

FIELD EVALUATIONS OF PARCEL-SPECIFIC AND AREAL
APPLICATIONS OF SENATE BILL 237 MARGINAL LANDS CRITERIA

by

RICHARD DALE HOLOCH

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Dr. James R. Pease

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FIELD EVALUATIONS OF PARCEL-SPECIFIC AND AREAL
APPLICATIONS OF SENATE BILL 237 MARGINAL LANDS CRITERIA

ABSTRACT: Marginal agricultural land is currently a focus of concern for public land use agencies in Oregon. Two approaches for evaluating marginal agricultural lands are the Land Evaluation and Site Assessment (LESA) model of the U.S. Soil Conservation Service, and the marginal lands criteria of the 1983 Oregon Legislature's Senate Bill 237. Each of these land management tools have had limited application in Oregon, but have not undergone extensive field evaluation to determine their relative effects and requirements.

This research paper examines the application of SB 237 criteria to 23 case study tax lots included in the 1983-84 Linn County LESA study. In addition, the SB 237 criteria are applied to a larger tract of agricultural land near Scio in northern Linn County. An analysis of the procedures and findings is presented.

Other findings point out those spatial land characteristics which are associated with marginal land as defined by SB 237. The findings of this paper's SB 237 field evaluations are framed in the context of Oregon's land use planning program.

Key Words: marginal agricultural land, parcelization.

Introduction

Oregon's Senate Bill 100 of 1973 marked the beginning of the state's ambitious land use planning program emphasizing agricultural land protection as a key feature (Furuseth 1981). Within the scope of national concern over

protection of productive farmlands (CAST 1981, Crosson 1982), controversy has surrounded Oregon's provisions for management of those lands, which, through poor soils, small lot size, or conflicts with non-agricultural uses, have become marginally productive for commercial agricultural output (Benner 1983).

Recognizing the need for a balance between agricultural land protection and the release of marginal lands for small farms, rural housing, and uses compatible with farming, the 1983 Oregon Legislature adopted Senate Bill 237. The marginal land provisions of this bill are optional for county planning agencies, but if adopted, certain criteria for identification of marginal lands must be utilized. These criteria include tests for gross farm income, for the degree of previous nearby parcelization, and for a soil capability rating and related timber production potential (Sixty-second Oregon Assembly 1983). The language of the bill's marginal land definition is as follows:

"(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:

(A) At least 50 percent of the proposed marginal land plus the lots or parcels at least partially located within one-quarter mile of the perimeter of the proposed marginal land consists of lots or parcels 20 acres or less in size on July 1, 1983;

(B) The proposed marginal land is located within an area of not less than 240 acres of which is at least 60 percent is composed of lots or parcels that are 20 acres or less in size on July 1, 1983; or

(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 the effective date of this 1983 Act, and is not capable of producing fifty cubic feet of merchantable timber per acre per year in those counties east of the summit of the Cascade Range and eight-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."

As of March 1984 several Oregon counties were investigating the implications of incorporating SB 237's marginal land features into their comprehensive plans and county planning policies. Washington County, in the Portland metropolitan area, has incorporated SB 237 into their planning process. Sparsely populated Douglas County in southwest Oregon chose not to use the bill's features, after completing an analysis of its implications for the county (Douglas County 1984).

Another bill of the 1983 Legislature, House Bill 2965, directed the 1985 Legislature to consider the Land Evaluation and Site Assessment (LESA) model of the U.S. Soil Conservation Service as an alternative to SB 237. LESA was developed in 1981 as a tool for agricultural land resource management (Wright et al 1983; USDA 1983).

During 1983, the general LESA model was adapted to Oregon's legal structure and, specifically, to agricultural conditions in Linn County, which is within the central portion of Oregon's fertile Willamette Valley (Pease and Huddleston 1984). The model's Land Evaluation (LE) portion characterizes a parcel's soil quality by a weighted soil potential rating. The Site Assessment (SA) portion uses two criteria to characterize agricultural value of a site: conflicts in land use, and parcel size. As part of the testing and validation process, LESA model applications and field investigations were completed for 23 case studies in the county.

The Linn County LESA model test proposes cut-off points to distinguish between good agricultural land, "marginal" agricultural land (defined in the

model as lands having one or more limiting factors), and non-agricultural land (Table 1). The marginal lands identified, to frame them in the legal terms of Oregon land-use law, may not have agricultural value high enough to make a substantial contribution to the commercial agricultural economy and they may not be essential for the maintenance of agricultural processors and established farm markets.

Though LESA and SB 237 both have potential for marginal land identification in Oregon, a comparison of the two tools has not been conducted.

Objectives

The main objective of this research paper is to examine the application of SB 237 criteria to the 23 Linn County LESA case studies and to a larger tract of agricultural land in northern Linn County. This analysis will examine the merits and difficulties of applying the SB 237 criteria for both a case-by-case situation and for an areal analysis. A secondary objective is to compare SB 237 and the LESA findings.

The results of this paper's findings are intended to help county and state planners, as well as legislators in the 1985 Legislative Assembly, in their assessment of SB 237's two-year performance, and of LESA's feasibility as an alternative land management tool for marginal lands evaluation.

Data and Methodology

Senate Bill 237 requires that two of four possible criteria be satisfied by each agricultural tract proposed for marginal land designation. Each tract must satisfy an income test, which requires that 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 gross annual income, and must satisfy at least one of three tests regarding soil

TABLE 1. CLASSIFICATION OF AGRICULTURAL VALUE FOR THE PARCELS OF THE LINN COUNTY LESA MODEL

LESA Rank Order (Pease & Huddleston 1984)	LESA Parcel	LESA Score (300 pts max)	LESA Limiting Factors ^a	SB 237 Marginal Lands ^b	SB 237 Limiting Factors ^c
I. Good Agricultural Land					
1	Royer	273	-	N	I
2	Nawrocki	255	-	N	I
3	Albany	247	-	N	I
4	Bayne	235	-	N	I
5	Carey	234	-	N	I
6	Smucker	234	-	N	I
7	Luque	234	-	N	I
8	Philpott	229	-	N	I
9	Elder	225	-	N	I
10	Lackey	213	-	N	I
II. "Marginal"^d Agricultural Land					
11	Schulz	254	C	N	I
12	Skinner	224	So	N	I
13	Glaser	216	C	N	I
14	Leavengood	202	So	N	I
15	Hilliker	192	C,Si	N	I
16	Weller	183	C	N	I
17	Main St.	170	C	N	I
18	Idler	167	C,Si	N	I
19	Smith	166	--	N	I
20	Babcock	147	C,Si	N	I
III. Non-Agricultural Land					
21	Frey	185	--	N	I
22	Eads	175	Si	N	I
23	Quarry	130	So	Y	I,S

^aSo=Soils; C=Conflict with surrounding uses; Si=Size

^bY=Yes; N=No

^cI=Income; S=Soil/timber productivity

^dLinn County LESA's use of the term "Marginal" agricultural land is not the same as Oregon SB 237; rather it implies that neither soil quality nor site quality are sufficiently limiting to preclude agricultural use altogether, but either the level of agricultural production operations will remain low, or the difficulty of carrying out agricultural operations will remain higher than desirable. The term also implies that, should the parcel be converted to non-agricultural use, there would be little or no loss to the agricultural economy.

capability and amount of surrounding parcelization (Figure 1).

For practical applications, the income test cannot be literally satisfied without personal documentation by individual landowners. In implementing SB 237, a county has two basic choices:

- 1) apply all of the criteria on a case-by-case basis, or
- 2) designate potential marginal land zones by the soils and parcelization criteria, and then require each applicant to submit evidence addressing the income test.

