

BOULDER CREEK & JONES CREEK WATERSHED FOREST MANAGEMENT PLAN



*Prepared for
City of Camas*

December 3, 2012

Prepared by



AKS ENGINEERING & FORESTRY
12011 NE 99th Street, Suite 1530
Vancouver, WA 98682
(360) 882-0419



TABLE OF CONTENTS

- Executive Summary 1**
- 1. Introduction 2**
 - Purpose2
 - Management Goals and Objectives2
 - Property Description2
 - Location2
 - General Description2
 - Uses3
 - Adjacent Ownership and Uses3
 - Access4
- 2. Existing Resources Assessment 4**
 - Timber & Wood Products4
 - Water Quality, Streams, Riparian Areas, and Wetlands5
 - Fish and Wildlife Habitat6
 - Threatened and Endangered Species7
 - Roads7
 - Soils, Site Index, and Site Class8
 - Recreation8
- 3. Management Plan 8**
 - Harvesting Plan8
 - Guidelines8
 - Schedule10
 - Prescriptions12
 - Methods13
 - Marketing, Sale Options, and Contract Administration15
 - Resource Protection16
 - Water Quality, Streams, Riparian Areas, and Wetlands16
 - Fish and Wildlife Habitat17
 - Road Plan18
 - Guidelines18
 - Locations18
 - Design Standards and Specifications20
 - Implementation Options20
 - Maintenance20
 - Access Easements21
 - Reforestation22
 - Site Preparation22
 - Planting22
 - Vegetation Management24
 - Forest Health24
 - Rehabilitation24
 - Laminated Root Rot25
 - Asset Protection26
 - Access Restrictions26
 - Signage and Monitoring26
 - Hazardous Materials26
 - Fire26
 - Regulatory Compliance28
- 4. 2013 Harvest Plan 29**
 - Harvest Units29
 - Road Construction29
 - Access Easements30
 - Sale Activities, Processes, and Administration30
 - Pre-Sale30
 - Sale31
 - Post-Sale31





TABLE OF CONTENTS—CONTINUED

APPENDICES:

- A. General Property Maps
- B. NE Boulder Creek Road and NE Jones Creek Road Right-of-Way Map
- C. Timber Volume and Valuation Report
- D. Stream Classification & Site Class Map
- E. Harvest Maps
- F. Resource Protection Map
- G. Road Maps & Standards
- H. Forest Practice Permit Application Instructions & Forms; RMAP Checklist
- I. Calendar of Activities





EXECUTIVE SUMMARY

The City of Camas Boulder Creek and Jones Creek watershed property consists of approximately 1,700 acres of mature forest land that is used by the City to collect water, via water intake facilities, for municipal purposes. Other than minor improvements and maintenance activities necessary to operate the water intake facilities, the property has been unmanaged for the last 60+/- years.

In February 2011, the City contracted with AKS Engineering & Forestry (AKS) to perform a timber inventory and valuation assessment of the watershed. The purpose of this assessment was to inventory the timber resource and estimate its current value. The assessment determined that the property contains a significant amount of high value timber. Given the valuation of the timber resource, the City directed AKS to develop a forest



management plan to generate periodic income from the sale of wood products while protecting water quality.

AKS met with City staff to discuss the creation of this plan and performed extensive field reconnaissance of the watershed. An assessment of existing resources, a timber harvesting plan, an access and road plan, as well as implementation methods, guidelines, and management recommendations, comprise the main components of this plan.

City goals guided the development of this forest management

plan. These goals are to:

- (1) Protect and maintain water quality
- (2) Generate periodic income from the sale of wood products
- (3) Provide a permanent access/road network within the property for operational, maintenance, and asset protection purposes
- (4) Improve forest health

Generating income from the sale of wood products without sacrificing water quality can be achieved by periodically harvesting small areas spatially distributed throughout the watershed and by providing protection measures for streams and other sensitive areas. An adequate and efficient road network can be established within the watershed without sacrificing water quality by avoiding significant stream crossings; locating roads away from streams, steep slopes and other sensitive areas; constructing roads with an all-weather rock surface; and by performing proper road maintenance. Additionally, overall forest health can be enhanced by rehabilitating poorly stocked and degraded portions of the watershed, and by removing trees infected with laminated root rot (or other diseases) and replanting these areas with immune and resistant species.





1. INTRODUCTION

Purpose

The purpose of this document is to provide the City of Camas with a sustainable forest management plan for the Boulder Creek and Jones Creek watershed property that meets the City’s management goals and objectives. This plan will be presented to the City Council for final adoption. The approved and adopted plan will be implemented by City Public Works staff members, who will also be responsible for ongoing monitoring and evaluation. The ultimate decision on resource policy and management direction rests with the City of Camas City Council. Once adopted, any policy changes to the Boulder Creek and Jones Creek Watershed Forest Management Plan would require approval by the City Council.

Management Goals and Objectives

The City’s goal is to develop and implement sustainable forest management policies for the watershed property that will:

- Protect and maintain water quality
- Generate periodic income from the sale of wood products
- Provide a permanent access/road network within the property for operational, maintenance, and asset protection purposes
- Maintain and improve forest health



Property Description

Location

The Boulder Creek and Jones Creek watersheds are located approximately ten miles northeast of the City of Camas, near the southwest corner of the Gifford Pinchot National Forest. The property is located in Section 33, T3N, R4E; Section 3, T2N, R4E; the NE ¼ of Section 4, T2N, R4E; a portion of the NW ¼ of Section 4, T2N, R4E; and a portion of the NW ¼ of Section 10, T2N, R4E; W.M., Clark County, Washington.

General Description

The site is comprised of five individual and contiguous parcels that the City acquired in individual transactions between 1923 and 1950. The parcels were obtained from Clark County, the Camas Water Company, Columbia River Paper Mills, and individual private parties. These parcels are identified as parcel numbers 243582000, 243583000, 136645000, 136440000, and 137914000 by the Clark County Tax Assessor. Assessor records show a combined total of approximately 1,608 acres in the tracts; however, the GIS acreage of approximately 1,707 acres varies from the assessor records by approximately 99 acres. It appears that most of this acreage is from a discrepancy in the acreage for Parcel No. 136645000, which consists of the north half of a Township line section and should be close to 320 acres but is listed by the assessor as approximately 208 acres. The only way to verify the exact acreage of the parcels would be to conduct a property boundary survey. For the purposes of this plan, the GIS acreage of 1,707 acres was used as it appears to be more accurate.



The site is generally split into two principal drainage basins, with Boulder Creek draining the westerly half of the site and Jones Creek draining the easterly half. Both of these large streams have public water intakes and are fed by numerous tributaries that web throughout the property. The site is comprised of unmanaged mature forest (60-100 years old) with a network of streams and unmaintained old roads. Elevation of the property ranges from approximately 540 to 1,880 feet above sea level, and drainage is generally to the south and southwest. Slopes are moderate and range from approximately 10% to 60%. General maps of the property are included in Appendix A.



Uses

The property is currently used to collect water, via water intake facilities on Boulder Creek and Jones Creek, for municipal purposes. Other than minor improvements and maintenance activities necessary to operate the water intake facilities, the property has been unmanaged for the last 60+/- years. Historical photographs and documents indicate that at least part of the property burned in the first half of the 1900's (there were several forest fires in southwest Washington between 1902 and 1952) and was salvage logged in 1955.



Adjacent Ownership and Uses

Adjacent properties to the north and east are owned by the State of Washington and managed by the Washington Department of Natural Resources (DNR). The DNR manages land for a variety of uses, including forest health, wildlife habitat, water quality, sustainable timber production, and recreation. The DNR managed land primarily consists of well stocked, even-aged, Douglas-fir forests that are approximately 40 years old, with the exception of an approximate 80-acre area abutting the western portion of the north line that was recently harvested (clearcut with scattered pockets of standing timber) and replanted.

Adjacent properties to the south are owned by the State of Washington (managed by the DNR) and Longview Timber, LLC (Longview Timber). Longview Timber manages their land for sustainable timber production. Both the Longview Timber and DNR lands primarily consist of well stocked, even-aged, Douglas-fir forests that vary in age from approximately 0 to 40 years old. Additionally, the DNR managed land near the southeast corner of the site is actively used for recreation, including off-highway vehicle (OHV) use.

Adjacent properties to the west are owned by the State of Washington (managed by the DNR) and individual private landowners. The DNR managed land primarily consists of well stocked, even-aged, Douglas-fir forests that are approximately 40 years old, with the exception of an approximate 80-acre area abutting the north portion of the west line that was recently harvested (clearcut with scattered pockets of standing timber) and replanted. There are four small parcels, owned by individual private parties, that abut the southern portion of the westerly line. These parcels are rural residential properties, some of which appear to be practicing small woodland management as evidenced by some selective harvesting of merchantable timber.



Access

Current access to the western half of the property (Boulder Creek side) is provided via NE Boulder Creek Road. NE Boulder Creek Road connects the western portion of the property to NE Lessard Road, which is dedicated public right-of-way. There were no easement or road establishment documents found on file at the Clark County Surveyors office for NE Boulder Creek Road; however, the right-of-way dedicated for NE Lessard Road extends to the property near the actual location of NE Boulder Creek Road. The City does not currently allow public access to the watershed. The property is not regularly patrolled, but there is a locked gate and no trespassing signage on the north portion of NE Boulder Creek Road at its intersection with NE Lessard Road.



Current access to the eastern half of the property (Jones Creek side) is provided via NE Jones Creek Road. NE Jones Creek Road is dedicated public right-of-way that connects the eastern portion of the watershed property to NE Boulder Creek Road. There is a locked gate and no trespassing signage at the beginning of NE Jones Creek Road at its intersection with NE Boulder Creek Road.

Although public right-of-way was dedicated for both access locations, road establishment documents on file at the Clark County Surveyors office show that the right-of-way dedicated for these roads is not consistent with the actual road locations. In some cases, actual road locations are up to one-quarter of a mile from the dedicated right-of-way (a map showing the actual road locations versus the location of dedicated right-of-way is included in Appendix B). While discrepancies exist, these roads were dedicated a very long time ago (NE Jones Creek Road in 1895 and NE Lessard Road in 1931) and the County as well as adjoining landowners have utilized the actual road locations for many decades.

2. EXISTING RESOURCE ASSESSMENT

Timber & Wood Products

Timber on the watershed is primarily Douglas-fir. Other species include red alder, western hemlock, and bitter cherry. The timber ranges in age from approximately 60 to 100 years old and timber stands vary in density from well-stocked stands of Douglas-fir, to mixed stands of Douglas-fir and red alder, to scattered pockets of bitter cherry and brush. Douglas-fir, red alder, and western hemlock are viable commercial tree species. Bitter cherry can also be a viable commercial species if market prices for pulp are high enough to cover harvesting and delivery costs.

AKS performed a timber inventory volume and value assessment in 2011. The reported net timber volumes are presented in Table 2-1. The complete inventory report and value assessment is included in Appendix C.





Table 2-1: Timber Resource Net Volumes		
Species	Net Volume (MBF ¹)	Net Volume % by Species
Douglas-fir	33,306	92.6
Red Alder	1,620	4.5
Western Hemlock	739	2.0
Bitter Cherry	300	0.9
Total	35,965	100.0

¹ MBF is one thousand board feet. A board foot is a one-inch thick board, 12 inches wide by 12 inches long, or the equivalent. Many timber related transactions are based on MBF values.

Water Quality, Streams, Riparian Areas, and Wetlands

Water Quality

Boulder Creek and Jones Creek are the two main streams that extend within and through the property. These streams are fed by a network of smaller tributary streams that are webbed throughout the site. Both Boulder Creek and Jones Creek produce high quality water, which the City draws from during the winter months for municipal purposes. City water intake facilities are located at the southern end of both creeks, and the water is conveyed through existing underground pipes located in the vicinity of NE Boulder Creek Road and NE Jones Creek Road and then to the City of Camas.

Streams

The DNR classifies streams and other water bodies in terms of whether or not they are used by fish, and whether or not streams experience perennial or seasonal flow. These classifications are used to help determine riparian buffer protection requirements during forest practice activities. The DNR maintains and updates stream maps that show both modeled and field-verified stream classifications. The different types of water classifications, as well as general descriptions of which on-site streams fall into each classification (based on maps provided by the DNR), are as follows:

- **“S” – Shoreline:** Streams and water bodies that are designated “shoreslines of the state”. There are no streams or water bodies on the site with this classification.
- **“F” – Fish:** Streams and water bodies that are known to be used by fish, or meet the physical criteria to be potentially used by fish. This stream classification applies to Boulder Creek, Jones Creek, and some of their tributaries.
- **“Np” – Non-Fish Perennial:** Streams that have flow year round, but do not meet the physical criteria of a Type F stream. This also includes streams that have been proven not to contain fish using approved methods.





- **“Ns” – Non-Fish Seasonal:** Streams that do not have surface flow during some portion of the year, and do not meet the physical criteria of a Type F stream.

The maps provided by DNR list all “non-fish” streams on site as Type “N”. This code is used as a place holder when the flow type (perennial - Np or seasonal - Ns) has not been determined. For the purposes of this plan, all streams identified as Type N are assumed to be perennial and fall under the Np classification. The specific classification of Type N streams will need to be determined by field inspection prior to conducting adjacent forest practice activities.

A detailed map showing the classification of all mapped on-site streams is included in Appendix D. This map is provided as a starting point to help identify and classify streams on the property; however, additional field inspection will be necessary to more adequately identify and classify all waters prior to conducting forest practice activities. The physical criteria for classifying streams are shown in Table 2-2.

Table 2-2: Stream Classification by Physical Characteristics			
Width	Gradient	Basin size	Classification
Bank full width 2 feet +	Less than or equal to 16%	Any	Fish Stream (F)
Bank full width 2 feet +	17-20%	Greater than 50 acres	Fish Stream (F)
Does not meet fish stream criteria. Water present all year			Np Stream
Does not meet fish stream criteria. Water NOT present all year			Ns Stream

Riparian Areas and Wetlands

All of the on-site streams have adjacent riparian areas. The lower reaches of streams tend to have wider and more significant riparian areas that often include small flood plains and forested wetland areas and are dominated by Red Alder dense understory vegetation. Some ponds and small pools, created by beaver, are present in the southwest corner of the site. Riparian areas associated with the upper reaches of streams tend to be significantly narrower, do not include flood plain or wetland areas, and include a mix of Red Alder, Douglas-fir, and a dense vegetated understory. The riparian areas in the middle to upper reaches of Boulder Creek and Jones Creek also include rock outcroppings, narrow gorges, and falls.

Fish and Wildlife Habitat

The property has a variety of wildlife habitats that are consistent with typical western Washington forest lands and has been relatively undisturbed for approximately 60 years. It appears that natural regeneration has taken place subsequent to past timber removal, so the property is more diverse in terms of both species and structure than a majority of the adjacent DNR and Longview Timber land, which has been clear cut and replanted. This diversity includes different mixes of tree species, size classes, and varying tree, understory, and canopy densities. Standing snags and large downed wood are present throughout the property. There are some significantly larger second-growth trees scattered throughout the northern part of the site and beaver ponds in the southwest corner of the site. There is evidence of use by woodpeckers and other cavity-nesting birds, and both deer and elk were observed on the property during field reconnaissance activities.





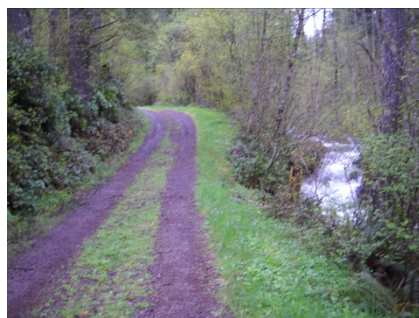
Jones Creek is currently part of the Stream Nutrient Enhancement Project, which is a cooperative study between the WDFW and the Lower Columbia Fish Enhancement Group. This study assesses the benefits of stream life and its inhabitants due to the presence of salmon carcasses.

Information regarding the presence of on-site priority habitats and species was provided by the Washington Department of Fish and Wildlife (WDFW). The information received shows that fish bearing streams within the watershed support Coho Salmon, Steelhead (summer and winter), Rainbow Trout, and resident Cutthroat Trout. This information also shows that WDFW classifies some of the streams within the property as a “priority fish presence”. No other known presence of priority habitats or species was identified by WDFW as being within the vicinity of the site.

The information provided above regarding streams with priority fish presence is general in nature because the WDFW considers sensitive species and habitat locations to be confidential. They require that this information not be distributed publicly and Washington State Law exempts sensitive fish and wildlife information from public inspection and copying. Therefore, more detailed information regarding which streams are classified as a priority fish presence is not included in this report. Additionally, information provided by WDFW regarding sensitive species and habitats only includes information that the WDFW maintains in a central computer database. It is not an attempt to provide an official agency response as to the impacts on fish and wildlife for any particular project. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to the WDFW, or in areas for which comprehensive surveys have not been conducted. Site specific surveys may be necessary to rule out the presence of priority resources prior to conducting forest practice activities.

Threatened and Endangered Species

Information provided by the WDFW indicated that there are no known threatened or endangered species, or priority habitats for threatened or endangered species, located within the vicinity of the site.



Roads

NE Boulder Creek Road and NE Jones Creek Road provide access to the west and east portions of the site, respectively. These roads extend approximately one-half of a mile into the southern portion of the site to provide access to their respective water intake facilities, where each road terminates. The roads are in fair condition, are lightly rocked, and have undersized stream crossing culverts. Additionally, both of these roads follow their respective streams and portions are located very close to the streams and riparian areas, which has an adverse impact on water

quality. Underground water pipes, associated with the water intake facilities, are located within the vicinity of each road.

There is a network of old “legacy” roads throughout the property. Most of these roads were observed during field reconnaissance and are not mapped. These roads have not been used or maintained since the last harvest over 50 years ago, are overgrown with trees and vegetation, have been washed out in some places, and have geometric configurations that





are not suitable for current conventional forest practice activities (steep grades, narrow widths, tight corners, etc.). Many of these roads are located adjacent to streams and riparian areas and have undersized stream crossing culverts, or none at all (ie. fords), which contributes to poor water quality. Additionally, several of these roads extend off site onto adjacent properties.

Soils, Site Index, and Site Class

Based on the US Soil Conservation Service Soil Survey of Clark County, WA, on-site soils predominantly consist of Olympic clay loam. This soil type has a slight to severe erosion potential depending on slopes (i.e. gentle slopes have a slight erosion potential and steep slopes have a severe erosion potential) and in general is poorly suited for native surface roads (i.e. roads should have a crushed rock surface).

Site index is a measure of soil productivity, and is a number corresponding to the average total height in feet that the largest Douglas-fir trees will attain at age 50. The site index for on-site soils range from 117 to 133.

Site class refers to a range of site indices. The DNR has categorized site index ranges into five classifications (1 through 5, with 1 being the most productive and 5 being the least). The following are the different site classes (recognized by the DRN for western Washington) as they relate to site indices:

<u>Site Class</u>	<u>50-yr Site Index Range</u>
I	137
II	119-136
III	97-118
IV	76-96
V	<75

Based on the site index values, the site class for on-site soils range from high class III to high class II, which is considered good for timber production. Besides being a measure of productivity, site class is used by the DNR to help establish the width of riparian buffer areas for forest practices activities adjacent to fish bearing streams. A map showing the DNR site class for the watershed property is included in Appendix D.

Recreation

The watershed is closed to public access and does not currently provide any recreational opportunities. The property is not regularly patrolled, but there are no trespassing signs and locked gates at both access roads.

3. MANAGEMENT PLAN

Harvesting Plan

Guidelines

The following guidelines were used in developing a harvesting plan that meets the City’s overall goals:

- *To the extent possible, focus early (near term) harvesting on areas that are not tributary to the water intake facilities (i.e. areas that are located below the water intake facilities).*





This guideline helps to meet the City's goals of *protecting and maintaining water quality* and *generating periodic income from the sale of wood products*. Focusing early harvesting activities on areas that are not tributary to the water intake facilities provides the City with an opportunity to become familiar with implementing forest practices activities in areas that will not affect water quality at the intake locations. The City then has the opportunity to evaluate the effects of forest practice activities, and make any desired adjustments, prior to implementing activities in more sensitive areas of the watershed. Harvesting these areas will also generate positive net income from the sale of wood products.

- *To the extent possible, focus early (near term) harvesting on poorly stocked areas (rehabilitation or "rehab" areas) so that these areas can be properly stocked and reforested.*

This guideline helps to meet the City's goal of *maintaining and improving forest health*. Focusing early harvesting activities on areas that are poorly stocked provides the quickest opportunity for rehabilitating degraded portions of the forest and improving overall forest health.

- *Keep individual harvest unit size small.*

This guideline helps to meet the City's goals of *protecting and maintaining water quality* and *maintaining and improving forest health*. Harvest unit size is related to disturbed soils which can affect water quality. Keeping harvest units small reduces the potential for erosion and sedimentation that can affect water quality. Additionally, small harvest units help to provide greater diversity in overall forest characteristics, which promotes forest health.

- *Distribute successive harvesting activities around the watershed to allow "greenup"² of harvested areas to occur prior to harvesting adjacent areas.*

This guideline helps to meet the City's goals of *protecting and maintaining water quality* and *maintaining and improving forest health*. Distributing harvesting activities around the watershed and waiting for harvested areas to regenerate prior to conducting adjacent harvesting activities reduces the amount of disturbed and exposed area in any given portion of the watershed at any given time. This reduces the potential for erosion and sedimentation that can affect water quality. Additionally, distributing harvesting activities around the watershed provides greater diversity in overall forest characteristics, which promotes forest health.

- *To the extent possible, provide consistent harvest volume.*

This guideline helps to meet the City's goals of *generating periodic income from the sale of wood products*.

² Greenup is defined as established trees that are at least five growing seasons old or at least four feet tall.



Schedule

The City draws water from Boulder Creek and Jones Creek during the winter months and protecting and maintaining water quality is of the utmost importance; therefore, harvesting should be limited to the dry season (typically May thru October). The harvesting plan divides the property into 39 separate harvest units that will be harvested in 15 separate entries over a period of 40 years (2013-2053). The harvest schedule is represented in Table 3-1. Detailed maps of harvest units by entry are included in Appendix E.

Table 3-1: Harvest Schedule						
Entry	Year	Harvest Units ("rehab" ³ units in bold)	Approximate Water Intake Non Tributary Acres	Approximate Water Intake Tributary Acres	Approximate Total Acres	Approximate Volume (MBF)
1	2013	1	34	0	34	1,100
2	2014	7, 12 , 27	101	0	101	2,500
3	2017	2, 10, 13	96	10	106	2,600
4	2020	5 , 8, 26	49	27	76	2,700
5	2023	11 , 15, 24	39	79	118	4,300
6	2026	3, 4 , 19 , 28	72	39	111	3,600
7	2029	6, 9, 14	73	41	114	4,000
8	2032	16, 20, 22	29	49	78	4,300
9	2035	29, 30, 35	27	28	55	3,100
10	2038	33, 38	0	52	52	3,400
11	2041	17, 36	0	69	69	4,000
12	2044	23, 31, 37	26	32	58	3,600
13	2047	25, 34	0	49	49	3,800
14	2050	32, 39	36	23	59	4,200
15	2053	18, 21	0	62	62	4,600
Total			582	560	1142	51,800

The harvest schedule has been designed to conform to the harvest guidelines to the extent practical while still respecting other guidelines and overall goals, as described below.

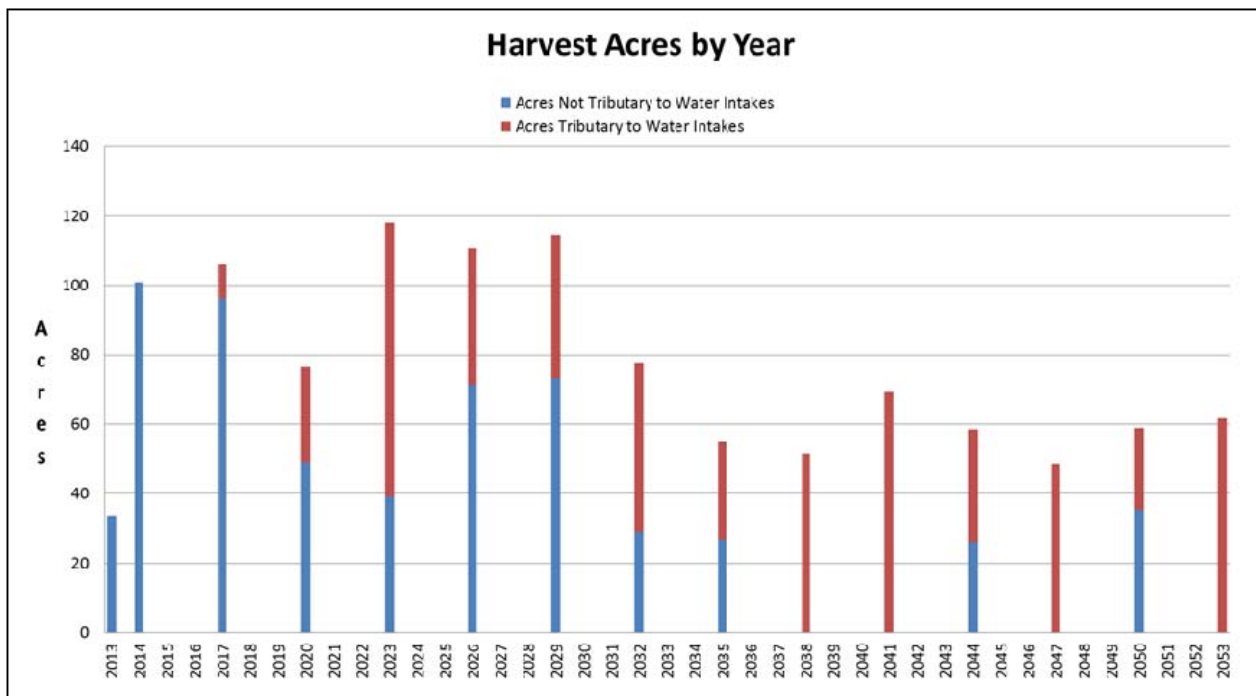
Guideline: To the extent possible, focus early (near term) harvesting on areas that are not tributary to the water intake facilities (ie. areas that are located below the water intake facilities).

³ "Rehab" units are areas that are poorly stocked or stocked with trees of low quality and low value.





While respecting other guidelines, the schedule focuses on harvesting acreage that is not tributary to the water intake facilities first, as shown in the graph below.



Guideline: To the extent possible, focus early (near term) harvesting on poorly stocked areas (rehabilitation or “rehab” areas) so that these areas can be properly stocked and reforested.

Units with 50% or more of their area in poorly stocked condition include: 4, 5, 11, 12, 13, 14, 19, and 36. Units 11-14 abut each other in the southeast part of the property and harvesting them all at the same time (or in back to back entries) would not be consistent with other harvesting objectives. The schedule focuses on harvesting poorly stocked units early to an extent that is consistent with other harvesting objectives. These are all scheduled by 2029, with the exception of unit 36.

Guideline: Keep individual harvest unit size small.

The average unit size is 29.3 acres, which is small in comparison to typical harvest unit sizes utilized by commercial timber companies and the maximum size allowed by Washington law (120-240 acres, depending on prescription). The largest is unit 13, which is 48.5 acres. This is a “rehab” unit that is not tributary to the water intake facilities and is scheduled for harvest in 2017.

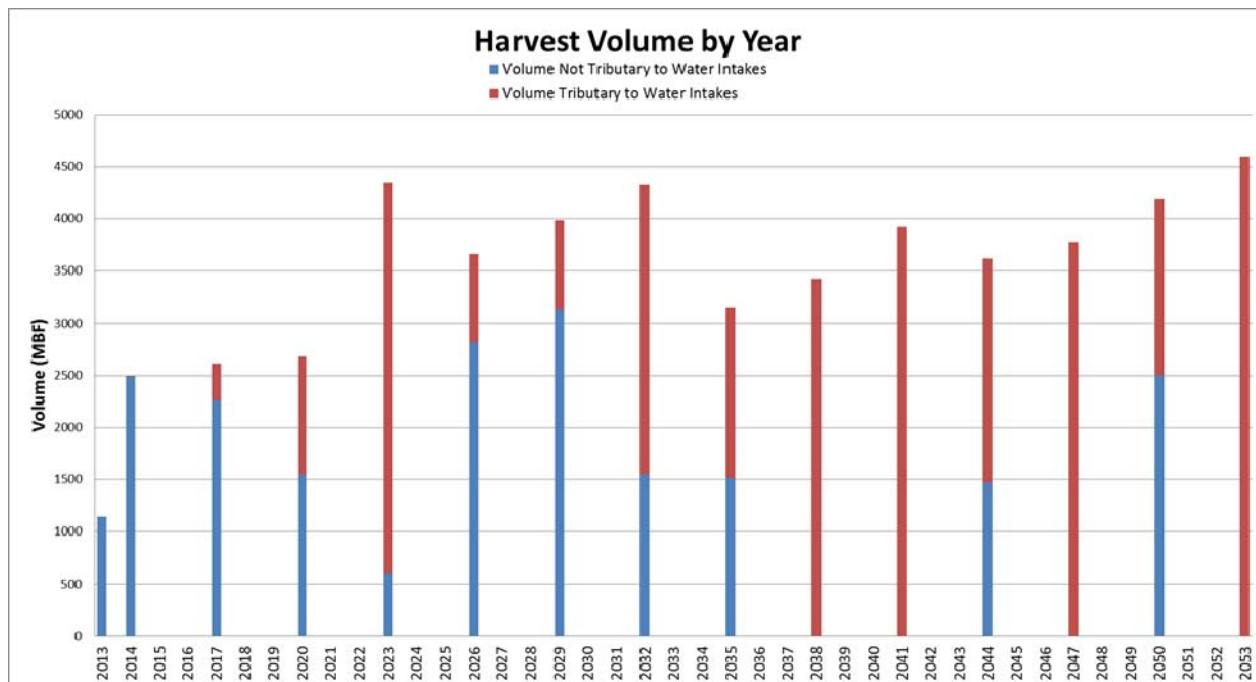
Guideline: Distribute successive harvesting activities around the watershed to allow “greenup” of harvested areas to occur prior to harvesting adjacent areas.

The proposed harvest schedule spatially distributes successive harvesting activities around the watershed, over a period of 40 years, so that harvested areas are given a chance to “greenup” and regenerate before adjacent units are harvested. Detailed maps of harvest units by entry are included in Appendix E.



Guideline: To the extent possible, provide a consistent harvest volume.

In an effort to meet other objectives, the early harvest schedule focuses on poorly stocked (“rehab”) units and units that are not tributary to the water intake facilities. After the fourth entry in 2020, the harvest volume is reasonably stable as indicated in the graph below.



Prescriptions

Thinning and clearcutting are the two prescriptions that are typically used to harvest timber in southwestern Washington.

Thinning - Thinning is a process in which a certain number of trees are removed from a stand to increase the growing space available to the residual stand of timber (the trees that are left to grow). By increasing the growing space available to the remaining trees, the growth rate (and value) of those trees is increased. Thinning can also be used to remove poorly formed, suppressed, and/or defective trees that would have little future value. Although thinning rarely removes large volumes of timber, financial returns can be expected in most cases when thinning merchantable timber. Additionally, depending on thinning intensity, replanting is usually not necessary.



Thinning generally comes with some additional costs and risks. Thinning operations typically necessitate additional roads; harvesting and road construction costs are higher and financial returns are lower; there is risk of damage to remaining trees during harvest and from windthrow⁴ after harvest; and there is more effort involved with sale planning and administration.

⁴ Windthrow refers to trees uprooted or broken by wind.



Thinning prescriptions are typically used in the middle of the growing cycle to remove suppressed and defective trees so that the healthy vigorous trees have additional room to grow prior to final harvest. The timber on the watershed property is fully mature and ready for final harvest; therefore, thinning prescriptions are not recommended for the initial harvest. However, thinning prescriptions will be a viable option for the next harvest cycle.

Clearcutting - Clearcutting is a harvest method in which most or all of the trees are removed from a stand of timber at one time. Clearcutting encourages the growth and proliferation of tree species that require full sunlight (such as Douglas-fir).

Clearcutting prescriptions typically require fewer roads; harvesting and road construction/maintenance costs are lower and financial returns are higher; regeneration occurs much quicker; and there is less effort involved with sale planning and administration.

Clearcutting prescriptions are typically used for final harvest of a timber stand. The timber on the watershed property is fully mature and ready for final harvest; therefore, clearcut prescriptions are recommended. While there is much debate and controversy associated with clearcut harvesting, it is usually focused on erosion, unattractive visual effects, and other forest health and wildlife concerns associated with clearcutting vast sections of forestland. The DNR has regulations that limit the size of clearcut harvests and require a minimum number of trees to remain when a clearcut prescription is utilized. Additionally, the proposed harvest plan includes small harvest units that are distributed throughout the property and dispersed over a significant period of time. This facilitates the use of economical final clearcut harvesting prescriptions without significant risk of the typical negative impacts associated with large clearcut harvesting, and results in limited impact patch cuts that mimic natural disturbances. This provides diversity in forest characteristics which contributes to increased forest health and wildlife habitat.

Methods

Three common methods used to harvest timber include ground based harvesting, cable harvesting, and helicopter harvesting.



Ground Based Harvesting - Ground based harvesting methods utilize tractor equipment and are feasible in areas where slopes are less than or equal to 30%. The timber is either cut by hand or with a machine (usually with a machine) and then forwarded to centralized landing locations where it is processed by machine and loaded onto haul trucks. An alternative is to process trees where they were cut, leaving limbs and un-merchantable pieces in the field, and forwarding only the merchantable tree bole to landing locations.

There are two typical methods used for ground based harvesting. The first method utilizes rubber tired tractors with grapples or chokers that lift the lead end of logs and “skid” (drag) them to the landing. This method necessitates the use of skid trails within the harvest unit in order to transport logs from the stump to the landing.

The second method utilizes a tracked excavator type machine with grapples called a “shovel”. The shovel picks up logs, swings them from one side of the machine to the other,



and sets them down. This swinging process is repeated all the way to the landing. Additional skid trails are usually not required as the tracked machine can traverse the harvest area without designated roads, and logs are swung to the landing.

Ground based methods are the most cost effective way to harvest timber and are recommended in areas where slopes allow. Rubber tired machines have less traction than tracked machines, which can increase soil disturbance and erosion. They also exert more ground pressure than tracked machines, which increases the potential for soil compaction. For these reasons, AKS recommends that only tracked machines be used for ground based harvesting operations. Additionally, the “skid” method necessitates the use of temporary skid roads, which can increase soil disturbance, erosion, and compaction. Therefore, utilizing the “shovel” method to swing logs to the landing is recommended. Any temporary roads used to facilitate ground based harvesting activities should be stabilized (exposed soils covered with straw, water barred, barricaded, etc.) following harvesting.



Cable Harvesting - Cable harvesting methods utilize a cable yarding system and are used in areas where steep slopes preclude the use of ground based methods. The timber is cut by hand and then transported to centralized landing locations via a cable yarding system where it is processed and loaded onto haul trucks. An alternative is to process trees by hand where they were cut, leaving limbs and un-merchantable pieces in the field, and forwarding only the merchantable tree bole to landing locations. Cable yarding systems consist of a tall tower (yarder) with a suspended cable system that lifts the lead edge of the logs and drags (yards) them to the landing.

Cable harvesting methods are more expensive than ground based methods, but they are the most economical way to harvest areas on steep slopes. Cable harvesting methods are recommended for areas that have slopes greater than 30%. Timber is partially suspended during yarding and ground based equipment is kept to centralized landing locations, both of which reduce soil disturbance, compaction, and erosion.

Helicopter Harvesting - Helicopter harvesting methods utilize a helicopter and are typically used in extremely remote areas where access for ground based or cable harvesting methods cannot be provided, or in highly sensitive areas to avoid ground disturbance. The timber is cut and processed in the field by hand, and then flown by helicopter to a centralized landing location.

Helicopter harvesting is by far the most expensive harvesting method, but if planned properly, can have the least impact. Helicopter harvesting requires extremely large landings for landing logs, log sorting, and helicopter fueling and maintenance. In addition, helicopter harvesting can be difficult to schedule, and may be disrupted due to weather. These factors limit the practical application of helicopter logging to timber sales in remote areas with extreme topography, sensitive areas, and valuable timber where an appropriate landing location can be found. All of the watershed property can be accessed by ground and cable harvesting methods and the harvesting plan include measures to protect sensitive areas; therefore, AKS does not recommend helicopter harvesting.



Slash Disposal - As discussed above, timber can be transported to landing locations for processing or it can be processed in the field. It is recommended that timber be processed in the field, regardless of the harvesting method used, so that limbs and other un-merchantable pieces (typically referred to as slash) remain scattered throughout the harvested area. This provides cover for exposed soils, which reduces the potential for erosion, and eliminates the need to clean up and dispose of large slash accumulations at landing locations. The slash also acts as a cushion for ground based equipment, which reduces the potential of soil compaction. Leaving slash in the field increases the effort (and therefore cost) required to plant new trees; however, this is partially offset by eliminating costs associated with slash disposal and is recommended for the watershed property to protect water quality and reduce the potential of soil compaction.

Marketing, Sale Options, and Contract Administration

The watershed property is located in a part of the Northwest where there are active markets for Douglas-fir, hemlock, and red alder (the primary species on the property). Local Douglas-fir markets include both domestic sawmills and log exporters. State law prohibits the export of unprocessed logs from publicly owned land, so logs from the watershed cannot be sold into the export market. However, the fact that the export market exists, and that a portion of the Douglas-fir harvested locally is sold into this market, tends to stimulate price competition from domestic processors in northwest Oregon and southwest Washington. The Douglas-fir in the watershed (approximately 93% of the total volume) includes logs that are of export quality. While the logs cannot be exported, this quality should be reflected in bid prices for watershed timber sales.



Red alder is the second most abundant species in the watershed, at approximately 5% of total volume. Red alder is sought after by hardwood sawmills and will also be a marketable part of any timber sale.

Within the context of competitive sales, there are three typical approaches used to sell timber. Each method is discussed below, in order from the least desirable to the recommended approach.

1. **Lump Sum:** This method sells the standing timber for a lump sum payment. The risk involved with this method depends in large part on the accuracy of the volume estimate for the timber in the sale. In this regard, there are risks to both the seller and the buyer. Each party conducts its own volume estimate and appraisal. There is one buyer for the entire sale, who is responsible for hiring and paying the harvesting contractor and marketing and selling the logs. This method tends to discourage parties who are unwilling to take the risk associated with lump sum payment for an estimated amount of volume, or are unable to provide a large up-front payment.
2. **Sorts:** The term “sort” refers to the way logs are segregated during harvest and marketed to specific buyers. Within each species there may be a number of sorts, based on log length, diameter, taper, knot size, grain and other physical characteristics. With this method, sale contracts are executed between the seller and various mills interested in specific log sorts. Log buyers like this approach because they only purchase the log sorts they want. It can result in greater overall revenue for the seller if conducted properly, but





requires significantly more supervision and administration on the part of the seller to ensure that the right sorts are delivered to the right locations. The harvesting contractor is a key element in the success of this method. The seller contracts with one vendor (harvesting contractor) for harvesting, sorting, loading and hauling to the required destinations.

3. **Stumpage:** With this method, the timber is sold to one buyer on a “per MBF” or “per Ton” basis. There is little risk to both the seller and buyer, as payment is based on scaled measurements taken at the mill at the time of delivery. There is one buyer for the entire sale, who is also responsible for hiring and paying the harvesting contractor. Contract administration is simplified, allowing the seller to focus more on adherence to forest practice rules and landowner specifications instead of the complicated marketing of log sorts.

It is recommended that the stumpage method be used for selling timber. This is the simplest approach with minimal risk to the seller. It is also recommended that timber sales be conducted by competitive bid, as this usually yields the best value to the owner.

Resource Protection

Water Quality, Streams, Wetlands, and Riparian Areas

Washington State Forest Practice Rules (Title 222 WAC) include requirements for protecting streams, wetlands, and riparian areas (among other things). Stream protection areas are referred to as Riparian Management Zones (RMZ) or “buffers.” The RMZ’s are broken up into zones, and in some cases, the Forest Practice Rules allow selective harvesting within some zones. However, in order to protect and maintain water quality, it is recommended (and this plan assumes) that no harvesting will occur in any zones. In addition to the RMZ requirements of the Forest Practice Rules, it is recommended that streams above the water intake facilities include a wider no harvest RMZ in order to protect and maintain water quality. The minimum RMZ widths for each stream classification required by the Forest Practice Rules, as well as additional RMZ widths recommended, are shown in Tables 3-2 and 3-3. It should be noted that trees within RMZ’s may be cut down for the purposes of road construction or cable yarding corridors, but the Forest Practice Rules require that these trees be left in in the RMZ.

Site Class	Range of Site Index	DNR required RMZ width (in feet, on each side of stream)	Additional RMZ width for streams above the water intake facilities (in feet, on each side of the stream)	Total RMZ width for streams below water intake facilities (in feet, on each side of the stream)	Total RMZ width for streams above water intake facilities (in feet, on each side of the stream)
I	137 +	200	0	200	200
II	119 - 136	170	30	170	200
III	97 – 118	140	60	140	200
IV	76 - 96	110	90	110	200
V	75 and under	90	110	90	200





Table 3-3: Riparian Management Zones Type “Np” and “Ns” Waters

Water Type	DNR Required RMZ width (in feet, on each side of stream)**	Additional RMZ width for streams above the water intake facilities (in feet, on each side of the stream)	Total RMZ width for streams below water intake facilities (in feet, on each side of the stream)	Total RMZ width for streams above water intake facilities (in feet, on each side of the stream)
Np	50	50	50	100
Ns	0	25	0	25

*** Type Np Waters require a 50-foot no harvest RMZ from their confluence with a Type S or F Water upstream for a distance that varies depending on the length of the Np Water. In order to protect and maintain water quality, it is recommended (and this plan assumes) that all Type Np Waters be protected with a 50-foot no harvest RMZ for their entire length.*

The Forest Practice Rules do not require protection areas for forested wetlands, but they require that harvest methods used within the forested wetland be limited to low impact systems. The on-site forested wetlands mapped by the DNR are located adjacent to streams and are likely within the required stream RMZ. The Forest Practice Rules require no harvest Wetland Management Zones (WMZ) for non-forested wetlands; however, there were no non-forested wetlands identified on site. Prior to conducting forest practice activities, any adjacent wetland areas should be identified and protection measures determined on a case-by-case basis.

In addition to the water resource protection requirements discussed above, there are also some small areas distributed throughout the watershed that are difficult to access and/or are small slivers between RMZ’s. It is recommended that these areas be left as reserve areas to protect and maintain water quality. A detailed map showing the required RMZ’s, additional proposed RMZ’s, and proposed reserve areas is included in Appendix F. This map is provided as a reference to help identify stream protection requirements based on the stream classifications provided by the DNR. Additional field inspection will be necessary to more adequately identify and classify all waters and associated RMZ requirements prior to conducting forest practice activities.

Fish and Wildlife Habitat

The stream protection RMZ’s and additional reserve areas discussed above provide adequate protection of fish habitat and wildlife habitat with riparian areas. In addition to RMZ requirements, the Forest Practice Rules require that the following type and number of trees be left per each acre harvested:

- 1) Three Wildlife Reserve Trees (WRT’s or “Werts”).
 - a. Minimum height 10 feet.
 - b. Minimum 12 inches diameter at 4.5 feet above ground.
 - c. Can be alive or dead, defective or deformed trees.
 - d. If there are no WRT’s on site, you do not have to leave extra GRTs to make up for it.

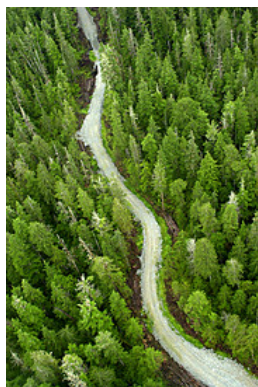




- 2) Two Green Recruitment Trees (GRT's or "Gerts").
 - a. Minimum height 30 feet.
 - b. Length of live crown equal to 30% of total height.
 - c. Minimum 10 inches diameter at 4.5 feet above ground.
 - d. Over time, these trees are expected to become WRT's.
- 3) Two down logs, minimum 12 inches in diameter at small end, minimum 20 feet long.

Trees within RMZ areas that meet the minimum requirements for WRT's and/or GRT's may be counted towards the total requirements. However, there is a requirement that no point within the harvest unit be more than 800 feet from a WRT or a GRT; therefore, even if RMZ areas contain adequate numbers of leave trees, some additional trees may need to be left to meet the distance requirement. WRT's and GRT's may be left in clumps to facilitate safe and efficient harvesting operations, or they can be dispersed throughout the harvested area. The number and location of WRT's, GRT's, and down logs will need to be determined and identified for each unit prior to harvesting.

The leave tree requirements of the Forest Practice Rules provide for wildlife habitat protection. As previously discussed, the DNR is not aware of any significant wildlife habitat located on the property at this time; however, some large Douglas-fir trees were found in the very northern part of the property. The City may want to consider performing wildlife survey's for Spotted Owls prior to conducting forest practice activities in the vicinity of harvest units 15, 23, 24, and 38.



Road Plan

Guidelines

An adequate and efficient road system is necessary to access and remove timber, for on-going resource management (planting, vegetation management, etc.), and for asset protection (firefighting, security, etc.). The following guidelines were used in developing a road plan:

- *Locate roads away from streams, riparian areas, and wetlands.*
- *Avoid unnecessary stream crossings.*
- *Avoid steep slopes to the extent possible.*
- *Provide adequate and efficient access to harvest units.*

These guidelines were developed to meet the City's overall goals. Locating roads away from streams, riparian areas, and wetlands, as well as avoiding unnecessary stream crossings and steep slopes, helps to meet the City's overall goal of *protecting and maintaining water quality*. Providing adequate and efficient access to harvest units helps to meet the City's overall goals of *generating periodic income from the sale of wood products; providing a permanent access/road network within the property for operational, maintenance, and asset protection purposes; and maintaining and improving forest health*.

Locations

Field reconnaissance was performed to evaluate and determine suitable access to the property and road locations throughout the property. As previously discussed, the existing Boulder Creek and Jones Creek access roads only extend into the property far enough to provide access to the water intake facilities. These roads would need to be improved in





order to accommodate heavy truck traffic associated with forest practice activities (particularly harvesting and road construction), and extending them throughout the property would require many significant stream crossings and placement adjacent to streams, riparian areas, and across steep slopes. Additionally, portions of these roads are located close to their respective streams, which increases the potential of water quality degradation when used for heavy truck traffic. It is not in the City's interest to try and use these roads for hauling activities because of the significant upgrades required to prevent sedimentation of adjacent streams.

Due to the condition and location of the existing Boulder Creek and Jones Creek access roads, new access roads are recommended to facilitate forest practice activities throughout the watershed. New access locations (to each side of the property) have been identified over adjacent properties owned by Longview Timber and the DNR. Easements will need to be obtained for legal access, which is discussed later under the Access Easements section. The existing access locations will remain to provide access to the water intake facilities and maintenance of their associated underground water pipe systems (the proposed road network on the Jones Creek side could be connected to the existing Jones Creek Road if the City desires).



Two alternative road plans have been developed (Alternatives A and B). These alternatives are very similar (differing only in their proposed access to the northwest portion of the property) and utilize the proposed access points discussed above over adjacent Longview Timber and DNR managed property. Maps of each alternative are included in Appendix G.

Alternative A only requires the access easements discussed above and provides internal access from these locations to the northwest portion of the watershed. Alternative B requires additional easements over adjacent properties managed by the DNR for access to the northwest portion of the watershed. The pro's and con's between the two alternatives are:

- Alternative A requires fewer and shorter easements, has fewer access points to the property (which limits the potential for trespassing and associated issues), and provides internal access throughout the property; however, more road construction will be required to provide access to harvest units in the northwest portion of the property.
- Alternative B eliminates two stream crossings, and has the potential to provide more cost effective access to the northwest harvest units because an internal road network will not have to be completely constructed to access them; however, the additional easements necessary are quite significant. Permanent easements would be necessary to obtain permanent access, the cost of which may preclude this alternative. Temporary easements would be more cost effective, but would only provide access for a limited time period (such as during forest practice activities), making this portion of the site inaccessible to the City after the completion of forest practice activities.

Alternative A is recommended because it limits the number of access locations to the property and provides permanent internal access to more area within the property. This plan assumes that Alternative A is selected.





As shown on the road maps, roads have been located to avoid streams and riparian areas to the extent possible; avoid steep slopes to the extent possible; avoid stream crossings to the extent possible (when necessary, stream crossings have been located in areas requiring the least impact); and to provide adequate and efficient access to harvest units. This map is intended as a conceptual road plan only. Conceptual road locations shown have been field verified for general feasibility; however, actual road locations will need to be identified and designed prior to construction.

Design Standards and Specifications

The City's goal is to develop permanent all-weather access roads and on-site soils are considered fair to poor (due to erosion potential) for native surface roads; therefore, it is recommended that all internal roads be constructed with a crushed gravel all-weather surface. General Road Standards and Specifications for road construction on the watershed property are included in Appendix G.

Implementation Options

Road construction can be implemented two different ways, by either contracting for road construction and harvesting separately or combining the two activities into one contract. Both methods are typical. The main difference is that when the contracts are separated, the City will need to pay for road construction costs before receiving revenue generated from the harvest. If the activities are combined into one contract, then road construction costs are paid for by the timber purchaser and there is no upfront cost for road construction.

It is recommended that the City combine road building and harvesting activities for each harvest entry to avoid the upfront costs associated with road building and to simplify contracting and administration activities. Also, because the City draws water from Boulder Creek and Jones Creek during the winter months, and protecting and maintaining water quality is of the utmost importance, road construction should be limited to the dry season (typically May thru October).

Maintenance

All forest landowners have a legal obligation to maintain their forest roads to the extent necessary to prevent damage to public resources, per WAC 222-24-052. Road maintenance should be evaluated and adequately addressed at least annually, and as necessary prior to conducting forest practice activities, during active hauling, and after major storm events. Maintenance should occur during the dry season, if possible, to reduce the risk of erosion and sedimentation. Road maintenance activities typically include erosion control, grading, cleaning ditches, inspecting and cleaning culverts and stream crossing structures, and clearing roadside vegetation. Best Management Practices (BMP's) for road maintenance can be found in Section 3 of the Washington State Forest Practices Board Manual.



Any temporary roads constructed for the purposes of facilitating harvesting activities should be properly abandoned. At a minimum, this should include covering exposed soils with straw or slash, seeding, and installing water bars as necessary to control water runoff and reduce erosion and sedimentation.





Access Easements

As previously discussed, the existing Boulder Creek and Jones Creek roads will remain to provide access to the water intake facilities. However, these roads should not be used for forest practice activities. That function will be fulfilled by new road systems that enter the property at different locations and provide access throughout the property as proposed in this road plan (Alternative A).

Access to the west of Boulder Creek - The road system planned for this area necessitates permanent access across Longview Timber property near the southwest corner of the watershed, as shown on the Road Plan Map – Alternative A (Appendix G). This access location utilizes approximately 2,300 feet of existing road on Longview Timber property, with an additional 500 feet of new road construction required to reach the watershed property. Payment for this easement will need to be negotiated with Longview Timber.

Access between Boulder Creek and Jones Creek - The road system planned for this area necessitates permanent access across Longview Timber property between Boulder Creek and Jones Creek, as shown on the Road Plan Map – Alternative A (Appendix G). This access location utilizes approximately 3,500 feet of existing road on Longview Timber property, with an additional 1,000 feet of new road construction required to reach the watershed property. Payment for this easement will need to be negotiated with Longview Timber.

Access to the east of Jones Creek - The road system planned for this area necessitates access across land owned by the State of Washington and managed by the DNR, as shown on the Road Plan Map – Alternative A (Appendix G). This access location requires approximately 2,500 feet of new road construction across DNR managed property to reach the watershed. Obtaining temporary access permission (when needed to conduct forest practice activities) is recommended, as this road system only provides access to a small amount of the watershed property and obtaining permanent access permission from the DNR will likely be difficult and expensive. The DNR typically grants temporary access for a period of three years, with the possibility of negotiating an extension. This provides adequate time to conduct forest practice activities for each entry period.

Longview Timber and the DNR have their own processes for granting access. The DNR's is more formal, starting with an application on forms they provide. These forms are included in Appendix G. Following application for either a permanent easement or a temporary right-of-way, the DNR examines the proposed route, appraises any timber or pre-merchantable trees that need to be removed, and assesses the application in terms of environmental impacts. The DNR executes the grant using their own granting documents. Regardless if temporary or permanent access is sought, the access application will need to include a forest practices application for new road construction.

Longview Timber's process is similar but less formal, and a forest practice application will still be required for new road construction. Typically, the party requesting the easement completes the forest practices application and Longview Timber simply signs it as the landowner.





The typical approach used for pricing a permanent easement over an existing road is to start by estimating the “tributary” acres for each owner. In this context, “tributary” means the number of acres that are accessed by the road in question. These acreages are then converted to percentages and viewed as representing a share of ownership in the road. The next step is estimating the cost of building the road, in current dollars, to standards that are appropriate for the expected use. The total estimated cost of the road is then split proportionally based on the “ownership” percentages discussed above. The cost for the permanent easement is then determined as the benefiting parties portion of the total road cost. Additional costs are factored in if new construction is involved. These costs account for the land that is taken out of production and the value of any trees (either pre-merchantable or merchantable) that are within the proposed right-of-way width.

A temporary easement is appraised the same way with respect to any land taken out of production and/or trees that need to be removed. However, the granting party usually does not assess a price based on tributary acres. Instead, the price paid is intended to offset the “wear and tear” expected from the planned use of the road. The applicant usually estimates the amount of material that will be hauled over the road (timber, rock, etc.). The amount of material, expressed in MBF or tons, is then applied to a “per mile” rate that the granting organization uses to calculate the cost to the grantee. In some cases a base fee may be added to cover the administrative costs associated with processing the application. Most organizations use their own standard documents for temporary access permission.



Reforestation

Proper reforestation is a critical component of developing a well-stocked and healthy forest. It is also required by the Forest Practices Rules. The three main components of reforestation include site preparation, planting, and vegetation management, which are discussed separately below.

Site Preparation

Proper site preparation is necessary to prepare the harvested area for planting. This typically includes collecting and disposing of slash (limbs and un-merchantable pieces) left over from harvesting activities and a broadcast application of herbicide to eliminate competing vegetation. However, this is not consistent with the City’s goal of protecting and maintaining water quality. As previously recommended, timber should be processed in the field so that slash remains scattered throughout the harvested area to provide cover for exposed soils. This reduces the potential for erosion and also reduces soil compaction by providing a cushion for harvesting equipment. Additionally, a broadcast application of herbicide is not recommended within the watershed for water quality purposes. Because typical site preparation activities are not consistent with the City’s goals, additional measures will need to be taken during the planting phase to ensure the successful establishment of seedlings.

Planting

The Forest Practice Rules require that areas be replanted with commercial species following harvest. The most common native commercial species are Douglas-fir, western hemlock, red cedar, and red alder. Douglas-fir is by far the most prevalent species on site and





performs very well throughout the region. It is recommended that the City replant Douglas-fir and, where appropriate (i.e. areas infected with laminated root rot, which is discussed under Forest Health), plant red alder and western red cedar.

