Oregon
Theodore R. Kulongoski, Governor

Department of Land Conservation and Development
635 Capitol Street, Suite 150
Salem, OR 97301-2540
(503) 373-0050
Fax (503) 378-5518
www.lcd.state.or.us

NOTICE OF ADOPTED AMENDMENT

12/31/2008

TO: Subscribers to Notice of Adopted Plan
or Land Use Regulation Amendments

FROM: Mara Ulloa, Plan Amendment Program Specialist

SUBJECT: Lane County Plan Amendment
DLCD File Number 004-05RR

The Department of Land Conservation and Development (DLCD) received the attached notice of adoption. Due to the size of amended material submitted, a complete copy has not been attached. A Copy of the adopted plan amendment is available for review at the DLCD office in Salem and the local government office.

Appeal Procedures*

DLCD ACKNOWLEDGMENT or DEADLINE TO APPEAL: Tuesday, January 13, 2009

This amendment was submitted to DLCD for review prior to adoption. Pursuant to ORS 197.830(2)(b) only persons who participated in the local government proceedings leading to adoption of the amendment are eligible to appeal this decision to the Land Use Board of Appeals (LUBA).

If you wish to appeal, you must file a notice of intent to appeal with the Land Use Board of Appeals (LUBA) no later than 21 days from the date the decision was mailed to you by the local government. If you have questions, check with the local government to determine the appeal deadline. Copies of the notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR Chapter 661, Division 10). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

*NOTE: THE APPEAL DEADLINE IS BASED UPON THE DATE THE DECISION WAS MAILED BY LOCAL GOVERNMENT. A DECISION MAY HAVE BEEN MAILED TO YOU ON A DIFFERENT DATE THAT IT WAS MAILED TO DLCD. AS A RESULT, YOUR APPEAL DEADLINE MAY BE EARLIER THAN THE ABOVE DATE SPECIFIED.

Cc: Thom Lanfear, Lane County
Doug White, DLCD Community Services Specialist

<paa> YA/

FORM 2

# DLCD Notice of Adoption

THIS FORM **MUST BE MAILED** TO DLCD
**WITHIN 5 WORKING DAYS AFTER THE FINAL DECISION**
PER ORS 197.610, OAR CHAPTER 660 - DIVISION 18

☐ In person ☐ electronic ☐ mailed

DATE STAMP

DEPT OF
DEC 23 2008
LAND CONSERVATION AND DEVELOPMENT
For DLCD Use Only

Jurisdiction: **Lane County**
Local file number: **PA 04-6308**
Date of Adoption: **12/17/2008**
Date Mailed: **12/18/2008**
Was a Notice of Proposed Amendment (Form 1) mailed to DLCD? **Yes** Date: 8/15/2008

☐ Comprehensive Plan Text Amendment
☒ Comprehensive Plan Map Amendment
☐ Land Use Regulation Amendment
☒ Zoning Map Amendment
☐ New Land Use Regulation
☐ Other:

Summarize the adopted amendment. Do not use technical terms. Do not write "See Attached".

Adoption of supplemental findings in response to remand by LUBA (LUBA No. 2008-107) for Plan Amendment/Zone Change from F-2/Impacted Forest Lands to ML/Marginal Lands.

Does the Adoption differ from proposal? No, no explaination is necessary

Plan Map Changed from: **Forest Land** to: **Marginal Land**
Zone Map Changed from: **F-2/RCP** to: **ML/RCP**
Location: **18S-01W-33 #106** Acres Involved: **102**
Specify Density: Previous: **80 ac.** New: **10-20 ac.**
Applicable statewide planning goals:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ☒ | ☒ | ☒ | ☒ | ☒ | ☒ | ☐ | ☐ | ☐ | ☐ | ☒ | ☒ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Was an Exception Adopted? ☐ YES ☒ NO
Did DLCD receive a Notice of Proposed Amendment...
45-days prior to first evidentiary hearing? ☒ **Yes** ☐ **No**
If no, do the statewide planning goals apply? ☐ **Yes** ☐ **No**
If no, did Emergency Circumstances require immediate adoption? ☐ **Yes** ☐ **No**

DLCD # 004-05R (14603) [15006]
LUBA 2006-236
LUBA 2008-107

**DLCD file No.** _____
Please list all affected State or Federal Agencies, Local Governments or Special Districts:

DLCD


Local Contact: **Jerry Kendall** Phone: **(541) 692-4057** Extension:

Address: **PSB/LMD 125 E. 8th Ave.** Fax Number: **541-682-3947**

City: **Eugene** Zip: **97401-** E-mail Address: **jerry.kendall@co.lane.or.us**


# ADOPTION SUBMITTAL REQUIREMENTS

This form **must be mailed** to DLCD **within 5 working days after the final decision**
per ORS 197.610, OAR Chapter 660 - Division 18.

1. Send this Form and **TWO Complete Copies** (documents and maps) of the Adopted Amendment to:

**ATTENTION: PLAN AMENDMENT SPECIALIST**
**DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT**
**635 CAPITOL STREET NE, SUITE 150**
**SALEM, OREGON 97301-2540**

2. Electronic Submittals: At least **one** hard copy must be sent by mail or in person, but you may also submit an electronic copy, by either email or FTP. You may connect to this address to FTP proposals and adoptions: **webserver.lcd.state.or.us**. To obtain our Username and password for FTP, call Mara Ulloa at 503-373-0050 extension 238, or by emailing **mara.ulloa@state.or.us**.

3. Please Note: Adopted materials must be sent to DLCD not later than **FIVE (5) working days** following the date of the final decision on the amendment.

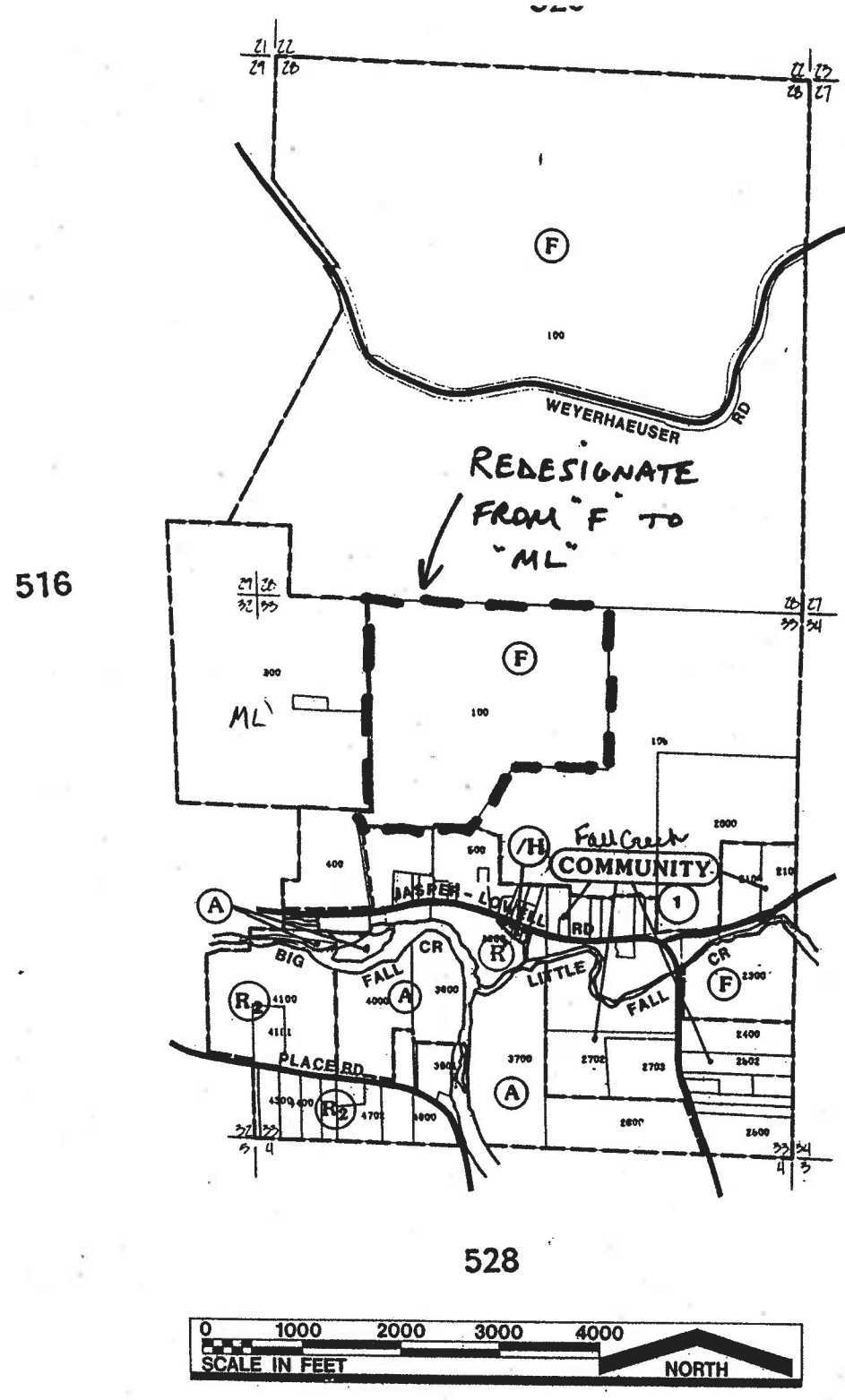
4. Submittal of this Notice of Adoption must include the text of the amendment plus adopted findings and supplementary information.

5. The deadline to appeal will not be extended if you submit this notice of adoption within five working days of the final decision. Appeals to LUBA may be filed within **TWENTY-ONE (21) days** of the date, the Notice of Adoption is sent to DLCD.

6. In addition to sending the Notice of Adoption to DLCD, you must notify persons who participated in the local hearing and requested notice of the final decision.

7. **Need More Copies?** You can now access these forms online at **http://www.lcd.state.or.us/**. Please print on **8-1/2x11 green paper only**. You may also call the DLCD Office at (503) 373-0050; or Fax your request to: (503) 378-5518; or Email your request to **mara.ulloa@state.or.us** - ATTENTION: PLAN AMENDMENT SPECIALIST.

Ordinance No. PA 1235
Exhibit "A"




lane county

# OFFICIAL PLAN MAP

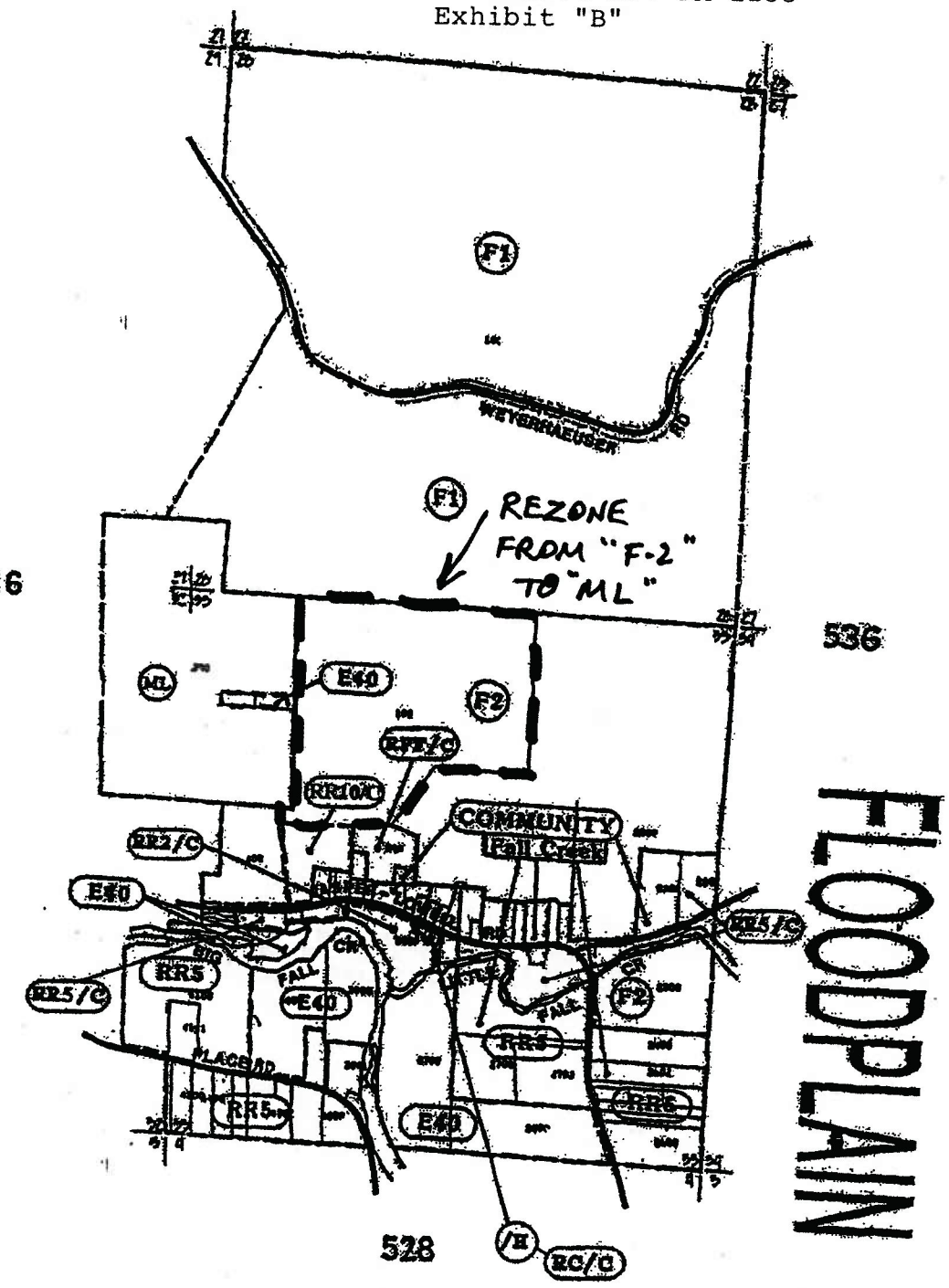
# PLOT# 527

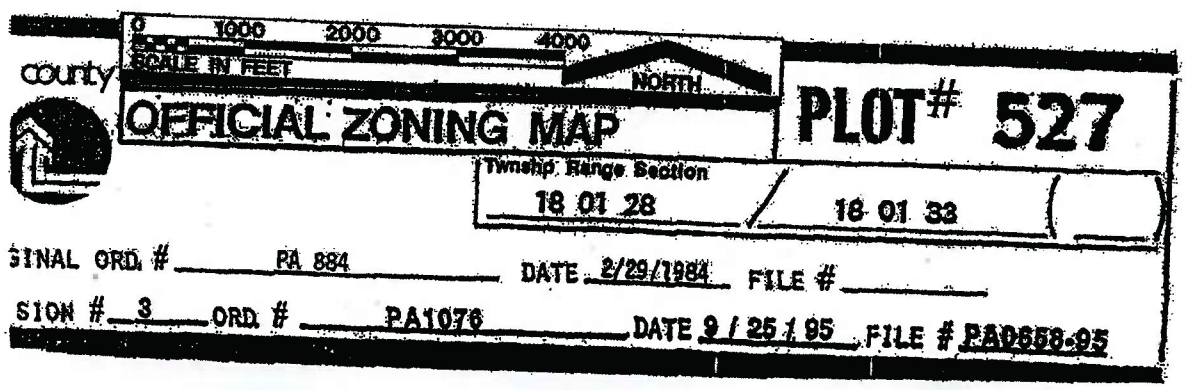
Twnshp Range Section
18 01 28 / 18 01 33

ORIGINAL ORD. # PA 884 DATE 2/29/1984 FILE #

REVISION # 2 ORD. # PA1076 DATE 9 / 25 / 95 FILE # PA0658-95

Ordinance No. PA 1235
Exhibit "B"



**BEFORE THE BOARD OF COUNTY COMMISSIONERS OF LANE COUNTY, OREGON**

**ORDER No. 08-12-17-4**

**) IN THE MATTER OF ADOPTING SUPPLEMENTAL FINDINGS TO ORDINANCE No. PA 1235, AMENDING THE RURAL COMPREHENSIVE PLAN TO REDESIGNATE LAND FROM "FOREST" TO "MARGINAL LAND" AND REZONING THAT LAND FROM "F-2 IMPACTED FOREST LANDS" TO "ML/MARGINAL LANDS" (file PA 04-6308; Dennis).**

**WHEREAS**, on November 29, 2006, by means of Ordinance No. PA 1235 the Board of County Commissioners amended the Lane County *Rural Comprehensive Plan* (RCP) by the redesignation of approximately 107 acres of land identified as portions of Map 18-01-33, tax lot 106 from "Forest" land to "Marginal Land" and rezoning that land from "F-2/Impacted Forest Lands" to "ML/Marginal Lands"; and

**WHEREAS**, that action was appealed to the Oregon Land Use Board of Appeals (LUBA), which on August 6, 2007, affirmed the county's decision; and

**WHEREAS**, the LUBA decision was appealed to the Oregon Court of Appeals, which on November 28, 2007, in *Anderson v. Lane County, 216,Or App 332, 172 P3d 302 (2007)*, remanded the decision based on the requirement to use timber prices preceding 1983 for ORS 197.247(1)(a) (1991 version); and

**WHEREAS,** the findings for Ordinance No. PA 1235 were supplemented by the Board via Order No. 08-6-18-18 on June 18, 2008; and

**WHEREAS**, the June 18, 2008 Order was appealed to LUBA, which remanded the decision based on the need to address the March 21, 2008 amendments to the Goal 4 rule, OAR 660-006, as described in the LUBA decision attached as Exhibit "A" and incorporated herein; and

**WHEREAS**, in response to the LUBA remand, findings previously adopted are further bolstered by additional supplemental findings and analysis prepared based on substantial evidence in the record containing additional information regarding compliance with the amended Goal 4 rule, and specifically OAR 660-006-0005 (2008), which supplemental findings are attached hereto as Exhibit "B" and incorporated herein by this reference; and

**WHEREAS**, the Board of County Commissioners has reviewed the record and is now ready to take action based upon the evidence and testimony in the record.

**NOW, THEREFORE, IT IS HEREBY ORDERED** that the findings previously adopted in support of Ordinance No. PA 1235 and Order No. 08-6-18-18 are further supplemented with the findings set forth in Exhibit "B" attached and incorporated here by this refer-

ence to establish that the findings and evidence in the whole record support the amendments to the Lane County *Rural Comprehensive Plan* adopted by that ordinance and that the amendments conform to the requirements of the amended Goal 4 rule, specifically OAR 660-006-0005 and 660-006-0010 (2008) and ORS 197.247(1)(a) & (b)(1991 version).

**ADOPTED** this 17th day of December, 2008.

Vice Chair, Lane County Board of Commissioners

APPROVED AS TO FORM

Date 12-9-2008, Lane County

OFFICE OF LEGAL COUNSEL

Exhibit "A"

BEFORE THE LAND USE BOARD OF APPEALS

OF THE STATE OF OREGON

CLARK ANDERSON, LYNN ANDERSON, PATRICIA CHOMYN, AMY DONNELLY, MARTIN DREISBEICH, ROBERT EMMONS, NENA LOVINGER, TIM McMAHEN, JOHN A. RICHARDSON, JONNY B. WATSON and ROBERT WINKLER,
*Petitioners,*

vs.

LANE COUNTY,
*Respondent,*

and

CAROL DENNIS,
*Intervenor-Respondent.*

LUBA No. 2008-107

FINAL OPINION
AND ORDER

Appeal from Lane County.

Jannett Wilson, Eugene, filed the petition for review and argued on behalf of petitioners. With her on the brief was Goal One Coalition.

No appearance by Lane County.

P. Steven Cornacchia, Eugene, filed the response brief and argued on behalf of intervenor-respondent. With him on the brief was Hershner Hunter LLP.

BASSHAM, Board Chair; HOLSTUN, Board Member, participated in the decision.

RYAN, Board Member, did not participate in the decision.

REMANDED 10/14/2008

You are entitled to judicial review of this Order. Judicial review is governed by the provisions of ORS 197.850.

Opinion by Bassham.

**NATURE OF THE DECISION**

Petitioners appeal a county decision approving a comprehensive plan designation amendment from Forest to Marginal Lands and associated zoning amendments for a 107-acre parcel.

**MOTION TO INTERVENE**

Carol Dennis (intervenor), the applicant below, moves to intervene on the side of the respondent in this appeal. There is no opposition to the motion and it is granted.

**FACTS**

In 2006, intervenor applied to the county to redesignate and rezone the subject property as marginal lands, under *former* ORS 197.247 (1991). In relevant part, ORS 197.247(1)(a)(1991) allows the county to designate as marginal lands property that "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." This is called the "income" prong of that statute. ORS 197.247(1)(b)(C), the so-called "productivity" prong of that statute, requires a demonstration that the land is not capable of producing 85 cubic feet per acre per year (cf/ac/yr) of merchantable timber.[1]

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[1] ORS 197.247(1) (1991) provided, in relevant part:

> "In accordance with ORS 197.240 and 197.245, the commission shall amend the goals to authorize counties to designate land as marginal land if the land meets the following criteria and the criteria set out in subsections (2) and (4) of this section:
>
> "(a) The proposed marginal land was not managed during three of the five calendar years preceding January 1, 1983, as part of a farm operation that produced $20,000 or more in annual gross income or a forest operation capable of producing an average, over the growth cycle, of $10,000 in annual gross income; and
>
> "(b) The proposed marginal land also meets at least one of the following tests:
>
> "* * * * *

The county approved the application, and petitioners appealed that approval to LUBA. LUBA affirmed the decision, rejecting petitioner's challenges under both the ORS 197.247(1)(a) (1991) "income" prong and the ORS 197.247(1)(b)(C) (1991) "productivity" prong. In relevant part, we affirmed the county's approach to satisfying the income test based on 1983 timber prices, and rejected petitioners' argument that the county must use 1978-1982 timber prices. *Anderson v. Lane County*, 54 Or LUBA 669 (2007) (*Anderson I*).

Petitioners appealed to the Court of Appeals, which held, based on a similar recent case presenting identical legal issues, that ORS 197.247(1)(a) requires that the calculation of potential annual gross income be based on timber prices during the five calendar years preceding 1983, and that calculation cannot be based on 1983 timber prices. *Anderson v. Lane County*, 216 Or App 332, 172 P3d 302 (2007), *citing Herring v. Lane County*, 216 Or App 84, 171 P3d 1025 (2007) (*Anderson II*).

LUBA accordingly remanded the county's decision with the following instructions:

> Petitioners' second assignment of error, first sub-assignment of error, challenged the county's use of 1983 timber prices. As explained in *Herring*, the county erred in using 1983 timber prices to determine whether the subject property is "marginal land" under ORS 197.247(1)(a) (1991). Remand is necessary for the county to calculate potential annual gross income based on timber prices in the five calendar years that precede 1983.
>
> The second assignment of error is sustained, in part. The Court's remand did not require changes to other dispositions in our decision, which remain in effect."

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"(C) The proposed marginal land is composed predominantly of soils in capability classes V through VIII in the Agricultural Capability Classification System in use by the United States Department of Agriculture Soil Conservation Service on October 15, 1983, and is not capable of producing * * * eighty-five cubic feet of merchantable timber per acre per year in those counties west of the summit of the Cascade Range, as that term is defined in ORS 477.001(21)."

*Anderson v. Lane County*, __ Or LUBA __ (LUBA No. 2006-236, March 24, 2008), slip op 2. (*Anderson III*).

Shortly after LUBA's remand to the county, the Land Conservation and Development Commission (LCDC) adopted amendments to OAR chapter 660, division 006, which implements Statewide Planning Goal 4 (Forest Lands). Specifically, LCDC amended the OAR 660-006-0005 definitions of "Cubic Foot Per Acre" and "Cubic Foot Per Tract Per Year" to modify the sources of data and means that may be used to calculate those measures of forest productivity.[2] LCDC also amended OAR 660-006-0010, which applies to a local government's inventory of forest lands, to require that the inventory include a mapping of average annual wood production capability expressed by cubic foot per acre (cf/ac), rather than expressed by "site class."[3]

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[2] OAR 660-006-0005 was amended as follows. The added language is in bold and underline; the deleted language is bracketed, and struck through.

> "(2) 'Cubic Foot Per Acre' means the average annual increase in cubic foot volume of wood fiber per acre for fully stocked stands at the culmination of mean annual increment as reported by the USDA Natural Resource Conservation Service (NRCS) **soil survey information, USDA Forest Service plant association guides, Oregon Department of Revenue western Oregon site class maps, or other information determined by the State Forester to be of comparable quality**. Where **such** [~~NRCS~~] data are not available or are shown to be inaccurate, an alternative method for determining productivity may be used. An alternative method must provide equivalent data **as explained in the Oregon Department of Forestry's Technical Bulletin entitled 'Land Use Planning Notes Number 3 dated April 1998'** and be approved by the **Oregon** Department of Forestry.
>
> "(3) 'Cubic Foot Per Tract Per Year' means the average annual increase in cubic foot volume of wood fiber per tract for fully stocked stands at the culmination of mean annual increment as reported by the USDA Natural Resource Conservation Service **(NRCS) soil survey information, USDA Forest Service plant association guides, Oregon Department of Revenue western Oregon site class maps, or other information determined by the State Forester to be of comparable quality**. Where **such** [~~NRCS~~] data are not available or are shown to be inaccurate, an alternative method for determining productivity may be used. An alternative method must provide equivalent data **as explained in the Oregon Department of Forestry's Technical Bulletin entitled 'Land Use Planning Notes Number 3 dated April 1998'** and be approved by the **Oregon** Department of Forestry."