Since it is not possible in a study of this nature to obtain documentation from landowners, certain sources of public information were utilized as an approximation of a tax lot's income potential¹. Results of these applications are discussed in the text.

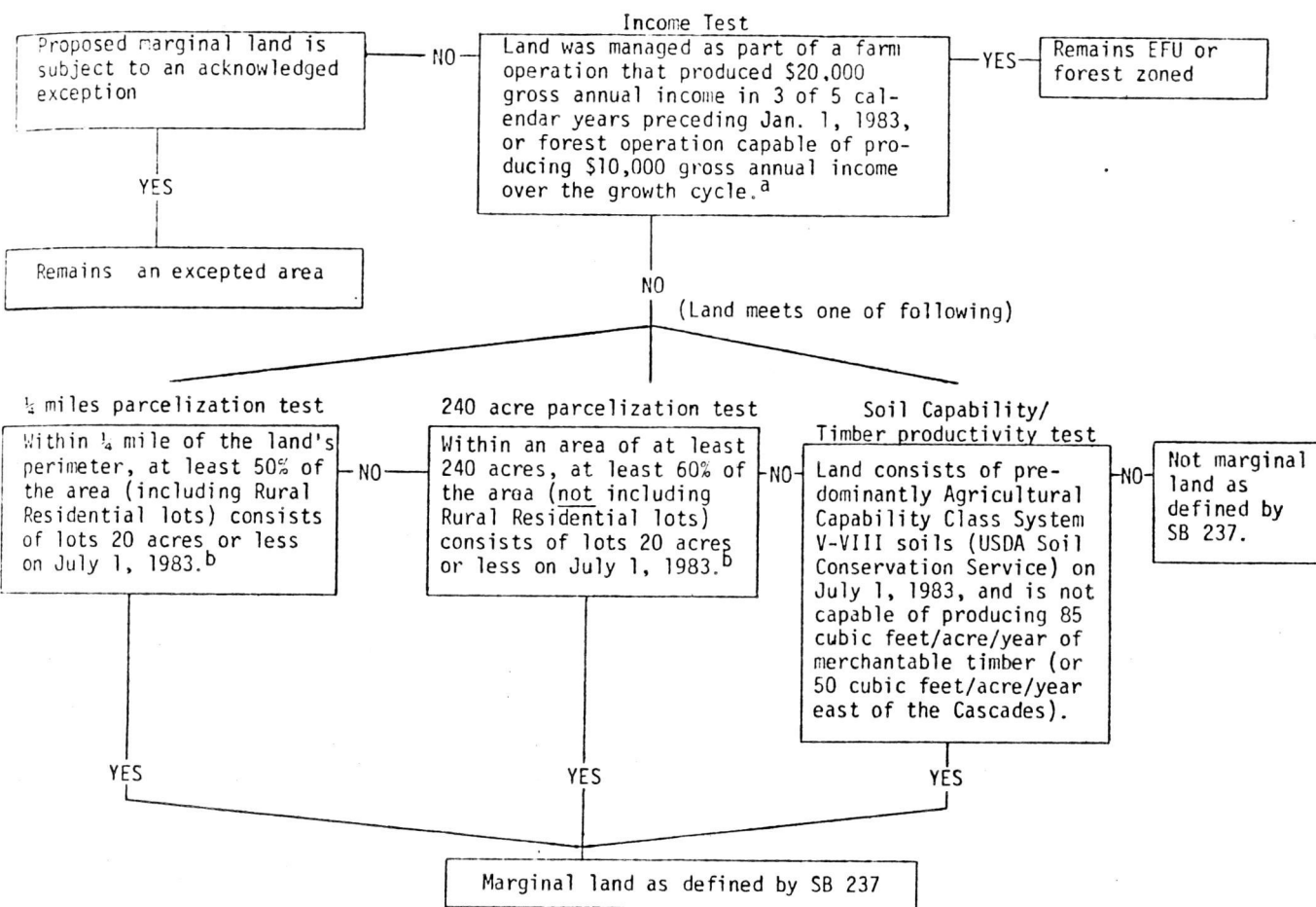
Parcel-Specific Applications

For this part of the analysis, the lots that were used for case studies in the LESA field tests were utilized. This procedure allowed testing of the SB 237 marginal lands criteria as well as a comparison to the LESA results.

Because of the noted difficulties with literal application of the income test, each of the 23 Linn County LESA lots was first tested for satisfaction of physical and parcelization SB 237 criteria. The $\frac{1}{4}$ mile parcelization test was applied by calculating whether 50% of the area within $\frac{1}{4}$ mile of the subject lot consisted of lots 20 acres or less. The 240-acre parcelization test was similarly conducted by centering a 240-acre square perimeter on the subject lot, and calculating whether 60% of the area consisted of lots 20 acres or less. The soil/timber productivity test was applied by reviewing each lot's soil types for the presence of class V-VIII soils, and for timber productivity less than 85 cubic feet/acre/year.

Figure 1.

MARGINAL LANDS BILL
 SENATE BILL 237
 July 1, 1983
 Definition of Marginal Lands



^aStatistical information compiled by the OSU Extension Service, or other sources of objective information, may be used to calculate (estimate) gross annual income.

^bInclude applicant's lot; exclude Urban Growth Boundary (UGB) lots.

Adjacent lots are considered to be a single lot within the 1/4 mile or 240-acre test areas if, on July 1, 1983, (1) they were owned by the same person, parents, children, sisters, brother or spouses, separately or in common occupance, or (2) the interests in the land are held by the relatives described, one relative having held the interest in the adjacent lots before transfer to another relative.

Lots are not adjacent if separated by a public road.

Only one of the LESA lots satisfied the parcelization/soils criteria (Table 1). The Quarry lot has very low soil quality, and therefore would satisfy the soils criterion to qualify for marginal lands.

To estimate gross annual income potential for each of the 23 LESA lots, 1978 U.S. Census of Agriculture data was used (U.S. Census 1981). Each lot was characterized in the LESA study as occurring on one of three agricultural landforms: bottomland, terraces, or foothills. The three or four most prevalent agricultural types (field crops, vegetables, etc.) for each landform were located in the census tables, and average income per acreage class was determined.

This income test is not able to detect whether a lot was "part of a farm operation that produced \$20,000 or more in annual gross income" because of the practical need for each landowner to provide this management information. Also, public records available through the Linn County Assessor's Office do not indicate whether tax lots were managed as part of larger farm operations.

All of the LESA lots had potential incomes less than \$20,000, and therefore satisfied the income test. Only the Quarry lot satisfied both the income test and at least one other criterion. Table 2 reflects the application of SB 237's income and adjacent parcelization tests for the LESA lots. Each lot's satisfaction of SB 237 income criteria is shown in the lot's relative rank order in Table 2. Lots with increasing income potential are shown in descending order down the list.

As a field evaluation of parcel-specific application of SB 237 criteria, the LESA lots showed a tendency for large lots in areas of minimal parcelization to have less likelihood for marginal land qualification than smaller lots in areas of extensive parcelization. Smaller

TABLE 2. APPLICATION OF SENATE BILL 237 MARGINAL LANDS DEFINITION CRITERIA TO THE 23 LINN COUNTY LESA PARCELS.

