NOTICE OF TIMBER SALE

(Recovery – Scaled Sale)

SALE NAME/NO.: Iron Maiden 341-12-44

AUCTION DATE/TIME: January 17, 2012, starting at 2:00 p.m.

AUCTION LOCATION: Oregon Department of Forestry
Astoria District Headquarters
92219 Highway 202
Astoria, Oregon 97103
(503) 325-5451 FAX (503) 325-2756
(4 miles SE of Astoria on Highway 202)

DISTRICT/UNIT OFFICE (MAILING ADDRESS FOR BIDS): Oregon Department of Forestry
Astoria District Headquarters
92219 Highway 202
Astoria, Oregon 97103
(503) 325-5451 FAX (503) 325-2756

HARVEST TYPE: **Area 1:** 334 acres of "partial cut" of approximately 70-year-old Douglas-fir, Western hemlock, and True fir. Volume to be removed in Area 1 is approximately 12.6 MBF/acre. **Areas 2 and 3:** 181 acres of modified clearcut of approximately 60-year-old Western hemlock, with scattered True fir, Sitka spruce and Douglas-fir. Volume to be removed in Areas 2 and 3 is approximately 30.5 MBF/acre.

SALE LOCATION: Timber Sale Areas are located in portions of Section 30, T4N, R6W and portions of Sections 21, 22, 23, 24, and 25, T4N, R7W, W.M., Clatsop County, Oregon.

DIRECTIONS TO TIMBER SALE AREA: The Timber Sale Areas can be accessed from Astoria or Forest Grove via Highway 26. Turn south onto Sterling Ranch Road near Milepost 28. Travel approximately ½ mile to Area 1. Travel Sterling Ranch Road to Sterling Loop Road to Quartz Creek Road to access Areas 2 and 3.

APPRAISED VOLUMES AND QUALITY:

SPECIES	AVG DBH	TOTAL MBF	GRADES BY MBF															
			1P	2P	3P	P	SM	1S	2S	3S	4S	5S	6S	SEL	SC	UT	CR	WRM
Douglas-fir	20"	6,388							4,509	1,593	286						0	
W. hemlock / true fir	18"	3,300							2,325	639	336						0	
Spruce	18"	18							15	3	0						0	
Red alder	19"	25							0	0	0						25	
Sale Total		9,731																

MINIMUM BID:

BID SPECIES	Douglas-fir	$312.56 per MBF
	Western hemlock/true fir	$226.14 per MBF
NO-BID SPECIES	Western redcedar and other cedars	$704.39 per MBF
	Sitka spruce and other conifers	$194.69 per MBF
	Red alder and other hardwoods	$329.69 per MBF

In order to compensate PURCHASER for Project Work, ODF will credit PURCHASER's timber account in the amount of $424,228 after the project work is completed and accepted, as described in Section 2630, "Credit for Project Work."

The Timber Sale Areas contain negligible volumes of other logs to be paid for at the prices in Section 1740.

PERFORMANCE SECURITY: 20% of bid value (unknown). Actual bond amount will be rounded up to an even $1,000 unit.

EXPIRATION DATE: October 31, 2014

BID METHOD: Sealed Bids

BID DEPOSIT: $233,000

SALE TYPE: Recovery/BOF - 100%

INSURANCE:	$2,000,000 Commercial General Liability; $2,000,000 Automobile Liability; $2,000,000 Logger's Broad Form.
HARVEST METHOD:	Area 1: 100% ground-based yarding. Areas 2 and 3: 45% ground-based yarding and 55% cable yarding.
PROJECTS:	Project No. 1: Approximately 12.7 miles of road improvement, and one Type F stream crossing. Project No. 2: Sterling Ranch Quarry Development, Rock Crushing and Stockpiling of approximately 10,704 cubic yards of crushed rock and 320 cubic yards of riprap development. Project No. 3: Approximately 0.7 mile of road improvement for Buster Quarry. Project No. 4: Buster Creek Quarry Development, Rock Crushing and Stockpiling of approximately 10,087 cubic yards of crushed rock and 10 cubic yards of riprap. Project No. 5: Approximately 60 feet of road vacating and fill removal. Project No. 6: Roadside Brushing of approximately 21.8 miles of road. Project No. 7: Stream Enhancement of ten sites along 2,310 feet of rock creek.
FEES:	None.
ENDANGERED SPECIES ACT COMPLIANCE STATEMENT:	The Oregon Department of Forestry (ODF) is engaged in an active threatened and endangered (T&E) species survey program. Surveys, determinations, and management measures are developed and implemented in good faith compliance with federal and state Endangered Species Act (ESA) requirements. Restrictions on operations due to T&E species considerations are included in the prospectus. Purchasers are required to comply with all federal and state laws, including the Endangered Species Act. Purchaser should take steps to be certain that no ESA violations occur. Prospective purchasers of timber sales are reminded that ODF surveying efforts may take place any time during the term of a timber sale contract. As part of the survey program, ODF surveys its lands on a continuing basis for land management, species protection, research, and other reasons. During the contract term, T&E survey work and/or the discovery of a threatened or endangered species within or in the vicinity of a timber sale may affect operations contemplated under the contract. In the event a threatened or endangered species is found within or near this sale, ODF may take steps necessary to protect the interests of the State, including contract alteration, suspension, or termination. Prospective purchasers are encouraged to contact the Astoria District at (503) 325-5451 for further information or questions relative to threatened or endangered species surveys, future planned survey information, or other threatened or endangered species information.
SPECIAL REMARKS:	**NO PERSONAL OR COMPANY CHECKS ACCEPTED FOR THE BID DEPOSIT.** **SEASONAL RESTRICTIONS APPLY - SEE SECTION 2455.** Seasonal hauling restrictions apply to Area 1 – See Section 2130. Timber sale acreage was determined by mapping sale areas on an ortho photograph and using ArcView to calculate areas. Felling, Section 2310 – An early felling deadline of March 15, 2014 applies to all sale areas. Snag Creation, Section 2335 – Snag creation is required in Area 1.

The information shown on the Exhibit A map(s) are approximate locations. Exact locations of features represented by map symbols shall be determined on site and shall depend upon the conditions that exist on site. Activities shall be conducted based upon features determined on site rather than features shown on maps.

See inside front cover of Timber Sale Schedule handbook for disclaimer regarding all governmental regulatory actions.

SALE NAME: **Iron Maiden**
COUNTY: **Clatsop**
CONTRACT NO.: **341-12-44**

TIMBER SALE NAME: **Iron Maiden**

TIMBER SALE NO.: **341-12-44**

OPENING DATE: **January 17, 2012**

FORM OF PROPOSAL

The undersigned agrees to accept and perform all of the above terms and conditions as stated in the form of contract for the above-cited timber sale, and bids, and will pay:

Bid Species:

Douglas-fir, sawmill grade or better, _____

_____ Dollars **$**_____ per MBF.

Western hemlock/true fir, sawmill grade or better, _____

_____ Dollars **$**_____ per MBF.

Minimum grades and volumes for bid species are stated in the timber sale prospectus.

No-bid species will remain as shown:

Western redcedar and other cedars ..... $704.39 per MBF
Sitka spruce and other conifers..... $194.69 per MBF.
Red alder and other hardwoods..... $329.69 per MBF.

Enclosed is a bid deposit as required, consisting of a _____ in the amount of **$233,000**, payable to the Oregon Department of Forestry.

The undersigned agrees to execute and deliver the contract, initial payment, required certificates of insurance, and performance bond, within thirty (30) days of the date of the written notice of intent to award; and that any cash bid deposit may be applied to the first required timber sale payment.

The undersigned understands that the bid is irrevocable and further agrees that if they fail to qualify under the terms of the contract within the thirty-day period, the bid deposit shall become the property of the Oregon Department of Forestry as liquidated damages. **If the undersigned fails to qualify within the thirty-day period, STATE may disqualify the undersigned from submitting another bid on this timber sale.**

BIDDER _____
(Name of Individual or Company and Authorized Official)

TAX ID NO. _____

ADDRESS _____

_____

PHONE _____

BY _____
(Signature of Authorized Official & Title)

COMPLETE PURCHASER'S STATUS ON PAGE 2

PURCHASER'S STATUS

Purchaser is a corporation — Check ( ) — Incorporated in the State of _____

President's Name _____

Secretary's Name _____

Purchaser is: ( ) a partnership ( ) an individual ( ) an assumed (business) name ( ) company

List names of all persons doing business under the partnership or assumed name:

_____ _____

_____ _____

_____ _____

If assumed name is subsidiary to a corporation, fill in data requested of corporation also and write in corporation name here:

_____

CERTIFICATION OF ELIGIBILITY TO BID ON STATE TIMBER

_____ hereby certifies that they:

EXPORT

(a) Will not directly or indirectly export the unprocessed State timber as defined in OAR 629-031-0020 which is the subject of this transaction.

(b) Shall not engage in export of unprocessed timber originating from private lands in Oregon until such time as all interests in contracts for State timber held by the above have terminated, per OAR 629-031-0010(1)(d).

(c) Will not sell, transfer, exchange, or otherwise convey the unprocessed timber as defined above which is the subject of this transaction to any other person without first obtaining a certification from that person which meets the requirements of OAR 629-031-0030.

(d) Are not prohibited by OAR's 629-031-0005 through 0045 from bidding for unprocessed State timber as defined above directly from the State Forester.

(e) Understand that falsely entering into this certification is a violation of the Forest Resources Conservation Amendments Act of 1993 and OAR Chapter 629, Division 31, and is subject to any and all penalties contained therein.

(f) Have not directly or indirectly exported unprocessed timber originating from private lands in Oregon in the last 24 months, **or if bidding only on STATE hardwood timber or logs, HAVE** exported unprocessed timber originating from private lands in Oregon in the last 24 months, but **HAVE NOT** exported unprocessed **hardwood** timber originating from private lands in Oregon in the last 24 months **and** meet the requirements of OAR 629-031-0010(2).

DEFAULT, TERMINATION, AND OTHER RELATED MATTERS

(a) Are not currently in default status under any timber sale contract sold by the State Forester.

(b) Has not, within a 3-year period preceding this bid, had one or more Federal, State, or local timber sales terminated for cause or default.

(c) If (b) above is Yes, has submitted an explanation, in writing, with this bid for consideration by STATE. Any such explanation shall be submitted at the time of bid on a separate piece of paper.

_____
Signed

_____
Title

_____
Dated

[NOTE: For the purpose of this form, the definition of unprocessed timber is the same as in OAR 629-031-0005.]

Oregon
John A. Kitzhaber, MD, Governor

Department of Forestry
State Forester's Office
2600 State Street
Salem, OR 97310
503-945-7200
FAX 503-945-7212
TTY 503-945-7213 / 800-437-4490
http://www.odf.state.or.us

"STEWARDSHIP IN FORESTRY"

Biological Survey Report

Project: Iron Maiden

Date: November 7, 2011

To: Ty Williams

CC: Tom Savage, District Sale File

From: Matt Gostin

Habitat Suitability

This sale contains potentially suitable habitat for northern spotted owls.

This sale is located in the Marbled Murrelet Systematic Survey Zone. By policy, operational marbled murrelet surveys are not required.

Survey Results

This sale was surveyed for northern spotted owls in 2010 and 2011, using a protocol endorsed by the U.S. Fish and Wildlife Service[1,2]. Northern spotted owls were not observed during these surveys.

Surveys for or marbled murrelets are not necessary for this sale.

Known T&E Resources

Project work (quarry expansion) for this sale is within 1.5 miles of a of northern spotted owl activity center. A Biological Assessment of the quarry expansion on the activity center has been conducted. It concludes the Iron Maiden quarry expansion,

[1] USDI Fish and Wildlife Service. 2011. Protocol for surveying proposed management activities that may impact northern spotted owls. 38pp.

[2] Oregon Department of Forestry, June 1, 2010. Policy bulletin SFB – 10-03, Northern Spotted Owl Policy Update - Northern Spotted Owl Survey Protocol.

as currently proposed, poses a low risk to continued use and productivity of the northern spotted owl site. All timber sale areas are greater than 1.5 miles of any spotted owl activity centers.

There are no Marbled Murrelet Management Areas affecting this sale.

Operational Considerations

Seasonal operating restrictions for the use of explosives will be in effect from March 1 through July 7 (or until it has been determined that northern spotted owl pairs are non-nesting or the nest has failed) within 1.0 miles of a nest tree or activity center.

Current northern spotted owl survey results are valid until March 15, 2014.

All timber should be felled by March 15, 2014.

Future Survey Plans

ODF has no plans for further survey of this sale. However, ODF has an active survey program and northern spotted owl surveys will be conducted within 3 miles of this sale during the life of the contract.

Survey Results Summary

Table 1. Northern Spotted Owl Surveys of Iron Maiden

Survey Area Year	Visit #1 Date	Visit #2 Date	Visit #3 Date	Visit #4 Date	Visit #5 Date	Visit #6 Date
Iron Maiden 2010	3/26-27 3/27 3/27-28 3/31-4/1 NR	4/23-24 4/24 4/24-25 4/29-30 NR	5/20 5/20-21 5/22-23 NR	6/14 6/14-15 6/15 6/15-16 NR	7/5 7/5-6 7/6 7/6-7 7/7-8 NR	7/28 7/28-29 7/29 7/29-30 NR
Iron Maiden 2011	3/28-29 3/31 3/31-4/1 4/3 4/3-4 NR	4/26 4/26-27 4/29-30 NR	5/23 5/23-24 5/24-25 5/28-29 NR	6/16 6/16-17 6/17-18 6/20-21 NR	7/11 7/11-12 7/17-18 NR	8/4 8/4-5 8/5-6 NR

NR - no response
V - visual response
bb - new bird banded
j - juvenile
jj - 2 juveniles
▒ - last visit to site
M_0 - mouse refused
M_1 - 1mice taken
M_2 - 2 mice taken
M_3 - 3 mice taken
M_4 - 4 mice taken
M_5 - 5 mice taken
M_6 - 6 mice taken
♂ ⊗ ♀ - Pair (day, night, early morning)
♂ ⊗ © - Male (day, night, early morning)
♀ ⊗ ♀ - Female (day, night, early morning)
○ ⊗ © - Sex Unkn (day, night, early morning)

Iron Maiden Timber Sale Contract No. 341-12-44
Table of Contents

STATE OF OREGON

DEPARTMENT OF FORESTRY

Oregon Department of Forestry
State Forests Division
2600 State Street, Building D
Salem, Oregon 97310

TIMBER SALE CONTRACT

SALE NAME: Iron Maiden
CONTRACT NO 341-12-44
ODF DISTRICT: Astoria

Section 1000. Signatures of Contract Parties.

This Contract (the "Contract") is by and between the STATE OF OREGON, acting by and through the State Forester on behalf of the DEPARTMENT OF FORESTRY ("STATE") and _____ ("PURCHASER"). The Contract shall be effective as of the latest date signed below. The parties do hereby agree as follows:

(1) Signature of STATE means he/she is a duly Authorized Representative of the STATE and is authorized by STATE to make all representations, attestations, and certifications contained in this Contract and all addenda, if any, issued, and to execute this Contract document on behalf of STATE;

(2) Signature of PURCHASER means he/she is a duly Authorized Representative of the PURCHASER, has been authorized by PURCHASER to make all representations, attestations, and certifications contained in this bid/proposal document and all addenda, if any, issued, and to execute this bid/proposal document on behalf of PURCHASER;

(3) PURCHASER, acting through its Authorized Representative, has read, understands, and agrees to all Contract instructions, specifications, and terms and conditions contained in this Contract document (including all listed attachments and addenda, if any, issued);

(4) PURCHASER is bound by and shall comply with all requirements, specifications, and terms and conditions contained in this Contract document (including all listed attachments and addenda, if any, issued);

(5) PURCHASER shall furnish the designated item(s) and/or service(s) in accordance with the bid/proposal specifications and requirements, and shall comply in all respects with the terms of the resulting agreement upon award.

IN WITNESS WHEREOF, the State of Oregon hereby awards the Contract to the above Purchaser for the item(s) and/or service(s) contained in the Contract, including all terms, conditions, and specifications. The Parties have affixed their signatures as of the latest date indicated below.

STATE:
State of Oregon, acting by and through the DEPARTMENT OF FORESTRY

_____
Chief, State Forests Division

Date: _____

PURCHASER:
(Purchaser Name) (SEAL)

By: _____
(Signature of Purchaser Authorized Representative)

Printed Name: _____

As its: _____

Date: _____

PART I: SALE OF TIMBER

GENERAL

Section 1010. Definitions of Terms.

Anchor Stump - a stump used to tie off or wrap a cable or line to firmly secure it.

Archaeological or Historical Resource - those sites, buildings, structures, and artifacts, which possess material evidence of human life and culture of prehistoric and historic past.

Areas of Operations - the locations where PURCHASER performs the Operations described in the Contract. Each Area of Operation usually has specific operating requirements.

At Price Above – material will be charged at the highest rate for that species.

Authorized Representative - a representative of the PURCHASER authorized to receive any notice or instructions from STATE on behalf of PURCHASER and to take any action required in regard to performance of PURCHASER under this Contract.

Basal Area - a measure of the cross-sectional area of a Tree Bole, in square feet, measured 4½ feet above the ground on the uphill side of the tree.

Bidder – is a person, business, corporation, or other entity recognized by the STATE that submits a bid to enter into a contract with the STATE to purchase forest products, and that certifies that the timber will be harvested.

Bunk – a bed for logs with a pair of stakes at each end.

Contract - the entire written agreement between the parties, including but not limited to the Notice of Timber Sale, Invitation to Bid or Request for Proposal, Instructions to Bidders, specifications, terms, and conditions, Exhibits, Operations Plan, change notices, if any, and the accepted bid.

Cultural Resource - an Archaeological or Historical Resource. They may include objects, structures, or sites used by people in the past.

DBH (Diameter at Breast Height) - the diameter of a standing tree inclusive of the bark measured 4½ feet above the ground on the uphill side of the tree.

Down Timber - timber that is down as of the date of this Contract, as determined by STATE.

Down Wood - trees and logs on the ground.

Fire Season - when the State Forester has declared that conditions of fire hazard exist in a forest protection district or any part thereof. The State Forester designates for each district or any part thereof the date of the beginning of a Fire Season for that year. The Fire Season continues for each district or part thereof until ended by order of the State Forester when conditions of fire hazard no longer exist in that district or part thereof.

Green Tree Retention - the practice of leaving live, growing trees on a site during timber harvest as a future source of Snags, old growth trees, large diameter wood, and native seed.

Group Selection Area (GSA) – an area within the Timber Sale Area that has a unique prescription as described in this Contract. Group Selection Areas are less than five acres in most circumstances and are usually marked on the ground with boundary signs. Prescription trees are marked with paint within the Group Selection Area.

Guy Stump - a stump used to tie off or wrap a cable or line to firmly secure it.

Guyline - a cable or rope attached to something to brace, steady, or guide it.

Hazardous Substances - any substance or material that is hazardous or toxic to health or otherwise regulated or controlled under any applicable federal, state or local statute, regulation, ordinance or law.

Improvements - a permanent addition or change to real property, such as a road, structure, or utility, which increases the value of the property.

Landing - a collecting point for logs; the place to which logs are yarded for loading and transportation from the woods.

Live Crown Ratio - the length of a Tree Bole supporting the growth of live branches compared to total tree height, expressed as a percentage.

"Live" Stream - a stream with water flowing through it.

Log Load Receipt Book - a book issued by the STATE used for log load accountability. In each book there are sequentially numbered multipart pages (tickets). Each page is a four-part form. Each of the four parts, on each page, has the same identifying number. The four parts are:

Woods Receipt
Turned in to the ODF District Office that the timber sale is in.

Trucker Receipt
Retained by the log truck driver.

Load Receipt
Stapled to the log load on the truck before the truck leaves the Timber Sale Area Landing. Stays with the log load until the load is dispersed and processed at the mill.

Scaler Receipt
Stapled to the log load on the truck before the truck leaves the Timber Sale Area Landing. When the load is scaled (measured) the Scaler Receipt is transferred to the Scaling Bureau's printout of the log breakdown of the load. This log breakdown (which shows number of logs, species of logs, grades of logs, and board foot volume), along with the Scaler Receipt is sent to ODF headquarters in Salem.

Low Relative Density – an area of heavy thinning where the Relative Density of the residual stand is less than 15.

Major Catastrophes - windstorms, floods, fire, landslides, or other acts of God, which are beyond the control of PURCHASER and in no way connected with negligent acts or omissions of PURCHASER, its officers, employees, agents, or subcontractors.

MBF - thousand board feet.

Operations - all the activities conducted by PURCHASER under this Contract, including Project Work, logging, or post-harvest activities; or the furnishing of all materials, equipment, labor, and incidentals necessary to successfully complete any individual item or the entire Contract.

Operations Plan - the document by which PURCHASER notifies STATE of the plans and schedule for completing the Operations described in the Contract. It also contains the names of the subcontractors, PURCHASER's Authorized Representatives, and STATE's Authorized Representatives.

Patchcut – a small clearcut area; 0.5 to 2 acres in size.

Permit - any Permit required by a federal, STATE, or local government agency before Operations under this Contract may lawfully begin or continue. Permit includes an incidental take Permit under the federal Endangered Species Act.

Pre-Operations Meeting – the initial meeting between the Authorized Representatives of PURCHASER and STATE to discuss operational issues and requirements of the Contract, and to identify the elements to be addressed in the Operations Plan.

Project Location - the points or areas designated as such on Exhibit A and located on the ground by reference to points, stations, natural land features, Improvements, or area boundary signs. The location(s) where project activities occur.

Project Work - work required of the PURCHASER in addition to normal log removal and hauling activities. The PURCHASER is usually compensated for Project Work with Project Work Credits. Project Work can include, but is not limited to, road building, road improvement, rock quarry development, stream enhancement, site preparation, soil stabilization, and water runoff control measures.

Protected Genetic Parent Tree - a seed tree selected for its desirable characteristics that is designated not to be cut or harmed.

Purchase Price - for each species sold on a recovery basis, "Purchase Price" is defined as the price per MBF listed in Section 1740, "Log Prices." If species is not listed in Section 1740, "Log Prices," the highest price listed in Section 1740, "Log Prices," shall apply.

For bid species sold on a lump sum basis, the Purchase Price for each species shall be determined by using STATE's unamortized timber appraisal value, multiplied by the bid-up factor. Bid-up factor shall be calculated by STATE using the following calculation: Bid value all species/appraised value all species = bid-up factor.

For no-bid species sold on a lump sum basis, the Purchase Price for each species shall be determined by using STATE's unamortized timber appraisal value.

PURCHASER's Authorized Representatives - the representatives authorized by PURCHASER to receive any notice or instructions from STATE on behalf of PURCHASER and to take any action required in regard to performance of PURCHASER under the Contract. PURCHASER's Authorized Representatives are identified in the Operations Plan.

PURCHASER's Deposit Account - an account where PURCHASER timber sale payments are deposited. This is an account set up by the State of Oregon to accept regular and advance timber sale payments from the PURCHASER. Advance payments are defined in the Payment Schedule section of the Contract.

Relative Density - a measure of the degree of closeness of trees growing side by side in a stand, in relationship with their size. The measure is expressed as a ratio of actual stand density to the maximum stand density attainable in a stand with the same mean tree volume. Relative Density is calculated by dividing the residual Basal Area by the square root of the average residual stand DBH.

Residual Tree - green tree left standing on an Area of Operation or Timber Sale Unit.

Right-of-Way Timber - trees harvested from a strip of land to enable a road to be constructed.

Setting - the area of a logging operation from which logs are yarded to a single Landing.

Slash - all woody debris resulting from logging Operations, construction of roads, or other Improvements.

Snag - a standing dead tree, or portion of a tree, from which most of the foliage and limbs have fallen.

Stand Density Index – a measure of the degree of closeness of trees growing side by side in a stand, in relationship with their size. Stand Density Index (SDI) is calculated by dividing the average stand diameter by 10 taken to the 1.605 power, multiplied by the average trees per acre (TPA), and divided by the maximum SDI of that species. $SDI = TPA \times (Diameter/10)^{1.605}$

STATE - the Oregon Department of Forestry, State Forester, or a duly Authorized Representative of the State Forester.

Stream Buffer - designated areas adjacent to a stream where timber is left uncut, or there are other special management or operational requirements. Stream Buffer may be marked in the field.

SUB - Submerchantable materials. SUB, as used by STATE, references that material containing at least 10 board feet (net) but less than the lower merchantable net volume limit or grade requirements for other merchantable material, as defined in Section 2045, "Log Removal."

Subcontract - assign responsibility for work required under the Contract to a party other than the PURCHASER.

SUM - lump sum material.

Tailblock - a pulley that is attached to an Anchor Stump, Guy Stump, Tailhold Stump, tree, or other sturdy object, through which a cable is passed and used to return the mainline and chokers to the cutting area from the Landing.

Tailhold - a stump, tree, or other sturdy object to which a Tailblock, cable, or line is attached.

Tailhold Stump - a stump used to tie off or wrap a cable or line to firmly secure it.

Timber Harvesting Operations - activities conducted by the PURCHASER on a timber sale to remove logs from the woods. These activities can include, but are not limited to, felling, bucking, Yarding, loading, and hauling.

Timber Sale Area - the area or areas designated as such on Exhibit A and located on the ground by reference to legal subdivisions, monuments, natural land features, Improvements, or sale boundary signs. It is the entire area encompassing the material that is required to be harvested.

Timber Sale Unit - a sub-area within an Area of Operation. A Timber Sale Unit usually has more operational requirements, in addition to the operational requirements of the Area of Operation.

Total Purchase Price - For sales with species sold on a recovery basis or a combination recovery basis and lump sum, Total Purchase Price is the sum of each recovery basis species' volume multiplied by the price per MBF listed in Section 1740, "Log Prices," and each lump sum basis species' lump sum price.

For sales with all species sold on a lump sum basis, Total Purchase Price is the total bid price.

TPSO (Third-Party Scaling Organization) - a scaling organization not affiliated with either the PURCHASER or STATE.

Tree Bole - the trunk of a tree.

Utilization Scale - scaling of logs to account for merchantable material that has been lost due to logs not removed from the harvest area, or from improper logging practices that resulted in breakage or wastage to otherwise merchantable logs.

Written Plan - a plan that describes how an operation will be conducted, including the means to protect resource sites described in ORS 527.710(3)(a) (relating to the collection and analysis of resource site inventories), if applicable.

Yarding - the process of conveying logs from the cutting area to the Landing.

YUM (Yarding Unmerchantable Material) - to yard logging residue to a Landing or other specified location.

Section 1020. Sale of Timber. Under the terms and conditions of this Contract, STATE sells to PURCHASER, and PURCHASER buys from STATE, that Board of Forestry timber designated and described in Section 2210, "Designated Timber," which for all purposes of this Contract is hereinafter referred to as "timber." The location of Designated Timber is shown on Exhibit A. PURCHASER shall pay STATE the Total Purchase Price for timber set forth in Section 1710, "Purchase Price," or 1740, "Log Prices." The Total Purchase Price shall be paid to STATE in accordance with the payment schedule in Section 1720 or 1750, "Payment Schedule."

This is a sale of "State Timber" as defined in OAR 629-031-0005 and timber harvested or sold under this Contract must not be exported from the United States. PURCHASER must comply with the provisions of the Forest Resources Conservation and Shortage Relief Amendments Act of 1993, which authorizes Oregon and other western states to prohibit the export of unprocessed timber from public lands, and with ORS 526.801 through 526.831 and OAR 629-031-0005 through 629-031-0045, in disposing of timber from this timber sale.

Section 1030. Title to Timber. During the period of this Contract, and any extension, PURCHASER shall have the right to cut and remove the timber. Such right shall be conditioned upon PURCHASER complying with the provisions of this Contract.

The ownership of and title to the timber shall pass to PURCHASER as the timber is paid for following removal from the Timber Sale Area. Any right of PURCHASER to cut and remove the timber shall expire and end at the time this Contract, or any extension, terminates. All rights and interests of PURCHASER in and to timber and logs remaining on the Timber Sale Area shall, at that time, automatically revert to and revest in STATE, without compensation to PURCHASER.

Section 1040. Quality and Quantity of Timber. STATE makes no guarantee or warranty to PURCHASER as to the quality or quantity of the Designated Timber. PURCHASER shall be liable to STATE for the Total Purchase Price set forth in Section 1710, "Purchase Price," or 1740, "Log Prices," even if the quantity or quality of Designated Timber actually cut, removed, or designated for taking is more or less than that estimated by STATE to be available for harvesting on the Timber Sale Area.

Further, STATE makes no representation, warranty, or guarantee of the accuracy of any information either provided by STATE or made available by STATE under the Public Records Law with respect to this Contract. PURCHASER agrees to bear exclusive responsibility for, and to accept all risks associated with, the actual conditions on the Areas of Operations and PURCHASER's computation of its bid for this Contract.

Section 1050. Examination of Plans, Exhibits, and Areas of Operations. PURCHASER acknowledges and agrees that, before submitting a bid, PURCHASER: (i) has made a careful examination of the terms and conditions of the Contract; (ii) has become fully informed as to the quality and quantity of materials and the character of the Operations required; and (iii) has made a careful examination of the Areas of Operations and the location and conditions of the Operations, including the sources of supply for materials. STATE will in no case be responsible for any loss or for any unanticipated costs that may be suffered by PURCHASER as a result of PURCHASER's failure to acquire full information in advance in regard to all conditions pertaining to the Operations.

COMMENCEMENT AND COMPLETION OF CONTRACT

Section 1110. Commencement of Work. PURCHASER shall not commence work under the Contract until STATE provides written notification to PURCHASER that STATE has received and accepted the following:

(a) The performance bond required under Section 1210, "Performance Bond";

(b) The payment bond required under Section 1230, "Payment Bond";

(c) The certificate of insurance required under Section 1240, "Insurance," subpart (i);

(d) The first payment on the Contract specified in Section 1750, "Payment Schedule"; and

(e) A fully executed original of the Contract.

Further, PURCHASER shall not commence work under the Contract until PURCHASER has attended the Pre-Operations Meeting and STATE has approved the Operations Plan as specified in Section 1140, “Operations Plan.”

Section 1120. Completion Date of Contract. Time is of the essence in this Contract. PURCHASER shall complete and fully perform all Operations under this Contract no later than **October 31, 2014**, unless the term of the Contract is extended in accordance with Section 1530, "Extension of Time." PURCHASER may be required to perform uncompleted Contractual obligations at a time later than stated above or in Section 1530, "Extension of Time." STATE shall notify PURCHASER in writing of these obligations and their required completion date. Upon completion of final Operations, PURCHASER shall notify STATE as required under Section 1315, "Inspection and Acceptance." The Contract will not be complete until STATE has inspected and accepted PURCHASER's performance as specified in Section 1315, "Inspection and Acceptance."

Section 1130. Pre-Operations Meeting. PURCHASER shall meet with STATE prior to STATE approval of the initial Operations Plan required by Section 1140, “Operations Plan,” and prior to commencement of operations, to discuss Contract matters, including Threatened and Endangered Species protection efforts, protection of Timber Sale Area resources, and to identify key issues to be addressed in the Operations Plan.

Section 1140. Operations Plan. PURCHASER shall prepare an Operations Plan for all Operations to be conducted under this Contract and shall submit the plan to STATE at least fifteen (15) calendar days prior to commencement of any Operations. This plan shall be prepared on a form provided by STATE, and shall be used for all types of Operations, including road maintenance, Project Work, logging, and post-harvest requirements. In addition to the Pre-Operations Meeting required by Section 1130, “Pre-Operations Meeting, “ STATE may require an on-site meeting prior to approval of the Plan, to be attended by PURCHASER, subcontractor, and STATE representatives. STATE's approval of the Plan must be obtained prior to commencement of any Operations. Upon approval by STATE, the Operations Plan(s) shall automatically be incorporated into, and made part of, this Contract as Exhibit B. Each Operations Plan shall be dated.

PURCHASER shall notify STATE prior to any period of inactivity of Operations for more than three (3) days, and again prior to resumption of Operations.

STATE has prepared the Forest Practices Act (FPA) "Written Plan" for Operations within 100 feet of Type F or Type D streams within 300 feet of significant wetlands on a fill greater than 15 feet.

Any changes to the Written Plan must have STATE approval. PURCHASER shall comply with all provisions of the Written Plan. PURCHASER's Operations Plan must comply with STATE's Written Plan.

BONDING AND INSURANCE

Section 1210. Performance Bond. PURCHASER shall furnish STATE with a performance bond, in an amount of not less than the greater of (a) the value of all Project Work to be completed under the Contract, as specified in Section 2630, “Credit for Project Work,” or (b) twenty percent (20%) of the Total Purchase Price, which bond shall guarantee complete compliance by PURCHASER with the terms and conditions of this Contract and the faithful performance of all required obligations, including payments to all suppliers, materialmen, Contractors, and subcontractors of PURCHASER. PURCHASER’s bond may be in the form of one or more of the following: surety bonds, cash, cashier's or certified check, money order, assignment of surety, irrevocable letters of credit, or other securities determined acceptable by the State Forester. Surety bonds must be written by a surety company authorized to do business in the State of Oregon, on a form provided by STATE.

Performance Bond Release

PURCHASER shall keep the performance bond in effect during the term of the Contract, until released by STATE. STATE shall release PURCHASER’s bond upon the later of: (a) 180 days after final acceptance of completed

Timber harvesting Operations or (b) 180 days after STATE's acceptance of all Project Work required under Section 2610, "Project Work." "Acceptance" under (a) or (b) shall not be provided until STATE has inspected and approved the work and PURCHASER has provided satisfactory evidence of PURCHASER's compliance with all other terms and conditions of the Contract.

Performance Bond Reduction

STATE shall permit PURCHASER to reduce its performance bond under the following circumstances:

180 days after final acceptance of completed Timber harvesting Operations, upon PURCHASER's request and provided no claims are then pending, STATE may permit PURCHASER to reduce the amount of their bond to an amount equal to the value of all Project Work remaining to be performed or accepted.

180 days after STATE has accepted all Project Work required under Section 2610, "Project Work," upon PURCHASER's request and provided no claims are then pending, STATE may permit PURCHASER to reduce the amount of their bond to an amount equal to twenty percent (20%) of the Total Purchase Price.

Section 1220. Claims Against PURCHASER's Performance Bond.

(a) Claims against PURCHASER's performance bond for failure to make payments when due to suppliers, materialmen, Contractors, and subcontractors of PURCHASER shall be processed in the following manner:

(1) Upon receiving notice from a supplier, materialman, Contractor, or subcontractor of an unpaid obligation of PURCHASER, STATE shall notify PURCHASER and PURCHASER's surety in writing, describing the claim and specifying a date not later than fifteen (15) days from the date of the notice within which PURCHASER shall be expected to respond to the claim.

(2) PURCHASER shall provide, within the time requested by STATE, verification reasonably satisfactory to STATE that the claim has been satisfied or is being addressed in a manner reasonably satisfactory to STATE. If PURCHASER fails to provide such evidence within the time requested, PURCHASER shall be deemed to be in default of the Contract, and STATE shall be entitled to make a claim against PURCHASER's performance bond on behalf of the claimant.

(b) Claims against PURCHASER's performance bond for failure to comply with or perform other obligations under the Contract shall be processed in the following manner:

(1) STATE shall provide notice in writing to PURCHASER and PURCHASER's surety of the nature of the failure to comply or the unperformed obligation, and shall specify a date by which the failure must be remedied.

(2) If PURCHASER fails to remedy the failure or to respond in writing with reasons adequate in STATE's judgment to waive the failure within the time specified in STATE's notice, PURCHASER shall be deemed to be in default and STATE shall be entitled to make a claim against PURCHASER's performance bond on behalf of STATE for an amount deemed reasonably sufficient to cure the failure.

(c) STATE reserves the right to invoke any remedy available to it under the Contract or at law or in equity in the event STATE is required to seek redress from PURCHASER's surety for a Contract violation or default by PURCHASER including, without limitation, termination of the Contract.

Section 1230. Payment Bond. PURCHASER shall furnish a payment bond (or blanket payment bond for multiple Contracts) acceptable to STATE guaranteeing payment for all timber harvested. PURCHASER shall keep the payment bond in effect during the term of the Contract, until released by STATE. Payment bonds may be in the form of one or more of the following: surety bonds, cash, cashier's or certified check, money order, assignment of surety, irrevocable letters of credit, or other securities determined acceptable by the State Forester. Surety bonds (including riders) must be written by a surety company authorized to do business in the State of

Oregon, on a form provided by STATE. PURCHASER's bond shall be in an amount at least equal to the value of timber estimated to be removed during a one-month plus 15-day billing period, as determined by STATE. In any event, the amount shall not be less than one installment payment as specified in Section 1750, "Payment Schedule." Provision of a satisfactory payment bond will permit PURCHASER to remove timber for a 30-day period, after which time, payment for all such removed timber shall be due and owing. PURCHASER shall make cash payment within fifteen (15) days following the end of the monthly period. Upon payment for timber removed in the monthly period, the payment guarantee may be applied as a guarantee for a subsequent period.

A blanket payment bond shall be in an amount at least equal to the value of the timber estimated to be removed from all Contracts covered by the blanket payment bond during a one-month plus 15-day billing period as determined by STATE. PURCHASER shall obtain and furnish STATE with a written consent of surety on forms provided by STATE for coverage of any Contracts to which the blanket payment bond may apply. In no event shall PURCHASER remove timber with a value greater than the amount of the payment guarantee.

Section 1240. Insurance. PURCHASER shall secure, at PURCHASER's expense, and keep in effect during the term of this Contract, the following insurance coverages, in a policy or policies issued by an insurance company or companies authorized to do business in the State of Oregon. The issuing company or companies shall indicate on the insurance certificates required below that STATE shall be given not less than thirty (30) days' notice of any cancellation, material change, or intent not to renew such policy. Any failure to comply with the reporting provisions of this insurance, except for the potential exhaustion of aggregate limits, shall not affect the coverage(s) provided to the State of Oregon, STATE, and their divisions, officers, and employees. PURCHASER shall be financially responsible for all deductibles included hereunder.

The coverage shall be as follows:

(a) Commercial General Liability insurance covering personal injury**,** death, and property damage or destruction in an amount not less than $2,000,000 combined single limit per occurrence and an amount not less than $4,000,000 per aggregate, with Contractual liability coverage to include all Contracts involving the work to be performed under this Contract, Premises Operations, Products and Completed Operations, and Independent Contractors. Required coverage shall be for explosion, collapse, and underground damage if blasting or excavation is required or performed under the Contract. **Excess or Umbrella Liability policies may be used in combination with the Commercial General Liability insurance to cover the required liability limits.**

(b) Automobile Liability insurance in an amount not less than $2,000,000 combined single limit per accident. This required insurance coverage shall include Business Automobile, an endorsement for auto pollution, and shall cover pollutants such as fuel tanks carried in vehicles. **Excess or Umbrella Liability policies may be used in combination with the Automobile Liability insurance to cover the required liability limits.**

(c) Loggers Broad Form coverage in an amount not less than $2,000,000 for costs of fire control, losses or damage from fire, and other causes arising or resulting from activities of PURCHASER, employees, Contractors, subcontractors, and others working or acting for PURCHASER.

(d) Worker's Compensation insurance as statutorily required for persons performing work under the Contract.

(e) Primary Coverage. Insurance carried by PURCHASER under this Contract shall be the primary coverage, and the STATE's insurance is excess and solely for damages or losses for which the STATE is responsible.

(f) "Tail" or "Basis of Occurrence" Coverage. If any of the aforementioned liability insurance is arranged on a "claims made" basis, "tail" coverage will be required at the completion of this Contract for a duration of 24 months, or the maximum time period reasonably available in the marketplace if less than 24 months. PURCHASER shall furnish certification of "tail" coverage as described or continuous "claims made" liability coverage for 24 months following Contract completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of

this Contract. If Continuous "claims made" coverage is used, Contractor shall be required to keep the coverage in effect for a duration of not less than 24 months from the end of the Contract.

(g) The Commercial General Liability insurance and the Automobile Liability insurance required under this Contract shall include the State of Oregon, the Oregon Board of Forestry, the Department of Forestry, the State Forester, their officers, agents, employees, and members as additional insureds. **The following language shall be used for naming additional insureds:**

ADDITIONAL INSURED: The State of Oregon, **the Oregon Board of Forestry, the Department of Forestry, the State Forester, their officers, employees and agents as Additional Insureds but only with respect to PURCHASER's activities to be performed under this Contract. Coverage shall be primary and non-contributory with any other insurance and self-insurance.**

(h) As evidence of the insurance coverage required by this Contract, PURCHASER shall furnish a certificate or certificates of insurance including all of the foregoing coverages to STATE. PURCHASER must provide this proof of insurance to STATE before the Contract period begins and prior to the commencement of work.

(i) All insurance shall be provided by a company with an A or better rating, as determined by A.M. Best Company, unless otherwise approved in writing by STATE.

GENERAL TERMS AND CONDITIONS

Section 1310. Authorized Representatives. During any period of Operations, PURCHASER shall have a designated representative(s) available to STATE on the Timber Sale Area or Project Location, or both, where such activity is separated. The representative(s) shall be authorized to receive any notice or instructions from STATE on behalf of PURCHASER and to take any action required in regard to performance of PURCHASER under this Contract. STATE shall designate a field representative(s) who shall be authorized to receive notices, inspect progress of the Operations, and issue instructions in regard to performance under the terms of this Contract. Authorized representatives of STATE and PURCHASER shall be designated in the Operations Plan required by Section 1140, "Operations Plan."

Section 1315. Inspection and Acceptance. STATE and its authorized and designated representative shall at all times be allowed access to all parts of the Operations and Areas of Operations of PURCHASER, as STATE may determine to be necessary or desirable to make a complete and detailed inspection of the Operations and PURCHASER's compliance with all terms and conditions of this Contract. STATE shall be furnished operation progress status or other information and assistance by PURCHASER, or the Authorized Representative(s), as STATE may determine necessary to permit STATE to verify PURCHASER's compliance with all terms and conditions of this Contract.

PURCHASER shall notify STATE in writing upon completion of final Operations. STATE will inspect the Operations completed by PURCHASER within twenty (20) business days after receipt of written notification that final Operations are complete. Following inspection, STATE shall notify PURCHASER in writing of STATE's acceptance of PURCHASER's performance of the Contract or, if PURCHASER's Operations are not acceptable to STATE, shall advise PURCHASER in writing of the particular defects to be remedied before final acceptance by STATE can be granted.

Section 1320. Assignment of Contract. PURCHASER shall not assign, sell, or transfer rights, or delegate responsibilities under this Contract, in whole or in part, without the prior consent of the STATE. STATE will consent only when assignment is consistent with STATE's fiduciary duties. No such written approval shall relieve PURCHASER of any obligations under this Contract, and any transferee shall be considered the agent of the PURCHASER and bound to perform in accordance with the Contract. PURCHASER shall remain liable as between the original parties to the Contract as if no assignment had occurred. PURCHASER agrees to pay STATE a $250 administrative fee for processing each assignment.

Section 1325. Subcontracting. PURCHASER acknowledges and agrees that if PURCHASER subcontracts all or any part of the Operations, such subcontracting shall in no way relieve PURCHASER of any responsibility under this Contract. PURCHASER shall notify STATE in writing of the names and addresses of each subcontractor prior to the commencement of any Contract work by the subcontractor.

Section 1330. Conditions of Areas of Operations.

Use of Areas of Operations. PURCHASER shall follow the STATE's Authorized Representative's instructions, if any, regarding use of the Areas of Operations. STATE reserves the right to issue written authorization to others to use the Areas of Operations when, in the determination of STATE, such use will not materially interfere with the Operations of PURCHASER. During the term of this Contract, STATE reserves the right to sell any products or materials from the Areas of Operations, provided that the products or materials are not timber included in this Contract and that removal will not materially interfere with the Operations of PURCHASER. PURCHASER shall not interfere with the use of roads by other authorized users. PURCHASER shall not be held liable for any acts, omissions, or neglect of authorized simultaneous users.

In an emergency affecting the safety of life or of the Operations or of adjoining property, PURCHASER, without special instruction or authorization from STATE's Authorized Representative, shall act reasonably to prevent threatened loss or injury, and shall so act, without appeal, if instructed by STATE's Authorized Representative. Any compensation claimed by PURCHASER on account of emergency work shall be equitably determined by STATE.

Section 1335. Hazardous Substances Discovered by PURCHASER. Unless disposition of Hazardous Substances is specifically made a part of PURCHASER's Operations under this Contract, PURCHASER shall immediately notify STATE of any Hazardous Substances which PURCHASER discovers or encounters during performance of Operations. PURCHASER shall immediately cease operating in any part of the Area of Operations where Hazardous Substances have been discovered or encountered, if continued Operations in such area would present a bona fide risk or danger to the environment or to the health or well being of PURCHASER's or any subcontractor's work force.

Unless disposition of Hazardous Substances is specifically made a part of PURCHASER's Operations under this Contract, upon being notified by PURCHASER of the presence of Hazardous Substances in the Area of Operations, STATE shall arrange for the proper disposition of such Hazardous Substances.

Section 1340. Hazardous Substances Generated/Aggravated by PURCHASER. PURCHASER shall be held responsible for any and all releases of Hazardous Substances during performance of the Contract which occur as a result of, or are aggravated by, actions of its agents, personnel, or subcontractors. PURCHASER shall immediately notify STATE of any release of Hazardous Substances and, as directed by STATE, shall promptly dispose of or otherwise remediate such spills or leaks to the satisfaction of STATE and proper regulatory agencies in a manner that complies with applicable federal, state, and local laws and regulations. Remediation shall be at no cost to STATE.

PURCHASER, at all times, shall:

(a) Properly handle, use, and dispose of all Hazardous Substances brought onto the Areas of Operations, in accordance with all applicable federal, state, or local statutes, rules, or ordinances;

(b) Be responsible for any spills, releases, discharges, or leaks of (or from) Hazardous Substances which PURCHASER has brought onto the Areas of Operations; and

(c) Promptly remediate, without cost to STATE, such spills, releases, discharges, or leaks to the STATE's satisfaction and in compliance with all applicable federal, state, or local statutes, rules or ordinances.

PURCHASER shall report all reportable quantity releases of Hazardous Substances and petroleum products to applicable federal, state, and local regulatory and emergency response agencies. Reportable quantities are found in 40 CFR, Part 302, Table 302.4 for Hazardous Substances and in OAR 340-108 for petroleum products.

Section 1350. Environmental Indemnification. PURCHASER shall indemnify and hold harmless the STATE from any claims resulting from the use, release or disposal of Hazardous Substances including their removal, encapsulation, transportation, handling, and other disposal, during the performance of this Contract, whether or not such use, release or disposal occurs within or outside the Timber Sale Area.

Section 1355. General Indemnification. PURCHASER shall indemnify, defend and hold harmless the State of Oregon, the Oregon Board of Forestry, the State Forester, their officers, agents, employees, and members ("Indemnified Parties"), from all claims, suits, actions, or liens of any nature resulting from or arising out of the activities of PURCHASER or its subcontractors, agents, or employees under this Contract, including any claim based upon an alleged failure to obtain any necessary Permit, license, or approval, or any claim of liability for premiums, contributions, or taxes payable under any Workers' Compensation, Disability Benefits, Old Age Benefits, including FICA, or tax withholding laws; provided, however, the Oregon Attorney General must give written authorization to any legal counsel purporting to act in the name of, or represent the interests of, any of the Indemnified Parties prior to such action or representation. Further, STATE, acting by and through its Department of Justice, may assume its own defense, including that of its officers, employees and agents, at any time when in STATE's sole discretion it determines that (i) proposed counsel is prohibited from the particular representation contemplated; (ii) counsel is not adequately defending the interests of STATE; (iii) important governmental interests are at stake; or (iv) the best interests of STATE are served thereby. PURCHASER's obligation to pay for all costs and expenses shall include those incurred by STATE in assuming its own defense. All provisions of this Section shall survive the termination of this Agreement.

Section 1360. Severability. If any provision of this Contract is declared by a court to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Contract did not contain the particular provision held to be invalid.

Section 1365. Waiver. Failure of STATE to enforce any provision of this Contract shall not constitute a waiver or relinquishment by STATE of the right to such performance in the future, nor of the right to enforce any other provision of this Contract.

Section 1370. Choice of Law and Venue. This Contract shall be governed by and construed in accordance with the laws of the State of Oregon, as interpreted by the Oregon courts. Any litigation arising out of this Contract shall be conducted in Marion County, Oregon.

Section 1375. Notices. Any written notice to PURCHASER which may be required under this Contract to be served on PURCHASER by STATE may be served by personal delivery to PURCHASER or designated representative(s) by mailing the notice to the address of PURCHASER as is given in this Contract, or by leaving the notice at said address. Should PURCHASER be required to notify STATE concerning the progress of the Operations, or concerning any matter or complaint which PURCHASER may have regarding the Contract subject matter, or for any other reason, that notification is to be made in writing and delivered or mailed to the designated representative of STATE.

Section 1380. Entire Agreement; No Modification. This Contract consists of the entire written agreement between the parties, including but not limited to the Notice of Timber Sale, Invitation to Bid or Request for Proposal, Instructions to Bidders, specifications, terms, and conditions, Exhibits, Operations Plan, change notices, if any, and the accepted bid. No waiver, consent, modification, or change of terms of this Contract shall bind either party, unless in writing and signed by both parties. Such waiver, consent, modification, or change, if made,

shall be effective only for the specific purpose given. There are no understandings, agreements, or representations, oral or written, not specified herein regarding this Contract. PURCHASER, by the signature of its Authorized Representative in Section 1000, "Signatures of Contract Parties," hereby acknowledges that she/he has read this Contract, understands it, and agrees to be bound by its terms and conditions.

OWNERSHIP OF MATERIALS AND IMPROVEMENTS

Section 1410. Materials from State Property. PURCHASER shall not take, sell, use, remove, or otherwise dispose of any sand, gravel, rock, earth, or other material obtained or produced from within the limits of rights-of-way, gravel pits, rock quarries, or other property owned by or held by any agency of the State of Oregon, unless authorized by this Contract or separate written consent of STATE.

Section 1420. Materials and Improvements. Title to materials, Improvements, and other property the Contract requires PURCHASER to provide shall vest in and become the property of STATE at the time such are furnished by PURCHASER and accepted by STATE. All materials, Improvements, and property furnished by PURCHASER shall be free and clear of liens, claims, and encumbrances.

PURCHASER shall keep in good repair all Improvements located on State land and existing at the time of execution of the Contract and any Improvements placed on State land by PURCHASER which become the property of STATE under this Contract. PURCHASER shall promptly repair or replace, without cost to STATE, any Improvement injured, damaged, or removed from the Areas of Operations by PURCHASER or by Contractors of PURCHASER.

Section 1430. Removal of Equipment and Materials. Within thirty (30) days after completion, and as a condition of final acceptance of PURCHASER's Operations, PURCHASER shall remove from the Areas of Operations and other property owned or controlled by STATE, all equipment, materials, and other property PURCHASER has placed or caused to be placed thereon that is not to become the property of STATE. PURCHASER acknowledges and agrees that any such equipment, materials, and other property that is not removed within thirty (30) days shall become the property of STATE and may be used or otherwise disposed of by STATE without notice or obligation to PURCHASER or to any party to whom PURCHASER may transfer title. Nothing in this section shall be construed as relieving PURCHASER from an obligation to clean up and to burn, remove, or dispose of debris, waste materials, and such, in accordance with the provisions of this Contract and applicable law. PURCHASER shall indemnify STATE for any cost or expense incurred by STATE as a result of PURCHASER's failure to satisfy this obligation.