[3] OAR 660-006-0010 was amended as follows. The added language is in bold and underline; the deleted language is bracketed, and struck through.

The amendments became effective on April 18, 2008. On March 31, 2008, intervenor submitted a revised analysis from her forest consultant that calculated potential annual gross income based on timber prices during the five calendar years preceding 1983. The revised analysis concluded that the subject property was not managed during the years 1978-82 as part of a forest operation capable of producing an average, over the growth cycle, of $10,000 in annual gross income.

The county held a public evidentiary hearing on June 18, 2008, limited to "correcting the deficiency that was the basis for the Court of Appeals' and LUBA's remands." Record 22. At the hearing, petitioners argued that the county must apply the amended administrative rules and that "the productivity test has to be redone in compliance with the new rule." Record 43. After some discussion of whether the amended rules applied, the commissioners closed the hearings and voted to approve the application. This appeal followed.

**ASSIGNMENT OF ERROR**

Petitioners' single assignment of error is that the county erred "in determining that the applicant did not need to address the new Goal 4 rules * * *." Petition for Review 4. Initially, intervenor responds that the county's decision made no determination whatsoever regarding whether the amended Goal 4 rules apply. Because petitioners' assignment of error challenges only a determination that the county did not make, intervenor argues, the assignment of error should denied for that reason alone.

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"Governing bodies shall include an inventory of 'forest lands' as defined by Goal 4 in the comprehensive plan. Lands inventoried as Goal 3 agricultural lands or lands for which an exception to Goal 4 is justified pursuant to ORS 197.732 and taken are not required to be inventoried under this rule. Outside urban growth boundaries, this inventory shall include a mapping of **average annual wood production capability by cubic foot per acre (cf/ac)** [~~forest site class~~]. If site information is not available then an equivalent method of determining forest land suitability must be used. Notwithstanding this rule, governing bodies are not required to reinventory forest lands if such an inventory was acknowledged previously by the Land Conservation and Development Commission."

We disagree with intervenor that the assignment of error is limited to a challenge to a non-existent determination. In the argument supporting the assignment of error, petitioners argue that "the county commissioners failed to apply the then-current LCDC Goal 4 rules to the application for the comprehensive plan amendment." Petition for Review 6. Notwithstanding the phrasing of the assignment of error itself, it is clear that the gist of petitioners' assignment of error is that the county erred in not applying the amended Goal 4 rules.

On the merits, intervenor does not dispute that the amended Goal 4 rules were *potentially* applicable to the proceedings on remand. As petitioners correctly note, the "goal-post" statute at ORS 215.427(3) freezes as of the date of application the standards and criteria that govern an application for a permit, limited land use decision, or zone change, but does not freeze the standards that govern a comprehensive plan amendment. *Rutigliano v. Jackson County*, 42 Or LUBA 565, 574 (2002); *Hastings Bulb Growers, Inc. v. Curry County*, 25 OR LUBA 558, 563 (1993). Therefore, absent some other authority to the contrary, the amended Goal 4 rules applied to the county's remand decision on intervenor's application for a comprehensive plan amendment from Forest to Marginal Lands.

Intervenor offers three reasons why the county was not required to apply the amended Goal 4 rules on remand. First, intervenor argues that LUBA's remand was limited to recalculating the potential annual gross income based on timber prices from 1978-82 under ORS 197.247(1)(a), and did not require the county to revisit the productivity test under ORS 197.247(1)(b)(C). According to intervenor, the county is generally entitled to limit its proceedings on remand to remedying the deficiency that warranted remand, and is not required to address other issues. *CCCOG v. Columbia County*, 44 Or LUBA 438, 444 (2003); *Bartels v. City of Portland*, 23 Or LUBA 182, 185 (1992).

Second, intervenor argues that allowing petitioners to raise new issues regarding the productivity test at ORS 197.247(1)(b)(C) during remand proceedings limited to accepting

new evidence regarding the income test would be inconsistent with the principle described in *Beck v. City of Tillamook*, 313 Or 148, 831 P2d 678 (1992). In *Beck*, the Oregon Supreme Court held that when the record is reopened on remand,

> "* * * parties may raise new, unresolved issues that relate to new evidence. The logical corollary is that parties may not raise old, resolved issues again. When the record is reopened at LUBA's direction on remand, the 'new issues' by definition include the remanded issues, but not the issues that LUBA affirmed or reversed on their merits, which are old, resolved issues." 313 Or at 153 (footnote omitted).

We understand intervenor to argue that all challenges that were made or could have been made to the county's findings or the evidence regarding the productivity test at ORS 197.247(1)(b)(C) were resolved adversely to petitioners in *Anderson I* or *Anderson II*, and therefore *Beck* precludes petitioners from raising new challenges regarding that old, resolved issue.

Finally, intervenor argues that even if the county was required to address the amended Goal 4 rule on remand, the undisputed evidence in the record is that the amended forest productivity report that intervenor's consultant submitted on remand complies with the amended Goal 4 rules. Therefore, intervenor contends, LUBA should affirm the county's decision notwithstanding the lack of findings regarding the amended rules, because the evidence in the record "clearly supports" a finding that the application complies with the amended rules. ORS 197.835(11)(b).[4]

Intervenor is correct that, as a general matter, the county is entitled to limit the issues on remand to those that formed the basis for the remand, and need not open the proceedings

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[4] ORS 197.835(11)(b) provides:

> "Whenever the findings are defective because of failure to recite adequate facts or legal conclusions or failure to adequately identify the standards or their relation to the facts, but the parties identify relevant evidence in the record which clearly supports the decision or a part of the decision, the board shall affirm the decision or the part of the decision supported by the record and remand the remainder to the local government, with direction indicating appropriate remedial action."

up to issues unrelated to the basis for remand. However, as the Court in *Beck* observed, where new evidence is submitted on remand the parties may raise new, unresolved issues that relate to the new evidence. In at least that circumstance, the local government must address the new issues, even if those new issues go beyond the scope of remand or LUBA's instructions.

More importantly in the present case, the parties may also raise new issues on remand that are related to applicable approval criteria that could not have been raised during the initial proceedings. In *Beck*, the Court held that LUBA and the courts may review an assignment of error alleging that the governing body was biased during the remand proceedings, even though earlier appellate review had resolved the issue of whether the governing body was biased during the initial proceedings, because the question of bias during the remand proceeding "was not and could not have been decided" in earlier rounds of appellate review.[5]

Here, on remand intervenor submitted a revised analysis that recalculated potential annual income based on 1978-82 timber prices. Record 112-18. Those income calculations were in turn based on the original forest productivity figures that the consultant generated based on particular data sources during the initial proceedings. In *Anderson I*, petitioners advanced challenges to those calculations under the *former* Goal 4 rule, LUBA rejected those challenges, and the Court of Appeals ultimately affirmed our resolution of those issues. In

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[5] The Court held in *Beck*:

> "In this instance, however, the issues were not identical in *Beck I* and *Beck II*. In *Beck I*, petitioners argued that there was clear and convincing evidence that the City was biased during the *first* hearing. In *Beck II*, petitioners argued that there was clear and convincing evidence that the City was biased during the *second* hearing. It is possible that the City could be biased on remand, after having been impartial in the initial hearing. Although petitioners rely on much of the same evidence to support their argument in *Beck II*, they also rely on new evidence from the second hearing. Accordingly, the question of bias in *Beck II* was not and could not have been decided in *Beck I*. Therefore, petitioners are entitled to judicial review of their fourth assignment of error in *Beck II*." 313 Or at 156 (emphasis in original, footnote omitted).

*Beck* where the local government on remand must address issues beyond those that formed the basis for remand.

We disagree with intervenor that the record "clearly supports" the decision with respect to whether the revised productivity analysis complies with the amended Goal rules, and therefore that we may affirm the decision notwithstanding inadequate or absent findings, pursuant to ORS 197.835(11)(b). Intervenor argues, initially, that her forest consultant testified that the revised productivity analysis complies with the amended Goal 4 rule, citing to Record 44-45. However, that argument is not supported by the record. At Record 44, intervenor's attorney indeed claimed that the revised calculations "were done with the old and new administrative rule." However, we do not see that the following testimony of the consultant, at Record 44-45, includes a claim that the revised productivity analysis complies with the amended Goal 4 rules. We do not believe a bare assertion by the applicant's attorney on such a technical matter "clearly supports" the decision, within the meaning of ORS 197.835(11)(b).

We understand intervenor to argue that LUBA may itself determine whether the data sources relied upon by the revised productivity analysis comply with the amended Goal 4 rules. The county found that the revised productivity analysis is based on the "same methodology" as the original analysis. Intervenor asserts that that original analysis relied on two data sources: (1) the 1997 Lane County Ratings for Forestry and Agriculture and (2) the Lane County Soil Ratings. According to intervenor, the 1997 Lane County Ratings for Forestry and Agriculture were reviewed by the predecessor to the NRCS and are based on NRCS data. Further, intervenor argues that the "Lane County Forest Soil Ratings" are based on a memorandum from the Oregon Department of Forestry (ODF) Office of State Forester, dated February 8, 1990. Intervenor notes that LUBA held in *Just v. Lane County*, 49 Or LUBA 456, 464 (2005), that the "Lane County Forest Soil Ratings" document constitutes "equivalent data" for purposes of the third sentence of the *former* Goal 4 rules, because the

ratings are based on ODF data.[7] Intervenor contends that the amended Goal 4 rule also allows parties to rely on data sources that are themselves based on NRCS and ODF data, and therefore reliance on the 1997 Lane County Ratings for Forestry and Agriculture and the Lane County Forest Soil Ratings necessarily satisfies the amended Goal 4 rules.

Petitioners respond that LCDC intended the Goal 4 rule amendment to clarify and limit the types of data that may be relied upon in determining forest productivity, and that the record does not demonstrate that the two sources of data the county relied upon satisfy the amended rules.

We agree with petitioners. The first sentence of OAR 660-006-0005(2) and (3) now lists three sources of data instead of one, and provides that the State Forester may designate other sources of information that the State Forester determines are of "comparable quality."[8]

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[7] We stated in *Just*:

> "Petitioner does not dispute that the documents relied upon provide 'equivalent data' to NRCS data, for purposes of OAR 660-006-0005(2). Nor does petitioner dispute that the pertinent cf/ac/yr figures in the 'Lane County Forest Soil Ratings' document are based on the February 8, 1990 memorandum from the Office of State Forester. Instead, petitioner complains that the February 8, 1990 memorandum is not in the record and there is no description of the methodology used to generate the data in that memorandum, or any evidence that the methodology used conforms to the methodology set out in the April 1998 ODF publication.
>
> "Petitioner is correct that, as a general matter, OAR 660-006-0005(2) requires that the 'alternative methodology' be described or set forth in the record, and that there is evidence that ODF has approved the methodology. Presumably, use of the methodology set out in the April 1998 ODF publication would suffice to satisfy the rule. It also seems consistent with the rule to obtain explicit ODF approval of a different methodology, on a case-by-case basis. However, we believe that it is also consistent with the rule to use ODF-generated cf/ac/yr figures, if available, even if the methodology that generated those figures is not described in the record. Here, petitioner does not dispute that the cf/ac/yr figures in the 'Lane County Forest Soil Ratings' accurately reflect the ODF-generated figures for the pertinent soils. A decision maker could reasonably presume that whatever methodology generated the ODF cf/ac/yr figures is one that ODF approves of. Even if the ODF figures were generated under a different methodology than that set out in the April 1998 ODF publication, as petitioner contends, the ODF is presumably free to follow or approve a different methodology for calculating timber productivity than the one set out in the April 1998 publication." *Id.* at 470.

[8] For convenience, we repeat the text of OAR 660-006-0005(2), as amended.

While the 1997 Lane County Ratings for Forestry and Agriculture may be based on NRCS data, as intervenor contends, and the Lane County Forest Soil Ratings may be based on ODF data, neither of those documents are among the three listed sources. Further, we understand the first sentence of OAR 660-006-0005(2) and (3) to require an actual determination by the State Forester that a particular source of data is of "comparable quality" to the three listed data sources. Nothing in the record cited to us indicates that the State Forester has made a determination that either the 1997 Lane County Ratings for Forestry and Agriculture or the Lane County Forest Soil Ratings are of comparable quality to the three listed sources.

The second and third sentences of OAR 660-006-0005(2) and (3) address circumstances where the first sentence does not apply, and allows an "alternative method" to be used that (1) provides equivalent data as explained in an April 1998 ODF technical bulletin and (2) is approved by the Oregon Department of Forestry. Intervenor does not contend that the method used to generate the data in the revised productivity analysis is consistent with the April 1998 ODF technical bulletin or that the method was approved by ODF.

*Just* provides little assistance to intervenor. It seems likely that the 2008 amendments to OAR 660-006-0005(2) and (3) were intended to legislatively overrule *Just* and other recent cases to the extent those cases have interpreted the rules broadly with respect to what constitutes "equivalent data." The language in *Just* that is perhaps most helpful to intervenor is our conclusion that it is reasonable to "presume that whatever methodology generated the

---

"'Cubic Foot Per Acre' means the average annual increase in cubic foot volume of wood fiber per acre for fully stocked stands at the culmination of mean annual increment as reported by the USDA Natural Resource Conservation Service (NRCS) **soil survey information, USDA Forest Service plant association guides, Oregon Department of Revenue western Oregon site class maps, or other information determined by the State Forester to be of comparable quality**. Where **such** [~~NRCS~~] data are not available or are shown to be inaccurate, an alternative method for determining productivity may be used. An alternative method must provide equivalent data **as explained in the Oregon Department of Forestry's Technical Bulletin entitled 'Land Use Planning Notes Number 3 dated April 1998'** and be approved by the **Oregon** Department of Forestry."

ODF cf/ac/yr figures is one that ODF approves of," even if that methodology does not conform to that specified in the April 1998 ODF technical bulletin. 49 Or LUBA at 470. The continued vitality of that presumption under the amended rules is not clear. As amended, the third sentence of OAR 660-006-0005(2) and (3) requires that the methodology conform to that described in the April 1998 ODF technical bulletin. Further, read in context with the amendments to the first sentence, the requirement that ODF approve the alternative methodology arguably requires that the applicant actually seek and obtain ODF approval of a particular proposed methodology. Arguably, the approval requirement cannot be satisfied by reliance on data found in an ODF memorandum and the mere presumption that ODF has implicitly approved whatever methodology generated that data. However, we need not consider that question further, as there is no dispute in the present case that neither the 1997 Lane County Ratings for Forestry and Agriculture nor the Lane County Forest Soil Ratings is based on a methodology that conforms to the April 1998 ODF technical bulletin.

In sum, the existing record does not demonstrate that the revised productivity analysis complies with the amended rules. We remand for the county to conduct additional evidentiary proceedings, if necessary, and to evaluate the application under the amended Goal 4 rules.

The assignment of error is sustained.

The county's decision is remanded.

**Exhibit "B"**

**Remand Response and Supplemental Findings Supporting Ordinance No. PA 1235 Amending Lane County Rural Comprehensive Plan.**

In support of our adoption and enactment of Ordinance No. PA 1235, we make the following findings of fact and conclusions of law.

## Introduction

On June 18, 2008, the Board of County Commissioners adopted supplemental findings to Ordinance No. PA 1235 that amended the Lane County Rural Comprehensive Plan diagram to re-designate that certain property described as Tax Lot 106 of Lane County Assessor's Map No. 18-01-33 from Forest Land to Marginal Land and amended the Lane County zoning map from F-2 Impacted Forest Lands (F-2/RCP) to Marginal Lands (ML/RCP). That adoption of supplemental findings occurred following a public hearing and was in response to the November 28, 2007, remand by the Oregon Court of Appeals and Land Use Board of Appeals. In that remand, the Court of Appeals held that former ORS 197.247(1)(a) explicitly directs Lane County to calculate potential gross income of a forest operation based on the five calendar years preceding January 1, 1983, and does not authorize the county to use 1983 prices in that calculation. The Court of Appeals remanded the decision back to LUBA, and subsequently Lane County, for Lane County to address the forest operation income test using log prices from 1978 to 1982.

The June 18, 2008, decision by Lane County to supplement the findings in support of its adoption of Ordinance No. PA 1235, was appealed to the LUBA on the grounds that Lane County failed to demonstrate that the forest productivity analysis provided by the applicant's professional forester complies with the amended Goal 4 administrative rules, in particular, OAR 660-006-0005 and OAR 660-006-0010, as amended March 21, 2008. LUBA agreed with the petitioners and remanded the county's decision back to Lane County to conduct evidentiary proceedings, if necessary, and to evaluate the application under the amended Goal 4 rules.

On December 17, 2008, Lane County conducted a public hearing on the issue of the application's compliance with former ORS 197.247 (1991) and with the amended Goal 4 rules. The following additional findings and analysis of the evidence presented during the remand evidentiary hearing provide further support for our adoption of Ordinance No. PA 1235.

## Findings and analysis

Former ORS 197.247 allows land in "Marginal Land Counties" to be designated as "Marginal Land" if several criteria are satisfied. One of those, former ORS 197.247(1)(a), is that 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. Another of those, former ORS

197.247(1)(b)(C), is that the proposed marginal land is not capable of producing 85 cubic feet of merchantable timber per acre per year.

The following supplemental findings and supporting evidence in the record establish that the subject property was not managed, during three of the five calendar years proceeding January 1, 1983, as part of a forestry operation capable of producing an average, over the growth cycle, of $10,000 in annual gross income and that the proposed marginal land is not capable of producing 85 cubic feet of merchantable timber per acre per year.

We find that evidence in the record demonstrates that the subject property was not managed, during three of five calendar years preceding January 1, 1983, as part of a forestry operation capable of producing an average, over the growth cycle, of $10,000 in annual gross income.

We further find that evidence in the record demonstrates that the subject property is not capable of producing 85 cubic feet of merchantable timber per acre per year.

Before and at the December 17, 2008, remand evidentiary hearing, the applicant produced substantial evidence to the record that the forest operation on the subject property was not capable of producing an average of $10,000, over the growth cycle, in annual gross income during three of the five calendar years preceding January 1, 1983, and that the subject property was not capable of producing 85 cubic feet of merchantable timber per acre per year. That substantial evidence was in the form of stated and written testimony from the applicant and from Mr. Setchko, which testimony is incorporated herein by this reference. Copies of the written testimony are attached to these supplemental findings.

Mr. Setchko testified that, based upon his analysis and calculations, the subject property was not capable of producing $10,000 in annual gross forest income during any of the five years preceding January 1, 1983. His written report provides calculations of forest capability, using log prices from each of the years from 1978 to 1982. Mr. Setchko concludes that based on log prices of each year, the subject property was capable of producing $4,757 in 1978, $5,974 in 1979, $6,256 in 1980, $5,986 in 1981 and $4,396 in 1982. Mr. Setchko and the applicant provided evidence to the record that the sources of information that were used in Mr. Setchko's analysis and calculations were sources that comply with the amended Goal 4 rule. That evidence was in the form of correspondence from the Oregon Department of Forestry that contained the department's statement that the sources of information used by Mr. Setchko are considered by the department as "comparable quality" as required by the amended Goal 4 rule. The applicant provided a supplemental report by Mr. Setchko that uses only NRCS reports where those reports have a productivity rating and adds ratings from the Oregon Department of Forestry ratings that have been determined by the department to be sources of information of comparable quality to be used when NRCS reports do not provide a productivity rating. That report essentially mirrors his original written report in its conclusions regarding forest income capability in the years 1978 – 1982 and that the subject property was not managed in the subject years as a forest operation capable of producing $10,000 in annual forest income.

Mr. Setchko testified that, based upon his analysis and calculations, the subject property is not capable of producing 85 cubic feet of merchantable timber per acre per year. His written report

provides the analysis of the forest capability of the subject property and concludes that the subject property is capable of producing 66.167 cubic feet of merchantable timber per acre per year. That amount is less than the statute's threshold of 85 cubic feet. The applicant and Mr. Setchko provided evidence to the record that the sources of information that were used by Mr. Setchko were sources that comply with the amended Goal 4 rule. That evidence was Mr. Setchko's use of both NRCS and Oregon Department of Forestry ratings and that contained in the Oregon Department of Forestry correspondence referenced hereinabove.

We find Mr. Setchko's testimony persuasive on the question of whether the subject property was managed during three of the five years preceding January 1, 1983, as a forest operation capable of producing an average of $10,000, over the growth cycle, in annual gross income during the relevant time period and that it is not capable of producing 85 cubic feet of merchantable timber per acre per year. Therefore, we find that the subject property was not managed, during three of the five calendar years preceding January 1, 1983, as part of a forest operation capable of producing $10,000 or more in annual gross income in three of the five years preceding January 1, 1983 and that it is not capable of producing 85 cubic feet of merchantable timber per acre per year. Based upon evidence in the record, LUBA and Court of Appeals decisions, and all incorporated findings of fact and conclusions of law, we find that the applicant has demonstrated that the requirements of former ORS 197.247 are fulfilled and that the subject application for marginal land designation of the subject property should be approved. Accordingly, we approve the application.

**Marc E. Setchko**
CONSULTING FORESTER

870 Fox Glenn Avenue
Eugene, Oregon 97405
Phone: (541) 344-0473
FAX: (541) 344-7791



November 10, 2008

**FOREST PRODUCTIVITY ANALYSIS**
**for**
**Carol Sutton**

**SUBJECT PARCEL: ASSESSORS MAP NO. 18-01-33**
**TL #106, totaling ±102.61 ac.**

**QUALIFICATIONS:** Society of American Foresters Certified Professional Forester (#2953), with 30 years of experience including 20 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 preparation of 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 generate a long term profit, rather than a loss.

## I. INTRODUCTION

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 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 477.001(21).

2. The income generated from the subject property averages less than $10,000/year, based on 1978 through 1982 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."

The timber productivity (cu.ft./ac./yr.) figures were obtained from the Lane County Soil Ratings contained in the Office of the State Forester Memorandum (Feb. 8, 1990, General File 7-1-1). This source is approved by the Oregon Department of Forestry (see Exhibit 1). This source provides 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.

Merchantable timber volume per acre for each soil type is needed for the income test. These estimates are obtained from the CMAI (Culmination of Mean Annual Increment) FOR DOUGLAS-FIR Table (see Exhibit 2) and the Empirical Yield Tables for the Douglas-fir Zone, Washington Department of Natural Resources by Charles Chambers and Franklin Wilson (see Exhibit 3). The estimates of volumes from these tables are based on a Site Index number. The site index number can be obtained by taking the cf/ac/yr figures from the State Forester Memo and matching this number to the site index number on the CMAI table for Douglas-fir. After calculating a total merchantable volume for the parcel being analyzed, 1978-1982 log prices from the Oregon State Department of Forestry data (published quarterly) have been used to determine the total income generated from the timber.

The productivity and income tests must consider all merchantable timber species capable of growing on the site. Douglas-fir was used because it is the highest value merchantable tree species. Other species were also looked at. Hardwood species include black cottonwood, Oregon ash, Oregon white oak, red alder and bigleaf maple. From a merchantable standpoint there is no market for cottonwood and ash. Oregon white oak is extremely slow growing and worth very little from a commercial standpoint, particularly the small scrub oak. Maple does not produce much merchantable wood per acre and red alder will not grow well, if at all, on this site. Merchantable conifer species include ponderosa pine, grand fir, western hemlock, incense and western red cedar. Red cedar will not grow well on this site, due to moisture constraints, and incense cedar is extremely slow growing. Hemlock will not grow on this site. Grand fir will not grow in pure stands, it is a minor species intermixed with Douglas-fir. Ponderosa pine needs deep, well drained soils; the only portion of the property which could possibly grow ponderosa pine is in the northern portion, up on the slope. All of these species, except for the cedars, are worth considerably less money than Douglas-fir. The cedar species are close in value to the Douglas-fir, but much slower growing. Ponderosa pine could possibly grow faster, if conditions were conducive to growth. On this site they are not. Therefore, Douglas-fir is used for the income calculations.

## II. SITE INFORMATION

There are six soil types on the parcel. Dixonville silty clay loam (41C&E), Dixonville-Philomath-hazelair complex (43C&E), Philomath silty clay (107C), Ritner cobbly silty clay loam (113G), rock outcrop-Witzel complex (116G) and Witzel very cobbly loam (138E). The Dixonville-Philomath-hazelair complex, Philomath silty clay and Witzell very cobbly loam are poor tree growing soils; the rock outcrop-Witzel complex is an extremely poor tree growing soil, with the rock outcrop portions incapable of supporting trees. Natural meadows and rock outcroppings cover over half of the parcel. There are ribbons of rock through the meadows exposed by winter runoff channels. In all of these areas the soil is extremely shallow, with rock just beneath the surface.

