2 contains highly productive growing sites which are well suited to growing cedar forests.</p> <p>Large snag density is moderately high due to pine mortality over the last 25 years from white pine blister rust and endemic pine bark beetle populations. Small patches of Douglas-fir root disease have also caused mortality in some areas.</p> <p>Only scattered deciduous plants and stunted shrubs grow in the permanent deep shade beneath the dense coniferous canopy.</p>		
Management Objectives	<p>Long-term stand management objectives for this forest area are to:</p> <ul style="list-style-type: none"> • Maintain hydrologically significant forest cover on the site while carrying out commercially viable timber cutting operations. • Maintain wildlife habitat by retaining coarse woody debris populations. • Maintain areas of snow interception cover for ungulate use. • Enhance the ecological resources in the forest by developing old growth structures. Approximately 15% of long-term net timber growth will be directed to the creation of full cycle trees. • Increase value of available timber products by managing to create multi-aged, multi-species stands which will contain a proportion of large diameter, high quality sawlogs • Increase the proportion of the growing site occupied by cedar. 		
Description of Live Trees to be Removed			
SU 2	Basal Area to be Cut		
	Average: 21 m ² /ha		
	% of Tot: 39%		
	Range: 15 - 27 m ² /ha		
Distribution of Volume to be Cut by Species	Douglas-fir 29%, Cedar 18%, Ponderosa Pine 10%, Lodgepole Pine 10%, White Pine 9%, Hemlock 9%, Spruce 9%, Larch 3%, and minor Birch and Aspen		
Details	<p>Approximately 40% of the current stand volume, or 210 m³/ha, will be cut. All crown layers of the stand will be thinned to create growing space for healthy leave trees, and for regeneration. Poorly formed, damaged, and low vigor stems will be removed to increase growing space for healthy residual trees. Dense patches of vigorous trees will also be thinned to create growing space for residual stems. The overstory of large early seral stems will be thinned to provide more growing space for vigorous cedar stems in the intermediate and co-dominant crown classes, with the long-term goal of increasing the level of cedar stocking on this site.</p> <p>All ponderosa pine will be cut. This dry site species is not suited to this moist growing site, and is being crowded out by fast growing cedar trees.</p> <p>All lodgepole pine will be cut. This species has reached the end of its life span in this forest, and is rapidly dying out from a combination of low vigor, overtopping by other species, and insect attack. Pine regeneration is not expected following logging as most parts of the forest floor will still be partially shaded by the remaining canopy.</p> <p>Most white pine in the stand is already dead from or infected with blister rust. Dead stems will be retained as snags or coarse woody debris. Live trees infected with blister rust will be cut. Uninfected individuals are rare, but will be retained when found.</p> <p>A large proportion of the spruce trees in the stand will be cut as this species is often in poor health due to being overtopped by Douglas-fir and cedar trees.</p> <p>Minor amounts of birch and aspen will be cut where these species are in the way of logging operations. Felled deciduous stems will be left on site as CWD.</p> <p>Stems of other species will be selected for cutting by the faller based on tree health and vigor, stand successional dynamics, growing space occupancy, and operational feasibility.</p> <p>An approximate cutting prescription by crown class follows:</p> <ul style="list-style-type: none"> • Approximately 40% of the co-dominant stem volume, or 150 m³/ha, will be cut. 80% of the volume to be cut is made up of Douglas-fir and ponderosa, white, and lodgepole pines. Spruce, cedar, hemlock, larch, and aspen make up the remainder. Most of the co-dominant trees to be cut have a fair to poor vigor rating due to limited live crown, stem defects, and low growth potential. • 25% of the Douglas-fir co-dominants to be cut have a good vigor rating. These stems will be cut to open growing space for other healthy co-dominant stems, or to increase stand diversity by opening up growing space for vigorous intermediate stems. • Approximately 40% of the intermediate stem volume, or 50 m³/ha, will be cut. Half of this volume is cedar, one-quarter is hemlock, and the remainder is composed of Douglas-fir, spruce, and birch. Three-quarters of the cedar intermediates to be cut have good vigor, with ample live crowns. These stems are being cut to open growing space for other cedar leave trees, and or because they are in the way of logging operations to cut large co-dominant stems. Most of the other intermediate tree to be cut are in poor health. • About 100 stems per hectare of cedar and hemlock in the suppressed and regeneration height classes will also be cut. These are all poor vigor stems which have been stunted or damaged by growing in low light conditions in the forest understory, and/or which will be damaged during logging. 		