CONTRACT CHANGES: EXTENSIONS, MODIFICATIONS, SUSPENSIONS, CANCELLATIONS, DELAYS, AND DEFAULT

Section 1510. Causes Beyond Control. Neither party of this Contract shall be held responsible for delay or default caused by fire, riot, acts of God, sovereign, public enemy, and/or war which is beyond that party's control. STATE may terminate this Contract upon written notice after determining such delay or default will reasonably prevent successful performance of the Contract.

In the event a cause or causes beyond the control of PURCHASER impact PURCHASER's ability to continue to perform under this Contract, STATE may grant a reasonable extension of time but shall not additionally compensate PURCHASER.

Section 1520. Cooperation With Species Protection Efforts. STATE is engaged in an active threatened and endangered species (T&E) survey program. As part of the survey program, ODF surveys its lands on a continuing basis for land management, species protection, research and other reasons. Surveying efforts may take place in the Timber Sale Area any time during the term of the Contract. PURCHASER acknowledges that T&E survey work and/or the discovery of a threatened or endangered species within or in the vicinity of the

Timber Sale Area may affect PURCHASER's Operations under the Contract, and PURCHASER agrees to cooperate with STATE's survey work and other activities designed to identify and protect threatened and endangered species. In the event a threatened or endangered species is found within or near the Area(s) of Operations, PURCHASER agrees that STATE may take steps necessary to protect the interests of the State, including restrictions on Operations due to T&E species considerations, Contract modification, suspension or termination. PURCHASER's agreement under this Section is in addition to and shall not relieve PURCHASER of its obligation to comply with all federal and state laws, including the Endangered Species Act, governing threatened and endangered species.

Section 1530. Extension of Time. STATE may extend the time for performance of this Contract upon written request from PURCHASER or at STATE's discretion. A request for extension:

- shall be accompanied by the written consent to an extension of the security by PURCHASER's surety;
- shall state the date to which the extension is desired, the Area of Operations to be affected, and the reason(s) for the extension; and
- must be received by STATE no later than thirty (30) days prior to the expiration date of this Contract unless the need for extension occurred within the thirty (30) days prior to the expiration date, in which case the request must be received prior to the expiration date.

Requests for extension will not be granted solely due to changes in timber market conditions. STATE shall grant a request for an extension only when it determines that extension would be in the best interests of STATE. In no event shall an extension exceed one year.

When STATE grants a request for extension, it may condition that grant upon any condition it determines is necessary to protect the interests of the STATE. Such conditions may include, but may not be limited to, the following:

(a) Payment at time of extension of the full amount of the unpaid balance of the Total Purchase Price. In the case of scale or weight sales, such payment shall be an advance deposit, based on remaining volume, as estimated by STATE.

(b) If PURCHASER is not otherwise in arrears in required payments, STATE may grant additional time for payment of the unpaid balance on the condition that PURCHASER make installment payments based on removal of Designated Timber as required by Section 1750, "Payment Schedule," of this Contract, plus interest on all payments received after the original expiration date.

(c) Completion of designated requirements of this Contract, such as fire trail construction, Snag felling, Slash preparation Operations on logged portions of the Timber Sale Area, and road construction or maintenance.

(d) Payment of an extension fee in an amount determined by STATE (not less than $50). Such fee shall be based upon the loss of production, extra reforestation costs, brush control costs, Slash disposal costs, or other costs which may be caused by the extension.

(e) Waiver of full payment or payment of interest on the unpaid balance of the Total Purchase Price, if STATE determines that extenuating circumstances warrant waiver or waiver is otherwise in the best interests of STATE.

(f) PURCHASER-funded T&E species surveys by STATE-approved surveyors. STATE may require that Operations on the Timber Sale Area be suspended during the survey season until the completion of surveys, in order to ensure a valid survey. The survey season begins March 15 and ends August 31, or upon completion of survey visits, annually.

Section 1540. Contract Modifications. PURCHASER and STATE acknowledge that changes are inherent in Operations of the type covered by this Contract. The number of changes, the scope of those changes, and the impact they have on the progress of the original Operations cannot be defined at the outset of the Contract. These changes may include, but are not limited to, changes in project specifications, project completion dates,

Exhibit specifications, rock sources, excavator time requirements, seasonal restrictions, Timber Sale Area resource protection requirements, harvest methods, harvest completion dates, thinning prescriptions, tree harvest size limits, removal specifications, Reserved Timber specifications, haul route requirements, scaling requirements, and Timber Sale Area boundaries. PURCHASER acknowledges and agrees that PURCHASER is not entitled to any reduction in the Purchase Price or Total Purchase Price solely due to the number of changes required to be made in the Contract. Each change will be evaluated on its own merit to determine if an extension of the time for performance under the Contract or an increase or decrease in the Purchase Price or Total Purchase Price is warranted.

STATE reserves the right to make, at any time during the Contract, such modifications as is necessary or desirable; provided such modifications shall not change the character of the Operations to be done nor increase the cost to the PURCHASER of performing the Project Work, unless such change in the Operations or cost increase is approved in writing by PURCHASER. Any modifications so made shall not invalidate this Contract nor release PURCHASER from its obligations under the performance bond and payment bond. PURCHASER agrees to complete the modified Operations as if they had been included in the original Contract.

If any change under this section causes an increase or decrease in PURCHASER's cost of performance or the time required for the performance of any part of the Operations for which PURCHASER wishes to claim a reduction in the Purchase Price or Total Purchase Price, PURCHASER must submit a written statement Setting forth the nature and specific extent of the claim. Such claim shall include all time and cost impacts against the Contract and must be submitted as soon as possible following the change, but in any event no later than thirty (30) days after receipt of any written notice of modification of the Contract.

If PURCHASER discovers site conditions which differ materially from what was represented in the Contract or from conditions that would normally be expected to exist and be inherent to the activities defined in the Contract, PURCHASER shall notify STATE's Authorized Representative immediately and before the area has been disturbed. STATE's Authorized Representative will investigate the area and make a determination as to whether or not the conditions differ materially from either the conditions stated in the Contract or those which could reasonably be expected in execution of this Contract. If it is determined that a differing site condition exists, any compensation or credit will be determined based on an analysis by STATE's Authorized Representative. If PURCHASER does not concur with the decision of STATE's Authorized Representative and/or believes that it is entitled to additional compensation, PURCHASER may proceed to file a claim.

Claims Review Process. All PURCHASER claims shall be referred to STATE's Authorized Representative for review. All claims shall be made in writing to STATE's Authorized Representative not more than ten (10) days from the date of the occurrence of the event which gives rise to the claim or not more than ten (10) days from the date that the PURCHASER knew or should have known of the problem. Any claim not submitted in accordance with these time requirements shall be waived.

All claims shall be submitted in writing and shall include a detailed, factual statement of the basis of the claim, pertinent dates, Contract provisions which support or allow the claim, reference to or copies of any documents which support the claim, the exact dollar value of the claim, and any specific time extension requested for the claim. If the claim involves Operations to be completed by subcontractors, PURCHASER shall analyze and evaluate the merits of the subcontractor's claim. PURCHASER shall forward the subcontractor's claim and PURCHASER's evaluation of such claim to STATE's Authorized Representative. STATE's Authorized Representative will not consider direct claims from subcontractors, suppliers, manufacturers, or others not a party to this Contract.

The decision of STATE shall be final and binding unless PURCHASER requests mediation within ten (10) days following notice of STATE’s decision.

Section 1550. Adjustment of Contract. Notwithstanding any other provisions of this Contract, STATE may, pursuant to Oregon law, make adjustments in the Contract when Major Catastrophes or significant changes in state or federal law after the date of this Contract materially affect the volume and value of timber, or Project Work to be done, as specified in Section 2610, "Project Work," under the Contract. Major Catastrophes are defined as windstorms, floods, fire, landslides, or other acts of God, which are beyond the control of PURCHASER and in no way connected with negligent acts or omissions of PURCHASER, its officers, employees, agents, or subcontractors. Market conditions shall not be considered a reason for Contract adjustments. Adjustments made

under this Section, if any, shall be for the sole purpose of placing the parties in their original status under the Contract insofar as possible; provided, however, that no adjustment shall be made in response to any loss or cost to PURCHASER that is recoverable from third parties by PURCHASER. PURCHASER shall make written application to STATE within 30 days after discovery of the damage done by the Major Catastrophe.

If, prior to completion of the Contract, a Major Catastrophe (as defined above) caused by a single event or significant changes in state or federal law results in additional Project Work for PURCHASER involving an additional estimated cost of more than: (1) $500 for sales less than one-half million board feet; (2) $1,000 for sales of one-half million to three million board feet; or (3) $3,000 for sales over three million board feet, STATE may adjust the Contract Project Work Credits by the amount listed, in which event STATE will assume responsibility for any additional cost to complete the Project Work which exceeds the above amount. Adjustments by STATE shall be based on advertised volumes and may be accomplished by adjusting stumpage prices or payment of such additional costs to PURCHASER or by STATE assuming responsibility for performing that portion of the Project Work in excess of the amount listed above. The estimated cost of additional work shall be calculated by STATE.

If, prior to completion of the Contract, a change in state or federal law, or a Major Catastrophe (as defined above), materially affects the volume and value of timber, STATE may adjust the volume and value accordingly. STATE shall determine the adjustment volume by either an individual tree sample cruise, or a point sample cruise to a 5 percent sampling error of the volume. For purposes of this Contract, "materially affect" shall mean more than $5,000.

Value adjustment shall be calculated by multiplying the volume adjustment times the Purchase Price.

For each species sold on a recovery basis, the Purchase Price is defined as the price per MBF listed in Section 1740, "Log Prices." If species is not listed in Section 1740, "Log Prices," the highest price listed in Section 1740, "Log Prices," shall apply.

For species sold on a lump sum basis, the Purchase Price for each species shall be determined by using STATE's unamortized timber appraisal value, multiplied by the bid-up factor. Bid-up factor shall be calculated by STATE using the following calculation: Bid value of all species/appraised value of all species = bid-up factor.

Section 1560. Violations; Default; Remedies. Any failure by PURCHASER to comply with the terms and conditions of this Contract is a violation. If PURCHASER commits a violation, STATE may, after giving written notice, suspend any further Operations of PURCHASER under this Contract, except those Operations necessary to remedy any violations.
If PURCHASER fails to remedy a violation within the time allowed and as instructed by STATE, or if PURCHASER fails to complete work as required under any interim Contract completion date or the Contract expiration date, or if PURCHASER injures or severs any timber other than Designated Timber, STATE may declare PURCHASER to be in default by providing notice of the default as required under OAR 629-032-0030. If the default is due to failure of PURCHASER to correct a violation as previously instructed, STATE may terminate the Contract as of the date specified in the earlier instruction. If the default is due to failure by PURCHASER to complete work prior to the expiration date or any interim completion date required under the Contract, or if PURCHASER injures or severs timber that is not Designated Timber, STATE may terminate the Contract without providing PURCHASER an opportunity to cure the default.

As provided in OAR 629-032-0050, within fifteen (15) days following receipt of a notice of default, PURCHASER may request a hearing before the State Forester to determine whether a default has in fact occurred. Hearings shall be governed by ORS 183-413 to ORS 183.497.

The provisions of OAR 629-032-0000 through -0070, and any future amendments, are incorporated into this Contract and made a permanent part hereof by reference as though fully set forth herein. THE PROVISIONS OF OAR 629-032-0000 THROUGH -0070 ARE IN ADDITION TO, AND NOT IN LIEU OF, ANY OTHER REMEDIES STATE MAY HAVE FOR THE PURCHASER'S BREACH OF CONTRACT. In the event of a default STATE may pursue any and all remedies available to STATE. Such remedies include, but are not limited to: (1) making a claim on each bond provided by PURCHASER; (2) suing PURCHASER for all damages STATE incurs as a result of PURCHASER's breach; (3) suing PURCHASER for specific performance of the Contract; or (4) terminating the Contract and reselling the timber.

Section 1570. STATE's Right to Suspend Operations. STATE and/or STATE's Authorized Representative may suspend portions or all of the Operations due to causes including, but not limited to:

(a) Failure of the PURCHASER to correct unsafe conditions;

(b) Failure of the PURCHASER to carry out any provision of the Contract;

(c) Failure of the PURCHASER to carry out written instructions from STATE's Authorized Representative;

(d) Conditions which, in the opinion of STATE's Authorized Representative, are unsuitable for performing the Operations;

(e) Time required by STATE to investigate differing site conditions;

(f) STATE-ordered identification or protection of a state or federally listed threatened or endangered species; or

(g) Any reason considered by STATE to be in the public interest.

In the event a suspension of Operations under (d), (e), (f) or (g) above imposes additional costs on PURCHASER, PURCHASER may submit a request for a modification of the Contract under Section 1540, "Contract Modifications"; provided, however, that no claim for a reduction in the Purchase Price or Total Purchase Price will be allowed due to changes in market conditions or lost market opportunities occurring following any suspension of Operations. In addition, in no event shall STATE be liable for any costs incurred by PURCHASER by reason of delay or suspension under this section, including but not limited to costs of additional move-in/move-out of equipment and personnel, extra fire and equipment security, and insurance or bonding expenses.

Extension After Suspension. When a suspension occurs under (d), (e), (f) or (g) above, PURCHASER may request an extension of time for performance of this Contract, for a period not to exceed the period of time during which Operations were suspended. The request for extension must be in writing and:

(1) Shall be accompanied by the written consent to an extension of the security by PURCHASER's surety;

(2) Shall state the date to which the extension is desired and the Area(s) of Operations affected; and

(3) Shall be received by STATE no later than ten (10) days following notice to PURCHASER that Operations may recommence.

STATE normally will not withhold approval of reasonable extension requests made under this section.

PURCHASER's Responsibilities. For the duration of the suspension, PURCHASER is responsible to continue maintenance at the Area(s) of Operations just as if Operations were in progress. This includes, but is not limited to, protection of completed Operations, maintenance of access, protection of stored materials, temporary facilities, and clean-up.

When Operations re-commence after the suspension, PURCHASER shall replace or renew any Operations damaged during the suspension, remove any materials or facilities used as part of temporary maintenance, and complete Operations in every respect as though prosecution had been continuous and without suspension.

PURCHASER shall not cut or remove any timber under this Contract during any period of suspension. Any such cutting or removing shall be considered a willful trespass and shall render PURCHASER liable for triple damages in accordance with Section 1580, "Trespass."

Section 1580. Trespass. PURCHASER shall be exclusively responsible for any damage or removal of other than Designated Timber, and for damage to or removal of timber or other property beyond the boundaries of the Areas of Operations resulting from any activities of PURCHASER. Any such activity resulting from the activities of PURCHASER shall constitute a trespass, and a violation of the Contract. In addition to, and without limiting in any way any other remedies that may be available to STATE, PURCHASER shall pay to STATE damages for any trespass as follows:

(a) For each species involved in the trespass, triple the Purchase Price if PURCHASER's action is willful or intentional; or

(b) For each species involved in the trespass, double the Purchase Price if PURCHASER's action is not willful or intentional.

As used in this section, the term "willful" or "intentional" includes, but is not limited to: any voluntary or deliberate activity by PURCHASER, its employees, Contractors, subcontractors, or agents which results in the removal or damage to any timber not described under Section 2210, "Designated Timber," including removal or damage arising from a mistake of law or fact concerning the Designated Timber.

COMPLIANCE WITH LAWS AND REGULATIONS

Section 1610. Permits; Licenses; Safety. PURCHASER shall procure all Permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the Operations, and shall maintain and keep such Permits and licenses current throughout the term of the Contract.

STATE may at any time require PURCHASER to satisfy STATE that Operations under this Contract comply with state, federal, and local laws, codes, regulations, and ordinances. STATE may require PURCHASER to obtain a Permit, license, or approval from the governmental body or agency responsible for administering applicable laws before PURCHASER may begin or continue Operations under this Contract.

In the performance of the Operations, PURCHASER shall use every reasonable and practicable means to avoid damage to property and injury to persons. The responsibility of PURCHASER stated herein shall cease upon the Operations being accepted as complete by STATE.

PURCHASER shall take all necessary precautions for the safety of all personnel in the Areas of Operations, and shall comply with the Contract and all applicable provisions of federal, state, and municipal safety laws or regulations designed to prevent accidents or injury to persons on, about, or adjacent to the Areas of Operations. PURCHASER shall erect and properly maintain at all times, as required by the conditions and progress of PURCHASER's Operations, all necessary safeguards for protection of workers and the public against any hazards created by the Operations. The STATE's Authorized Representative has no responsibility for safety in the Areas of Operations. Safety in the Areas of Operations is the sole responsibility of PURCHASER.

Section 1620. Workers' Compensation Insurance (ORS 279.320). PURCHASER shall perform the Operations in accordance with the requirements of the Workers' Compensation Law of the State of Oregon during the term of this Contract. In addition, PURCHASER, its subcontractors, if any, and all employers providing work, labor, or materials under this Contract are subject employers under the Oregon Workers' Compensation Law and shall comply with ORS 656.017 and 656.029, which requires them to provide workers' compensation coverage that satisfies Oregon law for all their subject workers, unless such employers are exempt under ORS 656.126.

Section 1630. Threatened and Endangered Species. PURCHASER shall at all times observe and comply with all federal and state laws, including the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1536, 1538-1540), ORS 496.172 to 496.192 (Threatened and Endangered Wildlife Species), and ORS 564.100 to 564.135 (Threatened and Endangered Plants), and lawful regulations issued thereunder, and local bylaws, ordinances, and regulations, which relate to threatened or endangered plant or animal species while performing Operations under this Contract.

Section 1640. Identification and Protection of Cultural Resources. PURCHASER acknowledges that Archeological or Historical Resources may exist within the Timber Sale Area, including within an Area of Operations, and that the existence and location of such Resources may be unknown at the time this Contract is executed. PURCHASER shall exercise due care in its Operations to ensure that in the event any such Resources are discovered in the course of or as a result of PURCHASER's Operations such Resources may be preserved in accordance with the requirements of ORS Chapter 358. Upon discovery of any material suspected to be of Archeological or Historical significance within an Area of Operations, PURCHASER shall immediately halt Operations and shall notify STATE of the potential existence of such material. PURCHASER shall not remove or disturb the material, or resume Operations in the vicinity of the material, until instructed by STATE to do so.

Section 1650. Protection of Soil, Air, and Water Resources. PURCHASER shall comply with Oregon law, including the Oregon Forest Practices Act and rules promulgated thereunder, and with rules and regulations of the, Oregon State Board of Health, the Environmental Quality Commission and other agencies relating to the protection of soil, air, and water resources.

Section 1660. Tax Liability. STATE makes no representations concerning tax liability or consequences arising from this sale of State timber. It is PURCHASER's sole responsibility to determine what tax liability may be incurred as a result of purchasing State timber, regardless of whether the State timber is growing or located on State-owned land or elsewhere. PURCHASER shall be responsible for paying all applicable timber harvest or severance taxes and shall indemnify and hold harmless the STATE against any tax claims arising from the purchase of State timber.

Section 1670. Compliance with Tax Laws. By execution of this Contract, the person signing this Contract on behalf of PURCHASER certifies, under penalty of perjury, that to the best of his or her knowledge, PURCHASER is not in violation of any Oregon tax laws. For purposes of this section, “Oregon tax laws” means those programs listed in ORS 305.380(4). Examples include the state inheritance tax, personal income tax, withholding tax, corporation income and excise taxes, amusement device tax, timber taxes, cigarette tax, other tobacco tax, 9-1-1 emergency communications tax, the elderly rental assistance program and local taxes administered by the Department of Revenue (Lane Transit District Self-Employment Tax, Lane District Employer Payroll Tax, Tri-Metropolitan Transit District Employer Payroll Tax, and Tri-Metropolitan Transit District Self-Employment Tax).

PAYMENTS

Section 1740. Log Prices. The following price schedule shall be designated as the “Purchase Price” and shall apply to all logs removed from Designated Timber. Payment shall be for net log scale, unless noted.

Log prices shall be:

Conifer Logs	Price per MBF
Douglas-fir	$
Hemlock/true fir	$
Western redcedar and other cedars	$704.39
Sitka spruce and other conifers	$194.69
Sawmill grade logs under 20 board feet	At price above
Utility (pulp) logs, adjusted gross scale	At price above
Peelable cull logs, adjusted gross scale	At price above

At Price Above means material will be charged at the highest rate for that species.

Hardwood Logs	Price per MBF
Red alder and other hardwoods	$329.69
Sawmill grade logs under 30 board feet	$ 40.00
Utility pulp logs, adjusted gross scale	$ 40.00

Contingent Price Adjustment. As provided in Section 1020, “Sale of Timber,” it is the policy of the State of Oregon, in accordance with the terms of current federal law and the Constitution and the laws of the State of Oregon, that unprocessed timber shall not be exported from lands owned or managed by the State or any of its political subdivisions or agencies. PURCHASER specifically agrees that Section 1020, "Sale of Timber," is a material term of this Contract and is part of the consideration offered to STATE in return for STATE's performance. In the event that any federal law or state constitutional provision or law or any provision of this Contract concerning export of unprocessed timber is declared invalid by any court or administrative tribunal, PURCHASER agrees to pay to STATE, in addition to the Purchase Price, an incremental amount equal to the difference between the Purchase Price set forth in this section and any higher price obtained by PURCHASER for the exported unprocessed timber.

The default provisions of (OAR 629-032-0000 through 629-032-0070) shall not apply to exported unprocessed timber. In the event that timber made available under this Contract is exported in violation of this Contract, PURCHASER shall be in material breach of the Contract. In such event, STATE shall be entitled to cease performance of the Contract and bar PURCHASER from the Timber Sale Area, and shall recover, in addition to the Purchase Price and additional increment set out above, a further sum estimated by STATE to compensate for administrative expense and the economic impact of the violation upon the State and its citizens. In no case shall this additional amount be less than $10,000 per incident.

Section 1750. Payment Schedule. The Total Purchase Price for timber sold under this Contract shall be paid in advance as follows:

The first payment shall be paid within 30 days of the notice of intent to award or before beginning Operations, whichever occurs first. The first payment shall be the total estimated bid value divided by 16. The total estimated bid value shall be the sum obtained by multiplying the estimated timber volumes by the Purchase Prices given in Section 1740, "Log Prices," less the value of the Project Work. Cash bid deposits shall be applied to the initial payment.

Subsequent payments shall be made in advance of timber removal when log hauling begins. Each payment shall be made before the value of timber removed equals one-half of an advance payment or within the time period stated on the billing if PURCHASER is more than one-half of a payment in advance. The amount of each advance payment shall be calculated by dividing the total estimated bid value less the initial payment by 15; with the total estimated bid value being the sum obtained by multiplying the estimated timber volumes by the Purchase Prices given in Section 1740, "Log Prices," less the value of the Project Work.

STATE may accept partial payment, upon written request, if logging is inactive. However, the full amount of advance payment must be paid before Operations resume. Partial payment must be sufficient to maintain a payment deposit equal to one-half of a regular advance payment.

The Total Purchase Price shall be calculated after all log scale is reported by multiplying prices in Section 1740, "Log Prices," by the scaled volume. STATE shall refund any advance payment in excess of the Total Purchase Price, or PURCHASER shall pay any deficit within thirty (30) days of notice. PURCHASER's Deposit Account shall not accrue interest payable to PURCHASER.

Section 1760. Payments and Interest. Payments required of PURCHASER by this Contract or modifications of this Contract must be received by STATE within the time period stated on the instrument requesting payment from PURCHASER.

Payments received after the due date stated on the billing instrument may be subject to an interest charge. The interest rate shall not be less than the established minimum state rate on delinquent accounts. The interest rate applied to overdue payments shall be in accordance with ORS 82.010. ORS 82.010 mandates the collection of interest at the annualized rate of 9 percent. Interest shall be calculated from the date of the original billing to the date payment is received by the State Forester.

PART II: SPECIFICATIONS

ACCOUNTABILITY

Section 2015. Log Accountability and Log Load Receipts.

Load Receipt Books. STATE shall issue to PURCHASER sufficient books of serially numbered Log Load Receipts to cover up to 30 days of operation, as determined by STATE. PURCHASER shall sign a receipt for each book of receipts and be fully accountable for all serially numbered Woods Receipt and Scaler Receipt tickets. PURCHASER shall retain all Woods Receipts in each book and return the book to STATE as soon as all receipts in each book have been used. Unused books or portions of books shall be returned to STATE during periods of inactivity lasting over 30 days, and at the completion of timber removal from the Timber Sale Area.

Completion of Load Receipts. PURCHASER shall completely and accurately fill out all portions of the Log Load Receipt before each truck leaves the Landing area. PURCHASER shall require the truck driver of each load of logs to sign the Woods Receipt. PURCHASER shall staple the Load Receipt and Scaler Receipt parts to the load as instructed on the Log Load Receipt directions and as directed by STATE before each truck leaves the Landing area. PURCHASER shall require the scaler to record the Log Load Receipt number on the scale ticket that is signed by the scaler, attach the Scaler Receipt part to a copy of the scale ticket, and mail the scale ticket with attached receipt to STATE on the date scaled.

PURCHASER shall account for each and every serially numbered Log Load Receipt , and shall pay damages to STATE for all Log Load Receipts not accounted for by proof of scaling. Damages may consist of full stumpage rate for each missing receipt, on the basis of average volume of the 10 largest loads of logs scaled from the Timber Sale Area, charged at the highest species rate, or a species rate in the Contract as determined by STATE.

PURCHASER shall not intermingle state timber or logs designated by this Contract with any other timber or logs before log scaling occurs, unless otherwise approved by STATE.

Notification of Delivery Destination. Prior to and as a condition of STATE's final acceptance of PURCHASER's performance of all Contract requirements, PURCHASER shall notify STATE, in a form and manner prescribed by STATE, of the delivery destination of all timber purchased under this Contract. STATE may hold PURCHASER's performance bond until satisfactory delivery destination information has been received.

Notice of Transfer of State Timber. Prior to selling, trading, exchanging, or otherwise conveying unprocessed timber sold under this Contract to any other person, PURCHASER must first obtain a certification of the buyer's eligibility to purchase unprocessed State timber and their intent to comply with the terms and conditions contained in OAR 629-031-0005 through 629-031-0045. The certification shall be made in a form and manner prescribed by STATE and shall be forwarded to STATE upon completion of the transaction. Obtaining the certification shall not relieve PURCHASER of the responsibility to provide STATE with an accounting of the delivery destination of all timber purchased under the Contract.

Section 2020. Log Measurement.

Scaling Locations, Rules, and Organizations. All logs from timber sold under this Contract shall be: (1) scaled at a location approved in writing by STATE; (2) scaled by a third-party scaling organization that is a party to a current agreement with STATE; and (3) scaled using the Official Log Scaling and Grading Rules (as adopted by the Northwest Log Rules Advisory Group) and state special service scaling instructions in effect at the time the logs are scaled. Utilization scale shall be handled in accordance with Section 2055, "Utilization Scale."

Upon loading at the Timber Sale Area, a log load shall be directly hauled to an approved scaling location, if required to be scaled. Log loads shall not be stored for late delivery without written approval from STATE.

PURCHASER shall enter into a written agreement with a third-party scaling organization for the scaling of logs removed from the Timber Sale Area (the “Scaling Agreement”). PURCHASER shall furnish STATE with a copy of the Scaling Agreement upon request. If logs are delivered when a TPSO scaler is not present, PURCHASER must provide STATE with a method to assure protection and accountability.

Unless other arrangements have been made through a Log Yard Agreement between PURCHASER and STATE, PURCHASER shall provide STATE with remote check scaling opportunities for logs scaled under this Contract. The last two loads at each delivery point shall be continuously available for checking. They shall remain available for a minimum of 48 hours unless replaced by other state loads. They shall be available as originally presented for scaling; i.e., if truck scaled, they shall be presented in bunks.

In the event scaling is suspended for any reason, hauling Operations shall be immediately suspended until approved alternate scaling services are provided, or service by the scaling organization is resumed.

Accountability Violations - Remote Scaling Requirement. If PURCHASER violates any of the log accountability requirements of this Contract, STATE may require all logs from timber sold under this Contract to be scaled at a ramp provided by PURCHASER, in a location designated by STATE. All costs associated with this additional scaling requirement shall be paid by PURCHASER.

Cost of Scaling. All costs of scaling and all costs in connection with reports furnished to STATE shall be paid by PURCHASER.

The Scaling Agreement shall provide, and PURCHASER shall require, that the scaling organization furnish copies each week to STATE, of all scaled certificates showing gross and net volumes, by species and grade, of all logs scaled during the week. Upon request by STATE, PURCHASER shall also require the scaling organization to furnish and attach a log detail listing to each weekly scale certificate showing all state logs included on the certificate.

Scaling Instructions. The Scaling Agreement shall authorize STATE to provide instructions to the approved third-party scaling organization for the scaling practices to be used for timber removed from the Timber Sale Area. Instructions shall conform to the terms of this Contract, including special scales as necessary. PURCHASER shall acknowledge and sign such instructions and shall be provided a copy.

Minimum Products Specifications and Special Scale information are shown on Exhibit C.

Logs Damaged During Handling. Mechanical damage to logs shall be prevented during log handling. Deductions for handling damage shall not be allowed.

Add-Back Volume. Scaling deduction for deterioration due to delay in removal of logs from the Timber Sale Area shall not be allowed in determining net volume. Volume of material deteriorated due to delay in removal shall be reported to STATE and paid for at the Purchase Price. Any cost for separate reports shall be paid by PURCHASER.

Special Scaling Instructions. Segment scaling or grading of logs in excess of 40 feet in gross scaling length shall use actual taper. Procedures are set forth in "Segment Scaling and Grading of Long Logs - All Species - State Forestry Department Scaling Instructions" (Westside).

Section 2030. Log Branding and Painting. Unless prevented by the size or condition of the wood and approved in writing in advance by STATE, at least one end of every log removed from the Timber Sale Area shall be both clearly hammer branded and painted with a minimum 2-inch diameter spot of orange paint. PURCHASER shall use only those brands issued by STATE for use on timber sold under this Contract. Only those brands issued by STATE for use on timber sold under this Contract shall be allowed on the Areas of Operations at any time.

In addition, PURCHASER shall brand and paint all logs left singly or in decks along rights-of-way, and shall brand and paint one end of all logs yarded and left on Landings after termination of Operations each day. PURCHASER

shall make every effort to remove logs from roads or Landings within a reasonable period of time, and agrees to notify STATE in advance if it intends to leave logs decked along roads or on Landings for more than 96 hours. STATE may scale such decked logs, and PURCHASER shall be responsible for the costs of such scaling and for any loss due to theft or deterioration.

STATE may issue PURCHASER one or more branding hammers registered to STATE. PURCHASER shall sign a receipt for all branding hammers registered to STATE and issued to PURCHASER, and will return them in good condition within 14 calendar days following completion of log hauling. PURCHASER shall pay a fee of $100 to STATE for each branding hammer returned to STATE in damaged and unusable condition, or $200 for each branding hammer not returned within the time specified by STATE. PURCHASER may replace damaged branding hammer handles, but only with 24" wooden handles, or with handles approved by STATE.

If properly marked timber is subdivided into smaller pieces for any other purpose than immediate processing, each piece shall be branded with a state brand specifically used for this purpose, signifying the logs are State timber and ineligible for export. Additional branding hammers registered to STATE, to be used for this purpose, may be obtained from STATE upon request, at cost.

Section 2035. Hauling and Operating Time Restrictions. PURCHASER shall not haul logs from the Timber Sale Area on weekends, the following State-observed holidays: New Year's Day, Independence Day, Thanksgiving Day, and Christmas Day, or outside the hours of 3:00 a.m. to 6:00 p.m. daily without notification to and prior approval by STATE.

Section 2045. Log Removal. All logs defined below, except those specified in Sections 2220 through 2250, "Reserved Timber," shall be removed as Designated Timber under this Contract, at prices given in Section 1740, "Log Prices":

(a) Any conifer log that conforms with grading rules for peeler or sawmill grades and meets or exceeds both of the following minimum requirements: 6 inches in gross scaling diameter, containing 20 board feet (net).

(b) Any hardwood log that conforms with grading rules for No. 4 Alder log grade or better and meets or exceeds both of the following minimum requirements: 6 inches in gross scaling diameter, containing 20 board feet (net).

For purposes of log removal requirements, minimum net log volume shall be determined by the net volume of the full log length rather than the volume of individual segments.

Other logs may be removed from Designated Timber under this Contract at prices given in Section 1740, "Log Prices."

Log grades are defined in the Official Log Scaling and Grading Rules published by the Northwest Log Rules Advisory Group in effect at the time logs are scaled.

PURCHASER shall not deliberately buck logs to reduce log sizes to less than minimum requirements for log removal, and shall take reasonable precautions to prevent breakage losses in felling and Yarding.

Section 2050. Route of Haul. PURCHASER shall furnish to STATE, at the time of making request for scaling approval, a map showing the scaling location and the precise route which shall be used to haul logs from the Timber Sale Area to the scaling location. Such route shall be the most direct haul route between the two points, unless another route is approved by STATE. The route of haul may be changed only with advance written notice to, and prior approval by, STATE.

Section 2055. Utilization Scale. STATE shall scale logs or portions of logs that are broken, wasted, or not removed by PURCHASER due to: (1) improper felling or bucking of the logs; (2) failure to remove the logs prior to deterioration; and (3) logs remaining on the Timber Sale Area after completion of logging, provided the logs

were merchantable prior to breakage or wastage. Material used to meet down material requirements in Sections 2220 through 2250, "Reserved Timber," shall not be considered for Utilization Scale. PURCHASER shall pay for the logs at the Purchase Price designated in Section 1740, "Log Prices." STATE shall notify PURCHASER of the volume of logs so scaled. Payment shall be considered due on such volume as if the logs were removed on the date of said notification.

In the event PURCHASER disagrees with the findings made by STATE under this section, PURCHASER may furnish scaling by a third-party scaling organization acceptable to STATE. Costs and expenses of such third party shall be paid for by PURCHASER, and the findings of the third party shall be final.

Section 2060. Special Products. "Special products" are any products not in log form manufactured from material having a price, or listed as "No Charge," under the Contract. PURCHASER shall not sell special products from the Timber Sale Area, or allow firewood, shake, or post cutting, or any other special product manufacturing on the Timber Sale Area without prior written approval of STATE.

ACCESS AND ROAD MAINTENANCE

Section 2120. Access. PURCHASER shall use the roads shown on Exhibit A for access to the Timber Sale Area and Project Locations. If gate keys are required to access the Timber Sale Area, they can be obtained at the ODF District Office by a designated PURCHASER's Authorized Representative. Any keys not returned at the completion of all operations under this contract shall be subject to a fee of $100 per key not returned. If PURCHASER desires to use an alternative route, it shall be PURCHASER's responsibility to secure that access and obtain STATE approval for the route. The use of access roads shall be limited to that necessary to carry out the terms and provisions of this Contract. Except as otherwise provided for in this Contract, PURCHASER shall have the right of access over, in, and through the Timber Sale Area for the purpose of cutting and removing timber or performing other Operations. PURCHASER, in so using, improving, or constructing roads, shall at no time have an interest in the land, other than the temporary right of access during the term of the Contract.

Section 2130. Road Maintenance. PURCHASER is responsible for normal road maintenance on roads used for any activity under this Contract. Normal road maintenance shall provide for safe forest driving conditions, continuous access and road use, protection of roads from damage, water quality, and compliance with all applicable laws.

PURCHASER's responsibility for normal road maintenance commences with PURCHASER's first use of a road for any activity under the Contract period and shall continue until final acceptance of the maintenance is made by STATE. In addition, PURCHASER is responsible for normal road maintenance needs that are caused by public use of the roads.

If other parties are authorized under Section 1330, "Conditions of Areas of Operations," to use roads in the Timber Sale Area, PURCHASER and each party so authorized shall be responsible for a proportionate share of normal maintenance, based upon the ratio of each party's use to total road use, as determined by STATE.

STATE will determine when maintenance is needed and will issue instructions to PURCHASER specifying work to be done and the date by which it must be completed.

"Normal road maintenance" shall include any action needed to prevent and protect the road from soil contamination, seasonal weather damage, protect water quality, repair damage caused by road use, and restore the road to at least the road condition at commencement of use, including, but not limited to:

(a) Cut Banks and Fill Slopes.

(1) Remove Slash created by Operations.

(2) Remove obstructions and fallen timber.

(3) Restore stability impacted by Operations.

(4) All cut bank and fill slope maintenance work shall be performed in such a manner that soil and vegetative material does not contaminate the road surface.

(b) Ditches.

(1) Remove bank slough, minor slides, and obstructions.

(2) Remove Slash created by Operations.

(3) Restore to functional drainage.

(4) Minimize erosion and/or sediment delivery by placement and maintenance of filtering systems.

(5) Soil and vegetative material shall not be pulled across the road surface.

(c) Drainage Systems.

(1) Clear all culverts, including inlets, outlets, half rounds, and sediment catching basins.

(2) Maintain waterbars, drainage dips, and other water diversion measures.

(3) During active use, patrol and maintain functional drainage.

(4) Repair damaged culvert ends.

(d) Road Surfaces.

(1) Grade, shape, crown, and/or outslope surface and shoulders at such time that the moisture content will bind the rock surfacing. Rip potholes prior to grading.

(2) Provide leveling, patching, and/or reinforcement rock for restoring purposes.

(3) Prevent contamination of road surface materials with soil and vegetative material.

(4) Prevent road surface materials from being bladed off the road.

(5) Temporarily cease road use to prevent and/or protect the road during adverse weather conditions. Examples of adverse weather conditions are freezing and thawing cycles, high soil moisture caused by rainfall events, and accumulation of snow that requires removal to continue hauling activity.

At the conclusion of Project Work as well as log hauling Operations, PURCHASER shall process and compact crushed rock surfacing on all roads used for hauling under this Contract.

Processing and compaction shall be done in accordance with Exhibit D, “Compaction and Processing Requirements.” Application of water may be required to achieve optimum conditions for rock processing and compaction.

For maintenance on state roads, PURCHASER may use rock obtained from Sterling Ranch and Quartz Creek Stockpile Sites. Prior to any rock spreading, PURCHASER shall obtain approval from STATE.

Log hauling on portion of Sterling Ranch Road (as shown on Exhibit “A”) shall not be allowed from November 1 to April 30, annually.

“Extraordinary maintenance” is defined as major repair work and/or damage caused by acts of God or causes beyond the control of PURCHASER, as defined in Section 1550, "Adjustment of Contract." STATE may require PURCHASER to perform extraordinary maintenance in addition to normal road maintenance. STATE shall

describe the amount and specifications of work to be done in writing, and make adjustments in the Contract in accordance with Section 1550, "Adjustment of Contract."

TIMBER SALE AREA

Section 2210. Designated Timber. The timber is located on the Timber Sale Area designated on Exhibit A.

In accordance with Section 1020, "Sale of Timber," the following is Designated Timber, except as excluded by Sections 2220 through 2250, “Reserved Timber,” and may be removed by PURCHASER in accordance with the terms and conditions of this Contract:

(a) All timber cut in accordance with the specifications in Section 2310, "Felling," and Section 2320, "Thinning Specifications," within Area 1.

(b) All unmarked trees within Areas 2 and 3.

Boundary markings are as follows:

(1) Areas 1, 2, and 3 are posted with "Timber Sale Boundary" signs, and pink flagging..

(2) The Stream Buffers are posted with “Buffer Zone” signs, and pink flagging.

(3) Area 1 has non-posted 25’ stream buffers as shown on Exhibit A.

PURCHASER shall not use or possess any blue paint on the Timber Sale Area.

Section 2220. Reserved Timber. Reserved Timber is that timber, including trees, Snags, and logs, on the Timber Sale Area which is not sold to PURCHASER. Reserved Timber shall not be damaged, cut, or removed by PURCHASER, unless otherwise approved in writing by STATE. Failure to leave the required Reserved Timber shall be handled as described in Section 2260, “Reserved Timber - Damages.”

Section 2230. Reserved Timber - Down Material.

(a) Tops resulting from requirements in Section 2310, "Felling," and not meeting removal requirements of Section 2045, "Log Removal."

(b) Down trees and logs.

(c) In Area 1 an average of 800 cubic feet and in Areas 2 and 3, an average of 600 cubic feet of conifer logs per acre. Logs shall contain a minimum of 10 cubic feet of volume, and be no shorter than 6 feet in length, to be selected by PURCHASER. Two logs per acre shall be at least 24 inches in diameter, at the large end where available. Conifer logs must be in Decay Class 1 or 2 condition as indicated by intact bark and original wood color. Trees and/or logs shall be well distributed across the Timber Sale Areas.

Section 2240. Reserved Timber - Trees and Snags.

All AREAS:

(a) Trees less than 8 inches DBH and not meeting the removal requirements in Section 2045 “Log Removal.”

(b) All Snags unless determined to be a safety hazard. Felled Snags shall not be yarded or removed.

(c) Unmarked trees within posted Stream Buffers except for those within cable corridors.

(d) Conifers with crooks, breaks, missing tops, multiple tops, or other severe defects which have less than 20 net board feet may be left. These trees do not count towards the residual basal area in Area 1.

(e) All cedar shall be reserved from cutting unless determined to be a safety hazard by STATE, except those within rights-of-way, skid trails and roads, skyline cable corridors, and Landings.

AREA 1:

(a) Trees greater than 32 inches DBH and less than 12 inches DBH.

(b) All hardwoods, except those within skid roads, and Landings.

(c) Trees within 25 feet horizontal distance of Type N streams shown on Exhibit A.

(d) Trees required to meet the Residual Tree requirements in Section 2320, "Thinning Specifications."

(e) Bearing (witness) trees.

AREAS 2 AND 3:

(a) Trees and Snags marked "W" with blue paint.

(b) As directed by STATE, PURCHASER shall leave acceptable substitute trees for trees which must be cut. Substitution of trees without approval by STATE is prohibited.

Section 2250. Reserved Timber - Boundary Trees.

Trees posted with "Timber Sale Boundary" signs are reserved from cutting.

Section 2260. Reserved Timber - Damages.

PURCHASER shall be exclusively responsible for any damage to, or removal of, Reserved Timber. If damage to Reserved Timber occurs and is determined unavoidable by STATE, no charge will be made for damage.

If PURCHASER's activities result in avoidable damage to Reserved Timber as determined by STATE, PURCHASER shall pay for such damage at the following rates:

(a) The Purchase Price shall be paid when:

(1) "Minor damage" to Reserved Timber occurs during the course of normal logging. Minor damage is defined as bark removed down to the cambium layer of a tree, such removal affecting at least 24 square inches, but less than damage defined as "major damage."

(2) Trees must be cut in order to facilitate Operations, or for safety around Landings, as approved in writing by STATE.

(b) Double the Purchase Price or $50, whichever is greater, shall be paid when:

(1) "Major damage" to Reserved Timber is caused by Operations of PURCHASER. Major damage is defined as follows:

(A) Bark removed down to the cambium layer over an area of the bole which has one dimension greater than the diameter of the tree, or any visible bark removal on the tree roots.

(B) Residual Basal Area on any acre is less than the minimum specifications in Section 2320, "Thinning Specifications."

(2) More than 50 percent of live crown is removed.

(3) Tree is knocked down, or leaning more than 10 degrees from vertical.

(c) Triple the Purchase Price or $100, whichever is greater, shall be paid when:

(1) Reserved Timber is intentionally cut or removed.

(2) Reserved Timber is intentionally damaged.

(3) Repeated major damage occurs to Reserved Timber.

(4) Any intentional "notching" or undercutting of Reserved Timber with an axe or saw occurs.

STATE may direct damaged timber to be left. In that case, payment for damage shall be reduced by the Purchase Price of such timber.

Payment for damage to or removal of Reserved Timber shall not release PURCHASER from liability for other damage to property of STATE.

If more than 5 reserved trees on any acre suffer "minor damage," or if any Reserved Timber suffers "major damage" as defined above, STATE reserves the right to:

(A) Suspend felling and/or Yarding until corrective measures have been agreed upon by STATE and PURCHASER.

(B) Require further limitations on log length and/or the number of logs in each Yarding turn.

(C) Specify the size and type of equipment to be used.

(D) Require line pulling and winching of logs.

HARVESTING OPERATIONS

Section 2310. Felling. PURCHASER shall comply with the following requirements for felling, unless otherwise approved in writing by STATE:

ALL AREAS:

(a) All felling on the Timber Sale Area must be completed by March 15, 2014.

(b) Cedar shall not be felled without prior approval from STATE except in right-of-way, skid trails and roads, cable corridors, and landings.

(c) Snags shall not be felled without prior approval from STATE unless it is determined to be a safety hazard or is in right-of-way, skid roads, cable corridors, and landings.

(d) A lateral reaching boom is required for all mechanical felling.

(e) Prior to beginning of felling, PURCHASER shall arrange to have all the cutters who will work in the Timber Sale Areas meet with STATE to review the requirements specified in Section 2310, "Felling," Section 2320, "Thinning Specifications," and Sections 2220 through 2250, "Reserved Timber." PURCHASER

shall give STATE 48 hours' advance notice before starting a new faller on the Timber Sale Area to allow STATE the opportunity to brief the faller on these sections.

AREAS 2 and 3:

(a) Fell all trees greater than 8 inches in DBH that contain a log segment that meets or exceeds the Minimum removal specifications in Section 2045, "Log Removal," except those designated as "Reserved Timber" in Sections 2220 through 2250, "Reserved Timber."

(b) Hardwoods: In portions of Areas 2 and 3 which are to be cable yarded, hardwood trees shall be yarded prior to limbing or topping.

(c) Portions of conifers with crooks, breaks, rot, or other severe defect shall be bucked prior to yarding.

(d) Bearing witness trees in Areas 2 and 3 shall be cut above any scribing or as marked.

PARTIAL CUT (AREA 1):

(a) Loose Bark Seasonal Restriction: Felling operations shall not be allowed from April 15 through July 15, unless otherwise approved in writing by STATE.

(b) Prior to felling a setting, all skid roads, landings, cable corridors, intermediate supports trees, rub trees, and tailholds shall be marked on the setting by PURCHASER and approved by STATE. Felling of trees within cable corridors, skid roads, and landings shall be done prior to felling the remainder of the setting. Rub trees may removed after the setting has been approved by STATE.

(c) Felling shall be "to lead" to the marked cable corridors and skid trails and those cable corridors and skid trails shall be adhered to.

(d) Felled trees shall be topped prior to Yarding, unless otherwise approved in writing by STATE.

(e) Mechanical felling equipment shall have a processor head (dangle-head) capable of manufacturing logs within the Timber Sale Areas.

(f) Fell all conifer trees greater than 12 inches in DBH and that contain a log segment that meets or exceeds the minimum removal specifications in Sections 2045, "Log Removal," not needed to meet residual stand specifications in the Section 2320, "Thinning Specifications," except those designated as "Reserved Timber" in Sections 2220 to 2250, "Reserved Timber".

(g) Logs shall be bucked no longer than 40 feet plus trim.

(h) Bearing (witness) trees shall not be cut in Area 1.

Trees shall not be felled across Timber Sale Area boundaries, unless authorized in writing by STATE. Any trees that fall across Timber Sale Area boundaries shall be yarded back into the Timber Sale Area prior to limbing or topping.

PURCHASER shall employ the following timber cutting practices on the Timber Sale Area(s), unless otherwise approved by STATE:

(1) Trees shall be felled to the longest lay, using the necessary means (wedging, jacking, etc.), favoring a quartering uphill lead.

(2) Trees shall not be felled across draws, over ridges, across rocked roads, or across previously felled trees.

(3) Trees that cannot be controlled into desired felling patterns (Snags, rotten-butted trees, heavy leaners, etc.) shall be felled first, and the direction of subsequently felled timber corrected accordingly.

(4) Maximum stump height shall be 12 inches or 60 percent of stump diameter, whichever is greater.

Section 2320. Thinning Specifications. PURCHASER shall comply with the following requirements for selecting Residual conifer trees on Area 1, except for those specifications listed in Section 2310, "Felling":

(a) Residual tree spacing shall be varied to preserve the trees of good form and vigor with the largest diameter and height and maintain a residual stand structure within the following limits:

(1) Residual Basal Area on each acre shall be at least 160 square feet and not more than 180 square feet for Area1.

(2) The Stand Density Index (SDI) target on the Timber Sale Area is 35 on Area 1. STATE reserves the right to alter the residual Basal Area requirement where necessary to obtain the Stand Density Index target. Stand Density Index is calculated by dividing the average stand diameter by 10 taken to the 1.605 power, multiplied by the average trees per acre (TPA), and divided by the maximum SDI of that species. $SDI = TPA \times (Diameter/10)^{1.605}$

(b) Acceptable residual conifer trees are those having a Live Crown Ratio of at least 30 percent, and without sweep, scarring, disease, or leaning more than 10 degrees from vertical. Conifer trees with multiple tops and crooks are acceptable if the defect is at least 40 feet above the ground.

(c) Conifers less than 8 inches DBH, and those which do not contain a merchantable log.

(d) All hardwoods shall be retained and shall not be counted when calculating the residual specifications listed above.

(e) Portions of the Timber Sale Area may have an insufficient number of trees to make thinning silviculturally desirable. PURCHASER may propose to exclude such areas from the thinning specifications and felling requirements. PURCHASER shall designate on the Operations Plan and mark on the ground proposed excluded areas. Proposed areas approved by STATE shall be excluded from the thinning specifications and felling requirements.

If the above conditions are not met by PURCHASER, STATE reserves the right to suspend felling until corrective measures have been taken by PURCHASER as directed by STATE. Corrective measures may include, but need not be limited to:

(A) Replacement of timber fallers by PURCHASER; and

(B) Approval of fallers by STATE based on fallers' satisfactory completion of STATE test plots.

Section 2325. Felling Inspection. STATE may inspect the felling Operations to determine compliance with the thinning specifications established by sample plots. Inspection by visual reconnaissance may supplement plot data. Plot records may include: (1) residual Basal Area per acre; (2) Residual Tree DBH; (3) general comments on selection of Residual Trees and work quality ; and (4) Residual Trees per acre damaged by PURCHASER. The plot data and visual reconnaissance may be used for determining the need for corrective measures, as outlined in Section 2320, "Thinning Specifications," and Sections 2220 through 2250, "Reserved Timber."

Section 2330. Controlled Felling Area. In addition to the felling requirements in Section 2310, "Felling," PURCHASER shall use controlled felling in the "Controlled Felling Area" shown on Exhibit A. Controlled felling may include line felling, tree jacking with hydraulic rams, or any other method approved by STATE. High stumps

shall be left where necessary to prevent logs from entering streams or Stream Buffers. PURCHASER shall notify STATE at least 48 hours prior to the beginning of the felling Operations adjacent to the Stream Buffer.

Section 2335. Snag Creation. PURCHASER shall create 334 Snags in Area 1. Snags shall be created in accordance with the following specifications:

(a) Top trees at least 50 feet above the ground.

(b) Snags shall be at least 100 feet from the uphill side of any road.

(c) Sever tops completely. No tops shall be left hung up in any tree, or left leaning against the bole of any tree.

(d) Remove tops from firelines, property lines, roads, and Landings.

(e) Snags shall not be created on any setting until harvest activities have been completed and approved on that setting.