Rel. Rank ^b	Lot Name	Acres	Landform ^c	INCOME TEST					Potential avg. inc. (\$1,000)	1/4 MILE PARCEL TEST ^e	240 AC. PARCEL TEST ^e	SOIL /TIMBER TEST ^f	
				Estimated Gross Income Per Agriculture Type ^a									
				Veg.	Field Crop	Gen. Farm Crop	\$1,000 ^d						
			Grains	Ext. An. Grazing	Gen. Farm Livestock								
1	Quarry	53.87	F		0		0	0		0	-(E)	-(E)	✓
2	Eads	7.76	T		1.7	1.5	1.7		S	1.6	-(E)	-(E)	-
3	Idler	13.18	T		1.7	1.5	1.7		S	1.6	-(7%)	-(10%)	-
4	Frey	12.65	B	S	1.7	1.5				1.6	-(E)	-(E)	-
5	Hilliker	30.17	B	S	2.6	1.3				1.9	-(21%)	-(11%)	-
6	Albany	36.38	B	S	2.6	1.3				1.9	-(31%)	-(28%)	-
7	Nawrocki	36.82	B	S	2.6	1.3				1.9	-(0%)	-(0%)	-
8	Babcock	14.67	F		1.7		1.7	4.1		2.5	-(18%)	-(16%)	-
9	Smith	20.00	F		2.6		2.4	3.1		2.7	-(E)	-(E)	-
10	Main St.	41.30	F		6.2		4.0	4.9		5.0	-(E)	-(E)	-
11	Weller	51.78	F		6.2		4.0	4.9		5.0	-(34%)	-(0%)	-
12	Leavengood	60.98	F		6.2		4.0	4.9		5.0	-(E)	-(E)	-
13	Bayne	43.60	T		6.2	S	4.0		S	5.1	-(E)	-(E)	-
14	Smucker	56.56	T		6.2	S	4.0		S	5.1	-(E)	-(E)	-
15	Philpott	60.24	T		6.2	S	4.0		S	5.1	-(0%)	-(0%)	-
16	Lackey	61.00	T		6.2	S	4.0		S	5.1	-(E)	-(E)	-
17	Luque	76.88	T		6.2	S	4.0		S	5.1	-(E)	-(E)	-
18	Royer	43.36	B	15.2	6.2	S				10.7	-(E)	-(E)	-
19	Schulz	70.46	B	15.2	6.2	S				10.7	-(E)	-(E)	-
20	Skinner	159.41	F		19.1		8.4	7.6		11.7	-(0%)	-(0%)	-
21	Elder	87.68	T		19.1	15.3	8.4		S	14.3	-(2%)	-(2%)	-
22	Glaser	109.93	T		19.1	15.3	8.4		S	14.3	-(E)	-(E)	-
23	Carey	155.80	T		19.1	15.3	8.4		S	14.3	-(E)	-(0%)	-

^aSource: U.S. Census 1981

^bThis ranking reflects increasing income potential as shown in descending order down the list.

^cF=Foothills; T=Terraces; B=Bottomlands

^d"S" = Suppression; data withheld for respondent confidentiality when less than 5 farms qualify for an acreage class.

^e✓ for passes; "-" for fails; "E"=estimation from visual comparison with lots having similar surrounding parcelization (criteria (2) and (3)) or soils (criterion 4).

^fNone of the LESA parcels had soil surveys showing capability class V-VIII soils or timber site classes not capable of providing 85 cubic feet of merchantable timber per acre per year.

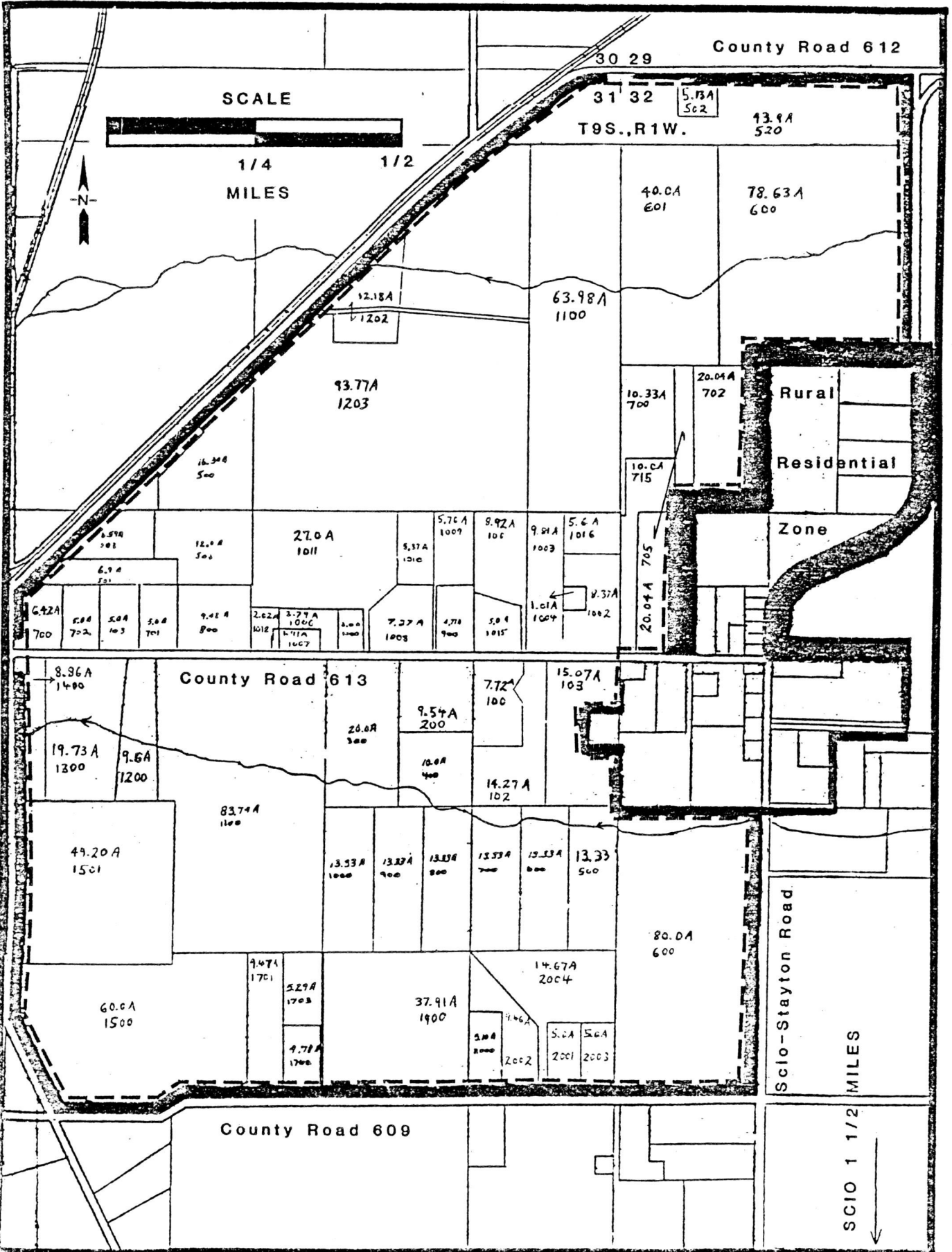
lots had a lower potential income. Although not important in this particular set of parcel-specific studies, the income test would need to be carried further if several of the parcels had qualified as marginal lands by parcelization or soils criteria.

Areal Applications

The Scio study area was chosen as a test site for this investigation because of site characteristics matching the LESA lots closest to SB 237 marginal lands qualification. These characteristics were moderate to low capability soils and localized adjoining parcelization of lots 20 acres or less. The Scio study area is a 1174-acre tract of agricultural land consisting of 67 tax lots $1\frac{1}{2}$ miles north of the small rural town of Scio in northern Linn County (Figure 2). This tract was judged by county land planners to be representative of areas of the county from which landowner requests for marginal land designation might be expected.