SU 2 STAND DIAGRAMS

Before Logging

After Logging



Description of Live Trees to be Retained	
SU 2	Basal Area to be Left
	Average: 33 m ² /ha % of Tot: 61% Range: 27 - 39 m ² /ha
Species (in order of volume)	Douglas-fir 35%, Cedar 33%, Larch 20%, Hemlock 7%, Aspen 5%
Details	<p>Approximately 60% of the current stand volume will be retained after harvesting. These leave trees will be selected wherever possible from the population of the healthiest trees in the stand, but some low vigor stems will be retained due to inter-tree spacing considerations. That is, when a low vigor stem is the only stem growing in an area, it will be kept as a crop tree. Severely deformed and/or damaged stems will not be retained as crop stems, but may be retained as wildlife trees, or may be cut to create growing or regeneration space.</p> <p>White pine stems which appear to be free of blister rust infection will be retained.</p> <p>No spruce trees on the sample plots were selected for retention, but some healthy spruce do exist in SU 2 and some healthy individuals will be retained for stand diversity.</p> <p>An approximate description of leave trees by crown class follows:</p> <ul style="list-style-type: none"> • About 210 m³/ha of co-dominant stems will be retained. 80% of the co-dominant volume to be retained is Douglas-fir, and 14% is cedar and hemlock. These conifers are large, healthy trees with large live crowns and good stem form. These trees will continue to grow and rapidly gain in ecological and monetary value, will provide a good seed source for regeneration, and will provide a good source of full cycle trees. <p>6% of the co-dom volume to be retained is made up of aspen. These deciduous stems have little market value, but contribute valuable structures and functions in the forest ecosystem, and are valuable wildlife trees which providing habitat for cavity nesting and bark dwelling creatures.</p> <ul style="list-style-type: none"> • Approximately 80 m³/ha of intermediate stems will be retained, mostly cedar with some hemlock and minor aspen. 70% of the cedars are in good health, and are desirable crop trees. The intermediate aspen are in poor health and will likely die in the near future, but are valuable wildlife trees. They will be retained to provide habitat and to contribute to CWD. • Approximately 10 m³/ha (100 stems/ha) of suppressed cedar and hemlock will be retained. A further 425 stems/ha of small, non-merchantable trees, mostly cedar and hemlock of varying quality, may also be retained after logging. This figure does not count stems less than 0.5 meters tall, which were not tallied in the field surveys. <p>A portion of the retained suppressed and regeneration will be damaged or killed during logging, and the current health and vigor rating on these stems ranges from poor to thrifty. Still, a portion of this group of stems will likely survive logging activity, and release and grow well in the additional growing space available after thinning.</p> <p>The suppressed and regeneration layers will be monitored in future surveys to ascertain their suitability for future crop trees. Sanitation spacing may be required at a future date to remove retained stems from this crown class which are badly damaged during logging and/or do not respond and release satisfactorily.</p>
Spatial Distribution	<p>Leave trees will be distributed across the harvest area, but the basal area of leave trees will vary, depending on the stand structure at the time of harvest and microsite conditions. All areas will have significant retained canopy, but some areas will have larger leave trees than others. Fewer large trees will be left in locations where pine beetle and blister rust activity has caused mortality in the stand, because few large leave trees are available in these places. Dense canopy patches will be retained in some areas to provide snow interception cover for ungulates.</p> <p>An average basal area to be retained is noted above, with an expected range of variability. We expect that average post-harvest basal area will usually be within the target range. However, it is also expected that due to the natural variability within this forest the minimum basal area target may not be achieved at every location.</p>
Leave Tree Function	<ul style="list-style-type: none"> • To retain an intact, functioning forest canopy and forest ecosystem on the site. • To create a good regeneration environment with a mix of partial shade and well lit patches, an abundant seed source, and distributed minor soil disturbances from logging which will provide a suitable seed bed. • To retain future timber management options by retaining high quality trees on the site to favor development of high quality, large sawlogs. • To retain candidates for selection as full cycle trees.