Trees selected shall be as follows:

(1) Species: Douglas-fir.

(2) All trees shall have a minimum DBH of 24 inches shall be topped at least 50 feet above the ground.

(3) Snags shall be scattered across the landscape in these areas and shall not exceed 2 snags on any acre.

(4) Tops resulting from snag creation will be left on site for downed wood contributions.

If, during the term of this Contract, STATE determines that fewer than 334 snags need to be created in Area 1, PURCHASER shall pay to STATE $40 per Snag for each Snag not required to be created.

PURCHASER shall notify STATE 24 hours prior to starting Snag creation. Trees for Snag creation shall be selected jointly by STATE and PURCHASER. Trees shall be selected from leave trees and/or within marked and unmarked Stream Buffers, and shall be well distributed within the Timber Sale Area.

Section 2345. Substitution of Trees. PURCHASER shall leave acceptable substitute trees as approved by STATE for any conifer Reserved Timber which must be cut to facilitate logging (i.e., cable corridors, Landings, or skid trails) or to resolve safety problems pursuant to Section 1610, "Permits; Licenses; Safety" (i.e., danger trees, Guyline trees, hang-ups).

An acceptable substitute tree is defined as any sound, live-topped conifer tree that is the nearest tree to a Reserved tree that must be cut.

PURCHASER shall leave acceptable substitute Snags as approved by STATE for any reserved Snag which must be cut to facilitate logging (i.e., cable corridors, Landings) or to resolve safety problems pursuant to Section 1610, "Permits; Licenses; Safety" (i.e., danger trees, hang-ups).

STATE reserves the right to require PURCHASER to:

(a) Leave substitute trees of a different species; and

(b) Leave substitute trees for reserved Snags that must be cut.

Substitution of trees without approval of STATE is prohibited. Any Reserved Timber cut without approval by STATE shall be paid for in accordance with Sections 2220 through 2250, "Reserved Timber."

Section 2350. Cable Yarding Specifications. Yarding systems shall be designed to minimize soil disturbance and damage to Reserved Timber. PURCHASER shall use cable Yarding, except as approved by STATE in the Operations Plan. PURCHASER shall comply with the following when Yarding Areas 2 and 3 , except as approved by STATE in the Operations Plan:

(a) Logs shall have at least one end suspended when Yarding.

(b) Logs shall be fully suspended when Yarding over all streams shown on Exhibit A.

(c) When cables pass through or over streams shown on Exhibit A, all necessary precautions shall be taken to protect all Stream Buffer components.

Necessary measures include, but are not limited to, the following:

(1) Pull cables out of the Reserved Timber prior to rigging the next Yarding road.

(2) Yarding roads shall be at least 100 feet apart where they extend over or through the buffer.

(d) In Areas 2 and 3, PURCHASER shall place debris from Yarding (tops, limbs, cull logs, etc.) in a stable location approved by STATE, and be managed so it does not slip over the edge of the Landings. All Landing Slash shall be piled in the center of the Landing, as directed by STATE, prior to moving to another Landing area. Debris shall be piled in a manner suitable for burning. The lower one third (or three to four feet from the base) of piles shall be covered to prevent water from reaching Slash. PURCHASER shall supply the materials used for covering the SLASH. Additional Slash shall be piled on top of the covered piles to complete the piling as directed by STATE. Debris shall not be left lodged against standing trees. Material suitable for firewood cutting shall be piled separately from other Slash as directed by STATE.

(e) Soil gouging shall be limited to a depth of one foot.

(f) If Tailhold or Guyline trees outside of the Timber Sale Area are necessary to facilitate Yarding Operations, PURCHASER shall acquire written approval from STATE prior to their use. Upon approval, PURCHASER shall clearly mark each tree and take precautions to prevent damage to said trees including, but not limited to:

(1) Using trees near the timber sale boundary that can be felled and yarded without causing damage to Reserved Timber.

(2) Using tree plates, tires, or other suitable materials between cable straps and the tree to prevent scarring the tree.

(3) Limiting notching of the tree - to prevent strap slippage - to less than 25 percent of the circumference of the tree, unless the tree has been approved to be cut and removed.

If the above precautions are followed, payment for such tree shall not be required, except for trees removed per Item (1) above, which shall be paid for at single the Purchase Price, as specified in Sections 2220 through 2250, "Reserved Timber."

If the above precautions are not followed and activities result in damaging 50 percent or more of the circumference of such trees, damage shall be considered avoidable. Payment shall be at the rate of triple the Purchase Price, as specified in Sections 2220 through 2250, "Reserved Timber."

(g) Control logs being yarded to minimize damage to Reserved Timber.

(h) String cables in a manner that makes minimum contact with Reserved Timber.

(i) Felled trees shall be topped prior to yarding, unless otherwise approved in writing by STATE. All logs and tops under minimum merchantability specifications listed in Section 2045, “Log Removal,” shall not be yarded, unless otherwise approved in writing by STATE.

In addition, if Operations of PURCHASER threaten or cause excessive damage to the soil or Reserved Timber, STATE may require PURCHASER to comply with one or more of the following:

(A) Use a carriage or a skyline Yarding system.

(B) Reduce the length of logs.

(C) Reduce the number of logs in each Yarding turn.

Section 2355. Ground-Based Operations. Timber Sale Areas, or portions thereof, where ground Yarding has been approved in the Operations Plan are subject to the following restrictions, unless otherwise approved in writing by STATE:

(a) PURCHASER shall limit skid roads and trails, and all other locations where soil is compacted or displaced, to less than 10 percent of the ground yarded area.

(b) Preexisting skid roads and trails shall be used whenever possible, and soil disturbance or construction of new skid roads and trails shall be limited to that necessary to log the area.

(c) Operations shall not be conducted under conditions where soils are rutted or excavated to a depth of 12 inches or more.

(d) Equipment shall not operate on slopes greater than 30 percent. Written approval may be granted for short distances on slopes exceeding 30 percent when, in the opinion of STATE, it would be unreasonable to yard by pulling line.

(e) Yarding shall not be permitted on haul roads.

(f) Prior to the beginning of felling Operations, PURCHASER shall mark the locations on the ground of all skid roads and trails, subject to STATE approval. Felling shall be "to lead" to those marked trails and those trail locations adhered to.

(g) Soil Protection Seasonal Restriction: Ground-based Operations shall not be allowed from November 1 through April 30.

(h) Ground Yarding equipment shall not be operated within 50 feet of streams.

(i) PURCHASER shall suspend ground Yarding during periods of high soil moisture as determined by STATE.

(j) Operations shall be designed to minimize soil disturbance and damage to Reserved Timber.

(k) Loose Bark Seasonal Restriction: Ground-based Operations shall not be allowed from April 15 through July 15.

If the above conditions are not met by PURCHASER, STATE at its option, may require PURCHASER to suspend Yarding activities until corrective measures have been agreed upon by STATE and PURCHASER , as well as mark skid trails and roads on the ground, and obtain prior approval before resuming Yarding activities.

Time lost while STATE exercises any of the above options shall not constitute grounds for Contract extension.

Section 2360. Non-Project Roads and Landings. Improvement or construction of roads or Landings not required in Section 2610, "Project Work," but approved in the Operations Plan, shall be subject to the following requirements, unless otherwise approved in writing by STATE:

(a) Prior to felling, PURCHASER shall mark Right-of-Way clearing limits and obtain STATE approval.

(b) Subgrade shall not exceed 14 feet in width.

(c) Landings shall be constructed no more than 50 feet wide. The surface shall be crowned for drainage.

(d) Operations shall not be allowed from October 1 through April 30.

(e) Roads shall be waterbarred according to the specifications in Exhibit M and blocked to vehicular traffic as directed by STATE by October 1 annually or upon completion of use, whichever occurs first.

Section 2365. Progressive Operations. PURCHASER shall complete the following requirements on each Setting prior to moving to a new Setting, unless otherwise approved in writing by STATE:

(a) Remove all logs as described under Section 2045, "Log Removal."

(b) Construct cross-drainage ditches or waterbars as specified in Exhibit M and as directed by STATE.

(c) In Areas 2 and 3 PURCHASER shall place debris from Yarding (tops, limbs, cull logs, etc.) in a stable location approved by STATE, and be managed so it does not slip over the edge of the Landings. All Landing Slash shall be piled in the center of the Landing, as directed by STATE, prior to moving to another Landing area. Debris shall be piled in a manner suitable for burning. The lower one third (or three to four feet from the base) of piles shall be covered to prevent water from reaching Slash. PURCHASER shall supply the materials used for covering the SLASH. Additional Slash shall be piled on top of the covered piles to complete the piling as directed by STATE. Debris shall not be left lodged against standing trees. Material suitable for firewood cutting shall be piled separately from other Slash as directed by STATE.

(d) Logs shall be removed from each Landing before moving to the next Landing. This may require “bumping” logs forward to the next Landing on a truck or with the log loader, unless otherwise approved by STATE.

In addition, PURCHASER shall complete the following requirements within the following time frames, (*on an Area basis,) unless otherwise approved in writing by STATE:

(1) Complete all felling requirements as required by Section 2310, "Felling," within 14 calendar days after completion of Yarding activities.

(2) Remove all trash from the Timber Sale Area within 14 calendar days after completion of log hauling activities.

(3) Remove all equipment and materials from the Timber Sale Area, as required by Section 1430, "Removal of Equipment and Materials," within 30 calendar days after completion of log hauling activities.

(4) Begin Slash piling within 14 calendar days after completion of Yarding Operations on a Timber Sale Area.

(5) All non-project dirt road segments shall be waterbarred and blocked with stumps/root-wads at the conclusion of log hauling activities on each segment.

(6) Complete road maintenance requirements of Section 2130, "Road Maintenance," within 30 calendar days after completion of log hauling activities.

PROTECTION DURING OPERATIONS

Section 2410. Damage to Reforested Areas. PURCHASER shall take all necessary precautions to avoid damage to reforested areas adjacent to, within, or near the Timber Sale Area. If PURCHASER's Operations damage reforestation areas shown on Exhibit A, STATE shall determine the extent of the damage and PURCHASER shall reimburse STATE at double the calculated value of the damaged reforestation as determined by STATE.

Section 2415. Protection of Watershed. PURCHASER shall take all necessary precautions to prevent damage to stream banks, any stream course, lake, reservoir, or forested wetland within or adjacent to the Timber Sale Area. Definitions of Type F, Type D, and Type N streams contained in the Forest Practices Act apply to this Contract.

STATE has on file at the Astoria District, Oregon Department of Forestry Office, the required Road Water Registration permit (RW-86342) for water use at designated diversion points as shown on Exhibit A, for the purpose of road maintenance, construction, and reconstruction associated with this timber sale. In order for PURCHASER to meet work requirements of Section 2130, “Road Maintenance,” and Section 2610, “Project Work,” that require the diversion and use of water, while still meeting the requirements of Section 1610, “Permits; Licenses; Safety” and Section 1650, “Protection of Soil, Air, and Water Resources,” the following conditions must be adhered to:

(a) The Watermaster shall be notified by fax (503-842-3680) 10 days prior to use of any point of diversion, and also by phone message/contact (503-842-2413, ext. 119) on the day diversion (pod) will take place. The fax should include the anticipated amount of water to be diverted and an Oregon Department of Fish and Wildlife Small Pump Screen Self Certification form.

(b) If multiple projects will be going at the same time, the Watermaster notification can include those projects in one notification.

(c) The Watermaster may restrict the pod’s that can be used as streamflow falls during the season.

(d) Use shall not exceed 30,000 gallons from a single source during any 24-hour period.

(e) No dam, reservoir, or other impoundment facility may be constructed within a designated scenic waterway.

(f) Under no circumstances may the water course be dewatered to a degree that the live continuous flow is obstructed.

(g) A pump screen that complies with Oregon Department of Fish and Wildlife Small Pump Screen Self Certification form, which is on file at the Astoria District, Oregon Department of Forestry Office, shall be used at all times during water diversion.

(h) Only registered diversion points on ODF managed lands as shown on Exhibit A or other Registered Water Use Sites as approved by STATE shall be used.

In addition, PURCHASER shall perform all measures necessary to protect the stream banks, streambed, and vegetation within the Stream Buffers shown on Exhibit A. The Stream Buffers are as follows:

All Type F stream buffers are posted at least 50 feet from Type F streams with timber sale boundary tags and pink ribbon.

All perennial Type N streams in Areas 1, 2, and 3 have a 25-foot horizontal distance, no-touch buffer strip on each side of the streams, these non-posted stream buffers are shaded in grey on Exhibit “A” maps.

No ground yarding equipment is allowed to operate within 50 feet of all streams and seasonal streams in Area 1.

Necessary measures include, but are not limited to, the following, unless otherwise approved in writing by STATE:

(1) Fell adjacent trees and Snags away from or parallel to the buffer to prevent them from entering the buffer.

(2) Do not operate ground-based equipment within the buffer.

(3) Do not fell trees within the buffer , except in cable corridors. Felled trees shall not be removed.

(4) Cable Yarding over or within the buffer shall be done in accordance with the requirements of Section 2350, "Cable Yarding Specifications."

(5) Except within cable corridors approved by STATE, no trees may be cut within 25 feet of the Type F and perennial Type N streams. Trees may be felled in the seasonal Type N buffers. Damage to other vegetation shall be kept to a minimum. Felled trees shall not cross or enter streams.

(6) Trees that fall or slide into the Type F streams shall not be removed without prior approval from STATE.

PURCHASER shall comply with the following instructions for removal of debris that enters streams as a result of PURCHASER's Operations:

Logs and debris entering Type F streams shall be removed by the end of Operations each day, unless a plan for an alternate practice is approved in advance by STATE.

Debris shall be cleared up to the high water mark on all streams. All removed debris shall be placed in a stable location above the high water mark.

Debris entering Type N streams shall be removed at the end of operations each day, unless an alternative practice is approved in advance by STATE.

In addition to other protective measures required, PURCHASER shall discontinue all or part of its Operations under this Contract upon notice from STATE that Operations will cause excessive damage to the watershed.

Section 2416. Protection from Invasive Plants and Noxious Weeds. PURCHASER shall ensure all ground-based yarding, earth disturbing, road constructing, and road maintenance equipment moved onto State Forest Land or between State Forest Land sites is free of soil, seeds, vegetative matter, or other debris that could contain, or hold, seeds. PURCHASER shall employ cleaning methods necessary to ensure compliance with the terms of this section. PURCHASER shall notify STATE's Authorized Representative at least 24 hours prior to moving each piece of equipment onto State Forest Land or between State Forest Land sites unless otherwise agreed in writing. Notification shall include identification of the equipment's most recent operation.

Equipment shall be inspected by STATE at Sterling Quarry, as shown on Exhibit A, or a site approved by STATE, to verify that the equipment has been reasonably cleaned prior to operation on lands managed by ODF.

This section does not apply to log trucks, service trucks, water trucks, pickup trucks, cars, or passenger vehicles, used in the daily transport of personnel or equipment that does not leave surfaced roads.

Section 2420. Protection of Utility Lines. In accordance with OAR 952-001-0020: "*ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center." (Note: The telephone number for the Oregon Utility Notification Center is (503) 232-1987/1-800-332-2344.)*

Section 2430. Protection of Markings and Monuments. PURCHASER shall not remove, alter, damage, or destroy any signs, posters, markings, land survey markers and corners, witness trees, seed trees, or corner reference tags pertaining to the timber sale or land survey. Should such damage or disturbance occur, PURCHASER shall report it to STATE within 24 hours of the incident, and shall prevent any further damage or disturbance from occurring. PURCHASER shall, in a manner or method as directed by STATE, re-establish legal subdivision markers or monuments damaged by PURCHASER's activities. STATE may re-establish such markers or monuments and bill PURCHASER for the expense incurred.

In the event it is necessary to disturb any legal land survey corner in order to conduct any activity under this Contract, PURCHASER shall notify STATE. PURCHASER shall not disturb any corner until STATE has referenced or otherwise preserved the corner.

Section 2435. Protection of Cultural Resources. PURCHASER shall not remove any historic artifact, including old logging equipment or camp refuse, or other Cultural Resources from the Timber Sale Areas. If any such items are discovered , PURCHASER shall notify the STATE's Authorized Representative.

Section 2440. Warning Signs. PURCHASER shall post and maintain signs adequately warning forest users of active felling, Yarding, and hauling Operations. PURCHASER shall post signs at locations designated by STATE and at other locations determined by PURCHASER.

Section 2455. Seasonal Restrictions. PURCHASER shall adhere to the following restrictions, unless otherwise approved in writing by STATE:

(a) All felling of the Timber Sale Area must be completed by March 15, 2014.

(b) Seasonal operating restrictions for the use of explosives will be in effect from March 1 through July 7 (or until it has been determined that northern spotted owl pairs are non-nesting or the nest has failed) within 1.0 mile of a nest tree or activity center.

(c) Soil Protection Seasonal Restriction: Ground-based Operations shall not be allowed from November 1 through April 30 (Section 2355).

(d) Log hauling on unsurfaced roads and seasonally restricted roads shown on Exhibit "A" shall not be allowed from October 1 through April 30 (Section 2130).

(e) Loose Bark Seasonal Restriction: All felling and yarding Operations shall not be allowed on Area 1 from April 15 through July 15 (Sections 2310, 2350, and 2355).

(f) Non-project roads shall be waterbarred according to the specifications in Exhibit M and blocked to vehicular traffic as directed by STATE by October 1 annually and ripped to a depth of 18 inches upon completion of use, whichever occurs first (Section 2360).

(g) Road improvement shall not be allowed from November 1 through April 30 (Section2610).

(h) Seeding shall be performed only from March 1 through June 15 and August 15 through October 31 (Exhibit K).

Section 2460. Repair of Injury or Damage. Prior to the completion and as a condition of final acceptance by STATE of PURCHASER's Operations, PURCHASER shall repair or correct any injury or damage to the Areas of Operations or any part of the Timber Sale Area arising from PURCHASER's Operations, unless adjustment is made pursuant to Section 1550, "Adjustment of Contract."

PROTECTION FROM FIRE

Section 2510. Precautions Against Fire. PURCHASER acknowledges that their Operations under this Contract may cause extraordinary fire risk in the Areas of Operations. PURCHASER covenants and agrees that it will use the highest degree of care to prevent forest fires from starting on or from spreading to or from the Areas of Operations. PURCHASER shall require its employees and Contractors and the employees of such Contractors to employ a similar degree of care. STATE may, at any time during the term of the Contract, require PURCHASER to prepare and submit to STATE for approval a Fire Plan for the Areas of Operations. The plan shall set forth the resources and required actions to be taken by PURCHASER and Contractors of PURCHASER for the prevention and suppression of fire in the Areas of Operations. The plan must meet with the approval of STATE and STATE reserves the right to require revisions to the plan as STATE, in its sole discretion, may determine to be necessary.

Section 2520. Efforts on Fire. If a fire occurs in any part of the Areas of Operations, notwithstanding the origin, PURCHASER shall require its employees and Contractors and the employees of such Contractors to immediately proceed to extinguish the fire. PURCHASER acknowledges and agrees that the provisions of this section may impose obligations on PURCHASER that are separate from or in addition to any duty or responsibility required by law. However, in no event shall the requirements of this section be construed as relieving PURCHASER of the duty and responsibility under Oregon law to fight, control, and suppress fire on forestland.

Section 2530. Indemnification. In addition to the general indemnification contained in Section 1355, "General Indemnification," PURCHASER shall indemnify, defend and hold STATE harmless from any and all loss, costs, damage, and expense that STATE may incur as a result of any fire caused by the Operations of PURCHASER, employees and Contractors of PURCHASER, and employees of such Contractors.

Section 2555. STATE to Assume Additional Fire Hazard Obligations. If, following completion of harvesting operations on any area of the timber sale, a determination is made under ORS 477.580, that an additional fire hazard has been created, then, upon completion of all provisions of this Contract, STATE shall assume all obligations for the disposal or reduction of any additional fire hazard determined to exist, and issue a release pursuant to ORS 477.580 (6) relieving PURCHASER of such obligations.

Section 2560. Slash Disposal. PURCHASER shall comply with the following requirements for slash piling in Areas 2 and 3, or portions thereof, where ground Yarding has been approved in the Operations Plan, unless otherwise approved in writing by STATE:

(a) Slash piling shall not be allowed from November 1 through April 30, unless otherwise approved in writing by STATE.

(b) Brush, logging Slash, and other debris shall be cleared from planting sites and piled in windrows or piled so that 80 percent or more of the soil organic layer is exposed. All woody vegetation (other than conifer trees) is defined as brush.

(c) All Slash near openings and Landings shall be piled no closer than 75 feet to any Residual Trees.

(d) Piles shall be located at least 75 feet apart and shall be no more than 75 feet long. Piles shall be located inside the project area designated for piling. Piles shall be built to a height of 3 to 4 feet and then covered a minimum of a 12-foot square area to prevent water from reaching the Slash. Additional woody debris shall be piled on top of the covered piles to complete the piling, as directed by STATE.

(e) PURCHASER shall supply covering for Slash piling as specified 4MIL Clear Polyethylene Plastic.

(f) Firewood logs and chunks which are suitable for firewood shall be piled separately from Slash, near roads and landings and alongside the road in locations designated by STATE.

(g) Leave down material scattered throughout sale areas as specified in Section 2230, "Reserved Timber – Down Material."

(h) Trees and Snags as specified in Section 2240, "Reserved Timber – Trees and Snags," shall be protected during slash disposal operations.

(i) Skid trails shall be ripped to a depth of 12 inches.

(j) Work Scheduling - work shall be accomplished only during dry weather conditions, and started within 14 calendar days after completion of yarding activities on Areas 2 and 3. Operations shall provide for continual operation until contract work is completed.

PROJECTS

Section 2610. Project Work. PURCHASER shall complete the following Projects in accordance with the specifications provided in Exhibits D, E, F, G, H, I, J, K, L, M, and N and written instructions from STATE. Project locations are shown on Exhibit A unless otherwise described. PURCHASER shall furnish all material unless otherwise specified.

Project Period. Project work shall not be allowed during the following periods, unless otherwise approved in writing by STATE.

(a) Work on Project Nos. 1, 2, 3, 4, 5, and 7 shall not be allowed from November 1 through April 30, unless otherwise approved in writing by STATE. Work on Project No. 6 shall be allowed year-round.

(b) Activity in "Live" Streams on Project No. 1, 5, and 7 shall not be allowed from September 1 through June 30, unless otherwise approved in writing by STATE.

(c) Seasonal operating restrictions for the use of explosives shall be in effect on Project No. 4 from March 1 through July 7, unless otherwise approved in writing by STATE.

Rock Source. The road rock may be obtained from the following locations shown as "Rock Quarry" and "Stockpile Site" on Exhibit A, or from other locations acceptable to STATE, as follows:

Project No.1:

The required ¾”-0” crushed rock shall be produced with Project No. 2 and may be obtained at the Sterling Ranch Quarry, located in the SE1/4, SE1/4, Section 22, T4N, R7W, W.M.

The required 4”-0” crushed rock may be obtained at the Quartz Creek Stockpile, located in the SW1/4, SW1/4, Section 15 T4N, R7W, W.M.

The required 24”-6” riprap rock may be obtained at the Sterling Ranch Quarry. All the required riprap rock shall be developed and meet specifications in Exhibit G.

Development and use of the rock quarry shall be in accordance with Exhibit F.

Project No. 2:

The required rock for crushing ¾”-0” may be obtained at the Sterling Ranch Quarry, located in the SE1/4, SE1/4, Section 22, T4N, R7W, W.M.

Development and use of the rock quarry shall be in accordance with Exhibit F.

Project No. 3:

The required 1½”-0” and 4”-0” crushed rock shall be produced with Project No. 4 and may be obtained at the Buster Creek Quarry located in the NW1/4, Section 25, T5N, R7W, W.M.

Project No. 4:

The required rock for crushing 1½”-0” and 4”-0” crushed rock may be obtained at the Buster Creek Quarry, located in the NW1/4, Section 25, T5N, R7W, W.M.

Project No. 1. Sale Access Road Improvement and Type F Stream Crossing Structure. Improve roads at or between the following road points according to the specifications in Exhibits D, E, F, G, H, J, K, and L:

Construct Improve: I1 to I2, I3 to I4, I5 to I6, I6 to I7, I8 to I9, and I10 to I11.

Project No. 2. Sterling Ranch Quarry Development, Rock Crushing and Stockpiling. Develop and crush the following quantities of rock in accordance with the specifications in Exhibits F and G.

(a) Sufficient quantities of ¾”-0” crushed rock to meet the requirements of Project No. 1.

(b) 2,000 cubic yards of 1½”-0” crushed rock, stockpile measure, and stockpile at the Quartz Creek Stockpile Site.

Stockpile Areas. Rock shall be stockpiled at the Quartz Stockpile Site as shown on Exhibit A, as directed by STATE. Existing rock piles shall be leveled or moved, as directed by STATE and the floors shall be uniformly graded prior to rock stockpiling.

Stockpile Site Construction and Measurement. The stockpiles shall be constructed and measured according to dimensions consisting of the length and width of the base, length and width of the top, and the height of all corners. The stockpile dimensions shall be determined by STATE and included with the Quarry Development Plan required by Exhibit F. The finished stockpile surfaces shall be smooth, uniform, and all corners shall be filled in. All stakes and reference points shall be protected until measurements are accepted by STATE.

Project No. 3. Sale Access Road Improvement. Improve roads at or between the following road points according to the specifications in Exhibits D, E, F, G, H, J, K, and L:

Improve: I12 to I13.

Project No. 4. Buster Creek Quarry Development, Rock Crushing and Stockpiling. Develop and crush the following quantities of rock in accordance with the specifications in Exhibits F and G.

(a) Sufficient quantities of 1½”-0” and 4”-0” crushed rock to meet the requirements of Project No. 3.

(b) 5,000 cubic yards of 1½”-0” crushed rock stockpile measure, and stockpile at the Buster Creek Stockpile Site.

(c) 4,000 cubic yards of 4”-0” crushed rock stockpile measure, and stockpile at the lower Buster Creek Quarry floor.

Stockpile Areas. Rock shall be stockpiled at Buster Creek Stockpile Sites as shown on Exhibit A, as directed by STATE. Existing rock piles shall be leveled or moved, as directed by STATE and the floors shall be uniformly graded prior to rock stockpiling.

Stockpile Site Construction and Measurement. The stockpiles shall be constructed and measured according to dimensions consisting of the length and width of the base, length and width of the top, and the height of all corners. The stockpile dimensions shall be determined by STATE and included with the Quarry Development Plan required by Exhibit F. The finished stockpile surfaces shall be smooth, uniform, and all corners shall be filled in. All stakes and reference points shall be protected until measurements are accepted by STATE.

Project No. 5. Road Vacating and Fill Removal. Vacate road and fills between the following points, shown on Exhibit A, in accordance with specifications in Exhibit I:

Vacate: V1 to V2.

Project No. 6. Roadside Brushing. Clear roadside vegetation along roads designated on Exhibit A according to the "Road Brushing Specifications" in Exhibit K:

Brush: I1 to I2, I3 to I4, I5 to I6, I6 to I7, I7 to I8, I8 to I9, I10 to I11, and B1 through B24.

Project No. 7. Stream Enhancement. Enhance stream habitat by adding large wood debris at the specified locations shown on Exhibit A, and in accordance with specifications in Exhibit N.

STATE has prepared the required FPA "Written Plans" for Project Nos. 1, 5, and 7 and are on file at the Astoria District Office of the Oregon Department of Forestry.

Section 2620. Completion of Projects. PURCHASER shall complete the Project Work in the preceding section prior to.

Projects 1, 2, 3, 4, 5, and 6 – Prior to October 31, 2012

Complete all Projects on a road section prior to log hauling on that section.

Section 2630. Credit for Project Work. In order to compensate PURCHASER for Project Work that PURCHASER agrees to complete under Section 2610, "Project Work," of this Contract, STATE agrees to credit PURCHASER's timber account in the sum of $424,228 upon completion of and STATE's acceptance of all work, unless otherwise approved in writing by STATE.

PURCHASER may request partial credit for the Project Work when PURCHASER has completed and STATE has accepted the Project Work, in accordance with the following credit schedule:

Partial credit amount of $84,845.60 (20% Project Work completion)
Partial credit amount of $84,845.60 (40% Project Work completion)
Partial credit amount of $84,845.60 (60% Project Work completion)
Partial credit amount of $84,845.60 (80% Project Work completion)
Partial credit amount of $84,845.60 (100% Project Work completion)

Requests for partial credit shall be made by PURCHASER in writing and submitted to the Astoria District Office of the Department of Forestry at 92219 Highway 202, Astoria, Oregon, 97103.

Vicinity Map
Exhibit "A"

OF TIMBER SALE CONTRACT NO. 341-12-44
IRON MAIDEN
PORTIONS OF SECTION 30 T4N,
R6W AND PORTIONS OF SECTIONS 21,
22, 23, 24 AND 25, T4N, R7W, W.M.,
CLATSOP COUNTY, OR

N

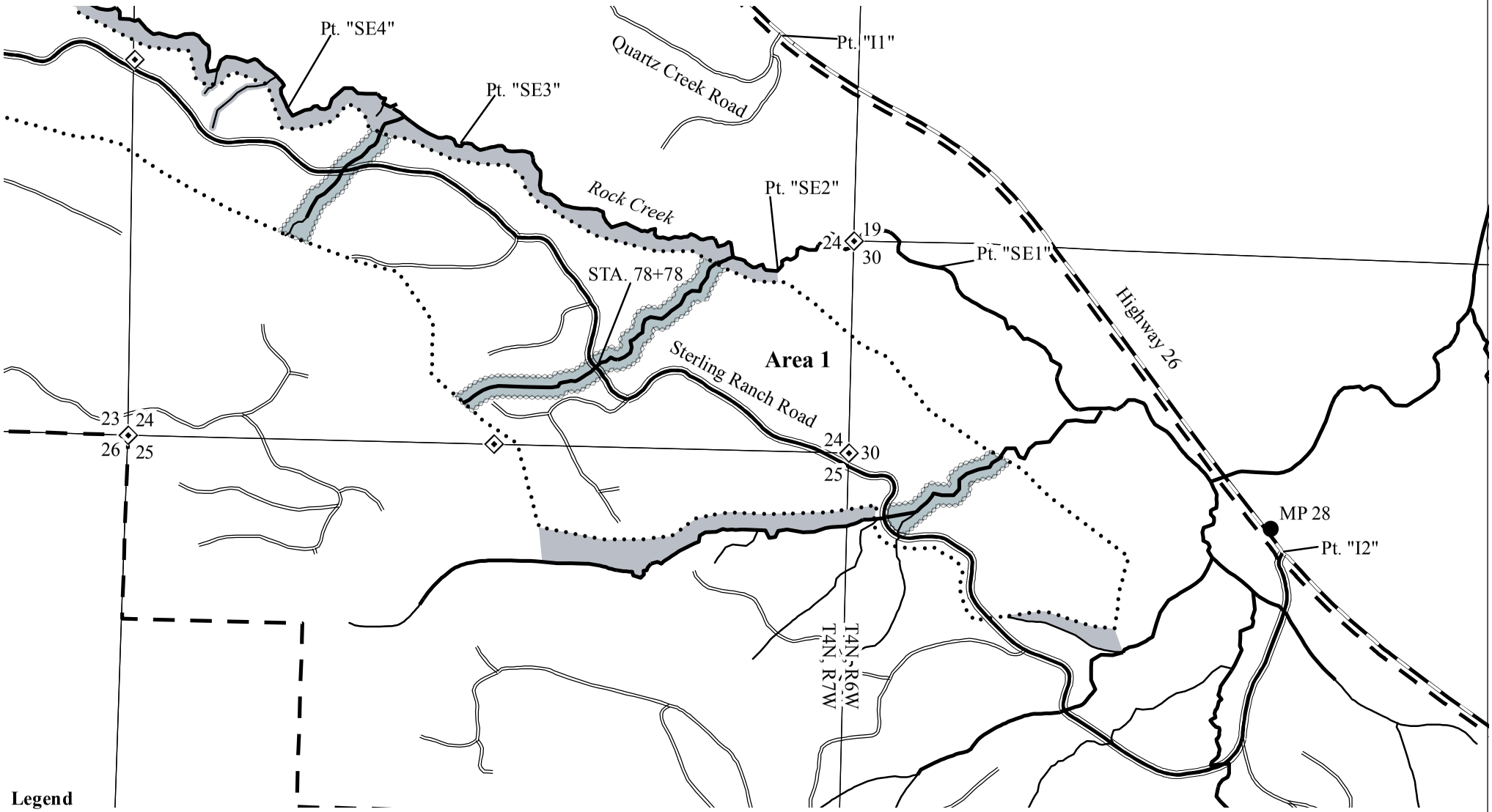
Approximate Net Acreage:
Area 1 (PC) - 334 Acres
Area 2 (MC) - 100 Acres
Area 3 (MC) - 81 Acres
Total Sale - 515 Acres

Legend
- Seasonally Restricted Road
- Paved Road
- Existing Surfaced Road
- Sale Areas
- Registered Water Use Site
- Quarry
- Stockpile
- Gate
- Ownership Boundary
- Sunset Rest Area

Approximately 2 Miles to Jewell
T5N, R6W
T5N, R7W
24
Highway 103
Mullenbach Lane
25
Buster Quarry and Stockpile Sites
STATE
PRIVATE
MP 22
Approximately 22 Miles to Seaside
Highway 26
Military Creek Road
Quartz Creek 4" - 0" Stockpile Sites
Lost Lake Road
15
14
Road
Creek
Quartz Creek Road
MP27
21
22
23
24
Sterling Ranch Road
STATE
PRIVATE
Quartz
Sterling
Ridge Road
MP28
Sterling Quarry and Stockpile Sites
25
T4N, R6W
T4N, R7W
Approximately 23 Miles to Banks

0 0.5 1 2 Miles

Approximate Scale = 1":5,000'



Legend

- Pt."A" Point for Project Work
- Seasonally Restricted Road
- Paved Road
- Existing Surfaced Road
- Type F Stream
- Type N Stream
- Timber Sale Boundary
- Posted Stream Buffer
- Non Posted Stream Buffer
- Ownership Boundary

N

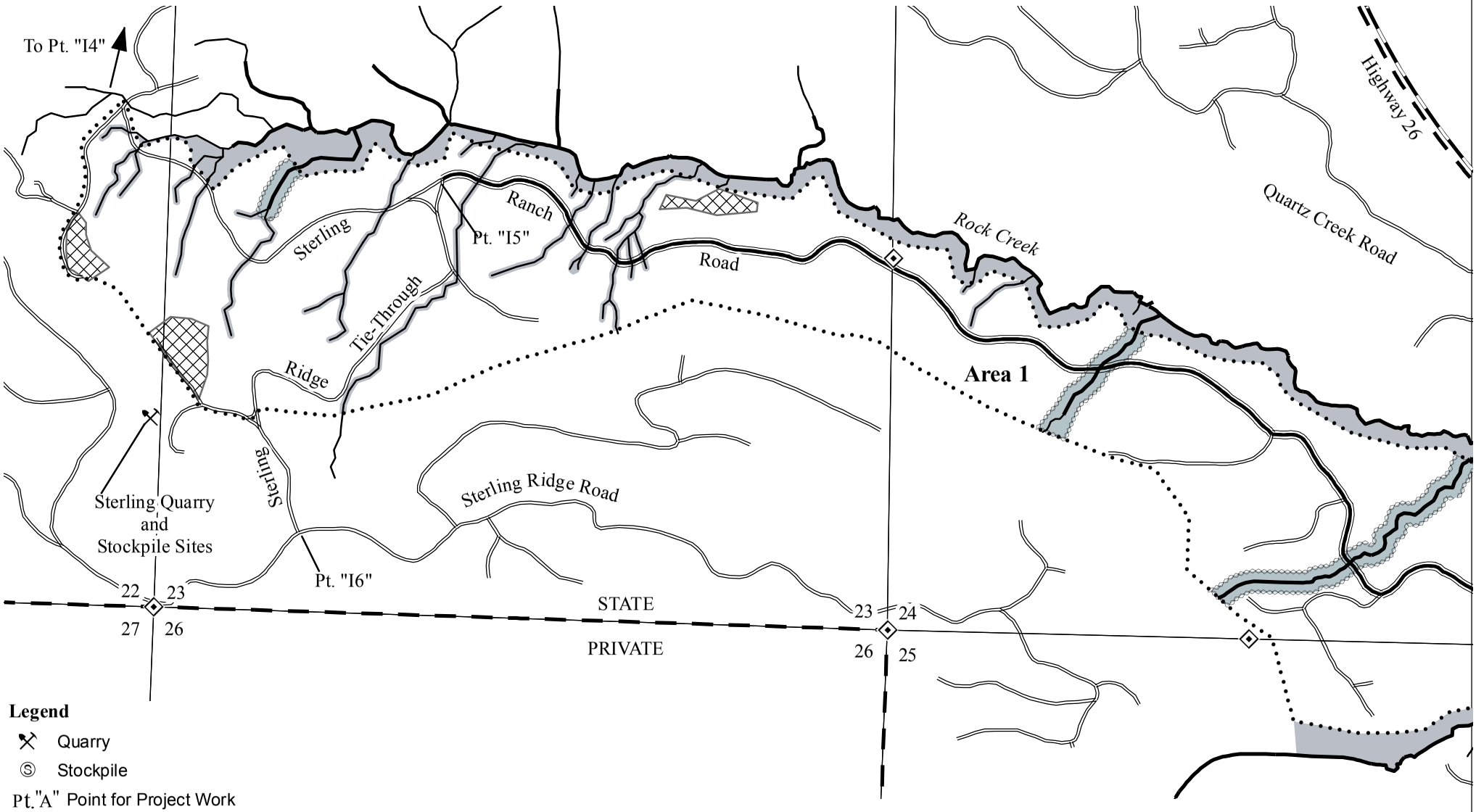
Approximate Net Acreage:
Area 1 (PC) - 334 Acres
Area 2 (MC) - 100 Acres
Area 3 (MC) - 81 Acres
Total Sale - 515 Acres

0 500 1,000 2,000 Feet

Approxmate Scale = 1":1,000'

Exhibit "A"

OF TIMBER SALE CONTRACT NO. 341-12-44
IRON MAIDEN
PORTIONS OF SECTION 30 T4N,
R6W AND PORTIONS OF SECTIONS 21,
22, 23, 24 AND 25, T4N, R7W, W.M.,
CLATSOP COUNTY, OR



Legend

- Quarry
- Stockpile
- Pt."A" Point for Project Work
- Paved Road
- Existing Surfaced Road
- Seasonally Restricted Road
- Type F Stream
- Type N Stream
- Timber Sale Boundary
- Posted Stream Buffer
- Non Posted Stream Buffer
- Non Thinnable Area
- Ownership Boundary

Approximate Net Acreage:
Area 1 (PC) - 334 Acres
Area 2 (MC) - 100 Acres
Area 3 (MC) - 81 Acres
Total Sale - 515 Acres

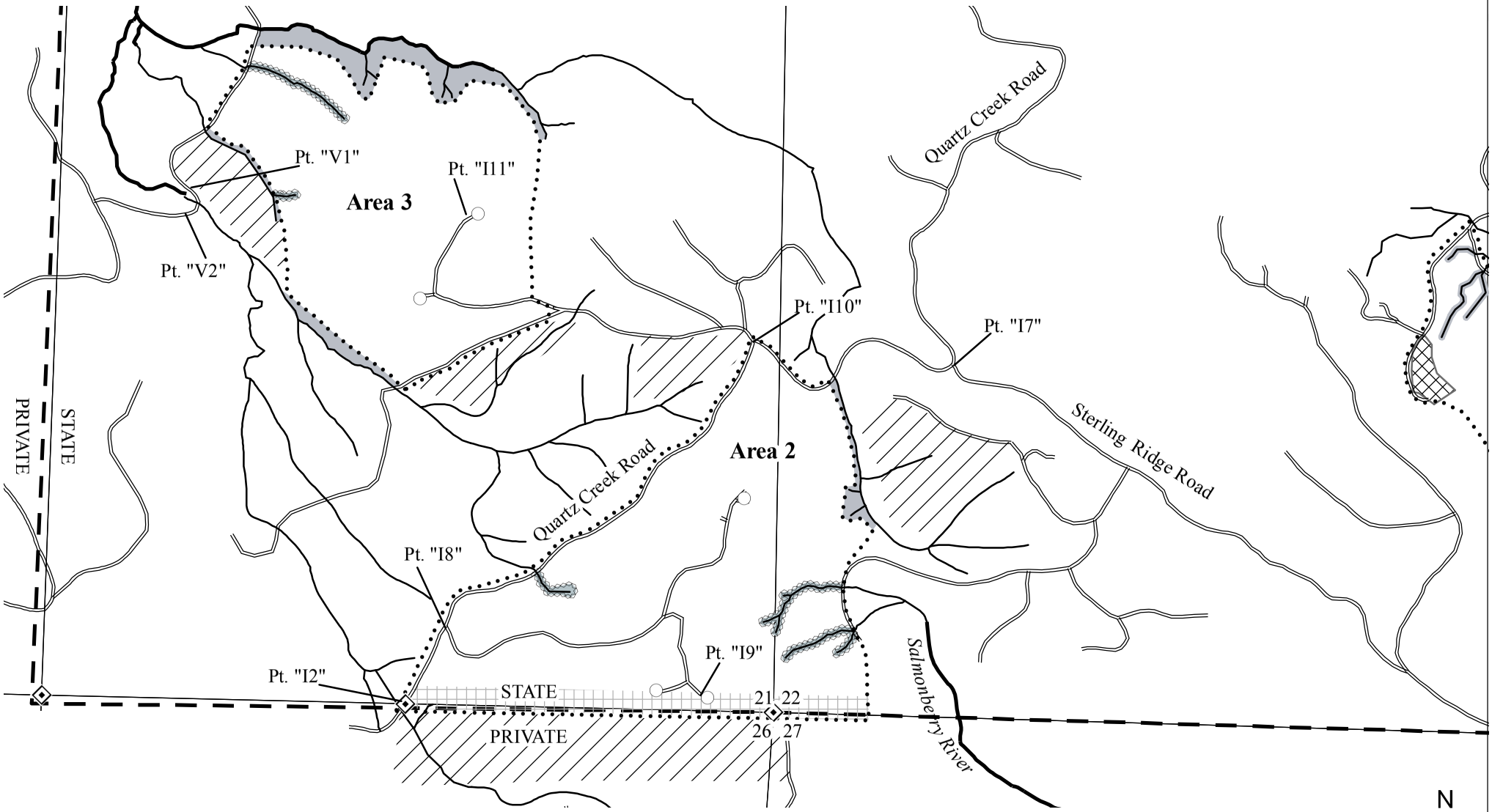
N

0 500 1,000 2,000 Feet

Approxmate Scale = 1":1,000'

Exhibit "A"

OF TIMBER SALE CONTRACT NO. 341-12-44
IRON MAIDEN
PORTIONS OF SECTION 30 T4N,
R6W AND PORTIONS OF SECTIONS 21,
22, 23, 24 AND 25, T4N, R7W, W.M.,
CLATSOP COUNTY, OR



Legend

- Pt."A" Point for Project Work
- Section Corners
- Existing Landing
- Paved Road
- Existing Surfaced Road
- Type F Stream
- Type N Stream
- Timber Sale Boundary
- Controlled Felling Area
- Reforestation Area
- Posted Stream Buffer
- Non Thinnable Area
- Ownership Boundary

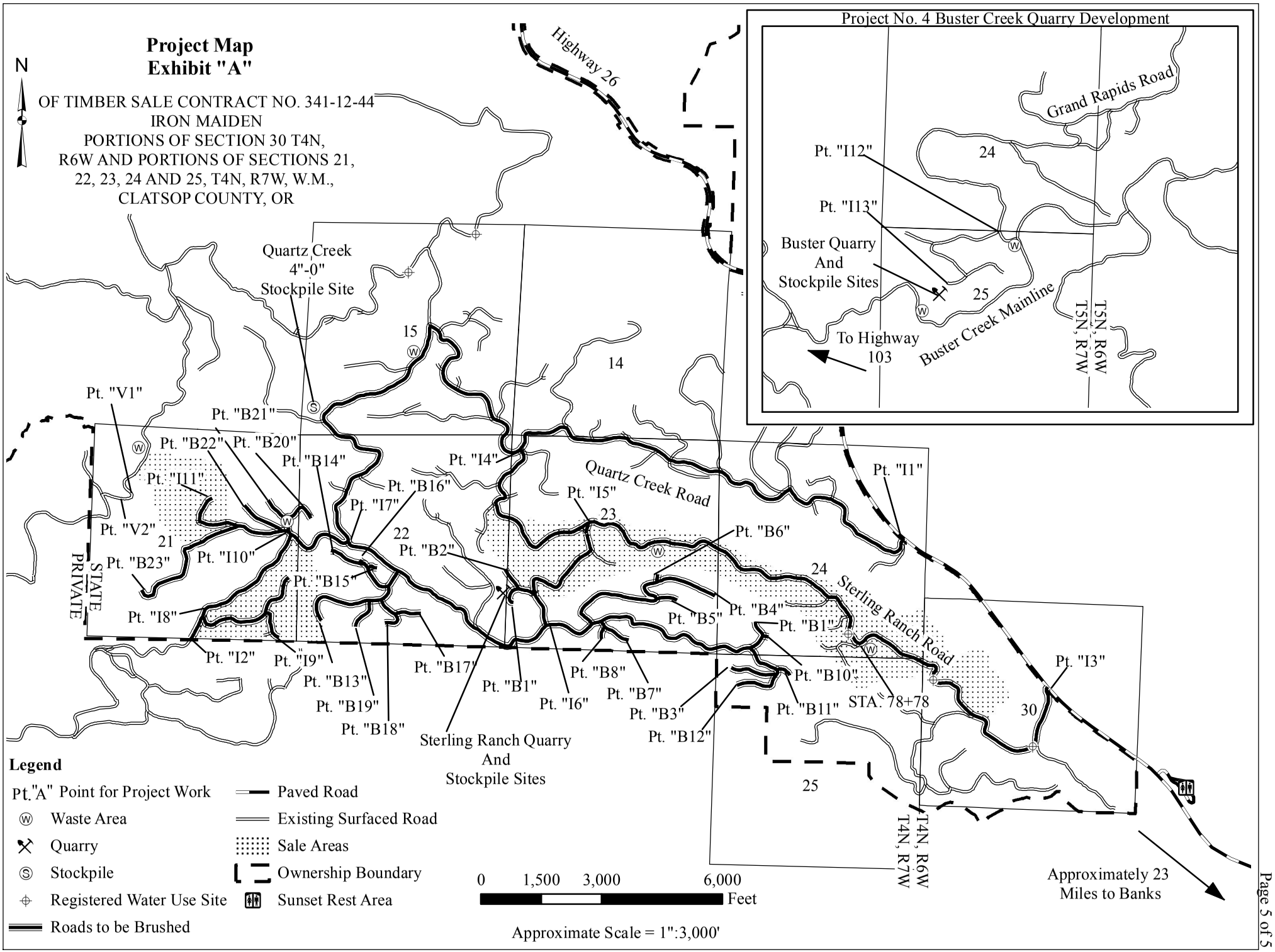
Approximate Net Acreage:
Area 1 (PC) - 334 Acres
Area 2 (MC) - 100 Acres
Area 3 (MC) - 81 Acres
Total Sale - 515 Acres

0 500 1,000 2,000 Feet

Approxmate Scale = 1":1,000'

Exhibit "A"

OF TIMBER SALE CONTRACT NO. 341-12-44
IRON MAIDEN
PORTIONS OF SECTION 30 T4N,
R6W AND PORTIONS OF SECTIONS 21,
22, 23, 24 AND 25, T4N, R7W, W.M.,
CLATSOP COUNTY, OR


Project Map
Exhibit "A"
OF TIMBER SALE CONTRACT NO. 341-12-44
IRON MAIDEN
PORTIONS OF SECTION 30 T4N,
R6W AND PORTIONS OF SECTIONS 21,
22, 23, 24 AND 25, T4N, R7W, W.M.,
CLATSOP COUNTY, OR
N
Highway 26
Quartz Creek
4"-0"
Stockpile Site
Pt. "V1"
Pt. "B21"
Pt. "B22"
Pt. "B20"
Pt. "B14"
Pt. "I4"
Pt. "I11"
Pt. "B16"
Pt. "I7"
Pt. "I5"
Quartz Creek Road
Pt. "I1"
Pt. "V2"
Pt. "I10"
Pt. "B2"
Pt. "B6"
Pt. "B23"
Pt. "B15"
Sterling Ranch Road
Pt. "I8"
Pt. "B5"
Pt. "B4"
Pt. "B1"
Pt. "I2"
Pt. "I9"
Pt. "B13"
Pt. "B17"
Pt. "B8"
Pt. "B10"
Pt. "I3"
Pt. "B19"
Pt. "B1"
Pt. "B7"
Pt. "I6"
Pt. "B3"
Pt. "B11"
STA. 78+78
Pt. "B18"
Pt. "B12"
Sterling Ranch Quarry
And
Stockpile Sites
STATE
PRIVATE
15
14
21
22
23
24
25
30
T5N, R6W
T5N, R7W
T4N, R6W
T4N, R7W
Project No. 4 Buster Creek Quarry Development
Grand Rapids Road
Pt. "I12"
Pt. "I13"
Buster Quarry
And
Stockpile Sites
To Highway
103
Buster Creek Mainline
Legend
Pt."A" Point for Project Work
Waste Area
Quarry
Stockpile
Registered Water Use Site
Roads to be Brushed
Paved Road
Existing Surfaced Road
Sale Areas
Ownership Boundary
Sunset Rest Area
0 1,500 3,000 6,000
Feet
Approximate Scale = 1":3,000'
Approximately 23
Miles to Banks

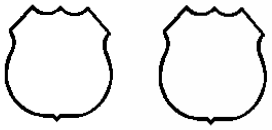
PART III: EXHIBITS

OREGON DEPARTMENT OF FORESTRY

TIMBER SALE OPERATIONS PLAN
(See Page 2 for instructions)

Date Received by STATE: _____

(5) State Brand Information (complete):



(1) Contract No.: 341-12-44

(2) Sale Name: Iron Maiden

(3) Contract Expiration Date: October 31, 2014 Project Completion Dates: October 31, 2012

(4) Purchaser: _____ _____

(6) Purchaser Representatives:

Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____

(7) State Representatives:

Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____

(8) Name of Subcontractors & Starting Dates:

Projects: No(s) _____-_____	Date: _____	Phone: _____
No(s) _____-_____	Date: _____	Phone: _____
No(s) _____-_____	Date: _____	Phone: _____
No(s) _____-_____	Date: _____	Phone: _____
Logging: Felling _____	Date: _____	Phone: _____
Yarding: _____	Date: _____	Phone: _____

(9) Comments: _____

_____

_____

_____

_____

_____

(10) Operations Map: Attach a copy of timber sale Exhibit A or other suitable map which plainly shows the items listed on the instruction sheet.

EXHIBIT B

INSTRUCTION SHEET FOR OPERATIONS PLAN

SUBMIT ONE COPY OF PLAN TO STATE

Operations shall be limited to the work shown in the plan until a revised plan or supplemental plan is submitted covering additional work. Compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act. If STATE has prepared a required Forest Practices Act (FPA) "Written Plan" for operations, PURCHASER shall comply with all provisions of the Written Plan.

