Oregon
Theodore R. Kulongoski, Governor

Department of Land Conservation and Development
635 Capitol Street NE, Suite 150
Salem, Oregon 97301-2524
Phone: (503) 373-0050
First Floor/Costal Fax: (503) 378-6033
Second Floor/Director's Office: (503) 378-5518
Web Address: http://www.oregon.gov/LCD

NOTICE OF ADOPTED AMENDMENT

September 18, 2006

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

FROM: Mara Ulloa, Plan Amendment Program Specialist

SUBJECT: Tillamook County Plan Amendment
DLCD File Number 003-06

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: October 3, 2006

This amendment was submitted to DLCD for review 45 days 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.

*<u>NOTE:</u> **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 THAN IT WAS MAILED TO DLCD. AS A RESULT YOUR APPEAL DEADLINE MAY BE EARLIER THAN THE ABOVE DATE SPECIFIED.**

Cc: Doug White, DLCD Community Services Specialist
Laren Woolley, DLCD Regional Representative
Bill Campbell, Tillamook County

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FORM 2

D L C D 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

(See reverse side for submittal requirements)

Jurisdiction: Tillamook County Local File No.: ZC-06-01 (If no number, use none)

Date of Adoption: August 30, 2006 (Must be filled in) Date Mailed: September 12, 2006 (Date mailed or sent to DLCD)

Date the Notice of Proposed Amendment was mailed to DLCD: April 18, 2006

___ Comprehensive Plan Text Amendment _X_ Comprehensive Plan Map Amendment

___ Land Use Regulation Amendment _X_ Zoning Map Amendment

___ New Land Use Regulation ___ Other: _____ (Please Specify Type of Action)

Summarize the adopted amendment. Do not use technical terms. Do not write ASee Attached.≅

Zone Change 4 parcels from Farm (F-1) to Small Farm and Woodlot – 10 Acre (SFW-10)

Describe how the adopted amendment differs from the proposed amendment. If it is the same, write ASame.≅ If you did not give notice for the proposed amendment, write AN/A.≅

Same

Plan Map Changed from : Farm (F-1) to Small Farm and Woodlot-10 Acre (SFW-10)

Zone Map Changed from: Farm (F-1) to Small Farm and Woodlot-10 Acre (SFW-10)

Location: T1S9-27 TL 1803/1805/1806 T1S9-27DD TL 200 Acres Involved: 55 acres

Specify Density: Previous: 80 acre New: 10 acre

Applicable Statewide Planning Goals: 2, 3

Was an Exception Adopted? Yes: X No: ____

DLCD File No.: 003-06 (15153)

Did the Department of Land Conservation and Development **receive** a notice of Proposed Amendment **FORTY FIVE (45) days prior to the first evidentiary hearing**. Yes: X No: ____

If no, do the Statewide Planning Goals apply. Yes: ___ No: ____

If no, did The Emergency Circumstances Require immediate adoption. Yes: ___ No: ____

Affected State or Federal Agencies, Local Governments or Special Districts: Tillamook County, ODF,DCLD,ODFW

Local Contact: Bill Campbell, Director Area Code + Phone Number: (503) 842-3408

Address: 201 Laurel Avenue City: Tillamook

Zip Code+4: 97141-2394 Email Address: bcampbel@co.tillamook.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 (2) Copies** 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. Submit **TWO (2) copies** the adopted material, if copies are bounded please submit **TWO (2) complete copies** of documents and maps.

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 ANotice of Adoption≅ is sent to DLCD.

6. In addition to sending the ANotice 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 copy this form on to 8-1/2x11 green paper only ; or call the DLCD Office at (503) 373-0050; or Fax your request to:(503) 378-5518; or Email your request to Larry.French@state.or.us - ATTENTION: PLAN AMENDMENT SPECIALIST.

BEFORE THE BOARD OF COMMISSIONERS

OF TILLAMOOK COUNTY, OREGON

In the Matter of Amendment to Tillamook County, Comprehensive Plan, Zoning Maps to adopt a Zone Change and Reasons Exception to the State Agricultural Goal for the Subject Properties to change the Zoning Designation from Farm (F-1) to Small Farm Woodlot-10 on properties identified as Tax Lots 1803, 1805 and 1806 in Section (27), Township 1 South, Range 9 West of the Willamette Meridian, Tillamook County, Oregon and Tax Lot 200 in Section 27DD of Township 1 South, Range 9 West of the Willamette Meridian, Tillamook County, Oregon.	)))))))))))	ZC 06-01 FINDINGS AND DECISION

This matter came before the Tillamook County Board of Commissioners at the request of Johnney D. & Suzann L. Detrich, 875 Hodgdon Road, Tillamook, OR 97141 and Bruce W. Thomas, 700 Hodgdon Road, Tillamook, OR 97141.

The Board of Commissioners being fully apprised of the representations of the above-named person(s), and the records and files in this matter finds as follows:

(1) The files in this proceeding can be found in the office of the Department of Community Development under Zone Change ZC-06-01.

(2) Notice of Proposed Action was submitted to the Department of Land Conservation and Development on April 18, 2006.

(3) The Tillamook County Planning Commission held a public hearing on this request on June 22, 2006. The hearing was noticed in a proper manner according to the requirements of ORS 197 and 215. After reviewing the staff report, testimony, and the record and file for ZC-06-01, the Planning Commission found the application met the criteria and passed a recommendation to the Tillamook County Board of Commissioners to adopt Zone Change Amendment Request ZC-06-01.

(4) At the June 22, 2006 Tillamook County Planning Commission hearing, the Commission passed a recommendation to the Tillamook County Board of Commissioners to adopt an exception to the Agricultural Goal for ZC-06-01.

(5) The Board opened a de novo public hearing on the Zone Change on August 2, 2006. The hearing was properly noticed according to the requirements of ORS 197 and 215. After reviewing the Planning Commission's recommendations, the staff report containing the findings and conclusions, testimony, the record and file pertaining to ZC-06-01, the Board found that the four Zone Change Criteria outlined under the Land Use Ordinance, Article IX had been met and that the basis for an exception to the agricultural lands goal had been provided.

(6) The applicants outlined why the parcel was better suited for the proposed zoning while meeting the review criteria to the satisfaction of the Board of Commissioners.

(7) The Board found that the proposed zone change was consistent with the Tillamook Comprehensive Plan Policies.

(8) The properties will be rezoned from resource zone, Farm (F-1) to a non-resource use which is, Small Farm Woodlot (SWF-10) 10 acre.

(9) The Board approved the zone change and exception to the agricultural goals and policies.

(10) The Board hereby adopts the proposed Zoning Map Amendment and approves Zone Change ZC-06-01 and hereby adopts staff's findings and concludes that the criteria have been met.

NOW THEREFORE, THE BOARD OF COUNTY COMMISSIONERS OF TILLAMOOK COUNTY, OREGON, ORDERS AS FOLLOWS:

Tillamook County Zone Map #84 is hereby amended to change the zoning on the subject property from Farm (F-1) to Small Farm Woodlot-10 (SFW-10), Exhibit A. The subject property shall be as set forth in the staff report filed with Tillamook County Department of Community Development as ZC-06-01, Exhibit B.

DATED THIS 30 DAY OF August, 2006.

BOARD OF COUNTY COMMISSIONERS FOR TILLAMOOK COUNTY, OREGON	Aye	Nay	Abstain/Absent
Tim Josi, Chair	✓		
Mark Labhart, Vice-Chair	✓		
Charles J Hurliman, Commissioner			✓

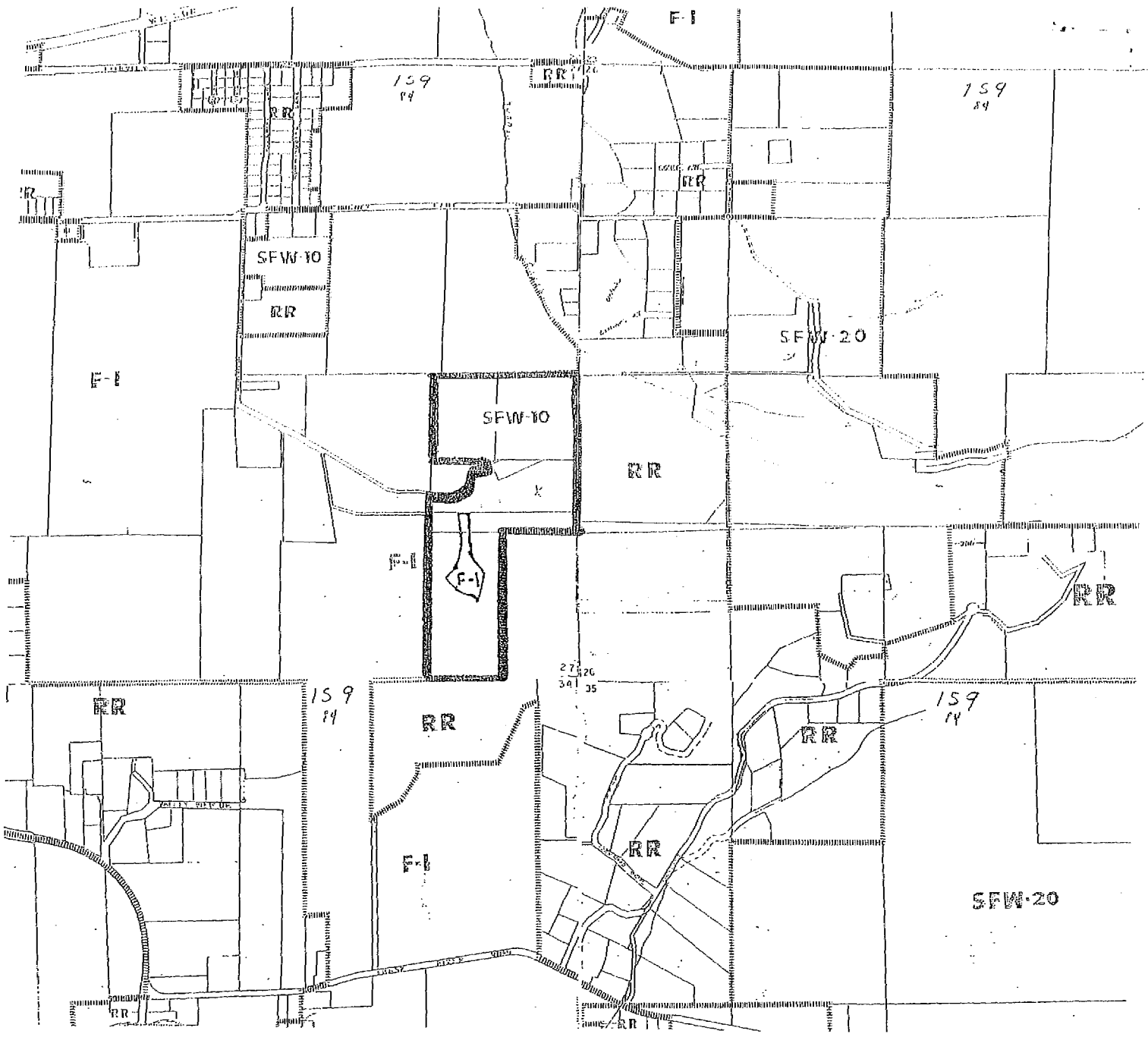
ATTEST: Tassi O'Neil,
County Clerk

Special Deputy

APPROVED AS TO FORM:

William K. Sargent

TILLAMOOK COUNTY BOARD OF COMMISSIONERS STATE OF OREGON



Zoning Map with proposed SFW-10 zone addition

EXHIBIT A
ZC-06-01
Board Order

Tillamook County

DEPARTMENT OF COMMUNITY DEVELOPMENT
BUILDING, PLANNING & ON-SITE SANITATION SECTIONS

201 Laurel Avenue
Tillamook, Oregon 97141

Land of Cheese, Trees and Ocean Breeze

Building (503) 842-3407
Planning (503) 842-3408
On-Site Sanitation (503) 842-3409
FAX (503) 842-1819
Toll Free 1 (800) 488-8280

ZONE CHANGE AND COMPREHENSIVE PLAN AMENDMENT for Zone Change Request ZC-06-01

Staff Report Date: June 13, 2006

Planning Commission Hearing Date: June 22, 2006
Board of County Commissioners Hearing Date: To be determined

Staff Report Prepared by: Tim Franz, Associate Planner TF 6/13/06

I. GENERAL INFORMATION:

Applicants and Property Owners:	Johnney D. & Suzann L. Dietrich, 875 Hodgdon Road, Tillamook, OR 97141 Bruce W. Thomas, 700 Hodgdon Road, Tillamook, OR 97141
Land Use Review:	Zone Change and Comprehensive Plan Map Amendment, and Exception to Goal 3 Farm, to Amend the Zoning Designation from Farm (F-1) to Small Farm Woodlot-10 (SFW-10).
Location:	Approximately 1.50 miles east of the City of Tillamook, Oregon at the end of Hodgdon Road.
Legal Description:	Dietrich properties: Tax Lots 1803, 1805 and 1806 in Section 27 (index) of Township 1 South, Range 9 West of the Willamette Meridian, Tillamook County, Oregon, Exhibit I. Tax Lot 1803 is 13.00 acres in size. Tax Lot 1805 is 10.00 acres in size. Tax Lot 1806 is 10.00 acres in size.

Thomas property: Tax Lot 200 in Section 27DD of Township 1 South, Range 9 West of the Willamette Meridian, Tillamook County, Oregon, Exhibit I.

Tax Lot 200 is 22.00 acres in size.

Current Zone and Minimum Parcel Size: Farm (F-1) with an 80 acre minimum lot size.

Proposed Zone and Minimum Parcel Size: Small Farm Woodlot-10 acre (SFW-10), with a 10 acre minimum, Exhibit V.

Description of Request: The two property owners and family members are requesting an amendment to change the zoning designation of the above referenced parcels from Farm (F-1) to Small Farm and Woodlot-10 acre (SFW-10). The total acreage involved in the proposed rezoning is approximately 55+/- acres. The proposed zoning designation would allow residential development at a maximum density of one dwelling per 10 acres. The 55 acres contain two existing 10-acre parcels, one 13-acre parcel and one 22-acre parcel, Exhibit II.

Description of Site and Vicinity: The adjacent zoning to the east and south of the subject properties is Rural Residential-2 acre (RR-2) and to the north and west the zoning is Farm (F-1), Exhibit I. The properties can best be described as a "toe" of the Coastal Mountain Range which lies between the Wilson River Valley and the Trask River Valley. The property is located in the transition area of the pastured valley floor to the timbered uplands. There is a westerly slope throughout most of the subject parcels. The properties have a diverse mixture of vegetation and trees with some open areas. There is an existing single-family dwelling on Tax Lot 1803 which is the 13 acre parcel. A zoning map of the area and a Tax Assessor's parcelization map are included as Exhibit I.

Zoning History: Prior to the adoption of the Tillamook County Comprehensive Plan and the Tillamook County Land Use Ordinance on December 30, 1981, the properties were zoned F-1, Exclusive Farm (F-1) and Medium Density Residential(R-1). Within the previous F-1 zoning there was a 1-acre minimum lot size requirement for a single-family dwelling for non-farm use. In the R-1 zone the minimum was 7,500 square feet for a single-family dwelling. The R-1 included all of tax lot 200, the lower portion of tax lot 1806 and all of tax lot 1803. The F-1 zoning was applicable to all of 1805 and the balance of 1806, Exhibit II.

In 1981, through the county wide re-zoning and exceptions process, the properties were designated and zoned to Farm (F-1) zone, Exhibit I. The F-1 zone requirements again changed, and in 1994 the more significant change to resource zoning occurred, which was the implementation of the Oregon Administrative Rules, Exhibit III.

Changes in state law in 1994 established an 80-acre minimum for the partitioning of all resource-zoned land. This change prevented any further consideration of partitioning of the property and development of additional dwellings on the undeveloped properties. The owners indicate that prior

to 1994 and the 80-acre minimum lot size requirement; the parcels had been partitioned in anticipation of developing a single-family dwelling on each individual property for family members. The subject properties have retained the original Comprehensive Plan zoning designation of Farm (F-1) since 1981.

Existing Services: The subject parcels are located in the service area of the Tillamook School District and the Tillamook Rural Fire District. The owners intend to provide water and sewage disposal on-site. There is currently 1 home located on the 13-acre parcel. Road access can be from Hodgdon Road with appropriate applications for Road Approaches through Tillamook County Public Works Department.

II. APPLICABLE COMPREHENSIVE PLAN AND LAND USE ORDINANCE PROVISIONS:

A. Tillamook County Comprehensive Plan

1. Goal 3: Agricultural Lands Element

B. Tillamook County Land Use Ordinance, Article III, Zoning Regulations

1. Section 3.002: Farm Zone (F-1)
2. Section 3.008: Small Farm & Wood Lot 10 Acre Zone (SFW-10)

C. Tillamook County Land Use Ordinance, Article IX Amendment Procedures

D. Oregon Administrative Rules, Exception Requirements

1. OAR 660-004-0020 Goal 2, Part II(c), Exception Requirements

III. REVIEW CRITERIA, FINDINGS AND CONCLUSIONS:

The analysis below contains a review of the approval criteria against the information submitted by the applicants. The responses to these criteria are contained within Exhibit II of this report.

A. Tillamook County Comprehensive Plan

1. Goal 3: Agricultural Lands Element

Goal 3, Agricultural Lands Element states that *"Agriculture has played a very prominent role in Tillamook County's economy and way of life since the middle of the last century."*

Findings: The applicants understand that the objective of the County is to "Preserve and maintain agricultural lands" and to protect against the loss of valuable farm ground. They in turn do not feel the proposed parcels are "valuable" farm land. They site the Tillamook County Comprehensive Plan which lists lands of "predominately Class I, II III and IV soils

with parcels as small as 20 to 40 acres" as being those in need of protection. Besides the size of the proposed parcels, the predominate soil classifications are class IV, V and VI with the majority in Winema silt loam, 20 to 40 percent slopes (WeF) Class VI soils, Exhibit II (a) soils map.

The subject parcels are located between a developing Rural Residential-2 acre (RR-2) subdivision of 39 units and active farm uses. The applicants have identified Land Use Ordinance Section 3.008 as a more appropriate zone based on the changes occurring in the immediate area including the development of the 39 unit subdivision abutting the property on two sides. The Purpose of this zone states *"The purpose of the SFW-10 zone is to permit small-scale farms and large-acreage rural residential homesites on land that has potential for small-scale farm or forest uses, but because of limitations it is impractical for the Farm or Forest zone. It also provides a buffer between non-resource uses and lands that are managed for farm or forest uses, thereby assuring that the conversion of such lands to higher density uses occurs in an orderly and economical manner."*

The owners indicate that historically the properties have been managed as a family operation. Farm Deferrals are on a portion of the properties. The smaller sites, the two ten acre properties were intended to be built upon by the younger family members until the changes in state law in 1994 which made placement of a single-family dwelling difficult if not impossible. In addition, the 22-acre parcel is the result of a parcel created essentially in the center of the lower third of the property. This lot is not part of the zone change, as it was sold out of the family many years ago. The remaining area is appropriate only for short-term grazing. The properties in total have no irrigation rights to sustain the grazing. The land is partially available for acreage needed for manure spreading for the ongoing farm activities, but even this is limited due to poor drainage, Exhibit II.

Adjacent to the subject properties are several rapidly developing subdivisions. The land is similar in topography and vegetation. The owners are proposing to utilize this zone change to create a zoning buffer between the developing Rural Residential-zoning and the more active farming practices within the area, which is the purpose of the SFW-10 zone, Exhibit IV. This change is beneficial to both owners in that the two, 10 acre parcels can be developed for the family members, who have an understanding of the issues of farm life, and the more intense activities of their family members. This buffer has been lost since the development and construction of the subdivision.

Conclusions: Based upon the findings above, Staff concludes the proposed zone change from Farm (F-1) to Small Farm Wood Lot-10 acre (SFW-10) is consistent with the Tillamook County Comprehensive Plan, Goal 3. As indicated, the zone change will develop a buffer from the residential to more active farm uses. In addition, it will permit the property owners to utilize the land in a manner that was originally intended prior to implementation of more restrictive minimum lot size and development requirements for the F-1 zone. These are family ownerships that go back several generations. They were originally told a review would be completed when there was time to refine the zoning. This was called out as a goal and policy of the Comprehensive Plan. This review did not materialize and more stringent

restrictions have been adopted. The personal goal of the applicants is to continue to maintain large parcels and open areas for small scale farming operations and the ability to allow family to develop homes on the parcels. This was the intent when the zoning was applied in 1981 and remains the intent today.

Measure 37 is applicable but not satisfactory to the property owners. The applicant's are requesting a use which was presumed secure in 1981 under the plan and zoning provisions.

B. Tillamook County Land Use Ordinance, Article III, Zoning Regulations

1. Section 3.002: Farm Zone (F-1)

The purpose of the F-1 Zone is to preserve the cultural, social, and economic values that are provided by agriculture in Tillamook County by identifying and protecting land that is needed to sustain the local agricultural economy. This includes land which is necessary to permit farm practices to be undertaken on adjacent or nearby agricultural lands.

&:

2. Section 3.008: Small Farm & Wood Lot 10 Acre Zone (SFW-10)

"The purpose of the SFW-10 zone is to permit small –scale farms and large acreage rural residential homesites on land that has potential for small-scale farm or forest uses, but because of limitations it is impractical for the Farm or Forest. It also provides a buffer between non-resource uses and lands that are managed for farm or forest uses, thereby assuring that he conversion of such lands to higher density uses occur in an orderly economical manner."

Findings: The subject properties are currently zoned Farm (F-1) and are adjacent to a developing Rural Residential-2 acre (RR-2) zone along the easterly and southerly property lines. This application is to propose a rezone of the subject properties consisting of 4 parcels totaling approximately 55 acres from Farm (F-1) to Small Farm & Wood Lot- 10 acre (SFW-10), Exhibit V. This would result in the potential of 4 additional dwelling on the 2, 10 acre parcels and with a partition, 2 potential homes on the 22 acre parcel.

The properties are currently zoned, Farm (F-1) the Tillamook County Land Use Ordinance, Section 3.002, Farm (F-1). This ordinance is superseded by the Oregon Administrative Rules (OARs) Division 33 Agricultural Land as Tillamook County has not codified current requirements within the county ordinance. Within the OARs the minimum lot size is 80 acres. In total the parcels do not total 80 acres. In order to place a dwelling on any of the undeveloped properties, the property must gross $80,000 in income 2 consecutive years or 3 of the last 5 years as a farm dwelling. These parcels do not support a farming operation on their own. Grazing and spreading, where applicable, are the limits of ability for the properties. The second option is a non-farm dwelling. This application requires, significant analysis of other farming operations in the area as well as challenges unrelated to the request.

If approved, the properties would lose the ability to operate as area for limited farm activities. There would be no compensation in the form of deferral possible for the sites, and virtually no way to seek approvals for all sites.

Prior to application of the OARs to County zoning, the Dietrich's had established parcels to convey to their children for the construction of a single-family dwelling on each of the two parcels. Mr. Thomas's 22-acre parcel was also intended to be partitioned. As previously identified, a parcel had been removed from the holding several decades ago. This action has already disrupted the farming pattern by its very location.. This tax lot is approximately 2.50 acres in size and has an existing single-family dwelling located on it. This tax lot is not party to this application.

The properties are generally steep which limits proper cultivation or management as pasture land. Failure to secure water rights also limits the use of the property. Any rights now would be very junior and would be of little or no benefit to the land. Where the property is not steep, near the pasture land of the abutting dairy operation to the west and north; there are areas of "swampy" land. The soils are predominately poor in quality with some moderate soil at the base of the properties, near the valley floor. The properties are vegetated with black berries, alder, Scotchbroom and fir.

The owners are requesting the ability to utilize Section 3.008, Small Farm & Wood Lot-10 acre (SFW-10) zoning regulations, Exhibit III to establish homes for family members. The total number of new parcels would be 1 through the partitioning of the 22 acre parcel. The maximum single-family dwelling density would be 4 homes on 10+ acre each.

Conclusions: Based upon the findings above, Staff concludes the proposed SFW-10 zone is an appropriate zone which will prove a suitable buffer between the active dairy operations and developing Rural Residential-zone. The owners were on a path to develop the parcels for family when stricter regulations made this goal impossible although the current designation is no longer compatible with the true nature and physical circumstances of the subject properties.

C. Tillamook County Land Use Ordinance, Article IX Amendment

The following provisions govern consideration of a zone change (map amendment) request:

"(1) Notice of a proposed AMENDMENT shall be distributed according to the provisions of Section 10.060 of this ordinance."

Findings: The Department of Community Development provides public notice. Notice was sent to 86 landowners and agencies. The Department of Land and Conservation Development (DLCD) received the appropriate 45 day notice of Proposed Amendment when mailed on April 18, 2006.

"(2) The Department shall prepare an analysis of the site and the surrounding areas in the

form of a map and report, considering the following factors:

"(a) Size, shape and orientation of the subject parcel."

Findings: The four parcels total approximately 55+/- acres in size. The shape of the parcels is generally rectangular and abuts Hodgdon Road. The parcels are predominantly orientated with a westerly/northwesterly exposure. The smallest of the four parcels is 10 acres in size while the largest is 22 acres in size.

"(b) Surrounding parcel sizes."

Findings: The parcels abutting the subject properties range between 2.00 acres in size to 47.50 acres. A majority of the smaller parcels abut the eastern edge of the subject property lines, which is described as the "Meyers Subdivision" and zoned RR-2. Abutting the westerly and northerly property lines are large farm tract parcels. The tax assessor's map and zoning map indicate the size and zoning designation of parcels in the surrounding area.

"(c) Topography, drainage, hazards, and other physical site characteristics."

Findings: The topography is sloped with some level areas. Slopes range between 20% and 30+%, depending where you are on the property. There are a few small drainages in the area which contain springs. Due to the slopes on the property, operating equipment may be hazardous especially toward the eastern halve of the properties near the RR-2 zoned properties.

"(d) Parcel ownership and current use."

Findings: The owners are Johnney D. & Suzann L. Dietrich and Bruce W. Thomas. The parcel currently contains one single family dwelling which is owned and lived in by Johnney D. & Suzann L. Dietrich with a situs address of 875 Hodgdon Road.

The Dietrich's own Tax Lot 1803 which is 13.00 acres in size, Tax Lot 1805 which is 10.00 acres in size and Tax Lot 1806 which is 10.00 acres in size.

The Thomas's own Tax Lot 200 which is 22.00 acres in size. In addition

"(e) Economic and population data for the affected area that may be contained in the Comprehensive Plan."

Findings: The Tillamook County Comprehensive Plan contains no such information that is specific to this area.

"(f) Traffic Circulation"

Findings: The subject property is accessed from Hodgdon Road. Primarily agricultural and residential users access onto this roadway. This roadway may be under the authority of the Tillamook County Public Works Department.

"(g) Zoning history of the subject parcel."

Findings: The parcels were zoned F-1, Exclusive Farm and R-1, Medium Density Residential zone, prior to the adoption of the Tillamook County Comprehensive Plan and the Land Use Ordinance on 12/30/1981.

Within the old F-1 zone, there was a 1-acre minimum lot size requirement for a single-family dwelling and within the original R-1 zone there was a 7,500 square foot minimum lot size requirement for a single-family dwelling. The R-1 was comprised all of tax lox 200, the lower portion of tax lox 1806 and all of tax lot 1803. The F-1 zoning was applicable to all of tax lot 1805 and the reminder of 1806.

"(h) Compatibility of the proposed new zone with the surrounding zoning and land uses."

Findings: The surrounding zoning of the subject parcels is Rural Residential-2 acre (RR-2) and Farm (F-1). There has been significant parcelization over the years creating many small enclaves of farm and residential parcels, Exhibit, II.

"(i) Availability and feasibility for development of nearby properties in the proposed zone."

Findings: The nearest SFW-10 zoning is approximately .6 of a mile away from the intersection of Hodgdon Road and Hughey Lane, Exhibit I. That property is developed. The Rural Residential-2 acre (RR-2) zone, adjacent to the subject properties has been subdivided into 2 acre parcels and is in development with houses. As indicated above, there are many areas of small parcels.

"(j) Aesthetics"

Findings: The change in zoning will have little to no impact on the aesthetics of the area. This proposal will act as a buffer between the developing subdivision to the east and on-going agricultural activities to the west. The proposed is better suited to Small Farm Woodlot 10 than to Rural Residential-10 acre (RR-10). The SFW-10 zone has provisions which promote and encourage farm/forest practices while allowing for residential development.

"(k) Availability of public facilities and services."

Findings: The low density of development permitted by the proposed Small Farm Woodlot-10 zone does not require any special public facilities or services other than the power, telephone, water which is from Fairview Water District and road access which are currently

available. Non-public facilities include sanitation can be provided through the on-site process.

"(l) Land objectives of both the applicable and the proposed zoning."

Findings: The stated purpose of the SFW-10 Zone "*...is to permit small-scale farms and large-acreage rural residential homesites on land that has potential for small-scale farm or forest uses, but because of limitations is impractical for the Farm or Forest zone. It also provides a buffer between non- resource uses and lands that are managed for farm or forest uses, thereby assuring that the conversion of such lands to higher density uses occurs in an orderly and economical manner.*" We observe in response to the zone change criterion 9.020(3)(c) below that this precisely describes what the applicant is proposing and what would occur on this property if the zone change were granted.

"(3) The Commission shall consider an AMENDMENT request at the earliest practicable public hearing after it is proposed. In hearing the request to establish a new zoning designation, the Commission shall consider all of the following criteria. A zone MAP AMENDMENT may be approved only if all four criteria can be met."

"(a) The proposed new zone is consistent with applicable comprehensive Plan policies."

Findings: The Tillamook County Comprehensive Plan Section 5.2 states *"The state Legislature has stipulated that land within exclusive farm use zones shall be used for those farm and nonfarm uses that are defined or enumerated by state law. ORS 215.203 defines "farm use" and ORS 215.213 enumerates those nonfarm uses that may be allowed in an exclusive farm use zone. Tillamook County's farm zones includes all uses that are allowed under state law. ORS 308.343 provides that the inclusion of any additional uses would disqualify all land within the County's farm zone from receiving an automatic assessment at its farm use value.*

The farm zone is deigned to be as flexible as possible given the need to protect farmland and farm practices. All farm uses are permitted outright without Planning Commission review as is the propagation or harvesting of a forest product. Uses that are permitted conditionally include commercial activities that provide agriculture products or services such as a feed and seed store or a veterinary clinic; the mining and processing of rock or other subsurface resources; parks, playgrounds, campgrounds and hunting and fishing preserves; and home occupations. Nonfarm dwellings are allowed on the condition that they are situated on land that is not generally suited for agricultural production and if they do not interfere seriously with accepted farming practices on adjacent lands devoted to farm use."

The plan then goes on to state *"The F-1 Zone does allow the creation of parcels smaller than 40 acres if approved by the County Planning Commission according to conditions described in subsection 3.002(5) of the County's zoning ordinance, while the SFW-20 Zone allows parcels smaller than 20 acres under the same conditions. This takes into account the fact that parcels smaller than 40 acres can be used for dairy farming if such use is in conjunction*

with other farmland in the area. And it permits the establishment of alternative commercial farm uses of greater intensity (such as a nursery) than commercial farms in the area. However, it must be recognized that some legitimate intensive farm uses such as rabbit or poultry farms need not be located on the County's more productive lands. Nor are the F-1 Zone or the SFW-20 Zone appropriate locations for so-called "hobby farms" whose owner's primary vocation is other than commercial agriculture. These uses can best be accommodated in the County's Small Farm and Woodlot 10-Acre Zone or Rural Residential Zone."

The applicants/owners indicate that the proposed zone change will not create any substandard parcels the intent of the zone change will be to create a buffer between areas of intensive agricultural use and a growing residential development. Through the purpose statement of the of the SFW-10 zone *" to permit small-scale farms and large-acreage rural residential home sites on land that has potential for small-scale farm or forest uses, but because of limitations it is impractical for the Farm or Forest zone. It also provides a buffer between non-resource uses and lands that are managed for farm or forest uses, thereby assuring that the conversion of such lands to higher density uses occurs in an orderly and economical manner."* Consistency and compatibility with the Comprehensive Plan is the intent as indicated by the property owners within this application, Exhibit III.

"(b) The proposed new zone shall not result in the conversion of resource land to non-resource use without an approved exception to applicable state resource protection Goals."

Findings: This application includes an Exception to Statewide Planning Goal 3 that addresses the conversion of approximately 55 acres of Farm (F-1) zoned land to a non-resource zone, Small Farm and Woodlot-10 acre (SFW-10), Exhibit V.

" (c) The site under consideration is better suited to the purposes of the proposed zone than it is to the existing zone."

Findings: The proposed parcels are pressed into farm service very rarely. Between the slopes, the poor drainage, and a lack of irrigation, the property does not have a productive farming history. What it does have is larger parcels, and a location which allows it to separate a developing subdivision from more active farm uses. Although originally identified as Farm (F-1) zoning, the majority of the property is not adequate for farming and has had very little farming activity historically or currently. The original purpose and the proposed purpose is large parcels, family homes and now as a buffer to the development occurring on 2 sides of the property.

"(d) Development anticipated to result from the proposed zone shall not impair the actual or the legally designated uses of surrounding properties."

Findings: The adjacent and surrounding properties are zoned Farm (F-1) and Rural Residential-2 acre (RR-2). On the adjacent properties there is a developed and established diary operation or lawfully established non-farm dwellings. Development is regulated

through the Oregon Administrative Rules, (OARs). There are additional small residential parcels within the immediate area, Exhibit I.

Development within the Rural Residential (RR-2) zone is regulated through the Tillamook County Land Use Ordinance, Section 3.010. Development within the proposed zone would also be regulated through the Tillamook County Land Use Ordinance, Section 3.008: Small Farm & Woodlot-10 Acre (SFW-10). With the proposed zone, one single-family dwelling would be permitted pre 10 acres parcel.

Conclusions: Based upon the findings above, Staff concludes that the proposed zone change from Farm (F-1) to Small Farm & Woodlot-10 acre (SFW-10) is consistent with the intent of the Comprehensive Plan and will provide a buffer separating intensive agricultural uses from development. No substandard parcels will be created by authorizing the zone change and adjacent properties will maintain the same rights and uses as permissible within the zones. These criteria are met.

D. Oregon Administrative Rules, Exception Requirements

OAR 660-004-0020 Goal 2, Part II(c), Exception Requirements

(1) If a jurisdiction determines there are reasons consistent with OAR 660-004-0022 to use resource lands for uses not allowed by the applicable Goal or to allow public facilities or services not allowed by the applicable Goal, the justification shall be set forth in the comprehensive plan as an exception.

(2) The four factors in Goal 2 Part II(c) required to be addressed when taking an Exception to a Goal are:

> *(a) "Reasons justify why the state policy embodied in the applicable goals should not apply": The exception shall set forth the facts and assumptions used as the basis for determining that a state policy embodied in a goal should not apply to specific properties or situations including the amount of land for the use being planned and why the use requires a location on resource land;..."*

Findings: The Exception is required to permit the proposed zone change request of four parcels totaling approximately 55 acres. The applicants are requesting to rezone from Farm (F-1) to Small Farm & Woodlot-10 (SFW-10). The law requires a Goal Exception when taking land out of a resource zone, F-1 and placing into an Exception zone such as SFW-10.

There are two existing 10-acre parcels, one 13-acre parcel and one 22-acre parcel. The Dietrich's are the property owners of the two 10-acre parcels and the 13-acre parcel. Their residence is 875 Hodgdon Road which is located on the 13- acre parcel. Mr. Thomas, the Dietrich's brother and brother-in-law, is the owner of the undeveloped 22-acre parcel.

The properties are located at the end of Hodgdon Road. Abutting to the east and south of the

subject properties, the zoning is designated as Rural Residential-2 acre (RR-2) two acre and to the north and west the zoning is Farm (F-1). The properties can best be described as a toe of the Coastal Mountain Range which lies between the Wilson River Valley and the Trask River Valley. The property is located in the transition area of the pastured valley floor to the timbered uplands. There is a westerly slope throughout most of the subject parcels. The properties have a diverse mixture of vegetation and trees, with some open areas.

The applicants have provided a copy of the U.S. Department of Agriculture's Soil Survey of the Tillamook Area indicates that the soils on the properties range from some moderate to low class IV and VI soils, Exhibit II(a).

The properties are steeply sloped, with poor drainage, no water rights and some low-lying swampy areas. These challenges make cultivation, pasturing and other farm activities difficult at best. if not outright impossible in areas. Mr. Thomas does own the abutting dairy operation, which is located in the valley to the west of the subject properties. As indicated, with no irrigation available to the properties, grazing, is difficult and short term and not cost effective. To the west and south of the subject properties, the parcels are very similar in vegetation and topography. Rapid growth and development of single family dwellings is occurring immediately adjacent to the proposed parcels. Conflicts are inevitable if an appropriate buffer does not exist. Granted, this buffer can be created through no zone change, but this does not change the general suitability of the parcels for farming.

"(b) "Areas which do not require a new exception cannot reasonably accommodate the use":

Findings: The proposal, as defined by the owners, is to rezone the family property to Small Farm & Woodlot-10 (SFW-10). The family has been a part of the original 167 acres through several generations. As stewards of the land, it was determined early on the best sites for farming and dairying was the valley and every effort has been made to protect this productive farm land. It was also noted the best home sites were those properties up on the hill and not adequate for farming due to slope, drainage and poor grass supplies. The substance of this rezone is to allow the children and grandchildren the right to use and to build a single-family dwelling and be close to family. As to an alternative test for this site, it is not possible that another site contains the heritage and family connection that these parcels hold. The owners do not feel that this is a transferable commodity and are looking for fairness in the land use regulations.

Conclusions: Staff finds the owners have a unique situation, which does not allow for alternative properties to accommodate or replace the current parcels not requiring an Exception. The property has been within the same family for many generations and the subject properties, which are proposed to be re-zoned, are to be handed down to the next generation. Staff finds there is no reasonable alternative. This criterion is met.

(A) The exception shall indicate on a map or otherwise describe the location of possible alternative areas considered for the use, which do not require a new exception. The area for

which the exception is taken shall be identified;

(B) To show why the particular site is justified, it is necessary to discuss why other areas which do not require a new exception cannot reasonably accommodate the proposed use. Economic factors can be considered along with other relevant factors in determining that the use cannot reasonably be accommodated in other areas. Under the alternative factor the following questions shall be addressed:

(i) Can the proposed use be reasonably accommodated on nonresource land that would not require an exception, including increasing the density of uses on nonresource land? If not, why not?

(ii) Can the proposed use be reasonably accommodated on resource land that is already irrevocably committed to nonresource uses, not allowed by the applicable Goal, including resource land in existing rural centers, or by increasing the density of uses on committed lands? If not, why not?

(iii) Can the proposed use be reasonably accommodated inside an urban growth boundary? If not, why not?

(iv) Can the proposed use be reasonably accommodated without the provision of a proposed public facility or service? If not, why not?

(C) This alternative areas standard can be met by a broad review of similar types of areas rather than a review of specific alternative sites. Initially, a local government adopting an exception need assess only whether those similar types of areas in the vicinity could not reasonably accommodate the proposed use. Site specific comparisons are not required of a local government taking an exception, unless another party to the local proceeding can describe why there are specific sites that can more reasonably accommodate the proposed use. A detailed evaluation of specific alternative sites is thus not required unless such sites are specifically described with facts to support the assertion that the sites are more reasonable by another party during the local exceptions proceeding".

Findings: From webster.com, ***Alternative*** is defined as *" **alternative**: Function: noun **1 a**: a proposition or situation offering a choice between two or more things only one of which may be chosen **b**: an opportunity for deciding between two or more courses or propositions*

*2 **a**: one of two or more things, courses, or propositions to be chosen **b**: something which can be chosen instead the only alternative to intervention."* For the Dietrich's and Mr. Thomas, there are no alternative sites that would enable the owners to live on property that has been in their family's ownership for multiple generations. They have a unique relationship with this property that includes an ingrained understanding of its current resource value, and a commitment to maintaining that value, Exhibit II.

The owner's are not developers who would utilize the property to maximize economic gain; rather they are people who simply wish to live on land that has been in their family. The pattern of past generations has been to hand down the land to each subsequent generation. It is and has been the intent of the family to experience and sustain their family heritage on this site. The changes in state law over time have altered the minimum standards for the building a home and has prevented the construction of homes for younger family members on the property.

Conclusion: Staff concludes there is no reasonable or justifiable alternative to the proposed pieces of property. This family has owned, worked and lived on or near these properties for generations. In an age where land exchanges hands approximately every 3.5 years, there are few justifiable reasons to deny the Dietrich's and Thomas this opportunity if they can demonstrate that they will maintain the resource value of the properties and even enhance it. This criterion is met.

"(c) The long-term environmental, economic, social and energy consequences resulting from the use at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located in other areas requiring a Goal exception. The exception shall describe the characteristics of each alternative areas considered by the jurisdiction for which an exception might be taken, the typical advantages and disadvantages of using the area for a use not allowed by the Goal, and the typical positive and negative consequences resulting from the use at the proposed site with measures designed to reduce adverse impacts. A detailed evaluation of specific alternative sites is not required unless such sites are specifically described with facts to support the assertion that the sites have significantly fewer adverse impacts during the local exceptions proceeding. The exception shall include the reasons why the consequences of the use at the chosen site are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site. Such reasons shall include but are not limited to, the facts used to determine which resource land is least productive; the ability to sustain resource uses near the proposed use; and the long-term economic impact on the general area caused by irreversible removal of the land from the resource base. Other possible impacts include the effects of the proposed use on the water table, on the costs of improving roads and on the costs to special service districts;"

Findings: With the property owner's long-term and unique relationship to the property, and the current and proposed uses on this site, it can be reasonably expected there will be no adverse long-term environmental, economic, social or energy consequences resulting from the proposed rezoning. The potential for the site, as proposed is one additional parcel with a maximum of four new dwellings within the proposed Small Farm Woodlot-10 zone. This proposal does not appear to materially alter the use of the property from how it is currently managed. For this reason and those described in response to (b) above, there are no other land options that can be consider. The family has resided on the property for many generations. The Dietrich's currently have a home on the 13 acre parcel. The owners are requesting a zone change to continue to utilize the property much as they have been, while

being able to convey and provide an opportunity for their children and grandchildren to build on the properties.

The "typical" negative consequences that might result from the proposed use are a reduction of resource values on the property, conflicts with adjacent uses, or costs imposed upon public services. It has been demonstrated in response to other criteria throughout this report that there is no proposed reduction of resource value—that the proposed zone change and subsequent use of the property will provide incentives and opportunities to sustain these values with respect to farm and forest use. The properties, are still entitled to place a significant portion into Farm and Forest deferral retaining 1-2 acres for a home site at "market value." It is likely more of the land will go into deferral as each owner develops his own resource-based ownership. There will be no significant increase on public services.

Conclusion: Staff concludes that because current resource production will be maintained. There is no farmland near the proposed rezone, and the ability to sustain nearby forest uses is addressed in response to the following criterion (d). There is no adverse long-term economic, environmental or energy impacts on the general area because there will be no irreversible removal of land from the resource base. There are apparent social benefits to be derived from permitting owners and their families to rezone the property that has been in their family's ownership for many generations. This criterion is met.

"(d) The proposed uses are compatible with other adjacent uses or will be so rendered through measures designed to reduce adverse impacts. The exception shall describe how the proposed use will be rendered compatible with adjacent land uses. The exception shall demonstrate that the proposed use is situated in such a manner as to be compatible with surrounding natural resources and resource management or production practices. Compatible is not intended as an absolute term meaning no interference or adverse impacts of any type with adjacent uses."

Findings: The land adjacent to the east and south is zoned Rural Residential-2 acre (RR-2) and the remainder of the properties boundaries are zoned Farm (F-1). Per Section 3.008 of the Tillamook County Land Use Ordinance, Small Farm Woodlot-10 (Small Farm Woodlot-10) would require any dwellings placed on the property to have a setback of 100 feet from resource zoned land. This can ensure a substantially greater setback from adjacent agricultural uses.

OAR 660-04-028(6) states that proof of commitment depends on the relationship between the Exception area and the lands adjacent to it, and contains the factors that must be addressed to sustain the exception. These factors are addressed by staff below and within the applicant's submittal, Exhibit II.

Conclusions: Staff concludes the proposed rezone will have little to no impact on the surrounding Farm and Residential uses. The properties are being proposed to act a buffer between the Farm (F-1) zone and Rural Residential-2 (RR-2) zone with the application of the Small Farm & Woodlot-10 (SFW-10) zone. This criterion is met.

C. OTHER GOAL EXCEPTION CONSIDERATIONS

OAR 660-004-0000(3) states that *"The intent of the exception process is to permit necessary flexibility in the application of the Statewide Planning Goals."*

Findings: The legal provision for an Exception is similar to the variance process at the local level in that it recognizes that a rigid application of regulations is inappropriate in some circumstances, and that a measure of flexibility is required to ensure a reasonable outcome. The owner shall demonstrate that their proposal illustrates the need for an Exceptions process, and that it complies with all applicable requirements.

OAR 660-004-0005(1)(a) affirms that an exception *"Is applicable to specific properties or situations and does not establish a planning or zoning policy of general applicability;"*

Findings: This legal caveat establishes that an Exception is specific to the circumstances associated with a particular property or properties, and that an approved Exception does not establish a precedent for what might be permitted on any other property. Each situation must be considered on its own particular merits.

OAR 660-004-0010(3) states that *"an exception to exclude certain lands from requirements of one or more statewide goals or goal requirements does not exempt a local government from the requirements of any other goal(s) for which an exception was not taken."*

Findings: The proposed Exception addresses Agricultural (Goal 3) issues and requirements. As Agriculture is a lesser component of the parcel the owners have identified their intention of maintaining the current uses of the parcel with the addition of a home if approved. No other Goals have been requested for review.

OAR 660-004-118(4)(a) states that *"When a local government takes an exception under the Reasons' section of ORS 197.732(1) and OAR 660-004-0020 through 660-004-0022, plan and zone designations must limit the uses, density, public facilities and services, and activities to those that are justified in the exception;"*

Findings: The intent of the proposed Exception is to rezone approximately 55 acres to Small Farm Woodlot-10 (SFW-10), Exhibit V. This has the ability to limit the long-term development of the property while maintaining a resource base.

Conclusions: Staff concludes this proposal can minimize impact and limit the activities to continue to support a resource base on this parcel. This criterion is met.

IV. CONCLUSION and ANALYSIS:

Reasons to support the application:

- Staff finds the applicants have demonstrated that all four (4) review criteria of Article IX are met.
- Staff finds the applicants have satisfactorily addressed the review criteria to justify a Goal Exception in rezoning the property from Farm (F-1) to Small Farm & Woodlot 10 acre (SFW-10).
- The proposed SFW-10 zone will act as efficient barrier between the existing developing Rural Residential zone and the on-going active dairy and agricultural operations.
- Due to the location, topography, soils and current use of the property, it is not to be expected that it will be fully utilized and considered a typical productive farming operation within Tillamook County.
- The parcels are non-conforming, failing to meet the required 80-acre minimum size. All parcels including the parcel created with the partitioning of the 22 acres will conform to the SFW-10 zoning.
- A minimum loss of agricultural land.

Reasons not to support the application:

- The current Farm (F-1) zone through a Conditional Use Permit process could authorize a single family dwelling. (Please note: All tax deferrals will be lost, and the success of the Conditional Use process would be extremely uncertain).
- No net loss of agricultural land.

V. **RECOMMENDATION:** Based on the findings of fact and other relevant information contained within this report, Staff recommends the Planning Commission recommend **APPROVAL** of zone change ZC-06-01 to the Board of Commissioners.

VI EXHIBITS:

I. Zoning and Tax Assessor's Maps
II. Owner's Justification Statement and maps
   a. Soils Map
III. Oregon Administrative Rules (OARs)
IV. Tillamook County Small Farm Woodlot-10 Zoning requirements.
V. Proposed new zoning map.

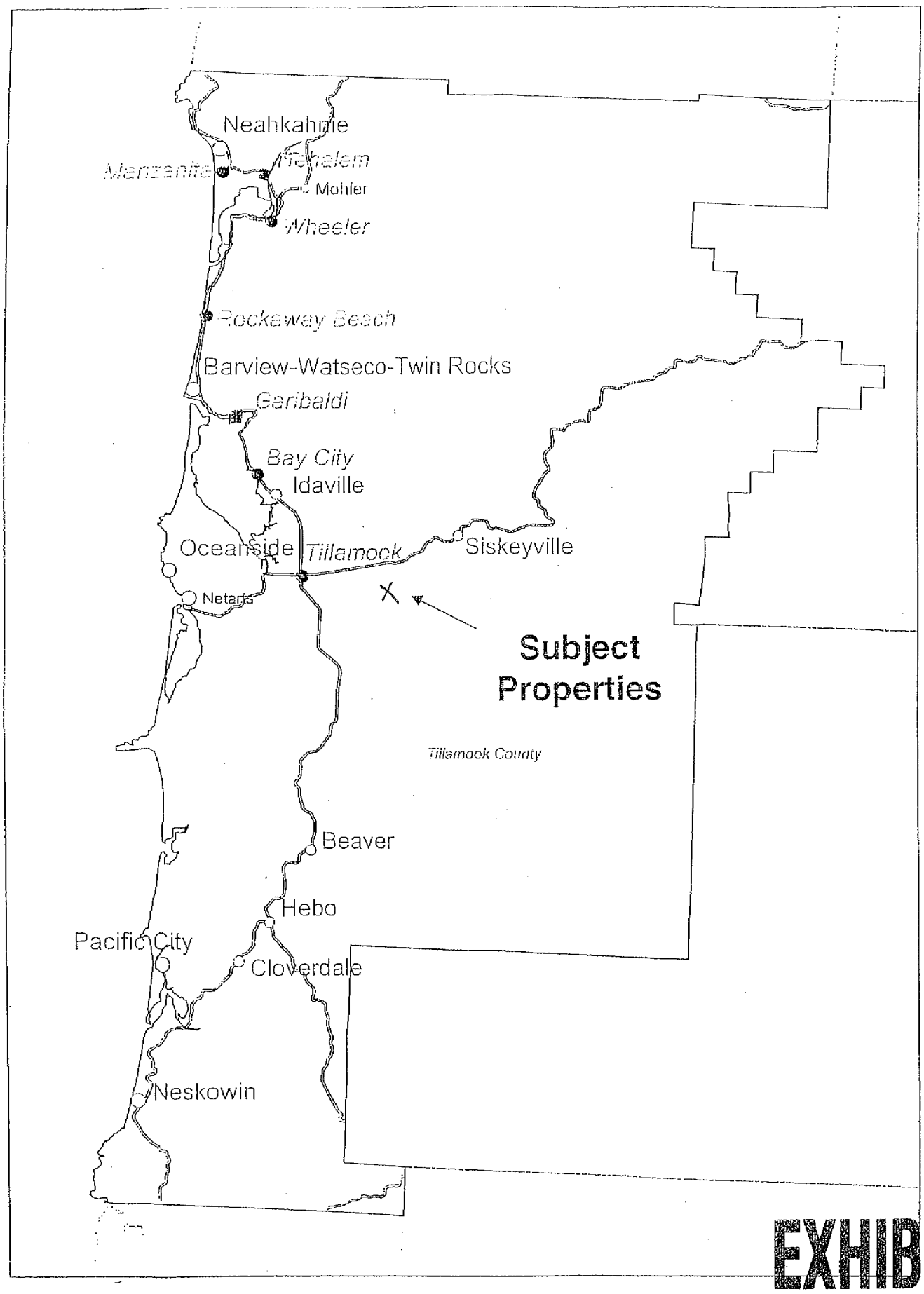


EXHIBIT I

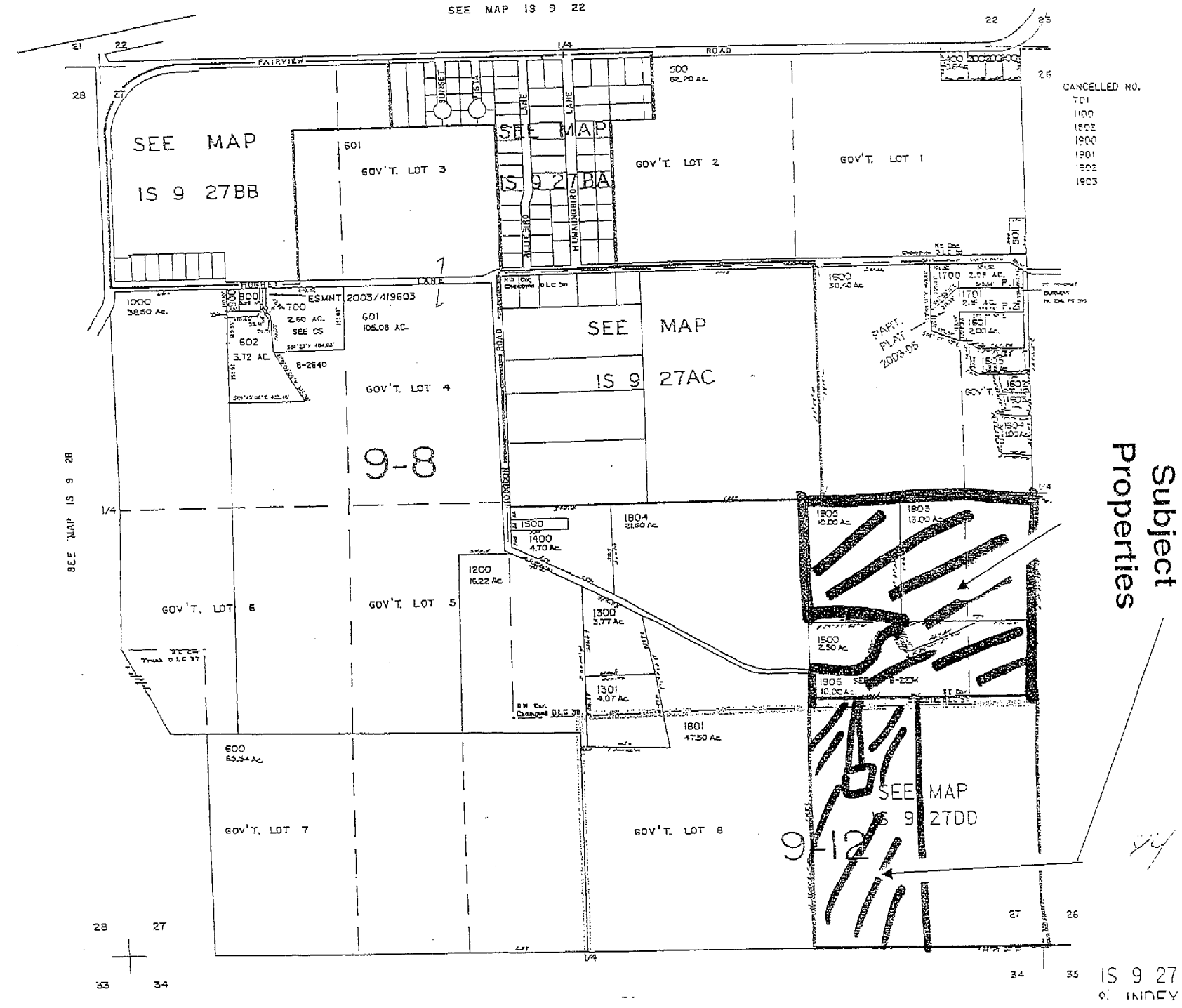
ZC-06-01

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSE ONLY

SECTION 27 T.1S. R.9W.W.M.
TILLAM[illegible]K COUNTY

400'

& INDEX



Subject Properties

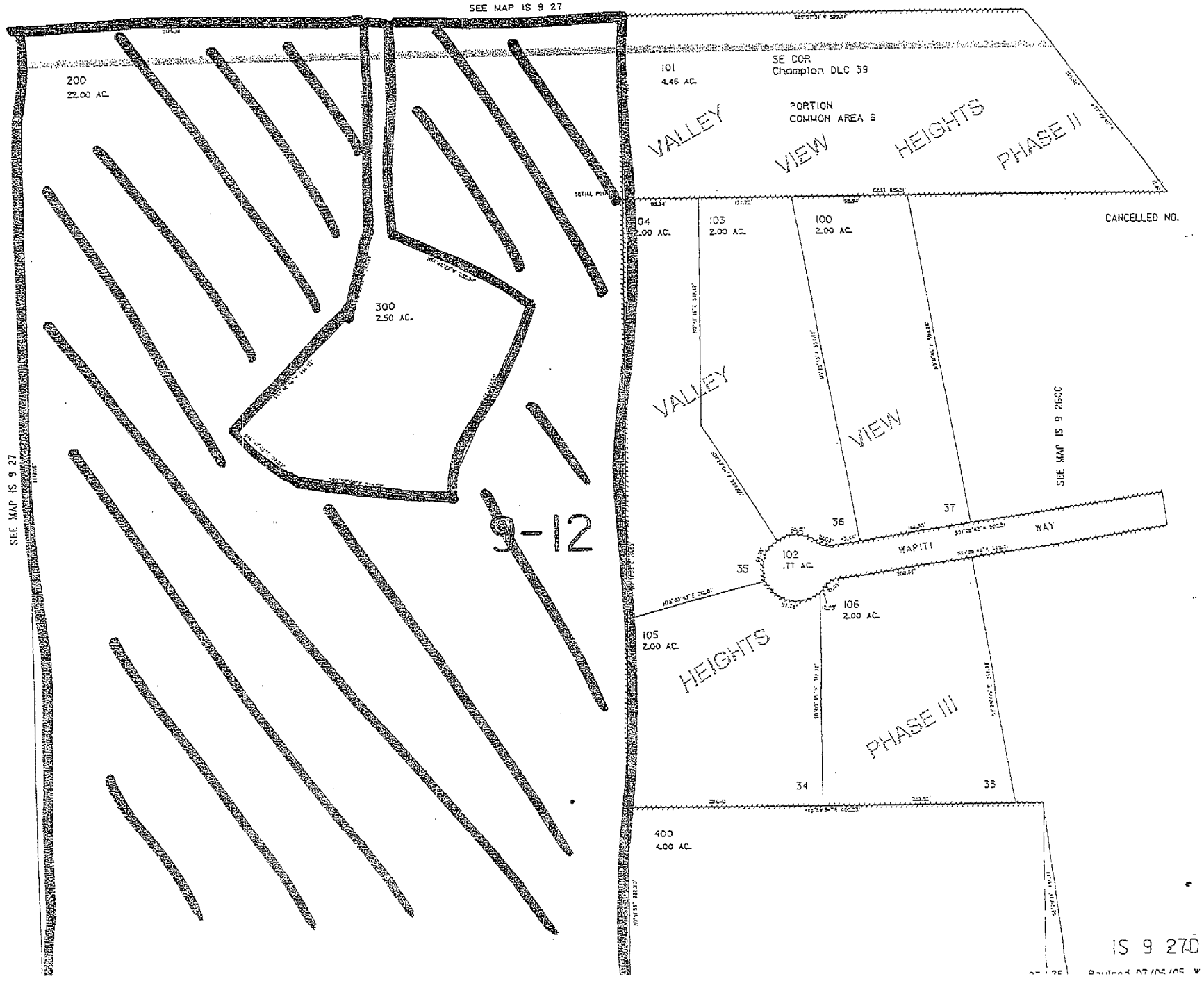
ZC-06-01

IS 9 27

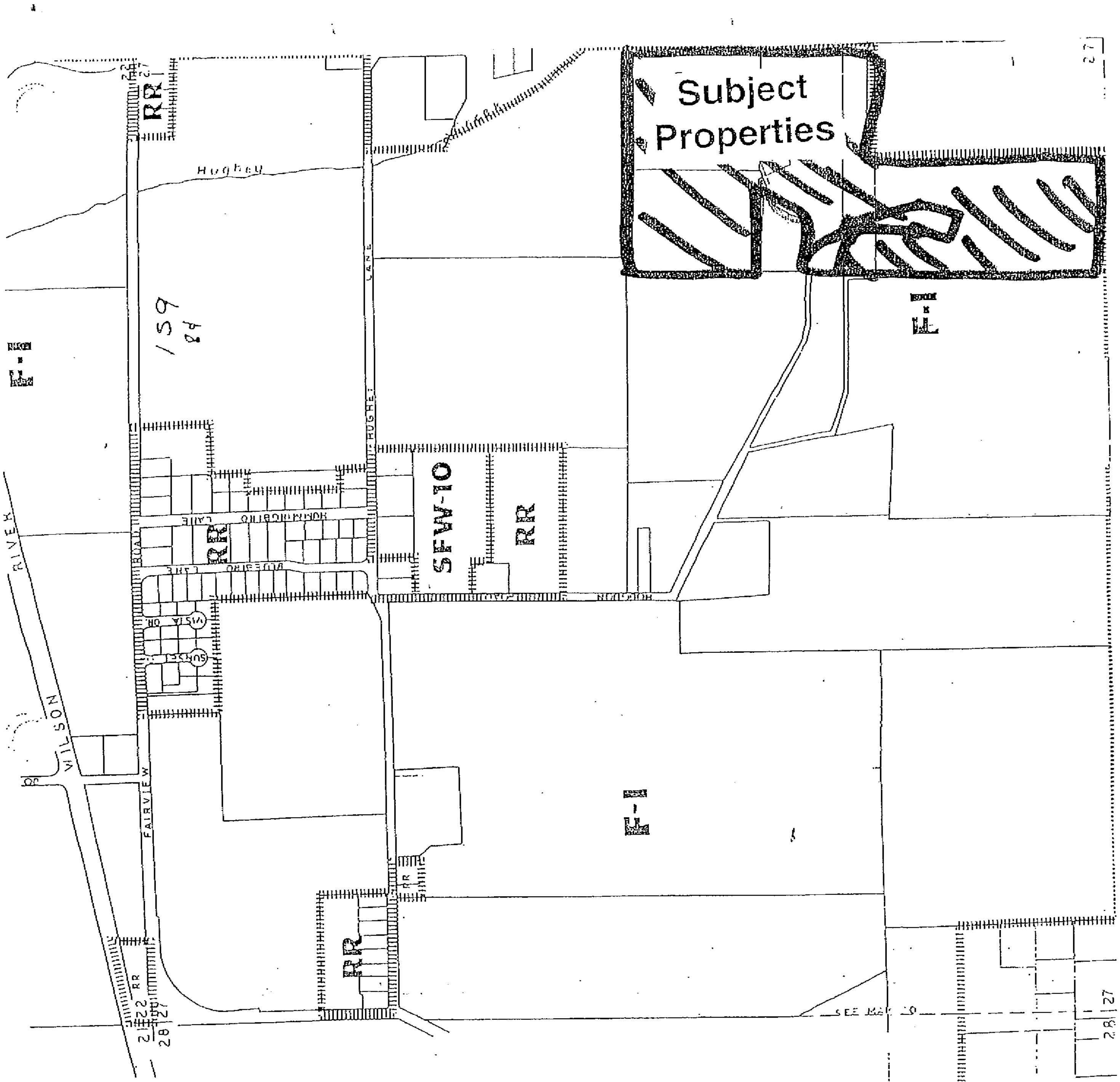
THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSE ONLY

SE1/4 SW SEC.27 T.1S. R.9W. W.M.
TILLAMOOK COUNTY
1"= 100'

1S 9 2.



