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FOREST PRODUCTIVITY AND INCOME ANALYSIS
for
Brad Ogle and Mark Childs

SUBJECT PARCEL: ASSESSORS MAP NO. 18-04-11
Tax Lots 303 & 304, totaling 113.74 acres.

QUALIFICATIONS: Society of American Foresters Certified Professional Forester (#2953), with 27 years of experience including 17 years as a consultant, with Bachelor of Science (Cal Poly, SLO) and Master of Forestry (Oregon State) Degrees. As a consultant I have extensive experience in all phases of forestry, including drawing up forest management plans, handling the administration of these plans and maximizing the return to my clients. My productivity analyses are based on sound and "reasonable" forest management practices. This includes carrying out activities in a manner which generates a long term profit, rather than a loss. There are management activities which could be carried out which could benefit a forest operation but result in a loss to the owner. For these reasons all productivity analyses must be conducted from the standpoint of "reasonable forest management" practices.

I. SUMMARY

An evaluation of the site, from a timber productivity and income producing standpoint is reviewed in this analysis, in order to determine if the parcel meets the criteria for marginal lands designation. The analysis will show that the subject property qualifies for the following reasons:

1. The income generated from the subject property averages less than $10,000/year, based on 1978 through 1983 log prices. This level of income meets the following statutory test for Marginal Lands: ORS 197.247 (1)(a) "The proposed marginal land was not managed during three of the five calendar years preceding January 1, 1983, as part of a ... forest operation capable of producing an average, over the growth cycle, of $10,000 in annual gross income."

2. The subject property produces less than 85 cu.ft./ac./yr. of merchantable timber volume. This has been determined by Lane County, and the State of Oregon, to be the measuring parameter for marginal soils west of the Cascade Range; as defined in ORS 197.247 (1) (b) (C).

II. INTRODUCTION

Income Test

The income test must be calculated for the entire parcel (113.74 acres), which includes both tax lots, as it existed for the five calendar years preceding January 1, 1983.

Merchantable timber volume, in board feet per acre, for each soil type is needed for the income test. Income calculations are based on **dollars per thousand scaled board feet, not cubic feet,** because that is the manner in which the vast majority of timber (or logs) is purchased. The only exception to this is the junk wood or tops which are purchased by the ton, which is a weight, not a scaled measurement. Currently, there is no mill in the northwest purchasing anything based on cubic foot measurements.

Douglas-fir is the only species considered for the income test, because it is the most valuable **merchantable** tree species which will grow on this site. Alder, red cedar and incense cedar have values similar to, or higher than Douglas-fir. However, red cedar and alder will not grow on this site and **none** of these three species will produce the **volume per acre** that Douglas-fir will. Cedar has such a high taper (the trees grow like upside carrots, rather than poles), that each individual tree will not produce the measured board foot volume that a Douglas-fir tree will. Measured, **or scaled**, board foot volume is the number a mill uses for payment when purchasing logs. Therefore, even if these species were used to calculate income for the parcel, the considerably lower volumes per acre would result in a lower total dollar figure. Large alder logs (≥12" in diameter) will pay equal to or more than Douglas-fir. Smaller alder (<12") is worth less than Douglas-fir. But the biggest drawback to planting and establishing alder stands is the volume per acre produced. The **best** stands of alder in the **coast range** will only produce ≈60 percent of the volume per acre that an **average** stand of Douglas-fir in the Willamette Valley will produce. For all of the above reasons Douglas-fir is used for income test.

Since no cutout (timber volume removed) numbers are available, these figures must be calculated based on the productivity of the soils on the parcel. For Douglas-fir these estimates were obtained from the CMAI (Culmination of Mean Annual Increment) FOR DOUGLAS-FIR Table and the Empirical Yield Tables for the Douglas-fir Zone, Washington Department of Natural Resources by Charles Chambers and Franklin Wilson. These tables were developed by collecting large amounts of data from existing stands of timber. The data is then defined in terms of cubic foot or board foot **volume per acre** for each site index number. A site index number is an assigned number, based on the amount of tree growth per year. The faster the trees grow on a particular site, the higher the site index number. The site index numbers have been further divided in five site classes (I-V), with I being the best site class.

The one caveat to using these tables are the assumptions one must make. The growth tables **assume** fully stocked stands of the **one** species in question. Fully stocked stands have the maximum number of trees alive and growing, at the **optimal** spacing, to allow for maximum growth. A fully stocked stand will have the highest volume per acre. However, if a stand has fewer trees, with wide spacing between trees, there will be less volume than a stand with more trees. The reverse is also true. An overstocked stand, with trees growing too close together, will produce less volume per acre, because the trees are competing for space, which slows diameter growth. Smaller diameter trees have less volume than large diameter trees. The reason one fully stocked stand, assuming a similar number of **optimally** spaced trees per acre, can have more volume per acre is due to growth rates in the height of the trees. A soil with a high Site Index number will produce faster growing trees, in terms of height. These trees are producing more volume in the same time period as slower growing trees, because they are taller (with more merchantable logs), than the slower growing trees. The **number**, or density, of trees per acre affect the **diameter** growth of the trees, the **site index and/or class** of the soil and/or site, affect the **height** growth of the trees. In summation; height growth produces more volume than diameter growth.

Once obtaining a **merchantable** board foot volume, using the above described methods, the income generated from the parcel can be calculated. Income is calculated using 1983 log prices from the Oregon State Department of Forestry data (published quarterly). These are the prices Lane County has determined should be used.

Productivity Test

The productivity test must be calculated on the parcel, or portion(s) of the parcel, which is being submitted for marginal land designation. On the Ogle/Childs parcel this includes portions of both tax lots (#303 & #304), totaling 73.74 acres of the original 113.74 acres.

The timber productivity (cu.ft./ac./yr.) figures for Douglas-fir were calculated using a combination of the 1) Lane County Soil Ratings for Forestry & Agriculture (August, 1997), 2) U.S. Dept. of Agriculture SCS Data, as presented in the Soil Survey of Lane County Area (Green Sheet), and 3) Lane County Soil Ratings taken from the Office of the State Forester Memorandum (Feb. 8, 1990 General File 7-1-1). The timber productivity figures for ponderosa pine were calculated using the table developed by Meyer for eastern Oregon ponderosa pine, as there are no growth and/or productivity tables for valley pine. These sources provide cu.ft./ac./yr. data for each soil type occurring on the above described parcel. By summing up each soil type, and dividing by the total acreage, an average per acre productivity figure for the entire parcel can be calculated.

III. MERCHANTABLE TREE SPECIES CAPABLE OF GROWING ON THIS SITE:

The income and productivity tests must consider all merchantable timber species capable of growing on the site. The timber species must also be capable of growing in fully stocked, pure stands, in order to be used for either of the above mentioned tests. A stand is considered pure if 90-95% of the trees in the stand are one species. There are a number of conifer species which **will not** grow in pure stands. These include grand fir, incense and red cedar.