The state mandates at least 190 trees per acre, surviving, after the end of the first growing season (i.e. in the fall after having been planted the previous winter); however, it is recommended that the City plant at least 300 trees per acre, and consider planting up to 430, because the marginal increase in the per acre planting cost is more than offset by the increase in future harvest volume, as shown in Table 3-4.

	190 Trees Per Acre	300 Trees Per Acre	430 Trees Per Acre
Approximate Yield at age 60 (MBF per acre)	25	39	47
Difference in Yield (MBF per acre)		14	8
Approximate Planting Cost (per acre)	\$130 – 150	\$195 – 215	\$260 - 280

Aggressive site preparation and vegetation control is not consistent with City goals; therefore, it is recommend that planting specifications include “scalping,” that is, clearing a small area of slash and vegetation around each tree planting location (approximately 2 feet in diameter), where needed, before planting the seedling. It is also recommended that some type of marker (wire flags, flagging, etc.) be used to identify planted seedlings so they can be located in the future during vegetation management activities. Care should be taken when selecting nursery stock for replanting. Large, healthy, vigorous seedlings with good root mass have better survival rates, grow faster, and are better able to compete with fast-growing shrubs. It is also important to select seedlings that are grown in a geographical area and environment that is similar to the planting site. Fertilizers should be avoided due to water quality concerns.

Planting activity should be monitored for quality control. Assigning an inspector to conduct random audits helps to ensure that the seedlings are properly planted and spaced, and that competing vegetation and slash is scalped per the planting specifications.

A survival survey should be conducted following the first summer after planting. This survey should evaluate the extent of mortality, determine the causes of mortality, and evaluate damage by wildlife. Knowledge gained from these surveys will guide future reforestation activities.

Seedlings are available from private commercial nurseries and from the nursery operated by the State of Washington. Seedlings should be ordered 8–12 months prior to the anticipated planting date. Orders should be placed in the late winter or early spring of the preceding year so that they are ready for the January to March planting period.



Vegetation Management

Managing competing vegetation is a critical component to successful reforestation, particularly in the first few years of growth, and is often necessary to ensure continued survival and growth of seedlings. If not properly controlled, competing vegetation can quickly overtop seedlings. This results in stunted and suppressed growth and often leads to high seedling mortality.



Vegetation management typically consists of broadcast application of herbicide one to two years after planting occurs. This is not consistent with City goals and, therefore, not recommended for the watershed property; however, the direct application of herbicide by hand (backpack sprayer) on competing vegetation immediately adjacent to seedlings should not have an effect on water quality and is a viable treatment method. Broadcast applications have the potential to treat or contaminate unintended or sensitive areas via spray drift, whereas hand applications give the operator complete control over the treatment area.

If vegetation control is determined to be necessary, herbicides should be applied during dry weather in the spring one year after planting. The application of herbicides in aquatic or riparian areas is not recommended, but using herbicides approved for use in those areas further reduces any potential effect on water quality. An alternative to herbicide application is to re-scalp competing vegetation around seedlings. Competing vegetation should be monitored and controlled as necessary until seedlings are “free to grow”, meaning they have reached a height in which competing vegetation is no longer a concern (typically 4-5 years if competing vegetation is controlled during that time period). Additional hand slashing of some vegetative species (such as vine maple) may be necessary in later years.

Invasive species can also have a detrimental effect on reforestation. If invasive species are identified, they should be controlled by hand application of herbicide, hand cutting, or a combination of the two. Additionally, equipment used for forest practice activities should be cleaned prior to entering the property to reduce the potential for introduction of invasive species within the watershed.

Forest Health

A majority of the forest within the watershed is healthy and in good condition. However, there are some areas that are poorly stocked or stocked with trees of low quality and low value (rehabilitation or “rehab” areas). Evidence of laminated root rot was also observed in some areas.

Rehabilitation

Rehabilitation includes removing trees and competing vegetation from areas that are poorly stocked, or stocked with trees of low quality and low value, so that a well stocked stand of high quality and high value trees can be established. As previously discussed, management of competing vegetation is critical to the successful establishment of seedlings. Poorly stocked areas usually have a significant amount of understory vegetation compared to well stocked areas, and additional measures are often necessary to control competing vegetation

prior to reforestation. Some vegetation is eliminated during the tree harvesting process (by falling timber, harvesting equipment, yarding corridors, etc.), and the rest is typically removed by mechanical piling and burning, broadcast burning, broadcast application of herbicide, or by hand methods (such as hand cutting and/or hand application of herbicide). Mechanical piling, burning, and broadcast application of herbicide is not consistent with the City's goal of protecting and maintaining water quality; therefore, hand cutting and/or hand application of herbicide is recommended to control competing vegetation in these areas.

Harvesting, rehabilitating, and planting poorly stocked areas is more expensive than harvesting and planting a well stocked area, due to the low volume and value of merchantable timber and additional costs associated with managing competing vegetation. However, these areas are currently producing a fraction of the timber volume that they are capable of, and rehabilitating them not only increases future value but also contributes to increased forest health. In accordance with City goals, the harvesting plan focuses early harvesting activities on these areas, which provides the quickest opportunity for rehabilitating degraded portions of the forest and improving overall forest health.

Laminated Root Rot



Laminated root rot is a disease caused by the fungus *Phellinus weirii*, which penetrates the host through injured bark and grows inside the wood causing decay and death of living cells. The disease is widespread throughout the Pacific Northwest and primarily attacks fir and hemlock species, with cedars being more resistant, and hardwoods (such as red alder and bitter cherry) being immune. The fungus can survive for decades in old stumps and roots, with new hosts being infected when their roots contact infected material. Tree to tree spread occurs across root grafts and contact and infected areas are generally small (less than 2 acres) and scattered.



Affected trees show marked reduction in height and diameter growth. The crown thins and yellows, and may produce a distress crop of cones. Trees will not typically show crown symptoms until half to 75% of the roots are infected. Trees are commonly windthrown after the disease rots off roots just below the root collar, forming a "root ball." As decay progresses, the wood softens. The earlywood disintegrates more quickly than the latewood in each annual ring, resulting in a laminated ring rot where the annual rings of the wood separate.

Planting species which are immune and resistant will cause the pathogen to die off. Prior to harvesting, the unit should be evaluated to identify infected areas. Infected areas should be marked and mapped so they can be identified following harvesting and during the planting phase. The planting prescription of infected areas should include red alder (immune) or a mix of red alder and western red cedar (resistant), which will also contribute to species diversity in replanted areas of the watershed.



Asset Protection

Access Restrictions

There is no current public access allowed on the property. Public access should continue to be restricted to reduce associated impacts such as vandalism, dumping, fire ignition, and erosion and sedimentation due to off highway vehicle (OHV) use. The existing gates at the current Boulder Creek Road and Jones Creek Road access locations should remain and new gates should be installed at new permanent access locations. When temporary access locations are utilized, they should include temporary gates or barricades when in use and be permanently blocked following use. It is recommended that any public access be by permit only, so that the City can fully evaluate proposed activities and timelines prior to granting access permission.



Signage and Monitoring

No trespassing signage currently exists at the locked gates on Boulder Creek Road and Jones Creek Road. This signage should remain, and no trespassing signage should be installed at new permanent and temporary access locations. Contact information should be provided for violation reports.



As previously discussed, rural residential properties about the southwest corner of the site and property managed by the DNR and used for OHV recreation about the southeast corner of the site. Some evidence of trespassing was observed on the watershed property near these areas, including found irrigation pipes and actively used OHV trails in the southwest corner of the property and old OHV parts found in the southeast corner of the property. Periodic patrol of the property is recommended to ensure compliance and provide enforcement of access policies.

If the recommended gates, signage, and monitoring are found to be inadequate in controlling trespassing, additional considerations including posting and fencing the outer boundaries of the watershed property should be considered.

Hazardous Materials

The maintenance of an ecosystem that produces a consistent supply of high quality water is critical to the well-being of the community of Camas and is the City's most important goal in the development of this plan. Any use of hazardous materials on the watershed property should be carefully evaluated and monitored. Contracts for forest practice activities should include a thorough, complete, and detailed spill prevention and response plan to protect water quality, forest health, and wildlife. Equipment fueling and maintenance areas should be located away from streams and other sensitive areas. Leaking or derelict equipment should not be allowed, and the undercarriage and exposed areas of equipment should be cleaned of hazardous materials prior to entering the property.

Fire

Despite the "wet" reputation of the Pacific Northwest, fire has figured prominently in the natural and economic history of the region. Several wildfires occurred in southwest





Washington in the first half of the 1900's. The most significant of these was the Yaocolt Burn of 1902. This was the most significant fire in state history, which killed 38 people and destroyed approximately 240,000 acres of forestland. The loss of the timber alone was assessed at a 1902 value of \$30 million. According to the DNR's evaluation of the 2008 fire season (most recent available information), approximately 400 wildfires occurred in the state, 71 of which were in the Pacific Cascade Region that the watershed property is located in. All of the fires in the region were contained to 100 acres or less, with the majority being contained in 10 acres or less. While most of these fires were contained to small areas, this illustrates the potential for wildfire in the area.

Fire season in Washington (as regulated by the DNR) starts April 15th and runs through October 15th, unless conditions warrant an extension. By law, the DNR uses two closure systems for reducing the risk of wildfires; one for the general public and one for forest practice activities. Public use restrictions include specific fire season rules, burn bans, closed entry areas, and complete forestland closure when necessary.

The DNR, US Forest Service, Bureau of Land Management, and Bureau of Indian Affairs all use the same four-level industrial regulation system. This system, which helps prevent wildfires by regulating forest work activities, is known as the Industrial Fire Precaution Level (IFPL) system (Table 3-5). The DNR adjusts the Precaution Level as necessary based on weather conditions.

Precaution Level	Designation	Restrictions
I	Closed Season	Fire fighting equipment and tools required on site. Fire watch required.
II	Partial Hoot Owl	Some activities limited to the hours between 8 pm and 1 pm when humidity is higher.
III	Partial Shutdown	Most cable harvesting and power saw use prohibited, with some exceptions from 8 pm to 1 pm
IV	General Shutdown	All operations prohibited.

Several key steps can be taken to reduce the risk of fire on the watershed property. One of the most important aspects is initial response. Being able to identify fire early and having the necessary tools to provide an initial response greatly increases the opportunity to contain a fire before it gets out of control. It is recommended that increased patrols be provided during high fire danger periods. It is also recommended, and required by law during some precaution levels, that adequate and properly functioning fire equipment and a fire watchman be located on site during forest practice activities. Forest practice activities should not be conducted in periods of extreme fire danger, even if allowed by law. These recommendations, along with the proposed access restrictions, will reduce the potential for fire ignition. Additionally, the proposed road plan provides access throughout the watershed which will significantly aid firefighting activities should a wildfire occur.





Regulatory Compliance

Most of the activities associated with road construction and harvesting are regulated by the state under the Forest Practices Act and require permits issued by the DNR. The DNR is the lead agency that administers the Forest Practice Rules on private and publicly owned forestlands in the state. “Forest practices” are defined as: any activity conducted on or directly pertaining to forest land and relating to growing, harvesting, or processing timber or forest biomass, including but not limited to: road and trail construction; harvesting, pre-commercial thinning; reforestation; fertilization; prevention and suppression of diseases and insects; salvage of trees; and vegetation control.

The types of permits issued by the DNR for various forest practice activities are shown in Table 3-6. Almost all of the harvesting and road construction activities proposed for the watershed property will require a Class III permit. Tree planting and vegetation control will require a Class I permit.

Permit Class	Forest Practice Activity Description	Fee	Forest Practice Activity Examples
I	Minimal or specific forest practices that have no direct potential for damaging a public resource	\$ 0 or, \$50 if harvest is involved	Tree planting. Hand slashing of competing vegetation.
II	Forest practices which have a less than ordinary potential for damaging a public resource. Written notification required by operator/landowner. Notification must conform to DNR specifications. Activities can begin within 5 days of notification.	\$ 0 or, \$50 if harvest is involved.	Harvest of less than 40 acres, located more than 200 feet from any water.
III	Forest practices other than those contained in Class I, II, or IV.	\$ 50	Harvesting, road building, stream crossings.
IV	Forest practices on land that is going to be converted from timber production so another land use, or, forest practices on timber land inside an urban growth boundary.	\$500, but could be reduced to \$50 in some cases	Harvest, conversion to a use not compatible with long term timber production.

Completed permit applications must be submitted to the DNR regional office in Castle Rock for review and approval. The department reviews the application for completeness and may request additional information. Once the application is deemed complete, the department has 30 calendar days to issue a decision. Some applications may require review and comment by an interdisciplinary team (ID team). If, during their review, the DNR determines that this is necessary, they will assemble the experts needed (an example might be harvesting or road construction where slope stability is of concern). When an ID team is convened, the approval time is extended to a minimum of 45 days. Permit application instructions and forms are included in Appendix 8.

When submitting a forest practice permit application for the first unit harvested within the watershed, a Road Maintenance and Abandonment Plan (RMAP) checklist will need to accompany the permit application. The completed checklist provides the DNR with





information regarding existing roads on the property and ensures that the landowner is aware of their legal obligations regarding road maintenance. A copy of this checklist is included in Appendix H.

In addition to a forest practice permit, stream crossings require a hydraulics permit issued by the Washington Department of Fish and Wildlife (WDFW). However, no separate application to the WDFW is needed because the forest practice application to the DNR contains all of the information the WDFW needs for review and issuance of the hydraulics permit.

The Washington State Environmental Policy Act (SEPA) is a state policy that requires state and local agencies to consider the likely environmental consequences of a proposal prior to approving or denying the proposal. However, class I, II, and III forest practices activities (those activities the City would be conducting) are specifically exempt from SEPA under RCW 43.21C.037. Road Maintenance and Abandonment Plans are also exempt per RCW 43.21C.260.

4. 2013 HARVEST PLAN

In addition to an overall forest management plan, this 2013 harvest plan has been included to provide additional direction and detail regarding specific activities necessary to facilitate forest practice activities conducted in 2013 (entry 1). It should be noted that it typically takes approximately three months to perform field work, appraise the timber, prepare contract documents, and obtain permits prior to conducting forest practice activities. Additional time may be necessary to obtain legal access rights.



Harvest Units

There is one harvest unit proposed for 2013. This is Unit 1, which is approximately 34 acres and contains approximately 1,100 MBF (1.1 million board feet). It is located west of Boulder Creek, adjacent to both the south and west property lines, and is below the Boulder Creek water intake facility. A 2013 Harvest Map is included in Appendix E.

Most of the unit has moderate slopes that will facilitate the use of ground based harvesting methods, with the exception of some steeper areas near the east end that may need to be harvested with a cable system.

Road Construction

Road access to this unit is provided via the proposed permanent access location on the west side of Boulder Creek. This access route includes the use of approximately 2,300 feet of existing forest road on Longview Timber property (some of which may need additional maintenance or slight reconstruction), approximately 500 feet of new road construction across Longview Timber property to the unit, and approximately 500 feet of new permanent road construction within the unit. Because this road is proposed for further extension to provide additional access within the watershed, the actual location of the proposed road will need to be identified in the field and designed to facilitate future extension. Additional temporary roads will also need to be identified and located to conduct harvesting operations.



Access Easements

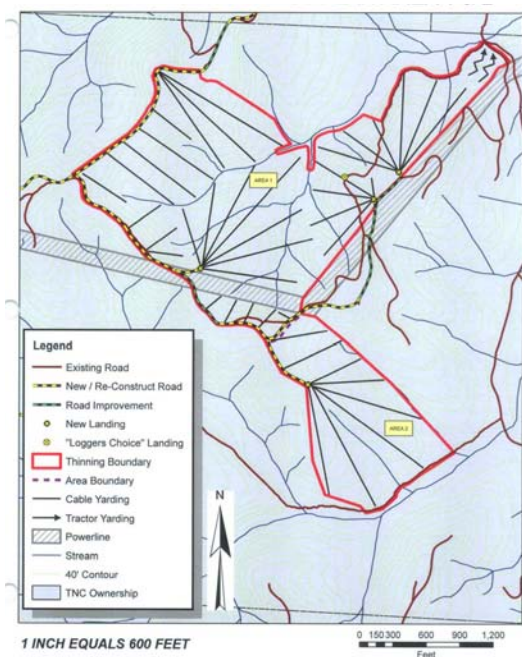
Legal access will need to be obtained from Longview Timber to gain access to Unit 1. A temporary easement could be pursued to conduct Unit 1 forest practice activities only. However, this access is proposed for future extension within the watershed to provide permanent access to watershed property west of Boulder Creek; therefore, obtaining permanent access rights is recommended. Payment for this easement will need to be negotiated with Longview Timber.

Sale Activities, Processes, and Administration

There are many steps necessary to facilitate a successful harvesting plan. These steps are broken down into Pre-Sale, Sale, and Post-Sale activities, as described below:

Pre-Sale

Pre-sale activities, processes, and administration should include:



1. Order seedlings for reforestation.
2. Perform a field investigation to determine road and landing locations.
3. Obtain legal access over Longview Timber property.
4. Survey, design and layout roads and landings.
5. Perform a field investigation of the unit to identify streams, stream types, other water bodies, evidence of root rot, and physical characteristics.
6. Survey property lines, if necessary, to identify property line locations.
7. Mark harvest area boundaries, including property lines and stream RMZ's.
8. Survey harvest area boundary to determine actual harvest area.
9. Determine amount of Wildlife Reserve Trees (WRT's) and Green Retention Trees (GRT's) required to remain based on harvest area.
10. Determine appropriate location(s) to retain WRT's and GRT's and mark WRT's and GRT's in the field.
11. Perform a timber cruise of the harvest area to estimate harvest volume, species, and quality.
12. Appraise the timber value, estimate road building and harvesting costs, and determine stumpage value.
13. Prepare permit applications (including RMAP checklist) and obtain permits for road construction and harvesting activities.
14. Develop a timber sale and road construction contract (one contract for both activities).
15. Assemble bid prospectus.
16. Advertise sale and solicit bids.
17. Evaluate bids and award contract.

Sale

Sale activities, process, and administration should include:

1. Conduct a pre-work meeting to ensure that all parties understand the requirements of the work.
2. Monitor road construction activities to ensure compliance with the contract documents.
3. Monitor harvesting activities to ensure compliance with the contract documents.
4. Monitor haul roads and perform maintenance as necessary.
5. Perform clean-up activities:
 - a. Clean up slash and other debris on landings.
 - b. Stabilize exposed soils by seeding and covering with straw.
 - c. Properly abandon temporary roads used to facilitate harvesting.
 - d. Perform haul road maintenance as necessary (clean ditches and culverts, grade and patch road, etc.)
6. Sign off with Purchaser that all obligations have been met.
7. Release any deposits or retainers.

Post-Sale

Post-sale activities, processes, and administration should include:

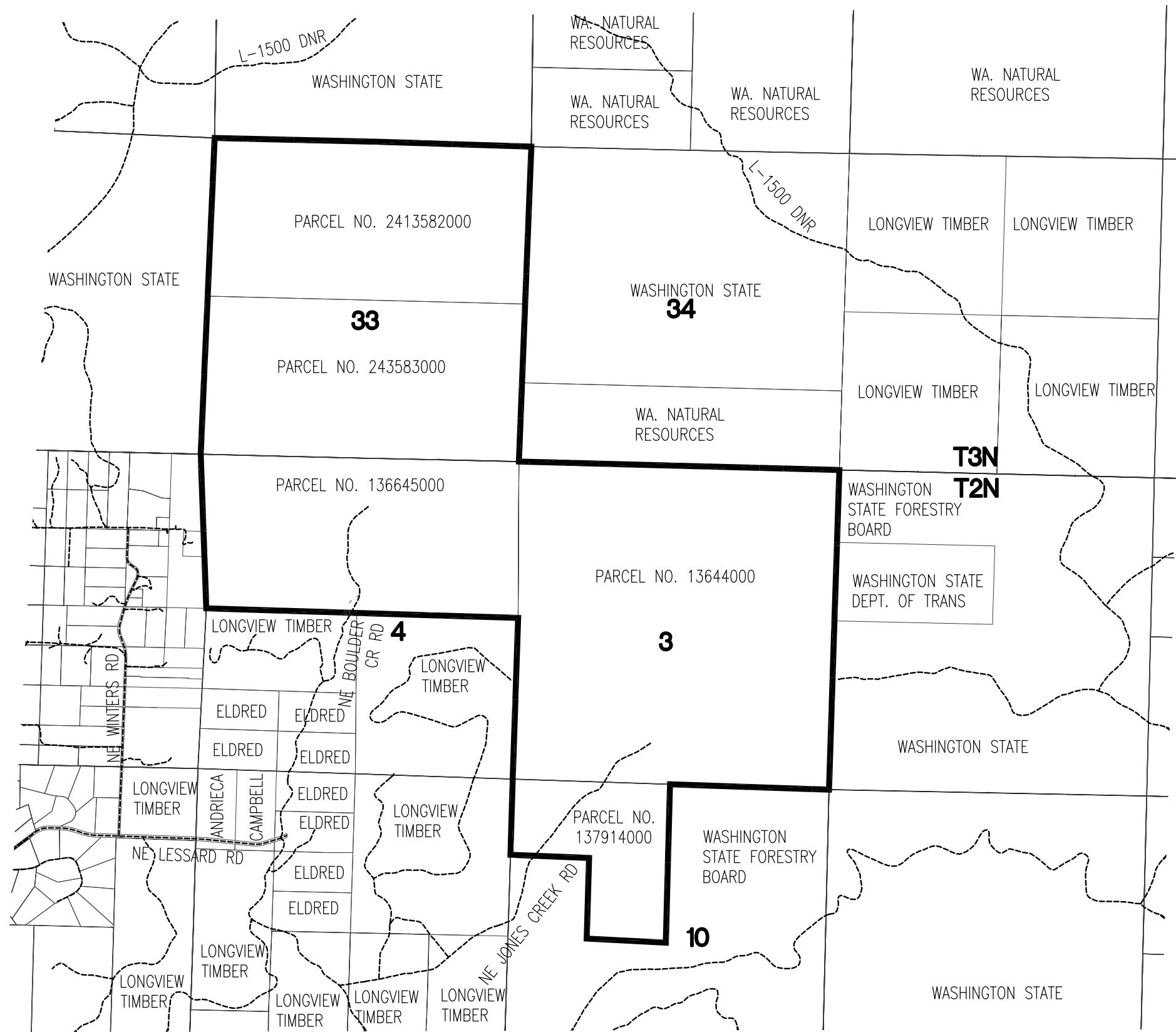
1. Prepare, solicit, and award planting contract.
2. Plant seedlings during winter or early spring following harvest.
3. Monitor planting activities to ensure compliance with the contract documents.
4. After the first growing season, conduct a seedling survival survey and report replanting information to the DNR.
5. Evaluate seedlings for wildlife damage.
6. Monitor site for competing vegetation and perform vegetation management activities as necessary.





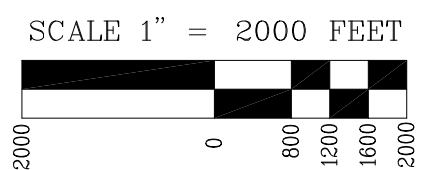
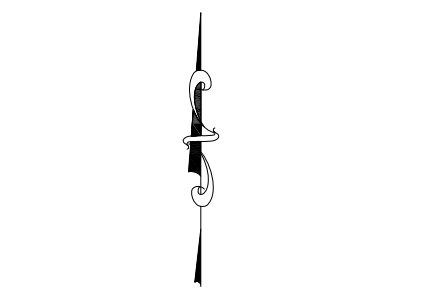
APPENDIX A
GENERAL PROPERTY MAPS





LEGEND

- SITE BOUNDARY:
- PROPERTY LINES:
- EXISTING ROAD:



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

GENERAL PROPERTY MAP

ENGINEERING · PLANNING SURVEYING · FORESTRY
 LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969

Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

DESIGNED BY:	AHH	DRAWING NO.:	A-1
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		

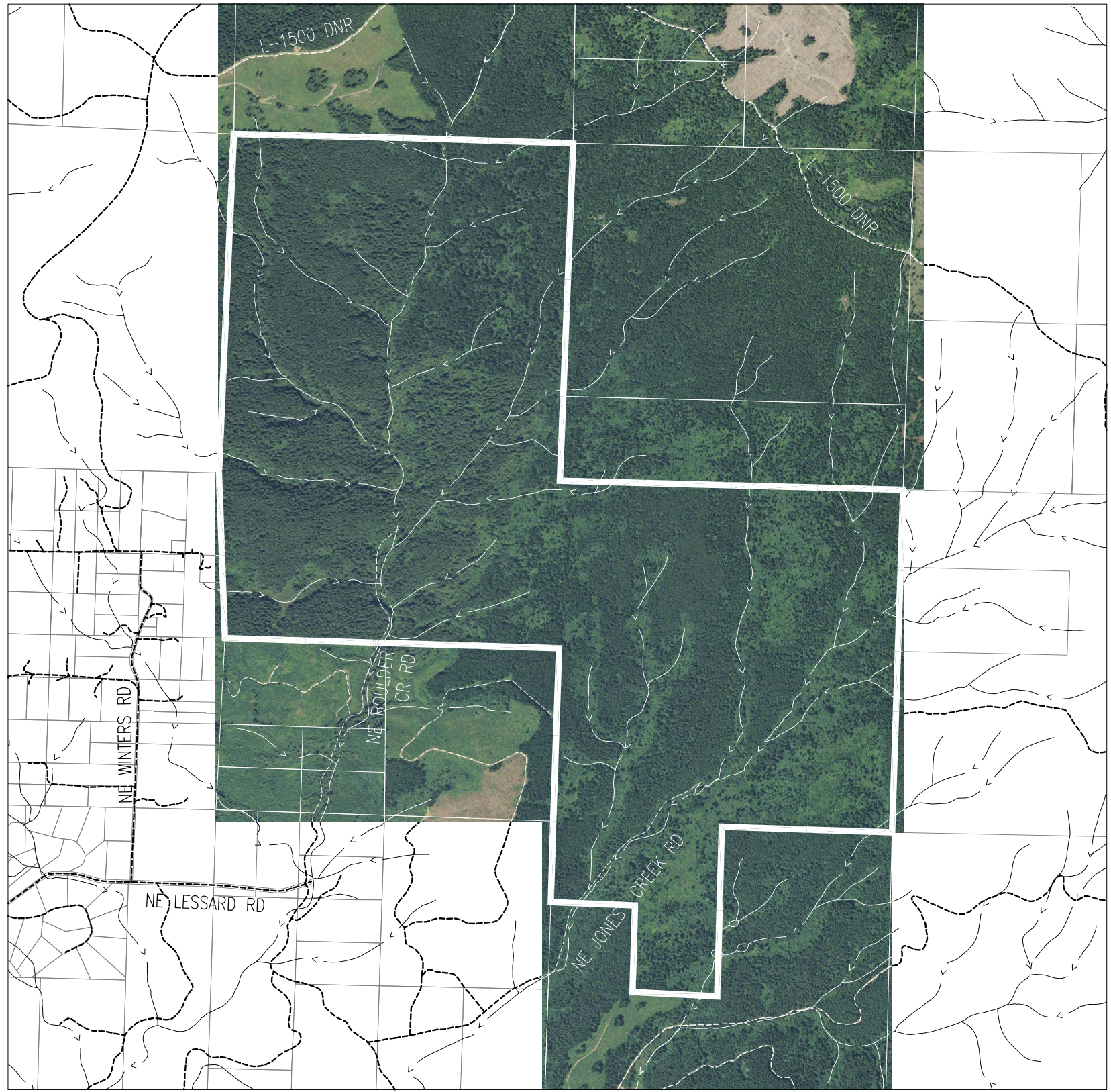
CITY OF CAMAS
 616 NE 4TH AVENUE
 CAMAS, WA 98607

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN
CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE: _____

JOB NUMBER	2800
SHEET	A-1

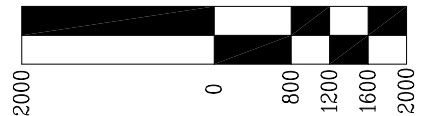


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- STREAMS > > >



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

**PROPERTY MAP WITH
AERIAL PHOTO**

ENGINEERING • PLANNING **SURVEYING • FORESTRY**
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969



AKS
ENGINEERING & FORESTRY

Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

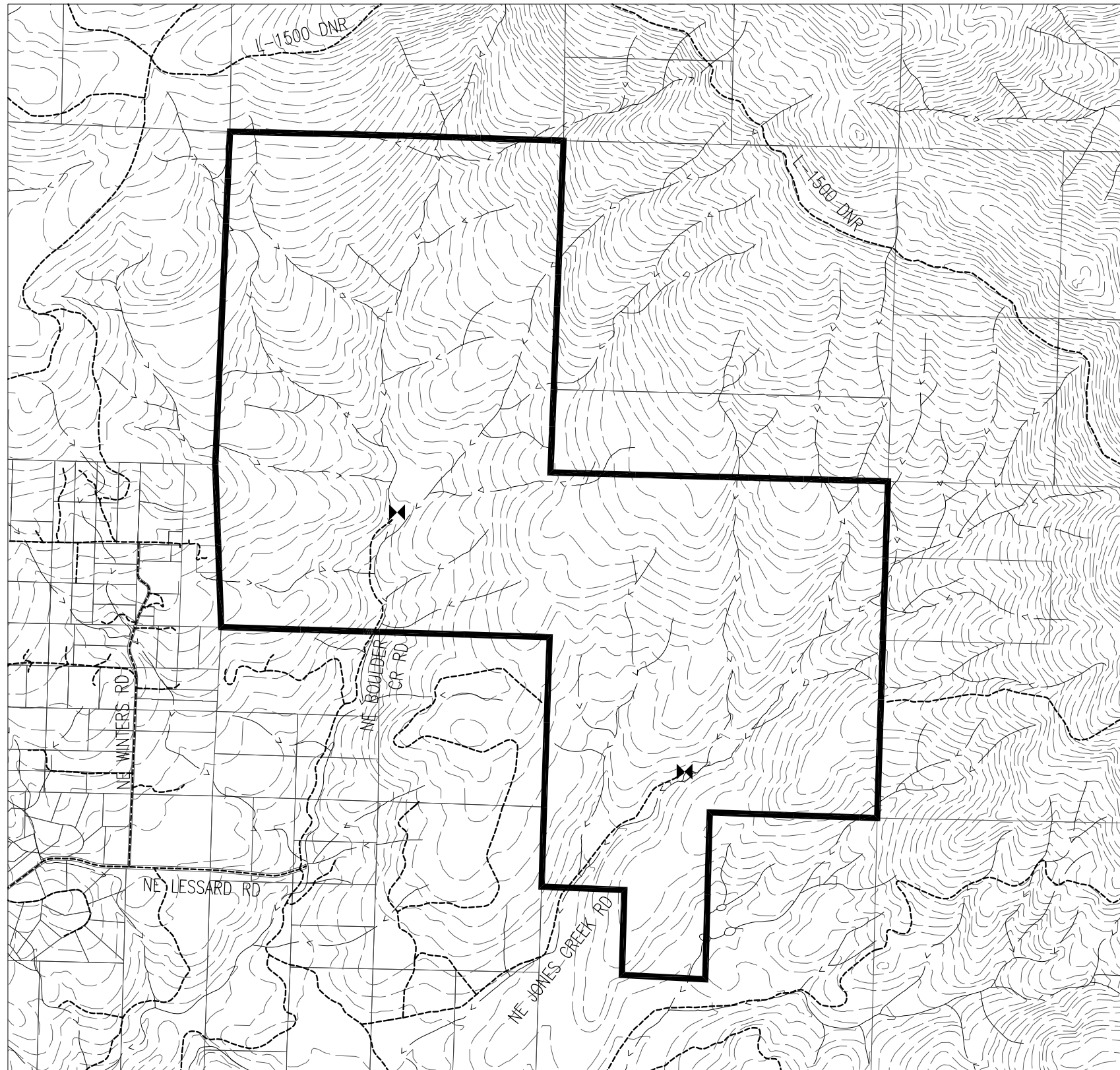
DESIGNED BY:	AHH	DRAWING NO.:	A-2
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
		CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607	

**CITY OF CAMAS WATERSHED
FOREST MANAGEMENT PLAN
CAMAS
WASHINGTON**

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:

JOB NUMBER 2800	SHEET A-2
---------------------------	---------------------

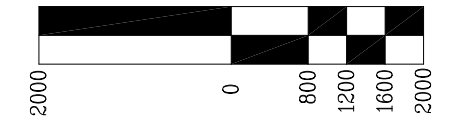


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- STREAMS
- 40' CONTOUR
- WATER INTAKE FACILITY



SCALE 1" = 2000 FEET




NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

GENERAL TOPOGRAPHY MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
 LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969



Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

DESIGNED BY: AHH	DRAWING NO.: A-3
DRAWN BY: KAL	SCALE: AS NOTED
CHECKED BY: AHH	
	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN
CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE: _____

JOB NUMBER 2800
SHEET A-3

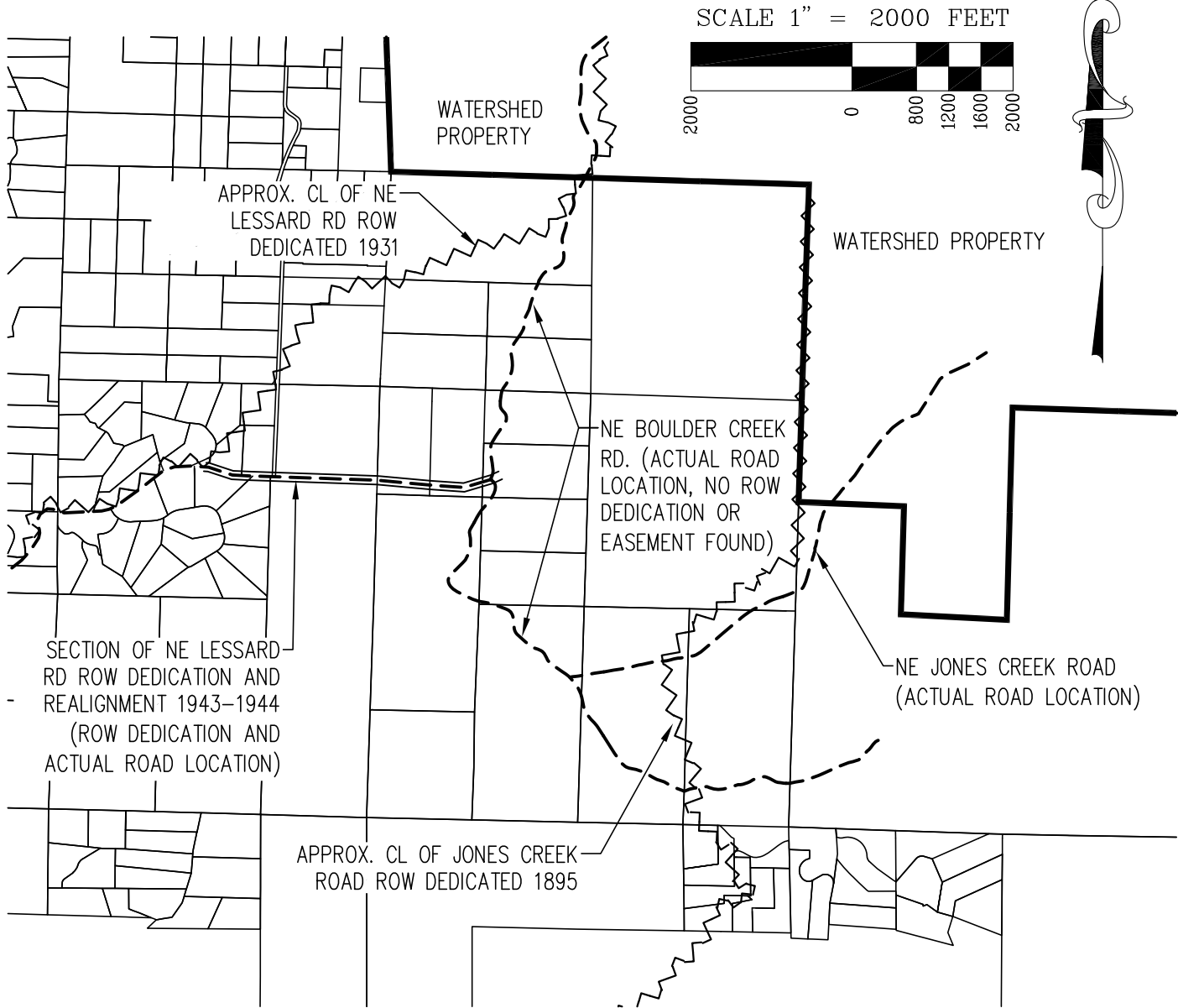


APPENDIX B
NE BOULDER CREEK ROAD AND
NE JONES CREEK ROAD
RIGHT-OF-WAY MAP

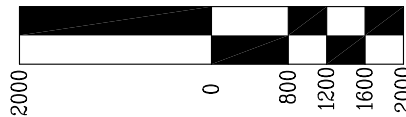


CITY OF CAMAS BOULDER CREEK AND JONES CREEK WATERSHED ACCESS MAP

CLARK COUNTY, WASHINGTON



SCALE 1" = 2000 FEET



JOB NAME: CAMAS
JOB NUMBER: 2800
DRAWN BY: JOH
CHECKED BY: BRB
DWG NO.: 041712ROAD

ENGINEERING • PLANNING • LANDSCAPE ARCHITECTURE
FORESTRY • SURVEYING



AKS
ENGINEERING & FORESTRY

LICENSED IN OR & WA
13910 SW GALBREATH
DRIVE, SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

OFFICES LOCATED IN REDMOND, OR & VANCOUVER, WA



APPENDIX C
TIMBER VOLUME AND
VALUATION REPORT



**TIMBER VALUATION REPORT
CITY OF CAMAS BOULDER CREEK AND
JONES CREEK WATERSHED PROPERTY**

An Income Approach Valuation of the City of Camas Boulder Creek and Jones Creek Watershed Property (1,694.4+/- acres), being located in Section 33, T3N, R4E; Section 3, T2N, R4E; the NE ¼ of Section 4, T2N, R4E; a portion of the NW ¼ of Section 4, T2N, R4E; and a portion of the NW ¼ of Section 10, T2N, R4E; W.M., Clark County, Washington, Owned by the City of Camas

**Prepared for:
CH2M Hill**

**Valuation Date: July 15, 2011
(Revised April 24, 2012)**

Prepared by:



13910 SW. GALBREATH DRIVE, SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969



AKS ENGINEERING & FORESTRY, LLC
ENGINEERING / SURVEYING / PLANNING / FORESTRY
LANDSCAPE ARCHITECTURE / ARBORICULTURE

Date: July 15, 2011 (Revised April 24, 2012)

To: Lee Odell, PE
CH2M Hill
2020 SW 4th Avenue
Portland, OR 97201-4958

E-Mail: lee.odell@ch2m.com

From: Keith Jehnke

Re: Volume and Value Calculations for the City of Camas Boulder Creek and Jones Creek Watershed Tracts

Dear Mr. Odell:

Pursuant to your recent request, I am submitting the attached report of my opinion of the market value of the standing timber for the Boulder Creek and Jones Creek watershed parcels owned by the City of Camas.

After consideration of all of the factors which influence market values, my opinion of the income approach market value of the subject timber, as of July 15, 2011, is as follows:

\$8,915,000

Your attention is directed to the attached Appraisal, Timber Cruise and Volume Calculations report, and Appraisal spreadsheet. Please call if you have any question.

Very Truly Yours,
AKS Engineering & Forestry, LLC.

A handwritten signature in black ink, appearing to read 'Keith Jehnke', written over a white background.

asca
AMERICAN SOCIETY of
CONSULTING ARBORISTS



KEITH JEHNKE
CERTIFICATE NUMBER PN-1905
EXPIRATION DATE: 6/30/2013

Keith Jehnke, PE, PLS, Principal;
Certified Arborist #PN-1908, Certified Tree Risk Assessor #192
Member, American Society of Consulting Arborists

SHERWOOD, OR
503.925.8799
FAX: 503.925.8969
13910 SW GALBREATH DRIVE, SUITE 100
SHERWOOD, OR 97140

VANCOUVER, WA
12011 NE 99TH STREET, SUITE 1530
VANCOUVER, WA 98682

REDMOND, OR
P.O. Box #1459
REDMOND, OR 97756

APPRAISAL

STATEMENT OF ASSUMPTIONS AND LIMITING CONDITIONS

- 1) No responsibility is assumed for matters legal in character, nor has any opinion as to title been rendered; it is assumed to be marketable. Any existing liens, encumbrances or assessments have been disregarded and the properties are appraised as though free and clear.
- 2) Exhibits, sketches, maps, plats, or aerial photographs included herein are provided to assist the reader in visualizing the properties. No surveys were made and no responsibility in connection with such matters is assumed. Sizes or dimensions not shown should not be scaled from these visual aids. The tax lot lines shown are from the Clark County GIS maps. The acreages shown are per the Clark County GIS maps and cannot be verified without a full legal survey of the property.
- 3) Unless otherwise noted herein, it is assumed there are no encroachments, zoning or restrictive violations existing on the subject properties.
- 4) It is assumed legal road rights-of-way are either in existence or can be obtained to subject lands.
- 5) The subject properties were appraised as if there were no constraints to harvesting, road access or normal management or harvesting practices as the result of the northern spotted owl or other species being listed as threatened or endangered under the Endangered Species Act.
- 6) The subject property was appraised as if there is no loss of timber to slope stability high risk site designation by the Washington Department of Natural Resources.
- 7) Riparian Management Zone (RMZ) buffer widths were assigned per the Washington Department of Natural Resources rules and stream buffer maps on the DNR website.
- 8) It is assumed that no logs may be exported.
- 9) It is assumed that a bridge crossing over Boulder Creek and over Jones Creek will be required at an assumed cost of \$100,000 per bridge for a total of \$200,000.
- 10) The buyer of the timber will pay the 5% State of Washington Timber Excise Tax per the state's rules: "For timber harvested on public land, the taxable stumpage value is the actual amount paid for the timber in cash or other considerations. "Other considerations" include anything of value given in lieu of cash, such as roads constructed as part of the timber sales contract."
- 11) The total dollar figure shown is for all of the harvestable timber outside of the RMZ's on the site. The maximum regeneration harvest (clear cut) size allowed is 120-240 acres and a 300 foot buffer is required between clear cuts. Most of this buffer can be provided by the RMZ buffers, however there may be areas where harvestable timber is required to be left (for a future harvest) to maintain a 300 foot distance between cutting areas.

LOCATION OF TIMBER VALUED

The subject property is located off of Boulder Creek Road and Jones Creek Road, about 7 miles northeast of the City of Camas, in Clark County, Washington. The subject property is shown on the attached map.

PURPOSE OF THE APPRAISAL

The purpose of this appraisal is to estimate, in terms of dollars, the market value of standing timber from the subject parcels. The value of this timber is given value as of July 15, 2011. The term "market value" as used herein is "the amount of cash or any terms reasonably equivalent to cash, for which in all probability the timber would be sold by a knowledgeable owner willing but not obligated to sell to a knowledgeable purchaser who desires but is not obligated to buy."

HIGHEST AND BEST USE

The highest and best use assumed for this report is as merchandised logs.

MARKET AREA

The log sales data used for this valuation were gathered from log buyers in northwestern Oregon and southwestern Washington. This market is influenced by various domestic buyers scattered throughout the region and log exports out of Longview Washington.

MARKET CONDITIONS

The log market bottomed out in the middle of 2009 and has seen some increases in values from 2009 peaking in April 2011 and falling slightly since that time. There is still a relatively low demand in the domestic markets however there has been reasonable demand for export logs especially the traditional "China" sorts to the Asian markets. The export market, while intermittent, is better than the domestic market for fir logs, with most logs making an export sort being exported. The market for Western Red Cedar logs has not seen as dramatic of a decline as the rest of the market. The log markets for Red Alder and Big Leaf Maple generally fluctuate more than the rest of the log market and are currently at a fairly historically high level. A general history of the log markets follows:

Prices for most log species, grades, and sorts in this area peaked in 1993-94 when there was a strong housing and export market and the supply of logs from Forest Service lands plummeted due to timber sale appeals. Most log prices then slowly declined until they hit bottom late in 2002. Loss of mills, increasing wood product imports, and increasing competition from engineered wood and non-wood products all contributed to this decline in prices for logs and stumpage. Log prices and stumpage then rose significantly from 2003 to 2006 due largely to strong housing construction and a weakening U.S. dollar (reduced imports). In the middle of 2006, the housing market began its current collapse and prices for logs and stumpage began a steady decline to the all-time lows reached in the first middle of 2009. Current prices have increased from the 2009 lows, but are not at 2006 levels.

The reduction of Pacific Northwest harvest levels, reduced Asian market demand (especially in Japan), and the globalization of wood markets has weakened the export log market, however a demand for export logs in China has been adding some life and value to the market. During the last 10 years, the strength of the export versus the domestic log markets has been intermittent. At present, there is a small export market and log prices are sufficiently high to justify additional haul costs to export booms.

GENERAL DESCRIPTION OF THE SUBJECT PROPERTY

The property has been owned by the City of Camas since the 1920's and had been used as a year round water source for the City. Due to fish Concerns from the Washington Department of

Natural Resources, the City has been limited to taking water from the watershed only in the wettest months of the year. The timber is somewhat variable in density, species mix, and quality. The timber varies ranging from dense stands of Douglas fir to scattered pockets of thick brush. The timber generally ranges from 60-100 year old Douglas-fir, Red Alder, Western Hemlock, and Bitter Cherry. The property is generally medium sloped with slopes ranging from 10-60%. There are numerous streams and draws on the property with the largest creeks being Boulder Creek and Jones Creek. The parcel is poorly roaded with graveled access at the southern end, but no other graveled roads. The few existing skid roads are over grown with vegetation. The tract has been logged previously. Portions of the property have regenerated or been planted and contain high grade, high value second growth Douglas-fir trees, while other areas did not regenerate and contain scattered Douglas fir and Red alder . The site index varies throughout the property, with the US Soil Conservation Service Soil Survey showing Site Indexes of between low site II and high site III.

The 1306 cruised acres on this tract contain an average of 27.5 net mbf per acre consisting of 25.5 net mbf/acre Douglas-fir, 1.2 net mbf/acre Red Alder, 0.6 net mbf/acre of Western Hemlock, and a trace of Bitter Cherry. The average Douglas-fir is about 16.3 inches at d4h (4 feet above the stump) and has about 55 feet of merchantable height. The Douglas-fir is generally 50 to 100+ years old and the older trees are considered to be of good quality for this age of timber, with approximately 43% of the volume being export type logs. The average Red Alder is approximately 15.0 inches at d4h with about 44 feet of merchantable height, of which about 83% is saw log quality . The average Western Hemlock is about 17.1 inches at d4h with about 59 feet of merchantable height.

This parcel has low evidence of defect for a stand of this age and has intermixed areas of high stocking, areas of low stocking, and areas of no stocking.

APPROACH TO FAIR MARKET VALUE

The conversion return (income) approach to timber stumpage values was used to calculate the market value of the timber.

INCOME APPROACH TO STUMPAGE VALUE

The conversion return or income approach to stumpage value is used to calculate value. The conversion return method is more sensitive to sudden fluctuations in the market.

The delivered log values were developed from a cruise of the property and various log buyers were called to determine current market values for the logs.

Additionally, logging, hauling, road/landing construction, timber excise tax, boundary survey and line marking costs, and administration costs would need to be subtracted from the delivered log value. These are outlined on the attached appraisal spreadsheet.

The summary of the conversion return stumpage calculations follow:

Total Net Value to Owner= (Total Net Volume in mbf) *(Stumpage Value)

<u>Species</u>	<u>Net Volume (mbf)</u>	*	<u>Stumpage Value**</u>	=	<u>Total</u>
Douglas-fir	33,306	*	\$290.9767	=	\$9,691,269
Red Alder – Saw	1339	*	\$411.9767	=	\$551,637
Red Alder – Pulp*	281	*	\$0	=	\$0
Western Hemlock	739	*	\$235.9767	=	\$174,387
Bitter Cherry – Pulp*	300	*	\$0	=	\$0
TOTAL VALUE					\$10,417,293

*At current log prices cable yarded Red alder pulp and Bitter Cherry pulp have a negative value- therefore they would be left in the woods.

**Note: Number of digits shown in Stumpage Value is to insure that these values exactly match the Valuation Spreadsheet Values

There are three steps to arrive at the appraised value:

Step 1: Include a 10% reduction in the Total Value to account for the purchaser's "Profit and Risk" for the outlay of capital;

Profit and Risk Discounted Value=Total Value - 10% of Total Value =\$9,375,563

Step 2: Calculate the purchasers "deduction" from the Profit and Risk Discounted Value to pay the State Timber Excise Tax. To calculate the Excise Tax, take 95% of the Profit and Risk Discounted Value calculated above, add in the "other considerations" which were included in the logging costs such as roads, surveying, culverts and bridges, and subtract 5% of this total for the State Timber Excise Tax which on all public timber sales is paid by the purchaser.

Discount for Excise Tax =((95% of Total Value Discounted for Profit and Risk) + (other considerations)) * (Excise Tax of 5%)

Purchaser's State Excise Tax Discount=(((\$8,906,785) + (\$318,000)) * (5%)=\$461,239

Step 3: To calculate the total Appraised Value, subtract the Purchaser's State Excise Tax Discount (calculated in step 2) from the Profit and Risk Discounted Value (calculated in Step 1).

Total Appraised Value = \$9,375,563-\$461,239=\$8,914,324

APPRAISED VALUE = \$8,915,000

CERTIFICATION

The appraiser hereby certifies that he has inspected, gathered together and assessed all pertinent information, and that neither his employment nor his compensation for making this appraisal are in any way contingent upon the opinions rendered herein. The appraiser further certifies that he has no direct or indirect, present or contemplated further interest in the subject property.



Keith R. Jehnke
July 15, 2011



AKS ENGINEERING & FORESTRY, LLC
ENGINEERING / SURVEYING / PLANNING / FORESTRY
LANDSCAPE ARCHITECTURE / ARBORICULTURE

Date: July 15, 2011 (Revised April 24, 2012)

To: Lee Odell, PE
CH2M Hill
2020 SW 4th Avenue
Portland, OR 97201-4958

E-Mail: lee.odell@ch2m.com

From: Keith Jehnke

Re: Timber Cruise & Volume Calculations for the City of Camas Boulder Creek and Jones Creek Watershed Tracts (1,694.4+/- acres), being located in Section 33, T3N, R4E; Section 3, T2N, R4E; the NE ¼ of Section 4, T2N, R4E; a portion of the NW ¼ of Section 4, T2N, R4E; and a portion of the NW ¼ of Section 10, T2N, R4E; W.M., Clark County, Washington.

Dear Mr. Odell:

Per your request, we have completed the timber cruise, value, and volume calculations for the Boulder Creek and Jones Creek Watershed tract.

CRUISE OBJECTIVE

The primary objective of this cruise is to determine the sort, grade and volume of harvestable trees on the tract from which a value of the timber as merchandised logs can be determined.

VOLUME SUMMARY TABLES:

Cruise Summary:

Species	Age Class	Ave. Log Length	Ave d4h (in)	Ave. Merch. Ht (ft)	Net Volume (mbf)
Douglas-fir	60-100+	32	16.3	55	33,306
Western Hemlock	50-70	31	17.1	59	739
Red Alder	50-70	27	15.0	44	1,620
Bitter Cherry	50-70	12	6.5	16	300

Percent of Net Volume (mbf) by Log Diameter:

<u>Species:</u>	<u>4-7"</u>	<u>8-11"</u>	<u>12-15"</u>	<u>16-39"</u>
Douglas-fir	15.3	15.3	28.0	39.8
Red Alder	43.8	8.8	39.4	8.0
Western Hemlock	18.7	47.0	34.4	0.0
Bitter Cherry	100.0	0.0	0.0	0.0

TIMBER DESCRIPTION

51 plots were taken on the 1306 timbered acres. The timber density, species mix, quality, and age varies significantly throughout the parcel, ranging from denser stands of Douglas fir, to areas of Douglas fir and Red Alder, to areas of scattered Red Alder, Douglas fir, and brush. The timber generally ranges from 50-100 year old Red Alder, Douglas-fir, and Western Hemlock. The property is generally sloping from 10-40% with occasional flatter areas on the ridge tops and steeper areas near the creeks. A few scattered overgrown skid road grades exist on the property. The entire tract was previously logged as evidenced by the "spring board" old growth stumps widely scattered across the site. Also, per City of Camas Employees, portions of the site burned in the Yacolt Burn of 1902 and portions were replanted in the 1920's and 1930's.

The Washington Department of Natural Resources (DNR) Riparian Management Zone (RMZ) buffers were calculated by stream type, stream length, etc. (as shown on DNR maps). The widths of these buffers on this site are from 50 feet to 170 feet on each side of the stream. DNR rules allow for some levels of harvesting within these buffers under certain conditions based on meeting a threshold for the basal area of the conifers or in a situation where there are many hardwoods and few conifers and a conversions cut is needed. However for this timber cruise and valuation it was assumed that no harvesting will occur on the 388.3 acres located within these RMZ buffers. Also, no cruise plots were placed within the RMZ buffer areas.

The Tax Assessor records show 1608.08 acres in the tracts. I will note that the GIS acreage of 1694.4 acres varies from the assessor record acreage of 1608.08 acres by 86.32 acres. It appears that most of this acreage is from a "bust" in the acreage for Parcel No. 136645000, which consists of the north half of a Township line section and should be an acreage close to 320 acres but is shown as 208.08 acres. The only way to verify the exact acreage of the parcels would be to conduct a proper land survey. For this timber cruise and valuation, we are using the GIS acreage of 1694.4 acres. The 388.3 acres of Riparian Management Zone (RMZ) buffers were then removed leaving 1306.2 net acres. These 1306.2 acres were then delineated into 3 distinct timber types.

Type 1: Contains 300.4 acres, has 10.7 mbf per acre, 64 timber trees per acre with the average Douglas fir being 21.0 inches at d4h (4 feet above the stump)-This type consists of scattered Red Alder, Douglas fir, Western hemlock, and brush. In areas it appeared that portions of this area had the Douglas fir "high grade" logged 40-50 years ago, with smaller Douglas fir trees left and no replanting done-resulting in scattered timber and a large amount of brush. There are many small marginal Bitter Cherry trees throughout this type.

Type 2: Contains 735.4 acres and has 31.6 mbf per acre, 194 timber trees per acre with the average Douglas fir being 15.2 inches at d4h-This type consists of well stocked even aged Douglas fir.

Type 3: Contains 35 mbf per acre, and has 97 timber trees per acre with the average Douglas fir being 21.5 inches at d4h-This type contains pockets of larger Douglas fir trees and scattered Red alder and brush.

The site index varies throughout the property, with the US Soil Conservation Service Soil Survey for Clark County showing Site Indexes of between low site II and high site III.