ZC-06-01


Subject Properties
RR
SFW-10
RR
RR
RR
F-1
F-1
F-1
Hughey
RIVER
WILSON
FAIRVIEW
159 Rd

ZC-06-0

PLANNING APPLICATION
DEPARTMENT OF COMMUNITY DEVELOPMENT

Application Number

ZC-06-01

[ ] Admin Review
[ ] Conditional Use
[ ] Exception
[ ] Extension
[ ] GHZ Report
[ ] LUC Review
[ ] Major Partition
[ ] Ordinance Amend
[ ] Sub - Pre Lim
[ ] Sub - Final Plat
[ ] Variance
[ ] Zone Amendment
[XX] Zone Change
[ ] Non Conform Major Rev
[ ] Non Conform Minor Rev

REQUEST (Describe request) Zone Change of Tax Lots 1803, 1805, 1806, 1S0927DD00200 & 1S0927DD00200S1 from F1 to SFW-10

APPLICANT:

Name Johnney D. & Suzann L. Dietrich / Bruce W. Thomas Phone (503) 842-7841 / (503) 842-5305

Address 875 Hodgdon Road / 700 Hodgdon Road City Tillamook State OR Zip 97141

LEGALLY RECORDED OWNER:

Name Johnney D. Dietrich, Suzann L. Dietrich, Johnney D. & Suzann L. Dietrich / Bruce W. Thomas Phone (503) 842-7841 (503) 842-5305

Address 875 Hodgdon Road / 700 Hodgdon Road City Tillamook State OR Zip 97141

1. LEGAL DESCRIPTION OF THE PROPERTY INVOLVED IN THIS APPLICATION

1803, 1805, 1806

Township 1 Range 9 Section 27 Tax Lot 1S0927DD00200 & 1S0927DD00200S1

Subdivision _____ Lot _____ Block _____

2. ZONING F1

3. IS THE PROPERTY DEED RESTRICTED TO PROHIBIT THE USE AS PROPOSED IN THIS APPLICATION? [ ] Yes [X] No

4. I HEREBY APPLY FOR THE ABOVE REQUEST.
I agree to abide by the requirements of the Tillamook County Comprehensive Plan, Tillamook County Land Use Ordinance, Tillamook County Land Division Ordinance as they apply to this request.

Property Owner's Signature Bruce W Thomas Date 3-17-06
Johnney D Dietrich Suzann L Dietrich

5. I AUTHORIZE THIS REQUEST BY THE APPLICANT.

APPLICANT'S SIGNATURE Suzann L Dietrich Date 3-17-06

********** FOR OFFICE USE ONLY **********

Date 3/17/06 Received AT Fee Paid $226.00 Receipt # 110 — 06-106
$40.00 1468 — 06-146

EXHIBIT II
ZC-06-01

DIETRICH AND THOMAS ZONE CHANGE APPLICATION

EXHIBIT I	SUMMARY OF ZONE CHANGE PROPOSAL
EXHIBIT II	GOAL EXCEPTION REQUIREMENTS
EXHIBIT III	ZONE CHANGE REQUIREMENTS
EXHIBIT IV	ASSESSORS REPORTS & LAND CAPABILITY CLASSIFICATION SOIL DESCRIPTIONS
EXHIBIT V	MAPS
EXHIBIT VI	LETTERS

EXHIBIT 1

SUMMARY OF DIETRICH AND THOMAS ZONE CHANGE PROPOSAL

Johnney D. and Suzann L. Dietrich are requesting zone changes on three adjoining parcels of land, from F-l to SFW-10.

These are tax lots 1805 and 1806, 10 acres each, and 1803, 13 acres..

This land was purchased from Suzanns' parents, Victor and Aileen Thomas. Tax lot 1803 was purchased in 1975. Tax lots 1805 and 1806, 10 acres each, were purchased in 1980 from Suzanns' parents with the goal in mind by all, that these lots would be available for Johnney and Suzanns' children for their homes in the future. Tax lots 1805 and 1806 were zoned F-1 at time of purchase and one home site was allowed on each lot. Tax lot 1803 was zoned R1 at time of purchase, which would allow one home site per 20,000 square feet. Change in land use laws since time of purchase has taken away the possibility of building homes on lots 1805 and 1806, as well as 1803.

Zone changes on these parcels to SFW-10 would restore the ability to build on tax lots 1805 and 1806 and would have no adverse impact on the resource value of the land or bring about any changes from its present use. At present, the existing home is all that is allowed on tax lot 1803. A zone change to SFW-10 would not change this.

The land is bordered on two sides by Valley View Heights subdivision consisting of 39-two acre lots with common ground. The remaining two sides are zoned F-l. The dairy located on the western side of the property is owned by Suzanns' brother, Bruce Thomas. He has leased the ground for many years for pasturing young stock and dry cows during the summer months. He has also used a portion for manure dispersal. The current use of the land would not change, except to allow one home to be built on lot 1805 and one home on lot 1806.

Bruce W. Thomas is requesting a zone change on two adjoining parcels of land. One parcel is tax lot 1S0927DD00200, a 4 acre parcel zoned F1, purchased in 1986, from Robert and Mary Thomas, his brother and sister-in-law. The other tax lot is 1S0927DD00200S1, an 18 acre parcel, zoned F1, purchased from Robert and Mary Thomas in 1984. These two parcels were originally owned by Victor and Aileen Thomas, father and mother of Bruce.

These two parcels abut tax lot 1806, owned by Suzann Dietrich on the northern border and run south to abut Edelwyss Ranch, a subdivision comprised of 2 acre lots, on the southern border. The west border abuts F1 zoned ground and the east line abuts a 39 unit subdivision of 2 acre lots.

The steep terrain and poor soil qualities make these lots unsuitable for productive, high value farm land. Much of it is covered with scattered trees and brush.

The location between two acre residential lots on two sides and productive farm ground on the other two sides, makes these parcels a perfect fit for the intent of the SFW-10 zoning and would allow a fourth generation to live on the same land.

The stated purpose of the SFW-10 zone is to permit small-scale farms and large-acreage rural residential home sites on land that has potential for small-scale farm or forest uses, but because of limitations it is impractical for the Farm or Forest zone. It also provides a buffer between non-resource uses and lands that are managed for farm or forest uses, thereby assuring that the conversion of such lands to higher density uses occurs in an orderly and economical manner.

EXHIBIT 2

DIETRICH AND THOMAS GOAL EXCEPTION REQUIREMENTS

(Italics in black are quotations from the applicable ORS and OAR)

GOAL EXCEPTIONS

"197.732 Goal exceptions; criteria; rules; review. (l) A local government may adopt an exception to a goal if:

(a) The land subject to the exception is physically developed to the extent that it is no longer available for uses allowed by the applicable goal;

(b) The land subject to the exception is irrevocably committed as described by Land Conservation and Development Commission rule to uses not allowed by the applicable goal because existing adjacent uses and other relevant factors make uses allowed by the applicable goal impracticable; or

(c) The following standards are met:

(A) Reasons justify why the state policy embodies in the applicable goals should not apply;

(B) Areas which do not require a new exception cannot reasonably accommodate the use;

(C) The long term environmental, economic, social and energy consequences resulting from the use at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site; and

(D) The proposed uses are compatible with other adjacent uses or will be so rendered through measures designed to reduce adverse impacts"

RESPONSE:

Parcels 1803, 1805, and 1806, that we are seeking Goal Exceptions on are resource lands abutting a subdivision consisting of 39-2 acre lots on the east and 2/3 south side of 1806. Tax lots 1S0927DD00200 and 1S0927DD00200S1, zoned F1, also adjoin the south side. A 2.5 acre parcel zoned F1, but having a permitted non-farm dwelling and Christmas tree growing operation, adjoins the western boundary of tax lot 1806 and the southern boundary of tax lot 1805. Farm ground adjoins lot 1805 to the west and north. Tax lot 1803 adjoins lot 1805 on its entire east side, and the subdivision with 2 acre lots borders lot 1803 on its eastern edge.

Tax lot 1S0927DD00200 abuts lot 1806 on its north side, a subdivision on the east side, a 2.5 acre non-farm use lot, as well as tax lot 1S0927DD00200S1 on the south side. The west side is separated from 1S0927DD00200S1 by a roadway. Tax lot 1S0927DD00200S1 abuts lot 1806 on the north, a roadway and 2.5 acre non-farm dwelling on the east side extends for approximately 700 feet south. The line then follows the southern border of the 2.5 acre parcel and the southern tip of lot 1S0927DD00200. The eastern border then continues south along the 39 unit subdivision for approximately 350 feet, and lastly, borders a 4 acre parcel on that side. Lot 1S0927DD00200S1 borders a 10 unit subdivision on its southern border and F1 ground extends

the full length of the western boundary.

Parcels 1805 and 1806 are 10 acres at this time and have been since 1980 when the Dietrichs purchased them from Suzanns' parents. We are not seeking to divide any parcels. Neither 1805 or 1806 have any buildings on them at this time due to changes in allowable uses of F1 zoned land that occurred after the land was purchased. At the time of purchase, one home site was allowed on parcels 1805 and 1806. Lot 1S0927DD00200 is a 4 acre parcel, 1S0927DD00200S1 is an 18 acre parcel. The proposed zone change would allow one home on each parcel. Each parcel has legal easement access to the west on an existing private roadway to Hodgdon Road, a county road that travels a distance of 4/10 of a mile to where it connects to Hughey Lane. In this length of Hodgdon Road there are 9 homes abutting the road and 2 more on short driveways.

It is our understanding that the procedure to accomplish a zone change from F1 to SFW10 will require that we use the "reasons exception" process cited in ORS 197.732 (l) (c). By using the reasons exception process, we feel that we can clearly explain our reasons and justify exceptions to rezone these parcels from F1 to SFW10, which would allow the ability to put one home on each parcel.

OAR 660-004-0018 (4) through 660-004-0022, explains in more detail the standards for a reasons exception and will be used as references.

We will also address Tillamook Countys' zone change criteria as required by section 9.020 map amendment procedure and criteria.

GOAL 2 EXCEPTION PROCESS INTENT

OAR 660-004-0000(3) states that *"The intent of the exception process is to permit necessary flexibility in the application of the Statewide Planning Goals."*

RESPONSE: Regulations are put in place with good intent, but there are situations where flexibility and allowing exceptions can be done without doing harm to others while providing a benefit to a land owner. With the process we will show the need for, and sound reasons to grant exceptions on these parcels and provide a better transition area between subdivisions and resource lands. .

OAR 660-004-118(4)(a) states that *"When a local government takes an exception under the 'Reasons' section of ORS 197.732(l) and OAR 660-004-0020 through 660-004-0022, plan and zone designations must limit the uses, density, public facilities and services, and activities to those that are justified in the exception;"*

RESPONSE:

A 167 acre parcel was purchased by Bruce and Suzanns' parents, Victor and Aileen Thomas, in

1948. The acreage remained one unit until 1968 when two parcels were sold to Suzanns' brothers. They each built homes and raised beef on their property. Their father continued to operate a dairy on the farm friendly and productive flatter ground. In 1976 the remaining property that was used for the dairy was sold to Bruce. In 1975, Victor and Aileen sold 13 acres to the Dietrichs. The Dietrichs built a home and raised a few beef on that acreage. In 1980, The Dietrichs purchased 20 additional acres (2 parcels, 10 acres each), tax lots 1805 and 1806, with the intention of passing the ground on to their daughters. We are seeking the zone change to reinstate the ability to put one home site on each of these parcels, which is allowed under SFW10, but no longer allowed on FI. The zoning of these properties to SFW10 would make them buildable, and would limit any other development.

By purchasing lots 1S0927DD00200 and 1S0927DD00200S1 from his brother, Bruce kept the land in family ownership. The ground lacked value for farming, but was not purchased for farm purposes. He hoped to someday be able to build a home on one parcel and possibly one of his children would build on the other. The zoning of these parcels to SFW-10 would allow him these opportunities and not have a negative impact on resource lands or residential properties.

ADDRESSING THE FOUR REASONS EXCEPTION REQUIREMENTS

"OAR 660-004-0020
Goal 2, Part II(c),Exception Requirements

(1) If a jurisdiction determines there are reasons consistent with OAR 660-004-0022 to use resource lands for uses not allowed by the applicable Goal or to allow public facilities or services not allowed by the applicable Goal, the justification shall be set forth in the comprehensive plan as an exception.

(2) The four factors in Goal 2 Part II (c)required to be addressed when taking an exception to a Goal are:

(a) "Reasons justify why the state policy embodied in the applicable goals should not apply": The exception shall set forth the facts and assumptions used as the basis for determining that a state policy embodies in a goal should not apply to specific properties or situations including the amount of land for the use being planned and why the use required a location on resource land;.."

RESPONSE to (a):

The zone changes are necessary to allow a home site on each parcel.

A goal exception is required by law, although, the actual use of the lands will change very little, as they have been used as summer pasture and manure disposal areas by the adjoining dairy and

the intent is for that to continue.

Tax lot 1805 is made up of approximately 50% side hill ground, of which 2 acres is too steep to navigate with farm machinery. It has a low lying area of swamp on the more flat area that would equal about 1 acre. A 1 acre piece is located across a roadway from, but is connected to the rest of the parcel and this would be the proposed home site. Lot 1805 includes 5.55 acres of class VI soil, indicating very low producing ground, this being one reason for seasonal use.

Tax lot 1806 is situated on a small ridge top, with ground going down either side. It also has a small piece of approximately 1.25 acres that are separated from the main portion by a private driveway. This parcel is approximately 55% covered with brush, alder trees and a few large spruce trees and the 1.25 acre piece is ½ swamp. Even if the ground was clear of brush and trees, the sides of the ridge is so steep that farm machinery cannot safely travel on it. There is approximately 4 acres of open and cleared ground that provides seasonal pasture. This ground includes 5.45 acres of class VI soil.

Tax lot 1803 is situated on a north facing slope, with approximately 65% of the 13 acre parcel being ground with very steep slopes. The soils on this lot include 9.6 acres of class VI, 2.4 acres of class III and the 1 acre existing home site. Approximately 45% of the ground is covered with trees and brush.

Lot 1S0927DD00200 is approximately 80% side hill ground, some of which is too steep to navigate farm equipment on. Approximately 75% of the ground is covered in heavy trees and brush, while the remaining 25% is partially covered in trees and some brush. Soils are made of class IV, V, and VI.

Lot 1S0927DD00200S1 soils are made up of class IV, V, and VI. The ground is comprised of continuous slopes facing mostly to the west, but also has sloping ground facing north and south. Some slopes are steep enough to make the use of farm equipment a hazardous situation or to be avoided entirely. Due to the sloping hillside nature of this land and the poor soils, the ground dries early in the summer and provides only seasonal pasture. Approximately 60% of the ground is covered in trees, with 40% being clear.

Included with this application is the assessors report with the soil classes listed for tax lots 1803, 1805, 1806, 1S0927DD00200, 1S0927DD00200S1, and the U.S. Department of Agriculture Soil Conservation Service Land Capability Classification.

The above descriptions of these properties are to the best of our abilities, and of course are approximate. While it may appear we have made this ground appear near useless or undesirable, that is not the case at all. Victor and Aileen Thomas, Bruce and Suzanns' parents, had a tract of land that was originally 167 acres, which they desired to pass on to their children and grandchildren. They felt strongly that the productive farm ground should be kept in a large workable parcel, which it was and still is, while the hill ground would make home sites and

provide some small farm use.

Tax lots 1S0927DD00200 and 1S0927DD00200S1 were purchased from Victor and Aileen Thomas by Robert Thomas, who eventually moved from Tillamook due to his job. Bruce purchased this ground to have for his families future use and to keep it in the family.

Tax lots 1805 and 1806 were purchased from Victor and Aileen Thomas in two 10 acre parcels for the purpose of it being passed on to their grand daughters, Jennifer and Jeannie, at such times as they were ready to build homes for their families. The plans were made and the land purchased, and all was fine until December 30, 1981, when land use ordinance #33 was adopted by Tillamook County.

The dividing of this land was not done without forethought of its future use. It is not productive or desirable farm ground, marginal at best, but would make fine home sites for the Dietrich daughters and Thomas children and their families, which would make the fourth generation to live on this ground.

Section 3.002 Farm Zone (F-l) (2) Uses Permitted Outright: (c)states in part that dwellings are allowed on Fl zoned parcels of 40 acres or more.

"(b) "Areas which do not require a new exception cannot reasonably accommodate the use":

(A) The exception shall indicate on a map or otherwise describe the location of possible alternative areas considered for the use, which do not require a new exception. The area for which the exception is taken shall be identified;

(B) To show why the particular site is justified, it is necessary to discuss why other areas which do not require a new exception cannot reasonably accommodate the proposed use. Economic factors can be considered along with other relevant factors in determining that the use cannot reasonably be accommodated in other areas. Under the alternative factor the following questions shall be addressed:

(i) Can the proposed use be reasonably accommodated on nonresource land that would not require an exception, including increasing the density of uses on nonresource land? If not, why not?

(ii) Can the proposed use be reasonably accommodated on resource land that is already irrevocably committed to nonresource uses, not allowed by the applicable Goal, including resource land in existing rural centers, or by increasing the density of uses on committed lands? If not, why not?

(iii) Can the proposed use be reasonably accommodated inside an urban growth boundary? If not, why not?

(iv) Can the proposed use be reasonably accommodated without the provision of a proposed public facility or service? If not, why not?

(c) This alternative areas standard can be met by a broad review of similar types of areas rather than a review of specific alternative sites. Initially, a local government adopting an exception need assess only whether those similar types of areas in the vicinity could not reasonably accommodate the proposed use. Site specific comparisons are not required of a local government taking an exception, unless another party to the local proceeding can describe why there are specific sites than can more reasonably accommodate the proposed use. A detailed evaluation of specific alternative sites is thus not required unless such sites are specifically described with facts to support the assertion that the sites are more reasonable by another party during the local exceptions proceeding".

RESPONSE to (b):

No alternative sites would allow the Dietrich daughters and Thomas children to raise their families on the same property that they grew up on.

This ground, having been purchased by their grandparents in 1948, is where their mother was raised, as were they, and it is where they want to raise their children. When Bruce purchased lots 1S0927DD00200 and 1S0927DD00200S1, he looked at them as possible home sites for him and his children in the future. There is no other property that would give them this opportunity. Any economic benefit of this use, other than one home site per parcel, would be limited to the continued farm use. There is no intent of any development on these parcels for economic gain, only the desire to build and live on them, and to carry on a family heritage.

These parcels have deeded access to Hodgdon Road, a Tillamook County road. Tillamook Peoples Utility District facilities cross over all parcels of ground. This area is served by Fairview Water District, and sanitation would be on site.

"(c) The long-term environmental, economic, social and energy consequences resulting from the use at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located in other areas requiring a Goal exception. The exception shall describe the characteristics of each alternative areas considered by the jurisdiction for which an exception might be taken, the typical advantages and disadvantages of using the area for a use not allowed by the Goal, and the typical positive and negative consequences resulting from the use at the proposed site with measures designed to reduce adverse impacts. A detailed evaluation of specific alternative sites is not required unless such sites are specifically described with facts to support the assertion that the sites have significantly fewer adverse impacts during the local exceptions proceeding. The exception shall include the reasons why the consequences of the use at the chosen site are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site. Such reasons shall include but

are not limited to, the facts used to determine which resource land is least productive; the ability to sustain resource uses near the proposed use; and the long-term economic impact on the general area caused by the irreversible removal of the land from the resource base. Other possible impacts include the effects of the proposed use on the water table, on the costs of improving roads and on the costs to special service districts;"

RESPONSE to (c):

The location of these properties, and the physical conditions on them and adjacent properties, is such that there will be no negative long-term environmental, economic, social or energy consequences from the proposed use.

Current resource uses would continue, so there would be no loss of resource value, nor would there be changes detrimental to the environment. No substantial demands would be put upon public services. The addition of a home on each parcel will increase their economic value.

The social benefit of the Dietrich daughters and Thomas children being able to raise their children on the same property they grew up on, is immeasurable and should be supported.

These reasons, and others listed in previous responses, show that there is no reason to consider any alternative exception areas.

"(d) The proposed uses are compatible with other adjacent uses or will be so rendered through measures designed to reduce adverse impacts. The exception shall describe how the proposed use will be rendered compatible with adjacent land uses. The exception shall demonstrate that the proposed use is situated in such a manner as to be compatible with surrounding natural resources and resource management or production practices. Compatible is not intended as an absolute term meaning no interference or adverse impacts of any type with adjacent uses."

RESPONSE to (d):

As stated previously, the proposed use of this property would not change from the present use, other than the ability to locate a single dwelling on tax lots 1805, 1806, 1S0927DD00200 and 1S0927DD00200S1. There is a 39 unit subdivision, 2 acres per lot, to the east and south and also a 10 unit subdivision across the southern border. A 2.5 acre non-farm dwelling is located between and encompassed by lots 1S0927DD00200 and 1S0927DD00200S1. Lots 1805 and 1806 surround a 2.5 acre non-farm parcel on 3 sides on the western border. The remaining western borders adjoin Fl ground, as does the northern borders of lots 1803 and 1805.

The proposed use is not only compatible with adjacent uses, it would also provide an excellent transition from subdivisions and home sites to an operating dairy and Fl zone. The stated purpose of SFW-10 zone describes perfectly why the zoning of these properties to SFW-10 should be allowed. It follows in detail the exact intended use of these properties, should the

requested rezoning be granted .

Tillamook County Land Use Ordinance 3.008 (SFW-10):

PURPOSE: The purpose of the SFW-10 zone is to permit small-scale farms and large-acreage rural residential home sites on land that has potential for small-scale farm or forest uses, but because of limitations it is impractical for the Farm or Forest zone. It also provides a buffer between non-resource uses and lands that are managed for farm or forest uses, thereby assuring that the conversion of such lands to higher density uses occurs in an orderly and economical manner.

EXHIBIT 3

TILLAMOOK COUNTY ZONE CHANGE REQUIREMENTS

LUO SECTION 9.020: MAP AMENDMENT PROCEDURE AND CRITERIA

The following provisions govern consideration of a zone change (map amendment) request:

"(l) Notice of a proposed AMENDMENT shall be distributed according to the provisions of Section 10.060 of this ordinance."

RESPONSE: The Department of Community Development provides public notice.

"(2) The Department shall prepare an analysis of the site and the surrounding areas on the form of a map and report, considering the following factors:

(a) Size, shape and orientation of the subject parcel."

RESPONSE: Tax lot 1806 is a 10 acre parcel situated on a ridge that runs in an east/west direction. The east and south borders meet at a right angle and continue to their farthest points in a straight line. The west and north borders of the parcel are irregular in shape, allowing for roadways and other properties. Lot 1806 borders lot 1803 and 1805 on its north side, a subdivision on the east and half of the south, and lots 1S0927DD00200 and 1S0927DD00200S1 border the remaining half of the south side.

Tax lot 1805 is a 10 acre parcel located on a north facing slope. The main portion of the parcel is rectangular in shape, measuring 540 feet x 726 feet, with the longer distance running north/south. Connected to this on the southeast corner, and located across a private roadway, is the remaining 1 plus acre, making the total of 10 acres. This 1 plus acre abuts, and in fact, creates an indent into lot 1806. Lot 1805 is bordered by lot 1806 and a 2.5 acre parcel on its south side, resource land on its west and north sides, and lot 1803 on the east side.

Tax lot 1803 is a 13 acre parcel, including an existing home site, measuring 726 feet by 780 feet. It is bordered by lot 1805 and 1806 on the south, lot 1805 on the west, resource land on the north and a subdivision on the east.

Tax lot 1S0927DD00200 is a 4 acre parcel, somewhat irregular in shape. It borders lot 1806 on the north, a subdivision on the east, and lot 1S0927DD00200S1 and a 2.5 acre non-farm dwelling on the south. The west side borders a private driveway, separating it from lot 1S0927DD00200S1.

Tax lot 1S0927DD00200S1 borders lot 1806 on the north. A private driveway and 2.5 acre non-farm dwelling border nearly one half of the east side, with the remainder bordering the 39 unit subdivision and a 4 acre parcel. The southern edge borders a 10 unit subdivision, and the entire west side borders resource land. This lot is an 18 acre parcel with slopes facing west and north.

"(b) Surrounding parcel sizes."

RESPONSE:

Lot 1805 has two parcels abutting the north, one parcel is 27 acres and the other is 30.4 acres. To the east is 13 acre parcel lot 1803. The southern border abuts lot 1806, which as mentioned before, is 10 acres, and is also bordered by a 2.5 acre parcel on that side. On the west, it is bordered by a parcel that is 21.5 acres.

Lot 1806 is bordered on the northern edge by a 2.5 acre parcel, lot 1805, which is 10 acres, and 13 acre lot 1803. The entire eastern border and approximately one half of the southern border, directly abut a subdivision that is comprised of 39-2 acre parcels. The remaining southern border abuts a 4 acre parcel, lot 1S0927DD00200, a driveway leading to a 2.5 acre parcel, and an 18 acre parcel, lot 1S0927DD00200S1. The border on the west side abuts a 21.5 acre parcel.

Lot 1803 is bordered on the north by a 30.4 acre parcel. The 39 unit subdivision on the east side is comprised of 2 acre parcels. The south side borders lot 1806 and 1805, each 10 acres. The west side borders lot 1805.

Lot 1S0927DD00200 abuts lot 1806 on the north and the 39 unit subdivision on the east. The south abuts lot 1S0927DD00200S1, an 18 acre parcel, and a 2.5 acre lot. The west side borders the 2.5 acre lot and the roadway leading to it, with lot 1S0927DD00200S1 on the opposite side of the road.

Lot 1S0927DD00200S1 borders lot 1806, a 10 acre parcel, on the north. On the east side it borders the 2.5 acre lot, the 2 acre parceled subdivision, and a 4 acre parcel. Abutting the south border is a 10 lot subdivision made up of 2 acre parcels. The west border abuts a 47.5 acre parcel.

"(c) Topography, drainage, hazards, and other physical site characteristics."

RESPONSE:

Lot 1806 has no level ground on major portion of parcel, only level part is the western most point, consisting of approximately 1.25 acres that is separated from the main portion of the lot by a deeded driveway. Approximately 45% is covered by trees and brush. Slopes vary from gentle to very steep. Main portion of lot 1806 is situated on a small ridge with hazards related to the steeply sloped areas of the south facing side of the ridge. Per county records, 5.45 acres of this lot have class VI soils.

Lot 1805 has 4.3 acres of gently sloping ground with a low lying swamp area of approximately 1 acre running through that. Remaining acreage is a north facing slope with steep to very steep slopes, with approximately 1.8 acres of the steepest ground in brush and a few trees. There is a

portion of this parcel, approximately 1 plus acres, that is separated from the main portion of the lot by a private roadway. This portion of the parcel abuts lot 1806 near the top of a small ridge. Per county records, 5.55 acres of the total 10 acres are class VI soils.

Lot 1803 is on a north facing slope with approximately 8.5 acres of it being steep slopes and the remaining 3.5 acres on the northern edge is a mild slope with two small wet areas making up about .5 acres. 9.6 acres are class VI soils, 2.4 acres class III, and 1 acre is a designated home site. Approximately 5.4 acres is covered with trees and brush.

Lot 1S0927DD00200 has a narrow draw with a small creek passing through it, going from east to west near its northern boundary. The creek is dry during summer and fall months. On the north side of this drainage is a short steep south facing slope. To the south of this, the ground slopes to the north, and to the west on the southern most 1.5 acres, with up to 40% slopes in some areas. Seventy five percent of the ground is covered in trees and heavy brush, 25% is partially covered in trees and brush.

Lot 1S0927DD00200S1 has approximately 1 acre of level ground, the remainder having slopes of 15% to 40%. The soils classes, per county records, are 12.83 acres class IV, 3 acres class V, and 2.17 acres are class VI. It has a small creek crossing it east to west near its northern border. The creek is dry during the summer and fall months. Approximately 60% of the ground is covered with trees and brush with the remainder open ground.

"(d) Parcel ownership and current use."

RESPONSE:

The owner of lot 1805 is Johnney D. Dietrich, and the owner of lot 1806 is Suzann L. Dietrich. Lot 1803 is owned by Johnney D. and Suzann L. Dietrich. Lots 1S0927DD00200 and 1S0927DD00200S1 are owned by Bruce W. Thomas. Current uses of the parcels are pasturing of animals from spring green-up time to fall. Due to the poor soils and hillside location of the ground, it has a short growing season of forage. When the grass from the spring and summer green up is gone, there is little regrowth of grass. The ground is also used for occasional manure disposal.

"(e) Economic and population data for the affected area that may be contained in the Comprehensive Plan."

RESPONSE:

Changing the zoning on these parcels from F1 to SFW-10 will have no impact on the use of resource lands. These parcels have never been, and were never intended to be a part of a commercially operated farm. The land will continue to be used as seasonal pasture during spring and summer months. The only change will be one dwelling will be allowed on each parcel.

Allowing one home on each parcel will have minimal effect on urban density, and will in fact, be much lower density than neighboring parcels.

"(f) Traffic Circulation"

RESPONSE:

Access to properties is from Hodgdon Road, a county road, via deeded access on a private roadway.

"(g) Zoning history of the subject parcel"

RESPONSE:

The zoning history for these lots has been a mix of Rl and Fl. They are all currently zoned Fl.

"(h) Compatibility of the proposed new zone with the surrounding zoning and land uses"

RESPONSE:

Adjacent properties are Fl and RR. The land abutting the north boundary of tax lot 1805 is Fl, as is the land bordering the west side. The south boundary is abutted to a 2.5 acre parcel used as a home site and Christmas tree operation. Also on the southern border is tax lot 1806, zoned Fl. On the east side is tax lot 1803, owned by Johnney and Suzann Dietrich and zoned Fl.

Lot 1803 adjoins lot 1805, zoned F1, on its entire west side. It borders Fl land on the north side, RR on the east side and lot 1806, zoned F1, on the south side.

Tax lot 1806, on the northern edge, abuts lots 1803 and 1805, currently zoned F1. The west border abuts Fl land, a 2.5 acre parcel used as a home site and tree farm and another parcel used for farm purposes. One half of the southern boundary abuts RR. The entire eastern boundary borders RR.

Tax lot 1S0927DD00200 abuts lot 1806 on the north, RR on the east, lot 1S0927DD00200S1, and a 2.5 acre non-farm parcel on the south, and lot 1S0927DD00200S1 on the west, separated by a roadway.

Lot 1S0927DD00200S1 borders lot 1806 on the north. Lot 1S0927DD00200 and a 2.5 acre non-farm parcel border 50% of the west border, the remainder of it abuts RR. RR abuts the southern boundary. The west side borders F1 land.

These parcels sit between Fl and RR zones. The rezoning of these parcels of very marginal resource land to Small Farm Woodlot 10 Acre Zone, would provide a buffer between non-resource land and land managed for farm use, and as such would enhance the zoning in this area.

"(I) Availability and feasibility for development of nearby properties in the proposed zone."

RESPONSE:

The nearest SFW-10 zoned parcel is to the west and slightly north and is located on Hodgdon Road and has a home on it.

"(j) Aesthetics"

Surrounding the tax lots in this application are a 39 unit subdivision, consisting of 2 acre parcels on the east side, and a 10 unit subdivision of 2 acre parcels on the south. The western boundary is resource land with 2.5 acres being a non-farm dwelling,

The addition of four homes, at a density of one per ten acres, would be an insignificant change to the area.

"(k) Availability of public facilities and services."

RESPONSE:

Each parcel has existing access to Hodgdon Road. Electric power and phone service cross over each parcel. Water is available from Fairview Water District. These parcels are located in the Tillamook Fire District.

"(l) Land objectives of both the applicable and the proposed zoning."

RESPONSE:

The objective of Fl zoning is "To preserve and maintain agricultural lands", the intent being to protect against the loss of valuable farm ground. Goal 3 "Agricultural Lands Planning Goal" lists land of "predominately Class I, II, III, and IV soils, and "parcels as small as 20 to 40 acres" as being those in need of protection.

Section 3.008 The purpose of the SFW-10 zone is to permit small-scale farms and large-acreage rural residential home sites on land that has potential for the small-scale farm or forest uses, but because of limitations it is impractical for the Farm or Forest zone. It also provides a buffer between non-resource uses and lands that are managed for farm or forest uses, thereby assuring that the conversion of such lands to high density uses occurs in an orderly and economical manner.

"(3) The Commission shall consider an AMENDMENT request at the earliest practicable public hearing after it is proposed. In hearing the request to establish a new zoning designation, the Commission shall consider all of the following Criteria. A zone MAP AMENDMENT may be approved only if all four criteria can be met."

"(a) The proposed new zone is consistent with applicable comprehensive Plan policies."

RESPONSE:

As listed previously in this application, the soil types for these parcels are predominately class IV, V, and VI.. As stated in Goal 3, suitable farmland is comprised of class I, II, III, and IV soils. Also considered in Goal 3 is suitability for grazing. These parcels are only "suitable" for a few months out of the year.

Goal 3 also states "non-farm dwellings are allowed on the condition that they are situated on land that is not generally suited for agricultural production and if they do not interfere seriously with accepted farming practices on adjacent lands devoted to farm use."

Changing the zoning on these parcels would be consistent with comprehensive Plan policies and match the stated purpose of the SFW-010.

PURPOSE: The purpose of the SFW-10 zone is to permit small-scale farms and large-acreage rural residential home sites on land that has potential for small-scale farm or forest uses, but because of limitations it is impractical for the Farm or Forest zone. It also provides a buffer between non-resource uses and lands that are managed for farm or forest uses, thereby assuring that the conversion of such lands to higher density uses occurs in an orderly and economical manner.

The size of these parcels, soil types, steep terrain, and limited farming suitability, make them better suited for the SFW-10 zone.

"(b) The proposed new zone shall not result in the conversion of resource land to non-resource use without an approved exception to applicable state resource protection Goals."

RESPONSE:

This application includes an exception to Statewide Planning Goal 3 to address farm resource land.

"(c) The site under consideration is better suited to the purposes of the proposed zone than it is to the existing zone."

RESPONSE:

The proposed zone of SFW-10 for these parcels is more appropriate than the present zoning of F1 in many ways.

These properties are marginal farm ground, limited to a short growing season, with grass available to mid summer. All parcels have sloping hillside ground, with alder and spruce trees and brushy ground. The poor soil make up and the percentage of ground that has steep slopes also contribute to the early loss of ground moisture in the summer and the short growing season. Due to these reasons, and others, these properties would by no means be considered desirable farm ground.

The purpose of SFW-10 is very appropriate for these parcels given the zones "Purpose: The purpose of the SFW-10 zone is to permit small-scale farms and large-acreage rural residential home sites on land that has potential for small-scale farm or forest uses, but because of limitations it is impractical for the Farm or Forest zone. It also provides a buffer between non-resource uses and lands that are managed for farm or forest uses, thereby assuring that the conversion of such lands to higher density uses occurs in an orderly and economical manner."

As stated above, these parcels have many limitations, while they do have potential for small-scale farm or forest uses. The zone would permit 1 home per 10 acre parcel, which would be large-acreage rural residential home sites. The proposed zone change would provide a needed buffer between the already existing 39-unit subdivision, and RR zoned property to the east, the 10 unit subdivision covering the south boundary and the resource lands on the west and north boundaries. This would create an orderly and desirable conversion between high density use lands and resource land.

The intent is to continue to use these properties the same as they are presently used, for the limited pasture that is available and for minimal wood lot use.

The purpose of SFW-10, and our intent, are one and the same, and if this zoning is granted, it would be a perfect fit.

At the time we purchased tax lots 1805 and 1806, the zoning on each was F1, but also at that time, one home was allowed on each parcel. Our intentions, and that of Victor and Aileen Thomas, at that time was that our children and their grandchildren, Jennifer and Jeannie, would someday live on these properties. Changes in F1 zoning in 1981 required a minimum lot size of 40 acres to build on, and then in 1994 it changed again, to 80 acres minimum. The intent of this was to protect valuable resource land, which these properties clearly are not.

Lot 1803 is nearly 75% class VI soils with very steep slopes, many of these slopes are not navigable with farm machinery. Zoning this lot to SFW-10 with its defined purpose, would clearly be more appropriate that the present F1 zone, which this lot is so poorly suited for.

Tax lots 1S0927DD00200 and 1S0927DD00200S1 are adjoining parcels effectively encircling a non-farm dwelling, and separate 2 subdivisions from resource lands, providing a desirable buffer area. It is not practical or desirable farm ground due to steep slopes, poor soil, and the minimal forage it is capable of growing. SFW-10 zoning is more appropriate than Fl.

"(d) Development anticipated to result from the proposed zone shall not impair the actual or the legally designated uses of surrounding properties."

RESPONSE:

Compatibility of the proposed zone and its uses with surrounding zoning and land use, is described above in Section 9.020 (2) (h). The parcels in this zone change proposal are surrounded by Fl parcels ranging in size of 4 acres to 47.5 acres, and two 2.5 acre home sites, a 39-unit subdivision with 2 acre lot sizes, and a 10 unit subdivision with 2 acre lots..

The actual or legally designated uses of surrounding properties would not be impaired by the permitted development allowed by the proposed zone change.

The proposed zone change would be an enhancement to zoning in this area due to the buffering that would result between high-density home sites and resource land, with only 1 home permitted on each 10 acre parcel and the existing home on a 13 acre parcel. .

EXHIBIT 4

TILLAMOOK COUNTY ASSESSOR

Real Property Assessment Report

FOR ASSESSMENT YEAR 2005

12/28/2005 10:38:48 AM

Account #	153309	Tax Status	ASSESSABLE
Map #	1S0927-00-01803	Acct Status	ACTIVE
Code - Tax #	0901-153309 0908-408001 0912-408249	Subtype	NORMAL
Owner	DIETRICH, JOHNNEY D & SUZANN L	Deed Reference #	BOOK CNV PAGE 1
Agent		Sales Date/Price	01-20-1970 / $0.00
In Care Of		Legal Description	UNKNOWN
Mailing Address	875 HODGDON RD TILLAMOOK, OR 97141	Appraiser	KERRI CORTEVILLE

		MA	SA	NH	Unit
Prop Class	551	01	01	500	22778-1
RMV Class	501				

Situs Address(s)		Situs City
ID#	875 HODGDON RD	COUNTY

Value Summary

Code Area		AV	RMV	RMV Exception	
0901	Impr.	0	0	Impr.	0
	Land	2,455	2,660	Land	0
Code Area Total		2,455	2,660		0
0908	Impr.	81,940	86,070	Impr.	0
	Land	8,990	9,100	Land	0
Code Area Total		90,930	95,170		0
0912	Impr.	5,500	5,170	Impr.	0
	Land	1,842	1,990	Land	0
Code Area Total		7,342	7,160		0
Grand Total		100,727	104,990		0

Land Breakdown

Code Area	ID#	RFD	Plan Zone	Value Source	TD%	LS	Size	Land Class	IRR Class	IRR Size
0901	0	R	F-1	Farm Use Zoned	0	A	8.00	SP6		
				Code Area Total			8.00			0
0908	0	R	F-1	Farm Site	0	A	1.00			
				Code Area Total			1.00			0
0912	0	R	F-1	Farm Use Zoned	0	A	2.40	SP3		
0912	0	R	F-1	Farm Use Zoned	0	A	1.60	SP6		
				Code Area Total			4.00			0
				Grand Total			13.00			0.00

Improvement Breakdown

Code Area	ID#	YR Built	Stat Class	Description	TD%	Total Sq. Ft.	MS ACCT #
0912	2	0	131	One story	0	0	

0912	3	0	131	One story	0	0
					Code Area Total	0
0908	1	1978	131	One story	0	1755
					Code Area Total	1,755
					Grand Total	1,755

Exemptions/Special Assessments/Potential Liability

Code Area	Type	Description
0901	SPECIAL ASSESSMENT:	FIRE PATROL NORTHWEST Amount: 18.00 Acres: 9.6
0901	SPECIAL ASSESSMENT:	FIRE PATROL SURCHARGE NW Amount: 38.00
0901	SPECIAL ASSESSMENT:	SOLID WASTE Amount: 12.00
0901	NOTATION(S):	FARMLAND - POTENTIAL ADDITIONAL TAX LIABILITY 308A.083
0908	NOTATION(S):	FARMLAND - POTENTIAL ADDITIONAL TAX LIABILITY 308A.083
0912	NOTATION(S):	FARMLAND - POTENTIAL ADDITIONAL TAX LIABILITY 308A.083

TILLAMOOK COUNTY ASSESSOR

Real Property Assessment Report

FOR ASSESSMENT YEAR 2005

12/28/2005 10:37:53 AM

Account #	291366	Tax Status	ASSESSABLE
Map #	1S0927-00-01805	Acct Status	ACTIVE
Code - Tax #	0912-291366	Subtype	NORMAL
Owner	DIETRICH, JOHNNEY D	Deed Reference #	BOOK 272 PAGE 555
Agent		Sales Date/Price	09-30-1980 / $2,500.00
In Care Of		Legal Description	UNKNOWN
Mailing Address		Appraiser	UNKNOWN

875 HODGDON RD
TILLAMOOK, OR 97141

		MA	SA	NH	Unit
Prop Class	550	01	01	500	6359-1
RMV Class	500				

Situs Address(s)	Situs City

Value Summary

Code Area		AV	RMV	RMV Exception	
0912	Impr.	0	0	Impr.	0
	Land	4,960	5,360	Land	0
Code Area Total		4,960	5,360		0
Grand Total		4,960	5,360		0

Land Breakdown

Code Area	ID#	RFD	Plan Zone	Value Source	TD%	LS	Size	Land Class	IRR Class	IRR Size
0912	0	R	F-1	Farm Use Zoned	0	A	3.75	SP2		
0912	0	R	F-1	Farm Use Zoned	0	A	0.45	SP3		
0912	0	R	F-1	Farm Use Zoned	0	A	0.25	SP4		
0912	0	R	F-1	Farm Use Zoned	0	A	5.55	SP6		
					Code Area Total		10.00			0
					Grand Total		10.00			0.00

Improvement Breakdown

Code Area	ID#	YR Built	Stat Class	Description	TD%	Total Sq. Ft.	MS ACCT #
					Code Area Total	0	
					Grand Total	0	

Exemptions/Special Assessments/Potential Liability

Code Area	Type	Description
0912	NOTATION(S):	FARMLAND - POTENTIAL ADDITIONAL TAX LIABILITY 308A.083

TILLAMOOK COUNTY ASSESSOR

Real Property Assessment Report

FOR ASSESSMENT YEAR 2005

12/28/2005 10:39:18 AM

Account #	291375	Tax Status	ASSESSABLE
Map #	1S0927-00-01806	Acct Status	ACTIVE
Code - Tax #	0912-291375	Subtype	NORMAL
Owner	DIETRICH, SUSANN L	Deed Reference #	BOOK 272 PAGE 556
Agent		Sales Date/Price	09-30-1980 / $2,500.00
In Care Of		Legal Description	UNKNOWN
Mailing Address		Appraiser	UNKNOWN

875 HODGDON RD
TILLAMOOK, OR 97141

		MA	SA	NH	Unit
Prop Class	550	01	01	500	6360-1
RMV Class	500				

Situs Address(s)	Situs City

Value Summary

Code Area		AV	RMV	RMV Exception	CPR
0912	Impr.	0	0	Impr. 0	
	Land	4,981	5,380	Land 0	
Code Area Total		4,981	5,380	0	
Grand Total		4,981	5,380	0	

Land Breakdown

Code Area	ID#	RFD	Plan Zone	Value Source	TD%	LS	Size	Land Class	IRR Class	IRR Size
0912	0	R	F-1	Farm Use Zoned	0	A	3.75	SP2		
0912	0	R	F-1	Farm Use Zoned	0	A	0.45	SP3		
0912	0	R	F-1	Farm Use Zoned	0	A	0.35	SP4		
0912	0	R	F-1	Farm Use Zoned	0	A	5.45	SP6		
					Code Area Total		10.00			0
					Grand Total		10.00			0.00

Improvement Breakdown

Code Area	ID#	YR Built	Stat Class	Description	TD%	Total Sq. Ft.	MS ACCT #
				Code Area Total		0	
				Grand Total		0	

Exemptions/Special Assessments/Potential Liability

Code Area	Type	Description
0912	NOTATION(S):	FARMLAND - POTENTIAL ADDITIONAL TAX LIABILITY 308A.083

TILLAMOOK COUNTY ASSESSOR

REAL PROPERTY ASSESSMENT REPORT
FOR ASSESSMENT YEAR 2005

Mar 9, 2006

ACCOUNT #	354752
MAP	1S0927DD00200
CODE - TAX #	0901 - 354752

TAX STATUS	ASSESSABLE
ACCNT STATUS	ACTIVE
SUBTYPE	NORMAL

MAILING NAME THOMAS, BRUCE W
AGENT
IN CARE OF
MAILING ADDRESS
700 HODGDON RD
TILLAMOOK, OR 97141

DEED REFERENCE #	295-945
SALES DATE/PRICE	10-31-1984 / $30,000.00
APPRAISER	UNKNOWN

	PROP CLASS	MA	SA	NH	UNIT
RMV CLASS	640	01	01	500	3544-1

SITUS ADDRESS(S)	SITUS CITY
ID #	

VALUE SUMMARY

CODE AREA		AV	RMV	RMV EXCEPTION		CPR %
0901	LAND	1,909	2,410	LAND		
	IMPR.	0		IMPR.		
	TOTAL	1,909	2,410	TOTAL	0	
GRAND TOTAL		1,909	2,410	GRAND TOTAL	0	

LAND BREAKDOWN

CODE AREA	ID #	RFD	PLN ZN	VALUE SOURCE	TD%	LS	SIZE	LND CLS	IRR CLASS	IRR SIZE
0901	0	R	F-1	Designated Forest Land	108	A	4.00	OA		
					TOTAL		4.00		TOTAL	0.00

EXEMPTIONS/SPECIAL ASSESSMENTS

CODE AREA	TYPE				
0901	SPECIAL ASSESSMENT(S):				
	FIRE PATROL NORTHWEST	AMOUNT	18.00	ACRES	4.00
	NOTATION(S):				
	DESCRIPTION	FOREST LAND - POTENTIAL ADDITIONAL TAX LIABILITY 321.362			

TILLAMOOK COUNTY ASSESSOR

REAL PROPERTY ASSESSMENT REPORT
FOR ASSESSMENT YEAR 2005

Mar 9, 2006

ACCOUNT #	390381	TAX STATUS	ASSESSABLE
MAP	1S0927DD00200S1	ACCNT STATUS	ACTIVE
CODE - TAX #	0912 - 390381	SUBTYPE	NORMAL

MAILING NAME THOMAS, BRUCE W
AGENT
IN CARE OF
MAILING ADDRESS
700 HODGDON RD
TILLAMOOK, OR 97141

SALES DATE/PRICE /
APPRAISER UNKNOWN

		MA	SA	NH	UNIT
PROP CLASS	550				
RMV CLASS	500	01	01	500	2451-1

SITUS ADDRESS(S)	SITUS CITY
ID #	

VALUE SUMMARY

CODE AREA		AV	RMV	RMV EXCEPTION		CPR %
0912	LAND	8,613	9,310	LAND		
	IMPR.	0		IMPR.		
	TOTAL	8,613	9,310	TOTAL	0	
GRAND TOTAL		8,613	9,310	GRAND TOTAL	0	

LAND BREAKDOWN

CODE AREA	ID #	RFD	PLN ZN	VALUE SOURCE	TD%	LS	SIZE	LND CLS	IRR CLASS	IRR SIZE
0912	0	R	F-1	Farm Use Zoned	108	A	12.83	SP4		
	0	R	F-1	Farm Use Zoned	108	A	3.00	SP5		
	0	R	F-1	Farm Use Zoned	108	A	2.17	SP6		
					TOTAL		18.00		TOTAL	0.00

EXEMPTIONS/SPECIAL ASSESSMENTS

CODE AREA	TYPE	
0912	NOTATION(S):	
	DESCRIPTION	FARMLAND - POTENTIAL ADDITIONAL TAX LIABILITY 308A.083

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

THE LAND CAPABILITY CLASSIFICATION

Your conservation farm plan is fitted to the conditions on your farm or ranch. The first step is a careful survey of the soils, including slope, erosion and other features. An experienced soil scientist plots this information on an aerial photograph.

The capability classification is a practical grouping of soils. Soils and climate are considered together as they influence use, management, and production on the farm or ranch.

The classification contains two general divisions: (1) Land suited for cultivation and other uses, and (2) land limited in use and generally not suited for cultivation. Each of these broad divisions has four classes which are shown on the map by a standard color and number. The hazards and limitations in use increase as the class number increases. Class I has few hazards or limitations, or none, whereas Class VIII has a great many.

Capability classes are divided into subclasses. These show the principal kinds of conservation problems involved. The subclasses are: "e" for erosion, "w" for wetness, "s" for soil, and "c" for climate.

Capability classes and subclasses, in turn, may be divided into capability units. A capability unit contains soils that are nearly alike in plant growth and in management needs.

LAND SUITED FOR CULTIVATION AND OTHER USES

CLASS I

Soils in Class I have few or no limitations or hazards. They may be used safely for cultivated crops, pasture, range, woodland, or wildlife.

CLASS II

Soils in Class II have few limitations or hazards. Simple conservation practices are needed when cultivated. They are suited to cultivated crops, pasture, range, woodland, or wildlife.

CLASS III

Soils in Class III have more limitations and hazards than those in Class II. They require more difficult or complex conservation practices when cultivated. They are suited to cultivated crops, pasture, range, woodland, or wildlife.

CLASS IV

Soils in Class IV have greater limitations and hazards than Class III. Still more difficult or complex measures are needed when cultivated. They are suited to cultivated crops, pasture, range, woodland, or wildlife.

LAND LIMITED IN USE--GENERALLY NOT SUITED FOR CULTIVATION

Soils in Class V have little or no erosion hazard but have other limitations that prevent normal tillage for cultivated crops. They are suited to pasture, range, woodland, or wildlife.

Soils in Class VI have severe limitations or hazards that make them generally unsuited for cultivation. They are suited largely to pasture, range, woodland, or wildlife.

