

**TIMBER NOTICE OF SALE**

**SALE NAME:** CHUM

**AGREEMENT NO:** 30-093140

**AUCTION:** April 27, 2016 starting at 10:00 a.m.,  
Olympic Region Office, Forks, WA

**COUNTY:** Clallam

**SALE LOCATION:** Sale located approximately 8 miles northwest of Clallam Bay WA

**PRODUCTS SOLD  
AND SALE AREA:**

All timber, except trees marked with a band of blue paint or bounded out by leave tree area tags; bounded by timber sale boundary tags, a timber type change, and the S-1000 Road in Units 1, 6 and 7; by timber sale boundary tags and the S-1000 Road in Units 2, 3, 4 and 5; by timber sale boundary tags and a timber type change in Unit 8 on part(s) of Sections 16, 20, 29 and 30 all in Township 32 North, Range 13 West, W.M., containing 211 acres, more or less.

**CERTIFICATION:** This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: BV-SFIS-US09000572)

**ESTIMATED SALE VOLUMES AND QUALITY:**

| Species     | Avg DBH | Ring Count | Total MBF | MBF by Grade |    |    |    |    |       |       |     |    |
|-------------|---------|------------|-----------|--------------|----|----|----|----|-------|-------|-----|----|
|             |         |            |           | 1P           | 2P | 3P | SM | 1S | 2S    | 3S    | 4S  | UT |
| Hemlock     | 15.9    | 6          | 3,487     |              |    |    |    |    | 1,095 | 1,952 | 422 | 19 |
| Douglas fir | 17.9    | 6          | 2,944     |              |    |    |    |    | 899   | 1,692 | 337 | 16 |
| Spruce      | 21.1    | 5          | 219       |              |    |    |    |    | 148   | 65    | 6   | 1  |
| Red cedar   | 15.7    |            | 54        |              |    |    |    |    |       | 47    | 6   | 1  |
| Red alder   | 10      |            | 35        |              |    |    |    |    |       | 12    | 5   | 17 |
| Silver fir  | 22      |            | 23        |              |    |    |    |    | 21    |       | 3   |    |
| Sale Total  |         |            | 6,762     |              |    |    |    |    |       |       |     |    |

**MINIMUM BID:** \$1,054,000.00

**BID METHOD:** Sealed Bids

**PERFORMANCE  
SECURITY:**

\$100,000.00

**SALE TYPE:** Lump Sum

**EXPIRATION DATE:** October 15, 2018

**ALLOCATION:** Export Restricted

**BID DEPOSIT:** \$105,400.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

**HARVEST METHOD:** 35% - Ground/65% - Cable. Rubber tire skidders may be allowed when conditions of clauses H-016, H-017 and H-040 can be met. 30' Equipment Limitation Zones on all typed water. Falling and yarding will not be allowed on weekends, state recognized holidays and prior to 6:00am and after 8:00pm on weekdays.

**ROADS:** 33.55 stations of optional construction. 20.35 stations of optional reconstruction. 293.46 stations of required pre-haul maintenance. 31.00 stations of optional pre-haul maintenance. Pre-haul maintenance, reconstruction and Road construction will not be permitted from October 15 to April 15 unless authorized in writing by the Contract Administrator; and on the S-1000 (from MP 4.020 - MP 5.140), S-1000J, S-1300, S-1400 (Units 4 and 5) rock and timber haul will also be restricted. There is a 72" required culvert installation required on the S-1000 Road (see road plan for details). The hauling of forest products will not be permitted from October 15 to April 15 unless authorized in writing by the Contract Administrator in Units 4 and 5

## TIMBER NOTICE OF SALE

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**ACREAGE DETERMINATION**

**CRUISE METHOD:** Sale acreage was 100% GPS'd. Sale units were cruised using a variable plot sample.

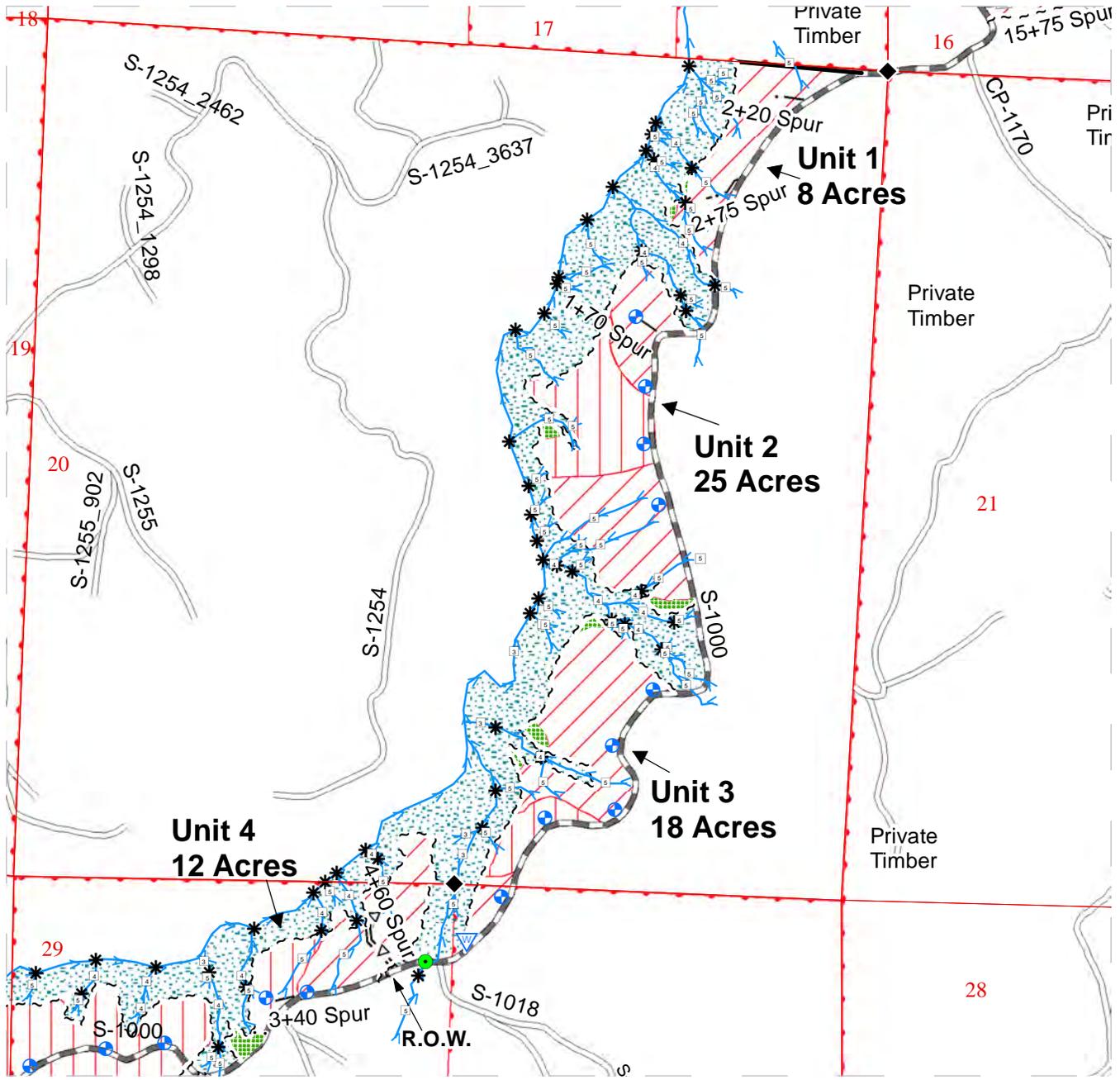
**FEES:** \$120,043.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

**SPECIAL REMARKS:** There is a locked gate on the Mary Clark Pit - contact the Olympic Region Dispatch at 360-374-2811 to obtain a AA-1 key.

# TIMBER SALE MAP

**SALE NAME:** Chum  
**AGREEMENT#:** 30-093140  
**TOWNSHIP(S):** T32R13W  
**TRUST(S):** Common School (3), Agricultural School (4) & Capitol Grant (7)

**REGION:** Clallam  
**COUNTY(S):** Olympic  
**ELEVATION RGE:** 330-1040'



All State Unless Otherwise Noted

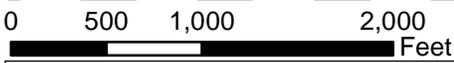
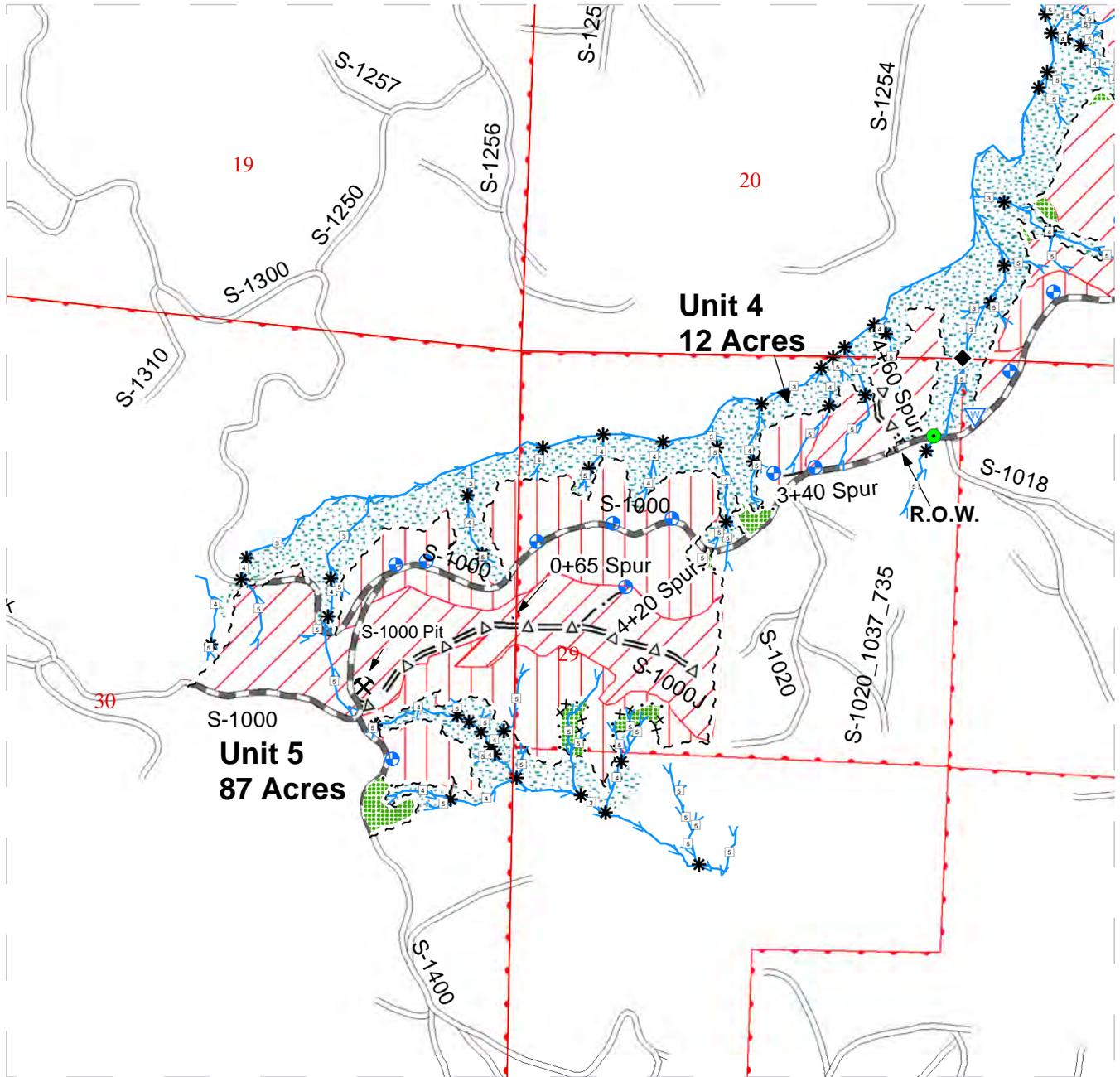
|       |                           |       |                              |   |                             |
|-------|---------------------------|-------|------------------------------|---|-----------------------------|
| ... x | Leave Tree Area Tags      | - - - | Optional Construction        |   | Ground                      |
| ~ ~ ~ | Timber Sale Boundary Tags | = Δ = | Optional Prehaul Maintenance |   | Cable                       |
| —     | Timber Type Change        | — □ — | Optional Reconstruction      |   | Public Land Survey Sections |
|       | Leave_Tree_Area           | —     | Required Prehaul Maintenance |   | DNR Managed Lands           |
|       | RMZ                       | ~ ~ ~ | Right of Way                 | ◆ | Monumented Survey Points    |
|       | Streams                   | —     | Existing Roads               |   |                             |
| ●     | Culvert                   | □     | Stream Type                  |   |                             |
| ⊕     | Landing                   | *     | Stream Type Break            |   |                             |
| ▽     | Waste_Area                |       |                              |   |                             |



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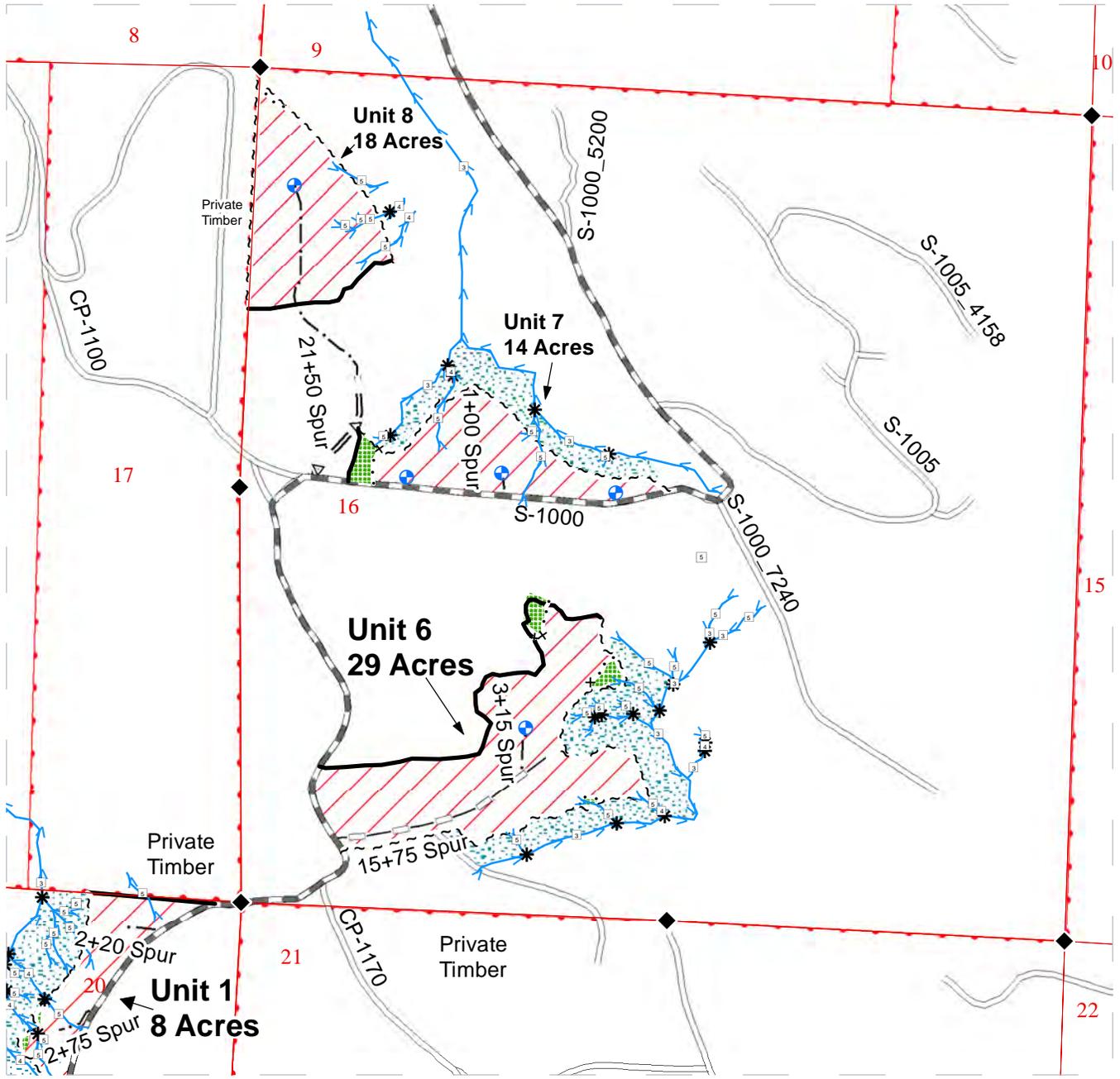
|               |                           |       |                              |                   |                             |
|---------------|---------------------------|-------|------------------------------|-------------------|-----------------------------|
| ...x          | Leave Tree Area Tags      | -.-.- | Optional Construction        | [Red Hatched Box] | Ground                      |
| ~ ~ ~         | Timber Sale Boundary Tags | =Δ=   | Optional Prehaul Maintenance | [Red Box]         | Cable                       |
| —             | Timber Type Change        | -□-   | Optional Reconstruction      | [Red Outline Box] | Public Land Survey Sections |
| [Green Grid]  | Leave_Tree_Area           | —     | Required Prehaul Maintenance | [Red Outline Box] | DNR Managed Lands           |
| [Blue Dotted] | RMZ                       | ~ ~ ~ | Right of Way                 | ◆                 | Monumented Survey Points    |
| [Blue Arrow]  | Streams                   | —     | Existing Roads               | □                 | Stream Type                 |
| ●             | Culvert                   | *     | Stream Type Break            |                   |                             |
| ⊕             | Landing                   |       |                              |                   |                             |
| ▽             | Waste_Area                |       |                              |                   |                             |