The 1306 cruised acres on this tract contain an average of 27.5 net mbf per acre consisting of 25.5 net mbf/acre Douglas-fir, 1.2 net mbf/acre Red Alder, 0.6 net mbf/acre of Western Hemlock, and a trace of Bitter Cherry. The average Douglas-fir is 16.3 inches at d4h (4 feet above the stump) and has about 55 feet of merchantable height. The Douglas-fir is generally 60 to 100+ years old and the older trees are considered to be of good quality for this age of timber, with approximately 43% of the volume being export type logs (although all public timber in Washington is banned from export, the timber was cruised given the higher quality export sorts). The average Red Alder is approximately 15.0 inches at d4h with about 44 feet of merchantable height, of which about 83% is saw log quality . The average Western Hemlock is about 17.1 inches at d4h with about 59 feet of merchantable height. This parcel has low evidence of defect for a stand of this age and has intermixed areas of high stocking, areas of low stocking, and areas of no stocking.

CRUISE METHOD

The timber was cruised using the variable plot method. Acreages for the volume calculations were determined from Clark County GIS records. I will note that when using the variable plot cruise method you calculate a volume per acre and then multiply this volume by the acreage, so an error in the acreage results in an error in the timber volume.

Logs were graded using Columbia River Bureau rules, then sorted in order to estimate the higher quality volumes that would be suitable for the log export market. Export sorts are based upon local sorting methods summarized in the attachments.

Timber volumes are from the Super A.C.E. cruise program. This is a variable log length cruise program that computes volumes from the cruiser's measurements of tree diameter, form (taper) and merchantable bole height. Defect and breakage was graded out of the tree by the cruiser in the field.

A sample of merchantable trees on 51 plots was cruised. Plot centers were determined by using stereo aerial photos to delineate 3 timber types, determining a set number of plots for each type, and distributing these plots roughly proportionately through out the type by manually picking plot locations on a map showing only timber types (no aerial photo-in order to avoid any bias). These plot locations were then transferred to the aerial photo and GPS coordinates were determined and then downloaded into portable GPS units which were used to locate plot centers in the field. Plots were marked by hanging a double ribbon at eye height.

A basal area factor (BAF) of 40 was used to sight trees “in” or “out” at d4h. Of the 51 total plots taken, 4.3 trees per plot were cruised for a total of 221 trees. Tree diameters were measured at d4h (four feet above the ground) using a diameter tape and visual estimation. The smallest conifer tree considered to be merchantable had to contain at least one 12-foot log with a scaling diameter of five inches, yielding 10 board feet. Tree heights were measured using a relaskop, digital range finder, and visual estimates. All of the merchantable conifer species were cruised to a six-inch top diameter or to a top diameter equal to 25% of the d4h, whichever was greater. The hardwoods were cruised to a four-inch top diameter, or to a top diameter equal to 25% of the d4h, whichever was greater. Log lengths were assigned according to current industry standards. Red Alder log lengths were assigned to meet specific grades for various saw log diameters, and for pulpwood utilization.

ACCESS AND LOGGING

The subject property is located off of Boulder Creek Road and Jones Creek Road, about 7 miles northeast of the City of Camas, in Clark County, Washington. The subject property is shown on the attached map.

There are only short sections of gravel road accessing the very southerly portion of the parcels. There are some old overgrown skid trails throughout the site. Some of the timber may be more efficiently accessed through roads on adjacent owners Longview Timber and the State of Washington. To access all of the timber a minimum of a crossing at Boulder Creek and a crossing at Jones Creek will likely be required. The property is generally sloping from 10-60% with occasional flatter areas on the ridge tops and steeper areas near the creeks and draws. The flatter areas near roads can be logged using tractor or shovel ground based systems. The steeper areas primarily along the creeks and draws and areas further from the road and isolated by draws will require cable yarding including some longer distance cable yarding. The majority of the site will be cable yarded.

For this timber cruise and appraisal, road and logging costs were estimated based on various assumptions including:

- two major creek crossings
- 2 miles of new road construction
- majority of logging to be cable yarding
- conifer logs to Kalama
- Red alder logs to Longview
- Red alder and Bitter Cherry pulp logs requiring cable logging to be left in the woods (with current prices cable yarded Red alder pulp has a negative value)

CITY'S NEXT STEPS PRIOR TO HARVEST

If the City decides to move forward with a timber or log sale, there are a number of logging engineering tasks which will need to be completed. In order to prepare the site for a timber harvest additional work will need to be done. This work would include:

- developing a road plan (determining the most efficient road layout potentially utilizing adjoining roads as well as bridges across Boulder and Jones Creek for access)
- bridge crossing layout and permitting
- developing a harvest plan (utilizing the most efficient logging systems for the terrain and roads utilizing skyline profiles, etc.)
- acquire timber access easements from adjoining property owners (if needed)
- obtain DNR permit for the timber harvest
- obtain DNR permits for the Bridge crossings (if needed)
- work with DNR to layout riparian management zone buffers
- work with DNR to determine what harvest level (if any) can be achieved in the riparian management zone
- State Environmental Policy Act (SEPA) permitting
- create road construction documents
- create bridge construction documents (if needed)
- create timber sale or logging contract and specifications
- road construction inspection
- logging inspection

We would be happy to provide a scope of work and estimate for any or all of the above tasks.

ATTACHMENTS

Included with this report are:

- Valuation Spreadsheet
- Cruise Map
- Definitions for abbreviations used in cruise report
- Detailed Cruise Reports (The detailed cruise reports include volumes, species, diameter class and log grades, and the statistical summary)

DISCLAIMER

The accuracy of the volumes, species, quality and costs reflected in any report or information provided are neither guaranteed nor warranted. Information provided is based upon limited sampling and estimates which may or may not reflect total volumes, value, species, quality or costs and which may be subject to error by reason of access, title, damage, disease, acts of governmental entities, economic change, or other relevant circumstances. The risk of any inaccuracies in any information or report is assumed by the recipient of such information or report.

Please call if you have any questions.

Very Truly Yours,
AKS Engineering & Forestry, LLC.



asca
AMERICAN SOCIETY of
CONSULTING ARBORISTS



KEITH JEHNKE
CERTIFICATE NUMBER PN-1905
EXPIRATION DATE: 6/30/2013

Keith Jehnke, PE, PLS, Principal;
Certified Arborist #PN-1908, Certified Tree Risk Assessor #192
Member, American Society of Consulting Arborists

Definitions for Abbreviations Used in Reports

SP	-Species
YRS	-Age of timber
D4H	-Diameter of tree four feet above the stump
FF	-Form Factor: the ratio of the diameter outside bark at 16 feet above the stump compared to D4H
BOL HGT	-Bole height: the length of the tree bole measured to the minimum merchantable top
BA/A SQFT	-Basal Area per acre measured in square feet
TREE/AC	-Number of trees per acre
LOGS/AC	-Number of log segments per acre based on the cruise
AVE CF	-Average net volume in cubic feet in each log segment
AVE BF	-Average net volume in board feet in each log segment
PER ACRE CF	-Net volume per acre in cubic feet
PER ACRE BF	-Net volume per acre in board feet
TOTAL CUNITS	-Total net volume in cunits (one cunit equals 100 cubic feet)
TOTAL MBF	-Total net volume in MBF (one MBF equals 1000 board feet), includes utility volume

Species

DF	-	Douglas fir
OGDF	-	Old Growth Doug Fir
BM	-	Bigleaf maple
GF	-	Grand fir
MY	-	Myrtle
POC	-	Port Orford-cedar
RA	-	Red alder
RC	-	Western red cedar
WH	-	Western hemlock
TO	-	Tan oak
OK	-	Oregon white oak
MA	-	Pacific madrone
DFD	-	Douglas fir, dead
RCD	-	Red Cedar, dead
SS	-	Sitka spruce
CH	-	Cherry
CQ	-	Chinquapin
PP	-	Ponderosa Pine
SP	-	Sugar Pine
WP	-	White Pine
LP	-	Lodgepole pine

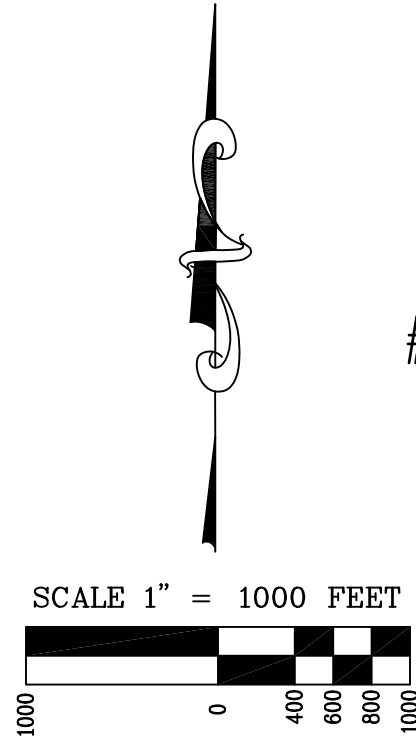
EXPORT SORT LIST

- HI-LINE (12" & up) Hiline #2S and better, 12"-29" diameter, S.M. surface, minimum 8 ring/in. outer 1/3, max. knot size 1 1/2", up to 8 knots well distributed.
- MID-LINE (12" & up) Midline #2S and better, 12"-29" diameter no grain restriction, max. knot size 2", up to 10 knots well distributed.
- LO-LINE (12" & up) Lowline - midline #2S and better, 12" + diameters, smooth surface on 1/2 of log, max. knot size 2 1/2, up to 20 knots well scattered.
- HI-LINE Hiline #3S, S.M. appearance, 8"-11" diameter, fine grain outer 1/3, max. knot (8" & 11") size 1/2" well distributed.
- MID-LINE Mid-line #3S, 8"-11" diameter, no grain restriction, max. knot size 1", up to 20 (8" - 11") knots/log.
- LO-LINE (8" - 11") Lowline #3S and better, 8"-11" diameter, #25 surface, coarse grain allowed, max. knot size 2", up to 20 knots/log.
- DOMESTIC Domestic sort, lowline, with defects. Not suitable for current export market.
- CHIP LOG Logs best suited to be marketed on a tonnage basis for chipping.
- CULL Unmerchantable logs.

Project:	Camas Watershed Cruise and Appraisal (AKS #2800)									
Value:	Cruise Volume									
	Volume in		Delivered		Logging		Stumpage			Total
	Species:	MBF	Log Value		Expenses		Value			Value
	Douglas-fir (DF)	33,306 @	\$540	-	\$249 =		\$290,9767	to give		\$9,691,269
	Western Hemlock (WH)	739 @	\$480	-	\$244 =		\$235,9767	to give		\$174,387
	Red Alder (RA)-Saw	1,339 @	\$665	-	\$253 =		\$411,9767	to give		\$551,637
	Red Alder (RA)-Pulp*	280 @	\$240	-	\$272 =		\$0.0000	to give		\$0
	Bitter Cherry (CH)-Pulp*	300 @	\$240	-	\$272 =		\$0.0000	to give		\$0
	Total	35,964								\$10,417,293
	*At current log prices cable yarded Red alder pulp and Bitter Cherry pulp have a negative value-therefore they would be left in the woods.									
		Total Delivered Log Value=	\$19,230,395	Total Logging Expenses=			\$8,813,102			
		Percentage to Owner=	54							
To come to the "Appraised Value", being the value which a knowledgeable purchaser would pay for the timber:										
Step 1: Include a 10% reduction in the Total Value to account for the purchaser's "Profit and Risk" for the outlay of capital;										
Calculate the Discount for Profit and Risk for the outlay of capital:										
		Profit and Risk Discounted Value=	Total Value - 10% of Total Value (for profit and risk)=				\$9,375,563			
Step 2: Calculate the purchasers "deduction" from the Profit and Risk Discounted Value to pay the State Timber Excise Tax. To calculate the Excise Tax, take 95% of the Profit and Risk Discounted Value calculated above, add in the "other considerations" which were included in the logging costs such as roads, surveying, culverts and bridges, and subtract 5% of this total for the State Timber Excise Tax which on all public timber sales is paid by the purchaser.										
Calculate the Discount for State Timber Excise Tax Paid by the Purchaser:										
Discount for Excise Tax =((95% of Total Value Discounted for Profit and Risk) + (other considerations)) * (Excise Tax of 5%)										
		Purchaser's State Excise Tax Discount=	(((\$8,857,127) + (\$318,000)) * (5%)=				\$461,239			
Step 3: To calculate the total Appraised Value, subtract the Purchaser's State Excise Tax Discount (calculated in step 2) from the Profit and Risk Discounted Value (calculated in Step 1).										
		Total Appraised Value =	\$9,375,563-\$461,239=				\$8,914,324			
TOTAL APPRAISED VALUE=\$8,915,000										
Costs:										
Variable	Species	DF	WH	RA-Saw	RA-Pulp	CH-Pulp				
Costs	Delivered Log Price	\$540	\$480	\$665	\$240	\$240				
per	Falling Cost	\$36	\$36	\$36	\$36	\$36				
MBF	Yarding Cost	\$145	\$145	\$145	\$145	\$145				
	Trucking Cost	\$54	\$49	\$58	\$77	\$77				
	Administration	\$5	\$5	\$5	\$5	\$5				
	Allocated Fixed Costs	\$9	\$9	\$9	\$9	\$9				
	Stumpage Value	\$291	\$236	\$412	(\$32)	(\$32)				
	Expenses	\$249	\$244	\$253	\$272	\$272				
	Allocated fixed Costs									
Fixed	Road Construction	\$60,000		Cost per MBF=		\$9				
Costs	Rock*	\$0								
to be	Surveying	\$55,000								
allocated	Culverts	\$3,000								
	Bridges	\$200,000								
	Total:	\$318,000								
	* Assumes harvesting during the summer.									

CITY OF CAMAS BOULDER CREEK AND JONES CREEK WATERSHED

1695± ACRES IN S33 T3N, R4E; S3, T2N, R4E; THE N HALF OF S4, T2N, R4E; A PORTION OF THE NW 1/4 OF S10, T2N, R4E; W.M., CLARK COUNTY, WASHINGTON



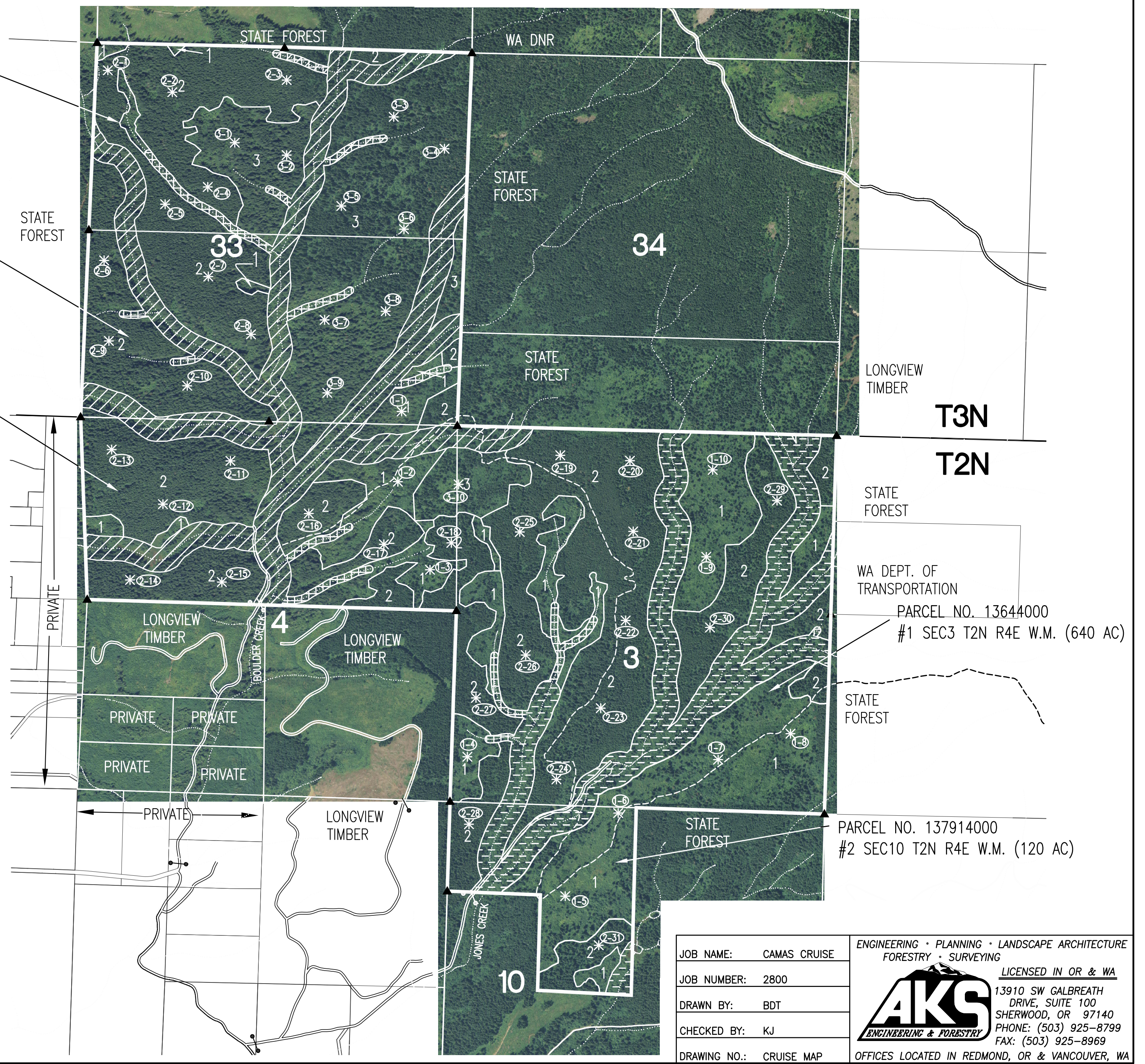
PARCEL NO. 2413582000
#1 SEC33 T3N R4E W.M. (320 AC)

PARCEL NO. 243583000
#2 SEC33 T3N R4E W.M. (320 AC)

PARCEL NO. 136645000
#4 SEC4 T2N R4E W.M. (208.08 AC*)
(*ACREAGE APPEARS TO BE INCORRECT)

LEGEND

- PARCEL LINE
 - SUBJECT PROPERTY LINE
 - CRUISE PLOT
 - SKID ROAD (FROM USGS TOPO MAP)
 - GRAVEL ROAD
 - RECORD MONUMENT
 - STREAM, NO BUFFER REQUIRED
 - TYPE N STREAM - 50' BUFFER
 - TYPE F STREAM, CLASS III - 140' BUFFER
 - TYPE F STREAM, CLASS II - 170' BUFFER
- | TIMBER STRATA | | |
|------------------------------------|--------------------------|-----------|
| 1 | MIXED HARDWOODS / BRUSH | 300.4 AC |
| 2 | DENSE CONIFER | 735.4 AC |
| 3 | MIXED HARDWOOD / CONIFER | 270.4 AC |
| STREAM BUFFER (ASSUMED NO HARVEST) | | 388.3 AC |
| TOTAL ACRES | | 1694.5 AC |
| TOTAL HARVESTABLE ACRES | | 1306.2 AC |
- LOCKED GATE
 - UNLOCKED GATE



JOB NAME:	CAMAS CRUISE	ENGINEERING • PLANNING • LANDSCAPE ARCHITECTURE FORESTRY • SURVEYING LICENSED IN OR & WA 13910 SW GALBREATH DRIVE, SUITE 100 SHERWOOD, OR 97140 PHONE: (503) 925-8799 FAX: (503) 925-8969 OFFICES LOCATED IN REDMOND, OR & VANCOUVER, WA
JOB NUMBER:	2800	
DRAWN BY:	BDT	
CHECKED BY:	KJ	
DRAWING NO.:	CRUISE MAP	

Project

TC PSCPSTGR CH2M		Species, Sort Grade - Board Foot Volumes (Project)										Project: CAMAS			Page 1			
T02N R04E S03 Ty0001 300.40		Acres		1,306.20		Date 7/6/2011		Time 1:58:14PM		32 ⁺⁺								
T02N R04E S03 Ty0002 735.40																		
T02N R04E S03 Ty0003 270.40																		
Spp	S So Gr T rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log			Logs Per /Acre
			Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf	
							4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99				
RA	2S 2M	47	1.3	596	588	768				83	17	26	74		20	140	1.40	4.2
RA	3S 3M	9		109	109	142		100					100		32	140	1.03	.8
RA	4S 4M	26		329	329	429	33	67			2	47		51	31	41	0.53	8.0
RA	PU PU	18	4.9	226	215	281	74	26			8	45	4	43	27	21	0.46	10.2
RA Totals		5	1.5	1,259	1,241	1,620	22	31	39	8	14	55	9	21	27	53	0.63	23.2
DF	DO2M	28	1.6	7,461	7,342	9,590			48	52	2		1	97	38	380	2.15	19.3
DF	DO3M	18	1.3	4,505	4,447	5,808		97	3		1	1	9	89	39	95	0.83	46.8
DF	DO4M	10		2,548	2,548	3,328	89	11			30	33	16	22	24	27	0.44	95.3
DF	PU PU	1	3.7	206	198	259	52	48			54	3		42	22	32	0.55	6.3
DF	HI 2M	4		1,267	1,267	1,655			56	44				100	40	332	2.04	3.8
DF	HI 3M	1		103	103	134		100						100	40	120	0.68	.9
DF	LO SM		6.1	152	143	187				100				100	40	1840	8.25	.1
DF	LO 2M	20	.3	5,031	5,014	6,550			47	53				100	40	463	2.29	10.8
DF	LO 3M	4		1,028	1,028	1,342		78	22			6		94	38	135	0.86	7.6
DF	M 2M	9		2,219	2,219	2,899			47	53				100	40	419	2.46	5.3
DF	M 3M	5	1.0	1,201	1,189	1,554		75	25					100	40	134	0.84	8.9
DF Totals		93	.9	25,721	25,498	33,306	9	25	33	33	4	4	4	89	32	124	1.02	205.0
CH	PU PU	100		230	230	300	100				18	82			12	8	0.19	27.4
CH Totals		1		230	230	300	100				18	82			12	8	0.19	27.4
WH	DO2M	34	2.4	199	194	254			100				54	46	36	209	1.33	.9
WH	DO3M	55	7.8	336	310	405		100						100	40	114	0.85	2.7
WH	DO4M	11		62	62	81	100				55	45			20	21	0.42	2.9
WH Totals		2	5.2	597	566	739	11	55	34		6	5	18	71	31	86	0.81	6.5
Totals			1.0	27,806	27,535	35,966	11	26	33	31	5	7	4	84	29	105	0.95	262.2

Log Stock Table - Percent Board Feet

CH2M

Project: CAMAS Acres 1.306.20

T02N R04E S03 Ty0001	300.40
T02N R04E S03 Ty0002	735.40
T02N R04E S03 Ty0003	270.40

CuFt: S BdFt: W

Page 1
Date 7/6/2011
Time 2:15:47PM

Spp	S T	So rt	Log Grd	Len	Gross MBF	Def %	Net MBF	% Spc	Percent Net Volume by Scaling Diameter in Inches												
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+	
RA		2S	2M	12	95		95	5.9					100.0								
RA		2S	2M	16	111	9.1	101	6.3					100.0								
RA		2S	2M	22	275		275	16.9					52.7	47.3							
RA		2S	2M	26	297		297	18.3					48.7	51.3							
RA		3S	3M	32	142		142	8.8				100.0									
RA		4S	4M	12	10		10	.6			100.0										
RA		4S	4M	22	20		20	1.3		100.0											
RA		4S	4M	26	103		103	6.4		100.0											
RA		4S	4M	30	77		77	4.8		100.0											
RA		4S	4M	40	219		219	13.5			19.9	80.1									
RA		PU	PU	12	12		12	.8		100.0											
RA		PU	PU	19	10		10	.6		100.0											
RA		PU	PU	21	26		26	1.6		100.0											
RA		PU	PU	22	14		14	.8		100.0											
RA		PU	PU	27	18		18	1.1		100.0											
RA		PU	PU	30	69		69	4.3		100.0											
RA		PU	PU	31	10		10	.6		100.0											
RA		PU	PU	40	88	16.7	73	4.5			100.0										
RA		PU	PU	41	48		48	3.0			100.0										
RA		Totals			1,645	1.5	1,620	4.5			21.5	22.3	8.8	14.8	24.6	8.0					
DF		DO	2M	16	78		78	.2					100.0								
DF		DO	2M	18	77		77	.2					100.0								
DF		DO	2M	20	41		41	.1					100.0								
DF		DO	2M	32	115		115	.3					100.0								
DF		DO	2M	36	110		110	.3					100.0								
DF		DO	2M	40	9,325	1.7	9,170	27.5					14.8	18.2	35.7	17.7	13.5				
DF		DO	3M	15	4		4	.0			100.0										
DF		DO	3M	18	64		64	.2					100.0								
DF		DO	3M	21	7		7	.0			100.0										
DF		DO	3M	26	42		42	.1				100.0									
DF		DO	3M	31	10		10	.0			100.0										
DF		DO	3M	32	426		426	1.3			3.0	56.0	30.1	10.9							
DF		DO	3M	34	107		107	.3			15.6		84.4								
DF		DO	3M	36	213	1.4	210	.6			14.0	61.1	24.9								
DF		DO	3M	37	13		13	.0				100.0									
DF		DO	3M	40	4,998	1.5	4,925	14.8			33.1	32.6	34.3								

39.4

43.8

21.5 22.3 8.8 14.8 24.6

TC PLOGSTBF

Log Stock Table - Percent Board Feet

CH2M

Project: CAMAS Acres 1.306.20

T02N R04E S03 Ty0001	300.40
T02N R04E S03 Ty0002	735.40
T02N R04E S03 Ty0003	270.40

CuFt: S BdFt: W

Page 3
Date 7/6/2011
Time 2:15:47PM

Spp	S T	So rt	Log Grd	Len	Gross MBF	Def %	Net MBF	% Spc	Percent Net Volume by Scaling Diameter in Inches												
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+	
DF		LO	SM	40	199	6.1	187	.6												100.0	
DF		LO	2M	40	6,571		6,550	19.7				6.4	26.6	23.5	34.4	6.0	3.0				
DF		LO	3M	30	80		80	.2			100.0										
DF		LO	3M	36	43		43	.1			100.0										
DF		LO	3M	40	1,219		1,219	3.7			42.9	32.5	24.6								
DF		ME	2M	40	2,899		2,899	8.7				21.9	15.5	16.3	32.5	13.8					
DF		ME	3M	40	1,569		1,554	4.7			15.3	51.4	23.2	16.4	25.9	9.1	39.2				
DF		Totals			33,596		33,306	92.6			9.3	6.0	11.3	8.2	12.4	13.0	17.4	15.1	6.1	1.2	
CH		PU	PU	20	53		53	17.6			100.0										
CH		PU	PU	23	122		122	40.5			100.0										
CH		PU	PU	29	126		126	41.9			100.0										
CH		Totals			300		300	.8			100.0										
WH		DO	2M	32	136		136	18.4					100.0								
WH		DO	2M	40	124	5.0	118	16.0				100.0									
WH		DO	3M	40	439	7.8	405	54.8			14.2	27.9	57.9								
WH		DO	4M	12	7		7	1.0			100.0										
WH		DO	4M	18	37		37	5.0			100.0										
WH		DO	4M	27	18		18	2.4			100.0										
WH		DO	4M	28	19		19	2.5			100.0										
WH		Totals			779	5.2	739	2.1			10.9	7.8	15.3	31.7	16.0	18.4					
Total		All Species			36,321		35,966	100.0			10.7	6.7	10.7	8.6	12.5	13.5	16.5	14.0	5.7	1.1	

TC PSTATS		PROJECT STATISTICS							PAGE	1	
CH2M		PROJECT			CAMAS				DATE	7/6/2011	
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
02N	04E	03	CAMAS	0001	1,306.20	51	221	S	W		
02N	04E	03	CAMAS	0002							
02N	04E	03	CAMAS	0003							
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		51	221	4.3							
CRUISE		49	220	4.5	262,162	.1					
DBH COUNT											
REFOREST											
COUNT											
BLANKS		2									
100 %											
STAND SUMMARY											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR		191	125.3	16.3	55	46	181.6	25,721	25,498	6,584	6,584
R ALDER		17	17.4	15.0	44		21.3	1,259	1,241	397	397
CHERRY		6	54.3	6.5	16		12.5	230	230	63	63
WHEMLOCK		6	3.6	17.1	59	1	5.8	597	566	161	161
TOTAL		220	200.7	14.2	43		221.2	27,806	27,535	7,205	7,205
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL	68.1	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		104.2	7.5	438	473	509					
R ALDER		91.2	22.8	72	93	114					
CHERRY		118.0	52.5	4	8	13					
WHEMLOCK		42.2	18.8	135	167	198					
TOTAL		113.1	7.6	391	423	455	511	128	57		
CL	68.1	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		86.7	6.3	103	110	117					
R ALDER		66.6	16.6	24	29	33					
CHERRY		117.4	52.3	1	2	4					
WHEMLOCK		34.9	15.5	40	47	54					
TOTAL		94.4	6.4	93	99	105	356	89	40		
CL	68.1	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		102.3	14.3	107	125	143					
R ALDER		299.0	41.8	10	17	25					
CHERRY		418.1	58.5	23	54	86					
WHEMLOCK		423.9	59.3	1	4	6					
TOTAL		113.6	15.9	169	201	233	515	129	57		
CL	68.1	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		64.8	9.1	165	182	198					
R ALDER		306.2	42.8	12	21	30					
CHERRY		383.5	53.7	6	13	19					
WHEMLOCK		459.8	64.3	2	6	10					
TOTAL		42.1	5.9	208	221	234	71	18	8		
CL	68.1	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		76.3	10.7	22,777	25,498	28,220					
R ALDER		370.9	51.9	597	1,241	1,884					
CHERRY		599.3	83.8	37	230	422					

TC PSTATS
CH2M

PROJECT STATISTICS
PROJECT CAMAS

PAGE 2
DATE 7/6/2011

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
02N	04E	03	CAMAS	0001	1,306.20	51	221	S	W
02N	04E	03	CAMAS	0002					
02N	04E	03	CAMAS	0003					
CL	68.1	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
WHEMLOCK		473.1	66.2	191	566	940			
TOTAL		65.5	9.2	25,010	27,535	30,059	171	43	19
CL	68.1	COEFF	NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR		66.3	9.3	5,974	6,584	7,195			
R ALDER		334.6	46.8	211	397	582			
CHERRY		548.5	76.7	15	63	112			
WHEMLOCK		467.1	65.4	56	161	266			
TOTAL		53.6	7.5	6,665	7,205	7,745	115	29	13

TC PLOGSTVB
CH2M

Log Stock Table - MBF

T02N R04E S03 Ty0001	300.40
T02N R04E S03 Ty0002	735.40
T02N R04E S03 Ty0003	270.40

Project: CAMAS
Acres 1,306.20

Page 3
Date 7/6/2011
Time 1:58:13PM

S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches										
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39
DF	LO	SM	40	199	6.1	187	.6											187
DF	LO	2M	40	6,571		6,550	19.7					419	1741	1542	2255	392		200
DF	LO	3M	30	80		80	.2				80							
DF	LO	3M	36	43		43	.1				43							
DF	LO	3M	40	1,219		1,219	3.7				523	396	301					
DF	ME	2M	40	2,899		2,899	8.7					635	449	473	942	400		
DF	ME	3M	40	1,569		1,554	4.7				798	360	255	141				
DF	Totals			33,596		33,306	92.6		3113	1987	3749	2717	4143	4338	5794	5046	2033	386
CH	PU	PU	20	53		53	17.6		53									
CH	PU	PU	23	122		122	40.5		122									
CH	PU	PU	29	126		126	41.9		126									
CH	Totals			300		300	.8		300									
WH	DO	2M	32	136		136	18.4						136					
WH	DO	2M	40	124	5.0	118	16.0					118						
WH	DO	3M	40	439	7.8	405	54.8			57	113	235						
WH	DO	4M	12	7		7	1.0		7									
WH	DO	4M	18	37		37	5.0		37									
WH	DO	4M	27	18		18	2.4		18									
WH	DO	4M	28	19		19	2.5		19									
WH	Totals			779	5.2	739	2.1		81	57	113	235	118	136				
Total	All Species			36,321		35,966	100.0		3843	2406	3862	3093	4501	4872	5924	5046	2033	386

Type 1

T02N R04E S03 T0001 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt 02N 04E 03 CAMAS 0001 300.40 10 28 S	T02N R04E S03 T0001 BdFt W
---	----------------------------------

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf	
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99				
RA		2S	2M	57	1.3	2,591	2,558	768			83	17	26	74			20	140	1.40	18.3
RA		3S	3M	11		472	472	142		100				100			32	140	1.03	3.4
RA		4S	4M	15		702	702	211	46	54			5	95			26	32	0.52	22.2
RA		PU	PU	17	6.3	771	722	217	66	34			5	35	5	56	27	23	0.50	31.7
RA		Totals		41	1.8	4,537	4,455	1,338	18	25	48	10	16	63	11	9	25	59	0.71	75.7
CH		PU	PU	100		999	999	300	100				18	82			12	8	0.19	119.3
CH		Totals		9		999	999	300	100				18	82			12	8	0.19	119.3
DF		DO	2M	51	2.4	2,057	2,008	603			36	64			100		40	338	2.01	5.9
DF		DO	3M	5		192	192	58		100				100			32	140	1.21	1.4
DF		DO	4M	10		421	421	126	100				7	14	15	64	33	33	0.50	12.6
DF		LO	2M	34		1,292	1,292	388			37	63			100		40	547	2.88	2.4
DF		Totals		36	1.2	3,961	3,912	1,175	11	5	31	53	1	2	7	91	35	175	1.28	22.3
WH		DO	2M	32		452	452	136			100			100			32	230	1.52	2.0
WH		DO	3M	57	9.2	860	781	235		100				100			40	151	1.14	5.2
WH		DO	4M	11		138	138	41	100				57	43			18	19	0.47	7.2
WH		Totals		13	5.5	1,450	1,371	412	10	57	33		6	4	33	57	28	96	0.98	14.3
Type Totals					1.9	10,947	10,736	3,225	22	19	35	24	9	35	11	44	20	46	0.67	231.6

TC TLOGSTBF		Log Stock Table - Percent Board Feet																			
CH2M		Project: CAMAS																			
T02N R04E S03 T0001								T02N R04E S03 T0001													
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page	1												
02N	04E	03	CAMAS	0001	300.40	10	28	Date	7/6/2011												
								Time	2:06:03PM												
S Spp T	So rt	Log Grd Len	Gross MBF	% Def	Net MBF	% Spc	Percent Net Volume by Scaling Diameter in Inches														
							2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+			
RA	2S	2M	12	95		95	7.1				100.0										
RA	2S	2M	16	111		101	7.6					100.0									
RA	2S	2M	22	275		275	20.5					52.7	47.3								
RA	2S	2M	26	297		297	22.2				48.7	51.3									
RA	3S	3M	32	142		142	10.6				100.0										
RA	4S	4M	12	10		10	.8			100.0											
RA	4S	4M	22	20		20	1.5		100.0												
RA	4S	4M	26	103		103	7.7		100.0												
RA	4S	4M	30	77		77	5.8		100.0												
RA	PU	PU	19	10		10	.8		100.0												
RA	PU	PU	21	26		26	1.9		100.0												
RA	PU	PU	22	14		14	1.0		100.0												
RA	PU	PU	27	18		18	1.4		100.0												
RA	PU	PU	30	18		18	1.4		100.0												
RA	PU	PU	31	10		10	.8		100.0												
RA	PU	PU	40	88		73	5.5			100.0											
RA	PU	PU	41	48		48	3.6		100.0												
RA	Totals			1,363	1.8	1,338	41.5		18.0	13.9		10.6	17.9	29.8	9.7						
CH	PU	PU	20	53		53	17.6		100.0												
CH	PU	PU	23	122		122	40.5		100.0												
CH	PU	PU	29	126		126	41.9		100.0												
CH	Totals			300		300	9.3		100.0												
DF	DO	2M	40	618		603	51.3				36.1		63.9								
DF	DO	3M	32	58		58	4.9				100.0										
DF	DO	4M	20	8		8	.7		100.0												
DF	DO	4M	22	7		7	.6		100.0												
DF	DO	4M	24	11		11	.9		100.0												
DF	DO	4M	31	19		19	1.6		100.0												
DF	DO	4M	37	15		15	1.3		100.0												
DF	DO	4M	40	66		66	5.6		100.0												
DF	LO	2M	40	388		388	33.0						37.4	62.6							
DF	Totals			1,190	1.2	1,175	36.4		10.8			4.9	18.5	45.1	20.7						
WH	DO	2M	32	136		136	33.0					100.0									
WH	DO	3M	40	258		235	57.0				100.0										
WH	DO	4M	12	7		7	1.8		100.0												
WH	DO	4M	18	16		16	4.0		100.0												
WH	DO	4M	27	18		18	4.3		100.0												
WH	Totals			436	5.5	412	12.8		10.1			57.0	33.0								
Total	All Species			3,288	1.9	3,225	100.0		22.0	5.8		13.5	14.2	16.6	20.5	7.5					

TC TSTATS				STATISTICS				PAGE	1	
CH2M				PROJECT	CAMAS		DATE	7/6/2011		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
02N	04E	03	CAMAS	0001	300.40	10	28	S	W	
				TREES	ESTIMATED		PERCENT			
				PER PLOT	TOTAL		SAMPLE			
					TREES		TREES			
TOTAL	10	28	2.8							
CRUISE	9	27	3.0		76,378		.0			
DBH COUNT										
REFOREST										
COUNT										
BLANKS	1									
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
R ALDER	13	54.6	15.8	44		74.3	4,537	4,455	1,351	1,351
CHERRY	5	179.9	6.7	18		43.4	999	999	275	275
DOUG FIR	6	12.6	21.0	67	7	30.4	3,961	3,912	1,010	1,010
WHEMLOCK	3	7.2	19.2	59	3	14.4	1,450	1,371	393	393
TOTAL	27	254.3	10.8	27		162.5	10,947	10,736	3,029	3,029
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF			SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	87.4	25.2	79	106	133					
CHERRY	100.0	49.7	5	10	15					
DOUG FIR	65.5	29.2	333	470	607					
WHEMLOCK	28.9	20.0	157	197	236					
TOTAL	125.0	24.5	135	179	223	648	162	72		
CL: 68.1 %	COEFF			SAMPLE TREES - CF			# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	66.6	19.2	25	31	37					
CHERRY	99.4	49.4	1	3	4					
DOUG FIR	52.8	23.5	89	117	144					
WHEMLOCK	14.3	9.9	50	56	61					
TOTAL	106.2	20.8	38	48	58	468	117	52		
CL: 68.1 %	COEFF			TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	138.1	45.9	30	55	80					
CHERRY	214.8	71.5	51	180	308					
DOUG FIR	153.1	50.9	6	13	19					
WHEMLOCK	316.2	105.2		7	15					
TOTAL	141.5	47.1	135	254	374	886	222	98		
CL: 68.1 %	COEFF			BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	137.4	45.7	40	74	108					
CHERRY	185.9	61.9	17	43	70					
DOUG FIR	140.7	46.8	16	30	45					
WHEMLOCK	316.2	105.2		14	30					
TOTAL	50.6	16.8	135	163	190	113	28	13		
CL: 68.1 %	COEFF			NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	179.8	59.8	1,789	4,455	7,120					
CHERRY	260.4	86.6	133	999	1,865					
DOUG FIR	161.7	53.8	1,807	3,912	6,017					
WHEMLOCK	316.2	105.2		1,371	2,813					
TOTAL	93.5	31.1	7,395	10,736	14,078	387	97	43		

TC TSTATS				STATISTICS				PAGE	2	
CH2M				PROJECT CAMAS				DATE	7/6/2011	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
02N	04E	03	CAMAS	0001	300.40	10	28	S	W	
CL:	68.1%	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
CL:	68.1%	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
R ALDER		160.8	53.5	628	1,351	2,074				
CHERRY		235.2	78.3	60	275	490				
DOUG FIR		153.5	51.1	494	1,010	1,526				
WHEMLOCK		316.2	105.2		393	806				
TOTAL		<i>86.1</i>	<i>28.6</i>	<i>2,161</i>	<i>3,029</i>	<i>3,897</i>	328	82	36	

TC TreeList
CH2M

Plot Tree List

Page 1
Date 7/6/2011

Project CAMAS

TWP	RGE	SC	TRACT	Type	Acres	Plots	Trees	CuFt	BdFt										
02N	04E	03	CAMAS	0001	300.40	10	28	S	W										
Tree	C			T			BfCf		BfCf		BfCf		BfCf						
Plot	No	PF	A	Sp	S	T	DBH	FP	FF	D	Hgt	Hgt	PRDVT	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP	
0011	0001	40	3	RA			18.0	16	85	D	18	50		00--					
0011	0002	40	3	RA			24.0	16	90	D	45	65		0012	CP--				
0011	0003	40	3	RA			12.0	16	80	D	35	43		44304					
0011	0004	40	3	RA			14.0	16	83	D	38	47		00--					
0012	0001	40	3	RA			19.0				48	78							
0012	0002	40	3	DF			28.0	16	90	F	105	135		L240	9240	94--			
0012	0003	40	3	DF			28.0	16	88	F	66	89		L240	94--				
0012	0004	40	3	RA			14.0	16	91	D	47	74		CP406					
0013	0001	40	3	DF			27.0	16	89	F	79	110		9240	94--				
0014	0001	40	3	RA			17.0	16	90	D	42	65		22162	4422				
0014	0002	40	3	RA			24.0	16	89	D	39	62		2222	4412	00--			
0014	0003	40	3	RA			15.0	16	88	D	37	59		2212	CP--				
0015	0001	40	3	DF		0													
0016	0001	40	3	CH			6.0	10		D	16			CP--1					
0016	0002	40	3	CH			6.0	10		D	12			00--					
0017	0001	40	3	RA			18.0	16		D	56			2226	CP--				
0017	0002	40	3	RA			20.0	16		D	70			2226	CP--				
0017	0003	40	3	RA			12.0	16		D	50			44264	CP--				
0017	0004	40	3	RA			18.0	16		D	55			2222	CP--				
0017	0005	40	3	RA			17.0	16		D	54			3332	CP--				
0018	0001	40	3	CH			8.5	16		D	22			CP--					
0019	0001	40	3	DF			13.0	16	89	F	47			006	94--				
0019	0002	40	3	CH			7.0	16	86	D	25			CP--					
0019	0003	40	3	CH			8.0	16		D	32			CP--					
0110	0001	40	3	DF			21.0	16		F	73			92402	94--				
0110	0002	40	3	WH			18.0	16	91	F	60			93404	94--				
0110	0003	40	3	WH			19.0	16		F	54			93404	94--				
0110	0004	40	3	WH			21.0	16		F	65			004	9232	94--			
0110	0005	40	3	DF			26.0	16		F	95			92402	9332	94--			

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CRUISED DATE								
02N	04E	03	CAMAS	0001	300.40	10	28	7/1/2011								
Plot No.	Tree No.	Age	SI	Spp St	Trees Me.	16' Cl.	Tot DBH	16' FF	Tot HL	BA /Ac.	Trees /Ac.	Logs /Ac.	Net CuFV/Ac.	Net BdFV/Ac.	Total CUNITS	MBF
0011	0001	60		RA	1		18.0	85	50	55.4	31.33					
	0002	60		RA	1		24.0	90	65	49.4	15.72	15.7	607	314	182	9
	0003	60		RA	1		12.0	80	43	62.5	79.58	79.6	1,100	2,387	331	72
	0004	60		RA	1		14.0	83	47	58.1	54.32					
0011					4		15.1	83	47	225.3	180.94	95.3	1,708	2,702	513	81
0012	0001	60		RA	1		15.0	85	58	53.1	39.02	54.0	965	3,182	290	96
	0002	60		DF	1		28.0	90	135	49.4	11.55	34.6	2,225	10,625	668	319
	0003	60		DF	1		28.0	88	89	51.7	12.08	24.2	1,520	5,194	457	156
	0004	60		RA	1		14.0	91	74	48.3	45.18	45.2	1,010	2,259	304	68
0012					3	1	18.6	88	76	202.4	107.83	158.0	5,720	21,260	1,718	639
0013	0001	60		DF	1		27.0	89	110	50.5	12.70	25.4	1,739	6,350	522	191
0013					1		27.0	89	110	50.5	12.70	25.4	1,739	6,350	522	191
0014	0001	60		RA	1		17.0	90	65	49.4	31.33	62.7	1,033	3,760	310	113
	0002	60		RA	1		24.0	89	62	50.5	16.07	32.1	967	4,340	290	130
	0003	60		RA	1		15.0	88	59	51.7	42.09	84.2	970	3,367	291	101
0014					3		17.6	89	62	151.5	89.49	179.0	2,970	11,467	892	344
0015	0001	60		DF												
0015										0.00						
0016	0001	60		CH	1		6.0	58	32	118.9	605.58	605.6				
	0002	60		CH	1		6.0	58	20	118.9	605.58					
0016					2		6.0	58	26	237.8	1,211.17	605.6				
0017	0001	60		RA	1		18.0	90	61	49.4	27.94	55.9	1,288	5,030	387	151
	0002	60		RA	1		20.0	86	77	54.1	24.79	49.6	1,635	6,197	491	186
	0003	60		RA	1		12.0	80	60	62.5	79.58	159.2	1,385	3,979	416	120
	0004	60		RA	1		18.0	90	60	49.4	27.94	55.9	1,298	5,030	390	151
	0005	60		RA	1		17.0	90	59	49.4	31.33	62.7	1,253	4,699	376	141
0017					5		15.9	85	62	264.7	191.59	383.2	6,859	24,936	2,061	749
0018	0001	60		CH	1		8.5	76	26	69.3	175.74	175.7	767	1,757	230	53
0018					1		8.5	76	26	69.3	175.74	175.7	767	1,757	230	53
0019	0001	60		DF	1		13.0	89	62	50.5	54.79	54.8	873	2,191	262	66
	0002	60		CH	1		7.0	86	32	54.1	202.37	202.4	660	4,047	198	122
	0003	60		CH	1		8.0	74	46	73.0	209.26	209.3	1,324	4,185	398	126
0019					3		8.4	81	42	177.6	466.41	466.4	2,857	10,424	858	313
0110	0001	60		DF	1		21.0	88	86	51.7	21.47	42.9	1,685	5,583	506	168
	0002	60		WH	1		18.0	91	71	48.3	27.33	54.7	1,418	4,920	426	148
	0003	60		WH	1		19.0	91	63	48.3	24.53	49.1	1,235	3,680	371	111
	0004	60		WH	1		21.0	92	74	47.3	19.65	39.3	1,275	5,108	383	153
	0005	60		DF	1		26.0	89	108	50.5	13.70	41.1	2,059	9,177	618	276
0110					5		20.6	90	77	246.0	106.69	227.1	7,672	28,469	2,305	855
TYPE					27	1	10.8		39	162.5	254.26	231.6	3,029	10,736	9,100	3,225

TC TLOGSTVB

Log Stock Table - MBF

CH2M

Project: CAMAS

T02N R04E S03 T0001

T02N R04E S03 T0001

Twp Rge Sec Tract Type Acres Plots Sample Trees
 02N 04E 03 CAMAS 0001 300.40 10 28

Page 1
 Date 7/6/2011
 Time 2:07:31PM

S Spp	So rt	Gr de	Log Len	Gross MBF	% Def	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches															
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+				
RA	2S	2M	12	95		95	7.1					95											
RA	2S	2M	16	111	9.1	101	7.6						101										
RA	2S	2M	22	275		275	20.5						145	130									
RA	2S	2M	26	297		297	22.2					145	152										
RA	3S	3M	32	142		142	10.6				142												
RA	4S	4M	12	10		10	.8			10													
RA	4S	4M	22	20		20	1.5		20														
RA	4S	4M	26	103		103	7.7			103													
RA	4S	4M	30	77		77	5.8		77														
RA	PU	PU	19	10		10	.8		10														
RA	PU	PU	21	26		26	1.9																
RA	PU	PU	22	14		14	1.0																
RA	PU	PU	27	18		18	1.4																
RA	PU	PU	30	18		18	1.4																
RA	PU	PU	31	10		10	.8			10													
RA	PU	PU	40	88	16.7	73	5.5			73													
RA	PU	PU	41	48		48	3.6			48													
RA	Totals			1,363	1.8	1,338	41.5		241	186		142	240	398	130								
CH	PU	PU																					
CH	PU	PU	20	53		53	17.6			53													
CH	PU	PU	23	122		122	40.5			122													
CH	PU	PU	29	126		126	41.9			126													
CH	Totals			300		300	9.3		300														
DF	DO	2M	40	618	2.4	603	51.3					218			385								
DF	DO	3M	32	58		58	4.9					58											
DF	DO	4M	20	8		8	.7			8													
DF	DO	4M	22	7		7	.6			7													
DF	DO	4M	24	11		11	.9			11													
DF	DO	4M	31	19		19	1.6			19													
DF	DO	4M	37	15		15	1.3			15													
DF	DO	4M	40	66		66	5.6			66													
DF	LO	2M	40	388		388	33.0							145	243								
DF	Totals			1,190	1.2	1,175	36.4		126			58	218		530	243							
WH	DO	2M	32	136		136	33.0							136									
WH	DO	3M	40	258	9.2	235	57.0					235											
WH	DO	4M	12	7		7	1.8			7													
WH	DO	4M	18	16		16	4.0			16													
WH	DO	4M	27	18		18	4.3			18													
WH	Totals			436	5.5	412	12.8		41			235		136									
Total All Species				3,288	1.9	3,225	100.0		710	186		434	458	534	660	243							

Type 2

T02N R04E S03 T0002	T02N R04E S03 T0002
Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt	BdFt
02N 04E 03 CAMAS 0002 735.40 31 149 S	W

S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf		
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
DF	DO	2M	21	2.3	6,902	6,747	4,962			51	49		4		2	94	36	356	2.15	19.0
DF	DO	3M	19	1.7	6,087	5,984	4,401		97	3			2	1	6	91	39	90	0.82	66.4
DF	DO	4M	12		3,697	3,697	2,718	91	9			32	33	16	18		24	26	0.44	141.6
DF	PU	PU	1	4.5	302	289	212	44	56			44	4		52		23	36	0.60	8.0
DF	HI	2M	6		1,762	1,762	1,296			61	39				100		40	324	2.07	5.4
DF	HI	3M	1		183	183	134		100						100		40	120	0.68	1.5
DF	LO	SM		6.1	271	254	187				100				100		40	1840	8.25	.1
DF	LO	2M	17	.5	5,350	5,321	3,913			37	63				100		40	524	2.53	10.1
DF	LO	3M	6		1,615	1,615	1,188		88	12			7		93		38	129	0.83	12.5
DF	ME	2M	10	.0	3,112	3,112	2,289			60	40				100		40	381	2.35	8.2
DF	ME	3M	7	1.0	2,133	2,113	1,554		75	25					100		40	134	0.84	15.8
DF	Totals		98	1.1	31,414	31,075	22,853	11	31	30	28	5	5	4	86	31	108	0.94	288.6	
WH	DO	2M	36	5.0	169	160	118			100					100		40	190	1.18	.8
WH	DO	3M	52	5.7	246	232	170		100						100		40	86	0.62	2.7
WH	DO	4M	12		53	53	39	100				52	48				22	24	0.37	2.2
WH	Totals		1	4.8	468	445	327	12	52	36	6	6	88	33	77	0.66	5.8			
RA	4S	4M	100		119	119	88		100						100		40	60	0.43	2.0
RA	Totals		0		119	119	88		100						100		40	60	0.43	2.0
Type Totals				1.1	32,000	31,639	23,268	11	31	30	28	5	5	4	86	31	107	0.93	296.3	

TC TLOGSTBF		Log Stock Table - Percent Board Feet															
CH2M		Project: CAMAS															
T02N R04E S03 T0002										T02N R04E S03 T0002							
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page	1								
02N	04E	03	CAMAS	0002	735.40	31	149	Date	7/6/2011								
								Time	1:45:50PM								
S Spp	So T	Log rt Grd Len	Gross MBF	% Def	Net MBF	% Spc	Percent Net Volume by Scaling Diameter in Inches										
							2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39
DF	DO	2M 16	78		78	.3					100.0						
DF	DO	2M 18	77		77	.3					100.0						
DF	DO	2M 20	41		41	.2					100.0						
DF	DO	2M 32	115		115	.5					100.0						
DF	DO	2M 36	110		110	.5					100.0						
DF	DO	2M 40	4,656		4,542	19.9					13.5	19.3	26.9	27.7	12.6		
DF	DO	3M 15	4		4	.0			100.0								
DF	DO	3M 18	64		64	.3					100.0						
DF	DO	3M 21	7		7	.0			100.0								
DF	DO	3M 26	42		42	.2				100.0							
DF	DO	3M 31	10		10	.0			100.0								
DF	DO	3M 32	275		275	1.2			4.6	52.9	25.7		16.9				
DF	DO	3M 36	104		101	.4			14.9	85.1							
DF	DO	3M 37	13		13	.1				100.0							
DF	DO	3M 40	3,957		3,884	17.0			37.7	31.4	31.0						
DF	DO	4M 12	30		30	.1		82.8	17.2								
DF	DO	4M 13	44		44	.2		91.1	8.9								
DF	DO	4M 14	115		115	.5		29.6	70.4								
DF	DO	4M 15	173		173	.8		54.7	43.4	1.9							
DF	DO	4M 17	128		128	.6		86.5	9.9	3.7							
DF	DO	4M 18	163		163	.7		100.0									
DF	DO	4M 19	174		174	.8		96.1	3.9								
DF	DO	4M 20	52		52	.2		100.0									
DF	DO	4M 21	20		20	.1		100.0									
DF	DO	4M 22	77		77	.3		89.3	10.7								
DF	DO	4M 23	114		114	.5		68.3	19.5	12.3							
DF	DO	4M 24	12		12	.1		100.0									
DF	DO	4M 26	13		13	.1		100.0									
DF	DO	4M 27	146		146	.6		93.9	6.1								
DF	DO	4M 28	222		222	1.0		100.0									
DF	DO	4M 29	169		169	.7		100.0									
DF	DO	4M 30	132		132	.6		100.0									
DF	DO	4M 32	24		24	.1		100.0									
DF	DO	4M 33	198		198	.9		100.0									
DF	DO	4M 34	92		92	.4		100.0									
DF	DO	4M 35	128		128	.6		100.0									
DF	DO	4M 36	24		24	.1		100.0									
DF	DO	4M 37	105		105	.5		100.0									
DF	DO	4M 38	72		72	.3		100.0									
DF	DO	4M 39	41		41	.2		100.0									
DF	DO	4M 40	189		189	.8		100.0									
DF	DO	4M 41	60		60	.3		100.0									
DF	PU	PU 19	74		74	.3		100.0									
DF	PU	PU 20	20		20	.1		100.0									
DF	PU	PU 24	9		9	.0			100.0								
DF	PU	PU 40	120		110	.5				100.0							
DF	HI	2M 40	1,296		1,296	5.7					38.7	22.4	38.9				
DF	HI	3M 40	134		134	.6				100.0							
DF	LO	SM 40	199		187	.8											100.0
DF	LO	2M 40	3,934		3,913	17.1					6.8	17.7	18.8	41.6	10.0		5.1