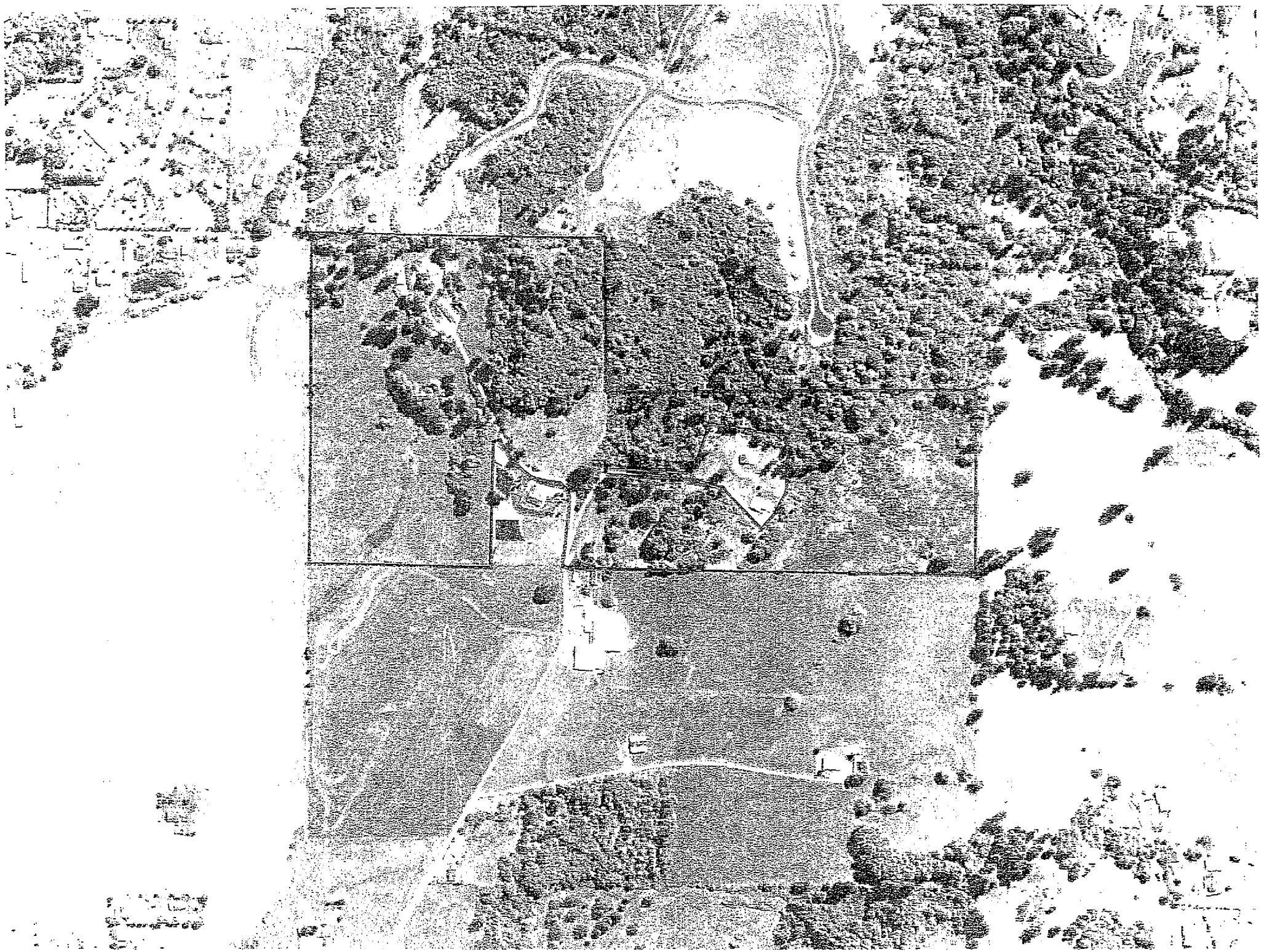
Soils in Class VII have very severe limitations or hazards that make them generally unsuited for cultivation. They are suited to grazing, woodland, or wildlife.

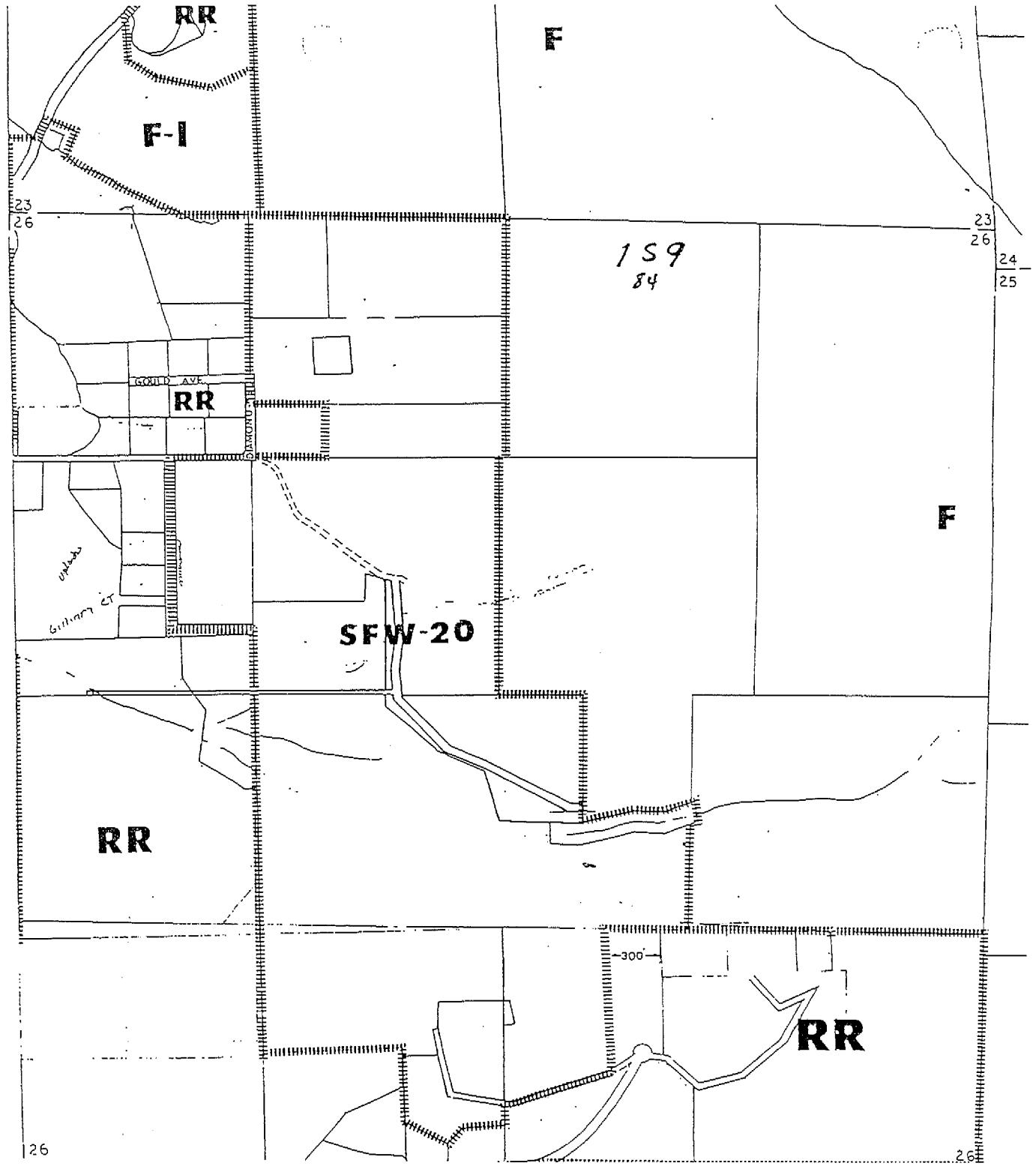
Soils and land forms in Class VIII have limitations and hazards that prevent their use for cultivated crops, pasture, range, or woodland. They may be used for recreation, wildlife, or water supply.

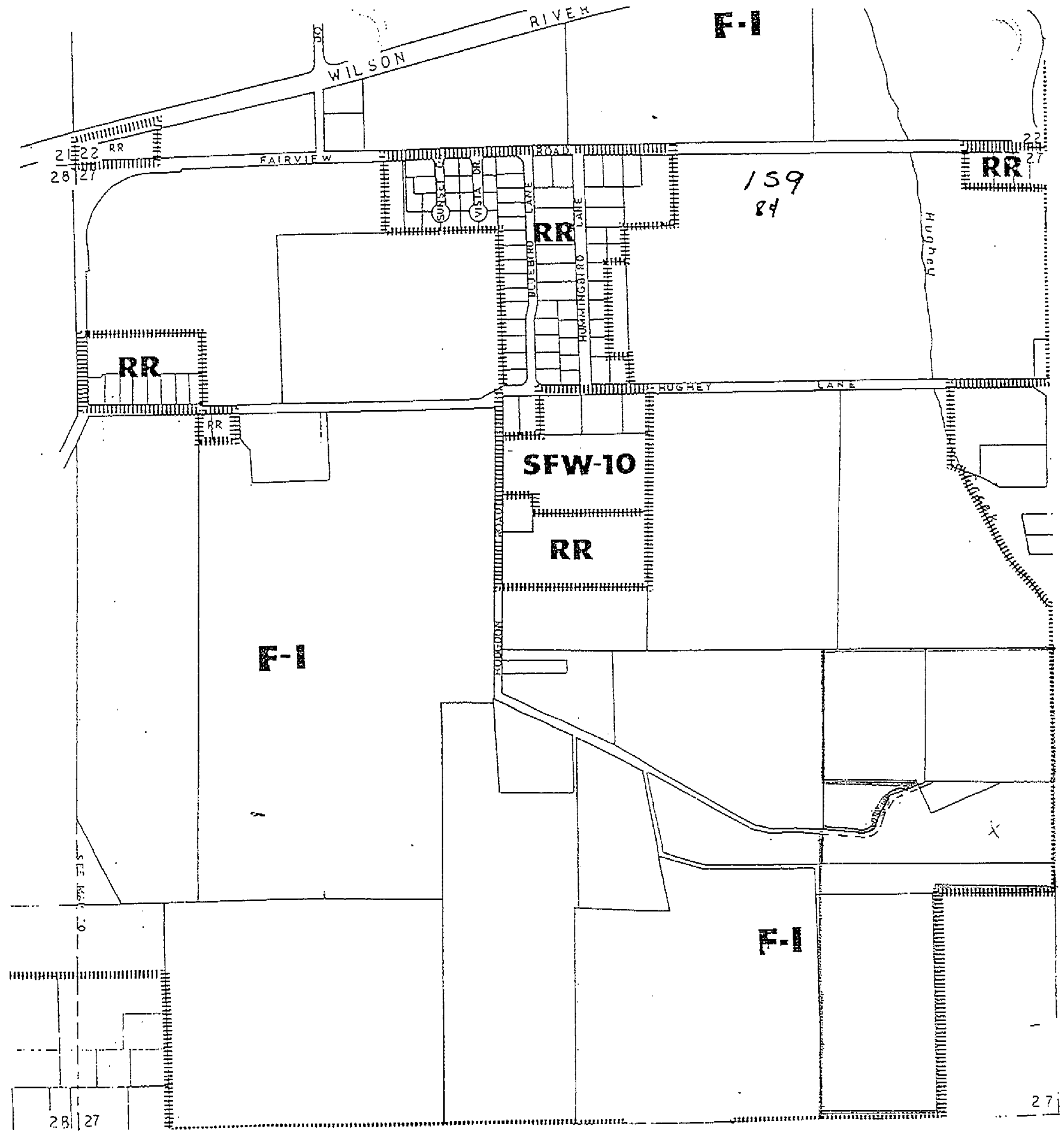
USDA-SCS-PORTLAND, OREG. 1959 M-2685

7-L-15130

EXHIBIT 5




RR
F
F-1
23
26
159
84
23
26
24
25
GOULD AVE.
RR
DIAMOND HILL
F
Gilliam Ct
SFW-20
RR
300'
RR
26
26



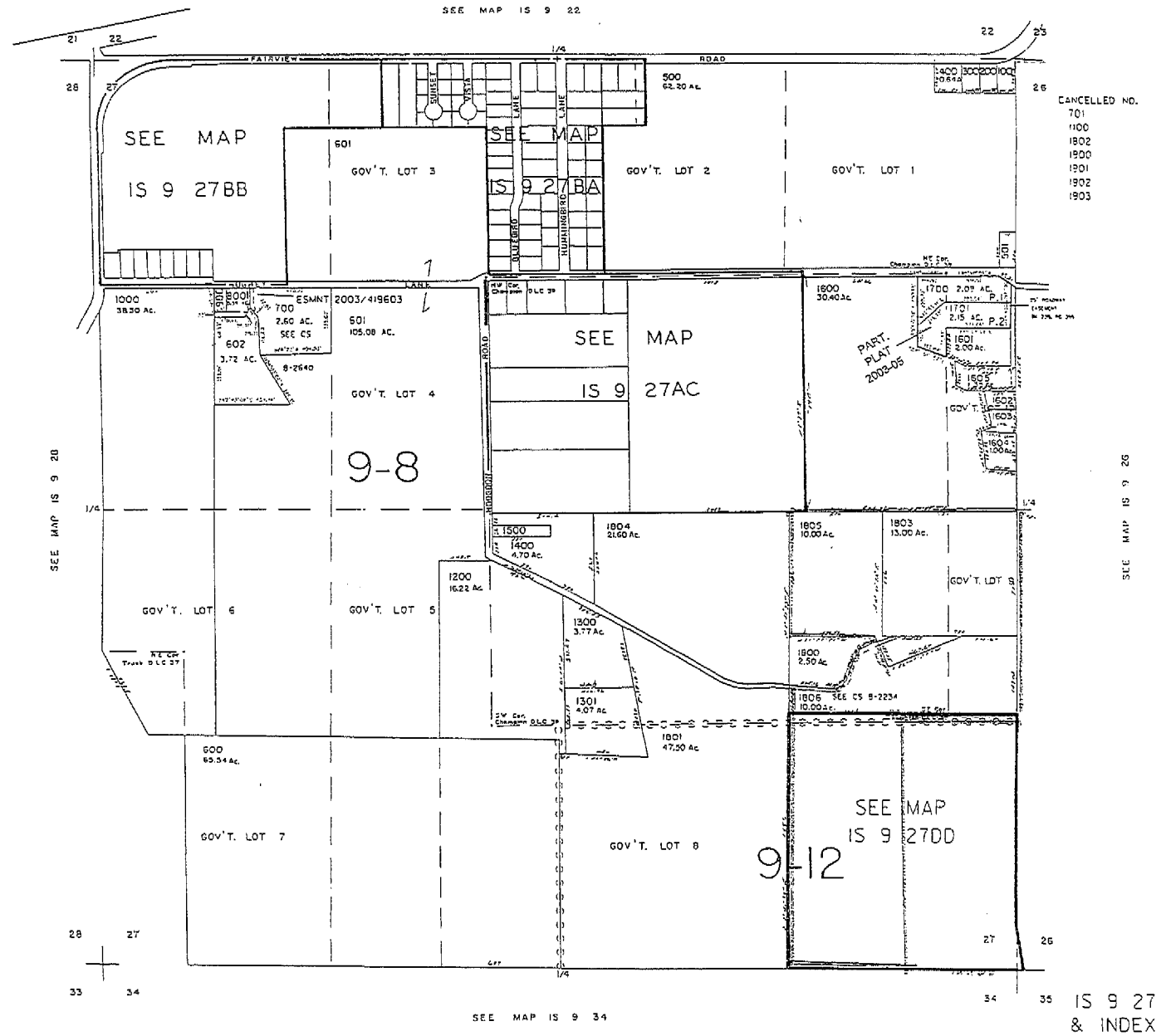
F-1
WILSON RIVER
FAIRVIEW
ROAD
159
84
RR
RR
RR
RR
Hughey
HUGHEY LANE
BLUEBIRD LANE
HUMMINGBIRD LANE
VISTA DR.
SUNSET
SFW-10
RR
F-1
F-1
27
28
22

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSE ONLY

SECTION 27 T.1S. R.9W.W.M.
TILLAMOOK COUNTY

1" = 400'

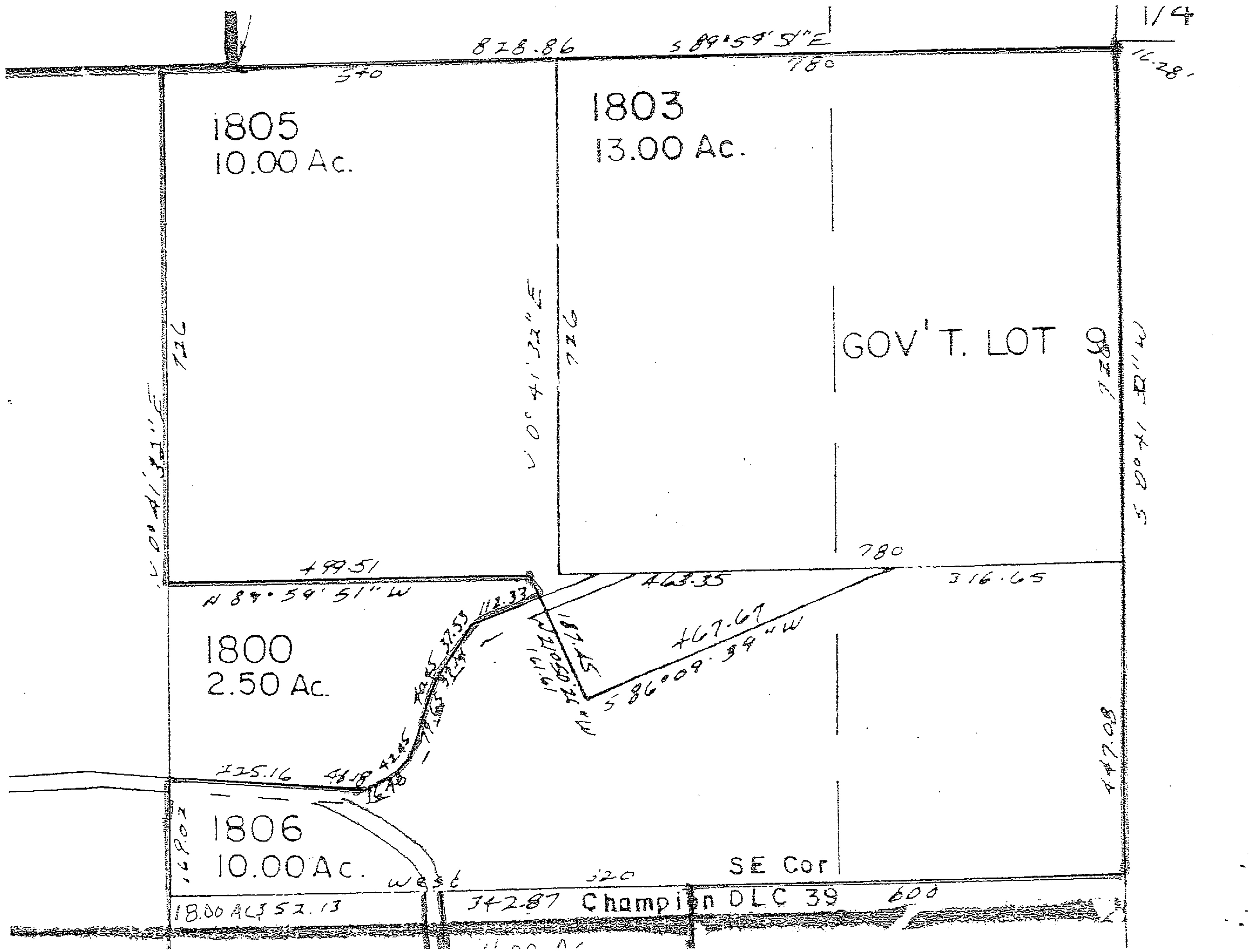
IS 9 27
& INDEX

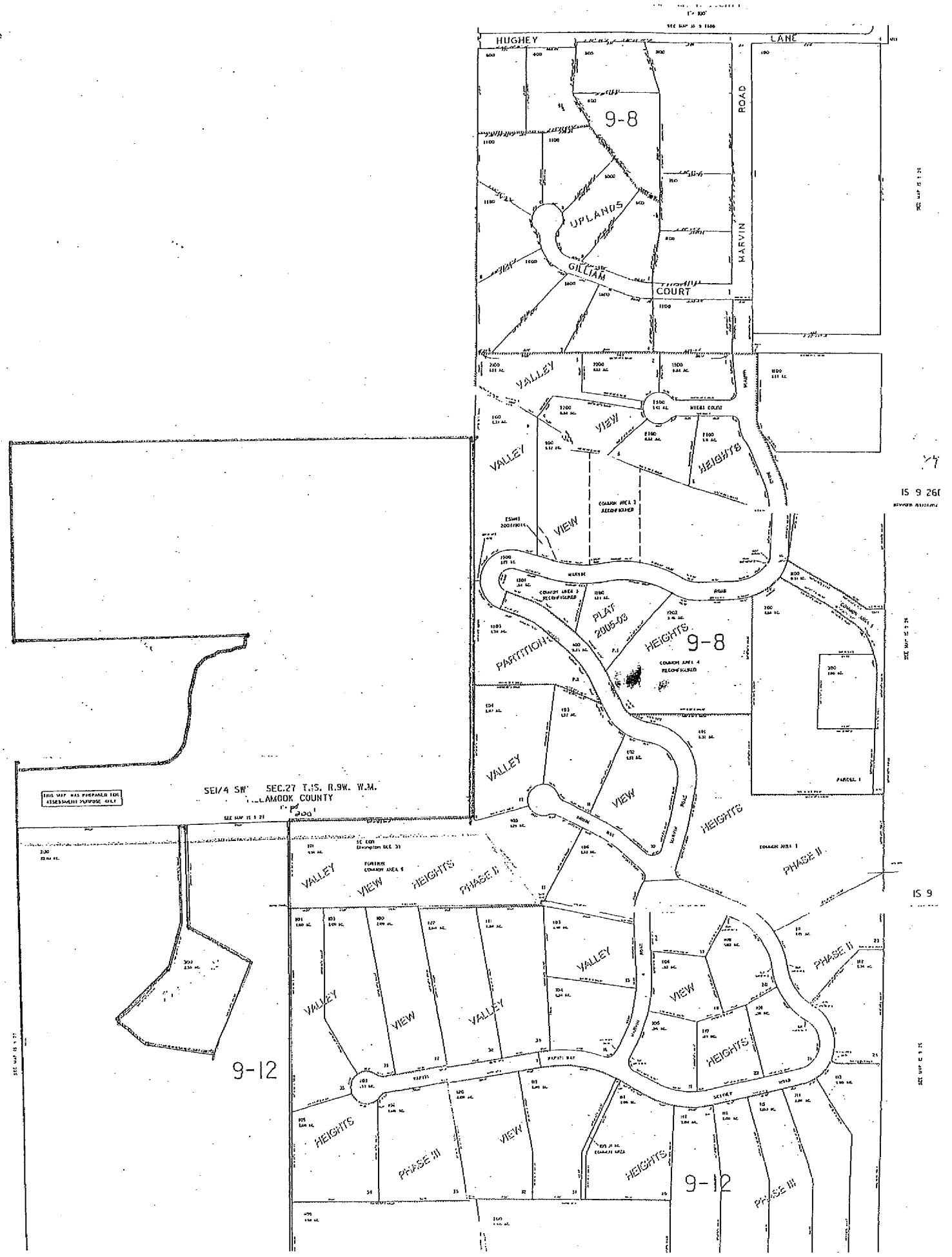


CANCELLED NO.
701
1100
1802
1800
1801
1902
1903

IS 9 27
& INDEX

REVISED 07/08/05, WS

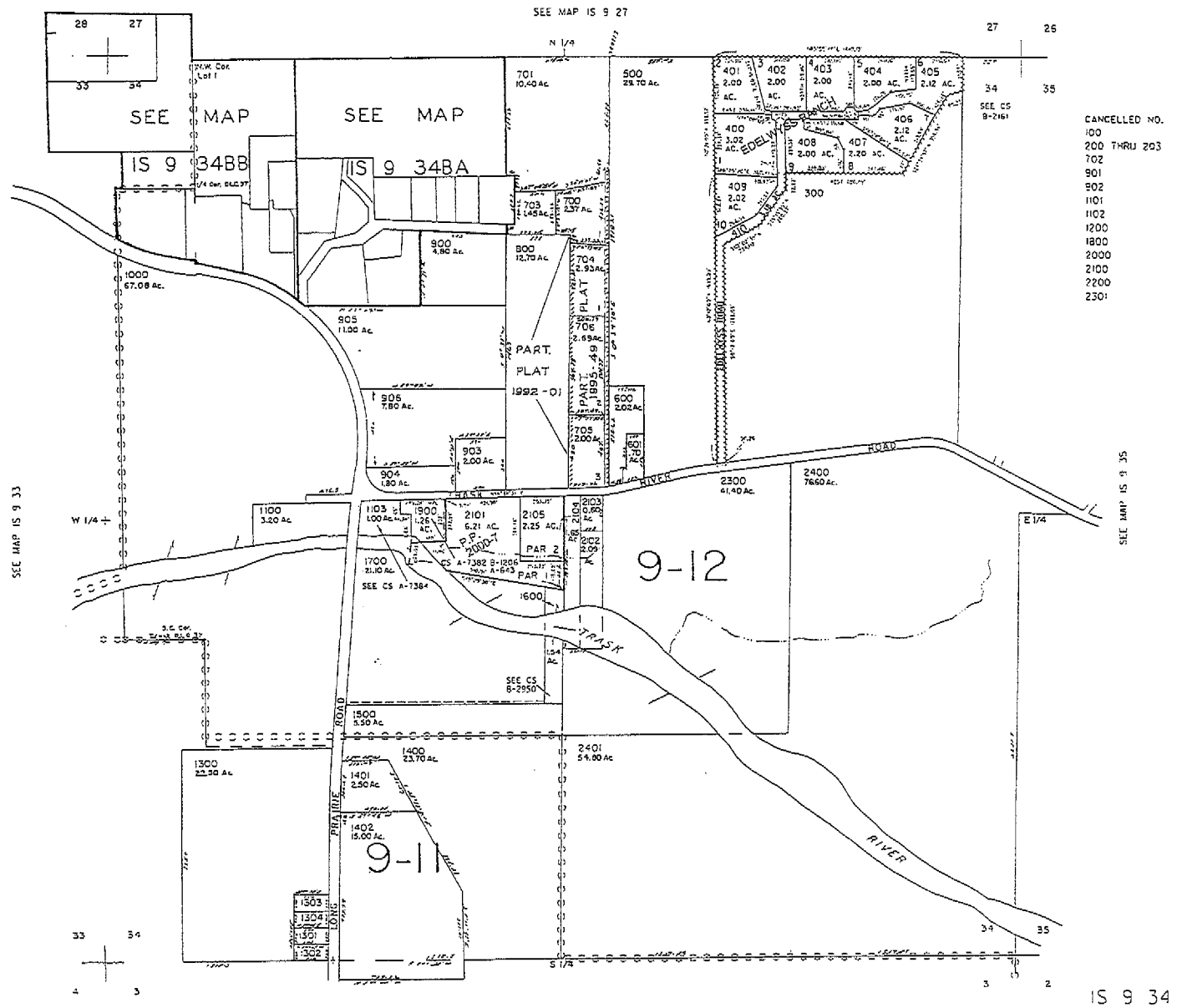

1/4
1805
10.00 Ac.
1803
13.00 Ac.
GOV'T. LOT 9
1800
2.50 Ac.
1806
10.00 Ac.
SE Cor
Champion DLC 39


HUGHEY
LANE
ROAD
9-8
UPLANDS
GILLIAM
COURT
HARVIN
VALLEY
VIEW
HEIGHTS
PLAT 2005-03
PARTITION
PHASE II
PHASE III
SEI/4 SW SEC.27 T.1S. R.9W. W.M.
TILLAMOOK COUNTY
THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSE ONLY
9-12

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSE ONLY

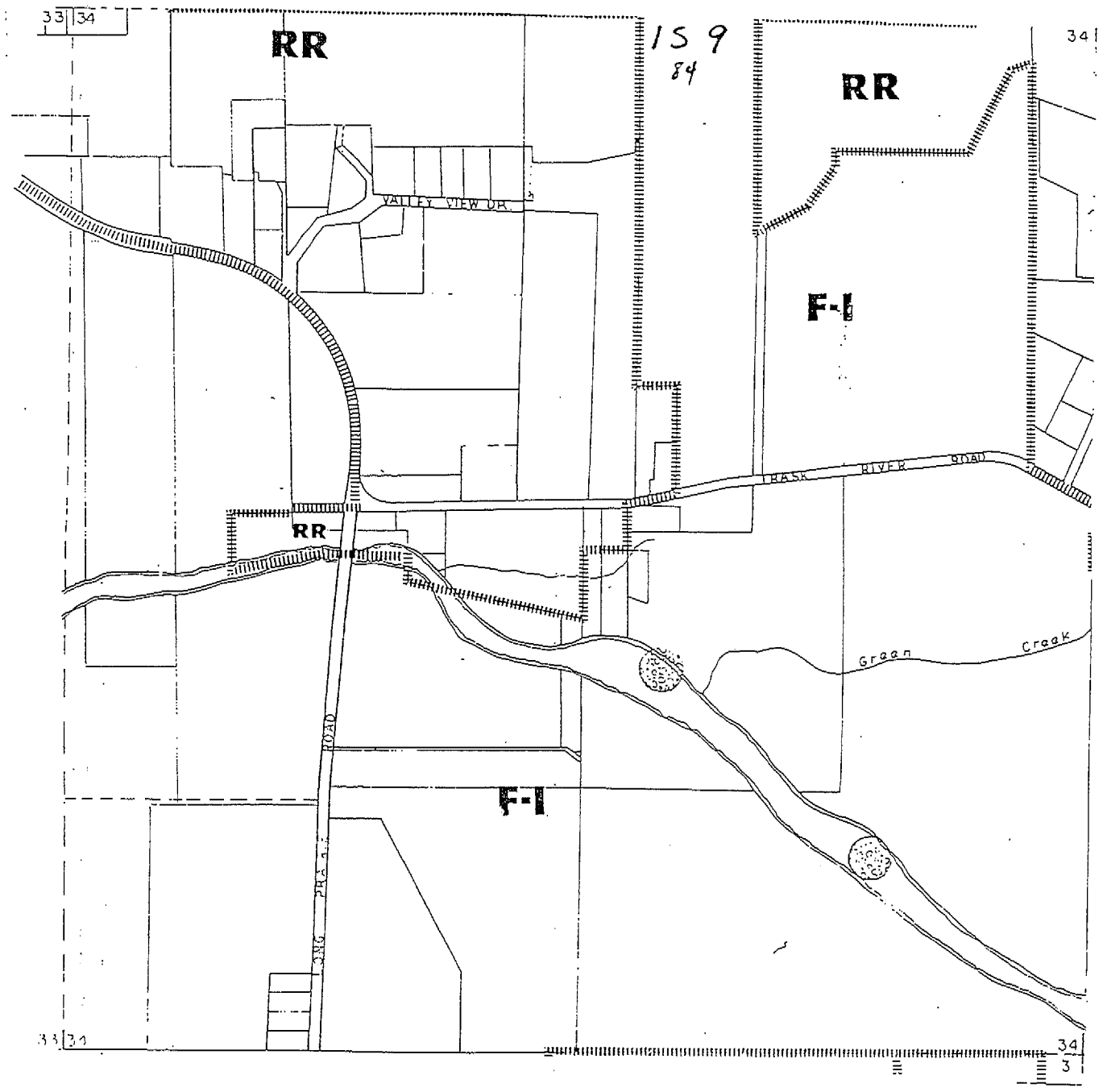
SECTION 34 T.1S. R.9W. W.M.
TILLAMOOK COUNTY
1" = 400'

IS 9 34
& INDEX



IS 9 34
& INDEX

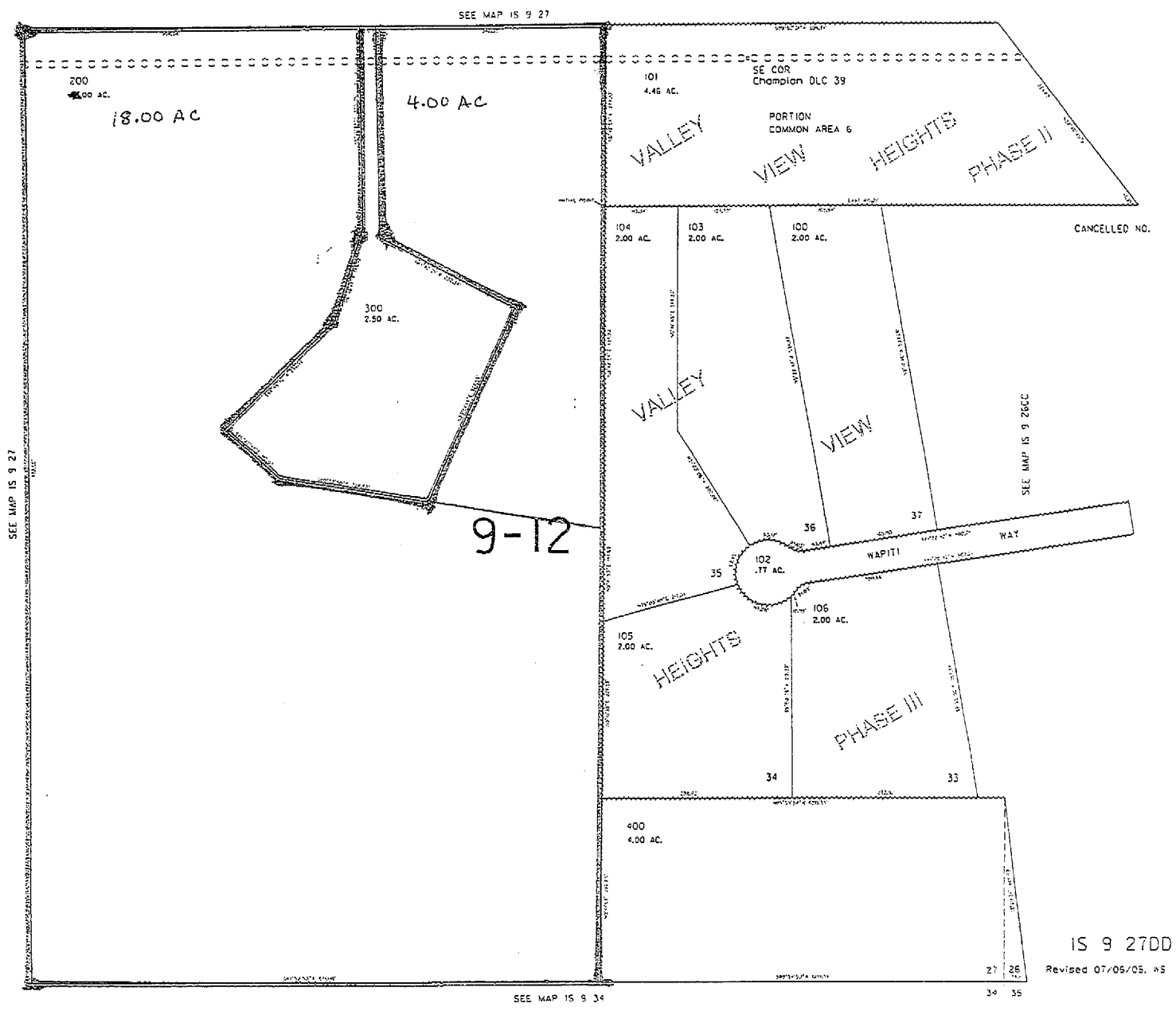
REVISED 01/27/05. WS


33
34
RR
159
84
RR
34
VALLEY VIEW DR.
F-1
HASK RIVER ROAD
RR
Green Creek
ROAD
F-1
33
34
34
3

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSE ONLY

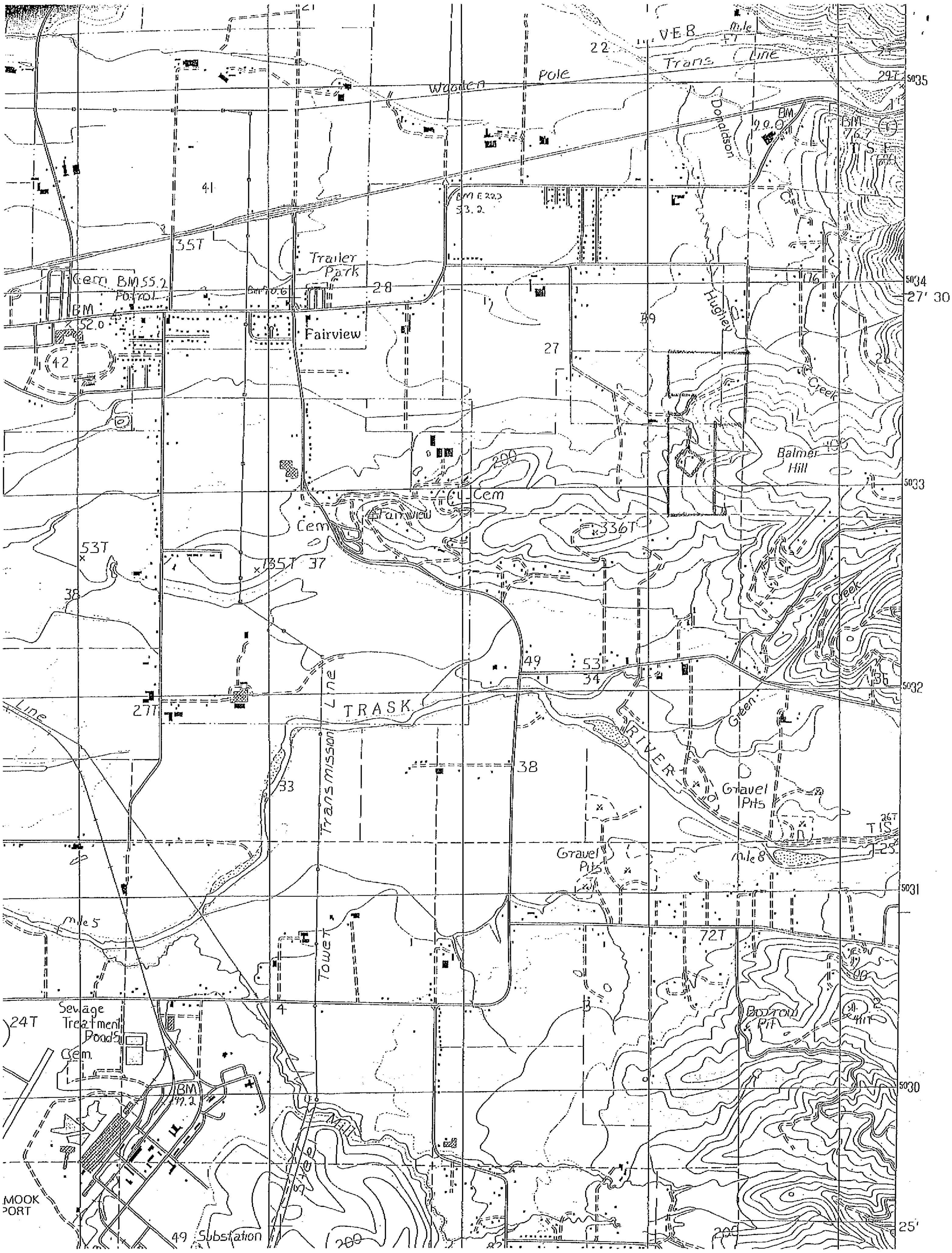
SE1/4 SW1/4 SEC.27 T.1S. R.9W. W.M.
TILLAMOOK COUNTY
1" = 100'

1S 9 27DD



1S 9 27DD
Revised 07/05/05. MS

Donaldson
BM
90.0
41
29
35T
Trailer
Park
28
Cem
BM
44
42
Fairview
27
39
Hushey
Creek
Balmer
Hill
29
Cem
Fairview
Cem
336T
53T
35T
37
38
49
53
34
Trans
Line
32
27T
TRASK
RIVER
Green
Gravel
Pits
38
33
Transmission
Line
19T
Gravel
Pits
Mile 8
Mile 5
72T
Tower
Borrow
Pit
21
5
24T
Sewage
Treatment
Ponds
Cem
BM
TILLAMOOK
AIRPORT
49
Substation
Anderson
82
Creek


Wooden Pole
Trans Line
Donaldson
Trailer Park
Cem
Fairview
Hughey
Creek
Balmer Hill
Cem
Fairview
336T
53T
135T
TRASK
RIVER
Green
Creek
Transmission Line
Gravel Pits
Gravel Pits
Mile 8
Mile 5
Tower
Sewage Treatment Ponds
Cem
Borrow Pit
Substation
MOOK
PORT
27' 30
25'
5035
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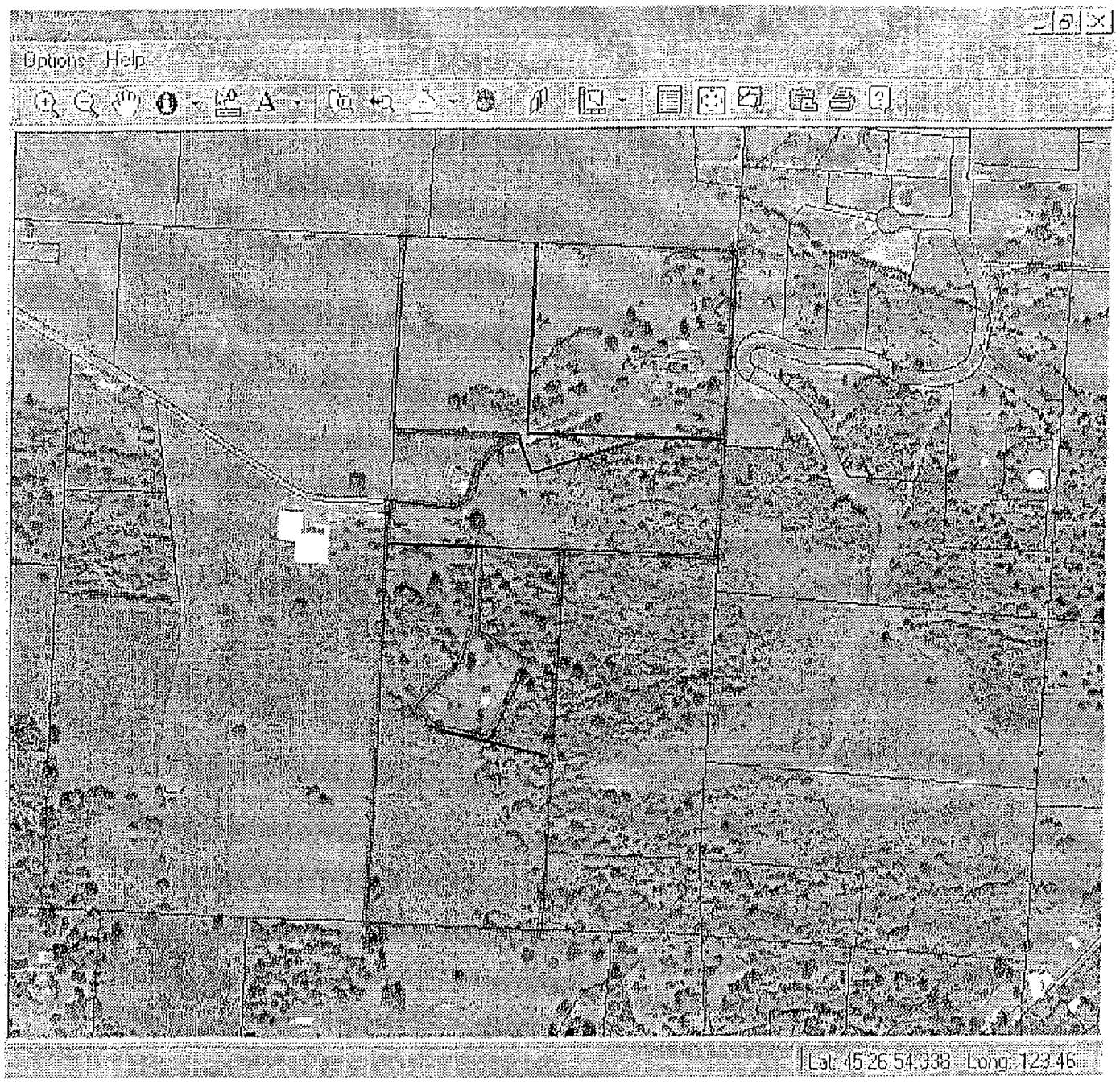
5033
5032
5031
5030


Options Help
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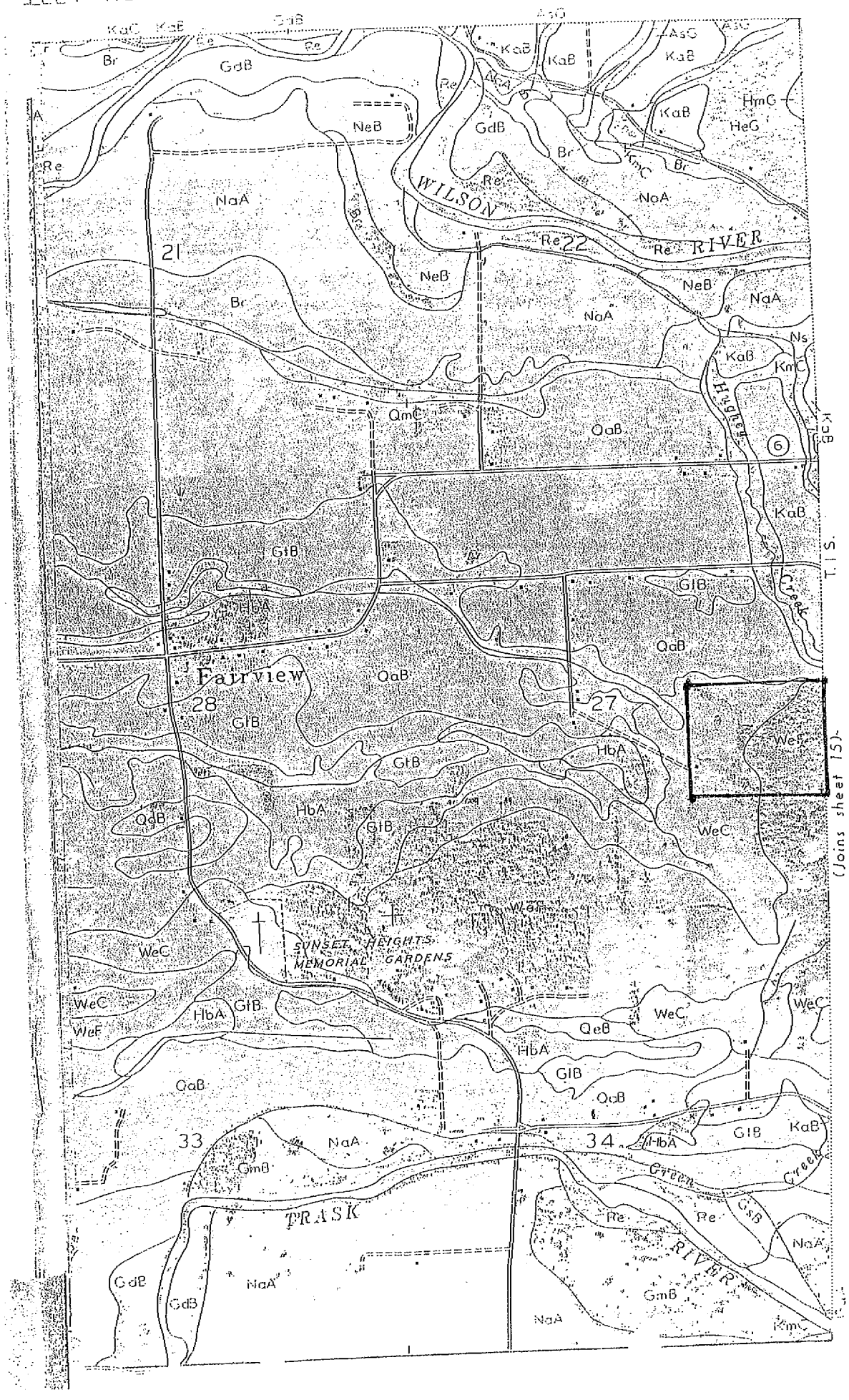
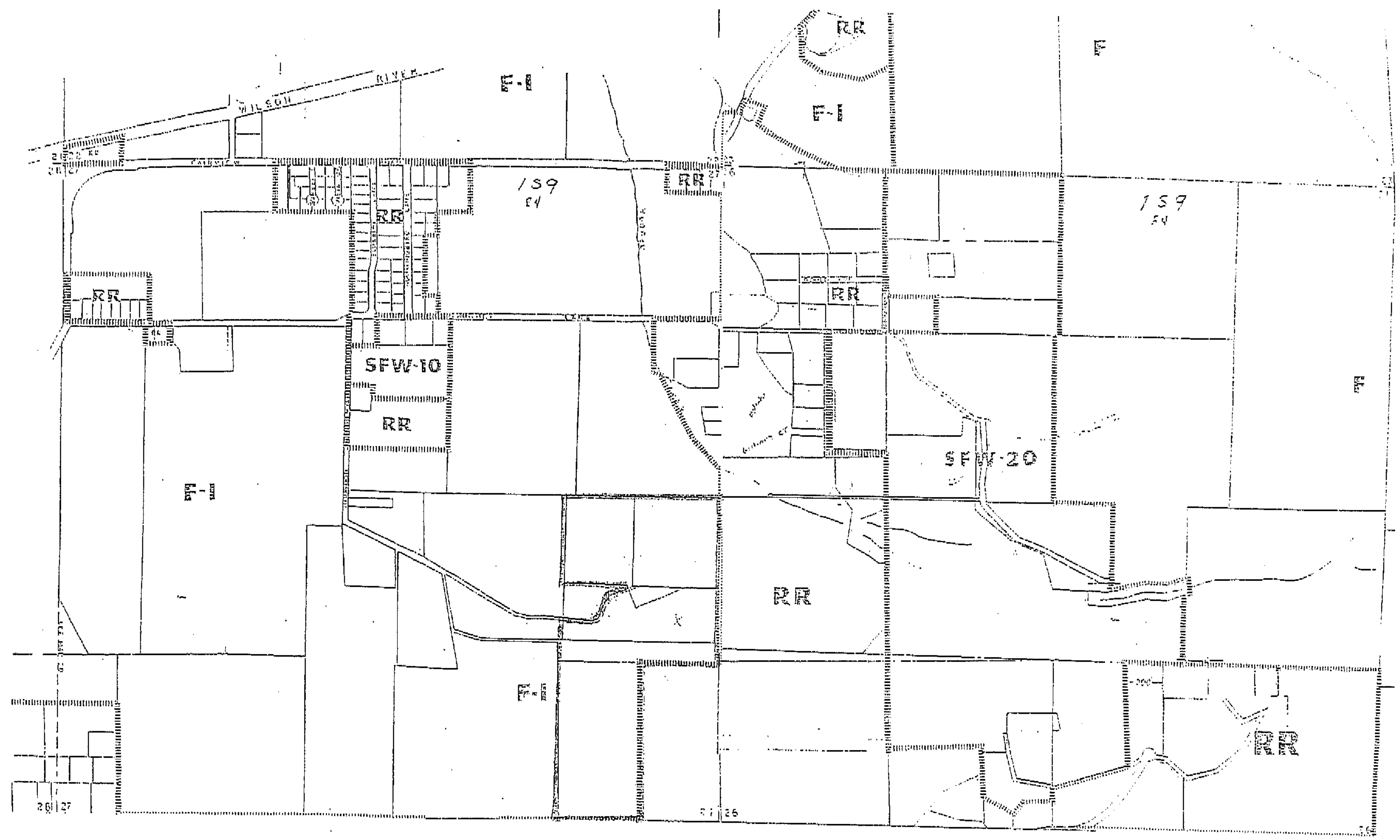
SHEET NUMBER 14




F-1
RR
F-1
F
159
RR
RR
159
WILSON RIVER
RR
SFW-10
RR
F
SFW-20
F-1
RR
F-1
RR

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY

SECTION 27 T.1S. R.9W.W.M.
TILLAMOOK COUNTY
1" = 800'

SEE MAP IS 9 22

THIS MAP WAS PREPARED FOR TAX PURPOSES ONLY

SECTION 26 T.1S. R.9W.W.M.
TILLAMOOK COUNTY
1" = 800'

SEE MAP IS 9 25

IS 9 26
& INDEX

SEE MAP IS 9 27BB

SEE MAP IS 9 27AC

SEE MAP IS 9 27DD

SEE MAP IS 9 2688

SEE MAP IS 9 26BC

SEE MAP IS 9 26BB

SEE MAP IS 9 2600

9-8

9-9

9-1

9-12

GOV'T. LOT 1

GOV'T. LOT 2

GOV'T. LOT 3

GOV'T. LOT 4

GOV'T. LOT 5

GOV'T. LOT 6

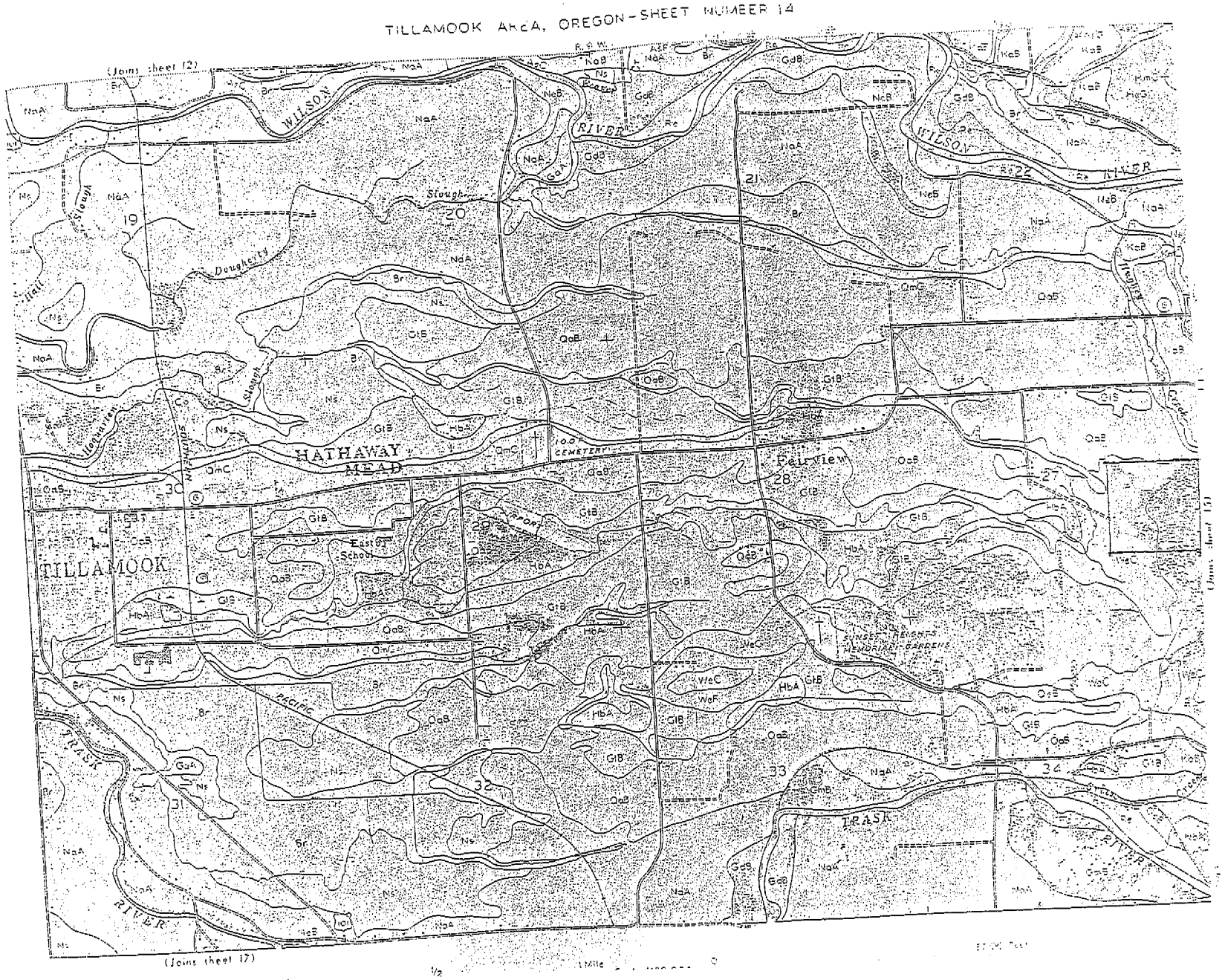
GOV'T. LOT 7

GOV'T. LOT 8

SEE MAP IS 9 34

SEE MAP IS 9 35

TILLAMOOK AREA, OREGON - SHEET NUMBER 14



Range, township and section names shown on this map are unofficial

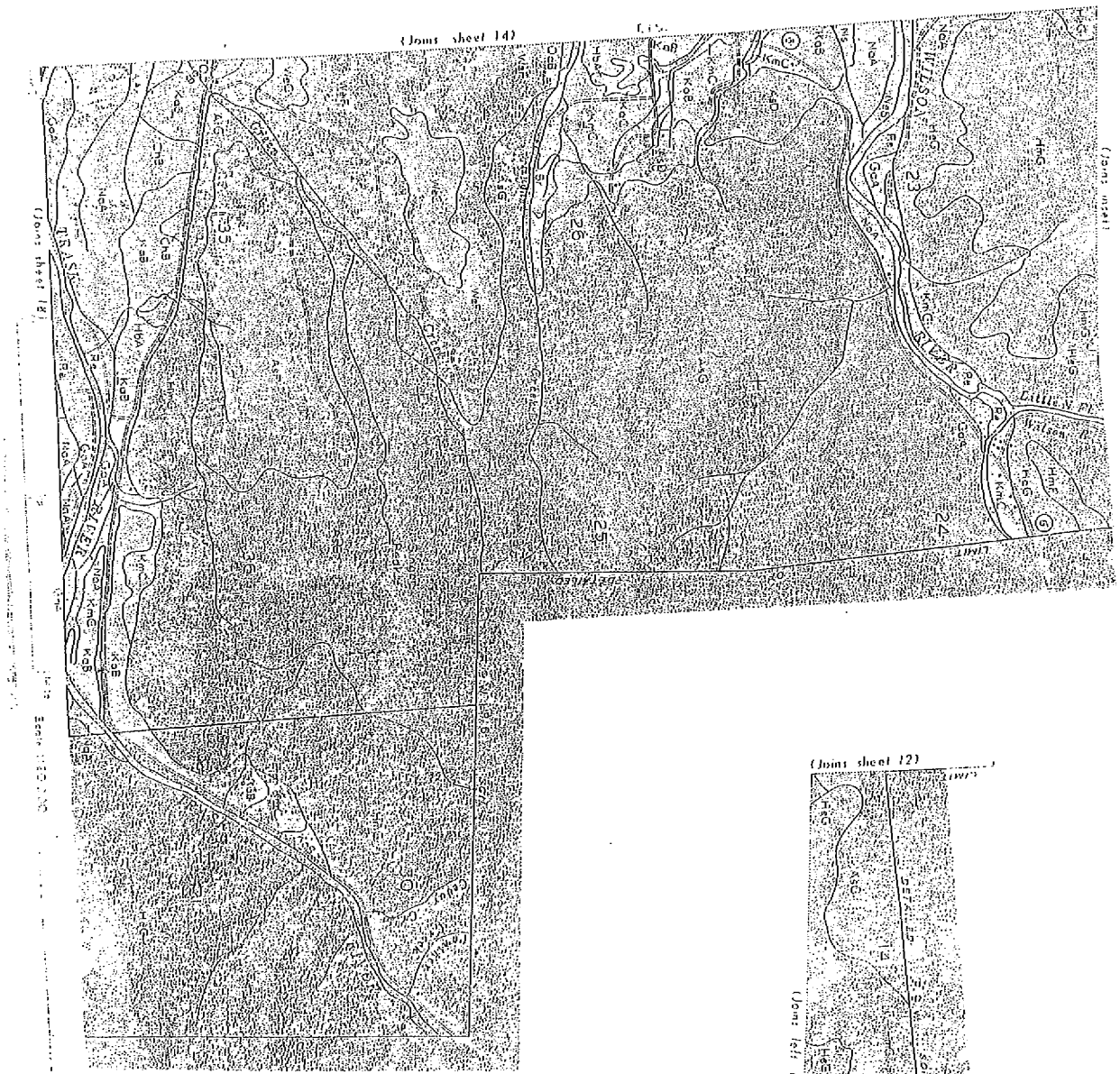


TABLE 4.—*Brief descriptions of soils and their estimated*

Soils, map symbols, and descriptions [1]	Restriction to the movement of water and its depth from surface [2]	Dominant slope range	Trafficability in long, wet periods [3]
Yaquina (YaA): Deep, imperfectly drained sandy soils formed in dune material in concave and level areas between old dunes; no restriction to movement of water; very strongly acid.	None	Percent 0–3	Good

[1] Terms referring to restrictions in the flow of water in the soil have the following meaning: Moderate restriction allows a flow of abo 0.80 to 2.50 inches of water per hour; moderately strong restriction allows a flow of about 0.20 to 0.80 inch of water per hour; and stro restriction allows a flow of less than 0.20 inch per hour.