To apply SB 237 marginal lands criteria to the Scio study area, the same procedures were used as for the 23 Linn County LESA lots, with the exception of the income test. Because of the difficulties encountered in applying non-site specific census data to the LESA lots, soil-based income estimation was devised for the Scio study area. Estimated gross income was calculated for twenty-six representative tax lots by multiplying agricultural output (in units of pounds, bushels, or animal unit months) per acre of a particular soil type, by the number of acres in each lot, and by the estimated 1981-83 gross cash farm income per unit of output². From this estimate of potential gross income, the remaining lots of the Scio study area were approximated for their satisfaction of the income test by a visual inspection of each lot's size and soil types. As with the LESA lots, this income procedure only estimated whether lots were capable of producing

SCIO STUDY AREA
Lot Acreage-Tax Lot Number



\$20,000 gross annual income, not whether the lot was part of a larger farm operation that produced \$20,000 or more in gross annual income during 3 of the 5 calendar years preceding January 1, 1983.

Though only two lots of the Scio study area qualified as marginal land by SB 237 criteria (Table 3), several characteristics are apparent for lands that might qualify under SB 237 in tracts similar to the Scio study area.

- (1) Under the income test of SB 237, lots are more likely to qualify for marginal lands designation that are of smaller size or of lower productivity soils. The two qualifying lots of the Scio study area had \$12,000 and \$2,500 estimated gross incomes for their 37.06 and 8.37 acres, respectively. Both lots were on lower productivity soils offering a limited number of agricultural opportunities.

The income estimates for the parcel-specific lots and the Scio study area lots are not directly comparable because generalized census data was applied to the parcel-specific lots, while a more site-specific income was calculated for the Scio study area lots. The variation between the two income estimates is another indicator of the difficulty encountered in trying to estimate SB 237 gross income from objective data.

Neither method accounts for the required determination of whether the subject lot was part of a farm operation that produced \$20,000 or more in annual gross income.

- (2) To fulfill the $\frac{1}{4}$ mile parcelization test of SB 237, lots located near concentrations of parcelization 20 acres or less (for example, Rural Residential zones) and far enough away from large lots which decrease the parcelization percentage, have higher likelihood of marginal lands qualification. A geographical shift away from parcelization centers quickly decreases the percentage of land in lots 20 acres or less.

Both qualifying Scio study area lots passed the $\frac{1}{4}$ mile parcelization test.

- (3) Satisfaction of the 240-acre parcelization test is dependent on many of the same factors as the $\frac{1}{4}$ mile test. The test area's size and shape, and the subject lot's position within

TABLE 3

APPLICATION OF SENATE BILL 237 MARGINAL LANDS DEFINITION CRITERIA TO THE SCIO STUDY AREA^a

Section	Location		Tax Lot No. ^b	Acres	Income Test ^c		1/4 mile Parcel. Test ^c		240-acre Parcel. Test ^c		
	Township	Range			Passes (<\$20,000)	Fails (≥\$20,000)	Passes (≥50%)	Fails (<50%)	Passes (≥60%)	Fails (<60%)	
31			400	4.96	E						
			500	16.34	E						
			501	6.90	E						
			502 ¹	12.00	\$5797						
			503 ¹	6.59	\$2502				28.7%		27.8%
			700	6.42	E						
			701	5.00	E						
			702	5.00	E						
			703	5.00	\$2415						
			800	9.42	\$3982				39%		31%
			900	4.77	E						
			1000	2.00	E						32.7%
			1001 ¹	8.92	E						
			1015 ¹	5.00	E						
			1002	8.37	E						
			1003 ¹	9.81	E			49.9%			42.2%
			1016 ¹	5.60	E				48.3%		
			1004	1.01	E				48.3%		
			1006	2.79	E				47.3%		
			1007	1.91	E						
1008	7.27	E									
1009	5.76	E									
1010	5.37	E									
1011	27.00	\$11,926									
1012	2.02	E									
1013	0.10	E									
1100	63.98	E		\$26,026							
1202	12.18	E									
1203	93.77	E		\$44,327							
1204	35.00	E									
502 ¹	5.13	E									
520 ¹	43.90	E									
601 ¹	40.00	E		\$32,556							
600	78.63	E		\$37,983							
700	10.33	E									
702	20.04	\$7439									
705	20.04	E									
715	10.00	E					39.8%				
600	80.00	E		\$38,333			35.6%				
100 ¹	7.72	E									
102 ¹	14.27	E		\$11,986							
103 ¹	15.07	E				52.8%		44.5%			
200	9.54	E									
400	10.00	\$4384					40.9%	40.5%			
500 ¹	13.33	E									
600 ¹	13.33	E									
700 ¹	13.33	E									
800	13.33	E		\$10,023							
900	13.33	E									
1000	13.33	E									
1100	83.74	E		\$33,644							
1200	9.60	E									
1300	19.73	\$7447									
1400	8.86	E									
1500	60.00	E		\$28,119							
1501	49.20	E		\$21,732							
1701	9.47	E									
1702	5.07	E									
1703	5.00	E									
1900	37.91	\$10,721									
1901	0.89	E									
2000	5.10	E									
2001	5.00	E									
2002	9.46	E									
2003	5.00	E									
2004	14.67	E									
TOTAL			67 Lots	1173.61 Acres						Average Lot Size - 17.52 acres.	

^a None of the soils of the study area were of the Soil Capability Class V-VIII range, or were of less than 84 cubic feet per acre per year timber productivity; the soil capability/timber production test of SB 237 was not conducted for the study area lots.

^b "1" signifies adjacent lots in common ownership

^c "E" = Estimation from visual inspection of lots with similar income or surrounding parcelization.

the test area, can cause wide variation in determining whether 60% or more of the land is in lots 20 acres or less.

Though none of the Scio study area lots passed the 240-acre parcelization test (the 37.06 acre lot which passed the $\frac{1}{4}$ mile test had the highest percentage of 44.5%), geographically favorable parcelization zones similar to those of the $\frac{1}{4}$ mile test would increase a lot's likelihood of passing this criterion. This investigation did not manipulate the configuration of the 240-acre test areas, nor did it shift the position of the subject lots within these areas. For comparability between lots in the study area, subject lots were placed in the center of a 240-acre square test area, and surrounding parcelization was calculated from this positioning.

Technical Problems With Applying SB 237 Marginal Lands Criteria

Income Test

As noted in this study's results of SB 237 application to the LESA lots and the Scio study area, and as determined in other recent SB 237 investigations (Douglas County 1984), the most difficult feature of SB 237 marginal lands criteria is the agricultural income test for \$20,000 or less in annual gross income. Without the close cooperation or consent of landowners to allow determination of actual lot-specific income, "objective" estimations of income are subject to certain assumptions and to wide variations in predicted productivities.

Income data provided by individual landowners could contradict estimations made from public data sources. Income summaries such as U.S. Census of Agriculture data provide a general indication of income potential, but do not account for site-specific factors. However, the data can be easily applied to large areas as an estimate for general marginal land designation purposes. An income estimate based on soil productivity and

recent agriculture prices is more likely to approximate gross farm income potential.

In deciding whether to use SB 237 criteria, a county has at least two choices with regard to the income test.