Conifers

Only the species which could **potentially** grow on this site have been considered. There are many more conifer species than those discussed below, but I have not included high elevation species, species which grow in totally different geographical areas or species that are not considered merchantable.

Douglas-fir can and does grow on this site. It has been used in both the income and productivity tests, as presented elsewhere in this analysis. It has been used in the income test because it is the **most valuable merchantable species**. It is used in the productivity tests, for certain soil types, because it the predominant species growing in the area and, **in most cases,** will outproduce the growth of other species.

Other merchantable conifer species, which could **potentially** grow in this geographical range and elevation, include ponderosa pine, grand fir, western hemlock, incense and western red cedar. White fir is not considered because it the same tree as a grand fir, it simply grows at higher elevations.

Red cedar is slow growing and will not grow well (if at all) on this site, due to moisture constraints. At the present time it is not growing anywhere on the site. Red cedar does not grow in pure stands, it is found intermixed with other conifer species. Due to its slow growth, and inability to grow in pure stands, it will not be used for the productivity calculations. It is not used for the income calculations for two reasons. First, it will not grow in pure stands which could cover the parcel, even if it could grow on this site. Second, the volume per acre, as discussed previously, cannot approach that of Douglas-fir.

Incense cedar can and does grow on this site. However, it is extremely slow growing, does not grow in pure stands (other than pockets within a larger stand) and the volume per acre is low due to the extremely high taper of these trees. In other words, incense cedar does not produce much scaled volume per tree compared to other species, which results in a low volume per acre. Therefore, incense cedar is not used for the productivity test, due to its slow growth, and not used for the income test, due to its low volume per acre, even though it is close in value to Douglas-fir.

Hemlock will not grow on this site, due to moisture constraints, poor soils and other existing site conditions. It is also worth considerably less than Douglas-fir. Therefore, this species is not used for either the productivity or income test.

Grand fir prefers lowlands and stream valleys with high water tables and will not do well on this site due to moisture constraints, but it could conceivably grow here. However, it will not outcompete Douglas-fir in the open; it does much better growing up under shade cover from other species of trees, rarely grows in pure stands and has a growth rate similar to Douglas-fir, but on this site would not grow as well as Douglas-fir. There is no grand fir growing on the site at the present time. It is also worth considerably less than Douglas-fir. For all of the above reasons this species is not used in the productivity or income tests.

Ponderosa pine, which can and does grow on this site, will exceed Douglas-fir growth under certain conditions, in certain soil types. However, pine is worth considerably less than Douglas-fir. Therefore, while Douglas-fir and ponderosa pine are used for the growth productivity calculations, only Douglas-fir is used for the income calculations.

KMX has also been suggested as a species which could grow here, but it is **not** a merchantable species. KMX will grow almost anywhere. However, it grows like a bush with very poor form, is extremely limby and too resinous for any commercial use. Discussions with foresters from Roseburg Lumber, Seneca and Lone Rock Timber, three companies which have planted this tree, have confirmed this. This is also what I personally have observed with KMX trees. In addition, many of the trees growing are now dying from foliar diseases. In short, none of these companies will plant KMX again. Furthermore, the state foresters I have talked to, including those in Lane County, discourage planting KMX; as a professional consulting forester managing private owners small woodlands, I would **not** recommend planting KMX.

Limited testing by computer generated models, **of the characteristics of KMX (not actual KMX saw logs),** show that it produces high quality pulp and is suitable for studs and dimension lumber. Talking with mills and log buyers throughout the state of Oregon shows otherwise. The pulp is so high in resin content that it gums up the machinery in the mills; they will not use it for pulp. **No mill** will purchase **KMX sawlogs**. **No mills** will purchase KMX pulp logs.

The final argument for merchantibility of KMX concerns the use of KMX for firewood. To begin with it is hard to conceive of someone planting KMX to grow for firewood. The next point is whether or not it makes good firewood, not just will it burn. Anything will burn, given enough fuel. Ponderosa pine is horrible as firewood. It is extremely pitchy and resinous; both of these substances create creosote in chimneys, whether burned in an open fireplace or a wood stove. Creosote creates an extreme fire hazard. Furthermore, unless ponderosa pine is extremely dry, it is hard to light and burns poorly, which creates huge amounts of smoke. KMX has even more resin than ponderosa pine which would mean it produces even more smoke and creosote than ponderosa pine produces. I have never heard of anyone selling KMX as firewood, even from the back of their pickup.

For all of the reasons discussed above, KMX is not a merchantable species.

Hardwoods

The only **merchantable** hardwoods capable of growing on this site are maple and oak; red alder will not grow on this site due to moisture constraints.

Oak is very slow growing; far slower than Douglas-fir. It is also worth far less than Douglas-fir. For these reasons oak is not considered for the productivity or income tests.

Maple can and does grow on this site. However, individual maple trees have large canopies which cover tremendous amounts of space, which results in a low number of trees per acre, and maples do not usually grow in pure stands, except as pockets within larger stands of other species. They are usually scattered throughout conifer stands. Even if a pure maple stand could be found, the number of maples per acre is low, which results in a low cubic foot per acre growth figure. Maple is also worth far less than Douglas-fir. For these reasons maple is not considered for the productivity or income tests.

A hardwood species frequently mentioned is hybrid poplar. There are many reasons hybrid poplar will not grow on this site. This site has very shallow soils (or none at all in areas of exposed rock), a south to southwest aspect (hot and dry summers, harsh tree growing conditions) and does not have adequate water. Hybrid poplar stands grow best in deep alluvial soils for satisfactory yields and need tremendous amounts of water to grow successfully. Neither of these conditions are present on this site, and irrigation water in sufficient quantities is not available. Poplar does not grow well in nonalluvial (hill) soils.

Hybrid poplar plantations are established in the same manner as an agricultural crop. In fact, the state of Oregon considers it an agricultural crop through the age of 12 years, because it was originally intended that the trees would be harvested between 8 to 10 years old. To establish a poplar plantation, all old stumps must be removed, the soil tilled by plowing or ripping, competing vegetation must be controlled and drainage must be improved by using either surface ditches or subsurface tile. These are agricultural practices which are done using machinery; **plowing and improving drainage are not forestry practices**. For hybrid poplar stands to obtain full stocking, and meet their full growth potential, the landowner must carry out intensive weed control, fertilize, thin, prune and protect the stand from animals, insects and diseases. Especially important is weed control. If not controlled the hybrids will grow slowly and may not survive. The majority of these activities are done with machinery; the majority of the Ogle site is too steep for the necessary machinery to operate. All of the above mentioned activities most be completed in order to establish a fully stocked, fast growing poplar stand.