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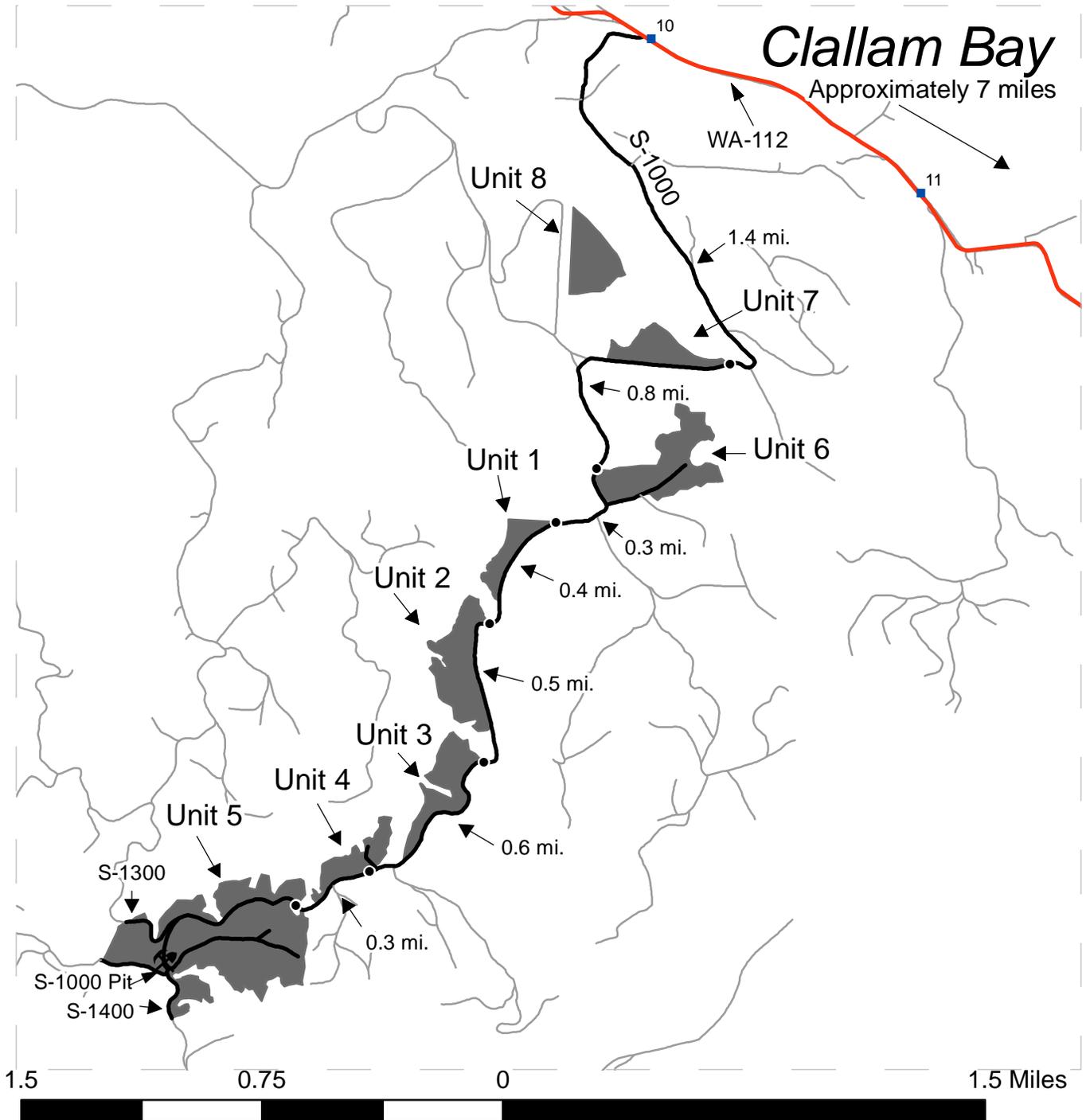
|       |                           |       |                              |   |                             |
|-------|---------------------------|-------|------------------------------|---|-----------------------------|
| ... x | Leave Tree Area Tags      | - - - | Optional Construction        |   | Ground                      |
| ~ ~ ~ | Timber Sale Boundary Tags | = Δ = | Optional Prehaul Maintenance |   | Cable                       |
| —     | Timber Type Change        | - □ - | Optional Reconstruction      |   | Public Land Survey Sections |
|       | Leave_Tree_Area           | —     | Required Prehaul Maintenance |   | DNR Managed Lands           |
|       | RMZ                       | ~ ~ ~ | Right of Way                 | ◆ | Monumented Survey Points    |
|       | Streams                   | —     | Existing Roads               |   |                             |
|       | Culvert                   | □     | Stream Type                  |   |                             |
|       | Landing                   | *     | Stream Type Break            |   |                             |
|       | Waste_Area                |       |                              |   |                             |



# DRIVING MAP

**SALE NAME:** Chum  
**AGREEMENT#:** 30-093140  
**TOWNSHIP(S):** T32R13W  
**TRUST(S):** Common School (3), Agricultural School (4) & Capitol Grant (7)

**REGION:** Olympic Region  
**COUNTY(S):** CLALLAM  
**ELEVATION RGE:** 330-1040'



|  |                    |
|--|--------------------|
|  | Timber Sale Unit   |
|  | Highways           |
|  | Haul Route         |
|  | Other Route        |
|  | Haul Route         |
|  | Milepost Markers   |
|  | Distance Indicator |

**DRIVING DIRECTIONS:**

From Clallam Bay travel on WA-112 West for approximately 7 miles. Near mile post 10, turn left onto the S-1000 road system. Unit 7 is 1.4 miles from the WA-112 W. Access into unit 8 will be constructed with the timbersale. Unit 8 is located approximately 0.2 miles northwest from unit 7. Travel south 0.8 miles to reach unit 6. From unit 6 travel south 0.3 mi. to reach unit 1. From unit 1 travel south 0.4 mi. to reach unit 2. From unit 2 travel south 0.5 mi. to reach unit 3. From unit 3 travel south 0.6 mi. to reach unit 4. From unit 4 travel south 0.3 mi. to reach unit 5. The S-1000 Pit is located within unit 5.



**STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES**

**BILL OF SALE AND CONTRACT FOR  
FOREST PRODUCTS**

**Export Restricted Lump Sum AGREEMENT NO. 30-093140**

**SALE NAME: CHUM**

**THE STATE OF WASHINGTON DEPARTMENT OF NATURAL  
RESOURCES, HEREINAFTER ACTING SOLELY, IN ITS PROPRIETARY  
CAPACITY, STATE, AND PURCHASER, AGREE AS FOLLOWS:**

Section G: General Terms

G-001 Definitions

The following definitions apply throughout this contract;

**Bill of Sale and Contract for Forest Products:** Contract between the Purchaser and the State, which sets forth the procedures and obligations of the Purchaser in exchange for the right to remove forest products from the sale area. The Bill of Sale and Contract for Forest Products may include a Road Plan for any road construction or reconstruction, where applicable.

**Contract Administrator:** Region Manager's designee responsible for assuring that the contractual obligations of the Purchaser are met.

**Forest Product:** Any material derived from the forest for commercial use.

**Purchaser:** The company or individual that has entered a Bill of Sale and Contract for Forest Products with the State for the right to harvest and remove forest products from the timber sale area.

Road Construction: Includes building new and maintaining existing forest roads and associated work that may be optional or required as described in the Road Plan.

State: The Washington State Department of Natural Resources, landowner and seller of Forest Products from the timber sale area. The State is represented by the Region Manager as designated on the contract signature page. Contractual obligations to the State are enforced by the Region Manager or the designated Contract Administrator.

Subcontractor: Individual or company employed by the Purchaser to perform a portion or all of the services required by The Bill of Sale and Contract for Forest Products. The Purchaser is responsible for independently negotiating, procuring and paying for all subcontracted services rendered.

G-011 Right to Remove Forest Products and Contract Area

Purchaser was the successful bidder on April 27, 2016 and the sale was confirmed on \_\_\_\_\_. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber, except trees marked with a band of blue paint or bounded out by leave tree area tags; bounded by timber sale boundary tags, a timber type change, and the S-1000 Road in Units 1, 6 and 7; by timber sale boundary tags and the S-1000 Road in Units 2, 3, 4 and 5; by timber sale boundary tags and a timber type change in Unit 8, located on approximately 211 acres on part(s) of Sections 16, 20, 29, and 30 all in Township 32 North, Range 13 West W.M. in Clallam County(s) as designated on the sale area and as shown on the attached timber sale map.

All forest products described above from the bole of the tree that meet or exceed 2 inches diameter inside bark on the small end are eligible for removal. Above ground components of a tree that remain as by-products after the manufacture of logs, including but not limited to tree tops, branches, limbs, needles, leaves, stumps, are not eligible for removal under the terms of this contract.

Forest products purchased under a contract that is designated as export restricted shall not be exported until processed. Forest products purchased under a contract that is designated as exportable may be exported prior to processing.

G-020 Inspection By Purchaser

Purchaser hereby warrants to the State that they have had an opportunity to fully inspect the sale area and the forest products being sold. Purchaser further warrants to the State that they enter this contract based solely upon their own judgment of the value of the forest products, formed after their own examination and inspection of both the timber sale area and the forest products being sold. Purchaser also warrants to the State that they enter this contract without any reliance upon the volume estimates, acreage estimates, appraisals, pre-bid documentation, or any other representations by the State Department of Natural Resources.

G-025 Schedules

The following attached schedules are hereby incorporated by reference:

|          |                           |
|----------|---------------------------|
| Schedule | Title                     |
| A        | SLASH PILING SPECS        |
| B        | GREEN TREE RETENTION PLAN |

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to October 15, 2018.

G-040 Contract Term Adjustment - No Payment

Purchaser may request an adjustment in the contract term. A claim must be submitted in writing and received by the State within 30 days after the start of interruption or delay. The claim must also indicate the actual or anticipated length of interruption or delay. The State may grant an adjustment without charge only if the cause for contract term adjustment is beyond Purchaser's control. The cause must be one of the following and the adjustment may be granted only if operations or planned operations under this contract are actually interrupted or delayed:

- a. Road and bridge failures which deny access.
- b. Access road closures imposed by road owner.
- c. Excessive suspensions as provided in clause G-220.
- d. Regulatory actions not arising from Purchaser's failure to comply with this contract which will prevent timber harvest for a period less than 6 months.

G-051 Contract Term Extension - Payment

Extensions of this contract term may be granted only if, in the judgment of the State, Purchaser is acting in good faith and is endeavoring to remove the forest products conveyed. The term of this contract may be extended for a reasonable time by the State if all of the following conditions are satisfied:

- a. A written request for extension of the contract term must be received prior to the expiration date of the contract.
- b. Completion of all required roads and compliance with all contract and regulatory requirements.
- c. For the first extension, not to exceed 1 year, payment of at least 25 percent of the total contract price.

For the second extension, not to exceed 1 year, payment of at least 90 percent of the total contract price.

The payments shall not include the initial deposit which shall be held according to the provisions of RCW 79.15.100.

- d. Payment of an amount based on 12 percent interest per annum on the unpaid portion of the total contract price.

All payments, except the initial deposit, will be deducted from the total contract price to determine the unpaid portion of the contract.

- e. Payment of \$652.00 per acre per annum for the acres on which an operating release has not been issued .
- f. In no event will the extension charge be less than \$200.00.
- g. Extension payments are non-refundable.

G-053 Surveys - Sensitive, Threatened, Endangered Species

Whenever the State determines that a survey for sensitive, threatened, or endangered species is prudent, or when Purchaser determines a survey is prudent and the State agrees, Purchaser shall perform such surveys at Purchaser's expense and to the standards required by the State. The survey information shall be supplied to the State.

G-060 Exclusion of Warranties

The PARTIES AGREE that the IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE and ALL OTHER WARRANTIES EXPRESSED OR IMPLIED ARE EXCLUDED from this transaction and shall not apply to the goods sold. For example, THE FOLLOWING SPECIFIC MATTERS ARE NOT WARRANTED, and are EXCLUDED from this transaction:

- a. The MERCHANTABILITY of the forest products. The use of the term "merchantable" in any document is not intended to vary the foregoing.
- b. The CONDITION of the forest products. The forest products will be conveyed "AS IS."
- c. The ACREAGE contained within any sale area. Any acreage descriptions appearing in the timber notice of sale, timber sale contract, or other documents are estimates only, provided solely for administrative and identification purposes.
- d. The VOLUME, QUALITY, OR GRADE of the forest products. The State neither warrants nor limits the amount of timber to be harvested. The descriptions of the forest products to be conveyed are estimates only, made solely for administrative and identification purposes.
- e. The CORRECTNESS OF ANY SOIL OR SURFACE CONDITIONS, PRE-SALE CONSTRUCTION APPRAISALS, INVESTIGATIONS, AND ALL OTHER PRE-BID DOCUMENTS PREPARED BY OR FOR THE STATE. These documents have been prepared for the State's appraisal purposes only.

- f. THAT THE SALE AREA IS FREE FROM THREATENED OR ENDANGERED SPECIES or their habitat. The State is not responsible for any interference with forestry operations that result from the presence of any threatened or endangered species, or the presence of their habitat, within the sale area.
- g. THAT THE FORESTRY OPERATIONS to be performed under this contract WILL BE FREE FROM REGULATORY ACTIONS by governmental agencies. The State is not responsible for actions to enforce regulatory laws, such as the Washington Forest Practices Act (chapter 76.09 RCW), taken by the Department of Natural Resources or any other agency that may affect the operability of this timber sale.
- h. Items contained in any other documents prepared for or by the State.

G-062 Habitat Conservation Plan

The State has entered into a Habitat Conservation Plan (HCP) with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (the Services) to address state trust land management issues relating to compliance with the Federal Endangered Species Act. The activities to be carried out under this contract are located within the State's HCP area and are subject to the terms and conditions of the HCP, and the Services' Incidental Take Permit Nos. 812521 and 1168 (collectively referred to as ITP), or as amended hereafter by the Services. The ITP authorizes the incidental take of certain federally listed threatened and endangered species, as specified in the ITP conditions. All HCP materials, including the ITP, are available for review at the State's Regional Offices and the administrative headquarters in Olympia, Washington.

By signing this contract, Purchaser agrees to comply with the terms and conditions of the ITP, and the HCP, which shall become terms of this contract. The State agrees to authorize the lawful activities of the Purchaser carried out pursuant to this contract, PROVIDED the Purchaser remains in compliance with the terms and conditions of both the HCP and ITP. The requirements set forth in this contract are intended to comply with the terms and conditions of the HCP and ITP. Accordingly, non-compliance with the terms and conditions of the HCP and ITP will render the authorization provided in this paragraph void, be deemed a breach of the contract and may subject Purchaser to liability for violation of the Endangered Species Act.

Any modifications to the contract shall be proposed in writing by Purchaser, shall continue to meet the terms and conditions of the HCP and ITP, and shall require the prior written approval of the Region Manager before taking effect.

G-063 Incidental Take Permit Notification Requirements

- a. Purchaser shall immediately notify the Contract Administrator of new locations of permit species covered by the Incidental Take Permits (ITP) that are discovered within the area covered by the State's Habitat Conservation Plan (HCP), including, but not limited to: locations of occupied murrelet habitat; spotted owl nest sites; wolves; grizzly bears; nests, communal roosts,

or feeding concentrations of bald eagles; peregrine falcon nests; Columbian white-tailed deer; Aleutian Canada geese; Oregon silverspot butterflies; and additional stream reaches found to contain bull trout. Purchaser is required to notify the Contract Administrator upon discovery of any fish species found in streams or bodies of water classified as non-fish bearing. In all circumstances, notification must occur within a 24 hour time period.

- b. Upon locating any live, dead, injured, or sick specimens of any permit species covered by the ITP, Purchaser shall immediately notify the Contract Administrator. Purchaser shall notify the Contract Administrator if there is any doubt as to the identification of a discovered permit species. Purchaser may be required to take certain actions to help the Contract Administrator safeguard the well-being of any live, injured or sick specimens of any permit species discovered, until the proper disposition of such specimens can be determined by the Contract Administrator. Any such requirements will be explained to Purchaser by the Contract Administrator during the Pre-Work Conference. In all circumstances, notification must occur within a 24 hour time period.
- c. Purchaser shall refer to a specific ITP number, PRT-812521 or ITP 1168 (copies which are located in the region office) in all correspondence and reports concerning permit activities.
- d. Provisions and requirements of the ITP shall be clearly presented and explained to Purchaser by Contract Administrator during the Pre-Work Conference as per contract clause G-330. All applicable provisions of the ITP and this schedule must be presented and clearly explained by Purchaser to all authorized officers, employees, contractors, or agents of Purchaser conducting authorized activities in the timber sale area. Any questions Purchaser may have about the ITP should be directed to the Contract Administrator.

#### G-064 Permits

Purchaser is responsible for obtaining any permits not already obtained by the State that relate to Purchaser's operation. Forest Practice Application / Hydraulic Project Approval permits obtained by the State shall be transferred to Purchaser. Purchaser is responsible for all permits, amendments and renewals.

#### G-065 Regulatory Disclaimer

The State disclaims any responsibility for, or liability relating to, regulatory actions by any government agency, including actions pursuant to the Forest Practices Act, Ch. 76.09 RCW that may affect the operability of the timber sale.

#### G-066 Governmental Regulatory Actions

- a. Risk

Purchaser shall be responsible for any increased operational costs arising from any applicable foreign or domestic governmental regulation or order that does

not cause contract performance to become commercially impracticable or that does not substantially frustrate the purpose of the contract. If impracticability or frustration results from Purchaser's failure to comply with this contract, Purchaser shall remain responsible for payment of the total contract price notwithstanding the impracticability or frustration.

b. Sale Area

When portions of the sale area become subject to a foreign or domestic governmental regulation or order that will likely prevent timber harvest for a period that will exceed the expiration date of this contract, and Purchaser has complied with this contract, the following shall apply:

- i. RCW 79.15.140 shall govern all adjustments to the contract area.

c. Adjustment of Price

The State shall adjust the total contract price by subtracting from the total contract price an amount determined in the following manner: The State shall cause the timber sale area subject to governmental regulation or order to be measured. The State shall calculate the percentage of the total sale area subject to the governmental regulation or order. The State shall reduce the total contract price by that calculated percentage. However, variations in species, value, costs, or other items pertaining to the affected sale area will be analyzed and included in the adjustment if deemed appropriate by the State. The State will further reduce the total contract price by the reasonable cost of unamortized roads Purchaser constructed but was unable to fully use for removing timber. A reduction in total contract price terminates all of the Purchaser's rights to purchase and remove the timber and all other interest in the affected sale area.