Explanation of Item No. (from Page 1)

(5) All sales require you to use a brand furnished by STATE. If the State brand has not been assigned when the plan is submitted, it will be furnished and assigned later. Complete drawing. If more than one brand is assigned to the sale, complete both drawings.

(6) The contract requires you to have a designated representative available on the sale area or work location who is authorized to receive in your behalf any notice or instruction given by STATE and to take action in regard to performance under the contract. If logging and project work is widely separated, a representative is required for each.

(7) The STATE representative will be designated when your plan is approved and is the person who will inspect and issue instructions regarding performance.

(8) Show names of subcontractors to be used for any or all phases of the operations. If subcontractors are not known, or are changed later, give notification to the STATE representative prior to commencement of work by subcontractor.

Show projected dates for commencement of both projects and logging. If projected dates need to be changed at a later date, notification must be given to the STATE representative by supplemental plan or otherwise, prior to commencement of such operations.

(10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:

1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings in sequence.
2. Locations of spur roads planned for construction, other than those required by the timber sale contract. Provide spur road specifications.
3. Location of proposed tractor yarding roads. Show if and how marked on the ground.
4. Location of temporary stream crossings.
5. List the sequence of performing project work.
6. Location of rock sources - attach pit development plans.

Cable Landing, with numbers for sequence.

Tractor Landing with alphabetical sequence.

_ _ _ _ _ Approximate setting boundary.

- - - - - - - - Spur truck roads.

Tractor yarding roads.

X Temporary stream crossings.

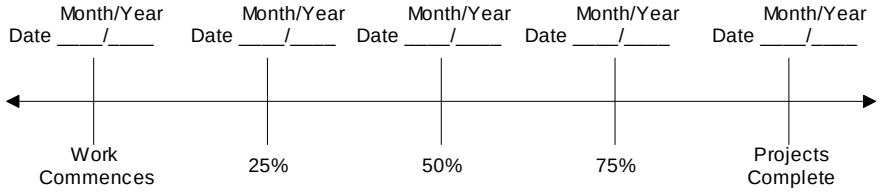
EXHIBIT B

OPERATIONS PLAN

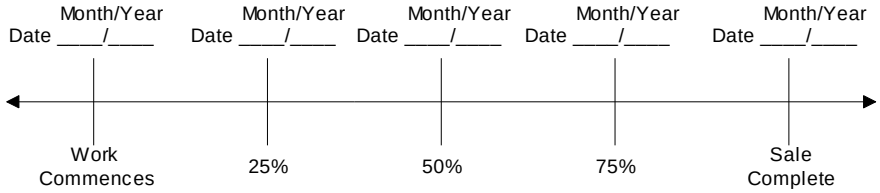
Completion Timeline

Indicate on the appropriate timeline below, the dates by which you plan to complete the work as required under this contract. The purpose of this section is to develop a plan that will ensure you complete the work as required, and meet the interim completion date(s) and contract expiration date. This plan is incorporated and made a part of the contract. When, in the opinion of STATE, operations are not commencing in a manner that meets the intent of this plan, you may be placed in violation of contract and your operations suspended until an amended plan is submitted and approved by STATE.

Projects



Harvest & Other Requirements



The Federal Endangered Species Act (ESA) prohibits a person from taking any federally listed threatened or endangered species. Taking under the federal ESA may include alteration of habitat. STATE's approval of this plan does not certify that PURCHASER's operation under the plan is lawful under the federal ESA. As provided in the timber sale contract, PURCHASERS must comply with all applicable state, federal, and local laws.

PURCHASER's compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act.

APPROVED: Date: _____

STATE OF OREGON - DEPARTMENT OF FORESTRY

_____

Title _____

SUBMITTED BY:
PURCHASER

_____

Title _____

Original: Salem
cc: District File
Purchaser

Operations Plan.doc/Jaz B (TS)

EXHIBIT C – **SAWMILL GRADE**

SCALING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

(1) ORIGINAL REGISTRATION ☐ Date _____
REVISION NUMBER _____ ☐ Date _____
CANCELLATION ☐ Date _____

(2) TO: _____
(Third Party Scaling Organization)

(3) FROM: Astoria (04) Phone 503-325-5451
(State Forestry District)
Address 92219 Hwy 202, Astoria, OR 97103

(4) PURCHASER: _____
Mailing Address: _____
Phone Number: _____

(5) **MINIMUM SCALING SPECIFICATIONS**			**CLASS**		
SPECIES	SCALING DIAMETER INCHES	*NET SCALE VOLUME	PER MBF	** SUM	SUB
Conifers	---	10	x		
Hardwoods	---	10	x		

* Apply minimum volume test to whole logs over 40' Westside; 20' Eastside.
** Sum (if indicated): see instructions and explain in Item (19).

(6) WESTSIDE SCALE: YES ☒ NO ☐
Use Region 6 actual taper rule. Logs over 40'.

(7) EASTSIDE SCALE: YES ☐ NO ☒
Use Region 6 actual taper rule. Logs over 40'.

(8) Weight Scale Sample ☐ ☒
(6) – (8), pink log load receipts

(9) Weight Sale ☐ ☒

(10) Per Load ☐ ☒
(9) and (10), yellow log load receipts

(11) **APPROVED SCALING LOCATIONS** (as shown on the ODF Approved Locations web-site)	**Species**	**Yard**	**Truck**	**Weight**

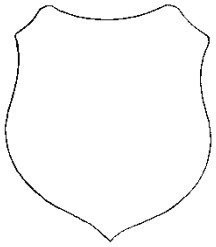
(12) NOTICE OF CANCELLATION OF BRAND:
Effective Date: _____

(13) SALE NAME: Iron Maiden
COUNTY: Clatsop

(14) STATE CONTRACT NUMBER: 341-12-44

(15) **STATE BRAND REGISTRATION NUMBER** _____

(16) STATE BRAND INFORMATION (COMPLETE):



(17) PAINT REQUIRED: YES ☒
COLOR: Orange

(18) **SPECIAL REQUESTS** (Check applicable)	
PEELABLE CULL (all species)	☒
NO DEDUCTIONS ALLOWED FOR MECHANICAL DAMAGE	☒
PENCIL BUCK	☐
ADD-BACK VOLUME - Deductions due to delay	☒
OTHER:	

(19) **REMARKS** All Hardwood logs **less** than **30** board feet shall be scaled as **"Utility."** Hardwood logs greater than or equal to 30 board feet shall be scaled as sawlogs.

Operator's Name (Optional inclusion by District): _____

(20) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

_____
State Forester Representative PRINT NAME

Notify the District within one hour when branding or painting is inadequate for quick identification, the receipts are missing, not correctly or completely filled out, and/or when logs presented for scaling are impossible to scale accurately.

Distribution (See specific instructions on pg.2): ORIGINAL: Salem / COPIES: TPSO, Approved Scaling Location, Purchaser, District, Mgmt. Unit

EXHIBIT C– **SAWMILL GRADE**
INSTRUCTIONS FOR FORM 343-307 (rev. 01/09)

(1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires Item (12). Complete date.

(2) Designate Third Party Scaling Organization (TPSO).

(3) State District office, address and phone.

(4) Enter Purchaser's business name, address, and phone number as it appears on the Contract.

(5) Minimum Scaling Specifications. Review Section 2040 or 2045, "Log Removal," of the Contract. Species, or combined species can be separate entries. Information serves as a basis for scaling (see also Items (16) thru (18)), and is required to show existence on the sale. **SUM** (lump sum material). **SUB** (sub-merchantable material). SUB, as used by the State, references that material containing at least 10 bf (net) but less than the lower merchantable net volume limit or grade requirements for other merchantable (Per MBF) entries. Per MBF, SUM, and SUB must be indicated by checking the appropriate column. Species with the same specifications and value are combined into one entry. Per MBF and SUB require scaling therefore complete specifications. SUM need not be scaled, hence no specifications. Loads containing only SUM are to be ticketed if so instructed in Item (19). Mixed loads of SUM, Per MBF and/or subspecies will always be scaled.

(6) Westside – Region 6 actual taper segment scale. Check Yes or No. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs -- All Species -- State Forestry Department Scaling Practices (Westside).

(7) Eastside – Region 6 actual taper/taper table segment scale. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs -- All Species -- State Forestry Department Scaling Practices (Northwest Log Rules Eastside). Items with * follow U.S. Forest Service Eastside rules.

(8) Weight Scale Sample – Check box if sale is to be a Weight Scale Sample. All specifics for handling, scaling and processing will be attached or explained in the Remarks section Item (19).

(9) Weight Sale – Check box if sale is to be sold as a weight sale. Processing procedures from approved locations to TPSO's will be explained in the Remarks section of Item (19).

(10) Per Load – Check box if volumes on sale are per load. Specific instructions for handling and processing will be fully explained in the Remarks section of Item (19).

(11) Show scaling locations only applicable to TPSO. Location name should appear as it does on the ODF Approved Scaling Location web site: http://www.odf.state.or.us/DIVISIONS/management/asset_management/ScalingLocation.asp Locations with scaling and processing directions specific to their location should be on a separate form. Species should be identified if not capable of receiving "all" species. Check appropriate box for either: yard, truck scale, or weight. Refer to the web site listed above for the locations approval status.

(12) When logging and hauling is complete, recall branding hammers, date and sign where indicated, check CANCELLATION box in Item (1), and send to TPSO.

(13) Enter sale name and county.

(14) Enter sale Contract number.

(15) Enter Oregon's State Brand Registry Number **(REQUIRED)**.

(16) Show brand assigned to timber sale. One brand only. If more than one brand is assigned to the sale: (1) make separate form for each brand and (2) on each form, explain and show other brand(s) in the Remarks section Item (19).

(17) Check yes for Paint Required and designate "Orange" for color. Non required removal volumes may sometimes require blue paint.

(18) Special Requests. These are requests that will be applied to ODF timber sales. All boxes applicable to the timber sales designated in the Exhibit C form must be "marked". If "Other" is indicated, it must contain a description and any necessary comments.

(19) Use this space to designate any weight conversion factors, per load volumes, weight scale sample instructions or any other explanations to clarify scaling, processing and/or mailing requirements. If additional scaling locations are approved, revise original or current form showing all (old and new) locations. Check REVISION box at top of form and explain under remarks. Route as indicated.

(20) Require purchaser to sign and date completed form in addition to State Forester Representative, sign and print name on the form.

Salem Distribution Instructions: Original will be mailed to Salem after it is electronically scanned and e-mailed directly to the State Forests Program/Asset Management Unit to both Timber Revenue Specialists. Scaling instructions for each brand should be scanned separately, for each approved TPSO.

Distribution (See specific instructions on pg.2): ORIGINAL: Salem / COPIES: TPSO, Approved Scaling Location, Purchaser, District, Mgmt. Unit

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STATION TO STATION	DRAINAGE
18 feet	14 feet	I1 to I2	0+00 to 115+57	Ditch
16 feet	12 feet	I1 to I2	115+57 to 305+51	Ditch
16 feet	12 feet	I3 to I4	0+00 to 207+67	Ditch
16 feet	12 feet	I5 to I6	0+00 to 38+02	Ditch
16 feet	12 feet	I6 to I7	0+00 to 60+78	Ditch
16 feet	12 feet	I8 to I9	0+00 to 25+62	Ditch
16 feet	12 feet	I10 to I11	0+00 to 30+47	Ditch
16 feet	12 feet	I12 to I13	0+00 to 35+44	Ditch

CLEARING. This work shall consist of clearing, removing, and disposing of all trees, Snags, Down Timber, brush, surface objects, and protruding obstructions within the clearing limits.

Where clearing limits have not been marked, the clearing limits shall extend 5 feet back of the top of the cutslope and 5 feet out from the toe of the fill slope, or as directed by STATE. Road Brushing Specifications in Exhibit K shall apply. Clearing debris shall not be placed or permitted to remain in or under any road embankment sections. Clearing debris shall not be left lodged against standing trees.

All danger trees, leaners, and Snags outside the clearing limits which could fall and hit the road shall be felled.

GRUBBING. This work shall consist of the removal or digging out of stumps and protruding objects.

All stumps shall be completely removed within the limits of required grubbing. Stumps overhanging cutslopes shall be removed. Grubbing debris shall not be placed or permitted to remain in or under any road embankment sections. Grubbing debris shall not be left lodged against standing trees.

GRUBBING CLASSIFICATION.

New construction - from the top of the cutslope to the toe of the fill.

Improvements and reconstructions - 4 feet back from the shoulder of the subgrade or ditch, whichever is widest, or as marked in the field.

CLEARING AND GRUBBING DISPOSAL. Scatter in stable locations through openings in the timber outside of the cleared right-of-way, except areas where end-haul is required. In areas where end-haul is required, clearing and grubbing debris shall be fully contained and hauled to a designated waste area. Clearing and grubbing debris shall be left in a stable location, and not left lodged against standing trees.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

EXCAVATION. Excavation and grading shall not be done when weather and/or ground conditions are such that damage will result to existing subgrade or cause excessive erosion.

Excavation shall conform to STATE-specified lines, grades, dimensions, and plans when provided. Plans are provided between stations 142+96 to 147+19, and station 78+78 on road segment I3 to I4.

Unless road plans show otherwise, all roads shall be on a balanced cross section, except when the slope is over 50 percent, the road shall be on full bench for the width specified.

Suitable excavated material shall be used for the formation of fills, shoulders, and drainage structure backfills. Embankment materials shall be free of woody debris, brush, muck, sod, frozen material, and other deleterious materials.

Sidecast includes any road generated excess excavation material which is not essential as part of the road prism, is not compacted, and is below the roadway. Sidecast shall not be placed where it will enter a stream course. Leaving sidecast below the road is only permissible if specifically allowed in "Full Bench and End Haul Requirements" in this Exhibit.

All fills shall be machine compacted according to the "Compaction and Processing Requirements" in this Exhibit.

ROAD WIDTH LIMITATIONS. PURCHASER shall obtain advance written approval from STATE to construct the road to a greater width than specified. Extra subgrade width shall be required for:

Fill Widening. Add to each fill shoulder 1 foot for fills 3 feet to 6 feet high; 2 feet for fills over 6 feet high.

Curve Widening. Widen the inside shoulder of all curves as specified in the plans or as follows: 400 divided by the radius of the curve equals the amount of extra width.

DRAINAGE

Subgrade. Subgrade shall be crowned at 4 to 6 percent as shown on the "Forest Road Specifications" table in this Exhibit.

Ditch. Construct "V" shaped ditch 3 feet wide and to a depth of 1 foot below subgrade.

Ditchouts. Construct ditchouts to drain away from subgrade at locations marked in the field or as directed by STATE.

TURNOUTS. Increase roadbed width an additional 8 feet for both subgrade and surfacing. Length shall be at least 50 feet, or as staked on the ground, plus 25-foot approaches at each end.

Location: Intervisible but not greater than 750 feet apart and as marked in the field.

SLOPES	Back Slopes	Fill Slopes
Solid Rock	Vertical to ¼ :1	
Fractured Rock	½ :1	
Soil - side slopes 50% and over	¾ :1	1½:1
Soil - side slopes less than 50%	1 :1	1½:1

Top of cutslope shall be rounded.

LANDINGS. Landings shall be constructed as posted in the field, no less than 50 feet wide and no more than 70 feet wide unless otherwise approved by STATE. Surface is to be crowned for drainage with general grade no more than 3 percent. Surface as shown in the "Road Surfacing" table in this Exhibit.

TURNAROUNDS. Increase subgrade width an additional 20 feet for a length of 20 feet at locations marked in the field.

SEASONAL WINTERIZATION. All unsurfaced roads or unfinished subgrades shall be waterbarred in accordance with the specifications in Exhibit M, and blocked from vehicular traffic prior to October 1, annually and as directed by STATE.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

1. Timber Removal. Remove all trees within posted Right-of-Way Boundary or individually marked with an orange "C", as specified in Section 2210, Designated Timber.

2. Roadside Brushing. Conduct roadside brushing as specified in Exhibit K.

3. Excavated Materials. Excavated materials shall be utilized for road construction. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with this Exhibit.

4. Bank Slough Removal. Dig out all bank slough. Bank slough material shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE. Waste materials shall be seeded and mulched in accordance with specifications in Exhibit L.

5. Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal. Existing culvert geometry shall be modified to provide for optimum drainage and culvert performance. Modifications may include, skewing the culvert and/or installing the culvert at gradients equal to or exceeding the drainage (or ditch) gradient. Where fill reconstruction or culvert replacement is specified, fills shall be excavated to natural stream course levels. All woody debris encountered during fill excavation shall be removed. All waste materials shall be hauled to nearby waste areas and shall be uniformly sloped and compacted for drainage. Waste materials shall be seeded and mulched in accordance with specifications in Exhibit L. Fill reconstruction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with this Exhibit. Crushed rock shall be used for backfilling excavation trenches less than 3 feet deep. STATE may require the use of crushed rock for culvert bedding. Removed culverts shall be hauled to an approved refuse site off of STATE land.

6. Drainage Ditches. Restore, re-establish or construct ditchlines, including ditchouts, as directed by STATE. Clean out all culvert inlets and outlets for a 10-foot radius. Ditches to be re-established with waste material loaded and hauled to designated waste areas shall be accomplished with the use of an excavator and dump truck. Re-establish or construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE. Damaged culvert inlets and/or outlets shall be repaired by opening them with a hydraulic jack, or cutting off the culvert end to allow for free passage of water at peak flow levels. Install a culvert marker at each newly installed culvert and at each existing culvert that is missing a marker that could be reached by a grader blade.

7. Fill Armor and Energy Dissipator Construction. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit J.

8. Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

9. Subgrade Preparation and Application of Surfacing Rock.

(a) Complete culvert installations, drainage ditches, fill reconstruction, ditchouts, and other specified work prior to the application of new surfacing rock.

(b) Cut out all potholes and/or washboard sections from the existing surfacing.

(c) Apply required patching and leveling rock, as directed by STATE.

(d) Process (grade and mix) the existing surface and added base rock. Provide for a crown of 4 to 6 percent, and compact in accordance to the "Compaction and Processing Requirements" in this Exhibit.

(e) Upon completion of above required work, apply, process, and compact surfacing rock in accordance to this Exhibit.

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I1 to I2	0+00	Point I1. Begin application of ¾"-0" crushed rock.
	1+52	Begin ditchline left re-establishment.
	8+49	End ditchline re-establishment for left side ditchline.
	9+23	Install new culvert. Utilize 44 cubic yards of ¾"-0" crushed rock for bedding and backfill around the culvert. Utilize 33 cubic yards of 4"-0" crushed rock as backfill to raise the fill elevation to road grade elevation. Utilize 10 cubic yards of 24"-6" riprap for energy dissipator. Install culvert marker.
	10+42	Improve ditchline right to drain towards the culvert at station 9+23. Begin ditchline right re-establishment.
	11+43	End ditchline right re-establishment. Begin ditchline left re-establishment.
	13+39	End ditchline left re-establishment. Construct ditchout left.
	13+61	Begin ditchline right re-establishment.
	16+12	End ditchline right re-establishment.
	17+50	Begin ditchline right re-establishment.
	19+41	End ditchline right re-establishment.
	22+65	Begin ditchline left re-establishment.
	30+00	End ditchline left re-establishment.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I1 to I2	31+06	Begin ditchline right re-establishment.
	34+82	End ditchline right re-establishment. Begin ditchline right re-establishment.
	38+58	End ditchline right re-establishment.
	42+64	Begin ditchline right re-establishment.
	43+86	End ditchline right re-establishment.
	47+65	Begin ditchline right re-establishment.
	51+16	End ditchline right re-establishment.
	54+40	Begin ditchline right re-establishment.
	58+34	End ditchline right re-establishment. Begin ditchline left re-establishment.
	72+07	End ditchline left re-establishment.
	72+75	Begin ditchline right re-establishment.
	77+23	End ditchline right re-establishment.
	78+58	Begin ditchline left re-establishment. Construct ditchout left.
	83+09	End ditchline left re-establishment.
	85+01	Begin ditchline right and left re-establishment.
	86+94	End ditchline right re-establishment.
	92+52	End ditchline left re-establishment. Construct ditchout left.
	97+02	Begin ditchline right re-establishment.
	100+95	End ditchline right re-establishment.
	103+24	Begin ditchline right re-establishment.
	113+97	End ditchline right re-establishment. Install new culvert. Utilize 44 cubic yards of ¾”-0” crushed rock for bedding and backfill. Utilize 10 cubic yards of 24”-6” riprap for energy dissipator. Install culvert marker.
	115+57	Point I4, and junction with Sterling Ranch Road. End application of ¾”-0” crushed rock.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I1 to I2	117+68	Begin ditchline left re-establishment.
	127+90	End ditchline left re-establishment. Begin ditchline right re-establishment.
	133+38	End ditchline right re-establishment.
	138+32	Begin ditchline left re-establishment.
	139+35	End ditchline left re-establishment. Improve ditchout left.
	139+83	Construct waste area as directed by STATE.
	146+96	Begin ditchline right re-establishment.
	150+41	End ditchline right re-establishment. Improve ditchout right.
	150+60	Begin ditchline right re-establishment.
	153+00	Begin ditchline left re-establishment.
	154+75	End ditchline right re-establishment.
	165+98	End ditchline left re-establishment. August Fire Road junction.
	171+11	Install new culvert. Utilize 44 cubic yards of ¾”-0” crushed rock for bedding and backfill. Utilize 25 cubic yards of 1½”-0” crushed rock for road surfacing. Utilize 10 cubic yards of 24”-6” riprap for energy dissipator. Install culvert marker.
	176+91	Replace existing culvert. Utilize 44 cubic yards of ¾”-0” crushed rock for bedding and backfill. Utilize 25 cubic yards of ¾”-0” crushed rock for road surfacing. Utilize 10 cubic yards of 24”-6” riprap for energy dissipator. Install culvert marker.
	187+82	Install culvert marker.
	220+80	Replace existing culvert. Utilize 55 cubic yards of ¾”-0” crushed rock for bedding and backfill around the culvert. Utilize 44 cubic yards of 4”-0” crushed rock as backfill to raise the fill elevation to road grade elevation.. Utilize 25 cubic yards of ¾”0” crushed rock for road surfacing. Utilize 10 cubic yards of 24”-6” riprap for energy dissipator.
	249+19	Point I7, junction with Sterling Ridge Road. Begin application of ¾”-0” crushed rock.
	249+54	Clean culvert catch basin. Install culvert marker.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I1 to I2	254+59	Begin ditchline left re-establishment.
	256+88	End ditchline left re-establishment.
	264+42	Begin ditchline left re-establishment.
	269+89	End ditchline left re-establishment. Replace existing culvert marker.
	273+09	Replace existing culvert marker.
	275+49	Install culvert marker.
	278+30	Replace existing culvert marker.
	298+09	Point I8.
	302+03	Begin ditchline left re-establishment.
	305+51	Point I2. End ditchline left re-establishment. End application of ¾”-0” crushed rock.
I3 to I4	0+00	Point I3. Begin Road Segment improvement.
	5+93	Ditch leading into the culvert catch basin needs to be improved as directed by STATE. Improve catch basin. Begin ditchline left re-establishment.
	12+85	End ditchline left re-establishment.
	20+91	Begin ditchline left re-establishment.
	24+30	End ditchline left re-establishment.
	29+31	Install new culvert. Utilize 33 cubic yards of ¾” -0” crushed rock for bedding and backfill. Utilize 25 cubic yards of ¾”-0” crushed rock for road surfacing. Utilize 10 cubic yards of 24”-6” riprap for energy dissipator. Begin ditchline left re-establishment. Install culvert marker.
	33+43	End ditchline left re-establishment.
	42+97	Begin ditchline left re-establishment.
	45+61	End ditchline left re-establishment.
	52+50	Install new culvert. Utilize 44 cubic yards of ¾”-0” crushed rock for bedding and backfill. Utilize 25 cubic yards of ¾”-0” crushed rock for road surfacing. Utilize 10 cubic yards of 24”-6” riprap for energy dissipator. Begin ditchline left re-establishment. Install culvert marker.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I3 to I4	59+95	End ditchline left re-establishment.
	68+28	Begin ditchline left re-establishment.
	73+33	End ditchline left re-establishment.
	74+54	Construct waste area.
	78+33	Install new culvert. Utilize 44 cubic yards of ¾”-0” crushed rock for bedding and backfill. Utilize 25 cubic yards of ¾”-0” crushed rock for road surfacing. Utilize 10 cubic yards of 24”-6” riprap for energy dissipator.
	78+78	Replace existing culvert. Installation shall be in accordance with Exhibit H specifications. Utilize 160 cubic yards of ¾”-0” crushed rock for bedding and backfill. Utilize select borrow from the improvement section at station 142+96 – 147+22 of this segment to bring fill subgrade elevation to road subgrade elevation. Utilize 22 cubic yards of 4”-0” crushed rock for base rock. Utilize 11 cubic yards of ¾”-0” crushed rock for surface rock. Utilize 200 cubic yards of 24”-6” riprap for fill and stream bank armor.
	84+88	Begin ditchline left re-establishment.
	87+28	End ditchline left re-establishment.
	91+64	Improve existing culvert catch basin.
	107+40	Install new culvert. Utilize 44 cubic yards of ¾”-0” crushed rock for bedding and backfill. Utilize 25 cubic yards of ¾”-0” crushed rock for road surfacing. Utilize 10 cubic yards of 24”-6” riprap for energy dissipator. Install culvert marker.
	125+75	Begin ditchline left re-establishment.
	126+60	Waste Area.
	130+28	End ditchline left re-establishment.
	142+96	Begin road realignment as specified in the design on file at the Astoria Office. Begin application of ¾”-0” crushed rock. Endhaul suitable cut material to station 78+78 to be utilized in fill construction.
	143+87	Begin application of 4”-0” crushed rock.
	144+50	Begin turnout construction as specified in the design. Utilize base and surface rock from existing road to surface turnout, as directed by STATE.
	145+54	Install new culvert. Utilize 33 cubic yards of ¾”-0” crushed rock for bedding and backfill. Utilize 25 cubic yards of ¾”-0” crushed rock for road surfacing. Utilize 10 cubic yards of 24”-6” riprap for energy dissipator. Install culvert marker.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I3 to I4	146+12	Replace existing culvert. Utilize 66 cubic yards of ¾”-0” crushed rock for bedding and backfill.
	146+44	End application of 4”-0” crushed rock.
	147+19	End application of ¾”-0” crushed rock. End road realignment. Install new culvert. Utilize 33 cubic yards of ¾”-0” crushed rock for bedding and backfill. Utilize 25 cubic yards of ¾”0” crushed rock for road surfacing. Install culvert marker.
	159+06	Point I5, and junction with Sterling Tie-Through Road.
	164+77	Install new culvert. Utilize 33 cubic yards of ¾”-0” crushed rock for bedding and backfill. Utilize 25 cubic yards of ¾”0” crushed rock for road surfacing. Utilize 10 cubic yards of 24”-6” riprap for energy dissipator. Install culvert marker. Begin ditchline left re-establishment.
	168+61	End ditchline left re-establishment.
	200+21	Begin ditchline left re-establishment.
	202+22	End ditchline left re-establishment.
	207+67	Point I4 and junction with Quartz Creek Road. End Improvement.
I5 to I6	0+00	Point I5. Begin Road Segment improvement. Begin ditchline right re-establishment.
	2+68	End ditchline right re-establishment.
	9+25	Begin ditchline left re-establishment.
	10+90	End ditchline left re-establishment.
	21+11	Begin ditchline left re-establishment.
	27+03	End ditchline left re-establishment.
	38+02	Point I6. End Road Segment Improvement.
I6 to I7	0+00	Point I6. Begin Road Segment improvement.
	15+00	Begin traction lift of ¾”-0” crushed rock.
	46+74	End traction lift of ¾”-0” crushed rock.
	53+85	Begin ditchline left re-establishment.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I6 to I7	59+49	Install culvert marker. End ditchline left re-establishment.
	60+78	Point I7. Improve ditchline to flow around the corner to the culvert at sta. 259+54 on Road Segment I1 to I2. End Improvement.
I8 to I9	0+00	Point I8. Begin Improvement. Begin traction lift of ¾”-0” crushed rock.
	11+81	End traction lift of ¾”-0” crushed rock.
	20+71	Begin traction lift of ¾”-0” crushed rock.
	23+89	End traction lift of ¾”-0” crushed rock.
	25+62	Point I9. End Improvement.
I10 – I11	0+00	Point I10. Begin Improvement.
	0+23	Waste area.
	2+35	Begin ditchline right re-establishment.
	14+19	Install new culvert. Utilize 44 cubic yards of ¾”-0” crushed rock for bedding and backfill. Utilize 10 cubic yards of 24”-6” riprap for energy dissipator. Begin traction lift of ¾”-0” crushed rock. Install culvert marker.
	16+90	End lift of ¾”-0” traction rock.
	19+35	Clean out culvert barrel, and reconstruct culvert catch basin. Replace culvert marker.
	23+68	Install culvert marker. End ditchline right re-establishment.
	30+47	Point I11. End Improvement.
I12 – I13	0+00	Begin Improvement. Begin application of 1½”-0” crushed rock.
	1+57	Install new culvert marker.
	4+05	Construct turnout right.
	10+88	Construct turnout right.
	11+57	Install new culvert marker.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I12 to I13	16+93	Junction right. Improve junction for use as a turnout.
	18+89	Construct turnout right.
	22+09	Improve ditchout right.
	22+13	Construct ditchout left.
	23+97	Construct turnout right.
	27+58	Clean out culvert catch basin.
	29+87	Junction left. Improve for use has turnout.
	30+02	Construct ditchout left. Direct ditchout to low spot as directed by STATE. Improve low spot as directed by STATE.
	35+44	End Improvement. End application of 1½”-0” crushed rock.

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EXHIBIT D

FULL BENCH AND END-HAUL REQUIREMENTS

POINT TO POINT	STA. TO STA.	CONTAINMENT - SIDECAST	WASTE AREA LOCATION	WASTE AREA TREATMENT
I3 to I4	142+96 to 147+19	2	1 and 2	1, 2 and 3
V1 to V2	0+00 to 0+61	1	1 and 2	1, 2 and 3

Full Bench and End-Haul Areas General Requirements

Sidecast includes any road generated excess excavation material which is not essential as part of the road prism, is not compacted, and is below the roadway. Material shall not be sidecast unless specified above.

When controlled blasting is required, it shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain material within the road prism.

Containment/Sidecast

(1) Full: No excavated material remains below the road.

(2) Normal/Incidental: The amount of excavated material lost over the outside edge of the road shall not exceed 1 foot in depth.

(3) Sidecast: Material shall be spread evenly below the road so that it does not build up behind trees, snags or other debris, and shall not exceed 3 feet in depth.

Any amount of material exceeding the containment requirements shall be removed by whatever means necessary and end-hauled to a designated waste area.

Waste Area Location

(1) As shown on Exhibit A and as marked in the field.

(2) Setback from slope break shall be a minimum of 20 feet horizontal measurement.

Waste Area Treatment

(1) Deposit at waste area, spread evenly, compact, and provide adequate drainage.

(2) Pile woody debris separate from other waste material.

(3) Mulch and seed all waste areas in accordance with Exhibit L.

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I1 to I2				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I1 to I2 **Volume (CY) Per**		0+00 to 115+57 **Number of**		
Base RockSurface Rock	¾”-0” crushed		4	Station	29	Stations	115+57	3,352
Junctions	¾”-0” crushed		4	Junction	n/a	Junctions	13	270
Turnouts (50’)	¾”-0” crushed		4	Turnout	11	Turnouts	15	165
Turnouts (75’)	¾”-0” crushed		4	Turnout	15	Turnouts	4	60
Curve Widening	¾”-0” crushed		4	Curve	n/a	Curves	30	292
Turnouts Leveling Rock	¾”-0” crushed		4	Turnout Load	11	Turnouts Loads	12	132
Bedding/Backfill	¾”-0” crushed		n/a	Culvert	44	Culverts	2	88
Junctions Additional Backfill	4”-0” crushed	9+23	n/a	Fill	33	Junctions Fills	1	33
Landings Dissipator Rock	24”-6” riprap		n/a	Landing Culvert	10	Landings Culverts	2	20
Total Rock for Road Segment:			I1 to I2					4,412

ROAD SEGMENT: I1 to I2				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I1 to I2 **Volume (CY) Per**		115+57 to 249+19 **Number Of**		
Base Rock Bedding/Backfill	¾”-0” crushed		n/a	Station Culvert	n/a	Stations Culverts	3	143
Surface Rock	¾”-0” crushed		4	Station	25	Stations	3	75
Additional Backfill	4”-0” crushed	220+80	n/a	Fill	44	Fills	1	44
Junctions Dissipator Rock	24”-6” riprap			Junction Culvert	10	Junctions Culverts	3	30
Total Rock for Road Segment:			I1 to I2					292

ROAD SEGMENT: I1 to I2				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I1 to I2 **Volume (CY) Per**		249+19 to 305+51 **Number of**		
Base Rock Leveling Rock	¾”-0” crushed		4	Station Load	11	Stations Loads	7	77
Turnouts Surface Rock	¾”-0” crushed		4	Turnout Station	25	Turnouts Stations	56.32	1,408
Junctions Turnouts (50’)	¾”-0” crushed		4	Junction Turnout	11	Junctions Turnouts	11	121
Junctions	¾”-0” crushed		4	Junction	20	Junctions	2	40
Turnarounds Curve Widening	¾”-0” crushed		4	TA Curve	n/a	TAs Curves	27	250
Landings Turnarounds	¾”-0” crushed		4	Landing Turnaround	11	Landings Turnarounds	1	11
Total Rock for Road Segment:			I1 to I2					1,907

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I3 to I4				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size And Type**	**Location**	**Depth of Rock (inches)**	I3 to I4		0+00 to 207+67		
				Volume (CY) Per		**Number of**		
Base RockSurface Rock	¾”-0” crushed	78+53-79+03	4	Station	22	Stations	0.5	11
Surface Rock	¾”-0” crushed	142+96-147+22	4	Station	25	Stations	4.26	107
Junctions Leveling Rock	¾”-0” crushed		4	Load	11	Loads	35	385
Turnarounds Bedding/Backfill	¾”-0” crushed		n/a	Culvert	n/a	Culverts	9	490
Base Rock	4”-0” crushed	78+53-79+03	8	Station	44	Stations	0.5	22
Base Rock	4”-0” crushed	143+87-146+09	8	Station	50	Stations	2.2	111
Dissipator Rock	24”-6” riprap		n/a	Culvert	10	Culverts	6	60
Landings Fill/streambank Armor	24”-6” riprap	78+78	n/a	Culvert	200	Culverts	1	200
Total Rock for Road Segment:			I3 to I4					1,386
ROAD SEGMENT: I5 to I6				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I5 to I6		0+00 to 38+02		
				Volume (CY) Per		**Number of**		
Leveling Rock	¾”-0” crushed		4	Load	11	Loads	9	99
Total Rock for Road Segment:			I5 to I6					99
ROAD SEGMENT: I6 to I7				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I6 to I7		0+00 to 60+78		
				Volume (CY) Per		**Number Of**		
Leveling Rock	¾”-0” crushed		4	Load	11	Loads	15	165
Traction Rock	¾”-0” crushed		2	Station	13	Stations	31.74	413
Total Rock for Road Segment:			I6 to I7					578
ROAD SEGMENT: I8 to I9				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I8 to I9		0+00 to 25+62		
				Volume (CY) Per		**Number of**		
Traction Rock	¾”-0” crushed		2	Station	13	Stations	14.99	195
Total Rock for Road Segment:			I9 to I10					195
ROAD SEGMENT: I10 to I11				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size And Type**	**Location**	**Depth of Rock (inches)**	I10 to I11		0+00 to 30+47		
				Volume (CY) Per		**Number Of**		
Leveling Rock	¾”-0” crushed		4	Load	11	Loads	6	66
Traction Rock	¾”-0” crushed		2	Station	13	Stations	2.71	35
Bedding/Backfill	¾”-0” crushed			Culvert	44	Culverts	1	44
Dissipator Rock	24”-6” riprap			Culvert	10	Culverts	1	10
Total Rock for Road Segment:			I10 to I11					155

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I12 to I13				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I12 to I13 Volume (CY) Per		0+00 to 35+44 Number of		
Surface Rock	1½"-0" crushed		4	Station	25	Stations	35.44	886
Junctions	1½"-0" crushed		4	Junction	12	Junctions	3	36
Turnouts	1½"-0" crushed		4	Turnout	11	Turnouts	5	55
Curve Widening	1½"-0" crushed		4	Curve	n/a	Curves	4	44
Turnouts	4"-0" crushed		8	Turnout	22	Turnouts	3	66
Dissipator Rock	24"-6" riprap			Culvert	10	Culverts	I	10
Total Rock for Road Segment:			I12 to I13					1,097

Total Rock for Project No. 1

24"-6"	4"-0"	¾"-0"	Total
320	210	8,494	9,024

Total for Project No. 3

24"-6"	4"-0"	1 ½"-0"	Total
10	66	1,021	1,097

EXHIBIT D

ROCK ACCOUNTABILITY

PURCHASER shall obtain subgrade approval from STATE prior to rocking. Rocking shall be limited to periods when weather conditions are acceptable to STATE and when sediment will not enter streams. Additional surfacing needed because of construction season or construction practice is not included in the preceding ROAD SURFACING table, and shall be furnished at PURCHASER expense.

Rock accountability shall be determined by the following methods, as directed by STATE. STATE shall be given 24 hours' notice prior to rocking.

Rock Checking. All rock spreading shall be done only when a STATE representative is present. STATE shall issue a receipt for each load delivered, and rock shall be measured without allowance for shrinkage or shakedown during hauling. Total truck measure volume for each road segment shall be as shown on Exhibit D. Deliver at least 500 cubic yards per 8-hour shift, unless otherwise approved by STATE. A penalty of $10 for each 10 cubic yards which are not delivered during a single shift shall be billed, and payment shall be required prior to final acceptance of the project by STATE.

Depth Measurement. Rock shall be spread and compacted according to the depths specified in Exhibit D. Truck measure volumes are given, but shall not limit the amount of rock spread.

Depth shall be determined in the most compacted area of the surface cross section. The depth of compacted aggregates shall not vary more than 1 inch from the depth specified in the “Road Surfacing” table in Exhibit D. The average depth for each road segment shall be the specified depth or greater. If additional rock is required because of insufficient depth, the locations and volumes to be added shall be determined by STATE.

Load Records. Notify STATE before spreading the rock and maintain a record of all rock delivered for spreading. Make the record available for STATE inspection. A report listing the amount of rock delivered the prior month must be submitted no later than the 15th of each month.

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

Moisture Content: Compaction must take place when moisture content of the materials being compacted is favorable for effective compaction as determined by STATE.

Compaction Pass: A pass is defined as traveling a road section forward and then backward over that same section.

Subgrade. Subgrade surfaces of the road segments listed below shall be graded and compacted prior to rocking. Compaction shall be accomplished by traveling all surfaces from shoulder to shoulder until the surface is smooth and hard and visible deformation ceases. At least 3 passes shall be made over the entire width and length of the road. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Subgrade shall be crowned at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments that require rock surfacing	1

Fills. Embankments and fills shall be placed in (approximately) horizontal layers not more than 8 inches in depth. Each layer shall be separately, and thoroughly, compacted. Compaction equipment shall be operated over the entire width of each layer until visible deformation of the layers ceases. At least 3 passes shall be made over the entire width and length of each layer.

Placing individual rocks or boulders with more depth than the allowed layer thickness shall be permitted, provided the embankment will accommodate them. Such rocks and boulders shall be at least 6 inches below the subgrade. They shall be carefully distributed and the voids filled with finer material, forming a dense and compacted mass. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments.	1, 2, 3, and 4

Crushed Rock. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of crushed rock shall be moistened or dried to uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 6 inches in depth. When more than 1 layer is required, each shall be shaped and compacted before the succeeding layer is placed. Any irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and adding or removing material until the surface is smooth and uniform. Each layer shall be compacted with a minimum of 3 passes over the entire width and length of the road until the surface is smooth and hard and visible deformation ceases. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Rock shall be compacted and processed during the same project period it is spread, unless otherwise approved in writing by STATE.

Rock shall be crowned at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments requiring crushed rock.	1

EXHIBIT D

COMPACTION EQUIPMENT OPTIONS

(1) Vibratory Rollers. The drum shall have a smooth surface, a diameter not less than 48 inches, a width not less than 58 inches, and a turning radius of 15 feet or less. Vibration frequency shall be regulated in steps to 1400, 1500, and 1600 VPM, corresponding to engine speeds of 1575, 1690, and 1800 RPM. The centrifugal force developed shall be 7 tons at 1600 VPM. It shall be activated by a power unit of not less than 25 horsepower. The vibratory roller shall be self-propelled and operated at speeds ranging from 0.9 miles to 1.8 miles per hour, as directed by STATE.

(2) Rubber-Tired Skidders. A rubber-tired skidder weighing a minimum of 20,000 pounds shall be operated over the fill layers so that the entire layered surface comes in contact with the tires. Skidders with oversized tires (high flotation) are not acceptable for compaction.

(3) Tampingfoot Compactors. Tampingfoot compactors shall exert a minimum pressure of 250 pounds per square inch on the ground area in contact with the tamping feet. The compactor shall cover a minimum width of 60 inches per pass and weigh a minimum of 16,000 pounds.

(4) Vibratory Hand-Operated or Backhoe-Mounted Tamper. Vibratory hand-held or hydraulic tampers shall be used for compaction of backfill materials around culverts. The tamper shoe dimensions shall be a minimum of 10" X 13" and capable of a centrifugal force of 2,250 pounds.

EXHIBIT E

CULVERT SPECIFICATIONS

All culvert materials shall be furnished and installed by PURCHASER, unless otherwise specified in the Contract.

Culverts shall be constructed of corrugated double-walled polyethylene, and corrugated aluminized (Type 2) steel.

Polyethylene culverts shall be double-walled and meet the requirements of AASHTO M-294-06, Type S Culvert.

Aluminized (Type 2) steel culverts shall meet the requirements of AASHTO M-36-03[1].

Polyethylene culverts shall not be used where required culvert diameter is over 24 inches.

Polyethylene joints shall be made with split couplings, corrugated to engage the culvert corrugations, and shall engage a minimum of 4 corrugations, 2 on each side of the culvert joint.

Culverts shall be located according to the alignment and grade as shown on the Plan and Profile, and/or as staked in the field, or as specified in special instructions.

The STATE Representative shall determine final culvert locations and stake the locations in the field prior to installation.

Cross drain culverts on road grades in excess of 3 percent shall be skewed at least 30 degrees from perpendicular to the road centerline, except that cross drain culverts at the low point of dips in roads shall not be skewed. Cross drains shall be skewed to fit the required culvert length to the road prism.

Cross drain culverts shall be installed at a slope steeper than the incoming ditch grade, but not less than 3 percent or greater than 10 percent.

The foundation and trench walls for all culverts shall be free from logs, stumps, limbs, stones, and other objects which would dent or damage the culvert. The culvert trench shall be excavated 3 culvert diameters wide to permit compaction and working on each side of the culvert. Tamping shall be done in 6-inch lifts, 1 culvert diameter each side of the culvert. Bedrock shall be excavated as required to provide a uniform foundation for the full length of the culvert.

A bedding of crushed rock as specified shall be placed to provide a wide band of support and to transmit the load from above evenly over the entire length of the culvert for all on road improvement segments.

Backfill shall consist of, crushed rock, rock crusher reject, or suitable job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the culvert as approved by STATE.

Transporting of the culvert shall be done carefully. Dragging or allowing free fall from trucks or into trenches shall not be permitted.

Minimum height of cover over top of culvert to subgrade when road is to be rocked shall be as follows: 12" for culverts 18” to 36”. Minimum vertical cover for other designs shall be as specified by STATE.

Lengths of individual culvert sections shall be not less than 10 feet, unless otherwise provided for in special instructions.

The ends of each culvert shall be free of logs and debris which would restrict the free flow of water.

EXHIBIT E

CULVERT SPECIFICATIONS

The intake end of relief culverts shall be provided with a sediment catching basin 3 feet in diameter at the bottom. The outlet end of any culvert which would allow water to erode embankment soil shall be provided with an energy dissipator, or other approved slope protection device. Construct lead-off ditches away from culvert outlets where the slope gradients restrict the free flow of water.

Culverts 24 inches in diameter or larger shall have 1½:1 step beveled inlets.

Compaction by tamping utilizing a Vibratory Hand-Operated or Backhoe-Mounted Tamper is required for all culverts.

All culverts scheduled for replacement shall become property of the PURCHASER and be removed from STATE land and hauled to an approved refuse site in the same project period in which replacement occurred.

The intake ends of culverts in fills less than 3 feet to the top of the culvert shall be marked by driving white fiberglass posts within 6 inches of the downgrade side. Posts shall be a minimum of 6 feet long and 2½ inches wide, with the spade driven 2 feet into the ground.

A manufacturer's certification that the product was manufactured, tested, and supplied in accordance with this specification shall be furnished to STATE upon request.

Following are the minimum standard gauges for steel culvert and coupling bands. Some culverts may require different gauges and may be found in the culvert listing.

	Steel Culvert	Thickness			Band Widths (")	
Dia.	Gauge	Uncoated	Coated	Band Gauges	Annular	Helical
12-15	16	(0.0598")	(0.064”)	16	7	12
18-24	16	(0.0598")	(0.064”)	16	12	12
30-36	16	(0.0598")	(0.064”)	16	12	12
42	14	(0.0747")	(0.079”)	16	12	12
48	14	(0.0747")	(0.079”)	16	24	24
54	14	(0.0747")	(0.079”)	16	24	24
60	12	(0.1046")	(0.109”)	16	24	24
66-72	12	(0.1046")	(0.109”)	16	24	24
78	12	(0.1046")	(0.109”)	16	24	24
84	12	(0.1046")	(0.109”)	16	24	24
90-120	1210	(0.1336")	(0.138”)	16	26	26

Culverts larger than 60” in diameter shall have 3” x 1” corrugations.

EXHIBIT E

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	GAUGE	ROAD SEGMENT POINT TO POINT	STATION
1	18	40	CPP		I1 TO I2	9+23
2	*18*	*40*	*CPP*		*I1 to I2*	*113+97*
3	*18*	*40*	*CPP*		*I1 to I2*	*171+11*
4	18	40	CPP		I1 to I2	176+91
(*)5	24	48	CPP		I1 to I2	220+80
(*)6	*18*	*32*	*CPP*		*I3 to I4*	*29+31*
(*)7	*18*	*40*	*CPP*		*I3 to I4*	*52+50*
(*)8	*18*	*40*	*CPP*		*I3 to I4*	*78+33*
(*)9	108	67	ACSP	10	I3 to I4	78+78
(*)10	*18*	*40*	*CPP*		*I3 to I4*	*107+40*
11	*18*	*32*	*CPP*		*I3 to I4*	*145+54*
(*)12	36	52	ACSP	16	I3 to I4	146+12
(*)13	*18*	*32*	*CPP*		*I3 to I4*	*147+19*
(*)14	*18*	*32*	*CPP*		*I3 to I4*	*164+77*
(*)15	18	40	CPP		I10 to I11	14+19

ACSP = Aluminized, CPP = Polyethylene

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

1. PURCHASER shall prepare a written development plan for the quarry areas. The plan shall be submitted to STATE for approval prior to conducting any operation in quarry areas. The plan shall include, but not be limited to:

   (a) Location of benches and roads to benches;
   (b) Disposal site for woody debris, overburden and reject material;
   (c) Time lines for rock quarry use; and
   (d) Erosion Control measures.

2. PURCHASER shall schedule and coordinate quarry and stockpile usages with other existing or planned activity requiring quarry or stockpile usage. PURCHASER shall notify STATE 5 days prior to the start of quarry development activities.

3. The quarry sites shall be left in a condition free from overburden and debris. Access roads to the quarry, and the quarry floor, shall be cleared at the termination of use. Overburden shall be removed for a distance of 20 feet beyond the developed rock source.

4. PURCHASER shall conduct the operations relative to the disposal of waste material in such manner that sediment, rock, or debris shall not be washed, conveyed, or otherwise deposited in any stream.

5. Benches shall be maintained/constructed at intervals of 40 feet or less in height and shall be a minimum of 20 feet in width. Any gravel or talus slopes shall be left with a working face at an angle of 60 percent or less. There shall be a minimum of one bench with an access road to it. Said bench shall be easily accessible with tractors.

6. Quarry faces shall be developed in a uniform manner. All quarry backslopes shall be left in a stable condition.

7. Controlled blasting techniques shall be utilized for any blasting operations, and shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain as much material as possible within the quarry development area. PURCHASER shall maintain a comprehensive blasting log that contains all pertinent data for all blasting operations. The blasting log shall be submitted to the STATE after the completion of all blasting activity. The blasting log is intended for STATE record keeping purposes only.

8. Oversized material that is produced or encountered during development shall be broken down and utilized for crushing.

9. Proper winterization and storm-water control measures such as water barring, drainage, utilization of filter bales, mulching and/or blocking access shall be constructed and maintained to protect the watershed and Project Work, as directed by STATE.

10. Apply seed and mulch to the waste areas, as specified in Exhibit L.

STERLING RANCH QUARRY SPECIFIC SPECIFICATIONS

1. Overburden material shall be windrowed as directed by STATE.

2. Reject material shall be hauled to the designated waste area as shown on the Quarry Plan, page 4 of this exhibit and as directed by STATE.

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

3. Clearing debris will be scattered as directed by STATE.

4. Quarry floor shall be developed to provide for drainage as directed by STATE. All quarry drainage ditches shall be maintained. Quarry access roads shall be cleared and blocked upon completion of quarry use as directed by STATE.

BUSTER CREEK QUARRY SPECIFIC SPECIFICATIONS

1. Crusher site and rock source over burden; and reject material developed from crushing operation shall be hauled to the designated waste areas as directed by STATE.

2. The waste area adjacent to the old Buster Creek Quarry floor shall be the priority waste area. When this waste area is full as determined by STATE, then the waste area at the Buster Creek and Grand Rapids road junction shall be utilized.

3. Clearing and development of the waste area site at the junction of the Buster Creek and Grand Rapids roads shall be done only when STATE deems that it will be necessary to utilize this site.

4. Seasonal operating restrictions for the use of explosives shall be in effect from March 1 through July 7, unless otherwise approved in writing by STATE.

5. Rock Source and Crusher Site clearing material shall be piled and burned on site as directed by STATE.

6. PURCHASER shall obtain a FPA Burn Permit prior to debris disposal.

7. At the Buster Creek Quarry fall all timber within the posted right-of-way boundary and remove all merchantable timber.

8. Quarry floor shall be developed to provide for drainage as directed by STATE. All quarry drainage ditches shall be maintained. Quarry access roads shall be cleared and blocked upon completion of quarry use as directed by STATE.

QUARTZ CREEK STOCKPILE SITE

1. Any residual stockpiled crushed rock shall be leveled and utilized in developing the stockpile site floor as directed by STATE.

2. Stockpile floor shall be sloped to drain as directed by STATE.

BUSTER CREEK 4”-0” STOCKPILE SITE

1. If deemed necessary by STATE any residual ¾”-0” stockpiled crushed rock shall be leveled to make room for the planned 4”-0” crushed rock stockpile, as directed by STATE.