[2] Restriction refers to a layer that slows or prevents movement of water through the soil. The restriction can be caused by a significa difference in permeability or by a water table. Textural terms are those used by the USDA system (*14*).

[3] Trafficability refers to the ability of a soil to accept loads.

Descriptions of the Soils

In this report, the soils are described in approximate alphabetical order. Their acreage and proportionate extent are shown in table 5, and their location in the survey area can be seen on the detailed map at the back of the report. Figure 9 shows a generalized cross section of the Tillamook coastal plain and the occurrence of soils according to topographic position. Figure 10 shows where the cross section is located on the coastal plain.

The soil series are described first, and after each series, the soils of that series that were mapped in the survey area. An important part of each soil description is the soil profile, a record of what the soil scientist learned when he dug into the ground. Since all the soils in one series have essentially the same profile, except for possible differences in texture of the surface layer, it is not necessary to describe the profile of every soil. The profile is therefore described for the first soil of each major type. The reader can assume that all the other soils of one type have essentially the same kind of profile. For example, a detailed profile is described for Astoria silt loam, 20 to 40 percent slopes, and the reader is to conclude that all the Astoria silt loams mapped have essentially this kind of profile. The differences, if any, are indicated in the soil name or are mentioned in describing the particular soil.

The profile description is in smaller type than the rest of the description of the soil. Those who want to have only a working knowledge of the soil and its management need read only the part set in larger type.

The capability unit and the woodland suitability group into which each soil in the survey area has been placed are stated at the end of each soil description.

The technical descriptions of soil profiles are given in the section "Genesis, Classification, and Morphology of the Soils" to which all readers are referred who desire more detailed descriptions and laboratory analyses of soil layers. In this technical section, soil color is described by use of Munsell notations.

Many technical terms used by scientists to describe soils are defined in the Glossary in the back of this report.

Active Dune Land (Ad)

This land type consists of wind-drifted sand in t form of dunes, ridges, or hummocks. The material is r stabilized and has no vegetation on it. Active dune la occupies considerable acreage along the coast adjacent the beach. It consists of grayish-brown, incohere porous sand and fine sand, dominantly feldspathic composition.

Dunes are generally 5 to 40 feet high; they have maximum elevation of about 80 feet. The relief is monotonous succession of irregularly distributed du and ridges, which rise above the intervening wind-form valleys, pockets, and swales. Dunes are either bare vegetation, or the growth is not dense enough to prot the sand and to prevent it from blowing. Consequen the dunes are constantly shifting under the influence strong ocean winds and, in some places, are advanc slowly over the forest.

Active dune land has no agricultural value but is u for recreational areas. Considerable acreage of shift dunes has been stabilized through the efforts of the S Conservation Service, State Park Commission, be communities, and individuals. Stabilization of shift sand first requires the planting of beachgrass to c trol the movement of sand, followed by plantings Scotch-broom and shore pine. (Capability unit VIIIc woodland suitability group 18.)

Astoria Series

The Astoria series consists of well-drained, fine-tured soils derived from weathered soft shale. Astoria soils are among the main upland soils in Tillamook survey area. They occupy very steep, rc mountain slopes in the coast range and gentle to st valley foothills. They are associated with the Hen Winema, and Neskowin soils. Astoria soils on the s slopes are in forests of Douglas-fir, hemlock, cedar, red alder. Those near the coast are in Sitka sp

The surface soil is very dark grayish brown, fri and granular. The subsoil is dark yellowish br firm, and blocky. The profile is underlain at var

engineering classifications and physical properties—Continued

Horizon depth from surface	Classification		Liquid limit	Plasticity index	Suitability as source of—		
	AASHO	Unified			Topsoil [4]	Fill [5]	Sand or gravel
Inches							
0–3	A–2 or A–4	SM	35. 0	5. 0	Fair	Not suitable	Not suitable.
3–30	A–2 or A–3	SM or SP	([6])	([6])	Poor	Fair; good if stabilized.	Fair for sand; not suitable for gravel.
30–42+	A–2 or A–3	SP or SM	([6])	([6])	Poor	Poor; good if stabilized.	Good for sand; not suitable for gravel.

[4] The suitability of a soil material for topsoil refers to its use in topdressing compacted fill, roadbanks, slopes, ditches, lawns, and gardens to promote the growth of vegetation.

[5] The suitability of soil material for fill refers to its use in embankments and water-control structures.

[6] Nonplastic.

[7] Test data from samples of this soil are given in table 3.

depths by soft, gray and yellowish-brown shale. In most areas fractured fragments of shale are scattered throughout the profile. The soils in concave positions are very deeply weathered; on hills and upper slopes, they are weathered less deeply and generally contain a great many fragments of shale.

A large acreage of gently to strongly sloping Astoria soils of the foothills has been cleared and is used for pasture and forage crops.

Astoria silt loam, 20 to 40 percent slopes (AsF).—This soil occupies the steep lower slopes of the coast range. Representative profile observed in a logged area now in a scattered new growth of Douglas-fir and red alder, and a ground cover of brackenfern:

Surface layer—
0 to 19 inches, very dark grayish-brown, friable (dark brown and soft, dry) silt loam; granular structure; small, shotlike concretions of iron common.

Subsoil—
19 to 28 inches, dark yellowish-brown, friable, light silty clay; subangular blocky structure; sticky and plastic when wet.
28 to 45 inches, dark yellowish-brown, firm, light silty clay; blocky structure; sticky and plastic when wet.
45 to 50 inches, yellowish-brown, firm, heavy silty clay loam; blocky structure; sticky and plastic when wet; numerous fragments of fractured shale.

Substratum—
50 to 60 inches +, highly weathered, soft shale; very strongly acid.

The main variation is in the amount of weathered shale fragments in the subsoil. In some areas the subsoil contains up to 30 percent shale fragments, and in other areas the subsoil contains no shale. The foot slope locations contain much shale rubble that sloughed from the slopes above.

Intermittent pockets of the Chitwood soils in sloping concave areas are included with this soil. In transitional zones along terraces and fans, small areas of Knappa, Hebo, or Meda soils are included. In transitional areas near basalt bedrock, small areas of Hembre soils may be included.

Natural drainage is good, subsoil permeability is moderate, and runoff is medium. The available water-holding capacity is high, and the penetration of roots is deep. The hazard of erosion is moderate. The soil is high in organic matter, medium in fertility, and very strongly acid.

This soil is mainly in timber, except for a few isolated clearings that are used for pasture. The most valuable forest trees are Douglas-fir and hemlock. (Capability unit VIe–1; woodland suitability group 8.)

Astoria silt loam, 40 to 60 percent slopes (AsG).—This soil occupies the rough mountain slopes in the coast range. It is similar to Astoria silt loam, 20 to 40 percent slopes, except that it has stronger slopes, and the average depth to highly weathered, soft shale is 36 to 40 inches. Included are many small areas of Astoria silt loam, moderately deep, 40 to 60 percent slopes, that are too small to be mapped separately. Runoff is rapid, and the hazard of erosion is severe (fig. 11).

This soil is mainly in forests, in which Douglas-fir and hemlock are the most valuable species. A few acres have been cleared and are used for pasture and forage crops. (Capability unit VIIe–1; woodland suitability group 9.)

Astoria silt loam, 12 to 20 percent slopes (AsD).—This soil occupies the moderately steep lower slopes of valleys and foothills. Except for slopes, it is similar to Astoria silt loam, 20 to 40 percent slopes. The erosion hazard is moderate when the soil is cultivated, and it is slight in woodlands during logging operations.

The soil is mainly in forests, in which Douglas-fir and hemlock are the most valuable trees. A few acres have been cleared and are used for pasture and forage crops. (Capability unit IVe–1; woodland suitability group 7.)

Astoria silt loam, 3 to 12 percent slopes (AsC).—This soil occupies the gentle to rolling slopes in the lower foothills in association with the Knappa and Meda soils. Except for slopes, the soil is similar to Astoria silt loam, 20 to 40 percent slopes. The hazard of erosion is slight. A few small areas of Astoria silt loam, 3 to 12 percent slopes, are on slopes of less than 3 percent.

Approximately half of this soil is used for pasture and forage crops. The other half is in forests, in which Douglas-fir and hemlock are the most valuable species. (Capability unit IIIe–1; woodland suitability group 7.)

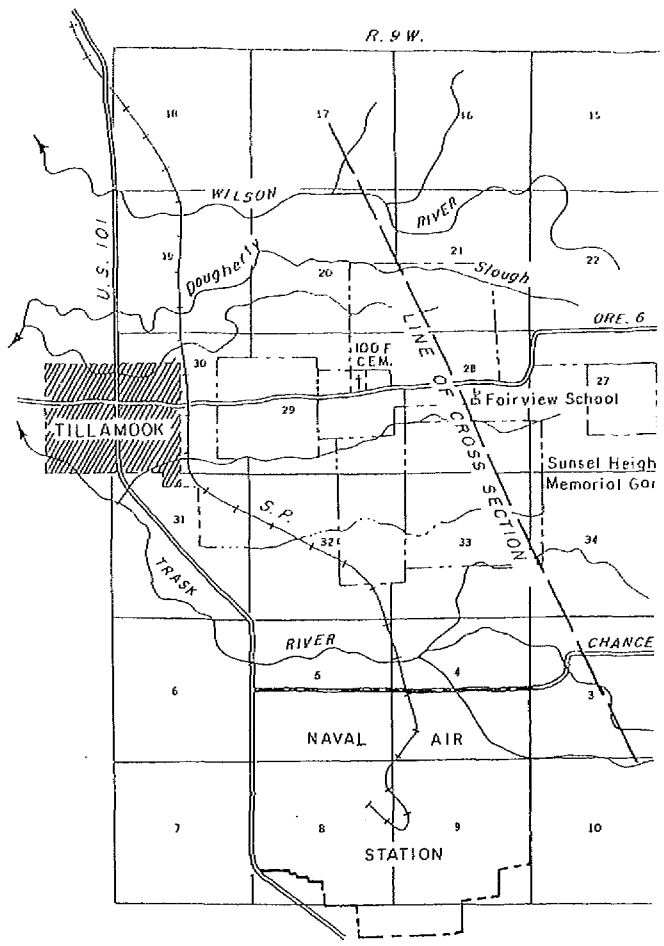


Figure 10.—Dashed line running from northwest to southea the location of topographic cross section shown in figure 9

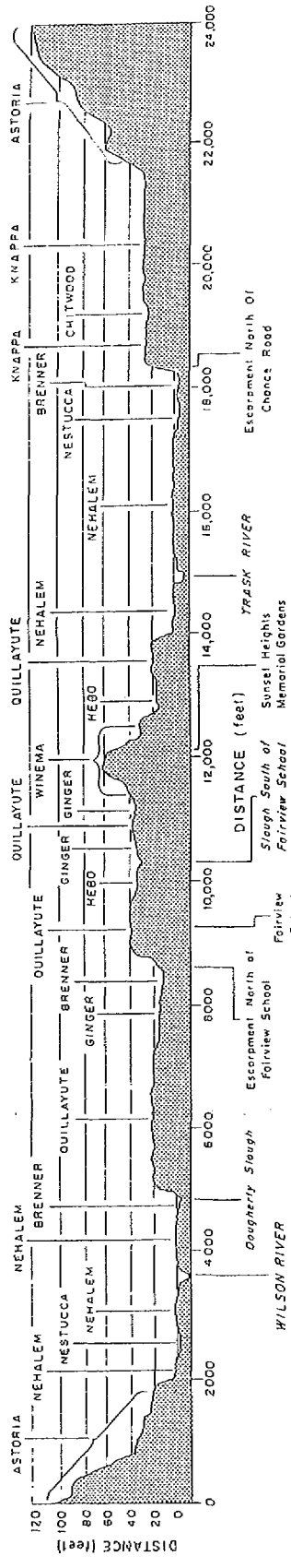


Figure 9.—Generalized cross section of the Tillamook coastal plain sh southeast from a point near the Wilson River to mountains beyond the Trask River. (See figure 10.)

Astoria silt loam, moderately deep, 40 to 60 perc slopes (AtG).—This soil is on smoothly rolling and ro mountain slopes in the coast range. It is steeper Astoria silt loam, 20 to 40 percent slopes. In addi the soft, weathered shale is at a depth of 20 to 36 inc Fragments of shale are generally numerous throug the subsoil, and some fragments are scattered in surface layer. The available water-holding capacit moderate. Root penetration is limited by the s Runoff is medium to rapid, and the hazard of erosi severe.

This soil is almost entirely in forests of Dougla hemlock, and red alder. (Capability unit VIIe–1; w land suitability group 9.)

Astoria silt loam, moderately deep, 20 to 40 per slopes (AtF).—This soil occupies the steep slopes of hills along the coast range. It is similar to Astoria loam, 20 to 40 percent slopes, except that shale is depth of 20 to 36 inches. The available water-hol capacity is moderate. Root penetration is limited the shale.

The soil is in forests of Douglas-fir, hemlock, and alder. (Capability unit VIe–1; woodland suital group 8.)

TABLE 5.—*Total acreage and proportionate extent of the soils and the approximate percentage in various uses*

Soil	Total	Proportionate extent	Cropland	Pasture	Forest	Urban	Other uses
	Acres	*Percent*	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Active dune land	3, 986	2. 8	5	0	273	3, 489	219
Astoria silt loam, 3 to 12 percent slopes	2, 368	1. 7	771	255	1, 229	113	0
Astoria silt loam, 12 to 20 percent slopes	3, 195	2. 2	631	314	2, 183	67	0
Astoria silt loam, 20 to 40 percent slopes	24, 037	16. 9	812	488	22, 445	292	0
Astoria silt loam, 40 to 60 percent slopes	19, 949	14. 1	87	78	19, 776	8	0
Astoria silt loam, moderately deep, 20 to 40 percent slopes	175	. 1	0	0	174	0	1
Astoria silt loam, moderately deep, 40 to 60 percent slopes	570	. 4	14	17	539	0	0
Brallier peat	236	. 2	58	82	53	12	31
Brenner silt loam	3, 311	2. 3	2, 699	206	386	20	0
Chitwood silt loam, 0 to 7 percent slopes	1, 668	1. 2	1, 210	112	333	13	0
Chitwood silt loam, 7 to 12 percent slopes	119	. 1	75	7	37	0	0
Coquille and Brenner silt loams	6, 264	4. 4	4, 155	836	1, 038	214	31
Gardiner fine sandy loam, 0 to 3 percent slopes	404	. 3	316	14	36	38	0
Gardiner fine sandy loam, overwashed, 3 to 7 percent slopes	298	. 2	298	0	0	0	0
Gauldy loam, 0 to 7 percent slopes	1, 220	. 9	883	48	285	4	0
Gauldy loam, shallow, 0 to 7 percent slopes	380	. 3	251	24	105	0	0
Ginger silt loam, 0 to 7 percent slopes	1, 170	. 8	915	40	54	156	5
Hebo silty clay loam, 0 to 3 percent slopes	2, 580	1. 8	0	1, 662	273	165	480
Hembre silt loam, 3 to 12 percent slopes	732	. 5	140	182	410	0	0
Hembre silt loam, 12 to 20 percent slopes	588	. 4	112	47	429	0	0
Hembre silt loam, 20 to 40 percent slopes	4, 197	3. 0	91	142	3, 964	0	0
Hembre silt loam, 40 to 60 percent slopes	24, 279	17. 1	216	58	23, 946	59	0
Hembre silt loam, moderately deep, 20 to 40 percent slopes	522	. 4	4	12	505	1	0
Hembre silt loam, moderately deep, 40 to 60 percent slopes	2, 861	2. 0	31	1	2, 829	0	0
Knappa silt loam, 0 to 7 percent slopes	4, 429	3. 1	3, 376	293	685	75	0
Knappa silt loam, 7 to 12 percent slopes	291	. 2	210	4	57	20	0
Knappa silt loam, moderately deep, 0 to 12 percent slopes	752	. 5	477	154	113	8	0
Made land	734	. 5	123	28	25	293	265
Meda gravelly loam, 3 to 12 percent slopes	1, 446	1. 0	1, 209	26	209	0	2
Meda gravelly loam, 12 to 20 percent slopes	226	. 2	209	0	17	0	0
Nehalem silt loam, 0 to 3 percent slopes	8, 695	6. 1	8, 155	237	242	61	0
Nehalem silt loam, overwashed, 3 to 7 percent slopes	173	. 1	173	0	0	0	0
Neskowin silty clay loam, 12 to 20 percent slopes	362	. 3	231	53	78	0	0
Neskowin silty clay loam, 20 to 40 percent slopes	679	. 5	77	88	514	0	0
Neskowin silty clay loam, 40 to 60 percent slopes	495	. 3	144	261	88	0	2
Nestucca silt loam	1, 539	1. 1	1, 270	142	76	51	0
Netarts fine sandy loam, 7 to 30 percent slopes	1, 549	1. 1	23	7	1, 266	163	90
Quillayute silt loam, 0 to 7 percent slopes	3, 557	2. 5	2, 642	22	93	800	0
Quillayute silt loam, moderately deep, 0 to 12 percent slopes	178	. 1	150	0	2	26	0
Riverwash	381	. 3	55	0	57	0	269
Rock land	49	(1)	0	0	43	0	6
Tidal flats	1, 280	. 9	106	0	19	6	1, 149
Winema silt loam, 3 to 12 percent slopes	440	. 3	327	23	41	49	0
Winema silt loam, 12 to 20 percent slopes	407	. 3	131	46	87	143	0
Winema silt loam, 20 to 40 percent slopes	1, 218	. 9	262	221	521	214	0
Winema silt loam, moderately deep, 12 to 20 percent slopes	275	. 2	262	1	12	0	0
Winema silt loam, moderately deep, 20 to 40 percent slopes	327	. 2	109	24	194	0	0
Yaquina loamy fine sand, 0 to 3 percent slopes	1, 237	. 9	423	158	457	199	0
Total soils mapped	135, 828	95. 8	33, 918	6, 413	86, 188	3, 489	5, 820
Water	6, 092	4. 3					
Total survey area	141, 920	100. 0					

[1] Less than 0.1 percent.

Brallier Series

In the Brallier series are very poorly drained, very strongly acid to extremely acid soils that consist mainly of slightly decomposed, fibrous organic material. The soils have formed mainly from the remains of water-loving plants. They occupy nearly level basins a little above sea level. Most areas are on tideland; some are in depressed areas along sluggish streams near tideland. Associated with the Brallier soils are those of the Coquille, Brenner, and Yaquina series. The vegetation is mainly brush, willow, and spruce.

The surface soil is dark-brown peat that has no evident structure. The subsoil is dark grayish-brown or yellowish-brown, partly decomposed roots, twigs, reeds, and sedges. The underlying material in most places is very dark gray sand, but in places it is marine mud.

Some areas of the Brallier soils have been drained and are used for pasture and forage crops. In addition, there are one or two areas of small acreage in cranberries and blueberries. There is some commercial harvest of peat moss.

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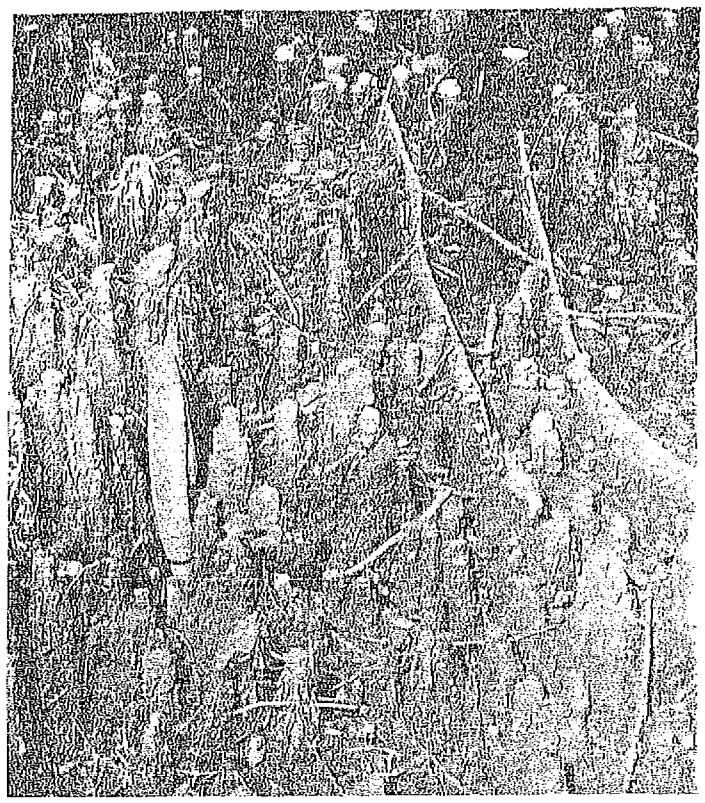

Figure 11.—Pedestals of Astoria soil, 2 to 3 inches high. These are the result of erosion caused by runoff and the pounding of rain.

Brallier peat (Bp).—This soil is in basins and depressions that are a little above sea level. The water table is at or near the surface most of the time.

Profile description:

Surface soil—
- 0 to 3 inches, dark-brown peat (brown and soft, dry) consisting of 50 percent raw residue of forest litter, spongy moss, and woody material and 30 percent of live roots.
- 3 to 6 inches, dark grayish-brown peat, 70 percent of which consists of fibrous, undecomposed remains and roots of alder, broadleaf maple, and other water-loving plants; no discernible structure; extremely acid.

Subsoil—
- 6 to 24 inches, grayish-brown peat, consisting of fine fibrous decomposed material containing roots, reeds, and twigs and coarse fragments of wood; no structure; extremely acid.
- 24 to 38 inches, dark grayish-brown and yellowish-brown, partly decomposed, fibrous remains of sedge and reed; strongly acid.
- 38 to 48 inches, very dark grayish-brown mixture of muck and undecomposed woody and fibrous vegetation; slightly acid.

Substratum—
- 48 to 60 inches +, gray muck, 20 percent of which consists of the remains of woody and fibrous vegetation; slightly acid.

The underlying material occurs at variable depths. In some places it is very dark-gray sand, and in others it is gray marine mud.

The profile contains intermittent layers of muck, fibrous peat, raw peat, and thin mineral material. All of these layers are variable in thickness and in depth from the surface.

Included with Brallier peat are several small spots sphagnum moss peat that occur in association with Yaquina soils near Sand Lake.

Root penetration in Brallier peat depends on the hei of the water table. The available water-holding capac is low; subsoil permeability is moderately rapid. Ru off is very slow, and there is no erosion hazard. T soil is low in fertility and ranges from very strongly a to extremely acid.

Most of the acreage of this soil is still in native ve tation. Where diked and drained, the soil is used shallow-rooted pasture grasses and legumes, and for cr berries, blueberries, and other specialty crops. (Ca bility unit IVw-3; woodland suitability group 17.)

Brenner Series

The Brenner series consists of poorly drained, strom acid soils on bottom lands. The soils are in the low part of the flood plain, or in swales, adjacent to terraces or uplands. the Brenner soils have formed alluvial deposits consisting of fine-textured silt and cl The Brenner soils are associated chiefly with the Ne lem and Nestucca soils. Floods occasionally leave t layers of fresh alluvium on the surface. Water ponds winter after heavy rains or when streams overflow. T vegetation is mainly alder and hemlock, with a de understory of shrubs and water-tolerant plants.

The surface soil is very dark grayish brown. It h faint stains and mottles of reddish brown and is fria and granular. The subsoil is dark grayish-brov prominently mottled with yellowish-red, firm silty c having subangular blocky structure. The underly material is dark greenish-gray, massive silty clay. T remains of partly decayed plants, tree roots, and rot logs occur throughout the soil profile. Where the Br ner soils are transitional to the Nestucca soils, the surf layer may be free of mottles.

Most of the acreage of the Brenner soils has b drained and is used for pasture, hay, and silage. small acreage is still in forest.

Brenner silt loam (Br).—This soil occurs on bott lands next to streams.

Representative profile observed in an undrained ar

Surface layer—
- 0 to 7 inches, very dark grayish-brown, friable (gray brown and soft, dry) silt loam; faint mottles of redd brown; granular structure.
- 7 to 13 inches, very dark grayish-brown, friable silty c loam; distinct mottles of brown and yellowish red; s angular blocky structure; sticky and plastic when w

Subsoil—
- 13 to 21 inches, dark grayish-brown, firm silty clay lo prominent mottles of yellowish red; subangular blo structure; sticky and plastic when wet.
- 21 to 31 inches, dark grayish-brown, firm silty cl prominent mottles of yellowish red; subangular blo structure; sticky and plastic when wet.
- 31 to 40 inches, dark-gray, firm siltyclay; prominent m ttles of brown and gray; blocky structure; sticky plastic when wet.

Substratum—
- 40 inches +, dark greenish-gray siltyclay; massive; sti and plastic when wet; distinct odor of hydrogen sulf

The main variation is that the darkgray silty clay is to 40 inches from the surface; theaverage depth this layer is about 24 inches. In some areas the surf

soil is light silty clay loam. A few small areas have a thin overwash of recently deposited silty alluvium. Included with this soil are small areas of the Nestucca and the Brallier soils.

Natural drainage is poor, runoff is very slow, and subsoil permeability is moderately slow. The available water-holding capacity is moderate to high; root penetration is moderately deep. The soil is strongly acid and medium in fertility. There is little or no erosion hazard.

Nearly all of this soil is used for hay and pasture. Some of the acreage has been drained, but much of it still needs drainage. Some cropped areas are irrigated by sprinklers. (Capability unit IIIw–1; woodland suitability group 5.)

Chitwood Series

The Chitwood series consists of deep, nearly level to strongly sloping, imperfectly drained soils. The soils occupy depressions on slopes and on nearly level terraces and swalelike seeps on the moderately sloping foothills. They formed in old alluvium derived from shale. Chitwood soils are scattered throughout the valleys of the Tillamook survey area and are associated with the Knappa, Astoria, and Hebo soils. The original vegetation was Douglas-fir, hemlock, and cedar.

The surface layer is very dark grayish brown, friable, and granular. The subsoil is dark brown to dark yellowish brown, mottled with strong brown to yellowish brown, and is firm and blocky. In places soft, weathered pebbles occur in the substratum. Because of restricted drainage, the lower subsoil and substratum have noticeable graying in many places.

Chitwood soils are used mainly for pasture and forage crops; some small acreages are in timber.

Chitwood silt loam, 0 to 7 percent slopes (ChB).—This soil is in nearly level and gently sloping depressions on terraces.

Representative profile observed in a grass pasture:

Surface layer—
- 0 to 11 inches, very dark grayish-brown, friable (grayish-brown and slightly hard, dry) silt loam; granular structure.

Subsoil—
- 11 to 19 inches, dark-brown, firm silty clay loam; subangular blocky structure; sticky and plastic when wet.
- 19 to 29 inches, dark yellowish-brown, firm silty clay; many mottles of strong brown; subangular blocky structure; sticky and plastic when wet.
- 29 to 34 inches +, dark yellowish-brown, firm silty clay loam; coarse mottles of strong brown and yellowish red; angular or subangular blocky structure; sticky and plastic when wet.

The chief variation is in the color of the subsoil, which ranges from dark yellowish brown to dark grayish brown and in some areas to dark gray. The color varies because some areas have more seepage and more restricted drainage than other areas. The subsoil also has prominent mottles of strong brown, yellowish red, and reddish yellow. The substratum, mainly on terraces, contains soft, weathered pebbles.

Included with this soil are small areas of the poorly drained Hebo and of the well-drained Astoria and Knappa soils.

Natural drainage is imperfect, and runoff is slow to medium; subsoil permeability is slow. The available water-holding capacity is moderate to high; root penetration is moderately deep. There is a slight erosion hazard. The soil is medium in fertility and in organic matter and is very strongly acid.

This soil is used mainly for the production of pasture, hay, and silage. Most areas have been cleared, and much of the acreage has been drained. Many areas still need drainage, and some areas are still forested with Douglas-fir, Sitka spruce, western hemlock, western redcedar, and red alder.

Use of this soil for crops is restricted by lack of drainage. Cropped areas need supplemental fertilization. Some of them are irrigated through sprinklers to improve yields. (Capability unit IIw–1; woodland suitability group 5.)

Chitwood silt loam, 7 to 12 percent slopes (ChC).—This soil occupies the sloping, concave positions on foothills and on foot slopes. Only a small acreage of this soil is in the Tillamook survey area. Restricted drainage of this soil is the result of seepage from higher lying areas. This soil is similar to Chitwood silt loam, 0 to 7 percent slopes, except for slopes. The hazard of erosion is slight; runoff is medium.

Included with this soil are small areas of the poorly drained Hebo and the well-drained Astoria soils on uplands and of Knappa soils on the terraces.

Chitwood silt loam, 7 to 12 percent slopes, is used for pasture, hay, and timber. Some areas have been drained and are irrigated through sprinklers. (Capability unit IIIw–2; woodland suitability group 5.)

Coquille Series

The Coquille series consists of very poorly drained, very strongly acid soils on nearly level bottom lands and stream deltas along coastal tideland. These soils are subject to tidal overflow, and if not protected by dikes, most areas would be covered by high tides. The overflow deposits fresh alluvium in undiked areas. The Coquille soils are associated with the Tidal flats land type and with soils of the Brenner and the Brallier series.

The Coquille soils formed in deep deposits of dark-gray alluvial and tidewater sediment that washed from shale, sandstone, and coarse- and fine-grained igneous rocks. The surface has a microrelief consisting of numerous depressions, small ridges, stream channels, and sloughs. Profile layers may differ within short distances because of frequent changes in the channels of rivers and sloughs and in the kinds of materials in the deposits. Continued saturation gives the Coquille soils a high degree of mottling and some iron stains. The vegetation is mainly rushes, marsh grasses, sedges, and tules.

The surface soil is very dark grayish brown, highly mottled and stained with strong brown, and is friable and granular. The subsoil is dark grayish-brown silty clay loam with numerous mottles of strong brown. In addition, it is firm and has subangular blocky structure. The subsoil is underlain at a depth of 30 to 40 inches by very dark-gray to bluish-gray, massive, silty clay marine sediment. Layers of peat are in the profile; sandy layers may occur locally. The various layers are mainly the

result of different deposits of material and of the varying length of periods that these materials have weathered.

Under natural conditions, the Coquille soils produce a limited amount of swamp-grass pasture. When diked and drained, they produce excellent domestic grasses for hay, silage, or pasture.

In the Tillamook survey area, the Coquille soils are mapped as an undifferentiated unit with the Brenner soils.

Coquille and Brenner silt loams (Co).—This undifferentiated mapping unit occupies nearly level tidelands, flat stream deltas, and bottom lands subject to tidewater overflow. When unprotected by dikes, this mapping unit is flooded by tides. It consists of about 70 percent Coquille silt loam and 30 percent Brenner silt loam, but the percentage of these soils in any individual area may vary considerably from this. The Brenner soil in this mapping unit is similar to the Brenner soil described under the Brenner series.

Representative profile of Coquille silt loam observed in a pasture of mixed native and tame grasses:

Surface layer—
- 0 to 6 inches, very dark grayish-brown, friable (grayish-brown and soft, dry) silt loam; granular structure; numerous large brown stains.
- 6 to 13 inches, dark grayish-brown, friable silt loam; many large mottles of strong brown and yellowish red; granular structure; sticky and slightly plastic when wet.

Subsoil—
- 13 to 19 inches, dark grayish-brown, firm silty clay loam; many faint mottles of strong brown; very large amount of fibrous organic material.
- 19 to 40 inches, dark grayish-brown, firm silty clay loam; common, faint mottles of strong brown and light yellowish brown; subangular blocky structure; sticky and plastic when wet; accumulations of yellow sulfide noticeable.

Substratum—
- 40 to 60 inches +, very dark gray silty clay; massive; sticky and plastic when wet; very strongly acid; has a somewhat bluish-gray cast when first removed from this depth.

The chief variations are in the amount of organic matter and in the depth and thickness of the various soil layers. The surface probably remained stable from time to time, long enough for a surface layer containing organic matter to be developed; then that surface layer was covered by new sediment. Some small areas have a surface layer of silty clay loam. Other areas have thin, stratified layers of fibrous peat. In a few small areas, the profile rests on fibrous peat. Depth to nonconforming clayey marine sediment ranges from 24 to 40 inches.

Included with this mapping unit are small areas of poorly drained Brallier peat and Tidal flats.

Natural drainage is very poor. When not protected by adequate dikes or levees and tide gates, these soils are ponded during high tides. The available water-holding capacity is moderate to high. Root penetration is moderately shallow. The soils are very strongly acid and low in fertility. Accumulations of sulfide are throughout the profile, and they are more numerous in the lower subsoil.

This mapping unit has been cleared and diked. When diked and drained, most areas are used for pasture and forage crops. Ditches and tile drains are needed for best production of deep-rooted grasses and legumes. Outlets for drains are regulated by tide gates, whic open at low tide and are closed by the high tide. Son drained areas in crops are irrigated through sprinkler The cropped areas need fertilizer. (Capability un IVw–1; woodland suitability group 2.)

Gardiner Series

The Gardiner series consists of deep, well-draine coarse-textured soils on bottom lands. The soils ha formed in loose, sandy alluvium. They occur in narro strips near the banks of the large streams and in t sharp bends of streams. The Gardiner soils are assoc ated with the Nehalem, Gauldy, and Nestucca soils. I dividual areas of Gardiner soils are small, and the tot acreage in the Tillamook survey area is small. Th original vegetation was trees and shrubs.

The surface soil is dark brown and very friable and h weak, subangular blocky structure. The underlyin material consists of layers of dark yellowish-brown loam sand, fine sand, and sand. The sandy layers vary in thic ness. Some areas of Gardiner soils are subject to dam aging overflow, which causes erosion and which also d posits sand, silt, and debris. These soils are used almo exclusively for pasture and hay.

Gardiner fine sandy loam, 0 to 3 percent slope (GoA).—This soil occurs on nearly level bottom lands ad jacent to the major streams.

Representative profile observed in a pasture:

Surface layer—
- 0 to 8 inches, dark-brown, very friable (dark grayis brown and soft, dry) fine sandy loam; weak, su angular blocky structure.

Subsoil—
- 8 to 34 inches, dark yellowish-brown loamy fine san very weak, coarse, subangular blocky structure.

Substratum—
- 34 to 60 inches +, strata of varying thickness consisti of variegated brown loamy sand, fine sand, and san

The main variation is in the thickness of the surfa layer. In some places this layer is as much as 18 inch thick. Recent deposits of coarse sediment are on the su face in many places.

Included in this unit are small areas having a gra elly subsoil, and small areas of Gauldy loam and N halem silt loam. Very small areas of moderately we drained Nestucca soils are also included

The soil is rapidly permeable, strongly acid, moderate fertile, and medium in organic matter. The hazard erosion is slight. Roots can penetrate deeply. The ava able water-holding capacity is moderate to low.

Much of the soil is in grasses and legumes that a harvested for hay, pasture, or silage. These crops ne fertilizer. Most cropped areas are irrigated throu sprinklers. (Capability unit IIs–1; woodland suitabili group 1.)

Gardiner fine sandy loam, overwashed, 3 to 7 pe cent slopes (GdB).—This soil generally occurs in sha bends of the major rivers, and it is subject to damagi overflow during periods of high wate. The surface irregular and hummocky and marked by many o stream channels. It is similar to Gardiner fine sand loam, 0 to 3 percent slopes, except that most areas ha some recently deposited sand on the surface. Runoff slow, and the hazard of erosion is moderate. The ove

flowing current scours away the soil and the banks, and in places it deposits sand, silt, and debris on the surface.

Nearly all of this soil is used for hay and pasture. Most areas in these crops are irrigated through sprinklers. (Capability unit IVe-2; woodland suitability group 17.)

Gauldy Series

The Gauldy series consists of somewhat excessively drained, shallow to moderately deep, gravelly alluvium. The soils generally occupy narrow flood plains of the Miami and Kilchis Rivers and other very active, fast-flowing streams. They are young soils over sand and gravel and have only a weakly developed profile. The Gauldy soils are associated mainly with the Nehalem, Brenner, and Gardiner soils on bottom lands and with the Knappa and Meda soils on low terraces and foothills. The shallow Gauldy soils are associated with Riverwash. The original vegetation was hemlock, Douglas-fir, Sitka spruce, red alder, and willow.

The surface soil is dark brown, very friable, and subangular blocky. The subsoil is dark yellowish brown and very friable and has a weak, subangular blocky structure. Waterworn pebbles occur throughout the profile. The soils are underlain at varying depths by gravelly and stony strata.

The Gauldy soils are used chiefly for pasture and hay. Some small acreages are still in native vegetation.

Gauldy loam, 0 to 7 percent slopes (GmB).—This soil occupies bottom land where the surface has been cut by old stream channels.

Representative profile observed in an area of grass:

Surface layer—
0 to 8 inches, dark-brown, very friable (dark grayish-brown and soft, dry) loam; subangular blocky structure; 10 percent of volume is gravel of medium size.

Subsoil—
8 to 26 inches, dark yellowish-brown, friable loam; weak, subangular blocky structure; 15 percent of volume is gravel of medium size.
26 to 38 inches, dark yellowish-brown, very friable, gravelly loamy coarse sand; weak, subangular blocky structure.
38 to 55 inches, dark yellowish-brown, friable loamy fine sand; weak, subangular blocky structure; 10 percent of volume is gravel of fine size.

Substratum—
55 inches +, waterworn coarse sand and gravel.

The chief variations are in the moderate to strong grade of structural development in the surface and subsurface layers and in the amount of gravel throughout the profile. In addition, the type of underlying sediment ranges from gravelly silt, fine sand, and sand to coarse sand, stones, and boulders. In some places the surface layer is silt loam.

Included with this soil are small areas of Nehalem and Gardiner soils and of the imperfectly drained Brenner soils on bottom lands. Very small areas of the Knappa and Meda soils on fans are also included.

Runoff is slow. Subsoil permeability is moderately rapid. The available water-holding capacity is moderate to low; root penetration is moderately deep to deep. The hazard of erosion is slight, but some damaging overflow occurs. The soil is medium in organic matter and fertility and is strongly acid.

Much of this soil is used for pasture and hay. These crops need fertilizer and are irrigated through sprinklers. (Capability unit IIs-1; woodland suitability group 1.)

Gauldy loam, shallow, 0 to 7 percent slopes (GsB).—This soil has an irregular, hummocky surface. It occupies narrower upstream bottom lands than Gauldy loam, 0 to 7 percent slopes, and the underlying coarse-textured alluvial sediment is only 6 to 8 inches from the surface. Some places have gravelly loam surface soil.

Included with this soil are small areas of Riverwash and very small areas of very gravelly Meda soil.

Subsoil permeability is rapid. The available water-holding capacity is very low. Root penetration is shallow. The hazard of erosion is moderate, and some damaging overflow occurs. The soil is low in organic matter and in natural fertility.

Over two-thirds of the acreage of this soil is used for pasture and hay. All areas in these crops are irrigated through sprinklers. (Capability unit VIs-1; woodland suitability group 17.)

Ginger Series

The Ginger series consists of deep, imperfectly drained, fine-textured soils on stream terraces in the Fairview and Idaville localities. The Ginger soils occupy concave positions on nearly level to gentle slopes between the higher lying Quillayute soils and the lower lying Hebo soils in depressions or swales. Ginger soils are associated with the Meda, Quillayute, and Hebo soils. The parent material is old valley fill that originated from sedimentary and igneous rocks. The original vegetation was forests of spruce and hemlock.

The surface soil is black, very friable, and granular. The subsoil is dark grayish brown to grayish brown, firm, and blocky. The subsoil is strongly mottled with yellowish red and grayish brown. Under the subsoil, at varying depths, are discontinuous layers of compacted gravel. In some places the layers of gravel may be within 24 inches of the surface. On the average, however, gravel is at a depth of 30 to 60 inches.

Most areas of the Ginger soils are under a permanent cover of grass and legumes that is harvested for hay, pasture, or silage. Small areas are still in native vegetation.

Ginger silt loam, 0 to 7 percent slopes (GtB).—This soil is on terraces adjacent to the uplands.

Representative profile observed in a grass pasture:

Surface layer—
0 to 17 inches, black, very friable (very dark gray and soft, dry) silt loam; granular structure; nonsticky and slightly plastic when wet.

Subsoil—
17 to 20 inches, very dark grayish-brown silty clay loam; few, faint mottles of yellowish brown; firm, sticky, and plastic when wet; blocky structure.
20 to 28 inches; dark grayish-brown, firm silty clay; common, distinct mottles of strong brown; sticky and plastic when wet; blocky structure.
28 to 38 inches, grayish-brown, firm silty clay; many prominent mottles of yellowish red; sticky and plastic when wet; blocky structure.
38 to 52 inches, grayish-brown, firm silty clay; many prominent mottles of yellowish red; sticky and plastic when wet; blocky structure; numerous weathered and partly decomposed pebbles.

Substratum—
52 to 60 inches +, compacted gravel.

The chief variation is in the depth to compacted gravel. In more than 85 percent of the area, compacted gravel is more than 3 feet below the surface. This soil is generally nearly level, but small gently sloping areas are included. Other soils included with Ginger silt loam, 0 to 7 percent slopes, are the Meda, Quillayute, and Hebo soils.

Natural drainage is imperfect. Runoff and permeability are slow. The available water-holding capacity is moderate to high; the penetration of roots is moderately deep. The hazard of erosion is slight. The soil is very high in organic matter, moderately low in fertility, and very strongly acid.

Ginger silt loam, 0 to 7 percent slopes, is used for pasture and hay crops. Most of the acreage has been drained through the use of open ditches or closed tile drains. Both kinds of drainage are used in some areas. Crops respond well to fertilizer. Some areas in crops are irrigated through sprinklers. (Capability unit IIw–1; woodland suitability group 5.)

Hebo Series

The Hebo series consists of poorly drained, fine-textured, very strongly acid soils. The soils are mainly in nearly level or slightly depressed positions on stream terraces, and in depressions on the bottoms of small valleys. They formed in deep, fine-textured alluvium that washed chiefly from shale. Floods and runoff from higher areas occasionally deposit fresh layers of alluvium on the surface. During the wet season, the Hebo soils are waterlogged. They occur in association with the Quillayute, Knappa, Chitwood, and Ginger soils. The native vegetation consists mainly of sedge, skunkcabbage, willow, and spruce.

The Hebo soils are the only claypan soils in the Tillamook survey area. Their surface soil is firm, granular, and very dark gray or dark brown to almost black. The subsoil is very firm, prismatic and blocky clay that is dark gray to gray and highly mottled with brown and gray. Near Hemlock, the Hebo soils are covered by 4 to 12 inches of brown, medium-textured alluvium. Some areas of the Hebo soils are naturally better drained than others because of their more favorable position on the landscape. Hebo soils on sloping terraces are less waterlogged during the dry season than those in depressions.

Most Hebo soils are used for hay and pasture. Yields of forage are low because drainage is poor. Yields can be improved by draining the soil and applying fertilizer.

Hebo silty clay loam, 0 to 3 percent slopes (HbA).—This soil occurs in concave areas on fans and terraces adjacent to uplands.

Representative profile observed in an undrained area:

Surface layer—
0 to 4 inches, very dark gray to almost black, firm (dark gray and slightly hard, dry) silty clay loam; granular structure; sticky and plastic when wet.
4 to 10 inches, very dark gray, very firm silty clay; numerous mottles of reddish brown; blocky structure; sticky and very plastic when wet.
Subsoil—
10 to 18 inches, dark-gray, very firm clay; many coarse mottles of strong brown; prismatic and blocky structure; very sticky and very plastic when wet.
18 to 28 inches, gray, very firm clay; many coarse mottles of strong brown; prismatic and blocky structure; very sticky and very plastic when wet.
28 to 35 inches, gray, dark-gray, and strong-brown, firm silty clay; blocky structure; sticky and very plastic when wet; some weathered, waterworn pebbles and cobbles.
Substratum—
35 to 42 inches +, olive-gray, strong-brown, and gray, massive clay mixed with numerous weathered and decomposed pebbles and cobbles.

The surface layer is generally about 10 inches thick but in some places that have received recent overwash it is as much as 22 inches thick over clay. In a few places the subsoil is nearly massive.

Near the town of Hebo, several small areas of Hebo silty clay loam soil on terraces with slopes up to 4 percent are included. The soil on these slopes is somewhat better drained than that having less gradient, and it is not ponded. Also included are small patches of the Knappa or Meda soils.

Natural drainage is poor, runoff is very slow, and the subsoil clay is very slowly permeable. The available water-holding capacity is moderate to low; root penetration is shallow. The hazard of erosion is slight. The soil is low in fertility, high in organic matter, and very strongly acid.

Most areas of this soil have been cleared. Some areas have been drained by use of open ditches and tile, but most of the acreage has not been drained. Crops on some drained areas are irrigated through sprinklers. Tussocks are always in undrained pasture, because grass will offer them very little competition (fig. 12). (Capability unit IVw–2; woodland suitability group 5.)

Hembre Series

The Hembre series consists of deep to moderately deep, well-drained, strongly acid to very strongly acid soils. The soils occupy positions that range from gently sloping foothills to very steep mountains in the coast range. They have developed mainly from basic igneous rocks. The Hembre soils are closely associated with the Neskowin soils near the communities of Oretown and Neskowin and with the Knappa and Hebo soils. Neskowin soils generally occupy fern-covered slopes adjacent to the coast. The Hembre and Astoria soils make up nearly all the soils on uplands in the Tillamook survey area. The vegetation is mainly Douglas-fir, hemlock, alder, fern, and salal.

The surface soil is dark reddish brown, friable, and granular; the subsoil is reddish brown, firm, and subangular blocky. In most places the profile contains a large amount of cobblestones and gravel. In some places the lower subsoil is more than 50 percent stone. In most areas the subsoil is underlain by weathered and broken hard rock. The Hembre soils on gentle slopes have deeper profiles and contain fewer stones than those on steeper slopes.

The Hembre soils are mainly in forests in which Douglas-fir and hemlock are the most valuable species. The gently sloping Hembre soils on foothills along the valleys are used for pasture and hay.

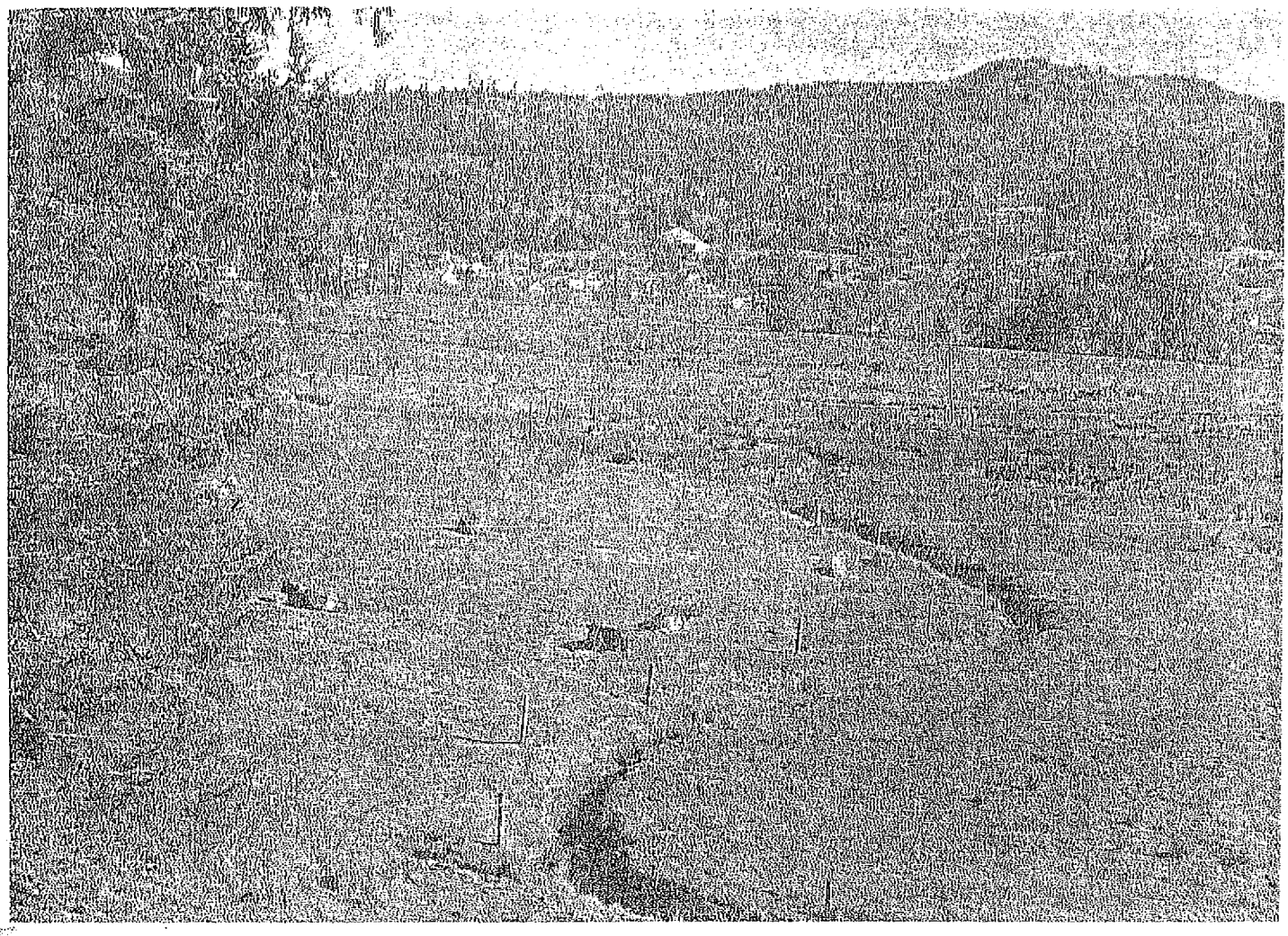

Figure 12.—The open ditch helps to drain an area of Hebo soils. The tussocks shown on right side of photograph are growing on imperfectly drained Chitwood soil.

Hembre silt loam, 20 to 40 percent slopes (HeF).—This soil occupies slopes above the valley foothills.

Representative profile in a logged area:

Surface layer—
- 0 to 11 inches, dark reddish-brown, friable (dark brown and soft, dry) silt loam; granular structure.
- 11 to 17 inches, dark-brown, friable silt loam; granular structure; slightly sticky and plastic when wet.

Subsoil—
- 17 to 29 inches, reddish-brown, firm silty clay loam; subangular blocky structure; sticky and plastic when wet; approximately 35 percent of layer consists of small stones.
- 29 to 38 inches, reddish-brown, firm very stony silty clay loam; subangular blocky structure; sticky and plastic when wet; approximately 60 percent of layer consists of small stones.

Substratum—
- 38 inches +, broken, igneous rock.

The chief variation is in the depth to igneous rock and in the amount of small, angular, broken stones in the profile. Texture ranges from silt loam to light silty clay loam, but silt loam predominates. The subsoil ranges from reddish brown to dark brown and in places is yellowish brown.

Included in this mapping unit are small areas of Astoria soils on the lower slopes.

Natural drainage is good, runoff is medium, and permeability is moderate. The available water-holding capacity is moderate to high. Root penetration is deep. The hazard of erosion is moderate. The soil is medium in fertility, moderately high in organic matter, and strongly to very strongly acid. There are a few small concretions of iron and manganese throughout the profile.

Nearly all of this soil is in natural vegetation consisting of hemlock and Douglas-fir forest. Production is higher than on any other forested soil in the Tillamook survey area. (Capability unit VIe–2; woodland suitability group 11.)

Hembre silt loam, 40 to 60 percent slopes (HeG).—This soil is similar to Hembre silt loam, 20 to 40 percent slopes, except that the slopes are very steep and mountainous. Runoff is rapid, and the hazard of erosion is severe. Included with this soil are a few small areas of Rock land. Hembre silt loam, 40 to 60 percent slopes, is the most extensive soil in the Tillamook survey area. It is all in forests of hemlock and Douglas-fir. (Capability unit VIIe–2; woodland suitability group 12.)

Hembre silt loam, moderately deep, 40 to 60 percent slopes (HmG).—This soil is similar to Hembre silt loam, moderately deep, 20 to 40 percent slopes, except that on convex slopes it tends to be shallower and in some local areas it is less than 20 inches thick over hard rock. Rock outcrops are included with this soil.

Runoff is rapid, and the erosion hazard is severe. The soil is all in forests of hemlock and Douglas-fir. Slope and shallow soil restrict tree growth. (Capability unit VIIe-2; woodland suitability group 12.)

Hembre silt loam, 3 to 12 percent slopes (HeC).—This soil is similar to Hembre silt loam, 20 to 40 percent slopes. In most places it is 60 inches or more thick and has only a few stones in the profile. The hazard of erosion is slight. A few small areas of Knappa and Hebo soils are included. About half the acreage of this soil is used mainly for hay and pasture. Moderate yields are obtained if fertilizer is applied. (Capability unit IIIe-1; woodland suitability group 10.)

Hembre silt loam, 12 to 20 percent slopes (HeD).—This soil is like Hembre silt loam, 20 to 40 percent slopes, except that it generally has a deeper, less stony profile. Hard igneous rock generally is 50 to 60 inches below the surface. The erosion hazard is moderate. Part of this soil is in a permanent cover of grasses and legumes that are harvested for pasture or hay. (Capability unit IVe-1; woodland suitability group 10.)

Hembre silt loam, moderately deep, 20 to 40 percent slopes (HmF).—This soil differs from Hembre silt loam, 20 to 40 percent slopes, in having only a moderately deep profile over bedrock and not so much development of structure. Generally the soil consists of more than 50 percent stones and is 25 to 30 inches thick over hard rock. Root penetration is moderately deep; the available water-holding capacity is moderate. The hazard of erosion is moderate. Nearly all of this soil is in forest. Hemlock and Douglas-fir are the most important species. (Capability unit VIe-2; woodland suitability group 11.)

Knappa Series

The Knappa series consists of well-drained, moderately deep to very deep, nearly level to strongly sloping soils on terraces along the sloping foothills. The Knappa soils formed in deep old valley fill (alluvium) that originated mainly from shale and some basic igneous rock. They are associated with the Astoria, Quillayute, Chitwood, and Hebo soils and are the most extensive soils on valley slopes in the Tillamook survey area. The original vegetation was Douglas-fir, hemlock, and alder.