Approximately three acres of incense cedar are growing in a clump in the southwest portion of the parcel. The other timbered area is on the hill along the northern boundary and the northeast portion of the property. There are approximately 40-45 acres of scattered, multi-aged Douglas-fir, ponderosa pine and incense cedar trees. The growth leaders are short and many of the trees do not look appear to be in good thrift. There are also scattered hardwoods, primarily white oak. The owners have planted new conifer seedlings more than once to establish new stands of trees; their efforts have been thwarted by very high mortality rates. This is primarily due to the extremely shallow soil depths and high water table conditions which exist for a good portion of the year. Ponderosa pine and Douglas-fir are extremely intolerant of high water tables.

## III. RESULTS OF PRODUCTIVITY CALCULATIONS

State Forester Memorandum (Feb. 8, 1990 General File 7-1-1). (see Exhibit 4).

| Soil Unit | Acres | Species | Cf/Ac/Yr | Total Cu.Ft. Productivity |
|---|---|---|---|---|
| 41C | 3.297 | DF | 115 | 379.155 |
| 41E | 18.627 | DF | 115 | 2,142.105 |
| 43C | 14.403 | DF | 45 | 648.135 |
| 43E | 10.845 | DF | 45 | 488.025 |
| 107C | 13.768 | DF | 45 | 619.560 |
| 113G | 5.341 | DF | 131 | 699.671 |
| 116G | 14.904 | DF | 21 | 312.984 |
| 138E | 21.424 | DF | 70 | 1,499.680 |
| | 102.609 | | | 6,789.315 |

**Total - 6,789.315 cu.ft. ÷ 102.609 ac. = 66.167 cf./ac./yr.**

## IV. RESULTS OF INCOME CALCULATIONS

The site index number can be obtained by taking the cf/ac/yr figures from the State Forester Memo and matching these numbers to the site index number shown on the CMAI tables for conifer species. These tables were developed using the applicable yield tables for each different species. The west side 50 year King's data are used for these calculations. This is the most appropriate table for Douglas-fir growing west of the Cascades. With a site index number, volume per acre estimates are obtained from the Empirical Yield Tables for the Douglas-fir Zone, Washington Department of Natural Resources by Charles Chambers and Franklin Wilson. If a cf/ac/yr number was so low that it did not appear on the table, the volumes were arrived at through proportioning.

Adding the volume per acre of all the soil types together will give a total for the entire parcel. A fifty year rotation (growth cycle to final harvest) was used, as this is the rotation age accepted by Lane County, and approved by LUBA. The State of Oregon also accepts this rotation.

CALCULATIONS:

41C&E Dixonville silty clay loam 115 cf/ac/yr = Site Index 90 (see Exhibit 2)

113G Ritner cobbly silty clay loam 131 cf/ac/yr = Site Index 98 (see Exhibit 2)

Site Index 90 - 15,209 bd.ft.ac. (see Exhibit 3) Site Index 98 - 19,496 bd.ft.ac.(see Exhibit 3)

The remaining soil types have cf/ac/yr. ratings lower than the CMAI tables go. Therefore, volume figures per acre have been arrived at by comparing the cf/ac/yr ratings of the other soils to the cf/ac/yr ratings given above. Example: Soil Type 107C has a 45 cf/ac/yr rating. Dividing 45 cf/ac/yr by 131 cf/ac/yr (Soil Type 113G) shows the yield of Soil Type 107C to be 34.4% of Soil Type 113G. Using this method of proportioning, a volume of 6,697 bd.ft./ac. can be calculated for Soil Type 107C.

| | |
|---|---|
| 41C -Dixonville silty clay loam - 3.297 acres @ 15,209 bd.ft./ac. | 50,144 bd.ft. |
| 41E -Dixonville silty clay loam - 18.627 acres @ 15,209 bd.ft./ac. | 277,823 bd.ft. |
| 43C -Dixonville-Philomath-hazelair complex -14.403 ac.@ 6,697 bd.ft./ac. | 96,457 bd.ft. |
| 43E -Dixonville-Philomath-hazelair complex -10.845 ac.@ 6,697 bd.ft./ac. | 72,629 bd.ft. |
| 107C - Philomath silty clay - 13.768 acres @ 6,697 bd.ft./ac. | 92,342 bd.ft. |
| 113G - Ritner cobbly silty clay loam - 5.341 acres @ 19,496 bd.ft./ac. | 104,128 bd.ft. |
| 116G - Rock outcrop-Witzel complex - 14.904 acres @ 3,125 bd.ft./ac. | 46,575 bd.ft. |
| 138E - Witzel very cobbly loam - 21.424 acres @ 10,418 bd.ft./ac. | 223,195 bd.ft. |
| Total - 102.609 acres of Douglas-fir | 963,293 bd.ft. |

INCOME PROJECTIONS YEAR BY YEAR (See Exhibit 5 for Log Prices Used)

The following calculations will show the average gross income for each year from 1978 through 1982, as well as the average price for those five years. The highest log prices occurred from the first quarter of 1980 and continued through the third quarter of 1981 (see Exhibit 5). The calculations presented below will show that **highest possible** average gross income per year would be obtained using 1980 log prices. Furthermore, since the log prices remained the same throughout the entire year, the calculations for 1980 would also show the highest possible average gross income if only the highest quarters were used.

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.

**1978**

Total Volume - 963.29 MBF (thousand board feet)

| | |
|---|---|
| 385.32 MBF of 2 SAW @ $276/MBF | $106,348 |
| 481.64 MBF of 3 SAW @ $235/MBF | 113,185 |
| 96.33 MBF of 4 SAW @ $190/MBF | 18,303 |
| Total Projected Gross Revenue | $237,836 |

AVERAGE GROSS INCOME -- $237,836 ÷ 50 YEARS = $4,757/YEAR

**1979**

Total Volume - 963.29 MBF (thousand board feet)

| | |
|---|---|
| 385.32 MBF of 2 SAW @ $338/MBF | $130,238 |
| 481.64 MBF of 3 SAW @ $296/MBF | 142,565 |
| 96.33 MBF of 4 SAW @ $269/MBF | 25,913 |
| Total Projected Gross Revenue | $298,716 |

AVERAGE GROSS INCOME -- $298,716 ÷ 50 YEARS = $5,974/YEAR

**1980**

Total Volume - 963.29 MBF (thousand board feet)

| | |
|---|---|
| 385.32 MBF of 2 SAW @ $354/MBF | $136,403 |
| 481.64 MBF of 3 SAW @ $310/MBF | 149,308 |
| 96.33 MBF of 4 SAW @ $281/MBF | 27,069 |
| Total Projected Gross Revenue | $312,780 |

AVERAGE GROSS INCOME -- $312,780 ÷ 50 YEARS = $6,256/YEAR

**1981**

Total Volume - 963.29 MBF (thousand board feet)

| | |
|---|---|
| 385.32 MBF of 2 SAW @ $346/MBF | $133,321 |
| 481.64 MBF of 3 SAW @ $292/MBF | 140,639 |
| 96.33 MBF of 4 SAW @ $263/MBF | 25,335 |
| Total Projected Gross Revenue | $299,295 |

AVERAGE GROSS INCOME -- $299,295 ÷ 50 YEARS = $5,986/YEAR

**1982**

Total Volume - 963.29 MBF (thousand board feet)

| | |
|---|---|
| 385.32 MBF of 2 SAW @ $267/MBF | $102,880 |
| 481.64 MBF of 3 SAW @ $208/MBF | 100,181 |
| 96.33 MBF of 4 SAW @ $174/MBF | 16,761 |
| Total Projected Gross Revenue | $219,822 |

AVERAGE GROSS INCOME -- $219,822 ÷ 50 YEARS = $4,396/YEAR

The 1982 log prices also include a Camp Run (CR) price for 2, 3 and 4 saw. Camp Run prices are not always available, and when they are available, they are only given by **some** of the mills and only for **some** of the logs being purchased. However, to present all scenarios I have included camp run price calculations for the only year shown, 1982.

**1982 Camp Run Prices**

| | |
|---|---|
| Total Volume - 963.29 MBF @ $243/MBF | $234,079 |

AVERAGE GROSS INCOME -- $234,079 ÷ 50 YEARS = $4,682/YEAR

**1978-1982 AVERAGE**

| | |
|---|---|
| Total Volume - 963.29 MBF (thousand board feet) | |
| 385.32 MBF of 2 SAW @ $316/MBF | $121,761 |
| 481.64 MBF of 3 SAW @ $268/MBF | 129,080 |
| 96.33 MBF of 4 SAW @ $235/MBF | 22,638 |
| Total Projected Gross Revenue | $273,479 |

AVERAGE GROSS INCOME -- $273,479 ÷ 50 YEARS = $5,470/YEAR

## VI. 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 subject property produces less than 85 cu. ft./ac./yr. of merchantable timber volume; only 66.167 cubic feet. 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).

2) The estimated gross income based on a 50 year rotation for the 102.61 acre site would have ranged from a low of $219,822 in 1982 to a high of $312,780 in 1980. The average annual gross income would have ranged from a low of $4,396/year in 1982 to a high of $6,256/year in 1980. Because **all of the above figures** are 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."

In summary, I find from the specific site conditions present, empirical yield tables, available soils 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,

Marc E Settle

Oregon EXHIBIT 1

Theodore R. Kulongoski, Governor

**Department of Forestry**
State Forester's Office
2600 State Street
Salem, OR 97310
503-945-7200
FAX 503-945-7212
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"STEWARDSHIP IN FORESTRY"

November 21, 2008

Mr. Kent Howe
Lane County Land Management Division
125 E 8th Street
Eugene, Oregon 97401

Dear Mr. Howe:

I am writing to clarify the Oregon Department of Forestry's responsibilities related to specific elements of Oregon Administrative Rule 660-006-0005 (2) and (3). This letter is intended to address recent Lane County public inquiries regarding this administrative rule and was developed following consultations with the Oregon Department of Land Conservation and Development and the Oregon Department of Justice.

Please note that previous Department of Forestry policy position statements or technical findings contained in the May 23, 2008, letter from former Department of Forestry Private Forests Chief Ted Lorensen to Goal One Coalition Executive Director Jim Just that are in conflict with this letter are hereby rescinded and replaced with the policy statements and technical findings articulated here. All other statements in that correspondence remain valid.

Applicable Administrative Rule Language:

OAR 660-006-0005 (2) and (3) state:

> 2) "Cubic Foot Per Acre" means the average annual increase in cubic foot volume of wood fiber per acre for fully stocked stands at the culmination of mean annual increment as reported by the USDA Natural Resource Conservation Service (NRCS) soil survey information, USDA Forest Service plant association guides, Oregon Department of Revenue western Oregon site class maps, *or other information determined by the State Forester to be of comparable quality. Where such data are not available or are shown to be inaccurate, an alternative method for determining productivity may be used. An alternative method must provide equivalent data as explained in the Oregon Department of Forestry's Technical Bulletin entitled "Land Use Planning Notes Number 3 dated April 1998" and be approved by the Oregon Department of Forestry."*
>
> (3) "Cubic Foot Per Tract Per Year" means the average annual increase in cubic foot volume of wood fiber per tract for fully stocked stands at the culmination of mean annual increment as reported by the USDA Natural Resource Conservation Service (NRCS) soil survey information, USDA Forest Service plant association guides, Oregon Department of Revenue western Oregon site class maps, *or other information determined by the State Forester to be of comparable quality. Where such data are not available or are shown to be inaccurate, an alternative method for determining productivity may be used. An alternative method must provide equivalent data as explained in the Oregon Department of Forestry's Technical Bulletin entitled "Land Use Planning Notes Number 3 dated April 1998" and be approved by the Oregon Department of Forestry."* (Emphasis added)

Using the Best Possible Forest Site Productivity Information:

The administrative rule, in combination with *Land Use Planning Technical Note Number 3*, establishes a hierarchy of forest site productivity information that should be considered in land use decisions subject to the rule. Listed in order of preference, the information sources are:

1. Data sources cited specifically in the administrative rule;
2. Other existing data sources determined by the State Forester to be of comparable quality to the data sources cited specifically in the administrative rule;
3. Alternate methods to develop site productivity data based on direct tree measurements and calculations using applicable Douglas-fir, western hemlock, or ponderosa pine site tables, with priority given to the species among these three that dominates the area being evaluated;
4. Alternate methods based on direct tree measurements and calculations using other native forest tree species site tables; or
5. Site-specific soil surveys.

Applicable existing data from USDA Natural Resource Conservation Service (NRCS) soil survey information, USDA Forest Service plant association guides, Oregon Department of Revenue western Oregon site class maps should always be consulted and used first (Tier 1). If these three data sources are determined by the county and/or NRCS to be inaccurate or do not exist, only then should other applicable, existing data sources determined to be of comparable quality by the State Forester be consulted (Tier 2). Alternate methods for collecting new site productivity data are only needed when data from these first two tiers are determined by the county and/or NRCS to be inaccurate or do not exist. To be approved by the Department of Forestry such alternate methodologies must be consistent with the methodologies described or contemplated in the technical note. Alternate methods based on direct tree measurements and calculations using applicable Douglas-fir, western hemlock, or ponderosa pine site tables (Tier 3) should be considered before using site tables for other tree species (Tier 4) or site-specific soil surveys without direct tree measurements (Tier 5).

Consistent and credible site productivity determinations should be an important facet of the land use planning process. To meet that objective, this hierarchy should be adhered to. Attempts to consider a variety of methods simultaneously in hope of finding a "preferred" site productivity determination should be avoided.

Lane County Data Sources of Comparable Quality

The State Forester has determined the following existing site productivity data sources to be of comparable quality to the data sources cited specifically in the administrative rule when applied on appropriate locations in Lane County:

1. February 8, 1990, *Forest Lands Soils Ratings – Revisions* produced by the Oregon Department of Forestry
2. Undated *Lane County Forest Soils Ratings* based on published Soil Conservation Service data and the February 9, 1990, Oregon Department of Forestry report
3. August 1997 *Lane County Soil Ratings for Forestry and Agriculture* produced by the Lane County Council of Governments

No further Department of Forestry review or approval of site productivity determinations are needed when these data sources are used.

Ponderosa Pine in the Willamette Valley

In most western Oregon locations where both Douglas-fir and ponderosa pine are present, Douglas-fir will be the dominant species and, therefore, whenever possible that species should be used for selecting site trees. In infrequent cases where ponderosa pine is the dominant species in western Oregon, *Land Use Planning Technical Note Number 3* states that Meyer's ponderosa pine site table may be used in calculations of site productivity. However, the technical note also states Meyer's site table must not be used for ponderosa pine in the Willamette Valley. For the purpose of implementing this section of the technical note, the Department of Forestry will rely on the definition provided in OAR 660-033-0020 (12) in which "Willamette Valley" means "Clackamas, Linn, Marion, Multnomah, Polk, Washington and Yamhill Counties and that portion of Benton and Lane Counties lying east of the summit of the Coast Range."

The Department of Forestry has not been able to locate credible site index or yield tables for ponderosa pine applicable in the Willamette Valley. In a May 23, 2008, letter, Ted Lorensen noted that the department had used tables for ponderosa pine from Douglas County for the Forest Resource Trust, and that in the current absence of standard tables, ODF "would likely approve of methodology using the pine tables for Douglas County and appropriate interpolation." However, the Department of Forestry has since determined that interpolation of either Douglas County or Eastern Oregon ponderosa pine yield tables for the more highly productive Willamette Valley would not be technically sound.

Instead, energy should be focused on obtaining or developing, if possible, technically credible Willamette Valley-specific ponderosa pine site index tables. The Department of Forestry is willing to work cooperatively with county governments, Oregon State University Forestry Extension, forest landowners, and other parties to develop such information. Until a credible Willamette Valley ponderosa pine site table becomes available and is acknowledged in a revised ODF Technical Note, the Department of Forestry's position is that it is inappropriate to use ponderosa pine to determine site productivity for under OAR 660-006-0005

(2) and (3) in the Willamette Valley and use of such methodologies cannot be approved by the agency.

Outside the Willamette Valley, Meyer's ponderosa pine site table may continue to be used on sites where ponderosa pine is the dominate species and the Tier 1 and Tier 2 site productivity data sources cited above are determined by the county and/or NRCS to be inaccurate or do not exist.

Stockable Area

Cubic foot site productivity determinations assume fully stocked stands. In this context, "stockable area" means the proportion of an area that can be physically stocked with trees. Rock outcrops, impervious soils, or high water tables are examples of factors that may result in less than 100 percent of the site being stockable. The technical note anticipates this issue by referencing the USDA Forest Service Pacific Northwest Research Station *Field instructions for forest surveys in Washington, Oregon, and Northern California* where consideration of stockable area factors are addressed. Upon request by a county government, the Department of Forestry will evaluate and consider approval of reductions in site productivity from fully stocked stand levels based on such factors.

Limits on Department of Forestry Approvals

As stated in the technical note, the Department of Forestry does not measure site productivity for landowners. The Department of Forestry's involvement in site productivity determinations applicable to Oregon Administrative Rule 660-006-0005 (2) and (3) is in evaluating the quality of existing data sources other than those cited in the rule and evaluating alternative methodologies with respect to the technical note. The Department of Forestry will not issue findings on whether these data sources or alternate methodologies have been employed correctly or if the resulting site productivity determination are accurate. The Department of Forestry is not responsible for verifying field measurements.

Oregon Forest Practices Act Minimum Site Productivity Requirements for Reforestation

While not directly applicable to land use planning decisions, Department of Forestry believes it is important to note the Oregon Board of Forestry has established that all forestlands with a site productivity of at least 20 cubic feet per acre per year shall be subject to the reforestation requirements of the Oregon Forest Practices Act. Other technical references use 20 cubic feet per acre per year as the minimum threshold for defining commercial forestland. Local governments are encouraged to consider this information when establishing site productivity standards for land use planning processes.

In summary, the content of this letter is intended to further explain, and not alter, the requirements of Oregon Administrative Rule 660-006-0005 (2) and (3) and *Land Use Planning Technical Note Number 3*. Please contact me if you have any questions. If unresolved issues continue to arise, clarifying changes to the administrative rule and/or the Technical Note may eventually be necessary and the Department of Forestry will work together with county governments, the Oregon Department of Land Conservation and Development, and other interested parties on such changes.

Sincerely,

David Morman, Director
Forest Resources Planning Program

cc: Katherine Daniels, DLCD
Carmel Bender, DLCD
Michele Logan, DOJ

# EXHIBIT 2

CMAI FOR DOUGLAS FIR

| SITE INDEX | 100 YR. TABLE (PSME) 790-McARDLE CU.FT./ AC./YR. | CU.M./ HA./YR. | TOTAL AGE | SCRIBNER BD.FT./ AC./YR. | TOTAL AGE | INTER.1/8" BD.FT./ AC./YR. | TOTAL AGE | WEST SIDE 50 YR. (PSME) 795-KING CU.FT./ AC./YR. | CU.M./ HA./YR. | TOTAL AGE | EAST SIDE 50 YR. (PSMEG) 765-COCHRAN CU.FT./ AC./YR. | CU.M./ HA./YR. | TOTAL AGE | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90 | 70 | 4.9 | 60 | 199 | 160 | 373 | 110 | 116 | 8.1 | 90 | 104 | 7.3 | 90 | 41C & E ROUNDED UP |
| 91 | 72 | 5.0 | 60 | 206 | 160 | 382 | 110 | 118 | 8.2 | 90 | 107 | 7.5 | 89 | |
| 92 | 73 | 5.1 | 60 | 212 | 160 | 391 | 110 | 120 | 8.4 | 90 | 109 | 7.6 | 88 | |
| 93 | 74 | 5.2 | 60 | 219 | 160 | 401 | 110 | 122 | 8.5 | 90 | 112 | 7.8 | 87 | |
| 94 | 75 | 5.3 | 60 | 225 | 160 | 410 | 110 | 123 | 8.6 | 90 | 114 | 8.0 | 86 | |
| 95 | 77 | 5.4 | 60 | 232 | 160 | 420 | 110 | 125 | 8.8 | 90 | 117 | 8.2 | 84 | |
| 96 | 78 | 5.5 | 60 | 238 | 160 | 429 | 110 | 128 | 9.0 | 90 | 120 | 8.4 | 83 | |
| 97 | 79 | 5.5 | 60 | 244 | 150 | 438 | 110 | 130 | 9.1 | 90 | 122 | 8.5 | 82 | |
| 98 | 81 | 5.7 | 60 | 251 | 150 | 448 | 110 | 132 | 9.2 | 90 | 125 | 8.7 | 81 | 113 G ROUNDED UP |
| 99 | 82 | 5.7 | 60 | 258 | 150 | 457 | 110 | 134 | 9.4 | 90 | 127 | 8.9 | 80 | |
| 100 | 84 | 5.9 | 60 | 265 | 150 | 467 | 100 | 136 | 9.5 | 90 | 130 | 9.1 | 79 | |
| 101 | 85 | 5.9 | 60 | 273 | 150 | 478 | 100 | 138 | 9.6 | 90 | 133 | 9.3 | 78 | |
| 102 | 86 | 6.0 | 60 | 280 | 150 | 490 | 100 | 140 | 9.8 | 90 | 136 | 9.5 | 78 | |
| 103 | 88 | 6.2 | 60 | 288 | 150 | 501 | 100 | 141 | 9.9 | 90 | 139 | 9.7 | 77 | |
| 104 | 89 | 6.2 | 60 | 296 | 150 | 512 | 100 | 143 | 10.0 | 90 | 142 | 9.9 | 76 | |
| 105 | 91 | 6.3 | 60 | 304 | 150 | 524 | 100 | 145 | 10.1 | 90 | 145 | 10.1 | 76 | |
| 106 | 92 | 6.4 | 60 | 312 | 150 | 535 | 100 | 147 | 10.3 | 90 | 148 | 10.3 | 75 | |
| 107 | 94 | 6.6 | 60 | 320 | 140 | 547 | 100 | 149 | 10.4 | 90 | 151 | 10.6 | 74 | |
| 108 | 95 | 6.6 | 60 | 329 | 140 | 558 | 100 | 150 | 10.5 | 90 | 154 | 10.8 | 73 | |
| 109 | 97 | 6.8 | 60 | 337 | 140 | 569 | 100 | 152 | 10.6 | 90 | 157 | 11.0 | 73 | |
| 110 | 98 | 6.9 | 60 | 345 | 140 | 581 | 100 | 154 | 10.8 | 90 | 160 | 11.2 | 72 | |
| 111 | 100 | 7.0 | 60 | 354 | 140 | 594 | 100 | 156 | 10.9 | 90 | | | | |
| 112 | 101 | 7.1 | 60 | 363 | 140 | 606 | 100 | 158 | 11.0 | 90 | | | | |
| 113 | 103 | 7.2 | 60 | 372 | 130 | 619 | 100 | 160 | 11.2 | 90 | | | | |
| 114 | 105 | 7.3 | 60 | 381 | 130 | 631 | 100 | 162 | 11.3 | 90 | | | | |
| 115 | 106 | 7.4 | 60 | 390 | 130 | 644 | 90 | 163 | 11.4 | 90 | | | | |
| 116 | 108 | 7.6 | 60 | 399 | 130 | 656 | 90 | 167 | 11.7 | 90 | | | | |
| 117 | 110 | 7.7 | 60 | 408 | 130 | 669 | 90 | 169 | 11.8 | 90 | | | | |
| 118 | 111 | 7.8 | 60 | 418 | 130 | 681 | 90 | 171 | 11.9 | 90 | | | | |
| 119 | 113 | 7.9 | 60 | 427 | 130 | 694 | 90 | 173 | 12.1 | 90 | | | | |
| 120 | 115 | 8.0 | 60 | 437 | 120 | 710 | 90 | 175 | 12.2 | 90 | | | | |
| 121 | 116 | 8.1 | 60 | 446 | 120 | 723 | 90 | 176 | 12.3 | 90 | | | | |
| 122 | 118 | 8.3 | 60 | 456 | 120 | 736 | 90 | 178 | 12.5 | 90 | | | | |
| 123 | 119 | 8.3 | 60 | 465 | 120 | 749 | 90 | 180 | 12.6 | 90 | | | | |
| 124 | 121 | 8.5 | 60 | 475 | 120 | 762 | 90 | 182 | 12.7 | 90 | | | | |
| 125 | 122 | 8.5 | 60 | 485 | 120 | 776 | 90 | 184 | 12.9 | 90 | | | | |
| 126 | 124 | 8.7 | 60 | 494 | 120 | 789 | 90 | 186 | 13.0 | 90 | | | | |
| 127 | 125 | 8.7 | 60 | 504 | 120 | 802 | 90 | 188 | 13.1 | 90 | | | | |
| 128 | 127 | 8.9 | 60 | 513 | 120 | 815 | 90 | 190 | 13.2 | 90 | | | | |
| 129 | 128 | 9.0 | 60 | 523 | 120 | 828 | 90 | 191 | 13.4 | 90 | | | | |

EXHIBIT 3-1

TABLE 2

DOUGLAS FIR EMPIRICAL YIELD TABLE

SOURCE: For Douglas fir tables 2 through 10, D.N.R. Report No. 20 - May 1971, "Empirical Yield Tables for the Douglas fir Zone" by Charles Chambers, and Franklin Wilson. "Comprehensive Tree Volume Tarif Tables" by Dr. K. J. Turnbull, Gene Little, and Gerald Hoyer, June 1972. Stepwise multiple regression conversion made by Tom Wheatley, Publishers Paper Co., June 1978.

