TIMBER APPRAISAL

LOST LAND LAKE PROPERTY
DOUGLAS COUNTY, WASHINGTON

NORTHWEST FORESTRY SERVICES

TIMBER APPRAISAL

LOST LAND LAKE PROPERTY
DOUGLAS COUNTY, WASHINGTON

submitted to

Mike Jones
Jones Valuation, LLC
9349 Parkview Ct.
Chelan, Washington 98816

by

Matthew Sheehy
Northwest Forestry Services
3639 NE 78th Ave.
Portland, Oregon 97213

Report Date: June 14th, 2022
Appraisal Date: May 26th, 2022

NORTHWEST FORESTRY SERVICES

3639 NE 78th Ave. Portland, OR 97213

June 14th, 2022

Mike Jones
Jones Valuation, LLC
9349 Parkview Ct.
Chelan, Washington 98816

Dear Mr. Jones:

I have completed the timber appraisal that you requested for the Lost Land Lake property in Douglas County, Washington. The appraisal was effective as of May 26th, 2022, the date of our inspection. In my opinion, timber market value was $555,000 as of the appraisal date.

The Lost Land Lake property contains approximately 95 acres of timber that are legally available for harvest. Much of that forested area, around 77 acres, contains merchantable timber that is currently ready for harvest. The remainder, around 18 acres, contains young pre-merchantable trees that are not yet large enough to produce usable logs.

Merchantable timber was appraised using the conversion return approach, in which market value is net revenue from hypothetical logging. Net revenue is the difference between delivered log prices and all costs associated with harvest. Because the timber in acres dominated pre-merchantable trees will need to grow for another 38 years, a discounted cash flow analysis was used in conjunction with the conversion return approach. Estimated net revenue for pre-merchantable stands at anticipated harvest date was discounted to the appraisal date.

The report is attached. It sets forth the assumptions, limiting conditions, pertinent facts, and reasoning leading to the value conclusion.

Sincerely,

Matthew Sheehy
Forester

TIMBER APPRAISAL

LOST LAND LAKE PROPERTY
DOUGLAS COUNTY, WASHINGTON

Table of Contents

DESCRIPTIONS, ANALYSES, AND CONCLUSIONS

I. INTRODUCTION

Subject Property: Parcel number 99999 in Section 9, Township 9 North, Range 9 East, Western Meridian in Douglas, County, Washington.

Interest Valued: – Merchantable and pre-merchantable timber. Other potential uses will not be investigated.

Intended Users: – The cruise and timber appraisal is prepared for the sole and exclusive use of Mike Jones, real estate appraiser.

Intended Use: – To assist in establishing the market value of the subject property as a basis for purchase offer by Mike Jones.

Date of Value: – May 26th, 2022, the date of inspection.

Type of Value: Market value. The definition of market value in this appraisal is from the 2020-2021 edition of the Uniform Appraisal Standards for Federal Land Acquisitions. Market value is

> "the amount in cash, or on terms reasonably equivalent to cash, for which in all probability the property would have sold on the effective date of value, after a reasonable exposure time on the open competitive market, from a willing and reasonably knowledgeable seller to a willing and reasonably knowledgeable buyer, with neither acting under any compulsion to buy or sell, giving due consideration to all available economic uses of the property."

Hypothetical Conditions / Extraordinary Assumptions: - None

Extraordinary Assumptions: None

Scope of Work: Timber was appraised using the conversion return approach, a variation of the income approach to appraisal. In the conversion return approach, timber market value is net revenue from hypothetical logging at the appraisal date, or as soon thereafter as feasible. Net revenue is the difference between delivered log prices and all costs associated with harvest.

For pre-merchantable timber, a discounted cash flow analysis was used in conjunction with the conversion return approach. Estimated net revenue at anticipated harvest date was discounted to the appraisal date. Log buyers and timber harvesters from throughout eastern Washington provided price and cost data.

All merchantable and pre-merchantable timber was cruised. Logs were graded to the standards of Puget Sound Log Scaling & Grading Bureau and export sorts where applicable. Data collected on pre-merchantable plots was compatible with industry standard growth modeling software.

Inspection and Owner Contacts: I inspected the subject property between May 23rd and May 26th, 2022. On the morning of May 23rd, I met with Joe Jones, property owner, Mike Jones, land appraiser. I met with Joe Jones the following day to discuss the history and management of the forested areas of the property, access and access agreements, and wildlife sightings. The timber cruise took place between May 23rd and May 26th, 2022.

II. ASSUMPTIONS AND LIMITING CONDITIONS

(1) For purposes of this appraisal, title to the timber is assumed to be marketable and insurable. The appraiser takes no responsibility for legal matters and infers no opinion of title. The timber has been valued as though free of liens and encumbrances, other than those that are described in this report.

(2) Mike Jones provided a legal description of the subject property. Property lines were drawn with images referenced from the SCOUT GIS tool found online. Property acreages were not consistent at the county website and ranged between 103.4 and 110.3. An acreage of 110.3 was used in this report because it most closely resembled the description in the county contract and provided the largest acreage. The appraiser assumes no responsibility for the description or dimensions. This report includes maps and photographs derived from the description. Their sole purpose is to assist the reader in visualizing the property.

(3) The data used in this report were collected and analyzed using accepted procedures. However, data are subject to sampling and other errors. The report contains the appraiser's best estimates of log volumes, log prices, and harvest costs, but the appraiser cannot guarantee the volume or value of the timber.

(4) The various approaches to value and mathematical calculations in the report are merely aids to the formulation of the opinion of value. In these calculations, certain arithmetical figures are rounded to the nearest significant amount.

(5) Any harvest plans presented in this report are for valuation purposes only. They are based on limited observations, which have not been field verified. Detailed engineering may indicate other alternatives.

(6) The data and conclusions in this appraisal are a part of the whole. No part of this appraisal is to be used out of context. By itself, no part of the appraisal is necessarily correct in that it represents only part of the evidence upon which the final judgment of value is based.

(7) The estimated market value in this report is subject to change over time. It is reported as of May 26th, 2022, and is valid only for this date.

(8) The appraiser assumes no responsibility for management requirements that may be enforced by any government agency.

(9) Information provided by others is assumed to be true and accurate. A reasonable effort has been made to verify such information. However, the appraiser assumes no responsibility for its accuracy.

(10) The inspection found that metal drums and other debris has been dumped in Cover Type 1 on the Lost Land Lake property. Some of this material is shown in Figures 1 and 2. Whether it can be considered hazardous waste is unknown. This appraisal relies on the assumption that, if it remained on the property at the inspection date, this waste is not hazardous. Nevertheless, the appraiser is not qualified to identify or to survey for such materials and accepts no responsibilities in this specialized field.

Figures 1 and 2. Metal debris in Type 1.

(11) This report shall be used for its intended purpose and only by the parties listed in Section I. Possession of the report does not include the right of publication.

(12) Neither all nor any part of this report shall be conveyed to the public through advertising, public relations, sales, or other media without the written consent of the author.