Plantations growing west of the Cascades in areas of "ample rainfall", on flat ground, with all of the above activities carried out will reach their full growth potential. The east slopes of the coast range and Cascades are in a rain shadow and are considerably drier. The Ogle parcel is close to the rain shadow of the coast range; it is definitely not in the foothills of the Cascades. Rainfall amounts incease as you go from the rain shadow of the coast range to the west slopes of the Cascades. If site conditions are conducive to the growth of hybrid poplar, the tree will grow. Economic success with these plantations depends on intensive cultural techniques and **good** quality land. Hybrid poplar plantations can supplement conventional forest production, but for several reasons, including their cultural and soil requirements, they cannot replace forests of Douglas-fir and other conifer species on most of the forest lands of the Pacific Northwest. On the Ogle parcel, the on site conditions, i.e. slope, aspect, actual soil conditions, etc., will not support the growth of hybrid poplar.

For all of the reasons discussed above, poplar is not considered for the productivity or income tests.

IV. SITE INFORMATION

Site information is presented in two parts. The first description covers the entire parcel, as all of the parcel is included in the income portion of the analysis. This description includes all of tax lots #303 and #304. The second description covers the portion of the parcel being considered for marginal lands designation, as this portion is consided is the area being looked at for the productivity calculations.

Description of Entire Parcel

The subject parcel consists of two tax lots totaling 113.74 acres in size, with 11.8 acres in B.P.A. easement corridors (see Exhibit 1). The site aspect is south to southwest with slopes of 10-45%. Grasses, blackberry, poison oak and scrub white oak cover most of the property, with exposed bedrock, broken rock and cobbly soils prevalent throughout the parcel. There are also scattered Douglas-fir, ponderosa pine and incense cedar, left from previous logging activities. An LCOG soil survey confirms SCS map data, which shows the parcel is composed of seven different soil types (see Exhibits 2-1 and 2-2). Over half of the property (≈69.8 acres) is underlaid with Philomath silty clay (Soil Type 107C) and Philomath cobbly silty clay (Soil Type 108F). These soil types are extremely poor for growing conifers. The remaining portions of the parcel are underlaid with Dixonville-Philomath-Hazelair complex (Soil Types 43C and E), McDuff clay loam (Soil Type 81D), Panther silty clay loam (Soil Type 102C), Ritner cobbly silty clay loam (Soil Types 113C, E and G) and Steiwer loam (Soil Type 125C). Of these soil types, only the McDuff clay loam and Ritner cobbly silty clay loam are good soils for growing conifer, and these particular soil types only cover approximately 19 acres of the entire parcel.

Description of Area Being Looked at for Marginal Lands Designation

The subject area consists of the southern portions of two tax lots (#303 & #304), totaling 73.74 acres in size, with 9.13 acres in B.P.A. and EWEB easement corridors (see Exhibit 1). The site aspect is south to southwest with slopes of 10-45%. Grasses, blackberry, poison oak and scrub white oak cover most of the property, with exposed bedrock, broken rock and cobbly soils prevalent throughout the parcel. There are also scattered Douglas-fir, ponderosa pine and incense cedar, left from previous logging activities. A large portion of both parcels have not grown trees as far back as there are records.

An LCOG soil survey confirms SCS map data, which shows the parcel is composed of five different soil types (see Exhibits 3-1 & 3-2). Over half of the property (≈54.55 acres) is underlain with Philomath silty clay (Soil Type 107C) and Philomath cobbly silty clay (Soil Type 108F). These soil types are extremely poor for growing conifers. The remaining portions of the parcel are underlain with McDuff clay loam (Soil Type 81D), Panther silty clay loam (Soil Type 102C), and Ritner cobbly silty clay loam (Soil Types 113E and G). Of these soil types, only the McDuff clay loam and Ritner cobbly silty clay loam are good soils for growing conifer, and these particular soil types only cover 15.26 acres of the entire parcel.

V. RESULTS OF INCOME CALCULATIONS

Average Gross Annual Income Through A Complete Rotation

The Empirical Yield Tables (see Exhibits 4-1 and 4-2) were used to obtain total volume per acre in scribner board feet volume, the measurement needed in order to calculate income potential (see Introduction). These yield tables are calculated using King's 50 year site class index. Adding all the soil types together will give a total for the entire parcel. A fifty year rotation (growth cycle to final harvest) was used. This time span was adopted as the standard, by a consensus of the Board of Commissioners in March 1997, and is included in the Supplement to the Marginal Lands Information Sheet.

Once a total volume at harvest age has been calculated, the average gross annual income can be found by dividing the total revenue at the time of harvest by the number of years in the rotation. Douglas-fir log prices were used, because they are the highest log prices. This will result in the highest income figure, because Ponderosa pine (used in a portion of the cubic foot growth calculations) has never been worth as much as Douglas-fir.

Using industry-recognized price information from the Oregon State Department of Forestry Quarterly Report of Douglas-fir log prices for 1983, the gross worth of a fully stocked stand on this parcel can be calculated, for the time period required by the Marginal Lands Statute ORS 197.247 (1)(a). By calculating a gross worth based on a fully stocked stand of Douglas-fir, a maximum gross worth scenario for the applicant can be shown.

CALCULATIONS:

The calculations assume fully stocked Douglas-fir stands on the entire parcel. The stands currently on the parcel are not fully stocked and large portions of the parcel have not grown **any trees** for as far back as aerial photos have been taken. An aerial photo record of the parcel show no trees growing in the 1930's (see Exhibits 5-1, 5-2 and 5-3). The calculations also include areas under the powerlines where the power companies will not allow trees to grow to merchantable size. In some cases Christmas tree growth is allowed, as long as they are cut long before reaching merchantable size or height. However, in order to present the most optimistic calculations, I have assumed full stocking throughout the entire parcel. In this manner it can be seen that any lower stocking would, by default, meet the criteria.

Site Index Ratings from Tables (see Exhibits 6-1 and 6-2) -- 50 Year Site Index

	50 Year Site Index
McDuff clay loam (81D)	112
Ritner cobbly silty clay loam (113 C, E & G)	107

Dixonville-Philomath-Hazelair complex - no Site Index given due to multiple soil types, poorly suited for conifer growth
Panther silty clay loam - poorly suited for conifer growth, no Site Index given
Philomath silty clay - poorly suited for conifer growth, no Site Index given
Philomath cobbly silty clay - poorly suited for conifer growth, no Site Index given
Steiwer loam - poorly suited for conifer growth, no Site Index given

A board foot volume per acre can be obtained from the Empirical Yield Tables for soil types which have a Site Index number (see Exhibit 4-2). Board foot volumes for the remaining soils were obtained by comparing the cubic foot productivity figures for these soils (soil types with no Site Index number) with the productivity figures for soils with Site Index numbers. The productivity analysis presented in this report presents Douglas-fir cubic foot per acre per year numbers for all the soils in question, except for the Philomath silty clay (107C) and Philomath cobbly silty clay (108F). These soils use ponderosa pine productivity figures (see Productivity discussion). The Douglas-fir productivity number for both of these soils is the same; 45 cu.ft./ac./yr. (see Exhibits 7-1 and 7-2). Through comparison, a ratio can be used to obtain a board foot per acre volume for all the soils. For the base numbers I used the average of the two soils with Site Index numbers and volume figures from the above mentioned table.