TC TLOGSTBF		Log Stock Table - Percent Board Feet										T02N R04E S03 T0002					
CH2M		Project: CAMAS										Page 2					
02N 04E 03 CAMAS		Type 0002 Acres 735.40 Plots 31 Sample Trees 149										Date 7/6/2011					
												Time 1:45:50PM					
S Spp	So T	Log rt Grd Len	Gross MBF	% Def	Net MBF	% Spc	Percent Net Volume by Scaling Diameter in Inches										
							2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39
DF	LO	3M 30	80		80	.3				100.0							
DF	LO	3M 36	43		43	.2			100.0								
DF	LO	3M 40	1,065		1,065	4.7			49.1	37.2	13.7						
DF	M	2M 40	2,289		2,289	10.0				27.7	19.6	12.3	22.9	17.5			
DF	M	3M 40	1,569		1,554	6.8			51.4	23.2	16.4	9.1					
DF		Totals	23,102	1.1	22,853	98.2		11.2	7.6	14.1	8.9	12.7	10.9	12.0	14.9	6.0	1.7
WH	DO	2M 40	124		118	36.0				100.0							
WH	DO	3M 40	181		170	52.0			33.7	66.3							
WH	DO	4M 18	21		21	6.3		100.0									
WH	DO	4M 28	19		19	5.7		100.0									
WH		Totals	344	4.8	327	1.4		12.0	17.5	34.5	36.0						
RA	4S	4M 40	88		88	100.0			100.0								
RA		Totals	88		88	.4			100.0								
Total		All Species	23,533	1.1	23,268	100.0		11.2	8.1	14.3	8.7	13.0	10.7	11.8	14.6	5.9	1.7

TC TSTATS		STATISTICS							PAGE	1
CH2M		PROJECT			CAMAS		DATE 7/6/2011			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
02N	04E	03	CAMAS	0002	735.40	31	149	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		31	149	4.8						
CRUISE		31	149	4.8	142,632	.1				
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	145	188.4	15.2	51	61	236.9	31,414	31,075	8,420	8,420
WHEMLOCK	3	3.5	15.2	59	1	4.5	468	445	125	125
R ALDER	1	2.0	12.0	50		1.6	119	119	34	34
TOTAL	149	194.0	15.2	51		243.0	32,000	31,639	8,580	8,580
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	118.9	9.9	385	427	470					
WHEMLOCK	58.7	40.6	81	137	192					
R ALDER										
TOTAL	120.2	9.8	378	419	460	577	144	64		
CL: 68.1 %	COEFF	SAMPLE TREES - CF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	97.3	8.1	93	101	109					
WHEMLOCK	51.0	35.3	25	38	52					
R ALDER										
TOTAL	98.4	8.1	91	99	107	386	97	43		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	79.0	14.2	162	188	215					
WHEMLOCK	401.4	72.0	1	4	6					
R ALDER	556.8	99.9	0	2	4					
TOTAL	75.3	13.5	168	194	220	226	57	25		
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	41.5	7.5	219	237	255					
WHEMLOCK	409.4	73.5	1	4	8					
R ALDER	556.8	99.9	0	2	3					
TOTAL	39.1	7.0	226	243	260	61	15	7		
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	50.6	9.1	28,253	31,075	33,897					
WHEMLOCK	466.2	83.7	73	445	818					
R ALDER	556.8	99.9	0	119	238					
TOTAL	48.7	8.7	28,877	31,639	34,402	95	24	11		
CL: 68.1 %	COEFF	NET CUFT FT/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	38.6	6.9	7,837	8,420	9,004					
WHEMLOCK	442.4	79.4	26	125	225					
R ALDER	556.8	99.9	0	34	68					
TOTAL	36.4	6.5	8,019	8,580	9,140	53	13	6		

TC TLOGSTVB

Log Stock Table - MBF

CH2M

Project: **CAMAS**

T02N R04E S03 T0002

T02N R04E S03 T0002

Twp **02N** Rge **04E** Sec **03** Tract **CAMAS** Type **0002** Acres **735.40** Plots **31** Sample Trees **149** Page **1**
 Date **7/6/2011** Time **1:45:52PM**

S Spp	So T	Gr rt	Log de Len	Gross MBF	% Def	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches												
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+	
DF	DO	2M	16	78		78	.3						78							
DF	DO	2M	18	77		77	.3						77							
DF	DO	2M	20	41		41	.2						41							
DF	DO	2M	32	115		115	.5						115							
DF	DO	2M	36	110		110	.5						110							
DF	DO	2M	40	4,656	2.5	4,542	19.9						615	877	1220	1257	572			
DF	DO	3M	15	4		4	.0			4										
DF	DO	3M	18	64		64	.3						64							
DF	DO	3M	21	7		7	.0			7										
DF	DO	3M	26	42		42	.2				42									
DF	DO	3M	31	10		10	.0			10										
DF	DO	3M	32	275		275	1.2			13	145	71		46						
DF	DO	3M	36	104	2.9	101	.4			15	86									
DF	DO	3M	37	13		13	.1				13									
DF	DO	3M	40	3,957	1.8	3,884	17.0			1464	1218	1202								
DF	DO	4M	12	30		30	.1		25	5										
DF	DO	4M	13	44		44	.2		40	4										
DF	DO	4M	14	115		115	.5		34	81										
DF	DO	4M	15	173		173	.8		95	75	3									
DF	DO	4M	17	128		128	.6		110	13	5									
DF	DO	4M	18	163		163	.7		163											
DF	DO	4M	19	174		174	.8		167	7										
DF	DO	4M	20	52		52	.2		52											
DF	DO	4M	21	20		20	.1		20											
DF	DO	4M	22	77		77	.3		69	8										
DF	DO	4M	23	114		114	.5		78	22	14									
DF	DO	4M	24	12		12	.1		12											
DF	DO	4M	26	13		13	.1		13											
DF	DO	4M	27	146		146	.6		137	9										
DF	DO	4M	28	222		222	1.0		222											
DF	DO	4M	29	169		169	.7		169											
DF	DO	4M	30	132		132	.6		132											
DF	DO	4M	32	24		24	.1		24											
DF	DO	4M	33	198		198	.9		198											
DF	DO	4M	34	92		92	.4		92											
DF	DO	4M	35	128		128	.6		128											
DF	DO	4M	36	24		24	.1		24											
DF	DO	4M	37	105		105	.5		105											
DF	DO	4M	38	72		72	.3		72											
DF	DO	4M	39	41		41	.2		41											
DF	DO	4M	40	189		189	.8		189											
DF	DO	4M	41	60		60	.3		60											
DF	PU	PU	19	74		74	.3		74											
DF	PU	PU	20	20		20	.1		20											
DF	PU	PU	24	9		9	.0			9										
DF	PU	PU	40	120	8.3	110	.5				110									
DF	HI	2M	40	1,296		1,296	5.7					501	291	504						
DF	HI	3M	40	134		134	.6			134										
DF	LO	SM	40	199	6.1	187	.8												187	
DF	LO	2M	40	3,934	.5	3,913	17.1					264	693	736	1627	392	200			

TC TLOGSTVB

Log Stock Table - MBF

CH2M

Project: **CAMAS**

T02N R04E S03 T0002

T02N R04E S03 T0002

Twp Rge Sec Tract Type Acres Plots Sample Trees
02N 04E 03 CAMAS 0002 735.40 31 149

Page 2
Date 7/6/2011
Time 1:45:52PM

S Spp	So T	Gr rt	Log de Len	Gross MBF	% Def	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches														
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+			
DF	LO	3M	30	80		80	.3				80											
DF	LO	3M	36	43		43	.2				43											
DF	LO	3M	40	1,065		1,065	4.7				523	396	146									
DF	M	2M	40	2,289		2,289	10.0					635	449	281	525	400						
DF	M	3M	40	1,569	1.0	1,554	6.8				798	360	255	141								
DF	Totals			23,102	1.1	22,853	98.2		2566	1746	3215	2029	2900	2498	2741	3409	1364	386				
WH	DO	2M	40	124	5.0	118	36.0					118										
WH	DO	3M	40	181	5.7	170	52.0			57	113											
WH	DO	4M	18	21		21	6.3		21													
WH	DO	4M	28	19		19	5.7		19													
WH	Totals			344	4.8	327	1.4		39	57	113		118									
RA	4S	4M	40	88		88	100.0			88												
RA	Totals			88		88	.4			88												
Total All Species				23,533	1.1	23,268	100.0		2605	1891	3328	2029	3017	2498	2741	3409	1364	386				

TWP	RGE	SC	TRACT	Type	Acres	Plots	Trees	CuFt	BdFt									
02N	04E	03	CAMAS	0002	735.40	31	149	S	W									
Tree	C			T			BfCf		BfCf		BfCf		BfCf					
Plot	No	PF	A	Spc	S	T	DBH	FP	FF	D	Hgt	Hgt	PRDVT	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP
0021	0001	40	3	DF			16.0	16	89	F	38	95		94--2	00--			
0021	0002	40	3	DF			31.0	16	90	H	110	144		92406	9240	94--		
0021	0003	40	3	DF			31.0	16	90	H	108	149		L2402	92404	CP--		
0021	0004	40	3	DF			29.0	16	90	H	95	129		L2402	9340	94--		
0021	0005	40	3	DF			31.0	16	90	H	102	140		L240	9240	94--		
0021	0006	40	3	DF			16.0	16	89	F	70	110		M340	94--			
0022	0001	40	3	DF			22.0	16	90	F	90	125		92402	9340	00--		
0022	0002	40	3	DF			26.0	16	90	F	105	135		9240	9340	94--		
0022	0003	40	3	DF			23.0	16	90	F	100	132		L240	9340	94--		
0022	0004	40	3	DF			30.0	16	90	G	106	145		9240	9240	94--		
0022	0005	40	3	DF			32.0	16	90	H	106	142		9240	9240	94--		
0023	0001	40	3	DF			20.0	16	90	F	85	135		H240	9340			
0023	0002	40	3	DF			15.0	16	89	F	71	114		9340	94--			
0023	0003	40	3	DF			21.0	16	90	F	86	137		H240	9340			
0023	0004	40	3	DF			20.0	16	90	F	80	129		M240	94--			
0023	0005	40	3	DF			19.0	16	90	F	79	121		M340	94--			
0024	0001	40	3	DF			22.0	16	90	F	109	138		L240	9340	94--		
0024	0002	40	3	DF			25.0	16	90	F	120	149		H240	9240	94--		
0024	0003	40	3	DF			20.0	16	90	F	106	137		L240	9340	94--		
0025	0001	40	3	DF			14.0	16	89	F	60	111		9340	94--			
0025	0002	40	3	DF			16.0	16	90	F	86	120		9340	9326	94--		
0025	0003	40	3	DF			20.0	16	90	F	95	126		9240	9332	94--		
0025	0004	40	3	DF			21.0	16	90	F	98	130		L240	9332	94--		
0025	0005	40	3	DF			16.0	16	89	F	72	116		93402	94--			
0025	0006	40	3	DF			15.0	16	89	F	65	110		93402	94--			
0025	0007	40	3	DF			19.0	16	90	F	78	121		9240	94--			
0025	0008	40	3	DF			32.0	16	90	H	100	141		L240	9240	94--		
0026	0001	40	3	DF			32.0	16	90	H	115	148		L240	9240	93--		
0026	0002	40	3	DF			15.0	16	87	F	40	70		94--4				
0026	0003	40	3	DF			33.0	16	90	H	114	166		92404	9240	93--		
0026	0004	40	3	DF			26.0	16	90	F	100	135		H240	9340	94--		
0026	0005	40	3	DF			25.0	16	89	F	80	115		M240	94--			
0027	0001	40	3	DF			36.0	16	90	I	100	125		L240	9240	00--		
0027	0002	40	3	DF			32.0	16	90	H	98	137		M240	9240	93--		
0027	0003	40	3	DF			30.0	16	90	G	104	142		M240	9240	93--		
0028	0001	40	3	DF			12.0	16	89	F	72	109		M340	94--			
0028	0002	40	3	DF			14.0	16	89	F	75	110		L340	94--			
0028	0003	40	3	DF			19.0	16	90	F	95	132		H240	L340	94--		
0028	0004	40	3	DF			20.0	16	90	F	93	125		M240	L336	94--		
0028	0005	40	3	DF			17.0	16	90	F	87	117		L340	9340			
0029	0001	40	3	DF			22.0	16	90	F	86	130		L240	9340			

TWP	RGE	SC	TRACT	Type	Acres	Plots	Trees	CuFt	BdFt								
02N	04E	03	CAMAS	0002	735.40	31	149	S	W								
Tree	C	T	BoleTot	BfCf	BfCf	BfCf	BfCf	BfCf	BfCf								
Plot No	PF	A	Spc	S	T	DBH	FP	FF	D	Hgt	Hgt	PRDVT	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP
0029	0002	40	3	DF		28.0	16	90	G	105	138		L240	9240	94--		
0029	0003	40	3	DF		35.0	16	90	I	106	150		L240	9240	94--		
0029	0004	40	3	DF		32.0	16	90	H	100	148		L240	9240	94--		
0029	0005	40	3	DF		24.0	16	90	F	96	135		L240	9340	94--		
0210	0001	40	3	DF		16.0	16	89	F	52	97		9336	94--			
0210	0002	40	3	DF		19.0	16	89	F	68	100		9236	94--			
0211	0001	40	3	DF		15.0	16	89	F	61	103		M340	94--			
0211	0002	40	3	DF		12.0	16	89	F	45	92		93402				
0211	0003	40	3	DF		16.0	16	89	F	71	105		93402	94--			
0211	0004	40	3	DF		9.0	16	87	F	18	69		94--				
0211	0005	40	3	DF		16.0	16	89	F	72	100		9340	94--			
0212	0001	40	3	DF		25.0	16	90	F	103	131		L240	9340	94--		
0212	0002	40	3	DF		10.0	16	88	F	29	89		94--				
0212	0003	40	3	DF		18.0	16	90	F	82	124		L240	94--			
0212	0004	40	3	DF		21.0	16	90	F	85	128		M340	9340	00--		
0212	0005	40	3	DF		15.0	16	89	F	63	107		M340	94--			
0212	0006	40	3	DF		14.0	16	89	F	56	98		9340	94--			
0212	0007	40	3	DF		10.0	16	87	F	34	72		94--				
0212	0008	40	3	DF		35.0	16	90	I	82	129		9240	9340	00--		
0213	0001	40	3	DF		17.0	16	93	F	70	112		L340	94--			
0213	0002	40	3	DF		31.0	16	90	G	106	132		9240	9240	94--		
0213	0003	40	3	DF		17.0	16	89	F	75	115		L340	94--			
0213	0004	40	3	DF		10.0	16	89	F	60	98		9340	94--			
0213	0005	40	3	DF		11.0	16	89	F	64	95		9340	94--			
0213	0006	40	3	DF		12.0	16	89	F	70	101		9340	94--			
0213	0007	40	3	DF		8.0	16	85	F	15	60		94--				
0213	0008	40	3	DF		15.0	16	89	F	71	109		L340	94--			
0214	0001	40	3	DF		16.0	16	88	F	62	86		9340	94--			
0214	0002	40	3	DF		28.0	16	90	G	88	136		9240	9340	00--		
0214	0003	40	3	DF		33.0	16	90	H	96	123		L240	9240	94--		
0215	0001	40	3	DF		16.0	16	90	F	61	117		L340	94--			
0215	0002	40	3	DF		30.0	16	90	H	86	128		M240	9340	00--		
0215	0003	40	3	DF		30.0	16	90	H	88	129		L240	9340	00--		
0215	0004	40	3	DF		42.0	16	90	J	120	164		L240	9240	93--		
0216	0001	40	3	DF		8.0	16	82	F	26	50		9414	00--			
0216	0002	40	3	DF		37.0	16	90	I	100	152		M240	L240	94--		
0216	0003	40	3	DF		46.0	16	90	K	115	158		L1401	9240	93--		
0216	0004	40	3	DF		23.0	16	89	F	88	113		H240	9340			
0216	0005	40	3	DF		38.0	16	90	I	115	159		M240	L240	93--		
0217	0001	40	3	DF		24.0	16	89	F	82	112		9240	9440			
0217	0002	40	3	DF		18.0	16	89	F	85	115		M340	9340			
0217	0003	40	3	DF		20.0	16	89	F	81	110		L240	94--			
0217	0004	40	3	DF		15.0	16	89	F	70	105		L340	94--			
0217	0005	40	3	DF		14.0	16	89	F	69	100		H340	94--			

TWP RGE SC TRACT Type Acres Plots Trees CuFt BdFt
02N 04E 03 CAMAS 0002 735.40 31 149 S W

Tree	C	T	BoleTot	BfCf	BfCf	BfCf	BfCf	BfCf
Plot No PF A Spc S T DBH FP FF D Hgt Hgt PRDVT SgLnFiFiP SgLnFiFiP SgLnFiFiP SgLnFiFiP SgLnFiFiP								
0217 0006 40 3 DF			20.0 16 90 F 90 128	M240	9340			
0217 0007 40 3 DF			27.0 16 89 G 78 109	924001	93--2			
0217 0008 40 3 DF			20.0 16 90 F 87 125	M240	9340			
0217 0009 40 3 DF			9.0 10 82 F 16 50	94--				
0218 0001 40 3 DF			9.0 16 84 F 20 57	94--				
0218 0002 40 3 DF			21.0 16 89 F 84 116	92402	9340			
0218 0003 40 3 DF			17.0 16 89 F 75 112	9340	94--			
0218 0004 40 3 DF			16.0 16 88 F 56 91	M340	94--			
0218 0005 40 3 DF			16.0 16 89 F 62 92	93404	94--			
0219 0001 40 3 DF			13.0 16 88 F 49 80	9340				
0219 0002 40 3 DF			25.0 16 89 F 69 93.	92404	94282			
0219 0003 40 3 DF			7.0 6 85 F 8 58	00--				
0219 0004 40 3 DF			12.0 6 87 F 28 75	94--				
0219 0005 40 3 DF			18.0 6 89 F 60 96	93404	94--			
0220 0001 40 3 DF			18.0 6 87 F 40 70	9318	00--			
0220 0002 40 3 DF			17.0 6 85 F 38 60	94--				
0221 0001 40 3 DF			11.0 6 87 F 36 75	94--				
0221 0002 40 3 DF			9.0 6 87 F 30 71	94--				
0221 0003 40 3 DF			8.0 6 86 F 20 65	CP--				
0221 0004 40 3 DF			10.0 6 87 F 35 69	94--				
0222 0001 40 3 DF			19.0 6 89 F 80 110	M240	9440	00--		
0222 0002 40 3 DF			21.0 6 89 F 83 112	H240	9440			
0222 0003 40 3 DF			24.0 6 89 F 84 114	M240	9340			
0222 0004 40 3 DF			15.0 6 89 F 49 101	9340				
0223 0001 40 3 DF			14.0 6 88 F 57 89	9340	94--			
0223 0002 40 3 DF			12.0 6 89 F 47 95	93408				
0223 0003 40 3 DF			12.0 6 89 F 47 92	9340				
0224 0001 40 3 DF			15.0 16 88 F 60 85	CP4010	CP20	00--		
0224 0002 40 3 DF			11.0 16 88 F 55 90	9340	94--			
0224 0003 40 3 DF			14.0 16 88 F 60 87	M340	94--			
0224 0004 40 3 DF			16.0 16 89 F 69 96	9218	008	94--		
0224 0005 40 3 DF			11.0 16 87 F 41 75	94404				
0225 0001 40 3 DF			15.0 16 88 F 45 78	9340				
0225 0002 40 3 RA			12.0 16 91 D 50 71	4440	00--			
0226 0001 40 3 DF			19.0 16 89 F 61 96	M340	94--			
0226 0002 40 3 DF			11.0 16 88 F 28 78	94--				
0226 0003 40 3 DF			8.0 10 86 F 14 64	94--				
0226 0004 40 3 DF			20.0 16 89 F 72 103	H240	94--			
0226 0005 40 3 DF			15.0 16 89 F 60 95	M340	94--			
0227 0001 40 3 DF			21.0 16 89 F 77 110	M240	94--2			
0227 0002 40 3 DF			29.0 16 90 F 90 120	H240	9340	00--		
0227 0003 40 3 DF			19.0 16 89 F 88 115	L340	9340			

TWP	RGE	SC	TRACT	Type	Acres	Plots	Trees	CuFt	BdFt										
02N	04E	03	CAMAS	0002	735.40	31	149	S	W										
Tree	C			T			BoleTot		BfCf		BfCf		BfCf		BfCf				
Plot	No	PF	A	Spc	S	T	DBH	FP	FF	D	Hgt	Hgt	PRDVT	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP	
0227	0004	40	3	DF			11.0	16	87	F	24	76		94--					
0227	0005	40	3	WH			18.0	16	93	F	70	100		92402	94--				
0227	0006	40	3	WH			14.0	16	93	F	60	102		93402	94--				
0228	0001	40	3	DF			18.0	16	89	F	80	105		M240	9440	00--			
0228	0002	40	3	DF			13.0	16	88	F	50	90		L330	94--				
0228	0003	40	3	DF			9.0	16	86	F	20	68		94--					
0228	0004	40	3	DF			17.0	16	89	F	70	101		M3404	94--				
0228	0005	40	3	DF			15.0	16	89	F	63	101		9216	9340				
0228	0006	40	3	DF			7.0	7	85	F	8	58		00--					
0228	0007	40	3	DF			23.0	16	90	F	87	118		L240	9220	94--			
0228	0008	40	3	DF			14.0	16	89	F	59	98		M340	94--				
0229	0001	40	3	DF			16.5	16		F	77			9340	94--				
0229	0002	40	3	DF			13.0	16		F	64			9340	94--				
0229	0003	40	3	DF			35.0	16		I	106			9240	9240	94--			
0230	0001	40	3	DF			17.5	16		F	85			9232	9332	94--			
0230	0002	40	3	DF			23.0	16		F	90			9240	9332	94--			
0230	0003	40	3	WH			14.5	16		F	50			006	9340				
0230	0004	40	3	DF			16.5	16		F	74			9340	94--				
0231	0001	40	3	DF			29.0	16	89	H	82	110		92402	9340				
0231	0002	40	3	DF			36.0	16	90	I	90	130		9240	9332	94--			
0231	0003	40	3	DF			25.0	16	89	F	80	104		M240	94--				
0231	0004	40	3	DF			31.0	16	90	H	83	120		9240	9340				

TC PLOT TREELIST			Plot Tree List - Volumes								Page	1			
CH2M		Project	CAMAS					Date	7/6/2011						
TWP	RGE	SC	TRACT		TYPE	ACRES		PLOTS	TREES		CRUISED DATE				
02N	04E	03	CAMAS		0002	735.40		31	149		7/1/2011				
Plot No.	Tree No.	Age	SI	Spp St	Trees		16' DBH	Tot Ht.	BA /Ac.	Trees /Ac.	Logs /Ac.	Net CuFv/Ac.	Net BdFv/Ac.	Total CUNITS	MBF
0021	0001	60		DF	1	16.0	89	95	50.5	36.17	36.2	912	1,447	216	34
	0002	60		DF	1	31.0	90	144	49.4	9.42	28.3	2,341	10,458	555	248
	0003	60		DF	1	31.0	90	149	49.4	9.42	28.3	2,272	10,270	539	244
	0004	60		DF	1	29.0	90	129	49.4	10.77	32.3	2,062	9,259	489	220
	0005	60		DF	1	31.0	90	140	49.4	9.42	28.3	2,200	10,458	522	248
	0006	60		DF	1	16.0	89	110	50.5	36.17	72.3	1,627	6,510	386	154
0021					6	22.2	89	116	298.5	111.36	225.6	11,415	48,401	2,708	1,148
0022	0001	60		DF	1	22.0	90	125	49.4	18.71	37.4	1,918	7,670	455	182
	0002	60		DF	1	26.0	90	135	49.4	13.39	40.2	2,154	9,777	511	232
	0003	60		DF	1	23.0	90	132	49.4	17.12	51.3	2,095	9,242	497	219
	0004	60		DF	1	30.0	90	145	49.4	10.06	30.2	2,206	10,362	523	246
	0005	60		DF	1	32.0	90	142	49.4	8.84	26.5	2,272	11,229	539	266
0022					5	25.8	90	134	246.9	68.12	185.6	10,645	48,281	2,525	1,145
0023	0001	60		DF	1	20.0	90	135	49.4	22.64	45.3	1,815	6,791	431	161
	0002	60		DF	1	15.0	89	114	50.5	41.15	82.3	1,588	6,173	377	146
	0003	60		DF	1	21.0	90	137	49.4	20.53	41.1	1,854	7,186	440	170
	0004	60		DF	1	20.0	90	129	49.4	22.64	45.3	1,764	6,338	418	150
	0005	60		DF	1	19.0	90	121	49.4	25.08	50.2	1,708	6,019	405	143
0023					5	18.6	90	125	248.0	132.03	264.1	8,729	32,506	2,071	771
0024	0001	60		DF	1	22.0	90	138	49.4	18.71	56.1	2,315	10,850	549	257
	0002	60		DF	1	25.0	90	149	49.4	14.49	43.5	2,485	11,734	589	278
	0003	60		DF	1	20.0	90	137	49.4	22.64	67.9	2,210	9,733	524	231
0024					3	22.1	90	140	148.1	55.83	167.5	7,009	32,317	1,663	767
0025	0001	60		DF	1	14.0	89	111	50.5	47.24	94.5	1,407	5,196	334	123
	0002	60		DF	1	16.0	90	120	49.4	35.37	106.1	1,945	8,842	461	210
	0003	60		DF	1	20.0	90	126	49.4	22.64	67.9	2,053	9,054	487	215
	0004	60		DF	1	21.0	90	130	49.4	20.53	61.6	2,143	10,265	508	244
	0005	60		DF	1	16.0	89	116	50.5	36.17	72.3	1,652	6,148	392	146
	0006	60		DF	1	15.0	89	110	50.5	41.15	82.3	1,517	5,350	360	127
	0007	60		DF	1	19.0	90	121	49.4	25.08	50.2	1,697	6,019	402	143
	0008	60		DF	1	32.0	90	141	49.4	8.84	26.5	2,113	9,815	501	233
0025					8	17.6	89	118	398.4	237.01	561.4	14,527	60,690	3,446	1,440
0026	0001	60		DF	1	32.0	90	148	49.4	8.84	26.5	2,430	12,379	576	294
	0002	60		DF	1	15.0	87	70	52.8	43.06	43.1	1,012	1,723	240	41
	0003	60		DF	1	33.0	90	166	49.4	8.31	24.9	2,420	11,307	574	268
	0004	60		DF	1	26.0	90	135	49.4	13.39	40.2	2,084	9,376	494	222
	0005	60		DF	1	25.0	89	115	50.5	14.81	29.6	1,776	6,518	421	155
0026					5	22.8	88	104	251.5	88.43	164.3	9,721	41,302	2,306	980
0027	0001	60		DF	1	36.0	90	125	49.4	6.99	14.0	2,005	10,549	476	250
	0002	60		DF	1	32.0	90	137	49.4	8.84	26.5	2,102	9,726	499	231
	0003	60		DF	1	30.0	90	142	49.4	10.06	30.2	2,194	10,362	521	246
0027					3	32.4	90	136	148.1	25.89	70.7	6,302	30,637	1,495	727
0028	0001	60		DF	1	12.0	89	109	50.5	64.30	128.6	1,766	7,716	419	183
	0002	60		DF	1	14.0	89	110	50.5	47.24	94.5	1,739	7,558	413	179
	0003	60		DF	1	19.0	90	132	49.4	25.08	75.2	2,059	8,527	489	202
	0004	60		DF	1	20.0	90	125	49.4	22.64	67.9	2,030	8,601	482	204
	0005	60		DF	1	17.0	90	117	49.4	31.33	62.7	1,825	7,519	433	178
0028					5	15.5	89	115	249.1	190.58	428.9	9,419	39,922	2,234	947

TWP	RGE	SC	TRACT	TYPE	ACRES		PLOTS	TREES	CRUISED DATE						
02N	04E	03	CAMAS	0002	735.40		31	149	7/1/2011						
Plot No.	Tree No.	Age	SI	Spp St	Trees Me. Ct. DBH		16' FF	Tot Ht.	BA /Ac.	Trees /Ac.	Logs /Ac.	Net CuFV/Ac.	Net BdFV/Ac.	Total CUNITS	MBF
0029	0001	60	DF		1	22.0	90	130	49.4	18.71	37.4	1,892	7,857	449	186
	0002	60	DF		1	28.0	90	138	49.4	11.55	34.6	2,232	10,740	530	255
	0003	60	DF		1	35.0	90	150	49.4	7.39	22.2	2,295	11,752	544	279
	0004	60	DF		1	32.0	90	148	49.4	8.84	26.5	2,113	9,815	501	233
	0005	60	DF		1	24.0	90	135	49.4	15.72	47.2	1,983	8,331	470	198
0029					5	27.0	90	138	246.9	62.21	167.9	10,514	48,495	2,494	1,150
0210	0001	60	DF		1	16.0	89	97	50.5	36.17	72.3	1,233	3,978	292	94
	0002	60	DF		1	19.0	89	100	50.5	25.65	51.3	1,533	5,386	364	128
0210					2	17.3	89	98	101.0	61.81	123.6	2,766	9,364	656	222
0211	0001	60	DF		1	15.0	89	103	50.5	41.15	82.3	1,469	5,761	349	137
	0002	60	DF		1	12.0	89	92	50.5	64.30	64.3	1,101	3,858	261	92
	0003	60	DF		1	16.0	89	105	50.5	36.17	72.3	1,640	6,148	389	146
	0004	60	DF		1	9.0	87	69	52.8	119.62	119.6	494	2,392	117	57
	0005	60	DF		1	16.0	89	100	50.5	36.17	72.3	1,652	6,510	392	154
0211					5	12.5	88	87	254.8	297.40	410.9	6,356	24,670	1,508	585
0212	0001	60	DF		1	25.0	90	131	49.4	14.49	43.5	2,130	9,561	505	227
	0002	60	DF		1	10.0	88	89	51.7	94.70	94.7	767	2,841	182	67
	0003	60	DF		1	18.0	90	124	49.4	27.94	55.9	1,835	6,707	435	159
	0004	60	DF		1	21.0	90	128	49.4	20.53	41.1	1,854	7,186	440	170
	0005	60	DF		1	15.0	89	107	50.5	41.15	82.3	1,493	5,761	354	137
	0006	60	DF		1	14.0	89	98	50.5	47.24	94.5	1,361	4,724	323	112
	0007	60	DF		1	10.0	87	72	52.8	96.89	96.9	924	3,876	219	92
	0008	60	DF		1	35.0	90	129	49.4	7.39	14.8	1,783	7,613	423	181
0212					8	14.5	88	95	403.0	350.34	523.6	12,147	48,268	2,882	1,145
0213	0001	60	DF		1	17.0	93	112	46.2	29.34	58.7	1,534	6,162	364	146
	0002	60	DF		1	31.0	90	132	49.4	9.42	28.3	2,258	10,929	536	259
	0003	60	DF		1	17.0	89	115	50.5	32.04	64.1	1,738	7,048	412	167
	0004	60	DF		1	10.0	89	98	50.5	92.59	185.2	1,459	7,407	346	176
	0005	60	DF		1	11.0	89	95	50.5	76.52	153.0	1,583	6,887	376	163
	0006	60	DF		1	12.0	89	101	50.5	64.30	128.6	1,734	7,716	411	183
	0007	60	DF		1	8.0	85	60	55.4	158.60	158.6	551	3,172	131	75
	0008	60	DF		1	15.0	89	109	50.5	41.15	82.3	1,588	6,173	377	146
0213					8	12.1	88	89	403.5	503.96	858.7	12,447	55,493	2,953	1,316
0214	0001	60	DF		1	16.0	88	86	51.7	36.99	74.0	1,449	5,179	344	123
	0002	60	DF		1	28.0	90	136	49.4	11.55	23.1	1,909	7,969	453	189
	0003	60	DF		1	33.0	90	123	49.4	8.31	24.9	2,019	9,644	479	229
0214					3	22.0	89	102	150.4	56.86	122.0	5,376	22,792	1,275	541
0215	0001	60	DF		1	16.0	90	117	49.4	35.37	70.7	1,375	4,951	326	117
	0002	60	DF		1	30.0	90	128	49.4	10.06	20.1	1,827	8,249	433	196
	0003	60	DF		1	30.0	90	129	49.4	10.06	20.1	1,890	8,249	448	196
	0004	60	DF		1	42.0	90	164	49.4	5.13	15.4	2,467	13,294	585	315
0215					4	24.4	90	125	197.5	60.62	126.4	7,559	34,744	1,793	824
0216	0001	60	DF		1	8.0	82	50	59.5	170.42	170.4	651	3,408	154	81
	0002	60	DF		1	37.0	90	152	49.4	6.61	19.8	2,110	10,846	501	257
	0003	60	DF		1	46.0	90	158	49.4	4.28	12.8	2,402	12,409	570	294
	0004	60	DF		1	23.0	89	113	50.5	17.50	35.0	1,877	7,526	445	179
	0005	60	DF		1	38.0	90	159	49.4	6.27	18.8	2,363	12,791	561	303
0216					5	15.2	83	64	258.1	205.09	256.9	9,403	46,981	2,231	1,115
0217	0001	60	DF		1	24.0	89	112	50.5	16.07	32.1	1,869	7,073	443	168

TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CRUISED DATE							
02N	04E	03	CAMAS	0002		735.40	31	149	7/1/2011							
Plot No.	Tree No.	Age	SI	Spp St	Trees Me. Ct.		16' DBH	Tot HL	BA /Ac.	Trees /Ac.	Logs /Ac.	Net CuFv/Ac.	Net BdFv/Ac.	Total CUNITS	MBF	
0217	0002	60		DF	1		18.0	89	115	50.5	28.58	57.2	1,911	7,430	453	176
	0003	60		DF	1		20.0	89	110	50.5	23.15	46.3	1,804	6,481	428	154
	0004	60		DF	1		15.0	89	105	50.5	41.15	82.3	1,576	6,173	374	146
	0005	60		DF	1		14.0	89	100	50.5	47.24	94.5	1,657	7,086	393	168
	0006	60		DF	1		20.0	90	128	49.4	22.64	45.3	1,980	8,149	470	193
	0007	60		DF	1		27.0	89	109	50.5	12.70	25.4	1,742	5,715	413	136
	0008	60		DF	1		20.0	90	125	49.4	22.64	45.3	1,815	6,791	431	161
	0009	60		DF	1		9.0	82	50	59.5	134.65	134.7	584	2,693	139	64
0217					9		15.6	86	88	461.2	348.81	563.0	14,938	57,590	3,544	1,366
0218	0001	60		DF	1		9.0	84	57	56.7	128.32	128.3	592	2,566	140	61
	0002	60		DF	1		21.0	89	116	50.5	20.99	42.0	1,896	6,928	450	164
	0003	60		DF	1		17.0	89	112	50.5	32.04	64.1	1,738	7,048	412	167
	0004	60		DF	1		16.0	88	91	51.7	36.99	74.0	1,385	4,809	328	114
	0005	60		DF	1		16.0	89	92	50.5	36.17	72.3	1,416	4,340	336	103
0218					5		13.7	86	79	259.8	254.51	380.7	7,027	25,692	1,667	609
0219	0001	60		DF	1		13.0	88	80	51.7	56.04	56.0	1,180	3,923	280	93
	0002	60		DF	1		25.0	89	93	50.5	14.81	29.6	1,577	5,185	374	123
	0003	60		DF	1		7.0	85	58	55.4	207.16					
	0004	60		DF	1		12.0	87	75	52.8	67.29	67.3	2,106	2,019	500	48
	0005	60		DF	1		18.0	89	96	50.5	28.58	57.2	3,023	3,429	717	81
0219					5		11.3	86	69	260.9	373.87	210.1	7,885	14,555	1,871	345
0220	0001	60		DF	1		18.0	87	70	52.8	29.91	29.9	1,622	2,691	385	64
	0002	60		DF	1		17.0	85	60	55.4	35.12	35.1	3,718	1,405	882	33
0220					2		17.5	86	65	108.2	65.03	65.0	5,340	4,096	1,267	97
0221	0001	60		DF	1		11.0	87	75	52.8	80.08	80.1	2,950	3,203	700	76
	0002	60		DF	1		9.0	87	71	52.8	119.62	119.6	2,658	3,589	631	85
	0003	60		DF	1		8.0	86	65	54.1	154.94	154.9	1,774	3,099	421	74
	0004	60		DF	1		10.0	87	69	52.8	96.89	96.9	3,135	3,876	744	92
0221					4		9.3	87	69	212.6	451.53	451.5	10,518	13,766	2,495	327
0222	0001	60		DF	1		19.0	89	110	50.5	25.65	51.3	3,564	6,155	846	146
	0002	60		DF	1		21.0	89	112	50.5	20.99	42.0	3,637	5,879	863	139
	0003	60		DF	1		24.0	89	114	50.5	16.07	32.1	3,658	6,751	868	160
	0004	60		DF	1		15.0	89	101	50.5	41.15	41.2	2,805	2,881	666	68
0222					4		18.9	89	107	202.0	103.87	166.6	13,664	21,666	3,242	514
0223	0001	60		DF	1		14.0	88	89	51.7	48.32	96.6	3,440	4,349	816	103
	0002	60		DF	1		12.0	89	95	50.5	64.30	64.3	2,784	3,215	661	76
	0003	60		DF	1		12.0	89	92	50.5	64.30	64.3	2,784	3,858	661	92
0223					3		12.6	89	92	152.7	176.91	225.2	9,009	11,421	2,137	271
0224	0001	60		DF	1		15.0	88	85	51.7	42.09	84.2	1,515	5,472	359	130
	0002	60		DF	1		11.0	88	90	51.7	78.27	156.5	1,462	6,261	347	149
	0003	60		DF	1		14.0	88	87	51.7	48.32	96.6	1,439	5,315	341	126
	0004	60		DF	1		16.0	89	96	50.5	36.17	72.3	1,339	5,787	318	137
	0005	60		DF	1		11.0	87	75	52.8	80.08	80.1	1,092	3,203	259	76
0224					5		12.9	88	85	258.3	284.92	489.8	6,846	26,038	1,624	618
0225	0001	60		DF	1		15.0	88	78	51.7	42.09	42.1	1,065	2,525	253	60
	0002	60		RA	1		12.0	91	71	48.3	61.50	61.5	1,053	3,690	250	88
0225					2		13.3	90	74	100.0	103.59	103.6	2,118	6,216	503	147
0226	0001	60		DF	1		19.0	89	96	50.5	25.65	51.3	1,439	5,130	341	122

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CRUISED DATE								
02N	04E	03	CAMAS	0002	735.40	31	149	7/1/2011								
Plot No.	Tree No.	Age	SI	Spp St	Trees Mc.	16' Ct.	Tot DBH	FF	Ht.	BA /Ac.	Trees /Ac.	Logs /Ac.	Net CuFv/Ac.	Net BdFv/Ac.	Total CUNITS	MBF
0226	0002	60		DF	1		11.0	88	78	51.7	78.27	78.3	720	2,348	171	56
	0003	60		DF	1		8.0	86	64	54.1	154.94	154.9	489	1,549	116	37
	0004	60		DF	1		20.0	89	103	50.5	23.15	46.3	1,595	5,324	378	126
	0005	60		DF	1		15.0	89	95	50.5	41.15	82.3	1,458	5,761	346	137
0226					5		12.1	87	77	257.2	323.15	413.1	5,701	20,112	1,352	477
0227	0001	60		DF	1		21.0	89	110	50.5	20.99	42.0	1,692	5,879	401	139
	0002	60		DF	1		29.0	90	120	49.4	10.77	21.5	1,844	7,428	437	176
	0003	60		DF	1		19.0	89	115	50.5	25.65	51.3	1,953	7,694	463	183
	0004	60		DF	1		11.0	87	76	52.8	80.08	80.1	628	1,602	149	38
	0005	60		WH	1		18.0	93	100	46.2	26.17	52.3	1,574	5,758	373	137
	0006	60		WH	1		14.0	93	102	46.2	43.26	86.5	1,405	5,624	333	133
0227					6		16.2	90	95	295.7	206.92	333.8	9,095	33,985	2,158	806
0228	0001	60		DF	1		18.0	89	105	50.5	28.58	57.2	1,877	6,858	445	163
	0002	60		DF	1		13.0	88	90	51.7	56.04	112.1	1,198	4,483	284	106
	0003	60		DF	1		9.0	86	68	54.1	122.42	122.4	565	2,448	134	58
	0004	60		DF	1		17.0	89	101	50.5	32.04	64.1	1,675	6,087	397	144
	0005	60		DF	1		15.0	89	101	50.5	41.15	82.3	1,418	5,761	336	137
	0006	60		DF	1		7.0	85	58	55.4	207.16					
	0007	60		DF	1		23.0	90	118	49.4	17.12	51.3	1,858	8,387	441	199
	0008	60		DF	1		14.0	89	98	50.5	47.24	94.5	1,396	5,196	331	123
0228					8		11.7	87	77	412.5	551.73	583.8	9,986	39,221	2,369	930
0229	0001	60		DF	1		16.5	89	97	50.5	34.01	68.0	1,872	7,482	444	177
	0002	60		DF	1		13.0	89	88	50.5	54.79	109.6	1,536	6,026	364	143
	0003	60		DF	1		35.0	90	123	49.4	7.39	22.2	2,295	11,752	544	279
0229					3		16.9	89	94	150.4	96.19	199.8	5,703	25,260	1,353	599
0230	0001	60		DF	1		17.5	89	105	50.5	30.23	90.7	1,823	7,558	433	179
	0002	60		DF	1		23.0	90	104	49.4	17.12	51.3	1,959	8,729	465	207
	0003	60		WH	1		14.5	93	62	46.2	40.33	40.3	902	2,420	214	57
	0004	60		DF	1		16.5	89	93	50.5	34.01	68.0	1,692	6,121	401	145
0230					4		17.2	90	87	196.6	121.69	250.4	6,376	24,828	1,513	589
0231	0001	60		DF	1		29.0	89	110	50.5	11.01	22.0	1,867	7,046	443	167
	0002	60		DF	1		36.0	90	130	49.4	6.99	21.0	1,958	10,130	465	240
	0003	60		DF	1		25.0	89	104	50.5	14.81	29.6	1,776	6,518	421	155
	0004	60		DF	1		31.0	90	120	49.4	9.42	18.8	1,821	7,820	432	186
0231					4		29.4	89	113	199.8	42.23	91.4	7,423	31,514	1,761	748
TYPE					149		15.2	89		243.0	193.95	296.3	8,580	31,639	63,094	23,268

Type 3

T TSPCSTGR CH2M	Species, Sort Grade - Board Foot Volumes (Type)	Page 1 Date 7/6/2011 Time 1:58:14PM
	Project: CAMAS	

T02N R04E S03 T0003										T02N R04E S03 T0003			
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt				
02N	04E	03	CAMAS	0003	270.40	10	44	S	W				

Spp	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/Lf		
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
DF	DO	2M	43	.7	14,984	14,886	4,025			46	54					100	40	424	2.17	35.1
DF	DO	3M	14		4,994	4,994	1,350		96	4					15	85	38	114	0.89	43.9
DF	DO	4M	6		1,785	1,785	483	78	22			21	34	15	30		25	29	0.43	61.2
DF	PU	PU			174	174	47	90	10			100					19	21	0.37	8.4
DF	HI	2M	4		1,331	1,331	360			39	61					100	40	366	1.89	3.6
DF	LO	2M	24		8,316	8,316	2,249			66	34					100	40	376	1.93	22.1
DF	LO	3M	2		572	572	155			100						100	40	200	1.18	2.9
DF	ME	2M	7		2,255	2,255	610				100					100	40	671	3.13	3.4
DF	Totals		98	.3	34,410	34,312	9,278	5	15	40	41	2	2	3	94		33	190	1.29	180.6
RA	4S	4M	67		484	484	131	33	67						100		40	56	0.60	8.6
RA	PU	PU	33	.0	236	236	64	100				20	80				24	17	0.34	14.1
RA	Totals		2		720	720	195	55	45			6	26		67		30	32	0.47	22.7
Type Totals				.3	35,130	35,032	9,473	6	16	39	40	2	2	3	93		33	172	1.21	203.4

TC TLOGSTBF		Log Stock Table - Percent Board Feet										T02N R04E S03 T0003				
CH2M		Project: CAMAS										T02N R04E S03 T0003				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page								
02N	04E	03	CAMAS	0003	270.40	10	44	1	Date	7/6/2011						
								Time	1:45:50PM							
S Spp	So T	Log rt Grd Len	Gross MBF	% Def	Net MBF	% Spc	Percent Net Volume by Scaling Diameter in Inches									
							2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29
DF	DO	2M 40	4,052		4,025	43.4					13.1	19.7	41.5	9.2	16.6	
DF	DO	3M 32	93		93	1.0			100.0							
DF	DO	3M 34	107		107	1.2		15.6		84.4						
DF	DO	3M 36	109		109	1.2		13.1	38.9		48.0					
DF	DO	3M 40	1,041		1,041	11.2		16.1	37.3	46.6						
DF	DO	4M 12	4		4	.0		100.0								
DF	DO	4M 13	12		12	.1		100.0								
DF	DO	4M 14	21		21	.2		100.0								
DF	DO	4M 15	17		17	.2		65.6	34.4							
DF	DO	4M 16	18		18	.2		100.0								
DF	DO	4M 17	20		20	.2		70.7		29.3						
DF	DO	4M 19	10		10	.1		100.0								
DF	DO	4M 24	73		73	.8		25.0			75.0					
DF	DO	4M 26	23		23	.2		100.0								
DF	DO	4M 27	14		14	.1		100.0								
DF	DO	4M 29	13		13	.1			100.0							
DF	DO	4M 30	38		38	.4		100.0								
DF	DO	4M 31	12		12	.1			100.0							
DF	DO	4M 32	12		12	.1		100.0								
DF	DO	4M 33	48		48	.5		100.0								
DF	DO	4M 36	107		107	1.2		100.0								
DF	DO	4M 37	22		22	.2		100.0								
DF	DO	4M 40	16		16	.2		100.0								
DF	PU	PU 14	5		5	.0				100.0						
DF	PU	PU 19	42		42	.5		100.0								
DF	HI	2M 40	360		360	3.9					38.5			61.5		
DF	LO	2M 40	2,249		2,249	24.2					6.9	46.6	29.4	17.1		
DF	LO	3M 40	155		155	1.7					100.0					
DF	M	2M 40	610		610	6.6						31.5	68.5			
DF		Totals	9,305		9,278	97.9		4.5	2.6	5.8	6.8	11.1	19.8	27.2	15.0	7.2
RA	4S	4M 40	131		131	67.3		33.2	66.8							
RA	PU	PU 12	12		12	6.4		100.0								
RA	PU	PU 30	51		51	26.3		100.0								
RA		Totals	195		195	2.1		55.1	44.9							
Total		All Species	9,499		9,473	100.0		5.6	3.5	5.6	6.7	10.8	19.4	26.6	14.7	7.1

TC TSTATS		STATISTICS							PAGE	1
CH2M		PROJECT			CAMAS		DATE 7/6/2011			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
02N	04E	03	CAMAS	0003	270.40	10	44	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		10	44	4.4						
CRUISE		9	44	4.9	43,151	.1				
DBH COUNT										
REFOREST COUNT										
BLANKS		1								
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	40	78.8	21.5	80	45	198.9	34,410	34,312	7,783	7,783
R ALDER	3	18.1	12.8	41		16.1	720	720	323	323
CHERRY	1	62.7	6.0	10		12.3				
TOTAL	44	159.6	16.2	48		227.3	35,130	35,032	8,106	8,106
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	66.9	10.6	572	640	708					
R ALDER	65.5	45.3	26	47	68					
CHERRY										
TOTAL	75.9	11.4	518	585	652	230	58	26		
CL: 68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	58.4	9.2	128	140	153					
R ALDER	39.3	27.2	15	20	26					
CHERRY										
TOTAL	66.9	10.1	116	129	142	178	45	20		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	72.0	24.0	60	79	98					
R ALDER	316.2	105.2		18	37					
CHERRY	316.2	105.2		63	129					
TOTAL	113.2	37.7	99	160	220	568	142	63		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	62.3	20.7	158	199	240					
R ALDER	316.2	105.2		16	33					
CHERRY	316.2	105.2		12	25					
TOTAL	45.1	15.0	193	227	261	90	22	10		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	72.5	24.1	26,035	34,312	42,589					
R ALDER	316.2	105.2		720	1,478					
CHERRY										
TOTAL	68.1	22.7	27,094	35,032	42,970	205	51	23		
CL: 68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	68.6	22.8	6,006	7,783	9,560					
R ALDER	316.2	105.2		323	663					
CHERRY										
TOTAL	60.4	20.1	6,476	8,106	9,736	162	40	18		

TC PLOGSTVB
CH2M

Log Stock Table - MBF

T02N R04E S03 Ty0002	735.40
T02N R04E S03 Ty0003	270.40

Project: CAMAS
Acres 1,005.80

Page 3
Date 7/6/2011
Time 1:45:52PM

Spp	S T	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches												
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+	
WH		Totals		344	4.8	327	1.0		39	57	113		118							
Total		All Species		33,032		32,740	100.0		3133	2219	3862		2659	4043	4338	5263	4803	2033		386

TWP	RGE	SC	TRACT	Type	Acres	Plots	Trees	CuFt	BdFt									
02N	04E	03	CAMAS	0003	270.40	10	44	S	W									
Tree	C	T	BoleTot	BfCf	BfCf	BfCf	BfCf	BfCf										
Plot	No	PF	A	Spc	S	T	DBH	FP	FF	D	Hgt	Hgt	PRDVT	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP	SgLnFiFiP
0031	0001	403	DF				26.0	16	90	F	99	132		9240	9340	94--		
0031	0002	403	DF				14.0	16	89	F	72	101		9340	94--			
0031	0003	403	DF				20.0	16	90	F	91	119		L240	94--			
0031	0004	403	DF				21.0	16	90	F	91	121		L240	9332	94--		
0032	0001	403	DF				19.0	16	89	F	75	110		H240	94--			
0032	0002	403	DF				11.0	16	88	F	20	55		CP--				
0032	0003	403	DF				40.0	16	90	J	97	130		9240	92402	CP--2		
0032	0004	403	DF				24.0	16	90	F	91	131		L240	9336	94--		
0032	0005	403	DF				20.0	16	90	F	89	126		L240	9332	94--		
0032	0006	403	DF				27.0	16	90	G	112	140		L240	9240	94--		
0033	0001	403	DF				29.0	16	90	G	94	140		L240	9336	94--		
0033	0002	403	DF				28.0	16	90	G	90	131		L240	9334	94--		
0033	0003	403	DF				20.0	16	89	F	64	97		9240	00--			
0033	0004	403	DF				29.0	16	90	G	90	136		M240	9334	94--		
0033	0005	403	DF				29.0	16	90	G	114	149		H240	9240	94--		
0034	0001	403	DF				25.0	16	90	F	82	120		92406	94402			
0034	0002	403	DF				18.0	16	89	F	68	101		9340	94--			
0034	0003	403	DF				13.0	16	88	F	56	88		9340	94--			
0034	0004	403	DF				18.0	16	89	F	78	112		L240	94--			
0034	0005	403	DF				22.0	16	89	F	75	103		L240	94--			
0035	0001	403	DF				23.0	16	90	F	110	151		9240	9340	94--		
0035	0002	403	DF				26.0	16	90	F	119	152		9240	9240	94--		
0035	0003	403	DF				26.0	16	90	F	100	145		M240	9340	94--2		
0035	0004	403	DF				34.0	16	90	H	121	160		9240	9240	9340	00--	
0035	0005	403	DF				21.0	16	90	F	85	119		9240	9340			
0035	0006	403	DF				31.0	16	90	H	120	156		M240	L240	9340		
0035	0007	403	DF				20.0	16	90	F	94	131		9240	9340	94--		
0035	0008	403	DF				27.0	16	90	G	117	164		9240	9240	93--		
0036	0001	403	RA				15.0	16	90	D	45	65		44404				
0036	0002	403	RA				14.0	16	90	D	55	68		4440	CP--			
0036	0003	403	RA				11.0	16	80	D	32	43		CP--				
0037	0001	403	DF				26.0	16	90	F	100	126		9240	9340	94--		
0037	0002	403	DF				22.0	16	90	F	102	130		L240	9340	94--		
0037	0003	403	DF				18.0	16	89	F	78	105		L340	94--			
0037	0004	403	DF				24.0	16	90	J	75	130		9240	00--			
0038	0001	403	CH				6.0	8	57	D	10	28		00--				
0038	0002	403	DF				32.0	16	90	H	78	119		9240	93--			
0038	0003	403	DF				35.0	16	90	I	85	122		9240	9340	00--		
0038	0004	403	DF				32.0	16	90	H	86	120		L240	9340	00--		
0039	0001	403	DF				21.0	16	90	F	98	127		9240	9340	94--		
0039	0002	403	DF				18.0	16	89	F	78	112		9240	94--			