PERMANENT ACCESS STRUCTURES

Rationale for greater than 7% of the total cutblock area being occupied by permanent access structures:

The overall area occupied by permanent access structures is 8% of total block area. This relatively high proportion is due to:

- The main access road to the woodlot runs along the long, east edge of the block. This haul road occupies 1% of the block area.
- Landings in this block will be constructed on flat ground on the uphill side of the haul road. Decking logs on the downhill side of the road is not feasible due to the road location and downslope terrain features, and because the downhill side of the road is outside of W1832.
- Disturbance from skid trails is included in the permanent access structures, and is not included in the soil disturbance within the net area to be reforested, shown below. The expected soil disturbance in the NAR is a low 3%, rather than the usual 10%.

Roads	Length 450 m	Width One half of 10 m road right of way = 5 m	Area 0.23 ha
Landings	Length Variable – located in field and traversed.	Width Variable – located in field and traversed.	Area 0.22 ha
Skid/Forwarder Trails	Length 3787 m	Width 3 m	Area 1.14 ha
Total Cutblock Area (ha) 21.0 ha		Total Area of Permanent Access (ha) 1.58 ha	Maximum % of the Total Cutblock Area to be Occupied by Permanent Access Structures 8%

Trails that will be used for repeated harvest entries are proposed as permanent access structures.	Yes. Trails are classed as part of the permanent access system and removed from the timber management landbase because they will be utilized in future harvest entries at 20 to 30 year intervals, and thus will not re-grow merchantable timber. Skid trail network to access entire landbase has been laid out in field. Location of skid trails is shown on Site Plan map. Trails will be left hydrologically stable after logging by construction of water bars and by seeding with anti-erosion mix where appropriate.
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Roads, landings, borrow pits, or quarries within this cutblock are proposed for rehabilitation. No

Notes:

A network of old mining access trails occurs in the north third of this block. The prospector's trails were built for mineral exploration, probably in the early 1960s, with a small to medium size cat. Original extent of and current condition of old trails are highly variable, ranging from a linear pattern of disturbed patches to a 3 m wide road surfaced with crushed rock. However, the mining access trails were not designed for logging. Some trails are not in suitable locations, and some have stretches of adverse gradient too steep to pull logs up. However, where feasible, we used the existing trails.

SOIL DISTURBANCE

Maximum Percentage the Net Area to be Reforested to be occupied by Soil Disturbance (% of NAR) 3%

REHABILITATION MEASURES

Describe the structures to be rehabilitated as well as the measures and timing for rehabilitation if the measures in the WLFMR will not be used

Structures None	Measures and Timing N/A
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RUB TREES

Rub trees are standing trees at the downslope edge of sharp corners or junctions on skid trails. Moving logs slide along the tree, and are prevented from leaving the trail and damaging nearby leave trees. Rub trees are created where required by leaving standing trees in appropriate locations. These trees will be badly damaged during logging, but will be retained to serve as rub trees again in the next logging pass. Approximately 30 rub trees will be created at trail junctions and corners.

MEASURES FOR COARSE WOODY DEBRIS

Current CWD populations in this block are variable. Little CWD from the pre-1912 stand survives, but large second growth CWD is common on moist to mesic sites due to blister rust mortality in the white pine component of the forest.

CWD populations will be maintained over the short and medium term through natural decay and fall of existing snags within the stands, and through the falling of unstable snags during logging operations. CWD retained on site will include dead useless stems of all species and dead potential (Class 3) white pine which are dry and severely checked.

Large trees will be available for future CWD inputs as required because a wide range of tree sizes are being retained after harvest. Very long-term CWD management will be dealt with through the designation and management of full cycle trees, which will remain on the site permanently, and will eventually contribute large CWD to the forest. These trees will be selected from the leave trees retained in this cutting operation.