McDuff clay loam	158 cf./ac./yr.	25,470 bd.ft./ac.*
Ritner cobbly silty clay loam	149 cf./ac./yr.	23,005 bd.ft./ac. *
Average	307 ÷ 2 = 153.5 cf./ac./yr.	48,475 ÷ 2 = 24,238 bd.ft./ac.

Example: Panther silty clay loam - 45 cf./ac./yr.** ÷ 153.5 cf./ac./yr. = .293

.293 X 24,238 bd.ft./ac. = 7,102 bd.ft./ac./yr. for Panther silty clay loam

*See Exhibit 4-2. **See Productivity Table page 10.

This procedure can then be used on all of the remaining soil types which have no site index numbers. The volume figures obtained are presented in the table shown below.

Volume Total for Entire 113.74 acres		Total Volume (Board Feet)
43C Dixonville-Philomath-Hazelair complex	-- 6.64 ac. @ 8,527 bd.ft./ac.	56,619
43E Dixonville-Philomath-Hazelair complex	-- .44 ac. @ 9,948 bd.ft./ac.	4,377
81D McDuff clay loam	-- 5.60 ac. @ 25,470 bd.ft./ac.	142,632
102C Panther silty clay loam	--14.68 ac. @ 7,106 bd.ft./ac.	104,316
107C Philomath silty clay	-- 39.61ac. @ 7,106 bd.ft./ac.	281,469
108F Philomath cobbly silty clay	-- 30.20 ac. @ 7,106 bd.ft./ac.	214,601
113C, E & G Ritner cobbly silty clay loam	-- 13.38 ac. @ 23,005 bd.ft./ac.	307,807
125C Steiwer loam	-- 3.19 ac. @ 4,737 bd.ft./ac.	15,111
Total	113.74 ac.	1,126,932

A 50 year old stand on this site should have approximately 40% 2 SAW, 50% 3 SAW and 10% 4 SAW. If anything, these grade estimates err on the high side. In all probability there would be less 2 SAW and more 4 SAW. However, these figures are used to represent the highest possible log price scenario for the applicant.

Total Volume - 1,126.93 MBF (thousand board feet)

450.77 MBF of 2 SAW @ $255/MBF*	$114,946
563.47 MBF of 3 SAW @ $215/MBF*	121,146
112.69 MBF of 4 SAW @ $200/MBF*	22,538
Total Projected Gross Revenue	$258,630

*See Exhibit 8.

AVERAGE GROSS INCOME -- $258,630 ÷ 50 YEARS = $5,173/YEAR

The above calculations show that, even with the most optimistic potential growth figures for a rotation, the parcel cannot produce $10,000 per year in income. The above calculations **assume full stocking** on all of the land throughout the entire parcel, even though obtaining the stocking level that these projections are based on would be extremely difficult, if not impossible, to reach. This is due to rocky soil conditions, lack of moisture, aspect of the site, existing areas within the parcel which have never grown trees and growth constraints due to powerline easements.

VI. RESULTS OF PRODUCTIVITY CALCULATIONS

Cubic Feet Per Acre Per Year Growth

The potential productivity must look at all tree species. The only other species capable of outproducing Douglas-fir, **under certain conditions**, is ponderosa pine. Specific soils with poor growth potential are better suited to ponderosa pine. On the better soils Douglas-fir will easily outcompete ponderosa pine. Generally speaking the same holds true for extremely poor soils. However, on soils in the mid range of site classes, on southern or western exposures, ponderosa pine can and does outcompete Douglas-fir. Therefore, on the Philomath silty clay (107C) and Philomath cobbly silty clay (108F) ponderosa pine cubic foot per year growth figures have been used. However, for this test, I have only included areas which can and do grow ponderosa pine trees. From these areas I obtained a ponderosa pine site index number from trees bored on the site (see below). Using this site index number, a cu.ft./ac./yr. figure can be obtained from ponderosa pine growth tables (see Exhibit 9).

I have deducted areas, within the above mentioned soil types, where no trees exist and/or have never existed (see Exhibits 1, 5-1, 5-2 and 5-3). These areas have been designated as grassland with exposed rock. I have extensive experience trying to establish pine on similar sites by planting and replanting; the mortality rate is extremely high and it is virtually impossible to establish fully stocked stands. For a tree to grow, there has to be enough soil depth for its roots to become established. The best soils will not grow trees if the soil is not deep enough for the roots to establish themselves. Thin soils on top of rock do not hold moisture for long; therefore these areas, particularly on south to southwestern slopes, become extremely dry in the summer months. While these poorer soils are better suited to ponderosa pine than Douglas-fir, the pine is still limited by soil depth and moisture constraints. The reason ponderosa pine does well on sites similar to these in eastern Oregon, is snowfall. The snow melts throughout the spring and early summer, providing moisture for the trees. The sites being looked at in the Willamette Valley area do not receive snow, consequently south to southwest slopes become extremely dry by early summer.

This is just one example of why a soil which is suited for pine may not support a **fully stocked** stand, capable of producing the growth predicted in the tables. There are not many fully stocked stands pine which have reached rotation age in the Willamette Valley and surrounding foothills. This is the reason there are no productivity tables for ponderosa pine in the Willamette Valley yet. More data is needed before statistically viable tables cannot be compiled. Finally, since **none** of the available soils data for Lane County show any site index numbers or growth figures for ponderosa pine, I have only included ponderosa pine growth in areas of the aforementioned soils that have trees growing on them at the present time.

This is also the reason so few soils have site index ratings in Lane County's data base. The productivity of the soil itself is only **one** determining factor of a soil's potential site index rating. Other factors include aspect, ground water levels and moisture content, rainfall amounts, temperature averages and variations, slope and elevation. These are the reasons that growth and/or productivity of a tree species growing in a specific soil type are a **reflection** of **all** of the site conditions, not just the soil itself. Consequently, to assign a site index number to a specific soil, huge amounts of data must be collected from as many different site conditions, aspects, elevations and geographical areas as possible. And for this data to be meaningful, it must come from fully stocked stands of the species being looked at. Even then the site index number is an **average** of all the collected data. For this reason I have only included ponderosa pine growth for the areas currently growing pine, where a valid site index number could be obtained from an on site inspection and boring site trees.