SITE 70

| Total Age | Normal Basal Area | Mean Diameter | CVTS | CV4 | SV6(32') | C/SCR Ratio |
|---|---|---|---|---|---|---|
| 20 | --- | --- | --- | --- | --- | --- |
| 26 | 9 | 8.25 | --- | --- | --- | --- |
| 30 | 38 | 8.57 | 517 | 517 | 1,185 | .436 |
| 40 | 91 | 9.36 | 1,874 | 1,847 | 4,196 | .440 |
| 41 | 96 | 9.44 | 2,004 | 1,963 | 4,554 | .431 |
| 50 | 128 | 10.11 | 3,126 | 3,008 | 8,115 | .371 |
| 60 | 158 | 10.80 | 4,275 | 4,138 | 12,572 | .329 |
| 70 | 182 | 11.43 | 5,320 | 5,196 | 17,176 | .302 |
| 80 | 202 | 11.98 | 6,261 | 6,141 | 21,544 | .285 |
| 90 | 220 | 12.43 | 7,099 | 6,941 | 25,350 | .274 |
| 100 | 235 | 12.78 | 7,833 | 7,574 | 28,374 | .267 |
| 110 | 249 | 13.01 | 8,463 | 8,021 | 30,405 | .264 |
| 120 | 261 | 13.10 | 8,989 | 8,266 | 31,279 | .264 |
| 130 | 273 | 13.04 | 9,412 | 8,297 | 30,900 | .269 |

TABLE 3

SITE 80

| Total Age | Normal Basal Area | Mean Diameter | CVTS | CV4 | SV6(32') | C/SCR Ratio |
|---|---|---|---|---|---|---|
| 20 | --- | --- | --- | --- | --- | --- |
| 26 | 26 | 8.52 | 269 | 269 | 633 | .425 |
| 30 | 55 | 8.91 | 921 | 921 | 1,614 | .570 |
| 40 | 108 | 9.87 | 2,479 | 2,330 | 5,870 | .397 |
| 41 | 113 | 9.96 | 2,630 | 2,467 | 6,342 | .389 |
| 50 | 146 | 10.79 | 3,934 | 3,707 | 11,118 | .333 |
| 60 | 175 | 11.65 | 5,285 | 5,060 | 17,062 | .297 |
| 70 | 199 | 12.45 | 6,532 | 6,330 | 23,187 | .273 |
| 80 | 219 | 13.17 | 7,675 | 7,473 | 29,038 | .257 |
| 90 | 237 | 13.79 | 8,715 | 8,454 | 34,240 | .247 |
| 100 | 252 | 14.31 | 9,651 | 9,251 | 38,541 | .240 |
| 110 | 266 | 14.71 | 10,482 | 9,842 | 41,709 | .236 |
| 120 | 279 | 14.97 | 11,211 | 10,216 | 43,565 | .235 |
| 130 | 290 | 15.08 | 11,835 | 10,365 | 44,000 | .236 |

TABLE 4

SITE 90

| Total Age | Normal Basal Area | Mean Diameter | CVTS | CV4 | SV6(32') | C/SCR Ratio |
|---|---|---|---|---|---|---|
| 20 | --- | --- | --- | --- | --- | --- |
| 26 | 49 | 8.91 | 777 | 777 | 1,351 | .575 |
| 30 | 77 | 9.36 | 1,506 | 1,426 | 2,708 | .526 |
| 40 | 128 | 10.49 | 3,256 | 2,985 | 8,393 | .356 |
| 41 | 132 | 10.60 | 3,425 | 3,145 | 9,019 | .349 |
| 50 | 165 | 11.57 | 4,902 | 4,591 | 15,209 | .302 |
| 60 | 193 | 12.60 | 6,444 | 6,160 | 22,777 | .270 |
| 70 | 217 | 13.56 | 7,883 | 7,630 | 30,483 | .250 |
| 80 | 236 | 14.44 | 9,217 | 8,949 | 37,795 | .237 |
| 90 | 254 | 15.23 | 10,448 | 10,087 | 44,347 | .227 |
| 100 | 269 | 15.90 | 11,576 | 11,016 | 49,807 | .221 |
| 110 | 283 | 16.45 | 12,599 | 11,726 | 53,977 | .217 |
| 120 | 295 | 16.87 | 13,519 | 12,204 | 56,690 | .215 |
| 130 | 306 | 17.14 | 14,335 | 12,432 | 57,813 | .215 |

SITE INDEX 90

# EXHIBIT 3-2

DOUGLAS FI EMPIRICAL YIELD TABLE

TABLE 5

SITE 100

| Total Age | Normal Basal Area | Mean Diameter | CVTS | CV4 | SV6(32') | C/SCR Ratio |
|---|---|---|---|---|---|---|
| 20 | 17 | 8.53 | 85 | 85 | 335 | .254 |
| 26 | 70 | 9.33 | 1,324 | 1,236 | 2,561 | .483 |
| 30 | 97 | 9.85 | 2,130 | 1,913 | 4,601 | .416 |
| 40 | 146 | 11.14 | 4,071 | 3,703 | 11,450 | .323 |
| 41 | 150 | 11.27 | 4,259 | 3,886 | 12,248 | .317 |
| 50 | 181 | 12.39 | 5,909 | 5,541 | 19,972 | .277 |
| 60 | 209 | 13.59 | 7,643 | 7,325 | 29,247 | .250 |
| 70 | 232 | 14.71 | 9,273 | 8,982 | 38,528 | .233 |
| 80 | 252 | 15.75 | 10,799 | 10,468 | 47,294 | .221 |
| 90 | 269 | 16.69 | 12,222 | 11,750 | 55,131 | .213 |
| 100 | 284 | 17.53 | 13,541 | 12,805 | 61,760 | .207 |
| 110 | 297 | 18.24 | 14,756 | 13,624 | 66,922 | .204 |
| 120 | 310 | 18.81 | 15,867 | 14,190 | 70,448 | .201 |
| 130 | 321 | 19.24 | 16,875 | 14,502 | 72,234 | .201 |

SITE INDEX 98
19,496 BD.FT.

TABLE 6

SITE 110

| Total Age | Normal Basal Area | Mean Diameter | CVTS | CV4 | SV6(32') | C/SCR Ratio |
|---|---|---|---|---|---|---|
| 20 | 30 | 8.74 | 327 | 327 | 666 | .491 |
| 26 | 83 | 9.63 | 1,688 | 1,494 | 3,299 | .453 |
| 30 | 109 | 10.23 | 2,574 | 2,253 | 5,812 | .388 |
| 40 | 158 | 11.69 | 4,717 | 4,275 | 14,125 | .303 |
| 41 | 162 | 11.83 | 4,926 | 4,482 | 15,074 | .297 |
| 50 | 194 | 13.11 | 6,757 | 6,345 | 24,305 | .261 |
| 60 | 222 | 14.47 | 8,693 | 8,344 | 35,244 | .237 |
| 70 | 245 | 15.76 | 10,525 | 10,200 | 46,141 | .221 |
| 80 | 264 | 16.97 | 12,253 | 11,863 | 56,425 | .210 |
| 90 | 281 | 18.09 | 13,878 | 13,304 | 65,675 | .203 |
| 100 | 296 | 19.09 | 15,398 | 14,503 | 73,549 | .197 |
| 110 | 310 | 19.97 | 16,815 | 15,448 | 79,836 | .193 |
| 120 | 322 | 20.72 | 18,129 | 16,126 | 84,358 | .191 |
| 130 | 333 | 21.31 | 19,338 | 16,528 | 86,957 | .190 |

TABLE 7

SITE 120

| Total Age | Normal Basal Area | Mean Diameter | CVTS | CV4 | SV6(32') | C/SCR Ratio |
|---|---|---|---|---|---|---|
| 20 | 51 | 9.11 | 819 | 770 | 1,355 | .568 |
| 26 | 101 | 10.10 | 2,294 | 1,961 | 4,810 | .408 |
| 30 | 126 | 10.77 | 3,257 | 2,821 | 7,992 | .353 |
| 40 | 173 | 12.39 | 5,592 | 5,093 | 18,116 | .281 |
| 41 | 177 | 12.55 | 5,820 | 5,324 | 19,255 | .277 |
| 50 | 208 | 13.98 | 7,823 | 7,389 | 30,132 | .245 |
| 60 | 235 | 15.50 | 9,951 | 9,588 | 42,783 | .224 |
| 70 | 258 | 16.96 | 11,974 | 11,611 | 55,265 | .210 |
| 80 | 277 | 18.33 | 13,894 | 13,424 | 66,954 | .200 |
| 90 | 294 | 19.60 | 15,710 | 14,992 | 77,437 | .194 |
| 100 | 309 | 20.76 | 17,423 | 16,297 | 86,410 | .189 |
| 110 | 322 | 21.80 | 19,031 | 17,334 | 93,643 | .185 |
| 120 | 334 | 22.70 | 20,536 | 18,091 | 98,946 | .183 |
| 130 | 345 | 23.45 | 21,937 | 18,561 | 102,187 | .182 |

ATTACHMENT D

EXHIBIT 4-1

NEIL GOLDSCHMIDT
GOVERNOR

*Forestry Department*

# OFFICE OF STATE FORESTER

2600 STATE STREET, SALEM, OREGON 97310 PHONE 378-2560

General File 7-1-1

MEMORANDUM

Subj: Forest Lands Soils Ratings - Revisions

To : Ron Eber, Policy Analyst, DLCD

From: Dave Stere, Director, Forest Resources Planning

Date: February 8, 1990

Attached are revisions to my listing of Forest Soils Productivity Ratings for Lane, Benton, Linn, Marion, Polk and Yamhill Counties.

I've revised these ratings based upon the valuable information gained during the field tour in Lane County, and on the vegetational comparisons that we can now make as a result of that information.

I'm certain that more revisions are warranted in other areas and on other soils. As I mentioned to you before, we are ready and willing to make revisions if field-gathered information shows them warranted.

I'll send copies of these revisions to Jerry Latshaw and Herb Huddleston and to the affected Counties.

DS-200

EXHIBIT 4-2



2-7-90

LANE COUNTY - FOREST SOILS RATINGS

| SCS # | SCS Name | (Site Index) Rating | | SCS Acreage | Cuft/Ac per yr |
|---|---|---|---|---|---|
| 004G | Atring-Rock Outcrop Complex, 30-60% | Med | 120 | 1140 | 86 |
| 005 | Awbrig sicl | 3 | | 9890 | est 40 |
| 006 | Awbrig Urban Land complex | 3 | | 350 | est 20 |
| 008 | Bashaw c | 3 | | 9650 | est 30 |
| 009 | Bashaw-Urban Land complex | 3 | | 350 | est 20 |
| 010 | Beaches | 3 | | 1000 | |
| 017 | Brallier muck, drained | 3 | | 1160 | |
| 018 | Brallier muck, tidal | 3 | | 930 | |
| 019 | Brenner sicl | 3 | | 860 | |
| 021B | Bullards-Ferrelo loams, 0-7% | Med | 144 | 510 | est 80 |
| 021C | Bullards-Ferrelo loams, 7-12% | Med | 144 | 1560 | est 80 |
| 021E | Bullards-Ferrelo loams, 12-30% | Med | 144 | 1210 | est 80 |
| 021G | Bullards-Ferrelo loams, 30-60% | Med | 144 | 850 | est 80 |
| 022 | Camas gr si, occ flooded | 3 | | 6370 | est 40 |
| 023 | Camas-Urban land complex | 3 | | 600 | est 20 |
| 028C | Chehulpum sil, 3-12% | 3 | | 1970 | est 40 |
| 028E | Chehulpum sil, 12-40% | 3 | | 440 | est 40 |
| 033 | Conser sicl | 3 | | 4200 | est 45 |
| 034 | Courtney gr sicl | 3 | | 2920 | est 40 |
| 035 | Dayton, sil, clay sub | 3 | | 4280 | est 40 |
| 042E | Dixonville-Hazelair-Urban Land, 12-35% | Low | | 640 | est 35 |
| 043C | Dixonville-Philomath-Hazelair, 3-12% | Med | | 11480 | est 45 |
| 043E | Dixonville-Philomath-Hazelair, 12-35% | Med | | 22990 | est 45 |
| 044 | Dune Land | 3 | | 5870 | |
| 045C | Dupee sil, 3-20% | Med | | 20190 | est70 * |
| 048 | Fluvents, Nearly Level | 3 | | 9550 | |
| 052B | Hazelair sicl, 2-7% | Low | | 5680 | est 40 |
| 052D | Hazelair, 7-20% | Low | | 41510 | est 40 |
| 053 | Heceta fs | 3 | | 2010 | est 20 |
| 073 | Linslaw l | 2 | | 5700 | est 80 |
| 075 | Malabon sicl | 2 | | 15350 | est 65 |
| 076 | Malabon-Urban Land complex | 2 | | 6420 | est 50 |
| 077B | Marcola cob sicl, 2-7% | Med | | 690 | est 70 |
| 085 | Natroy sicl | 3 | | 15170 | est 60 |
| 086 | Natroy sic | 3 | | 2100 | est 60 |
| 087 | Natroy-Urban Land Complex | 3 | | 610 | est 40 |
| 094C | Netarts fs, 3-12% | Med | 80 | 1060 | 58 |
| 094E | Netarts fs, 12-30% | Med | 80 | 420 | 58 |
| 098 | Noti l | 3 | | 3860 | est 30 |
| 100 | Oxley gr sil | 2 | | 2010 | est 80 |
| 101 | Oxley-Urban land complex | 2 | | 870 | est 60 |
| 102C | Panther sicl, 2-12% | 3 | | 8400 | est 45 |
| 103C | Panther-Urban Land complex, 2-12% | 3 | | 440 | est 40 |
| 105A | Pengra sil, 1-4% | 3 | | 5070 | est 45 |
| 106A | Pengra-Urban land complex, 1-4% | 3 | | 780 | est 30 |
| 107C | Philomath sic, 3-12% | Low | | 2280 | est 45 |
| 108C | Philomath cob sic, 3-12% | Low | | 2280 | est 45 |
| 108F | Philomath cob sic, 12-45% | Low | | 7090 | est 45 |
| 109F | Philomath-Urban land complex, 12-45% | Low | | 270 | est 20 |

EXHIBIT 4-3

| | | | | | |
|---|---|---|---|---|---|
| ' | Pits | 3 | 700 | | |
| 1 | Riverwash | 3 | 2050 | | |
| H | Rock Outcrop-Kilchis complex, 30-90% | Low | 3950 | | 34 |
| G | Rock Outcrop-Witzel complex, 10-70% | Low | 1480 | | 21 |
| C | Steiwer l, 3-12% | Low | 2790 | est | 30 |
| D | Steiwer l, 12-20% | Low | 1000 | est | 30 |
| F | Steiwer l, 20-50% | Low | 1240 | est | 30 |
| C | Urban Land-Hazelair-Dixonville, 3-12% | Low | 1450 | est | 45 |
| ) | Waldo sicl | 3 | 7550 | est | 45 |
| C | Waldport fs, 0-12% | Low 92 | 1700 | | 29 |
| E | Waldport fs, 12-30% | Low 92 | 1000 | | 29 |
| G | Waldport fs, 30-70% | Low 92 | 650 | | 29 |
| E | Waldport fs, thin surf., 0-30% | Low 92 | 2110 | | 29 |
| C | Waldport-Urban Land Complex, 0-12% | Low | 250 | est | 20 |
| ; | Willanch fsl | 3 | 870 | est | 40 |
| F | Winberry v gr l, 10-45% | Low 70 | 560 | | 48 |
| E | Witzel v cob l, 3-30% | Med 90 | 5780 | | 70 |
| G | Witzel v cob l, 30-75% | Med 90 | 5520 | | 70 |
| 1 | Yaquina-Urban land complex | 3 | 260 | est | 45 |
| G | Yellowstone-Rock Outcrop, 10-60% | Low 86 | 1560 | | 38 |

No examples of Forested lands on Dupee soil found...adjacent areas had a productivity rating of (est) 45 cuft/acre/yr. This rating is questionable.

tal - LOW & MEDIUM ratings -- 293,500 acres

| | | | | | |
|---|---|---|---|---|---|
| 1A | Abiqua sicl, 0-3% | High 152 | 5210 | | 161 |
| 1B | Abiqua sicl, 3-5% | High 152 | 1230 | | 161 |
| 2E | Astoria sil, 5-30% | High 170 | 3380 | | 181 |
| 3E | Astoria Variant sil, 3-30% | High 170 | 200 | | 181 |
| 3G | Astoria Variant sil, 30-60% | High 170 | 1500 | | 181 |
| 7B | Bandon sl, 0-7% | High 138 | 240 | | 142 |
| 7C | Bandon sl, 7-12% | High 138 | 220 | | 142 |
| 7F | Bandon sl, 12-50% | High 138 | 270 | | 142 |
| 1C | Bellpine sicl, 3-12% | High 155 | 15950 | | 164 |
| 1D | Bellpine sicl, 12-20% | High 155 | 58600 | | 164 |
| 1E | Bellpine sicl, 20-30% | High 155 | 38100 | | 164 |
| 1F | Bellpine sicl, 30-50% | High 155 | 27100 | | 164 |
| 2E | Bellpine cob sicl, 2-30% | High 155 | 4230 | | 164 |
| 3F | Blachly cl, 30-50% | High 148 | 13400 | | 156 |
| 3G | Blachly cl, 50-70% | High 148 | 2960 | | 176 |
| 4E | Blachly sicl, 3-30% | High 165 | 7030 | | 176 |
| 4F | Blachly sicl, 30-50% | High 165 | 8520 | | 176 |
| 5E | Blachly-McCully cls, 3-30% | High 147 | 23000 | | 155 |
| 6D | Bohannon gr l, 3-25% | High 155 | 15800 | | 164 |
| 6F | Bohannon gr l, 25-50% | High 155 | 27770 | | 164 |
| 6H | Bohannon gr l, 50-90% | High 155 | 92000 | | 164 |
| | Briedwell cob l, 0-7% | High 135 | 1780 | | 138 |
| | Chapman l | 1 | 3800 | est | 140 |
| 5 | Chapman-Urban land complex | 1 | 1070 | est | 100 |
| 6 | Chehalis sicl, occ flooded | 1 | 9300 | est | 100 |
| 7 | Chehalis-Urban land complex | 1 | 700 | est | 90 |
| | | 1 | 5170 | est | 120 |

EXHIBIT 4-4

| | | | | | |
|---|---|---|---|---|---|
| | Coburg sicl | 1 | 13480 | est | 100 |
| | Coburg-Urban land complex | 1 | 2740 | est | 90 |
| D | Crusier gr cl, 3-25% | High | 135 | 2670 | 138 |
| F | Crusier gr cl, 25-50% | High | 135 | 1710 | 138 |
| G | Cruiser gr cl, 35-70% | High | 135 | 360 | 138 |
| D | Cumley sicl, 2-20% | High | 154 | 34000 | 163 |
| C | Cupola cob l, 3-12% | High | 124 | 2530 | 121 |
| E | Cupola cob l, 12-30% | High | 124 | 1110 | 121 |
| E | Digger gr l, 10-30% | High | 145 | 970 | 152 |
| F | Digger gr l, 30-50% | High | 145 | 3730 | 152 |
| H | Digger-Rock outcrop complex, 50-85% | High | 145 | 62140 | 114 |
| C | Dixonville sicl, 3-12% | High | 120 | 3360 | 115 |
| E | Dixonville sicl, 12-30% | High | 120 | 3670 | 115 |
| F | Dixonville sicl, 30-50% | High | 120 | 3280 | 115 |
| | Eilertsen sil | High | 159 | 1580 | 169 |
| E | Fendall sil, 3-30% | High | 150 | 720 | 158 |
| E | Formander l, 3-30% | High | 162 | 4690 | 172 |
| G | Formander l, 30-60% | High | 162 | 5130 | 172 |
| G | Formander-Hembre-Klicitat, 50-80% | High | 165 | 24510 | 170 |
| B | Haflinger-Jimbo complex, 0-5% | High | 159 | 1990 | 161 |
| D | Hembre sil, 5-25% | High | 170 | 650 | 181 |
| G | Hembre sil, 25-60% | High | 170 | 1030 | 181 |
| E | Hembre-Klickitat complex, 3-30% | High | | 1920 | 170 |
| G | Hembre-Klickitat complex, 30-60% | High | | 1760 | 168 |
| | Holcomb sicl | 1 | | 1560 | est 100 |
| D | Holderman ext cob l, 5-25% | High | 120 | 490 | 98 |
| F | Holderman ext cob l, 25-50% | High | 120 | 1900 | 98 |
| G | Holderman ext cob l, 50-75% | High | 120 | 1600 | 98 |
| D | Honeygrove sicl, 3-25% | High | 165 | 31050 | 176 |
| F | Honeygrove sicl, 25-50% | High | 165 | 10430 | 176 |
| D | Hullt l, 2-30% | High | 165 | 480 | 176 |
| G | Hullt l, 30-60% | High | 165 | 400 | 176 |
| D | Hummington gr l, 5-25% | High | 145 | 840 | 152 |
| | Hummington gr l, 25-50% | High | 145 | 1620 | 152 |
| | Hummington gr l, 50-75% | High | 145 | 7530 | 152 |
| | Jimbo sil | High | 162 | 2550 | 173 |
| | Jimbo-Haflinger complex, 0-5% | High | | 590 | 167 |
| D | Jory sicl, 2-12% | High | 155 | 4560 | 164 |
| D | Jory sicl, 12-20% | High | 155 | 6940 | 164 |
| D | Jory sicl, 20-30% | High | 155 | 3130 | 164 |
| D | Keel cob cl, 3-25% | High | 139 | 6390 | 144 |
| | Keel cob cl, 35-45% | High | 139 | 9300 | 144 |
| | Keel cob cl, 45-75% | High | 139 | 5060 | 144 |
| | Kilchis st l, 30-60% | High | 110 | 2370 | 98 |
| | Kilchis st l, 60-90% | High | 110 | 7920 | 98 |
| | Kinney cob l, 3-20% | High | 150 | 6970 | 158 |
| | Kinney cob l, 20-50%, N | High | 162 | 9010 | 172 |
| | Kinney cob l, 50-70%, N | High | 162 | 18220 | 172 |
| | Kinney cob l, 20-50%, S | High | 150 | 13710 | 164 |
| | Kinney cob l, 50-70%, S | High | 150 | 7780 | 164 |
| | Kinney cob l, slump, 3-30% | High | 168 | 15530 | 180 |
| | Klickitat st l, 3-30% | High | 144 | 10050 | 165 |
| | Klickitat st l, 30-50%, N | High | 156 | 8350 | 165 |
| | Klickitat st l, 50-75%, N | High | 156 | 37150 | 145 |
| | Klickitat st l, 30-50%, S | High | 140 | 25900 | 145 |
| | Klickitat st l, 50-75%, S | | | | |

EXHIBIT 4-5

| | | | | | |
|---|---|---|---|---|---|
| 4B | Lint sil, 0-7% | High | 160 | 1120 | 170 |
| 074C | Lint sil, 7-12% | High | 160 | 1510 | 170 |
| 074D | Lint sil, 12-20% | High | 160 | 1860 | 170 |
| 074E | Lint sil, 20-40% | High | 160 | 1920 | 170 |
| 078 | McAlpin sicl | High | 159 | 11860 | 169 |
| 079 | McBee sicl | 1 | | 5200 est | 100 |
| 080F | McKully cl, 30-50% | High | 162 | 7730 | 172 |
| 080G | McKully cl, 50-70% | High | 162 | 4210 | 172 |
| 081D | McDuff cl, 3-25% | High | 142 | 3010 | 148 |
| 081F | McDuff cl, 25-50% | High | 142 | 3000 | 148 |
| 081G | McDuff cl, 50-70% | High | 142 | 950 | 148 |
| 82C | Meda l, 2-12% | High | 161 | 10650 | 171 |
| 83B | Minniece sicl, 0-8% | High | 130 | 1420 | 129 |
| 84D | Mulkey l, 5-25% | High | 143 | 230 | 224 |
| 88 | Nehalem sil | High | 174 | 5950 | 186 |
| 89C | Nekia sicl, 2-12% | High | 151 | 4960 | 159 |
| 89D | Nikia sicl, 12-20% | High | 151 | 15520 | 159 |
| 89E | Nikia sicl, 20-30% | High | 151 | 8760 | 159 |
| 89F | Nikia sicl, 30-50% | High | 151 | 7580 | 159 |
| 90 | Nekoma sil | High | 180 | 7170 | 191 |
| 91D | Neskowin sil, 12-20% | High | 133 | 560 | 205 |
| 91E | Neskowin sil, 20-40% | High | 133 | 230 | 205 |
| 92G | Neskowin-Salander sil, 40-60% | High | 133 | 4350 | 205 |
| 93 | Nestucca sil | 1 | | 5830 est | 130 |
| 95 | Newberg fsl | 1 | | 2970 est | 150 |
| 9 | Newberg l | 1 | | 4490 est | 150 |
| 7 | Newberg-Urban land complex | 1 | | 930 est | 100 |
| 9H | Ochrepts & Umbrepts, v. steep | 1 | | 1070 est | 130 |
| 04E | Peavine sicl, 3-30% | High | 155 | 68300 | 164 |
| 04G | Peavine sicl, 30-60% | High | 155 | 124810 | 164 |
| 1D | Preacher l, 0-25% | High | 181 | 10950 | 192 |
| 1F | Preacher l, 25-50% | High | 181 | 25600 | 192 |
| 2G | Preacher-Bohannon-Slickrock, 50-75% | High | | 113500 | 185 |
| 3C | Ritner cob sicl, 2-12% | High | 131 | 2940 | 131 |
| 3E | Ritner cob sicl, 12-30% | High | 131 | 14890 | 131 |
| 3G | Ritner cob sicl, 30-60% ★ | High | 131 | 21340 | 131 ★ |
| 7E | Salander sil, 12-30% | High | 133 | 770 | 205 |
| 8 | Salem gr sil | 1 | | 7550 est | 130 |
| 9 | Salem-Urban land complex | 1 | | 2300 est | 100 |
| 0B | Salkum sil, 2-6% | High | 145 | 5060 | 151 |
| 1B | Salkum sicl, 2-8% | High | 145 | 5160 | 151 |
| 1C | Salkum sicl, 8-16% | High | 145 | 2160 | 151 |
| 2 | Saturn cl | High | 162 | 4210 | 172 |
| 3 | Sifton gr l | 1 | | 650 | |
| 4D | Slickrock gr l, 3-25% | High | 194 | 1850 | 203 |
| 4F | Slickrock gr l, 25-50% | High | 194 | 1500 | 203 |
| 6F | Tahkenitch l, 20-45% | High | 156 | 390 | 165 |
| 6G | Tahkenitch l, 45-75% | High | 156 | 500 | 165 |
| 8B | Veneta l, 0-7% | High | 139 | 11930 | 144 |
| 9B | Veneta Variant sil, 0-7% | High | 150 | 1320 | 158 |
| 5 | Willakenzie cl, 2-12% | High | 160 | 2500 | 170 |
| 5D | Willakenzie cl, 12-20% | High | 160 | 7320 | 170 |
| 5E | Willakenzie cl, 20-30% | High | 160 | 6490 | 170 |
| 5F | Willakenzie cl, 30-50% | High | 160 | 10610 | 170 |
| 9 | Woodburn sil | 1 | | 215 est | 170 |

# EXHIBIT 4-6

1 - HIGH rating -- 1,455,415 acres

ıese soils ratings are based upon published SCS data. Estimates
e derived by the Oregon Department of Forestry from comparisons
natural vegetation complex information in published SCS data for
ıils where the data do not include measured forest productivity
ıformation with other soils where such information is available.