G-070 Limitation on Damage

In the event of a breach of any provision of this contract by the State, the exclusive remedy available to Purchaser will be limited to a return of the initial deposit, unapplied payments, and credit for unamortized improvements made by Purchaser. The State shall not be liable for any damages, whether direct, incidental or consequential.

G-080 Scope of State Advice

No advice by any agent, employee, or representative of the State regarding the method or manner of performing shall constitute a representation or warranty that said method, manner or result thereof will conform to the contract or be suitable for Purchaser's purposes under the contract. Purchaser's reliance on any State advice regarding the method or manner of performance shall not relieve Purchaser of any risk or obligation under the contract. Purchaser retains the final responsibility for its operations under this contract and State shall not be liable for any injuries resulting from Purchaser's reliance on any State advice regarding the method or manner of performance.

**G-091 Sale Area Adjustment**

The Parties may agree to adjustments in the sale area boundary. The cumulative changes to the sale area during the term of the contract shall not exceed more than four percent of the original sale area. If the sale area is increased, the added forest products become a part of this contract. The State shall determine the volume added and shall calculate the increase to the total contract price using the rates set forth in clause G-101, G-102, or G-103. If the sale area is reduced, the State shall determine the volume to be reduced. The State shall calculate the reduction to the total contract price using the rates set forth in clause G-101, G-102, or G-103.

**G-101 Forest Products Not Designated**

Any forest products not designated for removal, which must be removed in the course of operations authorized by the State, shall be approved and designated by the Contract Administrator. Added forest products become a part of this contract and the Scribner log scale volume, as defined by the Northwest Log Rules Advisory Group, shall be determined by the Contract Administrator. Added forest products shall be paid for at the following contract payment rates per Mbf Scribner log scale.

The pricing schedule has not been set for the sale.

**G-106 Adding Naturally Damaged Forest Products**

Any forest products not designated for removal that are seriously damaged by disease, insects or wind, or that may contribute seriously to the spread of insect or disease damage may be added to this sale by the State's Contract Administrator. Additions must be in unlogged areas of the sale and added volume shall not exceed an amount equal to 10 percent of the original advertised volume. Added forest products become a part of this contract and shall be paid for at the rate set forth in clause G-101, G-102 or G-103.

**G-111 Title and Risk of Loss**

Title to the forest products under this contract passes to the Purchaser after they are removed from the sale area, if adequate advance payment or payment security has been provided to the State under this contract. Purchaser bears all risk of loss of, or damage to, and has an insurable interest in, the forest products described in this contract from the time the sale is confirmed under RCW 79.15.120. Breach of this contract shall have no effect on this provision.

**G-116 Sustainable Forestry Initiative® (SFI) Certification**

Forest products purchased under this contract are certified as being in conformance with the Sustainable Forestry Initiative program Standard under certificate number: BV-SFIS-US09000572.

Purchaser shall have at least one person regularly on-site during active operations that have completed training according to the requirements outlined within the SFI® program Standard. Purchaser shall designate in writing the name(s) of the individual(s) who will be on-site and provide proof of their successful completion of an approved training program prior to active operations.

**G-120 Responsibility for Work**

All work, equipment, and materials necessary to perform this contract shall be the responsibility of Purchaser. Any damage to improvements, except as provided in clause G-121 or unless the State issues an operating release pursuant to clause G-280, shall be repaired promptly to the satisfaction of the State and at Purchaser's expense.

**G-121 Exceptions**

Exceptions to Purchaser's responsibility in clause G-120 shall be limited exclusively to the following. These exceptions shall not apply where road damage occurs due to Purchaser's failure to take reasonable precautions or to exercise sound forest engineering and construction practices.

Road is defined as the road bed, including but not limited to its component parts, such as subgrade, ditches, culverts, bridges, and cattle guards.

For the purposes of this clause, damage will be identified by the State and is defined as:

1. Failure of (a) required improvements or roads designated in clause C-050, or (b) required or optional construction completed to the point that authorization to haul has been issued;
2. Caused by a single event from forces beyond the control of Purchaser, its employees, agents, or invitees, including independent contractors; and
3. Includes, but is not limited to natural disasters such as earthquakes, volcanic eruptions, landslides, and floods.

The repair work identified by the State shall be promptly completed by Purchaser at an agreed price. The State may elect to accomplish repairs by means of State-provided resources. The State will bear the cost to repair damages caused by a third party. In all other cases, the Purchaser shall bear responsibility for the costs as described below.

For each event, Purchaser shall be solely responsible for the initial \$5,000 in repairs. For repairs in excess of \$5,000, the parties shall share equally the portion of costs between \$5,000 and \$15,000. The State shall be solely responsible for the portion of the cost of repairs that exceed \$15,000.

Nothing contained in clauses G-120 and G-121 shall be construed as relieving Purchaser of responsibility for, or damage resulting from, Purchaser's operations or negligence, nor shall Purchaser be relieved from full responsibility for making good any defective work or materials. Authorization to haul does not warrant that Purchaser built roads are free from material defect and the State may require additional work, at Purchaser's expense regardless of cost, to remedy deficiencies at any time.

## G-140 Indemnity

To the fullest extent permitted by law, Purchaser shall indemnify, defend and hold harmless State, agencies of State and all officials, agents and employees of State, from and against all claims arising out of or resulting from the performance of the contract. "Claim" as used in this contract means any financial loss, claim, suit, action, damage, or expense, including but not limited to attorneys' fees, attributable for bodily injury, sickness, disease or death, or injury to or destruction of tangible property including loss of use resulting therefrom. Purchasers' obligations to indemnify, defend, and hold harmless includes any claim by Purchasers' agents, employees, representatives, or any subcontractor or its employees. Purchaser expressly agrees to indemnify, defend, and hold harmless State for any claim arising out of or incident to Purchasers' or any subcontractors' performance or failure to perform the contract. Purchasers' obligation to indemnify, defend, and hold harmless State shall not be eliminated or reduced by any actual or alleged concurrent negligence of State or its agents, agencies, employees and officials. Purchaser waives its immunity under Title 51 RCW to the extent it is required to indemnify, defend and hold harmless State and its agencies, officials, agents or employees.

## G-150 Insurance

Purchaser shall, at its cost and expense, buy and maintain insurance of the types and amounts listed below. Failure to buy and maintain the required insurance may result in a breach and/or termination of the contract at State's option. State may suspend Purchaser operations until required insurance has been secured.

All insurance and surety bonds should be issued by companies admitted to do business within the State of Washington and have a rating of A-, Class VII or better in the most recently published edition of Best's Reports. If an insurer is not admitted, all insurance policies and procedures for issuing the insurance policies must comply with Chapter 48.15 RCW and 284-15 WAC.

The State of Washington, Department of Natural Resources region office of sale origin shall be provided written notice before cancellation or non-renewal of any insurance referred to therein, in accord with the following specifications:

1. Insurers subject to Chapter 48.18 RCW (admitted and regulated by the Insurance Commissioner): The insurer shall give the State 45 days advance notice of cancellation or non-renewal. If cancellation is due to non-payment of premium, the State shall be given 10 days advance notice of cancellation.
2. Insurers subject to Chapter 48.15 RCW (surplus lines): The State shall be given 20 days advance notice of cancellation. If cancellation is due to non-payment of premium, the State shall be given 10 days advance notice of cancellation.

Before starting work, Purchaser shall furnish State of Washington, Department of Natural Resources with a certificate(s) of insurance, executed by a duly authorized

representative of each insurer, showing compliance with the insurance requirements specified in the contract. Insurance coverage shall be obtained by the Purchaser prior to operations commencing and continually maintained in full force until all contract obligations have been satisfied or an operating release has been signed by the State.

Purchaser shall include all subcontractors as insured under all required insurance policies, or shall furnish separate certificates of insurance and endorsements for each subcontractor. Subcontractor(s) must comply fully with all insurance requirements stated herein. Failure of subcontractor(s) to comply with insurance requirements does not limit Purchaser's liability or responsibility.

The State of Washington, Department of Natural Resources, its elected and appointed officials, agents and employees shall be named as an additional insured on all general liability, excess, umbrella, and property insurance policies.

All insurance provided in compliance with this contract shall be primary as to any other insurance or self-insurance programs afforded to or maintained by State. Purchaser waives all rights against State for recovery of damages to the extent these damages are covered by general liability or umbrella insurance maintained pursuant to this contract.

By requiring insurance herein, State does not represent that coverage and limits will be adequate to protect Purchaser and such coverage and limits shall not limit Purchaser's liability under the indemnities and reimbursements granted to State in this contract.

The limits of insurance, which may be increased as deemed necessary by State of Washington, Department of Natural Resources, shall not be less than as follows:

Commercial General Liability (CGL) Insurance. Purchaser shall maintain general liability (CGL) insurance, and, if necessary, commercial umbrella insurance with a limit of not less than \$1,000,000.00 per each occurrence. If such CGL insurance contains aggregate limits, the General Aggregate limit shall be at least twice the "each occurrence" limit. CGL insurance shall have products-completed operations aggregate limit of at least two times the "each occurrence" limit. CGL coverage shall include a Logging and Lumbering Endorsement (i.e. Logger's Broad-Form) to cover the events that include, but are not limited to, fire suppression expenses, accidental timber trespasses, and wildfire property damage with limits of not less than \$2,000,000.00 each occurrence.

CGL insurance shall be written on Insurance Services Office (ISO) occurrence form CG 00 01 (or a substitute form providing equivalent coverage). All insurance shall cover liability arising out of premises, operations, independent contractors, products completed operations, personal injury and advertising injury, and liability assumed under an insured contract (including the tort liability of another party assumed in a business contract), and contain separation of insured (cross liability) condition.

Employer's Liability "Stop Gap" Insurance. Purchaser shall buy employers liability insurance, and, if necessary, commercial umbrella liability insurance with limits not less than \$1,000,000.00 each accident for bodily injury by accident or \$1,000,000.00 each employee for bodily injury by disease.

Workers' Compensation Coverage. Purchaser shall comply with all State of Washington workers' compensation statutes and regulations. Workers' compensation coverage shall be provided for all employees of Purchaser and employees of any subcontractor or sub-subcontractor. Coverage shall include bodily injury (including death) by accident or disease, which exists out of or in connection with the performance of this contract. Except as prohibited by law, Purchaser waives all rights of subrogation against State for recovery of damages to the extent they are covered by workers' compensation, employer's liability, commercial general liability, or commercial umbrella liability insurance.

If Purchaser, subcontractor or sub-subcontractor fails to comply with all State of Washington workers' compensation statutes and regulations and State incurs fines or is required by law to provide benefits to or obtain coverage for such employees, Purchaser shall indemnify State. Indemnity shall include all fines, payment of benefits to Purchaser or subcontractor employees, or their heirs or legal representatives, and the cost of effecting coverage on behalf of such employees.

Business Auto Policy (BAP). Purchaser shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit not less than \$1,000,000.00 per accident. Such insurance shall cover liability arising out of "Any Auto". Business auto coverage shall be written on ISO form CA 00 01, or substitute liability form providing equivalent coverage. If necessary the policy shall be endorsed to provide contractual liability coverage and cover a "covered pollution cost or expense" as provided in the 1990 or later editions of CA 00 01. Purchaser waives all rights against State for the recovery of damages to the extent they are covered by business auto liability or commercial umbrella liability insurance.

#### G-160 Agents

The State's rights and duties will be exercised by the Region Manager at Forks, Washington. The Region Manager will notify Purchaser in writing who is responsible for administering the contract. The Region Manager has sole authority to waive, modify, or amend the terms of this contract in the manner prescribed in clause G-180. No agent, employee, or representative of the State has any authority to bind the State to any affirmation, representation, or warranty concerning the forest products conveyed beyond the terms of this contract.

Purchaser is required to have a person on site during all operations who is authorized to receive instructions and notices from the State. Purchaser shall inform the State in writing who is authorized to receive instructions and notices from the State, and any limits to this person's authority.

G-170 Assignment and Delegation

No rights or interest in this contract shall be assigned by Purchaser without prior written permission of the State. Any attempted assignment shall be void and ineffective for all purposes unless made in conformity with this paragraph. Purchaser may perform any duty through a delegate, but Purchaser is not thereby relieved of any duty to perform or any liability. Any assignee or delegate shall be bound by the terms of the contract in the same manner as Purchaser.

G-180 Modifications

Waivers, modifications, or amendments of the terms of this contract must be in writing signed by Purchaser and the State.

G-190 Contract Complete

This contract is the final expression of the Parties' agreement. There are no understandings, agreements, or representations, expressed or implied, which are not specified in this contract.

G-200 Notice

Notices required to be given under the following clauses shall be in writing and shall be delivered to Purchaser's authorized agent or sent by certified mail to Purchaser's post office address:

G-210 Violation of Contract

G-220 State Suspends Operations

All other notices required to be given under this contract shall be in writing and delivered to the authorized agent or mailed to the Party's post office address. Purchaser agrees to notify the State of any change of address.

G-210 Violation of Contract

- a. If Purchaser violates any provision of this contract, the Contract Administrator, by written notice, may suspend those operations in violation. If the violation is capable of being remedied, Purchaser has 30 days after receipt of a suspension notice to remedy the violation. If the violation cannot be remedied (such as a violation of WAC 240-15-015) or Purchaser fails to remedy the violation within 30 days after receipt of a suspension notice, the State may terminate the rights of Purchaser under this contract and collect damages.
- b. If the contract expires pursuant to clause G-030 or G-031 without Purchaser having performed all its duties under this contract, Purchaser's right to operate is terminated and Purchaser shall not have the right to remedy the breach. This provision shall not relieve Purchaser of any payment obligations.
- c. The State has the right to remedy the breach in the absence of any indicated attempt by Purchaser or if Purchaser is unable, as determined by the State, to

remedy the breach. Any expense incurred by the State shall be charged to Purchaser and shall be paid within 30 days of receipt of billing.

- d. If Purchaser's violation is a result of a failure to make a payment when due, in addition to a. and b. above, interest shall accrue on the unpaid balance at 12 percent per annum, beginning the date payment was due.

#### G-220 State Suspends Operation

The Contract Administrator may suspend any operation of Purchaser under this contract when the State is suffering, or there is a reasonable expectation the State will suffer environmental, monetary, or other damage if the operation is allowed to continue.

Purchaser shall be in breach of this contract if the operation continues after the suspension notice or if the operation resumes without prior approval and notice from the Contract Administrator.

Purchaser may request a modification of a suspension within 30 days of the start of suspension through the dispute resolution process in clause G-240. If this process results in a finding that the suspension exceeded the time reasonably necessary to stop or prevent damage to the State, Purchaser is entitled to request a contract term adjustment under clause G-040.

If it reasonably appears that the damage that the State is suffering, or can reasonably be expected to suffer if the operation is allowed to continue, will prevent harvest for a period that will exceed 6 months, and Purchaser has complied with this contract, the provisions of clause G-066 shall govern just as if the harvest was prevented by an applicable foreign or domestic governmental regulation or order.

#### G-230 Unauthorized Activity

Any cutting, removal, or damage of forest products by Purchaser, its employees, agents, or invitees, including independent contractors, in a manner inconsistent with the terms of this contract or State law, is unauthorized. Such activity may subject Purchaser to liability for triple the value of said forest products under RCW 79.02.320 or RCW 79.02.300 and may result in prosecution under RCW 79.02.330 or other applicable statutes.

#### G-240 Dispute Resolution

The following procedures apply in the event of a dispute regarding interpretation or administration of this contract and the parties agree that these procedures must be followed before a lawsuit can be initiated.

- a. In the event of a dispute, Purchaser must make a written request to the Region Manager for resolution prior to seeking other relief.
- b. The Region Manager will issue a written decision on Purchaser's request within ten business days.

- c. Within ten business days of receipt of the Region Manager's decision, Purchaser may make a written request for resolution to the Deputy Supervisor - Uplands of the Department of Natural Resources.
- d. Unless otherwise agreed, a conference will be held by the Deputy Supervisor - Uplands within 30 calendar days of the receipt of Purchaser's request for review of the Region Manager's written decision. Purchaser and the Region Manager will have an opportunity to present their positions. The Deputy Supervisor - Uplands will issue a decision within a reasonable time of being presented with both Parties' positions.

G-250 Compliance with All Laws

Purchaser shall comply with all applicable statutes, regulations and laws, including, but not limited to; chapter 27.53 RCW, chapter 68.50 RCW, WAC 240-15 and WAC 296-54. Failure to comply may result in forfeiture of this contract.

G-260 Venue

This contract shall be governed by the laws of the State of Washington. In the event of a lawsuit involving this contract, venue shall be proper only in Thurston County Superior Court.

G-270 Equipment Left on State Land

All equipment owned or in the possession of Purchaser, its employees, agents, or invitees, including independent contractors, shall be removed from the sale area and other State land by the termination date of this contract. Equipment remaining unclaimed on State land 60 days after the expiration of the contract period is subject to disposition as provided by law. Purchaser shall pay to the State all costs of moving, storing, and disposing of such equipment. The State shall not be responsible for any damages to or loss of the equipment or damage caused by the moving, storing or disposal of the equipment.

G-280 Operating Release

An operating release is a written document, signed by the State and Purchaser, indicating that Purchaser has been relieved of certain rights or responsibilities with regard to the entire or a portion of the timber sales contract. Purchaser and State may agree to an operating release for this sale, or portion of this sale, prior to the contract expiration, when all contract requirements pertaining to the release area have been satisfactorily completed. Upon issuance of a release, Purchaser's right to cut and remove forest products on the released area will terminate.

G-310 Road Use Authorization

Purchaser is authorized to use the following State roads and roads for which the State has acquired easements and road use permits; S-1000, S-1000J, S-1300, S-1400, and all spurs associated with this sale. The State may authorize in writing the use of other roads subject to fees, restrictions, and prior rights.