The ponderosa pine on this site and west of the Cascades is called valley pine. However, studies of valley ponderosa pine are not complete enough to produce any growth tables or site index tables. Currently there are no site index tables for pines west of the Cascades. The Willamette Valley Ponderosa Pine Association is collecting data, however most of the studies are only 20 years old, with the oldest data collected on some 30 year old trees. The biggest problem is finding an entire stand of ponderosa pine; very few exist at the present time. In twenty more years there will be 40-45 year stands which were planted 15-20 years ago; currently there is not enough data for any growth tables to be published on ponderosa pine stands. This is confirmed by the Willamette Valley Ponderosa Pine Association.

Therefore, I used site index and growth tables for eastern Oregon ponderosa pine. These are the closest tables available. I obtained the site index to use by boring dominant and codominant trees for the age and shooting a total height. From these two measurements a site index number can be obtained from the tables. This methodology is accepted by the ODF. The site trees bored are listed below.

Ponderosa Pine Site Trees Bored on the Parcel:

Breast Height Age	Total Age*	Total Height	Site Index**
47	54	67'	100
48	55	77'	110
47	54	53'	80
52	59	81'	106
53	60	81'	110
47	54	60'	90
52	59	79'	110
46	53	68'	100
50	57	77'	105
48	55	73'	105
			1,016

Throwing out the lowest site index of 80 leaves 936 ÷ 9 = 104
*Total age includes adding 7 years, which errs on the optimistic side (see Exhibit 10). You must add between 5 and 10 years to a breast height age; 5 years being Site I ground, 10 years being Site IV ground. The Ogle parcel **is not** Site I ground.
**Interpolated using Meyer's eastern Oregon tables (see Exhibit 11).

From my on site analysis and photo delineation of the soil types (using a light table and overlaying the **Lane County soil maps** on the aerial photos, I have calculated the acreages shown on the following tables. These soil maps are in the record already. To arrive at the acreages shown I used the acres presented by Lane County and took proportions of these acres by dividing the amount of grassland shown on the photo with the acreages presented by the county. Since the counties acreages are the **accepted acreages**, this is a more accurate calculation of acres than using the approximate scale shown on the photo.

I used a figure of 110 cf/ac/yr. for the ponderosa pine growth for this site index of 104 (see Exhibit 9). I have also included a ponderosa pine table from northern California (see Exhibit 12-1),which shows a figure of 108 cf/ac/yr for this site class. This figure was obtained using interpolation (see Exhibit 12-2). I will use the higher figure to error on the optimistic side. The DF productivity figures are from Soil Service and/or NRCS data (see Exhibit 6-1, 6-2 and 7-1).

A total of 24.455 acres of the parcel are thin soils over rock or exposed rock. These areas have not grown trees for as long as aerial photo records have been kept (see Exhibits 1, 5-1, 5-2 and 5-3). It includes a total of 14.74 acres within soil type 107C and 9.715 acres within soil type 108F. I have shown these acres at the bottom of the table.

CALCULATIONS:

Productivity Table for Portions of Tax Lots 303 &304 Totaling 73.74 Acres

	Acres	Growth/Year	Total Growth
81D McDuff clay loam	5.600	158 Cu.Ft./Ac.	884.800 Cu.Ft.
102C Panther silty clay loam	14.683	45 Cu.Ft./Ac.	660.735 Cu.Ft.
107C Philomath silty clay*	16.389	110 Cu.Ft./Ac.	1,802.790 Cu.Ft.
108F Philomath cobbly silty clay*	2.955	110 Cu.Ft./Ac.	325.050 Cu.Ft.
113E & G Ritner cobbly silty clay loam	9.655	149 Cu.Ft./Ac.	1,438.595 Cu.Ft.
Grassland with exposed rock	24.455	0 Cu.Ft./Ac.	0 Cu.Ft.
Totals	73.737		5,111.97 Cu.Ft.

Average Growth Potential -- 5,111.97 Cu.Ft. ÷ 73.737 acres = **69.327 Cu.Ft./Ac./Yr.**

*These growth figures are for ponderosa pine for Site Index 104 (see Exhibit 9) because pine will grow better on these soils than Douglas-fir. All other growth figures are for Douglas-fir, because Douglas-fir will grow faster and outproduce pine on these soils.

A portion of the acres delineated on both tax lots are underneath the two powerlines crossing the property (see Exhibit 1). These areas will never grow trees due to the power companies continually cutting them down to keep their corridors clear. This has been my experience through all the years of consulting with land owners and forestland management activities I have conducted. The power companies will also cut trees **outside** the powerline corridors if they feel that a tree constitutes a danger to the powerlines themselves, if the tree were to blow down.

The productivity tables shown below deduct all powerline acreage, which have no trees at the present time and will not have trees in the future, and all grassland with exposed rock areas that are not under the powerlines. For this reason the grassland with exposed rock areas show different acreage amounts. Powerline acreage was deducted from all soil types; **if grassland acreage shown above was under a powerline it was deducted from grassland acreage shown below.**

CALCULATIONS:

Productivity Table for Portions of Tax Lots 303 &304 Totaling 73.74 Acres

	Acres	Growth/Year	Total Growth
81D McDuff clay loam	5.064	158 Cu.Ft./Ac.	800.112 Cu.Ft.
102C Panther silty clay loam	12.699	45 Cu.Ft./Ac.	571.455 Cu.Ft.
107C Philomath silty clay*	14.288	110 Cu.Ft./Ac.	1,571.680 Cu.Ft.
108F Philomath cobbly silty clay*	1.824	110 Cu.Ft./Ac.	200.640 Cu.Ft.
113E & G Ritner cobbly silty clay loam	9.655	149 Cu.Ft./Ac.	1,438.595 Cu.Ft.
Powerline	9.708	0 Cu.Ft./Ac.	0 Cu.Ft.
Grassland with exposed rock	20.499	0 Cu.Ft./Ac.	0 Cu.Ft.
Totals	73.737		4,582.482 Cu.Ft.

Average Growth Potential -- 4,582.482 Cu.Ft. ÷ 73.737 ac. = **62.146 Cu.Ft./Ac./Yr.**

*These growth figures are for ponderosa pine for Site Index 104 (see Exhibit 9). All other growth figures are for Douglas-fir.

All of these calculations show that the parcel being analyzed is incapable of producing 85 cu.ft./ac./yr., the measuring parameter for marginal soils west of the Cascade Range.

VII. CONCLUSION

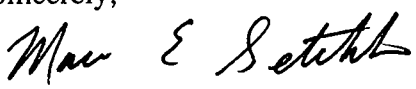
The analysis presented shows conclusively that this property will not support a merchantable stand of timber, of sufficient production capability, to meet or exceed the Marginal Lands Income test:

1) The estimated gross income based on a 50 year rotation for the entire 113.74 acre parcel would have been $258,630 in 1983. The average annual gross income would have been $5,173 per year. Because $5,173 is less than $10,000/year, the property meets the following statutory test for Marginal Lands: ORS 197.247 (1)(a) "The proposed marginal land was not managed during three of the five calendar years preceding January 1, 1983, as part of a ... forest operation capable of producing an average, over the growth cycle, of $10,000 in annual gross income."