ıils marked with numbers are soils where the data are insufficient
ı make a more-precise determination; or where SCS data indicates
ıat forest growth is unlikely. Soils are not rated where data
ıdicate that tree growth does not occur on the soil.

3" indicates productivity probably less than 50 cuft/ac/yr
2" indicates productivity probably between 50 and 85 cuft/ac/yr
1" indicates productivity probably more than 85 cuft/ac/yr

ıere the soil is given a number rating, the productivity estimate
ıown is of lower precision than for other productivity estimates.

EXHIBIT 5-1

# DOUGLAS FIR LOG PRICES 1978-1982, 1983

**REGION 1 - WESTERN OREGON UNIT**
**Reporting format: ODF reporting as of 4th quarter 1981**
Source: Oregon Department of Forestry Forest Management Division
http://www.odf.state.or.us/divisions/management/asset_management/logprices/logP483.HTM

**Domestically Processed Logs (Delivered to a mill; "Pond Value")**

## 1978

| Douglas-Fir Grade | Quarter 1st | 2nd | 3rd | 4th | Average |
|---|---|---|---|---|---|
| #1P | $ 460 | 475 | 475 | 475 | 471 |
| #2P | $ 415 | 435 | 435 | 435 | 430 |
| #3P | $ 358 | 389 | 389 | 389 | 381 |
| SM | $ 283 | 338 | 338 | 338 | 324 |
| #2S | $ 242 | 287 | 287 | 287 | 276 |
| #3S | $ 191 | 250 | 250 | 250 | 235 |
| #4S | $ 161 | 200 | 200 | 200 | 190 |
| SC | $ 125 | 157 | 157 | 157 | 149 |
| Utility | $ 70 | 80 | 80 | 80 | 78 |

## 1979

| Douglas-Fir Grade | Quarter 1st | 2nd | 3rd | 4th | Average |
|---|---|---|---|---|---|
| #1P | $ 531 | 531 | 584 | 584 | 555 |
| #2P | $ 476 | 476 | 523 | 523 | 500 |
| #3P | $ 425 | 425 | 467 | 467 | 446 |
| SM | $ 385 | 385 | 423 | 423 | 404 |
| #2S | $ 322 | 322 | 354 | 354 | 338 |
| #3S | $ 282 | 282 | 310 | 310 | 296 |
| #4S | $ 256 | 256 | 281 | 281 | 269 |
| SC | $ 160 | 160 | 176 | 176 | 168 |
| Utility | $ 90 | 90 | 99 | 99 | 95 |

## 1980

| Douglas-Fir Grade | Quarter 1st | 2nd | 3rd | 4th | Average |
|---|---|---|---|---|---|
| #1P | $ 584 | 584 | 584 | 584 | 584 |
| #2P | $ 523 | 523 | 523 | 523 | 523 |
| #3P | $ 467 | 467 | 467 | 467 | 467 |
| SM | $ 423 | 423 | 423 | 423 | 423 |
| #2S | $ 354 | 354 | 354 | 354 | 354 |
| #3S | $ 310 | 310 | 310 | 310 | 310 |
| #4S | $ 281 | 281 | 281 | 281 | 281 |
| SC | $ 176 | 176 | 176 | 176 | 176 |
| Utility | $ 99 | 99 | 99 | 99 | 99 |

EXHIBIT 5-2

**1981**

| Douglas-Fir Grade | Quarter | | | | Average |
|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | 4th | |
| #1P | $ 584 | 584 | 584 | 648 | 648 |
| #2P | $ 523 | 523 | 523 | 550 | 550 |
| #3P | $ 467 | 467 | 467 | 439 | 439 |
| SM | $ 423 | 423 | 423 | 390 | 415 |
| #2S | $ 354 | 354 | 354 | 323 | 346 |
| #3S | $ 310 | 310 | 310 | 238 | 292 |
| #4S | $ 281 | 281 | 281 | 208 | 263 |
| SC | $ 176 | 176 | 176 | 212 | 185 |
| Utility | $ 99 | 99 | 99 | 104 | 100 |

**1982**

| Douglas-Fir Grade | Quarter | | | | Average |
|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | 4th | |
| 1P | $ 600 | 512 | 512 | 512 | 534 |
| 2P | $ 510 | 439 | 439 | 439 | 457 |
| 3P | $ 425 | 370 | 370 | 370 | 384 |
| SM | $ 375 | 316 | 316 | 316 | 331 |
| 2S | $ 295 | 258 | 258 | 258 | 267 |
| 3S | $ 225 | 202 | 202 | 202 | 208 |
| 4S | $ 190 | 169 | 169 | 169 | 174 |
| SC | $ 190 | 164 | 164 | 164 | 171 |
| Utility | $ 90 | 123 | 123 | 123 | 115 |
| CR (2S & better) | $ -- | 303 | 303 | 303 | 303 |
| CR (2S, 3S, and 4S) | $ -- | 243 | 243 | 243 | 243 |

**1983**

| Douglas-Fir Grade | Quarter | | | | Average |
|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | 4th | |
| 1P | $ 512 | 505 | 505 | 505 | 507 |
| 2P | $ 439 | 410 | 425 | 425 | 425 |
| 3P | $ 370 | 325 | 340 | 340 | 343 |
| SM | $ 316 | 275 | 285 | 285 | 290 |
| 2S | $ 258 | 250 | 255 | 255 | 255 |
| 3S | $ 202 | 210 | 215 | 215 | 211 |
| 4S | $ 169 | 195 | 200 | 200 | 191 |
| SC | $ 164 | 130 | 140 | 140 | 144 |
| Utility | $ 123 | 75 | 75 | 75 | 87 |
| CR (2S & better) | $ 303 | -- | -- | -- | 303 |
| CR (2S, 3S, and 4S) | $ 243 | 240 | 240 | 240 | 241 |

EXHIBIT 5-3

## DOUGLAS FIR LOG PRICES 1978-1982, 1983

| DF Grade | 1978-1982 Average | 1983 Average | %+ | % - |
|---|---|---|---|---|
| 1P | $ 558 | 507 | | - 9.1% |
| 2P | $ 492 | 425 | | -13.6% |
| 3P | $ 423 | 343 | | -18.9% |
| SM | $ 379 | 290 | | -23.5% |
| 2S | $ 316 | 255 | | -19.3% |
| 3S | $ 268 | 211 | | -21.3% |
| 4S | $ 235 | 191 | | -18.7% |
| SC | $ 170 | 144 | | -15.3% |
| Utility | $ 97 | 87 | | -10.3% |
| CR (2S & better) | $ 303 | 303 | | n/c |
| CR (2S, 3S, and 4S) | $ 243 | 241 | | - 0.8% |
| Average* | $ 326 | 273 | 19.4** | -16.3 |

*In the absence of information concerning distribution of grades, it is not possible to assign the different grades their proper weight in calculating an overall average. This calculation assigns each grade equal weight, with the exception of the CR grades which were used only during the years 1982 and 1983 years and are not included.

** % by which 1978-82 prices exceed 1983 prices

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December 2, 2008

**SUPPLEMENT TO**
**FOREST PRODUCTIVITY ANALYSIS**
**for**
**Carol Sutton**



**SUBJECT PARCEL: ASSESSORS MAP NO. 18-01-33**
**TL #106, totaling ±102.61 ac.**

**QUALIFICATIONS:** Society of American Foresters Certified Professional Forester (#2953), with 30 years of experience including 20 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 preparation of 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 generate a long term profit, rather than a loss.

## I. INTRODUCTION

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 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 477.001(21).

2. The income generated from the subject property averages less than $10,000/year, based on 1978 through 1982 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."

The timber productivity (cu.ft./ac./yr.) figures were obtained from the Lane County Soil Ratings contained in the Office of the State Forester Memorandum (Feb. 8, 1990, General File 7-1-1). These tables are approved by the Oregon Department of Forestry as a "Tier 2" source (see Exhibit 1). A "Tier 2" source was used because the data was not available using "Tier 1" sources (see Exhibit 1). This source provides 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.

Merchantable timber volume per acre for each soil type is needed for the income test. These estimates are obtained from the CMAI (Culmination of Mean Annual Increment) FOR DOUGLAS-FIR Table (see Exhibit 2) and the Empirical Yield Tables for the Douglas-fir Zone, Washington Department of Natural Resources by Charles Chambers and Franklin Wilson (see Exhibit 3). The estimates of volumes from these tables are based on a Site Index number. The site index number can be obtained (if possible) from NRCS data or by taking the cf/ac/yr figures from the State Forester Memo and matching this number to the site index number on the CMAI table for Douglas-fir. After calculating a total merchantable volume for the parcel being analyzed, 1978-1982 log prices from the Oregon State Department of Forestry data (published quarterly) have been used to determine the total income generated from the timber.

## IV. RESULTS OF INCOME CALCULATIONS

The site index number can be obtained by taking the cf/ac/yr figures from the State Forester Memo and matching these numbers to the site index number shown on the CMAI tables for conifer species. These tables were developed using the applicable yield tables for each different species. The west side 50 year King's data are used for these calculations. This is the most appropriate table for Douglas-fir growing west of the Cascades. With a site index number, volume per acre estimates are obtained from the Empirical Yield Tables for the Douglas-fir Zone, Washington Department of Natural Resources by Charles Chambers and Franklin Wilson. If a cf/ac/yr number was so low that it did not appear on the table, the volumes were arrived at through proportioning.

Adding the volume per acre of all the soil types together will give a total for the entire parcel. A fifty year rotation (growth cycle to final harvest) was used, as this is the rotation age accepted by Lane County, and approved by LUBA. The State of Oregon also accepts this rotation.

CALCULATIONS:

41C&E Dixonville silty clay loam 115 cf/ac/yr = 50 yr. Site Index 90 (see Exhibit 2)

113G Ritner cobbly silty clay loam 131 cf/ac/yr = 50 yr. Site Index 98 (see Exhibit 2)

Site Index 90 - 15,209 bd.ft.ac. (see Exhibit 3) Site Index 98 - 19,496 bd.ft.ac.(see Exhibit 3)

The remaining soil types have cf/ac/yr. ratings lower than the CMAI tables go. Therefore, volume figures per acre have been arrived at by comparing the cf/ac/yr ratings of the other soils to the cf/ac/yr ratings given above. Example: Soil Type 107C has a 45 cf/ac/yr rating. Dividing 45 cf/ac/yr by 131 cf/ac/yr (Soil Type 113G) shows the yield of Soil Type 107C to be 34.4% of Soil Type 113G. Using this method of proportioning, a volume of 6,697 bd.ft./ac. can be calculated for Soil Type 107C.

| | |
|---|---|
| 41C -Dixonville silty clay loam - 3.297 acres @ 15,209 bd.ft./ac. | 50,144 bd.ft. |
| 41E -Dixonville silty clay loam - 18.627 acres @ 15,209 bd.ft./ac. | 277,823 bd.ft. |
| 43C -Dixonville-Philomath-hazelair complex -14.403 ac.@ 6,697 bd.ft./ac. | 96,457 bd.ft. |
| 43E -Dixonville-Philomath-hazelair complex -10.845 ac.@ 6,697 bd.ft./ac. | 72,629 bd.ft. |
| 107C - Philomath silty clay - 13.768 acres @ 6,697 bd.ft./ac. | 92,342 bd.ft. |
| 113G - Ritner cobbly silty clay loam - 5.341 acres @ 19,496 bd.ft./ac. | 104,128 bd.ft. |
| 116G - Rock outcrop-Witzel complex - 14.904 acres @ 3,125 bd.ft./ac. | 46,575 bd.ft. |
| 138E - Witzel very cobbly loam - 21.424 acres @ 10,418 bd.ft./ac. | 223,195 bd.ft. |
| Total - 102.609 acres of Douglas-fir | 963,293 bd.ft. |

INCOME PROJECTIONS YEAR BY YEAR (See Exhibit 5 for Log Prices Used)

The following calculations will show the average gross income for each year from 1978 through 1982, as well as the average price for those five years. The highest log prices occurred from the first quarter of 1980 and continued through the third quarter of 1981 (see Exhibit 5). The calculations presented below will show that **highest possible** average gross income per year would be obtained using 1980 log prices. Furthermore, since the log prices remained the same throughout the entire year, the calculations for 1980 would also show the highest possible average gross income if only the highest quarters were used.

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.

**1978**

| | |
|---|---|
| Total Volume - 963.29 MBF (thousand board feet) | |
| 385.32 MBF of 2 SAW @ $276/MBF | $106,348 |
| 481.64 MBF of 3 SAW @ $235/MBF | 113,185 |
| 96.33 MBF of 4 SAW @ $190/MBF | 18,303 |
| Total Projected Gross Revenue | $237,836 |

AVERAGE GROSS INCOME -- $237,836 ÷ 50 YEARS = $4,757/YEAR

**1979**

| | |
|---|---|
| Total Volume - 963.29 MBF (thousand board feet) | |
| 385.32 MBF of 2 SAW @ $338/MBF | $130,238 |
| 481.64 MBF of 3 SAW @ $296/MBF | 142,565 |
| 96.33 MBF of 4 SAW @ $269/MBF | 25,913 |
| Total Projected Gross Revenue | $298,716 |

AVERAGE GROSS INCOME -- $298,716 ÷ 50 YEARS = $5,974/YEAR

**1980**

| | |
|---|---|
| Total Volume - 963.29 MBF (thousand board feet) | |
| 385.32 MBF of 2 SAW @ $354/MBF | $136,403 |
| 481.64 MBF of 3 SAW @ $310/MBF | 149,308 |
| 96.33 MBF of 4 SAW @ $281/MBF | 27,069 |
| Total Projected Gross Revenue | $312,780 |

AVERAGE GROSS INCOME -- $312,780 ÷ 50 YEARS = $6,256/YEAR

**1981**

| | |
|---|---|
| Total Volume - 963.29 MBF (thousand board feet) | |
| 385.32 MBF of 2 SAW @ $346/MBF | $133,321 |
| 481.64 MBF of 3 SAW @ $292/MBF | 140,639 |
| 96.33 MBF of 4 SAW @ $263/MBF | 25,335 |
| Total Projected Gross Revenue | $299,295 |

AVERAGE GROSS INCOME -- $299,295 ÷ 50 YEARS = $5,986/YEAR

**1982**

| | |
|---|---|
| Total Volume - 963.29 MBF (thousand board feet) | |
| 385.32 MBF of 2 SAW @ $267/MBF | $102,880 |
| 481.64 MBF of 3 SAW @ $208/MBF | 100,181 |
| 96.33 MBF of 4 SAW @ $174/MBF | 16,761 |
| Total Projected Gross Revenue | $219,822 |

AVERAGE GROSS INCOME -- $219,822 ÷ 50 YEARS = $4,396/YEAR

The 1982 log prices also include a Camp Run (CR) price for 2, 3 and 4 saw. Camp Run prices are not always available, and when they are available, they are only given by **some** of the mills and only for **some** of the logs being purchased. However, to present all scenarios I have included camp run price calculations for the only year shown, 1982.

**1982 Camp Run Prices**

| | |
|---|---|
| Total Volume - 963.29 MBF @ $243/MBF | $234,079 |

AVERAGE GROSS INCOME -- $234,079 ÷ 50 YEARS = $4,682/YEAR

**1978-1982 AVERAGE**

| | |
|---|---|
| Total Volume - 963.29 MBF (thousand board feet) | |
| 385.32 MBF of 2 SAW @ $316/MBF | $121,761 |
| 481.64 MBF of 3 SAW @ $268/MBF | 129,080 |
| 96.33 MBF of 4 SAW @ $235/MBF | 22,638 |
| Total Projected Gross Revenue | $273,479 |

AVERAGE GROSS INCOME -- $273,479 ÷ 50 YEARS = $5,470/YEAR

## VI. 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 subject property produces less than 85 cu. ft./ac./yr. of merchantable timber volume; only 66.167 cubic feet. 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).

2) The estimated gross income based on a 50 year rotation for the 102.61 acre site would have ranged from a low of $219,822 in 1982 to a high of $312,780 in 1980. The average annual gross income would have ranged from a low of $4,396/year in 1982 to a high of $6,256/year in 1980. Because **all of the above figures** are 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."

The figures presented in this report, as a supplement to the November 10, 2008 report, does not change the findings presented in the original analysis, or the conclusions therein. This supplement is presented in order to show that ODF approved tables and documentation were used.

In summary, I find from the specific site conditions present, empirical yield tables, available soils 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,

Marc E Settle

SUPPLEMENT TO VOLUME CALCULATIONS:

These are the figures presented in original calculations:

41C&E Dixonville silty clay loam 115 cf/ac/yr = 50 yr. Site Index 90 (see Exhibit 2)

113G Ritner cobbly silty clay loam 131 cf/ac/yr = 50 yr. Site Index 98 (see Exhibit 2)

Site Index 90 - 15,209 bd.ft.ac. (see Exhibit 3) Site Index 98 - 19,496 bd.ft.ac.(see Exhibit 3)

Using NRCS data (available on the NRCS website):

41C&E Dixonville silty clay loam - 100 yr. Site Index = 120* = 115 cf/ac/yr**

113G Ritner cobbly silty clay loam - 100 yr. Site Index = 131* = 131 cf/ac/yr**

138E Witzel very cobbly loam - 100 yr. Site Index = 90* = 70 cf/ac/yr**

*See Exhibit 6
**See Exhibit 7

From the above productivity numbers it can be seen that the cf/ac/yr productivity ratings (where available) are the same from both the State Foresters 1990 Memorandum and the NRCS website data.

This means that the numbers calculated in my analysis are the same, **regardless of the source.** The State Foresters Memo was used because it contained the productivity ratings for **all six** soils, while the NRCS data only had **three** of the soil ratings.

EXHIBIT 6-1

**40H-Digger-Rock outcrop complex, 50 to 85 percent slopes.** This map unit is on dissected uplands. Areas are irregular in shape and are 5 to 300 acres in size. The native vegetation is mainly Douglas-fir, western hemlock, bigleaf maple, red alder, salal, and red huckleberry. Elevation is 200 to 1,800 feet. The average annual precipitation is 60 to 90 inches, the average annual air temperature is 48 to 52 degrees F, and the average frost-free period is 160 to 200 days.

This unit is 65 percent Digger gravelly loam and 15 percent Rock outcrop. Some areas south of the Siuslaw River are as much as 20 percent Rock outcrop, and other areas in the Lake Creek area are only 5 to 10 percent Rock outcrop. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are small areas of Bohannon soils, commonly on north-facing side slopes; Preacher soils on toe slopes; and soils that are similar to this Digger soil but are more than 40 inches deep to bedrock or less than 20 inches deep to bedrock. Included soils make up about 20 percent of the total acreage. The percentage varies from one area to another.

The Digger soil is moderately deep and well drained. It formed in colluvium and residuum derived from sandstone and siltstone. Typically, the surface is covered with a mat of needles, leaves, twigs, and bark about 3 inches thick. The surface layer is dark brown gravelly loam about 4 inches thick. The subsoil is dark yellowish brown and yellowish brown gravelly and very gravelly loam about 33 inches thick. Fractured, weathered sandstone is at 37 inches. Depth to bedrock ranges from 20 to 40 inches.

Permeability of the Digger soil is moderately rapid. Available water capacity is about 2 to 5 inches. Water supplying capacity is 13 to 20 inches. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high.

Rock outcrop consists of exposures of hard sandstone. It commonly occurs as short, nearly vertical escarpments.

This unit is used for wildlife habitat, timber production, and watershed.

The Digger soil is suited to the production of Douglas-fir. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 145. The potential production per acre is 9,120 cubic feet from an even-aged, fully stocked stand of trees 60 years old or 82,080 board feet (International rule, one-eighth-inch kerf) from an even-aged, fully stocked stand of trees 80 years old. The production given above can be reduced by about 20 percent to allow for the nonproductive areas of Rock outcrop and the shallow included soils.

The main concerns in producing and harvesting timber are poor accessibility because of the steepness of slope; the high hazards of erosion and slumping in disturbed areas; the difficulty of reestablishing the stands of timber, especially on south-facing side slopes; and the hazard of windthrow.

The steepness of slope limits the kinds of equipment that can be used in forest management. Highlead or other cable logging systems are more efficient than most other methods and are less damaging to the soil surface. Stones on the surface can interfere with felling, yarding, and other operations involving the use of equipment.

Windthrow is a hazard when the soil is wet and winds are strong.

The soil in this unit is subject to slumping, especially where road cuts are made in the steeper areas. Slumping can be minimized by locating roads in the more gently sloping areas and by using properly designed road drainage systems. Roads and landings can be protected from erosion by constructing water bars and by seeding cuts and fills.

Reforestation should be carefully managed to reduce competition from undesirable understory plants. Competing vegetation can be controlled by properly preparing the site and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees. Small stones make planting difficult. In areas on south-facing side slopes that are droughty in summer, seedling survival can be improved by providing shade for seedlings. Hand planting of nursery stock is usually necessary to establish or improve a stand. Douglas-fir is suitable for planting.

This map unit is in capability subclass VIIe.

**41C-Dixonville silty clay loam, 3 to 12 percent slopes.** This moderately deep, well drained soil is on low foothills bordering uplands in the Cascade and Coast Ranges. It formed in colluvium and residuum derived from basaltic rock. Areas are irregular in shape and are 4 to 100 acres in size. The vegetation in areas not cultivated is mainly Douglas-fir, Oregon white oak, poison-oak, bigleaf maple, western brackenfern, snowberry, hazelnut, wild rose, and grasses. Elevation is 350 to 1,800 feet. The average annual precipitation is 40 to 60 inches, the average annual air temperature is 49 to 54 degrees F, and the average frost-free period is 165 to 210 days.

Typically, the surface layer is very dark brown silty clay loam about 14 inches thick. The subsoil is dark brown silty clay and cobbly clay about 12 inches thick. Weathered bedrock is at a depth 26 inches. Depth to weathered bedrock ranges from 20 to 40 inches.

Included in this unit are small areas of Bellpine, Hazelair, Nekia, Philomath, and Witzel soils and Rock outcrop. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Dixonville soil is slow. Available water capacity is about 4 to 7 inches. Water supplying capacity is 17 to 23 inches. Effective rooting depth is 20

FROM NRCS WEBSITE

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to 40 inches. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used mainly for small grain, grass seed, hay, and pasture. It is also used for orchards and timber production and as homesites.

If this unit is used for hay and pasture, the main limitations are droughtiness in summer and wetness in winter and spring. When the soil is wet, the clayey surface layer is subject to compaction from livestock or equipment traffic.

Use of lime and nitrogen fertilizer promotes good growth of forage plants. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition and to protect the soil from erosion and compaction. Proper grazing practices, weed control, and fertilizer are needed to ensure maximum quality of forage. In most years, supplemental irrigation is also needed.

This unit is suited to small grain and row crops. In summer, irrigation is needed for maximum production of most crops. Sprinkler irrigation can be used, but water needs to be applied slowly to minimize runoff.

Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Grain and grasses respond to nitrogen; legumes respond to phosphorus, boron, sulfur, and lime; and vegetables and berries respond to nitrogen, phosphorus, and potassium.