2. STATE at its sole discretion may blend the planned 4”-0” crushed rock stockpile with the residual 4”-0” stockpile.

3. Stockpile floor shall be sloped to drain as directed by STATE.

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

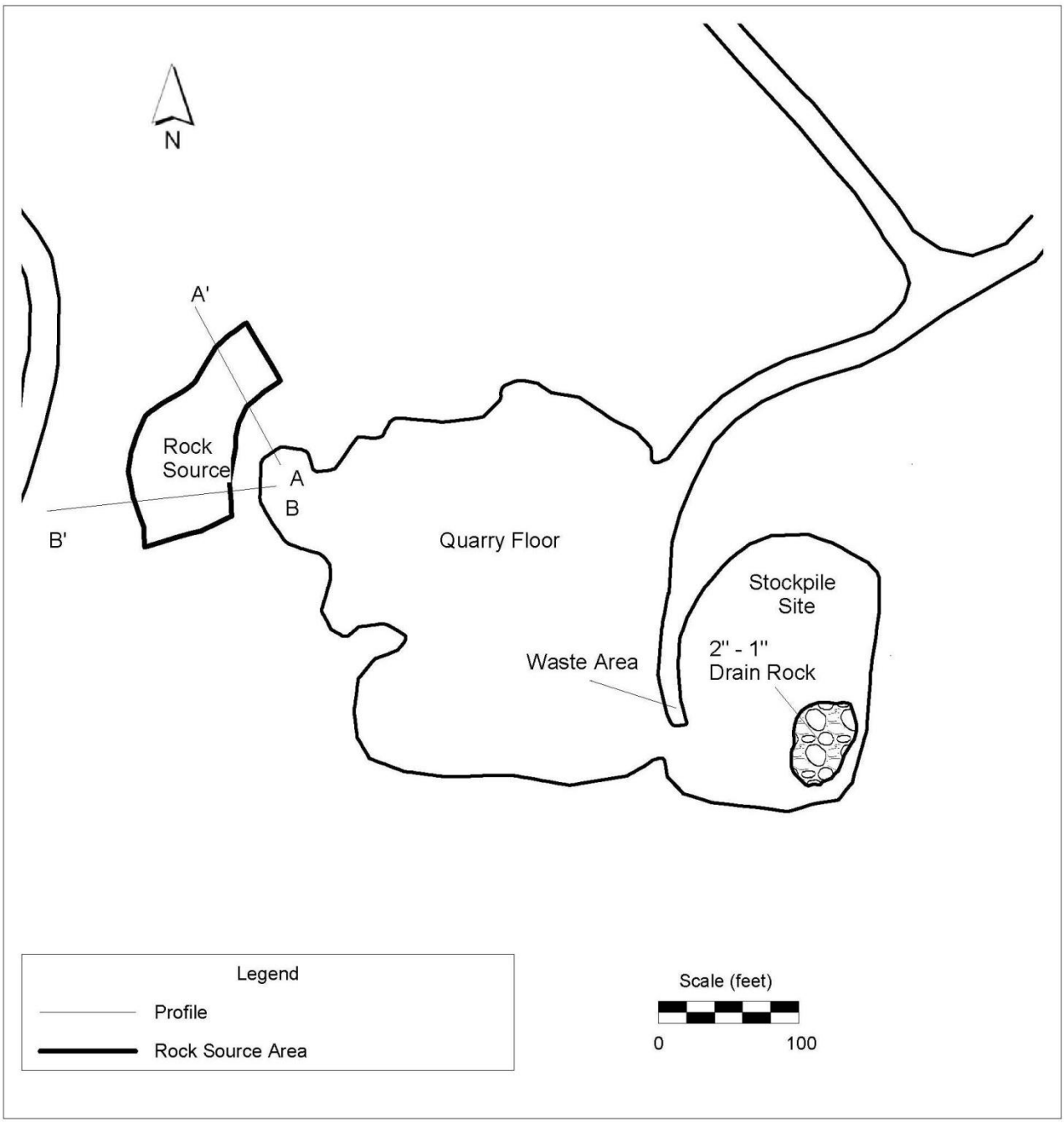
BUSTER CREEK 11/2”-0” STOCKPILE SITE

1. Any residual stockpiled crushed rock shall be leveled and utilized in developing the stockpile site floor as directed by STATE.

2. Stockpile floor shall be sloped to drain as directed by STATE.

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

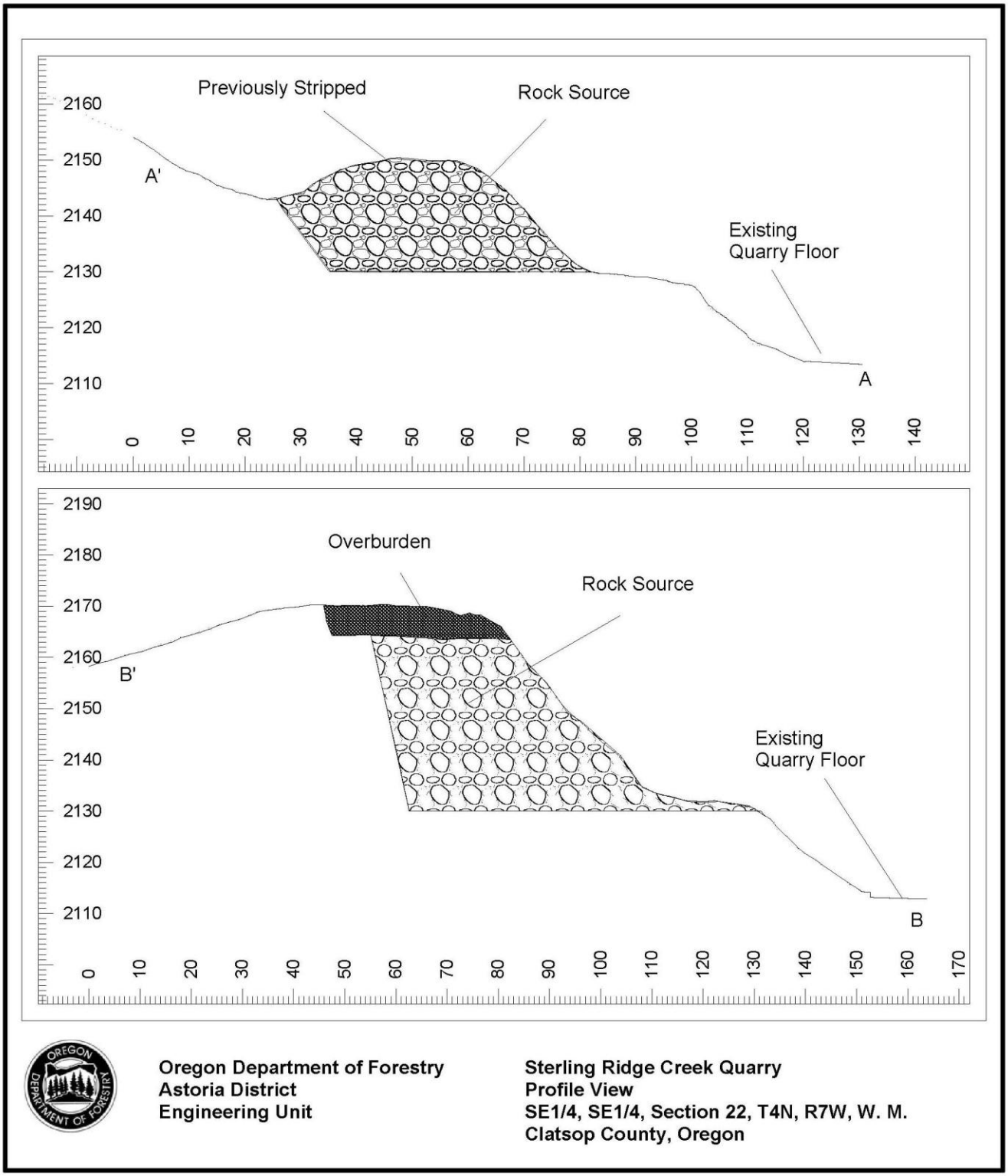


Oregon Department of Forestry
Astoria District
Engineering Unit

Sterling Ridge Quarry
Plan View
SE1/4, SE1/4, Section 22, T4N, R7W, W. M.
Clatsop County, Oregon

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE



Oregon Department of Forestry
Astoria District
Engineering Unit

Sterling Ridge Creek Quarry
Profile View
SE1/4, SE1/4, Section 22, T4N, R7W, W. M.
Clatsop County, Oregon

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

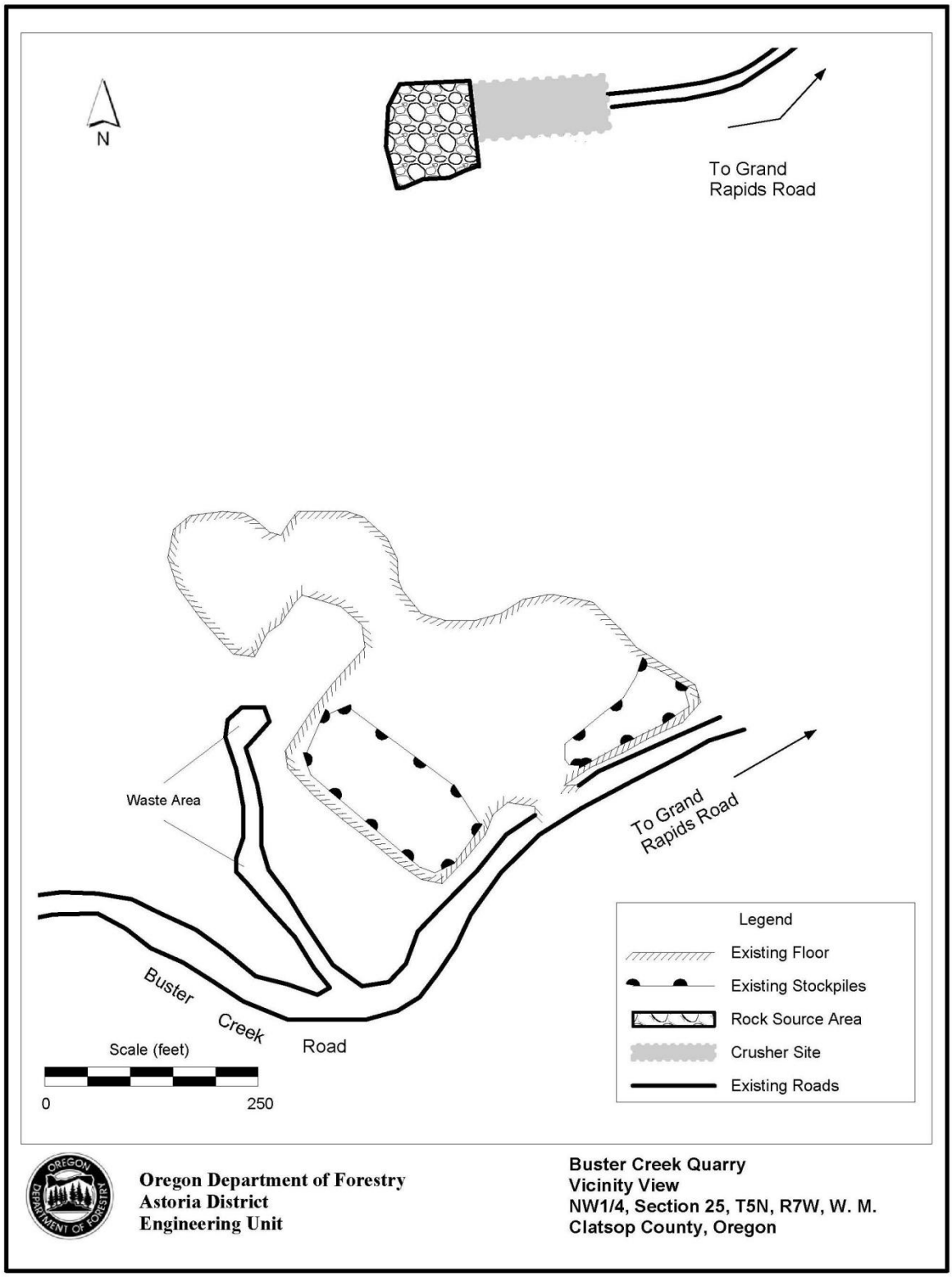


EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

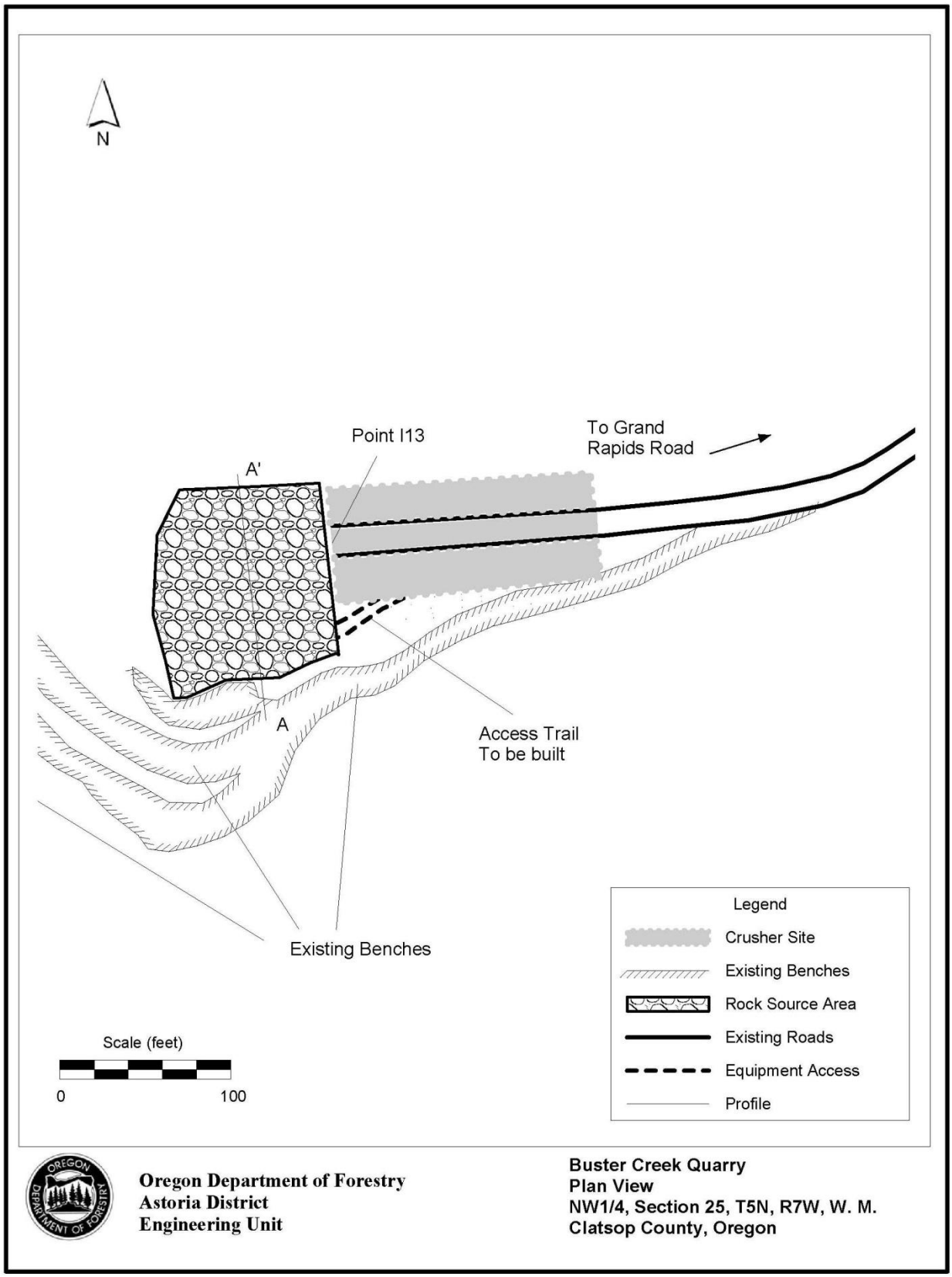


EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

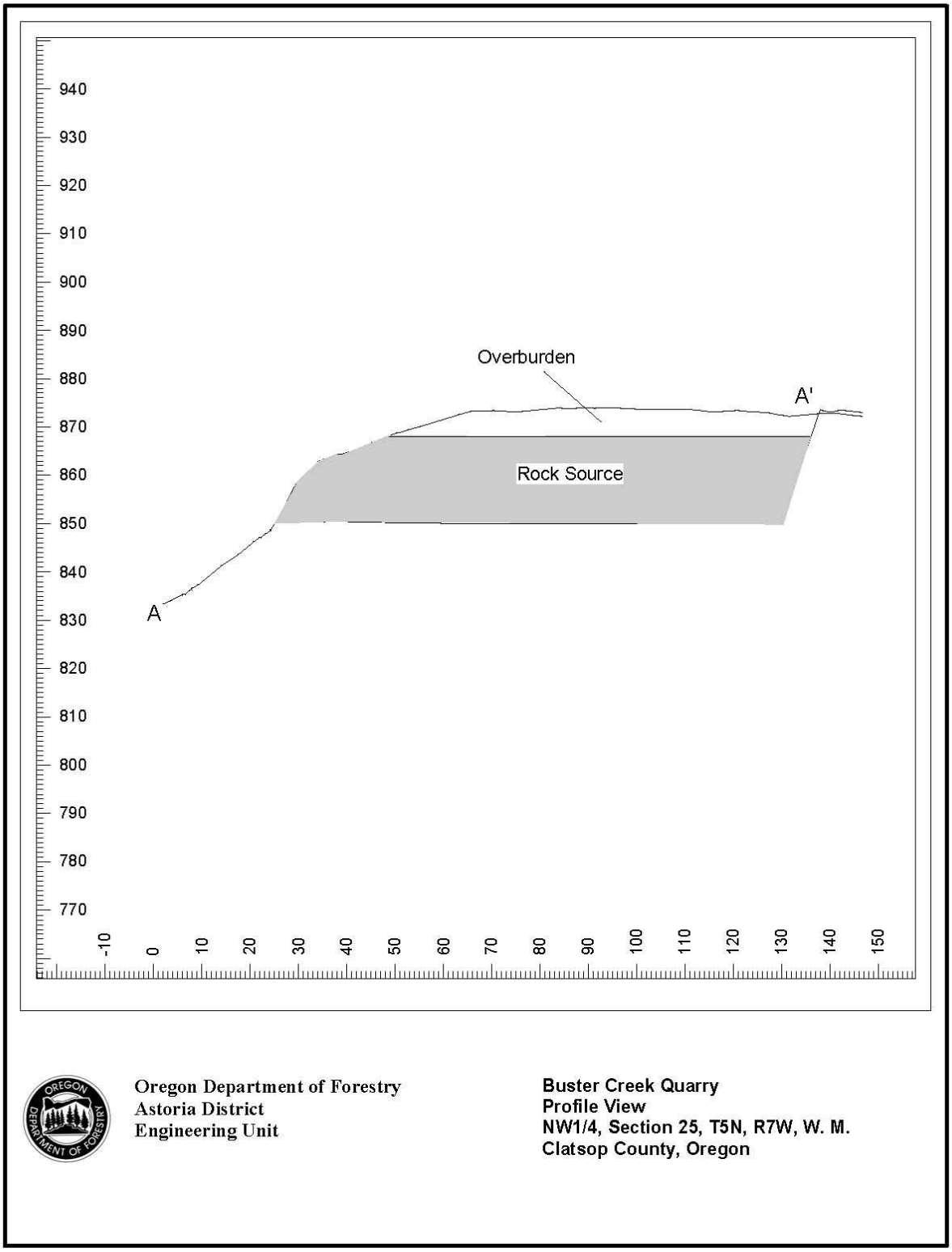


EXHIBIT G

CRUSHED ROCK SPECIFICATIONS

Materials. The material shall be fragments of rock crushed to the required size. The material shall be free from vegetation and lumps of clay. STATE may require screening and/or rejecting of materials utilized for production of crushed rock for the purpose of removing excess fine material. Excess fines are present, when greater than 5 percent of a total rock sample weight, passes a #200 sieve. Rock crushing shall be limited to periods when weather conditions are acceptable to STATE.

Quality and Grading Requirements. The base material shall be rock. River gravel shall not be used. Crushed rock shall meet the grading requirements that follow.

Rock strength: for rock not produced from STATE quarries, the material from which base material is produced or manufactured shall meet the following test requirement for Aggregate Hardness - Test Method AASHTO T 96, 35 percent Maximum.

For the purpose of crushing rock specified under the projects in Section 2610, “Project Work,” PURCHASER shall utilize a three-stage rock crusher, or equivalent, unless otherwise approved by STATE.

The rock crusher shall be calibrated to produce rock as specified in this exhibit. Prior to the commencement of production crushing, PURCHASER shall sample, test, and provide rock test results meeting STATE specifications. STATE may then sample and test crushed rock for approval to proceed. PURCHASER shall take one sample of each 2,000 cubic yards of crushed rock material produced thereafter, using approved AASHTO sampling procedures. PURCHASER shall submit samples to a certified laboratory or shall perform testing for gradation requirements using AASHTO T 11 and AASHTO T 27 testing procedures. Prior to testing, each sample shall be split, making one-half of the sample, with proper identification, available for testing by STATE. Each sample and the results of PURCHASER testing shall be made available to STATE within 24 hours of sampling. Any rock crushed prior to STATE approval to proceed shall not be credited to the required rock quantity. Any subsequent rock tests not meeting STATE specifications shall be reason for rejection of that portion of crushed rock produced after that test and shall not be credited to the required rock quantity. STATE may sample the crushed rock at any time during the operation. Results of STATE’s tests shall prevail over all other test results.

EXHIBIT G

STERLING RANCH QUARRY

CRUSHED ROCK SPECIFICATIONS

Grading Requirements

For 3/4"-0"	Passing	1" sieve	100%
	Passing	3/4" sieve	90-100%
	Passing	3/8" sieve	55-75%
	Passing	1/4" sieve	40-60%
	Passing	No. 10 sieve	20-40%
	Passing	No. 40 sieve	8-16%
For 1½"-0"	Passing	2" sieve	100%
	Passing	1½" sieve	90-100%
	Passing	3/4" sieve	60-90%
	Passing	1/4" sieve	30-50%
	Passing	No. 10 sieve	15-30%
	Passing	No. 40 sieve	7-15%

BUSTER CREEK QUARRY

CRUSHED ROCK SPECIFICATIONS

Grading Requirements

For 1½" minus	Passing	2" sieve	100%
	Passing	1½" sieve	90-100%
	Passing	3/4" sieve	50-75%
	Passing	1/4" sieve	25-55%
	Passing	No. 10 sieve	10-25%
	Passing	No. 40 sieve	5-15%
For 4"-0"	Passing	5" sieve	100%
	Passing	4" sieve	90-100%
	Passing	2" sieve	50-80%
	Passing	3/4" sieve	25-50%
	Passing	1/4" sieve	0-25%

The referenced sieve shall have square openings as set forth in AASHTO M 92, Woven Cloth Series. The determinations of size and gradation shall be as set forth in AASHTO T 27.

RIPRAP ROCK SPECIFICATIONS

For 24"-6" Riprap A minimum of 50 percent of the material shall measure a minimum of 24 inches, measured in one dimension. Material shall be clean, well graded, and free of 2"-0" fines.

Control of gradation shall be by visual inspection by STATE.

Passing	1/4" sieve	0-2

EXHIBIT H

TYPE F STREAM CROSSING STRUCTURE

PURCHASER shall install one Type F structure. Culvert shall be 10 gauge Aluminized steel.

GENERAL TYPE F CONSTRUCTION SPECIFICATIONS

(a) Work shall be conducted only during periods of low water flows and between July 1 and August 31, annually. STATE shall be notified a minimum of 48 hours prior to beginning the work. STATE has prepared a FPA "Written Plan" for this work.

(b) Remove the existing embankment and culvert to accommodate the work area for stream crossing construction. Existing embankment(s) shall be excavated to the natural stream course level. All woody debris encountered during excavation shall be removed.

(c) Salvage onsite existing riprap material for reuse as riprap for the new structure.

(d) Excavated debris and materials unsuitable for embankment construction shall be end hauled to the designated waste area, as directed by STATE. The existing, removed culvert, shall be hauled to an approved refuse site off of STATE land.

(e) Waste materials shall be sloped for drainage and stability, as directed by STATE. Prior to hauling waste materials, the waste area shall be cleared of large woody debris. The debris shall be piled adjacent to the waste area. All exposed excavation areas and waste materials shall be seeded and mulched as per Exhibit L. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover. Large woody debris shall be redistributed over the waste area after all waste materials have been hauled.

(f) Oil spill response materials shall be on site before the work begins.

(g) A minimum 2 cubic-yard, track-mounted excavator shall be used for all excavation, stream channel development, and riprap placement.

(h) Grass seed and straw mulch shall be applied to all exposed areas, bare soils and waste materials as directed by STATE in accordance with Exhibit L.

(i) De-watering of the work site shall be accomplished according to PURCHASER's STATE approved plan and prior to the removal of any additional fill material for the development of the culvert bed, and stream channel. The work site shall be de-watered by the use of cofferdams, pumps, temporary diversion ditches and/or drainage structures.

(j) Remove existing fill, culvert, and any logs or woody debris.

(k) Type "F" stream fill reconstruction must allow free passage of fish as provided in the Oregon Forest Practice Rules. Modifications of the existing culvert geometry shall be required to allow free passage of fish.

(l) Use of an onsite hydraulic rock hammer may be required for the breaking of rock strata encountered during the development of the culvert bed.

(m) Remove additional fill and logs or woody debris for the development of the new culvert bed. The new culvert bed will be different horizontally and vertically from the existing culvert bed. The new culvert bed inlet and outlet coordinates are designated on Exhibit H page 4 of 4.

EXHIBIT H

TYPE F STREAM CROSSING STRUCTURE

SPECIFIC CULVERT INSTALLATION SPECIFICATIONS

Road Segment I3 to I4 (Sta. 78+78)

(a) Develop the stream channel for a distance of 25 feet upstream of the inlet of the culvert and 25 feet downstream of the outlet, as directed by STATE. The stream channel width shall be 7 feet and stream channel banks shall be sloped at 1½:1. Utilize 30 cubic yards of 24”-6” riprap to arm the developed stream channel as directed by STATE.

(b) Utilize 20 cubic yards of 36”-12” riprap rock (streambed retention material) placed and embedded at the outlet of the new culvert to establish the stream channel elevation and allow stream sediment materials to settle in the barrel of the pipe.

(c) Utilize recovered stream cobble on both the inlet and outlet to assist in the formation of a new stream bed. At the culvert inlet taper cobble into the barrel of the culvert as directed by STATE. At the outlet inter-mingle the cobble with the 36”-12” riprap as directed by STATE.

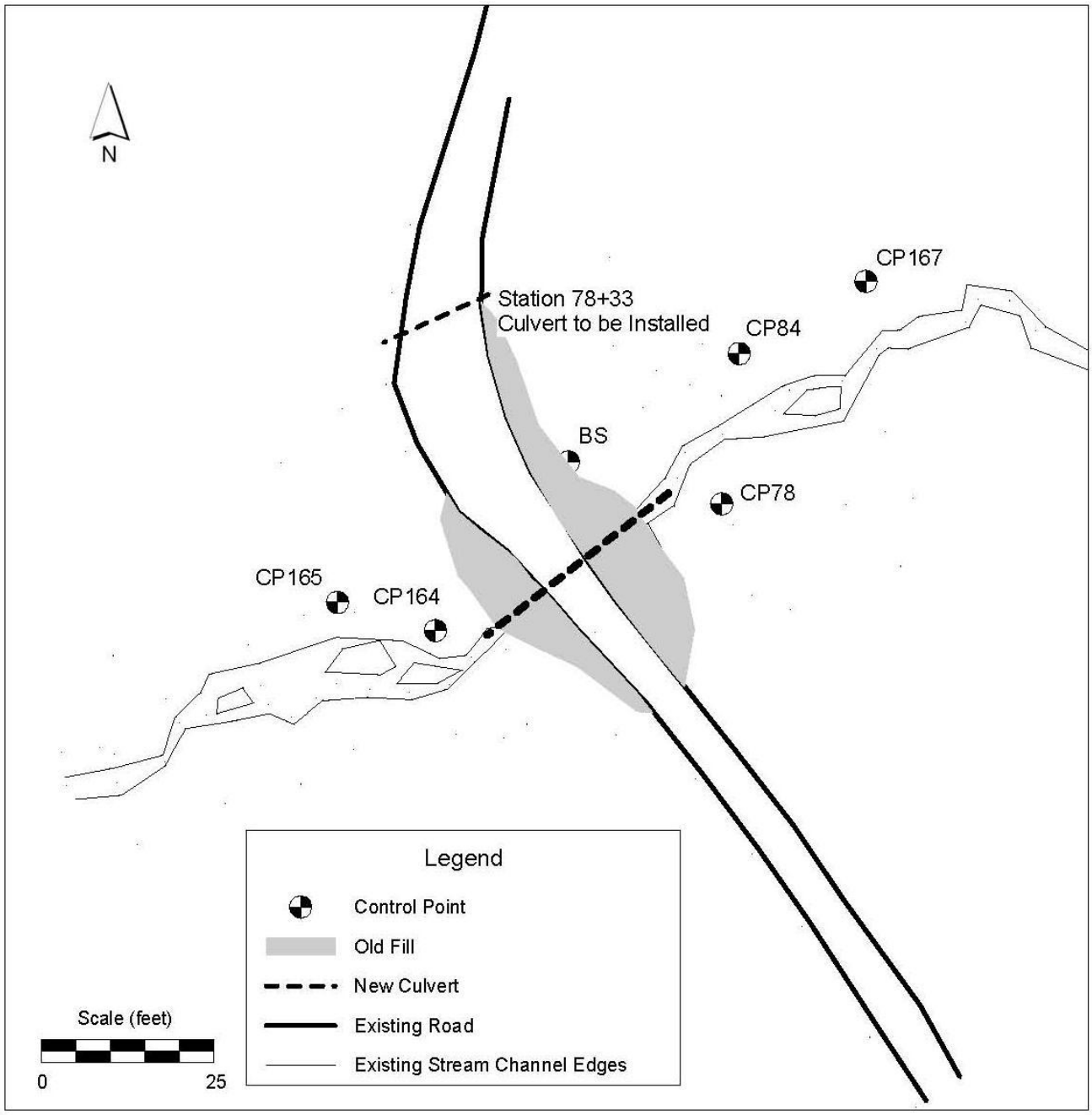
(d) Fill reconstruction backfill shall consist of suitable onsite excavated material and 6”-0” borrowed pit-run as directed by STATE. Backfill shall be compacted as specified in Exhibit D. Riprap rock shall be placed and tamped at a 1½:1 slope for a minimum thickness of 2 feet beginning at the toes.

(e) Utilize 33 cubic yards ¾”-0”crushed rock for culvert bedding material, and 143 cubic yards of ¾”-0” crushed rock for backfill around culvert haunches and to cover the top of the culvert. Bedding and top cover shall be a minimum of 12” compacted depth.

(f) Utilize 121 cubic yards of 24”-6” riprap rock for fill and stream bank armor material placed and tamped at a 1½:1 slope for a minimum thickness of 2 feet beginning at the toes.

EXHIBIT H

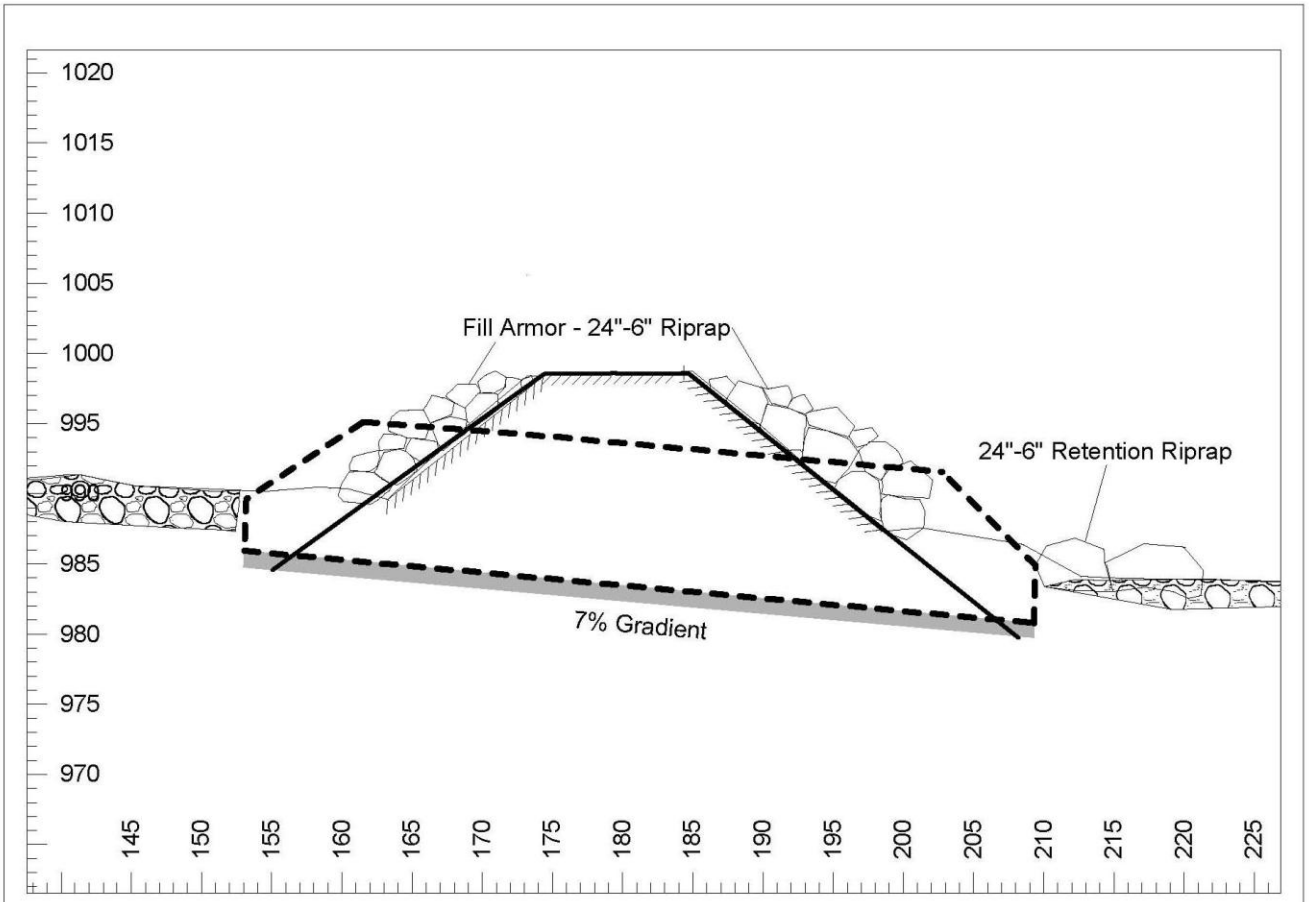
SITE PLAN



Oregon Department of Forestry
Astoria District
Engineering Unit

Point I3 to Point I4
Station 78+78
Rock Creek Tributary
SW1/4, SE 1/4, Section 24, T4N, R7W, W. M.
Clatsop County, Oregon

EXHIBIT H



New Culvert Coordinates	X	Y	Elevation
Inlet	2968.6	4999.2	985.9
Outlet	3021.0	5040.1	980.9

Legend

- New Fill
- Old Fill
- New Culvert
- Machine Placed Cobble
- 3/4"-0" Crushed Rock Bed
- Ground Line/ Streambed

Oregon Department of Forestry
Astoria District
Engineering Unit

Road Segment I3 to I4
Profile View
Station 78+78
SW1/4, SE 1/4, Section 24, T4N, R7W, W. M.
Clatsop County, Oregon

EXHIBIT I

ROAD VACATING SPECIFICATIONS

PURCHASER shall vacate at the following points: V1 to V2. Specific objectives for this project include:

(a) Fill removal and stream channel development;
(b) Culvert removal;
(c) Restoration of natural contours by outsloping of the road prism; and
(d) Minimize disturbance of existing vegetation.

(1) Tree Removal. Remove all trees individually marked with an orange "C", as specified in Section 2210, Designated Timber, to access the project area and to facilitate vacating operations, as directed by STATE.

(2) Fill Removal and Stream Channel Development. Remove fills to the natural stream course level(s). Stream channel(s) shall be excavated/developed to specified widths. Developed stream banks shall be sloped at natural contours or no steeper than 1 ½:1, as directed by STATE.

(3) Culvert Removal. Remove drainage structures and culverts. Removed culverts shall be hauled to an approved refuse site off of STATE land.

(4) Use of Excavated Materials.

(A) Fill Excavation. Excavated materials shall be placed at both points V1 and V2 to block the road as directed by STATE. Any excess material shall be hauled to a designated waste area, as directed by STATE.

(B) Woody Debris Shall be placed on the surface of the excavated material placed at the waste area.

(C) Block Roads. Use excavated material from fill removals to block roads from vehicle access, as directed by STATE.

(5) Erosion Control. Apply seed and straw mulch to excavated materials wasted and used to block the road, and bare soils, in accordance with the specifications in Exhibit L. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.

(6) Construct Waterbars as directed by STATE. Construct waterbars according to the specifications in Exhibit M.

(7) Equipment. A minimum 1½ cubic-yard, track mounted excavator shall be used for all excavation, culvert removal, streambed preparation, road blocking, and waterbarring, unless otherwise approved in writing by STATE.

(8) Dry Conditions. All work shall be performed during dry conditions acceptable to STATE.

(9) Support, including transport, other equipment, replacements, supplies, maintenance, and repairs, shall be furnished as required to complete the project and shall be furnished without cost to STATE, other than as agreed under the contract terms.

EXHIBIT I

ROAD VACATING SPECIFICATIONS

SPECIFIC INSTRUCTIONS/SPECIFICATIONS :

Segment	Station	Work Description
V1 to V2	0+00	Begin fill removal and vacating. Block road as directed by STATE. Develop 13 foot stream channel. Stream bank shall be sloped at 1½:1 through the vacated road prism section.
	0+34	Remove old culvert pieces downstream as directed by STATE. Removed culvert pieces will be disposed of with other removed culverts.
	0+61	End fill removal and vacating. Block road as directed by STATE.

State Timber Sale Contract
No. 341-12-44
Iron Maiden

EXHIBIT J

TYPICAL EMBEDDED ENERGY DISSIPATOR

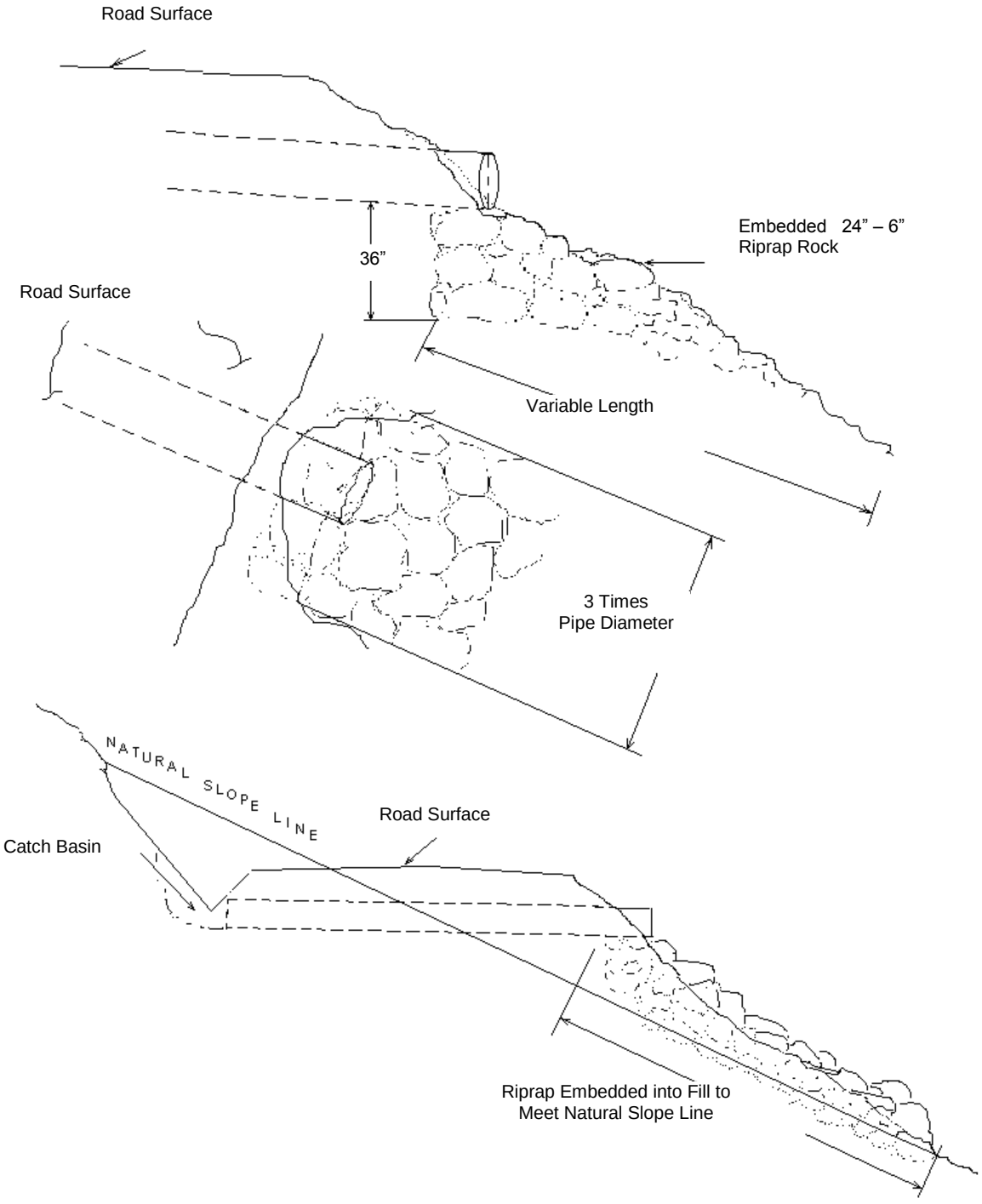


EXHIBIT K

ROAD BRUSHING SPECIFICATIONS

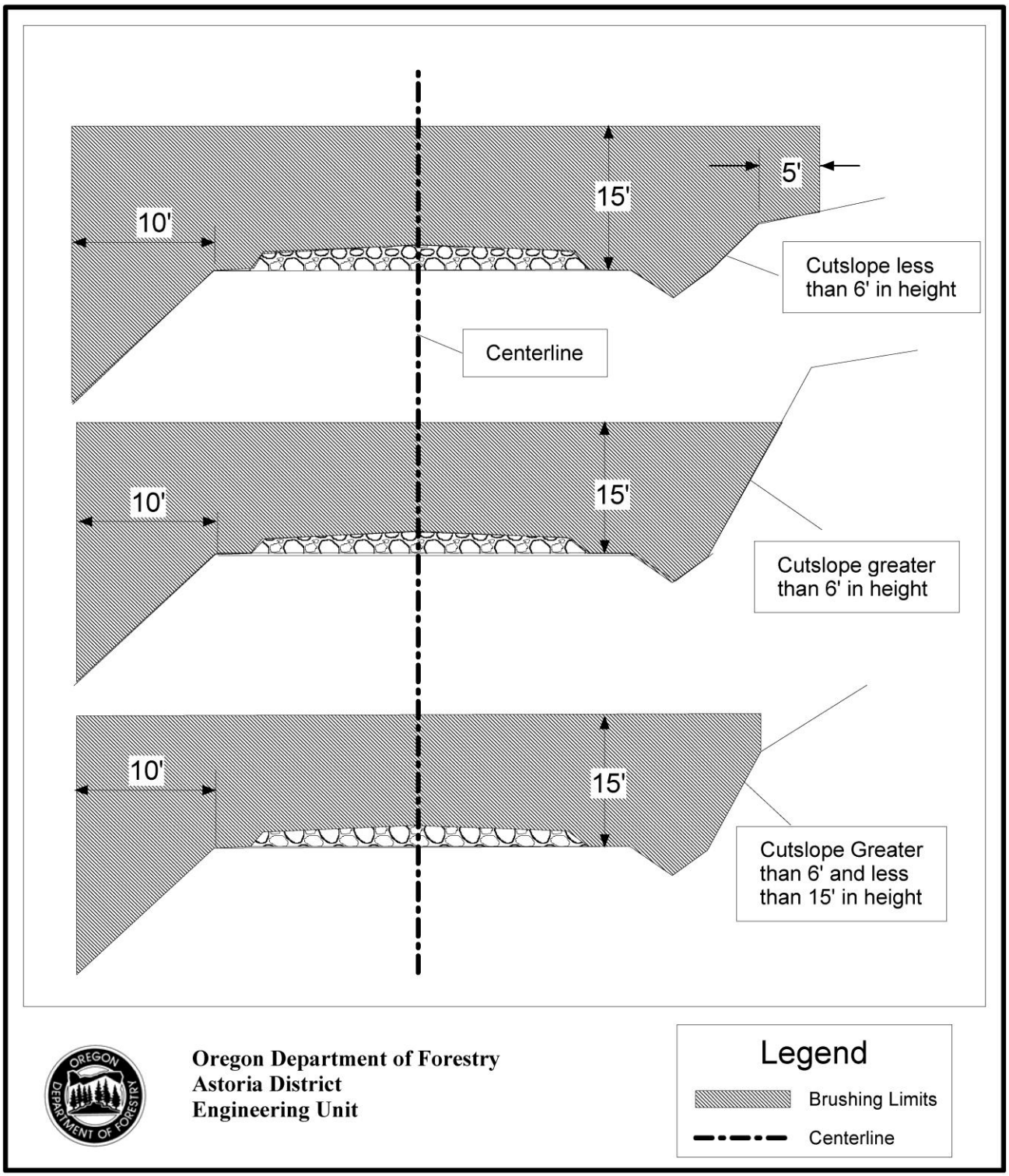


EXHIBIT K

ROAD BRUSHING SPECIFICATIONS

REQUIREMENTS

The minimum height of brushing shall be for all situations 15 feet from the road surface, and the minimum width of brushing on the down slope side of the road shall be 10 feet horizontal distance. The minimum width of brushing on the cutslope side of the road shall be dictated by the height of the cutslope as indicated in the three drawings above. In situations where site distance is an issue brushing heights on the cutslope may vary from the above drawings, as directed by STATE.

Brush and trees shall be cut to a maximum height of 6 inches above the ground surface or obstructions such as rocks or existing stumps.

Debris resulting from the brushing operation shall be removed from the roadway, cutslope, ditches, water courses, culvert inlets/outlets, and sediment catch basins. Debris shall be mulched or scattered downslope from the road or placed in other stable locations. Large debris, 6 inches or larger in diameter, shall be mulched or cut into lengths 6 feet or less to facilitate rapid decay, unless otherwise approved by STATE.

Trees larger than 6 inches in diameter at stump height, located within brushing limits but outside of the ditchline or shoulder, shall not be cut down, but shall be limbed for road visibility.

Existing debris on the roadway, cutslope, ditchline, or catch basin shall be removed and treated. Debris shall be mulched or scattered downslope from the road or placed in other stable locations. Large non-merchantable debris, 6 inches or larger in diameter, shall be mulched or cut into lengths 6 feet or less to facilitate rapid decay, unless otherwise approved by STATE.

Merchantable blown down trees encountered shall be bucked in lengths as directed by STATE, and placed in locations acceptable to STATE, or pushed out of the road prism.

When spur roads to be brushed end with a landing, the landing is to be brushed as directed by STATE.

CULVERT AND ROAD MARKER DAMAGES. Culvert and road markers damaged, or any portion of a marker damaged from PURCHASER activities shall be replaced.

State Timber Sale Contract
No. 341-12-44
Iron Maiden

EXHIBIT L

SEEDING AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed, and straw mulch. Straw mulch shall consist of straw that is free of noxious weeds. Apply seed and straw mulch to all waste resulting from Project Nos. 1, 2, 3, 4 and 5 and bare soils resulting from Project Nos. 5 and 7.

Seeding Seasons. Seeding shall be performed only from March 1 through June 15 and August 15 through October 31. Seeding materials shall not be applied during windy weather or when the ground is excessively wet or frozen. Areas of disturbed soil shall be seeded by the end of the project period in which work was started.

APPLICATION METHODS FOR SEED AND FERTILIZER

Dry Method. Mechanical seeders, seed drills, landscape seeders, cultipacker seeders, fertilizer spreaders, or other approved mechanical seeding equipment shall be used to apply the seed and fertilizer in the amounts and mixtures specified. Hand-operated seeding devices may be used when seed is applied in dry form.

APPLICATION RATES FOR SEED AND FERTILIZER

The seed mixture listed below shall be applied at 100 lbs. per acre. The seed mixture shall be comprised of the following:

SPECIES	MIXTURE	PURE LIVE SEED	GERMINATION
Annual Rye	26%	95%	>90%
Orchard Grass	25%	95%	>90%
New Zealand White Clover	17%	95%	>90%
Perennial Rye	15%	95%	>90%
Birdsfoot Trifoil	07%	95%	>90%
Red Clover	06%	95%	>90%
Alsike Clover	04%	95%	>90%

Fertilizer: Chemical analysis shall be 16-20-0 and shall be applied at the rate of (*100)(*200) pounds per acre. Fertilizer shall not be applied within 100 feet of streams.

Mulching Period. Straw mulch shall be applied within 24 hours of spreading grass seed and fertilizer.

APPLICATION RATES FOR MULCH
Place straw mulch to a reasonably uniform thickness of 1½ to 2½ inches. This rate requires between 2 and 3 tons of dry mulch per acre.