2) The subject parcel produces less than 85 cu. ft./ac./yr. of merchantable timber volume. The portion of the parcel being looked at for marginal lands designation produces only 69.327 cu.ft./ac./yr; only 62.146 cu.ft./ac./yr. if ground under the powerlines are not included. This has been determined by Lane County, and the State of Oregon, to be the measuring parameter for marginal soils west of the Cascade Range; as defined in ORS 477.001(21).

In summary, I find from the specific site conditions present, empirical yield tables, SCS data, Lane County Data and experience with similar lands, that this property is ill suited to the production of merchantable timber and use as land for forestry purposes. It is my opinion that this parcel should be classified as marginal land.

Sincerely,



GOAL ONE COALITION

Goal One *is* Citizen Involvement

Lane County Board of Commissioners
c/o Jerry Kendall, Land Management Division
125 E. 8th Avenue
Eugene, OR 97401

October 2, 2006

RE: Ogle-Childs marginal lands application, PA 05-5985

Dear Commissioners,

The Goal One Coalition (Goal One) is a nonprofit organization whose mission is to provide assistance and support to Oregonians in matters affecting their communities. Goal One is appearing in these proceedings at the request of and on behalf of its membership residing in Lane County. This testimony is presented on behalf of Goal One and its membership; LandWatch Lane County, 642 Charnelton, Eugene OR 97401; LandWatch's membership in Lane County, specifically to include LandWatch President Robert Emmons, 40093 Little Fall Creek Road, Fall Creek OR 97438, as an individual.

The purpose of this letter is to respond to new submissions by the applicant's representatives during the open record period ending September 27.

Mr. Farthing has accused Mr. Just of misstating, misinterpreting, and misrepresenting data. Mr. Setchko has attacked Mr. Just for not being a "professional forester" and for not using "approved methodology." Their approach is reminiscent of the introduction to the practice of law given to prospective lawyers in their first weeks at law school. The guidance given to these new students is apparently taken seriously by some: when you've got the law on your side, argue the law. When you've got the facts, argue the facts. When you've got neither, attack your opponent.

1. Culmination of mean annual increment would dictate a growth cycle of longer than 50 years.

Mr. Setchko continues to argue that a 50-year growth cycle is appropriate for the purpose of maximizing average annual gross income over the growth cycle. However, he fails to address his own calculations which show that a 60-year growth cycle would produce 27% more income than a 50-year growth cycle, or any of the calculations submitted by Goal One that show that growth cycles of 60, 70, 90, and 100 years would all produce substantially more income than would a 50-year growth cycle.

Mr. Setchko has submitted a chart that shows CMAI for board feet productivity is reached at 80 years of age. This table is derived from the McArdle yield tables, which are based on a 100-year site index (i.e., the average height of dominant or codominant tress at 100 years of

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www.goal1.org

Dec # 4-3 M.

age). This evidence submitted by Mr. Setchko himself establishes that using an 80-year growth cycle, not a 50-year growth cycle, is appropriate.

The statutory test is what *gross* income the forest operation is *capable* of generating over the growth cycle. Gross income would exclude the other factors mentioned by Setchko as influencing management decisions. Whether an operator might choose to manage for less than optimum gross income, for whatever reasons, is not relevant.

Mr. Setcko says that he doesn't know where Mr. Just gets 90 years. It's appalling that one who holds himself forth as a forestry expert does not understand or know how to read a CMAI table. To reiterate, from the ODF publication *Technical Notes*, June 1985:

> "The most common expression of productivity on forestland is site index (total *height* of trees in the dominant crown canopy at a *base age*, usually 50 or 100 years. * * *
>
> "The attached tables express site index in such a way it can be related to volumes. It is necessary, for comparative purposes, to use a method that expresses one value for each site index. The method chosen is culmination of mean annual increment (CMAI).
>
> "This age or point may be thought of as *the most efficient time to harvest as far as tree growth is concerned.* * * *
>
> "In the following tables, the culmination of mean annual increment (CMAI) *and the age when it occurs* is shown for the corresponding site indices. * * *" (Emphasis added.)

The site index tables include a column indicating CMAI age. See Exhibit 5, Goal One testimony of 9/13/06.

Goal One obtained the 90-year CMAI age directly from the King 50-year CMAI tables. Note that this age is CMAI for cf/ac/yr productivity; as Mr. Setchko's chart shows, CMAI age for bf/ac/yr productivity would be greater.

Mr. Setchko's accusations that Goal One has not used "approved methodology" are scurrilous. Goal One relied on published productivity data, as required by administrative rule; no "equivalent method" was used or required to be used. Where published data was not used, Mr. Just relied on Mr. Setchko's data, which presumably was produced using an "equivalent method." Mr. Setcko once again states that Goal One used OSU data for ponderosa pine, despite Goal One's explicit disclaimer that it was used for illustrative and comparative purposes only and Goal One's explicit statement that all calculations utilized Mr. Setchko's on-site measurements and productivity calculations for ponderosa pine.

If you are confronted by an astronomer who keeps insisting that the moon is made of cheese, you can reach three possible conclusions: 1) he's barking mad; 2) he's a complete idiot; or 3) he's out to deceive you and thinks you're such a complete idiot you'll believe him just because he calls himself an expert.

2. Mr. Caruana's soils data does not support Mr. Setchko's conclusions.

Mr. Caruana has argued that Goal One has drawn a "statistically invalid" conclusion from his Report. Mr. Caruana has missed the point. Goal One pointed out that Mr. Caruana's data did not support the conclusion that the presence of trees was correlated with deeper soils or that grassland was correlated with shallow soils.

It is not Goal One's burden to establish anything. Rather, it is the applicant who has the burden of proof. As Mr. Caruana himself states:

> "The only statistically valid method to determine the average soil depth *or any other soil factor* would be to conduct a sampling procedure following a recognized protocol. An example of this would be to sample the site on a grid pattern, with a sample taken every 25 to 100 feet or as determined by the degree of precision and accuracy desired."

Mr. Caruana concedes that he undertook no such inquiry; rather, he utilized "a less intensive method" to determine "the pattern and occurrence of vegetation observed." Mr. Caruana must concede that his Report is not based on a "statistically valid method to determine * * * any * * * soil factor."

Mr. Caruana reached no conclusions whatsoever about the soils' capability to produce ponderosa pine; his conclusions addressed only Douglas-fir. The only evidence whatsoever in the record concerning potential productivity for ponderosa pine is from Mr. Setchko's on-site measurements of actual tree growing on the site. His on-site measurements establish that ponderosa pine does in fact grow on the Philomath soil units.