- 1) First, a county could choose to designate broad areas as potential marginal land through general satisfaction of the parcelization and soils test criteria. Case-by case review of proposed lands would require satisfaction of the income test through information provided by the applicant. This approach, adopted by Washington County (Washington County 1983), is a feasible way of handling the income test's difficulties, especially considering the provisions requiring determination of whether a lot was part of a farm operation that produced \$20,000 or more in annual gross income during 3 of the 5 calendar years preceding January 1, 1983.
- 2) Second, if a county wanted to try to apply public "objective" income data in its preliminary findings, for example, to designate broad areas as potential marginal land, information such as the census tables could provide a generalized indication of whether lots of a certain size are capable of producing \$20,000 or more. If they are, then they would probably not qualify as marginal land given other land characteristics considered in the other SB 237 criteria.

For a site analysis similar to the Scio study area approach, productivity ratings and per unit commodity values can be used, but as with census data, they do not meet the income test requirement of determining whether a lot was part of a larger farm operation. Determination of productivity ratings and commodity values does take more time to investigate than use of census tables.

One-quarter Mile Parcelization Test

In contrast to the 240-acre parcelization test, the $\frac{1}{4}$ mile parcelization test allows inclusion of Rural Residential and Rural Center lots in calculation of the percentage of land in lots 20 acres or less, and the required minimum percentage (50%) is less than the 240-acre test (60%). Though this study included all of a lot's acreage in calculations for the $\frac{1}{4}$ mile test if the lot was at all within the $\frac{1}{4}$ mile limit, the language of SB 237 does not specify the meaning of lots "at least partially located within $\frac{1}{4}$ mile of the perimeter of the proposed marginal land". This could lead to variations in the percentage of lots 20 acres or less, within the $\frac{1}{4}$ mile limit.

Two Hundred Forty Acre Parcelization Test

The 240-acre parcelization test is vague in specifying the positioning of the parcel under consideration within the test area, and in specifying the shape and maximum size of the test area. Different configurations and test area sizes of "an area not less than 240 acres," and of the amount of the lots at least partially located within the test area, produce widely different percentages of land in lots 20 acres or less. For consistency, this study centered the "applicant's" parcel in a 240-acre square on the tax lot maps, and included all of a lot's acreage if it fell within the 240-acre boundary. Other SB 237 investigations have used much different configurations of a 240-acre test area, assuming that a locus parcel is not important to the calculation (Douglas County 1984: p. 47). The intent of SB 237 is not detailed in this matter.

Distinctions Between the Linn County LESA Model and SB 237 Marginal Lands Criteria

The Linn County LESA model may have more potential for accurately

determining marginal lands because of LESA's ability to incorporate the factors most likely to characterize marginal lands: soils with characteristics limiting agricultural productivity; small lots and parcels near areas of small-tract parcelization; and agricultural conflicts with non-agricultural land uses and practices. LESA can be tailored to reflect the planning concerns and legal framework of the agencies applying it, and can incorporate determinants of gross income, land-use conflicts, and soil productivity.

By comparison, Senate Bill 237 is more inflexible in its incorporation of soil productivity and resultant income, and of land-use conflict. For accurate case-by case determination of average gross farm income for SB 237's income criterion, landowners would need to provide income information for each of their land holdings. SB 237 is vague in its explanation of acceptable and accurate income determinants, and of acceptable inclusion of lots "at least partially located" in the parcelization test areas.

Difficulties with implementing other SB 237 marginal land provisions, such as determining adjacent lots in common family ownerships, or determining a consistent position for the subject lot considered within the 240-acre configuration, hamper SB 237's impartiality for application to a spectrum of land characteristics.

Because of the lengthy investigation required to assess this study's SB 237 applications in Linn County, a substantial staff commitment would be needed by county planning agencies to apply SB 237 to large tracts of land having marginal land potential, or to individual cases provided by landowner requests. This has been reinforced by planning staff experiences in Washington and Douglas Counties.

The LESA model, though requiring an initial staff investment to agree on the key factors desired for a LESA rating, appears straightforward to use on an case-by-case basis, and has strong potential for uniform application over larger areas. The LESA ratings are replicable in that the same results should be obtained for a given case study by any member of a county planning staff familiar with that county's LESA procedures.

The marginal land tests of SB 237, on the other hand, appear subject to wide interpretive variation, and staff consultation would be required for common agreement of each lot or tract considered.

Conclusion

This research study's investigation of the characteristics and Linn County applications of marginal land provisions of the LESA model and Senate Bill 237 has assessed each management tool's strength and difficulties. Any administrative application must consider that LESA has not been formally accepted by the Oregon Legislature or state planning agencies as a means of marginal land evaluation, though SB 237 is a current alternative counties may adopt for marginal lands review.

The 1985 Oregon Legislature will decide whether to continue or modify the provisions of SB 237, and whether to allow a LESA-type process for county use in marginal land assessment. Until a legislative decision is reached, counties can only accept or reject SB 237 as a means of incorporating marginal land review into their comprehensive land planning efforts. Each county's decision will be based on whether SB 237's benefits outweigh its difficulties, and whether a county has the staff resources to use SB 237 or an alternate marginal land review method acceptable to local needs and state planning goals.

FOOTNOTES

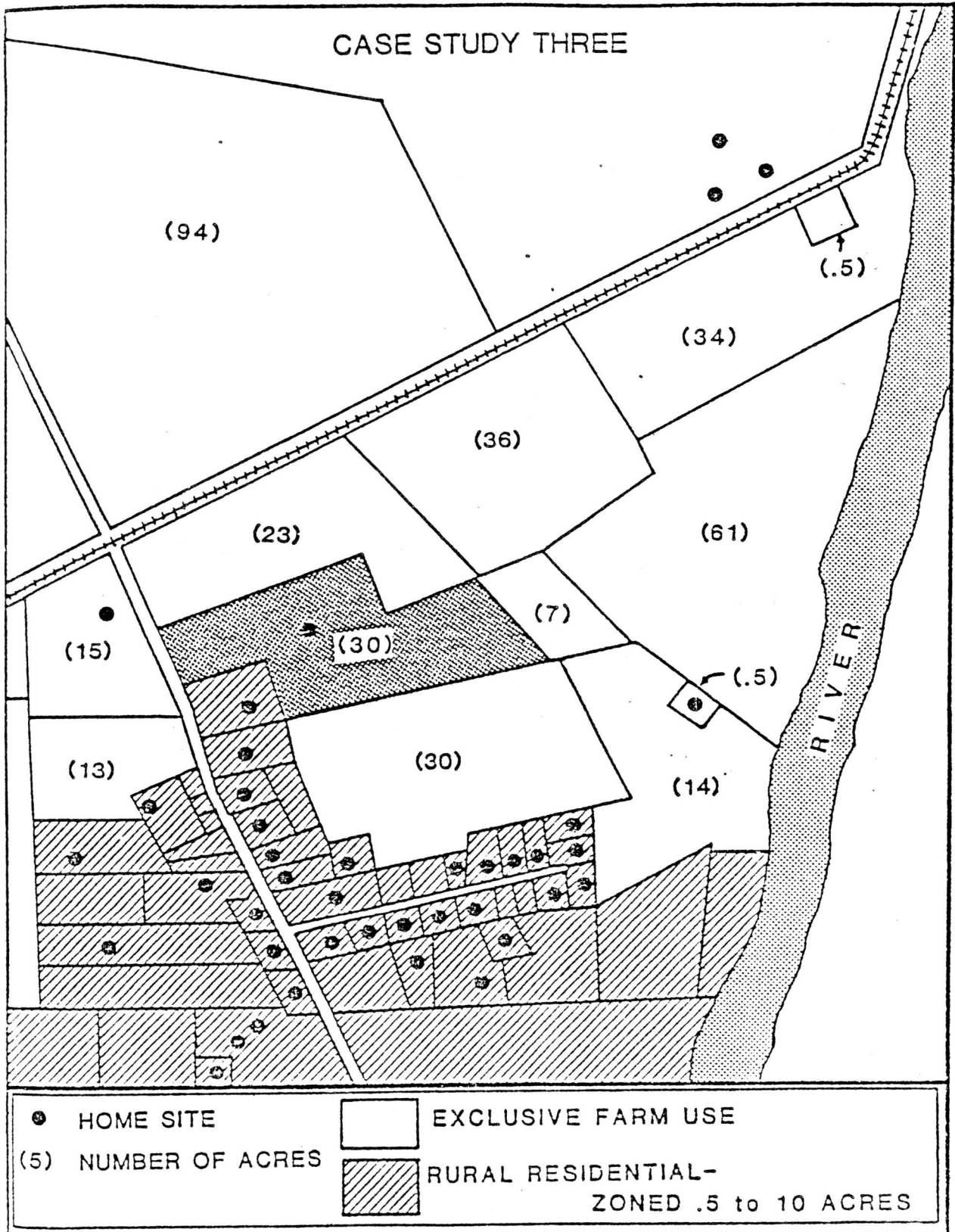
1. The terms parcel, tax lot, and lot all refer to the numbered tax lots designated by the county assessor for each section of land, and will collectively be referred to as lots.
2. The Linn County data for each of the three factors of Scio Study Area average estimated gross income was obtained from 1) predicted soil yield tables of the Soil Conservation Service of Tangent, Oregon, 2) county planning department records on individual lot sizes and ownerships, and 3) OSU Extension Service estimates of cash values for Linn County agricultural commodities.