The surface soil is very dark brown, friable, and granular. The subsoil is dark brown to dark yellowish brown, firm, and subangular blocky. The substratum in many places contains numerous weathered and partly decomposed pebbles.

The Knappa soils are used mainly for grasses and legumes harvested for pasture, hay, and silage. Only a few acres on the stronger slopes are not cleared. Where water is available, supplemental irrigation is applied through sprinklers to improve the yields of crops.

Knappa silt loam, 0 to 7 percent slopes (KoB).—This soil is on nearly level and very gently sloping terraces between the upland and the flood plain. The substratum generally contains numerous small stones and pebbl

Representative profile observed in a grass pastu

Surface layer—

0 to 14 inches, very dark brown, friable (dark brown s soft, dry) silt loam; granular structure; few concreti of iron and manganese.

Subsoil—

14 to 27 inches, dark-brown, firm silty clay loam; s angular blocky structure; sticky and plastic when v

27 to 48 inches, dark yellowish-brown, firm silty c loam; subangular blocky structure; sticky and pla when wet.

48 to 60 inches +, dark yellowish-brown, firm silty c loam; subangular blocky structure; slightly sticky s plastic when wet; some weathered and partly dec posed pebbles.

The chief variations are in the color of the subs which ranges from dark brown to yellowish brown, a in the amount and depth to gravel in the substratu Layers of gravel are not present, but pebbles may numerous and in places are within 40 inches of surface.

Mapped with this soil are small areas of the Quillay soils on terraces. Small areas of the Chitwood s Hebo soils are included in depressions.

Natural drainage is good, runoff is slow, and hazard of erosion is slight. Subsoil permeability is m erate. The available water-holding capacity is hi Root penetration is very deep. The soil is mediun organic matter and in fertility and is very strongly a

This soil is used mainly for hay and pasture. Tl crops need supplemental fertilization to improve yie Most areas are irrigated through sprinklers. (Capabi unit IIe-1; woodland suitability group 3.)

Knappa silt loam, moderately deep, 0 to 12 perc slopes (KmC).—This soil differs from Knappa silt lo 0 to 7 percent slopes, in that pebbles are very numer in the lower substratum at a depth of 24 to 36 inc As a rule, pebbles are scattered throughout the pro The soil is somewhat droughty, and the available wa holding capacity is moderate. The depth to which r can penetrate is limited by the underlying gravel. main inclusions are small areas of gravelly Meda s

Knappa silt loam, moderately deep, 0 to 12 per slopes, is used mainly for hay and pasture. These c need fertilizer. Some of them are irrigated thro sprinklers to improve yields. (Capability unit III woodland suitability group 3.)

Knappa silt loam, 7 to 12 percent slopes (KoC).—T soil is on the gently and strongly sloping terraces a foothills, and it differs but slightly from Knappa loam, 0 to 7 percent slopes. The profile is somev shallower over gravel. This soil includes areas of Astoria, Meda, and Chitwood soils. It is used ma for hay and pasture. These crops need supplem fertilization. Some of them are irrigated through sp klers to improve the yield. (Capability unit III woodland suitability group 3.)

Made Land (Ma)

This unit consists of approximately 3 square mil land leveled for a blimp base in the Second World Hills were cut and low areas filled to form a level su consisting of heterogeneous material that originated marine sediment, alluvial terraces, and recent alluv

This is the only large tract of Made land in the Tillamook survey area. It is now used mainly as an airport and for various industrial developments. (Capability unit VIIIs-1; woodland suitability group 18.)

Meda Series

The Meda series consists of deep, well-drained, gently sloping to moderately steep soils on alluvial fans and foot slopes. The soils formed in unassorted material that sloughed and washed from residuum outcroppings of shale and occasionally mixed with igneous rocks. They are associated with the Knappa, Chitwood, Quillayute, and Ginger soils on terraces and with the Astoria and Hembre soils on uplands. The original vegetation was Douglas-fir, hemlock, red alder, and redcedar.

The surface soil is very dark grayish brown, friable, and granular. The subsoil is dark brown, friable, and subangular blocky. Pebbles, stones, and fragments of shale are on the surface and throughout the profile. Meda soils on the more recently deposited alluvial fans show the least textural and structural development.

Meda soils are used chiefly for hay and pasture. A small acreage is still in native vegetation.

Meda gravelly loam, 3 to 12 percent slopes (MeC).—This soil is on gently to strongly sloping foot slopes and fans.

Representative profile observed in a pasture:

Surface soil—
0 to 9 inches, very dark grayish-brown, friable (dark-brown and soft, dry) gravelly loam; granular structure; numerous fragments of coarse sand, gravel, and shale.

Subsoil—
9 to 24 inches, dark-brown, friable gravelly clay loam; subangular blocky structure; many fragments of coarse sand, gravel, and shale.

Substratum—
24 to 36 inches +, dark-brown sandy loam; massive; abundant fragments of coarse sand, gravel, and shale.

Many small stones are scattered throughout the profile. In some places, the soil is nearly free of coarse-textured material. As a rule, very little textural or structural development has occurred below the surface layer. In some places, the parent material is wholly from igneous rock, and in other places it is from shale.

Small areas of the Knappa, Chitwood, Quillayute, and Ginger soils are included with this soil.

Natural drainage is good, runoff is slow to medium, and permeability is moderate. As a rule, the available water-holding capacity is moderate, but it varies according to the quantity of stone and gravel in the profile. The depth of root penetration also varies according to the quantity of these materials. The hazard of erosion is slight. The soil contains moderate amounts of organic matter, is strongly acid, and is medium in fertility.

This soil is used mainly for pasture and hay. These crops require the use of fertilizer. Some areas in forage crops are irrigated through sprinklers. (Capability unit IIIe-1; woodland suitability group 3.)

Meda gravelly loam, 12 to 20 percent slopes (MeD).—This soil occupies moderately steep foot slopes and fans. It differs from Meda loam, 3 to 12 percent slopes, in having somewhat more stones and gravel. This soil includes small areas of the Astoria and Hembre soils. Runoff is medium, and the hazard of erosion is moderate.

This soil is used mostly for pasture and hay. These crops need fertilizer to produce good yields. Douglas-fir and hemlock are the most valuable forest trees on this soil. (Capability unit IVe-1; woodland suitability group 3.)

Nehalem Series

The Nehalem series consists of well-drained, very deep, nearly level to gently sloping soils that occupy a large acreage of bottom lands. The Nehalem soils formed under forest in brownish, medium to moderately fine textured stream alluvium that washed from igneous and sedimentary rocks. They occur in association with the Gardiner, Nestucca, and Brenner soils. In places the surface is irregular because old, partly filled stream channels and swales are in the area.

The surface layer is very dark grayish-brown, very friable, granular silt loam. The subsoil is dark-brown, firm silt loam or silty clay loam with subangular blocky structure. In places recently deposited overwash consisting of coarse-textured, sandy layers occurs on and in the soil.

Some undulating and low areas next to fast-flowing streams are subject to damaging overflow during winter storms. This overflow deposits from ½ inch to 10 inches of silt and sand on the surface. In these areas, the fast-flowing current may scour out pits and may leave brush and logging debris scattered over the surface.

The Nehalem soils are used for pasture and forage crops. Most areas have been cleared.

Nehalem silt loam, 0 to 3 percent slopes (NoA).—This is the most extensive cropland soil in the Tillamook survey area. It occupies nearly level, well-drained bottom lands adjacent to the Nestucca, Brenner, and Gardiner series.

Representative profile observed in a pasture of tame grasses:

Surface layer—
0 to 17 inches, very dark grayish-brown, very friable (brown and soft, dry) silt loam; granular; strongly acid.

Subsoil—
17 to 37 inches, dark-brown, firm silty clay loam; very fine, subangular blocky structure; slightly sticky and plastic when wet; very strongly acid.
37 to 60 inches +, dark-brown, firm silty clay loam; very fine, blocky structure; sticky and plastic when wet; very strongly acid.

The chief variations are in stratification of the profile. In some places strata of sandy material are throughout the profile as well as on the surface. In places faint mottles of gray are in the subsoil and substratum.

Small areas of the well-drained Gardiner and of the moderately well drained Nestucca soils are included with this soil.

Natural drainage is good, runoff is slow, and permeability is moderate. The available water-holding capacity is high; root penetration is very deep. The hazard of erosion is slight. The soil is medium in organic matter, high in fertility, and strongly acid. It is among soils that are lowest in acidity in the survey area.

This soil is used mostly for pasture and hay. Most areas have been cleared of timber, and the stumps and roots have been removed. In areas of this soil planted

to crops, fertilizer and supplemental irrigation are needed to improve yields.

Most of the dairy farms on this soil are irrigated through sprinklers in summer to supplement the soil moisture. (Capability unit I-1; woodland suitability group 1.)

Nehalem silt loam, overwashed, 3 to 7 percent slopes (NeB).—This soil differs from Nehalem silt loam, 0 to 3 percent slopes, in that it formed in more recent alluvium and has a very weak structure. Fresh deposits of silt and sand ranging from 1 to 10 inches in thickness cover the area. This soil generally occurs in sharp bends of streams and is flooded during times of high water. Floods scour the soil in many places and leave brush and logging debris on the surface. This soil has an area of only 173 acres and is used exclusively for pasture and hay.

Leveling and removal of debris are necessary before new pastures can be seeded. Establishing new seedings on fresh alluvium is a problem because the fresh material is droughty. This soil needs a vegetative cover during the winter months to protect it from the scouring action of floods. Weeds are a problem because the seeds are carried to this soil by floods. Some areas of this soil in crops are irrigated through sprinklers. (Capability unit IVe-2; woodland suitability group 17.)

Neskowin Series

The Neskowin series consists of well-drained, dark-colored, strongly acid soils that have formed in residuum that weathered from igneous rocks. The Neskowin soils occur on moderately steep to very steep uplands near Oretown and Neskowin, and they are associated with the Hembre and Winema soils. The parent material resists weathering; so only shallow to moderately deep soils have formed. The original vegetation probably was grasses and ferns. Sitka spruce and red alder occur in isolated areas, but the trees are stunted by wind blast from the ocean.

The surface soil is very dark brown to almost black, friable, and granular. The subsoil is dark brown, friable, and subangular blocky. Fragments of the parent rock are throughout the profile, and they are most numerous in the lower subsoil. The soils are underlain at a depth of 14 to 30 inches by fractured igneous rock. The dark color of these soils is attributed chiefly to the ferns and grasses under which the soils have formed.

The Neskowin soils are used chiefly for natural brushy pasture. Some forage crops are grown on the gentle slopes with the help of fertilizer.

Neskowin silty clay loam, 20 to 40 percent slopes (NkF).—This soil is the most extensive of the Neskowin series and occupies the windward side of steep uplands adjacent to the ocean.

Representative profile observed in an isolated area of spruce with an understory of ferns and grasses:

Surface layer—
0 to 12 inches, very dark brown, friable (dark-brown and slightly hard, dry) silty clay loam; granular structure; sticky and plastic when wet; few pebbles and small concretions of iron.

Subsoil—
12 to 17 inches, dark reddish-brown, friable silty clay loam; subangular blocky structure; sticky and plastic when wet; few small stones.

17 to 27 inches, dark-brown, friable silty clay loam; sul angular blocky structure; sticky and very plastic whe wet; approximately 30 percent of layer is small stone

Substratum—
27 inches +, slightly weathered igneous rock; fractured

The main variation is that the parent rock is from 1 to 30 inches below the surface.

Included with this soil are numerous stringers of th Winema soils at the bases of slopes, outcrops of bare roc in places, and very shallow soil in small areas.

Natural drainage is good, runoff is rapid, and permea bility is moderately slow. The available water-holdin capacity is moderate; root penetration is moderatel deep. The erosion hazard is moderate. The soil is ver high in organic matter, moderately low in fertility, an strongly acid. A few small concretions of iron are in th surface layer. Nearly all of this soil is used for nature brushy pasture. (Capability unit VIe-3; woodland suita bility group 14.)

Neskowin silty clay loam, 40 to 60 percent slope (NkG).—This soil differs from Neskowin silty clay loan 20 to 40 percent slopes, in having a shallower profile o south and southwest slopes. In addition it contains high percentage of stones.

Neskowin silty clay loam, 40 to 60 percent slopes, oc cupies the very steep mountain slopes adjacent to th ocean. Runoff is very rapid and the erosion hazard i severe.

Most of this soil is used for native brushy pastur mainly for sheep. Most areas are covered by a thi stand of stunted Sitka spruce and red alder. (Capabilit unit VIIe-3; woodland suitability group 15.)

Neskowin silty clay loam, 12 to 20 percent slope (NkD).—This soil occupies the saddles between ridges an the broad ridgetops. It contains fewer stones and deeper than the other Neskowin soils. It generally aver ages about 30 inches to the parent rock. Runoff is me dium, and the hazard of erosion is moderate.

Most of this soil is used for pasture, but some on th gentler slopes is used for hay. Areas in crops need fe tilizer. (Capability unit IVe-1; woodland suitabilit group 13.)

Nestucca Series

The Nestucca series consists of deep, imperfectl drained soils on nearly level bottom lands having sha low swales and depressions. On broad bottoms of larg streams, the Nestucca soils occupy positions farther from the streams; in the narrow bottoms, they occup the entire bottom land. Nestucca soils formed in th recent medium- and fine-textured alluvium that washe from mixed sedimentary and igneous rocks. The orig nal vegetation was a mixture of trees and shrubs an some water-tolerant plants.

The surface layer is dark brown, very friable, an granular. The subsoil is dark grayish brown, with coar stains of reddish brown, and is firm and subangula blocky.

Where the Nestucca soils grade to the Nehalem soil the subsoil contains fewer mottles; where Nestucca soi grade to the Brenner soils, the mottles are closer the surface.

The Nestucca soils are used for pasture and forag crops.

Nestucca silt loam (Ns).—This soil has slopes of 0 to 3 percent, and it occupies flood plains adjacent to alluvial terraces.

Representative profile observed in a grass pasture:

Surface layer—
0 to 14 inches, dark-brown, friable (brown and soft, dry) silt loam; granular structure.
Subsoil—
14 to 41 inches, dark grayish-brown, firm silty clay loam mottled with coarse stains of reddish brown; subangular blocky structure; sticky and plastic when wet.
Substratum—
41 to 60 inches +, dark-gray, firm silty clay mottled with many coarse stains of dark reddish brown; massive; very sticky and plastic when wet.

The chief variation is in the degree of mottling and the amount of fine-textured particles in the subsoil. The surface soil in some instances contains faint stains of reddish brown. As the soil grades toward the restricted drainage typical of the Brenner soils, the subsoil color becomes grayer, and the texture becomes finer. The soil is intermediate between the well-drained soils and the imperfectly drained soils. Profile colors indicate the degree of natural drainage.

In transitional areas, this soil may include small areas of the Brenner, Nehalem, or Hebo soils. Small patches of Brallier peat are included in some places.

This soil is moderately well drained. The subsoil is moderately permeable. Runoff is very slow, and the hazard of erosion is slight. The available water-holding capacity is high; root penetration is deep. The soil is medium in organic matter, moderately high in fertility, and strongly acid.

Open ditches and tile have been used to improve the drainage in many areas of this soil. However, most of the soil still needs drainage. After drainage has been improved, fertilizers are needed to grow crops successfully. Some areas are irrigated through use of sprinklers. (Capability unit IIw-2; woodland suitability group 5.)

Netarts Series

The Netarts series consists of deep, excessively drained soils on the older, moderately steep to strongly sloping, stabilized dunes near the coast. Netarts soils make up most of the acreage of the older stabilized dunes. Large acreages of these soils are near Nehalem, Manzanita, Netarts, Oceanside, and Sand Lake, in association with the Yaquina soils. The native vegetation consists of shore pine and an understory of huckleberry, manzanita, kinnikinnik, and rhododendron. A few stands of Douglas-fir and hemlock are on the older dunes.

The surface soil is black to grayish brown, and loose to very friable. The subsoil is dark brown to reddish brown. It has very firm nodules consisting of iron-cemented sand grains and is underlain by yellowish-brown and grayish-brown, very friable fine sand.

The Netarts soils have no agricultural value but are well suited to recreational uses. A minor use has been made of the timber, and some use has been made of the shrubs by those who pick and sell the foliage.

Netarts fine sandy loam, 7 to 30 percent slopes (NtE).—This soil occupies old sand dunes near the ocean.

Representative profile observed under native vegetation:

1½ inches to 0, litter of partly decomposed pine needles, leaves, and roots.
Surface layer—
0 to 3 inches, black, very friable fine sandy loam; massive; extremely acid.
3 to 7 inches, dark grayish-brown and light brownish-gray, very friable loamy fine sand; massive; very strongly acid.
7 to 13 inches, grayish-brown and light yellowish-brown loamy fine sand; few, firm, dark-brown, iron-cemented nodules; strongly acid.
Subsoil—
13 to 35 inches, reddish-brown to dark-brown, very friable to firm, fine sand; numerous, large, very firm nodules of iron-cemented sand.
35 to 52 inches, yellowish-brown and brownish-gray, very friable fine sand; few weakly cemented nodules.
Substratum—
52 inches +, pale-yellow and dark grayish-brown, very friable fine sand.

The chief variation is in degree of profile development. The development of a profile in Netarts soils is related to the age of stabilization of the dunes and to the type of vegetation that followed stabilization. The soils in the Netarts-Oceanside area and those that adjoin Sand Lake have a strongly developed profile, which is typical of the Netarts series. The soils near the Nehalem-Manzanita vicinity have only a weakly developed profile but also have the definite gray color of the leached surface soil and the brown to reddish-brown iron cementation in the subsoil.

Included with this soil are small, irregular patches of active sand dunes or of Brallier peat. Also included are areas of Yaquina soils too small to be mapped separately.

Natural drainage is excessive, runoff is very slow, and permeability is very rapid. The available water-holding capacity is very low; root penetration is deep. The hazard of wind erosion is severe. The soil is low in organic matter and fertility and is very strongly acid.

Use of this soil is limited to the growth and harvest of the natural cover—shore pine and spruce for wood, and shrubs for foliage. (Capability unit VIIe-4; woodland suitability group 16.)

Quillayute Series

The Quillayute series consists of moderately deep to very deep, well-drained, very strongly acid soils on stream terraces in the central part of the Tillamook survey area. Most of the Quillayute soils are nearly level, but some are gently undulating and strongly sloping. The Quillayute soils are associated with the Meda, Knappa, Ginger, and Hebo soils. They formed in old alluvium that originated in mixed igneous and sedimentary rocks. The natural vegetation probably was bracken fern, brush, and some grass. Spruce and hemlock are in a few scattered places.

The surface soil is black, friable, and granular. The subsoil is dark grayish brown to dark yellowish brown, friable, and subangular blocky. At a depth of 26 to 120 inches, the Quillayute soils are underlain by stratified layers of compacted gravel and coarse sand. As a rule, the layer of gravel is nearer to 120 inches than to 26 inches from the surface. The Quillayute soils occur on two terrace levels. Those on the lower terrace have a

shallower profile and have the layer of underlying gravel nearer the surface.

The Quillayute soils are used for improved pasture and forage crops.

Quillayute silt loam, 0 to 7 percent slopes (QoB).—This soil occupies nearly level to gently sloping terrace positions between the upland and flood plain and is adjacent mainly to the soils of the Ginger and Hebo series.

Representative profile observed in a pasture of native and tame grasses:

Surface layer—
0 to 21 inches, black, friable (very dark gray and soft, dry) silt loam; granular structure.

Subsoil—
21 to 30 inches, very dark grayish-brown, friable, light silty clay loam or silt loam; granular structure; slightly sticky and slightly plastic when wet.
30 to 48 inches, dark yellowish-brown, silty clay loam or silt loam; subangular blocky structure; sticky and plastic when wet.
48 to 60 inches +, light yellowish-brown, firm silty clay loam or silt loam; subangular blocky structure; sticky and plastic when wet.

The chief variation is in the thickness of the black surface horizon. This horizon is generally shallower in soils that occupy positions on the lower terraces. In places waterworn gravel occurs throughout the profile.

Included with this soil are small depressed areas of the Ginger and Hebo soils and convex areas of the Meda and Knappa soils.

Natural drainage is good, runoff is medium, and permeability is moderate. The available water-holding capacity is high; root penetration is deep. The hazard of erosion is slight. The soil is very high in organic matter, moderately low in fertility, and very strongly acid.

This soil is used mainly for improved pasture and hay. Areas in these crops require fertilizer. The crops respond to sprinkler irrigation. Spruce and hemlock are in a few small areas. (Capability unit IIe-1; woodland suitability group 4.)

Quillayute silt loam, moderately deep, 0 to 12 percent slopes (QmC).—This soil occurs in nearly level to sloping and undulating terrace positions in the South Prairie community along the Tillamook River. It is similar to Quillayute silt loam, 0 to 7 percent slopes, but has weak structure and at a depth of 26 to 36 inches is underlain by a layer of coarse sand and gravel. Small areas of this soil also occur on strongly sloping terrace escarpments that join the bottom land. Included with this soil, where the terrace joins the uplands, are small patches of Meda soil.

Natural drainage is good, runoff is medium, and permeability is moderate. The available water-holding capacity is moderate; root penetration is moderately deep. The hazard of erosion is slight. This soil is very high in organic matter, moderately low in fertility, and very strongly acid.

This soil is used principally for improved pasture. Areas in pasture require fertilizer and irrigation. (Capability unit IIIe-1; woodland suitability group 4.)

Riverwash (Re)

This mapping unit consists of a wide variety of coarse sand, gravel, cobblestone, and other sediment that has recently been deposited by streams. This material generally occurs in narrow, broken strips on flats and banks near the banks of streams. It is also in the beds of many abandoned cutoffs and meanders.

Riverwash generally has a level to slightly undulating surface and is slightly higher than the normal level of the channels in which it occurs. It is subject to frequent flooding, and its boundaries are constantly changing. The depth, area, and layering of the deposits and the size of aggregates in the deposits depend on the source of the sediment, the gradient of the channel, and the size of the stream. Shale sediment first breaks down into small stones or gravel; basalt disintegrates into large boulders and gradually into material the size of stone and gravel. Deposits of riverwash are generally many feet thick over old marine sediment or shale bedrock.

Riverwash of recent deposition is generally bare of vegetation, but older deposits covered by a thin layer of silty material have grasses, willows, and alders growing on them.

The only use of Riverwash is for channel protection and as material used in construction. (Capability unit VIIIs-1; woodland suitability group 18.)

Rock Land (Ro)

This miscellaneous land type occurs on mountain ridge tops, and it consists of 40 to 70 percent of rock outcrop and very shallow soil. The Tillamook survey area has 49 acres of this land type. About 15 percent of the acreage is covered in stunted Douglas-fir, occasional salal and red huckleberry. This land type is useful only for wildlife and recreation. (Capability unit VIIIs-1; woodland suitability group 18.)

Tidal Flats (Tf)

This land type consists of low tideland adjacent to bays and inlets along the coast. It includes the barren, nearly flat areas of mud, periodically covered by tidal water. The lower Tidal flats are covered by water daily; the higher parts may be covered only when tides are unusually high.

Tidal flats consist of mud and raw peat that are little altered and show very little, if any, weathering. Normally, tidal flat material has an excess of soluble salts and most of the sparse native vegetation growing on it can tolerate the salts. The surface of tidal flats generally is not hard enough to support a man, except in dry summer months and at low tide. Tidal flats have practically no agricultural value. (Capability unit VIIIw-1; woodland suitability group 18.)

Winema Series

The Winema series consists of dark-colored, well-drained, deep to moderately deep soils on the lower slopes along river valleys and on hills adjacent to the coast. Slopes are gentle to steep, moderately long, and smooth. They have mostly a south or southwest exposure. The Winema soils are associated with the Astoria, Hembre, and Neskowin soils on uplands and with the Quillayute soils on terraces. Large areas of Winema soils are near Bay City, Trask River, Oretown, and

Neskowin. The Winema soils formed from soft gray shale under ferns and grasses. Sitka spruce occurs in small groups scattered over the area of Winema soils.

The surface soil is black, friable, and granular. The subsoil is dark brown to dark yellowish brown, firm, and subangular blocky. In places the black, highly organic surface soil rests directly on yellowish-gray shale.

Winema soils are used principally for improved pasture and forage crops. The steep areas are used primarily for sheep pasture.

Winema silt loam, 20 to 40 percent slopes (WeF).—This soil occupies moderately long, smooth, steep windward slopes of uplands adjacent to the ocean.

Representative profile on a south slope in a pasture of grasses and ferns:

Surface layer—
0 to 21 inches, black, friable (very dark gray and soft, dry) silt loam; granular; slightly sticky and slightly plastic when wet; contains a large quantity of fibrous and sooty organic matter.

Subsoil—
21 to 28 inches, dark-brown, firm silty clay loam; subangular blocky structure; sticky and plastic when wet; few, small, decomposed fragments of shale.
28 to 42 inches, dark yellowish-brown, firm silty clay; subangular blocky structure; sticky and plastic when wet; many decomposed fragments of shale.

Substratum—
42 to 60 inches +, variegated brown and yellowish-brown silty clay; massive; mixed with slightly weathered soft shale.

The chief variation is in the depth to weathered shale and in the thickness of the subsoil. In some places weathered shale is 72 to 80 inches below the surface, and in other places it is only 20 to 36 inches from the surface. The thickness of the surface layer generally does not change.

Included with this soil are small areas of the Neskowin, Hembre, and Astoria soils.

Natural drainage is good, runoff is rapid, and permeability of the subsoil is moderate. The available water-holding capacity is high; root penetration is deep. The hazard of erosion is moderate to severe. The soil is very high in organic matter, moderately low in fertility, and very strongly acid.

The mild slopes are used for improved pasture; the steep slopes are in native vegetation and are used for sheep pasture. Some acreage is in Sitka spruce. (Capability unit VIe–3; woodland suitability group 8.)

Winema silt loam, 3 to 12 percent slopes (WeC).—This soil is on gently sloping to rolling positions at the bases of slopes along valleys. It is somewhat deeper than Winema silt loam, 20 to 40 percent slopes, but otherwise varies only slightly from it. Runoff is slow to medium, and the hazard of erosion is slight. Included with this soil are small areas of Quillayute soils.

This soil is used almost entirely for improved pasture and hay. Fertilizer is needed for these crops. (Capability unit IIIe–1; woodland suitability group 7.)

Winema silt loam, 12 to 20 percent slopes (WeD).—This soil occupies the moderately steep valley slopes. Its profile is similar to that of Winema silt loam, 20 to 40 percent slopes. Runoff is medium, and the hazard of erosion is moderate.

This soil is used almost exclusively for improved pasture; some small acreages are harvested for hay. (Capability unit IVe–1; woodland suitability group 7.)

Winema silt loam, moderately deep, 20 to 40 percent slopes (WmF).—This soil occurs mainly in the vicinities of Oretown and Neskowin. It is like Winema silt loam, 20 to 40 percent slopes, except that the parent shale is 22 to 34 inches below the surface, and the surface soil is thinner over a thin subsoil horizon. In some places the surface soil rests on weathered shale.

In a typical profile of Winema silt loam, moderately deep, 20 to 40 percent slopes, the surface layer is 12 to 20 inches of black, friable, granular silt loam; the subsoil is 5 to 12 inches of very dark grayish-brown to dark-brown, firm, subangular blocky silty clay loam, underlain by weathered grayish and yellowish shale. Included with this soil are small areas of the Astoria, Hembre, and Neskowin soils.

The available water-holding capacity is moderate, root penetration is moderately deep, and the erosion hazard is moderately severe. The soil is very strongly acid. It is used mainly as native pasture for sheep. Small areas of spruce are scattered over the soil. (Capability unit VIe–3; woodland suitability group 8.)

Winema silt loam, moderately deep, 12 to 20 percent slopes (WmD).—This soil is on strongly sloping lower uplands and foothills. The profile is like that of Winema silt loam, moderately deep, 20 to 40 percent slopes. The hazard of erosion is moderate. The soil is used entirely for improved pasture. (Capability unit IVe–1; woodland suitability group 7.)

Yaquina Series

The Yaquina series consists of nearly level, imperfectly drained soils in low, interdune positions along the coast. The Yaquina soils formed in beach sand and in the sand of old dunes that were leveled by the action of wind and water. They are associated with the Netarts and Brallier soils. The height of the water table fluctuates from 1 to 5 feet. The vegetation consists of shore pine, rhododendron, azalea, spirea, salal, huckleberry, honeysuckle, and scattered spruce.

The surface soil is gray, loose, and single grained. The subsoil is dark grayish-brown to grayish-brown, loose, fine sand. Under native vegetation, the surface layer is a mixture of very dark gray to almost black organic matter and sand, ½ inch to 1 inch thick. Near Sand Lake the soil is underlain by bluish-gray to gray tidal mud. In some areas the profile has dark-colored, buried horizons of an older soil that are high in organic matter.

Yaquina soils are used chiefly for pasture and forest, but there are several very small acreages that produce good yields of cranberries and blueberries. Yaquina soils are also used for small-acreage suburban homesites.

Yaquina loamy fine sand, 0 to 3 percent slopes (YoA).—This soil occurs in depressions between old, stabilized sand dunes.

Representative profile observed under a cover of shore pine, huckleberry, and salal:

½ inch to 0, very dark gray, very friable, partly decomposed mixture of organic matter and loamy fine sand.

Surface layer—
0 to 6 inches, gray, loose loamy fine sand (light gray and loose, dry); single grained.

Subsoil—
6 to 14 inches, dark grayish-brown, loose fine sand; coarse, distinct stains of reddish brown and yellowish red; single grained; few firm, iron-cemented nodules.
14 to 30 inches, grayish-brown, loose fine sand; few, fine stains of yellowish brown; single grained.
Substratum—
30 to 42 inches +, variegated brown and gray, loose sand; few, coarse stains of yellowish brown; single grained.

The chief variation is in the thickness of the leached surface layer, which ranges from 2 to 6 inches. In cultivation this horizon is mixed with the organic layer. The subsoil in places has noticeable iron cementation. In the vicinity of Sand Lake, the Yaquina soils contain buried surface horizons high in organic matter, and in places, the soils are underlain by tidal mud. Included with thi soil are small areas of the Netarts soil and very smal areas of Brallier peat.

Natural drainage is imperfect, runoff is very slow, an permeability of the subsoil is very rapid. The availabl water-holding capacity is low; root penetration is moder ately deep. The hazard of wind erosion is moderate The soil is low in organic matter and fertility and is ver strongly acid.

This soil is used for homesites and for improved pas ture, hay, and timber. Some cranberries and blueberrie are grown. Areas of this soil in cultivation requi drainage, fertilization, and irrigation. (Capability un IIIw–3; woodland suitability group 6.)

TABLE 6.—*Genetic relationships and great soil groups of the soil series in the Tillamook survey area*

Soil series	Great soil group	Parent material	Natural drainage	Natural vegetation
Astoria	Sols Bruns Acides	Sedimentary residuum	Good	Coniferous forest.
Brallier	Bog soils	Organic material	Very poor	Marsh.
Bremner	Low-Humic Gley soils	Recent alluvium	Poor	Coniferous forest.
Chitwood	Sols Bruns Acides	Old alluvium	Imperfect	Coniferous forest.
Coquille	Low-Humic Gley soils	Recent alluvium	Very poor	Marsh.
Gardiner	Alluvial soils	Recent alluvium	Good	Coniferous forest.
Gauldy	Alluvial soils	Recent alluvium	Good	Coniferous forest.
Ginger	Ando soils	Old alluvium	Imperfect	Shrubby grassland.
Hebo	Humic Gley soils	Old alluvium	Poor	Forest or grassland.
Hembre	Sols Bruns Acides	Basalt residuum	Good	Coniferous forest.
Knappa	Sols Bruns Acides	Old alluvium	Good	Coniferous forest.
Meda	Alluvial soils	Recent alluvium	Good	Coniferous forest.
Nehalem	Alluvial soils	Recent alluvium	Good	Coniferous forest.
Neskowin	Ando soils	Basalt residuum	Good	Shrubby grassland.
Nestucca	Alluvial soils	Recent alluvium	Imperfect	Coniferous forest.
Netarts	Podzols	Sand	Good	Shrub thicket.
Quillayute	Ando soils	Old alluvium	Good	Shrubby grassland.
Winema	Ando soils	Sedimentary residuum	Good	Shrubby grassland.
Yaquina	Podzols	Sand	Imperfect	Shrub thicket.

Genesis, Classification, and Morphology of the Soils[5]

This section discusses the formation of soils, their classification into great soil groups, and their physical and chemical properties.

Factors of Soil Formation

Five factors have determined the formation of soils in the Tillamook survey area. These factors are (1) climate, (2) plant and animal life, (3) parent material, (4) relief, and (5) time.

Except for time, each of these factors is a complex of natural phenomena. Climate is a complex of the quantity of rainfall and its seasonal distribution, cloudiness, temperature, and so on. Moreover, one group of factors influences another. Vegetation is very strongly influenced by climate. Parent material and relief are strongly interrelated. Characteristics of any soil are determined by and can be explained by these five factors. Table shows the parent material, drainage, vegetation, a great soil group of each soil series in the Tillamook su vey area.

Climate

Climatic data for the Tillamook survey area are giv in another section (see table 8, p. 70). In general t Tillamook survey area has high annual rainfall, abo half of which falls in winter. Temperatures are fair uniform throughout the year. Freezing temperatures a rare in the winter. Summers are cool.

Climate influences the formation of soils through control of (a) natural vegetation, and (b) of water su ply and temperature.

Soil temperature in the Tillamook survey area is pr ably never high. On the other hand, the soil is alm never frozen, and the process of soil formation can proc in winter. For about 5 months of the year, rainfall enough to allow frequent to almost continuous leachi During the relatively dry summers, the soil contains moisture, but in most years most soils are dried to wilting point in only the surface 6 inches. Thus, enou water is available the whole year for most processes soil formation other than leaching.

[5] This section was written by DR. ELLIS G. KNOX, Dept. of Soils, Oregon State University. DR. G. H. SIMONSON, Dept. of Soils, Oregon State University, supplied the tables of laboratory data. CLYDE C. BOWLSBY, Soil Conservation Service, prepared the soil profile descriptions.

Climate within the Tillamook survey area is fairly uniform. Variations large enough to produce significant soil differences are not known. However, there may be subtle differences that produced coniferous forest in some places and shrubby grassland vegetation in others.

Vegetation

Vegetation in the Tillamook survey area has not been studied in detail. Vegetation types have not been defined. Only general relationships are presented here. Four major kinds of natural vegetation may be recognized. They are coniferous forest, shrubby grassland, shrub thicket, and marsh.

The typical coniferous forest is in well-drained areas. Douglas-fir is the dominant forest tree except in areas that have been undisturbed for more than one generation of trees. In undisturbed areas, hemlock may be dominant; western redcedar, Sitka spruce, alder, and bigleaf maple are also present. Red huckleberry, salal, salmonberry, and swordfern are characteristic species in the understory. Coniferous forest on recent alluvium is more variable and may tend to include plants typical of shrubby grassland. In poorly drained areas, Sitka spruce, ash, rushes, sedges, and skunkcabbage tend to exclude the other species generally found in better drained areas of coniferous forest.

Shrubby grassland vegetation in well-drained areas consists of grasses, strawberry, cinquefoil, iris, bracken-fern, swordfern, other herbaceous plants, and generally the somewhat dwarfed forms of salal and evergreen huckleberry. Most areas in shrubby grass land vegetation have been cultivated or grazed; so the natural plant composition is less well known than in other areas. Shrubby grassland vegetation in wet areas has rushes and skunkcabbage but no shrubs.

The presence of shrubby grassland in an area that is dominantly coniferous forest has not been explained. On uplands, shrubby grassland tends to be restricted to areas within a limited distance from the coast, and it commonly occurs on headlands extending into the ocean. However, extensive areas also occur on uplands and on terraces that are as much as 5 miles from the coast. Salt spray, wind, fog, and fire have been offered as explanations for the presence of shrubby grassland. More than one simple explanation is probably involved.

Shrub thicket consists of very dense stands of shore pine, evergreen huckleberry, salal, manzanita, and rhododendron. This type of vegetation is restricted to beach and dune areas that have sandy parent material.

Marsh vegetation consists of rushes, bulrushes, sedges, grasses, and other grasslike plants. It occurs in tidal areas that are subject to inundation by fresh, brackish, or salt water.

Vegetation influences soil formation chiefly by controlling (1) the kind, amount, and depth distribution of organic material added to the soil, (2) the nutrient circulation, and (3) the degree of protection to the soil surface. Organic matter influences the production of organic solutions, which may take part in the leaching and rock decomposition processes. Nutrient circulation is the reutilization by plants of nutrients released in decay of organic residue. It is a common phenomenon but is particularly important where the soils are subject to a high leaching potential. Loss of nutrients from the root zone through leaching is reduced by interception of the nutrients by roots.

Marsh vegetation has not been a strong influence on soil formation. Soils on tidal areas are very weakly developed, and the influence of a high water table is strong.

The influence of shrub thicket vegetation is difficult to evaluate. The sandy parent material, to which it is restricted, may determine the character of the soils as much as, or more than, the vegetation. In any event, the circulation of nutrients has not been very effective. Organic matter has accumulated mostly on the soil surface.

Coniferous forests and shrubby grasslands have furnished a great amount of organic matter that has accumulated in the upper foot or more of soil. Circulation of nutrients evidently has maintained the meager supply of nutrients against a strong leaching potentiality.

Animals, such as earthworms, insects, and moles, that live in the soil have a retarding influence on soil development because they remix soil material. Micro-organisms are very important in the decomposition of plant and animal materials into soil organic matter and in transformation of nutrient elements from one chemical form to another.

Parent material

Soils of the Tillamook survey area have formed through the alteration of (1) residuum on hills, (2) alluvium on terraces, fans, flood plains, and tidal flats, (3) sand on beaches and in dunes, and (4) organic material. The size of particles, hardness of rock fragments, mineralogy, and thickness of the parent material are characteristics that have influenced the nature of the soils.

Parent material is not completely altered in the process of soil formation. As a result, the soils have many of the original characteristics of the parent material. For example, the soils on flood plains inherited their texture directly from the parent alluvium. The kind and extent of alteration of parent materials are limited by the original characteristics of the material. For example, the Hembre soils are redder than the Astoria soils because the parent material of the Hembre soils has more capacity for the production of reddish iron oxides than that of the Astoria soils.

Some types of parent material determine the course and direction of their own alteration. For example, the very rapid permeability and low water-holding capacity of dune sand and beach sand determine the kind of vegetation that will grow and the behavior of water in the soil. In this case permeability and water-holding capacity have influenced the trend of soil formation.

Residuum (or colluvium) forms through the weathering of bedrock on hill slopes. It is no longer absolutely in place but has moved downslope. It tends to be silty or loamy, and it varies in amount of rock fragments and in thickness.

Residuum that weathered from sedimentary rock—siltstone or mudstone—tends to be higher in clay and thicker over bedrock, and it contains fewer and softer stones than the residuum from basalt. Both types of residuum contain a range in minerals and, therefore, have a range in potential alteration in the process of soil

formation. Both kinds of residuum are basic in the lithologic sense, that is, they are low in silica and high in iron, magnesium, and calcium. There is little or no quartz in basalt residuum and probably less than 30 percent in sedimentary residuum.

Alluvium that washed from both kinds of rocks has been transported by water and deposited in a new location. In moving from one place to another, it was mixed enough so that the original characteristics were no longer distinct. The alluvium is said to have a mixed mineralogy.

Old alluvium forms river terraces. Young alluvium forms stream flood plains that merge into tidal flats, and it forms alluvial fans where small tributaries flow into valley streams. The older alluvium is silty and, in places, may contain some gravel. The younger alluvium in broad flood plains and tidal flats is silty or sandy. On narrow upstream flood plains, the younger alluvium is mainly hard, washed gravel. On fans, it is not well sorted but is generally loam and contains varying amounts of rock fragments.

Dune sand and beach sand are from the ocean. They probably weathered largely from basalt and sedimentary rocks, but the sorting and wearing action of the ocean has been severe. There is a narrow range in particle size, and a concentration of quartz.

The organic material has accumulated in place from rooted plants growing in wet areas.

Relief

Relief is strongly related to the origin of parent material. Thus, soils that formed in residuum are on the slopes of hills, those from alluvium are on the nearly level surfaces of valleys, and those from dune sand and beach sand are on short slopes in an irregular pattern of ridges and troughs.

Slope is an important part of relief. It strongly influences the disposition of precipitation and the susceptibility of a soil to water erosion or downslope movement. The amount of runoff increases, and the penetration of water decreases as the slope of a soil increases. All sloping soils in the Tillamook survey area readily take in water. Precipitation generally comes as steady, gentle rains. Rapid runoff is rare. No soil in the survey area is droughty simply because of steepness of slope.

In some places water concentrates on the soil or is retained in the soil, so that the soil is wet for a significant part of the year. Several degrees of wetness are recognized in classifying natural drainage. Soils that are less than well drained have formed on terraces, flood plains, and tidal flats, and in the troughs of dune areas and beach sand. In general, these soils are wet because of their position. The water table is near the soil surface. However, the Hebo soils are slowly permeable, and the retention of water by the soils themselves may contribute to their wetness.

Soils in the Tillamook survey area with their cover of natural vegetation are very resistant to water erosion, even on the steepest slopes. Mass movement of soil downslope, however, still occurs as it has in the past.

Time

The formation of soil from parent material takes time. Factors other than time being equal, young soils have more weakly expressed horizons than old soils.

Soils that formed in residuum on hills and those that formed from old alluvium on terraces are old enough to be moderately well developed. Soils that formed from the younger alluvium on flood plains and tidal flats are weakly developed. They are very little different from the material as it was originally deposited. Soils that formed in alluvium on fans are more variable in their development, but they are the most weakly developed.

Soils that formed in dune and beach sands may be fully as old as the soils that formed in old alluvium, or they may be younger. They are less well developed, but the mineralogy and coarse texture of the sand restrict the rate and amount of development.

The slumping of soils on hills destroys areas of residual soils through burial and by shattering and mixing of material in the slumped block. New surfaces are exposed to weathering. As a result, there are local differences in age of these soils and in the degree of soil development.

Genetic Processes and Soil Characteristics

Soils in the Tillamook survey area have formed from parent material through the action of many physical, chemical, and biological processes. The same general processes have acted on the parent material of all soils of the Tillamook Area and on the parent material of all the soils of the world. Differences in soils are the result of differences in parent material, and in differences in the relative importance of the various processes controlled by the other factors of soil formation.

Most of our information about the genetic processes is inferred from our knowledge of the results of these processes. The genetic processes produced the following important features in soils of the Tillamook survey area: (1) A horizon that has an accumulation of organic matter; (2) very low base saturation; (3) B horizon; (4) high porosity, low bulk density, and smeariness; (5) thick, dark colored horizon; (6) podzol sequence of horizons; (7) mottles and gray colors.

Each of these features is discussed in the paragraphs that follow. Table 7 shows the laboratory analyses of the Astoria, Hebo, Nehalem, Quillayute, and Winema soils.

The A horizon

Almost all soils of the Tillamook survey area have an A horizon with a pronounced accumulation of organic matter and with strong, stable structure. The amount of organic matter in the A horizon is a balance between additions, mainly from plants, and losses, mainly from oxidation, caused by microbial decomposition and the return of oxidation products to the atmosphere.

In the Sols Bruns Acides and Ando soils, the balance between additions and losses favors a high level of organic matter. (See table 7 for the laboratory analyses of Astoria, Quillayute, and Winema soils.) Soils that formed in recent alluvium have lower levels of organic matter because of the adverse effect of floods on natural vegetation and the continuing additions of alluvium during

ing floods. The amount of organic matter in Alluvial soils decreases less rapidly with depth than it does in the other soils. (See laboratory analysis of the Nehalem soils in table 7.) Organic matter in the soils formed in dune sand and beach sand will be discussed in a later paragraph.

Vegetation grows vigorously because of high rainfall, and it adds large amounts of organic matter to soils. However, decomposition is active most of the year because moisture conditions are favorable. Low summer temperatures, together with low base saturation, probably reduce the rate of decomposition, so that high levels of organic matter can be maintained in soils.

Base saturation

The well-drained soils, except those that formed in recent alluvium, are very low in base saturation (table 7). The Astoria, Quillayute, and Winema soils are extremely heavily leached because of high precipitation and the permeability of the soils. Nutrient circulation by plants has maintained the cations of calcium, potassium, and magnesium only at low levels. Wet soils, such as those of the Hebo series (table 7), are higher in base saturation than the well-drained soils. It is not known if the base saturation of the Ginger and Chitwood soils is more like that of the Hebo or more like that of the Astoria, Quillayute, and Winema soils. The higher base saturation of the wetter soils is probably caused by the movement of bases in ground water into these soils from the surrounding well-drained soils and to slower and less frequent drainage of water through these soils. Soils that formed in recent alluvium have higher base saturation (see data for the Nehalem soils in table 7) because of the continuing additions of fresh alluvium in floods.

The B horizon

The Astoria, Chitwood, Hembre, Knappa, and Hebo soils have a B horizon with clearly expressed soil structure. The B horizon contains more clay than the overlying A horizon. In addition, the ped and pore surfaces are smooth, as though they were coated with clay. However, except for the Hebo soils, microscopic studies show that clay on these surfaces is not oriented as it would be if it had moved in soil water from the A horizon to the B horizon. The higher content of clay in the B horizon than that in the A horizon must be the result of the greater formation of clay in the B horizon or the greater destruction of clay in the A horizon. Very young soils commonly do not show evidence of clay movement from one horizon to another horizon. One explanation for the lack of such evidence in the Astoria, Chitwood, Hembre, and Knappa soils is that these soils and the surfaces on which they have formed are too young. Alternatively, these soils may have no tendency for movement of clay in the soil water.

The Hebo series has a "tough" B horizon that is high in clay. Superficially, this suggests strong textural development. However, the increase in clay from the A to the B horizon is not large or abrupt, and it is possible that the clay has been inherited from the parent material rather than having been formed in the soil as a result of soil development.

Porosity, bulk density, and smeariness

High porosity, low bulk density (see table 7), and smeariness are characteristic of the Sols Bruns Acides and Ando soils and, to a lesser extent, of the well-drained Alluvial soils. Smeariness is observed during manipulation of moist material. It is the tendency of soils to shear suddenly rather than gradually when subjected to deformation. In addition, these soils tend to be softer when dry, more friable when moist, and less sticky and less plastic when wet than soils in other parts of the State that contain similar amounts of clay.

High porosity, low bulk density, and smeariness occur together and seem to be restricted in Oregon to soils in areas of high rainfall. High rainfall and abundant soil moisture must figure some way in the origin of these characteristics. High amounts of organic matter are not the source of these characteristics, because B horizons that are not particularly high in organic matter, as well as A horizons, have these characteristics. The high content of plant roots and the rapidity of their growth and the great activity of burrowing animals may contribute somewhat to porosity. The fundamental explanation of these characteristics, however, probably involves the mineralogy of the clay. A current working hypothesis is that allophane clay is responsible for the set of characteristics under consideration. The origin of allophane may depend on the nature of the parent material, the deficiency of metallic cations as indicated by low base saturation, the abundance of moisture, or on some combination of these conditions.

Thick, dark-colored horizon

The Ginger, Neskowin, Quillayute, and Winema soils, all of which are classified as Ando soils, have very thick, almost black A horizons. The A horizon of these soils has the high porosity, low bulk density, and smeariness discussed previously. This horizon is high in organic matter and is believed to be rich in allophane. (See laboratory data for Quillayute and Winema soils in table 7.)

The difference between the A horizon of these Ando soils and the less extreme A horizon of the Sols Bruns Acides is related to and perhaps caused by differences in natural vegetation. Reasons for the difference, other than that of vegetation, have not been suggested.

In some places outside of the Tillamook survey area, the vegetation on Ando soils is almost exclusively brackenfern, and this plant has been considered as having been responsible for the development of the A horizon in Ando soils. This consideration is strengthened by the fact that the brackenfern root has a black exterior, which resists decomposition. However, in the Tillamook survey area, brackenfern is not strongly dominant, and in many areas it is almost completely absent. Consequently, it is unlikely to have been responsible for formation of the Ando soils.

The vegetation of the Ando soils, referred to here as shrubby grassland, is not well known because so much of it has been destroyed by cultivation and altered by grazing. The composition of shrubby grassland ranges from almost completely dominant grass and grasslike plants to almost completely dominant dwarfed, close-growing shrubs. Reasons for the presence of shrubby

TABLE 7.—*Soil characterization data for fie*

[Analyses by the Agricultural Experiment Station, Oregon Sta

Soil type, profile number, and location	Depth from surface	Particle-size distribution in millimeters											Textural class
		Horizon	Very coarse sand (2–1)	Coarse sand (1–0.5)	Medium sand (0.5–0.25)	Fine sand (0.25–0.1)	Very fine sand (0.1–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Total sand	Particles 0.02–0.002	Particles 0.02–0.05	
	Inches		*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	
Astoria silt loam: S58 Oreg 29–2–(2–8); SW¼NE¼ sec. 23, T. 1 S., R. 8 W.	0–6	A11	------	3. 1	------	9. 2	------	49. 1	38. 5	12. 4	41. 1	8. 0	Silty clay loam.
	6–14	A12	------	4. 5	------	9. 2	------	50. 6	35. 2	14. 2	41. 9	8. 7	Silty clay loam.
	14–25	B21	------	5. 0	------	11. 5	------	45. 6	37. 7	16. 7	37. 5	8. 1	Silty clay loam.
	25–35	B22	------	6. 0	------	12. 8	------	43. 7	37. 3	19. 0	36. 8	6. 9	Silty clay loam.
	35–50	B3	------	2. 3	------	7. 9	------	41. 1	48. 6	10. 3	37. 1	4. 0	Silty clay.
	50–66	C	------	3. 9	------	5. 1	------	37. 2	53. 7	9. 1	35. 1	2. 1	Clay.
	66–74	Dr	------	8. 7	------	22. 0	------	45. 5	23. 6	31. 9	32. 8	12. 7	Loam.
Astoria silt loam: S56 Oreg 29–21–(2–8); SE¼NW¼ sec. 24, T. 1 S., R. 8 W.	0–9	A11	------	5. 3	------	7. 4	------	55. 3	31. 9	12. 7	41. 2	14. 1	Silty clay loam.
	9–19	A12	------	3. 8	------	7. 4	------	58. 0	30. 6	11. 2	43. 0	15. 0	Silty clay loam.
	19–28	B1	------	4. 6	------	7. 7	------	52. 7	34. 6	12. 3	38. 2	14. 5	Silty clay loam.
	28–45	B2	------	4. 7	------	8. 1	------	44. 8	42. 3	12. 9	32. 5	12. 3	Silty clay.
	45–50	B3	------	9. 1	------	11. 4	------	41. 7	37. 5	20. 5	32. 7	9. 0	Silty clay loam.
	50–68	C+Dr	------	8. 0	------	12. 3	------	44. 5	35. 0	20. 3	38. 1	6. 4	Silty clay loam.
	68–77	Dr	------	5. 0	------	16. 0	------	45. 9	33. 1	21. 0	40. 8	5. 1	Silty clay loam.
Hebo silty clay loam: S58 Oreg 29–3–(1–6); NE¼ NE¼ sec. 14, T. 4 S., R. 10 W.	0–4	Apg	------	. 6	------	3. 2	------	50. 7	45. 2	3. 8	39. 9	10. 8	Silty clay.
	4–9	A3g	------	. 7	------	2. 9	------	50. 4	45. 8	3. 6	39. 6	10. 8	Silty clay.
	9–19	BG1	------	. 3	------	2. 6	------	49. 2	47. 6	2. 9	34. 6	14. 6	Silty clay.
	19–29	BG2	------	1. 7	------	4. 3	------	39. 3	54. 5	6. 0	28. 3	11. 0	Clay.
	29–38	BG3	------	2. 5	------	5. 5	------	36. 4	55. 3	8. 0	26. 4	10. 0	Clay.
	38+	C	------	3. 0	------	6. 1	------	30. 2	60. 4	9. 1	22. 1	8. 1	Clay.
Hebo silty clay loam: S56 Oreg 29–4–(1–6); SE¼ NE¼ sec. 33, T. 1 S., R. 9 W.	0–4	A1g	------	. 7	------	4. 8	------	36. 4	58. 1	5. 5	22. 6	13. 4	Clay.
	4–10	A3g	------	1. 3	------	4. 5	------	34. 3	59. 9	5. 8	21. 0	13. 3	Clay.
	10–18	BG1	------	------	------	------	------	26. 8	69. 4	3. 8	15. 5	11. 3	Clay.
	18–28	BG2	------	. 5	------	3. 3	------	35. 9	55. 4	8. 7	24. 9	11. 0	Clay.
	28–35	BG3	------	1. 7	------	7. 0	------	38. 1	27. 0	34. 9	24. 3	13. 8	Clay loam
	35–42	C	------	7. 9	------	27. 0	------						
Nehalem silt loam: S58 Oreg 29–4; NW¼SW¼ sec. 5, T. 2 S., R. 9 W. Naval Air Base fertility plots.	0–9	A1p	. 1	. 1	. 2	. 9	4. 4	56. 7	37. 6	5. 7	47. 4	9. 3	Silty clay loam.
	9–17	A12	. 0	. 1	. 2	. 9	3. 5	56. 8	38. 5	4. 7	49. 1	7. 7	Silty clay loam.
	17–36	C1	. 1	. 1	. 1	. 8	5. 7	58. 5	34. 7	6. 8	45. 3	13. 2	Silty clay loam.
	36–54	C3	. 0	. 1	. 1	1. 2	7. 9	58. 9	31. 8	9. 3	44. 1	14. 8	Silty clay loam.
Quillayute silt loam: S58 Oreg 29–1–(1–6); sec. 42, T. 1 S., R. 9 W., county fairground.	0–9	A11	------	1. 7	------	8. 0	------	50. 1	40. 1	9. 7	36. 5	13. 6	Silty clay.
	9–24	A12	------	1. 7	------	8. 1	------	52. 8	37. 5	9. 8	39. 3	13. 5	Silty clay loam.
	24–35	B1	------	1. 5	------	9. 2	------	56. 5	32. 8	10. 7	41. 4	15. 1	Silty clay loam.
	35–46	B21	------	2. 1	------	10. 9	------	54. 1	34. 8	13. 0	38. 9	15. 2	Silty clay loam.
	46–58	B22	------	2. 5	------	10. 2	------	49. 7	36. 6	12. 7	37. 8	11. 9	Clay loam
	58–70	B23–1	------	2. 1	------	10. 8	------	52. 6	34. 4	12. 9	39. 9	12. 7	Silty clay loam.

soils in the Tillamook survey area, Oregon

University. Leaders in columns indicate data not available]

pH (soil-water suspension)	Organic matter				Free iron (Fe_2O_3)	Bulk density	Moisture held at —				Total cation exchange capacity (NH_4OAc)	Extractible cations (milliequivalent per 100 grams of soil)				Base saturation (ammonium acetate exchange)	Calcium-magnesium ratio
	Organic matter (OC×1.58)	Organic carbon	Nitrogen	Carbon-nitrogen ratio			Tension of $\frac{1}{10}$ atmosphere	Tension of $\frac{1}{3}$ atmosphere	Tension of 15 atmospheres	Tension of 1 atmosphere		Calcium	Magnesium	Sodium	Potassium		
	Percent	*Percent*	*Percent*		*Percent*	*Gm./cc.*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*					*Percent*	
4.8	13.0	7.5	0.46	16	------	------	------	------	------	------	55.2	0.35	1.00	0.36	0.94	5	0.35
4.9	9.2	5.3	.30	18	------	0.60	82	72	29	58	41.1	.08	.48	.30	.36	3	.17
5.2	2.5	1.4	.11	13	------	.87	61	57	28	43	37.8	.07	.34	.30	.20	2	.21
4.9	1.4	.8	.07	12	------	------	------	------	------	------	38.8	.36	.52	.47	.22	4	.69
4.8	1.0	.6	.05	12	------	------	------	------	------	------	41.2	.09	.96	.40	.23	4	.09
4.7	.5	.3	.04	7	------	------	------	------	------	------	39.9	.02	.87	.23	.30	4	.02
4.8	.3	.2	.03	6	------	------	------	------	------	------	45.9	.02	.86	.18	.26	3	.02
4.8	12.3	7.1	.40	18	------	------	------	------	------	------	44.6	.58	.75	.46	.78	6	.77
5.0	8.1	4.7	.33	14	------	------	------	------	------	------	33.8	.24	.34	.57	.24	4	.71
5.0	------	------	.11	------	------	------	------	------	------	------	26.4	.20	.30	.40	.20	4	.67
5.2	.6	.3	.06	6	------	------	------	------	------	------	26.0	.39	.80	.45	.15	7	.05
5.0	.5	.3	.05	6	------	------	------	------	------	------	30.7	.14	.98	.44	.15	6	.01
4.9	.3	.2	.04	4	------	------	------	------	------	------	36.7	.08	.90	.30	.17	4	.09
4.9	12.6	7.3	.62	12	------	------	------	------	------	------	34.5	4.0	2.7	.44	.40	22	1.48
4.9	11.6	6.7	.51	13	------	------	------	------	------	------	32.2	4.0	2.9	.46	.32	24	1.38
5.2	2.0	1.2	.10	12	------	------	------	------	------	------	19.3	4.0	3.4	.40	.14	41	1.18
5.2	1.6	.9	.07	13	------	------	------	------	------	------	23.6	4.4	3.6	.52	.17	37	1.22
5.2	1.4	.8	.06	14	------	------	------	------	------	------	38.0	4.4	3.4	.38	.16	22	1.29
5.0	.8	.5	.05	9	------	------	------	------	------	------	29.9	4.7	4.0	.38	.20	31	1.18
4.7	10.7	6.2	.67	9	------	------	------	------	------	------	38.6	.49	.89	.46	.34	6	.55
4.7	6.0	3.5	.44	8	------	------	------	------	------	------	36.2	.58	1.10	.42	.24	6	.53
4.6	1.2	.7	.09	8	------	------	------	------	------	------	36.0	------	3.82	.50	.21	------	------
4.6	.8	.5	.05	9	------	------	------	------	------	------	39.9	4.98	6.10	.52	.24	30	.82
4.9	.8	.5	.05	9	------	------	------	------	------	------	41.0	7.40	8.20	.57	.22	40	.90
5.3	.4	.2	.04	6	------	------	------	------	------	------	48.9	16.80	13.28	.70	.14	63	1.26
7.8	8.3	4.77	.40	12	5.2	------	------	------	------	------	53.7	25.4	8.7	.33	.55	65	2.9
8.0	3.7	2.23	.20	11	6.3	------	------	------	------	------	50.6	27.0	9.9	.44	.23	74	2.7
8.0	3.5	2.12	.19	11	4.7	------	------	------	------	------	48.7	25.8	9.3	.42	.19	73	2.8
8.3	2.2	1.29	.13	9.9	6.8	------	------	------	------	------	50.5	26.3	10.8	.69	.21	75	2.4
5.5	18.7	10.8	.62	18	------	------	------	------	------	------	51.9	1.85	1.18	.31	.29	7	1.57
5.4	15.1	8.8	.43	20	------	.63	74	62	26	56	43.3	.75	.96	.37	.42	6	.78
5.3	5.2	3.0	.23	13	------	------	------	------	------	------	28.6	.40	.39	.22	.24	4	1.03
5.4	2.2	1.3	.16	8	------	------	------	------	------	------	27.9	.60	.75	.38	.24	7	1.80
5.4	1.9	1.1	.15	7	------	1.05	53	51	24	49	27.7	.70	.98	.42	.24	8	.71
5.4	1.7	1.0	.14	7	------	------	------	------	------	------	30.3	.60	.94	.46	.21	7	.64

TABLE 7.—*Soil characterization data for*

Soil type, profile number, and location	Depth from surface	Particle-size distribution in millimeters											Texture class
		Horizon	Very coarse sand (2–1)	Coarse sand (1–0.5)	Medium sand (0.5–0.25)	Fine sand (0.25–0.1)	Very fine sand (0.1–0.05)	Silt (0.05–0.002)	Clay (<0.002)	Total sand	Particles 0.02–0.002	Particles 0.02–0.05	
	Inches		*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*			
Quillayute silt loam: S56 Oreg 29–1–(1–5); SW¼NW¼ sec. 13, T. 1 S., R. 10 W.	0–9	A1p	.....	2. 1	.....	6. 9	.....	43. 2	47. 8	9. 0	28. 3	14. 9	Silty clay
	9–21	A12	.....	2. 4	.....	8. 1	.....	52. 9	36. 7	10. 5	33. 5	19. 4	Silty clay loam.
	21–29	B21	.....	2. 5	.....	8. 7	.....	52. 1	36. 6	11. 2	34. 5	17. 6	Silty clay loam.
	29–38	B22	.....	2. 6	.....	9. 4	.....	55. 3	32. 7	12. 0	34. 6	20. 7	Silty clay loam.
	38–60	B3	.....	4. 9	.....	10. 2	.....	51. 2	33. 6	15. 1	36. 0	15. 2	Silty clay loam.
Winema silt loam: S56 Oreg 29–19–(1–5); NE¼NW¼ sec. 34, T. 1 S., R. 9 W.	0–10	A11	.....	2. 2	.....	18. 3	.....	37. 3	42. 2	20. 5	25. 1	12. 2	Clay
	10–21	A12	.....	2. 2	.....	18. 2	.....	35. 9	43. 7	20. 4	24. 2	11. 7	Clay
	21–28	B1	.....	3. 4	.....	22. 9	.....	35. 8	37. 7	26. 3	24. 4	11. 4	Clay loam
	28–42	B2	.....	1. 4	.....	14. 1	.....	35. 4	49. 1	15. 5	24. 3	11. 1	Clay
	42–60	C	.....	1. 0	.....	13. 8	.....	31. 8	53. 3	14. 8	21. 9	9. 9	Clay
Winema silty clay loam: S56 Oreg 29–20–(1–5); NW¼SW¼SE¼ sec. 35, T. 1 S., R. 9 W.	0–9	A11	.....	2. 1	.....	7. 4	.....	34. 8	55. 6	9. 5	24. 9	9. 9	Clay
	9–23	A12	.....	1. 6	.....	7. 1	.....	34. 2	57. 0	8. 7	24. 7	9. 5	Clay
	23–30	B1	.....	1. 7	.....	7. 4	.....	33. 7	56. 9	9. 1	24. 8	8. 9	Clay
	30–41	B2	.....	3. 7	.....	5. 5	.....	31. 7	58. 9	9. 2	25. 4	6. 3	Clay
	41–60	C	.....	4. 6	.....	5. 9	.....	36. 4	53. 0	10. 5	31. 1	5. 3	Clay

grassland in an area dominated by forest are discussed in the section "Factors of Soil Formation."