CONCLUSION

Evidence in the record - published productivity data and data produced by an "equivalent method" and provided by the applicant's own "experts" - establishes that the subject property is capable of producing in excess of 85 cf/ac/yr of merchantable timber. That data cannot be ignored just because it is inconvenient. Any opinion which is not based on such data is not "substantial evidence," even if the opinion is provided by a person asserting to be an expert.

The subject property is capable of averaging, over a growth cycle of 70 or 100 years or over a growth cycle based on CMAI as reported in the McArdle 100-year CMAI tables, in excess of $10,000 per year in gross annual income. The applicant's forestry expert has himself provided evidence that an 80-year growth cycle should be used, which presumably would also result in $10,000 in income. No income calculation based on an 80-year cycle was provided.

Neither the "income" nor the "productivity tests are met. The application must be denied.

Goal One and other parties whose addresses appear in the first paragraph of this letter request notice and a copy of any decision and findings regarding this matter.

Respectfully submitted,

/s/ Jim Just

Jim Just
Executive Director

Michael E. Farthing
Attorney at Law

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767 Willamette Street, Suite 203
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email - mefarthing@yahoo.com

October 4, 2006

HAND DELIVERED

Lane County Board of Commissioners
% Jerry Kendall
Land Management Division
Lane County Courthouse/Public Service Building
125 East 8th Avenue
Eugene, OR 97401

Re: Marginal Lands Plan Amendment Application
Tax Lots 303 and 304, Map No. 18-04-11
(Ogle-Childs)

Chair Dwyer and Commissioners:

At long last, we appear to be nearing the conclusion of this plan amendment process. Mr. Just of the Goal One Coalition has submitted two more letters (September 25 and October 2) together with an e-mail from Kevin Burch of the Oregon Department of Forestry. Collectively, these submissions add nothing new or substantive to the record. What they do, however, is to confirm that Goal One's entire opposition to this application is based on theory, speculation and generalized forestry data. What fails to do is to address the Subject Property and its particular tree growing characteristics and capabilities. As a forest resource, the basic issue for Marginal Lands' applications is to analyze and determine what the subject property is "capable of producing" both in terms of money and wood fiber over the normal growth cycle.

In his two letters, Mr. Just discusses three issues which I will address separately.

1. 50 Year Growth Cycle. Mr. Just is preoccupied with tables on 60, 70, 80 and 90 year growth cycles. Perhaps most reflective of Mr. Just's approach to this and most of the other issues relating to timber growth and income for the Subject Property is his heading in the October 2 letter: **"1. Culmination of mean annual increment would dictate a growth cycle of longer than 50 years."** This statement misses the whole point of how a reasonable, prudent and practical forester would manage a stand of timber in Western Oregon. The relevant growth cycle for commercial timber is dictated by many factors but, most importantly, it is determined by the point in time when the growth rate begins to decline. In Western Oregon, this is approximately 50 years or, in some instances, even earlier. It is analogous to selling a stock at its highest value except that with timber, unlike stocks, that optimum time is a certainty.

Mr. Just's analysis is directly contrary to the case law on this point. In *DLCD v. Lane County (Ericsson)*, 23 Or LUBA 33 (1992), LUBA held:

> "The parties disagree about what is meant by the ORS 197.247(1)(a) phrase 'capable' of producing. In this context, the choice word 'capable' requires the application of an objective test in determining a parcel's potential productivity. In other words, that a particular forest operator may use poor management techniques, and thereby cannot produce the requisite income from the parcel over the growth cycle, would not establish that the parcel was not 'capable' of producing the requisite income level over the growth cycle. The statutory requirement that the land be 'capable' of producing the specified annual income 'over the growth cycle' requires an evaluation of the income potential of the property assuming the utilization of reasonable forest management practices over the growth cycle."

23 Or LUBA at 36 (emphasis supplied). What Mr. Just completely ignores is the fact that both the income and productivity criteria in the Marginal Lands statutes are based on the use of "reasonable forest management practices over the growth cycle." It is not a "reasonable forest management practice" to wait for trees to grow older than 50 years. It is not economical and no reasonable and prudent forester in Western Oregon would conduct their timber operation in this manner.

Mr. Setchko is a reasonable and prudent forester. He has over 30 years of practical, in-the-field experience. He works with and advises private landowners and timber companies on all aspects of growing and harvesting timber in Western Oregon. He has also personally grown and harvested timber on his own account. He is a professional forester with impeccable credentials. His opinion, analysis and observations are those of an expert in the field of commercial timber growth and harvesting in Western Oregon. His opinion that a 50-year growth cycle is the industry standard is based on this backdrop of practical experience and education and reflects the collective judgment and experience of his professional peers.

In contrast, Mr. Just is, at best, an amateur forester who can read and understand forestry data, tables and other published information and then, in broad brushes, attempt to apply them to specific properties. He does not go beyond the published materials. In many instances, he misinterprets and misapplies this information. His opinions and assumptions have no support in the real world of forestry. He is not a reasonable and prudent forester who exhibits an understanding of "reasonable forest management practices" for Western Oregon.

Agronomics Analytics September 25 letter, p. 2. This is precisely what Mr. Setchko concluded only his perspective was that of a professional forester while Mr. Caruana was viewing the property as a professional soil scientist. In his September 20 letter (p. 2), Mr. Setchko states:

> "For this report I have identified the areas with no trees as 'grassland with exposed rock'. I am **not** reclassifying the soils in these areas. I am stating a professional opinion, based on years of working on similar sites, including numerous attempts to grow trees on my own property, which is similar to the subject property. Mr. Just has cited tables and charts, without considering the environmental conditions of this specific site, without the support of a professional forester (or professional soil scientist), and has not demonstrated, in any fashion, how he would get trees to grow here. His only response has been to throw out all manner of extremely expensive suggestions on how to get trees established. All of these suggestions are presented under the guise of 'reasonable forest management'.
>
> As a practicing forester for over 30 years, including 20 years as a consultant, I would never recommend the activities suggested by Mr. Just. My job for clients is to practice good forestry, and if at all possible, maximize their return. In many cases my clients will spend extra money to accomplish management goals above and beyond the Forest Practice Act minimum requirements. In many cases my clients will spend money up front to attain a good return in the future. However, I will not recommend, and I have never had a client ask, to spend money on extremely expensive projects which will not even return the money spent."

This statement summarizes the primary difference between Mr. Setchko's analysis and that of Mr. Just. One is based on fact and the other on words in a book. One is substantial while the other is ephemeral. There is no substance or support for Mr. Just's opinions and conclusions.