Erosion on this unit can be reduced if fall grain is seeded early, stubble-mulch tillage is used, and tillage and seeding are on the contour or across the slope. Also, waterways should be shaped and seeded to perennial grass.

This unit is suited to the production of Douglas-fir. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 120. The potential production per acre is 6,900 cubic feet from an even-aged, fully stocked stand of trees 60 years old or 63,900 board feet (International rule, one-eighth-inch kerf) from an even-aged, fully stocked stand of trees 90 years old.

The main concerns in producing and harvesting timber are the clayey soil, which has high shrink-swell potential and low strength; wetness in winter and spring; and droughtiness in summer, which increases seedling mortality. Surface methods of harvesting timber generally are suitable, but the soil may be compacted if heavy equipment is used while the soil is moist. Ripping skid trails and landing areas after logging helps to break up the compacted layer and improves seedling survival and growth.

Proper design of road drainage systems and care in the placement of culverts help to control erosion. Spoil from excavations is subject to rill and gully erosion and to sloughing. Roads and landings can be protected from erosion by constructing water bars and by seeding cuts and fills.

Reforestation should be carefully managed to reduce competition from undesirable understory plants. Competing vegetation can be controlled by properly preparing the site and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees. Hand planting of nursery stock is usually necessary to establish or improve a stand. Among the trees that are suitable for planting are Douglas-fir and ponderosa pine.

If this unit is used for recreational development, the main limitations are the clayey soil, slow permeability, depth to rock, and slope. These limitations are most restricting for campgrounds and playgrounds for year-round use; they are only slightly restricting for picnic areas and paths and trails for use in summer. Drainage should be provided for paths and trails. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover.

If this unit is used for homesite development, the main limitations are high shrink-swell potential, depth to rock, slow permeability, droughtiness, slope, and the hazard of erosion. If buildings are constructed on the soil in this unit, properly designing foundations and footings and diverting runoff away from buildings help to prevent structural damage because of shrinking and swelling. Cuts needed to provide essentially level building sites can expose bedrock. Roads for year-round use need heavy base rock.

Erosion is a hazard in the steeper areas of this unit. Only the part of the site that is used for construction should be disturbed. Revegetating disturbed areas around construction sites as soon as possible helps to control erosion.

This map unit is in capability subclass IIIe.

**41 E-Dixonville silty clay loam, 12 to 30 percent slopes.** This moderately deep, well drained soil is on low foothills bordering the mountainous uplands in the Cascade and Coast Ranges. It formed in colluvium and residuum weathered from basaltic rock. Areas are irregular in shape and are 4 to 100 acres or more in size. The vegetation in areas not cultivated is mainly Douglas-fir, Oregon white oak, poison-oak, bigleaf maple, western brackenfern, snowberry, hazelnut, wild rose, and grasses. Elevation is 350 to 1,800 feet. The average annual precipitation is about 40 to 60 inches, the average annual air temperature is 49 to 54 degrees F, and the average frost-free period is 165 to 210 days.

Typically, the surface layer is very dark brown silty clay loam about 14 inches thick. The subsoil is dark brown silty clay and cobbly clay about 12 inches thick. Weathered bedrock is at a depth of 26 inches. Depth to weathered bedrock ranges from 20 to 40 inches.

Included in this unit are small areas of Bellpine, Hazelair, Nekia, Philomath, and Witzel soils and Rock outcrop. Included areas make up about 15 percent of the total acreage.

FROM NRCS WEBSITE

Permeability of this Dixonville soil is slow. Available water capacity is about 4 to 7 inches. Water supplying capacity is 17 to 23 inches. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high.

This unit is used for hay and pasture, small grain, grass seed, timber production, and homesites. This unit is dryfarmed because of slope and a limited supply of irrigation water.

If this unit is used for hay and pasture, the main limitations are slope and droughtiness. Use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture in good condition and to protect the soil from erosion and compaction. Fertilizer is needed for optimum growth of grasses and legumes.

This unit is suited to cultivated crops. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Grain and grasses respond to nitrogen; legumes respond to phosphorus, boron, sulfur, and lime; and vegetables and berries respond to nitrogen, phosphorus, and potassium.

Practices that can be used to control erosion include seeding early in fall; using minimum tillage or stubble-mulch tillage; constructing terraces, diversions, and grassed waterways; and growing a winter cover crop.

This unit is suited to the production of Douglas-fir. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 120. The potential production per acre is 6,900 cubic feet from an even-aged, fully stocked stand of trees 60 years old or 63,900 board feet (International rule, one-eighth-inch kerf) from an even-aged, fully stocked stand of trees 90 years old.

Surface methods of harvesting timber generally are suitable, but the soil may be compacted if it is moist when heavy equipment is used. Ripping skid trails and landing areas after logging helps to break up the compacted layer and improves seedling survival and growth. Because the clayey soil is sticky when wet, most planting and harvesting equipment can be used only during dry periods. Roads and landings can be protected from erosion by constructing water bars and by seeding cuts and fills. Because the soil is droughty in summer, seedling mortality may be high.

If site preparation is not adequate, competition from undesirable plants can prevent natural or artificial reestablishment of trees. Hand planting of nursery stock is usually necessary to establish or improve a stand. Among the trees that are suitable for planting are Douglas-fir and ponderosa pine.

If this unit is used for recreational development, the main limitations are slope, clayey texture, slow permeability, and depth to bedrock. Steepness of slope limits the use of areas of this unit mainly to a few paths and trails, which should extend across the slope.

If this unit is used for homesite development, the main limitations are the slowly permeable subsoil, depth to bedrock, slope, shrink-swell potential, and low soil strength. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential. Support and stability for buildings can be provided by placing footings below a depth of 36 inches.

Erosion is a hazard on this unit. Only the part of the site that is used for construction should be disturbed. The deep cuts needed to provide essentially level building sites can expose bedrock.

This map unit is in capability subclass IVe.

**41F-Dixonville silty clay loam, 30 to 50 percent slopes.** This moderately deep, well drained soil is on low foothills bordering the uplands in the Cascade and Coast Ranges. It formed in colluvium and residuum weathered from basaltic rock. Areas are irregular in shape and are 40 to 100 acres in size. The native vegetation is mainly Douglas-fir, Oregon white oak, poison-oak, bigleaf maple, western brackenfern, snowberry, hazelnut, wild rose, and grasses. Elevation is 350 to 1,800 feet. The average annual precipitation is 40 to 60 inches, the average annual air temperature is 49 to 54 degrees F, and the average frost-free period is 165 to 210 days.

Typically, the surface layer is very dark brown silty clay loam about 14 inches thick. The subsoil is dark brown silty clay and cobbly clay about 12 inches thick. Weathered bedrock is at a depth of 26 inches. Depth to bedrock ranges from 20 to 40 inches.

Included in this unit are small areas of Nekia, Philomath, Ritner, and Witzel soils and Rock outcrop. Included areas make up about 15 percent of the total acreage.

Permeability of this Dixonville soil is slow. Available water capacity is about 4 to 7 inches. Water supplying capacity is 17 to 23 inches. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high.

This unit is used for pasture, timber production, and wildlife habitat.

The production of forage is limited by the density of the tree canopy and by the droughtiness of the soil during the growing season in summer.

Steepness of slope limits access by livestock and promotes overgrazing of the less sloping areas. Grazing should be delayed until the soil in this unit is firm and the more desirable forage plants have achieved sufficient growth to withstand grazing pressure.

This unit is suited to the production of Douglas-fir. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 120. The potential production per acre is 6,900 cubic feet from an even-aged, fully stocked stand of trees 60 years old or 63,900 board feet (International rule, one-eighth-inch kerf) from an even-aged, fully stocked stand of trees 90 years old.

FROM NRCS WEBSITE

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The average annual precipitation is 40 to 60 inches, the average annual air temperature is 50 to 54 degrees F, and the average frost-free period is 165 to 210 days.

Typically, the surface is covered with a mat of needles, leaves, and twigs about 1 inch thick. The surface layer is dark reddish brown cobbly silty clay loam about 7 inches thick. The subsoil is dark reddish brown and yellowish red very cobbly silty clay loam about 25 inches thick. Highly fractured basalt is at a depth of 32 inches. Depth to bedrock ranges from 20 to 40 inches.

Included in this unit are small areas of Jory, Nekia, and Witzel soils. Included areas make up about 15 percent of the total acreage.

Permeability of this Ritner soil is moderately slow. Available water capacity is about 3 to 6 inches. Water supplying capability is 16 to 23 inches. Effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate.

Most areas of this unit are used for timber production and wildlife habitat. A few areas are used for pasture, orchards, recreation, and homesites.

This unit is suited to pasture and orchard crops. It is limited mainly by stoniness and steepness of slope. In summer, irrigation is required for maximum production. Sprinkler irrigation is a suitable method of applying water. Water needs to be applied slowly to minimize runoff and erosion. Trees and grasses respond to nitrogen, and legumes respond to phosphorus and lime. Proper stocking rates, pasture rotation, and restricted grazing help to keep the pasture in good condition and to protect the soil from erosion.

This unit is suited to the production of Douglas-fir. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 131. The potential production per acre is 7,860 cubic feet from an even-aged, fully stocked stand of trees 60 years old or 76,770 board feet (International rule, one-eighth-inch kerf) from an even-aged, fully stocked stand of trees 80 years old.

Surface methods of harvesting timber generally are suitable, but the soil may be compacted if it is moist when heavy equipment is used. Because the clayey soil is sticky when wet, most planting and harvesting equipment can be used only during dry periods. Roads and landings can be protected from erosion by constructing water bars and by seeding cuts and fills.

If site preparation is not adequate, competition from undesirable plants can prevent or retard natural or artificial reestablishment of trees. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees. Reforestation can be accomplished by planting Douglas-fir seedlings.

If this unit is used for recreational development, the main limitations are steepness of slope, small stones, and clayey soil texture. Use generally is limited to paths and trails, which should extend across the slope.

If this unit is used for homesite development, the main limitations are steepness of slope, depth to bedrock, low soil strength, cobbles, and moderately slow permeability. The deep cuts needed to provide essentially level building sites can expose bedrock. Special foundations for dwellings without basements may be needed to overcome the low soil strength.

This map unit is in capability subclass VIs.

**113G-Ritner cobbly silty clay loam, 30 to 60 percent slopes.** This moderately deep, well drained soil is on side slopes of foothills. It formed in cobbly colluvium derived from basic igneous rock. Areas are irregular in shape and are 5 to 100 acres or more in size. The native vegetation is mainly Douglas-fir, bigleaf maple, Oregon white oak, western brackenfern, hazelnut, poison-oak, and grasses. Elevation is 400 to 1,800 feet. The average annual precipitation is 40 to 60 inches, the average annual air temperature is 50 to 54 degrees F, and the average frost-free period is 165 to 210 days.

Typically, the surface is covered with a mat of needles, leaves, and twigs about 1 inch thick. The surface layer is dark reddish brown cobbly silty clay loam about 7 inches thick. The subsoil is dark reddish brown and yellowish red very cobbly silty clay loam about 25 inches thick. Highly fractured basalt is at a depth of 32 inches. Depth to bedrock ranges from 20 to 40 inches.

Included in this unit are small areas of Nekia and Witzel soils and Rock outcrop. Included areas make up about 15 percent of the total acreage.

Permeability of this Ritner soil is moderately slow. Available water capacity is about 3 to 6 inches. Water supplying capacity is 16 to 23 inches. Effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high.

This unit is used for timber production, watershed, and wildlife habitat.

This unit is suited to the production of Douglas-fir. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 131. The potential production per acre is 7,860 cubic feet from an even-aged, fully stocked stand of trees 60 years old or 76,770 board feet (International rule, one-eighth-inch kerf) from an even-aged, fully stocked stand of trees 80 years old.

Management that minimizes the risk of erosion is essential in harvesting timber. In some areas highlead or other cable logging systems may be necessary to avoid the excessive soil disturbance caused by tractor logging. Roads and landings can be protected from erosion by constructing water bars and by seeding cuts and fills.

The soil in this unit is subject to slumping, especially where road cuts are made in the steeper areas. Slumping can be minimized by locating roads in the more gently sloping areas and by using properly designed road drainage systems.

Because the soil is sticky when wet, most harvesting equipment can be used only during dry periods. After

FROM NRCS WEBSITE

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timber is harvested, the hazard of erosion can be reduced by revegetating the site as quickly as possible. Plant competition delays natural regeneration but does not prevent the eventual development of a fully stocked stand of trees. Reforestation can be accomplished by planting Douglas-fir seedlings.

If this unit is used for homesite development, the main limitations are steepness of slope, depth to bedrock, low soil strength, cobbles, and moderately slow permeability. Roads and streets built on the soil in this unit are subject to slippage because of the steepness of slope.

This map unit is in capability subclass VIIs.

**114-Riverwash.** This map unit consists of deep, excessively drained to poorly drained islands or sand and gravel bars in and along major streams and rivers. Riverwash consists of recent deposits of sand and gravel derived dominantly from mixed sedimentary and igneous rock. Slope is 0 to 3 percent. Areas generally are elongated in shape and are 2 to 100 acres in size. The native vegetation is mainly occasional bunches of grass and scattered willows. Elevation is 290 to 1,500 feet. The average annual precipitation is 40 to 100 inches, the average annual air temperature is 47 to 52 degrees F, and the average frost-free period is 150 to 210 days.

Typically, Riverwash is highly stratified sand and gravel to a depth of 60 inches or more.

Included in this unit are small areas of Fluvents and Camas soils. Included areas make up about 15 percent of the total acreage.

Permeability of Riverwash is very rapid. Available water capacity and water supplying capacity are very low. Effective rooting depth is 10 to 40 inches. Runoff is slow, and the hazard of water erosion is very high.

Areas of this unit that do not contain an excess amount of fines can be used for roadfill and as a source of sand and gravel.

Riverwash is subject to overflow when the water level of the rivers and streams is high, and it is extremely droughty when the water level is low. During periods of overflow, material is deposited or eroded away.

This map unit is in capability subclass VIIIw.

**115H-Rock outcrop-Kilchis complex, 30 to 90 percent slopes.** This map unit is on ridgetops and side slopes of uplands in the Cascade Range. Areas are irregular or elongated in shape and are 5 to 200 acres in size. The native vegetation is mainly vine maple, western swordfern, tall Oregon-grape, western brackenfern, and scattered, slow-growing Douglas-fir. Elevation is 500 to 3,500 feet. The average annual precipitation is 60 to 90 inches, the average annual air temperature is 45 to 52 degrees F, and the average frost-free period is 145 to 200 days.

This unit is 65 percent Rock outcrop and 20 percent Kilchis stony loam. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are small areas of Bohannon, Digger, and Klickitat soils and a soil that is similar to this Kilchis soil but is less than 12 inches deep to bedrock. Included areas make up as much as 15 percent to the total acreage.

Rock outcrop is mainly exposed areas of barren or moss-covered rock. In some areas are a few inches of weathered rock fragments mixed with a high percentage of organic material consisting of moss, roots, and decaying needles, leaves, twigs, and wood fragments. The rock dominantly is basalt that generally is hard enough to quarry or to serve as a source of rock for roadbuilding.

The Kilchis soil is shallow and well drained. It formed in colluvium and residuum derived from basalt and breccia. Typically, the surface is covered with a mat of needles, twigs, and leaves about 1 inch thick. The surface layer is dark brown stony loam about 4 inches thick. The next layer is dark reddish brown very cobbly loam about 8 inches thick. The subsoil is reddish brown very stony loam about 7 inches thick. Fractured basalt is at a depth of 19 inches. Depth to bedrock ranges from 12 to 20 inches.

Permeability of the Kilchis soil is moderately rapid. Available water capacity is about 1 inch to 2 inches. Water supplying capacity is 13 to 20 inches. Effective rooting depth is 12 to 20 inches. Runoff is rapid, and the hazard of water erosion is high.

This unit is used mainly for wildlife habitat and as rock quarries. It is also used for recreation.

This unit is not suited to the production of merchantable Douglas-fir. The areas that support vegetation are small and scattered, and the trees in these areas are stunted and twisted. Because of the poor quality and quantity of the trees, it is not economically feasible to use the unit for timber production.

If this unit is used for recreational development, the main limitations are slope and the areas of Rock outcrop. The unit is suited to paths and trails, except in rockfall areas. Paths and trails should extend across the slope in some areas.

This map unit is in capability subclass VIIs.

**116G-Rock outcrop-Witzel complex, 10 to 70 percent slopes.** This map unit is on ridgetops and side slopes of foothills adjacent to the Willamette Valley. Areas are irregular or elongated in shape and are 3 to 80 acres in size. The native vegetation at lower elevations is mainly annual grasses, forbs, poison-oak, Oregon white oak, and scattered Douglas-fir. Grasses, forbs, and shrubs dominate the plant community at the higher elevations; however, Douglas-fir may be more abundant than at lower elevations. Elevation is 400 to 2,000 feet. The average annual precipitation is 40 to 60

FROM NRCS WEBSITE

44 degrees F, and the average frost-free period is 70 to 100 days.

Typically, the surface layer is very dark grayish brown very gravelly loam about 4 inches thick. The subsoil is dark brown and brown very cobbly loam about 14 inches thick. Partially fractured bedrock is at a depth of 18 inches. Depth to bedrock ranges from 10 to 20 inches.

Included in this unit are small areas of Holderman, Hummington, and Keel soils, Winberry soils that have slopes of more than 45 percent, and Rock outcrop. Included areas make up about 15 percent of the total acreage.

Permeability of this Winberry soil is moderately rapid. Available water capacity is about 0.5 inch to 2.5 inches. Water supplying capacity is 14 to 18 inches. Effective rooting depth is 10 to 20 inches. Runoff is medium to rapid, and the hazard of water erosion is moderate to high.

Most areas of this unit are used for wildlife habitat and watershed. A few areas are used for timber production.

This unit is poorly suited to the production of Douglas-fir. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 70. The potential production per acre is 3,360 cubic feet from an even-aged, fully stocked stand of trees 70 years old or 24,090 board feet (International rule, one-eighth-inch kerf) from an even-aged, fully stocked stand of trees 110 years old.

The main concerns in producing and harvesting timber are the hazard of erosion, steepness of slope, seedling mortality, the hazard of windthrow, and snow damage to trees. The steepness of slope limits the kinds of equipment that can be used in forest management. Stones on the surface can interfere with felling, yarding, and other operations involving the use of equipment. Roads and landings can be protected from erosion by constructing water bars and by seeding cuts and fills.

Trees are subject to windthrow because of limited rooting depth. Seedling mortality is a concern on south-facing side slopes because of droughtiness and the high temperature of the surface layer in summer. Providing shade for seedlings on south- and west-facing side slopes helps to improve seedling survival. Reforestation can be accomplished by planting Douglas-fir, western hemlock, noble fir, and Pacific silver fir seedlings.

This map unit is in capability subclass VIIs.

**138E-Witzel very cobbly loam, 3 to 30 percent slopes.** This shallow, well drained soil is on foothills adjacent to the Willamette Valley. It formed in colluvium and residuum derived from basic igneous rock. Areas are irregular in shape and are 5 to 160 acres in size. The vegetation in areas not cultivated is mainly scattered Oregon white oak, Douglas-fir, poison-oak, and forbs and grasses. Elevation is 300 to 1,500 feet. The average annual precipitation is 40 to 60 inches, the average annual air temperature is 50 to 54 degrees F, and the average frost-free period is 165 to 210 days.

Typically, the surface layer is dark brown very cobbly loam about 4 inches thick. The subsoil is dark reddish brown very cobbly clay loam about 13 inches thick. Fractured basalt is at a depth of 17 inches. Depth to bedrock ranges from 12 to 20 inches.

Included in this unit are small areas of Jory, Nekia, Philomath, and Ritner soils and Rock outcrop. Included areas make up about 15 percent of the total acreage.

Permeability of this Witzel soil is moderately slow. Available water capacity is about 1 inch to 3 inches. Water supplying capacity is 13 to 15 inches. Effective rooting depth is 12 to 20 inches. Runoff is medium to rapid, and the hazard of water erosion is high.

This unit is used mainly for native pasture and wildlife habitat. It is also used for limited timber production.

This unit is suited to native pasture. Cobbles in the surface layer make tillage impractical, even for the planting of improved pasture. Use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture in good condition and to protect the soil from erosion. Grazing when the soil is wet results in compaction of the surface layer, poor tilth, and excessive runoff. Response of pasture to nitrogen is fair if it is applied in spring while there is sufficient moisture for plant growth.

This unit is poorly suited to the production of Douglas-fir. On the basis of a 100-year site curve, the mean site index for Douglas-fir is 90. The potential production per acre is 4,200 cubic feet from an even-aged, fully stocked stand of trees 60 years old or 41,030 board feet (International rule, one-eighth-inch kerf) from an even-aged, fully stocked stand of trees 110 years old.

The main limitations for the management of timber are stones on the surface, seedling mortality, and the hazard of windthrow. Stones on the surface cause breakage of timber and hinder yarding. Because roots are restricted by the fractured bedrock, trees commonly are subject to windthrow.

Reforestation is severely limited because of droughtiness. Undesirable plants limit natural or artificial reforestation. Intensive site preparation and maintenance generally are not needed. Reforestation can be accomplished by planting ponderosa pine and Douglas-fir seedlings.

Areas of this unit where sewage systems can be provided are suited to homesite development. The shallow depth to hard bedrock prevents installation of septic tank absorption fields. Blasting generally is required to level areas for foundations and roadways. Such construction is expensive, but foundations and roads are stable after installation.

This map unit is in capability subclass VIs.