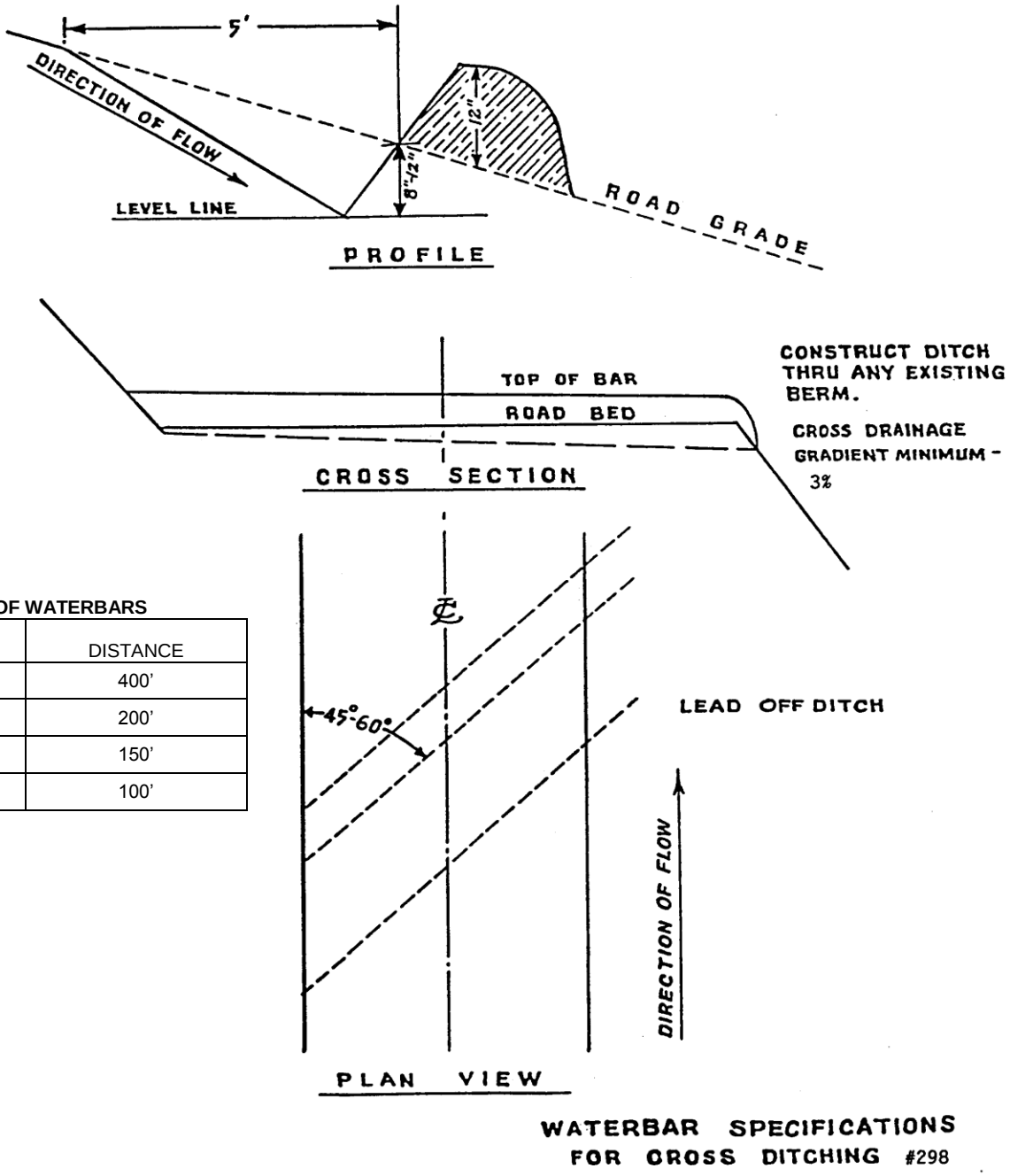
APPLICATION LOCATIONS:

Road Segment	Location	Road Segment	Location
V1 to V2	0+00 to 0+61	I3 to I4	78+78
All waste areas.			

State Timber Sale Contract
No. 341-12-44
Iron Maiden

EXHIBIT M

WATERBAR SPECIFICATIONS



SPACING OF WATERBARS

ROAD GRADE	DISTANCE
≤ 5%	400’
6-10%	200’
11-15%	150’
16-20% or greater	100’

State Timber Sale Contract
No. 341-12-44
Iron Maiden

EXHIBIT N

STREAM ENHANCEMENT INSTRUCTIONS

General Instructions:

(a) Work shall be conducted only during periods of low water flows and between July 1 and August 31, annually unless otherwise approved in writing by STATE. STATE shall be notified a minimum of 48 hours prior to beginning work. STATE has prepared the required FPA "Written Plan" for this work.

(b) Stream crossings will be limited to those necessary to access the sites and whenever possible equipment will operate from the banks to minimize stream disturbance. Turbidity shall not exceed 10% above natural stream turbidities as a result of work. The turbidity may be exceeded for a limited duration (per OAR 340-41), provided all practicable erosion control measures have been implemented. Oil spill response materials will be on site before work begins.

(c) Trees required for stream enhancement work shall be obtained from Area 1 of this Timber Sale or at other locations acceptable to STATE.

(d) Trees shall be uprooted, cut to length, and delivered to the project site, as directed by STATE. Trees will be transported by skidder, excavator, or other means so that roads are not damaged (i.e. trees cannot be dragged on road surface).

(e) Access routes will be selected to minimize disturbance to the riparian area, and equipment transporting trees to the sites will take care to avoid damage to existing in-stream logs, riparian or other trees**.** Trees that are cleared to gain access will be placed in the creek or used to block access trails.

(f) A minimum 1½ cubic-yard, track-mounted excavator shall be used for all placement.

(g) All areas of bare or disturbed soils shall be seeded with an approved grass seed mix. Fertilizer shall not be used. All access trails will be thoroughly blocked to prevent access using large woody debris or boulders, water barred, de-compacted, and mulched upon completion, as directed by STATE.

Specific Instructions:

Location	Work Description
SE1 to SE2	PURCHASER shall select 5 sites along 1,060 feet of stream between SE1 to SE2. Each site will have 5 key logs at least 50 feet long and 20 inches in diameter with root wads attached (where available) and 5 additional pieces at least 30 feet long for a total of 25 key logs and 25 other pieces of wood. Logs shall be placed as directed by STATE.
SE3 to SE4	PURCHASER shall select 5 sites along 1,250 feet of stream between SE3 to SE4. Each site will have 5 key logs at least 50 feet long and 20 inches in diameter with root wads attached (where available) and 5 additional pieces at least 30 feet long for a total of 25 key logs and 25 other pieces of wood. Logs shall be placed as directed by STATE.

PART IV: OTHER INFORMATION

FOREST PRACTICES ACT "WRITTEN PLAN"
Type F Crossing and Fill greater than 15 Feet

Iron Maiden Timber Sale

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources:

Road Segment I3 to I4, (Sta. 78+78): A tributary of Rock Creek, a small Type F fisheries resource, located in the SW1/4, SE1/4, Section 24, T4N, R7W, W.M. Clatsop County, Oregon.

A Written Plan is required for any activity within 100 feet of any Type F stream and for fills greater than 15 feet in height.

Situation:

The current structure is failing, is undersized, and is a partial blockage to fish passage upstream.

Solution:

Design a crossing structure that meets or exceeds the need of this particular stream crossing site and FPA requirements for type F stream crossings.

Drainage Area and Structure Design: The existing 48" diameter and 45' foot long stream crossing structure will be replaced with a 67' long, 108" diameter 10 gage aluminized steel round culvert pipe, embedded 43.2", with both ends step beveled. The stream crossing will utilize a streambed simulation strategy and preserve a natural stream channel, a maximum of 9 feet wide. The stream crossing will meet or exceed the requirements of the FPA for type F stream crossings. The culvert barrel will be seeded with on site stream cobble or 4"-0" crushed rock if sufficient quantities of stream cobble are not available.

New Stream Gradient:	7%
Size of Watershed:	53 acres
Average Stream Width:	7.10 feet
Streambed material:	Cobble, Sand, Gravel, bedrock
50 Year Peak Flow/Mi.^{2}:	250 cfs
50 Year Peak Flow:	21 cfs
Flow Capacity of New Structure:	491 cfs

FOREST PRACTICES ACT "WRITTEN PLAN"
Type F Crossing and Fill greater than 15 Feet

Iron Maiden Timber Sale

Resource Protection Measures:

- Machine activity in stream channel shall be minimized.
- All fill excavation, backfilling, stream channel development, and riprap placement shall be performed using a minimum 2 cubic yard track mounted excavator.
- In-stream work, including de-watering, excavation, culvert installation, and riprap placement shall be conducted from July 1 to August 31.
- A dewatering plan shall be developed and followed from the start of excavation until the structure is in place and water flowing.
- An erosion control plan shall be developed and followed to prevent sediment from entering the stream during construction work.
- Clearing debris, and excavation material shall be hauled to a designated waste area.
- Riprap rock shall be used to protect the structure, road approaches/embankments, and stream banks from erosion.
- Oil spill response materials shall be on site before work begins.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan.

Submitted _____ _____
Purchaser/Operator Date

Attachments: Exhibit A and H

Original: Salem
Copies: Operator, Purchaser, District File, Engineering Unit, Jewell Unit

State Timber Sale Contract
No. 341-12-44
Iron Maiden

FOREST PRACTICES ACT "WRITTEN PLAN"
Activity within 100 feet of a Fill Vacating within 100 feet of a Type F

Iron Maiden Timber Sale

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources:

A tributary of Spruce Run Creek, a small Type F fisheries resource, located in the SW1/4, NW1/4, Section 21, T4N, R7W, W.M. Clatsop County, Oregon.

A Written Plan is required for any activity within 100 feet of any Type F stream.

Situation:

The current structure is failing, undersized, and is a partial blockage to fish passage upstream. Future plans for this road system may not include the need to cross this drainage with a road.

Solution:

Vacate the current fill and remove the drainage structure. Restore a channel width and gradient that simulates the natural stream characteristics at this crossing site.

Restored stream channel width: 13 feet
Restored channel gradient: 13%
Stream banks restored to a 1½:1 slope

Resource Protection Measures:

- Machine activity in stream channel shall be minimized.
- All fill excavation, backfilling, stream channel development, and riprap placement shall be performed using a minimum 2 cubic yard track mounted excavator.
- In-stream work, including de-watering, excavation, culvert installation, and riprap placement shall be conducted from July 1 to August 31.
- A dewatering plan shall be developed and followed from the start of excavation until the structure is in place and water flowing.
- An erosion control plan shall be developed and followed to prevent sediment from entering the stream during construction work.
- Clearing debris, and excavation material will be hauled to a designated waste area.
- Riprap rock shall be used to protect the structure, road approaches/embankments, and stream banks from erosion.
- Oil spill response materials shall be on site before work begins.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan.

Submitted _____ _____
Purchaser/Operator Date

Attachments: Exhibit A and I

Original: Salem
Copies: Operator, Purchaser, District File, Engineering Unit, Jewell Unit

State Timber Sale Contract
No. 341-12-44
Iron Maiden

FOREST PRACTICES ACT "WRITTEN Plan"
Iron Maiden Timber Sale Operating within 100 feet of Type F Streams

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources:

1. Rock Creek
2. Tributaries of Rock Creek
3. Tributaries of Spruce Run Creek

These streams are located in portions of Section 30 T4N, R6W and Portions of Sections 21, 22, 23, 24, and 25 T4N, R6W, W.M., Clatsop County, Oregon.

Specific Site Characteristics:

1. Rock Creek (Large, Type F) – This stream flows along the northern boundary of Area 1 for approximately 13,000 feet.

2. Tributaries of Rock Creek (Small, Type F) – These streams flow within Area 1 for approximately 6,300 feet, and along the southern boundary for approximately 2,370 feet.

3. Tributaries of Spruce Run Creek (Medium, Type F) – This stream flows along the northern boundary of Area 3 for approximately 1,900 feet.

Tree and Vegetation Retention:
Vegetation within the buffers consists of a combination of conifers, hardwoods, and shrubs.

All large and medium Type F streams are posted out at least 100 feet. All posted small Type F buffers along or within the sale areas exceed 50 feet. The live conifer tree basal area retained within 100 feet of all type F streams will be greater than 160 square feet. If trees need to be felled within FPA defined stream buffers (RMA's) to allow for cable corridors, no trees will be harvested. Cable lines may extend over and/or through these buffers.

Resource Protection Practices:
Along all of the above mentioned streams, as well as any other streams, the following practices are required under the timber sale contract, to protect the streams and streamside areas:

- No trees will be felled within stream buffers (RMA's), except in cable corridors.
- Trees that fall or slide into Type F RMA's shall not be removed without prior approval from STATE.
- Trees adjacent to the stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- When cable logging is conducted nearby the RMA's, logging lines may cross, but will not be lowered into the RMA's during yarding, except during rigging. During rigging the lines must be pulled out of the RMA's when changing corridors.
- Logs shall be fully suspended when yarding across all stream buffers (RMA's).
- Cable corridors must be at least 100 feet apart where they cross the RMA's.
- No ground based logging equipment will be permitted within 25 feet of the RMA's in Areas 2 and 3; and within 50 feet of Area 1.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan:

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

Attachments: Exhibit A
Original: Salem
CC: Operator, Purchaser, District file, Eng. Unit, Jewell Unit

State Timber Sale Contract
No. 341-12-44
Iron Maiden

Forest Practices Act
"WRITTEN PLAN"
For Project 7, Stream Enhancement
Iron Maiden Timber Sale

Landowner:
Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources:
Rock Creek (Large/Medium Type F stream) - The affected portion is located in Sections 19 and 30, T4N, R7W, and Section 24, T4N, R6W, W.M., Clatsop County, Oregon.

ODF and ODF&W Stream Biologists have plans for stream enhancement projects at ten locations along Rock Creek west of Highway 26 for a distance of approximately 2,310 feet.

Specific Site Characteristics:
Rock Creek: The streambeds are approximately 10 to 20 feet wide with low to moderate stream-bank slopes. Streamside vegetation is dominated by mature red alder, with a few conifer, and salmonberry.

Tree and Vegetation Retention:
All logs for stream placement will be taken from an offsite (Area 1) location. Vegetation disturbance in the RMA's will be kept to a minimum. There will not be any harvesting permitted within the RMA.

Practices:
Ten stream enhancement structures will be constructed using ground based equipment at points SE1 – SE2 and SE3 – SE4. Each structure will be created by placing ten conifer logs (five approximately 20 inches DBH and 50 feet long with root wads attached and five tops) in the Type F stream. The logs will be placed with a log loader or excavator into the stream at locations specified by STATE, and with consultation from an ODF fisheries biologist. STATE shall be notified a minimum of 48 hours prior to beginning work. All conifer logs will be taken from locations outside of the RMA. This work will take place during the instream work period (July 1 – August 31), unless otherwise approved in writing by STATE. No excavation will be conducted during the stream enhancement. The approximate locations are shown on the Exhibit "A".

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan.

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

Attachments:Exhibit "A"
Exhibit "N"

Original: Salem, copies: Operator, Purchaser, District File, and Jewell Unit

State Timber Sale Contract
No. 341-12-44
Iron Maiden

FOREST PRACTICES ACT "WRITTEN Plan"
Iron Maiden Timber Sale Operating within 300 feet of Significant Wetlands

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources:
Significant Wetlands associated with Rock Creek located in portions of Section 30 T4N, R6W and Portions of Section 24 T4N, R7W, W.M., Clatsop County, Oregon.

Specific Site Characteristics:
Significant Wetlands associated with Rock Creek (Large, Type F) – Several wetland areas outside the timber sale area are within 300 feet of the Timber Sale Boundary.

Tree and Vegetation Retention:
Vegetation within the wetlands consists of a combination of grasses, hardwoods, and shrubs.

The timber sale boundary is posted at least 50 feet from protected resources. The live conifer tree basal area retained outside the 25 foot buffer will be greater than 160 square feet.

Resource Protection Practices:
Along all of the above mentioned streams and wetlands, the following practices are required under the timber sale contract, to protect the streams and streamside areas:

- All wetlands are posted outside the sale area at least 50 feet away.
- No trees or snags will be felled within wetlands.
- Trees adjacent to the wetlands will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- No ground based logging equipment will be permitted within 25 feet of the wetlands in Area 1.
- The timber prescription retains 50% of the basal area and favors leaving large diameter trees.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan.

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

Original: Salem
CC: Operator, Purchaser, District file, Eng. Unit, Jewell Unit

Attachments: Exhibit A

State Timber Sale Contract
No. 341-12-44
Iron Maiden

OREGON DEPARTMENT of FISH and WILDLIFE

FISH SCREENING PROGRAM

SMALL PUMP SCREEN SELF CERTIFICATION

The Oregon Water Resources Department in coordination and cooperation with the Oregon Department of Fish and Wildlife includes screen requirements on pumps to protect fish as a condition of many surface water and/or reservoir water right permits. This is done in accordance with ORS 537.153.

The Oregon Department of Fish and Wildlife does not usually inspect small pump screens at pumped diversions less than 225 GPM (Gallons per Minute), but furnishes the following fish screening criteria information to the water right permit tee:

Screen material open area must be at least 27% of the total wetted screen area.

Perforated plate: Openings shall not exceed 3/32 or 0.0938 inches (2.38 mm).
Mesh/Woven wire screen: Square openings shall not exceed 3/32 or 0.0938 inches (2.38mm) in the narrow direction, e.g., 3/32 inch x 3/32 inch open mesh.
Profile bar screen/Wedge wire: Openings shall not exceed 0.0689 inches (1.75 mm) in the narrow direction.

Screen area must be large enough to cause fish impact. Wetted screen area depends on the water flow rate and the water approach velocity. **Approach velocity** is the water velocity perpendicular to and approximately three inches in front of any part of the screen face.

An Active pump screen is a self cleaning screen that has a proven cleaning system. The **screen approach velocity for active pump screens** shall not exceed 0.4 fps (feet per second) or 0.12 mps (meters per second). The wetted screen area in square feet is calculated by dividing the maximum water flow rate in cubic feet per second (1 cfs = 449 gpm) by 0.4 fps.

A Passive pump screen is a screen that has no cleaning system other than periodic manual cleaning. **Screen approach velocity for passive pump screens** shall not exceed 0.2 fps or 0.06 mps. The wetted screen area in square feet is calculated by dividing the maximum water flow rate by 0.2 fps.

For further information on fish screening please contact:

Bernie Kepshire, Oregon Department of Fish and Wildlife,
7118 NE Vandenberg Avenue, Corvallis, OR 97330-9446 (541) 757-4186 x 255

As evidence of having met fish screen installation requirements, please sign the certification and send to: Oregon Water Resources Department, Water Rights Section, 725 Summer St. NE, Suite A, Salem, OR 97301-1271

Certification: I certify that my small pumped diversion of less than 225 gpm meets fish screening criteria, and that I will maintain it to comply with regulatory criteria. I also understand that should fish screening standards change, I may be required to modify my installation to meet applicable standards.

Applicant Signature:_____ Date:___/___/___ WRD File #

Printed Name and Address: _____

Phone: (_____) _____ Fax: (_____) _____

bmk
3/11/99
PUMPCERT.doc
NB: ODFW logo is 129% of logo on HQ mail label

State Timber Sale Contract
No. 341-12-44
Iron Maiden

NOTICE OF TRANSFER OF STATE TIMBER

Instructions **629:-Form-301-010**

Complete Section 1. Mark the box which applies to you/your company in Section 2. Complete Section 3 and obtain signatures.

SECTION 1

On _____, state timber sale purchaser (Transferor)
_____, sold, exchanged or otherwise transferred to
_____, (Transferee) state timber originating from State Timber Sale Contract No. _____.

Transferee hereby certifies that they:

(a) Will not export the unprocessed state timber which is the subject of this transaction;

(b) Will not sell, transfer, exchange or otherwise convey the unprocessed timber which is the subject of this transaction to any other person without first obtaining a like certification from that person.

(c) Are not prohibited by OAR's 629-31-005 through 045 from purchasing state timber or logs directly from the State Forester, or this is a sale of Western Red Cedar for domestic processing.

SECTION 2

☐ Have not exported unprocessed timber originating from private lands in Oregon in the last 24 months.

☐ This is a sale of hardwood logs for domestic processing.

☐ This is a sale of Western Red Cedar for domestic processing.

☐ This is a sale of pulp logs or cull logs processed at domestic pulp mills, domestic chip plants or other domestic operations for the purpose of conversion of the logs into chips.

SECTION 3

The parties understand that falsely entering into this certification, or failure to comply with the terms of this certification is a violation of the Forest Conservation and Shortage Relief Act of 1990 and OAR Chapter 629, Division 31, and is subject to any and all penalties contained therein.

Transferor:	Transferee:
Signed	Signed
Title	Title
Dated	Dated

[Note: For the purpose of this form, the definition of unprocessed timber is the same as in OAR 629-31-005]

Mail To: State Forester
2600 State Street
Salem, OR 97310

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Iron Maiden
Sale 341-12-44

District: Astoria **Date: December 07, 2011**

cost summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	$2,746,399.70	$8,242.25	$2,754,641.95
		Project Work:	$(424,228.00)
		Advertised Value:	$2,330,413.95

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Iron Maiden
Sale 341-12-44

District: Astoria **Date: December 07, 2011**

timber description

Location: Portions of Section 30 T4N, R6W and portions of Sections 21, 22, 23, 24, and 25, T4N, R7W, W.M., Clatsop County, Oregon.

Stand Stocking: 80%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	20	0	97
Western Hemlock / Fir	18	0	96
Sitka Spruce	18	0	96
Alder (Red)	19	0	95

Volume by Grade	2S	3S	4S	Camprur	Total
Douglas - Fir	4,509	1,593	286	0	6,388
Western Hemlock / Fir	2,325	639	336	0	3,300
Sitka Spruce	15	3	0	0	18
Alder (Red)	0	0	0	25	25
Total	6,849	2,235	622	25	9,731

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Iron Maiden
Sale 341-12-44

District: Astoria **Date: December 07, 2011**

comments: Pond Values Used: 3rd Quarter Calendar Year 2011.

Expected Log Markets: Mist, OR; Clatskanie, OR; Tillamook, OR; Forest Grove, OR.

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost
$704.39/MBF = $900/MBF - $195.61/MBF

SCALING COST ALLOWANCE = $5.00/MBF

FUEL COST ALLOWANCE = $4.00/Gallon

HAULING COST ALLOWANCE

Hauling costs equivalent to $740 daily truck cost.

Other Costs (with Profit & Risk to be added):
100% Branding and Painting: $1/MBF x 9,731 MBF = $9,731
Log Loader Slash & Landing Piling (includes Move-In and Pile Materials): = $12,765 (see attached appraisal)
Machine washing for noxious weed compliance = $2,000
TOTAL Other Costs (with Profit & Risk to be added) = $24,496

Other Costs (No Profit & Risk added):
Snag Creation: 334 snags x $40.00/snag = $13,360
TOTAL Other Costs (No Profit & Risk added) = $13,360

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Iron Maiden
Sale 341-12-44

District: Astoria **Date: December 07, 2011**

logging conditions

combination#: 1

Douglas - Fir	61.32%
Western Hemlock / Fir	8.91%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Shovel **Process:** Manual Falling/Delimbing
tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 6.0 **bd. ft / load:** 4,500
cost / mbf: $92.76

machines: Shovel Logger

combination#: 2

Douglas - Fir	21.28%
Western Hemlock / Fir	50.10%
Sitka Spruce	55.00%
Alder (Red)	55.00%

yarding distance: Long (1,500 ft) **downhill yarding:** No
logging system: Cable: Large Tower >=70 **Process:** Stroke Delimber
tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 7.0 **bd. ft / load:** 4,000
cost / mbf: $136.67

machines: Log Loader (A)
Stroke Delimber (A)
Tower Yarder (Large)

combination#: 3

Douglas - Fir	17.41%
Western Hemlock / Fir	40.99%
Sitka Spruce	45.00%
Alder (Red)	45.00%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Shovel **Process:** Stroke Delimber
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 7.0 **bd. ft / load:** 4,000
cost / mbf: $51.37

machines: Stroke Delimber (B)

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Iron Maiden
Sale 341-12-44

District: Astoria **Date:** December 07, 2011

logging costs

Operating Seasons:	2.00	**Profit Risk:**	14.00%
Project Costs:	$424,228.00	**Other Costs (P/R):**	$24,496.00
Slash Disposal:	$0.00	**Other Costs:**	$13,360.00

Miles of Road

Road Maintenance: $2.92

Dirt	Rock (Contractor)	Rock (State)	Paved
0.0	0.0	0.0	0.0

Hauling Costs

Species	$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	$0.00	2.0	4.5
Western Hemlock / Fir	$0.00	2.0	4.0
Sitka Spruce	$0.00	2.0	4.0
Alder (Red)	$0.00	2.0	3.0

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Iron Maiden
Sale 341-12-44

District: Astoria **Date: December 07, 2011**

logging costs breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
$94.90	$3.01	$0.90	$74.28	$2.52	$24.59	$0.00	$5.00	$1.37	$206.57
Western Hemlock / Fir									
$97.79	$3.04	$0.90	$84.39	$2.52	$26.41	$0.00	$5.00	$1.37	$221.42
Sitka Spruce									
$98.28	$3.04	$0.90	$84.39	$2.52	$26.48	$0.00	$5.00	$1.37	$221.98
Alder (Red)									
$98.28	$3.07	$0.90	$113.60	$2.52	$30.57	$0.00	$5.00	$1.37	$255.31

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	$0.00	$519.13	$312.56	$0.00
Western Hemlock / Fir	$0.00	$447.56	$226.14	$0.00
Sitka Spruce	$0.00	$416.67	$194.69	$0.00
Alder (Red)	$0.00	$585.00	$329.69	$0.00

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Iron Maiden
Sale 341-12-44

District: Astoria **Date:** December 07, 2011

summary

Amortized

Specie	MBF	Value	Total
Douglas - Fir	0	$0.00	$0.00
Western Hemlock / Fir	0	$0.00	$0.00
Sitka Spruce	0	$0.00	$0.00
Alder (Red)	0	$0.00	$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	6,388	$312.56	$1,996,633.28
Western Hemlock / Fir	3,300	$226.14	$746,262.00
Sitka Spruce	18	$194.69	$3,504.42
Alder (Red)	25	$329.69	$8,242.25

Gross Timber Sale Value

Recovery: $2,754,641.95

Prepared by: Jasen McCoy **Phone:** 503-325-5451

SLASH RECOMMENDATIONS:

Site Prep Appraisal

Sale Number: 341-12-44
Sale Name: Iron Maiden
Date: 09/09/2011

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre
Doug-fir	A	1.0	3.0
Hemlock/Fir	B	1.5	4.5
Hemlock/Spruce	C	2.0	6.0
Hemlock	D	2.0	6.0
Conifer/Hardwood	E	1.5	3.0

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area
2	MC	B	50	75	$110.00	$8,250.00
3	MC	B	8	12	$110.00	$1,320.00

Sub Total = *$9,570.00*

Sale Area	Number of Landings to be Piled	Cost/Landing Pile*	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area
2	5	$263.00	$1,315	225	$5.00	$1,125.00
3	2	$263.00	$526	36	$5.00	$180.00

*Cost includes separating firewood

Sub Total = *$1,305.00*

Move-In Allowance	Number of Move-In's	Total Move-In Allowance
$945.00	2	$1,890.00

Sub Total = $1,890.00

Grand Total = **$12,765.00**

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Iron Maiden

NEW CONSTRUCTION:

Road segment	Length/Sta	Cost
TOTALS		

ROAD IMPROVEMENT:

Road segment	Length/Sta	Cost	
I1-I2, I3-I4, I5-I6, I6-I7, I8-I9, I10-I11,	668+01	$80,862.00	
I12-I13	35+44	$6,338.00	
TOTALS			$87,200.00

SPECIAL PROJECTS:

Description	Cost	
Sterling Ranch Crushing	$99,835.00	
Buster Creek Crushing	$163,603.00	
Type F Culvert	$24,733.00	
Vacating	$7,272.00	
Brushing	$18,913.00	
Stream Enhancement	$15,328.00	
Project Work Road Maintenance	$1,922.00	
TOTAL		$331,606.00

MOVE IN:

Equipment	Cost	
C330	$1,220.00	
C315	$699.00	
12 yd Dump Trucks	$423.00	
20 yd Dump Trucks	$664.00	
Water Truck	$165.00	
Vibratory roller	$675.00	
Grader	$675.00	
Brush Cutter	$279.00	
Skidder	$622.00	
TOTAL		$5,422.00

GRAND TOTAL **$424,228.00**

Compiled By: d.mellison FL Date: 10/06/11

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Iron Maiden
ROAD:
POINTS: I1-I2 (305+51), I3-I4 (207+67), I5-I6 (38+02), I6-I7 (60+78), I8-I9 (25+62), I10-I11 (30+47)

NEW CONSTRUCTION: _____ STATIONS _____ MILES
IMPROVEMENT: 668.01 STATIONS 12.65 MILES

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
I3 - I4 (sta 142+96-147+22)	0.47	x	$1,161	=	$545.67
		x		=	
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING $546

EXCAVATION

	Material	Cy/amount	x	Rate	=	Cost
(I1 - I2)	Construct Ditchouts (Grader) (Hrs)	2	x	$93.00	=	$186.00
	Clean Specified Catch basins (C315) (Hrs)	0.5	x	$94.00	=	$47.00
	Construct Waste Area (C315) (Hrs)	0.5	x	$94.00	=	$47.00
(I3 - I4)	Clean Specified Catch basins (C315) (Hrs)	0.5	x	$94.00	=	$47.00
	Construct Waste Areas (C315) (Hr	1	x	$94.00	=	$94.00
	Construct Sta 142+96 - 147+19				=	
	Haul to sta 78+78	408	x	$2.17	=	$885.36
	Haul to WA (126+60)	1,190	x	$2.17	=	$2,582.30
	Drift to fills	94	x	$1.60	=	$150.40
	Fill compaction	94	x	$0.60	=	$56.40
(I10 - I11)	Construct Waste Area (C315) (Hrs	0.5	x	$94.00	=	$47.00
			x		=	
			x		=	

SUB TOTAL FOR EXCAVATION $4,142

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
(I1-I2) 9+23	18	40	$17.64	$705.60					
(I1-I2) 113+97	18	40	$17.64	$705.60					
(I1-I2) 171+11	18	40	$17.64	$705.60					
(I1-I2) 176+91	18	40	$18.24	$729.60					
(I1-I2) 220+80	24	48	$33.48	$1,607.04					
(I3-I4) 29+31	18	32	$17.64	$564.48					
(I3-I4) 52+50	18	40	$17.64	$705.60					
(I3-I4) 78+33	18	40	$17.64	$705.60					
(I3-I4) 78+78	108	67	Cost shown in Type F install.						
(I3-I4) 107+40	18	40	$17.64	$705.60					
(I3-I4) 145+54	18	32	$17.64	$564.48					
(I3-I4) 146+12	36	52	$47.28	$2,458.56					
(I3-I4) 147+19	18	32	$17.64	$564.48					
(I3-I4) 164+77	18	32	$17.64	$564.48					
(I10-I11) 14+19	18	40	$17.64	$705.60					

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:	(I1-I2) - 9, (I3-I4) - 6, (I6-I7) - 1, (I10-I11) - 1	18	$18.00	$324.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $12,316

Subtotal of Clearing, Exc., Culv. ***$17,004***

SURFACING

Subgrade prep:	Description	Stations/ amount	x	Rate/ sta/amt	Cost
	Grade, Shape and Ditch 16'	554.39	x	$21.55	$11,947.10
	Subgrade Compaction	554.39	x	$17.52	$9,712.91
	8 hrs grader,16 hrs roller , 8 hrs Water truck for sta 115+57 to 249+19	113.62			$2,560.00
(I1 to I2)	Load and haul ditch waste materials	133.28	x	$19.89	$2,650.94
(I3 to I4)	Load and haul ditch waste materials	42.35	x	$19.89	$842.34
(I5 to I6)	Load and haul ditch waste materials	10.25	x	$19.89	$203.87
(I6 to I7)	Load and haul ditch waste materials	5.94	x	$19.89	$118.15
(I10 to I11)	Load and haul ditch waste materials	21.33	x	$19.89	$424.25

ROAD SEGMENT	I1 to I2			POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2 Volume (CY) per		0+00 - 115+57 Number of		VOLUME (CY)	Sta./ amt.		
Surface Rock	3/4"-0" crushed		4	station	29	stations	115.57	3,352	$2.84	$9,518	
Junctions	3/4"-0" crushed		4	junction	n/a	junctions	13	270	$2.84	$767	
Turnouts (50 foot)	3/4"-0" crushed		4	turnout	11	turnouts	15	165	$2.84	$469	
Turnouts (75 foot)	3/4"-0" crushed		4	turnout	15	turnouts	4	60	$2.84	$170	
Curve Widening	3/4"-0" crushed		4	curve	n/a	curves	30	292	$2.84	$85	
Leveling Rock	3/4"-0" crushed		4	load	11	loads	12	132	$2.84	$34	
Culvert bedding/backfill	3/4"-0" crushed		n/a	culvert	44	culverts	2	88	$2.84	$250	
Additional Backfill	4"-0" crushed	9+23	n/a	fill	33	fills	1	33	$2.84	$94	
Dissipator Rock	24"-6" riprap		n/a	culvert	10	culverts	2	20	$3.52	$70	
Total Rock for Road Segment:			I1 to I2					4,412			$11,457

ROAD SEGMENT	I1 to I2			POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2 Volume (CY) per		115+57 - 249+19 Number of		VOLUME (CY)	Sta./ amt.		
Culvert bedding/backfill	3/4"-0" crushed		n/a	culvert	n/a	culverts	3	143	$2.84	$406	
Surface Rock	3/4"-0" crushed		4	station	25	stations	3	75	$2.84	$213	
Additional backfill	4"-0" crushed	220+80	n/a	fill	44	fills	1	44	$2.84	$125	
Dissipator Rock	24"-6" riprap		n/a	culvert	10	culverts	3	30	$3.52	$106	
Total Rock for Road Segment:			I1 to I2					292			$850

ROAD SEGMENT	I1 to I2			POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2 Volume (CY) per		249+19 - 305+51 Number of		VOLUME (CY)	Sta./ amt.		
Leveling Rock	3/4"-0" crushed		4	load	11	loads	7	77	$2.84	$219	
Surface Rock	3/4"-0" crushed		4	station	25	stations	56.32	1,408	$2.84	$3,999	
Turnouts (50 foot)	3/4"-0" crushed		4	turnout	11	turnouts	11	121	$2.84	$344	
Junctions	3/4"-0" crushed		4	junction	20	junctions	2	40	$2.84	$114	
Curve Widening	3/4"-0" crushed		4	curve	n/a	curves	27	250	$2.84	$710	
Trurnarounds	3/4"-0" crushed		4	turnaround	11	turnarounds	1	11	$2.84	$31	
Total Rock for Road Segment:			I1 to I2					1,907			$5,416

ROAD SEGMENT	I3 to I4			POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I3 to I4 Volume (CY) per		0+00 - 207+67 Number of		VOLUME (CY)	Sta./ amt.		
Surface Rock	3/4"-0" crushed	78+53-79+03	4	station	22	stations	0.5	11	$2.84	$31	
Surface Rock	3/4"-0" crushed	142+96-147+22	4	station	25	stations	4.26	107	$2.84	$302	
Leveling Rock	3/4"-0" crushed		4	load	11	loads	35	385	$2.84	$1,093	
Base Rock	4"-0" crushed	78+53-79+03	8	station	44	stations	0.5	22	$2.84	$62	
Base Rock	4"-0" crushed	143+87-146+09	8	stations	50	stations	2.2	111	$2.84	$315	
Culvert bedding/backfill	3/4"-0" crushed		n/a	culvert	n/a	culverts	9	490	$2.84	$1,392	
Dissipator Rock	24"-6" riprap		n/a	culvert	10	culverts	6	60	$3.52	$211	
Fill and streambank Armor	24"-6" riprap	78+78	N/A	culvert		culverts	1	200	$3.52	$704	
Total Rock for Road Segment:			I3 to I4					1,386			$4,112

ROAD SEGMENT	I5 to I6			POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I5 to I6 Volume (CY) per		0+00 - 38+02 Number of		VOLUME (CY)	Sta./ amt.		
Leveling Rock	3/4"-0" crushed		4	load	11	loads	9	99	$2.84	$281	
Total Rock for Road Segment:			I5 to I6					99			$281

ROAD SEGMENT	I6 to I7			POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I6 to I7 Volume (CY) per		0+00 - 60+78 Number of		VOLUME (CY)	Sta./ amt.		
Leveling Rock	3/4"-0" crushed		4	load	11	loads	15	165	$2.84	$469	
Traction Rock	3/4"-0" crushed		2	station	13	stations	31.74	413	$2.84	$1,172	
Total Rock for Road Segment:			I6 to I7					578			$1,640

ROAD SEGMENT	I8 to I9			POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I8 to I9 Volume (CY) per		0+00 - 25+62 Number of		VOLUME (CY)	Sta./ amt.		
Traction Rock	3/4"-0" crushed		2	station	13	stations	14.99	195	$2.84	$553	
Total Rock for Road Segment:			I8 to I9					195			$553

ROAD SEGMENT	I10 to I11			POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I10 to I11 Volume (CY) per		0+00 - 30+47 Number of		VOLUME (CY)	Sta./ amt.		
Leveling Rock	3/4"-0" crushed		4	load	11	loads	6	66	$2.84	$187	
Traction Rock	3/4"-0" crushed		2	station	13	stations	2.71	35	$2.84	$100	
Culvert bedding/backfill	3/4"-0" crushed		n/a	culvert	44	culverts	1	44	$2.84	$125	
Dissipator Rock	24"-6" riprap		n/a	culvert	10	culverts	1	10	$3.52	$35	
Total Rock for Road Segment:			I10 to I11					155			$448

Processing:	Description	No.sta	Rate/sta	Cost
	* Water, Process & Compact:	485.90	$21.08	$10,243
* Will not water,process & compact (I5 to I6) and (I10 to I11)				

	24"-6"	12"-6"	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total	
SUB TOTAL FOR SURFACING	320			210		8,493	9,023	**$63,460**

SPECIAL PROJECTS

Description	$/Qty	Qty	Cost
Hand seed waste areas	$545	0.3	$163.50
Bales for waste areas	$10	12	$120.00
Labor for mulching	$38	3	$114.00

SUB TOTAL FOR SPECIAL PROJECTS $398

Subtotal of Surfacing & Spec. Proj. *$63,857*

Subtotal of Clearing, Exc.,Culv. *$17,004*

GRAND TOTAL **$80,862**

Compiled By: d.mellison

Date: 09/23/11

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Iron Maiden
ROAD:
POINTS: I12-I13

NEW CONSTRUCTION: _____ STATIONS _____ MILES
IMPROVEMENT: 35.44 STATIONS 0.67 MILES

CLEARING & GRUBBING

Method		Qty/amount	x	Rate	=	Cost
Turnout Construction	C330	1	x	$144.00	=	$144.00
			x		=	
			x		=	

SUB TOTAL FOR CLEARING & GRUBBING $144

EXCAVATION

Material		Cy/amount	x	Rate	=	Cost
Turnout Construction	C330	2	x	$144.00	=	$288.00
Construct Ditchouts	C330	1.5	x	$144.00	=	$216.00
Catch basin cleaning	C330	1	x	$144.00	=	$144.00
			x		=	
			x		=	
			x		=	
			x		=	
			x		=	
			x		=	
			x		=	
			x		=	
			x		=	

SUB TOTAL FOR EXCAVATION $648

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:	Carsonite Markers	3	$18.00	$54.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $54

Subtotal of Clearing, Exc., Culv. ***$846***

SURFACING

Subgrade prep:

Description	Stations/ amount	x	Rate/ sta/amt	Cost
Grade, Shape and Ditch 16'	35.44	x	$21.55	$763.73
Subgrade Compaction	35.44	x	$17.52	$620.91

ROAD SEGMENT	I12 to I13			POINT TO POINT		Sta. to Sta.				
				I12 to I13		0+00 to 35+44				
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Surface Rock	11/2"-0" crushed		4	station	25	stations	35.44	886	$2.18	$1,931
Junctions	11/2"-0" crushed		4	junction	12	junctions	3	36	$2.18	$78
Turnouts	11/2"-0" crushed		4	turnout	11	turnouts	5	55	$2.18	$120
Curve Widening	11/2"-0" crushed		4	curve	n/a	curves	4	44	$2.18	$96
Turnouts	4"-0" crushed		8	turnout	22	turnouts	3	66	$2.18	$144
Dissipator Rock	24"-6" riprap			dissipator	10	dissipators	1	10	$2.01	$20
Total Rock for Road Segment:			I12 to I13					1,097		$2,370

ROAD SEGMENT	0			POINT TO POINT		Sta. to Sta.				
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Subgrade Leveling			N/A							$0
Traction Rock			N/A	station		stations		0		$0
Culvert Bedding/Backfill			N/A	culvert		culverts		0		$0
Turnouts			N/A	TO		TO's		0		$0
Trurnarounds			N/A	TA		TA's		0		$0
Junctions			N/A	junction		junctions		0		$0
Total Rock for Road Segment:			0					0		$0

ROAD SEGMENT	0			POINT TO POINT		Sta. to Sta.				
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Base Rock			5	station		stations		0		$0
Junctions			N/A	junction		junctions		0		$0
Culvert Bedding/Backfill			N/A	culvert		culverts		0		$0
Landings			N/A	Landing		Landings		0		$0
Total Rock for Road Segment:			0					0		$0

Processing:

Description	No.sta	Rate/sta	Cost
Water, Process & Compact:	35.44	$49.02	$1,737

	24"-6"	6"-0"pr	4"-0"	1 1/2"-0"		Total	
SUB TOTAL FOR SURFACING	10		66	1,021		1,097	**$5,492**

SPECIAL PROJECTS

Description	Cost

SUB TOTAL FOR SPECIAL PROJECTS $0

Subtotal of Surfacing & Spec. Proj. *$5,492*
Subtotal of Clearing, Exc.,Culv. *$846*

GRAND TOTAL **$6,338**

Compiled By: d.mellison

Date: 09/23/11

CRUSHED ROCK COST

SALE NAME: Iron Maiden
PROJECT: Improvement Rocking
QUARRY: Sterling Ranch

MATERIAL: Crushed

DATE: 09/23/11
BY: d.mellison

		Cubic Yards							
Segment	Stations	Base	Run/Tract	Turnout/TA	Bedding	Junction	Curves	Leveling	Total
I1 - I2	115+57	33	3,352	225	88	270	292	132	4,392
I1 - I2	133+62	44	75		143				262
I1 - I2	56+32		1,408	132		40	250	77	1,907
I3 - I4	207+67	133	118		490			385	1,126
I5 - I6	38+02							99	99
I6 - I7	60+78		413					165	578
I8 - I9	25+62		195						195
I10 - I11	30+47		35		44			66	145
Grand Total		210	5,596	357	765	310	542	924	8,704

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I1 - I2	115+57	4,392				1.33	0.15	0.15	0.15	1.78
I1 - I2	133+62	262				1.35	0.15	0.15	0.15	1.80
I1 - I2	56+32	1,907			0.50	1.07	0.15	0.15	0.15	2.02
I3 - I4	207+67	1,126				2.21	0.15	0.15	0.15	2.66
I5 - I6	38+02	99				0.19	0.05	0.05	0.05	0.34
I6 - I7	60+78	578				0.62	0.10	0.10	0.10	0.92
I8 - I9	25+62	195				1.96	0.40	0.15	0.15	2.66
I10 - I11	30+47	145				1.70	0.15	0.15	0.15	2.15
TOTAL		8,704								AVERAGE HAUL
STA./NO.		CU. YD.								
CUBIC YARD WEIGHTED HAUL					**0.11**	**1.35**	**0.15**	**0.15**	**0.15**	**1.90**
								Average Round Trip Distance (miles)	3.80	

ROCK HAUL:

Truck type: D20 No. trucks: 4
Delay min.: 8 Efficiency: 85%

Truck type: D12 No. trucks: 2
Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks:
Delay min.: 5 Efficiency: 85%

Ave haul: $2.11 /cy
Load: $0.28 /cy
Spread: $0.45 /cy

Production: cy/day = 1,978

CRUSHED ROCK HAUL COSTS 8,704 cy @ **$2.84 /cy**

RIP RAP ROCK COST

SALE NAME: Iron Maiden
PROJECT:
QUARRY: Quartz Creek

MATERIAL: Rip Rap

DATE: 10/07/11
BY: d.mellison

		Cubic Yards							
Segment	Stations	Dissapator	Armor					Misc	Total
I1 to I2	115+57	20							20
I1 to I2	133+62	30							30
I3 to I4	207+67	60	200						260
I10 to I11	30+47	10							10
Grand Total		120	200						320

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I1 to I2	115+57	20				2.21	0.15	0.15	0.15	2.66
I1 to I2	133+62	30			0.5	1.55	0.15	0.15	0.15	2.50
I3 to I4	207+67	260				1.75	0.15	0.15	0.15	2.20
I10 to I11	30+47	10			1	1.15	0.15	0.15	0.15	2.10
TOTAL		320								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**0.06**	**1.74**	**0.15**	**0.15**	**0.15**	**2.25**
								Average Round Trip Distance (miles)		4.51

ROCK HAUL:

Truck type: D12 No. trucks: 3
Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks:
Delay min.: 5 Efficiency: 85%

Ave haul: $2.68 /cy
Load: $0.84 /cy
Develop: /cy

Production: cy/day = 654

RIP RAP ROCK HAUL COSTS 320 cy @ **$3.52 /cy**

PIT RUN ROCK COST

SALE NAME: Iron Maiden
PROJECT: (I3-I4) (sta 142+96-147+22)
QUARRY:

MATERIAL: Waste

DATE: 09/21/11
BY: d.mellison

		Cubic Yards							
Segment	Stations	Base	Landing	Turnout	Turnaround	Junction	Waste	Misc	Total
I3-I4 haul to	78+78						408		408
haul to	126+60						1,190		1,190
Grand Total							1,598		1,598

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I3-I4 haul to	78+78	408			0	0.61	0.10	0.10	0.10	1.21
haul to	126+60	1,190				0.10	0.05	0.10	0.10	0.35
TOTAL		1,598								AVERAGE HAUL
STA./NO.		CU. YD.								
CUBIC YARD WEIGHTED HAUL					**0.08**	**0.23**	**0.06**	**0.10**	**0.10**	**0.57**
						Average Round Trip Distance (miles)			1.14	

ROCK HAUL:

Truck type: D20 No. trucks:
Delay min.: 8 Efficiency: 85%

Truck type: D12 No. trucks: 3
Delay min.: 6 Efficiency: 85%

Ave haul: 1.306254 /cy
Load: $0.86 /cy
Compaction /cy

Production: cy/day = 1,341

PIT RUN ROCK HAUL COSTS 1,598 cy @ **$2.17 /cy**

Loading: 1598/1341 * 8 * $144 / 1598 = $0.86/cy

CRUSHED ROCK COST

SALE NAME: Iron Maiden
PROJECT: No. 1 (I12-I13)
QUARRY: Buster Creek
MATERIAL: Crushed
DATE: 09/21/11
BY: d.mellison

		Cubic Yards							
Segment	Stations	Base	Running	Turnout	Curves	Junction		Misc	Total
I12-I13	35+44		886	121	44	36			1,087
Grand Total			886	121	44	36			1,087

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I12-I13	35+44	1,087				0.18	0.05	0.05	0.05	0.33
TOTAL		1,087								AVERAGE HAUL
STA./NO.		CU. YD.								
CUBIC YARD WEIGHTED HAUL						**0.18**	**0.05**	**0.05**	**0.05**	**0.33**
						Average Round Trip Distance (miles)			0.66	

ROCK HAUL:

Truck type: D20 No. trucks:
Delay min.: 8 Efficiency: 85%

Truck type: D12 No. trucks: 2
Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks:
Delay min.: 5 Efficiency: 85%

Ave haul: $1.00 /cy
Load: $0.45 /cy
Spread: $0.73 /cy

Production: cy/day = 1,168

CRUSHED ROCK HAUL COSTS 1,087 cy @ **$2.18 /cy**

RIP RAP ROCK COST

SALE NAME: Iron Maiden
PROJECT: No. 1
QUARRY: Buster Creek

MATERIAL: Rip Rap

DATE: 09/21/11
BY: d.mellison

		Cubic Yards							
Segment	Stations	Dissapator	Armor					Misc	Total
I12-I13		10							10
Grand Total		10							10

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I12-I13		10				0.18	0.05	0.05	0.05	0.33
TOTAL		10								AVERAGE HAUL
STA./NO.		CU. YD.								
CUBIC YARD WEIGHTED HAUL						**0.18**	**0.05**	**0.05**	**0.05**	**0.33**
						Average Round Trip Distance (miles)			0.66	

ROCK HAUL:

Truck type: D12 No. trucks: 1
Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks:
Delay min.: 5 Efficiency: 85%

Ave haul: $1.00 /cy
Load: $1.01 /cy
Develop: /cy

Production: cy/day = 584

RIP RAP ROCK HAUL COSTS 10 cy @ **$2.01 /cy**

PIT RUN ROCK COST

SALE NAME: Iron Maiden
PROJECT: No. 4
QUARRY: Buster Creek

MATERIAL: Waste

DATE: 10/07/2011
BY: d.mellison

		Cubic Yards							
Segment	Stations	Base	Landing	Turnout	Turnaround	Overburden		Misc	Total
Crusher Site						1,763			1,763
Rock Source						2,478			2,478
Grand Total						4,241			4,241

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
Crusher Site		1,763			0.50	0.69	0.10	0.10	0.10	1.49
Rock Source		2,478			0.50	0.69	0.10	0.10	0.10	1.49
TOTAL		4,241								AVERAGE HAUL
STA./NO.		CU. YD.								
CUBIC YARD WEIGHTED HAUL					**0.50**	**0.69**	**0.10**	**0.10**	**0.10**	**1.49**
								Average Round Trip Distance (miles)		2.98

ROCK HAUL:

Truck type: D20 No. trucks: 1
Delay min.: 8 Efficiency: 85%

Truck type: D12 No. trucks: 3
Delay min.: 6 Efficiency: 85%

Ave haul: 1.82018 /cy
Load: $0.84 /cy
Compaction _____ /cy

Production: cy/day = 1,375

WASTE ROCK HAUL COSTS 4,241 cy @ **$2.66 /cy**

Load = $144/hr * 8 hrs. \ 1,370 cy/day = $0.84

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 2 **Timber Sale Name: Iron Maiden**

Quarry: Sterling Ridge Swell:

Location: SE 1/4, SE 1/4, Sec. 22, T4N, R7W Shrink: 16%

County: Clatsop

By: J. Morey Loading Hopper: Yes

Date: 08/12/11

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"	2%	CR		8,493	8,493
1-1/2"-0"	2%	CR	2,000		2,320
4"-0"	2%	CR			
6"-0"		PR			
24"-6"		RR		320	320
36"-6"		RR			
TOTAL CUBIC YARDS OF ROCK:			2,000	8,813	**11,133**

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Dump Trucks	4	$141	$564	Off Highway Dump Truck		$515	
Screening Plants	1	$515	$515	Screening Plant	1	$515	$515
D8 Cat		$1,220		Loading Hopper	1	$515	$515
D6 Cat	1	$675	$675	Loader	1	$699	$699
Drill & Compressor	1	$1,180	$1,180				
Powder	1	$327	$327	3 Stage Crusher	1	$2,694	$2,694
Dump Trucks		$141					
Excavator	1	$1,220	$1,220	Excavator		$1,220	

SUB TOTAL FOR MOBILIZATION $8,905

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	$3,205	$3,205
Screening Plants	1	$273	$273
Loading Hopper	1	$273	$273
Original Calibration	1	$507	$507

SUB TOTAL FOR SET UP COSTS $4,258

TOTAL MOBILIZATION & SET UP COSTS $13,163

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Scatter Clearing an Grubbing debris				
at Rock Source and Crusher	0.14	acres	$1,161	$163

TOTAL CLEARING & GRUBBING COSTS $163

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal	2,875	bcy	$1.60	$4,600

TOTAL EXCAVATION COSTS $4,600

4) DEVELOP ROCK

ROCK SUMMARY

Type	Cu. yd. Vol.	Weight
crushed	10,813	97%
pit run	0	0
rip rap	320	3%
Total	11,133	
reject	216	1.9%

METHOD	%	QUANTITY	RATE	COST
Ripping			$1.75	
Drill & shoot	88%	9,987	$2.30	$22,971
Oversize red	2%	216	$5.80	$1,254
Other *				

* 10% already shot

TOTAL ROCK DEVELOPMENT COSTS $24,225

5) CALIBRATION & TESTING

DESCRIPTION	NO.	$/TEST	COST
Calibrate	2	$507.00	$1,014
Calibrate			
Test	5	$57.30	$287
Test			

TOTAL CALIBRATION & TESTING COSTS $1,301

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	11,029	$0.82	$9,027

TOTAL FEEDING & LOADING COSTS $9,027

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed	8,493	3 stage w/s	115	$3.38	$28,728
1-1/2"-0"	crushed	2,320	3 stage w/s	120	$3.24	$7,521
4"-0"	crushed		3 stage w/s			

TOTAL ROCK CRUSHING COSTS $36,249

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer	1	$105.00	$105
Compactor		$72.00	
Grader	1	$93.00	$93.0
Excavator		$138.00	

SUB TOTAL $198.00 $198

*Rock for Floor (CY)	$/CY Haul	Total

* No rock hauled for the floor, comes from old pile at the site.