Sincerely,

Michael E. Farthing

MEF/kt

cc: Brad Ogle
Marc Setchko
Stephen Caruana
Board of Commissioners

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Attorney at Law

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October 11, 2006

10-11-06P03:35 RCVD

HAND DELIVERED

Lane County Board of Commissioners
% Jerry Kendall
Land Management Division
Lane County Courthouse/Public Service Building
125 East 8th Avenue
Eugene, OR 97401

Re: Marginal Lands Plan Amendment Application
Tax Lots 303 and 304, Map No. 18-04-11
(Ogle-Childs)

Chair Dwyer and Commissioners:

This letter is submitted as the final rebuttal of the Applicant for the above-referenced plan amendment and zone change applications. We believe the evidence in the record overwhelmingly supports approval of these applications. In particular, our forester, Mr. Setchko, provides a detailed analysis of the amount of income and merchantable wood fiber this property is "capable of producing" over a 50-year growth cycle. Mr. Just of the Goal One Coalition has not provided any credible or believable response to Mr. Setchko's analysis and conclusions. The point is that Mr. Setchko's analysis of the forest capability of the Subject Property reflects those of a reasonable and prudent forester. It is based on the best and most practical forest management practices.

If you agree with our analysis and vote to approve this application, I have attached a draft of supplemental findings which could be included as Exhibit "D" to your ordinance. Exhibit "C" contains more detailed findings which address all of the applicable criteria. We believe these supplemental findings address the issues that were raised at your September 13 public hearing by Mr. Just. We offer them in anticipation of this matter, if approved, being appealed to LUBA. We believe the draft supplemental findings provide a more complete explanation of why the evidence in the record, and more specifically Mr. Setchko's analysis of the timber-growing capabilities of the site, supports your approval.

[redacted]

Bcc #6 - 4 pp.

We will be at your October 18 deliberation to respond to questions that you might have about either set of proposed findings or any other aspect of these applications.

Sincerely,

Michael E. Farthing

MEF/kt

Enclosure

cc: Brad Ogle (w/ encl)
Marc Setchko (w/ encl)
Stephen Caruana (w/ encl)
Board of Commissioners (w/ encl)

SUPPLEMENTAL FINDINGS
IN SUPPORT OF APPLICATIONS FOR
MARGINAL LANDS
PLAN AMENDMENT AND ZONE CHANGE

(Ogle-Childs, Ord. No. PA 1237)

After conducting a public hearing on September 13, 2006, reviewing the record transmitted by the staff from the Planning Commission and, reviewing the materials and testimony submitted after the public hearing and the reports and recommendation from our planning staff, the Board hereby adopts the following findings as a supplement to those set forth in Exhibit "C" and as further support for our action to approve the applications for Marginal Lands Plan Amendment and Zone Change (PA 05-5985):

There has been a considerable amount of testimony submitted by the Applicant and the chief opponent to these applications, the Goal One Coalition. This testimony has been primarily directed at the criteria for marginal lands set forth in ORS 197.247(1991 ed.). The primary issue for us to assess is what the Subject Property is "capable of producing" in terms of income (ORS 197.247(1)(a)) and merchantable timber (ORS 197.247(1)(b)(c)). There is a significant conflict in the testimony submitted by the applicant through his experts, Mr. Setchko and Mr. Caruana, and that from Goal One and its principal representative, James Just.

We take note that both Mr. Setchko and Mr. Just have appeared before us in a similar marginal lands plan amendment and zone change proceeding which we approved and which Mr. Just appealed to the Land Use Board of Appeals (LUBA). In that case, *Just v. Lane County*, LUBA No. 2005-024, decided June 8, 2005, LUBA affirmed our approval of the marginal lands application and our acceptance of Mr. Setchko's opinion of the forest potential of the property that was the subject of that application. In approving that application, we rejected all of Mr. Just's analysis of the basic facts and law involved in the case. Of particular relevance to this case is our adoption of the 50-year growth cycle in analyzing the income potential of the particular site and LUBA's affirmation of that determination. For this application, Mr. Setchko has provided additional support for using the 50-year growth cycle including the fundamental fact that it is the forest industry standard. In contrast, Mr. Just offers no credible evidence to support use of a different growth cycle except for his opinion.

Overall, we find that Mr. Setchko is a professional forester who we consider to be an expert in analyzing and discussing the growth of merchantable timber in Western Oregon and particularly in Lane County. His lengthy work and personal experience together with his education credentials provide credibility and substance to his opinions. The analysis he has provided to this record are site specific and relate only to the capability of this site to meet the marginal lands criteria for income and productivity. We believe and accept his opinion that a

large area of this site will not grow trees of any kind for the reasons he cites in his reports, e.g. south steep slope, shallow soils, hot conditions, and lack of moisture. We believe his opinion about log lengths, log grades and market conditions is based on real market conditions.

In short, we accept Mr. Setchko's opinions and analysis over that of Mr. Just. We find the analysis presented by Mr. Just is speculative, theoretical and relies on assumptions and facts which are not supported by existing forest industry standards and practices. Mr. Just seems to be saying that if he was hired by the applicant to advise him about how to implement a forest operation on the subject site, he would recommend planting Ponderosa Pine on a majority of the property including the areas where no tree growth has occurred for 70 or more years. Such advice, in our opinion, would be imprudent and a financial catastrophe. First, we do not believe the trees would grow in the areas that Mr. Setchko has described as "grassland with exposed rock". Mr. Just has not provided any credible evidence to suggest otherwise. He offers only his opinions about tree growth on the Subject Property. Further, Mr. Just has not demonstrated there is or will be a market for Ponderosa Pine in the Willamette Valley. We have to ask, why would anyone plant Ponderosa Pine without any assurance that in 40 to 50 years they could sell it for any kind of profit?

Mr. Just never addresses these basic economic facts which we believe are fundamental to an analysis of the marginal lands criteria. In our opinion, both the income and productivity criteria require us to look at the economics of growing timber on a particular site. Certainly, the income requirement of $10,000 is based on the ability of a forest operation to generate income. Similarly, the productivity standard is based on the growth of "merchantable timber" which, in our opinion, means timber for which there is a market. Implicit in this criterion is the fact that a reasonable landowner would not invest time, money and their property in a venture that would not produce a favorable return on that investment. This is especially true when it commits property to a specific use for a lengthy period of time.

In these respects, the marginal lands criteria, at least for analyzing the forest suitability of a particular property, establishes relatively objective standards for evaluating whether that property is marginal in character. We believe the property that is the subject of these applications falls within those marginal lands standards. Mr. Just has not provided credible or persuasive evidence or analysis that effectively contradicts the calculations and conclusions of Mr. Setchko. We are further persuaded and confident in our decision based on the fact that our planning staff has thoroughly reviewed the record and recommends approval. We are confident that if Mr. Setchko had been overstating or exaggerating his opinion, our staff would have raised concerns, especially since they have reviewed similar applications in the recent past.