**G-330 Pre-work Conference**

Purchaser shall arrange with the Contract Administrator to review this contract and to examine the sale area before beginning any operations. A plan of operations shall be developed and agreed upon by the Contract Administrator and Purchaser before beginning any operations. To the extent that the plan of operations is inconsistent with the contract, the terms of the contract shall prevail. State's acceptance and approval of Purchaser's plan of operations shall not be construed as any statement or warranty that the plan of operations is adequate for Purchaser's purposes or complies with applicable laws.

**G-340 Preservation of Markers**

Any legal land subdivision survey corners and witness objects are to be preserved. If such are destroyed or disturbed, the Purchaser shall, at the Purchaser's own expense, re-establish them through a licensed land surveyor in accordance with U.S. General Land Office standards. Corners and/or witness objects that must be disturbed or destroyed in the process of road construction or logging shall be adequately referenced and/or replaced in accordance with RCW 58.24.040(8). Such references must be approved by the Contract Administrator prior to removal of said corners and/or witness objects.

**G-360 Road Use Reservation**

The State shall have the right to use, without charge, all existing roads and any road constructed or reconstructed on State lands by Purchaser under this contract. The State may extend such rights to others. If the State grants such rights to others, the State shall require performance or payment, as directed by the State, for their proportionate share of maintenance based on their use.

**G-370 Blocking Roads**

Purchaser shall not block the S-1000 Road, unless authority is granted in writing by the Contract Administrator.

**G-380 Road Easement and Road Use Permit Requirements**

Purchaser agrees to comply with the terms and conditions of the attached:

Easement #55-000421 with Crown Zellerbach Corporation, dated April 9, 1963.

**G-430 Open Fires**

Purchaser shall not set, or allow to be set by Purchaser's employees, agents, invitees and independent contractors, any open fire at any time of the year without first obtaining permission, in writing, from the Contract Administrator.

**Section P: Payments and Securities**

**P-011 Initial Deposit**

Purchaser paid DATA MISSING initial deposit, which will be maintained pursuant to RCW 79.15.100(3). If the operating authority on this contract expires without

Purchaser's payment of the full amount specified in Clause P-020, the initial deposit will be immediately forfeited to the State, and will be offset against Purchaser's remaining balance due. Any excess initial deposit funds not needed to ensure full payment of the contract price, or not needed to complete any remaining obligations of the Purchaser existing after contract expiration, will be refunded to the Purchaser.

P-020 Payment for Forest Products

Purchaser agrees to pay the total, lump sum contract price of \$180,901.00. The total contract price consists of a \$0.00 contract bid price plus \$180,901.00 in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause. Purchaser shall be liable for the entire purchase price, and will not be entitled to any refunds or offsets unless expressly stated in this contract.

THE PURCHASE PRICE SHALL NOT BE AFFECTED BY ANY FACTORS, INCLUDING: the amount of forest products actually present within the contract area, the actual acreage covered by the contract area, the amount or volume of forest products actually cut or removed by purchaser, whether it becomes physically impossible or uneconomic to remove the forest products, and whether the subject forest products have been lost or damaged by fire or any other cause. The only situations Purchaser may not be liable for the full purchase price are governed by clause G-066, concerning governmental regulatory actions taken during the term of the contract.

P-045 Guarantee of Payment

Purchaser will pay for forest products prior to cutting or will guarantee payment by posting an approved payment security. The amount of cash or payment security shall be determined by the State and shall equal or exceed the value of the cutting proposed by Purchaser.

P-050 Billing Procedure

The State will compute and forward to Purchaser statements of charges provided for in the contract. Purchaser shall deliver payment to the State on or before the date shown on the billing statement.

P-080 Payment Account Refund

Advance payments made under P-045 or P-045.2 remaining on account above the value for the charges shall be returned to Purchaser within 30 days following the final report of charges. Refunds not made within the 30 day period will accrue interest at the interest rate, as established by WAC 332-100-030, computed on a daily basis until paid.

P-090 Performance Security

Purchaser agrees to furnish, within 30 days of the confirmation date, security acceptable to the State in the amount of \$100,000.00. The Security provided shall guarantee performance of all provisions of this contract and payment of any damages caused by operations under this contract or resulting from Purchaser's noncompliance with any rule or law. Acceptable performance security may be in the form of a performance bond, irrevocable letter of credit, cash, savings or certificate of deposit account assignments, and must name the State as the obligee or beneficiary. A letter of

credit must comply with Title 62A RCW, Article 5. Performance security must remain in full force over the duration of the contract length. Surety bonds issued shall conform to the issuance and rating requirements in clause G-150. The State shall retain the performance security pursuant to RCW 79.15.100. Purchaser shall not operate unless the performance security has been accepted by the State. If at any time the State decides that the security document or amount has become unsatisfactory, Purchaser agrees to suspend operations and, within 30 days of notification, to replace the security with one acceptable to the State or to supplement the amount of the existing security.

P-100 Performance Security Reduction

The State may reduce the performance security after an operating release has been issued if the State determines that adequate security exists for any remaining obligations of Purchaser.

Section H: Harvesting Operations

H-010 Cutting and Yarding Schedule

DATA MISSING will not be permitted from DATA MISSING to DATA MISSING or on weekends, state recognized holidays, and prior to 6:00am and after 8:00pm unless authorized in writing by the Contract Administrator.

H-013 Reserve Tree Damage Definition

Reserve trees are trees required and designated for retention within the sale boundary. Purchaser shall protect reserve trees from being cut, damaged, or removed during operations.

Reserve tree damage exists when one or more of the following criteria occur as a result of Purchaser's operation, as determined by the Contract Administrator:

- a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 100 square inches.
- b. A reserve tree top is broken or the live crown ratio is reduced below 30 percent.
- c. A reserve tree has more than 1/3 of the circumference of its root system injured such that the cambium layer is exposed.

If the Contract Administrator determines that a reserve tree has been cut or damaged, the Purchaser shall provide a replacement reserve tree of like condition, size, and species within the sale area, as approved by the Contract Administrator. Purchaser may be required to pay liquidated damages for Excessive Reserve Tree Damage as detailed in clause D-041.

Removal of designated reserve trees from the sale area is unauthorized, and may invoke the use of the G-230 'Trespass and Unauthorized Activity' clause. Purchaser is required to leave all cut or damaged reserve trees on site.

**H-016 Skid Trail Requirements**

A skid trail is defined as an area that is used for more than three passes by any equipment.

Purchaser shall comply with the following during the yarding operation:

- a. A skid trail will not exceed 12 feet in width, including rub trees.
- b. Skid trails shall not cover more than 15 percent of the total acreage on one unit.
- c. Location of the skid trails must be marked by Purchaser and approved by the Contract Administrator.
- d. Except for rub trees, skid trails shall be felled and yarded prior to the felling of adjacent timber.
- e. Rub trees shall be left standing until all timber tributary to the skid trail has been removed.
- f. Excessive soil damage is not permitted. Excessive soil damage is described in clause H-017.
- g. Purchaser will not have more than two skid trails open to active skidding at any one time. All other skid trails used for skidding timber will be closed.
- h. Once a skid trail is closed, Purchaser will not reopen a skid trail unless approved in writing by the Contract Administrator.
- i. Skid trails will be water barred at the time of completion of yarding, if required by the Contract Administrator.

Purchaser shall not deviate from the requirements set forth in this clause without prior written approval from the Contract Administrator.

**H-017 Preventing Excessive Soil Disturbance**

Operations may be suspended when soil rutting exceeds 12 inches as measured from the natural ground line. To reduce soil damage, the Contract Administrator may require water bars to be constructed, grass seed to be placed on exposed soils, or other mitigation measures. Suspended operations shall not resume unless approval to do so has been given, in writing, by the Contract Administrator.

**H-035 Fall Trees Into Sale Area**

Trees shall be felled into the sale area unless otherwise approved by the Contract Administrator.

## H-040 Purchaser Harvest Plan

Purchaser shall, as part of the plan of operations, prepare an acceptable harvest plan for utilizing rubber tire skidders in the sale area. The plan shall address the timing and location of desired use, which are part(s) of this contract. The harvest plan shall be approved by the Contract Administrator prior to beginning the harvest operation. Purchaser shall not deviate from the harvest plan without prior written approval by the Contract Administrator.

## H-051 Branding and Painting

Purchaser shall provide a State of Washington registered log brand, acceptable to the State, unless the State agrees to furnish the brand. All purchased timber shall be branded in a manner that meets the requirements of WAC 240-15-030(2)(a)(i). All timber purchased under a contract designated as export restricted shall also be painted in a manner that meets the requirements of WAC 240-15-030(2)(a)(ii).

For pulp loads purchased under a contract designated as export restricted, Purchaser shall brand at least 3 logs with legible brands at one end. Also, 10 logs shall be painted at one end with durable red paint.

## H-080 Snags Not to be Felled

Snags not required to be felled for safety reasons may be left standing. Snags felled for safety reasons shall not be removed and must remain where felled.

## H-120 Harvesting Equipment

Forest products sold under this contract shall be harvested by cable and ground methods (rubber tire skidders may be allowed when conditions of clauses H-016, H-017 and H-040 can be met); unless authority to use other equipment is granted in writing by the State.

## H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

## H-126 Tailholds on State Land

If Purchaser tailholds on State land, methods to minimize damage to live trees outside the sale area shall be employed and must be approved in writing by the Contract Administrator.

## H-127 Tailholds on Private Land

If Purchaser chooses to tailhold on private property, Purchaser shall obtain permit(s) and assumes responsibility for all costs and damages associated with the permit(s). Purchaser must provide the State with a copy of the executed permit(s) or a letter from the landowner indicating that a satisfactory tailhold permit(s) has been consummated between Purchaser and the landowner.

## H-130 Hauling Schedule

The hauling of forest products will not be permitted from October 15 to April 15 in Units 4 and 5; unless authorized in writing by the Contract Administrator .

## H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

1. Purchaser shall immediately repair all gate damage resulting from operations to an equal or better condition than existed at the time of the sale.
2. While felling timber, two warning signs must be posted on the S-1000 Road.
3. Slash generated during cable yarding shall be stacked in dirt free piles and shall not block roads or interfere with functioning of drainage structures, ditches, or stream channels.
4. The Purchaser shall notify all employees and contractors working on this sale that any danger tree, marked or unmarked, may be felled. Any felled marked danger tree shall be replaced with a suitable tree of similar size and species as approved by the Contract Administrator.

Permission to do otherwise must be granted in writing by the Contract Administrator.

## H-190 Completion of Settings

Operations begun on any setting of the sale area shall be completed before any operation begins on subsequent settings unless authorized in writing by the Contract Administrator.

## H-220 Protection of Residual or Adjacent Trees

Unless otherwise specified by this contract, the Contract Administrator shall identify damaged adjacent or leave trees that shall be paid for according to clause G-230.

## H-230 Tops and Limbs Outside the Sale Boundary

Tops and limbs outside the sale boundary as a result of Purchaser's operation shall be removed concurrently with the yarding operation unless otherwise directed by the Contract Administrator.

## H-260 Fall Leaners

Trees > 6 inches that have been pushed over in falling or skidding operations shall be felled.

## Section C: Construction and Maintenance

## C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 2/8/2016 are hereby made a part of this contract.

## C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on S-1000, S-1000J, S-1300, S-1400 and all spurs associated with this sale. All work shall be completed to the specifications detailed in the Road Plan.

C-060 Designated Road Maintainer

If required by the State, Purchaser shall perform maintenance and replacement work as directed by the Contract Administrator on Mary Clark Pit Road and all other roads used and not covered in C-050. Purchaser shall furnish a statement in a form satisfactory to the State showing the costs incurred while performing this work. Costs shall be based on the rates set forth in the State current Equipment Rate Schedule on file at the region and Olympia offices. The State shall reimburse Purchaser for said costs within 30 days of receipt and approval of the statement.

C-100 Landing Location Restricted

Landing locations are restricted to those shown on the timber sale map unless otherwise authorized in writing by the Contract Administrator.

C-140 Water Bars

Purchaser shall, as directed by the Contract Administrator, construct water bars across haul roads, skid trails and fire trails as necessary to control soil erosion and water pollution.

Section S: Site Preparation and Protection

S-001 Emergency Response Plan

An Emergency Response Plan (ERP) shall be provided to the Contract Administrator containing but not limited to, valid contact numbers and procedures for medical emergencies, fire, hazardous spills, forest practice violations and any unauthorized or unlawful activity on or in the vicinity of the sale area. The Contract Administrator and the State shall be promptly notified whenever an incident occurs requiring an emergency response.

The ERP must be presented for inspection at the prework meeting and kept readily available to all personnel, including subcontractors, on site during active operations

S-010 Fire Hazardous Conditions

Purchaser acknowledges that operations under this Contract may increase the risk of fire. Purchaser shall conduct all operations under this agreement following the requirements of WAC 332-24-005 and WAC 332-24-405 and further agrees to use the highest degree of care to prevent uncontrolled fires from starting.

In the event of an uncontrolled fire, Purchaser agrees to provide equipment and personnel working at the site to safely and effectively engage in first response fire suppression activity.

Purchaser's failure to effectively engage in fire-safe operations is considered a breach and may result in suspension of operations

S-030 Landing Debris Clean Up

Landing debris shall be disposed of in a manner approved in writing by the Contract Administrator.

S-035 Logging Debris Clean Up

Slash and debris created from harvest activities shall be treated in a manner approved in writing by the Contract Administrator.

S-050 Cessation of Operations for Low Humidity

During the "closed season", when the humidity is 30 percent or lower on the sale area, all operations must cease unless authority to continue is granted by the State in writing.

S-060 Pump Truck or Pump Trailer

Purchaser shall provide a fully functional pump truck or pump trailer equipped to meet the specifications of WAC 332-24-005 and WAC 332-24-405 during the "closed season" or as extended by the State and shall provide trained personnel to operate this equipment on the sale area during all operating periods.

S-100 Stream Cleanout

Slash or debris which enters any typed water as a result of operations under this contract and which is identified by the Contract Administrator shall be removed and deposited in a stable position. Removal of slash or debris shall be accomplished in a manner that avoids damage to the natural stream bed and bank vegetation.

S-110 Resource Protection

No equipment may operate within the 30' of any typed water unless authority is granted in writing by the Contract Administrator.

S-120 Stream Protection

No timber shall be felled into, across, or yarded through any streams.

S-130 Hazardous Materials

a. Hazardous Materials and Waste - Regulatory Compliance

Purchaser is responsible for understanding and complying with all applicable local, state, and federal hazardous material/waste laws and regulations for operations conducted under this contract. Such regulations pertain to, but may not be limited to, hazardous material storage, handling and transport, personnel protection, release notification and emergency response, cleanup and waste disposal. Purchaser shall be responsible for restoring the site in the event of a spill.

b. Hazardous Materials Spill Prevention

All operations shall be conducted in a manner that avoids the release of hazardous materials, including petroleum products, into the environment (water, air or land).

c. Hazardous Materials Spill Containment, Control and Cleanup

If safe to do so, Purchaser shall take immediate action to contain and control all hazardous material spills. Purchaser shall ensure that enough quick response spill kits capable of absorbing 4 to 6 gallons of oil, coolant, solvent or contaminated water are available on site to quickly address potential spills from any piece of equipment at all times throughout active operations. If large quantities of bulk fuel/other hazardous materials are stored on site, Purchaser must be able to effectively control a container leak and contain & recover a hazmat spill equal to the largest single on site storage container volume. (HAZWOPER reg. 29CFR 1910.120 (j) (1) (vii)).

d. Hazardous Material Release Reporting

Releases of oil or hazardous materials to the environment must be reported according to the State Department of Ecology (ECY). It is the responsibility of the Purchaser to have all emergency contact information readily available and a means of remote communication for purposes of quick notification. In the event of a spill, the Purchaser is responsible for notifying the following:

Appropriate Department of Ecology regional office (contact information below).

DNR Contract Administrator

ECY - Northwest Region:

1-425-649-7000

(Island, King, Kitsap, San Juan, Skagit, Snohomish, and Whatcom counties)

ECY - Southwest Region:

1-360-407-6300

(Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, and Wahkiakum counties)

ECY - Central Region:

1-509-575-2490

(Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, and Yakima counties)

ECY - Eastern Region:

1-509-329-3400

(Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, and Whitman counties)

S-131 Refuse Disposal

As required by RCW 70.93, All Purchaser generated refuse shall be removed from state lands for proper disposal prior to termination of this contract. No refuse shall be burned, buried or abandoned on state forest lands. All refuse shall be transported in a manner such that it is in compliance with RCW 70.93 and all loads or loose materials

shall be covered/secured such that these waste materials are properly contained during transport.

Section D: Damages

D-013 Liquidated Damages or Failure to Perform

The following clauses provide for payments by Purchaser to the State for breaches of the terms of this contract other than failure to perform. These payments are agreed to as liquidated damages and not as penalties. They are reasonable estimates of anticipated harm to the State, which will be caused by Purchaser's breach. These liquidated damages provisions are agreed to by the State and Purchaser with the understanding of the difficulty of proving loss and the inconvenience or infeasibility of obtaining an adequate remedy. These liquidated damages provisions provide greater certainty for the Purchaser by allowing the Purchaser to better assess its responsibilities under the contract.

Clause P-020 governs Purchaser's liability in the event Purchaser fails to perform any of the contract requirements other than the below liquidated damage clauses without written approval by the State. Purchaser's failure to pay for all or part of the forest products sold in this contract prior to expiration of the contract term results in substantial injury to the State. Therefore, Purchaser agrees to pay the State the full lump sum contract price in P-020 in the event of failure to perform.

D-041 Reserve Tree Excessive Damage

When Purchaser's operations exceed the damage limits set forth in clause H-013, Reserve Tree Damage Definition, and when the Contract Administrator determines that a suitable replacement for a damaged reserve tree is not possible, the damaged trees result in substantial injury to the State. The value of the damaged reserve trees at the time of the breach is not readily ascertainable. Therefore, the Purchaser agrees to pay the State as liquidated damages at the rate of \$500.00 per tree for all damaged reserve trees that are not replaced in all units.

IN WITNESS WHEREOF, the Parties hereto have entered into this contract.