REFERENCES

- Benner, R. P. 1983. "Marginal Lands Bill - A Missed Opportunity." 1,000 Friends of Oregon Newsletter: Summer 1983. Portland, Oregon: 1,000 Friends of Oregon.
- Council for Agricultural Science and Technology (CAST). 1981. Preserving Agricultural Land: Issue and Policy Alternatives. CAST Report #90, July 1981. Richard Barrows, Task Force Chairman.
- Crosson, P. R., ed. 1982. The Cropland Crisis: Myth or Reality? Baltimore: Resources for the Future.
- Douglas County Planning Department. 1984. Douglas County Marginal Land Report. Draft Report, January 1984. Roseburg, Oregon: Douglas County Planning Department.
- Furusest, O. J. 1981. "Update on Oregon's Agricultural Protection Program: A Land Use Perspective." Natural Resources Journal 21:57.
- Pease, J. R. and J. H. Huddleston. 1984. Developing a LESA Model for Linn County, Oregon. Part of a 3-part report to be published February 1984 by The Western Rural Development Center as WRDC Paper No. 26. Corvallis, Oregon: Oregon State University.
- Sixty-second Oregon Legislative Assembly - 1983 Regular Session. House Amendments To B-Engrossed Senate Bill 237. Prepared by Committee on Environment and Energy: July 13, 1983. Salem, Oregon.
- U.S. Bureau of the Census. 1981. Special Tabulations of 1978 Agriculture Data for Oregon: District 2, section on Linn County; pp. 225-248. Corvallis, Oregon: Oregon State University Extension Service, Department of Geography.
- U.S. Department of Agriculture. 1983. National Agricultural Land Evaluation and Site Assessment Handbook. Washington, D.C.: Soil Conservation Service.
- Washington County. 1983. Washington County Comprehensive Framework Plan. Ordinance 278, December 27, 1983. Map produced by the cartographic division of the Washington County Planning Department. Hillsboro, Oregon.
- Wright, L.E., W. Zitzmann, K. Young, and Richard Gogins. 1983. "LESA Agricultural Land Evaluation and Site Assessment." Journal of Soil and Water Conservation 38(2): 82-85.

APPENDIX A

Appendix A
 Simplified tax lot map for Case Study 3, Linn County LESA model.*



*From Pease and Huddleston 1984.

Property Owner: Case Study 3 Acreage: 30.5
 Location: T10S, R3W, Section 14 Landform: Terrace
 Tax Lot Number: 14

PART I: LAND EVALUATION

<u>Soil Types</u>	<u>% of Parcel Area x Soil Potential Rating = Relative Value</u>			
Coburg, 0-3%	7%	x	107	= 7.49
Malabon, 0-3%	83%	x	146	= 121.18
Dupee, 0-3%	10%	x	51	= 5.1

TOTAL PART I: 134

PART II: SITE ASSESSMENT

A. Number of Conflicting Residences Within 1/4 Mile 17

<u>Number</u>	<u>Points</u>	<u>Number</u>	<u>Points</u>	
0	30	6	15	
1	29	7	12	
2	27	8	9	Points
3	24	9	6	Awarded <u>0</u>
4	21	10	3	
5	18	11+	0	

B. Percent of Perimeter in Non-Compatible Uses 24

<u>% Perimeter</u>	<u>Points</u>	<u>% Perimeter</u>	<u>Points</u>	
0	45	50-60	16	
0-10	38	60-70	12	
10-20	32	70-80	8	Points
20-30	28	80-90	4	Awarded <u>28</u>
30-40	24	90-100	0	
40-50	20			

C. Parcel Size 30.5 Acres

<u>Bottomlands</u>	<u>Terraces</u>	<u>Hills</u>	<u>Points</u>	
>100	>120	>120	75	
90-100	100-120	100-120	72	
80-90	90-100	80-100	68	
70-80	80-90	60-80	64	
60-70	70-80	50-60	60	
50-60	60-70	40-50	56	Points
40-50	50-60	30-40	52	Awarded <u>30</u>
***30-40	40-50	20-30	45	
20-30	30-40	15-20	30	
10-20	20-30	10-15	20	
5-10	10-20	5-10	10	
<5	<10	<5	0	

