Pre-Operations Report

Operation Name: Triangulation
County: Tillamook
Management Basin: Kilchis/Lower Nehalem

Table 1. Operation Areas, Types and Acres

Area	Type of Operation	Gross Acres	Net Acres[1]
1	Partial Cut	119	78
2	Partial cut	28	26
3	Partial cut	32	31
4	Partial cut	86	59
5	Partial cut	8	7
6	Partial cut	50	35
TOTAL		323	236

1. The net acres are based on orthophotos and GIS and exclude roads, stream buffers, reserve area and non-required thinning areas.

I. PHYSICAL DESCRIPTION OF OPERATION AREA:

Slopes have varied aspects and range from 30-90%. Elevations range from 800-3100 feet. The major soil types are Osweg, Rye, and Jewell.

The landforms are gentle ridge line and moderate to steep upper slopes above Triangulation Creek, French Creek to the west, and an unnamed tributary to the Kilchis River to the south. The underlying rocks are igneous origin extrusive flows of the Tillamook Volcanics Formation.

CURRENT STAND CONDITION:

Table 2. Stand Inventory Information[4]

Area	Prescription	Stand ID [1]	Species	Age	DBH	BA	TPA	SDI	Net Acres [2]
1	PC	241	DF/WH	42	11	183	258	51	78
		Target [3]			13	80	86	22	
2	PC	242	DF/WH	38	11	173	249	50	26
		Target [3]			13	80	86	22	
3	PC	243	DF	38	10	152	257	46	31
		Target [3]			12	80	110	23	
4	PC	244	DF	40	10	174	288	52	59
		Target [3]			11	80	112	23	
5	PC	245	DF	40	11	173	249	50	7
		Target [3]			13	80	86	22	
6	PC	246	DF	40	11	173	249	50	35
		Target [3]			13	80	112	23	

1. The source of stand inventory information is from field reconnaissance cruise plots taken in 2005 and SLI in 2003 and 2004.
2. The net acres are based on orthophotos and GIS and exclude roads, and stream buffers, reserve area and non-required thinning areas.
3. The Target identifies expected stand characteristics (DBH, BA, TPA and SDI) after harvesting has been completed.
4. These numbers are based on plot data taken to this point and final numbers may differ significantly from the actual conditions significantly. The directive for minor and major modifications will be followed for further review.

The sale areas burned in the 1933 (Tillamook) fire and the 1945 (Wilson River) fire. The areas were all aerially seeded in the early 1960's and Areas 3 and 4 and a portion of Area 1 were reseeded in 1967. Portions of Area 1 were also hand replanted in 1967. Portions of Area 4 were replanted in 1968, 1969, and 1973. None of these areas has had prior stand management.

Approximately 187 acres have been inventoried using the Stand Level Inventory (SLI) procedures and the stands have been identified as UDS. The remaining acres of the sale were identified as CSC according to the district stand summary information (1999).

The sale areas are very dense, single story, single species stands with little layering and very poor crown ratios. SDI's are 60-70% if conifer down to 5" diameter is included. The sale areas themselves are all CSC stands however they are within larger polygons designated UDS. Diameter growth has slowed and live crown ratios are decreasing. There is scattered hemlock and alder throughout the sale.

See Table 2 for specific stand data.

No significant insect or disease problems have been identified at this time.

The brush component in all the sale areas is comprised primarily of patchy areas of vine maple, Oregon grape, and swordfern.

Down wood consists of scattered large old logs (36"+) in Class 3 and 4 stages of decay and some windthrow in decay classes 1 and 2. SLI measurements on Areas 1-5 show that down wood in decay classes 1 and 2 ranges from 11-46 cubic feet per acres. Total down wood per acres in these areas is 6374 to 6956 cubic feet. SLI for Area 6 shows no down wood in decay classes 1 and 2 and 2736 cubic feet total per acres. Landscape targets have not been met.

There are some large snags in various states of decay and/or some hard snags created from natural causes. Snags in the majority of this sale area were felled after the large fires. SLI measurements in Areas 1-5 show an average of one hard snag per acre greater than 15" diameter which is below landscape targets set in the FMP. Area 6 showed three hard snags per acre which does meet the landscape targets. Areas 1-5 also showed approximately one snag per acre greater than or equal to 24" in diameter while Area 6 showed fifteen snags per acre.