III. PROPERTY DESCRIPTION

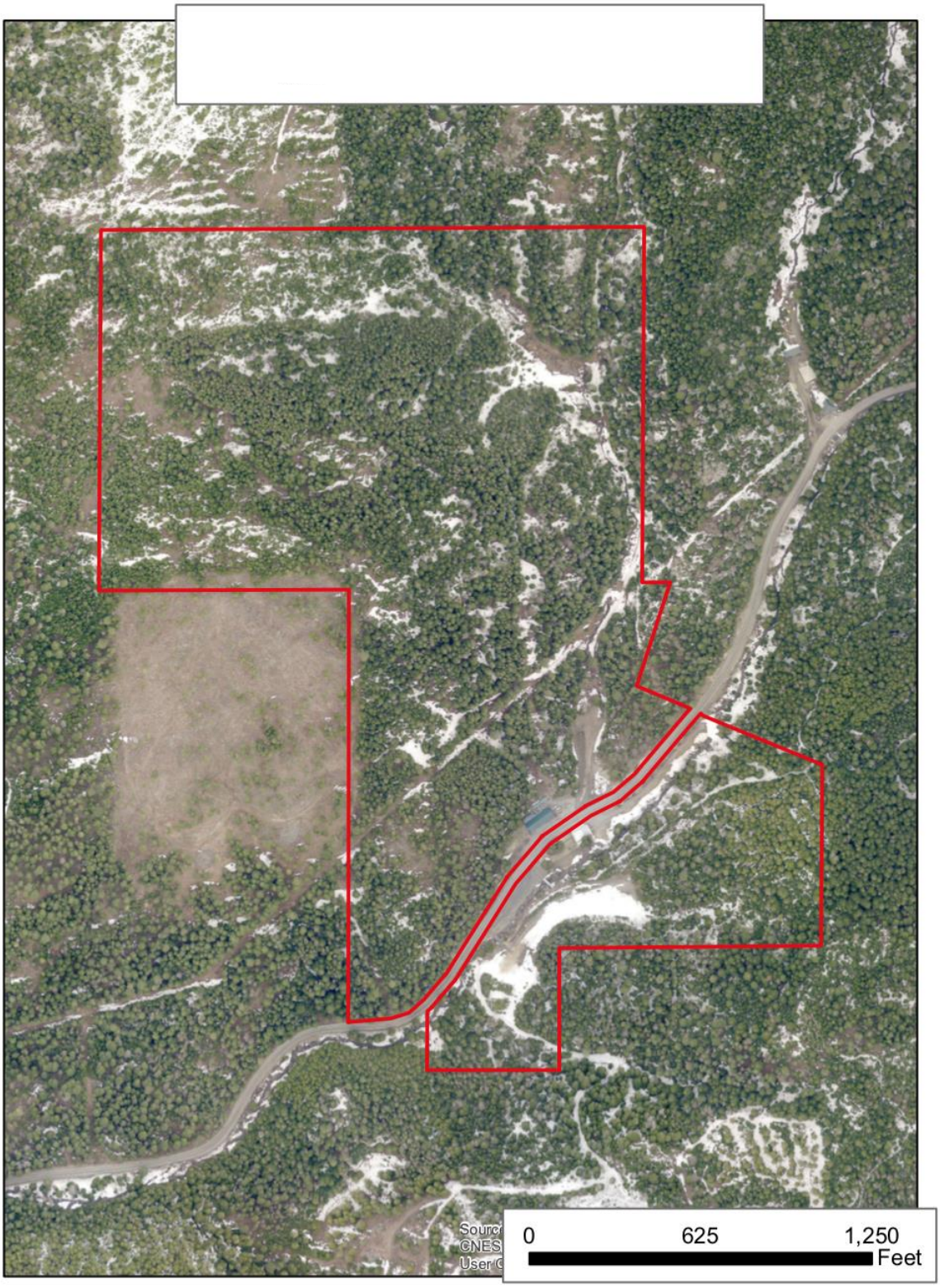
Location and Access: The Lost Land Lake Property is located approximately 26 miles northeast of Yakima, Washington. It is bordered to the east by Washington Department of Parks and Recreation land and to the north, south and west by Inland Empire Company land. Access can be gained from spur roads leading in from Lost Lander Dr.. Access can also be gained from John Doe land with permission. Mr. Jones has an informal agreement with Inland regarding access from adjacent properties.

An existing road system provides vehicle access to the northeast area of the property and to a section of the property crossed by a utility powerline. Legacy roads were found throughout the property that are overgrown with brush, but walkable.

Most of the property lines are evident by changes in timber type. The western boundary of Type 2 was flagged and Inland Empire Paper Co. property line signs were seen (figure 3). The eastern boundary was also flagged and a quarter section corner was located (figure 4). A global positioning system (GPS) was used to estimate boundary line locations, as well as locations within the property. Figure 5 below shows the property boundary.

Figure 3 and 4. Property Boundaries.

Figure 5. Aerial Photo



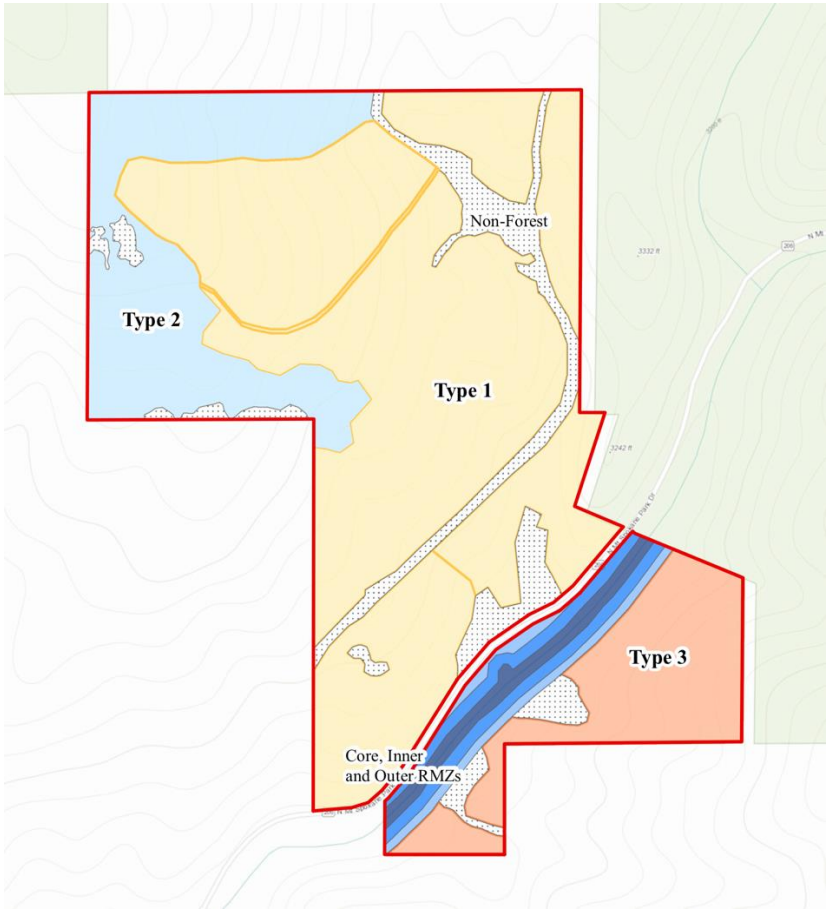
Timber: The subject property contains approximately 110.3 acres. Of this total, about 82.3 are stocked with merchantable timber. About 18.0 acres are in forest plantations consisting of species such as grand fir, Douglas-fir, western larch, western hemlock, western redcedar and white pine. Natural seeding has occurred in the plantations and high stocking levels of seedlings were observed in patches. The rest of the acres are in roads or non-forested areas and include an area cleared for use as a sledding hill.

Of the 82.3 acres stocked with merchantable timber, about 7.0 are in Riparian Management Zone (RMZ). The RMZ is adjacent Justine Creek, a protected fish bearing stream. Under Washington's Forest Practices Rules, timber harvest is prohibited in these areas. The restrictions on logging in these areas are described in more detail later in Section IV.

Two cover types were observed in the 75.3 acres of merchantable timber outside of the RMZ. Both consist of second-growth forests of similar age with different compositions. Type 1, the larger type, is dominated by Douglas-fir and grand fir. Type 3, located south of N. Spokane Park Drive, is more heavily dominated by western redcedar.

One cover type was observed in the 18.0 acres of forest plantation. This stand, called Type 2, is stocked with young, naturally seeded trees. Older wildlife trees are scattered throughout. This pre-merchantable stand will be ready for harvest in 40 years.

Figure 6. Cover Type Map.



COVER TYPE DESCRIPTIONS

Type 1, 63.1 acres, was logged around 55 years ago. Seeding appears to be planted and consists primarily of Douglas-fir and grand fir with western redcedar, western larch, white pine and western hemlock. Damage and disease is minimal throughout and many logs, when large enough, qualified as export sort. Topography is evenly-sloped and moderately gentle with some steep pitches. Around 1.5 acres may require yarder logging.

Type 2 was logged around 26 years ago. Seeding appears to be planted with areas of failure where natural seeding has taken over. Stocking levels are variable and average 766 stems-per-acre. Composition is similar to Type 1. Older relic trees are seen scattered throughout. Terrain ranges from gradual slopes in the south to steep ground requiring yarder logging in the north. Around 2.5 acres of yarder ground were observed.

Type 3 appears to have been logged around the same time as Type 1, 55 years ago. Seeding appears to have been planted with western redcedar, and composition is dominated by redcedar with other conifers. Quality is good throughout. Douglas-fir had clean boles and many logs qualified for export sorts. Wet areas were observed that are not associated with perennial creeks.

Douglas-fir trees in Type 1.

Yarder ground seen in Type 2 plantation.

Western redcedar trees in Type 3.