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

\_\_\_\_\_  
Purchaser

\_\_\_\_\_  
Susan K. Trettevik  
Olympic Region Manager

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Address:

CORPORATE ACKNOWLEDGEMENT

STATE OF \_\_\_\_\_ )

COUNTY OF \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me personally appeared \_\_\_\_\_

\_\_\_\_\_ to me known to be the \_\_\_\_\_ of the corporation

that executed the within and foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of the corporation, for the uses and purposes therein mentioned, and on oath stated that (he/she was) (they were) authorized to execute said instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

\_\_\_\_\_  
Notary Public in and for the State of

\_\_\_\_\_  
My appointment expires \_\_\_\_\_

**Schedule A**  
**SLASH PILING SPECS**

Specifications for Slash Piling

The areas shall be piled by creating circular piles of slash and brush conforming to the following specifications:

1. Piles shall be a minimum of 12 feet tall by 8 feet wide to a maximum of 30 feet tall and 16 feet wide. Piles shall be cone shaped and stable.
2. Piles shall be free of topsoil, large rotten logs and large stumps. No material larger than 8 inches in diameter shall be piled. Any burnable material shall be well scattered.
3. Piles shall not be placed on large stumps or logs.
4. Piles shall be stacked a minimum of 50 feet from all unit boundaries, Riparian Management Zones, leave tree areas and any standing timber; a minimum of 100 feet from any public roads and highways; and a minimum of 200 feet from any structures.
5. Piling shall be completed using an approved hydraulic shovel and grapples.
6. Slash and displaced soil shall be removed from swales and natural drainage channels concurrent with yarding.
7. Slash generated during cable yarding shall be stacked in dirt free piles and shall not block roads or interfere with functioning of drainage structures, ditches, or stream channels.

**Schedule B**  
**GREEN TREE RETENTION PLAN**

Leave the following as directed by the Contract Administrator:

1. All trees marked with a blue band of paint and all leave tree area clumps shall remain standing.

The perimeter of the leave tree clumps are designated by Leave Tree Area tags. The tags face outward from the leave tree clumps.

| Unit # | # of Individually Marked Trees | # of Clumps | # of Trees Clumped | Total # of Leave Trees |
|--------|--------------------------------|-------------|--------------------|------------------------|
| 1      | 30                             | 2           | 34                 | 64                     |
| 2      | 47                             | 2           | 153                | 200                    |
| 3      | 8                              | 3           | 132                | 140                    |
| 4      | 11                             | 1           | 91                 | 102                    |
| 5      | 180                            | 4           | 510                | 690                    |
| 6      | 90                             | 3           | 154                | 244                    |
| 7      | 46                             | 1           | 69                 | 115                    |
| 8      | 90                             | 1           | 55                 | 145                    |



## WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

### FOREST EXCISE TAX ROAD SUMMARY SHEET

**Region:**

**Timber Sale Name:**

**Application Number:**

#### EXCISE TAX APPLICABLE ACTIVITIES

**Construction:** **linear feet**  
*Road to be constructed (optional and required) but not abandoned*

**Reconstruction:** **linear feet**  
*Road to be reconstructed (optional and required) but not abandoned*

**Abandonment:** **linear feet**  
*Abandonment of existing roads not reconstructed under the contract*

**Decommission:** **linear feet**  
*Road to be made undriveable but not officially abandoned.*

**Pre-Haul Maintenance:** **linear feet**  
*Existing road to receive maintenance work (specifically required by the contract) prior to haul*

#### EXCISE TAX EXEMPT ACTIVITIES

**Temporary Optional Construction:** **linear feet**  
*Optional roads to be constructed and then abandoned*

**Temporary Optional Reconstruction:** **linear feet**  
*Optional roads to be reconstructed and then abandoned*

**New Abandonment:** **linear feet**  
*Abandonment of roads constructed or reconstructed under the contract*

All parties must make their own assessment of the taxable or non-taxable status of any work performed under the timber sale contract. The Department of Revenue bears responsibility for determining forest road excise taxes. The Department of Natural Resources developed this form to help estimate the impact of forest excise taxes. However, the information provided may not precisely calculate the actual amount of taxes due. The Department of Revenue is available for consultation by calling 1.800.548.8829.

(Revised 4/09)

## PRE-CRUISE NARRATIVE

|   |                        |
|---|------------------------|
| Sale Name: <b>Chum</b>  | Region: <b>Olympic</b> |
| Agreement #:  | District: <b>Coast</b> |
| Contact Forester: Shannon Armitage<br>Phone / Location: 360-640-9110/ Forks, WA | County(s): Clallam     |
| Alternate Contact: Andrew Gorbett<br>Phone / Location: 360-640-0402 / Forks, WA | Other information:     |

|                              |     |
|------------------------------|-----|
| Type of Sale: Lump Sum       |     |
| Harvest System: Ground based | 35% |
| Enter % of sale acres        |     |
| Harvest System: Uphill Cable | 65% |
| Enter % of sale acres        |     |
| Harvest System:              | %   |

### UNIT ACREAGES AND METHOD OF DETERMINATION:

| Unit #             | Legal Description<br>(Enter only one legal for each unit)<br>Sec/Twp/Rng | Grant or Trust | Gross Proposal Acres | Deductions from Gross Acres<br>(No harvest acres) |                  |                     |             | Net Harvest Acres | Acreage Determination<br><br>(List method and error of closure if applicable) |
|--------------------|--|----------------|----------------------|---|------------------|---------------------|-------------|-------------------|---|
|                    |  |                |                      | RMZ/<br>WMZ/<br>Skip Acres                        | Leave Tree Acres | Existing Road Acres | Other Acres |                   |   |
| 1                  | Sec. 20, T32N, R13W  | 04             | 11.87                | 0   | 0.31             | 1.61                | 0           | 9.95              | GPS (Garmin)  |
| 2                  | Sec. 20, T32N, R13W  | 04             | 32.27                | 0   | 1.13             | 2.18                | 0           | 28.96             | GPS (Garmin)  |
| 3                  | Sec. 20; 29, T32N, R13W  | 04             | 20.34                | 0   | 0.69             | 1.89                | 0           | 17.76             | GPS (Garmin)  |
| 4                  | Sec. 29, T32N, R13W  | 04             | 12.71                | 0   | 0.61             | 0.1                 | 0           | 12                | GPS (Garmin)  |
| 5                  | Sec. 29, T32N, R13W  | 04             | 95.3                 | 0   | 3.75             | 4.38                | 0           | 87.17             | GPS (Garmin)  |
| 6                  | Sec. 16, T32N, R13W  | 03             | 31.4                 | 0   | 1.29             | 0.53                | 0           | 29.58             | GPS (Garmin)  |
| 7                  | Sec. 16, T32N, R13W  | 03             | 15.2                 | 0   | 0.93             | 0.64                | 0           | 13.63             | GPS (Garmin)  |
| 8                  | Sec. 16, T32N, R13W  | 03             | 17.99                | 0   | 0.08             | 0                   | 0           | 17.91             | GPS (Garmin)  |
| <b>TOTAL ACRES</b> |  |                | 237.08               | 0   | 8.79             | 11.33               | 0           | 216.96            |   |

### HARVEST PLAN AND SPECIAL CONDITIONS:

| Unit # | Harvest Prescription:<br>(Leave, take, paint color, tags, flagging etc.)  | Special Management areas: | Other conditions (# leave trees, etc.)                        |
|--------|---|---------------------------|---|
| 1      | <u>Unit Boundaries</u> are marked with white Unit Boundary tags, red flashers, pink ribbon, and blue paint; or the S-1000 road; or a distinct timber type change. <u>Leave Tree Areas</u> are marked with yellow Leave Tree Area tags, red flashers, pink ribbon, and blue paint. <u>Individual Leave Trees</u> are marked with a blue paint line | N/A                       | Total Leave Trees 76<br>-LTA 57 trees<br>-Individual 19 trees |

|   |  |     |  |
|---|--|-----|--|
|   | encircling the tree approximately at DBH, and blue paint butt-marks.   |     |  |
| 2 | <u>Unit Boundaries</u> are marked with white Unit Boundary tags, red flashers, pink ribbon, and blue paint; or the S-1000 road. <u>Leave Tree Areas</u> are marked with yellow Leave Tree Area tags, red flashers, pink ribbon, and blue paint. <u>Individual Leave Trees</u> are marked with a blue paint line encircling the tree approximately at DBH, and blue paint butt-marks.                                   | N/A | Total Leave Trees 224<br>-LTA 195 trees<br>-Individual 29 trees  |
| 3 | <u>Unit Boundaries</u> are marked with white Unit Boundary tags, red flashers, pink ribbon, and blue paint; or the S-1000 road. <u>Leave Tree Areas</u> are marked with yellow Leave Tree Area tags, red flashers, pink ribbon, and blue paint. <u>Individual Leave Trees</u> are marked with a blue paint line encircling the tree approximately at DBH, and blue paint butt-marks.                                   | N/A | Total Leave Trees 140<br>-LTA 132 trees<br>-Individual 8 trees   |
| 4 | <u>Unit Boundaries</u> are marked with white Unit Boundary tags, red flashers, pink ribbon, and blue paint; or the S-1000 road. <u>Leave Tree Areas</u> are marked with yellow Leave Tree Area tags, red flashers, pink ribbon, and blue paint. <u>Individual Leave Trees</u> are marked with a blue paint line encircling the tree approximately at DBH, and blue paint butt-marks.                                   | N/A | Total Leave Trees 102<br>-LTA 91 trees<br>-Individual 11 trees   |
| 5 | <u>Unit Boundaries</u> are marked with white Unit Boundary tags, red flashers, pink ribbon, and blue paint; or the S-1000, S1300, S1400 roads. <u>Leave Tree Areas</u> are marked with yellow Leave Tree Area tags, red flashers, pink ribbon, and blue paint. <u>Individual Leave Trees</u> are marked with a blue paint line encircling the tree approximately at DBH, and blue paint butt-marks.                    | N/A | Total Leave Trees 690<br>-LTA 510 trees<br>-Individual 180 trees |
| 6 | <u>Unit Boundaries</u> are marked with white Unit Boundary tags, red flashers, pink ribbon, and blue paint; or the S-1000 road; or a distinct timber type change. <u>Leave Tree Areas</u> are marked with yellow Leave Tree Area tags, red flashers, pink ribbon, and blue paint. <u>Individual Leave Trees</u> are marked with a blue paint line encircling the tree approximately at DBH, and blue paint butt-marks. | N/A | Total Leave Trees 244<br>-LTA 154 trees<br>-Individual 90 trees  |
| 7 | <u>Unit Boundaries</u> are marked with white Unit Boundary tags, red flashers, pink ribbon, and blue paint; or the S-1000 road; or a distinct timber type change. <u>Leave Tree Areas</u> are  | N/A | Total Leave Trees 115<br>-LTA 69 trees<br>-Individual 46 trees   |

|   |  |     |  |
|---|--|-----|--|
|   | marked with yellow Leave Tree Area tags, red flashers, pink ribbon, and blue paint. <u>Individual Leave Trees</u> are marked with a blue paint line encircling the tree approximately at DBH, and blue paint butt-marks.   |     |  |
| 8 | <u>Unit Boundaries</u> are marked with white Unit Boundary tags, red flashers, pink ribbon, and blue paint; or a distinct timber type change. <u>Leave Tree Areas</u> are marked with yellow Leave Tree Area tags, red flashers, pink ribbon, and blue paint. <u>Individual Leave Trees</u> are marked with a blue paint line encircling the tree approximately at DBH, and blue paint butt-marks. | N/A | Total Leave Trees 145<br>-LTA 55 trees<br>-Individual 90 trees |

**OTHER PRE-CRUISE INFORMATION:**

| Unit #    | Primary, secondary Species / Estimated Volume (MBF) | Access information (Gates, locks, etc.)  | Photos, traverse maps required |
|-----------|---|--|--------------------------------|
| 1-8       | PSME/TSHE   | The S-1000 road is the proposed haul route. All units but U8 are on the S-1000 | Cruise Map                     |
| TOTAL MBF | 6.08mmbf  |  |                                |

**REMARKS:**

|  |  |  |                                      |     |
|--|--|--|--------------------------------------|-----|
| Prepared By: Ben Garrett<br>Date: 08/18/2015 |  |  | Title: Natural Resource Specialist 1 | CC: |
|--|--|--|--------------------------------------|-----|

# Cruise Narrative

|                                     |   |
|-------------------------------------|---|
| <b>Sale Name:</b> Chum              | <b>Region:</b> Olympic                          |
| <b>Agreement #:</b> 30-             | <b>District:</b> Coast                          |
| <b>Lead Cruiser:</b> Kevin Peterson | <b>Completion Date:</b> 9/24/15 Revised 11/9/15 |
| <b>Other Cruisers:</b> None         |   |

## Unit acreage specifications:

| Unit #       | Cruised Acres | Cruised acres agree with sale acres? Y/N | If acres do not agree explain why. |
|--------------|---------------|--|------------------------------------|
| 1            | 8.47          | y  |                                    |
| 2            | 24.51         | y  |                                    |
| 3            | 17.76         | y  |                                    |
| 4            | 12            | y  |                                    |
| 5            | 87.17         | Y  |                                    |
| 6            | 29.58         | Y  |                                    |
| 7            | 13.63         | Y  |                                    |
| 8            | 17.91         | Y  |                                    |
| <b>Total</b> | <b>211.03</b> | <b>Y</b>                                 |                                    |

## Unit cruise specifications:

| Unit # | Sample Type (VP,FP,ITS,100%) | Expansion Factor (baf,full/half) | Sighting Height (4.5', 16') | Grid Size (plot spacing) | Plot Ratio (cruise/count) | Number of plots |
|--------|------------------------------|----------------------------------|-----------------------------|--------------------------|---------------------------|-----------------|
| 1      | VP                           | 54.44/40                         | 4.5'                        | 300 x 300                | 3:2                       | 5               |
| 2      | VP                           | 54.44/40                         | 4.5'                        | 300 x 300                | 1:2                       | 14              |
| 3      | VP                           | 54.44/40                         | 4.5'                        | 300 x 300                | 5:4                       | 9               |
| 4      | VP                           | 54.44/40                         | 4.5'                        | 300 x 300                | 1:1                       | 6               |
| 5      | VP                           | 54.44/40                         | 4.5'                        | 300 x 300                | 1:2                       | 40              |
| 6      | VP                           | 54.44/40                         | 4.5'                        | 300 x 300                | 1:2                       | 14              |
| 7      | VP                           | 54.44/40                         | 4.5'                        | 300 x 300                | 1:1                       | 8               |
| 8      | VP                           | 54.44/40                         | 4.5'                        | 300 x 300                | 5:4                       | 9               |
|        |                              |                                  |                             |                          |                           | 105             |

## Sale/Cruise Description:

|                                       |  |
|---------------------------------------|--|
| <b>Minor species cruise intensity</b> | Minor species sampled using same cruise plots.   |
| <b>Minimum cruise spec:</b>           | 40% of Form Factor at 16 ft. D.O.B or 5 inch top or merchantable top   |
| <b>Average ring count:</b>            | <b>DF =</b> 6 <b>WH =</b> 6 <b>SS =</b> 5  |
| <b>Leave/take tree description:</b>   | Leave tree clumps are bounded out with yellow tags, pink flashers and blue paint. Individual leave trees are marked with blue bands and two blue butt marks. |
| <b>Other conditions:</b>              | Exterior boundaries are marked with white tags and pink flashers   |

|                                 |  |
|---------------------------------|--|
| <p><b>Sort Description:</b></p> | <p><b>HA</b>– Logs meeting the following criteria: Surface characteristics for a high quality A sort will have sound tight knots not to exceed 1 ½” in diameter, numbering not more than an average of one per foot of log length. May include logs with not more than two larger knots. Knots and knot indicators ½” in diameter and smaller shall not be a determining factor. Logs will have a growth ring count of 6 or more rings per inch in the outer third top end of the log. (minimum diameter 8”.)</p> <p><b>HB</b> – Logs meeting the following criteria: Surface characteristics for a B sort will have sound tight knots not to exceed 1 ½” in diameter. May include logs with not more than two larger knots up to 2 ½” in diameter. Logs will have a growth ring count of 6 or more rings per inch in the outer third to end of the log. (minimum diameter 8”.)</p> <p><b>R</b> – Logs meeting the following criteria: Gross diameter of 12 inches or greater, excessive knots greater than 2 ½ inches with recovery less than 65% of the net scale.</p> |
|---------------------------------|--|

**Field Observations:**

This is an 8 unit sale located 10 miles West of Sekiu located along the S-1000. The sale consisted of 211 acres with 35% ground based harvest and 65% uphill cable harvest. Sale has very good access and no gates.

The total net volume for the sale is 6,763 MBF and consist of 52% Western Hemlock, 44% Douglas fir with traces of Sitka Spruce and Red Cedar throughout. There is also a bit of Red Alder mixed in along old roads. The Hemlock averages a DBH of 15.9” and a bole height of 63’ with rotten seams and forks being the common defect. The Douglas fir averages a DBH of 17.9” and bole height of 66’ with spike knots and forks being the common defects.

Units 6, 7 and 8 have a different timber type than units 1, 2, 3, 4 and 5, and were all thinned in the past. Unit 7 also has a bit of blowdown along the East boundary.