II. DESIRED STAND CONDITION and VISION:

Table 3. Stand Structure Information

Area	Stand ID	Current	Post Harvest [1]	Desired Future	Net Acres
1	241	UDS/CSC	UDS	GEN/LYR	78
2	242	UDS/CSC	UDS	GEN/LYR/OFS	26
3	243	UDS/CSC	UDS	GEN	31
4	244	UDS/CSC	UDS	GEN/OFS	59
5	245	UDS/CSC	UDS	GEN/OFS	7
6	246	UDS/CSC	UDS	GEN/OFS	35

1. The stand is expected to develop into this condition in the five to ten years after this operation is completed except in REG stands which occur after harvest.

See Section IV: Proposed Management Prescription for more information on Green Tree, Down Wood, and Snag Strategies during operation. Also refer to Landscape Design in the Summary document for more information on strategies to move the district toward Desired Future Condition goals.

Vision: The DFC for the sale is a mix of GEN and complex structures. Partial cutting the dense conifer will maintain and improve individual tree growth and promote understory conifer and shrub development. All areas will be managed for complex structure at this time to leave future options open. During the operation, components such as snags and coarse down wood will be retained. This is a basal area thinning so there will be areas with relatively low stocking as

well as clumps of larger trees. Hardwood stringers along streams, legacy roads, and in pockets will also remain. These openings and gaps in the stand will allow the residual trees to grow larger in diameter and crown depth. The openings and gaps will also allow for understory reinitiation of shrubs and tree species creating horizontal and vertical diversity. Plant habitat for a listed species is anticipated to be improved by the reduction in stand density in Area 2. Future density management entries will enhance the growth of overstory trees as well as understory trees and shrubs. The desired goal is to have a healthy vigorous stand.

III. PROPOSED MANAGEMENT PRESCRIPTION and ANTICIPATED PATHWAY:

The prescriptions described below are based on the current stand condition such as overall tree and stand growth, species mix, stand density, and stand health.

In all areas, Douglas-fir will be thinned to a basal area range of 80-100 square feet. All other species will be reserved.
The resulting stand will have a stand density of 20 to 25 SDI which is relatively open, will maintain stand vigor and develop healthier and larger trees in the residual stand. The cutting prescription will be designed to achieve variable densities throughout the sale area. Another thinning is anticipated in 15-20 years.

Understory vegetation will be enhanced by the additional growing space available.

Green Tree, Down Wood and Snag Strategies
See also Section III: Desired Future Condition for long term strategies

Existing down wood will be left in the sale areas. Down wood recruitment is expected through mortality and windthrow of residual or leave trees, felled snags and tops left during harvest. Small non-merchantable hardwood and conifer will be retained where possible in harvest units with the expectation they will become short term snags and down wood. Down woody debris levels are anticipated to be below landscape stand target levels.

Existing snags not determined to be a safety hazard will be retained and any felled snags will be left for down wood. Creation of snags is expected during harvest activities (rub trees, lift trees, or tail trees) and over time by natural processes. Snag levels are anticipated to be below landscape stand target levels until residual trees grow to larger diameters.

IV. ESTIMATED TIMBER AND REVENUE INFORMATION:

Table 4. Timber and Revenue

Ownership		Sale Type	
BOF	CSL	Cash	Recovery
100%	%		x
Planned Quarter:	1		

	Conifer	Hardwood	Total
Net Volume (MBF)	1348		1348
Stumpage Value ($/MBF)	175		
Estimated Gross Value	$235,900		$235,900
		Project Costs:	$96,600
		Estimated Net Value:	$139,300

V. HARVESTING AND ACCESS CONSIDERATIONS:

The sale areas are accessed via Diamond Mill Road, West Fork Road, Smith Wright Road and the Kilchis Forest Road. An alternate haul route is Cedar Butte Road. These are currently all weather, crushed rock roads. Area 5 and 6 are additionally accessed off of the Middle Road, an all weather pit run road. See maps for specific road locations and conditions.