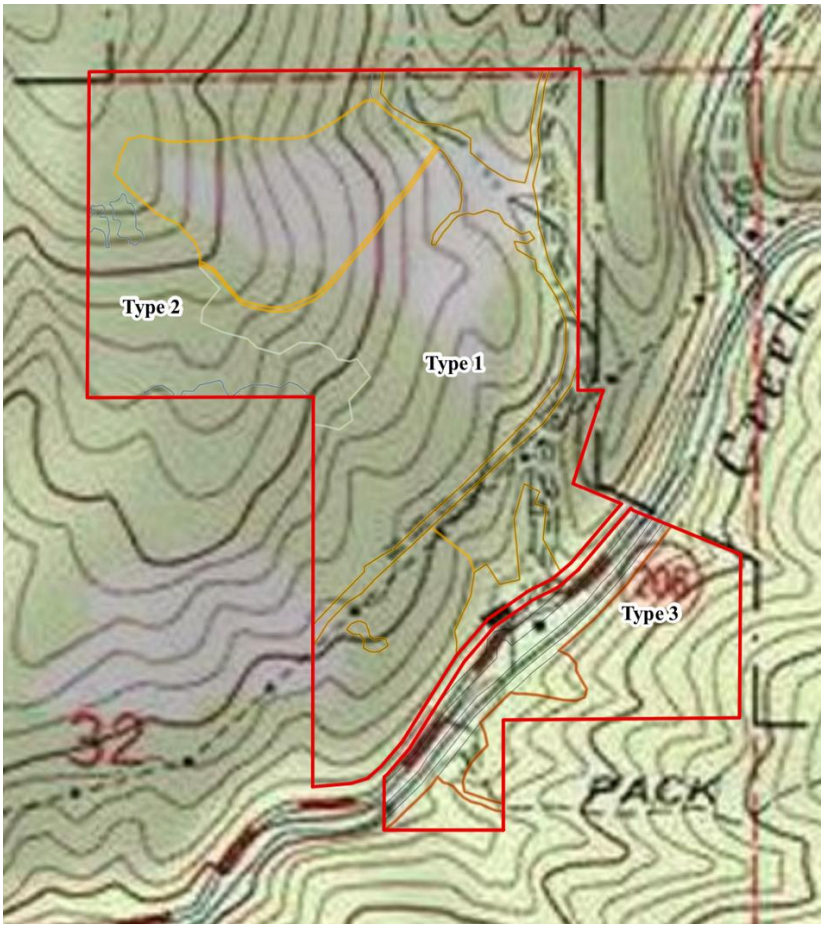
Non-stocked area cleared wintertime sledding.

Site Quality: Site quality for growing trees on the Lost Land Lake property is moderate. Based on a sample of 10 Douglas-firs from throughout the property, average site index, base age 50, for this species is 100. Site index is a measure of productivity. It is defined as the average height of dominant and large codominant trees at a breast height age (4.5 feet above ground level) of 50 years. Site index is divided into five classes, with Class 1 being the most productive for growth and Class 5 being the least productive. Site index 100 falls at the upper end of Class 3. DNR PHS records report site Class 2 for the area near Justine creek, and Class 2 was used when determining RMZ buffer widths.

Operability for Logging: The terrain on the property is moderately sloped. Most of the property will be accessible by ground-based equipment such as a skidder or shovel yarder. Trees on the steep areas can be reached with ground equipment if they are felled towards the gentle ground. Larger steep areas that have slopes beyond 40% and will need to be logged by special equipment such as a yarder. I estimate a total of 1.5 acres of Type 1 and 2.5 acres of Type 2 will require cable logging.

Figure 7 is a topographic map of the property.

Figure 7. Topographic Map



IV. LEGAL LIMITATIONS ON TIMBER HARVEST

Washington Forest Practices Rules: The primary legal limitations on logging on the subject property are the stream and wetland protection requirements in Washington's Forest Practices Rules. Justine Creek, which crosses the Lost Land Lake property, is a fish-bearing creek. An RMZ is required adjacent to this sensitive area.

RMZ widths vary with site index and stream size. Required buffer for Eastern Washington Site 2 ground is a total of 110 feet horizontal distance from the stream's high-water mark and is divided into three zones, Core, Inner and Outer. Harvesting in the 30-foot-wide Core area is not allowed. The 45-foot-wide inner zone is allowed only if the basal area for conifers and hardwoods 6 inches and larger is greater than 150 square feet per acre (480 total square feet). If the inner zone is harvested, leave trees must be at least 50 trees per acre with a minimum basal area of 110 square feet per acre. Leave trees priority favors the largest trees to meet the minimum leave trees requirement (see WAC 222-30-022 for more detail on leave trees). Harvest in the 35-foot-wide Outer zone is allowed but at least 20 conifer trees per acre must be left that are 12 inches diameter at breast-height or larger.

Other streams and springs identified on the property were determined to be non-perennial. These areas do not require buffers but the Rules provide for a 30-foot wide equipment limitation zone on each side. Like Np streams, ground-based equipment, skid trails, and stream crossings, other than existing roads, are to be kept out of the equipment limitation zone as much as possible. Nevertheless, all trees may be removed from this zone. If the zone is disturbed, the operator is to mitigate the damage by replacing the equivalent of lost functions, especially the prevention of sediment delivery.

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In addition to the trees to be left in the RMZ, trees must be left for wildlife habitat. For each acre harvested, two wildlife reserve trees, two green recruitment trees, and two down logs must be left. Wildlife reserve trees are defective, dead, damaged, or dying trees that provide or have the potential to provide habitat for wildlife species that depend on standing trees. They must be at least 10 feet in height and 10 inches in diameter. Green recruitment trees are left to become future wildlife reserve trees. They must be at least 30 feet in height and 10 inches in diameter and have at least one third of their height in live crown. Large, live defective trees with broken tops, cavities, or other severe defects are preferred. If fewer than three wildlife trees per acre are available, no additional green recruitment trees are required as substitutes.

Wildlife reserve and green recruitment trees may be left in clumps. However, no point in the harvest unit may be more than 800 feet from a wildlife reserve tree or green recruitment tree retention area.

In the appraisal, estimated harvest volume was reduced 3.0 percent and estimated gross revenue, 1.5 percent to reflect the wildlife-tree requirement. Value was reduced less than volume, because less valuable than average trees may be left.

The down logs must have a small-end diameter of 12 inches or greater and a length of 20 feet or longer, or must have a volume equivalent to a log of this size. Large culls are preferred. The down log requirement usually is met with cull material left after logging. Therefore, it also should have little or no impact on timber value.

The presence of threatened, endangered, or other sensitive wildlife species can have a large impact on timber value. However, according to Mike Atamian, Wildlife Biologist with the Washington Department of Fish and Wildlife (WDFW), the agency has no record of any threatened, endangered, or other protected species that inhabits the subject or nearby properties. A wolverine has been spotted several miles away, but Mr. Atamian believes it is unlikely that it will require harvest restrictions on the subject property. The stream protection rules described above satisfy all requirements for protection of these species.

V. TIMBER INVENTORY

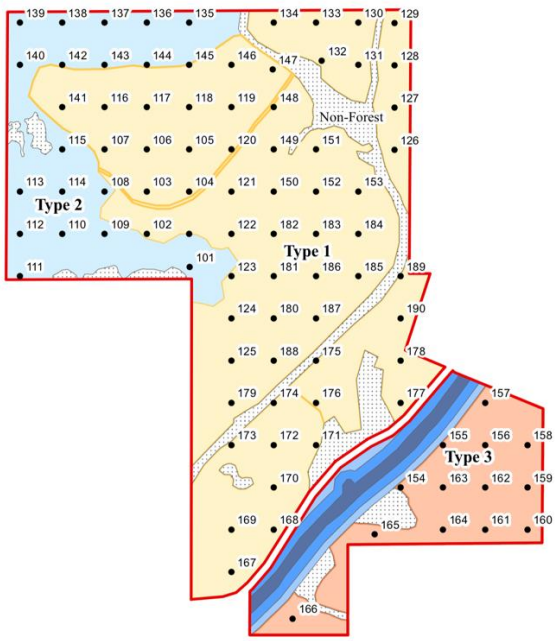
Cruise Design: The timber was cruised between May 23rd and 26th by myself, Matthew Sheehy. Prior to the cruise, the timber types were delineated on the aerial photograph in figure 5. Type boundaries later were modified later based on field observations. Type acreages then were calculated using ArcGIS software. Merchantable stands were cruised with variable radius plots. Pre-merchantable stands were cruised with nested variable radius and fixed area plots. All trees that were 6.6 inches in diameter and larger, including salvageable dead trees, were tallied on the variable radius plots. Trees smaller than 6.6 inches in diameter and taller than .5' were measured on fixed area plots.

Basal area factor for determining whether a tree was in a sample plot was 27.0 in merchantable stands (Types 1 and 3) and 20.0 in the pre-merchantable stand (Type 2). Sighting point for determining whether a tree was in a sample plot was 16 feet above stump level. On nested plots, trees less than 6.6 inches in diameter were cruised using 0.01 acre fixed radius plots.