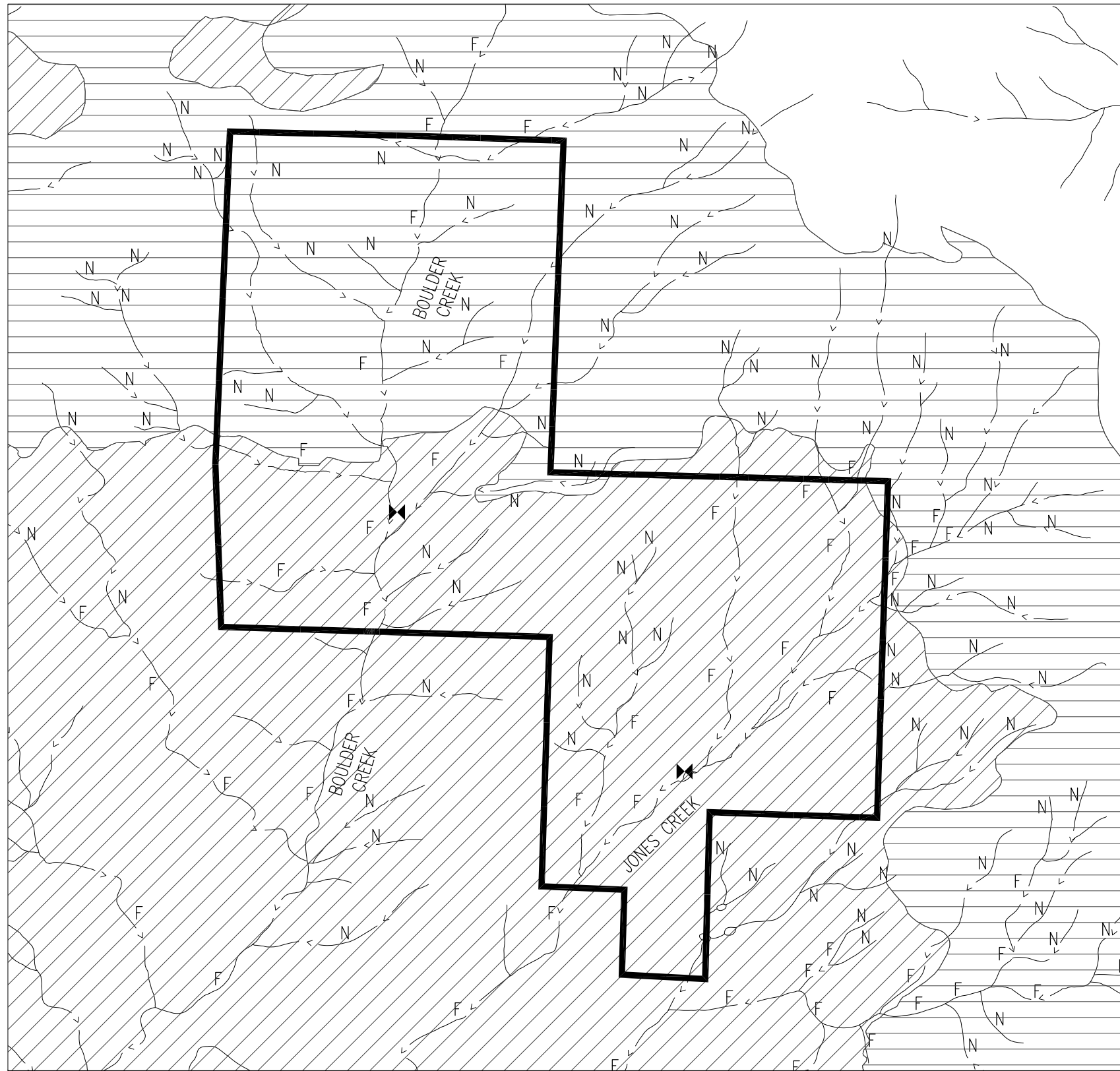
TC PLOT TREELIST			Plot Tree List - Volumes										Page	1		
CH2M			Project		CAMAS		Date		7/6/2011							
TWP	RGE	SC	TRACT		TYPE		ACRES		PLOTS		TREES		CRUISED DATE			
02N	04E	03	CAMAS		0003		270.40		10		44		7/1/2011			
Plot No.	Tree No.	Age	SI	Spp St	Trees Me.	16' Ct.	Tot DBH	FF	Ht.	BA /Ac.	Trees /Ac.	Logs /Ac.	Net CuFv/Ac.	Net BdFv/Ac.	Total CUNITS	MBF
0031	0001	60		DF	1		26.0	90	132	49.4	13.39	40.2	2,079	9,376	562	254
	0002	60		DF	1		14.0	89	101	50.5	47.24	94.5	1,698	7,086	459	192
	0003	60		DF	1		20.0	90	119	49.4	22.64	67.9	1,999	9,281	541	251
	0004	60		DF	1		21.0	90	121	49.4	20.53	61.6	1,926	8,212	521	222
0031					4		18.7	90	113	198.6	103.80	264.2	7,702	33,954	2,083	918
0032	0001	60		DF	1		19.0	89	110	50.5	25.65	51.3	1,699	6,155	460	166
	0002	60		DF	1		11.0	88	55	51.7	78.27	78.3	507	1,565	137	42
	0003	60		DF	1		40.0	90	130	49.4	5.66	17.0	2,090	10,582	565	286
	0004	60		DF	1		24.0	90	131	49.4	15.72	47.2	1,921	8,017	519	217
	0005	60		DF	1		20.0	90	126	49.4	22.64	67.9	1,966	8,375	532	226
	0006	60		DF	1		27.0	90	140	49.4	12.42	37.3	2,324	10,930	629	296
0032					6		18.5	89	91	299.7	160.35	298.9	10,507	45,624	2,841	1,234
0033	0001	60		DF	1		29.0	90	140	49.4	10.77	32.3	2,045	9,689	553	262
	0002	60		DF	1		28.0	90	131	49.4	11.55	34.6	1,954	8,892	528	240
	0003	60		DF	1		20.0	89	97	50.5	23.15	23.1	1,275	4,629	345	125
	0004	60		DF	1		29.0	90	136	49.4	10.77	32.3	1,970	9,366	533	253
	0005	60		DF	1		29.0	90	149	49.4	10.77	32.3	2,398	11,735	648	317
0033					5		26.1	90	124	248.0	66.99	154.7	9,642	44,312	2,607	1,198
0034	0001	60		DF	1		25.0	90	120	49.4	14.49	29.0	1,759	5,505	476	149
	0002	60		DF	1		18.0	89	101	50.5	28.58	57.2	1,574	6,001	426	162
	0003	60		DF	1		13.0	88	88	51.7	56.04	112.1	1,338	4,483	362	121
	0004	60		DF	1		18.0	89	112	50.5	28.58	57.2	1,824	6,858	493	185
	0005	60		DF	1		22.0	89	103	50.5	19.13	38.3	1,710	6,313	462	171
0034					5		17.8	89	100	252.5	146.81	293.6	8,204	29,160	2,218	788
0035	0001	60		DF	1		23.0	90	151	49.4	17.12	51.3	2,269	10,441	614	282
	0002	60		DF	1		26.0	90	152	49.4	13.39	40.2	2,470	11,786	668	319
	0003	60		DF	1		26.0	90	145	49.4	13.39	40.2	2,084	9,376	563	254
	0004	60		DF	1		34.0	90	160	49.4	7.83	23.5	2,583	13,628	698	369
	0005	60		DF	1		21.0	90	119	49.4	20.53	41.1	1,854	7,186	501	194
	0006	60		DF	1		31.0	90	156	49.4	9.42	28.3	2,483	12,248	671	331
	0007	60		DF	1		20.0	90	131	49.4	22.64	67.9	2,017	8,601	545	233
	0008	60		DF	1		27.0	90	164	49.4	12.42	37.3	2,427	11,675	656	316
0035					8		24.9	90	143	395.1	116.74	329.7	18,187	84,941	4,918	2,297
0036	0001	60		RA	1		15.0	90	65	49.4	40.24	40.2	970	1,610	262	44
	0002	60		RA	1		14.0	90	68	49.4	46.19	92.4	1,197	3,696	324	100
	0003	60		RA	1		11.0	80	43	62.5	94.70	94.7	1,061	1,894	287	51
0036					3		12.8	85	54	161.3	181.14	227.3	3,228	7,199	873	195
0037	0001	60		DF	1		26.0	90	126	49.4	13.39	40.2	2,084	9,376	563	254
	0002	60		DF	1		22.0	90	130	49.4	18.71	56.1	2,086	9,353	564	253
	0003	60		DF	1		18.0	89	105	50.5	28.58	57.2	1,824	6,858	493	185
	0004	60		DF	1		24.0	90	130	49.4	15.72	15.7	1,346	6,288	364	170
0037					4		21.8	90	120	198.6	76.40	169.2	7,340	31,875	1,985	862
0038	0001	60		CH	1		6.0	57	28	123.1	627.02					
	0002	60		DF	1		32.0	90	119	49.4	8.84	17.7	1,719	7,250	465	196
	0003	60		DF	1		35.0	90	122	49.4	7.39	14.8	1,796	7,835	486	212
	0004	60		DF	1		32.0	90	120	49.4	8.84	17.7	1,797	7,781	486	210
0038					4		8.7	58	32	271.3	652.09	50.2	5,312	22,866	1,436	618
0039	0001	60		DF	1		21.0	90	127	49.4	20.53	61.6	2,174	10,265	588	278

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CRUISED DATE						
02N	04E	03	CAMAS	0003	270.40	10	44	7/1/2011						
Plot No.	Tree No.	Age	SI	Spp St	Trees Me.	16' Ct.	Tot DBH	BA /Ac.	Trees /Ac.	Logs /Ac.	Net CuFt/Ac.	Net BdFt/Ac.	Total CUNITS	MBF
0039	0002	60		DF	1	18.0	89	50.5	28.58	57.2	1,824	6,858	493	185
	0003	60		DF	1	25.0	90	49.4	14.49	43.5	2,375	11,010	642	298
	0004	60		DF	1	21.0	90	49.4	20.53	61.6	2,477	11,908	670	322
	0005	60		DF	1	35.0	90	49.4	7.39	22.2	2,087	10,348	564	280
0039					5	22.3	90	248.0	91.52	246.0	10,938	50,389	2,958	1,363
0310	0001	60		DF										
0310									0.00					
TYPE					44	16.2	74	227.3	159.58	203.4	8,106	35,032	21,919	9,473



APPENDIX D
STREAM CLASSIFICATION &
SITE CLASS MAP





LEGEND

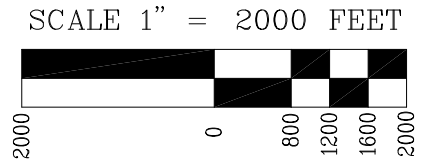
PROPERTY BOUNDARY

STREAMS

DNR SITE CLASS II

DNR SITE CLASS III

NOTE:
 F = FISH STREAM
 N = NON FISH STREAM



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

STREAM CLASSIFICATION AND SITE CLASS MAP

ENGINEERING · PLANNING
LICENSED IN OR, WA & AK

SURVEYING · FORESTRY

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969

Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

DESIGNED BY: AHH	DRAWING NO.: D-1
DRAWN BY: KAL	SCALE: AS NOTED
CHECKED BY: AHH	
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

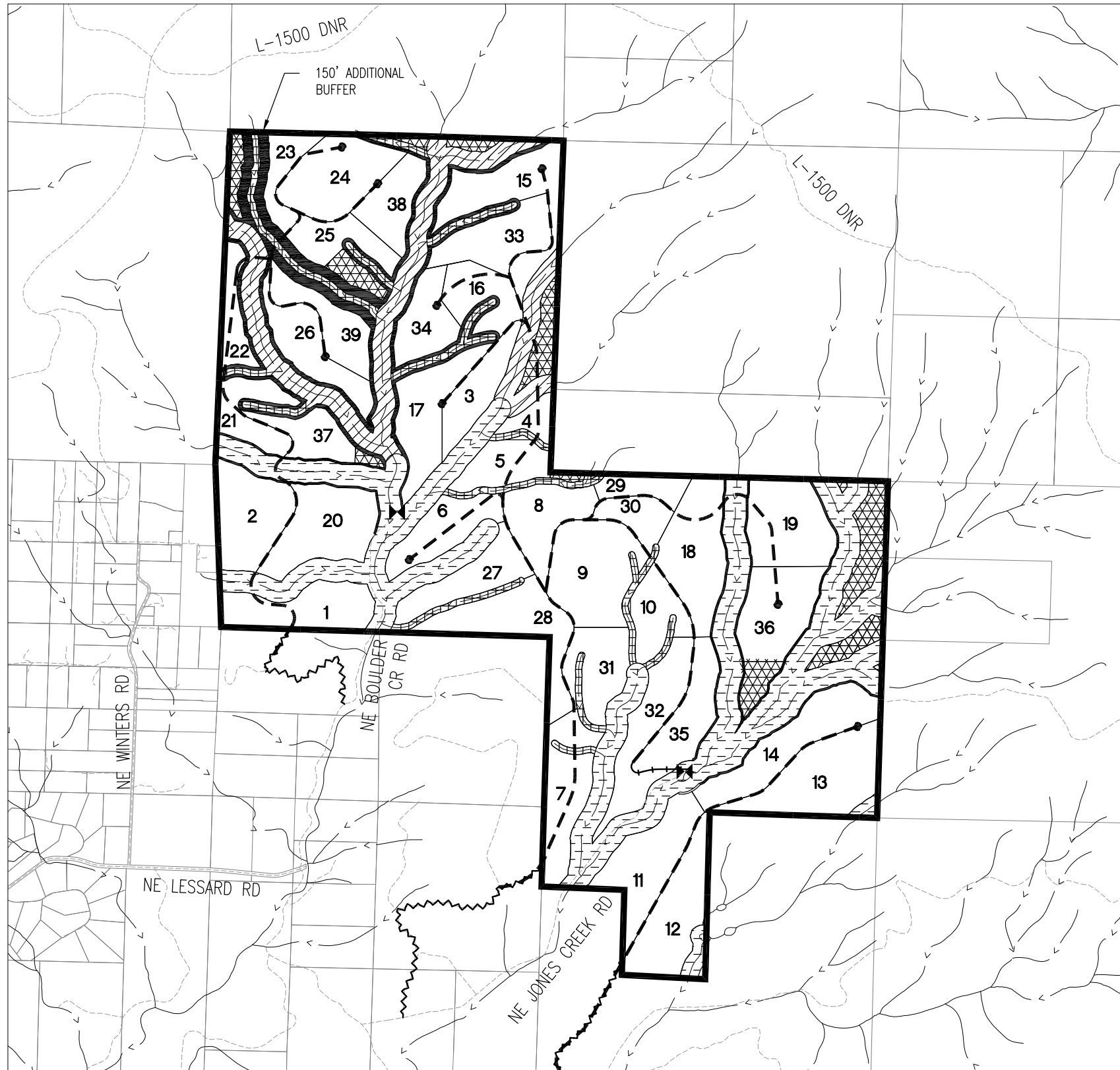
DATE:

JOB NUMBER 2800
SHEET D-1



APPENDIX E HARVEST MAPS





LEGEND

- SITE BOUNDARY:
- PROPERTY LINES:
- EXISTING ROAD:
- NEW ACCESS ROAD:
- OPTIONAL ACCESS ROAD:
- END OF ACCESS ROAD:
- STREAMS:
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE:
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE:
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE:
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES):
- RESERVE AREA:
- NEW ROAD EASEMENT REQUIRED:
- WATER INTAKE FACILITY:

NOTES:

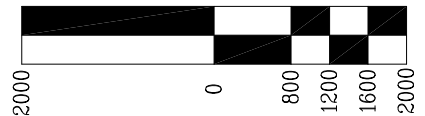
RMZ = RIPARIAN MANAGEMENT ZONE

ADDITIONAL RMZ'S FOR STREAMS ABOVE WATER INTAKE FACILITIES:
 TYPE N STREAM - 50' ADDITIONAL RMZ EACH SIDE (TYPICAL) - 100' TOTAL
 TYPE F STREAM, SITE CLASS II - 30' ADDITIONAL RMZ EACH SIDE (TYPICAL) - 200' TOTAL
 TYPE F STREAM, SITE CLASS III - 60' ADDITIONAL RMZ EACH SIDE (TYPICAL) - 200' TOTAL

UNIT	HARVEST YEAR	APPROXIMATE ACREAGE	APPROXIMATE % AREA BY TIMBER TYPE		
			TYPE 1	TYPE 2	TYPE 3
1	2013	33.8		100%	
2	2017	37.0	9%	91%	
3	2026	22.3			100%
4	2026	8.4	74%	26%	
5	2020	20.5	71%	29%	
6	2029	26.3	43%	57%	
7	2014	35.5	32%	68%	
8	2020	28.6	22%	11%	67%
9	2029	47.0	18%	66%	16%
10	2017	20.7	25%	75%	
11	2023	39.2	100%		
12	2014	39.3	64%	36%	
13	2017	48.5	100%		
14	2029	41.3	90%	10%	
15	2023	39.4			100%
16	2032	21.8			100%
17	2041	33.7			100%
18	2053	42.5	1%	99%	
19	2026	39.1	83%	17%	
20	2032	41.0	3%	97%	
21	2053	19.1		100%	
22	2032	15.0		100%	
23	2044	14.8	5%	95%	
24	2023	39.4	79%	21%	
25	2047	26.3	30%	70%	
26	2020	27.3		100%	
27	2014	26.1	31%	66%	3%
28	2026	40.8	42%	58%	
29	2035	12.5		100%	
30	2035	14.5	10%	77%	13%
31	2044	26.2	26%	74%	
32	2050	35.5	8%	92%	
33	2038	29.7			100%
34	2047	22.5			100%
35	2035	28.2		100%	
36	2041	35.6	51%	49%	
37	2044	17.5		100%	
38	2038	21.8		39%	61%
39	2050	23.4	4%	96%	

ENTRY	HARVEST YEAR	UNITS
1	2013	1
2	2014	7,12,27
3	2017	2,10,13
4	2020	5,8,26
5	2023	11,15,24
6	2026	3,4,19,28
7	2029	6,9,14
8	2032	16,20,22
9	2035	29,30,35
10	2038	33,38
11	2041	17,36
12	2044	23,31,37
13	2047	25,34
14	2050	32,39
15	2053	18,21

SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

OVERALL HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
 LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969

Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

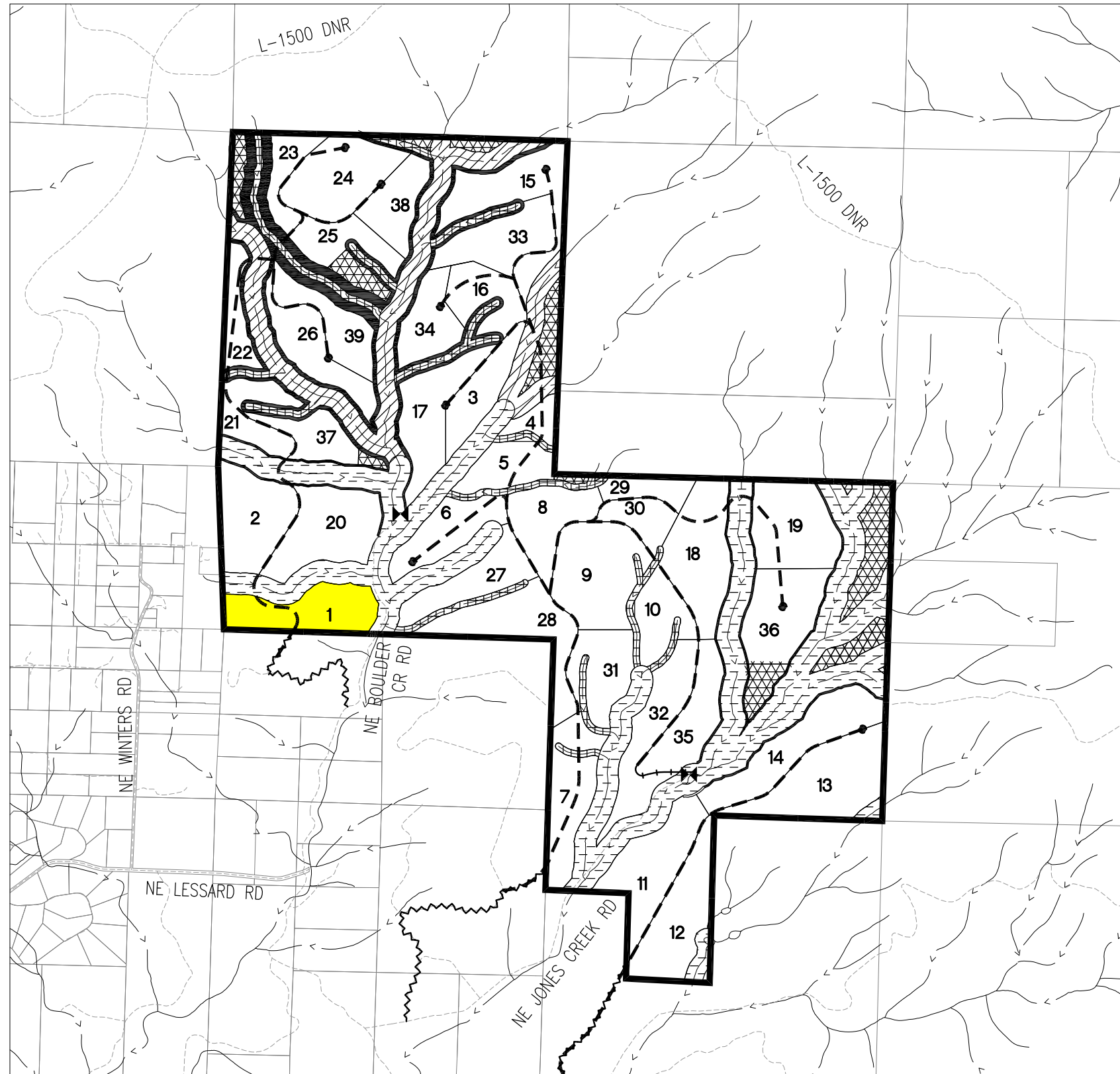
CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN

CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:

JOB NUMBER	2800
SHEET	E-1

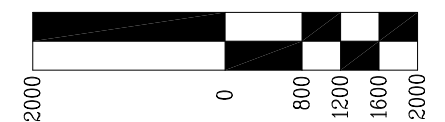


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 1 (2013) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

Offices Located In:
SHERWOOD, OREGON
SALEM, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

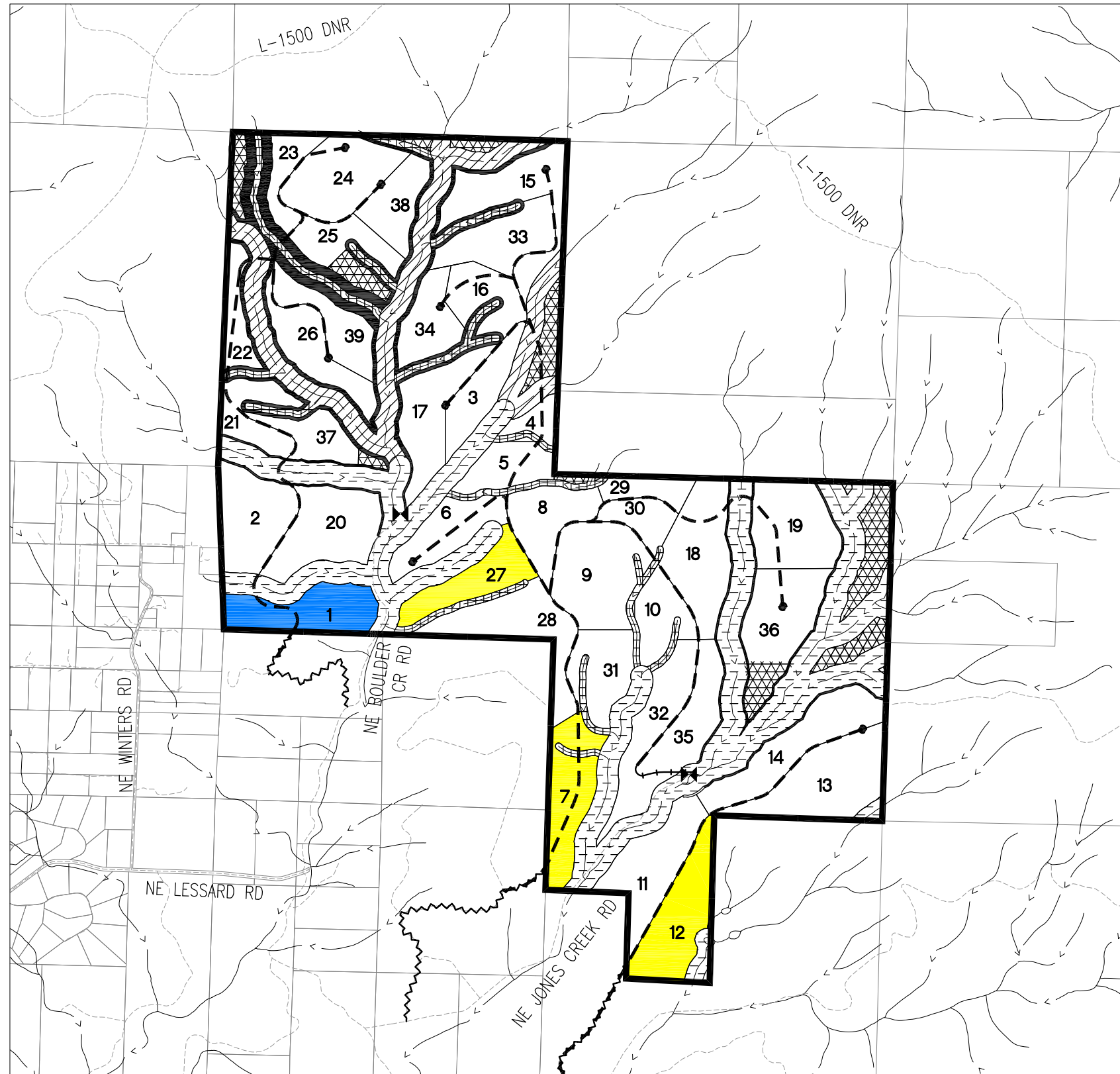
DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE: _____

JOB NUMBER	2800
SHEET	E-2

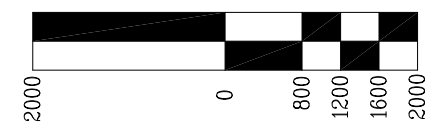


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 2 (2014) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969

Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

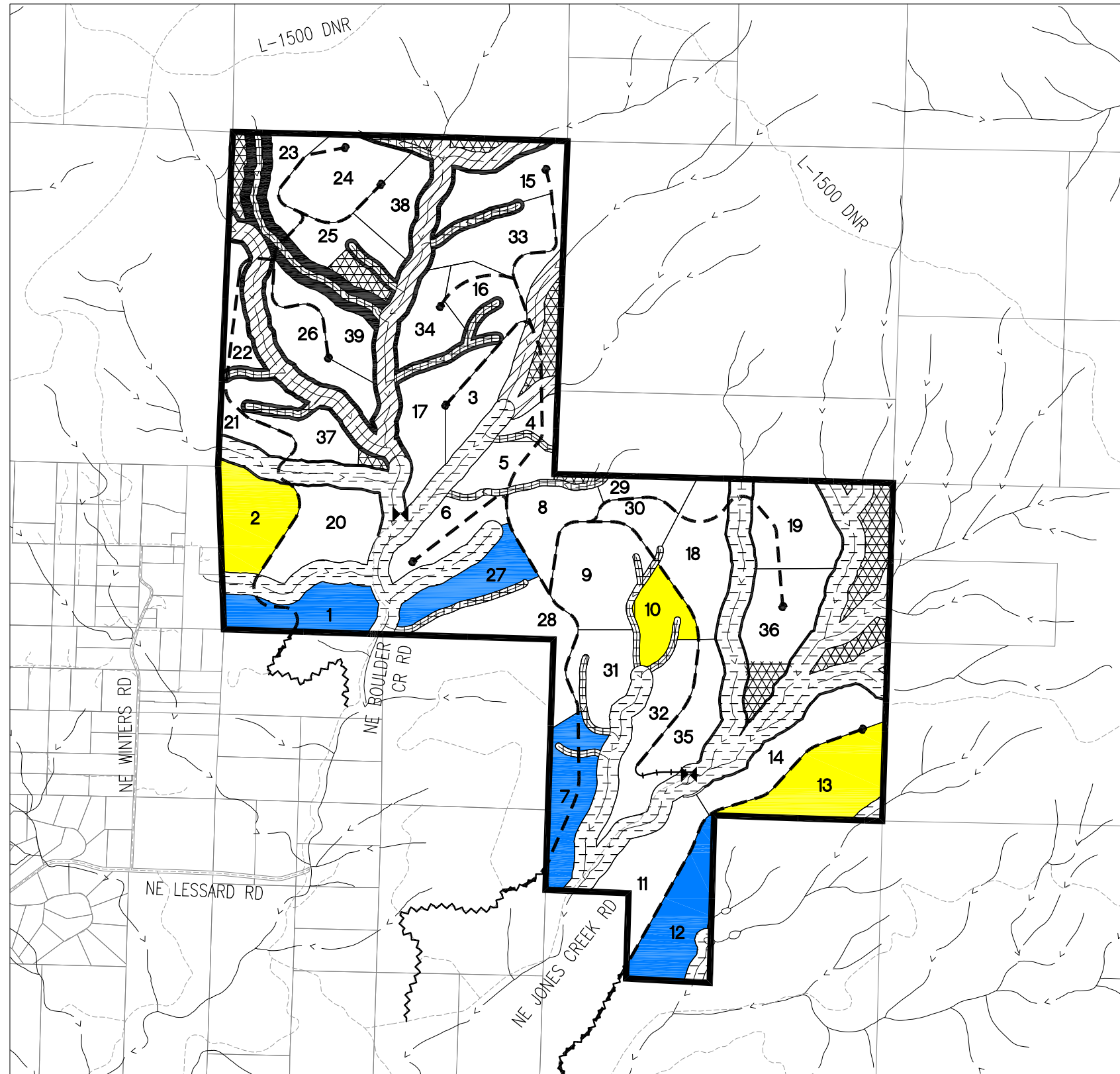
DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:

JOB NUMBER	2800
SHEET	E-3

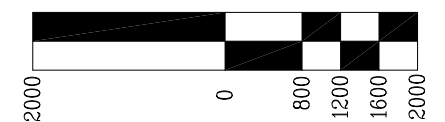


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 3 (2017) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

Offices Located In:
SHERWOOD, OREGON
SALEM, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

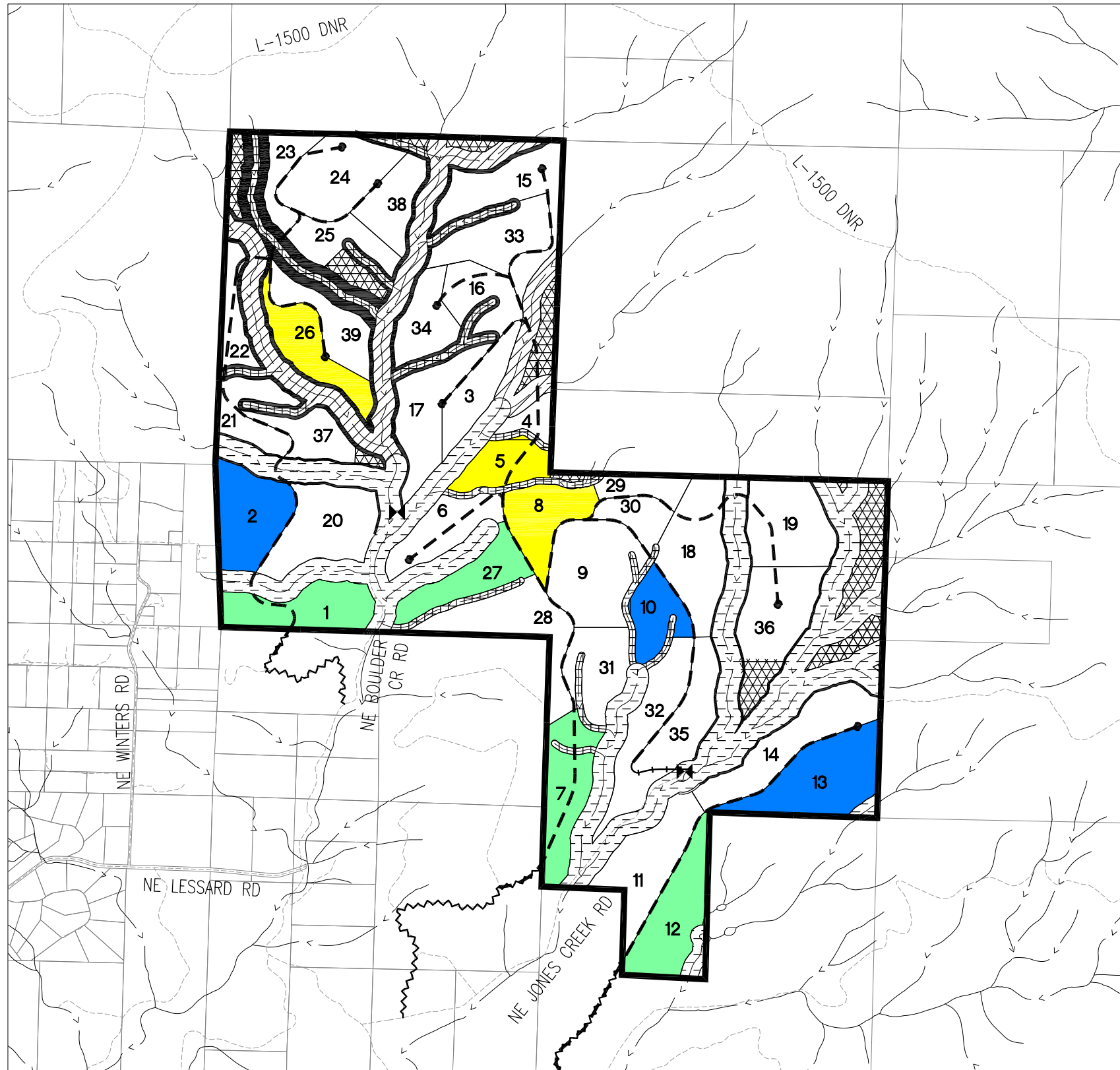
DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

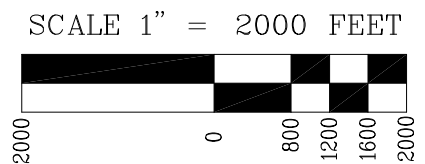
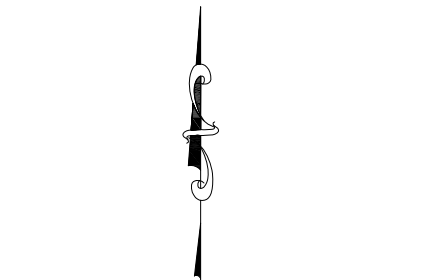
DATE:

JOB NUMBER	2800
SHEET	E-4



LEGEND

SITE BOUNDARY	
PROPERTY LINES	
EXISTING ROAD	
NEW ACCESS ROAD	
OPTIONAL ACCESS ROAD	
END OF ACCESS ROAD	
STREAMS	
TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE	
TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE	
TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE	
ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)	
RESERVE AREA	
NEW ROAD EASEMENT REQUIRED	
WATER INTAKE FACILITY	
UNIT TO BE HARVESTED	
HARVESTED UNIT - (IN THE LAST 5 YEARS)	
HARVESTED UNIT - (OLDER THAN 5 YRS)	



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 4 (2020) HARVEST MAP

ENGINEERING · PLANNING SURVEYING · FORESTRY
LICENSED IN OR, WA & AK

Offices Located In:
SHERWOOD, OREGON
SALEM, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

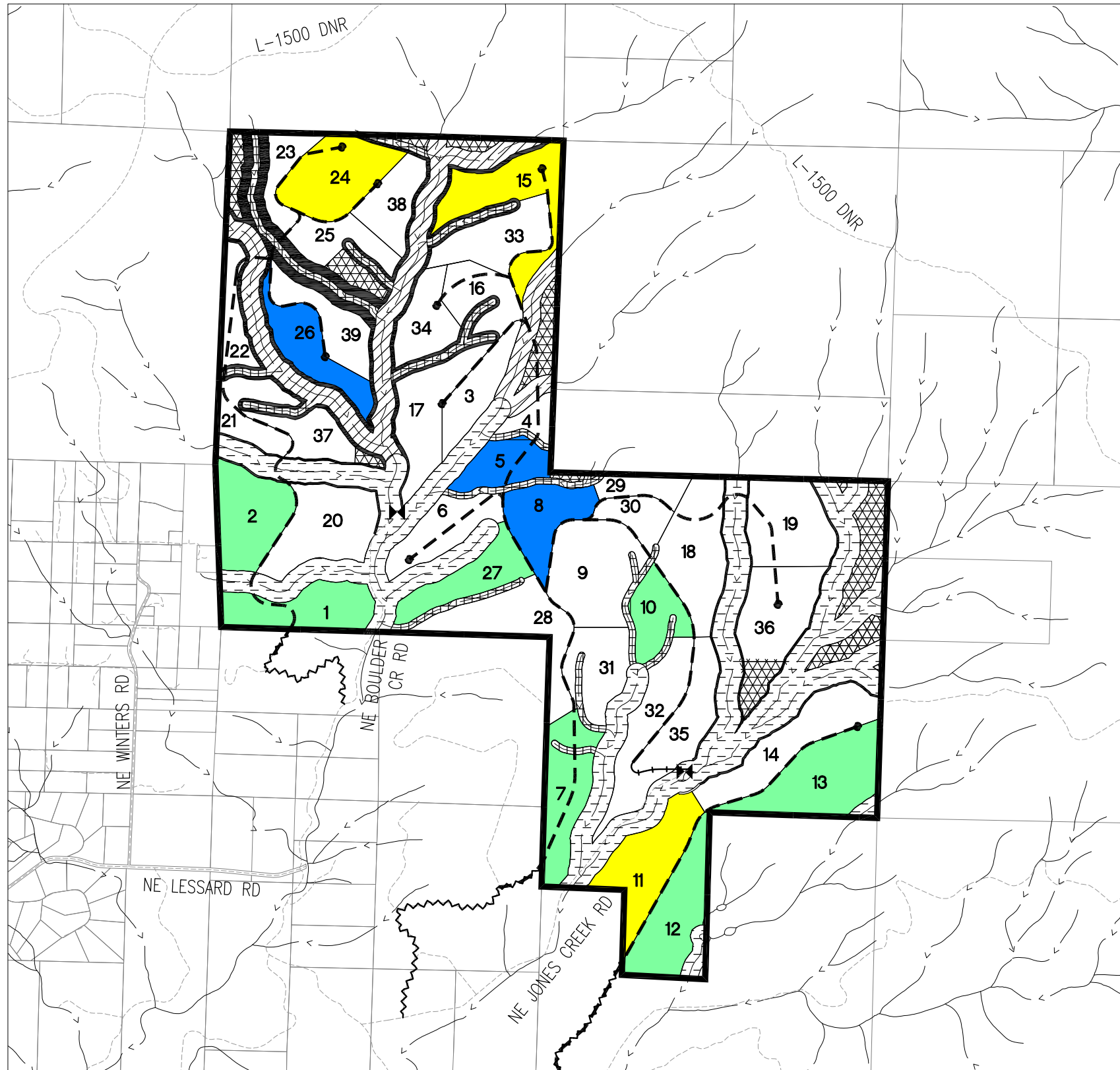
13910 SW GALBREATH DR., SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:	JOB NUMBER 2800
	SHEET E-5

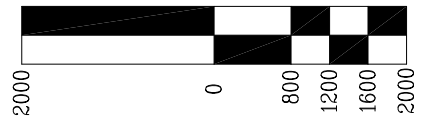


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 5 (2023) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

Offices Located In:
SHERWOOD, OREGON
SALEM, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

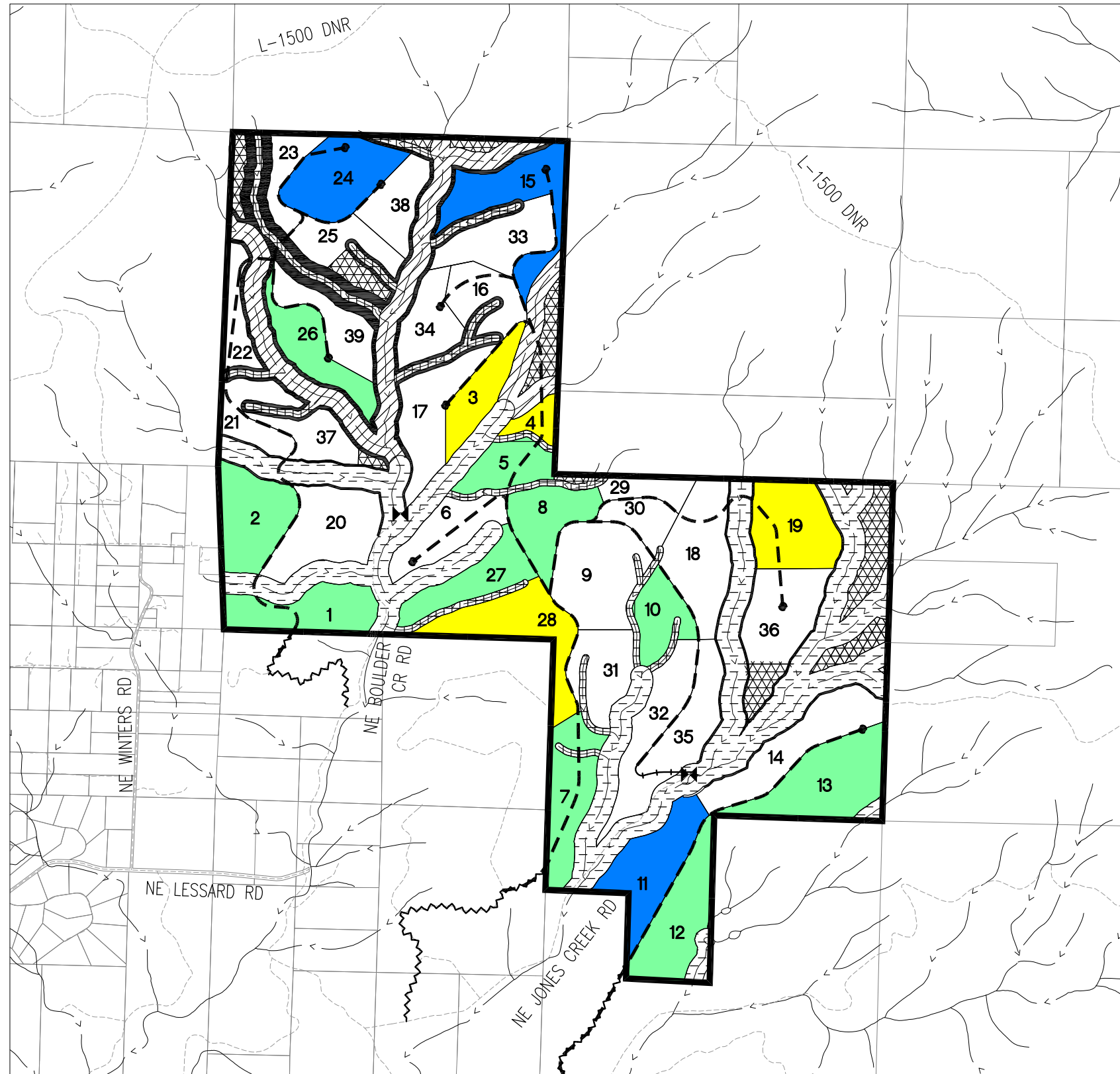
DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE: _____

JOB NUMBER	2800
SHEET	E-6

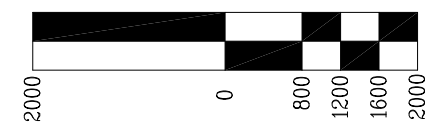


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 6 (2026) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

Offices Located In:
SHERWOOD, OREGON
SALEM, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

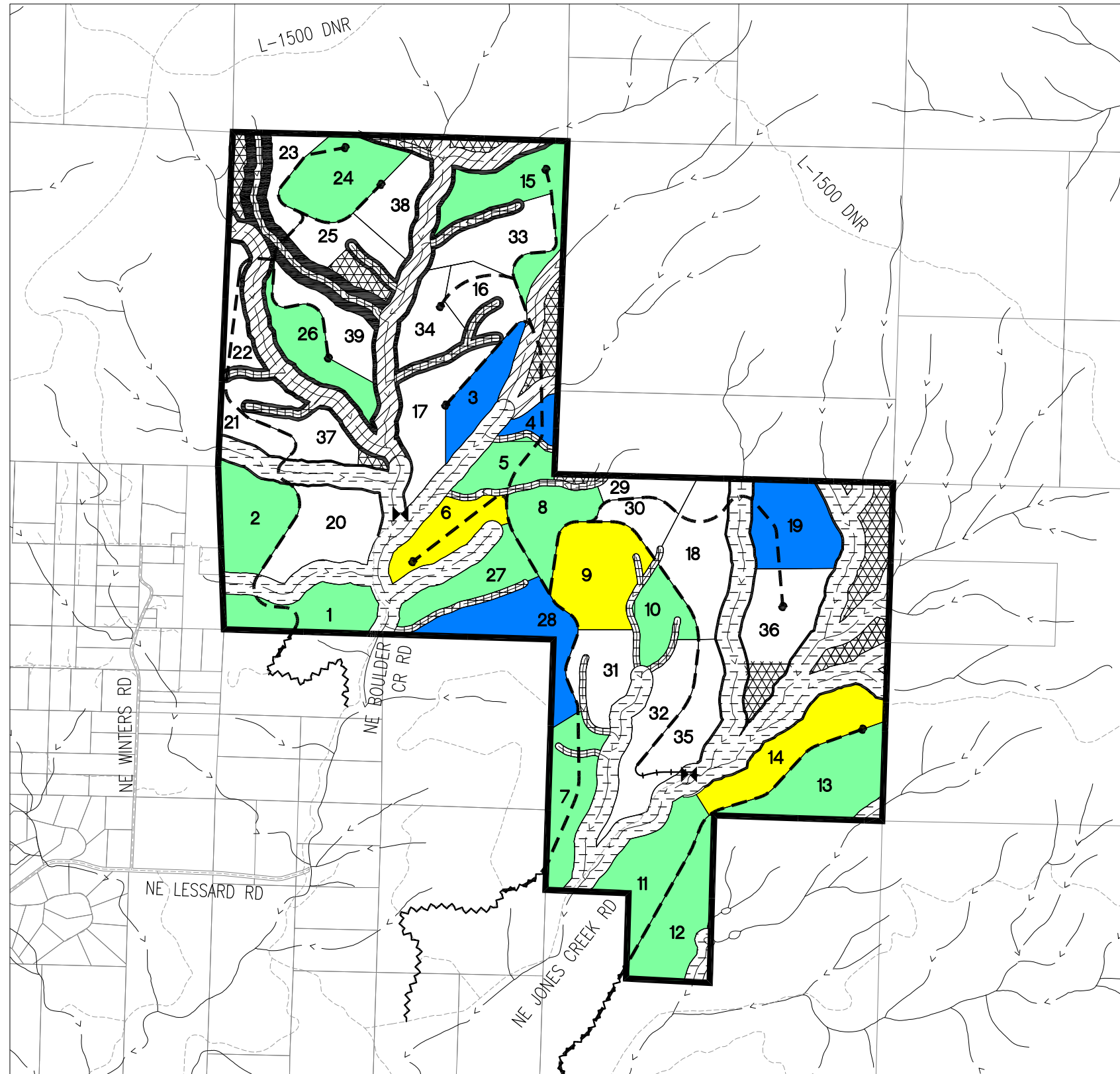
DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:

JOB NUMBER	2800
SHEET	E-7

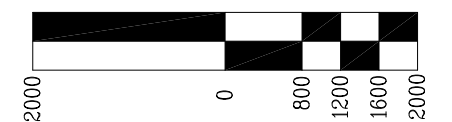


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 7 (2029) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969



Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

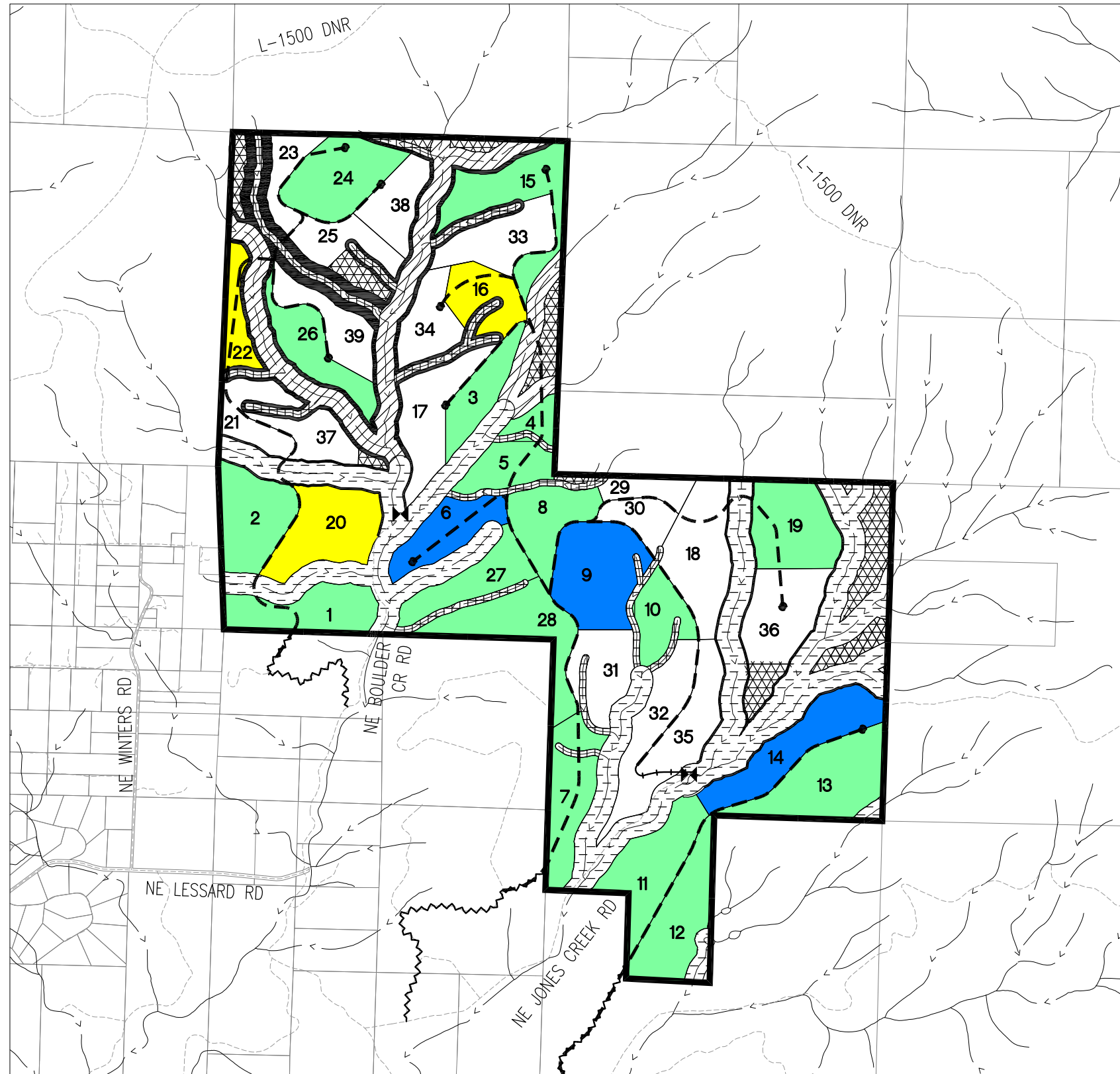
DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:

JOB NUMBER	2800
SHEET	E-8

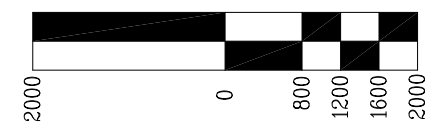


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 8 (2032) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

Offices Located In:
SHERWOOD, OREGON
SALEM, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

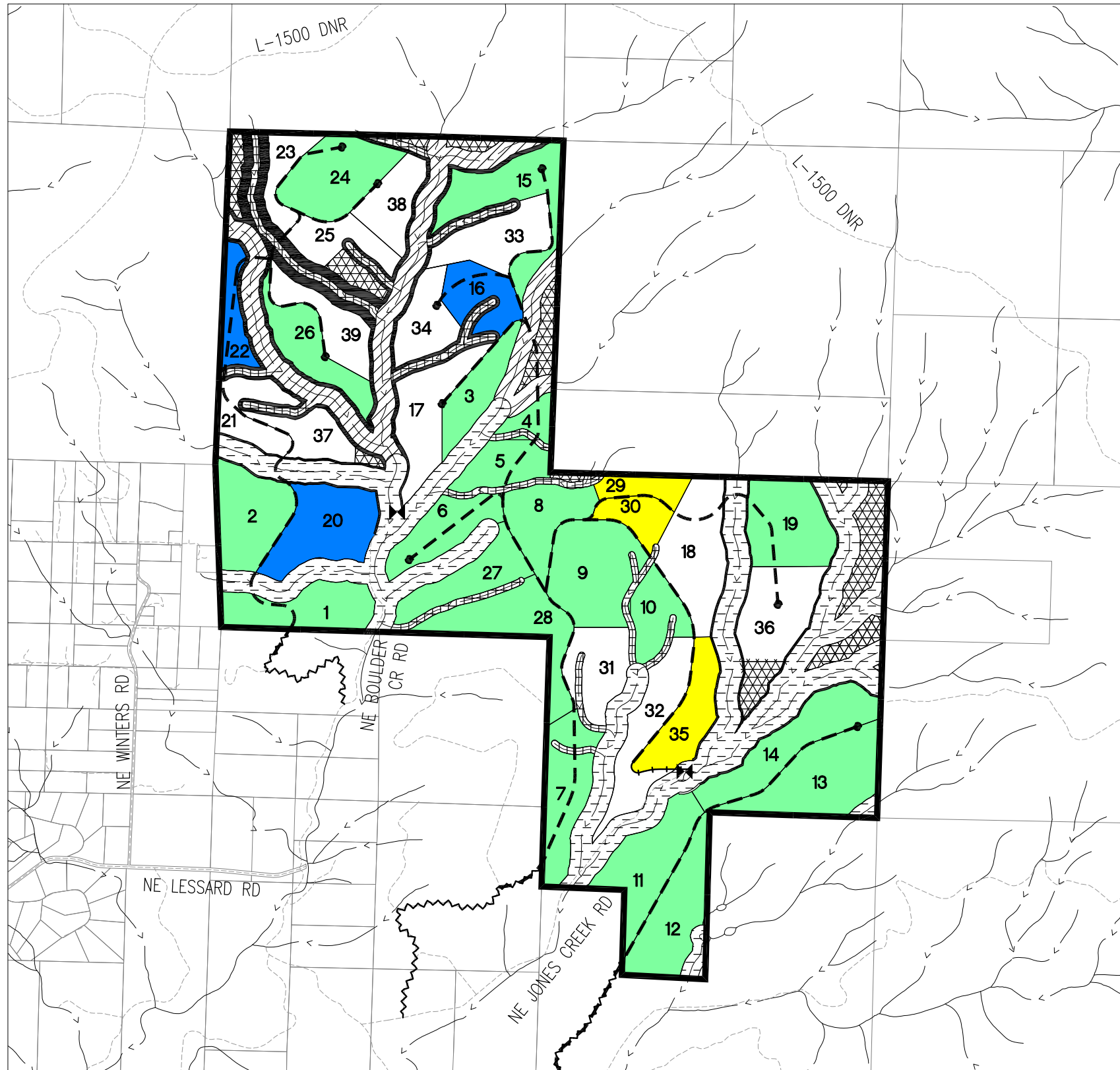
DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:

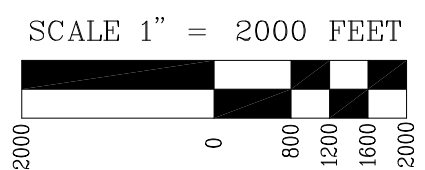
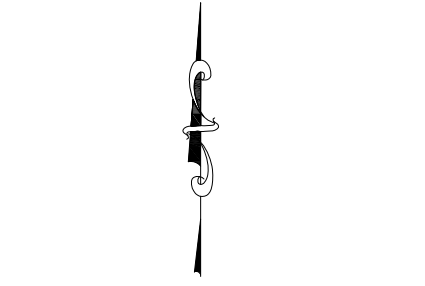
JOB NUMBER	2800
SHEET	E-9



LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS

- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 9 (2035) HARVEST MAP

ENGINEERING · PLANNING SURVEYING · FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969