Approximately 5.5 miles of existing surfaced road will be improved which includes grading, widening, culvert replacement, spot rocking, sidecast pullback, or adding new culverts as needed. This work will bring all roads up to standards described in *the Forest Roads Manual*. A legacy road in Area 1 is currently being used as an OHV trail but is not planned to be reopened. Seasonal restrictions will limit operations to drier months to decrease improvement and maintenance costs.

Approximately 0.12 miles of road will be constructed to provide access to cable yarding areas. Following harvest, roads within the sale areas will be reviewed for closure. Ground yarding roads wil be closed and water-barred following harvest. See summary document for more information on this topic.

Seasonal restrictions will limit operations to minimize road improvement costs

No other project work is planned for this sale.

The operation will be 90% cable yarded and 10% ground yarded.

Table 5. Transportation Planning Summary (Miles)[4]

Activity	Mainline	Collector	Rocked Spur[1]	Dirt Spur[1]
Construct				0.12
Improve		5.0	0.5	
Maintain[2]		8.0		
Close/Block[3]				
Vacate[3]				

1. *Additional roads may be built by the operator at the time of harvest and will be approved by the State through the Operations Plan. These will be short dead end spurs and closed or blocked after harvest*
2. *All roads accessing the sale area will be maintained during the life of the timber sale contract. Maintenance miles in the table are those roads not being constructed or improved.*
3. *Roads not closed/blocked or vacated at the end of the sale will be reviewed for closure after reforestation is established.*
4. *The numbers in this table reflect planned Project Work associated with the sale.*

VI. AQUATIC RESOURCES AND WATER QUALITY:

Oregon Department of Fish and Wildlife (ODFW) will be requested to complete stream surveys before sale layout begins. Streams with potential fish use will be treated as Type F until surveys are completed to verify fish use.

The North Fork Kilchis River, a large Type F stream, is across the Kilchis Forest Road from Area 6. A small assumed Type F stream is within Area 6. Area 1 and 3 are adjacent to the small assumed Type F upper portions of Triangulation Creek.

There are additional unnamed small perennial and seasonal Type N streams within the sale area. These streams will be reviewed and protected appropriately during sale layout based on flow, topography, and terrain.

Stream buffers within or adjacent to harvest unit boundaries will be managed according to *Forest Management Plan* Riparian Strategies. The riparian areas will be reviewed during sale layout for current stand conditions and/or operational constraints for implementing FMP strategies.

Approximately 8 net acres of Area 2 are within the Cook Creek sub-basin. This sub-basin has been identified as a Salmon Anchor Habitat (SAH) Basin and the most current SAH Basin Strategies will be used at the time of contract development.

These acres were not identified as part of the Salmon Anchor Habitat Basin Plans approved in June 2005. See Salmon Anchor Summary Table for tracking of acres managed in each basin.

ODFW fish biologist will work with ODF to identify possible stream enhancement project areas.

In order to protect water quality during active operations, a variety of methods will be used to prevent sediment from entering live streams. These methods include (but are not limited to) maintaining culverts and other road drainage structures, using sediment control devices in road ditches when necessary, and monitoring logging and hauling operations. Culvert installment and replacement in live streams will be conducted between July 1 and September 15. Operations outside of this period will be reviewed with ODFW.

VII. T&E SPECIES CONSIDERATIONS:

T & E Wildlife species: The sale areas have been reviewed with the ODF Northwest Oregon Area Biologist.

It was determined that there is potential marbled murrelet habitat adjacent to the Area 2 sale boundary. Surveys will be and have been conducted during the 2005 and 2006 survey seasons for marbled murrelets. All surveys for marbled murrelets were and will be conducted in accordance with Pacific Seabird Group (PSG) protocol. There were no marbled murrelet detections during the 2005 survey seasons.

Spotted owl surveys are not required as the sale is within the Tillamook Burn (see November 2002 ODF Policy Guidance: *Northern Spotted Owl Surveying on State Forest Lands)*.

T & E Fish species: See Sections VII, and IX for listed fish protection measures.