The property was cruised with a total of 90 plots located on a square 208-foot grid. Of the 90 plots, 72 fell in merchantable Type 1, 3 and Outer RMZ. Measure to count-only plot ratio in these stands was 4 measure to 3 count. The remaining 18 plots fell in pre-merchantable Type 2. All plots were fully measured in Type 2.

All plot centers were marked with blue flagging. A stick was placed in the ground at each center with a flag tied to it. Another flag was hung above center with plot number written on it. Figure 8 shows the plot locations.

Figure 8. Plot locations



Tree Measurements: The data were analyzed using the Super ACE cruise program. Super ACE is available from Atterbury Consultants, Inc. The program calculates stand volumes and can handle variable log lengths. It is widely used throughout the Pacific Northwest.

On the variable radius plots, species, diameter at four feet above stump level, form factor, merchantable height, and estimated defect were recorded for each sample tree. On the fixed radius plots, species, diameter at 4.5 feet above ground level (DBH), crown, and total height were recorded for each sample tree.

Form factor is the ratio of outside bark diameters at 16 and four feet above stump level. Merchantable height generally is height to an inside bark diameter of five inches. When the top log is pulp quality, minimum top diameter is three inches rather than five. However, merchantable height cannot exceed height to the point where outside bark diameter is 40 percent of outside bark diameter at 16 feet above stump level. If a tree is broken below the Trees on the variable radius plots were divided into logs. Preferred gross length was 40 feet for export quality logs. Preferred gross length was 32 feet plus trim for domestic quality sawlogs for domestic Douglas-fir and other species. Preferred gross length was 30 feet plus trim for black cottonwood sawlogs. Trim was 12 inches on all logs. Logs were cruised in other lengths due to defect or at the top of the tree. In some cases, they were cut shorter in order to obtain a better sort. Maximum gross log length was 40 feet plus trim, and minimum was 12 feet plus trim.

Log Grades and Sorts: Each log on trees that were 6.6 inches and larger in diameter was assigned a grade and sort. Within one exception, grades followed the Official Rules of the Log Scaling and Grading Bureaus of the Pacific Northwest. The exception was applied to rough Douglas-fir sawlogs with a scaling diameter of 12 inches and larger. These logs were assigned a grade designated No. 3 Sawmill Rough (3R) if they met the size standards for No. 2 Sawmill sawlogs, but were too rough for No. 2 Sawmill specifications. The Official Rules include No. 3 Sawmill Rough logs with other No. 3 Sawmill logs. The distinction is important, however, because these logs are worth considerably less than those that are smaller and smoother. Unlike for sorts, grade specifications generally remain constant over time.

Table 1 defines the sorts used in the cruise.

Table 1. Log Sort Definitions

JA – JAPAN EXPORT - Special Mill or very good No. 2 Sawmill appearance. No sweep, hooked butts, or knot whorls. Defect deductions less than 10 percent of gross scale. Knots generally less than 1.0 inches, well scattered in upper quarter. Minimum scaling diameter 12 inches, minimum length 26 feet.

CJ – INTERMEDIATE EXPORT – Good No. 2 Sawmill quality. No excessive taper or sweep. Defect deductions less than 10 percent of gross scale. Knots generally less than 1.5 inches, well distributed. Minimum scaling diameter 12 inches, minimum length 26 feet.

CH – CHINA EXPORT – No. 2 or No. 3 Sawmill quality. No excessive taper or sweep, but more sweep allowable than for other export sorts. Defect deductions less than 25 percent of gross scale. Minimum scaling diameter 8 inches, minimum length 26 feet.

KO – KOREA EXPORT - No. 3 Sawmill quality. Some sweep allowable. Defect deductions less than 15 percent of gross scale. Scaling diameter between 8 and 11 inches, minimum length 26 feet.

DO – DOMESTIC SAWLOG - If Douglas-fir, either too small for export or rough, bumpy, with sweep, hook, or defect that excludes export sorts. Minimum scaling diameter 5 inches, minimum length 12 feet.

HD – HARDWOOD SAWLOG - Can be trimmed to a smooth appearance. Minimum scaling diameter 8 inches, minimum length 12 feet.

UT – Pulp log. Too small for other sorts or cannot be classified as a sawlog due to sweep, roughness, or other defects. Minimum scaling diameter 3 inches, minimum length 12 feet.

Results: Tables 2 and 3 summarize the cruise results from Type 1 and Type 3 combined. Table 2 summarizes the results for the subject property. It includes data on average number of trees, diameter, basal area, and volume per acre by species, as well as other stand statistics. Table 3 breaks down board foot volume by species, log grade, and log sort for all stands combined. The Glossary at the end of this report defines some of the terms and abbreviations in the tables.

According to the cruise, total unadjusted net volume in Type 1 and Type 3 was 1341 MBF (thousand board feet) as of the appraisal date, including pulp logs. Of this total, about 40 percent was in Douglas-fir, 36 percent was in grand fir, 11 percent was in wester redcedar, and 5 percent was in western larch.

Timber volume in the Core and Inner zones of the Justine Creek RMZ did not meet a standard that would allow for harvest in those areas. Harvest in the Outer zone would be allowed. The cruise showed that a total of 5 MBF can be harvest from the Outer Zone. The available volume from the RMZ Outer Zone is included in volumes listed in Table 5 (Gross Revenue) in the following section.

Super ACE reports to follow.

TC TSTATS

STATISTICS
PROJECT

PAGE 1
DATE 10/17/2022

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
20N	10W	05	UNIT1	0001	8.10	28	1,136	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	28	1136	40.6		
CRUISE	20	183	9.1	949	19.3
DBH COUNT	4	13	3.3	13	100.0
REFOREST COUNT	4	940	235.0		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	73	60.1	19.3	89	27.7	121.6	26,545	26,246	6,041	6,041
DOUG FIR	40	15.2	27.1	105	11.7	61.0	13,255	13,053	2,832	2,832
WR CEDAR	36	20.4	18.1	63	8.6	36.4	3,646	3,495	1,201	1,201
R ALDER	38	21.7	17.2	73	8.4	35.0	4,802	4,527	1,256	1,256
S SPRUCE	8	1.2	19.1	95	0.6	2.5	401	401	106	106
BL MAPLE	1	.1	15.0	25	0.0	.2	9	6	2	2
TOTAL	*196*	*118.8*	*19.9*	*83*	*57.5*	*256.6*	*48,659*	*47,728*	*11,438*	*11,438*

CONFIDENCE LIMITS OF THE SAMPLE
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project:

Page 1
Date 10/17/2022
Time 10:43:04AM

T20N R10W S05 T0001

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
20N	10W	05	UNIT1	0001	8.10	21	1,136	1	W