**Grants:** 03, 04, 07

**Prepared By:** Kevin Peterson

| TC   |        | PSPCSTGR |          | Species, Sort Grade - Board Foot Volumes (Project) |                  |        |        |                  |                                  |      |       |     |            |                       |       |       |             |           |          |           |                      |       |
|--|--------|----------|----------|--|------------------|--------|--------|------------------|----------------------------------|------|-------|-----|------------|-----------------------|-------|-------|-------------|-----------|----------|-----------|----------------------|-------|
| T032 R013 S16 Ty00U6<br>THRU<br>T032 R013 S29 Ty00U5 |        |          |          | Project: <b>CHUM</b>                               |                  |        |        |                  |                                  |      |       |     |            | Page <b>1</b>         |       |       |             |           |          |           |                      |       |
|  |        |          |          | Acres <b>211.03</b>                                |                  |        |        |                  |                                  |      |       |     |            | Date <b>11/9/2015</b> |       |       |             |           |          |           |                      |       |
|  |        |          |          |  |                  |        |        |                  |                                  |      |       |     |            | Time <b>9:26:50AM</b> |       |       |             |           |          |           |                      |       |
| Spp  | S<br>T | So<br>rt | Gr<br>ad | %<br>Net<br>BdFt                                   | Bd. Ft. per Acre |        |        | Total<br>Net MBF | Percent of Net Board Foot Volume |      |       |     |            |                       |       |       | Average Log |           |          |           | Logs<br>Per<br>/Acre |       |
|  |        |          |          |  | Def%             | Gross  | Net    |                  | Log Scale Dia.                   |      |       |     | Log Length |                       |       |       | Ln<br>Ft    | Dia<br>In | Bd<br>Ft | CF/<br>Lf |                      |       |
|  |        |          |          |  |                  |        |        |                  | 4-5                              | 6-11 | 12-16 | 17+ | 12-20      | 21-30                 | 31-35 | 36-99 |             |           |          |           |                      |       |
| WH   | CU     | CU       |          |  | 100.0            | 38     |        |                  |                                  |      |       |     |            |                       |       |       | 5           | 5         |          | 0.00      | 10.0                 |       |
| WH   | D      | 2S       | 31       | 4.4  | 5,426            | 5,188  | 1,095  |                  |                                  |      | 83    | 17  |            |                       |       |       | 40          | 13        | 262      | 1.78      | 19.8                 |       |
| WH   | D      | 3S       | 56       | 2.4  | 9,477            | 9,248  | 1,952  |                  |                                  | 100  |       |     |            | 0                     | 0     | 1     | 98          | 39        | 8        | 104       | 0.82                 | 89.1  |
| WH   | D      | 4S       | 12       | .2   | 2,003            | 1,999  | 422    | 72               | 28                               |      |       |     |            | 15                    | 68    | 8     | 9           | 24        | 4        | 21        | 0.30                 | 95.4  |
| WH   | D      | UT       | 1        |  | 91               | 91     | 19     | 100              |                                  |      |       |     |            | 79                    |       |       | 21          | 20        | 3        | 10        | 0.16                 | 9.1   |
| <b>WH Totals</b>                                     |        |          |          | 52   | 3.0              | 17,034 | 16,526 | 3,487            | 9                                | 59   | 26    | 5   |            | 2                     | 8     | 1     | 88          | 30        | 7        | 74        | 0.73                 | 223.4 |
| RC   | D      | 3S       | 87       | 12.9   | 256              | 223    | 47     |                  |                                  | 23   | 77    |     |            |                       |       |       | 40          | 12        | 186      | 2.24      | 1.2                  |       |
| RC   | D      | 4S       | 11       | 15.8   | 34               | 29     | 6      | 18               | 82                               |      |       |     |            | 53                    | 29    |       | 18          | 23        | 3        | 8         | 0.36                 | 3.6   |
| RC   | D      | UT       | 2        |  | 3                | 3      | 1      | 100              |                                  |      |       |     |            | 100                   |       |       |             | 9         | 5        | 10        | 0.29                 | .3    |
| <b>RC Totals</b>                                     |        |          |          | 1  | 13.1             | 293    | 255    | 54               | 3                                | 29   | 68    |     |            | 7                     | 3     |       | 90          | 26        | 5        | 50        | 1.03                 | 5.1   |
| SS   | CU     | CU       |          |  |                  |        |        |                  |                                  |      |       |     |            |                       |       |       |             | 10        |          |           | 0.00                 | .7    |
| SS   | D      | 2S       | 67       | .6   | 704              | 700    | 148    |                  |                                  |      | 59    | 41  |            |                       |       |       | 100         | 40        | 15       | 351       | 2.20                 | 2.0   |
| SS   | D      | 3S       | 29       | 1.6  | 311              | 306    | 65     |                  |                                  | 100  |       |     |            |                       | 7     | 8     | 86          | 37        | 9        | 109       | 0.97                 | 2.8   |
| SS   | D      | 4S       | 3        |  | 30               | 30     | 6      | 42               | 58                               |      |       |     |            | 37                    | 63    |       |             | 24        | 5        | 21        | 0.35                 | 1.4   |
| SS   | D      | UT       | 1        |  | 3                | 3      | 1      |                  | 100                              |      |       |     |            | 100                   |       |       |             | 11        | 6        | 10        | 0.37                 | .3    |
| <b>SS Totals</b>                                     |        |          |          | 3  | .9               | 1,047  | 1,038  | 219              | 1                                | 31   | 39    | 28  |            | 1                     | 4     | 2     | 93          | 31        | 10       | 145       | 1.32                 | 7.1   |
| DF   | CU     | CU       |          |  |                  |        |        |                  |                                  |      |       |     |            |                       |       |       |             | 6         |          |           | 0.00                 | 6.4   |
| DF   | D      | 2S       | 30       | 4.4  | 4,456            | 4,262  | 899    |                  |                                  |      | 100   |     |            |                       |       |       | 100         | 40        | 13       | 220       | 1.72                 | 19.3  |
| DF   | D      | 3S       | 58       | 6.4  | 8,568            | 8,018  | 1,692  |                  |                                  | 100  |       |     |            |                       | 1     | 4     | 96          | 39        | 9        | 108       | 0.95                 | 74.1  |
| DF   | D      | 4S       | 11       | 3.0  | 1,647            | 1,597  | 337    | 73               | 27                               |      |       |     |            | 29                    | 41    | 17    | 13          | 24        | 5        | 23        | 0.34                 | 70.2  |
| DF   | D      | UT       | 1        |  | 75               | 75     | 16     | 100              |                                  |      |       |     |            | 100                   |       |       |             | 14        | 4        | 10        | 0.18                 | 7.5   |
| <b>DF Totals</b>                                     |        |          |          | 44   | 5.4              | 14,747 | 13,952 | 2,944            | 9                                | 61   | 31    |     |            | 4                     | 5     | 4     | 87          | 31        | 7        | 79        | 0.86                 | 177.5 |
| RA   | D      | 3S       | 35       | 7.2  | 63               | 58     | 12     |                  |                                  | 100  |       |     |            |                       |       |       | 49          | 51        |          |           | 1.14                 | .4    |
| RA   | D      | 4S       | 15       |  | 26               | 26     | 5      | 18               | 82                               |      |       |     |            | 18                    | 82    |       |             | 26        | 6        | 39        | 0.49                 | .7    |
| RA   | D      | UT       | 50       | .0   | 81               | 81     | 17     | 37               | 63                               |      |       |     |            | 10                    | 90    |       |             | 22        | 4        | 11        | 0.19                 | 7.4   |
| <b>RA Totals</b>                                     |        |          |          | 1  | 2.6              | 170    | 165    | 35               | 21                               | 79   |       |     |            | 8                     | 74    |       | 18          | 23        | 4        | 19        | 0.30                 | 8.5   |
| SF   | D      | 2S       | 88       | 4.2  | 102              | 98     | 21     |                  |                                  |      | 100   |     |            |                       |       |       | 100         | 40        | 13       | 230       | 1.78                 | .4    |
| SF   | D      | 4S       | 12       |  | 13               | 13     | 3      |                  |                                  | 100  |       |     |            |                       | 100   |       |             | 23        | 6        | 30        | 0.56                 | .4    |
| <b>SF Totals</b>                                     |        |          |          | 0  | 3.7              | 115    | 111    | 23               |                                  | 12   | 88    |     |            |                       | 12    |       | 88          | 32        | 10       | 130       | 1.33                 | .9    |
| <b>Totals</b>  |        |          |          |  | 4.1              | 33,406 | 32,047 | 6,763            | 9                                | 59   | 29    | 4   |            | 3                     | 7     | 3     | 87          | 30        | 7        | 76        | 0.79                 | 422.5 |

| TC PSTATS  |      | <b>PROJECT STATISTICS</b> |                 |               |               |               |                       |                      | PAGE          | 1             |               |
|--|------|---------------------------|-----------------|---------------|---------------|---------------|-----------------------|----------------------|---------------|---------------|---------------|
|  |      | PROJECT                   |                 |               | CHUM          |               |                       |                      | DATE          | 11/9/2015     |               |
| TWP  | RGE  | SC                        | TRACT           | TYPE          |               | ACRES         | PLOTS                 | TREES                | CuFt          | BdFt          |               |
| 032  | 013  | 16                        | CHUM            | 00U6          | THR           | 211.03        | 105                   | 625                  | S             | W             |               |
| 032  | 013  | 29                        | CHUM            | 00U5          |               |               |                       |                      |               |               |               |
|  |      |                           | PLOTS           |               | TREES         | PER PLOT      | ESTIMATED TOTAL TREES | PERCENT SAMPLE TREES |               |               |               |
| TOTAL  |      |                           | 105             | 625           | 6.0           |               |                       |                      |               |               |               |
| CRUISE   |      |                           | 47              | 222           | 4.7           | 44,609        | .5                    |                      |               |               |               |
| DBH COUNT  |      |                           |                 |               |               |               |                       |                      |               |               |               |
| REFOREST   |      |                           |                 |               |               |               |                       |                      |               |               |               |
| COUNT  |      |                           | 58              | 353           | 6.1           |               |                       |                      |               |               |               |
| BLANKS   |      |                           |                 |               |               |               |                       |                      |               |               |               |
| 100 %  |      |                           |                 |               |               |               |                       |                      |               |               |               |
| <b>STAND SUMMARY</b>   |      |                           |                 |               |               |               |                       |                      |               |               |               |
| 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   |      | 124                       | 112.6           | 15.9          | 63            | 38.9          | 155.1                 | 17,034               | 16,526        | 4,995         | 4,987         |
| DOUG FIR   |      | 70                        | 86.4            | 17.9          | 65            | 35.7          | 150.8                 | 14,747               | 13,952        | 4,675         | 4,675         |
| S SPRUCE   |      | 9                         | 3.2             | 21.1          | 71            | 1.7           | 7.8                   | 1,047                | 1,038         | 289           | 289           |
| WR CEDAR   |      | 10                        | 3.9             | 15.7          | 35            | 1.3           | 5.2                   | 293                  | 255           | 137           | 137           |
| R ALDER  |      | 7                         | 4.8             | 10.0          | 41            | 0.8           | 2.6                   | 170                  | 165           | 57            | 57            |
| PS FIR   |      | 2                         | .4              | 22.0          | 65            | 0.2           | 1.1                   | 115                  | 111           | 36            | 36            |
| <b>TOTAL</b>   |      | <b>222</b>                | <b>211.4</b>    | <b>16.7</b>   | <b>63</b>     | <b>78.9</b>   | <b>322.6</b>          | <b>33,406</b>        | <b>32,047</b> | <b>10,189</b> | <b>10,180</b> |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |      |                           |                 |               |               |               |                       |                      |               |               |               |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |      |                           |                 |               |               |               |                       |                      |               |               |               |
| CL   | 68.1 | COEFF                     | TREES/ACRE      |               |               |               | # OF PLOTS REQ.       |                      | INF. POP.     |               |               |
| SD:  | 1.0  | VAR.%                     | S.E.%           | LOW           | AVG           | HIGH          | 5                     | 7                    | 10            |               |               |
| WHEMLOCK   |      | 74.7                      | 7.3             | 104           | 113           | 121           |                       |                      |               |               |               |
| DOUG FIR   |      | 99.6                      | 9.7             | 78            | 86            | 95            |                       |                      |               |               |               |
| S SPRUCE   |      | 297.4                     | 29.0            | 2             | 3             | 4             |                       |                      |               |               |               |
| WR CEDAR   |      | 385.6                     | 37.6            | 2             | 4             | 5             |                       |                      |               |               |               |
| R ALDER  |      | 649.4                     | 63.4            | 2             | 5             | 8             |                       |                      |               |               |               |
| PS FIR   |      | 1024.7                    | 100.0           | 0             | 0             | 1             |                       |                      |               |               |               |
| <b>TOTAL</b>   |      | <b>37.8</b>               | <b>3.7</b>      | <b>204</b>    | <b>211</b>    | <b>219</b>    | <b>57</b>             | <b>29</b>            | <b>14</b>     |               |               |
| CL   | 68.1 | COEFF                     | BASAL AREA/ACRE |               |               |               | # OF PLOTS REQ.       |                      | INF. POP.     |               |               |
| SD:  | 1.0  | VAR.%                     | S.E.%           | LOW           | AVG           | HIGH          | 5                     | 7                    | 10            |               |               |
| WHEMLOCK   |      | 67.1                      | 6.6             | 145           | 155           | 165           |                       |                      |               |               |               |
| DOUG FIR   |      | 97.1                      | 9.5             | 137           | 151           | 165           |                       |                      |               |               |               |
| S SPRUCE   |      | 281.8                     | 27.5            | 6             | 8             | 10            |                       |                      |               |               |               |
| WR CEDAR   |      | 306.0                     | 29.9            | 4             | 5             | 7             |                       |                      |               |               |               |
| R ALDER  |      | 562.4                     | 54.9            | 1             | 3             | 4             |                       |                      |               |               |               |
| PS FIR   |      | 1024.7                    | 100.0           | 0             | 1             | 2             |                       |                      |               |               |               |
| <b>TOTAL</b>   |      | <b>24.2</b>               | <b>2.4</b>      | <b>315</b>    | <b>323</b>    | <b>330</b>    | <b>23</b>             | <b>12</b>            | <b>6</b>      |               |               |
| CL   | 68.1 | COEFF                     | NET BF/ACRE     |               |               |               | # OF PLOTS REQ.       |                      | INF. POP.     |               |               |
| SD:  | 1.0  | VAR.%                     | S.E.%           | LOW           | AVG           | HIGH          | 5                     | 7                    | 10            |               |               |
| WHEMLOCK   |      | 69.7                      | 6.8             | 15,402        | 16,526        | 17,650        |                       |                      |               |               |               |
| DOUG FIR   |      | 95.3                      | 9.3             | 12,654        | 13,952        | 15,250        |                       |                      |               |               |               |
| S SPRUCE   |      | 295.4                     | 28.8            | 739           | 1,038         | 1,337         |                       |                      |               |               |               |
| WR CEDAR   |      | 405.3                     | 39.6            | 154           | 255           | 356           |                       |                      |               |               |               |
| R ALDER  |      | 628.8                     | 61.4            | 64            | 165           | 267           |                       |                      |               |               |               |
| PS FIR   |      | 1024.7                    | 100.0           | 0             | 111           | 221           |                       |                      |               |               |               |
| <b>TOTAL</b>   |      | <b>22.2</b>               | <b>2.2</b>      | <b>31,354</b> | <b>32,047</b> | <b>32,741</b> | <b>20</b>             | <b>10</b>            | <b>5</b>      |               |               |
| CL   | 68.1 | COEFF                     | V_BAR/ACRE      |               |               |               | # OF PLOTS REQ.       |                      | INF. POP.     |               |               |
| SD:  | 1.0  | VAR.%                     | S.E.%           | LOW           | AVG           | HIGH          | 5                     | 7                    | 10            |               |               |
| WHEMLOCK   |      |                           |                 | 99            | 107           | 114           |                       |                      |               |               |               |
| DOUG FIR   |      |                           |                 | 84            | 93            | 101           |                       |                      |               |               |               |
| S SPRUCE   |      | 185.9                     | 18.1            | 95            | 133           | 171           |                       |                      |               |               |               |

| TC PSTATS    |      | <b>PROJECT STATISTICS</b> |             |                   |           |           |                 |           | PAGE      | 2        |
|--------------|------|---------------------------|-------------|-------------------|-----------|-----------|-----------------|-----------|-----------|----------|
|              |      | PROJECT                   |             | CHUM              |           |           | DATE            |           | 11/9/2015 |          |
| TWP          | RGE  | SC                        | TRACT       | TYPE              |           | ACRES     | PLOTS           | TREES     | CuFt      | BdFt     |
| 032          | 013  | 16                        | CHUM        | 00U6              | THR       | 211.03    | 105             | 625       | S         | W        |
| 032          | 013  | 29                        | CHUM        | 00U5              |           |           |                 |           |           |          |
| CL           | 68.1 |                           | COEFF       | <b>V_BAR/ACRE</b> |           |           | # OF PLOTS REQ. |           | INF. POP. |          |
| SD:          | 1.00 |                           | VAR.        | S.E.%             | LOW       | AVG       | HIGH            | 5         | 7         | 10       |
| WR CEDAR     |      |                           | 344.3       | 33.6              | 30        | 49        | 68              |           |           |          |
| R ALDER      |      |                           | 628.8       | 61.4              | 24        | 63        | 102             |           |           |          |
| PS FIR       |      |                           | 1024.7      | 100.0             | 0         | 98        | 197             |           |           |          |
| <b>TOTAL</b> |      |                           | <i>21.4</i> | <i>2.1</i>        | <i>97</i> | <i>99</i> | <i>101</i>      | <i>18</i> | <i>9</i>  | <i>5</i> |

|  |                     |
|--|---------------------|
| T032 R013 S20 T00U1  | T032 R013 S20 T00U1 |
| Twp <b>032</b> Rge <b>013</b> Sec <b>20</b> Tract <b>CHUM</b> Type <b>00U1</b> Acres <b>8.47</b> Plots <b>5</b> Sample Trees <b>14</b> CuFt <b>S</b> | BdFt <b>W</b>       |