AKS
ENGINEERING & FORESTRY

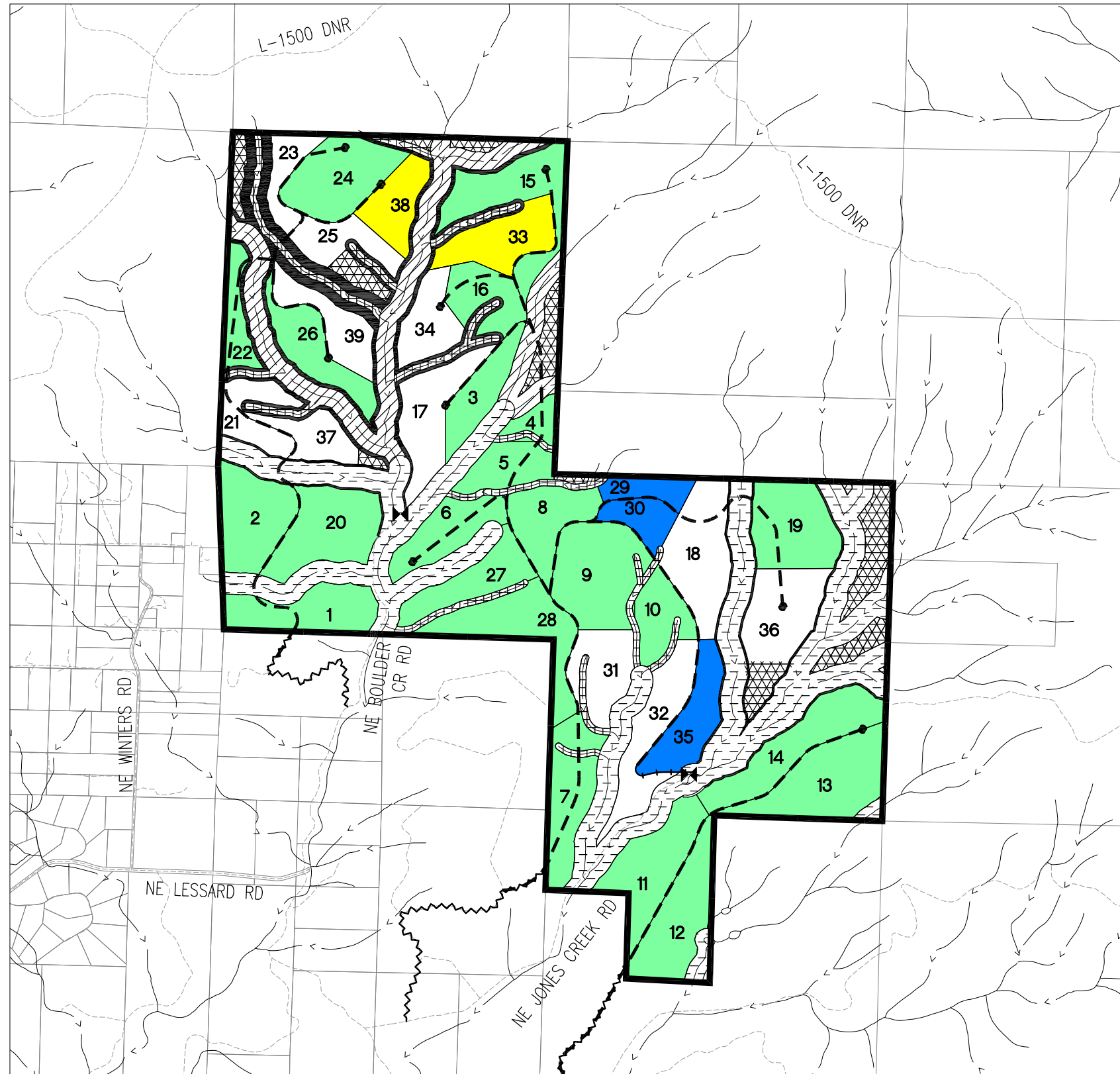
Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

DESIGNED BY: AHH	DRAWING NO.: E
DRAWN BY: KAL	SCALE: AS NOTED
CHECKED BY: AHH	
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE: _____	JOB NUMBER 2800
	SHEET E-10

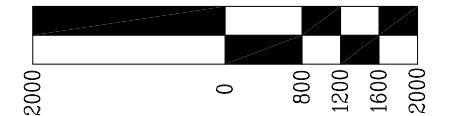


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 10 (2038) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969

Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

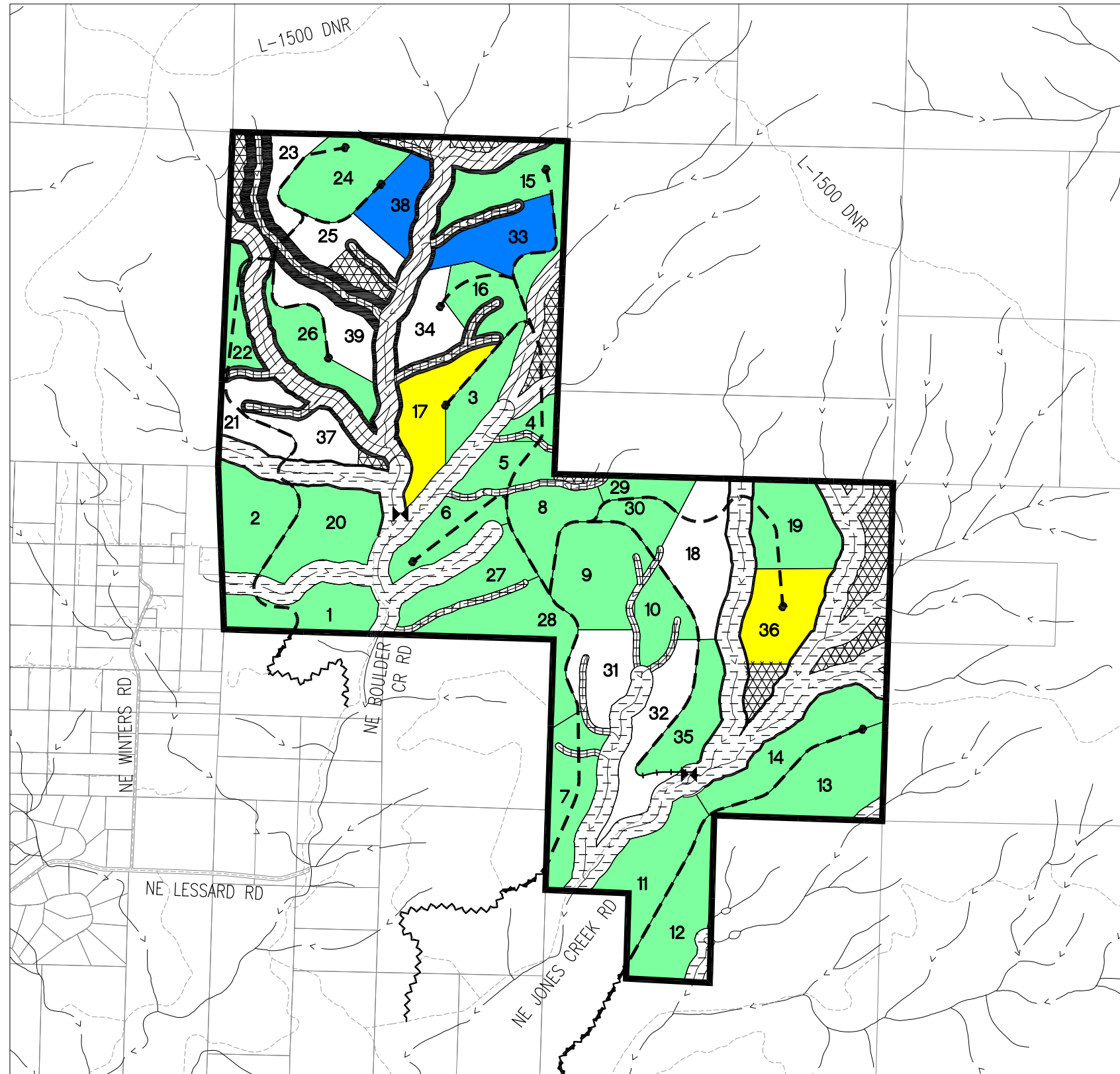
DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:

JOB NUMBER	2800
SHEET	E-11

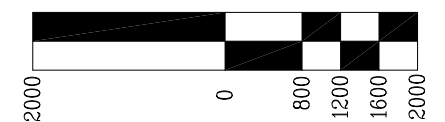


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 11 (2041) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969

Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

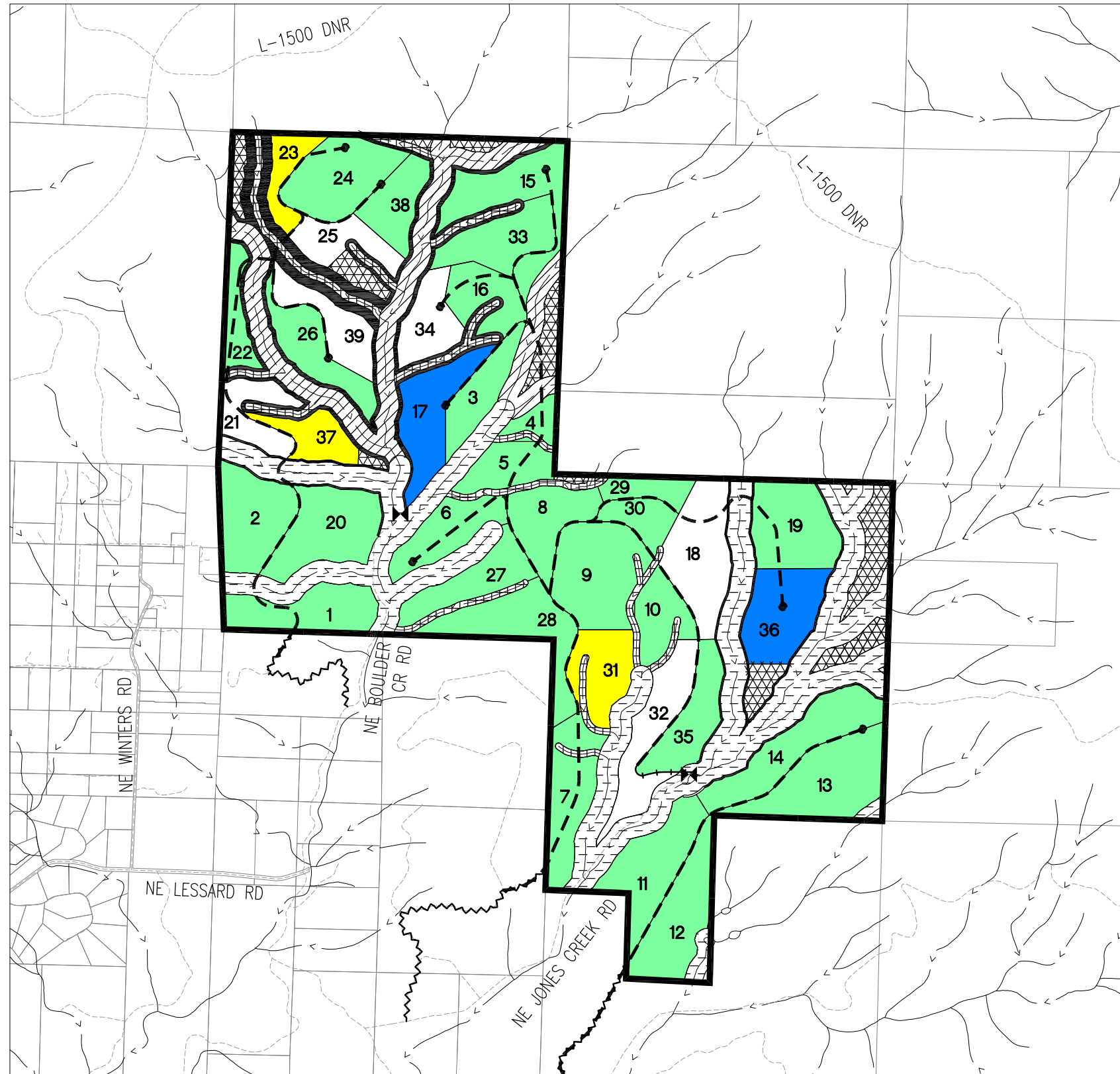
DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:

JOB NUMBER	2800
SHEET	E-12

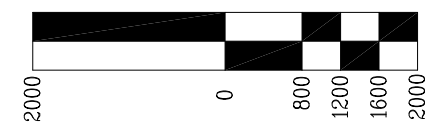


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 12 (2044) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

Offices Located In:
SHERWOOD, OREGON
SALEM, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

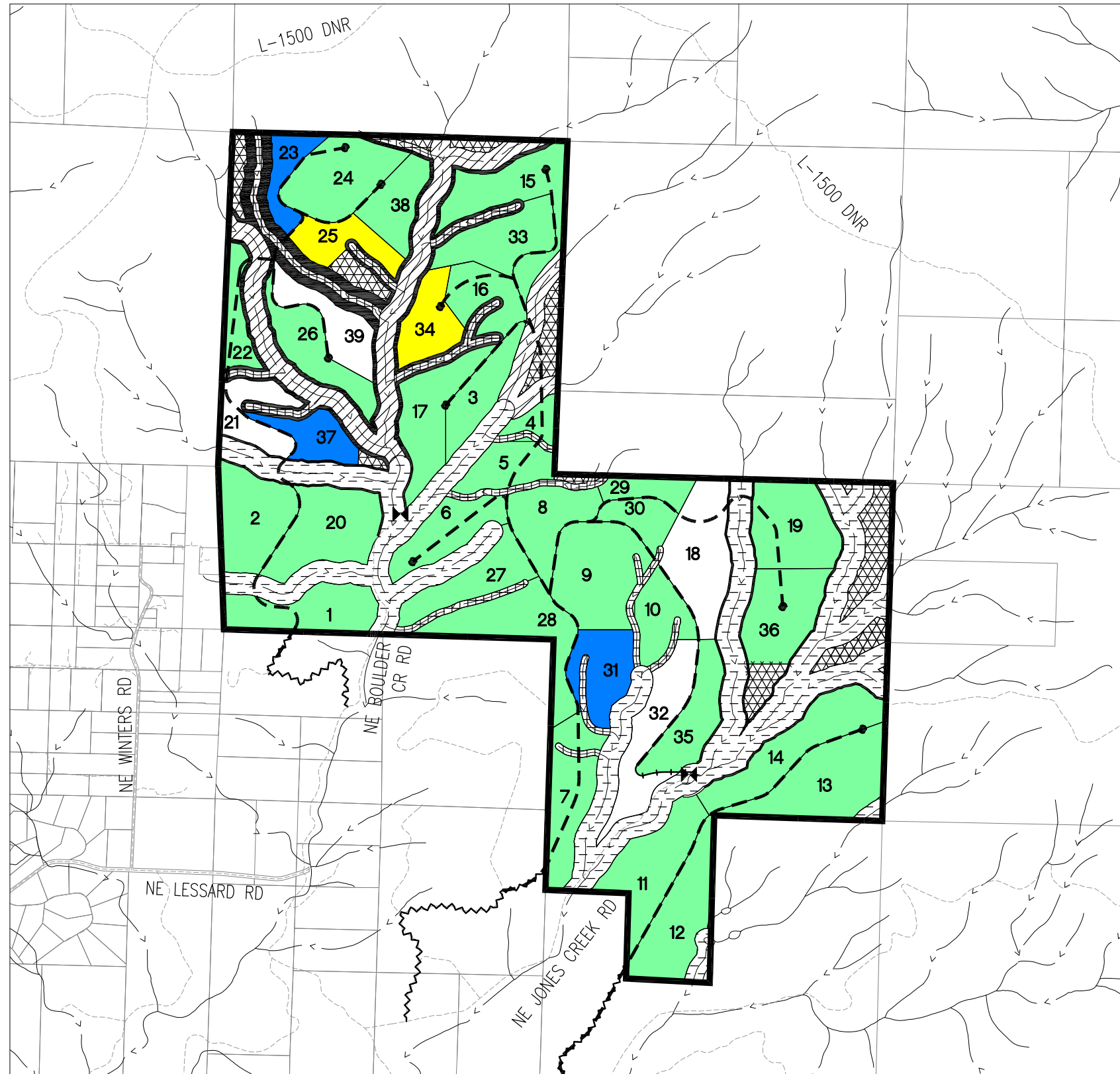
DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:

JOB NUMBER	2800
SHEET	E-13



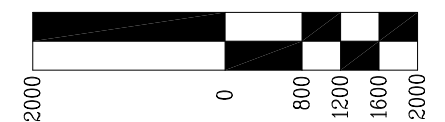
LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS

- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 13 (2047) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969

Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

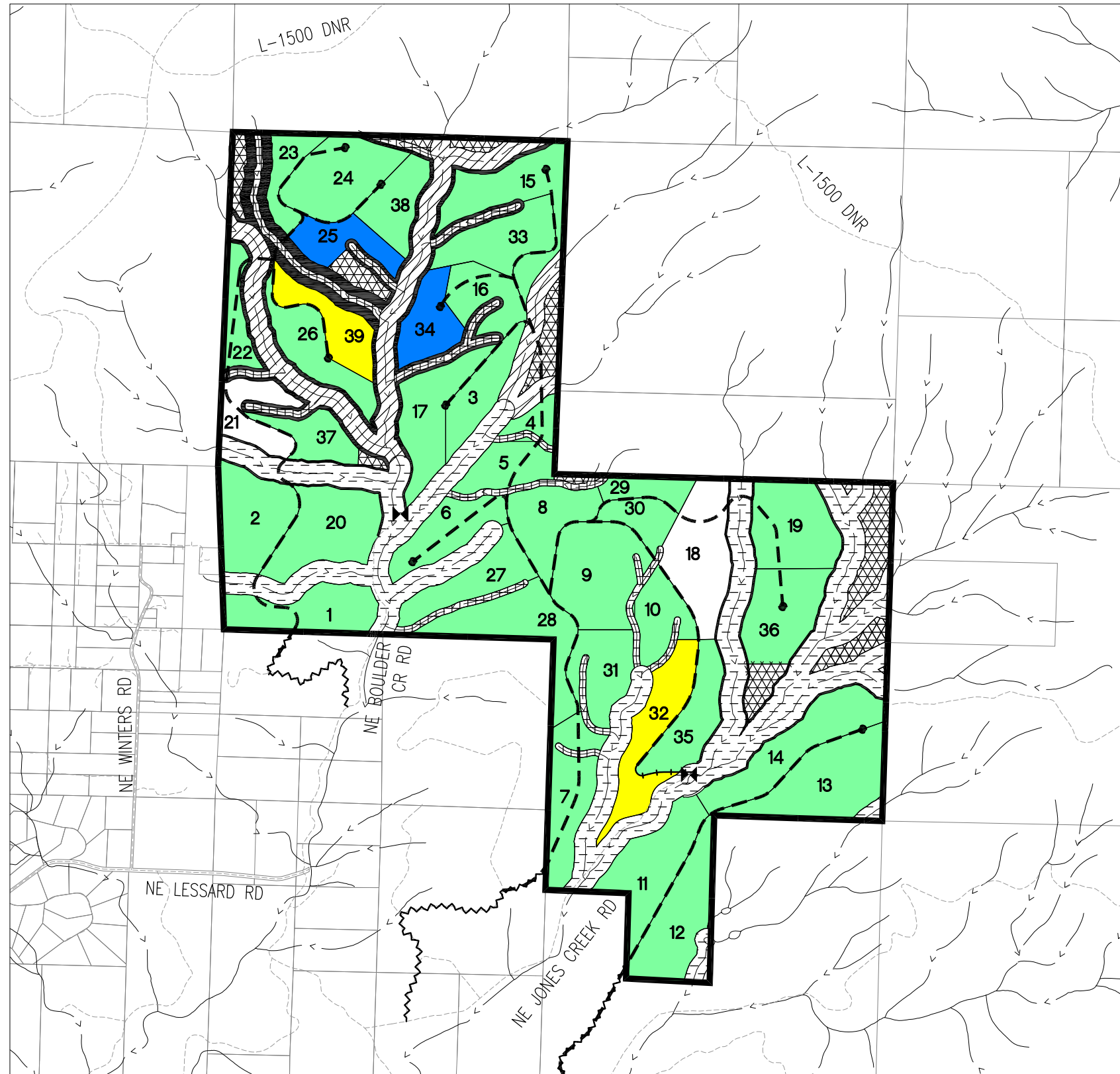
DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:

JOB NUMBER	2800
SHEET	E-14

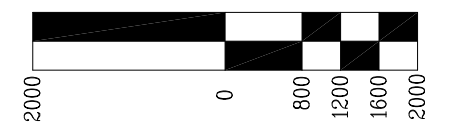


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 14 (2050) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

Offices Located In:
SHERWOOD, OREGON
SALEM, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

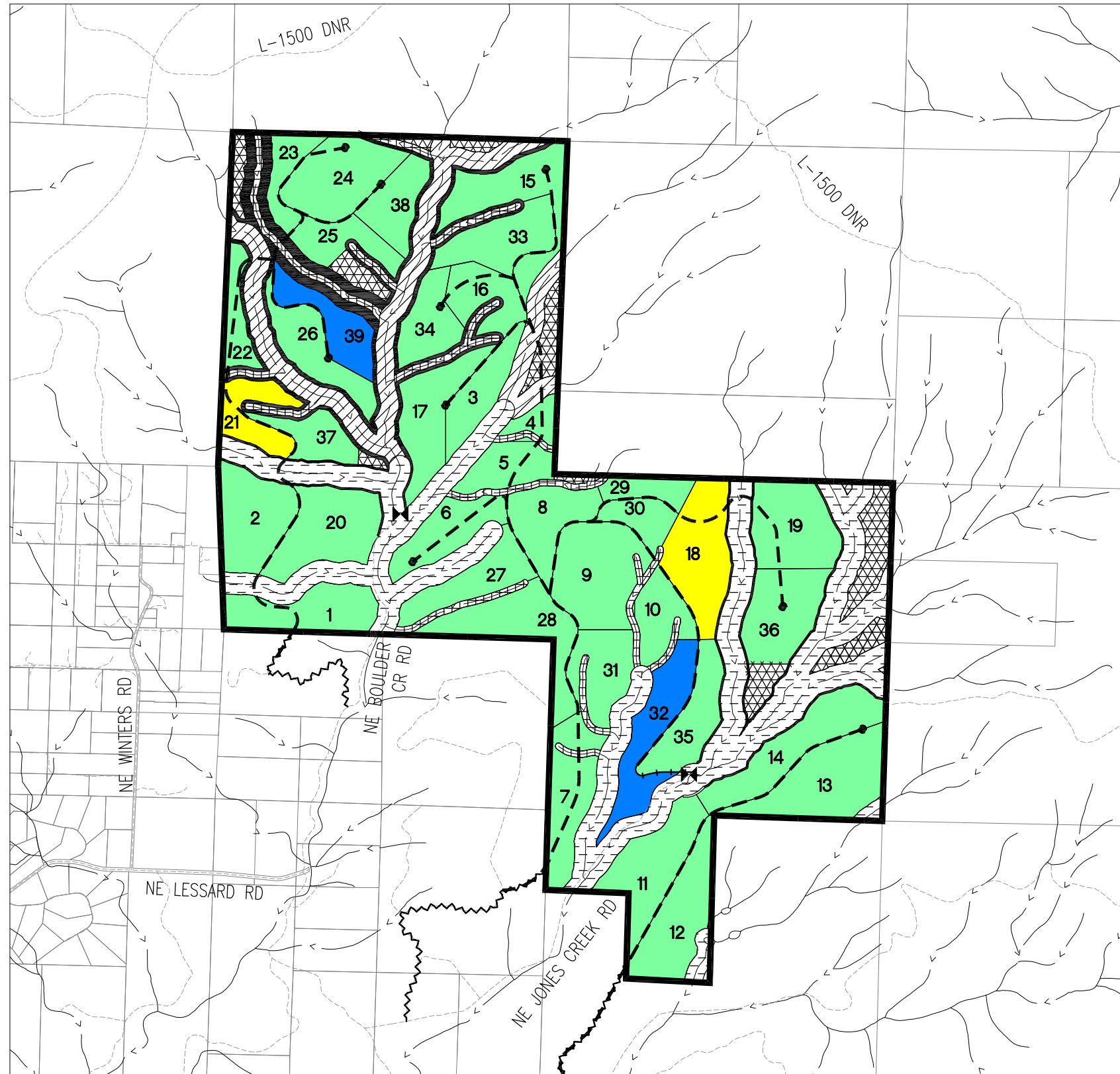
DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:

JOB NUMBER	2800
SHEET	E-15

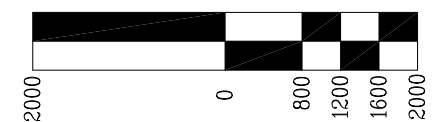


LEGEND

- SITE BOUNDARY
- PROPERTY LINES
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- END OF ACCESS ROAD
- STREAMS
- TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE
- TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE
- TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE
- ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)
- RESERVE AREA
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY
- UNIT TO BE HARVESTED
- HARVESTED UNIT - (IN THE LAST 5 YEARS)
- HARVESTED UNIT - (OLDER THAN 5 YRS)



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

ENTRY 15 (2053) HARVEST MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969

Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

DESIGNED BY:	AHH	DRAWING NO.:	E
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

DATE:

JOB NUMBER	2800
SHEET	E-16



APPENDIX F
RESOURCE PROTECTION MAP





LEGEND

SITE BOUNDARY

STREAMS

TYPE F STREAM, SITE CLASS III - DNR REQ'D 140' RMZ EACH SIDE

TYPE F STREAM, SITE CLASS II - DNR REQ'D 170' RMZ EACH SIDE

TYPE N STREAM - DNR REQ'D 50' RMZ EACH SIDE

ADDITIONAL STREAM BUFFER (WHERE SHOWN, WIDTH VARIES)

RESERVE AREA

WATER INTAKE FACILITY

NOTES:

RMZ = RIPARIAN MANAGEMENT ZONE

ADDITIONAL RMZ'S FOR STREAMS ABOVE WATER INTAKE FACILITIES:

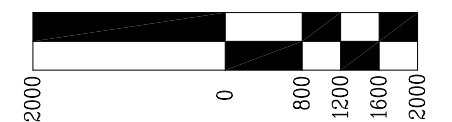
TYPE N STREAM - 50' ADDITIONAL RMZ EACH SIDE (TYPICAL) - 100' TOTAL

TYPE F STREAM, SITE CLASS II - 30' ADDITIONAL RMZ EACH SIDE (TYPICAL) - 200' TOTAL

TYPE F STREAM, SITE CLASS III - 60' ADDITIONAL RMZ EACH SIDE (TYPICAL) - 200' TOTAL



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

REVISIONS:

RESOURCE PROTECTION MAP

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
 SHERWOOD, OR 97140
 PHONE: (503) 925-8799
 FAX: (503) 925-8969

Offices Located In:
 SHERWOOD, OREGON
 SALEM, OREGON
 VANCOUVER, WASHINGTON
www.aks-eng.com

DESIGNED BY:	AHH	DRAWING NO.:	F-1
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

DATE:

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

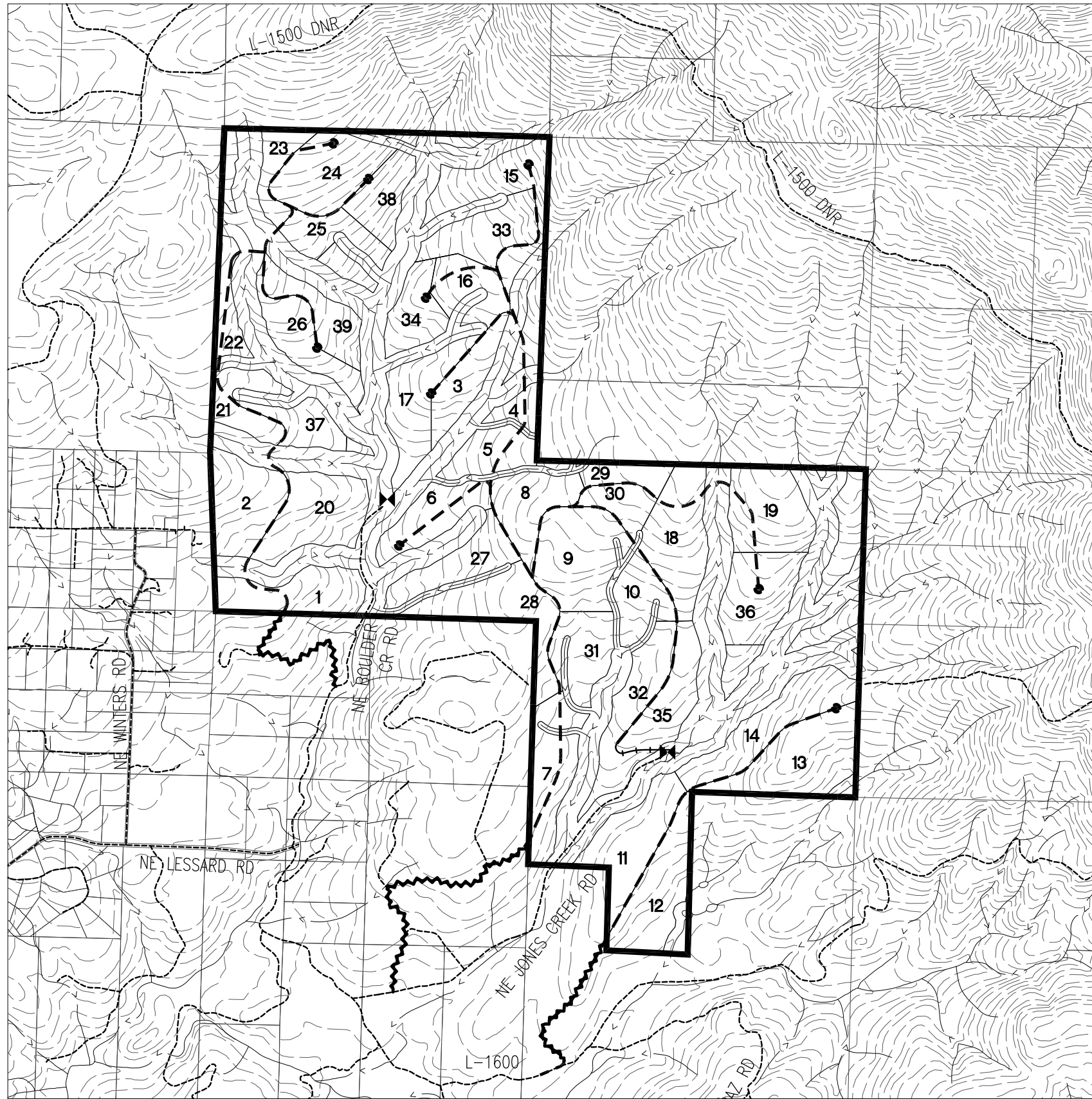
JOB NUMBER
2800

SHEET
F-1



APPENDIX G
ROAD MAPS AND STANDARDS



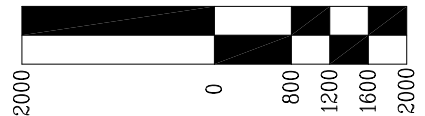


LEGEND

- SITE BOUNDARY
- EXISTING ROAD
- NEW ACCESS ROAD
- OPTIONAL ACCESS ROAD
- STREAMS
- 40' CONTOUR
- NEW ROAD EASEMENT REQUIRED
- WATER INTAKE FACILITY



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

DATE:

REVISIONS:

ROAD PLAN MAP ALTERNATIVE A

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

Offices Located In:
SHERWOOD, OREGON
SALEM, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

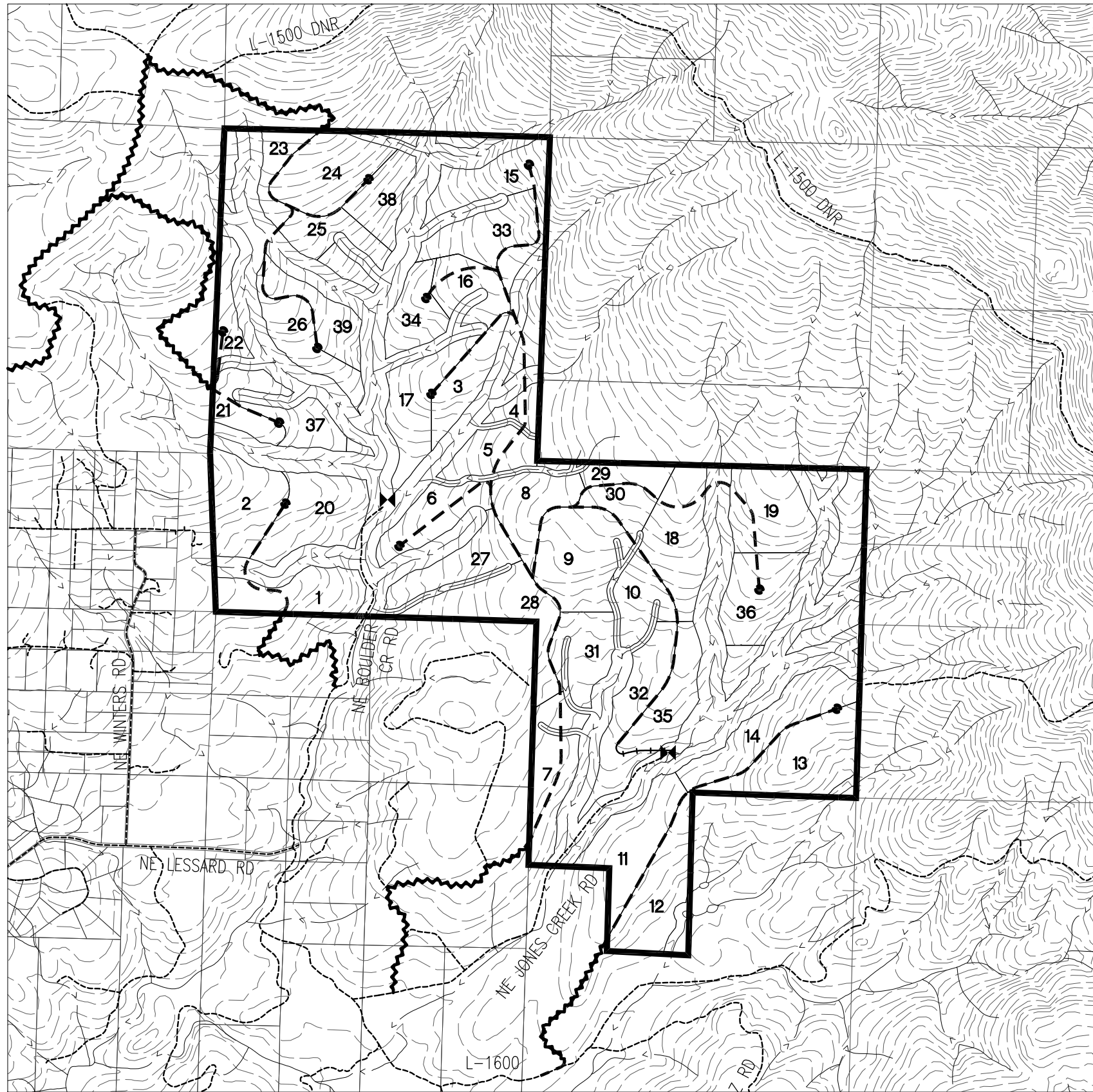
13910 SW GALBREATH DR., SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

DESIGNED BY:	AHH	DRAWING NO.:	G-1, G-2
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH	PREPARED FOR: CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607	

CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

JOB NUMBER 2800
SHEET G-1

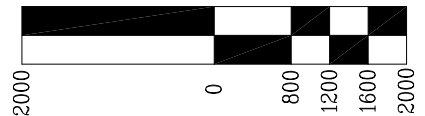


LEGEND

SITE BOUNDARY	
EXISTING ROAD	
NEW ACCESS ROAD	
OPTIONAL ACCESS ROAD	
STREAMS	
40' CONTOUR	
NEW ROAD EASEMENT REQUIRED	
WATER INTAKE FACILITY	



SCALE 1" = 2000 FEET



NOTE: SCALE IS TRUE FOR 11X17 SHEETS

DATE:

REVISIONS:

ROAD PLAN MAP ALTERNATIVE B

ENGINEERING • PLANNING SURVEYING • FORESTRY
LICENSED IN OR, WA & AK

13910 SW GALBREATH DR., SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

Offices Located In:
SHERWOOD, OREGON
SALEM, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

DESIGNED BY:	AHH	DRAWING NO.:	G-1, G-2
DRAWN BY:	KAL	SCALE:	AS NOTED
CHECKED BY:	AHH		
PREPARED FOR:	CITY OF CAMAS 616 NE 4TH AVENUE CAMAS, WA 98607		

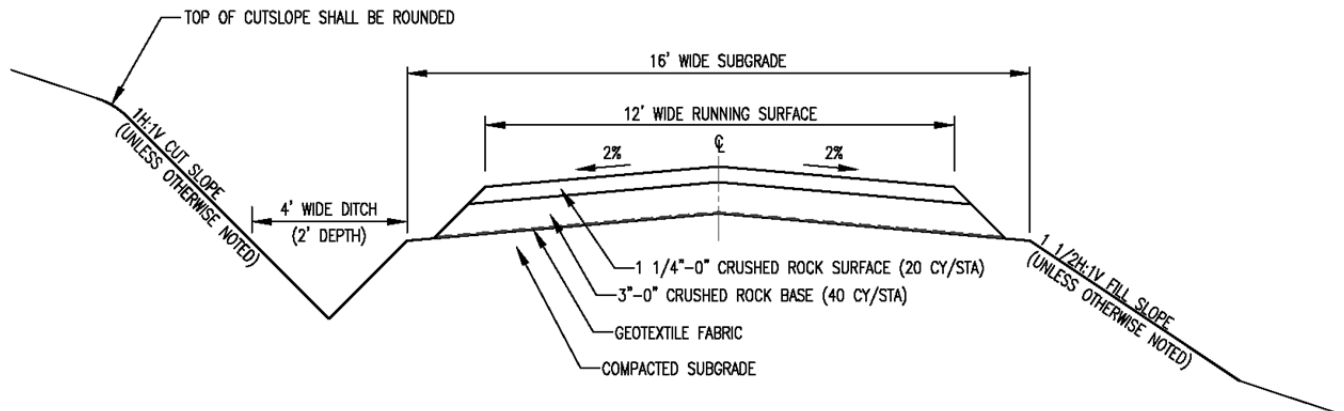
CITY OF CAMAS WATERSHED FOREST MANAGEMENT PLAN CAMAS WASHINGTON

CLARK COUNTY TAX MAP 3 4E SECTION 33, 2 4E SECTIONS 3 4 AND 10

JOB NUMBER	2800
SHEET	G-2

BOULDER CREEK AND JONES CREEK WATERSHED CITY OF CAMAS

GENERAL ROAD CONSTRUCTION STANDARDS & SPECIFICATIONS



TYPICAL CROSS-SECTION (NEW CONSTRUCTION)

NOT TO SCALE

Clearing & Grubbing. This work shall consist of clearing, removing, and disposing of all trees, snags, down timber, stumps, brush, surface objects, organic material, and protruding obstructions within the clearing limits. The clearing limits shall extend 5 feet beyond the top of cut slope or toe of fill slope. All danger trees, leaners, and snags outside of the clearing limits that could fall onto the road shall be removed. Debris shall be scattered outside of the right-of-way through openings in the timber, except on areas where sideslopes exceed 50%, in which case the debris shall be transported to a suitable area and scattered.

Excavation and Grading. Excavation and grading shall not be performed when weather and/or soil conditions are such that damage will result to the existing subgrade or cause excessive erosion. All suitable excavated material shall be used for the construction of fills. Embankment material shall be free of woody debris, brush, muck, sod, frozen material, and other deleterious materials. All fills and culvert backfill shall be fully compacted in lifts of less than 8" loose measure. Compaction shall be accomplished by traveling all surfaces from shoulder to shoulder with a sheep's foot vibratory roller until visible deflection ceases or the roller "walks out". A minimum of three passes shall be made over the entire width and length of each lift. Moisture conditioning (drying or watering) shall be performed as necessary to achieve adequate compaction. Fill slopes shall be constructed at 1 1/2H:1V and cut slopes shall be constructed at 1H:1V unless otherwise specified. The top of cut slopes shall be rounded. Unless road designs show otherwise, all roads shall be on a balanced cross-section, except when slopes exceed 50%, in which case the road shall be on a full bench. Excess excavation shall not be side-cast where material will enter a stream course or any other sensitive area.

Fill Slope Armoring. Where fill slope armoring is specified, #2 pit run shall be placed and tamped on the fill slope starting at the toe of fill. Compacted depth of fill armoring shall be at least 6 inches.

Road Width Requirements. The standard subgrade width shall be 16 feet. Additional width shall be added to fills and horizontal curves as follows:

- For fill heights greater than 3 feet but less than 6 feet, add 1 foot of subgrade width to each shoulder.
- For fill heights greater than 6 feet, add 2 feet of subgrade width to each shoulder.
- Widen subgrade and surfacing on the inside shoulder of curves by an amount equal to 400 divided by the curve radius.

Subgrade Compaction and Processing. Subgrade surfaces on all new roads shall be graded and compacted prior to rocking. Compaction shall be accomplished by traveling all surfaces from shoulder to shoulder with a sheep's foot vibratory roller until visible deflection ceases or the roller "walks out". A minimum of three passes shall be made over the entire width and length of the subgrade.

Ditches and Drainage. Construct "V" ditch 4 feet wide and 2 feet deep (below subgrade) unless otherwise specified. Subgrades and surface rock shall be crowned at least 2% unless otherwise specified. "No ditch" road segments shall be outsloped at 1% with 6-inch deep waterbars installed every 100 feet unless otherwise specified. Culverts shall be installed as shown on the plans and specified on the road construction notes. Culverts shall be skewed according to flow direction and placed at a minimum slope of 5%. Care shall be taken to thoroughly compact backfill material around the haunches of the culvert for even load distribution. Culverts shall be installed with a minimum of 1 foot of cover (measured from top of subgrade). Sumps (approx. 2 cy) shall be excavated at the inlet to reduce clogging, and Carsonite markers shall be placed beside the inlet of each culvert. Rip-rap energy dissipaters (5 CY each) shall be placed beneath the outlet of culverts discharging onto slopes exceeding 40%. Culverts shall not be installed in a manner that creates an outlet drop. Excess length shall be trimmed back to ground level.

Turnouts. Increase road width by 8 feet for both subgrade and surfacing at locations shown on the plans, the road construction notes, and/or specified in the field. Length shall be a minimum of 50 feet unless otherwise noted, plus 25 foot tapered approaches at each end. Surfacing shall consist of at least 20 CY (loose measure) of 3"-0" compacted base rock and 10 CY of 1 1/4"-0" compacted surface rock, unless otherwise specified.

Turnarounds. Turnarounds shall extend 40 feet from road edge and be at least 15 feet wide unless otherwise specified. Surfacing shall consist of at least 20 CY (loose measure) of 3"-0" compacted base rock.

Intersections. Intersections shall be constructed with additional subgrade width and surfacing material as specified in the road construction notes to allow for wide turns.

Landings. Landings shall be constructed 50 feet wide by 50 feet long unless otherwise specified. Each landing shall be rocked with at least 72 CY (loose measure) of #2 pit run. Landings shall be crowned at least 2%.

Geotextile Road Fabric. Road fabric shall be installed between the subgrade and base rock where specified. Joints shall be lapped at least 2 feet. Material shall be Marafi 140N or approved equal.

Surfacing. Base rock, surface rock, and traction coat rock shall be shaped to a crowned section unless otherwise specified and compacted with a smooth-drum vibratory roller to achieve a surface that is smooth and uniform. Where surfacing is to be applied to an existing road, all potholes and washboard sections shall be cut out and graded smooth prior to surface rock placement. Where traction coat is specified, it shall be placed on top of the standard surfacing as specified.

Free-Draining Fill Construction. Where free-draining fill construction is required and/or specified, #2 pit run rock shall be imported and used for fill base construction up to a minimum depth of 3 feet. Free-draining fill material shall be covered with geotextile road fabric to separate pit run and common fill material.

Seeding and Erosion Control. As road segments are completed, all exposed or disturbed soils shall be hand-seeded with a forage seed mixture as follows (or approved equal):

- 26% Annual Rye
- 25% Orchard Grass
- 17% New Zealand White Clover
- 15% Perennial Rye
- 7% Birdsfoot Trefoil
- 6% Red Clover
- 4% Aliske Clover

Seed Mixture shall be applied at a rate of 100 pounds/ acre with 200 pounds/ acre of fertilizer (16-20-0).

Fills slopes greater than 6 feet in height shall be hydro-seeded. Hydro-seeding mixture and application rates shall be approved prior to placement.



Right-of-way Application Instructions & Information

The Right-of-way Application is an official request to use or obtain access across State land managed by the Washington Department of Natural Resources (DNR) for right-of-way purposes. The application is used to assess the feasibility of the applicant's proposal from legal, environmental and land management perspectives.

Prior to submitting an application, or if you have any questions regarding the Right-of-way Application, please consult with a DNR region representative at the appropriate region office listed below.

Region/Phone #	Address	Counties Served
Northeast Region (509) 684-7474	225 South Silke Road P.O. Box 190 Colville, WA 99114	Lincoln*, Spokane, Stevens, Pend Oreille, Ferry, Okanogan
Northwest Region (360) 856-3500	919 North Township St. Sedro Woolley, WA 98284	Whatcom, Island, San Juan, Skagit, Snohomish*
Olympic Region (360) 374-6131	411 Tillicum Lane Forks, WA 98331	Clallam, Jefferson, Grays Harbor* (north half)
South Puget Sound Region (360) 825-1631	950 Farman Street North Enumclaw, WA 98022	Pierce, King, Kitsap, Mason, Lewis*, Thurston*, Snohomish*
Southeast Region (509) 925-8510	713 Bowers Road Ellensburg WA 98926	Adams, Benton, Douglas, Chelan, Franklin, Grant, Kittitas, Yakima, Klickitat, Walla Walla, Columbia, Whitman, Garfield, Asotin, Lincoln*
Pacific Cascade Region (360) 577-2025	601 Bond Road P.O. Box 280 Castle Rock, WA 98611	Wahkiakum, Cowlitz, Clark, Skamania, Thurston*, Lewis*, Pacific, Grays Harbor* (south half)

*Two regions share jurisdiction in these counties

The Department may deny an incomplete application. The submittal and acceptance of this application does not constitute a grant of any right and does not guarantee a grant of any right. All grants will be made by an ensuing easement or permit.

I. Applicant Information

PART A: Applicant

- (1) **Name:** Enter the full legal name of the entity(ies) requesting access. (Enter the name as it is intended to be shown on the easement or permit, if granted.)
- (2) **Date:** Enter the date of which this application is made.
- (3) **Address:** Enter the applicant's mailing address.
- (4) **Phone 1:** Enter the applicant's primary contact number.
Phone 2: Enter the applicant's secondary contact number.

If you wish to add additional contact numbers, please include them on a separate attachment.

- (5) **E-mail:** *Optional.* Enter the applicant's e-mail address.
- (6) **Billing Address:** *Optional.* Enter billing address if different from the address listed above.
- (7) **Legal Entity:** Check the applicable entity.

ENTITY	DESCRIPTION
Individual, Multiple Individuals, or Married Couple	May include single persons, joint tenancy (two or more persons are joint and equal owners of the property); guardians of incompetent persons or minors; tenancy in common (multiple owners who have an undivided interest in the whole property); joint ownership of community property; List spouses or other individuals names. Include middle names.
Corporation	May include: Corporations Sole (bishops, overseers, presiding elders of any church or religious domination); Non-profit Corporations; Sole Proprietorship List state of registration.
General Partnership	Guided by the Uniform Partnership Act (Chapter 25.04 RCW).
Limited Liability Company (LLC)	Guided by Chapter 25.25 RCW. Formed when filed a Certificate of Formation is filed with the State. List state of registration.
Limited Partnership	Guided by the Washington Uniform Limited Partnership Act (RCW 25.10.010). List state of registration.
Governmental Agency	Cities, towns, Indian lands, federal agencies (BIA, BLM, BPA, etc.), state agencies, counties, public utility districts, school districts, diking districts, irrigation districts, etc.
Other	Please describe: May include, but not limited to: fraternal societies, granges, agricultural cooperative societies, churches, trustees, etc.

(8) **Relationship to Applicant:** If you are applying on behalf of yourself, check "Self". If you are applying on behalf of a corporate, governmental, or other entity, check "Representative".

If "Representative" is checked, complete "Part B. Applicant's Representative". If "Self" is checked, proceed with "Section II. Right-of-way Proposal".

PART B: Applicant's Representative

(a) **Representative Name and Title:** Enter full name and working title of representative (e.g., Manager, Executive Officer, Attorney, County Commissioner, Engineer).

(b) **Type of Representative:** List type of representative. Representatives may include:

- Executor/Administrator - Confirmed, appointed, or acting under the order of a court.
- Guardian –Confirmed, appointed, or acting under the order of a court.
- Trustees – May be appointed in numerous situations to act on the behalf of the deceased, corporations, etc.
- Attorney at Law – May act as landowners representative, but may not contract or convey in the place or name of the landowner.
- Attorney-in-Fact – Acts on behalf of the landowner with written power of attorney from landowner. This person may not be an attorney.
- Consultant or Agent – Appointed or acting on behalf of the landowner.

(c) **Address:** Enter the representative's mailing address.

(d) **Phone:** Enter the representative's primary contact number.

(e) **E-mail:** *Optional.* Enter the representative's e-mail address.

II. Right-of-way Proposal

PART A: Description

(9) **What are you applying for?** Check easement and/or permit. The department may grant access across State lands in two forms:

- Permit or License
- Easements

Permits and licenses are a permissive use of the landowner's land. They are revocable at will of the owner and are not assignable, transferable, or inheritable. Permits or licenses may be granted for other short-term temporary proposals.

Easements are a privilege to use the land of another or an interest in the land. They are a legal grant of property rights that are assignable, transferable, inheritable, and non-revocable unless there are terms in the easement allowing termination or by mutual consent of both parties. Easements may be granted in perpetuity (forever) or terminate on a given date.

It is the sole decision of the State whether you will be granted a permit or easement for your state purpose.

- (10) **Estimated Start Date of Proposal:** Enter the estimated start date of your proposal.
- (11) **Length of Time requested for the easement or permit:** Enter the length of time needed for the easement or permit in years or months.

There is no guarantee that the easement or permit will be granted for the requested length of time.

- (12) **Type of Use:** Check all that apply and enter the requested information for each type requested, including measurements (width, length, and acres).

Each easement or permit is granted for a specific type and purpose, e.g., utility easement for electrical transmission line.

The following lists the common types of uses that the Department grants.

- Movement of valuable materials across public lands. (RCW 79.36.350)
- Road rights-of-way for local governments and state agencies. (RCW 79.36.440)
- Railroad rights-of-way. (RCW 79.36.450)
- Irrigation ditches, drainage ditches, and diking projects by organized districts. (RCW 79.36.540)
- Utility and communication lines. (RCW 79.36.510)
- Overflow rights. (RCW 79.36.570)
- Other purposes as determined on a site-specific basis by the Department

- (13) **Describe the proposed use of DNR-managed land and the benefitting parcel:**

- (a) Explain the proposed use of the right-of-way on DNR-managed land, i.e., hauling timber, hauling rock, bury a fiber optic line, etc.
- (b) If the easement or permit will benefit a specific parcel or parcels, describe the use of the benefitting parcel (e.g., forest management, residential property, vineyards, rock pit).

- (14) **Volume of timber, rock, or agricultural products: *Road Use Permits Only*** - Enter the volume of timber in thousand board feet (Mbf), the cubic yards or tons of rock; or a common measurement of other valuable materials. Also, include the number of acres from which valuable material will be removed.

(15) **Removal of valuable materials:** Check appropriate box. If valuable materials will be removed, enter the estimated volume in thousand board feet (Mbf) that will be removed during the term of the permit or easement.

(16) **Aquatic Lands:** Check appropriate box. Please contact Aquatic Resources Division at (360) 902-1100 if the proposed right-of-way crosses aquatic lands or if you don't know if the proposal crosses aquatic lands. See "Boundaries of State-owned Aquatic Lands" for assistance in determining where State-owned aquatic lands begin and end.

PART B: Location

(17) **Legal description of right-of-way proposal:** Enter the legal description for each section, township, and range of the proposed right-of-way and the proposed use on DNR-managed land. For example:

Subdivision (¼¼ or Lot #)	Section	Township	RANGE	County	Type of Use as listed in Part II.A. above
SW¼SW¼	16	17	2 <input checked="" type="checkbox"/> W <input type="checkbox"/> E	Thurston	Road – Resource Use
SW¼NW¼	16	17	2 <input checked="" type="checkbox"/> W <input type="checkbox"/> E	Thurston	Road – Resource Use; Utility – Electrical Distribution Line

Please attach an additional sheet if additional legal descriptions apply.

(18) **Map:** Please include a copy of the map showing the proposed right-of-way. ***At a minimum, the applicant is responsible for submitting a preliminary map for review by the Department prior to acceptance of this application.***

(a) A Record of Survey meeting **requirements of Title 58 RCW and Chapter 332-130 WAC**, created by or under the direct supervision of a Licensed Professional Land Surveyor, is required to be submitted prior to the final issuance of a permit or license as determined by the Department and for the following types of rights-of-way:

- New construction.
- County roads and highways.
- Utilities.
- Drainage or irrigation easements.
- Railroads.
- Realignment of existing roads.
- Any grant across aquatic lands. Exemptions are provided for recreational docks and mooring buoys per RCW 79.90.105 and for those permits issued as a right-of-entry.

The Department allows the submission of a preliminary map with an application for an easement grant as a precursor to the applicant submitting a record of survey.

The applicant is responsible for:

- i) All costs and work associated with creating, submitting, revising and recording the Record of Survey.
- ii) Submitting a preliminary Record of Survey for review and approval by the Department prior to approval of the agreement.
- iii) Recording the final Record of Survey with the county auditor's office.
- iv) Submitting a digital copy in AutoCAD.DWG or DXF (drawing exchange format) of the final survey.
- v) Submitting two full size copies and one 8½" X 11" copy and of the recorded survey including the auditor's recording information to the Department.

PLEASE CONTACT THE REGION OFFICE FOR A LIST OF SPECIFIC REQUIREMENTS FOR RECORDS OF SURVEY.

(b) Please include a preliminary map (preliminary map may be produced from orthophotos, USGS Quad maps, engineered road plans, etc.) on 8½" X 11" white paper **for all other easement and road use permit grants over existing roads** that includes the following:

- Applicant/grantee name.
- Section, township and range.
- County.
- Show section or sub-division lines.
- State the width, length and acres of the right-of-way.
- Differentiate with mapping symbols new construction, reconstruction, and existing road segments.
- Clearly label grantor parcel.
- Legend.
- North arrow.
- Scale bar.
- Orthophoto identification number and date if the right-of-way was drawn from an orthophoto.
- Drawn to a scale of sufficient size and detail to clearly show the location and dimensions of the proposed right-of-way.
- **Any other data necessary for the complete understanding of the exhibit map. If, in the opinion of the department, such information is lacking, the map may be rejected.**

A Department of Natural Resources Forest Practices Map may be used to create the preliminary map.