T20N R10W S05 T0001

Spp	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
WH	PU	UT			19	19	0	100					100			23	4	17	0.30	1.1
WH	CJ	2S	29	1.1	7,916	7,829	63			41	59				100	39	16	425	2.28	18.4
WH	CH	2S	5	1.5	1,315	1,294	10			74	26				100	40	14	315	1.77	4.1
WH	CH	3S	1	5.6	149	141	1		100						100	40	11	170	1.05	.8
WH	DO	2S	8	4.2	2,320	2,222	18			68	32	4	12	6	78	36	14	252	1.69	8.8
WH	DO	3S	11	2.9	2,972	2,887	23		100			7	4	8	81	36	8	89	0.75	32.4
WH	DO	4S	4		1,049	1,049	8	47	53			41	16	10	32	26	6	32	0.44	32.5
WH	JA	SM	4		952	952	8				100				100	36	18	456	2.28	2.1
WH	JA	2S	28		7,328	7,328	59			53	47		2		98	40	15	381	1.94	19.2
WH	KO	3S	2	.0	435	435	4		100						100	40	10	146	1.04	3.0
WH	J8	3S	8		2,091	2,091	17		100						100	39	10	139	0.85	15.1
WH	**Totals**		55	1.1	26,545	26,246	213	2	23	36	38	3	3	2	93	35	11	191	1.26	137.5
DF	PU	UT	2		268	268	2				100	47	53			23	33	1085	7.70	.2
DF	CJ	2S	55	.4	7,253	7,224	59			20	80				100	40	18	542	2.83	13.3
DF	CH	2S	16	3.3	2,184	2,111	17				100				100	40	25	1103	5.14	1.9
DF	DO	2S	12	5.1	1,683	1,596	13			37	63	6	10	29	54	33	16	337	2.27	4.7
DF	DO	3S	8	.9	964	956	8		100				18	8	74	33	9	106	0.96	9.0
DF	DO	4S	2	1.9	288	283	2	22	78			20	35		45	28	7	42	0.56	6.8
DF	JA	2S	2		307	307	2			100					100	37	13	241	1.55	1.3
DF	J8	3S	3		307	307	2		42	58					100	40	12	202	1.27	1.5
DF	**Totals**		27	1.5	13,255	13,053	106	0	10	19	70	2	4	4	89	35	14	336	2.08	38.8
RC	PU	UT	3		131	131	1	15		85		95		5		24	7	67	0.94	1.9
RC	DO	3S	89	4.7	3,240	3,089	25		46	30	24	1	7	23	69	37	10	147	1.35	21.0
RC	DO	4S	8		276	276	2	25	75			8	44		48	28	6	35	0.51	7.8
RC	**Totals**		7	4.2	3,646	3,495	28	2	47	30	21	5	9	21	65	34	9	113	1.16	30.8
RA	PU	UT	10		495	495	4	15	10		75	6	13		81	27	6	70	0.68	7.1
RA	HD	SM	5	22.9	269	207	2				100		70		30	29	20	420	3.56	.5
RA	HD	2S	43	6.6	2,092	1,953	16			76	24		76	7	16	31	14	230	1.86	8.5
RA	HD	3S	27	2.0	1,234	1,210	10		100				41	3	55	34	10	113	0.95	10.7
RA	HD	4S	11	9.0	546	496	4		100			7	44		49	31	9	69	0.78	7.1
RA	H6	3S	2		78	78	1		100				43		57	35	6	55	0.58	1.4
RA	H6	4S	2	1.4	88	87	1	1	99			3	97			29	6	37	0.46	2.4
RA	**Totals**		9	5.7	4,802	4,527	37	2	42	33	23	2	56	4	38	31	10	120	1.07	37.7
SS	DO	2S	41		168	168	1			15	85				100	40	16	453	2.56	.4
SS	DO	3S	50		198	198	2		50	50					100	40	10	160	1.13	1.2
SS	DO	4S	9	.0	36	36	0		100				100			28	7	41	0.55	.9
SS	**Totals**		1		401	401	3		34	31	36		9		91	36	10	162	1.21	2.5
BM	HD	3S	100	28.6	9	6	0		100			100				16	11	50	1.06	.1

V. TIMBER VALUATION

Valuation Methods: Timber market value was estimated by the conversion return approach, a variation of the income approach to appraisal. In the traditional income approach, a regular and predictable income stream is capitalized to estimate net worth. Small forestland properties generally do not produce a regular income stream, however. In the conversion return approach, market value is net revenue from hypothetical logging at or as soon as feasible after the appraisal date. Net revenue is the difference between delivered log prices and all costs associated with harvest. The conversion return approach is used both by government agencies and the timber industry. It is particularly applicable to small properties, which can be logged quickly after purchase.

For pre-merchantable timber, a discounted cash flow analysis is used in conjunction with the conversion return approach. Estimated net revenue at anticipated harvest date is discounted to the appraisal date.

In this appraisal scenario for the conversion return approach, Type 1 and 3 were considered to be merchantable. Therefore, they were appraised as if logged at the appraisal date. Type 2 was considered to be pre-merchantable and would be logged at a future date. Although Types 2 contains some merchantable volume (roughly 2 MBF per acre), it also contains a substantial number of pre-merchantable trees that will continue to grow.

Future volumes in the pre-merchantable types were projected using the FPS (Forest Projection and Planning System). FPS is an industry-standard growth modeling software and is used by many entities in the forest industry.

Growth of Type 2 was projected until most of the trees were around 55 years old. Harvest within this age range is consistent with forest industry practices in the area.

Log Markets: According to the Washington Log Market Report, average regional price for domestic Douglas-fir and western larch No. 3 Sawmill sawlogs as of the appraisal date was about $500 per MBF. For western hemlock and grand fir, it was $430 per MBF.

The sawlog market in the vicinity of the subject is competitive. Several sawmills are located within 95 miles: Boise Cascade and Columbia Cedar in Kettle Falls, Vaagen Brothers in Usk, Idaho Forest Group in Chilco and Laclede, ID, Alta in Naples, ID and Stimson Lumber in Arden among others. Most buyers base price on length, as well as on sort and grade. Prices quoted in Table 3 reflect a predominance of long logs, which were preferred in the cruise. Most of the buyers listed above provided price quotes to the

appraiser directly. Others were from the Washington and Oregon Log Market Reports and from the Log Lines Log Price Reporting Service.

For Douglas-fir logs that qualify, another alternative is the export market. But due to the long distance logs must travel to export yards, it was not a feasible option for export quality logs on the subject property.

Recent years have seen an increase in volatility in the forest products industry caused by the COVID-19 pandemic, a large increase domestic demand for lumber, and catastrophic wildfires in Oregon and Washington. Early 2020 saw prices drop rapidly with the rise in uncertainty around the pandemic only to rebound quickly to record highs late in the year. Prices have dropped from their peaks in the late summer 2020 due to a large quantity of burned wood entering the market harvested after the large wildfires in September. Many landowners have harvested to take advantage of a bull market. Mills in the region are reporting full log yards and reduced need for more timber.

Price changes in 2021 have differed by species. Prices for species such as western redcedar have seen an even more dramatic increase as demand for cedar has increased. Western redcedar currently sat at record high prices before dropping back later in the year.

In recent months, high rates of inflation have led to an increase in interest rates which are starting to have a cooling effect on the log market. While prices had remained relatively strong as of the appraisal date, they are expected to decrease throughout next quarter.

The U. S. Forest Service 2010 Resource Planning Act Assessment (RPA) highlights some of the uncertainty regarding future prices. The RPA concluded that timber prices would be relatively flat, or might even decline slightly, between 2006, their base year, and 2060 without substantial increases in wood energy consumption or other new timber demands (U. S. Department of Agriculture Forest Service, 2012. Future of America's Forest and Rangelands: Forest Service 2010 Resources Planning Act Assessment, General Technical Report WO-87. Washington, D. C., 198 p.). Prices in 2006 were at a peak and were nearly as high as they were in early 2018. The authors of the assessment projected that, under three of the four scenarios analyzed, timber supply can increase to meet increasing demand. However, under a scenario of greatly increased demand for wood energy, projected timber prices more than triple.

VI. MERCHANTABLE TIMBER VALUE

Delivered Log Prices: Gross revenue is the sum of delivered log prices. Some of the buyers listed in the previous section, as well as others in Washington and Idaho, provided price quotes. Some were provided to the appraiser directly. Others were from the Oregon Log Market Report and the Log Lines Log Price Reporting Service.

Table 4 shows the range of prices at the appraisal date, as well as those selected for the hypothetical harvest of Type 1 and 3. Selected prices were not necessarily the highest quoted, but were the most favorable considering handling and transportation costs. Most buyers base price on length, as well as on sort and grade. Prices selected in Table 4 reflect a predominance of long logs, which were preferred in the cruise. Pulp log prices were quoted on a per ton basis. They were converted to a per MBF basis in the table.

As of the appraisal date, prices on the export market were significantly higher than those on the domestic market for only the JA, CJ and KO sorts. However, the difference in price, even for these sorts, did not justify the extra hauling distance. Consequently, all export quality logs were appraised for the domestic market.

Table 5 shows estimated gross revenue from harvest of merchantable timber, as of the appraisal date. was $796,659 Harvest volume was 1301 MBF. Harvest volume includes all legally harvestable timber from Type 1, Type 3 and the Outer RMZ. Values in the table are shown to the nearest whole integer. Some calculations may show rounding errors.