| Spp                | So            | Gr | %   | Bd. Ft. per Acre |        |        | Total | Percent Net Board Foot Volume |      |       |     |         |                |      |       | Average Log |            |       |       | Logs Per /Acre |       |        |       |       |       |
|--------------------|---------------|----|-----|------------------|--------|--------|-------|-------------------------------|------|-------|-----|---------|----------------|------|-------|-------------|------------|-------|-------|----------------|-------|--------|-------|-------|-------|
|                    |               |    |     |                  |        |        |       | Net BdFt                      | Def% | Gross | Net | Net MBF | Log Scale Dia. |      |       |             | Log Length |       |       |                | Ln Ft | Dia In | Bd Ft | CF/Lf |       |
|                    |               |    |     |                  |        |        |       |                               |      |       |     |         | 4-5            | 6-11 | 12-16 | 17+         | 12-20      | 21-30 | 31-35 |                |       |        |       |       | 36-99 |
| WH                 | DM            | 2S | 26  | 3.8              | 4,286  | 4,124  | 35    | 100                           |      |       |     | 100     |                |      |       | 40          | 14         | 255   | 1.94  | 16.2           |       |        |       |       |       |
| WH                 | DM            | 3S | 59  | 5.9              | 9,605  | 9,036  | 77    | 100                           |      |       |     | 100     |                |      |       | 40          | 8          | 87    | 0.74  | 104.0          |       |        |       |       |       |
| WH                 | DM            | 4S | 13  |                  | 2,088  | 2,088  | 18    | 73                            | 27   |       |     | 24      | 76             |      |       | 22          | 5          | 21    | 0.31  | 98.3           |       |        |       |       |       |
| WH                 | DM            | UT | 2   |                  | 218    | 218    | 2     | 100                           |      |       |     | 100     |                |      |       | 13          | 4          | 10    | 0.18  | 21.8           |       |        |       |       |       |
| <b>WH</b>          | <b>Totals</b> |    | 53  | 4.5              | 16,197 | 15,467 | 131   | 11                            | 62   | 27    |     | 5       | 10             |      | 85    | 30          | 7          | 64    | 0.69  | 240.3          |       |        |       |       |       |
| DF                 | DM            | 2S | 32  | 4.6              | 4,528  | 4,320  | 37    | 100                           |      |       |     | 100     |                |      |       | 40          | 12         | 208   | 1.74  | 20.8           |       |        |       |       |       |
| DF                 | DM            | 3S | 54  | 9.7              | 8,146  | 7,356  | 62    | 100                           |      |       |     | 100     |                |      |       | 40          | 9          | 117   | 1.10  | 63.1           |       |        |       |       |       |
| DF                 | DM            | 4S | 14  |                  | 1,814  | 1,814  | 15    | 45                            | 55   |       |     | 26      | 74             |      |       | 21          | 5          | 22    | 0.38  | 83.8           |       |        |       |       |       |
| <b>DF</b>          | <b>Totals</b> |    | 46  | 6.9              | 14,488 | 13,490 | 114   | 6                             | 62   | 32    |     | 3       | 10             |      | 87    | 30          | 8          | 80    | 0.96  | 167.6          |       |        |       |       |       |
| RC                 | DM            | 4S | 100 | 33.3             | 196    | 130    | 1     | 100                           |      |       |     | 100     |                |      |       | 39          | 4          | 20    | 0.66  | 6.5            |       |        |       |       |       |
| <b>RC</b>          | <b>Totals</b> |    | 0   | 33.3             | 196    | 130    | 1     | 100                           |      |       |     | 100     |                |      |       | 39          | 4          | 20    | 0.66  | 6.5            |       |        |       |       |       |
| <b>Type Totals</b> |               |    |     | 5.8              | 30,880 | 29,087 | 246   | 9                             | 62   | 29    |     | 4       | 10             |      | 86    | 30          | 7          | 70    | 0.80  | 414.5          |       |        |       |       |       |

| TC TSTATS  |           |              |                 | STATISTICS    |               |               |                 | PAGE          | 1             |               |
|--|-----------|--------------|-----------------|---------------|---------------|---------------|-----------------|---------------|---------------|---------------|
| PROJECT  |           |              |                 | CHUM          |               |               |                 | DATE          | 11/9/2015     |               |
| TWP  | RGE       | SECT         | TRACT           | TYPE          | ACRES         | PLOTS         | TREES           | CuFt          | BdFt          |               |
| 032  | 013       | 20           | CHUM            | 00U1          | 8.47          | 5             | 31              | S             | W             |               |
|  |           |              |                 | TREES         | ESTIMATED     | PERCENT       |                 |               |               |               |
|  |           |              |                 | PER PLOT      | TOTAL         | SAMPLE        |                 |               |               |               |
|  |           |              |                 | TREES         | TREES         | TREES         |                 |               |               |               |
| TOTAL  |           | 5            | 31              | 6.2           |               |               |                 |               |               |               |
| CRUISE   |           | 3            | 14              | 4.7           | 1,783         |               | .8              |               |               |               |
| DBH COUNT  |           |              |                 |               |               |               |                 |               |               |               |
| REFOREST   |           |              |                 |               |               |               |                 |               |               |               |
| COUNT  |           | 2            | 15              | 7.5           |               |               |                 |               |               |               |
| BLANKS   |           |              |                 |               |               |               |                 |               |               |               |
| 100 %  |           |              |                 |               |               |               |                 |               |               |               |
| STAND SUMMARY  |           |              |                 |               |               |               |                 |               |               |               |
|  | SAMPLE    | TREES        | AVG             | BOLE          | REL           | BASAL         | GROSS           | NET           | GROSS         | NET           |
|  | TREES     | /ACRE        | DBH             | LEN           | DEN           | AREA          | BF/AC           | BF/AC         | CF/AC         | CF/AC         |
| WHEMLOCK   | 7         | 120.2        | 15.8            | 63            | 41.1          | 163.3         | 16,197          | 15,467        | 5,044         | 5,043         |
| DOUG FIR   | 6         | 83.8         | 18.9            | 63            | 37.6          | 163.3         | 14,488          | 13,490        | 4,885         | 4,885         |
| WR CEDAR   | 1         | 6.5          | 15.0            | 40            | 2.1           | 8.0           | 196             | 130           | 167           | 167           |
| <b>TOTAL</b>   | <b>14</b> | <b>210.5</b> | <b>17.1</b>     | <b>62</b>     | <b>81.0</b>   | <b>334.6</b>  | <b>30,880</b>   | <b>29,087</b> | <b>10,096</b> | <b>10,095</b> |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |           |              |                 |               |               |               |                 |               |               |               |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |           |              |                 |               |               |               |                 |               |               |               |
| CL:  | 68.1 %    | COEFF        | TREES/ACRE      |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0       | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| WHEMLOCK   |           | 63.7         | 31.7            | 82            | 120           | 158           |                 |               |               |               |
| DOUG FIR   |           | 77.4         | 38.5            | 52            | 84            | 116           |                 |               |               |               |
| WR CEDAR   |           | 223.6        | 111.2           |               | 7             | 14            |                 |               |               |               |
| <b>TOTAL</b>   |           | <b>19.9</b>  | <b>9.9</b>      | <b>190</b>    | <b>210</b>    | <b>231</b>    | <b>20</b>       | <b>10</b>     | <b>5</b>      |               |
| CL:  | 68.1 %    | COEFF        | BASAL AREA/ACRE |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0       | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| WHEMLOCK   |           | 40.8         | 20.3            | 130           | 163           | 196           |                 |               |               |               |
| DOUG FIR   |           | 74.5         | 37.1            | 103           | 163           | 224           |                 |               |               |               |
| WR CEDAR   |           | 223.6        | 111.2           |               | 8             | 17            |                 |               |               |               |
| <b>TOTAL</b>   |           | <b>20.6</b>  | <b>10.3</b>     | <b>300</b>    | <b>335</b>    | <b>369</b>    | <b>21</b>       | <b>11</b>     | <b>5</b>      |               |
| CL:  | 68.1 %    | COEFF        | NET BF/ACRE     |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0       | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| WHEMLOCK   |           | 38.3         | 19.1            | 12,517        | 15,467        | 18,417        |                 |               |               |               |
| DOUG FIR   |           | 73.6         | 36.6            | 8,553         | 13,490        | 18,428        |                 |               |               |               |
| WR CEDAR   |           | 223.6        | 111.2           |               | 130           | 275           |                 |               |               |               |
| <b>TOTAL</b>   |           | <b>15.4</b>  | <b>7.6</b>      | <b>26,862</b> | <b>29,087</b> | <b>31,312</b> | <b>12</b>       | <b>6</b>      | <b>3</b>      |               |
| CL:  | 68.1 %    | COEFF        | V-BAR/ACRE      |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0       | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| WHEMLOCK   |           |              |                 | 77            | 95            | 113           |                 |               |               |               |
| DOUG FIR   |           |              |                 | 52            | 83            | 113           |                 |               |               |               |
| WR CEDAR   |           | 223.6        | 111.2           |               | 16            | 34            |                 |               |               |               |
| <b>TOTAL</b>   |           | <b>231.5</b> | <b>115.1</b>    | <b>80</b>     | <b>87</b>     | <b>94</b>     | <b>2,651</b>    | <b>1,352</b>  | <b>663</b>    |               |

|                     |     |     |       |      |       |       |              |      |      |                     |  |  |  |  |
|---------------------|-----|-----|-------|------|-------|-------|--------------|------|------|---------------------|--|--|--|--|
| T032 R013 S20 T00U2 |     |     |       |      |       |       |              |      |      | T032 R013 S20 T00U2 |  |  |  |  |
| Twp                 | Rge | Sec | Tract | Type | Acres | Plots | Sample Trees | CuFt | BdFt |                     |  |  |  |  |
| 032                 | 013 | 20  | CHUM  | 00U2 | 24.51 | 14    | 31           | S    | W    |                     |  |  |  |  |

| S<br>Spp           | So<br>T       | Gr<br>rt ad | %<br>Net<br>BdFt | Bd. Ft. per Acre |        |        | Total<br>Net MBF | Percent Net Board Foot Volume |      |       |     |            |       |       |       | Average Log |           |          |           | Logs<br>Per<br>/Acre |     |      |  |       |
|--------------------|---------------|-------------|------------------|------------------|--------|--------|------------------|-------------------------------|------|-------|-----|------------|-------|-------|-------|-------------|-----------|----------|-----------|----------------------|-----|------|--|-------|
|                    |               |             |                  |                  |        |        |                  | Log Scale Dia.                |      |       |     | Log Length |       |       |       | Ln<br>Ft    | Dia<br>In | Bd<br>Ft | CF/<br>Lf |                      |     |      |  |       |
|                    |               |             |                  |                  |        |        |                  | 4-5                           | 6-11 | 12-16 | 17+ | 12-20      | 21-30 | 31-35 | 36-99 |             |           |          |           |                      |     |      |  |       |
| DF                 | CU            | CU          |                  |                  |        |        |                  |                               |      |       |     |            |       |       |       |             |           |          |           |                      |     |      |  |       |
| DF                 | DM            | 2S          | 21               | 3.0              | 5,901  | 5,725  | 140              |                               |      | 100   |     |            |       |       |       | 100         |           |          | 5         |                      |     | 0.00 |  | 36.4  |
| DF                 | DM            | 3S          | 64               | 6.1              | 18,465 | 17,339 | 425              |                               |      | 100   |     |            |       |       |       | 100         |           |          | 40        | 13                   | 253 | 1.78 |  | 22.7  |
| DF                 | DM            | 4S          | 15               |                  | 3,806  | 3,806  | 93               | 100                           |      |       |     |            |       | 3     | 33    | 16          | 49        |          | 40        | 9                    | 120 | 0.95 |  | 144.3 |
| <b>DF</b>          | <b>Totals</b> |             | 76               | 4.6              | 28,172 | 26,870 | 659              | 14                            | 65   | 21    |     |            |       | 0     | 5     | 2           | 93        |          | 32        | 7                    | 79  | 0.78 |  | 339.8 |
| WH                 | CU            | CU          |                  |                  |        |        |                  |                               |      |       |     |            |       |       |       |             |           |          | 6         |                      |     | 0.00 |  | 5.9   |
| WH                 | DM            | 2S          | 18               | 5.4              | 1,556  | 1,472  | 36               |                               |      | 100   |     |            |       |       |       | 100         |           |          | 40        | 13                   | 250 | 1.75 |  | 5.9   |
| WH                 | DM            | 3S          | 60               | 3.8              | 5,035  | 4,843  | 119              |                               |      | 100   |     |            |       |       |       | 100         |           |          | 40        | 7                    | 83  | 0.65 |  | 58.1  |
| WH                 | DM            | 4S          | 17               |                  | 1,347  | 1,347  | 33               | 60                            | 40   |       |     |            |       | 10    | 80    | 10          |           |          | 20        | 4                    | 18  | 0.25 |  | 74.1  |
| WH                 | DM            | UT          | 5                |                  | 357    | 357    | 9                | 100                           |      |       |     |            |       | 53    |       |             | 47        |          | 27        | 3                    | 10  | 0.17 |  | 35.7  |
| <b>WH</b>          | <b>Totals</b> |             | 23               | 3.3              | 8,295  | 8,019  | 197              | 14                            | 67   | 18    |     |            |       | 4     | 13    | 2           | 81        |          | 28        | 5                    | 45  | 0.49 |  | 179.8 |
| RC                 | DM            | 4S          |                  |                  |        |        |                  |                               |      |       |     |            |       |       |       |             |           |          | 23        | 2                    |     | 0.23 |  | 12.9  |
| <b>RC</b>          | <b>Totals</b> |             |                  |                  |        |        |                  |                               |      |       |     |            |       |       |       |             |           |          | 23        | 2                    |     | 0.23 |  | 12.9  |
| SS                 | DM            | 2S          | 85               | 10.0             | 356    | 321    | 8                |                               |      | 100   |     |            |       |       |       | 100         |           |          | 40        | 12                   | 180 | 1.60 |  | 1.8   |
| SS                 | DM            | 4S          | 15               |                  | 53     | 53     | 1                |                               |      | 100   |     |            |       |       |       | 100         |           |          | 27        | 6                    | 30  | 0.49 |  | 1.8   |
| <b>SS</b>          | <b>Totals</b> |             | 1                | 8.7              | 410    | 374    | 9                |                               |      | 14    | 86  |            |       | 14    |       | 86          |           |          | 34        | 9                    | 105 | 1.15 |  | 3.6   |
| RA                 | DM            | 4S          | 83               |                  | 182    | 182    | 4                |                               |      | 100   |     |            |       |       |       | 100         |           |          | 30        | 7                    | 50  | 0.53 |  | 3.6   |
| RA                 | DM            | UT          | 17               | .0               | 36     | 36     | 1                | 100                           |      |       |     |            |       |       |       | 100         |           |          | 13        | 3                    | 10  | 0.16 |  | 3.6   |
| <b>RA</b>          | <b>Totals</b> |             | 1                |                  | 218    | 218    | 5                | 17                            | 83   |       |     |            |       | 17    | 83    |             |           |          | 22        | 5                    | 30  | 0.42 |  | 7.3   |
| <b>Type Totals</b> |               |             |                  | 4.4              | 37,096 | 35,482 | 870              | 14                            | 65   | 21    |     |            |       | 1     | 7     | 2           | 89        |          | 30        | 6                    | 65  | 0.68 |  | 543.3 |

| TC TSTATS  |           | STATISTICS   |                 |               |               |               |                 |               | PAGE          | 1             |
|--|-----------|--------------|-----------------|---------------|---------------|---------------|-----------------|---------------|---------------|---------------|
|  |           | PROJECT      |                 | CHUM          |               |               | DATE            |               | 11/9/2015     |               |
| TWP  | RGE       | SECT         | TRACT           | TYPE          | ACRES         | PLOTS         | TREES           | CuFt          | BdFt          |               |
| 032  | 013       | 20           | CHUM            | 00U2          | 24.51         | 14            | 89              | S             | W             |               |
|  |           |              |                 | TREES         | ESTIMATED     | PERCENT       |                 |               |               |               |
|  |           | PLOTS        | TREES           | PER PLOT      | TREES         | SAMPLE        |                 |               |               |               |
|  |           |              |                 |               |               | TREES         |                 |               |               |               |
| TOTAL  |           | 14           | 89              | 6.4           |               |               |                 |               |               |               |
| CRUISE   |           | 6            | 31              | 5.2           | 6,338         | .5            |                 |               |               |               |
| DBH COUNT  |           |              |                 |               |               |               |                 |               |               |               |
| REFOREST   |           |              |                 |               |               |               |                 |               |               |               |
| COUNT  |           | 8            | 52              | 6.5           |               |               |                 |               |               |               |
| BLANKS   |           |              |                 |               |               |               |                 |               |               |               |
| 100 %  |           |              |                 |               |               |               |                 |               |               |               |
| <b>STAND SUMMARY</b>   |           |              |                 |               |               |               |                 |               |               |               |
|  | SAMPLE    | TREES        | AVG             | BOLE          | REL           | BASAL         | GROSS           | NET           | GROSS         | NET           |
|  | TREES     | /ACRE        | DBH             | LEN           | DEN           | AREA          | BF/AC           | BF/AC         | CF/AC         | CF/AC         |
| DOUG FIR   | 17        | 151.7        | 17.3            | 73            | 59.8          | 248.9         | 28,172          | 26,870        | 8,431         | 8,431         |
| WHEMLOCK   | 11        | 88.5         | 13.0            | 58            | 22.6          | 81.7          | 8,295           | 8,019         | 2,457         | 2,457         |
| WR CEDAR   | 1         | 12.9         | 9.0             | 24            | 1.9           | 5.7           |                 |               | 69            | 69            |
| S SPRUCE   | 1         | 1.8          | 20.0            | 69            | 0.9           | 3.9           | 410             | 374           | 137           | 137           |
| R ALDER  | 1         | 3.6          | 12.0            | 45            | 0.8           | 2.9           | 218             | 218           | 65            | 65            |
| <b>TOTAL</b>   | <i>31</i> | <i>258.6</i> | <i>15.6</i>     | <i>65</i>     | <i>86.9</i>   | <i>343.0</i>  | <i>37,096</i>   | <i>35,482</i> | <i>11,160</i> | <i>11,160</i> |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |           |              |                 |               |               |               |                 |               |               |               |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |           |              |                 |               |               |               |                 |               |               |               |
| CL:  | 68.1 %    | COEFF        | TREES/ACRE      |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0       | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| DOUG FIR   |           | 35.6         | 9.9             | 137           | 152           | 167           |                 |               |               |               |
| WHEMLOCK   |           | 122.4        | 33.9            | 58            | 89            | 119           |                 |               |               |               |
| WR CEDAR   |           | 254.2        | 70.5            | 4             | 13            | 22            |                 |               |               |               |
| S SPRUCE   |           | 374.2        | 103.7           |               | 2             | 4             |                 |               |               |               |
| R ALDER  |           | 374.2        | 103.7           |               | 4             | 7             |                 |               |               |               |
| <b>TOTAL</b>   |           | <i>35.0</i>  | <i>9.7</i>      | <i>233</i>    | <i>259</i>    | <i>284</i>    | <i>53</i>       | <i>27</i>     | <i>13</i>     |               |
| CL:  | 68.1 %    | COEFF        | BASAL AREA/ACRE |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0       | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| DOUG FIR   |           | 36.1         | 10.0            | 224           | 249           | 274           |                 |               |               |               |
| WHEMLOCK   |           | 116.2        | 32.2            | 55            | 82            | 108           |                 |               |               |               |
| WR CEDAR   |           | 254.2        | 70.5            | 2             | 6             | 10            |                 |               |               |               |
| S SPRUCE   |           | 374.2        | 103.7           |               | 4             | 8             |                 |               |               |               |
| R ALDER  |           | 374.2        | 103.7           |               | 3             | 6             |                 |               |               |               |
| <b>TOTAL</b>   |           | <i>21.8</i>  | <i>6.1</i>      | <i>322</i>    | <i>343</i>    | <i>364</i>    | <i>21</i>       | <i>10</i>     | <i>5</i>      |               |
| CL:  | 68.1 %    | COEFF        | NET BF/ACRE     |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0       | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| DOUG FIR   |           | 36.6         | 10.2            | 24,143        | 26,870        | 29,598        |                 |               |               |               |
| WHEMLOCK   |           | 122.5        | 34.0            | 5,295         | 8,019         | 10,743        |                 |               |               |               |
| WR CEDAR   |           |              |                 |               |               |               |                 |               |               |               |
| S SPRUCE   |           | 374.2        | 103.7           |               | 374           | 763           |                 |               |               |               |
| R ALDER  |           | 374.2        | 103.7           |               | 218           | 445           |                 |               |               |               |
| <b>TOTAL</b>   |           | <i>24.5</i>  | <i>6.8</i>      | <i>33,069</i> | <i>35,482</i> | <i>37,895</i> | <i>26</i>       | <i>13</i>     | <i>6</i>      |               |
| CL:  | 68.1 %    | COEFF        | V-BAR/ACRE      |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0       | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| DOUG FIR   |           |              |                 | 97            | 108           | 119           |                 |               |               |               |
| WHEMLOCK   |           | 82.5         | 22.9            | 65            | 98            | 132           |                 |               |               |               |
| WR CEDAR   |           |              |                 |               |               |               |                 |               |               |               |
| S SPRUCE   |           | 374.2        | 103.7           |               | 96            | 196           |                 |               |               |               |
| R ALDER  |           | 374.2        | 103.7           |               | 76            | 156           |                 |               |               |               |
| <b>TOTAL</b>   |           | <i>297.5</i> | <i>82.5</i>     | <i>96</i>     | <i>103</i>    | <i>110</i>    | <i>3,811</i>    | <i>1,945</i>  | <i>953</i>    |               |