FOREST HEALTH ISSUES

<p>Issue Bark beetles</p>	<p>Measures</p> <p>Endemic populations of mountain pine beetle and Douglas-fir bark beetle are present in the area. A reconnaissance on strip lines spaced 100 meters apart identified three centers of active beetle activity within the block. Each attack center is a group of 10 to 20 trees in various stages of beetle attack. We plan to access these attack centers in the winter of 2003 to cut green attack trees and to salvage freshly beetle killed trees.</p> <p>The planned harvesting in this stand should reduce the habitat value of the post-harvest forest for bark beetles:</p> <ul style="list-style-type: none"> • by increasing individual tree vigor by improving the growing conditions for retained large trees, and • by interfering with the beetles pheromone communications by increasing air circulation in the stand.
<p>Root Disease</p>	<p>Several incidences of root disease, each affecting from 3 to 10 trees, have been noted in the block. The root disease is believed to be Armillaria ostoyae. The root disease infections sites are on dryer, upland locations well suited to ponderosa pine or larch, which are resistant to Armillaria. The following management approach will be used:</p> <ul style="list-style-type: none"> • Existing ponderosa pine and larch within infection sites will be retained. • Other species of trees within infection sites may be harvested in areas with abundant CWD, or left to provide future snags and coarse woody debris in areas with low CWD levels. • If planting is required in or adjacent to a root disease infection site, tree species which are resistant to the root disease will be planted.

NON-TIMBER RESOURCES AND RESOURCE FEATURES IN OR ADJACENT TO THE CUTBLOCK

<p>Feature(s)</p> <p>Ungulate Range Area Block 1 is not in currently mapped ungulate winter range areas, but is expected to be in the revised ungulate winter range management areas under development by the Ministry of Water, Land and Air Protection at this time.</p>	<p>Measures to protect or accommodate or the reason for not protecting the feature(s)</p> <p>The area immediately south of Block 1 is a high value ungulate forage area. The dense forest in SU 2 provides potential snow interception cover for ungulates in late winter. Ungulate forage areas are found throughout SU 1 in open areas with extensive deciduous shrub layers. The following measures will maintain ungulate range values:</p> <ul style="list-style-type: none"> • The cutting prescription in the SU 2 ecotype will maintain significant patches with more than 40% crown closure to serve as snow interception areas. Additional snow interception cover will develop rapidly after harvest as the leave trees in SU 2 expand to fill the available growing space. Maintaining snow interception cover is not in conflict with our preferred timber management approach in many areas in this ecotype. Both Wildlife Tree Patches in the block also contain some snow interception cover. • The combination of partial cutting and riparian reserves will maintain security cover and food resources around the open wetlands in the block, which provide browse and water for ungulates. • Forage resources in SU 1 will be temporarily enhanced by additional light reaching the ground under the thinned forest canopy. • Large Douglas-fir will be retained in the forest canopy. The large limbs shed by these trees in winter snow events are important food sources for deer in storm conditions. • Some deciduous shrubs (maple and birch) will be slashed during logging. The new growth from the existing stumps provides optimal ungulate browse. • A 30 meter machine free buffer will be maintained along the south edge of the block, to limit the spread of invasive weeds into the neighboring grassland range area. • Landings, skid trials and other disturbed areas will be seeded with an ecologically appropriate grass and herb seed mix immediately after harvesting activity has ceased on that particular access structure. Prompt revegetation measures will help reduce the potential spread of knapweed onto areas disturbed by harvesting activity.
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RIPARIAN MANAGEMENT

<p>Riparian Class of Feature</p>	<p>Unclassified Wetlands</p>	<p>Designation on Map</p>	<p>Color Themed</p>	<p>Falling and/or Skidding or Yarding Across a Stream</p>	<p>No</p>
<p>A set of small unclassified wetlands (per Part 7 of WLFMR) have been mapped in Block 1. No special consideration is required for unclassified wetlands in WLFMR.</p> <p>The following management approach has been implemented around these wetlands, per the W1832 Management Plan and Forest Development Plan:</p> <ul style="list-style-type: none"> • A 10 meter reserve zone has been located around these wetlands, marked in the field, and removed from the block area. • No machine traffic or timber cutting will occur within the reserve zone, except for falling unstable snags which are a hazard to forest workers. 					

<p align="center">SIGNATURE OF WOODLOT LICENSEE OR PERSON AUTHORIZED ON BEHALF OF THE WOODLOT LICENSEE(S)</p>	<p align="center">RPF SIGNATURE AND SEAL</p>
<p>_____ Signature Date (yy/mm/dd)</p>	<p>_____ RPF Signature and Seal Date (yy/mm/dd)</p>
<p align="center">SIGNATURE FOR DISTRICT MANAGER APPROVAL</p>	<p>_____ RPF Name (Printed)</p>
<p>_____ Signature Date (yy/mm/dd)</p>	<p>_____ RPF Name (Printed)</p>