Revisions: Due to the nature of road construction, the as-built location of the road may differ from the mapped location. The Department may require a revised map or survey to reflect the as-built location. The applicant will be responsible for recording the revised map with the county.

(19) Legal description of benefitting parcel: *If you have a copy of the deed showing the parcel requiring access, please include a copy of the deed with the application. If a deed is attached or if the proposed right-of-way does not access a specific parcel (such as a utility transmission line), question 19 does not need to be completed.*

Enter the legal description for each section, township, and range of the parcel that will be served by the easement or permit. Per the above example in question 17, road and utility access is desired across portions of Section 16, Township 17 North, Range 2 West, W.M.,

in Thurston County to access a parcel in the N½, Section 17, Township 17 North, Range 2 West, W.M. in Thurston County. The following would be entered into the table on the application:

Subdivision (¼¼ or Lot #)	Section	Township	RANGE	County
N½	17	17	2 <input checked="" type="checkbox"/> W <input type="checkbox"/> E	Thurston

Please attach an additional sheet if additional legal descriptions apply. For complex legal descriptions please contact the region.

III. Disclaimer and Signature

Please sign and date the application. By signing and dating the application, you have certified that the answers are true to the best of your knowledge.

Application Processing

This application will be reviewed by the Department of Natural Resources upon receipt at one of the DNR region offices. Applicants will be notified in writing if the application is accepted for further review. This application may be rejected at any time during the application process.

Completion of this application form and notice of acceptance of the application is not approval of your project. **An executed permit or easement is required to operate on state lands.**

Other Requirements

Copies of all approved government regulator permits must be submitted to one of the DNR region offices before issuance of a DNR right-of-way agreement. Your project may require the following permits or environmental reviews:

- Forest Practice Application (FPA): Required by Department of Natural Resources, Forest Practices Division for activities conducted on forest lands related to growing, harvesting or processing timber and are regulated by the Forest Practices Act. Activities include road construction and maintenance, thinning and salvage of trees, harvesting, reforestation, brush control, and using fertilizers or pesticides.
- Hydraulic Project Approval (HPA): Required by the Department of Fish and Wildlife if the project includes work that will use, divert, obstruct, or change the natural flow or bed of any fresh or salt water of the state.
- State Environmental Policy Act (SEPA) Checklist: Required for all non-exempt government actions. Statutory exemptions are listed in Chapter 43.21C RCW and categorical exemptions are listed in WAC 197-11-800 through 890.
- Other city, county, state, or federal permits.

Thank you for doing business with the State of Washington Department of Natural Resources.



WASHINGTON STATE DEPARTMENT OF
Natural Resources
 Peter Goldmark - Commissioner of Public Lands

Right-of-way Application

I. Applicant Information

PART A: Applicant

(1) Name: _____ (2) Date: _____

Full Corporate Name or Individual Name

(3) Address: _____

Street Address

Apartment/Unit #

City

State

ZIP Code

(4) Phone 1: () - Phone 2: () - (5) E-mail: _____

(6) Is billing address the same as shown above? YES NO If no, please enter billing address:

Billing

Address: _____

Street Address or PO Box

City

State

ZIP Code

(7) Legal Entity - Please check the applicable entity listed below:

Individual, Multiple Individuals, Spouses/Individual
 Married Couple..... Name: _____

Corporation..... State of Registration: _____

General Partnership

Limited Liability Company..... State of Registration: _____

Limited Partnership..... State of Registration: _____

Governmental Agency

Other..... Please describe: _____

(8) Relationship to Applicant: SELF REPRESENTATIVE If Applicant's Representative, please complete Part B.

PART B: Applicant's Representative

(a) Representative

Name: _____

First Name

Last Name

Title

(b) Type of Representative (guardian, attorney, employee, etc.): _____

(c) Address: _____

Street Address

City

State

ZIP Code

(d) Phone: () (e) E-mail: _____

II. Right-of-way Proposal

PART A: Description

(9) What are you applying for? EASEMENT PERMIT/LICENSE

(10) Estimated Start Date of Proposal: _____

(11) Length of Time Requested for the Easement or Permit: YEARS: _____ OR MONTHS: _____

(12) Type of Use (Check all that apply.)

<input type="checkbox"/> Road	Purpose: <ul style="list-style-type: none"> <input type="checkbox"/> Resource Use (e.g., removal of timber, rocks, crops, or other valuable materials) <input type="checkbox"/> Administrative <input type="checkbox"/> Public Use (e.g., county roads, city streets, highways) <input type="checkbox"/> Any/All Purpose 	<input type="checkbox"/> New Construction:	Width (ft): Length (ft): Acres:
		<input type="checkbox"/> Existing:	Width (ft): Length (ft): Acres:
<input type="checkbox"/> Trail	Purpose: <ul style="list-style-type: none"> <input type="checkbox"/> Public Use <input type="checkbox"/> Personal 	<input type="checkbox"/> New Construction:	Width (ft): Length (ft): Acres:
		<input type="checkbox"/> Existing:	Width (ft): Length (ft): Acres:
Type (motorized (ORV), non-motorized, multi-use, hiking, etc.):			
<input type="checkbox"/> Communication Line	Type (phone, fiber optic, etc.):	<input type="checkbox"/> New Construction:	Width (ft): Length (ft): Acres:
	Location (overhead, buried, etc.):	<input type="checkbox"/> Existing:	Width (ft): Length (ft): Acres:
	Who will the line serve? (i.e., residential, commercial)	How many units will the line serve?	
<input type="checkbox"/> Railroad	Describe:	<input type="checkbox"/> New Construction:	Width (ft): Length (ft): Acres:
		<input type="checkbox"/> Existing:	Width (ft): Length (ft): Acres:
<input type="checkbox"/> Utility Line	Type (sewer, power, domestic water, gas, etc.):	<input type="checkbox"/> New Construction:	Width (ft): Length (ft): Acres:
	Location (overhead, buried, etc.):	<input type="checkbox"/> Existing:	Width (ft): Length (ft): Acres:
Describe Facility (6" double wall pipe, 500 KV Transmission Line, etc.):			
	Who will the line serve? (i.e., residential, commercial)	How many units will the line serve?	
<input type="checkbox"/> Well, Irrigation, Diking	Describe:	<input type="checkbox"/> New Construction:	Width (ft): Length (ft): Acres:
		<input type="checkbox"/> Existing:	Width (ft): Length (ft): Acres:
<input type="checkbox"/> Beam Path, View, Light, Air, Open Space	Describe:	Acres:	
<input type="checkbox"/> Overflow, Reservoir	Describe:	Acres:	

<input type="checkbox"/> Other?	Describe:
---------------------------------	-----------

(13)(a) Describe the proposed use of the right-of-way on DNR-managed land and, if applicable, (b) the proposed use of the property which will benefit from the easement or permit: _____

(14) *Road Use Permits Only* - If you are applying for a road use permit, please estimate the volume of timber, rock, or agricultural products to be hauled and number of acres from which valuable materials will be removed:

Mbf: _____ Cubic Yards: _____

Tons: _____ Acres from which valuable material will be removed: _____

NO

(15) Will timber or other valuable materials need to be removed from state land as part of this proposal?

YES:

Type of valuable material: _____

Volume to be removed: _____

(16) Does this proposal cross aquatic lands*?

YES

NO

DON'T KNOW

*RCW 79.105.060 "Aquatic lands" means all tidelands, shorelands, harbor areas, and the beds of navigable waters." **If "Yes", please contact Aquatic Resources Division at 360-902-1100.**

Part B: Location

(17) Please enter the legal description(s) of the proposed easement or permit.

Subdivision (¼ or Lot #)	Section	Township	Range	County	Type of Use (As listed in Part II.A. above.)
			<input type="checkbox"/> W <input type="checkbox"/> E		
			<input type="checkbox"/> W <input type="checkbox"/> E		
			<input type="checkbox"/> W <input type="checkbox"/> E		
			<input type="checkbox"/> W <input type="checkbox"/> E		
			<input type="checkbox"/> W <input type="checkbox"/> E		
			<input type="checkbox"/> W <input type="checkbox"/> E		
			<input type="checkbox"/> W <input type="checkbox"/> E		
			<input type="checkbox"/> W <input type="checkbox"/> E		

Please attach an additional sheet if additional legal descriptions apply.

(18) A map **must** be included with this application. (At a minimum, the applicant is responsible for submitting a preliminary map for review by the Department prior to acceptance of this application.) Please refer to Application Instructions and contact the region office for a complete list map requirements.

(19) Please enter the legal description(s) below **OR** attach a copy of the deed for each benefitting parcel (i.e., the property that the easement or permit accesses or where valuable materials will be removed).

Subdivision (¼¼ or Lot #)	Section	Township	RANGE	County
			<input type="checkbox"/> W <input type="checkbox"/> E	
			<input type="checkbox"/> W <input type="checkbox"/> E	
			<input type="checkbox"/> W <input type="checkbox"/> E	
			<input type="checkbox"/> W <input type="checkbox"/> E	
			<input type="checkbox"/> W <input type="checkbox"/> E	
			<input type="checkbox"/> W <input type="checkbox"/> E	
			<input type="checkbox"/> W <input type="checkbox"/> E	
			<input type="checkbox"/> W <input type="checkbox"/> E	

Please attach an additional sheet if additional legal descriptions apply.

III. Disclaimer and Signature

I certify that my answers are true and complete to the best of my knowledge. I understand that the submittal and acceptance of this application does not constitute the State's grant of any right, does not guarantee a grant of any right and any use of State land without permission will be considered a trespass.

This application will expire if the applicant does not contact in writing the Department for two years after the submittal date.

Applicant: _____
(Please Print)

Signature: _____ Date: _____

Title: _____
(Please Print)

INTERNAL USE ONLY

Region			
Received by:			Date:
Reviewed By:			Date:
Region:			
Application Complete?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO. List incomplete sections:		
Application Accepted?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO. Reason for denial:		Date:
Submitted to Title and Records Office (TRO):	<input type="checkbox"/> YES <input type="checkbox"/> NO	TRO File Number Requested?	<input type="checkbox"/> YES <input type="checkbox"/> NO Date:
SEPA Required?	<input type="checkbox"/> YES <input type="checkbox"/> NO	If "No", please list statutory (Chapter 43.21C RCW) or categorical (WAC 197.11-800 through 890) exemption:	
Title and Records Office			
Date Received:			
Title Examiner:			
File Number:			



APPENDIX H
FOREST PRACTICES PERMIT
APPLICATION INSTRUCTIONS & FORMS;
RMAP CHECKLIST



Western Washington Forest Practices Application/Notification Information and Instructions

Table of Contents

General Information	1
Laws and Rules	2
Hazardous Leave Trees & Utility Lines	2
Forest Practices Application/Notification Fees	2
Permits From Other Agencies	2
Help For Small Forest Landowners	3
DNR Western Washington Region Offices	3
Instructions for Western Washington Forest Practices Application/Notification	4-18
Activity Map Requirements	19
Example Activity Map and Legend	20
Water Typing Requirements	21
Western Washington Water Type Classification Worksheet	22
Hydraulic Project Approval Information	23
Type S and F Riparian Management Zone Cross Section	24
Inner Zone Hardwood Conversion Worksheet	25
Western Washington Type Np RMZ Worksheet	26
Natural Regeneration Plan, Western Washington	27
Watershed Analysis Worksheet	28
Web References	30

General Information

You may need a Forest Practices Application/Notification (FPA/N) form for any of the following activities on forest land. Please contact the DNR region office to see if you need one.

- Harvesting timber;
- Salvaging logs, stumps, or snags;
- Constructing forest roads;
- Installing or replacing culverts/bridges on forest roads;
- Constructing or expanding gravel pits on forest land for forestry use; or
- Using aircraft to apply chemicals

FPA/N forms are on DNR's Forest Practices website

http://www.dnr.wa.gov/BusinessPermits/Topics/SmallForestLandownerOffice/Pages/fp_sflo_overview.aspx . They are also at DNR Region offices. These forms must be legible for electronic scanning. Please:

- Type or use ink
- Do not use whiteout. If you make mistakes, cross them out and initial your changes.
- Do not write in the margins
- Include comments on a separate page. Include the number each comment refers to.
- Include an activity map. Map standards are in these instructions. You can download a map from the Forest Practices web site. Maps are also at DNR region offices.
- Use additional maps to help explain your proposal (if needed)

If your FPA/N is complete, DNR will mail you a postcard. If it is incomplete, DNR will contact you and explain why.

Laws and Rules

Copies of the laws and rules can be found on the DNR's website and DNR Region Offices. See page 30 of these instructions for a list of frequently viewed pages on the DNR Forest Practices website, including links to laws and rules. The Revised Code of Washington (RCW) for forest practices are Chapter 76.09 RCW and Chapter 76.13 RCW. RCWs are state laws. Forest Practices rules are Washington Administrative Code (WAC) 222. The Forest Practices Board Manual provides technical advice to help follow the rules.

Hazardous Leave Trees & Utility Lines

Trees that fall into any electrical utility lines have serious consequences. Not only can they injure people or property near the line, but hitting a line may cause power outages, surges, fires, and other damage. Downed lines still conducting electricity are especially dangerous. Leave trees left within one and one half lengths of electrical lines have the potential to fall into utility lines. This is a very serious situation and leave trees must be removed.

Forest Practices Application/Notification Fees

Fees are charged **only if** you are harvesting timber. Harvesting timber includes salvaging snags, down wood, dying trees, or stumps. Make checks payable to the "Department of Natural Resources".

The fee is **\$0.00**, if you are not harvesting timber, salvaging wood, or selling wood.

The fee is **\$50.00**, if you are harvesting timber, salvaging wood, or selling wood and you are not converting the land to a use incompatible with growing timber. This includes non-conversions on platted lands that are outside the city limits or the Urban Growth Area.

The fee is **\$50.00**, if you are renewing an approved application or notification.

The fee is **\$500.00**, if you are harvesting timber, and

- You are converting the land to a use that is incompatible with growing timber; or
- The forest land is located inside the city limits or urban growth boundary.

EXCEPT the fee is \$50.00 if the landowner provides:

- A letter signed by the landowner stating the landowner will not convert the land to a non-commercial forestry use for ten (10) years AND a written forest management plan approved by the DNR; OR
- A Conversion Option Harvest Plan (COHP) approved and signed by the county or city.

Reference: RCW 76.09.065

Permits From Other Agencies

If you have a permit from another agency (such as a Bald Eagle Management Plan, Clearing and Grading, Hydraulic Project Approval, Shoreline) - then your FPA/N and Activity Map must be consistent with the permit(s) requirements.

If you are converting, you may need a construction stormwater permit from the Department of Ecology. If your construction project involves one or more acres, and will potentially discharge stormwater to typed waters or wetlands, then you need a Construction Stormwater General Permit before operating. A permit application and related documents are at: <http://www.ecy.wa.gov/programs/wq/stormwater/construction> and at the Water Quality Program, Department of Ecology, P.O. Box 47600, Olympia, WA, 98504-7600; (360) 407-6600.

Programs for Small Forest Landowners

Field forest practice foresters are located around the state to offer limited assistance to small forest landowners with completing forest practices applications. Assistance does not include writing or completing management plans. You can request assistance through a region office for:

- **Long-Term Application:** Landowners may apply for a long-term forest practices application that will be valid for 3-15 years. A long-term application may initially require more work than a 2 year application, but allows the landowner more flexibility over time.
- **Alternate Plans:** These site specific management plans allow more flexibility than the forest practices rules typically allow. All resources must still be adequately protected.
- **Forest Practices Process Assistance:** Landowners can get help with completing forest practices applications and with rule explanations.

Staff located in Olympia can answer general questions for the following programs. Assistance is limited and does not include writing or completing management plans:

- **Forest Riparian Easement Program (FREP):** When harvesting near water or wetlands, a forested buffer is required to be left to protect the aquatic resources. FREP compensates landowners for timber that is required by law to be left.
- **Family Forest Fish Passage Program (FFFPP):** Many culverts on forest road stream crossings block fish passage. Funding from the FFFPP is available to help pay to fix fish passage barriers.
- **Forest Stewardship Program:** This program provides forest management advice and help in developing forest stewardship plans. A stewardship plan could make you eligible for cost share, certification, or recognition programs.

For more information, call 360-902-1400 for Olympia staff, see our website www.dnr.wa.gov/sflo, or contact one of the DNR Region Offices listed below.

DNR Western Washington Region Offices

(Business hours are 8:00 am to 4:30 pm)

Northwest Region

919 N Township St
Sedro-Woolley, WA 98284
Tel: (360) 856-3500
Fax: (360) 856-2150

Includes: Island, San Juan, Skagit, Snohomish, and Whatcom counties

Olympic Region

411 Tillicum Lane
Forks, WA 98331
Tel: (360) 374-2800
Fax: (360) 374-5446

Includes: Clallam, north half of Grays Harbor, and Jefferson counties

Pacific Cascade Region

601 Bond Rd
P.O. Box 280
Castle Rock, WA 98611
Tel: (360) 577-2025
Fax: (360) 274-4196

Includes: Clark, Cowlitz, south half of Grays Harbor, Lewis, Pacific, Thurston, Skamania, and Wahkiakum counties

South Puget Sound Region

950 Farman Ave. N
Enumclaw, WA 98022
Tel: (360) 825-1631
Fax: (360) 825-1672

Includes: King, Kitsap, Mason, and Pierce counties

Instructions for Western Washington Forest Practices Application/Notification

(Includes the entire Wind River drainage in Skamania County)

1. Landowner, Timber Owner, and Operator.

Print the name, address, and phone number of the Landowner, Timber Owner, and Operator. If all three are the same, write "Same as Landowner" in the TIMBER OWNER and OPERATOR boxes. Email addresses are optional. DNR will mail copies of the "Notice of Decision" to the landowner, timber owner, and operator. You must notify the DNR if any of these three changes.

2. Contact person

Print the name and phone number of the primary contact person. Email addresses are optional. This person will be contacted only when the FPA/N is processed. DNR will not send copies of the approval or disapproval (Notice of Decision) to the contact person.

NOTE: You are required to verify water types, except type S waters, within 200 feet of your proposed forest practices activities prior to submitting a Forest Practices Application / Notification. Use the Additional Information section, additional pages, the Water Type Classification Worksheet, or a Water Type Modification form to explain how you verified water types.

- See pages 21-22 for water typing requirements and information.

3. Are you a small forest landowner?

Large Forest Landowners: Annually harvest more than 2 million board feet of timber from their own land.

Small Forest Landowners: Annually harvest 2 million board feet or less from their own land.

Reference: WAC 222-16-010 ("forest landowner")

4. What is the Forest Tax Registration Account Number?

Contact the Washington State Department of Revenue's Forest Tax Program to look up an existing Forest (timber) tax number or to apply for a new one. Their phone number is 1-800-548-8829. You can get tax forms and information from their website at: <http://www.dor.wa.gov>

5. Are you substituting prescriptions from an approved state or federal conservation agreement or watershed analysis? Write "HCP" or "Using Prescriptions" in tables that apply. Attach or reference on file prescriptions and/or crosswalks.

State or federal conservation agreement (habitat conservation plan / HCP)

If you answered "Yes" because of an HCP:

- Write "HCP" in the tables that apply.
- Include a copy of the HCP prescriptions and indicate which WACs are being substituted in the Additional Information section of your FPA or as an attachment (i.e. "crosswalk") to your FPA.
- OR If you have HCP prescriptions or an HCP crosswalk on file with the DNR, please reference which prescriptions you will be using and which WACs are being substituted.

Reference: WAC 222-12-041

Watershed analysis

Contact your local DNR region office to see if your land is within an area with an approved Watershed Analysis and if prescriptions apply.

If your land is within a Watershed Analysis area, you may have to follow the prescriptions from the analysis. If you do not want to use the prescriptions, your FPA/N will be a Class IV-Special and require a State Environmental Policy Act (SEPA) checklist or SEPA determination.

If your land is within a Watershed Analysis area that has approved prescriptions, you must complete the Watershed Analysis worksheet and submit it with you FPA/N. See page 28 of these instructions.

If you answered "yes" because of watershed analysis prescriptions:

- Write "prescriptions apply" in the appropriate tables.
 - Attach copies of the prescriptions.

Each Watershed Analysis is on the DNR Forest Practices website listed on page 30 of these instructions.

References: WAC 222-16-050 (1) (d) (iii), Chapter 222-22 WAC.

6. What is the legal description of your forest practice?

Example:

¼ ¼ (quarter quarter)	Section	Township	Range	E/W	Tax Parcel Number	County
NW ¼ NW ¼	30	10	5	W	123456789123456789123	Cowlitz

Give the legal description of your forest practice to the nearest 40 acres (such as NW¼ NW¼), Section, Township, and Range (including East or West).

Tax parcel numbers are for all lands, **except** those that are designated as forest land of long-term commercial significance under the Growth Management Act (chapter 36.70A RCW).

List the county where the forest practice is located. For help, see your property deed or contact the county assessor's office.

Example of a ¼, ¼ breakdown of a section: The northwest quarter of the northwest quarter is tinted gray in the section breakdown.

NW, NW	NE, NW	NW, NE	NE, NE
SW, NW	SE, NW	SW, NE	SE, NE
NW, SW	NE, SW	NW, SE	NE, SE
SW, SW	SE, SW	SW, SE	SE, SE

7. Have you reviewed this forest practices activity area to determine whether it may involve historic sites and/or Native American cultural resources?

DNR will review your application to determine whether it may involve Native American cultural resources. If it does, you are required to meet with the affected tribe or tribes with the objective of agreeing on a plan for protection of the archaeological or cultural value.

If you know or are unsure that your application involves Native American cultural resources, you are encouraged to contact the affected tribe or tribes as soon as possible. If the activity meets any of the criteria below it is recommended that the landowner consult with the affected Indian Tribe(s) as to possible impacts before submittal of the FPA/N.

Areas that are most likely to contain Native American cultural resources are:

- Along defined ridge lines and at saddles
- Flat ground near natural water (including terraces)
- Talus slopes
- Cedar tree stands containing older, scarred trees

For information on contacting tribes, visit the Washington State Tribal Directory at <http://www.goia.wa.gov>. Your DNR region office can also identify which tribe(s) to contact.

8. Do you have a DNR approved Road Maintenance and Abandonment Plan (RMAP)?

No. *If No, is a Checklist RMAP required? (see instructions below)* No. Yes *Include a copy of the RMAP Checklist.*

Yes. *List the RMAP number: _____.*

Checklist RMAP: A Small Forest Landowner Checklist RMAP is a checklist of existing road conditions, but doesn't include a road work schedule like a standard RMAP (see below). If you are a small forest landowner (if yes to number 3), please answer the following questions to see if a Checklist RMAP is required:

- Is this FPA/N for timber harvest or salvage?
 - No. A Checklist is not required
 - Yes. A Checklist may be required. Go to B
- Are you hauling timber on existing forest roads on your property?
 - No. A Checklist is not required
 - Yes. A Checklist may be required. Go to C

- C. Do you own more than 80 acres of forest land in Washington State?
 Yes. A Checklist is required with this FPA/N
 No. A Checklist may be required. Go to D
- D. Is this FPA/N on a block of forest land that contains more than 20 contiguous acres?
 Yes. A Checklist is required with this FPA/N
 No. A Checklist is not required. Ask DNR for an informational brochure.

Road Maintenance and Abandonment Plan (RMAP): A Road Maintenance and Abandonment Plan (RMAP) is a forest road inventory and schedule for any needed road work. It is prepared by the landowner and approved by DNR. Large forest landowners are required to have an RMAP. A small forest landowner may submit an RMAP. Answer "yes" to number 9i for any road work that will be reported as an accomplishment on your annual RMAP Accomplishment Report.

NOTES:

- A checklist RMAP form is available at the Forest Practices website listed on page 30 of these instructions.
- Even if you do not have an RMAP requirement, your forest roads must still meet the road maintenance requirements in WAC 222-24-052.
- Contact the DNR region office for RMAP information.

References: WAC 222-24-050, WAC 222-24-051, WAC 222-24-0511.

9. Is this forest practice application/notification: *(Answer every question)*

a. Within the city limits or the urban growth area?

If you do not know if the property is located within a city or an urban growth area, contact your county planning department or assessor's office.

If you answered "Yes," include **one** of the following:

- A State Environmental Policy Act (SEPA) checklist or SEPA Determination, and copies of any required, approved, clearing and/or grading permits from the local government. Make sure your FPA/N reflects any SEPA conditions.
- A Conversion Option Harvest Plan (COHP). See number 9e.
- A signed statement of intent to keep the property in forestry for 10 years. Include a 10 year management plan.

References: RCW 76.09.050, WAC 222-10-010, and WAC 222-16-050(2).

b. In a public park?

If you answered "Yes", a SEPA checklist or SEPA Determination is required unless you are harvesting/salvaging less than 5,000 board feet within a developed public park. Make sure your FPA/N reflects any SEPA conditions.

References: RCW 76.09.050, WAC 222-10-010, and WAC 222-16-050(1) (c).

c. Within 500 feet of a public park?

If you answered "yes," enter the name of the public park.

References: WAC 222-20-100(1).

d. On land that has been platted?

If you do not know if the land was platted after January 1, 1960, call the county assessor.

If you answered "Yes", include a State Environmental Policy Act (SEPA) checklist or SEPA Determination, and copies of any required, approved, clearing and/or grading permits from the local government. Make sure your FPA/N reflects any SEPA conditions.

References: RCW 76.09.050, chapter 58.17 RCW, WAC 222-10-010, and WAC 222-16-050(2)

e. In an approved Conversion Option Harvest Plan (COHP) from the local government? *If yes, include a copy.*

A COHP is a city or county approved plan that allows you to harvest your timber and keep the option to either convert it or replant it when your property is located in an urban growth area. Not every county allows COHPs. Contact the local government planning department for more information.

References: WAC 222-16-010 and WAC 222-16-050(2) (d) (ii).

f. Within 200' of the Ordinary High Mark (OHWM) or floodway of type S water? *If yes, does the activity require a Substantial Development Permit? [] Yes [] No If yes include a copy of your Substantial Development Permit.*

Type S waters are considered “Shorelines of the State.” and are shown on the DNR Activity Map. Counties and cities regulate activities within 200 feet of “Shorelines of the State”. If you are conducting activities within 200 feet of a “Shoreline of the State” you must:

- Contact the county or city in which your property is located to verify that proposed activities are in compliance with the local shorelines master plan. Your FPA/N needs to reflect any requirements of the shorelines master plan.
 - If the county or city requires a substantial development permit for your activity, a copy of the substantial development permit is required to process your forest practices permit.

Reference: RCW 90.58.140, WAC 222-50-020 (3)

g. A request for a multi-year permit?

Multi-year permits are valid from 3 to 5 years (others are valid for 2 years). Not every application qualifies as a multi-year permit. The qualifications are:

- Using prescriptions from an approved watershed analysis;
- Performing roadwork from an approved Road Maintenance and Abandonment Plan*, if the roadwork is scheduled to take longer than two years; or
- Performing an approved alternate plan.

*Except a Checklist RMAP - these do not qualify for a multi-year permit.

NOTE: Renewals of multi-year permits are valid for 2 years.

References: WAC 222-20-015

h. An Alternate Plan?

An alternate plan offers alternatives to certain Forest Practices rules. Requirements are detailed in WAC 222-12-040 and WAC 222-12-0401.

i. For road work that is included in an approved Road Maintenance and Abandonment Plan (RMAP)?

Check “No” if your FPA/N is not for road work associated with a DNR approved RMAP.

Check “Yes” if any part of your FPA is for work that is associated with a DNR approved RMAP. List the RMAP number in number 8.

Contact the DNR region office for RMAP information.

j. Within 50 miles of saltwater and do you own more than 500 acres of forest land?

Mark “Yes” and complete the Marbled Murrelet form only if:

- Harvesting timber (includes salvaging) or constructing roads within 50 miles of saltwater; And
- The landowner owns 500 acres or more forest land in Washington State, And
- The landowner does not have an approved state and /or federal conservation agreement with prescriptions that include the marbled murrelet. If the landowner has an agreement, submit a copy of the prescriptions (or reference the prescriptions on file at the region office) and list the forest practices rules that are being substituted.

10. If constructing or abandoning forest roads and/or installing, removing, or replacing crossings in typed water, complete the table below. Show the road and crossing locations and identifiers on your Activity Map. Include abandonment plans for temporary roads and abandonment projects. Installation and removal of crossings in Type S or F Waters also require a Hydraulic Project Approval (HPA) permit from the Washington State Department of Fish and Wildlife (WDFW). This FPA serves as your request for an HPA.

Example:

Road Identifier (Name, Number)	Road Construction		Abandonment Plans	
	Length (feet)	Steepest Side-slope (%)	Length (feet)	Abandonment Date
1200 Rd.				
Spur A	900	25%	900	8/08
2400 Rd.			500	8/08
1400 Rd.				8/08

Crossing Identifier (Letter, Number, or FFFPP)	Installing, Removing, or Replacing Structures in Typed Water			
	Water Type (S, F, Np, Ns)	Activity (Install, Replace, Remove)	Structure (Culvert, Bridge, Ford)	Proposed Size (Dimensions of new structure)
1	F	Install	Culvert	60" X 24'
2	Np	Replace	Culvert	48" X 40'
3	Np	Remove		
FFFPP	F	Replace	Culvert	60" X 40'

Road Identifier: This is the same number or name of the road shown on your Activity Map.

Road Construction: This is new forest roads and any roadwork (except routine maintenance) outside an existing forest road prism.

Length: Enter the total road construction length (in feet), including temporary roads.

Steepest Side Slope: Enter the percent (%) of the steepest side slope (not road grade) crossed during construction.

Abandonment Plans: Include temporary roads and existing roads you plan to abandon. You must include a written plan that shows how the road will be left to:

- Control erosion
- Maintain water movement within wetlands and other natural drainages
- Prevent four-wheeled highway vehicles from entering the point of closure
- Restore water crossings - such as remove culverts and fill, etc.

Length: Enter the total road abandonment length (in feet).

Abandonment Date: This is the date the abandonment will be completed by.

Contact the DNR region office when your road abandonment is complete. If the abandonment is acceptable, DNR will send written approval.

Crossing Identifier: Enter one identifier per crossing. Show crossings along with their identifiers on your Activity Map.

- If you are planning to replace a culvert or bridge with funding from the Family Forest Fish Passage Program, enter "FFFPP" as your crossing identifier. If you have more than one crossing being funded by FFFPP, enter "FFFPP1, FFFPP2," etc.
 - If you are a Small Forest Landowner who would like to enroll in the FFFPP or for more information on this program see page 30 of these instructions for Small Forest Landowner Office website link or call your local DNR region office.

Installing, Removing, or Replacing Structures in Typed Water: Enter one activity per crossing.

Installing, removing, or replacing water crossings may require a Hydraulic Project Approval (HPA) from the Washington Department of Fish and Wildlife (WDFW). Your FPA is also your request for an HPA. See page 23 for additional information.

Water Type: Enter the water type S, F, Np, or Ns at the crossing.

Activity: Enter the activity that you are proposing: installing, removing, or replacing a structure.

- Installing, removing, or replacing water crossings on S and F waters always require HPAs.

Structure: Enter the structure type you propose to install: culvert, bridge, or ford.

- You are required to submit a plan view and a cross-section view diagram for each Type Np water crossing. See page 23 for additional information.

Proposed Size: Enter the dimensions of the structure you are proposing to install.

- If an activity requires an HPA, the HPA will specify the structure size and installation or removal process requirements.
- Minimum structure sizes on type S or F waters:
 - DNR requires they are large enough to pass 100-year flood waters
 - WDFW conditions their HPA to protect fish (sizes, installation, etc)
- **Minimum** structure sizes in type Np or Ns waters:
 - Permanent culverts must be at least 24" for Type Np Waters and 18" for Type Ns Waters.
 - Structures must be large enough to pass 100 year flood waters.
 - Structures must be large enough so branches from adjacent trees will not plug them (consideration for passage of woody debris)
 - There are two charts in Forest Practices Board Manual Section 3 to determine culvert sizes
 - Use either chart
 - Landowners can offer different methods to determine culvert size, but DNR must accept the method

You must show the following on your activity map:

- Existing roads
- Forest road construction
- Temporary forest roads
- Forest road abandonment
- End haul and overhaul areas
- New or replaced water crossings (culverts, bridges, and fords)
- Family Forest Fish Passage Program (FFFPP) sites

References: WAC 222-16-010, WAC 222-24-040, WAC 222-24-052(3), and Forest Practices Board Manual Section 3.

11. If depositing spoils, and/or expanding or developing a rock pit for forestry use, complete the table below. Show locations and identifiers on your Activity Map.

Example:

Spoil Area Identifier (Number, Letter)	Cubic Yards of Spoils Deposited	Rock Pit Identifier (Name, Number, Letter)	Acres of Rock Pit Developed	Acres of Rock Pit Expanded
A	100	1200 Pit	1	
		1300 Pit		.5

Spoil Area Identifier. Enter the same number or letter of the spoil area that you show on your Activity Map.

Cubic Yards of Spoils Deposited. Enter the spoil volume in cubic yards. If you need to cut or remove timber, show this as a separate harvest unit in 13.

Rock Pit Identifier: Enter the same name, number, or letter of the pit that shows on your Activity Map.

Acres of Rock Pit Developed. This is the acres of new rock pit. **If you need a Surface Mine Reclamation Permit for this pit - do not include it on this chart - instead put the amount of timber that will be removed for the project in number 13.** Enter the acres of forest land that will be disturbed as part of the project. Show any timber cut as a separate harvest unit in number 13. If the new rock pit includes more than one forest landowner, each landowner will need to sign the FPA/N or submit separate FPA/Ns.

Acres of Rock Pit Expanded. This is the acres of expansion of an existing rock pit. **If you need a Surface Mine Reclamation Permit for this pit - do not include it on this chart - instead put the amount of timber that will be removed for the project in number 13.** Enter the acres of forest land that will be disturbed as part of the expansion project. Show any timber cut as a separate harvest unit in number 13. If the rock pit includes more than one forest landowner, each landowner will need to sign the FPA/N or submit separate FPA/Ns.

You must show the following on your activity map:

- Spoil areas and identifiers
- Location and identifiers of new and expanded rock pits

References: WAC 222-24-060

12. If operating in or within 200 feet of a wetland, complete the table below. Show the boundaries of each wetland, along with its identifier, and WMZ on your Activity Map.

Example:

Wetland Identifier (Number, Letter)	Wetland Type (A, B, or Forested)	Planned Activities in Wetland	Planned Activities in WMZ	Total Wetland Area (acres)	How many acres are you draining?	How many acres are you filling?
1	A	Road	Road	2.5		0.6
2	B		Harvest	0.5	0	0

Wetland Identifier. Enter a different wetland identifier for each wetland. Show the identifiers on the activity map.

Wetland Type. Enter the type of each separate wetland: A, B, or Forested. Include all types and sizes of wetlands that you are proposing to fill or drain. For timber harvest in forested wetlands, only include those that are greater than 3 acres in size. To determine wetland type, see WAC 222-16-035.

Planned Activities in Wetland. Enter the type of activity in each separate wetland. For timber harvest restrictions, see WAC 222-30-020.

Planned Activities in WMZ. Enter the type of activity in each separate wetland management zone.

Total Wetland Area. Enter the total area (in acres) of each separate wetland. You do not need to include forested wetlands less than 3 acres in size.

How many acres are you draining? Enter the total acres of each separate wetland you will drain. If draining more than ½ an acre of an individual wetland, include a SEPA checklist or SEPA Determination. For additional mapping and substitution requirements, see WAC 222-24-015.

How many acres are you filling? Enter the total acres of each separate wetland you are filling. If filling more than ½ an acre of an individual wetland, include a SEPA checklist or SEPA Determination. For additional mapping and substitution requirements, see WAC 222-24-015.

You must show the following on your Activity Map:

- Boundaries, types (A, B, or forested wetlands greater than 3 acres), and identifiers (how you marked it on your map) of all wetlands inside your forest practice and within 200 feet of your forest practice
- Wetland management zones (WMZs)

References: Board Manual Section 8, WAC 222-16-035, WAC 222-16-036, WAC 222-30-020(6), (7), & (8).

If not harvesting or salvaging timber, skip to number 23.

13. If harvesting or salvaging timber, complete the table below. Show all harvest areas and unit numbers on your Activity Map. For even aged harvest units also show green-up information on your Activity Map.

Example:

Unit Number	Harvest Type (Even-aged, Uneven-aged, Salvage, Right-of-Way,)	Yarding Method (Rubber Tired Skidder, Tracked Skidder, Dozer, Shovel, Full Suspension Cable, Leading End Suspension Cable, No Suspension Cable, Helicopter, Animal)	Acres to be Harvested	Volume to be Harvested (mbf)	Volume to be Harvested (%)	Steepest Slope in Harvest Unit (%)
1	Even-aged	Cable - Full Suspension	6	240	100%	60%
2	Uneven-aged	Rubber-tired Skidder	30	1,050	40%	35%
3	Salvage	Dozer	20	4	20%	25%
4	Right-of-way	Dozer	0.5	5	100%	10%

Unit number. Each individual harvest unit must have a unique unit number. An individual harvest unit may be crossed by roads or streams with single-wide RMZs and still be shown as one harvest unit. A harvest unit crossed by a double-wide RMZ must be shown as two individual harvest units and identified by different, unique unit numbers. Show the harvest unit number(s) on the activity map. Do not use letters or symbols. You may be asked to provide directions or a map to your harvest unit(s).

Harvest Type. Enter one of the following for each unit: Even-age, Uneven-age, Salvage, Right-of-Way, Even-age and Salvage, Uneven-age and Salvage Harvest, Right-of-Way and Salvage, Even-age and Right-of-Way, Uneven-age and Right-of-Way. See below and WAC 222-16-010 for definitions of each harvest type.

Even-aged Methods: See WAC 222-16-010 for a complete definition.

- Clearcut: If clearcutting on islands, see WAC 222-30-110.
- Seed tree: leave 20 or fewer trees per acre. Leave trees must be at least 10 inches in diameter with at least 1/3 live crown.
- Shelter-wood: leave 20 or fewer trees per acre. Leave trees must be at least 10 inches in diameter with at least 1/3 live crown.
- Shelter-wood: leave less than 150 trees per acre. Leave trees must be at least 5 years old or average 4 feet in height
- Partial cutting: leave less than 50 trees per acre. Leave trees must be at least 10 inches in diameter with at least 1/3 live crown.
- Over-story removal: take more than 5,000 bf per acre and leaving less than 50 trees per acre. The leave trees must be at least 10 feet high.

- Other methods: leave 6 or fewer trees per acre. Leave trees must be at least 10 inches in diameter with at least 1/3 live crown.

Uneven-aged Methods: Any removal of standing trees other than those listed under Even-aged Methods.

Salvage: removing snags, down logs, windthrow, stumps, bolts, dead or dying wood.

Right-of-way: areas harvested to allow for road construction, rock pit development or expansion, or deposition of spoils from road construction and/or rock pit development.

Harvest Method. Enter one or more of the following for each harvest unit. If a cable harvest system is within the same unit as a ground based harvest system, provide details in the Additional Information section or indicate on a map which area will be utilizing a cable harvest system.

- Rubber tired skidder
- Dozer
- Shovel
- Tracked skidder
- Full suspension cable
- Leading end suspension cable
- No suspension cable
- Helicopter
- Animal

Acres to be Harvested. Enter the number of acres harvested in each unit.

Volume to be Harvested (mbf). Enter the volume in thousand board feet (mbf) that will be harvested (includes salvage). Example: 13,000 board feet = 13 mbf.

Volume to be Harvested (%). Enter the percent (%) of the volume to be harvested and/or salvaged out of the total timber volume (live, dead, down, or dying).

Reference: WAC 222-16-050(4) (e)

Steepest Slope in Harvest Unit (%). Enter the percent (%) of the steepest slope within the unit.

You must show the following on your Activity Map:

- Unit boundaries and numbers (not names or symbols) as identified in the table.
- Clumped WRTs and GRTs within even-aged harvest units.
- Landings.
- Surrounding stand (“green up”) information on even-aged harvest units:
 - Land ownership: If land adjacent to the proposed harvest unit is not forest land, label it “Not Forest Land.” If you do not own the adjacent land, write “Not Owned.”
 - The location of adjacent stands;
 - Estimated average of each stand’s forest age class;
 - Estimated linear feet of the perimeter (total distance around) each harvest unit by age-class; and:
 - Estimated total acres of contiguous stands that are less than 4 feet tall or 5 years old or less, on land that you own.

References: WAC 222-16-010, WAC 222-30-025, and WAC 222-24-060

14. Reforestation. Check the appropriate box(es).

Example:

Planting. Tree Species: Douglas-fir

Natural. *Include a Natural Regeneration Plan. A sample plan is included in these instructions.*

Not required because of the following:

- I am converting some or all of this land to non-forest land in the next 3 years or lands are exempted under WAC 222-34-050.
- Individual dead, dying, down, or windthrown trees will be salvaged.
- Trees are removed under a thinning program reasonably expected to maximize the long-term productivity of commercial timber.
- I am leaving at least 100 vigorous, undamaged, and well-distributed saplings or merchantable trees per acre.
- An average of 190 tree seedlings per acre are established on the harvest area and my harvest will not damage it.
- Road right-of-way or rock pit development harvest only.

Reforestation can be artificial (planting tree seedlings) or natural (relying on leave trees to re-seed).

References: WAC 222-34-010

15. Mark following harvest activities that will be done in or over typed water. Describe them in number 25, Additional Information. This is also your request for a WDFW Hydraulics Project Approval (HPA).

Example:

Activity	Type S Water	Type F Water	Type Np Water	Type Ns Water
Equipment Crossing			X	
Ground Skidding			X	
Suspending Cables		X		
Cable Yarding		X		
Falling and Bucking				

Indicate which activity you will be doing over which water type by marking the appropriate box with an "X".

- Show the activity location(s) on your Activity Map or describe them in number 25 or additional pages.
- Describe how the activities will take place.
- See page 23 for additional information needed for your HPA.

Note: Equipment crossing is driving equipment across water, not taking equipment across an existing bridge or culvert on a road.

16. Is the taxpayer eligible for the EARR Tax Credit?

If you are paying state forest excise taxes on this timber harvest and your harvest is impacted by certain forest practices rules, you may be eligible for a tax credit. State law requires the applicant to answer this question and for DNR to verify it. DNR's verification is on the Notice of Decision Page.

- Answer "Yes" if any portion of your timber haul route is within an approved Road Maintenance and Abandonment Plan (this includes small forest landowner Checklist RMAP).
- Answer "Yes" if this timber harvest is limited due to the Forest Practices rules, Habitat Conservation Plan, or Approved Watershed Analysis in the following areas:
 - Riparian areas
 - Wetlands
 - Steep or unstable slopes
- Answer "No" if none of the above apply.

References: RCW 84.33.0775

If you own MORE than 80 forested acres in Washington, skip to number 21.

17. Are you using the exempt 20-acre parcel riparian management zone (RMZ) rule? [] No [] Yes

- This rule is WAC 222-30-023. Answer questions 1-5 below to see if you qualify to use this rule.
- If you choose no, skip to number 21.
- If you choose yes, continue to number 18 to see if you will be covered by the DNR's Incidental Take Permit for certain endangered and threatened fish species.

Answer these questions to see if you qualify to use the exempt 20-acre riparian management zones (RMZs).

1. Has the water type been field verified?
Yes: Go to 2
No: Contact your local DNR region office
2. Is there a Watershed Analysis Riparian Prescription in effect as of 1/1/99? (ask your local DNR region office)
Yes: You do not qualify to use the 20-acre exempt rule. Instead, you must follow the prescription. Leave numbers 18, 19, and 20 blank, and go to number 21.
No: Go to 3

3. Do you own less than 80 acres of forest land in the state?
 Yes: Go to 4
 No: You do not qualify to use the 20-acre exempt rule. Leave numbers 18, 19, and 20 blank, and go to number 21.
4. Is this forest practice on tax parcels that are 20 contiguous acres or less?
 Yes: Go to 5
 No: You do not qualify to use the 20-acre exempt rule. Leave numbers 18, 19, and 20 blank, and go to number 21.
5. You qualify to use the 20-acre exempt rule, but you could choose to leave the RMZ buffers described in numbers 21 and 22. There may be consequences to using the 20-acre exempt rule. Not every landowner who uses this rule will be authorized under DNR's Incidental Take Permits. Read the information below and answer the questions in number 18 before making your decision.

18. Choose the answer below that best fits your situation. Mark your answer in number 18 of your FPA. Show all RMZs on your Activity Map.

a. ALL of the following apply to me and my land:

- Between June 5, 2006 and today's date I have always owned less than 80 acres of forestland in Washington.
- Between June 5, 2006 and today's date this parcel has always been 20 acres or less of contiguous ownership.
- Between June 5, 2006 and today's date this parcel has always been owned by me or someone else that has owned less than 80 acres of forestland in Washington.

If all of the above apply to you and your land, you are authorized* under DNR's Incidental Take Permits if you use the 20-acre exempt RMZ rule.

*This authorization is subject to change depending on changes to habitat. Please contact your local DNR Region office for more information.

b. ONE OR MORE of the following apply to me and/or my land. Mark all that apply:

- I currently own more than 80 acres of forestland in Washington.
- Between June 5, 2006 and today's date I have owned more than 80 acres of forestland in Washington.
- Between June 5, 2006 and today's date this parcel has been more than 20 acres of contiguous ownership.
- Between June 5, 2006 and today's date this parcel has been owned by someone that has owned more than 80 forested acres in Washington.

If any of the above applies to you and/or your land AND you use the 20-acre exempt RMZ rule on any of your forest land, you are **not** authorized under the state's Incidental Take Permits.

You will be authorized if you use the standard RMZ buffers in questions 21 and 22.

Background for the state's Incidental Take Permits for certain endangered and threatened fish species:

- The U.S. Fish and Wildlife Service and the National Marine Fisheries Service have listed some fish species in Washington State as threatened or endangered under the Endangered Species Act (ESA).
- Cutting trees along streams can affect threatened or endangered fish and cause "incidental take", as defined in the ESA.
- If you cause "incidental take" without authorization, you may be in violation of the ESA.
- The state received authorization (called Incidental Take Permits) for "incidental take" of listed fish.
- If you use RMZ buffers described in numbers 21 and 22, you are authorized under the state's Incidental Take Permits.
- If you use the 20-acre exempt RMZ rule, you may not be authorized under the state's Incidental Take Permits. Answer number 18 above to see if you and your property are authorized under the state's Incidental Take Permits.

Reference: For more information on Incidental Take permits, see the "Forest Practices Habitat Conservation Plan" (FPHCP) section of the Forest Practices Division website listed on page 30 of these instructions. Included on this site is a complete list of species covered by the FPHCP: see Table 1.3 on pages 25-28.

19. If harvesting within 115 feet of a type S or F water on an exempt 20-acre parcel complete the table below. Show RMZs and stream segment identifiers on your Activity Map. Stream shade analysis calculation requirements are explained in the instructions for “Are you harvesting within the maximum RMZ?”

Stream Segment Identifier (Letter)	Water Type (S, F)	Segment Length (feet)	Bankfull Width (feet)	Maximum RMZ Width (feet)	Are you harvesting within the maximum RMZ? (Y/N)
A	F	570	35	86	Y
B	F	315	4	29	N
C	S	200	80	115	Y

Stream Segment Identifier. Enter a different stream identifier (letter) for each stream segment. Show the identifiers on the activity map.

Water Type. Enter the water type S or F. See Water Typing Requirements on page 21 for more information.

Segment Length: Enter the length of the segment in feet. This includes stream lengths or any portion of the perimeter of a lake or pond to which you are applying an RMZ.

Bankfull Width. Enter the width in feet measured at bankfull width. See Board Manual Section 2.

Maximum RMZ Width. Enter the “RMZ Maximum Width” per the table in WAC 222-30-023(1)

Are you harvesting within the maximum RMZ? Enter yes or no. You may harvest within the maximum RMZ if:

- You include stream shade analysis calculations when you are harvesting trees within the maximum RMZ or 75 feet, whichever is **less**. See Forest Practices Board Manual Section 1 for shade analysis calculation methods.
 - Example 1: If the maximum RMZ is 58 feet and you plan on harvesting trees within 58 feet of a type S or F water, you need to evaluate the available shade from trees within 58 feet of the water.
 - Example 2: If the maximum RMZ is 86 feet and you plan on harvesting trees within 86 feet of a type S or F water, you need to evaluate the available shade from trees within only 75 feet of the water.
 - EXCEPTION: WAC 222-30-040(5) allows the harvest of shade trees for constructing and maintaining road crossings and for yarding corridors.
- You leave the required wildlife trees (5 per acre)
- You leave the required riparian area leave trees (see the table in WAC 222-30-023(1))

You must show the following on your activity map:

- Stream segment identifiers
- Riparian management zones

References: WAC 222-30-023, WAC 222-30-040, WAC 222-30-060, Forest Practices Board Manual Section 1

20. Are you harvesting within 29 feet of a Type Np water on a 20 acre exempt parcel?

No: Skip to number 23.

Yes: You will need to describe your leave tree strategy in number 25, Additional Information. Then skip to number 23.

Your leave tree strategy must be arranged to accommodate the following on EACH side of the Np water:

- Leave at least 29 conifer or deciduous trees every 1000 lineal feet
- Leave trees are within 29 feet of bankfull width
- Leave trees need to be 6 inches in diameter or larger

You must show the following on your activity map:

- Stream segment identifiers
- Riparian management zones

21. If harvesting within 200 feet of any Type S or F water, complete the table below. Include DFC for all inner zone harvest unless you have an HCP prescription. Show RMZs, CMZs, and stream segment identifiers on your Activity Map. Example:

Stream Segment Identifier (Letter)	Water Type (S or F)	Site Class (I – V)	Stream Width (feet)	Is there a CMZ?	RMZ Harvest Code(s)	DFC Run Number	Total width of RMZ (feet)
A	F	I	15'	No	E, G	5	200'
B	F	II	30'	No	E, L	7	170'
C	F	II	15'	No	E, H, I, L	2	170'
D	HCP						

Stream Segment Identifier. Enter a different stream identifier (letter) for each stream segment. Do not use the letters S, F, or N.

Water Type. For non-HCP lands, enter the stream type (S or F) for each stream segment identifier. If the landowner is substituting prescriptions from an approved HCP, write "HCP" in the space and follow the instructions for number 5.

Site Class. Enter the Site Class. Site class maps are available on the Forest Practices website listed on page 30 of these instructions or from DNR Region Offices.

Stream Width. The stream width is the bankfull width. See Board Manual Section 2.

Is there a CMZ? Enter "Yes" or "No." If there is a CMZ, include details of the physical and historical evidence used to delineate the CMZ on the ground in number 25, Additional Information. See Board Manual Section 2.

RMZ Harvest Code.

- RMZs are required on both sides of a stream.
- Treat each side of a stream as a separate RMZ segment.
- Measure RMZs for Type S or F waters horizontally from the outer edge of the BFW or CMZ, whichever is greater.
- Shade Requirements for S and F Waters: Leave all appropriate shade if you are harvesting within 75 feet of the bankfull width or Channel Migration Zone, whichever is greater. See the Board Manual Section 1 for guidance. EXCEPTION: WAC 222-30-040(5) allows the harvest of shade trees in connection with the construction and maintenance of road crossings or the creation and use of yarding corridors. See WAC 222-30-060 for yarding corridor restrictions.

Enter the code(s) from the list below

RMZ HARVEST CODES	
<p>Inner and Outer Zones</p> <p>A - Alternate Plan. <i>Include Alternate Plan</i></p> <p>Inner Zone <i>Include DFC printouts for each stream segment where standing or down wood will be removed</i></p> <p>B - No Inner Zone Harvest</p> <p>C - Hardwood Conversion</p> <p>D - Thinning from below - Option 1</p> <p>E - Leave trees closest to water - Option 2</p> <p>F - Salvage</p> <p>G - Stream-adjacent Parallel Road</p> <p>H - Constructing a New Stream Crossing</p> <p>I - Road Construction or Day-lighting</p> <p>J - Yarding Corridors</p>	<p>Outer Zone</p> <p>K - No Outer Zone Harvest</p> <p>L - Leaving 20 trees per acre evenly distributed</p> <p>M - Leave trees clumped on sensitive features</p> <p>N - Leave trees exchanged for LWD placement strategy <i>Include a copy of the placement plan</i></p> <p>O - Leave trees exchanged for CMZ basal area</p> <p>P - Leave trees exchanged for excess inner zone basal area in conjunction with an Option 2 inner zone harvest</p> <p>Q - Salvage</p> <p>See the next page for additional harvest code information.</p>

Inner and Outer Zones RMZ Harvest Codes

A - Alternate Plan You must include a copy of the Alternate Plan.

Inner Zone RMZ Harvest Codes - Choose all that apply. NOTE: Desired Future Condition (DFC) software is available at the Forest Practices website listed on page 30 of these instructions. This software allows you print DFC calculations as required for harvest codes C-J.

B - No Inner Zone Harvest

C - Hardwood Conversion This is a converting a hardwood-dominated stand within the inner zone to a conifer-dominated stand. The requirements are in WAC 222-30-021(1)(i).

You must include the following:

- A DFC printout that shows the conversion unit does not meet stand requirements.
- Evidence the conversion unit can be converted to a conifer stand. Evidence includes conifer stumps, historical photos, soil information, or the presence of a conifer under-story.
- Where, when, and how the landowner has successfully completed a hardwood conversion.
- Evidence of adequate shade (see Forest Practices Board Manual Section 1)
- A map with the following:
 - Ownership 500 feet upstream and downstream of the conversion unit
 - Boundaries of conversion units and no-harvest units
- The percent harvest proposed within the conversion units.

D - Thinning from below (Option 1). You must include DFC printouts for each stream segment where standing or down wood will be removed.

Reference: Chart in WAC 222-30-021(1)(b)(ii)(B)(I)

E - Leaving trees closest to water (Option 2) You must include DFC printouts for each stream segment where standing or down wood will be removed

NOTE: You cannot use Option 2 for site class III on streams greater than 10 feet, because of the minimum floor (100 ft) constraint.

Reference: Chart in WAC 222-30-021(1)(b)(ii)(B)(II)

F - Salvage in the Inner Zone. You must include DFC printout.

- You may salvage standing **snags and stumps** if stand requirements are met.
- You may salvage **down wood** if stand requirements are met and you leave at least 194 down wood pieces per acre.

References: WAC 222-30-045(3)

G - Stream-adjacent parallel road. If stand requirements cannot be met because of a stream-adjacent parallel road, use this code.

You must include:

- Basal area calculations for the road area within the core and inner zones.
- If you are leaving trees to make up for a basal area deficiency, include a tree count.

References: WAC 222-30-021(1) (b) (iii).

H - Constructing a new stream crossing. If the crossing is not adjacent to a harvest unit, use only the trees within the right-of-way limits for basal area calculations.

You may remove right-of-way trees in the **core zone** if:

- They are not part of large woody debris (LWD) placement strategy
- Stand requirements are met

You may take the right-of-way trees in the **inner zone** if

- Stand requirements are met

You must include DFC printout.

References: WAC 222-30-021(1).

I - Road construction or day-lighting. You must include DFC printout.

References: WAC 222-30-021(1).