Table 4. Delivered Log Prices by Species, Sort, and Grade
May 27nd, 2022

Species	Sort	Grade	Range ($)	Selected Price ($)
Douglas-fir	CJ	No. 2 Sawmill	500-1050	525
	KO	No. 3 Sawmill	500-1050	525
	CH	No. 2 Sawmill	500-950	525
	CH	No. 3 Sawmill	500-950	525
	DO	No. 2 Sawmill	500-550	525
	DO	No. 3 Sawmill	500-550	525
	DO	No. 4 Sawmill	370	370
White Pine	DO	No. 2 Sawmill	350-525	525
	DO	No. 3 Sawmill	350-525	525
	DO	No. 4 Sawmill	350-525	370
Western Larch	DO	No. 2 Sawmill	425-550	525
	DO	No. 3 Sawmill	425-550	525
	DO	No. 4 Sawmill	370-550	370
Western Redcedar	DO	No. 3 Sawmill	1500-1900	1,850
	DO	No. 4 Sawmill	120-800	800
Ponderosa Pine	DO	No. 4 Sawmill	150	150
	DO	No. 5 Sawmill	150-375	375
Grand Fir	CJ	No. 2 Sawmill	425-500	500
	CH	No. 2 Sawmill	425-500	500
	CH	No. 3 Sawmill	425-500	500
	DO	No. 2 Sawmill	425-500	500
	DO	No. 3 Sawmill	425-500	500
	DO	No. 4 Sawmill	370-430	370
Western Hemlock	DO	No. 3 Sawmill	425-500	500
Lodgepole Pine	DO	No. 4 Sawmill	370-460	460
Cottonwood	HD	No. 2 Sawmill	120	120
	HD	No. 4 Sawmill	120	120
All Species	PU	Utility	100-120	120

Table 5. Gross Revenue by Species, Sort, and Grade
May 27nd, 2022

Species	Sort	Grade	Price ($)	Selected MBF	Net Gross
Douglas-fir	CJ	No. 2 Sawmill	525	19	9,975
	KO	No. 3 Sawmill	525	25	13,125
	CH	No. 2 Sawmill	525	44	23,100
	CH	No. 3 Sawmill	525	134	70,350
	DO	No. 2 Sawmill	525	70	36,750
	DO	No. 3 Sawmill	525	102	53,550
	DO	No. 4 Sawmill	370	114	42,291
	PU	Utility	120	14	1,716
				0	
White Pine	DO	No. 2 Sawmill	525	16	8,400
	DO	No. 3 Sawmill	525	10	5,408
	DO	No. 4 Sawmill	370	8	3,071
Western Larch	DO	No. 2 Sawmill	525	15	8,033
	DO	No. 3 Sawmill	525	34	18,008
	DO	No. 4 Sawmill	370	19	7,141
Western Redcedar	DO	No. 3 Sawmill	1,850	128	236,800
	DO	No. 4 Sawmill	800	27	21,600
	PU	Utility	576	7	4,032
Ponderosa Pine	DO	No. 4 Sawmill	150	15	2,250
	DO	No. 5 Sawmill	375	31	11,738
Grand Fir	CJ	No. 2 Sawmill	500	18	9,000
	CH	No. 2 Sawmill	500	71	35,500
	CH	No. 3 Sawmill	500	56	28,000
	DO	No. 2 Sawmill	500	46	23,000
	DO	No. 3 Sawmill	500	169	84,500
	DO	No. 4 Sawmill	370	108	40,071
	PU	Utility	120	14	1,716

Table 5 continued.

Species	Sort	Grade	Selected. Price ($)	Net MBF	Gross
Western Hemlock	DO	No. 3 Sawmill	500	4	2,150
Lodgepole Pine	DO	No. 4 Sawmill	460	15	7,038
Cottonwood	HD	No. 2 Sawmill	120	3	360
	HD	No. 4 Sawmill	120	1	120
		Sub-Totals		1341	$808,791
		Wildlife Tree Reserve (3%, 1.5%)		-40	-$12,132
		Adjusted Totals		**1301**	**$796,659**

Harvest Costs: Harvest costs include logging, hauling, road construction, administration, harvest taxes, reforestation, entrepreneurial profit, and risk. Cost data were obtained from logging companies, timberland owners, log buyers, and published materials, as well as from transactions that Northwest Forestry Services has conducted on behalf of its clients.

Logging: Per MBF logging cost vary depending on volume per acre and terrain and can range between $100/MBF - $500/MBF or more. Cost per MBF decreases with increasing total volume and increasing volume per acre. Move in costs become less significant with increasing total volume, and relatively less effort is required to remove a given amount of volume with increasing volume per acre. Selective harvest in the RMZ will require more effort but this will only be a minor portion of volume harvested. Per acre volume in Type 1 and 3 combined is 17.8 MBF which is somewhat low.

The terrain in Type 1 and 3 is mostly gentle. The majority of volume can logged with relatively inexpensive ground-based equipment. For steeper pitches, totaling about 1.5 acres of Type 3, a yarder will be required. Type 2, the pre-merchantable type, contains about 2.5 acres of yarder ground. Type 2 will have slightly higher logging costs because of the higher percentage of yarder ground, which will be discussed in the next section.

Considering these factors, estimated combined costs for falling, bucking, yarding, and loading were $135 per MBF for merchantable timber.

Hauling: Hauling was based on a rate of $1100 per truck per day. Table 6 lists anticipated destinations, load sizes, and number of loads per day. Under the appraisal scenario, all of the Douglas-fir, western larch, white pine, western hemlock and grand fir sawlogs will be shipped to Chilco, ID. Other species and pulp will be shipped to Usk, Kettle Falls and Laclede. Average hauling cost was $98 per MBF. Total hauling cost was $131,689.

Table 6. Hauling Costs by Destination.

Destination	Log Sort / Grade	Net Per Load	Loads Per Day	Cost per Load	Cost per MBF
Chilco	All DF, WL, WP, GF & WH. #4 Sawmill PP	4.5	2.8	393	$87
Usk	#4 Sawmill RC, Pulp All Species	3.1	2.8	393	$127
Kettle Falls	#3 Sawmill RC	4.5	1.5	733	$163
Laclede	#5 Sawmill PP	3.5	2.2	500	$143

Roads: The existing road system provides access to northeast and southwest ends of the Lost Land Lake property. Legacy roads can be rehabilitated and new roads can be built to access other parts of the property. Roads will be built to the minimum standards as necessary for logging and will be abandoned afterward. In total, about 30 stations (100 feet per station) existing roads will need to be fortified, 16 stations of legacy road reconstruction and 13 stations of new spur roads will be needed. Estimated cost for roads averaged $468 per station and totaled $27,600.

Administrative: The landowner will incur administrative costs such as locating and marking timber harvest boundaries, obtaining harvest permits, marketing, hiring and supervising a logger, bookkeeping, and other related activities. Estimated cost for administration was $27 per MBF.

Taxes: Washington's Timber Excise Tax is due upon harvest. The tax is based on stumpage value, which is defined as the difference between gross revenue and logging costs. It is similar to net revenue as defined in this appraisal, except that it does not include taxes, reforestation, profit, and risk as harvest costs. The tax is 4.2 percent of stumpage value when an RMZ or WMZ is located within the harvest unit, and 5.0 percent otherwise. Since the property contains an RMZ, the 4.2 percent rate was used.

For large landowners, stumpage value is calculated using tables compiled by the Washington Department of Revenue. Small landowners may use the tables, actual revenues and costs, or a total harvest cost of 35 percent of gross revenue. A small forest landowner is defined as an owner of forestland who has harvested from his or her own lands in Washington state no more than an average timber volume of two million board feet per year during the three prior years and who certifies that he or she does not expect to harvest from his or her own

lands in Washington state more than an average timber volume of two million board feet per year during the next ten years following. In this appraisal, the landowner is assumed to qualify as small forest landowner. Use of actual revenues and costs, as estimated in this appraisal, resulted in the lowest excise tax.

Those who harvest timber for sale or for commercial or industrial use also must pay Washington Business and Occupation Tax. This tax is 0.3424 percent of gross revenue.

Reforestation: Washington's Forest Practices Rules require that the site be reforested after logging, unless it is to be converted to another legal use. Estimated cost of site preparation and replanting was $750 per acre.

Risk: In addition to the above costs, a timber investor expects a reasonable allowance for entrepreneurial profit and for risk. Risk factors include sampling and other errors in the cruise that was relied upon to estimate value, changes in log prices, changes in fuel, labor, and other harvest costs, and damage to timber after purchase. Allowance for profit and risk was calculated as 10.0 percent of the difference between gross revenue and all harvest costs. This allowance is based on information obtained from various timber investors. It is applicable to a property with relatively good operating conditions and readily marketable species.

Estimated total harvest cost was as follows

Harvest Cost			**Total**
Logging	$135 x 1301	(Cost x MBF)	$175,635
Hauling	$98 x 1301	(Cost x MBF)	$127,761
Roads	$468 x 59	(Cost x # of Stations)	$27,600
Admin	$27 x 1301	(Cost x MBF)	$35,127
Forest Excise Tax	0.042 x $430,536	(Rate x Net)	$18,083
Business and Occupation Tax	0.003424 x $796,659	(Rate x Net)	$2,728
Reforestation	$750 x 75.3	(Cost x Acres)	$56,475
Risk	10.0% x $353,251	(Rate x Net, All Costs)	$35,325
		Total	**$478,733**

Merchantable Timber Value: Timber value is the difference between gross revenue and total harvest cost. It was $317,926 as of the appraisal date.

Gross Revenue	$ 796,659
Harvest Cost	$ 478,733
Net Revenue	**$ 317,926**

VII. PRE-MERCHANTABLE TIMBER VALUE

Valuation Methods: For pre-merchantable stands, a discounted cash flow analysis was used in conjunction with the conversion return approach. Estimated net revenue at anticipated harvest date was discounted to the appraisal date. Type 2 was found to be pre-merchantable and would be harvested at around 55 years of age, a rotation age that is consistent with forest industry practice.