T & E Plant species: The sale areas were checked against the Oregon Natural Heritage Program (ONHP) database of known threatened or endangered listed plant locations as well as local records in the Land Management Classification System (LMCS).

A listed plant was identified within and adjacent to one of the sale areas. The Oregon Department of Agriculture (ODA) will be consulted during sale layout to determine appropriate level of protection. Road improvement and cable corridor and landing locations may be restricted adjacent to plant locations. This area was included in order to do some density management to improve plant habitat.

VIII. SLOPE STABILITY AND GEOTECHNICAL ISSUES:

Area 1 has very limited steep slopes. In Areas 2 and 3 there are more steep slopes and some very steep slopes where High Landslide Hazard Locations can be anticipated. Areas 4,5, and 6 have significant steep slopes with bands of very steep slopes scattered throughout. The initial hazard risk assessment from the geotechnical specialist is Low for Area 1, Moderate for Areas 2 and 3, and High for Areas 4, 5, and 6. The geotechnical specialist will be consulted and the need for field visits will be assessed at the time of field work.

A portion of Area 2 has been identified as SAH Basin and the most current SAH Strategies will be used at the time of contract development. See the Summary Document for more information.

IX. RECREATION RESOURCES:

Area 1, 2, 3, and the eastern half of Area 4 are in the Motorized Off Road Use Zone designated in the *Tillamook State Forest Comprehensive Recreation Plan* (1993). This sale has been reviewed by the District Recreation Coordinator.

One designated OHV trail is located in Areas 1 and 3. Short term closure of this trail will occur to facilitate logging and public safety. Portions of the trail will be improved for logging access. Slash will be removed from the OHV trail upon completion of the operation. Access will be filtered to restrict use to motorcycles. The legacy road in Area 1 is not currently planned to be used for logging. If this road is opened it should be filtered for motorcycles after use. A plan will be developed to advise the public when trails are closed due to harvest activity. The District Recreation coordinator will be consulted during sale layout and sale administration.

No designated dispersed campsites are in the sale area. Two dispersed campsites on the Kilchis River Road may be closed to vehicle access with this sale.

Recreational use common to this area includes hunting, OHV use, and scenic activities in the Triangulation Point Lookout area.

X. CULTURAL RESOURCES:

The *Tillamook State Cultural Assessment* does not list any cultural sites within or adjacent to the proposed sale boundary. The district will consult the Public Use Coordinator for appropriate protection and tracking if any are noted during sale preparation or administration.

XI. SCENIC RESOURCES:

The sale areas visible from the Triangulation Lookout location have a visual classification of Level 2 (moderate sensitivity). The remaining areas have a

Level 3 Scenic Classification (low sensitivity). The sale will be reviewed by the Public Use Coordinator to determine methods to minimize visual impact.

Visual impact will be minimal due to the small size of the sale areas and the partial cut prescription.

XII. OTHER RESOURCE CONSIDERATIONS:

There is a permanent inventory plot located in Area 4. Permanent plot markings will be protected according to guidelines.
There is a SNC transect located in Area 6. Alan Kanaskie, ODF, should be consulted during sale layout to determine what protections the trees on this transect require.

XIII. LAND MANAGEMENT CLASSIFICATION SUMMARY:

The sale areas contain Focused and Special Stewardship, Aquatic and Riparian Habitat. See Section VII, Aquatic Resources and Water Quality, for the management guidelines to be utilized.

Area 2 contains Focused and Special Stewardship, Plant Habitat. See Section VIII, T&E Species Considerations, for management guidelines.

Area 2, also contains Special Stewardship, Wildlife Habitat, for the area north of the spur road which is within the Cook Creek SAH. See Section VII, Aquatic Resources and Water Quality, and Section IX, Slope Stability and Geotechnical Issues.

Areas 3, 4, 5, and 6 contain Focused Stewardship, Operationally Limited. See Section IX, Slope Stability and Geotechnical Issues. These areas will be evaluated further during sale layout in consultation with the geotechnical specialist.

LMCS boundary lines depicted on Attachment C are approximate; exact locations and site specific management activities will be determined during the sale preparation process.