J - Yarding Corridors. If wood will be removed from the inner zone, include a copy of the DFC printout. Wood can be cut, but not removed from the core zone.

References: WAC 222-30-021(1).

Outer Zone RMZ Harvest Codes - Choose all that apply

K - No Outer Zone Harvest

L - Leaving 20 trees per acre evenly distributed

M - Leave trees clumped on sensitive features

N - Outer zone leave trees exchanged for LWD placement strategy. You must include a copy of the LWD plan.

O - Outer zone leave trees exchanged for CMZ basal area. You must include:

- The CMZ basal area calculations
- The number of leave trees that will remain in the outer zone

P - Outer zone leave trees exchanged for excess inner zone basal area in conjunction with an Option 2 inner zone harvest. You must include the number of leave trees that will remain after harvest.

Q - Salvage. You may salvage standing snags or stumps or down wood in the outer zone if:

- Leave tree requirements are met: 20 trees per acre (unless using placement strategies or offsets allowed in WAC 222-30-021(1)(c) (iv))
- Down wood requirements are met (2 or more down logs per acre harvested) WAC 222-30-020 (1)

Reference: WAC 222-30-045 (4)

DFC Run Number. Enter the Desired Future Condition (DFC) Run Number shown on the top of your DFC worksheet. Desired Future Condition (DFC) web program is available at the Forest Practices website.

Total width of RMZ. RMZ widths for Type S or F waters are dependent on stream width and site class.

- 1) Look up the site class on the maps. Site class maps are available on the Forest Practices website listed on page 30 of these instructions or from DNR Region Offices.
- 2) Measure the bankfull width - see the Forest Practices Board Manual Section 2
- 3) Look up the RMZ width - they are the same for no inner zone harvest, Option 1, or Option 2.

References: RMZ diagram on page 24, WAC 222-30-021 and Forest Practices Board Manual Section 7.

You must show the following on your activity map:

- Stream segment identifiers (don't use the letters S, F, or N - use numbers or other letters)
- Channel Migration Zone (CMZ)
- New road crossings (Harvest Code H)
- Road construction or day-lighting (Harvest Code I)
- Yarding corridors where trees will be removed from the Inner Zone (Harvest Code J)
- Location of a trees that are left to make up basal area deficiency due to the presence of a stream adjacent parallel road (Harvest Code G)

References: WAC 222-30-060, WAC 222-30-021(1).

22. If harvesting within 50 feet of Type Np water, complete the table below. Show RMZs and stream segment identifiers on your Activity Map.

Example:

Stream Segment Identifier (Letter)	Total Stream Length in Harvest Unit (feet)	Length of No-Harvest Buffers in Harvest Unit (feet)	Stream Segment Identifier (Letter)	Total Stream Length in Harvest Unit (feet)	Length of No-Harvest Buffers in Harvest Unit (feet)
A	100'	100'	C	250'	200'
B	75'	75'			

RMZ buffers are required for Type Np waters and for sensitive sites.

To determine total length of required buffers, you may use the Western Washington Type Np Water Worksheet on page 26. Mark the boundaries of all riparian buffers affected by your proposal on the ground.

You must show the following on your activity map:

- Stream Segment Identifiers
- Streams that are on the ground, but not on the DNR Activity Map
- Boundaries of all RMZs
- Boundaries of all sensitive sites

- 50 foot no cut buffer segments (end points) OR describe them in number 25, Additional Information.

References: WAC 222-30-021(2) (b), WAC 222-16-010, WAC 222-16-031

23. How are the following marked on the ground? Specify colors of flagging, paint, tags or describe other features used for boundary markings. If you use number 25, Additional Comments or an attachment for boundary marking descriptions, write “see Additional Information” or “attached.” Boundaries need to be marked on the ground prior to submitting your FPA/N. If field markings are absent during field review, your FPA/N may be disapproved due to incomplete information.

Example:

Harvest Boundaries: N. boundary is County road, E. boundary is pasture, all others are orange paint and flags.

Describe how your boundaries are designated. Recognizable features such as roads, fence lines, stand age class differences, etc., may be used as boundaries. See below for boundary marking requirements specific to landscape features.

Clumped Wildlife Reserve Trees/Green Recruitment Trees: Clumped leave trees are in RMZs / WMZs.

If your wildlife reserve and green recruitment trees (WRTs / GRTs) are clumped enter a description here. You don't need to mark clumped WRTs/GRTs that are within RMZs, WMZs, etc. See WAC 222-30-020 for more information.

Right-of way limits/road centerlines: Centerlines marked with blue paint and flags. R/W marked with pink paint.

Road centerlines must be marked. Right-of-way limits only need to be marked when they are outside of timber harvest unit boundaries.

Riparian Management Zone Boundaries and Leave/Take Trees: Orange paint and flagging.

Specify the colors of paint or flagging used to mark riparian management zones and individual leave trees. If you are proposing an Alternate Plan you only need to mark samples that represent your harvest strategies and the land on which they are occurring. See WAC 222-30-021.

Channel Migration Zone: Pink flagging.

Specify the colors of paint or flagging used to mark the edge of channel migration zones.

Wetland Management Zone Boundaries and Leave/Take Trees: Orange paint and flags.

the colors of paint or flagging used to mark wetland management zones.

24. Are you converting the land to non-forestry use within 3 years of harvest?

Answer “No” if you are keeping the land in forestry use. If you mark “No”, the county or city may deny all development permits on this parcel for the next 6 years. Please contact the county or city for more information.

Answer “Yes” if you are taking the land out of forestry use (such as converting to pasture, crops, home-site, etc) Make sure you marked “Reforestation Not Required” on number 14. You must include a SEPA checklist or SEPA Determination.

References: WAC 222-20-050 and RCW 76.09.060(3).

25. Additional Information: You may include additional information in the space provided or on a separate page. Include the number that each comment refers to. You may also include multiple maps to help explain your proposal.

26. Signature Blocks: The Landowner, Timber Owner, and Operator (as shown in number 1) must EACH legibly print and sign their names and record the date of signature before this application can be accepted. If all three are the same, only the LANDOWNER box needs to be signed and dated. Stamped signatures and/or electronic signatures are not acceptable.

Note: A perpetual timber rights owner may sign as the Landowner. A perpetual timber rights owner does not own the land, but has permanent rights to all the timber on the land. They may submit a FPA/N without the forest landowner's signature if:

- The forest practice is not a conversion;
- The perpetual timber owner's name is in the timber owner block in number 1;
- The perpetual timber owner signs the FPA/N as the timber owner;
- The perpetual timber owner gives DNR proof that the forest landowner has a copy of the FPA/N.

References: RCW 76.09.067

Activity Map Requirements

All FPA/N's must have an Activity Map. Activity maps can be found on the DNR Forest Practices website listed on page 30 of these instructions. You may also create one with your own GIS. Do not show the location of Threatened or Endangered Species or Cultural Resources on this map.

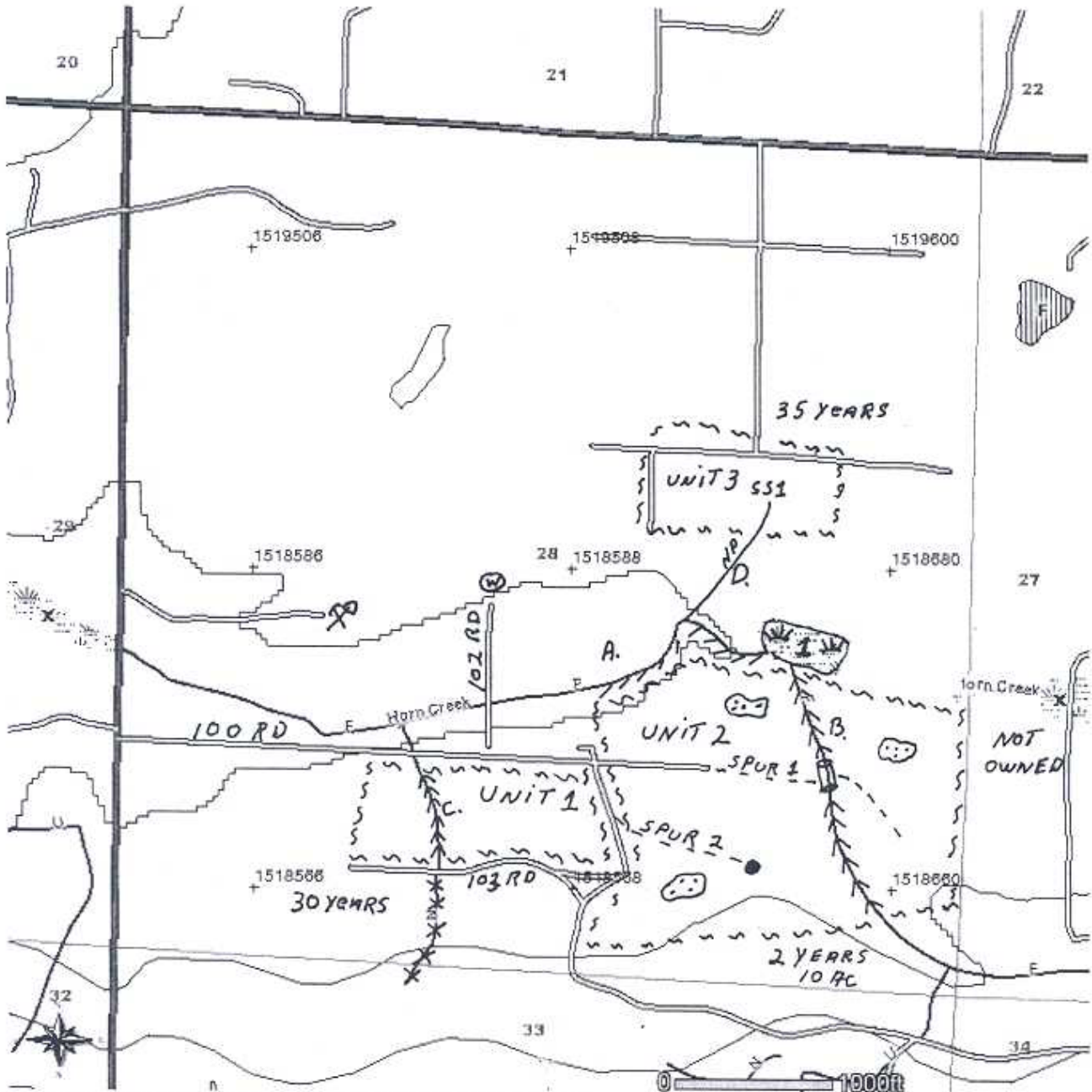
What Must Be Shown on the Activity Map?	
<p>Water</p> <ul style="list-style-type: none"> • New Streams, Lakes or Wetlands within proposal and 200 feet of its perimeter • Crossed out waters (<i>water on the map, but not on the ground</i>) • Wetland boundaries <p>Road Activities</p> <ul style="list-style-type: none"> • Corrections to mapped roads • New or replaced water crossings • Proposed new roads • Temporary roads • Proposed abandoned roads • New or expanded rock pits • Spoil areas • End haul and/or overhaul <p>Harvest Activities</p> <ul style="list-style-type: none"> • Unit boundaries (<i>harvest, salvage, right-of-way, rock pits</i>) • Unit numbers – do not use names or symbols • Landings 	<p>Harvest Activities</p> <ul style="list-style-type: none"> • Overhead utility lines • Clumped WRTs and GRTs • Buffers (<i>RMZs, WMZs, Sensitive Sites</i>) • Stream Segment Identifiers (<i>for RMZ harvest</i>) • Wetland Identifiers • CMZs • Inner zone harvest for yarding corridors across Type S and F Waters • Location of trees left for basal area deficiency due to stream adjacent parallel road • Even-aged harvest must show adjacent land information: <ul style="list-style-type: none"> ○ If not forest land, label it “Not Forest Land.” ○ If you do not own the adjacent land, write “Not Owned.” ○ Estimated average forest age class; ○ Estimated total acres of contiguous stands that are less than 4 feet tall or 5 years old or less, on land that you own. ○ Estimated linear feet of the perimeter (total distance around) each harvest unit by age-class.
What are the Map Standards?	
<ul style="list-style-type: none"> • Use 1":1000' DNR Activity map found on the DNR Forest Practices website OR • You may use larger scale maps or company GIS maps to show details of harvest and road activities. NOTE: The DNR region may ask for vicinity maps to go with large scale maps. • Use black ink • Do not use white-out • Do not use color pencils or highlighters - do not use yellow or red shading • Include a legend • Do not write in the margins • Use more than one map if you need to • Do not fax these maps to DNR 	
What Additional Items Must Company GIS Maps Show?	

- Current DNR water and wetland layers
- DNR Geographic registration TIC marks using NAD83
- Contour lines with elevations (maximum 40' interval)
- Section, township and range lines and numbers & corners
- Scale bar - scale within the range of 1" = 200' to 1" = 1,000'
- North arrow
- ¼" margin on all sides
- Sizes: Letter, Legal, or Tabloid

FOREST PRACTICE ACTIVITY MAP

TOWNSHIP 17 NORTH HALF 0, RANGE 3 EAST (W.M.) HALF 0, SECTION 28

Application #: EXAMPLE



Please use the legend from the FPA Instruction or provide a list of symbols used.

- | | | | |
|---------|--------------------|-----------------------|-----------------------|
| ----- | UNIT BOUNDARY | (Wetland symbol) | WETLAND |
| ==== | EXISTING ROAD | (Arrow symbol) | RMZ/WMZ |
| - - - - | NEW ROAD | (A symbol) | STREAMS |
| ● | LANDING | (**** symbol) | STREAM DOES NOT EXIST |
| X | ROCK PIT | (WRTs + GERTs symbol) | WRTs + GERTs |
| ⊙ | WASTE AREA | | |
| ⊠ | NEW WATER CROSSING | | |

Friday, October 26, 2007 9:10:43 AM
 NAD 83
 Contour Interval: 40 Feet

Water Typing Requirements

You are required to verify and identify water types and wetlands within 200 feet of your proposed forest practices activities prior to turning in a Forest Practices Application/Notification (FPA/N). Call the DNR region office if you need help classifying water types or wetlands. Exception: type S (shorelines) waters don't need to be verified and can't be changed as these are determined by the Washington State Department of Ecology.

How water types affect your FPA/N: specific water types have specific buffer requirements.

- If you thought the stream was a type Np and left a Type Np buffer, and DNR determines it to be a Type F, your FPA will be disapproved.
- If you thought the stream was a Type Np, but left a Type F RMZ, and DNR determines it to be a Type F, your FPA will not be disapproved for this reason.

Step 1: Get a DNR Activity Map from Forest Practices website listed on page 30 of these instructions. They are also available at DNR region offices.

Step 2: Check the locations and types of all streams, ponds, lakes, and wetlands that are on the ground

- Within the boundaries of your forest practice and
- Within 200 feet on all sides of the outer boundaries of your forest practice.
 - See WAC 222-16-031 and Forest Practices Board Manual Section 13 for water typing information
 - See the Water Type Classification Worksheet in these instructions for help
 - See WAC 222-16-035 for wetland typing information

Step 3: Update the DNR Activity Map so that it accurately shows the correct water and wetland types and their locations as they exist on the ground. These include type F, Np, and Ns waters and type A, B, and forested wetlands greater than three acres in size.

- For water bodies not shown on the Activity Map:
 - Draw the stream, lake, pond, or wetland on the map.
 - Write on the map the correct water type or an identifier that will match it to your FPA/N.
- For water bodies that are labeled with an incorrect water type or no water type, write on the map the correct water type or give it an identifier that will match it to your Forest Practices Application/Notification (FPA/N).
- For water bodies that don't exist, cross them off the Activity Map (use a series of x's or hatches). This includes streams labeled as "U" for "unidentified." Explain in the Additional Information section of your FPA/N how you decided that the water bodies do not exist (i.e. you walked the area and didn't find any water or defined channels).
- Note: The updated map that you create is only for your FPA/N and doesn't result in an update to DNR's maps.

Step 4: Explain in your FPA/N how you verified the water types, including how you determined that a water type shown on the map doesn't exist on the ground.

Include one or more of the following with your FPA/N:

- Explain in the Additional Information section of your FPA/N or on additional pages how you determined each water type. Include:
 - Site visit date(s).
 - The area visited (the area covered by your property, length of stream observed, etc.).
 - Observations (stream width, stream gradient, no water, no channel, etc.).
 - For Np water describe how you found the uppermost point of perennial flow.
- Water Type Classification Worksheet(s) that is included in these instructions.
- Water Type Modification Forms
 - These aren't required with your FPA/N.
 - Use these when you want to change the water type map in DNR's system.
 - See the Water Type Modification form and instructions for more information.
 - These can be downloaded from the Forest Practices website listed on page 30 of these instructions. They are also available at DNR Region Offices.
 - Note: If you base your riparian management zones on a proposed water type change, and DNR cannot process this change before the Decision Date, DNR may disapprove your FPA/N.

○ Western Washington Water Type Classification Worksheet

Stream/Segment ID: _____ Stream/Segment ID: _____ Stream/Segment ID: _____

1. Do you have a protocol survey? (See the Board Manual Section 13.) Or, does the stream have waiver characteristics? (See WAC 222-16-031(3) (b) (ii).)

<input type="checkbox"/> No. Continue <input type="checkbox"/> Yes. <input type="checkbox"/> Fish found. Type F water. Stop. <input type="checkbox"/> No fish. Continue to #6. <input type="checkbox"/> Yes. Meets waiver criteria.	<input type="checkbox"/> No. Continue. <input type="checkbox"/> Yes. <input type="checkbox"/> Fish found. Type F water. Stop. <input type="checkbox"/> No fish. Continue to # 6. <input type="checkbox"/> Yes. Meets waiver criteria.	<input type="checkbox"/> No. Continue. <input type="checkbox"/> Yes. <input type="checkbox"/> Fish found. Type F water. Stop. <input type="checkbox"/> No fish. Continue to #6 <input type="checkbox"/> Yes. Meets waiver criteria.
---	---	---

2. List the date Stream observations were made for water typing.

Date observed: _____	Date observed: _____	Date observed: _____
Continue.	Continue.	Continue.

3. Were fish observed or are fish known to use the stream any time of the year?

<input type="checkbox"/> Yes. Type F water. Stop. <input type="checkbox"/> No. Continue.	<input type="checkbox"/> Yes. Type F water. Stop. <input type="checkbox"/> No. Continue.	<input type="checkbox"/> Yes. Type F water. Stop. <input type="checkbox"/> No. Continue.
---	---	---

4. Is the average BFW two feet or wider? AND, is the average stream gradient less than or equal to 16%?

<input type="checkbox"/> Yes. Type F water. Stop. <input type="checkbox"/> No. Continue.	<input type="checkbox"/> Yes. Type F water. Stop. <input type="checkbox"/> No. Continue.	<input type="checkbox"/> Yes. Type F water. Stop. <input type="checkbox"/> No. Continue.
---	---	---

5. Is the average BFW two feet or wider? AND, is the average stream gradient between 16% and 20%? AND, is the contributing basin to the stream greater than 50 acres?

<input type="checkbox"/> Yes. Type F water. Stop. <input type="checkbox"/> No. Continue.	<input type="checkbox"/> Yes. Type F water. Stop. <input type="checkbox"/> No. Continue.	<input type="checkbox"/> Yes. Type F water. Stop. <input type="checkbox"/> No. Continue.
---	---	---

6. Does the stream segment contain water at all times during a normal rainfall year?

<input type="checkbox"/> Yes. Type Np water. Go to 9 <input type="checkbox"/> No. Continue.	<input type="checkbox"/> Yes. Type Np water. Go to 9 <input type="checkbox"/> No. Continue.	<input type="checkbox"/> Yes. Type Np water. Go to 9 <input type="checkbox"/> No. Continue.
--	--	--

7. Is the stream segment downstream of a perennial source of water?

<input type="checkbox"/> Yes. Type Np water. Go to 9 <input type="checkbox"/> No. Continue.	<input type="checkbox"/> Yes. Type Np water. Go to 9 <input type="checkbox"/> No. Continue.	<input type="checkbox"/> Yes. Type Np water. Go to 9 <input type="checkbox"/> No. Continue.
--	--	--

8. Is the stream physically connected by an above-ground channel to Type S, F, or Np water?

<input type="checkbox"/> Yes, Type Ns water. <input type="checkbox"/> No, non-typed water.	<input type="checkbox"/> Yes, Type Ns water. <input type="checkbox"/> No, non-typed water.	<input type="checkbox"/> Yes, Type Ns water. <input type="checkbox"/> No, non-typed water.
---	---	---

9. Describe how you determined the uppermost point of perennial flow. Include a description of its location and show the point on a map (Use a separate piece of paper if necessary).

Stream/Segment ID _____ Description:

Hydraulic Project Approval (HPA) Information

NOTE: You are required to submit plan and cross-section view diagrams for each Type Np water crossing.

Work in or over Type S and F water requires a Hydraulic Project Approval (HPA) permit from the Washington Department of Fish and Wildlife (WDFW).

If you already have a blanket HPA from WDFW, you don't need to submit these views. Instead, write the HPA number in number 25, Additional Comments of the FPA.

You can get a Hydraulic Project Approval in two ways:

1. Apply for a Joint Aquatic Resource Permit Application (JARPA) from the Washington Department Fish and Wildlife (WDFW).

OR

2. Your FPA can serve as your request for HPA. Answer FPA numbers 10 and 15 and submit the plan and cross section views as detailed below.

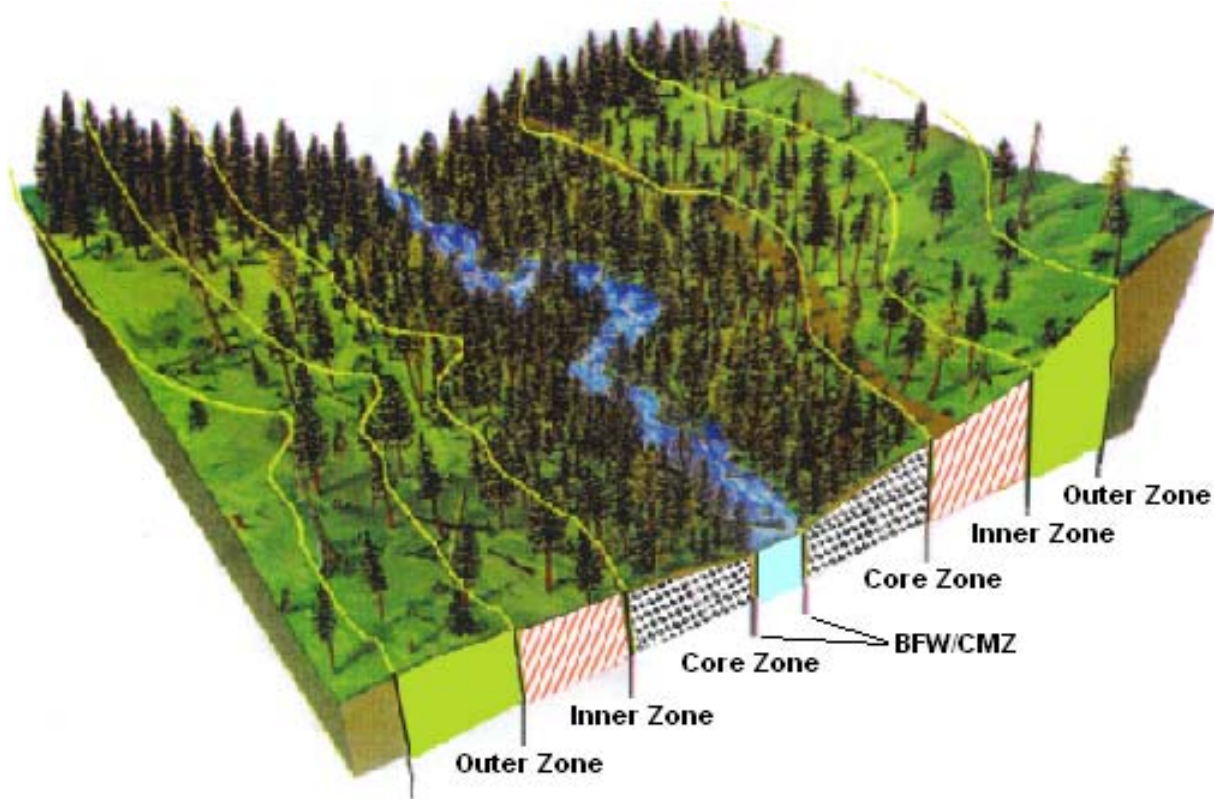
WDFW will require additional information to fulfill your request for HPA if it isn't already included with your FPA. Your HPA may be delayed if you don't include the information below.

Drawings must be sized to scale, prepared with black ink, drawn clearly, and have legible writing.

- A. Plan View. This drawing illustrates the project area as if you were looking down at the site from overhead. The Plan View drawing must contain the following existing and proposed information:
 - 1) Latitude and longitude of the crossing;
 - 2) North arrow;
 - 3) Name of water body and direction of water flow;
 - 4) Dimensions of the activity or structure, distance from property lines, and the distance it extends into the water body beyond the bankfull width;
 - 5) Show all existing structures found on the site and on adjoining properties;
 - 6) If fill material will be deposited, identify the type of material, amount of material in cubic yards, and area in acres to be filled;
 - 7) If the project requires dredging, identify the type of material, amount of material in cubic yards, and area in acres to be dredged;
 - 8) Show all completed portions of the activity;
 - 9) Show the location and type of all existing aquatic, wetland, riparian, and upland vegetation; and
 - 10) Show erosion control measures, including the stabilization of disturbed areas, etc.
- B. Cross-Section View. These drawings provide a side and/or front illustration of your proposed project area – as if you were looking at it from the side and/or front. Cross Section View drawing must contain the following existing and proposed information:
 - 1) Location of water lines;
 - 2) Water depth or tidal elevation on the water-ward or waterside of your project;
 - 3) Dimensions of the activity or structure, and the distance it extends into the water body beyond the bankfull width;
 - 4) Indicate dredging and/or fill grades;
 - 5) Indicate contours and elevations;
 - 6) Indicate the type and location of material to be used for construction purposes and the method of construction; and
 - 7) Indicate the height of all structure.

Additional information may be required depending on project type. For details visit <http://wdfw.wa.gov/hab/hpapage.htm>.

Type S and F Riparian Management Zone Cross-Section



Bankfull Width (BFW) means:

- For streams - the measurement of the lateral extent of the water surface elevation perpendicular to the channel at bankfull depth. In cases where multiple channels exist, bankfull width is the sum of the individual channel widths along the cross-section. See the Board Manual Section 2.
- For lakes, ponds, and impoundments - line of mean high water.
- For tidal water - line of mean high tide.
- For periodically inundated areas of associated wetlands - line of periodic inundation, which will be found by examining the edge of inundation to ascertain where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland.

Channel Migration Zone (CMZ) means the area where the active channel of a stream is prone to move and this results in a potential near-term loss of riparian function and associated habitat adjacent to the stream (See Board Manual Section 2 for descriptions and illustrations of CMZs, delineation guidelines), except as modified by a permanent levee or dike. For this purpose, near-term means the time scale required to grow a mature forest.

Core Zone means the 50 foot buffer of a Type S or Type F water, measured horizontally from the outer edge of the bankfull width or the outer edge of the channel migration zone, whichever is greater.

Inner Zone means the area measured horizontally from the outer boundary of the core zone of a Type S or F water to the outer limit of the inner zone. The outer limit of the inner zone is determined based on the width of the affected water, site class, and the management option chosen for timber harvest within the inner zone.

Outer Zone means the area measured horizontally between the outer boundary of the inner zone and the RMZ width as specified in the Western Washington RMZ tables in WAC 222-30-021. RMZ width is measured from the outer edge of the bankfull width or the outer edges of the channel migration zone whichever is greater.

References:

- See Board Manual Section 2 for information about bankfull width and channel migration zones.
- See WAC 222-30-021 for information about Western Washington core, inner, and outer zones

Not required to be submitted with your FPA/N

Inner Zone Hardwood Conversion Worksheet

1. Do you own 500 feet upstream and 500 feet downstream of the conversion unit?
[] Yes. Go to question 2.
[] No. Stop, does not qualify
2. Do the riparian areas next to the conversion unit have the required shade described in WAC 222-30-040 or have a 75-foot buffer with trees 40 feet tall on both sides of the stream 500 feet above and below the harvest unit?
[] Yes. Go to question 3.
[] No. Stop, does not qualify.
3. Is there evidence that the conversion unit area can be successfully reforested with conifer and support development of a conifer stand?
[] Yes. Go to question 4.
[] No. Stop, does not qualify.
4. Does the RMZ core or inner zone within the conversion unit contain a stream adjacent parallel road?
[] Yes. Stop, does not qualify.
[] No. Go to question 5.
5. Has the landowner successfully performed post-harvest treatment to convert a hardwood dominated stand to a conifer stand?
[] Yes. Go to question 6.
[] No. Go to question 6.
6. Are there fewer than 57 conifer trees per acre equal to or larger than 8 inches in diameter at breast height in the conversion unit area?
[] Yes. Go to question 7.
[] No. Stop, does not qualify.
7. Are there fewer than 100 conifer trees per acre larger than 4 inches in diameter at breast height in the conversion unit area?
[] Yes. Go to question 8.
[] No. Stop, does not qualify.
8. Does the stand meet desired future condition requirements (WAC 222-30-021(1) (b))?
[] Yes. Stop, stand does not qualify.
[] No. Provided you correctly answered all the above questions the proposed unit qualifies for hardwood conversion in the inner zone.

Not required to be submitted with your FPA/N

Western Washington Type Np RMZ Worksheet

- A. Without regard to ownership, determine the total length of each separate Type Np stream system where at least a portion of the system is within the harvest unit. This includes the branching network of a Type Np system above the confluence with Type S or F water. See WAC 222-30-021.

Note: There can be more than one Type Np system within a harvest unit and each system requires a separate length determination. Use a separate worksheet for each Type Np system.

- B. Determine which of the options below best fits the total length determined for a specific Type Np system. Circle the letter next to the best fit (i.e. letter a., b. or c.).

- a. If the total Type Np system length (not just the length within the harvest unit) is less than 300': Leave a two-sided, 50' buffer on the entire length of the Type Np water. Show the RMZ on the Activity Map.

STOP, WORKSHEET COMPLETED.

- b. If the total length is greater than 300' but less than 1000': Starting at the confluence with Type S or F water, leave a buffer that is the greater of 300' or 50% of the entire length of the Type Np water. In addition, buffer all sensitive sites on the Type Np stream that were not already buffered by the 300' or 50% requirement. Show the RMZ on the Activity Map.

STOP, WORKSHEET COMPLETED.

- c. If the total length is greater than 1000': Leave a two-sided, 50' buffer on the first 500' of the Type N stream above the confluence with Type S or F water. Complete i. through vi. below.

- i. Determine the total length of the Type Np system. _____ Feet
- ii. Refer to the table below to determine the minimum % of buffer required on that portion of the Type Np water upstream of the first 500' from the confluence of Type S or F water. _____ %
- iii. Determine the length of Type Np water within the harvest unit that is upstream of the first 500' from the confluence of Type S or F water. _____ Feet
- iv. Determine the total length of buffering needed upstream of the first 500' from the confluence of Type S or F water. (% in ii. times length in iii. = required buffer) _____ Feet
- v. Determine the total length of all required buffering established to protect sensitive sites along the Type Np water within the harvest unit above the first 500' from the confluence of Type S or F water. _____ Feet
- vi. If the required buffer length in v. is less than the length in iv, determine the length of additional buffering required. (Length in iv. minus length in v. = additional buffer) _____ Feet

The buffering must be placed in priority areas. Show the buffers on the Activity Map.

Minimum percent of length of Type Np waters to be buffered when more than 500 feet upstream from the confluence of Type S or F water.

Total length of a Type Np water upstream from the confluence of a Type S or F water.	Percent of length of Type Np water that must be protected with a 50 foot no harvest buffer more than 500 feet upstream from the confluence of a Type S or F water.
1001 – 1300 feet	19%
1301 – 1600 feet	27%
1601 – 2000 feet	33%
2001 – 2500 feet	38%
2501 – 3500 feet	42%
3501 – 5000 feet	44%
Greater than 5000 feet	45%



Forest Practices Application/Notification
Natural Regeneration Plan
Western Washington

For DNR Region Office Use Only	
FPA/N #:	
Region:	
Received Date:	

If you use this form, include a map showing the locations of your seed source.

Landowner Name: _____
The landowner is responsible for meeting Forest Practices reforestation requirements.

Legal Description: _____

Harvest is scheduled to occur (month/year): _____

Check one of the following:

The landowner proposes an alternate plan (WAC 222-34-010(6) for natural reforestation as attached.

OR

The landowner agrees to follow all the requirements listed below (WAC 222-34-010(5)).

- There is a seed source available that is capable of producing well-formed trees of a commercial tree species.
- The landowner will not harvest this seed source until _____, or earlier if DNR issues a reforestation inspection report.
- The seed source:
 - Is shown on an attached map
 - Is marked on the ground
 - Is at least 8 seed trees per acre
 - Is within 400 feet of areas requiring reforestation
- The regeneration will be protected from competing vegetation and allowed to establish, grow, and survive

Watershed Analysis Worksheet

(Use a separate worksheet for each Watershed Analysis)

Watershed Analysis Name:

Check all of the following that apply:

- I have reviewed the Watershed Analysis Prescription documents. My proposal is not located on or adjacent to any of the described features. Prescriptions do not effect my proposal.
- I have reviewed the descriptions and maps for all prescriptions.
My proposal is located on or adjacent to the following prescription areas:
 - Surface Erosion Prescriptions
 - Mass Wasting Prescriptions
 - Hydrology Prescriptions
 - Water Quality
 - Water Supply / Public Works
 - Riparian – applicable to landowners using the 20 acre exempt RMZ rule

Complete the following information for each prescription that affects your proposal or is adjacent to your proposal. Identify the resource sensitivity name and if you are implementing the prescriptions or not. Attach required reports and additional information as necessary.

Resource Sensitivity Name/No: _____ Implementing Prescription: Yes No

Describe harvest techniques proposed	
Describe road techniques proposed	
Describe other techniques proposed	

Resource Sensitivity Name/No: _____ Implementing Prescription: Yes No

Describe harvest techniques proposed	
Describe road techniques proposed	
Describe other techniques proposed	

Resource Sensitivity Name/No: _____ Implementing Prescription: Yes No

Describe harvest techniques proposed	
Describe road techniques proposed	
Describe other techniques proposed	

DNR USE ONLY

Reviewed by: _____

Date: _____

Watershed Analysis Worksheet Instructions

This form must be submitted along with your Forest Practice Application/Notification (FPA) form if:

- You are harvesting timber (including salvage) or constructing roads within or adjacent to an approved Watershed Analysis area. OR
- If you answered yes to Question # 5 of the FPA because you are substituting Watershed Analysis Prescriptions.

A separate worksheet should be used for each Watershed Analysis.

The following information must be included in the space provided or on additional pages.

- The name of the Watershed Analysis where your proposal is located.
- Check all of the boxes that apply regarding your review of Watershed Analysis Prescriptions.
- Indicate each Resource Sensitivity Name (prescription name) that may affect your proposal.
- Indicate if you are implementing the prescription.
- Describe the specific harvest, road and other techniques you will use to implement the prescription.

Many prescriptions provide a landowner with a variety of different operational options. Sufficient detail needs to be included so that we can evaluate your proposal.

If your proposal is located on an area of resource sensitivity (prescription) AND you are choosing not to follow the prescription your FPA will processed as a Class IV-Special and require a State Environmental Policy Act (SEPA) checklist.

Web References

At the DNR Forest Practices Homepage:

<http://www.dnr.wa.gov/BusinessPermits/forestPractices/Pages/home.aspx>

you will find links to a variety of forest practices related topics. Call one of the region offices listed on page 3 of these instructions if you need help with the DNR Forest Practices web site. Frequently viewed topics and their web addresses are listed below.

NOTE: The “Search” function that shows on each page of the DNR website is a helpful way to find Forest Practices and other information provided on the DNR’s website.

- **Forest Practices Division Home Page**
<http://www.dnr.wa.gov/AboutDNR/Divisions/FPD/Pages/home.aspx>
- **Small Forest Landowner Office**
http://www.dnr.wa.gov/BusinessPermits/Topics/SmallForestLandownerOffice/Pages/fp_sflo_overview.aspx
- **Forest Practices Forms & Instructions**
http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesApplications/Pages/fp_forms.aspx
 - ▶ Go to the “**FPARS Mapping Tool**” to create and print **Activity, Site Class, Water Type, Resource, or Base Maps**. This link is located on the right side of the screen under “RELATED LINKS” on the Forest Practices Forms and Instructions web page.

This web page also provides links to forms in the following categories:

- Forest Practices Application/Notification (FPA/N)
- Alternate Plans
- Marbled Murrelet
- Aerial Chemical
- Long-Term Applications (for Small Forest Landowners)
- FPA/N Transfer, Renewal, Amendment (for already submitted FPA/N's)
- Forest Practices Application Review System (FPARS – this DNR’s web-based FPA/N review system)
- Continuing Forest Landowner Obligation
- Small Forest Landowner – Checklist RMAP, Overstocked Stand Template, Fish Passage Cost Share
- Water Typing
- Desired Future Condition Worksheet (DFC) and instructions
- State Environmental Policy Act (SEPA)
- **Forest Practices Habitat Conservation Plan**
http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesHCP/Pages/fp_hcp.aspx
- **Forest Practices Board Manual**
http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesRules/Pages/fp_board_manual.aspx
- **Forest Practices Rules and Act**
http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesRules/Pages/fp_rules.aspx
- **Forest Practices Illustrated**
http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesRules/Pages/fp_fpi.aspx
- **Watershed Analysis**
http://www.dnr.wa.gov/ResearchScience/Topics/WatershedAnalysis/Pages/fp_watershed_analysis.aspx

Other State Agencies Websites:

- Department of Fish and Wildlife’s Habitat website: <http://www.wdfw.wa.gov/>
- Department of Revenue’s website: <http://www.dor.wa.gov/>
- Department of Ecology’s On-Line Permit Assistance Center: (*On-line questionnaire to see which permits you need for your project*) <http://www.ecy.wa.gov/programs/sea/pac/index.html>
- Legislature website: <http://www.leg.wa.gov/LawsAndAgencyRules/> (*Includes all the state’s laws – Revised Code of Washington (RCW) – and rules – Washington Administrative Code (WAC)*)
- The Department of Archeology and Historic Preservation (DAHP) - <http://www.dahp.wa.gov/>.
- State Tribal Directory - <http://www.goia.wa.gov>
- Environmental Hearings Office. (*Information on appealing FPA/N Decisions and DNR’s enforcement actions*): http://www.eho.wa.gov/Boards_FPAB.aspx
- Office of Regulatory Assistance (helps clarify how rules, regulations and government requirements apply to environmental permitting and business licensing) <http://www.ora.wa.gov>



**Forest Practices Application/Notification
Western Washington**

For DNR Region Office Use Only	
FPA/N #:	
Region:	
Received Date:	

**PLEASE USE THE INSTRUCTIONS TO COMPLETE THIS APPLICATION.
TYPE OR PRINT IN INK.**

1. Landowner, Timber Owner, and Operator

<u>Legal Name of LANDOWNER</u>	<u>Legal Name of TIMBEROWNER</u>	<u>Legal Name of OPERATOR</u>
Mailing Address:	Mailing Address:	Mailing Address:
City, State, Zip	City, State, Zip	City, State, Zip
Phone ()	Phone ()	Phone ()
Email:	Email:	Email:

2. Contact person

<u>Contact Person:</u>	Phone ()
	Email:

NOTE: You are required to verify water types, except type S waters, within 200 feet of your proposed forest practices activities prior to submitting a Forest Practices Application / Notification. Use the Additional Information section, additional pages, the Water Type Classification Worksheet and/or a Water Type Modification form to explain how you verified water types. See instructions.

3. Are you a small forest landowner?

No. Yes. *See instructions.*

4. If you are harvesting timber, enter the Forest Tax Reporting Account Number of the Timber Owner: _____

For tax reporting information or to receive a tax number, call the Department of Revenue at 1-800-548-8829.

5. Are you substituting prescriptions from an approved state or federal conservation agreement or watershed analysis?

No. Yes. *Write "HCP" or "Using Prescriptions" in tables that apply. Attach or reference on file prescriptions and/or crosswalks.*

6. What is the legal description of your forest practice?

¼ ¼ (quarter quarter)	Section	Township	Range	E/W	Tax Parcel Number	County

7. Have you reviewed this forest practices activity area to determine whether it may involve historic sites and/or Native American cultural resources? Read the instructions before answering this question.

No. Yes.

8. Do you have a DNR approved Road Maintenance and Abandonment Plan (RMAP)?

No. If No, is a Checklist RMAP required? (see instructions) No. Yes Include a copy of the RMAP Checklist.
 Yes. List the RMAP number: _____.

9. Is this forest practice application/notification: (Answer every question)

- a. No Yes Within city limits or inside an urban growth area? IF YES SEE INSTRUCTIONS FOR ADDITIONAL REQUIRED DOCUMENTS.
- b. No Yes Within a public park? If Yes, include SEPA Environmental Checklist or SEPA Determination - except for harvesting/salvaging less than 5,000 board feet within a developed public park.
- c. No Yes Within 500 feet of a public park? Park name: _____
- d. No Yes On land that has been platted? If it was short or long platted after January 1, 1960, include a SEPA Environmental Checklist or SEPA Determination.
- e. No Yes In an approved Conversion Option Harvest Plan (COHP) from the local government? If yes, include a copy.
- f. No Yes Within 200' of the Ordinary High Water Mark (OHWM) or floodway of Type S water? If yes, does the activity require a Substantial Development Permit? Yes No
If yes include a copy of your Substantial Development Permit. See instructions for information.
- g. No Yes A request for a multi-year permit? If yes, length requested: 3 years 4 years or 5 years. Not everyone qualifies for a multi-year permit. See instructions for details.
- h. No Yes An Alternate Plan? If yes, include a copy.
- i. No Yes For work that is included in an approved Road Maintenance and Abandonment Plan (RMAP)?
- j. No Yes Within 50 miles of saltwater and do you own more than 500 acres of forest land in Washington State? If Yes - include the "Marbled Murrelet Form" or attach/reference HCP prescriptions.

10. If constructing or abandoning forest roads and/or installing, removing, or replacing crossings in typed water, complete the table below. Show the road and crossing locations and identifiers on your Activity Map. Include abandonment plans for temporary roads and abandonment projects. Installation and removal of crossings in Type S or F Waters also require a Hydraulic Project Approval (HPA) permit from the Washington State Department of Fish and Wildlife (WDFW). This FPA serves as your request for an HPA (see instructions).

Road Identifier (Name, Number)	Road Construction		Abandonment Plans		Crossing Identifier (Letter, Number, or FFFPP)	Installing, Removing, or Replacing Structures in Typed Water			
	Length (feet)	Steepest Side-slope (%)	Length (feet)	Abandonment Date		Water Type (S, F, Np, Ns)	Activity (Install, Replace, Remove)	Structure (Culvert, Bridge, Ford)	Proposed Size (Dimensions of new structure)

11. If depositing spoils and/or expanding or developing a rock pit for forestry use, complete the table below. Show locations and identifiers on your Activity Map.

Spoil Area Identifier (Number, Letter)	Spoils Deposited (Cubic Yards)	Rock Pit Identifier (Name, Number, Letter)	Acres of New Rock Pit Developed	Acres of Existing Rock Pit Expanded

12. If operating in or within 200 feet of a wetland, complete the table below. Show the boundaries of each wetland, along with its identifier, and WMZ on your Activity Map.

Wetland Identifier (Number, Letter)	Wetland Type (A, B or Forested)	Planned Activities in Wetland	Planned Activities in WMZ	Total Wetland Area (acres)	How many acres are you draining?	How many acres are you filling?

If not harvesting or salvaging timber, skip to number 23.

13. If harvesting or salvaging timber, complete the table below. Show all harvest areas and unit numbers on your Activity Map. For even aged harvest units also show surrounding stand information on your Activity Map.

Unit Number	Harvest Type (Choose one option per harvest unit from the list in the instructions)	Yarding Method (Rubber Tired Skidder, Tracked Skidder, Dozer, Shovel, Full Suspension Cable, Leading End Suspension Cable, No Suspension Cable, Helicopter, Animal)	Acres to be Harvested	Volume to be Harvested (mbf)	Volume to be Harvested (%)	Steepest Slope in Harvest Unit (%)

14. Reforestation. You must check the appropriate box(es).

Planting. Tree Species: _____

Natural. Include a Natural Regeneration Plan

Not required because of one or more of the following:

I am converting some or all of this land to non-forest land in the next 3 years or lands are exempted under WAC 222-34-050.

Individual dead, dying, down, or windthrown trees will be salvaged.

Trees are removed under a thinning program reasonably expected to maximize the long-term productivity of commercial timber.

I am leaving at least 100 vigorous, undamaged, and well-distributed saplings or merchantable trees per acre.

An average of 190 tree seedlings per acre are established on the harvest area and my harvest will not damage it.

Road right-of-way or rock pit development harvest only.

15. Mark and describe the following harvest activities that will be done in or over typed water. Describe them in number 25, Additional Information.

Activity	Type S Water	Type F Water	Type Np Water	Type Ns Water
Equipment Crossing				
Ground Skidding				
Suspending Cables				
Cable Yarding				
Falling and Bucking				

16. Is the taxpayer eligible for the EARR Tax Credit? No Yes

If you own MORE than 80 forested acres in Washington, skip to number 21.

17. Are you using the exempt 20-acre parcel riparian management zone (RMZ) rule on type S, F, or Np waters?

- No *If no, skip to number 21.*
 Yes *If yes, continue to number 18. See instructions for qualifications and information.*

18. Choose the answer below that best fits your situation. Show all RMZs on your Activity Map.

- a. ALL of the following apply to me and my land:
- Between June 5, 2006 and today's date I have always owned less than 80 acres of forestland in Washington.
 - Between June 5, 2006 and today's date this parcel has always been 20 acres or less of contiguous ownership.
 - Between June 5, 2006 and today's date this parcel has always been owned by me or someone else that has owned less than 80 acres of forestland in Washington.
- b. ONE OR MORE of the following apply to me and/or my land (check all that apply):
- I currently own more than 80 acres of forestland in Washington.
 Between June 5, 2006 and today's date I have owned more than 80 acres of forestland in Washington.
 Between June 5, 2006 and today's date this parcel has been more than 20 acres of contiguous ownership.
 Between June 5, 2006 and today's date this parcel has been owned by someone that has owned more than 80 forested acres in Washington.

19. If harvesting within 115 feet of a type S or F water on an exempt 20-acre parcel complete the table below. Show RMZs and stream segment identifiers on your Activity Map. Include stream shade analysis calculation if you are harvesting within 75 feet or the maximum RMZ, which ever is LESS.

Stream Segment Identifier (letter)	Water Type (S, F)	Segment Length (feet)	Bankfull Width (feet)	Maximum RMZ Width (feet)	Are you harvesting within the maximum RMZ? (Y/N)

20. Are you harvesting within 29 feet of a Type Np water on a 20 acre exempt parcel?

- No *Skip to number 23.*
 Yes *See instructions and describe leave tree strategy in number 25. Then skip to number 23.*

21. If harvesting within 200 feet of any of Type S or F waters, complete the table below. Include DFC for all inner zone harvests unless you have an HCP prescription. Show RMZs, CMZs, and stream segment identifiers on your Activity Map.

Stream Segment Identifier (Letter)	Water Type (S or F)	Site Class (I-V)	Stream Width (feet)	Is there a CMZ? (Y/N)	RMZ Harvest Code(s) (see instructions)	DFC Run Number	Total width of RMZ (feet)

22. If harvesting within 50 feet of Type Np water, complete the table below. Show RMZs and stream segment identifiers on your Activity Map.

Stream Segment Identifier (letter)	Total Stream Length in Harvest Unit (feet)	Length of No-Harvest, 50-foot Buffers in Harvest Unit (feet)	Stream Segment Identifier (letter)	Total Stream Length in Harvest Unit (feet)	Length of No-Harvest, 50-foot Buffers in Harvest Unit (feet)

23. How are the following marked on the ground? (Flagging, paint, road, fence, etc)

Harvest Boundaries: _____
 Clumped Wildlife Reserve Trees/Green Recruitment Trees: _____
 Right-of-way limits/road centerlines: _____
 Riparian Management Zone Boundaries and Leave/Take Trees: _____
 Channel Migration Zone: _____
 Wetland Management Zone Boundaries and Leave/Take Trees: _____

24. Are you converting the land to non-forestry use within 3 years of harvest?

No Yes *Include a SEPA checklist or SEPA Determination and copies of approved Clearing and Grading Permit*

25. Additional Information (attach additional pages if necessary):

26. We acknowledge the following:

- The information on this application/notification is true.
- We understand this proposed forest practice is subject to:
 - The Forest Practices Act and Rules AND
 - All other federal, state or local regulations.
- Compliance with the Forest Practices Act and Rules does not ensure compliance with the Endangered Species Act or other federal, state or local laws.
- If we said that we would not convert the land to non-forestry use, the county or city may deny development permits on this parcel for the next 6 years.
- The following may result in an unauthorized incidental take of certain endangered or threatened fish species:
 - Conversion of land to non-forestry use.
 - Harvesting within the maximum RMZ on a 20-acre exempt parcel that was acquired after June 5, 2006.

<p>Signature of LANDOWNER*</p> <p>Print Name:</p> <p>Date:</p>	<p>Signature of TIMBER OWNER (If different than landowner)</p> <p>Print Name:</p> <p>Date:</p>	<p>Signature of OPERATOR (If different than landowner)</p> <p>Print Name:</p> <p>Date:</p>
---	---	---

***NOTE: If you are a "Perpetual Timber Rights Owner," and are submitting this without the Landowner's Signature, provide written evidence the landowner has been notified.**



For DNR Use Only	
Checklist #:	

SMALL FOREST LANDOWNER CHECKLIST RMAP

WHEN TO SUBMIT A CHECKLIST RMAP

Submit this checklist with your Forest Practices Application/Notification (FPA/N) for harvest or salvage. If you have already submitted a Checklist for these roads, please contact the DNR region office. The Checklist is for existing roads on your forest land that have been used by anyone for a forest practice since 1974. Do not include haul roads on your neighbor's property. Do not include skid trails.

THIS CHECKLIST APPLIES TO *(Check one)*

- The forest roads on my forest land that I will use for this FPA/N. Minimum Required
- All the forest roads on my forest land. Assessing all your forest roads is optional. If you choose this, you will not be required to submit additional checklists with future FPA/N's. If you check this box, include a DNR Activity Map(s) that shows all your forest roads. Maps are available at DNR region offices and on the DNR website at: http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesApplications/Pages/fp_fpars.aspx. You need to know the legal description (section, township, and range) of your roads in order to request a map.

OPTIONAL: The approximate total number of miles of forest road assessed in this Checklist is: _____
This information will be used for statewide statistics. Your help gathering this information is appreciated.

FOREST ROAD ASSESSMENT

Please complete this section after you have assessed your forest roads.

I need help with this section. *(If you check this box, you may leave the rest of the boxes in this section blank. DNR will contact you)*

The following boxes describe common sediment issues. Check all that apply.

- Water from the road or ditch runs directly into typed water.
- Dirt from the uphill side of the road keeps falling into the ditch-line before regularly scheduled maintenance.
- Water flows under, over, or around the culvert.
- Dirt from the cut-slope keeps falling downhill into or near a stream, pond, or wetland.
- The culvert keeps filling with dirt.
- The road crosses typed water *(a culvert, bridge or ford exists)*.
- The road has large cracks.
- My forest roads do not have any of these issues.
- The road has sinkholes. *(Not a pothole – but a hole that you can't drive over)*

FAMILY FOREST FISH PASSAGE PROGRAM

This is a cost-share program to fix fish passage barriers, such as culverts. Not all culverts are fish passage barriers. If yours is, you may qualify. Please contact the DNR's Small Forest Landowner Office in Olympia at (360) 902-1400 or see www.dnr.wa.gov/BusinessPermits/Topics/SmallForestLandownerOffice/Pages/fp_sflo_fffpp.aspx

ORPHANED ROADS

State law requires DNR to keep an inventory of orphaned roads that pose a risk to public safety or to public resources. Your help with this inventory is requested.

Orphaned roads include:

- Roads on your forest land that someone hauled timber on before 1974.

Orphaned roads do not include:

- Skid trails,
- Roads on your forest land that someone will drive a pick-up truck on for forestry use,
- Roads on your forest land that someone will use for log or rock trucks.

Check one of these boxes

I do not have orphaned roads that I think pose a risk to public resources or public safety – such as houses, highways, county roads, streams, ponds, or wetlands.

I have orphaned roads that I think may pose a risk to public resources or public safety – such as houses, highways, county roads, streams, ponds or wetlands. *(Please show the locations of all these orphaned roads on a separate DNR Activity Map. This is not the same map that shows your harvest)*

I need help identifying orphaned roads.

ROAD MAINTENANCE OBLIGATIONS

All forest landowners have a legal obligation to maintain all their forest roads on all their forest land to the extent necessary to prevent damage to public resources. This includes forest roads not shown on this Checklist. Maintenance rules are in WAC 222-24-052. Best Management Practices (BMP’s) for road maintenance are in the Forest Practices Board Manual Section 3. Both are in the forest practices rule book or on the DNR website at:

<http://www.dnr.wa.gov/BusinessPermits/ForestPractices/Pages/Home.aspx>

Road maintenance includes:

- Inspecting forest roads and fixing damage before, during, and after hauling timber and/or rock
- Keeping drainage structures (relief culverts, ditches, water bars, dips, etc.) and water crossings functional
- Making sure water from roads and ditches do not flow directly into streams, ponds, or wetlands

LANDOWNER INFORMATION

I certify that at the time I submit this FPA/N I am a small forest landowner because:

- I have an average annual timber harvest level of two million board feet or less from my own forest land in Washington State; and
- I have not exceeded this average annual harvest level in the last three years; and
- I will not exceed this average annual harvest level for the next ten years.

Printed Name of Landowner: _____

Landowner Signature(s): _____

Complete this section only if you are not submitting an FPA/N

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

E-Mail Address (optional): _____ Phone Number: _____

Printed Name of Contact Person (If different from landowner): _____

E-Mail Address (optional): _____ Phone Number: _____



APPENDIX I
CALENDAR OF ACTIVITIES



CALENDAR OF ACTIVITIES

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Permit Applications	X	X	X	X	X	X	X	X	X	X	X	X
Road Design and Layout	X	X	X	X	X	X	X	X	X	X	X	X
Road Construction						X	X	X	X			
Stream Crossing Construction							X	X	X			
Harvesting						X	X	X	X			
Order Seedlings		X	X									
Planting	X	X	X									
Seedling Survival Survey									X	X		
Vegetation Management (Herbicide Application)			X	X					X	X		
Vegetation Management (Hand Cutting)	X	X	X					X	X	X	X	X
Stream Surveys								X	X			
Road Maintenance: as needed: prior to, during, and after harvest, and, if needed in an emergency.					X	X	X	X	X	X		
Check Culverts and road conditions: prior to onset of winter rains; after major storm events; at end of winter.	X	X	X	X						X	X	X