**138G-Witzel very cobbly loam, 30 to 75 percent slopes.** This shallow, well drained soil is on foothills adjacent to the Willamette Valley. It formed in colluvium derived from basic igneous rock. Areas are irregular in

FROM NRCS WEBSITE

# EXHIBIT 7-1

CMAI FOR DOUGLAS FIR

| SITE INDEX | 100 YR. TABLE (PSME) 790-McARDLE: CU.FT./AC./YR. | CU.M./HA./YR. | TOTAL AGE | SCRIBNER BD.FT./AC./YR. | TOTAL AGE | INTER.1/8" BD.FT./AC./YR. | TOTAL AGE | WEST SIDE 50 YR. (PSME) 795-KING: CU.FT./AC./YR. | CU.M./HA./YR. | TOTAL AGE | EAST SIDE 50 YR. (PSMEG) 765-COCHRAN: CU.FT./AC./YR. | CU.M./HA./YR. | TOTAL AGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90 | 70 | 4.9 | 60 | 199 | 160 | 373 | 110 | 116 | 8.1 | 90 | 104 | 7.3 | 90 |
| 91 | 72 | 5.0 | 60 | 206 | 160 | 382 | 110 | 118 | 8.2 | 90 | 107 | 7.5 | 89 |
| 92 | 73 | 5.1 | 60 | 212 | 160 | 391 | 110 | 120 | 8.4 | 90 | 109 | 7.6 | 88 |
| 93 | 74 | 5.2 | 60 | 219 | 160 | 401 | 110 | 122 | 8.5 | 90 | 112 | 7.8 | 87 |
| 94 | 75 | 5.3 | 60 | 225 | 160 | 410 | 110 | 123 | 8.6 | 90 | 114 | 8.0 | 86 |
| 95 | 77 | 5.4 | 60 | 232 | 160 | 420 | 110 | 125 | 8.8 | 90 | 117 | 8.2 | 84 |
| 96 | 78 | 5.5 | 60 | 238 | 160 | 429 | 110 | 128 | 9.0 | 90 | 120 | 8.4 | 83 |
| 97 | 79 | 5.5 | 60 | 244 | 150 | 438 | 110 | 130 | 9.1 | 90 | 122 | 8.5 | 82 |
| 98 | 81 | 5.7 | 60 | 251 | 150 | 448 | 110 | 132 | 9.2 | 90 | 125 | 8.7 | 81 |
| 99 | 82 | 5.7 | 60 | 258 | 150 | 457 | 110 | 134 | 9.4 | 90 | 127 | 8.9 | 80 |
| 100 | 84 | 5.9 | 60 | 265 | 150 | 467 | 100 | 136 | 9.5 | 90 | 130 | 9.1 | 79 |
| 101 | 85 | 5.9 | 60 | 273 | 150 | 478 | 100 | 138 | 9.6 | 90 | 133 | 9.3 | 78 |
| 102 | 86 | 6.0 | 60 | 280 | 150 | 490 | 100 | 140 | 9.8 | 90 | 136 | 9.5 | 78 |
| 103 | 88 | 6.2 | 60 | 288 | 150 | 501 | 100 | 141 | 9.9 | 90 | 139 | 9.7 | 77 |
| 104 | 89 | 6.2 | 60 | 296 | 150 | 512 | 100 | 143 | 10.0 | 90 | 142 | 9.9 | 76 |
| 105 | 91 | 6.3 | 60 | 304 | 150 | 524 | 100 | 145 | 10.1 | 90 | 145 | 10.1 | 76 |
| 106 | 92 | 6.4 | 60 | 312 | 150 | 535 | 100 | 147 | 10.3 | 90 | 148 | 10.3 | 75 |
| 107 | 94 | 6.6 | 60 | 320 | 140 | 547 | 100 | 149 | 10.4 | 90 | 151 | 10.6 | 74 |
| 108 | 95 | 6.6 | 60 | 329 | 140 | 558 | 100 | 150 | 10.5 | 90 | 154 | 10.8 | 73 |
| 109 | 97 | 6.8 | 60 | 337 | 140 | 569 | 100 | 152 | 10.6 | 90 | 157 | 11.0 | 73 |
| 110 | 98 | 6.9 | 60 | 345 | 140 | 581 | 100 | 154 | 10.8 | 90 | 160 | 11.2 | 72 |
| 111 | 100 | 7.0 | 60 | 354 | 140 | 594 | 100 | 156 | 10.9 | 90 | | | |
| 112 | 101 | 7.1 | 60 | 363 | 140 | 606 | 100 | 158 | 11.0 | 90 | | | |
| 113 | 103 | 7.2 | 60 | 372 | 130 | 619 | 100 | 160 | 11.2 | 90 | | | |
| 114 | 105 | 7.3 | 60 | 381 | 130 | 631 | 100 | 162 | 11.3 | 90 | | | |
| 115 | 106 | 7.4 | 60 | 390 | 130 | 644 | 90 | 163 | 11.4 | 90 | | | |
| 116 | 108 | 7.6 | 60 | 399 | 130 | 656 | 90 | 167 | 11.7 | 90 | | | |
| 117 | 110 | 7.7 | 60 | 408 | 130 | 669 | 90 | 169 | 11.8 | 90 | | | |
| 118 | 111 | 7.8 | 60 | 418 | 130 | 681 | 90 | 171 | 11.9 | 90 | | | |
| 119 | 113 | 7.9 | 60 | 427 | 130 | 694 | 90 | 173 | 12.1 | 90 | | | |
| 120 | 115 | 8.0 | 60 | 437 | 120 | 710 | 90 | 175 | 12.2 | 90 | | | |
| 121 | 116 | 8.1 | 60 | 446 | 120 | 723 | 90 | 176 | 12.3 | 90 | | | |
| 122 | 118 | 8.3 | 60 | 456 | 120 | 736 | 90 | 178 | 12.5 | 90 | | | |
| 123 | 119 | 8.3 | 60 | 465 | 120 | 749 | 90 | 180 | 12.6 | 90 | | | |
| 124 | 121 | 8.5 | 60 | 475 | 120 | 762 | 90 | 182 | 12.7 | 90 | | | |
| 125 | 122 | 8.5 | 60 | 485 | 120 | 776 | 90 | 184 | 12.9 | 90 | | | |
| 126 | 124 | 8.7 | 60 | 494 | 120 | 789 | 90 | 186 | 13.0 | 90 | | | |
| 127 | 125 | 8.7 | 60 | 504 | 120 | 802 | 90 | 188 | 13.1 | 90 | | | |
| 128 | 127 | 8.9 | 60 | 513 | 120 | 815 | 90 | 190 | 13.2 | 90 | | | |
| 129 | 128 | 9.0 | 60 | 523 | 120 | 828 | 90 | 191 | 13.4 | 90 | | | |

# EXHIBIT 7-2

CMAI FOR DOUGLAS FIR

| SITE INDEX | 100 YR. TABLE (PSME) 790-McARDLE: CU.FT./AC./YR. | CU.M./HA./YR. | TOTAL AGE | SCRIBNER BD.FT./AC./YR. | TOTAL AGE | INTER.1/8" BD.FT./AC./YR. | TOTAL AGE | WEST SIDE 50 YR. (PSME) 795-KING: CU.FT./AC./YR. | CU.M./HA./YR. | TOTAL AGE |
|---|---|---|---|---|---|---|---|---|---|---|
| 130 | 129 | 9.0 | 60 | 532 | 110 | 841 | 90 | 193 | 13.5 | 90 |
| 131 | 131 | 9.2 | 60 | 542 | 110 | 853 | 90 | 195 | 13.6 | 90 |
| 132 | 133 | 9.3 | 60 | 552 | 110 | 865 | 90 | 197 | 13.8 | 90 |
| 133 | 134 | 9.4 | 60 | 562 | 110 | 877 | 90 | 199 | 13.9 | 90 |
| 134 | 136 | 9.5 | 60 | 572 | 110 | 889 | 90 | 201 | 14.0 | 90 |
| 135 | 138 | 9.7 | 60 | 581 | 110 | 901 | 80 | 203 | 14.2 | 90 |
| 136 | 139 | 9.7 | 60 | 591 | 110 | 914 | 80 | 207 | 14.5 | 90 |
| 137 | 140 | 9.8 | 60 | 601 | 110 | 927 | 80 | 209 | 14.6 | 90 |
| 138 | 142 | 9.9 | 60 | 611 | 110 | 940 | 80 | 210 | 14.7 | 90 |
| 139 | 144 | 10.1 | 60 | 621 | 110 | 953 | 80 | 212 | 14.8 | 90 |
| 140 | 145 | 10.1 | 60 | 631 | 110 | 966 | 80 | 214 | 15.0 | 90 |
| 141 | 146 | 10.2 | 60 | 640 | 110 | 978 | 80 | 216 | 15.1 | 90 |
| 142 | 148 | 10.3 | 60 | 649 | 110 | 990 | 80 | 218 | 15.2 | 90 |
| 143 | 149 | 10.4 | 60 | 658 | 110 | 1002 | 80 | 220 | 15.4 | 90 |
| 144 | 150 | 10.5 | 60 | 667 | 110 | 1014 | 80 | 222 | 15.5 | 90 |
| 145 | 152 | 10.6 | 60 | 676 | 110 | 1026 | 80 | 224 | 15.6 | 90 |
| 146 | 153 | 10.7 | 60 | 686 | 100 | 1037 | 80 | 226 | 15.8 | 90 |
| 147 | 154 | 10.8 | 60 | 695 | 100 | 1049 | 80 | 227 | 15.9 | 90 |
| 148 | 156 | 10.9 | 60 | 705 | 100 | 1061 | 80 | 229 | 16.0 | 90 |
| 149 | 157 | 11.0 | 60 | 714 | 100 | 1073 | 80 | 231 | 16.2 | 90 |
| 150 | 158 | 11.1 | 60 | 724 | 100 | 1085 | 80 | 233 | 16.3 | 90 |
| 151 | 159 | 11.1 | 60 | 733 | 100 | 1096 | 80 | 235 | 16.4 | 90 |
| 152 | 161 | 11.3 | 60 | 743 | 100 | 1106 | 80 | 237 | 16.6 | 90 |
| 153 | 162 | 11.3 | 60 | 752 | 100 | 1117 | 80 | 239 | 16.7 | 90 |
| 154 | 163 | 11.4 | 60 | 762 | 100 | 1127 | 80 | 241 | 16.8 | 90 |
| 155 | 164 | 11.5 | 60 | 771 | 100 | 1138 | 80 | 243 | 17.0 | 90 |
| 156 | 165 | 11.5 | 60 | 780 | 100 | 1148 | 80 | 244 | 17.1 | 90 |
| 157 | 167 | 11.7 | 60 | 790 | 100 | 1159 | 80 | 246 | 17.2 | 90 |
| 158 | 168 | 11.8 | 60 | 799 | 100 | 1169 | 80 | 248 | 17.4 | 90 |
| 159 | 169 | 11.8 | 60 | 809 | 100 | 1180 | 80 | 250 | 17.5 | 90 |
| 160 | 170 | 11.9 | 60 | 818 | 100 | 1190 | 80 | 252 | 17.6 | 90 |
| 161 | 171 | 12.0 | 60 | 827 | 100 | 1200 | 80 | | | |
| 162 | 172 | 12.0 | 60 | 835 | 100 | 1209 | 80 | | | |
| 163 | 173 | 12.1 | 60 | 844 | 100 | 1219 | 80 | | | |
| 164 | 174 | 12.2 | 60 | 852 | 100 | 1228 | 80 | | | |
| 165 | 176 | 12.3 | 60 | 861 | 100 | 1238 | 80 | | | |
| 166 | 177 | 12.4 | 60 | 870 | 100 | 1247 | 80 | | | |
| 167 | 178 | 12.5 | 60 | 878 | 100 | 1257 | 80 | | | |
| 168 | 179 | 12.5 | 60 | 887 | 100 | 1266 | 80 | | | |
| 169 | 180 | 12.6 | 60 | 895 | 100 | 1276 | 80 | | | |

age at which productivity starts to decline.

EXHIBIT 1

# Oregon

Theodore R. Kulongoski, Governor

**Department of Forestry**
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Salem, OR 97310
503-945-7200
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November 21, 2008

Mr. Kent Howe
Lane County Land Management Division
125 E 8th Street
Eugene, Oregon 97401

Dear Mr. Howe:

I am writing to clarify the Oregon Department of Forestry's responsibilities related to specific elements of Oregon Administrative Rule 660-006-0005 (2) and (3). This letter is intended to address recent Lane County public inquiries regarding this administrative rule and was developed following consultations with the Oregon Department of Land Conservation and Development and the Oregon Department of Justice.

Please note that previous Department of Forestry policy position statements or technical findings contained in the May 23, 2008, letter from former Department of Forestry Private Forests Chief Ted Lorensen to Goal One Coalition Executive Director Jim Just that are in conflict with this letter are hereby rescinded and replaced with the policy statements and technical findings articulated here. All other statements in that correspondence remain valid.

Applicable Administrative Rule Language:

OAR 660-006-0005 (2) and (3) state:

> 2) "Cubic Foot Per Acre" means the average annual increase in cubic foot volume of wood fiber per acre for fully stocked stands at the culmination of mean annual increment as reported by the USDA Natural Resource Conservation Service (NRCS) soil survey information, USDA Forest Service plant association guides, Oregon Department of Revenue western Oregon site class maps, *or other information determined by the State Forester to be of comparable quality. Where such data are not available or are shown to be inaccurate, an alternative method for determining productivity may be used. An alternative method must provide equivalent data as explained in the Oregon Department of Forestry's Technical Bulletin entitled "Land Use Planning Notes Number 3 dated April 1998" and be approved by the Oregon Department of Forestry."*
>
> (3) "Cubic Foot Per Tract Per Year" means the average annual increase in cubic foot volume of wood fiber per tract for fully stocked stands at the culmination of mean annual increment as reported by the USDA Natural Resource Conservation Service (NRCS) soil survey information, USDA Forest Service plant association guides, Oregon Department of Revenue western Oregon site class maps, *or other information determined by the State Forester to be of comparable quality. Where such data are not available or are shown to be inaccurate, an alternative method for determining productivity may be used. An alternative method must provide equivalent data as explained in the Oregon Department of Forestry's Technical Bulletin entitled "Land Use Planning Notes Number 3 dated April 1998" and be approved by the Oregon Department of Forestry."* (Emphasis added)

Using the Best Possible Forest Site Productivity Information:

The administrative rule, in combination with *Land Use Planning Technical Note Number 3*, establishes a hierarchy of forest site productivity information that should be considered in land use decisions subject to the rule. Listed in order of preference, the information sources are:

1. Data sources cited specifically in the administrative rule;
2. Other existing data sources determined by the State Forester to be of comparable quality to the data sources cited specifically in the administrative rule;
3. Alternate methods to develop site productivity data based on direct tree measurements and calculations using applicable Douglas-fir, western hemlock, or ponderosa pine site tables, with priority given to the species among these three that dominates the area being evaluated;
4. Alternate methods based on direct tree measurements and calculations using other native forest tree species site tables; or
5. Site-specific soil surveys.

Applicable existing data from USDA Natural Resource Conservation Service (NRCS) soil survey information, USDA Forest Service plant association guides, Oregon Department of Revenue western Oregon site class maps should always be consulted and used first (Tier 1). If these three data sources are determined by the county and/or NRCS to be inaccurate or do not exist, only then should other applicable, existing data sources determined to be of comparable quality by the State Forester be consulted (Tier 2). Alternate methods for collecting new site productivity data are only needed when data from these first two tiers are determined by the county and/or NRCS to be inaccurate or do not exist. To be approved by the Department of Forestry such alternate methodologies must be consistent with the methodologies described or contemplated in the technical note. Alternate methods based on direct tree measurements and calculations using applicable Douglas-fir, western hemlock, or ponderosa pine site tables (Tier 3) should be considered before using site tables for other tree species (Tier 4) or site-specific soil surveys without direct tree measurements (Tier 5).

Consistent and credible site productivity determinations should be an important facet of the land use planning process. To meet that objective, this hierarchy should be adhered to. Attempts to consider a variety of methods simultaneously in hope of finding a "preferred" site productivity determination should be avoided.

Lane County Data Sources of Comparable Quality

The State Forester has determined the following existing site productivity data sources to be of comparable quality to the data sources cited specifically in the administrative rule when applied on appropriate locations in Lane County:

1. February 8, 1990, *Forest Lands Soils Ratings – Revisions* produced by the Oregon Department of Forestry
2. Undated *Lane County Forest Soils Ratings* based on published Soil Conservation Service data and the February 9, 1990, Oregon Department of Forestry report
3. August 1997 *Lane County Soil Ratings for Forestry and Agriculture* produced by the Lane County Council of Governments

No further Department of Forestry review or approval of site productivity determinations are needed when these data sources are used.

Ponderosa Pine in the Willamette Valley

In most western Oregon locations where both Douglas-fir and ponderosa pine are present, Douglas-fir will be the dominant species and, therefore, whenever possible that species should be used for selecting site trees. In infrequent cases where ponderosa pine is the dominant species in western Oregon, *Land Use Planning Technical Note Number 3* states that Meyer's ponderosa pine site table may be used in calculations of site productivity. However, the technical note also states Meyer's site table must not be used for ponderosa pine in the Willamette Valley. For the purpose of implementing this section of the technical note, the Department of Forestry will rely on the definition provided in OAR 660-033-0020 (12) in which "Willamette Valley" means "Clackamas, Linn, Marion, Multnomah, Polk, Washington and Yamhill Counties and that portion of Benton and Lane Counties lying east of the summit of the Coast Range."

The Department of Forestry has not been able to locate credible site index or yield tables for ponderosa pine applicable in the Willamette Valley. In a May 23, 2008, letter, Ted Lorensen noted that the department had used tables for ponderosa pine from Douglas County for the Forest Resource Trust, and that in the current absence of standard tables, ODF "would likely approve of methodology using the pine tables for Douglas County and appropriate interpolation." However, the Department of Forestry has since determined that interpolation of either Douglas County or Eastern Oregon ponderosa pine yield tables for the more highly productive Willamette Valley would not be technically sound.

Instead, energy should be focused on obtaining or developing, if possible, technically credible Willamette Valley-specific ponderosa pine site index tables. The Department of Forestry is willing to work cooperatively with county governments, Oregon State University Forestry Extension, forest landowners, and other parties to develop such information. Until a credible Willamette Valley ponderosa pine site table becomes available and is acknowledged in a revised ODF Technical Note, the Department of Forestry's position is that it is inappropriate to use ponderosa pine to determine site productivity for under OAR 660-006-0005

EXHIBIT 3-1

TABLE 2

DOUGLAS FIR EMPIRICAL YIELD TABLE

SOURCE: For Douglas fir tables 2 through 10, D.N.R. Report No. 20 - May 1971, "Empirical Yield Tables for the Douglas fir Zone" by Charles Chambers, and Franklin Wilson. "Comprehensive Tree Volume Tarif Tables" by Dr. K. J. Turnbull, Gene Little, and Gerald Hoyer, June 1972. Stepwise multiple regression conversion made by Tom Wheatley, Publishers Paper Co., June 1978.

SITE 70

| Total Age | Normal Basal Area | Mean Diameter | CVTS | CV4 | SV6(32') | C/SCR Ratio |
|---|---|---|---|---|---|---|
| 20 | --- | --- | --- | --- | --- | --- |
| 26 | 9 | 8.25 | --- | --- | --- | --- |
| 30 | 38 | 8.57 | 517 | 517 | 1,185 | .436 |
| 40 | 91 | 9.36 | 1,874 | 1,847 | 4,196 | .440 |
| 41 | 96 | 9.44 | 2,004 | 1,963 | 4,554 | .431 |
| 50 | 128 | 10.11 | 3,126 | 3,008 | 8,115 | .371 |
| 60 | 158 | 10.80 | 4,275 | 4,138 | 12,572 | .329 |
| 70 | 182 | 11.43 | 5,320 | 5,196 | 17,176 | .302 |
| 80 | 202 | 11.98 | 6,261 | 6,141 | 21,544 | .285 |
| 90 | 220 | 12.43 | 7,099 | 6,941 | 25,350 | .274 |
| 100 | 235 | 12.78 | 7,833 | 7,574 | 28,374 | .267 |
| 110 | 249 | 13.01 | 8,463 | 8,021 | 30,405 | .264 |
| 120 | 261 | 13.10 | 8,989 | 8,266 | 31,279 | .264 |
| 130 | 273 | 13.04 | 9,412 | 8,297 | 30,900 | .269 |

TABLE 3

SITE 80

| Total Age | Normal Basal Area | Mean Diameter | CVTS | CV4 | SV6(32') | C/SCR Ratio |
|---|---|---|---|---|---|---|
| 20 | --- | --- | --- | --- | --- | --- |
| 26 | 26 | 8.52 | 269 | 269 | 633 | .425 |
| 30 | 55 | 8.91 | 921 | 921 | 1,614 | .570 |
| 40 | 108 | 9.87 | 2,479 | 2,330 | 5,870 | .397 |
| 41 | 113 | 9.96 | 2,630 | 2,467 | 6,342 | .389 |
| 50 | 146 | 10.79 | 3,934 | 3,707 | 11,118 | .333 |
| 60 | 175 | 11.65 | 5,285 | 5,060 | 17,062 | .297 |
| 70 | 199 | 12.45 | 6,532 | 6,330 | 23,187 | .273 |
| 80 | 219 | 13.17 | 7,675 | 7,473 | 29,038 | .257 |
| 90 | 237 | 13.79 | 8,715 | 8,454 | 34,240 | .247 |
| 100 | 252 | 14.31 | 9,651 | 9,251 | 38,541 | .240 |
| 110 | 266 | 14.71 | 10,482 | 9,842 | 41,709 | .236 |
| 120 | 279 | 14.97 | 11,211 | 10,216 | 43,565 | .235 |
| 130 | 290 | 15.08 | 11,835 | 10,365 | 44,000 | .236 |

TABLE 4

SITE 90

| Total Age | Normal Basal Area | Mean Diameter | CVTS | CV4 | SV6(32') | C/SCR Ratio |
|---|---|---|---|---|---|---|
| 20 | --- | --- | --- | --- | --- | --- |
| 26 | 49 | 8.91 | 777 | 777 | 1,351 | .575 |
| 30 | 77 | 9.36 | 1,506 | 1,426 | 2,708 | .526 |
| 40 | 128 | 10.49 | 3,256 | 2,985 | 8,393 | .356 |
| 41 | 132 | 10.60 | 3,425 | 3,145 | 9,019 | .349 |
| 50 | 165 | 11.57 | 4,902 | 4,591 | 15,209 | .302 |
| 60 | 193 | 12.60 | 6,444 | 6,160 | 22,777 | .270 |
| 70 | 217 | 13.56 | 7,883 | 7,630 | 30,483 | .250 |
| 80 | 236 | 14.44 | 9,217 | 8,949 | 37,795 | .237 |
| 90 | 254 | 15.23 | 10,448 | 10,087 | 44,347 | .227 |
| 100 | 269 | 15.90 | 11,576 | 11,016 | 49,807 | .221 |
| 110 | 283 | 16.45 | 12,599 | 11,726 | 53,977 | .217 |
| 120 | 295 | 16.87 | 13,519 | 12,204 | 56,690 | .215 |
| 130 | 306 | 17.14 | 14,335 | 12,432 | 57,813 | .215 |

SITE INDEX 90

# EXHIBIT 3-2

DOUGLAS FIR EMPIRICAL YIELD TABLE

TABLE 5

SITE 100

| Total Age | Normal Basal Area | Mean Diameter | CVTS | CV4 | SV6(32') | C/SCR Ratio |
|---|---|---|---|---|---|---|
| 20 | 17 | 8.53 | 85 | 85 | 335 | .254 |
| 26 | 70 | 9.33 | 1,324 | 1,236 | 2,561 | .483 |
| 30 | 97 | 9.85 | 2,130 | 1,913 | 4,601 | .416 |
| 40 | 146 | 11.14 | 4,071 | 3,703 | 11,450 | .323 |
| 41 | 150 | 11.27 | 4,259 | 3,886 | 12,248 | .317 |
| 50 | 181 | 12.39 | 5,909 | 5,541 | 19,972 | .277 |
| 60 | 209 | 13.59 | 7,643 | 7,325 | 29,247 | .250 |
| 70 | 232 | 14.71 | 9,273 | 8,982 | 38,528 | .233 |
| 80 | 252 | 15.75 | 10,799 | 10,468 | 47,294 | .221 |
| 90 | 269 | 16.69 | 12,222 | 11,750 | 55,131 | .213 |
| 100 | 284 | 17.53 | 13,541 | 12,805 | 61,760 | .207 |
| 110 | 297 | 18.24 | 14,756 | 13,624 | 66,922 | .204 |
| 120 | 310 | 18.81 | 15,867 | 14,190 | 70,448 | .201 |
| 130 | 321 | 19.24 | 16,875 | 14,502 | 72,234 | .201 |

SITE INDEX 98
19,496 BD. FT.

TABLE 6

SITE 110

| Total Age | Normal Basal Area | Mean Diameter | CVTS | CV4 | SV6(32') | C/SCR Ratio |
|---|---|---|---|---|---|---|
| 20 | 30 | 8.74 | 327 | 327 | 666 | .491 |
| 26 | 83 | 9.63 | 1,688 | 1,494 | 3,299 | .453 |
| 30 | 109 | 10.23 | 2,574 | 2,253 | 5,812 | .388 |
| 40 | 158 | 11.69 | 4,717 | 4,275 | 14,125 | .303 |
| 41 | 162 | 11.83 | 4,926 | 4,482 | 15,074 | .297 |
| 50 | 194 | 13.11 | 6,757 | 6,345 | 24,305 | .261 |
| 60 | 222 | 14.47 | 8,693 | 8,344 | 35,244 | .237 |
| 70 | 245 | 15.76 | 10,525 | 10,200 | 46,141 | .221 |
| 80 | 264 | 16.97 | 12,253 | 11,863 | 56,425 | .210 |
| 90 | 281 | 18.09 | 13,878 | 13,304 | 65,675 | .203 |
| 100 | 296 | 19.09 | 15,398 | 14,503 | 73,549 | .197 |
| 110 | 310 | 19.97 | 16,815 | 15,448 | 79,836 | .193 |
| 120 | 322 | 20.72 | 18,129 | 16,126 | 84,358 | .191 |
| 130 | 333 | 21.31 | 19,338 | 16,528 | 86,957 | .190 |

TABLE 7

SITE 120

| Total Age | Normal Basal Area | Mean Diameter | CVTS | CV4 | SV6(32') | C/SCR Ratio |
|---|---|---|---|---|---|---|
| 20 | 51 | 9.11 | 819 | 770 | 1,355 | .568 |
| 26 | 101 | 10.10 | 2,294 | 1,961 | 4,810 | .408 |
| 30 | 126 | 10.77 | 3,257 | 2,821 | 7,992 | .353 |
| 40 | 173 | 12.39 | 5,592 | 5,093 | 18,116 | .281 |
| 41 | 177 | 12.55 | 5,820 | 5,324 | 19,255 | .277 |
| 50 | 208 | 13.98 | 7,823 | 7,389 | 30,132 | .245 |
| 60 | 235 | 15.50 | 9,951 | 9,588 | 42,783 | .224 |
| 70 | 258 | 16.96 | 11,974 | 11,611 | 55,265 | .210 |
| 80 | 277 | 18.33 | 13,894 | 13,424 | 66,954 | .200 |
| 90 | 294 | 19.60 | 15,710 | 14,992 | 77,437 | .194 |
| 100 | 309 | 20.76 | 17,423 | 16,297 | 86,410 | .189 |
| 110 | 322 | 21.80 | 19,031 | 17,334 | 93,643 | .185 |
| 120 | 334 | 22.70 | 20,536 | 18,091 | 98,946 | .183 |
| 130 | 345 | 23.45 | 21,937 | 18,561 | 102,187 | .182 |

ATTACHMENT D

EXHIBIT 4-1

Forestry Department

# OFFICE OF STATE FORESTER

2600 STATE STREET, SALEM, OREGON 97310 PHONE 378-2560

General File 7-1-1

MEMORANDUM

Subj: Forest Lands Soils Ratings - Revisions

To : Ron Eber, Policy Analyst, DLCD

From: Dave Stere, Director, Forest Resources Planning

Date: February 8, 1990

Attached are revisions to my listing of Forest Soils Productivity Ratings for Lane, Benton, Linn, Marion, Polk and Yamhill Counties.

I've revised these ratings based upon the valuable information gained during the field tour in Lane County, and on the vegetational comparisons that we can now make as a result of that information.

I'm certain that more revisions are warranted in other areas and on other soils. As I mentioned to you before, we are ready and willing to make revisions if field-gathered information shows them warranted.

I'll send copies of these revisions to Jerry Latshaw and Herb Huddleston and to the affected Counties.