TOTAL PART II: 58

LESA SCORE: 192

APPENDIX B

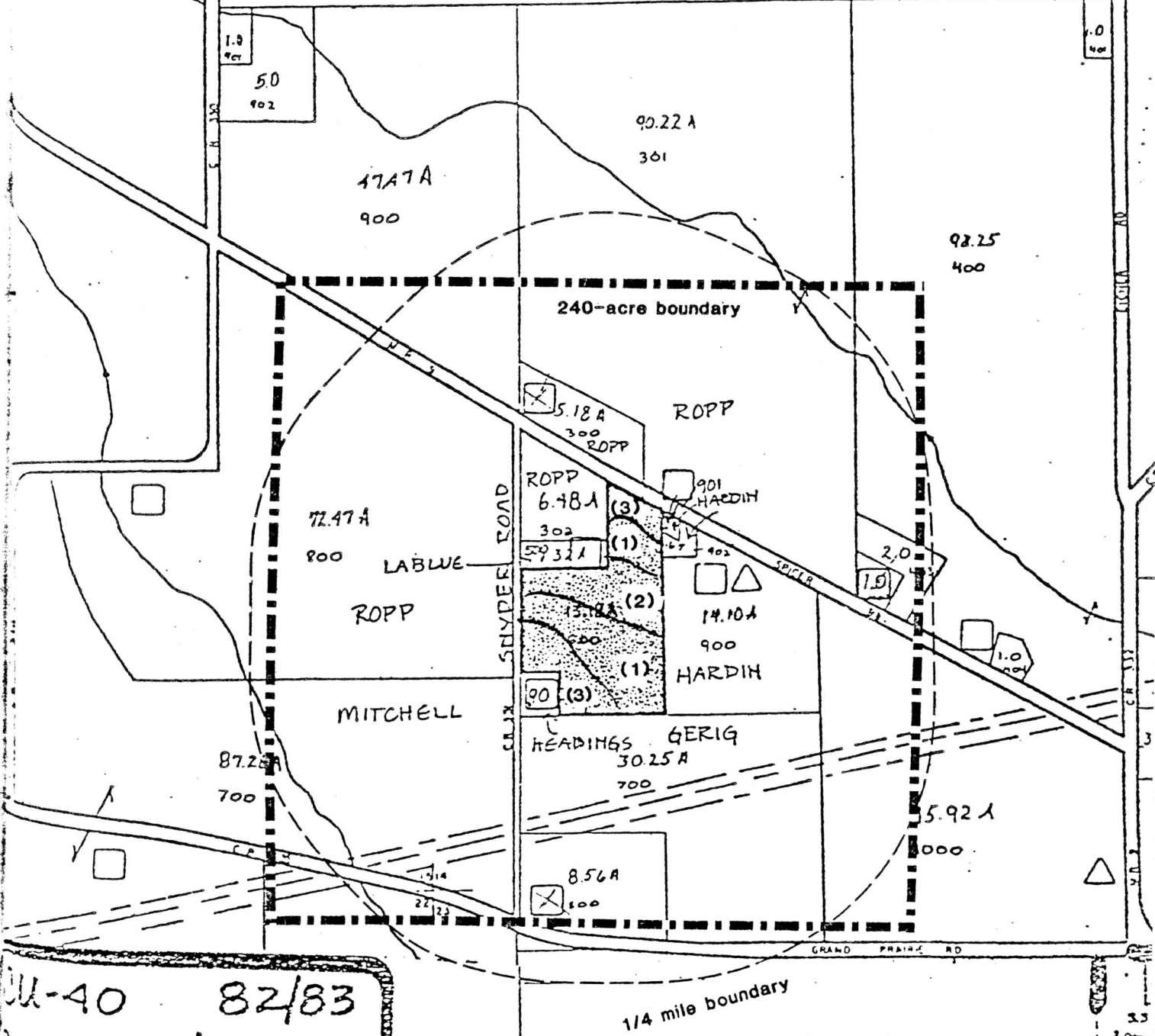
Appendix B
SB 237 WORKSHEET MAP

10 | 11
15 | 14

Idler LESA Parcel

SCALE
1/4 MILE

Symbol	Soil No.	
(1):	220a	1.45 300
(2):	240a	92 500
(3):	250a	1.0 400



U-40 82/83
CHARLES IDLER
-3W-14-600
3.18 ACRES

KEY

□	-single family dwelling
△	-mobile home

194.66 A
400

Appendix B

Worksheet for Application of SB 237 Marginal Lands Criteria
To The 23 Linn County LESA Parcels

Property Owner: Idler Acreage: 13.18 A
 Location: Section 14, T 11S., R3W. - Landform: Terrace
 Tax Lot Number: 600

PART I: INCOME TEST

Gross Annual Income Less Than \$20,000

Market Value of Agricultural Products Sold For Acreage Class
1 to 19 Acres*

	\$1,000	No. Farms For All Farms In The Acreage Class	Estimated Gross Income per Ag. Type
1) Bottomlands: vegetables p. 231 field crops p. 229 gen. farms, crop p. 239			
2) Terraces: field crops p. 229	17	10	1.7
gen. farms, crop p. 239	14	9	1.5
cash grains p. 227	15	9	1.7
gen. farms, livestock p.247	S	3	---
3) Foothills: field crops p. 229 cash grains p. 227 ext. animal grazing p. 241			
Total			4.9

$\$4,900 \div 3$ usable agricultural types = \$1,600
 potential average annual gross income for all farms in the acreage class

Passes Fails Income Test

* (from Special Tabulations of 1978 Agricultural Data for Oregon: District 2)

"S" : Suppression: too few farms to provide accurate income information

"D" : Disclosure: income data withheld to retain confidentiality of respondent data.

Appendix B

PART II: ¼ MILE PARCELIZATION TEST & 240-ACRE PARCELIZATION TEST

¼ Mile Parcelization Test

Parcel: Idler

Lots at least partially located within ¼ mile of applicants parcel; combine lots in common adjacent ownership; include applicant's and Rural Residential lots. At least 50% of the test area in lots 20 acres or less on July 1, 1983.

Lots greater than 20 acres: 90.22, 98.25, 45.92, 194.66, 35.08, 87.28, 30.25, 72.47, 47.47

A. Total acreage lots > 20 acres: 701.60

Lots 20 acres or less: 5.18, 2.0, 1.0, 0.67, 0.24, 14.10, 8.56, 3.2, 6.48, 13.18, 0.90

B. Total acreage lots ≤ 20 acres: 55.51

C. Total acreage, all lots: 757.11

% area in lots 20 acres or less: 7.3% (B ÷ C)

Passes Fails ¼ Mile Parcelization Test

240-Acre Parcelization Test

Parcel: Idler

Lots located (at least partially) within an area of not less than 240 acres (centered on applicant's lot); combine lots in common adjacent ownership; include applicant's lot; exclude Rural Residential lots. At least 60% of the test area in lots 20 acres or less on July 1, 1983.

Lots greater than 20 acres: 90.22, 98.25, 45.92, 87.28, 30.25, 72.47, 47.47

A. Total acreage lots > 20 acres: 471.86

Lots 20 acres or less: 5.18, 2.0, 1.0, 0.67, 0.24, 14.10, 8.56, .90, 3.2, 6.48, 13.18

B. Total acreage lots ≤ 20 acres: 55.51

C. Total acreage, all lots: 527.37

% area in lots 20 acres or less 10.5% (B ÷ C)

Passes Fails 240-Acre Parcelization Test

Appendix B

PART III: SOILS CAPABILITY/TIMBER PRODUCTION TEST

Agricultural capability V-VIII soils and 84 or less cubic feet of merchantable timber per acre per year for counties west of the Cascade Range summit

Soil Number	Capability Unit	Mapping Unit	Cubic Foot ^a	Site Class
220 A	IV	Dayton silt loam	-	
240 A	I (prime soil)	Willamette silt loam, 0-3% slope	-	
250 A	II	Woodburn silt loam 0-3% slope	2	