HAUL & STOCKPILE STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1.					
2. Quartz	1-1/2"-0"	4	2,320	$4.32	$10,033
3.		3			
4.					
5.		2			
6.					
SUB TOTAL					$10,033

TOTAL STOCKPILING COSTS $10,231

9) MISCELLANEOUS COSTS

DESCRIPTION			COST
Load, haul, the reject material to the waste area.			$355
$1.64 /CY	216 CY		
Spread reject (D6)	1	$105	$105
Final Quarry Dev., Access Road Const., Waterbarring, Drainage,			
C330 Excavator	2	$144	$288
Compact reject and hauled excavation			
	214 CY	$0.60	$128

TOTAL MISCELLANEOUS COSTS $876

10) GRAND TOTAL: **$99,835**

$/Cubic Yard $9.23

Footnotes:

HAUL and STOCKPILE COST

SALE NAME: Iron Maiden
QUARRY: Sterling Ridge ROCK TYPE: Crushed

Location 1. 0

ONE WAY HAUL IN MILES						
50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
						0.10

Truck type: D12 No. trucks:
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks:
Delay min.: 12 Efficiency: 75%

Truck type: No. trucks:
Delay min.: 10 Efficiency: 75%

Ave haul: #DIV/0! /cy
Load: $0.00 /cy
Stockpile: #N/A /cy

Production: cy/day = 0

Location 1. 0 **Haul and Stockpile Cost** **#DIV/0! /cy**

Location 2. Quartz
1-1/2"-0"

ONE WAY HAUL IN MILES						
50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
		0.60	1.26	0.15	0.15	0.15

Truck type: D20 No. trucks:
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks: 4
Delay min.: 12 Efficiency: 85%

Truck type: D10 No. trucks:
Delay min.: 10 Efficiency: 75%

Ave haul: $3.25 /cy
Load: $0.00 /cy
Stockpile: $1.08 /cy

Production: cy/day = 718

Location 2. Quartz **Haul and Stockpile Cost** **$4.32 /cy**

Location 3. 0

ONE WAY HAUL IN MILES						
50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				0.30	0.15	0.15

Truck type: D20 No. trucks:
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks: 3
Delay min.: 12 Efficiency: 85%

Truck type: D10 No. trucks:
Delay min.: 10 Efficiency: 75%

Ave haul: $2.15 /cy
Load: $0.00 /cy
Stockpile: $0.96 /cy

Production: cy/day = 816

Location 3. 0 **Haul and Stockpile Cost** **$3.10 /cy**

HAUL and STOCKPILE COST

Location 4. 0

ONE WAY HAUL IN MILES						
50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			1.00	1.00		

Truck type: D20 No. trucks:
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks:
Delay min.: 12 Efficiency: 75%

Truck type: D10 No. trucks:
Delay min.: 10 Efficiency: 75%

Ave haul: #DIV/0! /cy
Load: $0.00 /cy
Stockpile: #N/A /cy

Production: cy/day = 0

Location 4. 0 **Haul & Stockpile Cost** **#DIV/0! /cy**

Location 5. 0

ONE WAY HAUL IN MILES						
50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
						0.10

Truck type: D20 No. trucks: 2
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks:
Delay min.: 12 Efficiency: 75%

Truck type: D10 No. trucks:
Delay min.: 10 Efficiency: 75%

Ave haul: $1.43 /cy
Load: $0.00 /cy
Stockpile: $0.78 /cy

Production: cy/day = 1,054

Location 5. 0 **Haul & Stockpile Cost** **$2.20 /cy**

Location 6. 0

ONE WAY HAUL IN MILES						
50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			1.00	1.00		

Truck type: D20 No. trucks:
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks:
Delay min.: 12 Efficiency: 75%

Truck type: D10 No. trucks:
Delay min.: 10 Efficiency: 75%

Ave haul: #DIV/0! /cy
Load: $0.00 /cy
Stockpile: #N/A /cy

Production: cy/day = 0

Location 6. 0 **Haul & Stockpile Cost** **#DIV/0! /cy**

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 2 **Timber Sale Name: Iron Maiden**

Quarry: Buster Creek Swell:

Location: NW 1/4, See. 25, T5N, R7W Shrink: 16%

County: Clatsop

By: d.mellison Loading Hopper: No

Date: 09/20/11

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	7%	CR	5,000	1,021	6,821
4"-0"	5%	CR	4,000	66	4,706
6"-0"		PR			
24"-6"		RR		10	10
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			9,000	1,097	**11,537**

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Dump Trucks	4	$141	$564	Off Highway Dump Truck	1	$515	$515
Screening Plants	1	$515	$515	Screening Plant	1	$515	$515
D8 Cat		$1,220		Loading Hopper		$515	
D6 Cat	1	$675	$675	Loader	2	$699	$1,398
Drill & Compressor	1	$1,180	$1,180				
Powder	1	$327	$327	3 Stage Crusher	1	$2,694	$2,694
Dump Trucks		$141					
Excavator	1	$1,220	$1,220	Excavator		$1,220	

SUB TOTAL FOR MOBILIZATION $9,604

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	$3,205	$3,205
Screening Plants	1	$273	$273
Loading Hopper		$273	$273
Original Calibration	1	$507	$507

SUB TOTAL FOR SET UP COSTS $4,258

TOTAL MOBILIZATION & SET UP COSTS $13,862

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clearing - pile & burn on site	0.480	acres	$2,345	$1,126
Excavator tending fire (C330)	3	hrs.	$144	$432
Move in fire truck for burning	1	trk	$165	$165

TOTAL CLEARING & GRUBBING COSTS $1,723

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden from crusher site	1,763	bcy	$2.66	$4,690
Overburden from rock source site	2,478	bcy	$2.66	$6,591
Waste area compaction	4,241	bcy	$0.30	$1,272
Spread waste material (D6)	4	hrs	$106.00	$424

TOTAL EXCAVATION COSTS $12,977

4) DEVELOP ROCK

ROCK SUMMARY

Type	Cu. yd. Vol.	Weight
crushed	11,527	100%
pit run	0	0
rip rap	10	0%
Total	11,537	
reject	713	6.2%

METHOD	%	QUANTITY	RATE	COST
Ripping			$2.20	
Drill & shoot	100%	12,250	$2.30	$28,174
Oversize red	5%	576	$5.80	$3,343
Other				

TOTAL ROCK DEVELOPMENT COSTS $31,517

5) CALIBRATION & TESTING

DESCRIPTION	NO.	$/TEST	COST
Calibrate	1	$507	$507
Calibrate			
Test	5	$57.30	$287
Test			

TOTAL CALIBRATION & TESTING COSTS $794

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY		COST CU. YD.		TOTAL COST
Feed the crusher hopper	12,240		$0.71		$8,732
Load/Haul shot rock to crusher					
Off Highway & C330 (Hrs)	40		$237		$9,480

TOTAL FEEDING & LOADING COSTS $18,212

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed		3 stage w/s			
1-1/2"-0"	crushed	6,821	3 stage w/s	125	$3.11	$21,227
4"-0"	crushed	4,706	3 stage w/s	145	$2.68	$12,625

TOTAL ROCK CRUSHING COSTS $33,852

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer	2	$105.00	$210.00
Compactor		$72.00	
Grader	2	$93.00	$186.00
Excavator		$138.00	

Rock for Floor (CY)	$/CY Haul	Total

$396.00

SUB TOTAL $396

HAUL & STOCKPILE STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1.		2			
2. Buster Creek	1-1/2"-0"	4	5,800	$4.29	$24,866
3. Buster Creek	4"-0"	4	4,640	$4.61	$21,389
4.					
5.		2			
6.					

SUB TOTAL $46,255

TOTAL STOCKPILING COSTS $46,651

9) MISCELLANEOUS COSTS

DESCRIPTION				COST
Load, and Haul the reject material to the waste area.				$1,896
$2.66 /CY	713 CY			
Spread reject (D6)	$106 /Hr	2		$212
Compact reject	622 CY	$0.30		$187
Waterbar and block roads				
D6	$106 /Hr	4		$424
Build access road between crushing site and rock source				
C330	$144 /Hr	1		$144
Waste Areas Prep(C330)	$144 /Hr	4		$576
Hand seed Waste Areas	(Acres)	0.3	$540	$162
Mulch Waste Areas	(Bales)	30	$10	$300
	(Labor)	3	$38	$114

TOTAL MISCELLANEOUS COSTS $4,015

10) GRAND TOTAL: **$163,603**

$/Cubic Yard $14.19

Footnotes:

HAUL and STOCKPILE COST

SALE NAME: Iron Maiden
QUARRY: Buster Creek ROCK TYPE: Crushed

Location 1. 0

ONE WAY HAUL IN MILES						
50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
						0.10

Truck type: D12 No. trucks: 2
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks:
Delay min.: 12 Efficiency: 75%

Truck type: No. trucks:
Delay min.: 10 Efficiency: 75%

Ave haul: $1.85 /cy
Load: $0.72 /cy
Stockpile: $1.25 /cy

Production: cy/day = 632

Location 1. 0 **Haul and Stockpile Cost** **$3.82 /cy**

Location 2. Buster Cre
1-1/2"-0"

ONE WAY HAUL IN MILES						
50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
		0.40	1.15	0.10	0.10	0.10

Truck type: D20 No. trucks:
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks: 4
Delay min.: 12 Efficiency: 85%

Truck type: D10 No. trucks:
Delay min.: 10 Efficiency: 75%

Ave haul: $2.79 /cy
Load: $0.54 /cy
Stockpile: $0.96 /cy

Production: cy/day = 836

Location 2. Buster Creek **Haul and Stockpile Cost** **$4.29 /cy**

Location 3. Buster Creek
4"-0"

ONE WAY HAUL IN MILES						
50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
		0.40	1.35	0.10	0.10	0.10

Truck type: D20 No. trucks:
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks: 4
Delay min.: 12 Efficiency: 85%

Truck type: D10 No. trucks:
Delay min.: 10 Efficiency: 75%

Ave haul: $2.94 /cy
Load: $0.60 /cy
Stockpile: $1.08 /cy

Production: cy/day = 795

Location 3. Buster Creek **Haul and Stockpile Cost** **$4.61 /cy**

HAUL and STOCKPILE COST

Location 4. 0

ONE WAY HAUL IN MILES						
50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			1.00	1.00		

Truck type: D20 No. trucks:
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks:
Delay min.: 12 Efficiency: 75%

Truck type: D10 No. trucks:
Delay min.: 10 Efficiency: 75%

Ave haul: #DIV/0! /cy
Load: #N/A /cy
Stockpile: #N/A /cy

Production: cy/day = 0

Location 4. 0 **Haul & Stockpile Cost** **#DIV/0! /cy**

Location 5. 0

ONE WAY HAUL IN MILES						
50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
						0.10

Truck type: D20 No. trucks: 2
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks:
Delay min.: 12 Efficiency: 75%

Truck type: D10 No. trucks:
Delay min.: 10 Efficiency: 75%

Ave haul: $1.43 /cy
Load: $0.48 /cy
Stockpile: $0.78 /cy

Production: cy/day = 1,054

Location 5. 0 **Haul & Stockpile Cost** **$2.68 /cy**

Location 6. 0

ONE WAY HAUL IN MILES						
50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			1.00	1.00		

Truck type: D20 No. trucks:
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks:
Delay min.: 12 Efficiency: 75%

Truck type: D10 No. trucks:
Delay min.: 10 Efficiency: 75%

Ave haul: #DIV/0! /cy
Load: #N/A /cy
Stockpile: #N/A /cy

Production: cy/day = 0

Location 6. 0 **Haul & Stockpile Cost** **#DIV/0! /cy**

Iron Maiden Type F (Round Pipe)

Sale Name: Iron Maiden Date: 09/02/11

Construction Phase	QTY BCY	Equipment Hours									Labor	Culvert		Erosion Control		Total $
		C330	D-7	Dmp Tr	Gdr 14G	Cat 966	Roller	Buggy	Pump	Tamper		Ft	$/ft.	Acres	$/Acre	
Unload and move cmp to site		4														
Fill and Culvert removal\disposal	568	14		14												
De-watering (w/pump) (24hrs/day)									32		40					
Build culvert bed (crushed rock) **	30									2	4					
Place culvert \ tamp flanks (c.rock) **	130	2								2	4					
Backfill culvert w / crushed rock **																
Remaining Backfill Placement*	408	7														
Fill Compaction							8									
Seed culvert w\onsite cobble		3						6			6					
Develop Waste Area		4														
Compact/Shape Waste Area		3														
Embedded Riprap (Dissipator)		1		1						2						
Develop and Place Riprap/Fill Armor	121	8														
Total Hours		46	0	15	0	0	8	6	32	6	54					
Equipment Rates:		$144	$94	$73	$84	$77	$72	$10	$9	$9	$38					
Sub total Hourly rates:		**$6,624**	**$0**	**$1,095**	**$0**	**$0**	**$576**	**$60**	**$288**	**$54**	**$2,052**					**$10,749**
108" Aluminized Steel Culvert (10 ga)												67	$187			**$12,523**
Bands												3	$202			**$605**
Step Beveling (both ends)																**$0**
Freight to Astoria Area																**$700**
Sub total Culvert Material Cost:																**$13,828**
Sub total Seeding and Mulching:																
Project site & Waste area														0.100	$1,558	**$156**

Total Installation Cost: **$24,733**

Notes:

1) Does not include crushed rock road base and surface course, and grader time.
2) * Remaining backfill material source is from Road Improvement segment I3 to I4 (sta. 142+96 - 147+22)
3) Old culvert is to be disposed of off of STATE lands
4) Mobilization costs are in the "Move-In" portion of SUMMARY OF ALL PROJECT COSTS
5) ** Crushed rock source is Sterling Ranch Quarry Crushing
6) Riprap comes from the Sterling Ranch Quarry

Iron Maiden Timber Sale

Vacating Costs (Segment V1 to V2)

Work Description	Station	C.Y.s	C330	D24 trk	D10 trk	C315	Labor	Bales	H. Seed	
Begin vacating / block road	0+00		1							
Remove fill		737				4				
Remove Culvert			0.5				0.5			
End Fill Removal	0+61									
Block Road			1							
Mobilization			1	1						
Compact/Shape Waste Area			4							
Spread Fill at Waste Area			2							
Hand grass seeding									0.2	
Hand Mulching							3	30		
Miscellaneous Labor							3.5			
Culvert Disposal			0.5		3					
Develop Waste Area			1							
Remove old culvert			1				1			
Total Quantity (Mobilization)			1	1		1				
Total Quantity Miscellaneous								30	0.2	
Total Quantity (Hours)			11.5		3		8			
Total Cubic yards		737								
Equipment Rates			$144	$119	$73	$94				
Cubic yard rates		$2.33								
Mobilization Rates			$1,220	$672		$699				
Miscellaneous Rates							$38	$10	$545	
Mobilization Total			$1,220	$672						
Hours Total			$1,656				$304			
Total Dollars		$1,717	$2,876	$672	$219	$1,075	$304	$300	$109	

Total Vacating Cost **$7,272**

Iron Maiden Timber Sale
Vacating Costs (Segment V3 to V4)

Work Description	Station	C.Y.s	C330	D24 trk	D10 trk	D-8	Labor	Straw	H. Seed	W.Loader
Begin vacating, block road	0+00		0.50							
Construct Waterbar			0.25							
Construct Waterbar			0.25							
Remove fill and culvert	4+46	50	0.75					1	0.03	
Construct Waterbar			0.25							
Remove fill and culvert	7+40	50	0.75					1	0.03	
Remove fill and culvert	9+26	150	2					4	0.06	
Construct Waterbar			0.25							
Haul off culverts			1		3					
Total Quantity (Hours)			6	0	3	0	0	6	0.12	0.0
Total Cubic yards		250								
Rates			$144.00	$119.00	$73.00	$147.00	$38.00	$10.00	$545.00	$102
Total Dollars			$864	$0	$219	$0	$0	$60	$65	$0

Total Segment Cost **$1,208**

PIT RUN ROCK COST

SALE NAME: Iron Maiden
PROJECT: No. 4 (Vacating)
QUARRY:

MATERIAL: Waste

DATE: 09/21/11
BY: d.mellison

		Cubic Yards							
Segment	Stations	Base	Landing	Turnout	Turnaround	Junction	Waste	Misc	Total
V1 to V2							737		737
Grand Total							737		737

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
V1 to V2		737					0.17	0.05	0.05	0.27
TOTAL		737								AVERAGE HAUL
STA./NO.		CU. YD.								
CUBIC YARD WEIGHTED HAUL							**0.17**	**0.05**	**0.05**	**0.27**
							Average Round Trip Distance (miles)		0.54	

ROCK HAUL:

Truck type: D20 No. trucks: 1
Delay min.: 8 Efficiency: 85%

Truck type: D12 No. trucks:
Delay min.: 6 Efficiency: 85%

Ave haul: 0.917882 /cy
Load: $1.41 /cy
Compaction /cy

Production: cy/day = 819

PIT RUN ROCK HAUL COSTS 737 cy @ **$2.33 /cy**

* (737/819 * 8 hrs * $144/hr / 737 bcy = $1.41)

IRON MAIDEN TIMBER SALE
BRUSHING COSTS

09/30/11

ROAD SEGMENT	SEGMENT NAME	SEGMENT LENGTH	COST
I1 - I2	QUARTZ CREEK	5.792	$6,371
I3 - I4	STERLING RANCH	3.911	$1,956
I5 - I6	STERLING TIE	0.757	$379
I7 -I8	STERLING RIDGE	2.431	$2,066
I7 - I6	STERLING RIDGE TIE RD	1.156	$983
I8 - I9		0.485	$364
I10 - I11		0.577	$490
B1	QUARTZ CK QUARRY ROAD	0.153	$115
B2		0.12	$102
B3		1.459	$1,605
B4		0.92	$1,012
B5		0.103	$113
B6		0.031	$26
B7		0.162	$138
B8		0.06	$45
B9		0.173	$234
B10		0.022	$24
B11		0.065	$55
B12		0.218	$207
B13		0.505	$429
B14		0.425	$468
B15		0.045	$23
B16		0.028	$38
B17		0.218	$185
B18		0.101	$51
B19		0.152	$114
B20		0.22	$187
B21		0.122	$134
B22		0.222	$189
B23		0.924	$693
B24		0.233	$117
		21.79	$18,913

Road Maintenance after completion of Projects

Sale: Iron Maiden
Date: 17-Oct-11
By: J. McCoy FL

Type	Equipment/Rationale			Hours	Rate	Cost	
	Grader 14G			6	$93	$558	
Final Haul	Dump Truck 12CY (X3)			4	$73	$292	
Road	FE Loader C966			4	$77	$308	
Maintenance	Vibratory Roller			6	$72	$432	
Haul Route	Water Truck 2,500 gallon			4	$83	$332	
Total							$1,922

Production Rates

Miles/day	Distance(miles)	Days
Grader	1.5	1.1	0.7
Vibratory Roller	1.5	1.1	0.7

Road Maintenance Cost Summary

Sale: Iron Maiden
Date: 06-Oct-11
By: Jasen McCoy FL

MBF: 9,731
$$/MBF: $2.92

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Progressive Operations 1st Entry	Grader 14G	$675	1	16	$90	$2,115
	Dump Truck 10CY x 2	$282	2	8	$73	$1,450
	FE Loader C966	$675	1	8	$74	$1,267
Progressive Operations 2nd Entry	Grader 14G	$675	1	16	$90	$2,115
	Dump Truck 10CY x 2	$282	2	8	$73	$1,450
	FE Loader C966	$675	1	8	$74	$1,267
Final Road Maintenance	Grader 14G	$675	1	64	$90	$6,435
	Dump Truck 10CY x 3	$423	3	8	$73	$2,175
	FE Loader C966	$675	1	8	$74	$1,267
	Vibratory Roller	$675	1	64	$72	$5,283
	Water Truck 2,500 gallon	$165	1	40	$78	$3,285
	Labor		1	8	$37	$296
Total						$28,405

Production Rates

Production Rates	Miles/day	Distance(miles)	Days
Grader	2.5	5.0	2.0

Production Rates	Miles/day	Distance(miles)	Days
Grader	2.5	4.0	1.6

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	12.0	8.0
Vibratory Roller*	1.5	12.0	8.0

*Final Road Maintenance Only

Iron Maiden
TIMBER CRUISE REPORT
FY 2012

1. **Sale Area Location:** Areas 1, 2, and 3 are located in portions of Section 30, T4N, R6W and Sections 21, 22, 23, 24, and 25, T4N, R7W, W.M., Clatsop County, Oregon.

2. **Fund Distribution:** BOF 100%
   Tax Code 8-01

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	Non-Thinnable	Stream Buffer	Net Acres	Survey Method
1	Partial Cut	400	24	7	35	334	GIS
2	Modified Clearcut	107	6	N/A	1	100	GIS
3	Modified Clearcut	88	4	N/A	3	81	GIS
TOTALS		**595**	**34**	**7**	**39**	**515**	

4. Cruisers and Cruise Dates: Area 1 was cruised by Jasen McCoy, Jenny Johnson, Bryce Rodgers, and Kevin Berry, August 17, 2011. Areas 2 and 3 were cruised by Jasen McCoy, Jenny Johnson, Bryce Rodgers, Jay Morey, and Kevin Berry, September 29, 2011.

5. Cruise Method and Computation:
Area 1 is an "auto-mark" thinning unit (SDI 35), and was variable plot cruised using a 40 BAF. These plots are located on a 4 chain by 12 chain grid, with every third plot measured and graded. A total of 66 plots were sampled, with 25 measured and graded plots, and 41 count plots. Cedar and Alder are reserve species, and were recorded as "leave" trees. The "biggest and best" trees were recorded as "leave" trees to meet a target residual basal area of 170 ft^2/acre. Hardwoods do not count towards the residual basal area.

Areas 2 and 3 are modified clearcut units and were variable plot cruised using a 40 BAF. These plots are located on a 3 chain by 11 chain grid, with every third plot measured and graded. A total of 53 plots were sampled, with 24 measured and graded plots, and 29 count plots. Cedar is a reserve species, and was recorded as "leave" trees.

All cruisers used Corvallis MicroTechnology (CMT) and/or Allegro data collectors, and were downloaded to the Atterbury Super A.C.E. program in District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria district office.

AREA	CRUISE	TRACT	TYPE	ACRES
1	T4NR7W SEC 23	AREA1	TAKE	334
2 and 3	T4NR7W SEC 21	AREAS23	TAKE	181

6. Timber Description:

Area 1 is an "auto-mark" thinning unit, approximately 70 years old, consisting of Douglas-fir stands mixed with hemlock and true fir. This stand will be thinned to a SDI of 35 (170 Sq.Ft.BA), removing approximately 50 trees per acre and 12.6 MBF/acre. The average Douglas-fir tree size to be harvested is 19 inches DBH, with an average height of 78 feet to a merchantable top (6 inch d.i.b., or 40% of the diameter at 16 ft.). The average hemlock tree size to be harvested is 13 inches DBH and 75 feet to a merchantable top. The average true fir size is 25 inches DBH and 85 feet to a merchantable top. The average volume per acre to be harvested (net) is 12.6 MBF.

Areas 2 and 3 are modified clearcut units, approximately 65 years-old, containing a mix of western hemlock and Douglas-fir with scattered true fir, alder, and spruce. The average hemlock tree size to be harvested is 17 inches DBH, with an average height of 54 feet to a merchantable top (inch d.i.b., or 40% of the diameter at 16 ft.). The average Douglas-fir tree size is 22 inches DBH and 75 feet to a merchantable top. The average true fir size is 25 inches DBH and 85 feet to a merchantable top. The average volume per acre to be harvested (net) is 30.5 MBF.

7. Statistical Analysis and Stand Summary: (See "Statistics" - Type Reports, attached)

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1 (PC)	50%	7%	26.2%	3.2%
2 & 3 (MC)	50%	10%	46.2%	6.3%

8. Volumes by Species and Log Grade: (See "Species, Sort, Grade - Type and Project Reports, attached, of individual sale areas and combined areas and two cruise types).
Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	CampRun	% D & B	% Sale
Douglas-fir	20"	6,388	4,509	1,593	286	0	5.7%	66%
Hemlock/true fir	18"	3,300	2,325	639	336	0	9%	34%
Spruce	18"	18	15	3	0	0	<1%	<1%
Alder	19"	25	0	0	0	25	<1%	<1%
TOTALS		**9,731**	**6,849**	**2,235**	**622**	**25**		

9. Approvals:

Prepared by: Jasen McCoy **Date:** October 6, 2011

Unit Forester Approval: [signature] **Date:** 10/11/11

10. Attachments:

Cruise Designs and Maps - 7 pages
Volume Reports - 3 pages
Statistics Reports - 8 pages
Log Stock Tables - 3 pages
Stand Table Summary - 4 page

Revised August, 2002

CRUISE DESIGN
ASTORIA DISTRICT

Sale Name: Iron Maiden **Area(s)** 1

Harvest Type: (PC)

Approx. Cruise Acres: 334 **Estimated CV%** 50 Net BF/Acre **SE% Objective** 7 Net BF

Planned Sale Volume: 4,342 MBF (area 1) **Estimated Sale Area Value/Acre:** $3,250/Ac (13 MBF/Ac.)

A. **Cruise Goals:** (a) Grade minimum 100 conifer: (b) Sample 67 cruise plots (23 grade/ 44count); (c) Other goals X Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

B. **Cruise Design:**

1. **Plot Cruises:** BAF 40 (Full point; Half point) (circle one)
   Cruise Line Direction(s) 45° (NE:SW)
   Cruise Line Spacing 12 (chains)
   Cruise Plot Spacing 4 (chains)
   Count/Grade Ratio 2:1

The BA target is 170 sq. ft. Cruiser will select 4-5 leave trees per plot. (Leave 5 leave trees every fourth plot) Mark Leave trees with an "L" using yellow paint on graded plots only. Cruise all take and leave trees. Take plots as shown on map. Conifer greater than 31" dbh and less than 13" dbh, and all cedar are leave trees and count towards the leave tree basal area. Alder is also a reserve species, but will not count towards the leave tree BA. Grade alder as Camp Run (30 net BF minimum). Record all snags as SN and estimate diameter and total height.

C. **Tree Measurements:**

1. **Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.

2. **Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.

3. **Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.

4. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

6. **Species, Sort, and Grade Codes:**

A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code "1" (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; 0 = Cull

7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Jasen McCoy
Approved by: Jon. Long
Date: 9/27/11

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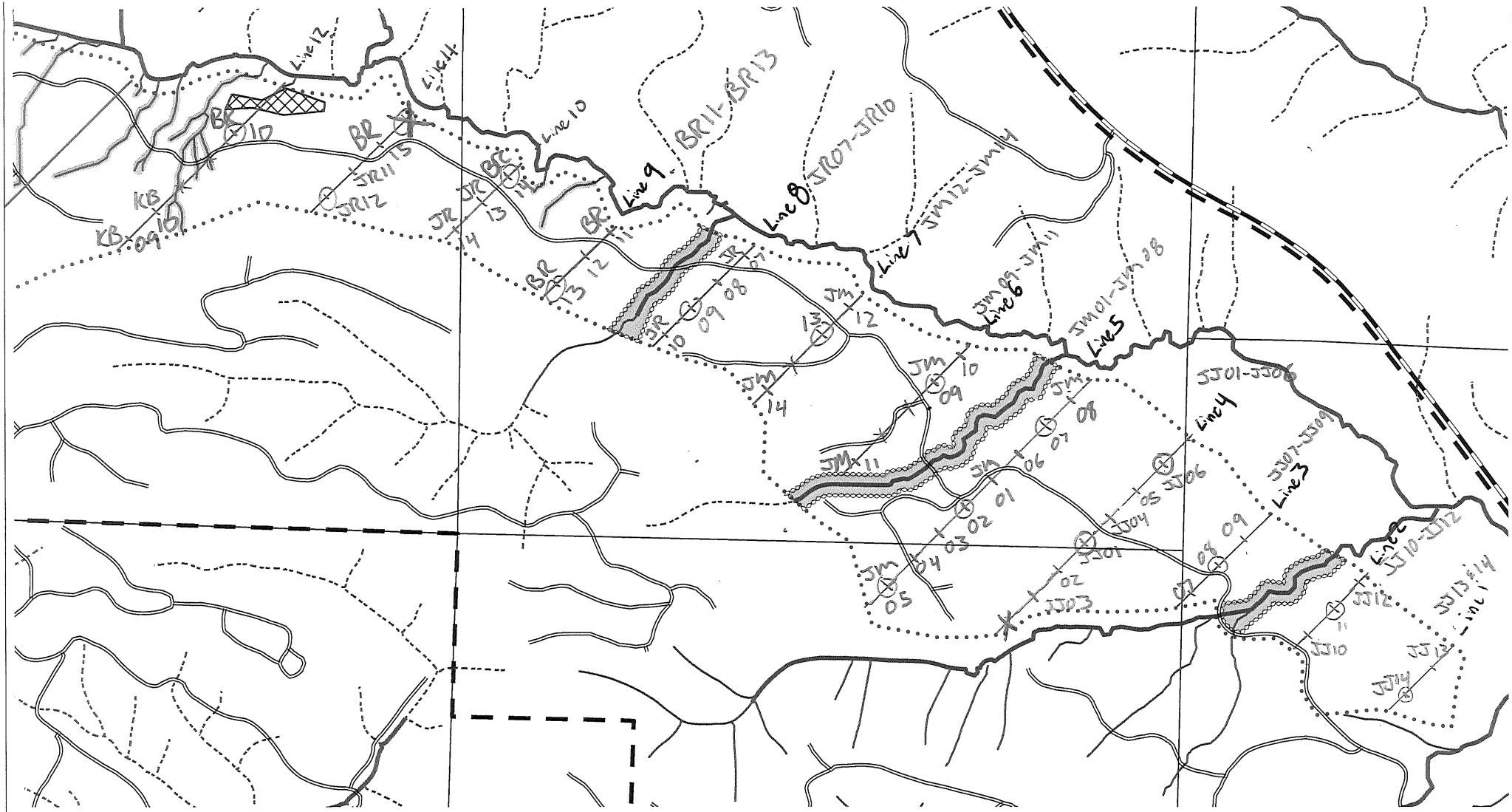


Legend

- Paved Road
- Rocked Road
- Fish
- Nonfish
- Unknown
- Timber Sale Boundary
- Posted Buffer
- Non Posted Buffer
- Non Thinnable
- Ownership Boundary

0 250 500 1,000 1,500 2,000 Feet

Area 1 (PC) - 393 Acres
Area 2 (MC) - 100 Acres
Area 3 (MC) - 81 Acres

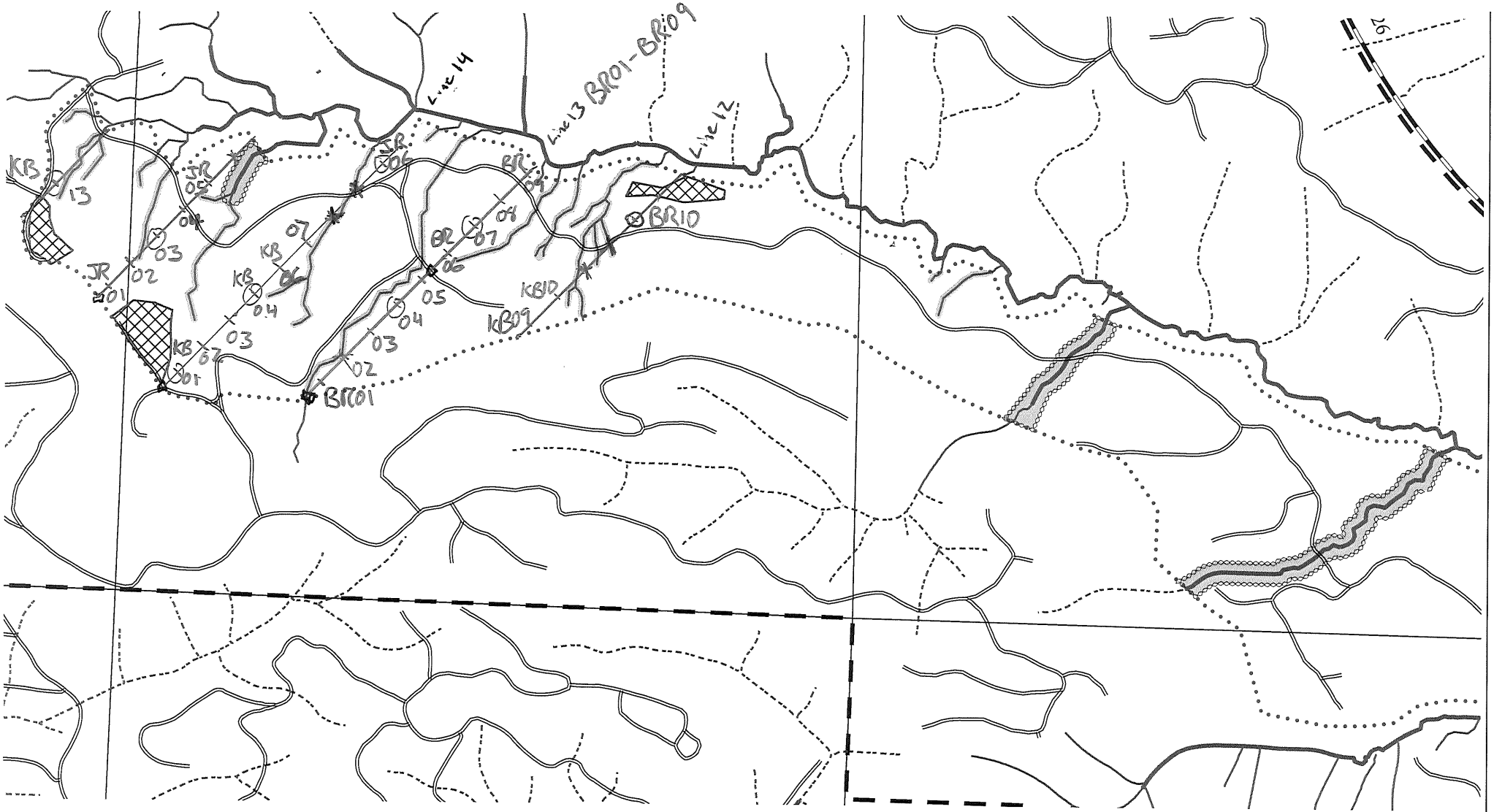
Total (PC) - 393 Acres
Total (MC) - 181 Acres
Total Sale Acres = 516

Iron Maiden Cruise Map

12×4 2:1 ratio

Portions of Section 30 T4N, R6W and Portions of Sections 21, 22, 23, 24 and 25, T4N, R7W, W.M., Clatsop County, Oregon

N



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Iron Maiden
Cruise Map

Portions of Section 30 T4N, R6W and Portions of Sections 21, 22, 23, 24 and 25, T4N, R7W, W.M., Clatsop County, Oregon

N

Revised August, 2002

CRUISE DESIGN
ASTORIA DISTRICT

Sale Name: Iron Maiden **Area(s)** 2 & 3

Harvest Type: (MC)

Approx. Cruise Acres: 181 **Estimated CV%** 50 Net BF **SE% Objective** 10 Net BF

Planned Sale Volume: 5,268 **Estimated Sale Area Value/Acre:** $9,000/Ac
(30 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum 100 conifer:
(b) Sample 57 cruise plots (19 grade/ 38 count); (c) Other goals ___Determine "automark" thinning standa rds; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

B. Cruise Design:

1. **Plot Cruises:** BAF 40 (Full point; Half point) (circle one)
   Cruise Line Direction(s) N-S
   Cruise Line Spacing 11 (chains)
   Cruise Plot Spacing 3 (chains)
   Count/Grade Ratio 2:1

   Cedar and marked wildlife trees are leave trees and are recorded as such. Record snags (SN) as cull and estimate heights and diameters. Grade ALL alder as camprun-sawlogs (30 net BF minimum). Do not take plots in a buffer.

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.

2. **Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.

3. **Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.

4. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

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Cruise Design by: Jasen McCoy
Approved by: Jon Long
Date: 8/12/11

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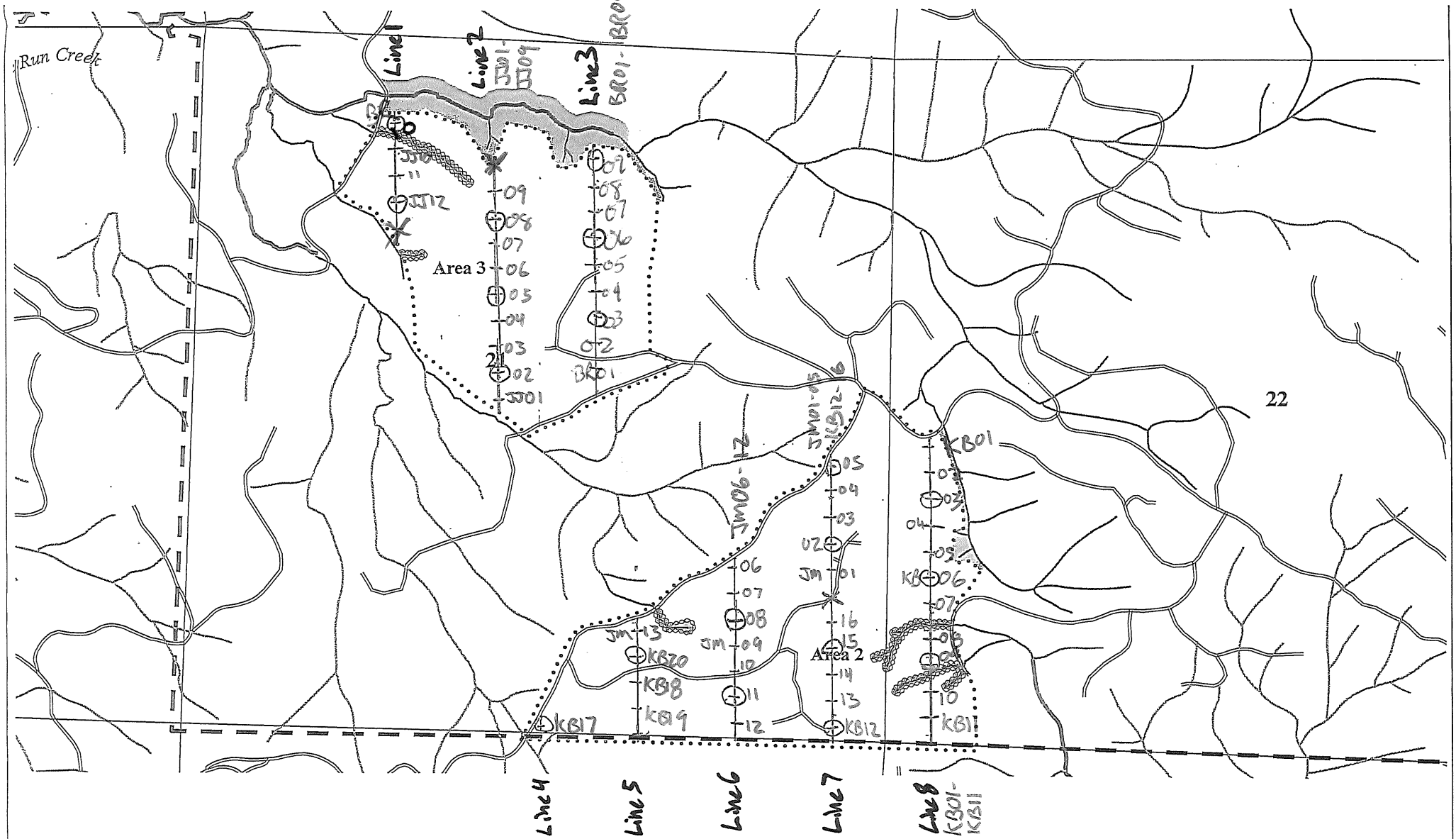

Legend

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3 X 11

Cruise Map
Iron Maiden

Portions of Section 30 T4N,
R6W and Portions of Sections 21,
22, 23, 24 and 25, T4N, R7W, W.M.,
Clatsop County, Oregon

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

TT4N RR7W S21 TyTAK	181.00
TT4N RR7W S23 TyTAK	334.00

Project: MAIDEN

Acres 515.00

Page 1
Date 10/27/2011
Time 10:01:12AM

Spp	S T	So Grt ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		DOCU		100.0	519											10		0.00	5.3
D		DO2S	70	2.1	8,940	8,755	4,509		3	52	44	2		10	88	38	329	1.98	26.6
D		DO3S	25	1.2	3,132	3,093	1,593		96	4		0	4	43	53	35	104	0.85	29.8
D		DO4S	5		555	555	286	5	95			65	18	7	10	20	27	0.48	20.3
D	**Totals**		66	5.7	13,146	12,403	6,388	0	31	38	31	4	2	18	76	31	151	1.23	82.1
H		DOCU		100.0	307											18		0.00	3.6
H		DO2S	63	.7	2,987	2,968	1,528		13	63	24			10	90	39	288	1.76	10.3
H		DO3S	23	4.7	1,094	1,042	537		100			4	12	27	56	32	68	0.72	15.3
H		DO4S	14	11.9	722	636	327		100			28	9	14	49	27	40	0.61	15.8
H	**Totals**		25	9.1	5,110	4,645	2,392		44	40	16	5	4	14	77	31	103	0.96	45.0
A		DOCR	100		48	48	25	38	62						100	40	61	1.02	.8
A	**Totals**		0		48	48	25	38	62						100	40	61	1.02	.8
NF		DOCU		100.0	140											10		0.00	.5
NF		DO2S	87	1.9	1,578	1,547	797		4	26	71			2	98	40	448	2.43	3.5
NF		DO3S	11		198	198	102		75	25		6	16	5	73	33	109	1.02	1.8
NF		DO4S	2		18	18	9		100			54	46			16	29	0.54	.6
NF	**Totals**		9	8.8	1,934	1,763	908		13	25	62	1	2	2	94	33	278	1.89	6.3
S		DO2S	83		30	30	15			100					100	40	200	1.40	.2
S		DO3S	17		6	6	3		100				100			30	40	0.53	.2
S	**Totals**		0		36	36	19		17	83			17		83	35	120	1.03	.3
Totals				6.8	20,273	18,895	9,731	0	32	37	30	4	2	16	78	31	141	1.17	134.5

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: MAIDEN

Page 1
Date 10/6/2011
Time 8:40:03AM

TT4N RR7W S23 TTAKE

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
T4N	R7W	23	AREA1	TAKE	334.00	66	43	1	W

TT4N RR7W S23 TTAKE

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		DO	CU		100.0	695											11		0.00	6.9
D		DO	2S	62	2.1	7,507	7,351	2,455		4	64	32	3		15	81	37	280	1.75	26.3
D		DO	3S	32	1.2	3,745	3,700	1,236		95	5			3	44	53	35	108	0.86	34.1
D		DO	4S	6		675	675	226	6	94			58	21	9	12	21	27	0.46	24.9
D	**Totals**			93	7.1	12,622	11,727	3,917	0	38	42	20	5	2	24	69	30	127	1.08	92.2
H		DO	CU		100.0	81											24		0.00	2.7
H		DO	4S	100		468	468	156		100			20			80	33	50	0.61	9.4
H	**Totals**			4	14.7	549	468	156		100			20			80	31	39	0.50	12.1
NF		DO	2S	100		412	412	138		21		79				100	40	290	1.80	1.4
NF	**Totals**			3		412	412	138		21		79				100	40	290	1.80	1.4
Type Totals					7.2	13,583	12,608	4,211	0	40	39	21	6	2	22	70	30	119	1.02	105.7

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: MAIDEN

Page 1
Date 10/6/2011
Time 8:40:16AM

TT4N RR7W S21 TTAKE

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
T4N	R7W	21	AREAS23	TAKE	181.00	53	100	1	W

TT4N RR7W S21 TTAKE

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
H		DO	CU		100.0	724											11		0.00	5.2
H		DO	2S	68	.7	8,500	8,444	1,528		13	63	24			10	90	39	288	1.76	29.3
H		DO	3S	24	4.7	3,112	2,966	537		100			4	12	27	56	32	68	0.72	43.5
H		DO	4S	8	20.6	1,189	944	171		100			36	18	26	20	23	34	0.62	27.8
H	**Totals**			41	8.7	13,525	12,353	2,236		40	43	17	4	4	15	77	30	117	1.05	105.7
D		DO	CU		100.0	194											5		0.00	2.3
D		DO	2S	83	2.1	11,586	11,344	2,053		2	38	60			3	97	39	416	2.37	27.3
D		DO	3S	14	1.4	2,001	1,974	357		100			1	6	42	52	34	90	0.84	21.9
D		DO	4S	3		332	332	60		100			92	8			16	28	0.59	11.9
D	**Totals**			45	3.3	14,113	13,651	2,471		19	31	50	2	1	9	88	32	215	1.62	63.4
NF		DO	CU		100.0	399											10		0.00	1.3
NF		DO	2S	85	2.3	3,728	3,642	659			31	69			2	98	40	506	2.66	7.2
NF		DO	3S	13		562	562	102		75	25		6	16	5	73	33	109	1.02	5.2
NF		DO	4S	2		51	51	9		100			54	46			16	29	0.54	1.8
NF	**Totals**			14	10.2	4,741	4,255	770		11	30	59	1	3	2	93	32	276	1.90	15.4
A		DO	CR	100		136	136	25	38	62						100	40	61	1.02	2.2
A	**Totals**			0		136	136	25	38	62						100	40	61	1.02	2.2
S		DO	2S	83		85	85	15			100					100	40	200	1.40	.4
S		DO	3S	17		17	17	3		100				100			30	40	0.53	.4
S	**Totals**			0		102	102	19		17	83			17		83	35	120	1.03	.9
Type Totals					6.5	32,617	30,497	5,520	0	27	36	37	3	3	10	84	31	163	1.32	187.6

TC PSTATS

PROJECT STATISTICS

PROJECT MAIDEN

DATE 10/6/2011

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T4N	R7	23	AREA1	00PC	334.00	66	431	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	66	431	6.5		
CRUISE	25	143	5.7	37,174	.4
DBH COUNT					
REFOREST					
COUNT	41	265	6.5		
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
DOUGLEAV	66	37.9	24.9	91		127.9	24,568	23,772	5,743	5,655
DOUG FIR	38	36.9	19.0	77		72.7	12,531	11,648	3,094	2,954
HEMLEAV	15	15.5	15.2	41		19.4	2,832	2,534	698	651
NFIRLEAV	10	4.3	28.8	101	4	19.4	4,814	4,550	971	971
WHEMLOCK	4	12.1	13.2	31		11.5	549	468	225	187
SNAG	9	4.0	19.1	39		7.9				
NOB FIR	1	.7	25.0	85	1	2.4	412	412	102	102
TOTAL	*143*	*111.3*	*20.7*	*71*		*261.2*	*45,707*	*43,384*	*10,833*	*10,521*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	39.9	4.9	679	714	749			
DOUG FIR	55.3	9.0	372	408	445			
HEMLEAV	71.9	19.2	295	365	435			
NFIRLEAV	43.2	14.4	1,059	1,237	1,415			
WHEMLOCK	76.6	43.8	21	38	54			
SNAG								
NOB FIR								
TOTAL	*67.3*	*5.7*	*547*	*580*	*613*	*181*	*45*	*20*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	42.3	5.2	36	38	40			
DOUG FIR	80.2	9.9	33	37	41			
HEMLEAV	208.0	25.6	12	15	19			
NFIRLEAV	141.8	17.4	4	4	5			
WHEMLOCK	338.4	41.6	7	12	17			
SNAG	392.7	48.3	2	4	6			
NOB FIR	491.1	60.4	0	1	1			
TOTAL	*67.0*	*8.2*	*102*	*111*	*120*	*179*	*45*	*20*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	36.1	4.4	122	128	134			
DOUG FIR	73.4	9.0	66	73	79			
HEMLEAV	178.1	21.9	15	19	24			
NFIRLEAV	141.2	17.4	16	19	23			
WHEMLOCK	338.0	41.6	7	12	16			
SNAG	323.8	39.8	5	8	11			
NOB FIR	491.1	60.4	1	2	4			
TOTAL	*24.2*	*3.0*	*253*	*261*	*269*	*23*	*6*	*3*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15

PROJECT STATISTICS

PROJECT MAIDEN

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T4N	R7	23	AREA1	00PC	334.00	66	431	1	W

DOUGLEAV	36.3	4.5	22,711	23,772	24,834			
DOUG FIR	75.6	9.3	10,565	11,648	12,731			
HEMLEAV	189.9	23.4	1,942	2,534	3,126			
NFIRLEAV	145.6	17.9	3,735	4,550	5,364			
WHEMLOCK	351.1	43.2	266	468	671			
SNAG								
NOB FIR	491.1	60.4	163	412	662			
TOTAL	*26.2*	*3.2*	*41,986*	*43,384*	*44,783*	*27*	*7*	*3*

TC TSTATS

STATISTICS

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PROJECT MAIDEN

DATE 10/6/2011

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T4N	R7W	23	AREA1	TAKE	334.00	66	143	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	66	143	2.2		
CRUISE	19	43	2.3	16,597	.3
DBH COUNT					
REFOREST					
COUNT	33	99	3.0		
BLANKS	14				
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	38	36.9	19.0	78		72.7	12,622	11,727	3,113	2,974
WHEMLOCK	4	12.1	13.2	31		11.5	549	468	225	187
NOB FIR	1	.7	25.0	85	1	2.4	412	412	102	102
TOTAL	*43*	*49.7*	*17.9*	*66*		*86.7*	*13,583*	*12,608*	*3,440*	*3,264*

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	54.3	8.8	374	410	446			
WHEMLOCK	76.6	43.8	21	38	54			
NOB FIR								
TOTAL	*62.7*	*9.6*	*343*	*379*	*416*	*157*	*39*	*17*

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	80.2	9.9	33	37	41			
WHEMLOCK	338.4	41.6	7	12	17			
NOB FIR	491.1	60.4	0	1	1			
TOTAL	*105.6*	*13.0*	*43*	*50*	*56*	*445*	*111*	*49*

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	73.4	9.0	66	73	79			
WHEMLOCK	338.0	41.6	7	12	16			
NOB FIR	491.1	60.4	1	2	4			
TOTAL	*77.5*	*9.5*	*78*	*87*	*95*	*240*	*60*	*27*

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	75.5	9.3	10,638	11,727	12,816			
WHEMLOCK	351.1	43.2	266	468	671			
NOB FIR	491.1	60.4	163	412	662			
TOTAL	*72.3*	*8.9*	*11,487*	*12,608*	*13,729*	*209*	*52*	*23*