DS-200

EXHIBIT 4-2

4 / 4

2-7-90

LANE COUNTY FOREST SOILS RATINGS

| SCS # | SCS Name | (Site Index) Rating | | SCS Acreage | Cuft/Ac per yr |
|---|---|---|---|---|---|
| 004G | Atring-Rock Outcrop Complex, 30-60% | Med | 120 | 1140 | 86 |
| 005 | Awbrig sicl | 3 | | 9890 | est 40 |
| 006 | Awbrig Urban Land complex | 3 | | 350 | est 20 |
| 008 | Bashaw c | 3 | | 9650 | est 30 |
| 009 | Bashaw-Urban Land complex | 3 | | 350 | est 20 |
| 010 | Beaches | 3 | | 1000 | |
| 017 | Brallier muck, drained | 3 | | 1160 | |
| 018 | Brallier muck, tidal | 3 | | 930 | |
| 019 | Brenner sicl | 3 | | 860 | |
| 021B | Bullards-Ferrelo loams, 0-7% | Med | 144 | 510 | est 80 |
| 021C | Bullards-Ferrelo loams, 7-12% | Med | 144 | 1560 | est 80 |
| 021E | Bullards-Ferrelo loams, 12-30% | Med | 144 | 1210 | est 80 |
| 021G | Bullards-Ferrelo loams, 30-60% | Med | 144 | 850 | est 80 |
| 022 | Camas gr si, occ flooded | 3 | | 6370 | est 40 |
| 023 | Camas-Urban land complex | 3 | | 600 | est 20 |
| 028C | Chehulpum sil, 3-12% | 3 | | 1970 | est 40 |
| 028E | Chehulpum sil, 12-40% | 3 | | 440 | est 40 |
| 033 | Conser sicl | 3 | | 4200 | est 45 |
| 034 | Courtney gr sicl | 3 | | 2920 | est 40 |
| 035 | Dayton, sil, clay sub | 3 | | 4280 | est 40 |
| 042E | Dixonville-Hazelair-Urban Land, 12-35% | Low | | 640 | est 35 |
| 043C | Dixonville-Philomath-Hazelair, 3-12% | Med | | 11480 | est 45 |
| 043E | Dixonville-Philomath-Hazelair, 12-35% | Med | | 22990 | est 45 |
| 044 | Dune Land | 3 | | 5870 | |
| 045C | Dupee sil, 3-20% | Med | | 20190 | est70 * |
| 048 | Fluvents, Nearly Level | 3 | | 9550 | |
| 052B | Hazelair sicl, 2-7% | Low | | 5680 | est 40 |
| 052D | Hazelair, 7-20% | Low | | 41510 | est 40 |
| 053 | Heceta fs | 3 | | 2010 | est 20 |
| 073 | Linslaw l | 2 | | 5700 | est 80 |
| 075 | Malabon sicl | 2 | | 15350 | est 65 |
| 076 | Malabon-Urban land complex | 2 | | 6420 | est 50 |
| 077B | Marcola cob sicl, 2-7% | Med | | 690 | est 70 |
| 085 | Natroy sicl | 3 | | 15170 | est 60 |
| 086 | Natroy sic | 3 | | 2100 | est 60 |
| 087 | Natroy-Urban Land Complex | 3 | | 610 | est 40 |
| 094C | Netarts fs, 3-12% | Med | 80 | 1060 | 58 |
| 094E | Netarts fs, 12-30% | Med | 80 | 420 | 58 |
| 098 | Noti l | 3 | | 3860 | est 30 |
| 100 | Oxley gr sil | 2 | | 2010 | est 80 |
| 101 | Oxley-Urban land complex | 2 | | 870 | est 60 |
| 102C | Panther sicl, 2-12% | 3 | | 8400 | est 45 |
| 103C | Panther-Urban Land complex 2-12% | 3 | | 440 | est 40 |
| 105A | Pengra sil, 1-4% | 3 | | 5070 | est 45 |
| 106A | Pengra-Urban land complex, 1-4% | 3 | | 780 | est 30 |
| 107C | Philomath sic, 3-12% | Low | | 2280 | est 45 |
| 108C | Philomath cob sic, 3-12% | Low | | 2280 | est 45 |
| 108F | Philomath cob sic, 12-45% | Low | | 7090 | est 45 |
| 109F | Philomath-Urban land complex 12-45% | Low | | 270 | est 20 |

EXHIBIT 4-3

| | | | | |
|---|---|---|---|---|
| 4 | Pits | 3 | 700 | |
| 4 | Loverwash | 3 | 2050 | |
| 5H | Rock Outcrop-Kilchis complex, 30-90% | Low | 3950 | 34 |
| 6G | Rock Outcrop-Witzel complex, 10-70% | Low | 1480 | 21 |
| 5C | Steiwer l, 3-12% | Low | 2790 | est 30 |
| 5D | Steiwer l, 12-20% | Low | 1000 | est 30 |
| 5F | Steiwer l, 20-50% | Low | 1240 | est 30 |
| 7C | Urban Land-Hazelair-Dixonville, 3-12% | Low | 1450 | est 45 |
| 0 | Waldo sicl | 3 | 7550 | est 45 |
| 1C | Waldport fs, 0-12% | Low 92 | 1700 | 29 |
| 1E | Waldport fs, 12-30% | Low 92 | 1000 | 29 |
| 1G | Waldport fs, 30-70% | Low 92 | 650 | 29 |
| 2E | Waldport fs, thin surf., 0-30% | Low 92 | 2110 | 29 |
| 3C | Waldport-Urban Land Complex, 0-12% | Low | 250 | est 20 |
| 6 | Willanch fsl | 3 | 870 | est 40 |
| 7F | Winberry v gr l, 10-45% | Low 70 | 560 | 48 |
| 8E | Witzel v cob l, 3-30% | Med 90 | 5780 | 70 |
| 8G | Witzel v cob l, 30-75% | Med 90 | 5520 | 70 |
| 1 | Yaquina-Urban land complex | 3 | 260 | est 45 |
| 2G | Yellowstone-Rock Outcrop, 10-60% | Low 86 | 1560 | 38 |

No examples of Forested lands on Dupee soil found...adjacent areas had a productivity rating of (est) 45 cuft/acre/yr. This rating is questionable.

Total - LOW & MEDIUM ratings -- 293,500 acres

| | | | | |
|---|---|---|---|---|
| 1A | Abiqua sicl, 0-3% | High 152 | 5210 | 161 |
| 1B | Abiqua sicl, 3-5% | High 152 | 1230 | 161 |
| 2E | Astoria sil, 5-30% | High 170 | 3380 | 181 |
| 3E | Astoria Variant sil, 3-30% | High 170 | 200 | 181 |
| 3G | Astoria Variant sil, 30-60% | High 170 | 1500 | 181 |
| 7B | Bandon sl, 0-7% | High 138 | 240 | 142 |
| 7C | Bandon sl, 7-12% | High 138 | 220 | 142 |
| 7F | Bandon sl, 12-50% | High 138 | 270 | 142 |
| 1C | Bellpine sicl, 3-12% | High 155 | 15950 | 164 |
| 1D | Bellpine sicl, 12-20% | High 155 | 58600 | 164 |
| 1E | Bellpine sicl, 20-30% | High 155 | 38100 | 164 |
| 1F | Bellpine sicl, 30-50% | High 155 | 27100 | 164 |
| 2E | Bellpine cob sicl, 2-30% | High 155 | 4230 | 164 |
| 3F | Blachly cl, 30-50% | High 148 | 13400 | 156 |
| 3G | Blachly cl, 50-70% | High 148 | 2960 | 176 |
| 4E | Blachly sicl, 3-30% | High 165 | 7030 | 176 |
| 4F | Blachly sicl, 30-50% | High 165 | 8520 | 176 |
| 5E | Blachly-McCully cls, 3-30% | High 147 | 23000 | 155 |
| 6D | Bohannon gr l, 3-25% | High 155 | 15800 | 164 |
| 6F | Bohannon gr l, 25-50% | High 155 | 27770 | 164 |
| 6H | Bohannon gr l, 50-90% | High 155 | 92000 | 164 |
| ( ) | Briedwell cob l, 0-7% | High 135 | 1780 | 138 |
| [illegible] | Chapman l | l | 3800 | est 140 |
| 5 | Chapman-Urban land complex | l | 1070 | est 100 |
| 6 | Chehalis sicl, occ flooded | l | 9300 | est 100 |
| 27 | Chehalis-Urban land complex | l | 700 | est 90 |
| | | l | 5170 | est 120 |

EXHIBIT 4-4

| | | | | | | |
|---|---|---|---|---|---|---|
| | Coburg sicl | I | | 13480 | est | 100 |
| | Coburg-Urban land complex | I | | 2740 | est | 90 |
| D | Crusier gr cl, 3-25% | High | 135 | 2670 | | 138 |
| F | Crusier gr cl, 25-50% | High | 135 | 1710 | | 138 |
| G | Cruiser gr cl, 35-70% | High | 135 | 360 | | 138 |
| D | Cumley sicl, 2-20% | High | 154 | 34000 | | 163 |
| C | Cupola cob l, 3-12% | High | 124 | 2530 | | 121 |
| E | Cupola cob l, 12-30% | High | 124 | 1110 | | 121 |
| E | Digger gr l, 10-30% | High | 145 | 970 | | 152 |
| F | Digger gr l, 30-50% | High | 145 | 3730 | | 152 |
| H | Digger-Rock outcrop complex, 50-85% | High | 145 | 62140 | | 114 |
| C | Dixonville sicl, 3-12% | High | 120 | 3360 | | 115 |
| E | Dixonville sicl, 12-30% | High | 120 | 3670 | | 115 |
| F | Dixonville sicl, 30-50% | High | 120 | 3280 | | 115 |
| | Eilertsen sil | High | 159 | 1580 | | 169 |
| E | Fendall sil, 3-30% | High | 150 | 720 | | 158 |
| E | Formander l, 3-30% | High | 162 | 4690 | | 172 |
| G | Formander l, 30-60% | High | 162 | 5130 | | 172 |
| G | Formander-Hembre-Klicitat, 50-80% | High | 165 | 24510 | | 170 |
| B | Haflinger-Jimbo complex, 0-5% | High | 159 | 1990 | | 161 |
| D | Hembre sil, 5-25% | High | 170 | 650 | | 181 |
| G | Hembre sil, 25-60% | High | 170 | 1030 | | 181 |
| E | Hembre-Klickitat complex, 3-30% | High | | 1920 | | 170 |
| G | Hembre-Klickitat complex, 30-60% | High | | 1760 | | 168 |
| | Holcomb sicl | I | | 1560 | est | 100 |
| E | Holderman ext cob l, 5-25% | High | 120 | 490 | | 98 |
| F | Holderman ext cob l, 25-50% | High | 120 | 1900 | | 98 |
| G | Holderman ext cob l, 50-75% | High | 120 | 1600 | | 98 |
| D | Honeygrove sicl, 3-25% | High | 165 | 31050 | | 176 |
| F | Honeygrove sicl, 25-50% | High | 165 | 10430 | | 176 |
| E | Hullt l, 2-30% | High | 165 | 480 | | 176 |
| G | Hullt l, 30-60% | High | 165 | 400 | | 176 |
| D | Hummington gr l, 5-25% | High | 145 | 840 | | 152 |
| F | Hummington gr l, 25-50% | High | 145 | 1620 | | 152 |
| G | Hummington gr l, 50-75% | High | 145 | 7530 | | 152 |
| | Jimbo sil | High | 162 | 2550 | | 173 |
| B | Jimbo-Haflinger complex, 0-5% | High | | 590 | | 167 |
| C | Jory sicl, 2-12% | High | 155 | 4560 | | 164 |
| D | Jory sicl, 12-20% | High | 155 | 6940 | | 164 |
| E | Jory sicl, 20-30% | High | 155 | 3130 | | 164 |
| D | Keel cob cl, 3-25% | High | 139 | 6390 | | 144 |
| F | Keel cob cl, 35-45% | High | 139 | 9300 | | 144 |
| G | Keel cob cl, 45-75% | High | 139 | 5060 | | 144 |
| G | Kilchis st l, 30-60% | High | 110 | 2370 | | 98 |
| H | Kilchis st l, 60-90% | High | 110 | 7920 | | 98 |
| D | Kinney cob l, 3-20% | High | 150 | 6970 | | 158 |
| F | Kinney cob l, 20-50%, N | High | 162 | 9010 | | 172 |
| G | Kinney cob l, 50-70%, N | High | 162 | 18220 | | 172 |
| F | Kinney cob l, 20-50%, S | High | 150 | 13710 | | 164 |
| G | Kinney cob l, 50-70%, S | High | 150 | 7780 | | 164 |
| F | Kinney cob l, slump, 3-30% | High | 168 | 15530 | | 180 |
| D | Klickitat st l, 3-30% | High | 144 | 10050 | | 165 |
| F | Klickitat st l, 30-50%, N | High | 156 | 8350 | | 165 |
| G | Klickitat st l, 50-75%, N | High | 156 | 37150 | | 145 |
| F | Klickitat st l, 30-50%, S | High | 140 | 25900 | | 145 |
| G | Klickitat st l, 50-75%, S | High | 140 | 68800 | | 150 |

EXHIBIT 4-5

| | | | | | |
|---|---|---|---|---|---|
| [illegible] | Lint sil, 0-7% | High | 160 | 1120 | 170 |
| 74C | Lint sil, 7-12% | High | 160 | 1510 | 170 |
| 74D | Lint sil, 12-20% | High | 160 | 1860 | 170 |
| 74E | Lint sil, 20-40% | High | 160 | 1920 | 170 |
| 78 | McAlpin sicl | High | 159 | 11860 | 169 |
| 79 | McBee sicl | 1 | | 5200 | est 100 |
| 80F | McKully cl, 30-50% | High | 162 | 7730 | 172 |
| 80G | McKully cl, 50-70% | High | 162 | 4210 | 172 |
| 81D | McDuff cl, 3-25% | High | 142 | 3010 | 148 |
| 81F | McDuff cl, 25-50% | High | 142 | 3000 | 148 |
| 81G | McDuff cl, 50-70% | High | 142 | 950 | 148 |
| 82C | Meda l, 2-12% | High | 161 | 10650 | 171 |
| 83B | Minniece sicl, 0-8% | High | 130 | 1420 | 129 |
| 84D | Mulkey l, 5-25% | High | 143 | 230 | 224 |
| 88 | Nehalem sil | High | 174 | 5950 | 186 |
| 89C | Nekia sicl, 2-12% | High | 151 | 4960 | 159 |
| 89D | Nikia sicl, 12-20% | High | 151 | 15520 | 159 |
| 89E | Nikia sicl, 20-30% | High | 151 | 8760 | 159 |
| 89F | Nikia sicl, 30-50% | High | 151 | 7580 | 159 |
| 90 | Nekoma sil | High | 180 | 7170 | 191 |
| 91D | Neskowin sil, 12-20% | High | 133 | 560 | 205 |
| 91E | Neskowin sil, 20-40% | High | 133 | 230 | 205 |
| 92G | Neskowin-Salander sil, 40-60% | High | 133 | 4350 | 205 |
| 93 | Nestucca sil | 1 | | 5830 | est 130 |
| 95 | Newberg fsl | 1 | | 2970 | est 150 |
| 96 | Newberg l | 1 | | 4490 | est 150 |
| 97 | Newberg-Urban land complex | 1 | | 930 | est 100 |
| 99H | Ochrepts & Umbrepts, v. steep | 1 | | 1070 | est 130 |
| 4E | Peavine sicl, 3-30% | High | 155 | 68300 | 164 |
| 4G | Peavine sicl, 30-60% | High | 155 | 124810 | 164 |
| 1D | Preacher l, 0-25% | High | 181 | 10950 | 192 |
| 1F | Preacher l, 25-50% | High | 181 | 25600 | 192 |
| 2G | Preacher-Bohannon-Slickrock, 50-75% | High | | 113500 | 185 |
| 3C | Ritner cob sicl, 2-12% | High | 131 | 2940 | 131 |
| 3E | Ritner cob sicl, 12-30% | High | 131 | 14890 | 131 |
| 3G | Ritner cob sicl, 30-60% ★ | High | 131 | 21340 | 131 ★ |
| 7E | Salander sil, 12-30% | High | 133 | 770 | 205 |
| 8 | Salem gr sil | 1 | | 7550 | est 130 |
| 9 | Salem-Urban land complex | 1 | | 2300 | est 100 |
| 0B | Salkum sil, 2-6% | High | 145 | 5060 | 151 |
| 1B | Salkum sicl, 2-8% | High | 145 | 5160 | 151 |
| 1C | Salkum sicl, 8-16% | High | 145 | 2160 | 151 |
| 2 | Saturn cl | High | 162 | 4210 | 172 |
| 3 | Sifton gr l | 1 | | 650 | |
| 4D | Slickrock gr l, 3-25% | High | 194 | 1850 | 203 |
| 4F | Slickrock gr l, 25-50% | High | 194 | 1500 | 203 |
| 6F | Tahkenitch l, 20-45% | High | 156 | 390 | 165 |
| 6G | Tahkenitch l, 45-75% | High | 156 | 500 | 165 |
| 9B | Veneta l, 0-7% | High | 139 | 11930 | 144 |
| 9B | Veneta Variant sil, 0-7% | High | 150 | 1320 | 158 |
| [illegible] | Willakenzie cl, 2-12% | High | 160 | 2500 | 170 |
| 5D | Willakenzie cl, 12-20% | High | 160 | 7320 | 170 |
| 5E | Willakenzie cl, 20-30% | High | 160 | 6490 | 170 |
| 5F | Willakenzie cl, 30-50% | High | 160 | 10610 | 170 |
| 9 | Woodburn sil | 1 | | 215 | est 170 |

# EXHIBIT 4-6

HIGH rating -- 1,455,415 acres

These soils ratings are based upon published SCS data. Estimates are derived by the Oregon Department of Forestry from comparisons of natural vegetation complex information in published SCS data for soils where the data do not include measured forest productivity information with other soils where such information is available.

Soils marked with numbers are soils where the data are insufficient to make a more-precise determination; or where SCS data indicates that forest growth is unlikely. Soils are not rated where data indicate that tree growth does not occur on the soil.

"3" indicates productivity probably less than 50 cuft/ac/yr
"2" indicates productivity probably between 50 and 85 cuft/ac/yr
"1" indicates productivity probably more than 85 cuft/ac/yr

Where the soil is given a number rating, the productivity estimate shown is of lower precision than for other productivity estimates.

EXHIBIT 5-1

# DOUGLAS FIR LOG PRICES 1978-1982, 1983

**REGION 1 - WESTERN OREGON UNIT**
**Reporting format: ODF reporting as of 4th quarter 1981**
Source: Oregon Department of Forestry Forest Management Division
http://www.odf.state.or.us/divisions/management/asset_management/logprices/logP483.HTM

**Domestically Processed Logs (Delivered to a mill; "Pond Value")**

## 1978

| Douglas-Fir Grade | Quarter 1st | 2nd | 3rd | 4th | Average |
|---|---|---|---|---|---|
| #1P | $ 460 | 475 | 475 | 475 | 471 |
| #2P | $ 415 | 435 | 435 | 435 | 430 |
| #3P | $ 358 | 389 | 389 | 389 | 381 |
| SM | $ 283 | 338 | 338 | 338 | 324 |
| #2S | $ 242 | 287 | 287 | 287 | 276 |
| #3S | $ 191 | 250 | 250 | 250 | 235 |
| #4S | $ 161 | 200 | 200 | 200 | 190 |
| SC | $ 125 | 157 | 157 | 157 | 149 |
| Utility | $ 70 | 80 | 80 | 80 | 78 |

## 1979

| Douglas-Fir Grade | Quarter 1st | 2nd | 3rd | 4th | Average |
|---|---|---|---|---|---|
| #1P | $ 531 | 531 | 584 | 584 | 555 |
| #2P | $ 476 | 476 | 523 | 523 | 500 |
| #3P | $ 425 | 425 | 467 | 467 | 446 |
| SM | $ 385 | 385 | 423 | 423 | 404 |
| #2S | $ 322 | 322 | 354 | 354 | 338 |
| #3S | $ 282 | 282 | 310 | 310 | 296 |
| #4S | $ 256 | 256 | 281 | 281 | 269 |
| SC | $ 160 | 160 | 176 | 176 | 168 |
| Utility | $ 90 | 90 | 99 | 99 | 95 |

## 1980

| Douglas-Fir Grade | Quarter 1st | 2nd | 3rd | 4th | Average |
|---|---|---|---|---|---|
| #1P | $ 584 | 584 | 584 | 584 | 584 |
| #2P | $ 523 | 523 | 523 | 523 | 523 |
| #3P | $ 467 | 467 | 467 | 467 | 467 |
| SM | $ 423 | 423 | 423 | 423 | 423 |
| #2S | $ 354 | 354 | 354 | 354 | 354 |
| #3S | $ 310 | 310 | 310 | 310 | 310 |
| #4S | $ 281 | 281 | 281 | 281 | 281 |
| SC | $ 176 | 176 | 176 | 176 | 176 |
| Utility | $ 99 | 99 | 99 | 99 | 99 |

EXHIBIT 5-2

**1981**

| Douglas-Fir Grade | Quarter 1st | 2nd | 3rd | 4th | Average |
|---|---|---|---|---|---|
| #1P | $ 584 | 584 | 584 | 648 | 648 |
| #2P | $ 523 | 523 | 523 | 550 | 550 |
| #3P | $ 467 | 467 | 467 | 439 | 439 |
| SM | $ 423 | 423 | 423 | 390 | 415 |
| #2S | $ 354 | 354 | 354 | 323 | 346 |
| #3S | $ 310 | 310 | 310 | 238 | 292 |
| #4S | $ 281 | 281 | 281 | 208 | 263 |
| SC | $ 176 | 176 | 176 | 212 | 185 |
| Utility | $ 99 | 99 | 99 | 104 | 100 |

**1982**

| Douglas-Fir Grade | Quarter 1st | 2nd | 3rd | 4th | Average |
|---|---|---|---|---|---|
| 1P | $ 600 | 512 | 512 | 512 | 534 |
| 2P | $ 510 | 439 | 439 | 439 | 457 |
| 3P | $ 425 | 370 | 370 | 370 | 384 |
| SM | $ 375 | 316 | 316 | 316 | 331 |
| 2S | $ 295 | 258 | 258 | 258 | 267 |
| 3S | $ 225 | 202 | 202 | 202 | 208 |
| 4S | $ 190 | 169 | 169 | 169 | 174 |
| SC | $ 190 | 164 | 164 | 164 | 171 |
| Utility | $ 90 | 123 | 123 | 123 | 115 |
| CR (2S & better) | $ -- | 303 | 303 | 303 | 303 |
| CR (2S, 3S, and 4S) | $ -- | 243 | 243 | 243 | 243 |

**1983**

| Douglas-Fir Grade | Quarter 1st | 2nd | 3rd | 4th | Average |
|---|---|---|---|---|---|
| 1P | $ 512 | 505 | 505 | 505 | 507 |
| 2P | $ 439 | 410 | 425 | 425 | 425 |
| 3P | $ 370 | 325 | 340 | 340 | 343 |
| SM | $ 316 | 275 | 285 | 285 | 290 |
| 2S | $ 258 | 250 | 255 | 255 | 255 |
| 3S | $ 202 | 210 | 215 | 215 | 211 |
| 4S | $ 169 | 195 | 200 | 200 | 191 |
| SC | $ 164 | 130 | 140 | 140 | 144 |
| Utility | $ 123 | 75 | 75 | 75 | 87 |
| CR (2S & better) | $ 303 | -- | -- | -- | 303 |
| CR (2S, 3S, and 4S) | $ 243 | 240 | 240 | 240 | 241 |

EXHIBIT 5-3

## DOUGLAS FIR LOG PRICES 1978-1982, 1983

| DF Grade | 1978-1982 Average | 1983 Average | %+ | % - |
|---|---|---|---|---|
| 1P | $ 558 | 507 | | - 9.1% |
| 2P | $ 492 | 425 | | -13.6% |
| 3P | $ 423 | 343 | | -18.9% |
| SM | $ 379 | 290 | | -23.5% |
| 2S | $ 316 | 255 | | -19.3% |
| 3S | $ 268 | 211 | | -21.3% |
| 4S | $ 235 | 191 | | -18.7% |
| SC | $ 170 | 144 | | -15.3% |
| Utility | $ 97 | 87 | | -10.3% |
| CR (2S & better) | $ 303 | 303 | | n/c |
| CR (2S, 3S, and 4S) | $ 243 | 241 | | - 0.8% |
| Average* | $ 326 | 273 | 19.4** | -16.3 |

*In the absence of information concerning distribution of grades, it is not possible to assign the different grades their proper weight in calculating an overall average. This calculation assigns each grade equal weight, with the exception of the CR grades which were used only during the years 1982 and 1983 years and are not included.

** % by which 1978-82 prices exceed 1983 prices

PUBLIC WORKS DEPARTMENT
LAND MANAGEMENT DIVISION
125 EAST 8TH AVENUE
EUGENE, OREGON 97401

SHUTTLE

DEPT LAND CONSERVATION & DEV
ATTN: PLAN AMENDMENT SPECIALIST
635 CAPITOL STREET NE, SUITE 150
SALEM OR 97301-2540