Passes Fails Soils/Timber Test

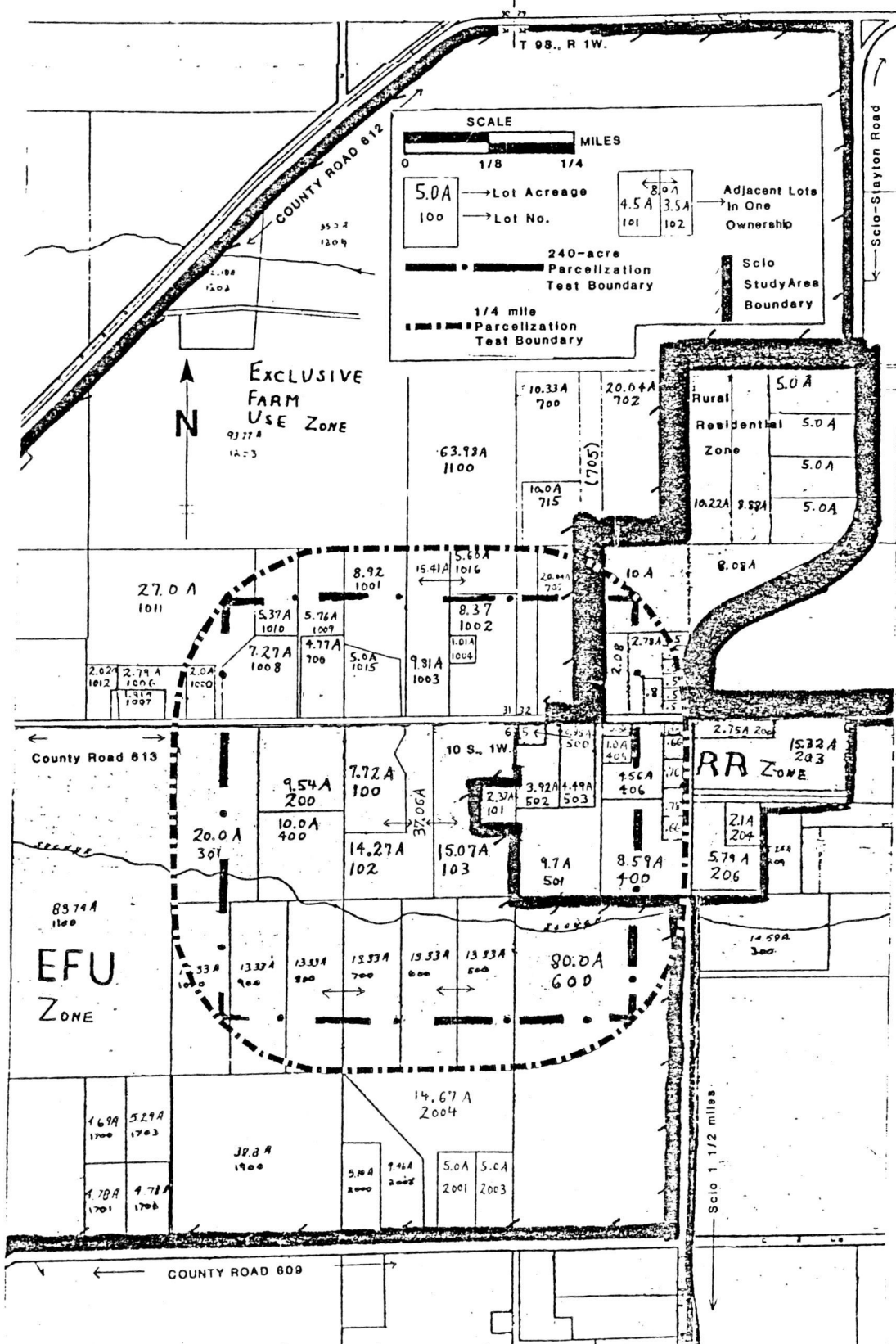
^a

<u>CFSC</u>	<u>Cubic/Foot/Acre/Year</u>
1 =	185+
2 =	155-184
3 =	125-154
4 =	95-124
5 =	75-94
6 =	74 ⁻
- =	soil type not applicable to timber production

APPENDIX C

Appendix C
 SB 237 WORKSHEET MAP
 Scio Study Area

Lots 100-102-103
 Sec. 6 T 10 S., R 1 W.



Appendix C

Example Worksheet: Calculation of each of the criterion for the marginal lands definition of SB 237: Scio Study Area Lots.

PART I: INCOME TEST

Gross Annual Income Less Than \$20,000^c

Lot No.	Acres	% of lots in each soil type	Soil Type ^b	Acres/Soil Type
100-102	21.99	60%	340 B	13.194
	21.99	30%	477 C	6.597
		10%	100 A	2.199
103	15.07	100%	340 B	15.07
100-102-103 (1 ownership)	37.06			

For Soil Type:	Non-Irrigated Pasture ^a	Perennial Ryegrass NIRR	Annual Common Rye-grass-NIRR	Tall Fescue NIRR	Sweet Corn, Processed, IRR	Snap Beans, Processed IRR	Wheat NIRR	Filberts NIRR	Total	Average Gross Income
340 B	(\$300/AUM/ac) x (13.194 ac) = \$3958	(900 lbs/ac) x (13.194 ac) x (\$0.359/lb) = \$4263	-	(1200 lbs/ac) x (13.194 ac) x (\$0.3953/lb) = \$6259	(16,000 lbs/ac) x (13.194 ac) x (\$0.035383/lb) = \$6259	((11,000 lbs/ac) x (13.194 ac) x (\$0.0816/lb)) = \$11,843	(75 bu/ac) x (13.194 ac) x (\$3.87/bu) = \$3829	(1500 lbs/ac) x (13.194 ac) x (\$0.353/lb) = \$6993	\$44,614	\$44,614 ÷ 7 ag types = \$6373
477 C	\$1732	-	\$1022	-	-	-	\$1276	-	\$ 4030	\$1343
100 A	\$ 660	-	\$ 613	-	\$778	\$1077	\$ 340	-	\$ 3468	\$ 694
340 B	\$4521	\$4869	-	\$7149	-	-	\$4082	\$7987	\$28,608	\$3576
Total potential annual income for lots 100-102-103									\$11,986	

^aGross income for NIRR pasture was converted from Extension Service data on Linn County cattle and calves inventory (in number of head/total value of county sales), to Animal Unit Months per acre by the following formulae, assuming 1/3 of the inventory grows to marketable age per year.

- Value of 1 Animal Unit (full-grown beef cattle):

$$\frac{\text{average value of sales 1981-83} = \$5,559,333}{1/3 \text{ average 1981-83 inventory} = 12,555 \text{ head}} = \$451/\text{Animal unit}$$
- Gross income value in AUM per acre:

$$\frac{(\text{predicted NIRR yield in AUM/ac for each soil type}) \times (\text{value of 1 AU})}{12 \text{ months per year}} = \begin{matrix} \$300/\text{AUM/ac. for 8 AUM yield} \\ \$375/\text{AUM/ac. for 10 AUM yield} \\ \$451/\text{AUM/ac. for 12 AUM yield} \end{matrix}$$
- Gross income per lot for pasture, in AUM:

$$(\text{Gross AUM income value/ac}) \times (\text{No. acres in each soil type})$$

^bSoil mapping and predicted agricultural yield data from U.S. Soil Conservation Service, Tangent, Oregon.

^c1981-83 commodity values for agricultural types from OSU Extension Service data, Corvallis, Oregon.

PART II: CRITERION (A) OF SENATE BILL 237 - THE ¼ MILE PARCELIZATION TEST

Lot No.: 100-102-103

Total Lot Acreage: 37.06A

For lots at least partially within the ¼ mile perimeter of the "applicants" lot (include "applicants" lot in calculations):

- a) Acreage of lots greater than 20 acres: 197.38 A
- b) Acreage of lots 20 acres or less, excluding RR zone: 162.91 A
- c) Acreage of RR zone lots 20 acres or less: 58.04 A
- d) Total acreage of lots 20 acres or less: 220.95 A
- e) Total acreage of lots: 418.33 A
- f) Percent of total acreage in RR zone lots: 13.9%
- g) Percent of total acreage in lots 20 acres or less: 52.8%

Passes

Fails

¼ mile parcelization test

PART III: CRITERION (B) OF SENATE BILL 237 - THE 240-ACRE PARCELIZATION TEST

Lot No.: 100-102-103

Total Lot Acreage: 37.06 A

For lots (at least partially) within the 240-acre test area centered on the "applicants" lot (include "applicants" lot in calculations, exclude Rural Residential zone lots):

- a) Acreage of lots greater than 20 acres: 197.38
- b) Acreage of lots 20 acres or less: 158.12
- c) Total acreage of lots: 355.50
- d) Percent of total acreage in lots 20 acres or less: 44.5%

Passes

Fails

240-acre parcelization test