Growth Modelling: Future growth was modelled using Forest Projection and Planning System software (FPS). This program is used throughout the Pacific Northwest and elsewhere.
FPS is able to model growth of even and uneven aged stands under many different silvicultural regimes. FPS calculates volumes based on user-specified log lengths and scaling diameters for each species. For the FPS calculations, log dimensions were set to match the cruise specifications detailed in Section V, Timber Inventory . Nominal length was set at 32 feet, and minimum length was 16 feet. FPS bucks each tree into the nominal log lengths, with the remainder going into a shorter log with at least the minimum length. Minimum scaling diameter was five inches. In the analyses, silvicultural treatments such as tree planting, pre-commercial thinning, commercial thinning, and clearcutting were applied. For the Lost Land Lake property, a light pre-commercial prescription was applied in the first year. In this prescription, the stand will be thinned "from below" as soon as possible to help weed out small trees that will eventually die through natural selection. Future net volume was 10.9 MBF per acre.

Species	2060 MBF/Acre
Douglas-fir	3.2
Grand Fir	6.4
Western Redcedar	0.5
Western Larch	0.5
Western Hemlock	0.3
Total	10.9

Price and Cost Projections: Future log prices and harvest costs, of course, are uncertain. Price trends were discussed above. Selected Douglas-fir and larch delivered price for a hypothetical 2022 harvest was $525 per MBF. For grand fir and western hemlock it was $500. For western redcedar, is was $1,850 per MBF. For white pine it was $525 per MBF and for lodgepole pine it was $460.

Projections are based on historical trends for the species found on the property. Figure 9 shows market trends since 2012 according to RISI, a service that provides information to the forest products industry. Trends show that current prices for #3 sawlog grand fir and Douglas-fir similar to average prices over the last decade. Redcedar and #2 sawlog Douglas-fir are above average. Prices in the projection were adjusted accordingly.

Figure 9. Log Price Trends 2012 – Present

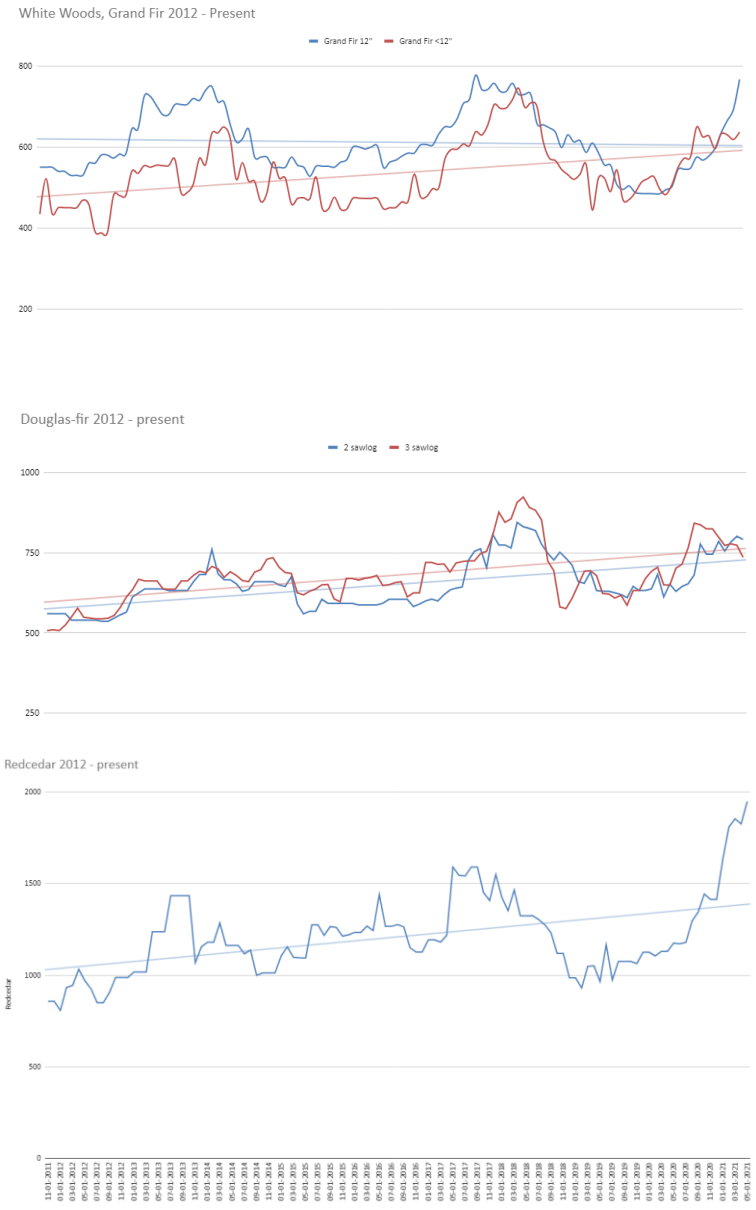


Table 6. below shows selected prices and net value, by species, for the future harvest. These prices reflect the predominance of smaller logs that will be available on the future harvest date. They were assumed to remain constant over time, exclusive of general inflation.

From the analysis in Section VI, estimated average total cost for the hypothetical 2022 harvest of merchantable timber was about $272 per MBF, excluding the allowance for profit and risk. Costs were assumed to be slightly higher than average, due to higher-than-normal cost of hauling and reforestation. On the other hand, a higher percentage of the acres in Type 2 are steep and will require more expensive logging equipment. An average cost of $280 per MBF was used to determine net value/MBF. Estimated net revenue at anticipated harvest dates will be discounted to the appraisal date and the discount rate to be used includes a factor for profit and risk.

Species	**Price / MBF**	**Net Value/MBF ($)**
Douglas-fir	$490	$210
Grand Fir	$460	$180
Western Redcedar	$1,350	$1,070
Western Larch	$490	$210
Ponderosa Pine	$470	$190
Lodgepole Pine	$460	$180
White Pine	$460	$180
Western Hemlock	$460	$180

Discounting of Future Net Revenues: Net revenue from future timber harvests was discounted to the appraisal date at a rate of 4.15 percent. The 4.15 percent rate is exclusive of general inflation.

According to data developed by Mason, Bruce & Girard, Inc. and presented by Nick Blacklock, Director of Global Resource Planning for Hancock Natural Resource Group, at the Mapping the Course Conference in Vancouver, Washington, the average discount rate for investments in Pacific Northwest east side forests has ranged from about 4.0 to 6.5 percent over during the twenty-teens. It has declined steadily from a high of about 6.5 percent in 2011 to about 4.0 or lower percent in 2021. These data are consistent with data published by RISI, a service that provides information to the forest products industry. Recent interviews that I have had with various timberland investors indicate that rates between 4.0 and 6.0 percent are commonly used.

The Federal Reserve has begun to raise interest rates in recent months. Sustained increases in the short-term rates likely will impact long-term rates eventually. Because long-term interest

rates were at relatively low levels as of the date of this report, they likely will increase before the harvest date.

Discounted Net Value: Table 6 shows the calculation of net value for each of the seven pre-merchantable types. Net revenues at the anticipated harvest dates were discounted to the appraisal date using the following formula:

$$V_0 = V_n / (1 + i)^n$$

In the formula, "V_0" is value at the appraisal date, "V_n" is future value, "n" is number of years, and "i" is the interest rate. The interest rate was 4.15 percent, exclusive of general inflation. The 4.15 percent rate is based on information provided to the appraiser by timber investors, as well as on data obtained from RISI, a service providing information to the forest products industry. Recent interviews that I have had with various timberland investors indicate that rates between 4.0 and 6.0 percent are commonly used.

During the 38-year period between the appraisal and harvest date, a landowner will incur ongoing annual expenses, such as road maintenance, property inspections, taxes, and insurance. Average annual expense was estimated to be $18 per acre per year. The discounted value of this stream of annual costs was calculated using the following equation:

$$V_0 = a [(1 + i)^n – 1] / (i (1 + i)^n)$$

In the equation, "V_0" is the discounted value of the stream of annual expenses, "a" is the amount of the annual expense, and "i" and "n" are the same as above. This expense is calculated in Table 6 for each of the pre-merchantable types.

From Table 7, estimated total value of the pre-merchantable type at the appraisal date was $4,207.