Podzol sequence of horizons

The sequence consisting of an organic horizon, a horizon from which humus and iron oxides have been leached, and a horizon in which humus and iron oxides have accumulated is characteristic of the Netarts and Yaquina soils and generally of other Podzols.

These three horizons have formed together through an interrelated set of processes. In the first step, plant litter accumulated on the surface of these soils and was not mixed with the mineral material of the soil. The lack of mixing was caused by the failure of animals that live in the soil to transport the organic material into the mineral material. Soil-inhabiting animals may not have liked the litter produced by the native vegetation. In any event, litter accumulated on the surface. Solutions or suspensions of organic compounds leached from this organic layer into the sandy material below. The leached organic compounds combined with iron oxide, or they created conditions that allowed the iron oxides to be dissolved or be taken into suspension. Movement of soil water carried the organic compounds and the iron oxides downward to the horizon of accumulation.

The sandy parent material of the Netarts and Yaquina soils is more susceptible to the illuviation of iron oxides and humus than any other parent material in the Tillamook survey area. This may be the complete explanation for the difference between Netarts and Yaquina soils (Podzols) and the Ando soils and Sols Bruns Acides. On the other hand, the litter produced by the native vegetation on Netarts and Yaquina soils may be a be source of the organic compounds needed for the illu tion of iron oxides than the litter produced by the na vegetation on other soils.

Mottles and gray colors

Mottled color patterns and gray colors have been p duced in wet soils. The imperfectly drained soils h colors like the well-drained soils with which they are sociated. In the lower horizons of these soils, gray co intermingle with brownish or yellowish colors to for mottled pattern. In the poorly drained soils, the pat of mottles has brownish and yellowish colors but is do nated by grayish colors that extend to the soil surf The very poorly drained soils have grayish colors practically none of the brownish, yellowish, or red colors.

The reduction of ferric iron oxides to ferrous iron c pounds in waterlogged soils is responsible for the m tled color patterns and gray colors. Reducing age derived from the decomposition of organic matter, necessary for this chemical reaction. Ferric iron ox are a shade of yellow or red. Ferrous iron compou are colorless or, in some cases, green or blue. The rous compounds may remain in place, or, because tend to be soluble, may be moved in the soil water. some cases, gray portions of a mottled pattern are a cent to reddish portions. This suggests that the fer iron has been moved a short distance (1/16 to ½ inch) reoxidized to the ferric form. This kind of mottlin characteristic of soils that are intermittently waterlog and aerated.

soils in the Tillamook survey area, Oregon—Continued

pH (soil-water suspension)	Organic matter				Free iron (Fe_2O_3)	Bulk density	Moisture held at—				Total cation exchange capacity (NH_4OAc)	Extractible cations (milliequivalent per 100 grams of soil)				Base saturation (ammonium acetate exchange)	Calcium-magnesium ratio
	Organic matter (OC, 0.58)	Organic carbon	Nitrogen	Carbon-nitrogen ratio			Tension of $\frac{1}{10}$ atmosphere	Tension of $\frac{1}{3}$ atmosphere	Tension of 15 atmospheres	Tension of 1 atmosphere		Calcium	Magnesium	Sodium	Potassium		
		Percent	*Percent*	*Percent*		*Percent*	*Gm./cc.*	*Percent*	*Percent*								
5.0	20.1	11.6	0.86	14	------	------	------	------	------	------	58.2	0.90	1.32	0.44	0.89	6	0.68
5.0	18.1	10.5	.54	19	------	------	------	------	------	------	49.3	.22	.42	.50	.24	3	.52
5.2	10.1	5.9	.34	17	------	------	------	------	------	------	40.4	.16	.38	.38	.20	3	.42
5.2	6.9	4.0	.26	15	------	------	------	------	------	------	36.9	.15	.38	.36	.18	3	.40
5.2	2.3	1.3	.15	9	------	------	------	------	------	------	30.7	.43	.52	.40	.11	5	.83
4.9	10.2	5.9	.44	13	------	------	------	------	------	------	39.8	2.16	2.38	.42	1.38	16	.91
4.9	7.2	4.2	.32	13	------	------	------	------	------	------	33.1	.90	1.65	.58	1.08	13	.55
4.9	1.5	.9	.11	8	------	------	------	------	------	------	38.6	.60	1.64	.41	.35	8	.37
4.8	1.1	.6	.08	8	------	------	------	------	------	------	36.5	.80	2.40	.37	.34	11	.33
4.8	.7	.4	.05	8	------	------	------	------	------	------	34.8	2.12	3.55	.37	.34	20	.60
5.0	12.1	7.0	.58	12	------	------	------	------	------	------	45.5	2.35	3.00	.36	1.87	17	.79
4.9	7.5	4.4	.40	11	------	------	------	------	------	------	41.7	.41	1.55	.40	1.47	9	.36
5.0	4.4	2.6	.27	9	------	------	------	------	------	------	36.2	.12	.98	.40	.70	6	.12
4.9	.9	.5	.08	7	------	------	------	------	------	------	37.8	.16	1.28	.49	.39	6	.12
4.8	.4	.2	.06	4	------	------	------	------	------	------	40.7	.15	1.71	.30	.40	6	.09

Laboratory Analyses

This part of the report contains results of mechanical and chemical analyses (table 7) of five soils in the Tillamook survey area. Extractable bases were determined by use of the flame photometer and ammonium acetate. The pH was determined by use of the Beckman glass electrode; the organic carbon, by the Walkley-Black method; and the total nitrogen by the Kjeldahl method. Particle-size distribution was determined by use of the pipette method; bulk density, from undisturbed cores. The reader is referred to the work of Alban and Kellogg (*1*) for additional information on methods of soil analysis.

In table 7, except for the Nehalem soils, the sum of very coarse sand, coarse sand, and medium sand percentages is listed in the coarse sand column, and the sum of fine sand and very fine sand percentages is listed in the fine sand column.

Classification of the Soils

Soil classification is intended to help us understand relationships and remember characteristics. The system of soil classification currently used in the United States is outlined in the 1938 U.S. Department of Agriculture Yearbook (*3*). Changes in 1949 and later have been the result of our increased knowledge of the soils (*13*). An entirely new system of classification will soon replace the 1938 system.

Beginning at the top, the 1938 classification system has six categories, one below the other. These catagories are order, suborder, great soil group, family, series, and type. Among these, the order, great soil group, series, and type have been used most.

The classes in the highest category of the classification system are the zonal, intrazonal, and azonal orders. Each of these orders is represented by the soils in the Tillamook survey area, but only about 15 percent of the great soil groups are represented. The nineteen soil series in the Tillamook survey area constitute a small fraction of 1 percent of the soil series in the United States. The soil series in the Tillamook survey area are classified into the following orders and great soil groups.

Soil order and great soil group:	*Soil series*
Zonal soils:	
Sols Bruns Acides	Astoria
	Chitwood
	Hembre
	Knappa
Ando soils	Ginger
	Neskowin
	Quillayute
	Winema
Podzols	Netarts
	Yaquina
Intrazonal soils:	
Humic Gley soils	Hebo
Low-HumicGley soils	Bremner
	Coquille
Bog soils	Brallier
Azonal soils:	
Alluvial soils	Gardiner
	Gauldy
	Meda
	Nehalem
	Nestucca

Zonal soils

Zonal soils have developed through soil-forming processes dominated by climate and vegetation. Ideally, in an area of uniform climate and vegetation, one zonal great soil group is formed on a variety of parent materials and in a variety of topographic positions. In the Tillamook survey area, the great soil groups in the zonal order are Sols Bruns Acides, Ando soils, and Podzols.

SOLS BRUNS ACIDES

Sols Bruns Acides in this survey area have a dark-colored A horizon, a structural B horizon, and very low base saturation. They are mainly well drained, but some are imperfectly drained. The Sols Bruns Acides in Oregon differ from those in the eastern part of the United States (*4*) and in Europe by having a thicker and darker A horizon with a higher level of organic matter. In addition, they are lower in bulk density and are smeary.

The Sols Bruns Acides in Oregon are similar to the Humic Latosols or to the Latosolic Brown Forest soils of Hawaii (*6*). The Hawaiian soils evidently are more strongly weathered.

In the Tillamook survey area, the Sols Bruns Acides have formed under coniferous vegetation in residuum that weathered from basalt and sedimentary rocks, and in old alluvium. Because the coniferous forest is the typical vegetation for the climate in the survey area and because the soils have formed in a variety of parent materials, the Sols Bruns Acides are considered to be zonal soils. The Astoria soils are typical. Laboratory data for the Astoria soils (table 7) show that they are low in base saturation, high in organic matter, low in bulk density, and high in capacity to hold water at various tension levels.

ANDO SOILS

The Ando soils have a thick, almost black, smeary A horizon believed to be rich in allophane. The B horizon is only weakly developed. The Ando soils in the survey area are similar to the Ando soils in Japan. They are mainly well drained, but some are imperfectly drained. (Mr. Masatada Oyama studied a Quillayute profile in 1959 and commented that it was like that of some Japanese Ando soils. Mr. Oyama is chief of Soil Survey, Div. of Soils and Fert., Natl. Inst. Agr. Sci., Japan.)

In the Tillamook survey area, the Ando soils have formed under shrubby grassland in residuum that weathered from basalt and sedimentary rocks and in old alluvium. This is the same type of parent material in which the Sols Bruns Acides have formed. However, the vegetation is obviously not typical for the climate in the survey area. The patchy distribution of the Ando soils suggests that some local, even accidental, factor has been responsible for their formation. Accordingly, even though the Ando soils are considered to be zonal, the evidence for their classification in this order is less compelling than that for the Sols Bruns Acides.

The Quillayute soils are typical of the Ando soils in the survey area. Laboratory analyses (table 7) for these and the Winema soils show that they are high in organic matter and in water-holding capacity at various tension levels, low in bulk density, and low in base saturation.

PODZOLS

Podzols have an organic horizon at the surface, eluvial horizon from which humus and iron oxide ha been leached, and an illuvial horizon in which humus a iron oxides have accumulated. Cultivation or other d turbances may destroy the two upper horizons. Podz are mainly well drained, but some are imperfect drained.

Podzols in the Tillamook survey area are considered be zonal soils because they are similar to the Podz that extend across large areas of the northeastern Nor America and northern Europe and Asia. However, in t Tillamook survey area itself, they have developed in on one kind of parent material that is particularly favorad to the formation of Podzols; therefore, there is litt reason to consider them as zonal soils.

Podzols in the Tillamook survey area have formed dune and beach sands and under shrub vegetation. T Netarts soils are typical locally, but they are weakly d veloped in comparison to Podzols in other areas.

Intrazonal soils

Intrazonal soils have developed through soil-formir processes dominated by relief or parent material. In tl Tillamook survey area, the great soil groups in the i trazonal order are Humic Gley soils, Low-Humic Gl soils and Bog soils.

HUMIC GLEY SOILS

Humic Gley soils have a dark-colored surface horizc and gray or mottled lower horizons. They are naturall wet, and wet conditions have dominated in their develo ment. In the Tillamook survey area, these soils are a in the Hebo series, and they have a textural B horizo Laboratory analyses (table 7) show that they have a cumulated organic matter in the surface horizon an have higher base saturation than the soils that are we drained.

LOW-HUMIC GLEY SOILS

Low-Humic Gley soils are like Humic Gley soils excep that the surface horizon is not quite as dark. They are na urally wet, and they have mottled colored patterns an gray colors. In the Tillamook survey area, the only Low Humic Gley soils are those of the Brenner and Coquill soil series. These are very weakly developed soils b cause they are in flood-plain and tidal-flat positions wher they accumulate continuing additions of recent alluvium

BOG SOILS

Bog soils are composed of organic material and hav formed under extremely wet conditions. The Brallie soils are typical Bog soils in the Tillamook survey area.

Azonal soils

Azonal soils have no development, or only weak devel opment, of a profile, mainly because they are young soil In the Tillamook survey area, Alluvial soils are the onl great soil group in the azonal order.

ALLUVIAL SOILS

Alluvial soils have a weakly expressd A horizon ove relatively unaltered alluvium. The Chalem soils ar typical. They have formed in recent alluvium unde

coniferous forest or marsh vegetation. Natural drainage is generally good, but it ranges to imperfect.

Descriptions of Soil Profiles

This part of the report deals with technical profile descriptions of representative soils in the Tillamook survey area. Technical profile descriptions are more detailed than those given in the section "Descriptions of the Soils."

Technical terms used in describing the soils are defined in the Soil Survey Manual (*14*); some of these terms are also defined in the Glossary at the end of this report. Letters and numerals on the left of the profile designate the horizons in each profile. Combinations of letters and numbers in parentheses, such as (10YR 5/4), are Munsell notations of color—hue, value, and chroma. These notations are more precise than descriptive names of color, which are also given.

ASTORIA SERIES

Profile of Astoria silt loam in cutover forest, located in SE¼NW¼ sec. 24, T. 1 S., R. 8 W., W. M. (Trask cutoff road to access road F. B. 12; down this road 400 feet on right side):

A00—2 inches to 0, duff consisting of the litter of bracken-fern and the leaves, twigs, and wood of trees.

A11—0 to 9 inches, very dark grayish-brown (10YR 3/2) silt loam, brown (10YR 5/3) when dry; strong, medium fine and very fine, granular structure; slightly hard, friable, slightly sticky, slightly plastic; many roots; many interstitial pores; medium-size, firm shot common; very strongly acid (pH 4.8); clear, smooth boundary; 7 to 11 inches thick.

A12—9 to 19 inches, very dark grayish-brown (10YR 3/2) silty clay loam, brown (10YR 5/3) when dry; strong, medium fine and very fine, subangular blocky structure; soft, friable, slightly sticky, plastic; many roots; many interstitial pores; few, patchy, very thin clay films on vertical ped surfaces; few, medium, firm shot; very strongly acid (pH 4.8); clear, smooth boundary; 10 to 12 inches thick.

B21—19 to 28 inches, dark yellowish-brown (10YR 3/4), light silty clay, yellowish brown (10YR 5/4) when dry; moderate, fine and very fine, subangular blocky structure; slightly hard, friable, sticky, plastic; many roots; few, coarse and medium, tubular pores and many, exceedingly fine interstitial pores; thin, patchy, clay films common; very strongly acid (pH 4.8); clear, wavy boundary; 9 to 13 inches thick.

B22—28 to 45 inches, dark yellowish-brown (10YR 4/4), light silty clay, light yellowish brown (10YR 6/4) when dry; strong, medium fine and very fine, blocky structure; slightly hard, firm, sticky, plastic; common roots; many, fine and very fine, tubular pores and many, exceedingly fine interstitial pores; many, very thin, patchy clay films on peds and in pores; fine fragments of sedimentary rock common; very strongly acid (pH 4.6); gradual, wavy boundary; 13 to 21 inches thick.

B3—45 to 50 inches, yellowish-brown (10YR 5/4), heavy silty clay loam, light yellowish brown (10YR 6/4) when dry; moderate, medium and fine, blocky structure; slightly hard, firm, slightly sticky, plastic; common roots; few, coarse to medium, tubular pores and common, fine to very fine, tubular pores; many, thin, patchy clay films on vertical ped surfaces; material is 30 percent medium-size fragments of sedimentary rock; very strongly acid (pH 4.5); clear, wavy boundary; 4 to 8 inches thick.

C—50 to 68 inches, yellowish-brown (10YR 5/6), heavy silty clay loam (color is a mixture of 7.5YR 5/8, 10YR 6/4, and 10YR 7/2, apparently derived from varying rock strata); massive; firm, slightly sticky, plastic; very few roots; material is about 60 percent medium-size fragments of sedimentary rock; very strongly acid (pH 4.8); gradual, wavy boundary; 14 to 22 inches thick.

Dr—68 to 77 inches +, light yellowish-brown (2.5Y 6/4) stratified and broken siltstone coated with dark brown (7.5YR 3/4).

Range in characteristics: The soil varies mainly in depth to bedrock, which ranges from less than 3 feet to more than 6 feet. Sandstone or shale fragments in the solum ranges from very few to many. Chroma of the A1 horizon ranges from 2 to 4; thickness of the A horizon ranges from 12 to 22 inches.

BRALLIER SERIES

Profile of Brallier peat under natural vegetation, located in the NW¼SE¼ sec. 35, T. 1 S., R. 10 W., W. M. (three-fourths of a mile southwest of Tillamook; 100 feet south of witness tree at end of trail, and 200 feet north of the Tillamook River):

1—0 to 3 inches, dark-brown (10YR 3/3, when moist) peat containing about 50 percent raw residue of forest litter, spongy moss, wood, and fibrous material and about 30 percent live roots; many, medium, faint to distinct drainage mottles of yellowish brown (10 YR 5/8); spongy and porous; no discernible structure; sticky, plastic; extremely acid (pH 4.4); clear, smooth boundary.

2—3 to 6 inches, dark grayish-brown (10YR 4/2, when moist) peat containing 50 percent raw residue of wood and fibrous material and 20 percent live roots; many, medium, prominent mottles of strong brown (7.5YR 5/8); spongy and porous; no discernible structure; sticky, plastic; extremely acid (pH 4.2); gradual, smooth boundary.

3—6 to 24 inches, grayish-brown (2.5Y 4/2, when moist) peat containing 50 percent raw residue of woody and fibrous material in which live roots are common; many, medium, prominent mottles and many, large, distinct mottles of yellowish red (5YR 5/8); spongy and porous; no structure; very friable, sticky, plastic; extremely acid (pH 4.2); gradual, smooth boundary.

4—24 to 38 inches, dark grayish-brown (10YR 4/2, when moist) peat consisting of raw woody and fibrous residue mixed with 30 percent of muck; highly porous and loose; as much as 30 percent interstitial pore space; strongly acid (pH 5.4); gradual, smooth boundary.

5—38 to 48 inches, very dark grayish-brown mixture consisting of about 50 percent undecomposed woody and fibrous residue and 50 percent black muck; porous and loose; slightly acid (pH 6.2); gradual, smooth boundary.

6—48 to 60 inches, gray muck containing 20 percent undecomposed woody and fibrous residue; slightly compact; slightly acid (pH 6.4).

Range in characteristics: The surface layer frequently has colors with chroma of 1. Intermittent and inextensive lenses of sedimentary peat up to 6 inches in thickness occur at various depths below 18 inches from the surface. These lenses are practically impermeable to roots or water. The underlying substrata usually are tidal mud but may be sandy alluvium. When the soil is diked and drained, acidity below depth of 24 inches eventually decreases.

BRENNER SERIES

Profile of Brenner silt loam in a pasture cleared of trees, located in the NE¼NW¼ sec. 17, T. 2 S., R. 9 W. (on the west side of U.S. Highway No. 101, 0.5 mile south of South Prairie store):

A11p—0 to 7 inches, very dark grayish-brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) when dry; few, fine, distinct mottles of reddish brown; weak, fine, granular structure; friable, slightly sticky, slightly plastic; many roots; strongly acid; clear, smooth boundary; 5 to 8 inches thick.

A12g—7 to 13 inches, very dark grayish-brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) when dry; common, medium, distinct mottles of strong brown and yellowish red; weak, medium, subangular blocky structure breaking to weak, very fine, subangular blocky; friable, sticky, plastic; many roots; strongly acid; clear, smooth boundary; 5 to 8 inches thick.

C1g—13 to 21 inches, dark grayish-brown (10YR 4/2) silty clay loam, grayish brown (10YR 5/2) when dry; many, medium, prominent mottles of yellowish red, strong brown, and gray; moderate, medium and fine, subangular blocky structure; firm, sticky, plastic; fine, black shot concretions common; common roots; strongly acid; gradual, smooth boundary; 8 to 12 inches thick.

C2g—21 to 31 inches, dark grayish-brown (10YR 4/2) silty clay, grayish brown (10YR 5/2) when dry; many, medium, prominent mottles of strong brown and gray; coarse, black splotches common; weak, medium and fine, subangular blocky structure; firm, sticky, plastic; few roots; strongly acid; gradual boundary; 10 to 14 inches thick.

C1—31 to 40 inches, dark-gray (10YR 4/1) silty clay, gray (10YR 5/1) when dry; many, coarse, distinct mottles of strong brown and light gray; coarse, black splotches common; weak, coarse, subangular blocky structure breaking to weak, fine, blocky; firm, sticky, plastic; no roots; medium acid; clear, smooth boundary; 6 to 12 inches thick.

G2—40 to 52 inches, dark greenish-gray (5GY 3/1) silty clay, dark gray (5GY 4/1) when dry; many, coarse, distinct mottles of strong brown; massive; firm, sticky, plastic; no roots; slightly acid.

Range in characteristics: The base color of the A1 horizon ranges from grayish brown to dark grayish brown when dry. Mottled colors are characteristic of the A1 horizon, but their distinctness varies from place to place. The C and G horizons are distinctly stratified with material whose texture varies in places from coarse to fine. In places the A1 horizon is silty clay loam.

CHITWOOD SERIES

Profile of Chitwood silt loam in a pasture located in the SE¼NW¼ sec. 10, T. 2 S., R. 9 W. (300 feet east of junction of Mill Creek and Brickyard Road):

A1—0 to 7 inches, very dark grayish-brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) when dry; weak, very fine, granular structure; slightly hard, friable, slightly sticky, slightly plastic; many roots; many interstitial pores; strongly acid (pH 5.2); clear, smooth boundary; 6 to 8 inches thick.

B1—7 to 11 inches, very dark grayish-brown (10YR 3/2), heavy silt loam, grayish brown (10YR 5/2) when dry; moderate, very fine, subangular blocky structure; slightly hard, friable, sticky, plastic; many roots; thin, patchy clay films on ped surfaces; many fine and medium pores; very strongly acid (pH 5.0); clear, smooth boundary; 3 to 7 inches thick.

B21—11 to 19 inches, dark-brown (10YR 3/3, moist) silty clay loam; few, fine, faint mottles of dark yellowish brown (10YR 4/4, moist) and yellowish brown (10YR 5/6, moist); moderate, medium, subangular blocky structure breaking to moderate, very fine, angular blocky; hard, firm, sticky, plastic; thin, continuous clay films on vertical ped surfaces and thin patchy films on horizontal surfaces; common roots many fine pores; very strongly acid; clear, smooth boundary; 6 to 10 inches thick.

B22—19 to 29 inches, dark yellowish-brown (10YR 3/4 moist) silty clay; many, medium, distinct mottles of strong brown (7.5YR 5/6); moderate, medium subangular blocky structure breaking to moderate very fine, angular blocky; hard, firm, sticky, plastic; thin, continuous, clay films on ped surfaces and in pores; few medium pores and many fine pores; few roots; very strongly acid (pH 4.8); clear smooth boundary; 8 to 12 inches thick.

B3g—29 to 34 inches +, dark yellowish-brown (10YR 3/4 moist) silty clay loam; common, large to medium prominent mottles of strong brown (7.5YR 5/8) and yellowish red (5Y 5/6); moderate, fine, angular blocky structure; firm, sticky, plastic; thin, patchy clay films common; fine tubular pores common very strongly acid (pH 4.6).

Range in characteristics: Level areas are moderately well drained; those in concave positions are imperfectly drained. Depth to mottled soil ranges from 12 to 24 inches, depending on drainage. Silt loam and silty clay loam types have been recognized.

COQUILLE SERIES

Profile of Coquille silt loam in a cultivated area located in NW¼NW¼ sec. 35, T. 3 N., R. 10 W.:

Apg—0 to 6 inches, very dark grayish-brown (2.5Y 3/2 moist) silt loam highly mottled with strong brown moderate, fine, subangular blocky structure breaking to moderate, fine, granular; slightly hard, friable, slightly sticky, slightly plastic; many roots many fine pores; very strongly acid; clear, smooth boundary; 6 inches thick.

A1g—6 to 13 inches, dark grayish-brown (2.5Y 4/2, moist silt loam highly mottled with strong brown and yellowish red; weak, fine, subangular blocky structure breaking to moderate, fine, granular; slightly hard, friable, sticky, slightly plastic; many roots many fine pores; very strongly acid; clear, smooth boundary; 6 to 10 inches thick.

C1g—13 to 19 inches, dark grayish-brown (10YR 4/2, moist silty clay loam highly mottled with strong brown weak, medium subangular blocky structure; hard firm, sticky, plastic; many roots; thin layers of peaty organic matter; very strongly acid; gradual smooth boundary; 5 to 10 inches thick.

C2g—19 to 40 inches, dark grayish-brown (10YR 4/2, moist silty clay loam mottled with strong brown and with a few light yellowish-brown splotches of sulfur weak, medium subangular blocky structure; hard firm, sticky, plastic; roots common but decreasing to few in lower part; thin lenses of stratified organic matter throughout; very strongly acid; clear smooth boundary; 15 to 30 inches thick.

D—40 to 60 inches +, very dark gray (5Y 3/1, moist silty clay; massive; firm, sticky, plastic; very strongly acid; many feet thick.

Range in characteristics: Depth to unconforming clayey marine sediment ranges from 24 to 40 inches. The number of thin, peaty strata varies from place to place.

GARDINER SERIES

Profile of Gardiner fine sandy loam in a cultivated area located in the NW¼NW¼ sec. 36, T. 3 N., R. 10 W. (south of Mohler Bridge on the Nehalem River):

Ap—0 to 8 inches, dark-brown (10YR 3/3, moist) fine sandy loam; specks of grayish-brown and light brownish gray on uncoated sand; very weak, fine and m

dium, subangular blocky structure; soft, very friable, nonsticky, nonplastic; many fine roots; many interstitial pores; strongly acid; clear, wavy lower boundary; 5 to 10 inches thick.

Ac—8 to 34 inches, dark yellowish-brown (10YR 4/4, moist) loamy fine sand; specks of dark brown, brown, light brownish gray, brownish yellow, and dark yellowish brown (10YR 3/3–4/3–6/3–6/2–6/6) on grains of sand; massive; loose, soft, nonsticky, nonplastic; common roots; many interstitial pores; strongly acid; gradual, broken boundary; 20 to 30 inches thick.

C—34 to 60 inches +, dark yellowish-brown (10YR 3/4, moist) loamy fine sand; many specks of grayish brown, light brownish gray, and light gray on grains of sand; single grain; loose, nonsticky, nonplastic; few roots at top, decreasing in number with depth; strongly acid; many feet thick.

Range in characteristics: An overwash of different color and texture has been deposited in places by recent floods. Within the profile, strata of coarse sand, fine sand, loamy sand, and silt may be present.

GAULDY SERIES

Profile of Gauldy loam in a pasture located in the SW¼NW¼ sec. 13, T. 1 N., R. 10 W., W. M. (along Moss Creek, three-quarters of a mile east of confluence with the Miami River, on north side of road; 3 miles east of Garibaldi):

A11—0 to 8 inches, dark-brown (10YR 3/3) loam, brown (10YR 5/3) when dry; moderate, medium and fine, subangular blocky structure; soft, very friable, nonsticky, nonplastic; many roots; many interstitial pores; 10 percent of material is medium-size, waterworn gravel; strongly acid (pH 5.2); clear, smooth boundary; 6 to 10 inches thick.

A12—8 to 26 inches, dark yellowish-brown (10YR 3/4) loam, yellowish brown (10YR 5/4) when dry; moderate, very fine, subangular blocky structure; slightly hard, friable, nonsticky, nonplastic; many roots; many interstitial pores; coarse tubular pores common; 15 percent of material is medium and coarse, waterworn gravel; strongly acid (pH 5.4); abrupt, wavy boundary; 14 to 20 inches thick.

C1—26 to 38 inches, dark yellowish-brown (10YR 3/4) gravelly loamy coarse sand, yellowish brown (10YR 5/4) when dry; loose; nonsticky, nonplastic; coarse roots common; many interstitial pores; 60 percent of material is medium and coarse, waterworn gravel; strongly acid (pH 5.4); clear, wavy boundary; 10 to 14 inches thick.

C2—38 to 55 inches, dark yellowish-brown (10YR 3/4) loamy fine sand, yellowish brown (10YR 5/4) when dry; weak, medium, subangular blocky structure; soft, very friable, nonsticky, nonplastic; few coarse roots; many, fine and medium, tubular pores; 10 percent of material is fine, waterworn gravel; strongly acid (pH 5.4); abrupt, wavy boundary; 14 to 20 inches thick.

D—55 inches +, dark grayish-brown (10YR 4/2) medium and coarse gravelly fine sand, grayish brown (10YR 5/2) when dry; loose; nonsticky, nonplastic; 90 percent of material is gravel; very strongly acid (pH 4.8).

Range in characteristics: The amount of gravel in any articular layer is highly variable. A nonconforming yer is typically encountered 4 feet below the surface, t in places it does not occur in the 5-foot profile. The horizon is typically stratified and may be sandy loam d silt loam with variable amounts of gravel. Enough avel is generally in this soil to make it droughty. The lor of the A1 layer varies from dark brown to black. places this soil has shallow to nonconforming layers.

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GINGER SERIES

Profile of Ginger silt loam in a cultivated area located in the SW¼SW¼ sec. 29, T. 1 S., R. 9 W., W. M. (0.4 of a mile south of junction of old Highway No. 6 and Marolf Loop Road southeast of fair grounds):

A11p—0 to 8 inches, very dark gray (10YR 3/1) silt loam, black (10YR 2/1) when moist; strong, fine, medium and coarse, granular structure; soft, very friable, nonsticky, slightly plastic; many fine roots; many fine pores; strongly acid; clear, smooth lower boundary; 6 to 9 inches thick.

A12—8 to 17 inches, very dark gray (10YR 3/1) silt loam, black (10YR 2/1) when moist; moderate, fine, subangular blocky structure breaking to strong, fine, granular; soft, friable, slightly sticky, slightly plastic; many roots; many, fine, tubular pores; strongly acid; clear, smooth boundary; 8 to 12 inches thick.

B1—17 to 20 inches, very dark grayish-brown (10YR 3/2, moist) silty clay loam; few, fine, faint mottles of grayish brown and yellowish brown; moderate, medium, subangular blocky structure breaking to strong, very fine, subangular blocky; slightly hard, firm, sticky, plastic; thin, patchy clay films on ped surfaces but pores uncoated; many roots; many fine pores; strongly acid; clear, smooth boundary; 3 to 5 inches thick.

B21g—20 to 28 inches, dark grayish-brown (10YR 4/2, moist) silty clay; many, fine and medium, distinct mottles of light brownish gray and strong brown; moderate, very fine, blocky structure; hard, firm, sticky, plastic; thin, continuous clay films; roots common but decrease in number with depth; medium and very fine pores, few, fine pores common; strongly acid; gradual, smooth boundary; 6 to 12 inches thick.

B22g—28 to 38 inches, grayish-brown (10YR 5/2, moist) silty clay; many, medium and coarse, prominent mottles of strong brown and yellowish red; strong, very fine and fine, blocky structure; hard, firm, sticky, plastic; moderately thick, continuous clay films; few roots; fine pores common; strongly acid; gradual, wavy boundary; 8 to 14 inches thick.

B3g—38 to 52 inches, grayish-brown (2.5Y 5/2, moist) silty clay; many, medium and coarse, prominent mottles of yellowish red and strong brown; moderate, medium, blocky structure breaking to moderate, very fine, blocky; hard, firm, sticky, plastic; thin, patchy clay films; very few roots; few, medium and fine pores; many, small, well-weathered pebbles; strongly acid; 10 to 20 inches thick.

D—52 inches +, compacted gravel.

Range in characteristics: Depth to gravel may be as little as 36 inches from surface, but it usually ranges from 48 to 72 inches or is deeper. The A1 horizon is about 15 to 24 inches thick.

HEBO SERIES

Profile of Hebo silty clay loam in a cultivated area located in the SE¼NE¼ sec. 33, T. 1 S., R. 9 W., W. M.:

Apg—0 to 4 inches, dark-gray (10YR 4/1) silty clay loam, very dark gray (10YR 3/1) when moist; few, fine faint mottles of strong brown along root channels; moderate, fine and medium, granular structure; hard, firm, sticky, plastic; many fine roots; many, fine tubular pores; very strongly acid (pH 4.5–5.0); clear, smooth boundary; 3 to 6 inches thick.

A1g—4 to 10 inches, dark-gray (10YR 4/1) silty clay, very dark gray (10YR 3/1) when moist; many, fine, distinct mottles of strong brown and dark reddish brown; weak, medium, prismatic structure breaking to moderate, very fine and fine, blocky; very hard, very firm, sticky, very plastic; many fine roots; fine pores common; thin, patchy clay films on vertical ped faces and in pores near lower bound-

ary of horizon; very strongly acid (pH 4.5–5.0); clear, smooth boundary; 5 to 10 inches thick.

B21g—10 to 18 inches, dark-gray (5Y 4/1, moist) clay; many, coarse, prominent mottles of strong brown and light brownish gray; moderate, medium, prismatic structure breaking to moderate, coarse and medium, blocky; very hard, very firm, very sticky, very plastic; roots common but decrease in number with depth; few, fine and medium pores; thin, continuous clay films on horizontal faces and thick, stringy clay films on prism faces; few, large, black coatings of manganese dioxide on ped surfaces; few, medium, black shot; very strongly acid; gradual, smooth boundary; 5 to 10 inches thick.

B22g—18 to 28 inches, gray (5Y 5/1, moist) clay; many, coarse, prominent mottles of strong brown; moderate, medium, prismatic structure breaking to strong, fine and medium, blocky; very hard, very firm, very sticky, very plastic; few roots, mainly along ped faces; few, fine pores; moderately thick, continuous clay films; many black coatings of manganese dioxide on peds; black shot common; very strongly acid; gradual, smooth boundary; 6 to 12 inches thick.

B3g—28 to 35 inches, prominently mottled strong-brown (7.5YR 5/8, moist), gray (5Y 5/1, moist), and dark-gray (5Y 4/1, moist) silty clay; weak, fine and medium, subangular and angular blocky structure; firm, sticky, very plastic; very few roots; thin, continuous clay films; few, medium, black splotches of manganese dioxide; very strongly acid; gradual, smooth boundary; 10 to 20 inches thick.

Cg—35 to 42 inches, olive-gray (5Y 4/2, moist) clay loam; many, coarse, prominent mottles of strong brown and gray; massive; firm, sticky, plastic; few water-worn pebbles, some strongly weathered; no roots; no clay films; strongly acid (pH 5.0–5.5).

Range in characteristics: Moist color of the A horizon ranges from black to dark gray. Average thickness of A horizon is 10 inches but may be as much as 22 inches in some small areas on which sediment from adjacent hills has been deposited. In a few places the structure grade of the B horizon is weak.

HEMBRE SERIES

Profile of Hembre silt loam in logged virgin forest, located in NE¼SW¼ sec. 28, T. 3 S., R. 9 W., W. M.:

A1—0 to 4 inches, dark-brown (7.5YR 4/2) silt loam, dark reddish brown (5YR 3/2) when moist; strong, very fine, granular structure; soft, very friable, nonsticky, slightly plastic; many roots; many fine pores; fine and medium shot common; strongly acid (pH 5.1–5.5); clear, smooth boundary; 3 to 8 inches thick.

A3—4 to 11 inches, dark-brown (7.5YR 4/2) silt loam, dark reddish brown (5YR 3/3) when moist; strong, very fine and fine, granular structure; soft, very friable, slightly sticky, slightly plastic; many roots; many fine pores; fine and medium shot common; strongly acid; clear, wavy boundary; 5 to 10 inches thick.

B21—11 to 17 inches, dark-brown (7.5YR 3/2, moist) silt loam or silty clay loam; weak, very fine and fine, subangular blocky structure breaking to moderate, very fine, granular; soft, friable, slightly sticky, plastic; many roots; few medium shot; thin, continuous clay films; very strongly acid (pH 4.5–5.0); clear, smooth boundary; 4 to 8 inches thick.

B22—17 to 29 inches, reddish-brown (5YR 4/3, moist) silty clay loam; weak, medium, subangular blocky structure breaking to moderate, very fine, subangular blocky; hard, firm, sticky, plastic; many roots in upper part, and roots common in lower part; many, fine, tubular pores; thin, continuous clay films; few cobbles and stones; very strongly acid; clear, wavy boundary; 10 to 15 inches thick.

B3—29 to 38 inches, reddish-brown (5YR 4/4, moist) very stony silty clay loam; moderate, very fine and fine, subangular blocky structure; hard, firm, sticky plastic; thin, nearly continuous clay films; material is about 60 percent stones; common roots; very strongly acid; abrupt, irregular boundary; 5 to 1 inches thick.

Dr—38 inches +, basic igneous rock.

Range in characteristics: In most concave and gentl sloping areas, the profiles are weathered deeply. O convex slopes and on very steep slopes, the Hembr soils are moderately deep. Most profiles contain son stones. The lower part of the B horizon is more tha 50 percent stones in some areas. The B horizon range in texture from silt loam to silty clay loam and in colo from reddish brown to yellowish brown.

KILCHIS SERIES

Profile of Kilchis stony loam in a burned area locate in the SE¼SW¼ sec. 17, T. 1 N., R. 8 W., W.M.:

A00—2½ inches to 0, litter consisting of fresh and pa tially decomposed organic residue.

A—0 to 5 inches, dark reddish-brown (5YR 3/2, moist) s loam, reddish gray (5YR 5/2) when dry; moderat very fine, granular structure; friable, nonsticky, no plastic; abundant roots; abundant interstitial pore 25 percent of volume is rock; many fine shot; strong acid (pH 5.0); clear, wavy boundary; 4 to 8 inch thick.

AC—5 to 12 inches, dark reddish-brown (5YR 3/3, mois silt loam, reddish brown (5YR 5/3) when dr strong, very fine, granular structure; very f able, nonsticky, nonplastic; abundant roots; man medium, interstitial pores; 50 percent of volume angular rock; fine shot common; very strongly ac (pH 4.8); clear, wavy boundary; 5 to 9 inches thi

C—12 to 20 inches, dark reddish-brown (5YR 4/4, mois silt loam, light reddish brown (5YR 6/ when dry; weak, fine, granular structure; friat slightly sticky, nonplastic; many roots; many int stitial pores; manganese stains on rock fragmen 85 percent of volume is angular rock; very stron acid (pH 4.8); irregular boundary; 4 to 10 inc thick.

Dr—20 inches +, shattered, fine-grained, basic igneous salt rock.

Range in characteristics: Rock in the solum rang from 50 to 90 percent. The AC and C horizons va greatly in thickness, texture, and structure.

KNAPPA SERIES

Profile of Knappa silt loam in a cultivated area loca in the NW¼NW¼ sec. 21, T. 2 S., R. 9 W., W. M. (e side of U.S. Highway No. 101, 2 miles south of So Prairie store):

A11p—0 to 7 inches, dark-brown (10YR 3/3) silt loam, v dark brown (10YR 2/2) when moist; moderate, and very fine, granular structure; soft, friable, s sticky, slightly plastic; many fine roots; many, and medium pores; few, fine, shot concretions; v strongly acid (pH 4.5–5.0); clear, smooth bound 6 to 8 inches thick.

A12—7 to 14 inches, very dark grayish-brown (10YR moist) silt loam; strong, very fine, subang blocky structure; soft, friable, slightly plastic, sticky; many fine roots; fine pores common; medium, shot concretions; very strongly acid; c smooth boundary; 5 to 10 inches thick.

B1—14 to 18 inches, dark-brown (10YR 3/3, moist) clay loam; strong, very fine, subangular blocky st ture; soft, firm, slightly sticky, plastic; fine p common; thin, patchy, clay films; very stro acid; clear, smooth boundary; 3 to 5 inches thick.

B21—18 to 27 inches, dark-brown (10YR 3/3, moist) clay loam; strong, very fine, subangular bl

structure; firm, sticky, plastic; roots common, but decrease in number with depth; thin, continuous clay films; clear, smooth boundary.

B22—27 to 48 inches, dark yellowish-brown (10YR 3/4, moist) silty clay loam; moderate, very fine and fine, subangular blocky structure; firm, sticky, plastic; roots common but decrease to few in lower part; thin, continuous clay films; very strongly acid; gradual, smooth boundary; 15 to 30 inches thick.

B3—48 to 60 inches +, dark yellowish-brown (10YR 4/4, moist) silty clay loam; moderate, medium and fine, subangular blocky structure; firm, slightly sticky, plastic; few roots; thin, continuous clay films; very strongly acid.

Range in characteristics: The color of the A1 horizon ranges from very dark brown to dark brown; that of the B horizon, from dark brown to yellowish brown. Fine mottles are in the lower B horizon, near the boundary with the Chitwood soils. Slightly weathered gravel may occur at a depth of 3 to 5 feet. This gravel is unrelated to the soil parent material. Depth-to-gravel phases are recognized.

MEDA SERIES

Profile of Meda gravelly loam in a cultivated area located in the SE¼NE¼ sec. 36, T. 3 S., R. 10 W. (300 feet north of Simmons 101 Camp, along U.S. Highway No. 101):

Ap—0 to 9 inches, dark grayish-brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) when moist; weak, fine, subangular blocky structure breaking to moderate, very fine, granular; soft, friable, nonsticky, nonplastic; many roots; fine, tubular pores common; medium acid (pH 5.6–6.0); clear, smooth boundary; 5 to 11 inches thick.

AC—9 to 24 inches, grayish-brown (10YR 5/2) gravelly clay loam, dark brown (10YR 3/3) when moist; weak, very fine and fine, subangular blocky structure; soft, friable, slightly sticky, slightly plastic; many fine roots, but number decreases with depth; many, fine and medium tubular pores; many pebbles and fragments of shale; medium acid; gradual, smooth lower boundary; 10 to 20 inches thick.

C—24 to 36 inches +, dark-brown (10YR 4/3, moist) sandy loam; massive; soft, friable, nonsticky, nonplastic; few, fine roots; many, fine pores; pebbles and fragments of shale common; medium acid; many feet thick.

Range in characteristics: The thickness of the A horizon may vary markedly within a short distance, depending on amount of recent local deposition. Gravel content is variable; some areas are nearly free of gravel. In places a few cobbles and stones are in the profile.

NEHALEM SERIES

Profile of Nehalem silt loam in a cultivated area located in SW¼SW¼ sec. 34, T 1 S., R. 9 W., W. M. (0.4 of a mile south of Johnson Bridge):

Ap—0 to 8 inches, very dark grayish-brown (10YR 3/2), dark brown (10YR 4/3) when dry; moderate, fine, subangular blocky structure breaking to moderate, very fine, granular; soft, very friable, nonsticky, nonplastic; many roots; strongly acid (pH 5.0–5.5); clear, smooth boundary; 6 to 8 inches thick.

C1—8 to 17 inches, dark-brown (10YR 4/3, moist) silt loam; weak, fine, subangular blocky structure breaking to moderate, very fine, granular; soft, friable, slightly plastic, nonsticky; many roots; strongly acid; clear, smooth boundary; 5 to 10 inches thick.

C2—17 to 37 inches, dark-brown (10YR 4/3, moist) silty clay loam; strong, fine and very fine, blocky structure; firm, slightly sticky, plastic; common roots; very strongly acid (pH 4.5–5.0); gradual, smooth boundary; 15 to 25 inches thick.

C3—37 to 60 inches +, dark-brown (10YR 4/3, moist) silty clay loam; moderate, very fine, blocky structure; firm, sticky, plastic; roots common in upper part, few in lower part; very strongly acid.

Range in characteristics: Stratification of the C horizon is common; layers and lenses of sandy material occur at any depth. Stratification is most pronounced in areas subject to frequent flooding. Faint, gray and strong-brown mottles occur in the lower substratum near boundaries with the more poorly drained associated soils. In places an unrelated stratum of gravel underlies the profile, and depth phases may be recognized.

NESKOWIN SERIES

Profile of Neskowin silty clay loam in a pastured area located in NW¼NW¼ sec. 18, T. 5 S., R. 10 W. (southeast of the quarry on U.S. Highway No. 101, opposite Winema Beach):

A11—0 to 5 inches, very dark grayish-brown (10YR 3/2) silty clay loam, very dark brown (10YR 2/2) when moist; strong, very fine and fine, granular structure; slightly hard, friable, sticky, plastic; many roots; many fine pores; strongly acid; clear, smooth boundary; 3 to 8 inches thick.

A12—5 to 12 inches, very dark grayish-brown (10YR 3/2) silty clay loam, very dark brown (10YR 2/2) when moist; strong, very fine, subangular blocky structure breaking to strong, very fine, granular; slightly hard, friable, sticky, plastic; many roots; few, medium pores but many, fine and very fine pores; strongly acid; clear, smooth boundary; 5 to 15 inches thick.

B1—12 to 17 inches, dark reddish-brown (5YR 2/2, moist) silty clay loam; strong, very fine, subangular blocky structure breaking to weak, fine, granular; slightly hard, friable, sticky, plastic; many roots; fine and very fine pores common; thin, patchy clay films on vertical ped surfaces; few, fine shot concretions; very strongly acid; clear, smooth boundary; 3 to 10 inches thick.

B2—17 to 27 inches, dark-brown (7.5YR 3/2, moist) silty clay loam; moderate, medium, subangular blocky structure breaking to moderate, very fine, subangular and angular blocky; slightly hard, friable, sticky, very plastic; thin, continuous clay films on ped surfaces and in pores; few, medium-size pores, common fine pores; very strongly acid; abrupt, irregular boundary; 8 to 30 inches thick.

Dr—27 inches +, basic igneous bedrock.

Range in characteristics: Earth slips, mass earth movements, and irregularities in the original bedrock surface make the depth to bedrock variable. Stones may occur in any horizon.

NESTUCCA SERIES

Profile of Nestucca silt loam in a cultivated area located in the NW¼NW¼ sec. 3, T. 2 S., R. 9 W. (0.6 of a mile south of the Johnson Bridge, across the Trask River):

A11p—0 to 6 inches, brown (10YR 4/3) silt loam, dark brown (10YR 3/3) when moist; moderate, very fine, granular structure; soft, very friable, nonsticky, nonplastic; many roots; many, fine and very fine tubular pores; pH 5.2; clear, smooth boundary; 4 to 7 inches thick.

A12—6 to 14 inches, very dark grayish-brown (10YR 3/2, moist) silt loam; moderate, fine, granular structure; soft, friable, nonsticky, nonplastic; many fine roots; many fine tubular pores; pH 5.2; clear, smooth boundary; 3 to 8 inches thick.

B2—14 to 41 inches, dark grayish-brown (10YR 4/2, moist) silty clay loam; many, medium, distinct mottles of reddish brown; moderate, fine, subangular blocky structure; slightly hard, firm, sticky, plastic; common roots; fine tubular pores common; clay films absent; pH 5.0; gradual, smooth boundary; 35 to 30 inches thick.

C—41 to 60 inches +, dark-gray (10YR 4/1, moist) silty clay; many, course, prominent mottles of dark reddish brown; massive or weak, medium, subangular blocky structure; hard, firm, very sticky, very plastic; very few roots; few, very fine pores; clay films absent; pH 4.8.

Range in characteristics: The contrast of mottling in the B horizon ranges from faint to distinct. Where this soil grades toward the Bremner soils, the reddish-brown mottles disappear, and the B horizon becomes grayer. The amount of clay in the B horizon varies. Texture of the B horizon ranges from heavy silt loam to silty clay loam.

NETARTS SERIES

Profile of Netarts fine sandy loam in a virgin forest located in the NW¼NE¼ sec. 31, T. 1 S., R. 10 W. (one-half of a mile northwest of Netarts, Oregon):

A00—1½ inches to 0, litter consisting of an accumulation of leaves, twigs, and limbs from deciduous trees and low-growing shrubs.

A0, A2—0 to 3 inches, very dark brown (10YR 2/2) fine sandy loam, black (10YR 2/1) when moist; many clean sand grains of gray and light brownish gray; massive; very soft, very friable, nonsticky, nonplastic; many roots; many interstitial pores; extremely acid; abrupt, wavy, lower boundary with thin tongues extending into the A2 horizon along old root channels; 1 to 4 inches thick.

A2—3 to 7 inches, mixed dark grayish-brown (2.5Y 4/2, moist), grayish-brown (2.5Y 5/2, moist), light brownish-gray (2.5Y 6/2, moist), and light-gray 10YR 6/1, moist) loamy fine sand; thin tongues of darker material from horizon above; massive; very friable, nonsticky, nonplastic; many roots; many, fine interstitial pores; very strongly acid; clear, wavy boundary; 1 to 5 inches thick.

AB—7 to 13 inches, mixed grayish-brown (2.5Y 5/2, moist), light brownish-gray (2.5Y 6/2, moist), and light yellowish-brown (2.5Y 6/4, moist) loamy fine sand showing patches of dark brown; massive; very friable, nonsticky, nonplastic; few, soft, iron-cemented nodules stained with dark brown; common to few roots; strongly acid; clear boundary; 4 to 12 inches thick.

B2ir—13 to 17 inches, mottled dark-brown (7.5YR 3/2 and 4/4, moist), light brownish-gray (2.5Y 6/2, moist), and light yellowish-brown (2.5Y 6/4, moist) fine sand; massive; soft, very friable, nonsticky, nonplastic; hard lenses of iron-rich material; very few roots; many, fine interstitial pores; strongly acid; clear, wavy boundary; 3 to 5 inches thick.

B2m—17 to 35 inches, mottled reddish-brown (5YR 4/4, moist), dark-brown (7.5YR 3/2, moist), and grayish-brown (2.5Y 5/2, moist) fine sand; massive; weakly cemented, some fragments and nodules strongly cemented; firm and very firm, nonsticky, nonplastic; roots few but absent in lower part; strongly acid; gradual, wavy boundary; 10 to 20 inches thick.

B3—35 to 52 inches, mottled yellowish-brown (10YR 5/4, moist), grayish-brown (2.5Y 5/2, moist), and light brownish-gray (2.5Y 6/2, moist) fine sand; massive; very friable, nonplastic, nonsticky; few weakly cemented fragments and nodules; no roots; strongly acid; gradual, wavy boundary; 10 to 20 inches thick.

C—52 to 65 inches +, mottled dark grayish-brown (2.5Y 4/2, moist), grayish-brown (2.5Y 5/2, moist), light yellowish-brown (2.5Y 6/4, moist), and pale-yellow (2.5Y 7/4, moist) fine sand; massive; very friable, nonsticky, nonplastic; strongly acid; many feet thick.

Range in characteristics: Texture ranges from sandy loam to fine sand. In some places the A2 horizon lies directly below the A00 and the very thin A0 horizon. Hard material in the B horizon varies from thin stratified layers to thick massive layers that are weakly to strongly cemented.

QUILLAYUTE SERIES

Profile of Quillayute silt loam in a cultivated area located in the SW¼SW¼ sec. 13, T. 1 S., R. 10 W.:

A1p—0 to 9 inches, very dark gray (10YR 3/1, dry) to black (10YR 2/1, moist) silt loam; moderate, fine and very fine, subangular blocky structure breaking to strong, very fine, granular; soft, friable, slightly plastic, slightly sticky; abundant roots; numerous very fine pores; very strongly acid (pH 4.6); clear, smooth boundary; 8 to 9 inches thick.

A3—9 to 21 inches, very dark gray (10YR 3/1) to black (10YR 2/1, moist) silt loam; weak, very fine, subangular blocky structure breaking to moderate, very fine, granular; soft, friable, slightly sticky, slightly plastic; very thin, patchy clay films on vertical ped surfaces in the lower part of the horizon; abundant roots; abundant fine pores; very strongly acid (pH 4.6); clear, smooth boundary; 10 to 15 inches thick.

B1—21 to 30 inches, very dark grayish-brown (10YR 3/2, moist) silt loam to silty clay loam; moderate, very fine, subangular blocky structure that breaks to weak, fine, granular; soft, friable, slightly sticky, slightly plastic; common roots; common fine pores; very thin, patchy clay films on peds; pores clean; extremely acid (pH 4.4); gradual, smooth boundary; 8 to 10 inches thick.