STATISTICS

PROJECT MAIDEN

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T4N	R7W	23	AREA1	LEAV	334.00	66	291	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	66	291	4.4		
CRUISE	24	100	4.2	20,577	.5
DBH COUNT					
REFOREST					
COUNT	42	183	4.4		
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
DOUGLEAV	66	37.9	24.9	91		127.9	24,568	23,772	5,743	5,655
HEMLEAV	15	15.5	15.2	41		19.4	2,783	2,485	692	645
NFIRLEAV	10	4.3	28.8	101	4	19.4	4,814	4,550	971	971
SNAG	9	4.0	19.1	39		7.9				
TOTAL	*100*	*61.6*	*22.8*	*76*		*174.5*	*32,165*	*30,806*	*7,406*	*7,270*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

SAMPLE TREES - BF

CL: 68.1 % / SD: 1.0	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	39.9	4.9	679	714	749			
HEMLEAV	73.1	19.5	292	363	433			
NFIRLEAV	43.2	14.4	1,059	1,237	1,415			
SNAG								
TOTAL	*61.5*	*6.2*	*628*	*670*	*711*	*151*	*38*	*17*

TREES/ACRE

CL: 68.1 % / SD: 1.0	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	42.3	5.2	36	38	40			
HEMLEAV	208.0	25.6	12	15	19			
NFIRLEAV	141.8	17.4	4	4	5			
SNAG	392.7	48.3	2	4	6			
TOTAL	*60.4*	*7.4*	*57*	*62*	*66*	*146*	*36*	*16*

BASAL AREA/ACRE

CL: 68.1 % / SD: 1.0	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	36.1	4.4	122	128	134			
HEMLEAV	178.1	21.9	15	19	24			
NFIRLEAV	141.2	17.4	16	19	23			
SNAG	323.8	39.8	5	8	11			
TOTAL			*175*	*175*	*175*			

NET BF/ACRE

CL: 68.1 % / SD: 1.0	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	36.3	4.5	22,711	23,772	24,834			
HEMLEAV	192.3	23.6	1,897	2,485	3,072			
NFIRLEAV	145.6	17.9	3,735	4,550	5,364			
SNAG								
TOTAL	*17.6*	*2.2*	*30,138*	*30,806*	*31,475*	*12*	*3*	*1*

TC PSTATS

PROJECT STATISTICS

PROJECT MAIDEN

DATE 10/6/2011

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T4N	R7	21	AREAS23	00CC	181.00	53	270	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	53	270	5.1		
CRUISE	24	102	4.3	19,136	.5
DBH COUNT					
REFOREST					
COUNT	28	149	5.3		
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
WHEMLOCK	39	62.6	16.5	54		93.6	13,525	12,353	3,539	3,395
DOUG FIR	40	28.3	22.1	75		75.8	14,113	13,651	3,310	3,277
NOB FIR	13	6.2	25.4	85	5	21.9	4,741	4,255	1,008	947
SNAG	6	5.7	17.1	53		9.1				
R ALDER	2	2.2	19.3	41		4.5	136	136	90	90
DOUGLEAV	1	.2	28.0	82		.8	145	134	32	28
S SPRUCE	1	.4	18.0	72		.8	102	102	31	31
TOTAL	*102*	*105.7*	*18.9*	*61*		*206.4*	*32,762*	*30,631*	*8,011*	*7,767*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	74.8	12.0	282	320	359			
DOUG FIR	56.0	8.8	613	673	733			
NOB FIR	53.5	15.4	741	876	1,011			
SNAG								
R ALDER	54.4	50.9	32	65	98			
DOUGLEAV								
S SPRUCE								
TOTAL	*79.8*	*7.9*	*469*	*509*	*549*	*254*	*64*	*28*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	78.4	10.8	56	63	69			
DOUG FIR	144.4	19.8	23	28	34			
NOB FIR	194.7	26.7	5	6	8			
SNAG	208.2	28.6	4	6	7			
R ALDER	510.5	70.1	1	2	4			
DOUGLEAV	728.0	99.9	0	0	0			
S SPRUCE	728.0	99.9	0	0	1			
TOTAL	*47.2*	*6.5*	*99*	*106*	*113*	*89*	*22*	*10*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	78.6	10.8	83	94	104			
DOUG FIR	132.9	18.2	62	76	90			
NOB FIR	188.2	25.8	16	22	28			
SNAG	205.7	28.2	6	9	12			
R ALDER	509.8	70.0	1	5	8			
DOUGLEAV	728.0	99.9	0	1	2			
S SPRUCE	728.0	99.9	0	1	2			
TOTAL	*39.1*	*5.4*	*195*	*206*	*217*	*61*	*15*	*7*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T4N	R7	21	AREAS23	00CC	181.00	53	270	1	W

WHEMLOCK	80.3	11.0	10,993	12,353	13,714				
DOUG FIR	137.0	18.8	11,084	13,651	16,217				
NOB FIR	196.7	27.0	3,106	4,255	5,403				
SNAG									
R ALDER	511.6	70.2	41	136	231				
DOUGLEAV	728.0	99.9	0	134	268				
S SPRUCE	728.0	99.9	0	102	205				
TOTAL	*46.2*	*6.3*	*28,690*	*30,631*	*32,573*		*85*	*21*	*9*

STATISTICS

PROJECT MAIDEN

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T4N	R7W	21	AREAS23	TAKE	181.00	53	256	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	53	256	4.8		
CRUISE	22	95	4.3	18,076	.5
DBH COUNT					
REFOREST					
COUNT	30	153	5.1		
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
WHEMLOCK	39	62.6	16.5	54		93.6	13,525	12,353	3,539	3,395
DOUG FIR	40	28.3	22.1	75		75.8	14,113	13,651	3,310	3,277
NOB FIR	13	6.2	25.4	85	5	21.9	4,741	4,255	1,008	947
R ALDER	2	2.2	19.3	41		4.5	136	136	90	90
S SPRUCE	1	.4	18.0	72		.8	102	102	31	31
TOTAL	*95*	*99.9*	*19.0*	*61*		*196.5*	*32,617*	*30,497*	*7,979*	*7,740*

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
WHEMLOCK	74.8	12.0	282	320	359			
DOUG FIR	56.0	8.8	613	673	733			
NOB FIR	53.5	15.4	741	876	1,011			
R ALDER	54.4	50.9	32	65	98			
S SPRUCE								
TOTAL	*74.1*	*7.6*	*498*	*539*	*580*	*219*	*55*	*24*

CL: 68.1 %	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
WHEMLOCK	78.4	10.8	56	63	69			
DOUG FIR	144.4	19.8	23	28	34			
NOB FIR	194.7	26.7	5	6	8			
R ALDER	510.5	70.1	1	2	4			
S SPRUCE	728.0	99.9	0	0	1			
TOTAL	*48.7*	*6.7*	*93*	*100*	*107*	*95*	*24*	*11*

CL: 68.1 %	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
WHEMLOCK	78.6	10.8	83	94	104			
DOUG FIR	132.9	18.2	62	76	90			
NOB FIR	188.2	25.8	16	22	28			
R ALDER	509.8	70.0	1	5	8			
S SPRUCE	728.0	99.9	0	1	2			
TOTAL	*41.9*	*5.8*	*185*	*197*	*208*	*70*	*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
WHEMLOCK	80.3	11.0	10,993	12,353	13,714			
DOUG FIR	137.0	18.8	11,084	13,651	16,217			
NOB FIR	196.7	27.0	3,106	4,255	5,403			
R ALDER	511.6	70.2	41	136	231			
S SPRUCE	728.0	99.9	0	102	205			
TOTAL	*46.7*	*6.4*	*28,544*	*30,497*	*32,450*	*87*	*22*	*10*

TC PSTATS

PROJECT STATISTICS

PROJECT MAIDEN

DATE 10/6/2011

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T4N	R7	21	AREAS23	TAKE	515.00	119	399	1	W
T4N	R7W	23	AREA1	TAKE					

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	119	399	3.4		
CRUISE	41	138	3.4	34,673	.4
DBH COUNT					
REFOREST					
COUNT	63	252	4.0		
BLANKS	15				
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	78	33.9	20.0	77		73.8	13,146	12,403	3,182	3,081
WHEMLOCK	43	29.8	15.7	48		40.4	5,110	4,645	1,390	1,315
NOB FIR	14	2.7	25.3	85	2	9.3	1,934	1,763	421	399
R ALDER	2	.8	19.3	41		1.6	48	48	32	32
S SPRUCE	1	.2	18.0	72		.3	36	36	11	11
TOTAL	*138*	*67.3*	*18.5*	*64*		*125.3*	*20,273*	*18,895*	*5,035*	*4,837*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	61.8	7.0	507	545	583			
WHEMLOCK	82.5	12.6	257	294	331			
NOB FIR	53.5	14.8	728	855	982			
R ALDER	54.4	50.9	32	65	98			
S SPRUCE								
TOTAL	*74.3*	*6.3*	*458*	*489*	*520*	*221*	*55*	*25*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	103.4	9.5	31	34	37			
WHEMLOCK	158.2	14.5	26	30	34			
NOB FIR	276.5	25.3	2	3	3			
R ALDER	769.1	70.4	0	1	1			
S SPRUCE	1090.9	99.9	0	0	0			
TOTAL	*79.0*	*7.2*	*62*	*67*	*72*	*249*	*62*	*28*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	96.7	8.9	67	74	80			
WHEMLOCK	147.3	13.5	35	40	46			
NOB FIR	269.7	24.7	7	9	12			
R ALDER	768.1	70.3	0	2	3			
S SPRUCE	1090.9	99.9	0	0	1			
TOTAL	*61.7*	*5.7*	*118*	*125*	*132*	*152*	*38*	*17*

CL 68.1 SD: 1.0	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	101.1	9.3	11,255	12,403	13,551			
WHEMLOCK	152.4	14.0	3,997	4,645	5,294			
NOB FIR	280.0	25.6	1,311	1,763	2,215			
R ALDER	770.7	70.6	14	48	82			
S SPRUCE	1090.9	99.9	0	36	72			
TOTAL	*62.6*	*5.7*	*17,812*	*18,895*	*19,978*	*156*	*39*	*17*

TC PLOGSTVB

Log Stock Table - MBF

TT4N RR7W S21 TyTAK 181.00
TT4N RR7W S23 TyTAK 334.00

Project: MAIDEN
Acres 515.00

Date 10/6/2011
Time 8:44:00AM

Spp	ST	Sort	Grade	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+
D		DO	CU	1	1	100.0														
D		DO	CU	3	7	100.0														
D		DO	CU	6	77	100.0														
D		DO	CU	8	4	100.0														
D		DO	CU	12	76	100.0														
D		DO	CU	20	57	100.0														
D		DO	CU	23	45	100.0														
D		DO	2S	12	81		81	1.3								39	43			
D		DO	2S	32	459	3.4	443	6.9					37	158	93	154				
D		DO	2S	36	35		35	.6							35					
D		DO	2S	40	4,029	2.0	3,949	61.8					111	800	720	1556	709	53		
D		DO	3S	15	2		2	.0			2									
D		DO	3S	24	9		9	.1				9								
D		DO	3S	26	4		4	.1				4								
D		DO	3S	28	7		7	.1					7							
D		DO	3S	30	41	2.8	40	.6				34	6							
D		DO	3S	32	687	2.6	669	10.5			110	238	320							
D		DO	3S	34	12		12	.2			12									
D		DO	3S	35	8		8	.1				8								
D		DO	3S	36	31		31	.5			24	7								
D		DO	3S	38	32		32	.5			16	16								
D		DO	3S	40	780		779	12.2			74	74	567	64						
D		DO	4S	12	22		22	.3			5	11	6							
D		DO	4S	16	65		65	1.0			51	13								
D		DO	4S	18	37		37	.6			23	11	4							
D		DO	4S	20	63		63	1.0		14	49									
D		DO	4S	22	16		16	.2			16									
D		DO	4S	24	22		22	.3			22									
D		DO	4S	26	14		14	.2			14									
D		DO	4S	32	20		20	.3			20									
D		DO	4S	40	27		27	.4			27									
D		Totals			6,770	5.7	6,388	65.6		14	466	426	1058	1022	848	1749	752	53		
H		DO	CU	6	38	100.0														
H		DO	CU	16	35	100.0														
H		DO	CU	24	27	100.0														
H		DO	CU	36	58	100.0														

TC PLOGSTVB

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TT4N RR7W S21 TyTAK 181.00
TT4N RR7W S23 TyTAK 334.00

Project: MAIDEN
Acres 515.00

Date 10/6/2011
Time 8:44:00AM

Spp	ST	Sort	Grade	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+
H		DO	2S	32	151	1.8	148	6.2					23	63	62					
H		DO	2S	40	1,388		1,380	57.7				16	155	242	416	412	138			
H		DO	3S	18	24		24	1.0			24									
H		DO	3S	22	18		18	.8			18									
H		DO	3S	24	24	33.3	16	.7			16									
H		DO	3S	30	29		29	1.2			29									
H		DO	3S	32	146		146	6.1			72	10	65							
H		DO	3S	36	31		31	1.3			31									
H		DO	3S	37	13		13	.5			13									
H		DO	3S	40	277	6.7	259	10.8				147	112							
H		DO	4S	12	3		3	.1				3								
H		DO	4S	14	14		14	.6			10	3								
H		DO	4S	15	16		16	.7			16									
H		DO	4S	16	10		10	.4			6	4								
H		DO	4S	19	31		31	1.3			31									
H		DO	4S	20	20		20	.8			20									
H		DO	4S	24	9		9	.4			9									
H		DO	4S	28	7		7	.3			7									
H		DO	4S	30	19	25.0	14	.6			14									
H		DO	4S	32	44	21.4	34	1.4					34							
H		DO	4S	33	14	20.0	11	.5			11									
H		DO	4S	36	28		28	1.2			28									
H		DO	4S	40	158	17.4	131	5.5			125	6								
H		Totals			2,631	9.1	2,392	24.6			481	189	389	306	478	412	138			
A		DO	CR	40	25		25	100.0		9		15								
A		Totals			25		25	.3		9		15								
NF		DO	CU	6	12	100.0														
NF		DO	CU	10	19	100.0														
NF		DO	CU	12	41	100.0														
NF		DO	2S	32	14		14	1.5						14						
NF		DO	2S	40	799	2.0	783	86.3				29		31	70	315	240	99		
NF		DO	3S	14	2		2	.2				2								
NF		DO	3S	18	4		4	.5					4							
NF		DO	3S	26	11		11	1.2					11							
NF		DO	3S	27	5		5	.6					5							

TC PLOGSTVB

Log Stock Table - MBF

TT4N RR7W S21 TyTAK 181.00
TT4N RR7W S23 TyTAK 334.00

Project: MAIDEN
Acres 515.00

Date 10/6/2011
Time 8:44:00AM

Spp	ST	Sort	Grade	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+
NF		DO	3S	31	5		5	.5				5								
NF		DO	3S	38	9		9	1.0			9									
NF		DO	3S	40	65		65	7.2				39			26					
NF		DO	4S	14	5		5	.5			5									
NF		DO	4S	24	4		4	.5				4								
NF		Totals			996	8.8	908	9.3			14	79	21	45	96	315	240	99		
S		DO	2S	40	15		15	83.3						15						
S		DO	3S	30	3		3	16.7			3									
S		Totals			19		19	.2			3			15						
Total		All Species			10,441	6.8	9,731	100.0		23	963	709	1468	1388	1422	2476	1130	152		

TC TSTNDSUM

Stand Table Summary

Project MAIDEN

TT4N RR7W S23 TLEAV — **TT4N RR7W S23 TLEA**

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
T4N	R7W	23	AREA1	LEAV	334.00	66	100

Page: 1
Date: 10/06/20
Time: 8:44:40AM

Spc	S T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
DL		14	1	85	22	1.812	1.94	1.81	11.0	20.0		20	36		67	12
DL		18	3	87	113	3.289	5.81	7.68	32.0	115.7		246	888		820	297
DL		19	1	88	116	.984	1.94	2.95	30.0	110.0		89	325		296	108
DL		20	1	88	116	.888	1.94	2.66	31.7	116.7		84	311		282	104
DL		21	1	89	117	.806	1.94	2.42	36.3	146.7		88	354		293	118
DL		22	4	87	125	2.936	7.75	8.81	41.5	172.5		366	1,519		1,221	507
DL		23	5	87	126	3.358	9.69	10.07	47.1	196.7		475	1,981		1,586	662
DL		24	8	87	118	4.934	15.50	14.19	49.2	201.3		698	2,856		2,332	954
DL		25	6	85	126	3.410	11.63	9.66	56.2	235.9		543	2,279		1,813	761
DL		26	4	85	132	2.102	7.75	6.31	59.5	252.5		375	1,592		1,253	532
DL		27	8	85	125	3.898	15.50	10.72	67.3	273.6		721	2,934		2,409	980
DL		28	8	87	118	3.625	15.50	9.52	70.6	306.2		672	2,914		2,243	973
DL		29	3	87	103	1.267	5.81	2.96	70.9	287.1		210	849		700	284
DL		30	4	88	116	1.579	7.75	3.95	88.4	404.0		349	1,595		1,165	533
DL		31	2	85	134	.739	3.88	2.22	72.8	356.7		162	791		540	264
DL		32	2	86	128	.694	3.88	2.08	88.5	413.3		184	860		615	287
DL		33	3	87	103	.979	5.81	2.28	99.7	451.4		228	1,031		761	344
DL		34	1	89	74	.307	1.94	.61	95.0	390.0		58	240		195	80
DL		35	1	86	121	.290	1.94	.87	102.0	480.0		89	418		296	139
DL		Totals	66	86	116	37.898	127.88	101.76	55.6	233.6		5,655	23,772		18,886	7,940
NFL		20	1	92	111	.889	1.94	2.67	33.0	143.3		88	382		294	128
NFL		24	1	89	103	.617	1.94	1.23	64.5	245.0		80	302		266	101
NFL		29	1	89	116	.423	1.94	1.27	71.7	323.3		91	410		304	137
NFL		30	1	86	143	.395	1.94	1.19	86.0	360.0		102	427		340	143
NFL		31	1	93	141	.370	1.94	1.11	104.0	556.7		115	618		386	206
NFL		32	1	91	121	.347	1.94	1.04	91.0	476.7		95	497		317	166
NFL		33	2	86	148	.653	3.88	1.96	108.3	440.0		212	862		709	288
NFL		34	1	89	103	.308	1.94	.92	89.0	476.7		82	440		274	147
NFL		36	1	93	135	.274	1.94	.82	129.0	743.3		106	612		355	204
NFL		Totals	10	90	123	4.276	19.39	12.21	79.5	372.6		971	4,550		3,244	1,520
HL		8	1	86	20	3.704	1.29	3.70	5.0	20.0		19	74		62	25
HL		10	1	85	27	2.371	1.29	2.37	8.0	20.0		19	47		63	16
HL		11	1	84	65	1.959	1.29	1.96	18.0	60.0		35	118		118	39
HL		12	2	88	44	3.292	2.59	3.29	15.5	40.0		51	132		170	44
HL		20	1	90	94	.593	1.29	1.19	46.5	165.0		55	196		184	65
HL		21	2	86	116	1.075	2.59	3.23	39.3	163.3		127	527		424	176
HL		23	1	89	120	.448	1.29	.45	96.0	460.0		43	206		144	69
HL		25	1	88	132	.379	1.29	1.14	62.3	260.0		71	296		237	99
HL		26	3	87	88	1.052	3.88	1.75	75.2	290.0		132	508		440	170
HL		28	2	87	106	.605	2.59	1.21	77.0	315.0		93	381		311	127
HL		Totals	15	86	55	15.478	19.39	20.29	31.8	122.5		645	2,485		2,153	830
SN		8	1	89	41	2.508	.88									
SN		19	1	88	17	.445	.88									
SN		23	2	89	122	.607	1.75									
SN		45	5	89	12	.396	4.38									
SN		Totals	9	89	48	3.956	7.88									
Totals			100	87	97	61.608	174.55	134.26	54.2	229.5		7270	30,806		24,283	10,289

TC TSTNDSUM

Stand Table Summary

Project MAIDEN

TT4N RR7W S23 TTAK

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
T4N	R7W	23	AREA1	TAKE	334.00	66	43

TT4N RR7W S23 TTAK

Page: 1
Date: 10/06/20
Time: 8:46:14AM

Spc	S T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
D		10	1	85	28	3.509	1.91	3.51	8.0	20.0		28	70		94	23
D		13	1	86	23	2.076	1.91	2.08	10.0	20.0		21	42		69	14
D		15	1	88	105	1.560	1.91	3.12	25.0	100.0		78	312		260	104
D		16	2	89	97	2.741	3.83	5.48	26.0	97.5		143	535		476	179
D		17	4	86	100	4.857	7.66	10.93	27.4	98.9		300	1,081		1,002	361
D		18	5	86	116	5.415	9.57	14.08	28.3	102.3		399	1,440		1,331	481
D		19	3	85	111	2.916	5.74	6.80	30.3	110.0		206	748		688	250
D		20	3	87	120	2.632	5.74	7.90	33.3	131.1		263	1,035		879	346
D		21	3	88	111	2.387	5.74	6.37	38.0	147.5		242	939		808	314
D		22	3	87	123	2.175	5.74	6.53	39.0	166.7		254	1,088		850	363
D		23	3	88	135	1.990	5.74	5.97	50.4	217.8		301	1,300		1,006	434
D		24	1	89	125	.609	1.91	1.83	43.3	190.0		79	347		265	116
D		25	4	88	123	2.246	7.66	6.18	54.7	238.2		338	1,471		1,129	491
D		26	1	86	129	.519	1.91	1.56	59.7	223.3		93	348		310	116
D		28	2	86	131	.895	3.83	2.24	68.2	286.0		153	640		510	214
D		30	1	85	107	.390	1.91	.78	98.5	425.0		77	331		257	111
D		Totals	38	87	100	36.917	72.73	85.33	34.9	137.4		2,974	11,727		9,934	3,917
H		13	3	85	45	9.370	8.64	9.37	20.0	50.0		187	468		626	156
H		14	1	83	27	2.693	2.88									
H		Totals	4	85	41	12.062	11.52	9.37	20.0	50.0		187	468		626	156
NF		25	1	89	103	.711	2.42	1.42	72.0	290.0		102	412		342	138
NF		Totals	1	89	103	.711	2.42	1.42	72.0	290.0		102	412		342	138
Totals			43	86	86	49.691	86.67	96.12	34.0	131.2		3264	12,608		10,902	4,211

TC TSTNDSUM

Stand Table Summary

Project MAIDEN

TT4N RR7W S21 TTAK

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
T4N	R7W	21	AREAS23	TAKE	181.00	53	100

TT4N RR7W S21 TTAK

Date: 10/06/20

Time: 8:46:41AM

Spc	S T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
D		10	1	83	66	3.321	1.81	3.32	14.0	50.0		46	166		84	30
D		11	1	83	59	2.745	1.81	2.74	14.0	50.0		38	137		70	25
D		14	1	83	76	1.694	1.81	3.39	16.5	55.0		56	186		101	34
D		17	1	88	78	1.149	1.81	2.30	25.5	85.0		59	195		106	35
D		19	1	82	105	.920	1.81	1.84	41.0	125.0		75	230		137	42
D		20	1	88	112	.830	1.81	1.66	49.0	175.0		81	291		147	53
D		21	1	82	105	.753	1.81	1.51	46.0	160.0		69	241		125	44
D		22	2	87	116	1.614	4.26	4.84	43.8	197.2		212	955		383	173
D		23	6	86	101	3.767	10.87	9.42	43.7	160.0		412	1,507		745	273
D		24	3	86	112	2.084	6.55	4.74	68.1	308.8		323	1,465		585	265
D		25	2	84	115	1.063	3.62	2.66	54.0	208.0		143	553		260	100
D		26	3	84	110	1.603	5.91	4.32	65.1	280.8		281	1,212		508	219
D		27	2	86	120	.911	3.62	2.28	71.2	280.0		162	638		294	115
D		28	2	88	104	.847	3.62	1.69	83.3	332.5		141	563		255	102
D		29	7	87	120	3.007	13.79	8.63	75.9	334.0		654	2,881		1,184	521
D		30	3	89	124	1.107	5.43	2.95	88.9	417.5		262	1,232		475	223
D		31	1	89	116	.346	1.81	1.04	78.7	346.7		82	359		148	65
D		34	2	86	132	.575	3.62	1.72	103.7	486.7		179	839		323	152
D		Totals	40	85	98	28.335	75.79	61.05	53.7	223.6		3,277	13,651		5,931	2,471
H		10	4	84	38	17.598	9.60	17.60	9.5	30.0		167	528		303	96
H		11	1	86	28	3.636	2.40	3.64	10.0	30.0		36	109		66	20
H		13	2	84	83	5.207	4.80	7.81	22.0	60.0		172	469		311	85
H		15	2	89	54	3.911	4.80	3.91	27.0	75.0		106	293		191	53
H		16	3	89	85	5.156	7.20	10.31	25.3	90.0		261	928		473	168
H		17	4	88	79	6.089	9.60	10.66	31.4	94.3		335	1,005		606	182
H		18	1	88	97	1.358	2.40	2.72	38.0	130.0		103	353		187	64
H		19	4	91	88	4.875	9.60	9.75	38.8	145.0		378	1,414		684	256
H		20	2	88	108	2.200	4.80	5.50	41.8	160.0		230	880		416	159
H		21	4	87	102	3.991	9.60	8.98	46.3	178.9		416	1,606		753	291
H		22	3	90	99	2.727	7.20	6.36	49.7	201.4		316	1,282		573	232
H		24	4	86	105	3.055	9.60	7.64	48.4	182.0		370	1,390		669	252
H		25	1	89	99	.704	2.40	1.41	73.0	275.0		103	387		186	70
H		27	1	88	104	.604	2.40	1.21	90.0	375.0		109	453		197	82
H		28	1	88	99	.561	2.40	1.12	96.0	410.0		108	460		195	83
H		30	2	87	110	.978	4.80	1.96	95.0	407.5		186	797		336	144
H		Totals	39	87	71	62.649	93.58	100.56	33.8	122.8		3,395	12,353		6,145	2,236
NF		15	1	88	75	1.372	1.68	2.74	19.5	70.0		54	192		97	35
NF		21	1	89	97	.700	1.68	1.40	49.5	180.0		69	252		125	46
NF		23	1	89	103	.584	1.68	1.17	62.0	245.0		72	286		131	52
NF		25	1	93	122	.494	1.68	.99	84.5	415.0		83	410		151	74
NF		26	1	88	88	.457	1.68	.91	69.0	260.0		63	237		114	43
NF		28	2	85	102	.787	3.37	1.97	60.4	268.0		119	528		215	95
NF		30	2	88	135	.686	3.37	2.06	89.7	440.0		185	905		334	164
NF		31	1	87	115	.321	1.68	.64	102.5	430.0		66	276		119	50
NF		32	1	88	138	.301	1.68	.90	81.7	426.7		74	386		134	70
NF		34	2	91	129	.534	3.37	1.34	121.2	586.0		162	782		293	142
NF		Totals	13	88	104	6.236	21.89	14.12	67.0	301.3		947	4,255		1,713	770
A		18	1	87	46	1.281	2.26	1.28	33.0	40.0		42	51		77	9
A		21	1	86	49	.941	2.26	.94	51.0	90.0		48	85		87	15

TC TSTNDSUM

Stand Table Summary

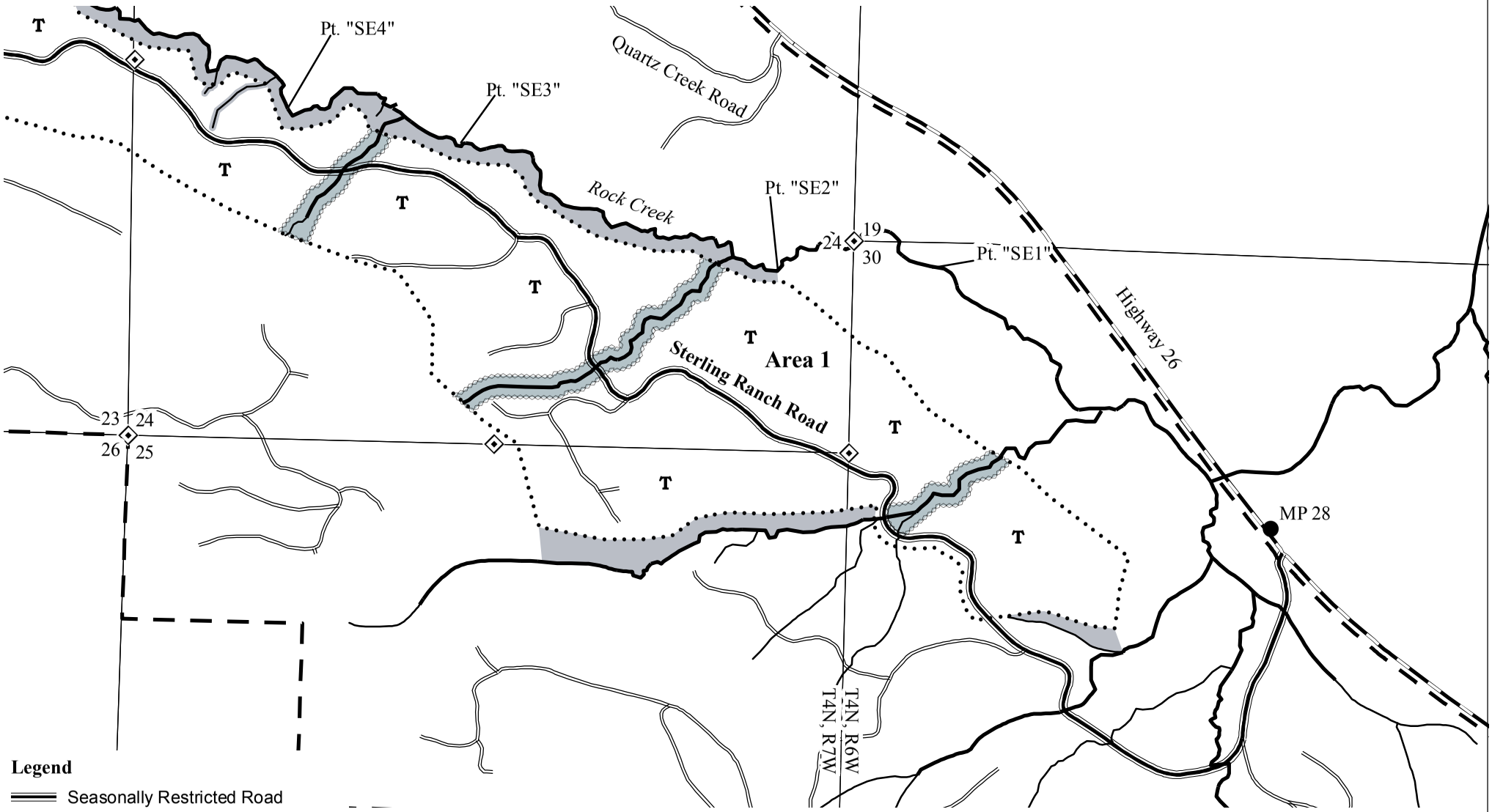
Project MAIDEN

TT4N RR7W S21 TTAK

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
T4N	R7W	21	AREAS23	TAKE	181.00	53	100

Date: 10/06/20
Time: 8:46:41AM

Spc	S T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
A		Totals	2	87	47	2.223	4.53	2.22	40.6	61.2		90	136		163	25
S		18	1	85	90	.427	.75	.85	36.0	120.0		31	102		56	19
S		Totals	1	85	90	.427	.75	.85	36.0	120.0		31	102		56	19
Totals			95	86	80	99.869	196.55	178.80	43.3	170.6		7740	30,497		14,009	5,520



Legend

- Seasonally Restricted Road
- Paved Road
- Existing Surfaced Road
- Type F Stream
- Type N Stream
- Timber Sale Boundary
- Posted Stream Buffer
- Non Posted Stream Buffer
- Ownership Boundary
- Known Land Survey Corner
- T Yarding Area - Tractor

N

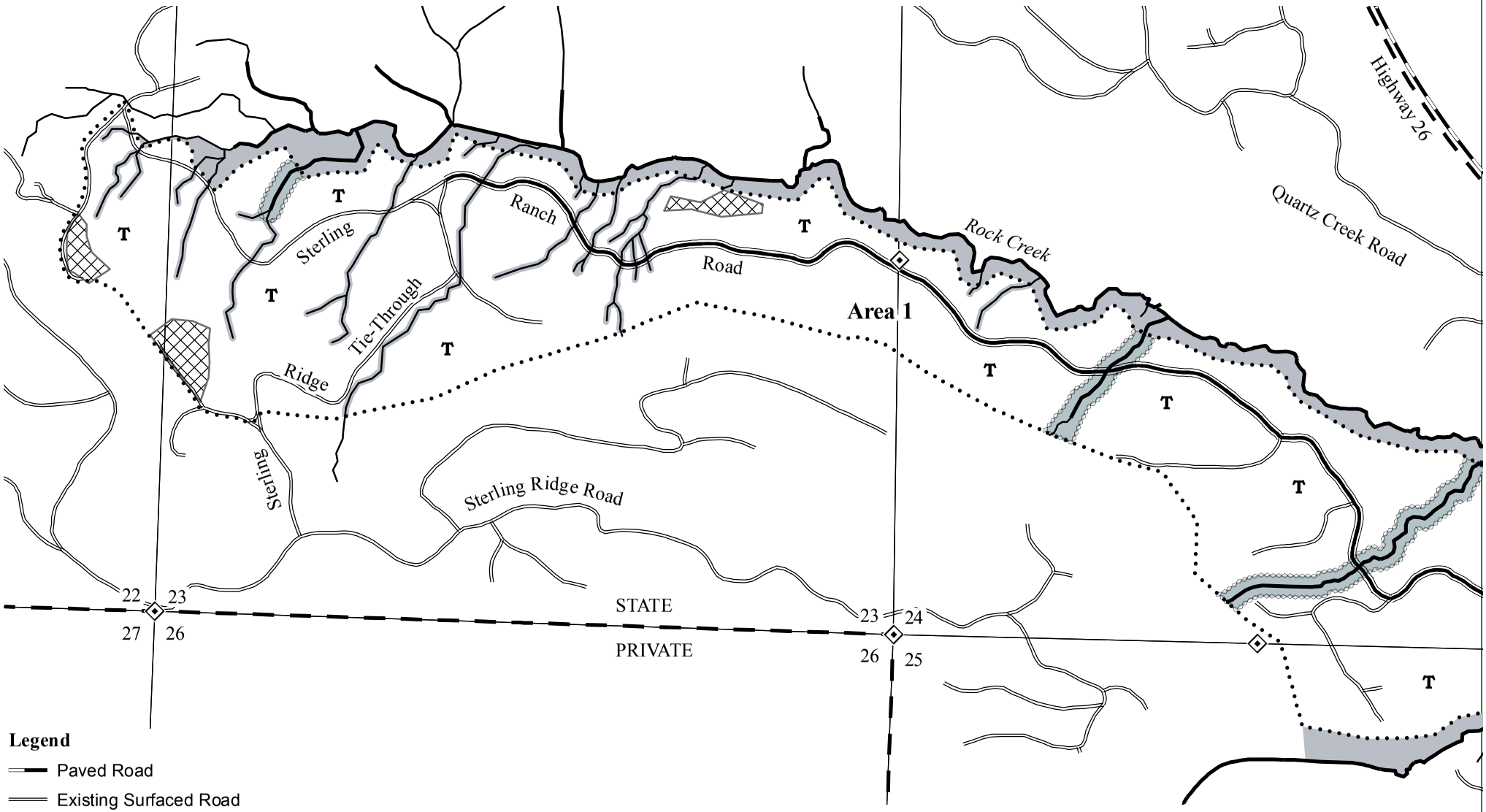
Approximate Net Acreage:
Area 1 (PC) - 334 Acres
Area 2 (MC) - 100 Acres
Area 3 (MC) - 81 Acres
Total Sale - 515 Acres

0 500 1,000 2,000 Feet

Approxmate Scale = 1":1,000'

Logging Plan

OF TIMBER SALE CONTRACT NO. 341-12-44
IRON MAIDEN
PORTIONS OF SECTION 30 T4N,
R6W AND PORTIONS OF SECTIONS 21,
22, 23, 24 AND 25, T4N, R7W, W.M.,
CLATSOP COUNTY, OR



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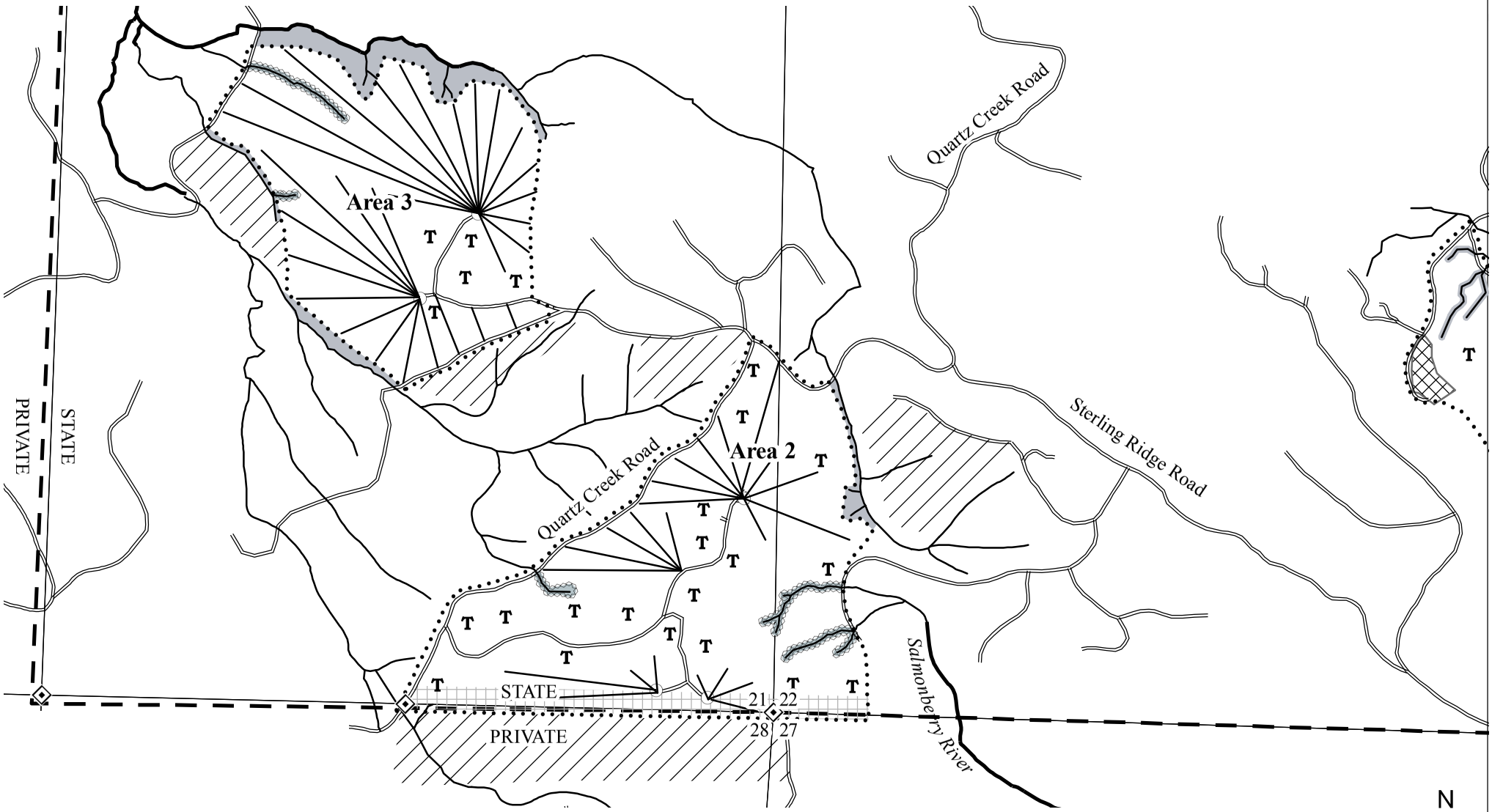

Legend

- Paved Road
- Existing Surfaced Road
- Type F Stream
- Type N Stream
- Timber Sale Boundary
- Controlled Felling Area
- Reforestation Area
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- Yarding Area - Cable

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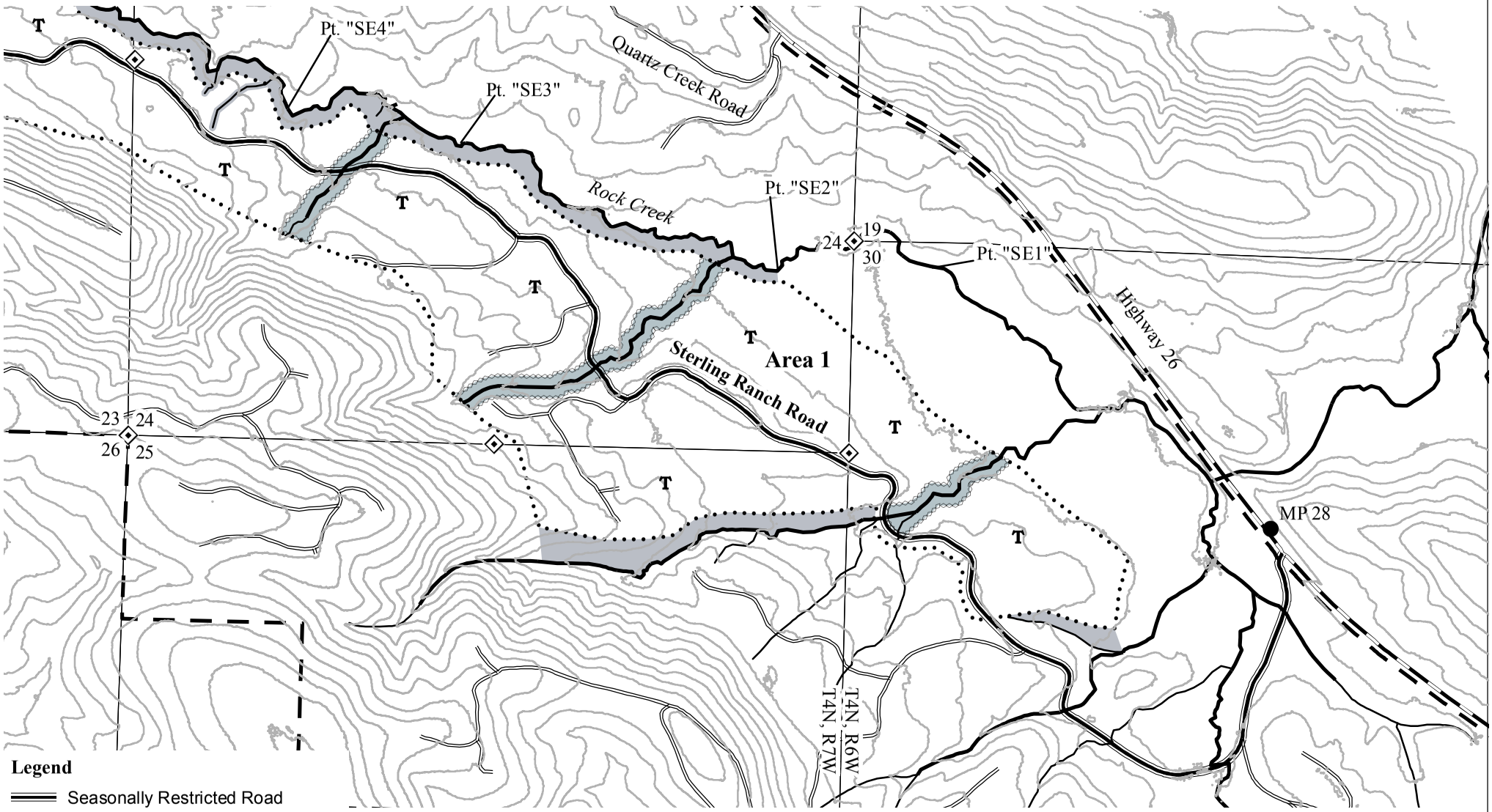

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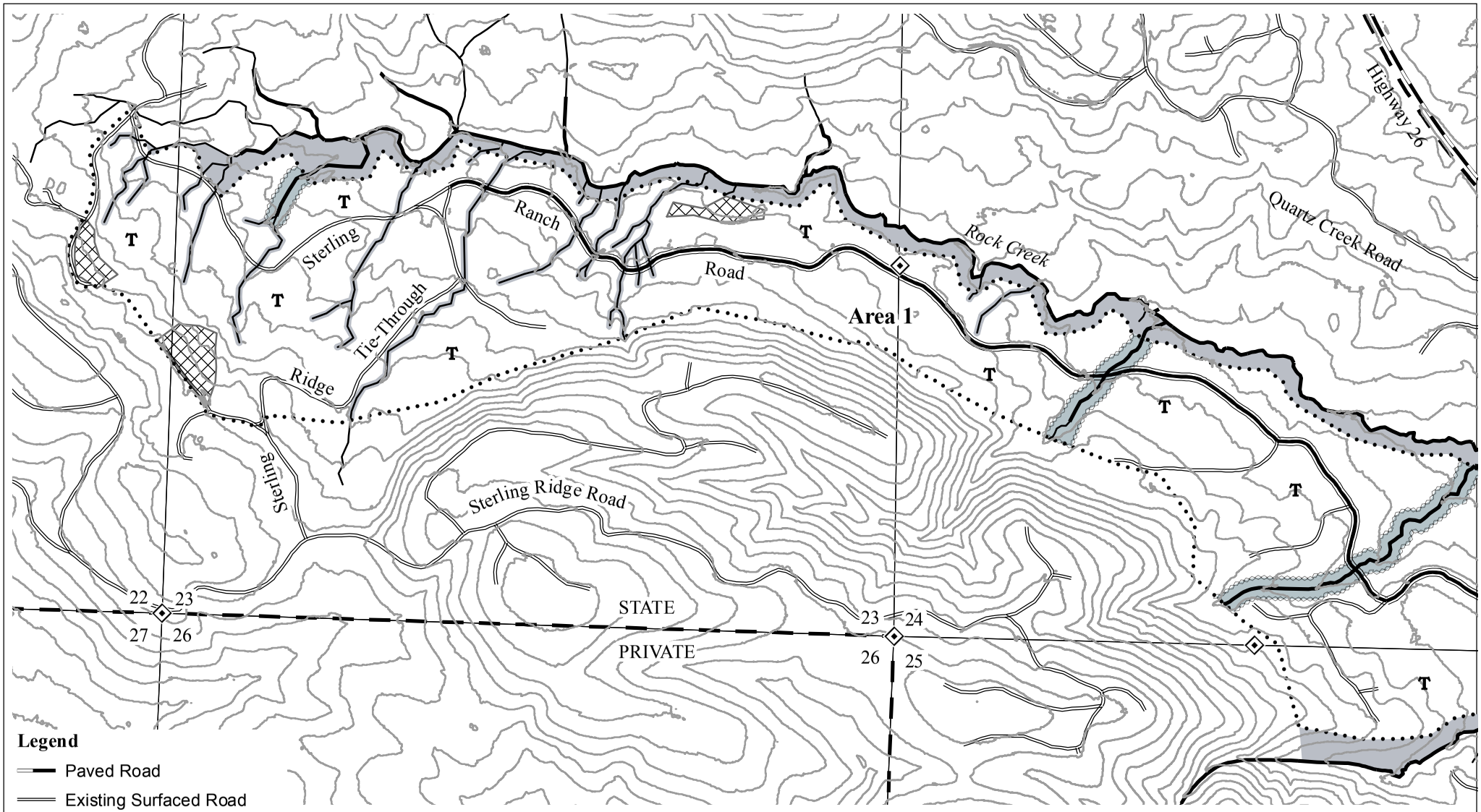

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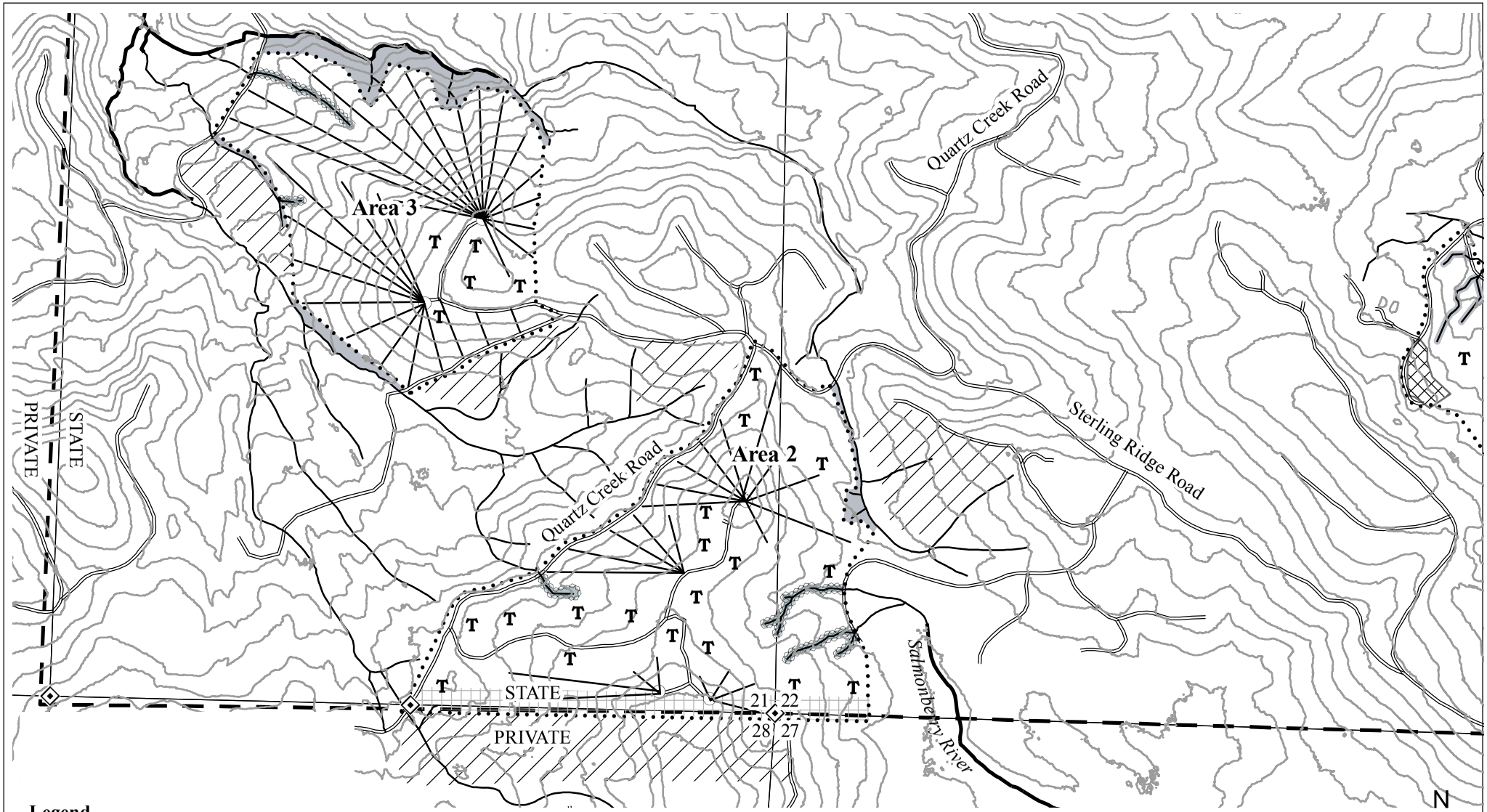

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