Table 7. Estimated Value of Pre-Merchantable Timber

Type	Acres	Net Revenue/Acre at Harvest ($)	Years Until Harvest	Discounted Value/Acre ($)	Discounted Annual Expense/Acre ($)	Total Discounted Value/Acre ($)	Total Discounted Value ($)
2	18.0	$2,518	$38	$537	$303	$234	**$4,207**

VII. TIMBER VALUE

Total timber value is the sum of values of the two components: merchantable timber and pre-merchantable trees. Estimated total value was $ 555,000.

Merchantable Timber	$ 550,000
Pre-Merchantable Trees	$ 5,000
Total	$ 555,000
Rounded	$ 555,000

CERTIFICATION

I certify that, to the best of my knowledge and belief:

(1) The statements of fact contained in this report are true and correct.

(2) The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions and are my personal, impartial, and unbiased professional analyses, opinions, and conclusions.

(3) I have no present or prospective interest in the property that is the subject of this report and no personal interest with respect to the parties involved.

(4) I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.

(5) My engagement in this assignment was not contingent upon developing or reporting predetermined results.

(6) My compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of subsequent events directly related to the intended use of this appraisal.

(7) I personally inspected the property that is the subject of this report.

(8) No other person provided significant real property appraisal assistance to the person signing this certification.

(9) I have not performed services as an appraiser or in any other capacity regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.

Matthew Sheehy _____ date

GLOSSARY OF TERMS AND ABBREVIATIONS

Basal Area (BA) – the cross-sectional area of a tree, in square feet, at 4.5 feet above ground level (breast height). When the basal areas of all trees in a stand are added together, the result is expressed as square feet per acre, which is a measure of a stand's density.

Basal Area Factor – The factor, which when multiplied by stem count at a variable radius sample point, gives the total basal area occupied by tree stems on a per acre basis

Board Foot (BdFt or BF) – A unit for measuring wood volume. It is a piece of wood one foot long, one foot wide, and one inch thick.

COHP – Conversion Option Harvest Plan. A timber harvest plan developed by a landowner who plans to convert a property from forest to a developed use. The plan must be approved by the county prior to harvest. It indicates the limits of the harvest, road locations, critical area locations, etc.

Conifer – A cone-bearing tree. They often are referred to as softwoods or evergreens, although the hardness of their wood varies, and not all are evergreen. Common conifers in the Pacific Northwest include Douglas-fir, western hemlock, grand fir, Pacific silver fir, noble fir, and western redcedar.

Conversion Return Approach – A derivation of the income approach in which market value is calculated as net revenue from hypothetical logging at the appraisal date, or as soon thereafter as feasible

Critical Areas – Areas determined to be environmentally critical. They include geologic hazard areas, flood-prone areas, wetlands, streams and surrounding riparian habitats, and other areas considered important for conservation of fish and wildlife.

Cubic Foot (CuFt or CF) – A unit for measuring wood volume. It is a piece of wood one foot long, one foot wide, and one foot thick.

Cunit – 100 cubic feet

Diameter at Breast Height (DBH) – Tree diameter outside bark at 4.5 feet above ground level

DNR – Washington Department of Natural Resources

Extraordinary Assumption - An assumption, directly related to a specific assignment, as of the effective date of the assignment results, which, if found to be false, could alter the appraiser's opinions or conclusions. Extraordinary assumptions presume as fact otherwise uncertain information about physical, legal, or economic characteristic of the subject property, or about conditions external to the property, such as market conditions or trends, or about the integrity of the data used in the analysis. (Definition from the 2016-2017 edition of the Uniform Standards of Professional Appraisal Practice)

Fixed Radius Plot Sampling - A sampling method used in a timber cruise in which the sample plot radius is fixed. All trees within the specified radius from plot center are measured.

Forest Stand or Type – A group of trees with distinct characteristics, such as species, age, or condition, which can be distinguished from adjacent groups

Form Factor (FF) – A measure of tree taper. It is the ratio of outside bark diameters at 16 and four feet above stump level.

GIS – Geographic Information System

GPS - Global Positioning System

Gross Volume - Tree volume with no deductions made for defects

Hardwood – In the Pacific Northwest, usually a broad-leaved deciduous tree. However, hardwoods can be evergreen, and the hardness of their wood varies considerably. Common hardwoods in the Pacific Northwest include red alder, bigleaf maple, black cottonwood, Oregon ash, and cherry.

Hypothetical Condition – A condition, directly related to a specific assignment, which is contrary to what is known by the appraiser to exist on the effective date of the assignment results, but is used for the purpose of analysis (Definition from the 2016-2017 edition of the Uniform Standards of Professional Appraisal Practice)

Income Approach – A set of procedures through which an appraiser derives a value indication for an income-producing property by converting its anticipated benefits (cash flows and reversion) into property value. The annual cash flows for the holding period and the reversion can be discounted at a specified yield rate.

Log Grade – A standard of log quality based on characteristics such as diameter, length, volume, percentage of defect, knot size, and tightness and straightness of grain. Log grades generally are defined by independent grading bureaus. They are used as a standard by most buyers and sellers in a defined geographic region.

Log Sort – A standard of log quality based on characteristics such as diameter, length, volume, percentage of defect, knot size, and tightness and straightness of grain. Log sorts are defined by each buyer, so that multiple sets of sorts may be used in a particular geographic region.

Market Value (definition from the Interagency Land Acquisition Conference, Uniform Appraisal Standards for Federal Land Acquisitions, 5th edition) - "The amount in cash, or on terms reasonably equivalent to cash, for which in all probability the property would have sold on the effective date of the appraisal, after a reasonable exposure time on the open competitive market, from a willing and reasonably knowledgeable seller to a willing and reasonably knowledgeable buyer, with neither acting under any compulsion to buy or sell, giving due consideration to all available economic uses of the property at the time of the appraisal."

Merchantable Timber – Timber of sufficient size and quality that it can be harvested economically

MBF – 1,000 board feet

Net Timber Revenue - The difference between delivered log prices and all costs associated with harvest

Net Volume - Tree volume with deductions made for defects

NRCS – U. S. Department of Agriculture Natural Resources Conservation Service

Pre-Merchantable Timber - Timber that is not of sufficient size or quality to be harvested economically, but that is expected to become merchantable in the future

Relative Stand Density (REL DEN) - The proportion of the stand density normally expected in a stand of given characteristics under some standard condition. It is a function of tree size and number of trees per acre.

Reversion – A lump-sum benefit that an investor receives or expects to receive at the termination of an investment

RMZ (Riparian Management Zone) - Protective buffer around fish-bearing streams and their tributaries. It is required by Washington's Forest Practices Rules. Width varies depending upon stream size, site index of the surrounding lands, and other factors.

Scaling Diameter – Log diameter, inside bark, at the small end

Site Class – An expression of forest site quality based on its potential for growing trees. Each site class is a grouping of site indexes. Douglas-fir sites are broken into five site classes, with Class 1 being best for growth. Site classes cover the following site index groups:

Class 1	Site Index 136 and higher	Class 4	Site Index 76-95
Class 2	Site Index 116-135	Class 5	Site Index 75 and Lower
Class 3	Site Index 96-115		

Site Index (SI) – An expression of forest site quality based on its potential for growing trees. For Douglas-fir, it is defined as the projected average height of dominant and large codominant trees at a breast height (4.5 feet above ground level) age of 50 years.

Species Codes		
	BM – Bigleaf maple	RA – Red Alder
	CW – Black Cottonwood	RC – Western Redcedar
	DF – Douglas-fir	SF – Pacific Silver Fir
	GF – Grand Fir	SS – Sitka Spruce
	OA – Oregon Ash	WH – Western Hemlock

Standard Error (S. E.) - A measure of the precision of the volume estimate. Based on sampling error alone, the probability that true volume is within one standard error of cruise volume is 68 percent. It is 95 percent that true volume is within two standard errors, and 99 percent that it is within three. Calculations typically are based on the assumption of a random sample.

Stocking (STK) – An indication of the number of trees in a stand in relation to the desirable number for best growth and management

Timber Cruise – An inventory of a forest stand to determine the quantity of the forest products that can be derived from the stand, as well as other stand variables, such as tree quality, site quality, age, and species composition

USFWS – United States Department of the Interior Fish and Wildlife Service

Variable Radius Plot Sampling – A sampling method used in a timber cruise in which the plot radius varies directly with the diameter of the individual trees that are being measured. Every tree has its own plot. In addition, the area of the plot is directly proportional to the basal area of the tree diameter that it represents, and the probability of a tree being selected for measurement is directly proportional to its basal area.

Whitewoods – Western hemlock, Pacific silver fir, grand fir, Sitka spruce, and other conifers with light colored wood

WMZ (Wetland Management Zone) – Protective buffer around non-forested wetlands. It is required by Washington's Forest Practices Rules. Width depends upon wetland size and type and other factors.