B2—30 to 48 inches, dark yellowish-brown (10YR 4/4, moist) silt loam to silty clay loam; moderate, very fine, subangular blocky structure that breaks to weak, fine, granular; soft, friable, slightly sticky, slightly plastic; common roots; common fine pores; very thin, patchy clay films on peds; pores clean; extremely acid (pH 4.4); gradual, wavy boundary; 15 to 25 inches thick.

B3—48 to 60 inches +, light yellowish-brown (10YR 5/4 moist) silt loam to silty clay loam; weak, medium subangular blocky structure breaking to moderate very fine, subangular blocky; soft, friable to firm sticky, plastic; few, thin, patchy clay films on peds extremely acid (pH 4.4); very few roots.

Range in characteristics: The solum may have grave and cobbles throughout the profile or it may be moder ately deep over a gravelly layer. The A horizon ma range in thickness from 18 to 24 inches. Where the Quilla yute soils intergrade toward the poorly drained member of the catena, gray colors and faint mottles are in th lower B horizon. The soil usually has a large quantit of worm casts throughout.

TRASK SERIES

Profile of Trask clay loam in a burned forest locate in the northeast corner of the NE¼NW¼ sec. 36, T. N., R. 8 W., W. M. (0.8 of a mile up the Cedar Bud Lookout Road (west) from the Tillamook-Portlan Highway to parking space):

A00—3 inches to 0, litter of plant material.

A11—0 to 5 inches, dark-brown (7.5YR 3/2, moist) shaly loa brown (7.5YR 5/2) when dry; 40 percent of layer co

sists of shale fragments; weak, very fine, granular structure; very friable, nonsticky, nonplastic; abundant roots; abundant, fine interstitial pores; partially decomposed organic residue abundant; very strongly acid (pH 4.8); clear, wavy boundary; 4 to 7 inches thick.

A12—5 to 8 inches, dark-brown to dark yellowish-brown (10YR 3/3 to 3/4, moist) shaly silt loam, brown (10YR 5/3) when dry; strong, fine, granular structure; friable, nonsticky, slightly plastic; abundant roots; abundant interstitial pores; partially decomposed and some charred organic residue abundant; 40 percent of layer is shale fragments; very strongly acid (pH 4.8); clear, irregular boundary; 2 to 6 inches thick.

B2—8 to 14 inches, strong-brown to dark yellowish-brown (7.5YR 5/6-10YR 4/4, moist) shaly silt loam, light yellowish brown (10YR 6/4, dry); weak, fine, subangular blocky structure; friable, slightly sticky, plastic; common roots; common interstitial pores; 70 percent of layer is shale fragments; complex of bedrock with soil in pockets and layers; very strongly acid (pH 4.6); gradual, broken boundary; 4 to 11 inches thick.

C—14 to 28 inches, yellowish-brown (10YR 5/4 to 5/6, moist) to dark-brown and strong-brown (7.5YR 4/4 and 5/8, moist) shaly silt loam; variegated color influenced by shale bedrock; weak, fine, subangular blocky structure; friable, sticky, plastic; few roots; few, medium and large, interstitial pores; 85 percent of layer is shale fragments; complex of bedrock with soil in pockets and in old root channels; very strongly acid (pH 4.6); manganese stains or charred organic-matter stains on many shale fragments.

R—28 inches +, highly fractured silty sedimentary beds with occasional roots extending to a depth of 48 inches.

Range in characteristics: Shale fragments in the surface horizon range from 30 to 90 percent of volume. The subsurface layers vary in texture from a loam to clay loam and in thickness from very thin to as much as 30 inches. Shale outcrops cover as much as 25 percent of the surface area.

WINEMA SERIES

Profile of Winema silt loam in a cultivated area located in the NE¼NW¼ sec. 34, T. 1 S., R. 9 W. (on slope, north of Red Clover Cheese Factory):

A11—0 to 10 inches, very dark gray (10YR 3/1) silt loam, black (10YR 2/1) when moist; strong, very fine, fine, and medium, granular structure; soft, friable, slightly sticky, slightly plastic; many fine roots; many, fine and medium tubular pores; very strongly acid (pH 4.5-5.0); clear, wavy boundary; 6 to 12 inches thick.

A12—10 to 21 inches, very dark gray (10YR 3/1) silt loam, black (10YR 2/1) when moist; moderate, fine, subangular blocky structure breaking to strong, fine and very fine, granular; soft, friable, slightly sticky, slightly plastic; many fine roots; many, fine and medium pores; very strongly acid; clear, wavy boundary; 6 to 12 inches thick.

B1—21 to 28 inches, dark-brown (10YR 3/3, moist) silty clay loam; strong, very fine and fine, subangular blocky structure; slightly hard, firm, sticky, plastic; many roots; thin, continuous clay films; very strongly acid; clear, wavy boundary; 5 to 10 inches thick.

B2—28 to 42 inches, dark yellowish-brown (10YR 4/4, moist) silty clay; strong, fine, subangular blocky structure; hard, firm, sticky, plastic; roots common but decrease in number with depth; moderately thick, continuous clay films; some brown weathered fragments of shale; very strongly acid; gradual, smooth boundary; 10 to 20 inches thick.

C—42 to 60 inches +, mottled yellowish-brown (10YR 5/4, moist) and grayish-brown (2.5Y 5/2, moist) silty clay; very weak, coarse, subangular blocky structure, or massive; few, patchy, clay films on ped surfaces; many weathered fragments of shale; very strongly acid.

Range in characteristics: Depth to parent rock ranges from about 24 to about 80 inches. The shale layer has weathered several feet deep. The thickness of A horizon ranges from 15 to 30 inches. It is thickest on lower slopes.

YAQUINA SERIES

Profile of Yaquina loamy fine sand in an undisturbed area located in the SW¼SE¼ sec. 28, T. 3 N., R. 10 W., W. M. (Bayside Garden area of Nehalem, Oreg., 1,200 feet south of U.S. Highway No. 101 and 300 feet east of north-south road, one-half of a mile west of Nehalem):

A00—1½ inches to ½ inch, litter consisting of leaves, needles, twigs, and limbs of shore pine, spruce, and associated deciduous trees and low shrubs.

A0—½ inch to 0, very dark gray (10YR 3/1) when moist; decomposed plant remains sprinkled with white grains of sand; extremely acid (pH 4.5).

A2—0 to 6 inches, gray (10YR 5/1) loamy fine sand, light gray (10YR 7/1) when dry; single grain; loose, nonplastic, nonsticky; many roots; many interstitial pores; very strongly acid (pH 4.8); clear, wavy boundary; 4 to 8 inches thick.

B21ir—6 to 14 inches, dark grayish-brown (2.5Y 4/2) fine sand, light brownish gray (2.5Y 6/2) when dry; many sand grains of olive brown and light olive brown; fine, faint, distinct mottles common; very weak, coarse and medium, subangular blocky structure; very soft, very friable, nonsticky, nonplastic; firm, iron-cemented nodules common; roots common; few, medium tubular pores and many, fine interstitial pores; very strongly acid (pH 5.0); gradual, wavy boundary; 6 to 12 inches thick.

B22ir—14 to 30 inches, grayish-brown (2.5YR 5/2) fine sand; sand grains of olive brown (2.5Y 4/4) and light brownish gray (2.5Y 6/2) (all colors in this horizon measured when moist); single grain; loose, nonsticky, nonplastic; common, large, faint mottles and a few, medium, distinct mottles of pale brown (10YR 6/3) and yellowish brown (10YR 5/6); few roots; medium and fine, soft, iron-cemented nodules common; strongly acid (pH 5.4); gradual, wavy boundary; 12 to 20 inches thick.

C—30 to 42 inches +, variegated grains of sand colored light olive-brown (2.5Y 5/4, moist); pale brown (10YR 6/3, moist), dark reddish-gray (5YR 4/2, moist), and pinkish-gray (5YR 6/2, moist); single grain; loose, nonsticky, nonplastic; strongly acid (pH 5.2); many feet thick.

Range in characteristics: The A2 horizon ranges from very thin to thick (10 inches) within a horizontal distance of only a few yards. This horizon loses its identity when it is disturbed in cultivation. In many places medium- and fine-textured marine sediment underlies the sand. The degree of cementation of nodules in the B horizon varies from place to place. The number and degree of drainage mottles are variable.

EXHIBIT 6

November 28, 2005

Tillamook County Planning
Laurel
Tillamook, OR 97141

To Whom it may Concern,

Long before I was born, my grandfather bought a farm on Hodgdon Road. My mother and father then bought property from him to build their house. This is the home where I was raised. I spent a lot of time playing outside with my parents feeding animals, building fence, driving tractor, and pulling weeds. I also spent a lot of time with my grandparents picking up sticks in the field, feeding animals, and even learning to drive. It was a wonderful quality of life for me to be able to see my grandparents daily and form a very special bond that many children are not able to experience. It is this quality of life that I would now like to create for my own children.

Eight years ago when I was married I had to move to eastern Oregon for my husband's career. From that day however, it has been our goal to move back to Tillamook (where we both graduated) and build a home "on the hill" where I grew up. Two years ago my husband was able to transfer and we moved back to Tillamook with our two girls. In that time it has been our goal to begin building. We want to give our girls the quality of life that I was fortunate enough to have. We want them to build that special bond with their grandparents, to work outside just as I did, and to play outside where their mother used to play.

It has always been my dream to live on the hill overlooking the valley in my own home with my own family. I hope that you will be able to help us in achieving that dream. Thank you for your consideration in this manner.

Sincerely, Jennifer Guarcello

Jennifer Guarcello
4204 Dogwood Ave.
Tillamook, OR 97141
(503)815-8353

Tillamook County Planning
Laurel Ave.
Tillamook OR 97141

To Whom It May Concern,

Growing up on Hodgdon Rd. was the ideal childhood for me. I had everything a child could ask for; plenty of room to play and ride bikes, animals to take care of, and my grandparents next door. I always thought that someday I would like to be able to move back to Tillamook and raise my children in the same footsteps. After finishing college I got married and moved back. I now have a child, this makes me remember all the great times I had growing up on the hill. My husband and I would like to be able to have livestock and teach our daughter how to raise them. Hopefully one day we will.

Thank you for your time,

Jeannie Ellerbroek

Jeannie Ellerbroek
5103 Kenway Dr.
Tillamook OR 97141

March 9, 2006

George McKibbin
775 Hodgdon Road
Tillamook, OR 97141

Dear George:

John and Suzann Dietrich are asking you, as neighbors, to support us in our endeavor to change the zoning on three parcels of land, from F1 (farm use) to Small Farm and Woodlot 10 Acre Zone.

We purchased land in 1975 from my parents, Victor and Aileen Thomas so we could build a home. In 1980 we purchased two additional lots with the intent that our two children would someday build homes on these parcels. With the change in land use laws, this is no longer possible with the current zoning.

This property has been in our family for over 50 years. We built a home on land purchased from our family so our children could be close to their grandparents. We would like our children to be able to do the same and allow us to have that same closeness with our grandchildren.

Bruce Thomas is seeking a zone change on two parcels of land to Small Farm and Woodlot 10 Acre Zone. These parcels adjoin the southern edge of the Dietrich property and are not part of the main farming operation.

By signing below, you would agree that changing the zoning on these parcels would not violate the use of your property or infringe upon your rights as neighbors.

Thank you,

John & Suzann Dietrich
Bruce Thomas

George McKibbin
3-11-06

March 9, 2006

Calvin and Georgianne Mayer
PO Box 717
Sublimity, OR 97385

Dear Calvin & Georgianne:

John and Suzann Dietrich are asking you, as neighbors, to support us in our endeavor to change the zoning on three parcels of land, from Fl (farm use) to Small Farm and Woodlot 10 Acre Zone.

We purchased land in 1975 from my parents, Victor and Aileen Thomas so we could build a home. In 1980 we purchased two additional lots with the intent that our two children would someday build homes on these parcels. With the change in land use laws, this is no longer possible with the current zoning.

This property has been in our family for over 50 years. We built a home on land purchased from our family so our children could be close to their grandparents. We would like our children to be able to do the same and allow us to have that same closeness with our grandchildren.

Bruce Thomas is seeking a zone change on two parcels of land to Small Farm and Woodlot 10 Acre Zone. These parcels adjoin the southern edge of the Dietrich property and are not part of the main farming operation.

By signing below, you would agree that changing the zoning on these parcels would not violate the use of your property or infringe upon your rights as neighbors.

Thank you,

John & Suzann Dietrich
Bruce Thomas

Calvin J. Mayer
Georgianne S. Mayer

March 9, 2006

Ed and Wilma Myers
8455 Hughey Lane
Tillamook, OR 97141

Dear Ed & Wilma:

John and Suzann Dietrich are asking you, as neighbors, to support us in our endeavor to change the zoning on three parcels of land, from Fl (farm use) to Small Farm and Woodlot 10 Acre Zone.

We purchased land in 1975 from my parents, Victor and Aileen Thomas so we could build a home. In 1980 we purchased two additional lots with the intent that our two children would someday build homes on these parcels. With the change in land use laws, this is no longer possible with the current zoning.

This property has been in our family for over 50 years. We built a home on land purchased from our family so our children could be close to their grandparents. We would like our children to be able to do the same and allow us to have that same closeness with our grandchildren.

Bruce Thomas is seeking a zone change on two parcels of land to Small Farm and Woodlot 10 Acre Zone. These parcels adjoin the southern edge of the Dietrich property and are not part of the main farming operation.

By signing below, you would agree that changing the zoning on these parcels would not violate the use of your property or infringe upon your rights as neighbors.

Thank you,

John & Suzann Dietrich
Bruce Thomas

Ed Myers

EXHBIT IIa

ZC-06-01

LAND CONSERVATION AND DEVELOPMENT DEPARTMENT

DIVISION 33

AGRICULTURAL LAND

660-033-0010

Purpose

The purpose of this division is to implement the requirements for agricultural land as defined by Goal 3.
Stat. Auth.: ORS 183, ORS 197.040, ORS 197.230 & ORS 197.245
Stats. Implemented: ORS 197.015, ORS 197.040, ORS 197.230, ORS 197.245, ORS 215.203, ORS 215.243 & ORS 215.700
Hist.: LCDC 6-1992, f. 12-10-92, cert. ef. 8-7-93; LCDC 3-1994, f. & cert. ef. 3-1-94

660-033-0020

Definitions

For purposes of this division, the definitions in ORS 197.015, the Statewide Planning Goals and OAR chapter 660 shall apply. In addition, the following definitions shall apply:

(1)(a) "Agricultural Land" as defined in Goal 3 includes:

(A) Lands classified by the U.S. Natural Resources Conservation Service (NRCS) as predominantly Class I-IV soils in Western Oregon and I-VI soils in Eastern Oregon;

(B) Land in other soil classes that is suitable for farm use as defined in ORS 215.203(2)(a), taking into consideration soil fertility; suitability for grazing; climatic conditions; existing and future availability of water for farm irrigation purposes; existing land use patterns; technological and energy inputs required; and accepted farming practices; and

(C) Land that is necessary to permit farm practices to be undertaken on adjacent or nearby agricultural lands.

EXHIBIT III
ZC-06-01

(b) Land in capability classes other than I-IV/I-VI that is adjacent to or intermingled with lands in capability classes I-IV/I-VI within a farm unit, shall be inventoried as agricultural lands even though this land may not be cropped or grazed;

(c) "Agricultural Land" does not include land within acknowledged urban growth boundaries or land within acknowledged exception areas for Goal 3 or 4.

(2)(a) "Commercial Agricultural Enterprise" consists of farm operations that will:

(A) Contribute in a substantial way to the area's existing agricultural economy; and

(B) Help maintain agricultural processors and established farm markets.

(b) When determining whether a farm is part of the commercial agricultural enterprise, not only what is produced, but how much and how it is marketed shall be considered. These are important factors because of the intent of Goal 3 to maintain the agricultural economy of the state.

(3) "Contiguous" means connected in such a manner as to form a single block of land.

(4) "Date of Creation and Existence". When a lot, parcel or tract is reconfigured pursuant to applicable law after November 4, 1993, the effect of which is to qualify a lot, parcel or tract for the siting of a dwelling, the date of the reconfiguration is the date of creation or existence. Reconfigured means any change in the boundary of the lot, parcel or tract.

(5) "Eastern Oregon" means that portion of the state lying east of a line beginning at the intersection of the northern boundary of the State of Oregon and the western boundary of Wasco County, then south along the western boundaries of the Counties of Wasco, Jefferson, Deschutes and Klamath to the southern boundary of the State of Oregon.

(6) "Exception Area" means an area no longer subject to the requirements of Goal 3 or 4 because the area is the subject of a site specific exception acknowledged pursuant to ORS 197.732 and OAR chapter 660, division 4.

(7)(a) "Farm Use" as that term is used in ORS Chapter 215 and this division means "farm use" as defined in ORS 215.203.

(b) As used in the definition of "farm use" in ORS 215.203 and in this division:

(A) "Preparation" of products or by-products includes but is not limited to the cleaning, treatment, sorting, composting or packaging of the products or by-products; and

(B) "Products or by-products raised on such land" means that those products or by-products are raised on the farm operation where the preparation occurs or on other farm land provided the preparation is occurring only on land being used for the primary purpose of obtaining a profit in money from the farm use of the land.

(8)(a) "High-Value Farmland" means land in a tract composed predominantly of soils that are:

(A) Irrigated and classified prime, unique, Class I or II; or

(B) Not irrigated and classified prime, unique, Class I or II.

(b) In addition to that land described in subsection (a) of this section, high-value farmland, if outside the Willamette Valley, includes tracts growing specified perennials as demonstrated by the most recent aerial photography of the Agricultural Stabilization and Conservation Service of the U.S. Department of Agriculture taken prior to November 4, 1993. "Specified perennials" means perennials grown for market or research purposes including, but not limited to, nursery stock, berries, fruits, nuts, Christmas trees, or vineyards, but not including seed crops, hay, pasture or alfalfa;

(c) In addition to that land described in subsection (a) of this section, high-value farmland, if in the Willamette Valley, includes tracts composed predominantly of the following soils in Class III or IV or composed predominantly of a combination of the soils described in subsection (a) of this section and the following soils:

(A) Subclassification IIIe, specifically, Bellpine, Bornstedt, Burlington, Briedwell, Carlton, Cascade, Chehalem, Cornelius Variant, Cornelius and Kinton, Helvetia, Hillsboro, Hult, Jory, Kinton, Latourell, Laurelwood, Melbourne, Multnomah, Nekia, Powell, Price, Quatama, Salkum, Santiam, Saum, Sawtell, Silverton, Veneta, Willakenzie, Woodburn and Yamhill;

(B) Subclassification IIIw, specifically, Concord, Conser, Cornelius, Variant, Dayton (thick surface) and Sifton (occasionally flooded);

(C) Subclassification IVe, specifically, Bellpine Silty Clay Loam, Carlton, Cornelius, Jory, Kinton, Latourell, Laurelwood, Powell, Quatama, Springwater, Willakenzie and Yamhill; and

(D) Subclassification IVw, specifically, Awbrig, Bashaw, Courtney, Dayton, Natroy, Noti and Whiteson.

(d) In addition to that land described in subsection (a) of this section, high-value farmland, if west of the summit of the Coast Range and used in conjunction with a dairy operation on January 1, 1993, includes tracts composed predominantly of the following soils in Class III or IV or composed predominantly of a combination of the soils described in subsection (a) of this section and the following soils:

(A) Subclassification IIIe, specifically, Astoria, Hembre, Knappa, Meda, Quillayutte and Winema;

(B) Subclassification IIIw, specifically, Brennar and Chitwood;

(C) Subclassification IVe, specifically, Astoria, Hembre, Meda, Nehalem, Neskowin and Winema; and

(D) Subclassification IVw, specifically, Coquille.

(e) In addition to that land described in subsection (a) of this section, high-value farmland includes tracts located west of U.S. Highway 101 composed predominantly of the following soils in Class III or IV or composed predominantly of a combination of the soils described in subsection (a) of this section and the following soils:

(A) Subclassification IIIw, specifically, Ettersburg Silt Loam and Croftland Silty Clay Loam;

(B) Subclassification IIIe, specifically, Klooqueth Silty Clay Loam and Winchuck Silt Loam; and

(C) Subclassification IVw, specifically, Huffling Silty Clay Loam.

(f) For the purposes of approving a land use application under ORS 215.705, the soil class, soil rating or other soil designation of a specific lot or parcel may be changed if:

(A) The property owner submits a statement of agreement from the Natural Resources Conservation Service (NRCS) that the soil class, soil rating or other soil designation should be adjusted based on new information; or

(B) Submits a report from a soils scientist whose credentials are acceptable to the State Department of Agriculture that the soil class, soil rating or other soil designation should be changed; and

(C) Submits a statement from the State Department of Agriculture that the Director of Agriculture or the director's designee has reviewed the report described in paragraph (5)(f)(B) of this rule and finds the analysis in the report to be soundly and scientifically based.

(g) For the purposes of approving a land use application under ORS 215.705, soil classes, soil ratings or other soil designations used in or made pursuant to this definition are those of the NRCS in its most recent publication for that class, rating or designation before November 4, 1993 except for changes made pursuant to subsection (f) of this rule. Within six months of the effective date of this rule, the department shall provide to all counties and other interested persons a list of soils that qualify land as high-value farmland under this subsection.

(h) For the purposes of approving a land use application under OAR 660-033-0090, 660-033-0120, 660-033-0130 and 660-033-0135, soil classes, soil ratings or other soil designations used in or made pursuant to this definition are those of the NRCS in its most recent publication for that class, rating or designation.

(i) Lands designated as "marginal lands" according to the marginal lands provisions adopted before January 1, 1993, and according to the criteria in ORS 215.247 (1991), are excepted from this definition of "high-value farmlands";

(j) Any county that adopted marginal lands provisions before January 1, 1993, may continue to designate lands as "marginal lands" according to those provisions and criteria in ORS 215.247 (1991), as long as the county has not applied the provisions of ORS 215.705 to 215.750 to lands zoned for exclusive farm use.

(9) "Irrigated" means watered by an artificial or controlled means, such as sprinklers, furrows, ditches, or spreader dikes. An area or tract is "irrigated" if it is currently watered, or has established rights to use water for irrigation, including such tracts that receive water for irrigation from a water or irrigation district or other provider. For the purposes of this division, an area or tract within a water or irrigation district that was once irrigated shall continue to be considered "irrigated" even if the irrigation water was removed or transferred to another tract.

(10) "Tract" means one or more contiguous lots or parcels in the same ownership.

(11) "Western Oregon" means that portion of the state lying west of a line beginning at the intersection of the northern boundary of the State of Oregon and the western boundary of Wasco County, then south along the western boundaries of the Counties of Wasco, Jefferson, Deschutes and Klamath to the southern boundary of the State of Oregon.

(12) "Willamette Valley" is 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.

(13) "Lot" shall have the meaning set forth in ORS 92.010 and "parcel" shall have the meaning set forth in ORS 215.010.

(14) "Manufactured dwelling" and "manufactured home" shall have the meaning set forth in ORS 446.003(26).

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 183, 197 &215
Stats. Implemented: ORS 197.015, 197.040, 197.230, 197.245, 215.203, 215.243, 215.283 & 215.700 - 215.710
Hist.: LCDC 6-1992, f. 12-10-92, cert. ef. 8-7-93; LCDC 3-1994, f. & cert. ef. 3-1-94; LCDC 6-1994, f. & cert. ef. 6-3-94; LCDC 5-1996, f. & cert. ef. 12-23-96; LCDD 2-1998, f. & cert. ef. 6-1-98; LCDD 5-2000, f. & cert. ef. 4-24-00; LCDD 1-2002, f. & cert. ef. 5-22-02; LCDD 1-2004, f. & cert. ef. 4-30-04

660-033-0030

Identifying Agricultural Land

(1) All land defined as "agricultural land" in OAR 660-033-0020(1) shall be inventoried as agricultural land.

(2) When a jurisdiction determines the predominant soil capability classification of a lot or parcel it need only look to the land within the lot or parcel being inventoried. However, whether land is "suitable for farm use" requires an inquiry into factors beyond the mere identification of scientific soil classifications. The factors are listed in the definition of agricultural land set forth at OAR 660-033-0020(1)(a)(B). This inquiry requires the consideration of conditions existing outside the lot or parcel being inventoried. Even if a lot or parcel is not predominantly Class I-IV soils or suitable for farm use, Goal 3 nonetheless defines as agricultural "lands in other classes which are necessary to permit farm practices to be undertaken on adjacent or nearby lands." A determination that a lot or parcel is not agricultural land requires findings supported by substantial evidence that addresses each of the factors set forth in OAR 660-033-0020(1).

(3) Goal 3 attaches no significance to the ownership of a lot or parcel when determining whether it is agricultural land. Nearby or adjacent land, regardless of ownership, shall be examined to the extent that a lot or parcel is either "suitable for farm use" or "necessary to permit farm practices to be undertaken on adjacent or nearby lands" outside the lot or parcel.

(4) When inventoried land satisfies the definition requirements of both agricultural land and forest land, an exception is not required to show why one resource designation is chosen over another. The plan need only document the factors that were used to select an agricultural, forest, agricultural/forest, or other appropriate designation.

(5) Notwithstanding the definition of "farm use" in ORS 215.203(2)(a), profitability or gross farm income shall not be considered in determining whether land is agricultural land or whether Goal 3, "Agricultural Land," is applicable.

(6) More detailed data on soil capability than is contained in the U.S. Natural Resources Conservation Service (NRCS) soil maps and soil surveys may be used to define agricultural land. However, the more detailed soils data shall be related to the U.S. Natural Resources Conservation Service (NRCS) land capability classification system.

Stat. Auth.: ORS 183, ORS 197 & ORS 215
Stats. Implemented: ORS 197.015, ORS 197.040, ORS 197.230, ORS 197.245, ORS 215.203, ORS 215.243 & ORS 215.700 - 215.710
Hist.: LCDC 6-1992, f. 12-10-92, cert. ef. 8-7-93; LCDD 5-2000, f. & cert. ef. 4-24-00

660-033-0080

Designation of High-Value Farmland

(1) The Commission may review comprehensive plan and land use regulations related to the identification and designation of high-value farmland under procedures set forth in ORS 197.251 or 197.628 through 197.644.

(2) Counties shall submit maps of high-value farmland described in OAR 660-033-0020(8) and such amendments of their plans and land use regulations as are necessary to implement the requirements of this division to the Commission for review. Counties shall submit high-value farmland maps no later than the time of the first periodic review after December 31, 1994. The submittal shall include the notice required by OAR Chapter 660, Division 18 or 25, whichever applies.

Stat. Auth.: ORS 183, ORS 197.040, ORS 197.230 & ORS 197.245
Stats. Implemented: ORS 197.015, ORS 197.040, ORS 197.230, ORS 197.245, ORS 215.203, ORS 215.243 & ORS 215.700 - ORS 215.710
Hist.: LCDC 6-1992, f. 12-10-92, cert. ef. 8-7-93; LCDC 3-1994, f. & cert. ef. 3-1-94

660-033-0090

Uses on High-Value and Non High-Value Farmland

(1) Uses on land identified as high-value farmland and uses on land not identified as high-value farmland shall be limited to those specified in OAR 660-033-0120. Except as provided for in section (2) of this rule, counties shall apply zones that qualify as exclusive farm use zones under ORS chapter 215 to "agricultural land" as identified under OAR 660-033-0030 which includes land identified as high-value farmland and land not identified as high-value farmland.

(2) "Abandoned mill sites" may be zoned for industrial use as provided for by ORS 197.719.

Stat. Auth.: ORS 197 & 215
Stats. Implemented: ORS 197.015, 197.040, 197.230, 197.245, 215.203, 215.243, 215.283 & 215.700 - 215.710
Hist.: LCDC 6-1992, f. 12-10-92, cert. ef. 8-7-93; LCDD 1-2004, f. & cert. ef. 4-30-04

660-033-0100

Minimum Parcel Size Requirements

(1) Counties shall establish minimum sizes for new parcels for land zoned for exclusive farm use. For land not designated rangeland, the minimum parcel size shall be at least 80 acres. For land designated rangeland, the minimum parcel size shall be at least 160 acres.

(2) A county may adopt a minimum parcel size lower than that described in section (1) of this rule by demonstrating to the Commission that it can do so while continuing to meet the requirements of ORS 215.243 and that parcel sizes below the 80 or 160 acre minimum sizes are appropriate to maintain the existing commercial agricultural enterprise within an area. This standard is intended to prevent division of farmland into parcels that are too small to contribute to commercial agriculture in an area. This standard does not require that every new parcel created be as large as existing farms or ranches in an area. The minimum parcel size may allow creation of parcels smaller than the size of existing farms or ranches. However, the minimum parcel size shall be large enough to keep commercial farms and ranches in the area successful and not contribute to their decline. Lots or parcels used, or to be used, for training or stabling facilities shall not be considered appropriate to maintain the existing commercial agricultural enterprise in any area where other types of agriculture occur.

(3) To determine a minimum parcel size under this rule, the county shall complete the following steps:

(a) Identify different agricultural areas within the county, if any;

(b) Determine the nature of the commercial agricultural enterprise in the county, or within areas of the county;

(c) Identify the type(s) and size(s) of farms or ranches that comprise this commercial agricultural enterprise; and

(d) Determine the minimum size for new parcels that will maintain this commercial agricultural enterprise.

(4) To determine whether there are distinct agricultural areas in a county, the county should consider soils, topography and land forms, land use patterns, farm sizes, ranch sizes and field sizes, acreage devoted to principal crops, and grazing areas and accepted farming practices for the principal crops and types of livestock.

(5) To determine the nature of the existing commercial agricultural enterprise within an area, a county shall identify the following characteristics of farms and ranches in the area: Type and size of farms and ranches, size of fields or other parts, acreage devoted to principal crops, the relative contribution of the different types and sizes of farms and ranches to the county's gross farm sales, and their contribution to local processors and established farm markets. The following sources may assist in a county's analysis: The most recent Census of Agriculture and special tabulations from the census developed by Oregon State University, the Oregon Department of Agriculture, the United States Department of Agriculture's Agricultural Stabilization and Conservation Service (AACS), Soil and Water Conservation Districts, the Oregon State University Extension Service and the county assessors office.

(6) To determine the minimum parcel size, a county shall evaluate available data and choose a size that maintains the existing commercial agricultural enterprise within the county or within each area of the county. In areas where the size of commercial farms and ranches is mixed, and the size of parcels needed to maintain those commercial farms and ranches varies, the county shall not choose a minimum parcel size that allows larger farms, lots or parcels to be divided to the size of the smallest farms, lots or parcels in the area. The activities of the larger as well as smaller holdings must be maintained.

(7) A minimum size for new parcels for farm use does not mean that dwellings may be approved automatically on parcels that satisfy the minimum parcel size for the area. New dwellings in conjunction with farm use shall satisfy the criteria for such dwellings set forth in OAR 660-033-0130(1).

(8) A minimum size for new parcels may be appropriate to maintain the existing agricultural enterprise in the area, but it may not be adequate to protect wildlife habitat pursuant to Goal 5. When farmland is located in areas of wildlife habitat, the provisions of Goal 5 continue to apply.

(9) A county may choose to establish a different minimum parcel size for distinct commercial agricultural areas of the county. The appropriate minimum lot or parcel size for each area shall reflect the type of commercial agriculture in the area, consistent with sections (3)-(6) of this rule.

(10) Counties may allow the creation of new parcels for nonfarm uses only as authorized by ORS 215.263. Such new parcels shall be the minimum size needed to accommodate the use in a manner consistent with other provisions of law except as required for the nonfarm dwellings authorized by section (11) of this rule.

(11)(a) Counties may allow the creation of new lots or parcels for dwellings not in conjunction with farm use pursuant to ORS 215.263(4) or (5), whichever is applicable.

(b) In the Willamette Valley, a new lot or parcel may be allowed if the originating lot or parcel is equal to or larger than the applicable minimum lot or parcel size, and:

(A) Is not stocked to the requirements under ORS 527.610 to 527.770;

(B) Is composed of at least 95 percent Class VI through VIII soils; and

(C) Is composed of at least 95 percent soils not capable of producing 50 cubic feet per acre per year of wood fiber; and

(D) The new lot or parcel will not be smaller than 20 acres.

(c) No new lot or parcel may be created for this purpose until the county finds that the dwelling to be sited on the new lot or parcel has been approved under the requirements for dwellings not in conjunction with farm use in ORS 215.284(3) or (4), 215.236 and OAR 660-033-0130(4).

Stat. Auth.: ORS 183, ORS 197.040, ORS 197.230 & ORS 197.245
Stats. Implemented: ORS 197.015, ORS 197.040, ORS 197.230, ORS 197.245, ORS 215.203, ORS 215.243, ORS 215.283, ORS 215.700 - ORS 215.710 & ORS 215.780
Hist.: LCDC 6-1992, f. 12-10-92, cert. ef. 8-7-93; LCDC 1994, f. & cert. ef. 1994; LCDC 5-1996, f. & cert. ef 12-23-96; LCDD 2-1998, f. & cert. ef. 6-1-98; LCDD 5-2000, f. & cert. ef. 4-24-00; LCDD 1-2002, f. & cert. ef. 5-22-02

660-033-0120

Uses Authorized on Agricultural Lands

The specific development and uses listed in the following table are permitted in the areas that qualify for the designation pursuant to this division. All uses are subject to the general provisions, special conditions, additional restrictions and exceptions set forth in this division. The abbreviations used within

the schedule shall have the following meanings:

(1) A -- Use may be allowed. Authorization of some uses may require notice and the opportunity for a hearing because the authorization qualifies as a land use decision pursuant to ORS chapter 197. Minimum standards for uses in the table that include a numerical reference are specified in OAR 660-033-0130. Counties may prescribe additional limitations and requirements to meet local concerns as authorized by law.

(2) R -- Use may be approved, after required review. The use requires notice and the opportunity for a hearing. Minimum standards for uses in the table that include a numerical reference are specified in OAR 660-033-0130. Counties may prescribe additional limitations and requirements to meet local concerns as authorized by law.

(3) * -- Use not permitted.

(4) # -- Numerical references for specific uses shown on the chart refer to the corresponding section of OAR 660-033-0130. Where no numerical reference is noted for a use on the chart, this rule does not establish criteria for the use.

[ED. NOTE: Tables referenced are available from the agency.]

Stat. Auth.: ORS 183, 197.040, 197.245 & 215
Stats. Implemented: ORS 197.015, 197.040, 197.230, 197.245, 215.203, 215.243, 215.283, 215.700 - 215.710 & 215.780
Hist.: LCDC 6-1992, f. 12-10-92, cert. ef. 8-7-93; LCDC 3-1994, f. & cert. ef. 3-1-94; LCDC 6-1994, f. & cert. ef. 6-3-94; LCDC 2-1995(Temp), f. & cert. ef. 3-14-95; LCDC 7-1995, f. & cert. ef. 6-16-95; LCDC 5-1996, f. & cert. ef. 12-23-96; LCDD 2-1998, f. & cert. ef. 6-1-98; LCDD 1-2002, f. & cert. ef. 5-22-02; LCDD 1-2004, f. & cert. ef. 4-30-04; LCDD 2-2006, f. & cert. ef. 2-15-06

660-033-0130

Minimum Standards Applicable to the Schedule of Permitted and Conditional Uses

The following standards apply to uses listed in OAR 660-033-0120 where the corresponding section number is shown on the chart for a specific use under consideration. Where no numerical reference is indicated on the chart, this division does not specify any minimum review or approval criteria. Counties may include procedures and conditions in addition to those listed in the chart as authorized by law:

(1) A dwelling on farmland may be considered customarily provided in conjunction with farm use if it meets the requirements of OAR 660-033-0135.

(2) The use shall not be approved within three miles of an urban growth boundary unless an exception is approved pursuant to ORS 197.732 and OAR chapter 660, division 004. Existing facilities wholly within a farm use zone may be maintained, enhanced or expanded on the same tract, subject to other requirements of law.

(3)(a) A dwelling may be approved if:

(A) The lot or parcel on which the dwelling will be sited was lawfully created and was acquired and owned continuously by the present owner as defined in subsection (3)(g) of this rule:

(i) Since prior to January 1, 1985; or

(ii) By devise or by intestate succession from a person who acquired and had owned continuously the lot or parcel since prior to January 1, 1985.

(B) The tract on which the dwelling will be sited does not include a dwelling;

(C) The lot or parcel on which the dwelling will be sited was part of a tract on November 4, 1993, no dwelling exists on another lot or parcel that was part of that tract;

(D) The proposed dwelling is not prohibited by, and will comply with, the requirements of the acknowledged comprehensive plan and land use regulations and other provisions of law;

(E) The lot or parcel on which the dwelling will be sited is not high-value farmland except as provided in subsections (3)(c) and (d) of this rule;

(F) When the lot or parcel on which the dwelling will be sited lies within an area designated in an acknowledged comprehensive plan as habitat of big game, the siting of the dwelling is consistent with the limitations on density upon which the acknowledged comprehensive plan and land use regulations intended to protect the habitat are based.

(b) When the lot or parcel on which the dwelling will be sited is part of a tract, the remaining portions of the tract are consolidated into a single lot or parcel when the dwelling is allowed;

(c) Notwithstanding the requirements of paragraph (3)(a)(E) of this rule, a single-family dwelling may be sited on high-value farmland if:

(A) It meets the other requirements of subsections (3)(a) and (b) of this rule;

(B) The lot or parcel is protected as high-value farmland as defined in OAR 660-033-0020(8)(a); and

(C) A hearings officer of a county determines that:

(i) The lot or parcel cannot practicably be managed for farm use, by itself or in conjunction with other land, due to extraordinary circumstances inherent in the land or its physical setting that do not apply generally to other land in the vicinity. For the purposes of this section, this criterion asks whether the subject lot or parcel can be physically put to farm use without undue hardship or difficulty because of extraordinary circumstances inherent in the land or its physical setting. Neither size alone nor a parcel's limited economic potential demonstrate that a lot of parcel cannot be practicably managed for farm use. Examples of "extraordinary circumstances inherent in the land or its physical setting" include very steep slopes, deep ravines, rivers, streams, roads, railroad or utility lines or other similar natural or physical barriers that by themselves or in combination separate the subject lot or parcel from adjacent agricultural land and prevent it from being practicably managed for farm use by itself or together with adjacent or nearby farms. A lot or parcel that has been put to farm use despite the proximity of a natural barrier or since the placement of a physical barrier shall be presumed manageable for farm use.

(ii) The dwelling will comply with the provisions of ORS 215.296(1);

(iii) The dwelling will not materially alter the stability of the overall land use pattern in the area by applying the standards set forth in paragraph (4)(a)(D) of this rule.

(D) A local government shall provide notice of all applications for dwellings allowed under subsection (3)(c) of this rule to the State Department of Agriculture. Notice shall be provided in accordance with the governing body's land use regulations but shall be mailed at least 20 calendar days prior to the public hearing before the hearings officer under paragraph (3)(c)(C) of this rule.

(d) Notwithstanding the requirements of paragraph (3)(a)(E) of this rule, a single-family dwelling may be sited on high-value farmland if:

(A) It meets the other requirements of subsections (3)(a) and (b) of this rule;

(B) The tract on which the dwelling will be sited is:

(i) Identified in OAR 660-033-0020(8)(c) or (d); and

(ii) Not high-value farmland defined in OAR 660-033-0020(8)(a); and

(iii) Twenty-one acres or less in size; and

(C)(i) The tract is bordered on at least 67 percent of its perimeter by tracts that are smaller than 21 acres, and at least two such tracts had dwellings on January 1, 1993; or

(ii) The tract is not a flaglot and is bordered on at least 25 percent of its perimeter by tracts that are smaller than 21 acres, and at least four dwellings existed on January 1, 1993, within 1/4 mile of the center of the subject tract. Up to two of the four dwellings may lie within an urban growth boundary, but only if the subject tract abuts an urban growth boundary; or

(D) The tract is a flaglot and is bordered on at least 25 percent of its perimeter by tracts that are smaller than 21 acres, and at least four dwellings existed on January 1, 1993, within 1/4 mile of the center of the subject tract and on the same side of the public road that provides access to the subject tract. The governing body of a county must interpret the center of the subject tract as the geographic center of the flaglot if the applicant makes a written request for that interpretation and that interpretation does not cause the center to be located outside the flaglot. Up to two of the four dwellings may lie within an urban growth boundary, but only if the subject tract abuts an urban growth boundary:

(i) "flaglot" means a tract containing a narrow strip or panhandle of land providing access from the public road to the rest of the tract.

(ii) "Geographic center of the flaglot" means the point of intersection of two perpendicular lines of which the first line crosses the midpoint of the longest side of a flaglot, at a 90-degree angle to the side, and the second line crosses the midpoint of the longest adjacent side of the flaglot.

(e) If land is in a zone that allows both farm and forest uses is acknowledged to be in compliance with both Goals 3 and 4 and may qualify as an exclusive farm use zone under ORS Chapter 215, a county may apply the standards for siting a dwelling under either section (3) of this rule or OAR 660-006-0027, as appropriate for the predominant use of the tract on January 1, 1993;

(f) A county may, by application of criteria adopted by ordinance, deny approval of a dwelling allowed under section (3) of this rule in any area where the county determines that approval of the dwelling would:

(A) Exceed the facilities and service capabilities of the area;

(B) Materially alter the stability of the overall land use pattern of the area; or

(C) Create conditions or circumstances that the county determines would be contrary to the purposes or intent of its acknowledged comprehensive plan or land use regulations.

(g) For purposes of subsection (3)(a) of this rule, "owner" includes the wife, husband, son, daughter, mother, father, brother, brother-in-law, sister, sister-in-law, son-in-law, daughter-in-law, mother-in-law, father-in-law, aunt, uncle, nephew, stepparent, stepchild, grandparent or grandchild of the owner or a business entity owned by any one or a combination of these family members;

(h) The county assessor shall be notified that the governing body intends to allow the dwelling.

(i) When a local government approves an application for a single-family dwelling under section (3) of this rule, the application may be transferred by a person who has qualified under section (3) of this rule to any other person after the effective date of the land use decision.

(4) Requires approval of the governing body or its designate in any farmland area zoned for exclusive farm use:

(a) In the Willamette Valley, the use may be approved if:

(A) The dwelling or activities associated with the dwelling will not force a significant change in or significantly increase the cost of accepted farming or forest practices on nearby lands devoted to farm or forest use;

(B) The dwelling will be sited on a lot or parcel that is predominantly composed of Class IV through VIII soils that would not, when irrigated, be classified as prime, unique, Class I or II soils;

(C) The dwelling will be sited on a lot or parcel created before January 1, 1993;

(D) The dwelling will not materially alter the stability of the overall land use pattern of the area. In determining whether a proposed nonfarm dwelling will alter the stability of the land use pattern in the area, a county shall consider the cumulative impact of possible new nonfarm dwellings and parcels on other lots or parcels in the area similarly situated. To address this standard, the county shall:

(i) Identify a study area for the cumulative impacts analysis. The study area shall include at least 2000 acres or a smaller area not less than 1000 acres, if the smaller area is a distinct agricultural area based on topography, soil types, land use pattern, or the type of farm or ranch operations or practices that distinguish it from other, adjacent agricultural areas. Findings shall describe the study area, its boundaries, the location of the subject parcel within this area, why the selected area is representative of the land use pattern surrounding the subject parcel and is adequate to conduct the analysis required by this standard. Lands zoned for rural residential or other urban or nonresource uses shall not be included in the study area;

(ii) Identify within the study area the broad types of farm uses (irrigated or nonirrigated crops, pasture or grazing lands), the number, location and type of existing dwellings (farm, nonfarm, hardship, etc.), and the dwelling development trends since 1993. Determine the potential number of nonfarm/lot-of-record dwellings that could be approved under subsections (3)(a), (3)(d) and section (4) of this rule, including

identification of predominant soil classifications, the parcels created prior to January 1, 1993 and the parcels larger than the minimum lot size that may be divided to create new parcels for nonfarm dwellings under ORS 215.263(4). The findings shall describe the existing land use pattern of the study area including the distribution and arrangement of existing uses and the land use pattern that could result from approval of the possible nonfarm dwellings under this subparagraph;

(iii) Determine whether approval of the proposed nonfarm/lot-of-record dwellings together with existing nonfarm dwellings will materially alter the stability of the land use pattern in the area. The stability of the land use pattern will be materially altered if the cumulative effect of existing and potential nonfarm dwellings will make it more difficult for the existing types of farms in the area to continue operation due to diminished opportunities to expand, purchase or lease farmland, acquire water rights or diminish the number of tracts or acreage in farm use in a manner that will destabilize the overall character of the study area;

(E) The dwelling complies with such other conditions as the governing body or its designate considers necessary.

(b) In the Willamette Valley, on a lot or parcel allowed under OAR 660-033-0100(11) of this rule, the use may be approved if:

(A) The dwelling or activities associated with the dwelling will not force a significant change in or significantly increase the cost of accepted farming or forest practices on nearby lands devoted to farm or forest use;

(B) The dwelling will not materially alter the stability of the overall land use pattern of the area. In determining whether a proposed nonfarm dwelling will alter the stability of the land use pattern in the area, a county shall consider the cumulative impact of nonfarm dwellings on other lots or parcels in the area similarly situated and whether creation of the parcel will lead to creation of other nonfarm parcels, to the detriment of agriculture in the area by applying the standards setforth in paragraph (4)(a)(D) of this rule; and

(C) The dwelling complies with such other conditions as the governing body or its designate considers necessary.

(c) In counties located outside the Willamette Valley require findings that:

(A) The dwelling or activities associated with the dwelling will not force a significant change in or significantly increase the cost of accepted farming or forest practices on nearby lands devoted to farm or forest use;

(B)(i) The dwelling is situated upon a lot or parcel, or a portion of a lot or parcel, that is generally unsuitable land for the production of farm crops and livestock or merchantable tree species, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the tract. A lot or parcel or portion of a lot or parcel shall not be considered unsuitable solely because of size or location if it can reasonably be put to farm or forest use in conjunction with other land; and

(ii) A lot or parcel or portion of a lot or parcel is not "generally unsuitable" simply because it is too small to be farmed profitably by itself. If a lot or parcel or portion of a lot or parcel can be sold, leased, rented or otherwise managed as a part of a commercial farm or ranch, then the lot or parcel or portion of the lot or parcel is not "generally unsuitable". A lot or parcel or portion of a lot or parcel is presumed to

be suitable if, in Western Oregon it is composed predominantly of Class I-IV soils or, in Eastern Oregon, it is composed predominantly of Class I-VI soils. Just because a lot or parcel or portion of a lot or parcel is unsuitable for one farm use does not mean it is not suitable for another farm use; or

(iii) If the parcel is under forest assessment, the dwelling shall be situated upon generally unsuitable land for the production of merchantable tree species recognized by the Forest Practices Rules, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the parcel. If a lot or parcel is under forest assessment, the area is not "generally unsuitable" simply because it is too small to be managed for forest production profitably by itself. If a lot or parcel under forest assessment can be sold, leased, rented or otherwise managed as a part of a forestry operation, it is not "generally unsuitable". If a lot or parcel is under forest assessment, it is presumed suitable if, in Western Oregon, it is composed predominantly of soils capable of producing 50 cubic feet of wood fiber per acre per year, or in Eastern Oregon it is composed predominantly of soils capable of producing 20 cubic feet of wood fiber per acre per year. If a lot or parcel is under forest assessment, to be found compatible and not seriously interfere with forest uses on surrounding land it must not force a significant change in forest practices or significantly increase the cost of those practices on the surrounding land;

(C) The dwelling will not materially alter the stability of the overall land use pattern of the area. In determining whether a proposed nonfarm dwelling will alter the stability of the land use pattern in the area, a county shall consider the cumulative impact of nonfarm dwellings on other lots or parcels in the area similarly situated by applying the standards setforth in paragraph (4)(a)(D) of this rule. If the application involves the creation of a new parcel for the nonfarm dwelling, a county shall consider whether creation of the parcel will lead to creation of other nonfarm parcels, to the detriment of agriculture in the area by applying the standards setforth in paragraph (4)(a)(D) of this rule; and

(D) The dwelling complies with such other conditions as the governing body or its designate considers necessary.

(d) If a single-family dwelling is established on a lot or parcel as set forth in section (3) of this rule or OAR 660-006-0027, no additional dwelling may later be sited under the provisions of section (4) of this rule;

(e) Counties that have adopted marginal lands provisions before January 1, 1993, shall apply the standards in ORS 215.213(3) -- (8) for nonfarm dwellings on lands zoned exclusive farm use that are not designated marginal or high-value farmland.

(5) Approval requires review by the governing body or its designate under ORS 215.296. Uses may be approved only where such uses:

(a) Will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; and

(b) Will not significantly increase the cost of accepted farm or forest practices on lands devoted to farm or forest use.

(6) Such facility shall not seriously interfere with accepted farming practices and shall be compatible with farm uses described in ORS 215.203(2). Such facility may be approved for a one-year period which is renewable and is intended to be only portable or temporary in nature. The primary processing of a forest product, as used in this section, means the use of a portable chipper or stud mill or other similar methods of initial treatment of a forest product in order to enable its shipment to market. Forest products

as used in this section means timber grown upon a tract where the primary processing facility is located.

(7) A personal use airport as used in this section means an airstrip restricted, except for aircraft emergencies, to use by the owner, and on an infrequent and occasional basis, by invited guests, and by commercial aviation activities in connection with agricultural operations. No aircraft may be based on a personal use airport other than those owned or controlled by the owner of the airstrip. Exceptions to the activities permitted under this definition may be granted through waiver action by the Oregon Department of Aviation in specific instances. A personal use airport lawfully existing as of September 13, 1975, shall continue to be permitted subject to any applicable rules of the Oregon Department of Aviation.

(8)(a) A lawfully established dwelling is a single family dwelling which:

(A) Has intact exterior walls and roof structure;

(B) Has indoor plumbing consisting of a kitchen sink, toilet and bathing facilities connected to a sanitary waste disposal system;

(C) Has interior wiring for interior lights; and

(D) Has a heating system.

(b) In the case of replacement, the dwelling to be replaced shall be:

(i) Removed, demolished, or converted to an allowable use within three months of the completion of the replacement dwelling. A replacement dwelling may be sited on any part of the same lot or parcel. A dwelling established under this section shall comply with all applicable siting standards. However, the standards shall not be applied in a manner that prohibits the siting of the dwelling. If the dwelling to be replaced is located on a portion of the lot or parcel not zoned for exclusive farm use, the applicant, as a condition of approval, shall execute and record in the deed records for the county where the property is located a deed restriction prohibiting the siting of a dwelling on that portion of the lot or parcel. The restriction imposed shall be irrevocable unless a statement of release is placed in the deed records for the county. The release shall be signed by the county or its designee and state that the provisions of this section regarding replacement dwellings have changed to allow the siting of another dwelling. The county planning director or the director's designee shall maintain a record of the lots and parcels that do not qualify for the siting of a new dwelling under the provisions of this section, including a copy of the deed restrictions and release statements filed under this section; and

(ii) For which the applicant has requested a deferred replacement permit, is removed or demolished within three months after the deferred replacement permit is issued. A deferred replacement permit allows construction of the replacement dwelling at any time. If, however, the established dwelling is not removed or demolished within three months after the deferred replacement permit is issued, the permit becomes void. The replacement dwelling must comply with applicable building codes, plumbing codes, sanitation codes and other requirements relating to health and safety or to siting at the time of construction. A deferred replacement permit may not be transferred, by sale or otherwise, except by the applicant to the spouse or a child of the applicant.

(c) An accessory farm dwelling authorized pursuant to OAR 660-033-0130(24)(a)(B)(iii), may only be replaced by a manufactured dwelling.

(9)(a) To qualify, a dwelling shall be occupied by persons whose assistance in the management and farm use of the existing commercial farming operation is required by the farm operator. The farm operator shall continue to play the predominant role in the management and farm use of the farm. A farm operator is a person who operates a farm, doing the work and making the day-to-day decisions about such things as planting, harvesting, feeding and marketing.

(b) Notwithstanding ORS 92.010 to 92.190 or the minimum lot or parcel requirements under ORS 215.780, if the owner of a dwelling described in OAR 660-033-0130(9) obtains construction financing or other financing secured by the dwelling and the secured party forecloses on the dwelling, the secured party may also foreclose on the homesite, as defined in ORS 308A.250, and the foreclosure shall operate as a partition of the homesite to create a new parcel. Prior conditions of approval for the subject land and dwelling remain in effect.

(c) For the purpose of OAR 660-033-0130(9)(b), "foreclosure" means only those foreclosures that are exempt from partition under ORS 92.010(7)(a).

(10) A manufactured dwelling, or recreational vehicle, or the temporary residential use of an existing building allowed under this provision is a temporary use for the term of the hardship suffered by the existing resident or relative as defined in ORS Chapter 215. The manufactured dwelling shall use the same subsurface sewage disposal system used by the existing dwelling, if that disposal system is adequate to accommodate the additional dwelling. If the manufactured home will use a public sanitary sewer system, such condition will not be required. Governing bodies shall review the permit authorizing such manufactured homes every two years. Within three months of the end of the hardship, the manufactured dwelling or recreational vehicle shall be removed or demolished or, in the case of an existing building, the building shall be removed, demolished or returned to an allowed nonresidential use. A temporary residence approved under this section is not eligible for replacement under ORS 215.213(1)(u) or 215.283(1)(t). Oregon Department of Environmental Quality review and removal requirements also apply. As used in this section "hardship" means a medical hardship or hardship for the care of an aged or infirm person or persons.

(11) Subject to the issuance of a license, permit or other approval by the Department of Environmental Quality under ORS 454.695, 459.205, 468B.050, 468B.053 or 468B.055, or in compliance with rules adopted under ORS 468B.095, and with the requirements of ORS 215.246, 215.247, 215.249 and 215.251, the land application of reclaimed water, agricultural process or industrial process water or biosolids for agricultural, horticultural or silvicultural production, or for irrigation in connection with a use allowed in an exclusive farm use zones under this division.

(12) In order to meet the requirements specified in the statute, a historic dwelling shall be listed on the National Register of Historic Places.

(13) Such uses may be established, subject to the adoption of the governing body or its designate of an exception to Goal 3, Agricultural Lands, and to any other applicable goal with which the facility or improvement does not comply. In addition, transportation uses and improvements may be authorized under conditions and standards as set forth in OAR 660-012-0035 and 660-012-0065.

(14) Home occupations and the parking of vehicles may be authorized. Home occupations shall be operated substantially in the dwelling or other buildings normally associated with uses permitted in the zone in which the property is located. A home occupation shall be operated by a resident or employee of a resident of the property on which the business is located, and shall employ on the site no more than five full-time or part-time persons.

(15) New uses that batch and blend mineral and aggregate into asphalt cement may not be authorized within two miles of a planted vineyard. Planted vineyard means one or more vineyards totaling 40 acres or more that are planted as of the date the application for batching and blending is filed.

(16)(a) A utility facility is necessary for public service if the facility must be sited in an exclusive farm use zone in order to provide the service. To demonstrate that a utility facility is necessary, an applicant must show that reasonable alternatives have been considered and that the facility must be sited in an exclusive farm use zone due to one or more of the following factors:

(A) Technical and engineering feasibility;

(B) The proposed facility is locationally dependent. A utility facility is locationally dependent if it must cross land in one or more areas zoned for exclusive farm use in order to achieve a reasonably direct route or to meet unique geographical needs that cannot be satisfied on other lands;

(C) Lack of available urban and nonresource lands;

(D) Availability of existing rights of way;

(E) Public health and safety; and

(F) Other requirements of state and federal agencies.

(b) Costs associated with any of the factors listed in subsection (16)(a) of this rule may be considered, but cost alone may not be the only consideration in determining that a utility facility is necessary for public service. Land costs shall not be included when considering alternative locations for substantially similar utility facilities and the siting of utility facilities that are not substantially similar.

(c) The owner of a utility facility approved under this section shall be responsible for restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this subsection shall prevent the owner of the utility facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration.

(d) The governing body of the county or its designee shall impose clear and objective conditions on an application for utility facility siting to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on surrounding farmlands.

(e) In addition to the provisions of subsections 16(a) to (d) of this rule, the establishment or extension of a sewer system as defined by OAR 660-011-0060(1)(f) in an exclusive farm use zone shall be subject to the provisions of OAR 660-011-0060.

(f) The provisions of subsections 16(a) to (d) of this rule do not apply to interstate natural gas pipelines and associated facilities authorized by and subject to regulation by the Federal Energy Regulatory Commission.

(17) A power generation facility shall not preclude more than 12 acres from use as a commercial agricultural enterprise unless an exception is taken pursuant to OAR chapter 660, division 004.

(18) Existing facilities wholly within a farm use zone may be maintained, enhanced or expanded on the same tract, subject to other requirements of law. An existing golf course may be expanded consistent with the requirements of sections (5) and (20) of this rule, but shall not be expanded to contain more than 36 total holes.

(19)(a) Except on a lot or parcel contiguous to a lake or reservoir, private campgrounds shall not be allowed within three miles of an urban growth boundary unless an exception is approved pursuant to ORS 197.732 and OAR chapter 660, division 004. A campground is an area devoted to overnight temporary use for vacation, recreational or emergency purposes, but not for residential purposes and is established on a site or is contiguous to lands with a park or other outdoor natural amenity that is accessible for recreational use by the occupants of the campground. A campground shall be designed and integrated into the rural agricultural and forest environment in a manner that protects the natural amenities of the site and provides buffers of existing native trees and vegetation or other natural features between campsites. Campgrounds authorized by this rule shall not include intensively developed recreational uses such as swimming pools, tennis courts, retail stores or gas stations. Overnight temporary use in the same campground by a camper or camper's vehicle shall not exceed a total of 30 days during any consecutive 6 month period.

(b) Campsites may be occupied by a tent, travel trailer, yurt or recreational vehicle. Separate sewer, water or electric service hook-ups shall not be provided to individual camp sites except that electrical service may be provided to yurts allowed for by subsection (19)(c) of this rule.

(c) Subject to the approval of the county governing body or its designee, a private campground may provide yurts for overnight camping. No more than one-third or a maximum of 10 campsites, whichever is smaller, may include a yurt. The yurt shall be located on the ground or on a wood floor with no permanent foundation. Upon request of a county governing body, the Land Conservation and Development Commission may provide by rule for an increase in the number of yurts allowed on all or a portion of the campgrounds in a county if the Commission determines that the increase will comply with the standards described in ORS 215.296(1). As used in section (19) of this rule, "yurt" means a round, domed shelter of cloth or canvas on a collapsible frame with no plumbing, sewage disposal hook-up or internal cooking appliance.

(20) "Golf Course" means an area of land with highly maintained natural turf laid out for the game of golf with a series of 9 or more holes, each including a tee, a fairway, a putting green, and often one or more natural or artificial hazards. A "golf course" for purposes of ORS 215.213(2)(f), 215.283(2)(f) and this division means a 9 or 18 hole regulation golf course or a combination 9 and 18 hole regulation golf course consistent with the following:

(a) A regulation 18 hole golf course is generally characterized by a site of about 120 to 150 acres of land, has a playable distance of 5,000 to 7,200 yards, and a par of 64 to 73 strokes;

(b) A regulation 9 hole golf course is generally characterized by a site of about 65 to 90 acres of land, has a playable distance of 2,500 to 3,600 yards, and a par of 32 to 36 strokes;

(c) Non-regulation golf courses are not allowed uses within these areas. "Non-regulation golf course" means a golf course or golf course-like development that does not meet the definition of golf course in this rule, including but not limited to executive golf courses, Par 3 golf courses, pitch and putt golf courses, miniature golf courses and driving ranges;

(d) Counties shall limit accessory uses provided as part of a golf course consistent with the following

standards:

(A) An accessory use to a golf course is a facility or improvement that is incidental to the operation of the golf course and is either necessary for the operation and maintenance of the golf course or that provides goods or services customarily provided to golfers at a golf course. An accessory use or activity does not serve the needs of the non-golfing public. Accessory uses to a golf course may include: Parking; maintenance buildings; cart storage and repair; practice range or driving range; clubhouse; restrooms; lockers and showers; food and beverage service; pro shop; a practice or beginners course as part of an 18 hole or larger golf course; or golf tournament. Accessory uses to a golf course do not include: Sporting facilities unrelated to golfing such as tennis courts, swimming pools, and weight rooms; wholesale or retail operations oriented to the non-golfing public; or housing.

(B) Accessory uses shall be limited in size and orientation on the site to serve the needs of persons and their guests who patronize the golf course to golf. An accessory use that provides commercial services (e.g., pro shop, etc.) shall be located in the clubhouse rather than in separate buildings.

(C) Accessory uses may include one or more food and beverage service facilities in addition to food and beverage service facilities located in a clubhouse. Food and beverage service facilities must be part of and incidental to the operation of the golf course and must be limited in size and orientation on the site to serve only the needs of persons who patronize the golf course and their guests. Accessory food and beverage service facilities shall not be designed for or include structures for banquets, public gatherings or public entertainment.

(21) "Living History Museum" means a facility designed to depict and interpret everyday life and culture of some specific historic period using authentic buildings, tools, equipment and people to simulate past activities and events. As used in this rule, a living history museum shall be related to resource based activities and shall be owned and operated by a governmental agency or a local historical society. A living history museum may include limited commercial activities and facilities that are directly related to the use and enjoyment of the museum and located within authentic buildings of the depicted historic period or the museum administration building, if areas other than an exclusive farm use zone cannot accommodate the museum and related activities or if the museum administration buildings and parking lot are located within one quarter mile of an urban growth boundary. "Local historical society" means the local historical society, recognized as such by the county governing body and organized under ORS Chapter 65.

(22) A power generation facility shall not preclude more than 20 acres from use as a commercial agricultural enterprise unless an exception is taken pursuant to ORS 197.732 and OAR chapter 660, division 004.

(23) A farm stand may be approved if:

(a) The structures are designed and used for sale of farm crops and livestock grown on the farm operation, or grown on the farm operation and other farm operations in the local agricultural area, including the sale of retail incidental items and fee-based activity to promote the sale of farm crops or livestock sold at the farm stand, if the annual sales of the incidental items and fees from promotional activity do not make up more than 25 percent of the total annual sales of the farm stand; and

(b) The farm stand does not include structures designed for occupancy as a residence or for activities other than the sale of farm crops and livestock and does not include structures for banquets, public gatherings or public entertainment.

(c) As used in this section, "farm crops or livestock" includes both fresh and processed farm crops and livestock grown on the farm operation, or grown on the farm operation and other farm operations in the local agricultural area. As used in this subsection, "processed crops and livestock" includes jams, syrups, apple cider, animal products and other similar farm crops and livestock that have been processed and converted into another product but not prepared food items.

(d) As used in this section, "local agricultural area" includes Oregon or an adjacent county in Washington, Idaho, Nevada or California that borders the Oregon county in which the farm stand is located.

(24) Accessory farm dwellings as defined by subsection (24)(e) of this section may be considered customarily provided in conjunction with farm use if:

(a) Each accessory farm dwelling meets all the following requirements:

(A) The accessory farm dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land and whose seasonal or year-round assistance in the management of the farm use, such as planting, harvesting, marketing or caring for livestock, is or will be required by the farm operator; and

(B) The accessory farm dwelling will be located:

(i) On the same lot or parcel as the primary farm dwelling; or

(ii) On the same tract as the primary farm dwelling when the lot or parcel on which the accessory farm dwelling will be sited is consolidated into a single parcel with all other contiguous lots and parcels in the tract; or

(iii) On a lot or parcel on which the primary farm dwelling is not located, when the accessory farm dwelling is limited to only a manufactured dwelling with a deed restriction. The deed restriction shall be filed with the county clerk and require the manufactured dwelling to be removed when the lot or parcel is conveyed to another party. The manufactured dwelling may remain if it is reapproved under these rules; or

(iv) On a lot or parcel on which the primary farm dwelling is not located, when the accessory farm dwelling is limited to only attached multi- unit residential structures allowed by the applicable state building code or similar types of farm labor housing as existing farm labor housing on the farm or ranch operation registered with the Department of Consumer and Business Services, Oregon Occupational Safety and Health Division under ORS 658.750. A county shall require all accessory farm dwellings approved under this subparagraph to be removed, demolished or converted to a nonresidential use when farm worker housing is no longer required; or

(v) On a lot or parcel on which the primary farm dwelling is not located, when the accessory farm dwelling is located on a lot or parcel at least the size of the applicable minimum lot size under ORS 215.780 and the lot or parcel complies with the gross farm income requirements in OAR 660-033-0135 (5) or (7), whichever is applicable; and

(C) There is no other dwelling on the lands designated for exclusive farm use owned by the farm operator that is vacant or currently occupied by persons not working on the subject farm or ranch and that could reasonably be used as an accessory farm dwelling.

(b) In addition to the requirements in subsection (a) of this section, the primary farm dwelling to which the proposed dwelling would be accessory, meets one of the following:

(A) On land not identified as high-value farmland, the primary farm dwelling is located on a farm or ranch operation that is currently employed for farm use, as defined in ORS 215.203, and produced in the last two years or three of the last five years the lower of the following:

(i) At least $40,000 in gross annual income from the sale of farm products. In determining the gross income, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract.

(ii) Gross annual income of at least the midpoint of the median income range of gross annual sales for farms in the county with the gross annual sales of $10,000 or more according to the 1992 Census of Agriculture, Oregon. In determining the gross income, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract; or

(B) On land identified as high-value farmland, the primary farm dwelling is located on a farm or ranch operation that is currently employed for farm use, as defined in ORS 215.203, and produced at least $80,000 in gross annual income from the sale of farm products in the last two years or three of the last five years. In determining the gross income, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract; or

(C) On land not identified as high-value farmland in counties that have adopted marginal lands provisions under ORS 197.247 (1991 Edition) before January 1, 1993, the primary farm dwelling is located on a farm or ranch operation that meets the standards and requirements of ORS 215.213(2)(a) or (b) or OAR 660-033-0130(24)(b)(A); or

(D) It is located on a commercial dairy farm as defined by OAR 660-033-0135(11); and

(i) The building permits, if required, have been issued and construction has begun or been completed for the buildings and animal waste facilities required for a commercial dairy farm; and

(ii) The Oregon Department of Agriculture has approved a permit for a "confined animal feeding operation" under ORS 468B.050 and 468B.200 to 468B.230; and

(iii) A Producer License for the sale of dairy products under ORS 621.072.

(c) The governing body of a county shall not approve any proposed division of a lot or parcel for an accessory farm dwelling approved pursuant to this section. If it is determined that an accessory farm dwelling satisfies the requirements of OAR 660-033-0135, a parcel may be created consistent with the minimum parcel size requirements in OAR 660-033-0100;

(d) An accessory farm dwelling approved pursuant to this section cannot later be used to satisfy the requirements for a dwelling not provided in conjunction with farm use pursuant to section (4) of this rule.

(e) For the purposes of OAR 660-033-0130(24), "accessory farm dwelling" includes all types of residential structures allowed by the applicable state building code."

(25) In counties that have adopted marginal lands provisions under ORS 197.247 (1991 Edition) before

January 1, 1993, an armed forces reserve center, if the center is within one-half mile of a community college. An "armed forces reserve center" includes an armory or National Guard support facility.

(26) Buildings and facilities shall not be more than 500 square feet in floor area or placed on a permanent foundation unless the building or facility preexisted the use approved under this section. The site shall not include an aggregate surface or hard surface area unless the surface preexisted the use approved under this section. As used in this section, "model aircraft" means a small-scale version of an airplane, glider, helicopter, dirigible or balloon that is used or intended to be used for flight and controlled by radio, lines or design by a person on the ground.

(27) Insect species shall not include any species under quarantine by the State Department of Agriculture or the United States Department of Agriculture. The county shall provide notice of all applications under this section to the State Department of Agriculture. Notice shall be provided in accordance with the county's land use regulations but shall be mailed at least 20 calendar days prior to any administrative decision or initial public hearing on the application.

(28) The farm on which the processing facility is located must provide at least one-quarter of the farm crops processed at the facility. The building established for the processing facility shall not exceed 10,000 square feet of floor area exclusive of the floor area designated for preparation, storage or other farm use or devote more than 10,000 square feet to the processing activities within another building supporting farm use. A processing facility shall comply with all applicable siting standards but the standards shall not be applied in a manner that prohibits the siting of the processing facility. A county shall not approve any division of a lot or parcel that separates a processing facility from the farm operation on which it is located.

(29) Except for those composting facilities that are a "farm use" as defined in OAR 660-033-0020(7), composting facilities allowed on land not defined as high-value farmland under this section shall be limited to the composting operations and facilities defined by the Environmental Quality Commission under OAR 340-096-0024(1), (2) or (3). Buildings and facilities used in conjunction with the composting operation shall only be those required for the operation of the subject facility. Onsite sales shall be limited to bulk loads of at least one unit (7.5 cubic yards) in size that are transported in one vehicle.

(30) The County governing body or its designate shall require as a condition of approval of a single-family dwelling under ORS 215.213, 215.283 or 215.284 or otherwise in a farm or forest zone, that the landowner for the dwelling sign and record in the deed records for the county a document binding the landowner, and the landowner's successors in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937.

(31) Public parks including only the uses specified under OAR 660-034-0035 or 660-034-0040, whichever is applicable.

(32) Utility facility service lines are utility lines and accessory facilities or structures that end at the point where the utility service is received by the customer and that are located on one or more of the following:

(a) A public right of way;

(b) Land immediately adjacent to a public right of way, provided the written consent of all adjacent

property owners has been obtained; or

(c) The property to be served by the utility.

(33) An outdoor mass gathering as defined in ORS 433.735 or other gathering of fewer than 3,000 persons that is not anticipated to continue for more than 120 hours in any three month period is not a "land use decision" as defined in ORS 197.015(10) or subject to review under this Division.

(34) Any gathering subject to review by a county planning commission under the provisions of ORS 433.763. These gatherings and any part of which is held in open spaces are those of more than 3,000 persons which continue or can reasonably be expected to continue for more than 120 hours within any three-month period.

(35)(a) As part of the conditional use approval process under ORS 215.296 and OAR 660-033-0130(5), for the purpose of verifying the existence, continuity and nature of the business described in ORS 215.213(2)(w) or 215.283(2)(y), representatives of the business may apply to the county and submit evidence including, but not limited to, sworn affidavits or other documentary evidence that the business qualifies; and

(b) Alteration, restoration or replacement of a use authorized in ORS 215.213(2)(w) or 215.283(2)(y) may be altered, restored or replaced pursuant to ORS 215.130(5), (6) and (9).

(36) For counties subject to ORS 215.283 and not 215.213, a community center authorized under this section may provide services to veterans, including but not limited to emergency and transitional shelter, preparation and service of meals, vocational and educational counseling and referral to local, state or federal agencies providing medical, mental health, disability income replacement and substance abuse services, only in a facility that is in existence on January 1, 2006. The services may not include direct delivery of medical, mental health, disability income replacement or substance abuse services.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 183, 195 & 197
Stats. Implemented: ORS 197.040 & 215.213
Hist.: LCDC 6-1992, f. 12-10-92, cert. ef. 8-7-93; LCDC 3-1994, f. & cert. ef. 3-1-94; LCDC 6-1994 , f. & cert. ef. 6-3-94; LCDC 8-1995, f. & cert. ef. 6-29-95; LDCD 5-1996, f. & cert. ef. 12-23-96; LCDD 5-1997, f. & cert. ef. 12-23-97; LCDD 2-1998, f. & cert. ef. 6-1-98; LCDD 5-2000, f. & cert. ef. 4-24-00; LCDD 9-2000, f. & cert. ef. 11-3-00; LCDD 1-2002, f. & cert. ef. 5-22-02; LCDD 1-2004, f. & cert. ef. 4-30-04; LCDD 2-2006, f. & cert. ef. 2-15-06

660-033-0135

Dwellings in Conjunction with Farm Use

(1) On land not identified as high-value farmland pursuant to OAR 660-033-0020(8), a dwelling may be considered customarily provided in conjunction with farm use if:

(a) The parcel on which the dwelling will be located is at least:

(A) 160 acres and not designated rangeland; or

(B) 320 acres and designated rangeland; or

(C) As large as the minimum parcel size if located in a zoning district with an acknowledged minimum parcel size larger than indicated in paragraph (A) or (B) of this subsection.

(b) The subject tract is currently employed for farm use, as defined in ORS 215.203;

(c) The dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land, such as planting, harvesting, marketing or caring for livestock, at a commercial scale;

(d) Except as permitted in ORS 215.213(1)(r) and 215.283(1)(p)(1999 Edition), there is no other dwelling on the subject tract.

(2) If a county prepares the potential gross sales figures pursuant to section (4) of this rule, the county may determine that on land, not identified as high-value farmland pursuant to OAR 660-033-0020(8), a dwelling may be considered customarily provided in conjunction with farm use if:

(a) The subject tract is at least as large as the median size of those commercial farm or ranch tracts capable of generating at least $10,000 in annual gross sales that are located within a study area which includes all tracts wholly or partially within one mile from the perimeter of the subject tract; and

(b) The subject tract is capable of producing at least the median level of annual gross sales of county indicator crops as the same commercial farm or ranch tracts used to calculate the tract size in subsection (a) of this section; and

(c) The subject tract is currently employed for a farm use, as defined in ORS 215.203, at a level capable of producing the annual gross sales required in subsection (b) of this section; and

(d) The subject lot or parcel on which the dwelling is proposed is not less than ten acres in western Oregon or 20 acres in eastern Oregon; and

(e) Except as permitted in ORS 215.213(1)(r) and 215.283(1)(p) (1999 Edition), there is no other dwelling on the subject tract; and

(f) The dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land, such as planting, harvesting, marketing or caring for livestock, at a commercial scale; and

(g) If no farm use has been established at the time of application, land use approval shall be subject to a condition that no building permit may be issued prior to the establishment of the farm use required by subsection (c) of this section.

(3) In order to identify the commercial farm or ranch tracts to be used in section (2) of this rule, the gross sales capability or each tract in the study area including the subject tract must be determined, using the gross sales figures prepared by the county pursuant to section (4) of this rule as follows:

(a) Identify the study area. This includes all the land in the tracts wholly or partially within one mile of the perimeter of the subject tract;

(b) Determine for each tract in the study area the number of acres in every land classification from the

county assessors data;

(c) Determine the potential earning capability for each tract by multiplying the number of acres in each land class by the gross sales per acre for each land class provided by the Commission pursuant to section (4) of this rule. Add these to obtain the potential earning capability for each tract;

(d) Identify those tracts capable of grossing at least $10,000 based on the data generated in subsection (3)(c) of this rule;

(e) Determine the median size and median gross sales capability for those tracts capable of generating at least $10,000 in annual gross sales to use in subsections (2)(a) and (b) of this rule.

(4) In order to review a farm dwelling pursuant to section (2) of this rule, a county may prepare, subject to review by the Director, a table of the estimated potential gross sales per acre for each assessor land class (irrigated and nonirrigated) required in section (3) of this rule. The Director shall provide assistance and guidance to a county in the preparation of this table. The table shall be prepared as follows:

(a) Determine up to three indicator crop types with the highest harvested acreage for irrigated and for nonirrigated lands in the county using the most recent OSU Extension Service Commodity Data Sheets, Report No. 790, "Oregon County and State Agricultural Estimates", or other USDA/Extension Service documentation;

(b) Determine the combined weighted average of the gross sales per acre for the three indicator crop types for irrigated and for nonirrigated lands, as follows:

(A) Determine the gross sales per acre for each indicator crop type for the previous five years (i.e., divide each crop type's gross annual sales by the harvested acres for each crop type);

(B) Determine the average gross sales per acre for each crop type for three years, discarding the highest and lowest sales per acre amounts during the five year period;

(C) Determine the percentage each indicator crop's harvested acreage is of the total combined harvested acres for the three indicator crop types;

(D) Multiply the combined sales per acre for each crop type identified under paragraph (B) of this subsection by its percentage of harvested acres to determine a weighted sales per acre amount for each indicator crop;

(E) Add the weighted sales per acre amounts for each indicator crop type identified in paragraph (D) of this subsection. The result provides the combined weighted gross sales per acre.

(c) Determine the average land rent value for irrigated and nonirrigated land classes in the county's exclusive farm use zones according to the annual "income approach" report prepared by the county assessor pursuant to ORS 308.345;

(d) Determine the percentage of the average land rent value for each specific land rent for each land classification determined in subsection (c) of this section. Adjust the combined weighted sales per acre amount identified in paragraph (b)(E) of this section using the percentage of average land rent (i.e., multiply the weighted average determined in paragraph (4)(b)(E) of this rule by the percent of average

land rent value from subsection (4)(c) of this rule). The result provides the estimated potential gross sales per acre for each assessor land class that will be provided to each county to be used as explained under subsection (3)(c) of this rule.

(5) On land not identified as high-value farmland, a dwelling may be considered customarily provided in conjunction with farm use if:

(a) The subject tract is currently employed for the farm use, as defined in ORS 215.203, that produced in the last two years or three of the last five years the lower of the following:

(A) At least $40,000 in gross annual income from the sale of farm products; or

(B) Gross annual income of at least the midpoint of the median income range of gross annual sales for farms in the county with gross annual sales of $10,000 or more according to the 1992 Census of Agriculture, Oregon; and

(b) Except as permitted in ORS 215.213(1)(r) and 215.283(1)(p) (1999 Edition), there is no other dwelling on lands designated for exclusive farm use pursuant to ORS Chapter 215 or for mixed farm/forest use pursuant to OAR 660-006-057 owned by the farm or ranch operator or on the farm or ranch operation; and

(c) The dwelling will be occupied by a person or persons who produced the commodities which grossed the income in subsection (a) of this section;

(d) In determining the gross income required by subsection (a) of this section:

(i) The cost of purchased livestock shall be deducted from the total gross income attributed to the farm or ranch operation;

(ii) Only gross income from land owned, not leased or rented, shall be counted; and

(iii) Gross farm income earned from a lot or parcel which has been used previously to qualify another lot or parcel for the construction or siting of a primary farm dwelling may not be used.

(6) In counties that have adopted marginal lands provisions under ORS 197.247 (1991 Edition) before January 1, 1993, a dwelling may be considered customarily provided in conjunction with farm use if it is not on a lot or parcel identified as high-value farmland and it meets the standards and requirements of ORS 215.213(2)(a) or (b).

(7) On land identified as high-value farmland, a dwelling may be considered customarily provided in conjunction with farm use if:

(a) The subject tract is currently employed for the farm use, as defined in ORS 215.203, that produced at least $80,000 in gross annual income from the sale of farm products in the last two years or three of the last five years; and

(b) Except as permitted in ORS 215.213(1)(r) and 215.283(1)(p) (1999 Edition), there is no other dwelling on lands designated for exclusive farm use pursuant to ORS Chapter 215 or for mixed farm/forest use pursuant to OAR 660-006-0057 owned by the farm or ranch operator or on the farm or

ranch operation; and

(c) The dwelling will be occupied by a person or persons who produced the commodities which grossed the income in subsection (a) of this section;

(d) In determining the gross income required by subsection (a) of this section;

(i) The cost of purchased livestock shall be deducted from the total gross income attributed to the farm or ranch operation;

(ii). Only gross income from land owned, not leased or rented, shall be counted; and

(iii) Gross farm income earned from a lot or parcel which has been used previously to qualify another lot or parcel for the construction or siting of a primary farm dwelling may not be used.

(8) For the purpose of sections (5) or (7) of this rule, noncontiguous lots or parcels zoned for farm use in the same county or contiguous counties may be used to meet the gross income requirements. Except for Hood River and Wasco counties and Jackson and Klamath counties, when a farm or ranch operation has lots or parcels in both "Western" and "Eastern" Oregon as defined by this division, lots or parcels in Eastern or Western Oregon may not be used to qualify a dwelling in the other part of the state.

(9)(a) Prior to the final approval for a dwelling authorized by sections (5) and (7) of this rule that requires one or more contiguous or non contiguous lots or parcels of a farm or ranch operation to comply with the gross farm income requirements, the applicant shall provide evidence that the covenants, conditions and restrictions form adopted as "Exhibit A" has been recorded with the county clerk of the county or counties where the property subject to the covenants, conditions and restrictions is located. The covenants, conditions and restrictions shall be recorded for each lot or parcel subject to the application for the primary farm dwelling and shall preclude:

(i) All future rights to construct a dwelling except for accessory farm dwellings, relative farm assistance dwellings, temporary hardship dwellings or replacement dwellings allowed by ORS Chapter 215; and

(ii) The use any gross farm income earned on the lots or parcels to qualify another lot or parcel for a primary farm dwelling.

(b) The covenants, conditions and restrictions are irrevocable, unless a statement of release is signed by an authorized representative of the county or counties where the property subject to the covenants, conditions and restrictions is located.

(c) Enforcement of the covenants, conditions and restrictions may be undertaken by the Department of Land Conservation and Development or by the county or counties where the property subject to the covenants, conditions and restrictions is located;

(d) The failure to follow the requirements of this section shall not affect the validity of the transfer of property or the legal remedies available to the buyers of property which is subject to the covenants, conditions and restrictions required by this section;

(e) The county planning director shall maintain a copy of the covenants, conditions and restrictions filed in the county deed records pursuant to this section and a map or other record depicting the lots and parcels subject to the covenants, conditions and restrictions filed in the county deed records pursuant to

this section. The map or other record required by this subsection shall be readily available to the public in the county planning office.

(10) A dwelling may be considered customarily provided in conjunction with a commercial dairy farm as defined by OAR 660-033-0135(11) if:

(a) The subject tract will be employed as a commercial dairy as defined by OAR 660-033-0135(11); and

(b) The dwelling is sited on the same lot or parcel as the buildings required by the commercial dairy; and

(c) Except as permitted by ORS 215.213(r) and 215.283(1)(p) (1999 Edition), there is no other dwelling on the subject tract; and

(d) The dwelling will be occupied by a person or persons who will be principally engaged in the operation of the commercial dairy farm, such as the feeding, milking or pasturing of the dairy animals or other farm use activities necessary to the operation of the commercial dairy farm; and

(e) The building permits, if required, have been issued for and construction has begun for the buildings and animal waste facilities required for a commercial dairy farm; and

(f) The Oregon Department of Agriculture has approved the following:

(A) A permit for a "confined animal feeding operation" under ORS 468B.050 and 468B.200 to 468B.230; and

(B) A Producer License for the sale of dairy products under ORS 621.072.

(11) As used in this division, the following definitions apply:

(a) "Commercial dairy farm" is a dairy operation that owns a sufficient number of producing dairy animals capable of earning the gross annual income required by OAR 660-033-0135(5)(a) or (7)(a), whichever is applicable, from the sale of fluid milk; and

(b) "Farm or ranch operation" means all lots or parcels of land in the same ownership that are used by the farm or ranch operator for farm use as defined in ORS 215.203.

(12) A dwelling may be considered customarily provided in conjunction with farm use if:

(a) Within the previous two years, the applicant owned and operated a farm or ranch operation that earned the gross farm income in the last five years or four of the last seven years as required by OAR 660-033-0135(5) or (7) of this rule, whichever is applicable;

(b) The subject lot or parcel on which the dwelling will be located is:

(A) Currently employed for the farm use, as defined in ORS 215.203, that produced in the last two years or three of the last five years the gross farm income required by OAR 660-033-0135(5) or (7) of this rule, whichever is applicable; and

(B) At least the size of the applicable minimum lot size under OAR 215.780; and

(a) Except as permitted in ORS 215.213(1)(r) and 215.283(1)(p) (1999 Edition), there is no other dwelling on the subject tract; and

(b) The dwelling will be occupied by a person or persons who produced the commodities which grossed the income in subsection (a) of this section;

(c) In determining the gross income required by subsections (a) and (b)(A) of this section:

(A) The cost of purchased livestock shall be deducted from the total gross income attributed to the tract; and

(B) Only gross income from land owned, not leased or rented, shall be counted.

[ED. NOTE: Exhibits referenced are available from the agency.]

Stat. Auth.: ORS 183, ORS 197.040, 197.230 & 197.245
Stats. Implemented: ORS 197.015, 197.040, 197.230, 197.245, 215.203, 215.243, 215.283, 215.700 - 215.710 & 215.780
Hist.: LCDC 3-1994, f. & cert. ef. 3-1-94; LCDD 2-1998, f. & cert. ef. 6-1-98; LCDD 1-2002, f. & cert. ef. 5-22-02; LCDD 1-2004, f. & cert. ef. 4-30-04

660-033-0140

Permit Expiration Dates

(1) Except as provided for in subsection (5) of this rule, a discretionary decision, except for a land division, made after the effective date of this division approving a proposed development on agricultural or forest land outside an urban growth boundary under ORS 215.010 to 215.293 and 215.317 to 215.438 or under county legislation or regulation adopted pursuant thereto is void two years from the date of the final decision if the development action is not initiated in that period.

(2) A county may grant one extension period of up to 12 months if:

(a) An applicant makes a written request for an extension of the development approval period;

(b) The request is submitted to the county prior to the expiration of the approval period;

(c) The applicant states reasons that prevented the applicant from beginning or continuing development within the approval period; and

(d) The county determines that the applicant was unable to begin or continue development during the approval period for reasons for which the applicant was not responsible.

(3) Approval of an extension granted under this rule is an administrative decision, is not a land use decision as described in ORS 197.015 and is not subject to appeal as a land use decision.

(4) Additional one year extensions may be authorized where applicable criteria for the decision have not changed.

(5)(a) If a permit is approved for a proposed residential development on agricultural or forest land

outside of an urban growth boundary, the permit shall be valid for four years.

(b) An extension of a permit described in subsection (5)(a) of this rule shall be valid for two years.

(6) For the purposes of subsection (5) of this rule, "residential development" only includes the dwellings provided for under ORS 215.213(1)(t), (3) and (4), 215.283(1)(s), 215.284, 215.705(1) to (3), 215.720, 215.740, 215.750 and 215.755(1) and (3).

Stat. Auth.: ORS 183, ORS 197 & ORS 215
Stats. Implemented: ORS 197.015, ORS 197.040, ORS 197.230 & ORS 197.245
Hist.: LCDC 6-1992, f. 12-10-92, cert. ef. 8-7-93; LCDD 1-2002, f. & cert. ef. 5-22-02

660-033-0145

Agriculture/Forest Zones

(1) Agriculture/forest zones may be established and uses allowed pursuant to OAR 660-006-0050;

(2) Land divisions in agriculture/forest zones may be allowed as provided for under OAR 660-006-0055; and

(3) Land may be replanned or rezoned to an agriculture/forest zone pursuant to OAR 666-006-0057.

Stat. Auth.: ORS 183, 197.040, 197.230 & 197.245
Stats. Implemented: ORS 197.040, ORS 197.213, ORS 197.215, ORS 197.230, ORS 197.245, ORS 197.283, ORS 197.700, ORS 197.705, ORS 197.720, ORS 197.740, ORS 197.750 & ORS 197.780
Hist.: LCDD 2-1998, f. & cert. ef. 6-1-98

660-033-0150

Notice of Decisions in Agriculture Zones

(1) Counties shall notify the department of all applications for dwellings and land divisions in exclusive farm use zones. Such notice shall be in accordance with the county's acknowledged comprehensive plan and land use regulations, and shall be mailed to the department's Salem office at least ten calendar days before any hearing or decision on such application.

(2) Notice of proposed actions described in section (1) of this rule shall be provided as required by procedures for notice contained in ORS 197.763 and 215.402 to 215.438.

(3) The provisions of sections (1) and (2) of this rule are repealed on September 6, 1995.

Stat. Auth.: ORS 183, ORS 197.040, ORS 197.230 & ORS 197.245
Stats. Implemented: ORS 197.015, ORS 197.040, ORS 197.230 & ORS 197.245
Hist.: LCDC 6-1992, f. 12-10-92, cert. ef. 8-7-93; LCDC 3-1994, f. & cert. e.f 3-1-94

660-033-0160

Effective Date

The provisions of this division shall become effective upon filing.

Stat. Auth.: ORS 183, ORS 197.040, ORS 197.230 & ORS 197.245
Stats. Implemented : ORS 215
Hist.: LCDC 6-1992, f. 12-10-92, cert. ef. 8-7-93; LCDC 3-1994, f. & cert. ef. 3-1-94 ; LCDC 5-1996, 12-23-96

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OREGON ADMINISTRATIVE RULES
CHAPTER 660, DIVISION 033, RULE 0120 TABLE 1

Amendments of February 2006 are underlined in bold

Uses Authorized on Agricultural Lands

OAR 660-33-120 The specific development and uses listed in the following table are permitted in the areas that qualify for the designation pursuant to this division. All uses are subject to the general provisions, special conditions, additional restrictions and exceptions set forth in this division. The abbreviations used within the schedule shall have the following meanings:

A Use may be allowed. Authorization of some uses may require notice and the opportunity for a hearing because the authorization qualifies as a land use decision pursuant to ORS Chapter 197. Minimum standards for uses in the table that include a numerical reference are specified in OAR 660-33-130. Counties may prescribe additional limitations and requirements to meet local concerns as authorized by law.

R Use may be approved, after required review. The use requires notice and the opportunity for a hearing. Minimum standards for uses in the table that include a numerical reference are specified in OAR 660-33-130. Counties may prescribe additional limitations and requirements to meet local concerns as authorized by law.

* Use not permitted.

Numerical references for specific uses shown on the chart refer to the corresponding section of OAR 660-33-130. Where no numerical reference is noted for a use on the chart, this rule does not establish criteria for the use.

HV Farm	All Other	USES
		Farm/Forest Resource
A	A	Farm use as defined in ORS 215.203.
A	A	Other buildings customarily provided in conjunction with farm use.
A	A	Propagation or harvesting of a forest product.
R6	R6	A facility for the primary processing of forest products.
R28	R28	A facility for the processing of farm crops.
		Natural Resource
A	A	Creation of, restoration of, or enhancement of wetlands.
R5,27	R5,27	The propagation, cultivation, maintenance and harvesting of aquatic species that are not under the jurisdiction of the State Fish and Wildlife Commission or insect species.
		Residential
A1,30	A1,30	Dwelling customarily provided in conjunction with farm use.
R9,30	R9,30	A dwelling on property used for farm use located on the same lot or parcel as the dwelling of the farm operator, and occupied by a relative of the farm operator or farm operator's spouse, which means grandparent, step-grandparent, grandchild, parent, step-parent, child, brother, sister, sibling, step-sibling, niece, nephew, or first cousin of either,, if the farm operator does, or will, require the assistance of the relative in the management of the farm use.
A24, 30	A24, 30	Accessory Farm Dwellings for year-round and seasonal farm workers.
A3, 30	A3, 30	One single-family dwelling on a lawfully created lot or parcel.
R5, 10 30	R5, 10 30	One manufactured dwelling, or recreational vehicle, or the temporary residential use of an existing building in conjunction with an existing dwelling as a temporary use for the term of a hardship suffered by the existing resident or a relative of the resident.
R4, 30	R4,30	Single-family residential dwelling, not provided in conjunction with farm use.
R5, 30	R5,30	Residential home or facility as defined in ORS 197.660, in existing dwellings.
R5, 30	R5,30	Room and board arrangements for a maximum of five unrelated persons in existing residences.
R12, 30	R12, 30	Replacement dwelling to be used in conjunction with farm use if the existing dwelling has been listed in a county inventory as historic property as defined in ORS 358.480.
A8, 30	A8, 30	Alteration, restoration, or replacement of a lawfully established dwelling.
R5,	R5	A wildlife habitat conservation and management plan pursuant to ORS 215.800 to 215.808.
		Commercial
R5	R5	Commercial activities in conjunction with farm use but not including the processing of farm crops pursuant to ORS 215.213(1)[(x)] and 215.283(1)[(u)].
*18	A	The breeding, kenneling and training of greyhounds for racing.
R5,14	R5,14	Home occupations as provided in ORS 215.448.
*18	R5	Dog kennels.
R5,35	R5,35	An aerial fireworks display business that has been in continuous operation at its current location within an exclusive farm use zone since December 31, 1986, and possess a wholesaler's permit to sell or provide fireworks.
*18	R5	Destination resort which is approved consistent with the requirements of Goal 8.
A	A	A winery as described in ORS 215.452.
A23	A23	Farm stands.
R5	R5	A landscaping business, as defined in ORS 671.520, or a business providing landscape architecture services, as described in ORS 671.318, if the business is pursued in conjunction with the growing and

		marketing of nursery stock on the land that constitutes farm use.
		Mineral, Aggregate, Oil, and Gas Uses
A	A	Operations for the exploration for and production of geothermal resources as defined by ORS 522.005 and oil and gas as defined by ORS 520.005, including the placement and operation of compressors, separators and other customary production equipment for an individual well adjacent to the wellhead.
A	A	Operations for the exploration for minerals as defined by ORS 517.750.
R5	R5	Operations conducted for mining and processing of geothermal resources as defined by ORS 522.005 and oil and gas as defined by ORS 520.005 not otherwise permitted under this rule.
R5	R5	Operations conducted for mining, crushing or stockpiling of aggregate and other mineral and other subsurface resources subject to ORS 215.298.
R5,15	R5,15	Processing as defined by ORS 517.750 of aggregate into asphalt or portland cement.
R5	R5	Processing of other mineral resources and other subsurface resources.
		Transportation
R5,7	R5,7	Personal-use airports for airplanes and helicopter pads, including associated hangar, maintenance and service facilities.
A	A	Climbing and passing lanes within the right of way existing as of July 1, 1987.
R5	R5	Construction of additional passing and travel lanes requiring the acquisition of right of way but not resulting in the creation of new land parcels.
A	A	Reconstruction or modification of public roads and highways, including the placement of utility facilities overhead and in the subsurface of public roads and highways along the public right of way, but not including the addition of travel lanes, where no removal or displacement of buildings would occur, or no new land parcels result.
R5	R5	Reconstruction or modification of public roads and highways involving the removal or displacement of buildings but not resulting in the creation of new land parcels.
A	A	Temporary public road and highway detours that will be abandoned and restored to original condition or use at such time as no longer needed.
A	A	Minor betterment of existing public road and highway related facilities such as maintenance yards, weigh stations and rest areas, within right of way existing as of July 1, 1987, and contiguous public-owned property utilized to support the operation and maintenance of public roads and highways.
R5	R5	Improvement of public road and highway related facilities, such as maintenance yards, weigh stations and rest areas, where additional property or right of way is required but not resulting in the creation of new land parcels.
R13	R13	Roads, highways and other transportation facilities, and improvements not otherwise allowed under this rule.
R	R	Transportation improvements on rural lands allowed by OAR 660-012-0065.
		Utility/Solid Waste Disposal Facilities
R16	R16	Utility facilities necessary for public service, including wetland waste treatment systems but not including commercial facilities for the purpose of generating electrical power for public use by sale or transmission towers over 200 feet in height.
R5	R5	Transmission towers over 200 feet in height.
*18	R	A site for the disposal of solid waste that has been ordered to be established by the Environmental Quality Commission under ORS 459.049, together with the equipment, facilities or buildings necessary for its operation.
A	A	Fire service facilities providing rural file protection services.
A	A	Irrigation canals, delivery lines and those structures and accessory operational facilities associated with a district as defined in ORS 540.505.
A32	A32	Utility facility service lines.
R5,17	R5,22	Commercial utility facilities for the purpose of generating power for public use by sale.
*18	R5	A site for the disposal of solid waste approved by the governing body of a city or county or both and for which a permit has been granted under ORS 459.245 by the Department of Environmental Quality together with equipment, facilities or buildings necessary for its operation.
*18	R5, 29	Composting facilities for which a permit has been granted by the Department of Environmental Quality under ORS 459.245 and OAR 340-96-020.
		Parks/Public/Quasi-Public
*18	R2	Public or private schools, including all buildings essential to the operation of a school.
*18	R2	Churches and cemeteries in conjunction with churches consistent with ORS 215.441.
*18	R5,19	Private parks, playgrounds, hunting and fishing preserves and campgrounds.
R5, 31	R5, 31	Parks, and playgrounds. A public park may be established consistent with the provisions of ORS 195.120.

SECTION 3.008: SMALL FARM AND WOODLOT 10 ACRE ZONE (SFW-10)

(1) PURPOSE: The purpose of the SFW-10 zone is to permit small-scale farms and large-acreage rural residential homesites on land that has potential for small-scale farm or forest uses, but because of limitations it is impractical for the Farm or Forest zone. It also provides a buffer between non-resource uses and lands that are managed for farm or forest uses, thereby assuring that the conversion of such lands to higher density uses occurs in an orderly and economical manner.

(2) USES PERMITTED OUTRIGHT: In the SFW-10 Zone, the following uses and their accessory uses are permitted outright, subject to all applicable supplementary regulations contained in this Ordinance.

(a) Farm uses, including aquaculture.

(b) Forest uses.

(c) Noncommercial preserves, parks, and low intensity recreational uses.

(d) Fish and game management not requiring developed facilities or structures.

(e) Single-family residential structures.

(f) A mobile home or recreational vehicle used only during the construction or substantial improvement of a use for which a building or placement permit has been issued.

(g) Signs, subject to Section 4.020.

(h) Home occupations according to the provisions of Section 4.140 of this Ordinance.

(i) Cottage industries.

(j) Roadside stands for the sale of produce grown on the premises.

(3) USES PERMITTED CONDITIONALLY: In the SFW-10 zone, the following conditional uses and their accessory uses are permitted subject to the provisions of Article 6, all applicable supplementary regulations contained in this Ordinance, and the finding that the use will not conflict with neighboring farm or forest uses.

(a) Rock quarries, and the mining, storage and processing of sand, gravel, peat and other earth products.

(b) Facilities for the exploration, extraction, or generation of energy resources.

EXHIBIT IV
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(c) Primary wood processing.

(d) Recreational campgrounds, primitive campgrounds and associated facilities.

(e) Golf courses and associated facilities.

(f) Churches and schools.

(g) Non-profit community centers.

(h) Cemeteries.

(i) Rural fire stations.

(j) Animal hospitals, kennels, or other animal boarding services.

(k) Towers for communications, wind energy conversion systems, or structures having similar impacts.

(l) Accessory structures or accessory uses without an on-site primary use.

(m) Sanitary landfills, waste transfer stations, or other waste processing facilities.

(n) Public utility facilities, including substations and transmission lines.

(o) Private airports or helicopter pads, including associated hangars, maintenance, and service facilities as provided in ORS 215.213 (1) (g).

(p) Temporary use of mobile non-residential units such as kitchens, offices, or laboratories.

(q) Rural or light industries.

(r) Recreation vehicles.

(s) Storage of construction equipment and materials, including structures used for such purposes.

(t) Developed facilities or structures for fish or game management.

(u) Foster family home for six or more children or adults.

(v) Bed and breakfast enterprises.

(w) Temporary placement of a mobile home or recreation vehicle to be used because of a health hardship, subject to Section 6.050.

(x) Temporary Real Estate sales office.

(y) Residential care, training, or treatment facility as defined by ORS 443.400; any facility which provides care, training, or treatment for six or more physically, mentally, emotionally, or behaviorally disabled individuals. Facilities that provide for five or less are addressed as "Adult Foster Homes" or Foster Family Homes".

(z) Home occupations according to the provisions of Section 4.140 of this Ordinance.

(4) STANDARDS: Land divisions and development in the SFW-10 zone shall conform to the following standards, unless more restrictive supplemental regulations apply:

(a) Lot sizes:

1. The minimum lot size for all permitted uses shall be ten acres, unless the property is developed as a residential group development.

2. (a) If the property is developed as a residential group development, the average density shall be one unit per eight acres, on the condition that either all, or all but one of the home sites are located within a contiguous area that is not larger than 25 percent of the total property. Adequate buffers shall be provided to minimize potential conflicts with agricultural or forestry uses. The Director may approve lot sizes at the minimum required to obtain approval for adequate on-site sewage disposal. The procedures for approval of a residential group development shall be those contained in Article 6, except that the criteria for review in Section 6.040 shall be replaced by the following:

1. The development will not create conflicts with neighboring farm or forest uses.

2. The development will not materially alter the stability of the overall land use pattern in the vicinity.

3. The development will not result in the alteration of significant wetlands identified in the comprehensive plan.

4. The development is not likely to result in hazards to life or property due to flooding or geologic conditions.

5. All homesites are located according to a plan of partition or subdivision, and are developed according to the requirements of the land division Ordinance.

(b) If a residential group development is approved, the Department shall maintain an active record showing that the use of the undeveloped portion of the property is limited to farm, forest, recreational, or other resource purposes, and that construction or placement of dwellings does not occur.

3. Parcels less than ten acres in size that were legally established prior to June 17, 1982, may be built upon, provided that all other requirements of this Ordinance and other applicable County requirements are met.

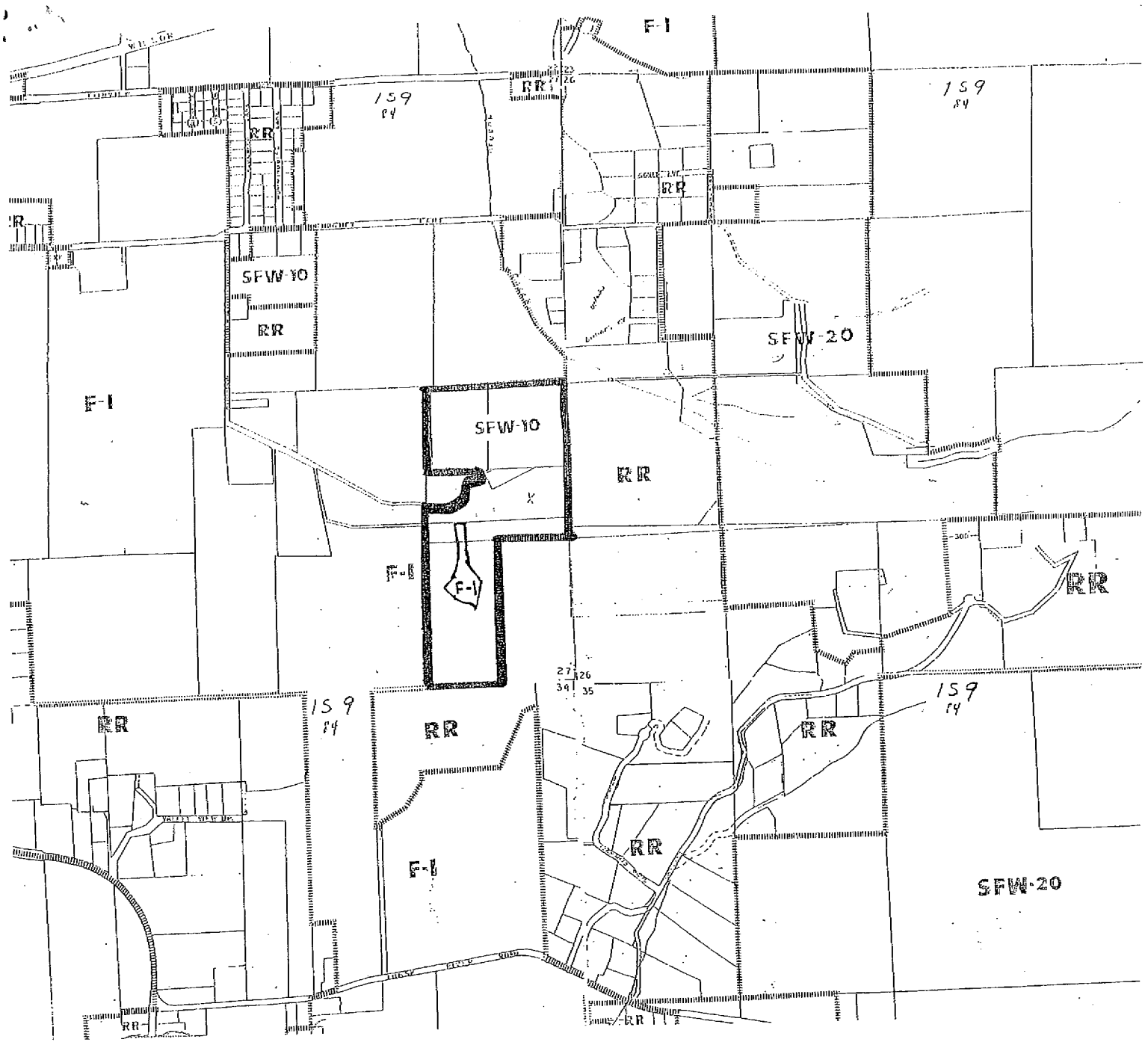
(b) The minimum lot width and depth shall both be 125 feet.

(c) The minimum front, side, and rear yards shall be 20 feet.

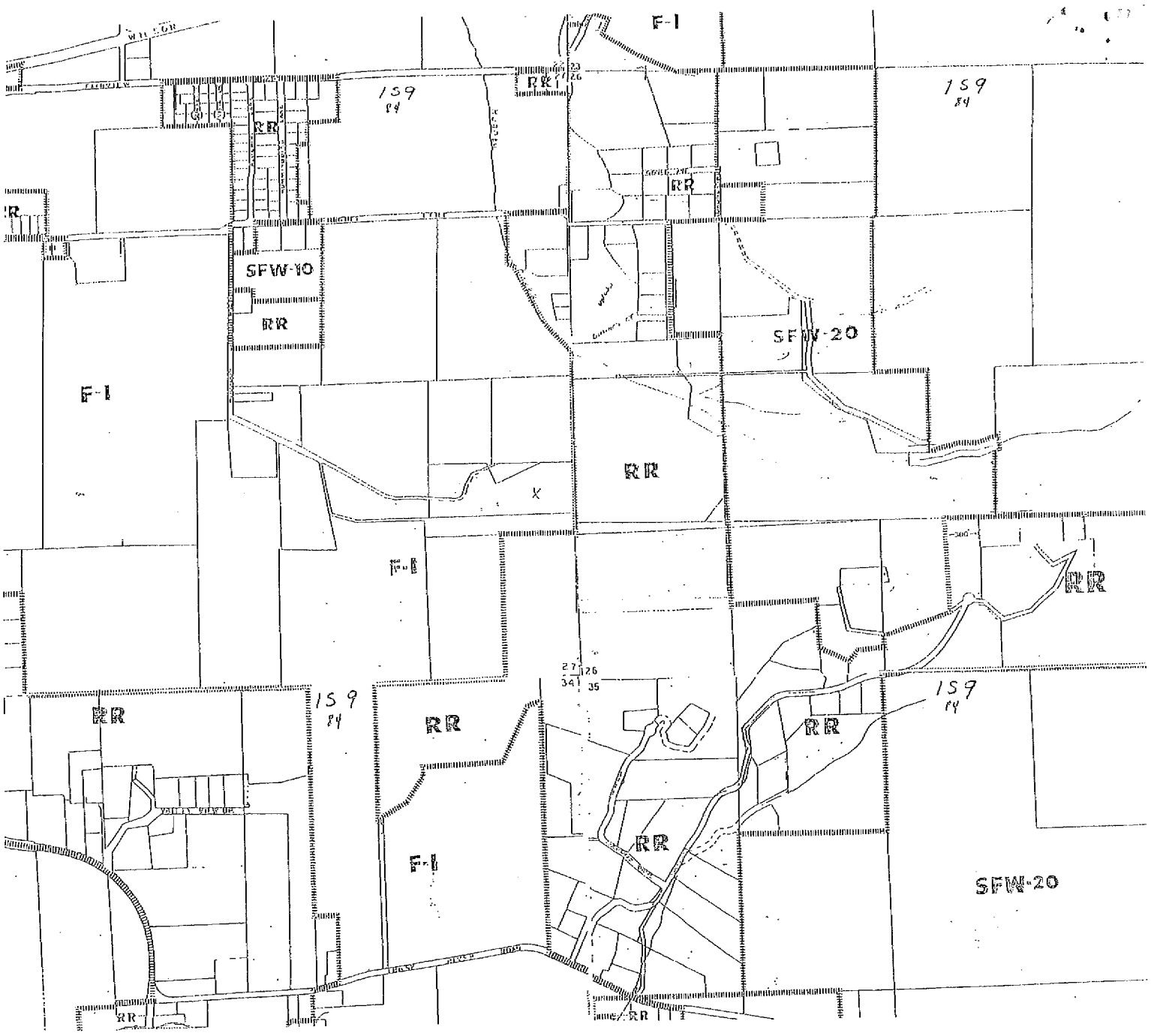
(d) The maximum building height for agricultural structures shall be 70 feet; for all other structures, it shall be 35 feet, except on ocean or bay frontage lots, it shall be 24 feet. higher structures hay be permitted only according to the provisions of Article VIII.

(e) No residential structure shall be located within 100 feet of an F-1 or F zone boundary, unless it can be demonstrated that topography or other natural features will act as an equally effective barrier to conflicts between resource and residential land uses.

(f) Recreation vehicles shall be sited in such a way as to be screened by existing vegetation and topography from adjacent properties and roads.



Zoning Map with proposed SFW-10 zone addition



Existing Zoning Map

EXHIBIT V
ZC-06-01

Land of Cheese, Trees and Ocean Breeze

RECEIVED
JUN 19 2006
COMMUNITY DEVELOPMENT

Tillamook County
PUBLIC WORKS DEPARTMENT
503 Marolf Loop, Tillamook, OR 97141

(503) 842-3419
FAX: 842-6473

TDD-NONVOICE:
OREGON RELAY SERVICE

June 16th 2006

Tim Franz, Associate Planner
Department of Community Development
201 Laurel Avenue
Tillamook, OR 97141

RE: **ZC-06-01** Hodgdon Road
tax lots #1803;#1805;#1806 Sect.27 & #200 27DD, T1SR9W

Dear Tim Franz,

I have read the public notice/request for Zone Change for the tax lot owned by Johnney D. & Suzann Dietrich and Bruce W. Thomas, applicants and property owners. The request is to change from Farm to Small Farm Woodlot-10(SFW-10Acre). Hodgdon Road in this area appears to continue as a county or public road to this area. But the facts of the matter are that the County Road jurisdiction ends at tax lot 1500, section 27, north of street address #555 Hodgdon Road, the Neu residence.

This department has no objection to the proposal. We suggest the following be part of the conditions for approval:

- ☐ The parcels created confirm that they have easements to the end of the County Road as described in Road Petition #286, as legalized in July 1898, County Court Journal "E" Page 146.

If you have any questions, please contact me.

Sincerely,

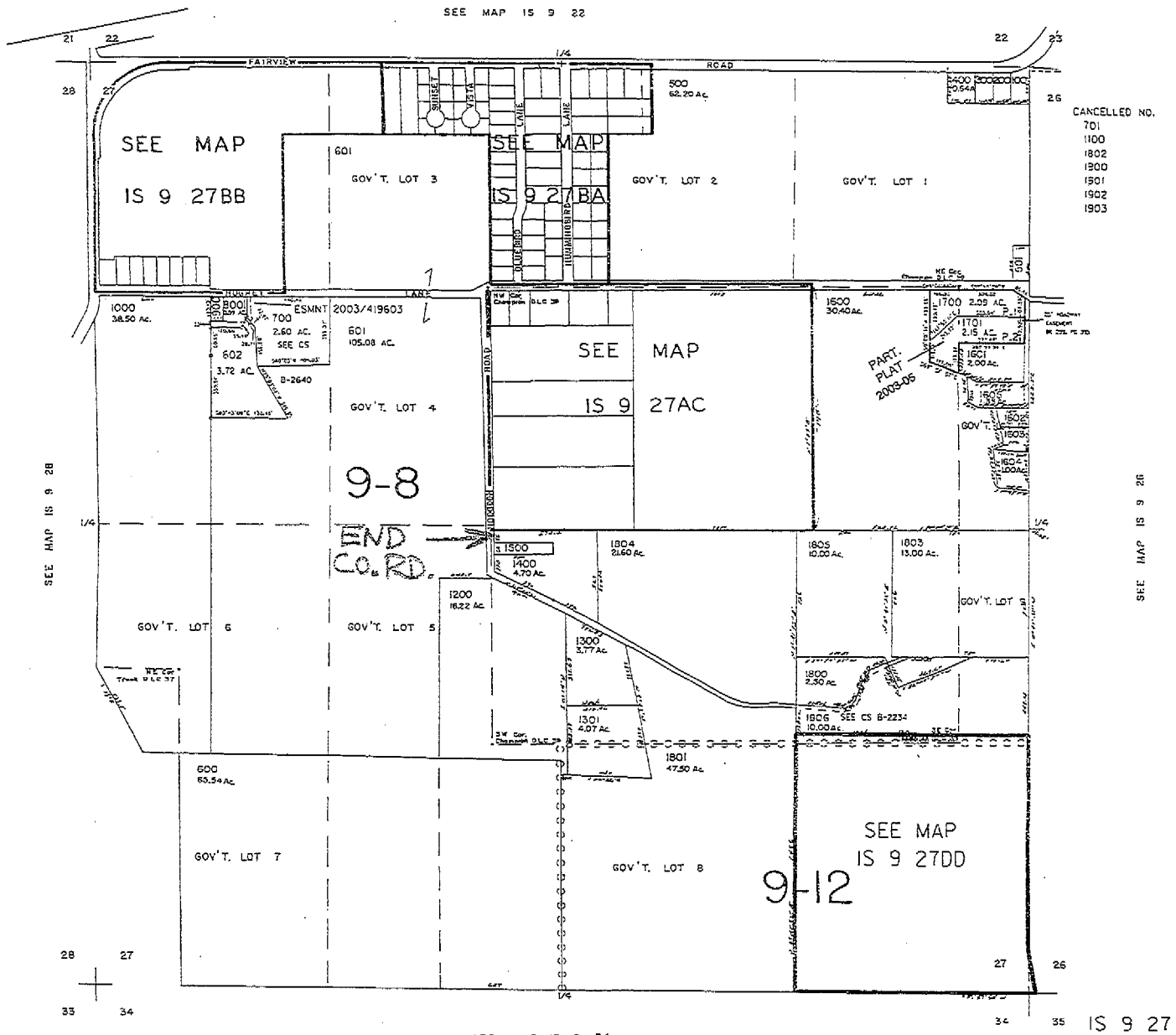
George W. Urrey, Eng. Tech.

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSE ONLY

SECTION 27 T.1S. R.9W.W.M.
TILLAMOOK COUNTY

1" = 400'

IS 9 27 & INDEX



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REVISED 07/08/05, WS