| TC TSTATS  |           |              |                        | STATISTICS    |               |               |                 | PAGE          | 1             |               |
|--|-----------|--------------|------------------------|---------------|---------------|---------------|-----------------|---------------|---------------|---------------|
|  |           |              |                        | PROJECT       | CHUM          |               |                 | DATE          | 9/24/2015     |               |
| TWP  | RGE       | SECT         | TRACT                  | TYPE          | ACRES         | PLOTS         | TREES           | CuFt          | BdFt          |               |
| 032  | 013       | 29           | CHUM                   | 00U3          | 17.76         | 9             | 59              | S             | W             |               |
|  |           |              |                        | TREES         | ESTIMATED     | PERCENT       |                 |               |               |               |
|  |           |              |                        | PER PLOT      | TOTAL         | SAMPLE        |                 |               |               |               |
|  |           |              |                        |               | TREES         | TREES         |                 |               |               |               |
| TOTAL  |           | 9            | 59                     | 6.6           |               |               |                 |               |               |               |
| CRUISE   |           | 3            | 21                     | 7.0           | 5,033         |               | .4              |               |               |               |
| DBH COUNT  |           |              |                        |               |               |               |                 |               |               |               |
| REFOREST   |           |              |                        |               |               |               |                 |               |               |               |
| COUNT  |           | 6            | 38                     | 6.3           |               |               |                 |               |               |               |
| BLANKS   |           |              |                        |               |               |               |                 |               |               |               |
| 100 %  |           |              |                        |               |               |               |                 |               |               |               |
| <b>STAND SUMMARY</b>   |           |              |                        |               |               |               |                 |               |               |               |
|  | SAMPLE    | TREES        | AVG                    | BOLE          | REL           | BASAL         | GROSS           | NET           | GROSS         | NET           |
|  | TREES     | /ACRE        | DBH                    | LEN           | DEN           | AREA          | BF/AC           | BF/AC         | CF/AC         | CF/AC         |
| DOUG FIR   | 11        | 110.9        | 18.4                   | 75            | 47.9          | 205.7         | 24,043          | 23,273        | 7,085         | 7,085         |
| WHEMLOCK   | 8         | 167.1        | 12.4                   | 61            | 39.6          | 139.1         | 16,130          | 15,967        | 4,346         | 4,346         |
| R ALDER  | 2         | 5.3          | 17.5                   | 54            | 2.1           | 8.9           | 851             | 797           | 245           | 245           |
| <b>TOTAL</b>   | <i>21</i> | <i>283.4</i> | <i>15.1</i>            | <i>66</i>     | <i>90.9</i>   | <i>353.7</i>  | <i>41,023</i>   | <i>40,038</i> | <i>11,677</i> | <i>11,677</i> |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |           |              |                        |               |               |               |                 |               |               |               |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |           |              |                        |               |               |               |                 |               |               |               |
| CL:  | 68.1 %    | COEFF        | <b>TREES/ACRE</b>      |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0       | VAR.%        | S.E.%                  | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| DOUG FIR   |           | 43.7         | 15.4                   | 94            | 111           | 128           |                 |               |               |               |
| WHEMLOCK   |           | 75.8         | 26.7                   | 122           | 167           | 212           |                 |               |               |               |
| R ALDER  |           | 300.0        | 105.9                  |               | 5             | 11            |                 |               |               |               |
| <b>TOTAL</b>   |           | <i>27.2</i>  | <i>9.6</i>             | <i>256</i>    | <i>283</i>    | <i>311</i>    | <i>33</i>       | <i>17</i>     | <i>8</i>      |               |
| CL:  | 68.1 %    | COEFF        | <b>BASAL AREA/ACRE</b> |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0       | VAR.%        | S.E.%                  | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| DOUG FIR   |           | 45.4         | 16.0                   | 173           | 206           | 239           |                 |               |               |               |
| WHEMLOCK   |           | 73.5         | 25.9                   | 103           | 139           | 175           |                 |               |               |               |
| R ALDER  |           | 300.0        | 105.9                  |               | 9             | 18            |                 |               |               |               |
| <b>TOTAL</b>   |           | <i>12.1</i>  | <i>4.3</i>             | <i>339</i>    | <i>354</i>    | <i>369</i>    | <i>7</i>        | <i>3</i>      | <i>2</i>      |               |
| CL:  | 68.1 %    | COEFF        | <b>NET BF/ACRE</b>     |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0       | VAR.%        | S.E.%                  | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| DOUG FIR   |           | 46.2         | 16.3                   | 19,481        | 23,273        | 27,065        |                 |               |               |               |
| WHEMLOCK   |           | 73.6         | 26.0                   | 11,820        | 15,968        | 20,115        |                 |               |               |               |
| R ALDER  |           | 300.0        | 105.9                  |               | 797           | 1,641         |                 |               |               |               |
| <b>TOTAL</b>   |           | <i>12.1</i>  | <i>4.3</i>             | <i>38,325</i> | <i>40,038</i> | <i>41,750</i> | <i>7</i>        | <i>3</i>      | <i>2</i>      |               |
| CL:  | 68.1 %    | COEFF        | <b>V-BAR/ACRE</b>      |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0       | VAR.%        | S.E.%                  | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| DOUG FIR   |           |              |                        | 95            | 113           | 132           |                 |               |               |               |
| WHEMLOCK   |           |              |                        | 85            | 115           | 145           |                 |               |               |               |
| R ALDER  |           | 300.0        | 105.9                  |               | 90            | 185           |                 |               |               |               |
| <b>TOTAL</b>   |           | <i>285.0</i> | <i>100.6</i>           | <i>108</i>    | <i>113</i>    | <i>118</i>    | <i>3,643</i>    | <i>1,859</i>  | <i>911</i>    |               |

|  |  |                            |
|--|--|----------------------------|
| <b>T032 R013 S29 T00U4</b>                                       |  | <b>T032 R013 S29 T00U4</b> |
| <b>Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt</b> |  |                            |
| <b>032 013 29 CHUM 00U4 12.00 6 13 S W</b>                       |  |                            |

| Spp                | S             | So | Gr | %  | Bd. Ft. per Acre |        |        | Total | Percent Net Board Foot Volume |      |       |     |         |                |      |       | Average Log |            |       |       | Logs Per /Acre |       |        |       |       |       |
|--------------------|---------------|----|----|----|------------------|--------|--------|-------|-------------------------------|------|-------|-----|---------|----------------|------|-------|-------------|------------|-------|-------|----------------|-------|--------|-------|-------|-------|
|                    |               |    |    |    |                  |        |        |       | Net BdFt                      | Def% | Gross | Net | Net MBF | Log Scale Dia. |      |       |             | Log Length |       |       |                | Ln Ft | Dia In | Bd Ft | CF/Lf |       |
|                    |               |    |    |    |                  |        |        |       |                               |      |       |     |         | 4-5            | 6-11 | 12-16 | 17+         | 12-20      | 21-30 | 31-35 |                |       |        |       |       | 36-99 |
| WH                 | DM            | 2S |    | 23 | 6.7              | 7,752  | 7,234  | 87    | 100                           |      |       |     | 100     |                |      |       | 40          | 12         | 187   | 1.48  | 38.8           |       |        |       |       |       |
| WH                 | DM            | 3S |    | 62 | 7.7              | 20,692 | 19,092 | 229   | 100                           |      |       |     | 100     |                |      |       | 40          | 9          | 120   | 0.94  | 159.0          |       |        |       |       |       |
| WH                 | DM            | 4S |    | 15 |                  | 4,501  | 4,501  | 54    | 74                            | 26   |       |     |         |                | 32   | 68    |             |            | 21    | 5     | 23             | 0.36  | 197.7  |       |       |       |
| <b>WH</b>          | <b>Totals</b> |    |    | 91 | 6.4              | 32,945 | 30,827 | 370   | 11                            | 66   | 23    |     |         | 5              | 10   | 85    |             | 31         | 8     | 78    | 0.81           | 395.5 |        |       |       |       |
| DF                 | DM            | 2S |    | 36 | 33.3             | 1,650  | 1,100  | 13    | 100                           |      |       |     | 100     |                |      |       | 40          | 13         | 160   | 1.78  | 6.9            |       |        |       |       |       |
| DF                 | DM            | 3S |    | 50 |                  | 1,540  | 1,540  | 18    | 100                           |      |       |     | 100     |                |      |       | 40          | 10         | 150   | 1.16  | 10.3           |       |        |       |       |       |
| DF                 | DM            | 4S |    | 14 |                  | 412    | 412    | 5     | 50                            | 50   |       |     |         |                | 100  |       |             |            | 23    | 5     | 24             | 0.44  | 17.1   |       |       |       |
| <b>DF</b>          | <b>Totals</b> |    |    | 9  | 15.3             | 3,602  | 3,052  | 37    | 7                             | 57   | 36    |     |         | 13             |      | 87    |             | 32         | 8     | 89    | 1.05           | 34.3  |        |       |       |       |
| <b>Type Totals</b> |               |    |    |    | 7.3              | 36,547 | 33,879 | 407   | 10                            | 65   | 25    |     |         | 4              | 10   | 85    |             | 31         | 8     | 79    | 0.83           | 429.8 |        |       |       |       |

| TC TSTATS  |              | STATISTICS   |                        |               |               |               |                 |               |               | PAGE          | 1         |
|--|--------------|--------------|------------------------|---------------|---------------|---------------|-----------------|---------------|---------------|---------------|-----------|
|  |              | PROJECT      |                        |               |               | CHUM          |                 |               |               | DATE          | 9/24/2015 |
| TWP  | RGE          | SECT         | TRACT                  | TYPE          | ACRES         | PLOTS         | TREES           | CuFt          | BdFt          |               |           |
| 032  | 013          | 29           | CHUM                   | 00U4          | 12.00         | 6             | 38              | S             | W             |               |           |
|  |              |              |                        | TREES         | ESTIMATED     | PERCENT       |                 |               |               |               |           |
|  |              | PLOTS        | TREES                  | PER PLOT      | TOTAL         | SAMPLE        |                 |               |               |               |           |
|  |              |              |                        |               | TREES         | TREES         |                 |               |               |               |           |
| TOTAL  |              | 6            | 38                     | 6.3           |               |               |                 |               |               |               |           |
| CRUISE   |              | 2            | 13                     | 6.5           | 2,579         | .5            |                 |               |               |               |           |
| DBH COUNT  |              |              |                        |               |               |               |                 |               |               |               |           |
| REFOREST   |              |              |                        |               |               |               |                 |               |               |               |           |
| COUNT  |              | 4            | 25                     | 6.3           |               |               |                 |               |               |               |           |
| BLANKS   |              |              |                        |               |               |               |                 |               |               |               |           |
| 100 %  |              |              |                        |               |               |               |                 |               |               |               |           |
| <b>STAND SUMMARY</b>   |              |              |                        |               |               |               |                 |               |               |               |           |
|  | SAMPLE       | TREES        | AVG                    | BOLE          | REL           | BASAL         | GROSS           | NET           | GROSS         | NET           |           |
|  | TREES        | /ACRE        | DBH                    | LEN           | DEN           | AREA          | BF/AC           | BF/AC         | CF/AC         | CF/AC         |           |
| WHEMLOCK   | 11           | 197.7        | 16.9                   | 64            | 75.0          | 308.5         | 32,945          | 30,827        | 9,809         | 9,800         |           |
| DOUG FIR   | 2            | 17.1         | 19.7                   | 65            | 8.2           | 36.3          | 3,602           | 3,052         | 1,138         | 1,136         |           |
| <b>TOTAL</b>   | <b>13</b>    | <b>214.9</b> | <b>17.2</b>            | <b>64</b>     | <b>83.3</b>   | <b>344.8</b>  | <b>36,547</b>   | <b>33,879</b> | <b>10,947</b> | <b>10,937</b> |           |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |              |              |                        |               |               |               |                 |               |               |               |           |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |              |              |                        |               |               |               |                 |               |               |               |           |
| CL:  | 68.1 %       | COEFF        | <b>TREES/ACRE</b>      |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |           |
| SD:  | 1.0          | VAR.%        | S.E.%                  | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |           |
| WHEMLOCK   | 24.3         | 10.8         |                        | 176           | 198           | 219           |                 |               |               |               |           |
| DOUG FIR   | 122.5        | 54.5         |                        | 8             | 17            | 26            |                 |               |               |               |           |
| <b>TOTAL</b>   | <b>14.8</b>  | <b>6.6</b>   |                        | <b>201</b>    | <b>215</b>    | <b>229</b>    | <b>10</b>       | <b>5</b>      | <b>3</b>      |               |           |
| CL:  | 68.1 %       | COEFF        | <b>BASAL AREA/ACRE</b> |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |           |
| SD:  | 1.0          | VAR.%        | S.E.%                  | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |           |
| WHEMLOCK   | 18.2         | 8.1          |                        | 283           | 308           | 334           |                 |               |               |               |           |
| DOUG FIR   | 122.5        | 54.5         |                        | 17            | 36            | 56            |                 |               |               |               |           |
| <b>TOTAL</b>   | <b>8.2</b>   | <b>3.6</b>   |                        | <b>332</b>    | <b>345</b>    | <b>357</b>    | <b>3</b>        | <b>2</b>      | <b>1</b>      |               |           |
| CL:  | 68.1 %       | COEFF        | <b>NET BF/ACRE</b>     |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |           |
| SD:  | 1.0          | VAR.%        | S.E.%                  | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |           |
| WHEMLOCK   | 17.2         | 7.7          |                        | 28,465        | 30,827        | 33,189        |                 |               |               |               |           |
| DOUG FIR   | 122.5        | 54.5         |                        | 1,388         | 3,052         | 4,716         |                 |               |               |               |           |
| <b>TOTAL</b>   | <b>8.1</b>   | <b>3.6</b>   |                        | <b>32,653</b> | <b>33,879</b> | <b>35,105</b> | <b>3</b>        | <b>2</b>      | <b>1</b>      |               |           |
| CL:  | 68.1 %       | COEFF        | <b>V-BAR/ACRE</b>      |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |           |
| SD:  | 1.0          | VAR.%        | S.E.%                  | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |           |
| WHEMLOCK   |              |              |                        | 92            | 100           | 108           |                 |               |               |               |           |
| DOUG FIR   | 77.5         | 34.5         |                        | 38            | 84            | 130           |                 |               |               |               |           |
| <b>TOTAL</b>   | <b>304.5</b> | <b>135.6</b> |                        | <b>95</b>     | <b>98</b>     | <b>102</b>    | <b>4,412</b>    | <b>2,251</b>  | <b>1,103</b>  |               |           |

| T TSPCSTGR          | Species, Sort Grade - Board Foot Volumes (Type) |             |                  |                  |        |        |                  |                               |      |                     | Page 1         |            |       |       |       |             |     |     |           |                      |       |
|---------------------|---|-------------|------------------|------------------|--------|--------|------------------|-------------------------------|------|---------------------|----------------|------------|-------|-------|-------|-------------|-----|-----|-----------|----------------------|-------|
|                     | Project: CHUM                                   |             |                  |                  |        |        |                  |                               |      |                     | Date 9/24/2015 |            |       |       |       |             |     |     |           |                      |       |
|                     |   |             |                  |                  |        |        |                  |                               |      |                     | Time 2:24:25PM |            |       |       |       |             |     |     |           |                      |       |
| T032 R013 S29 T00U5 |   |             |                  |                  |        |        |                  |                               |      | T032 R013 S29 T00U5 |                |            |       |       |       |             |     |     |           |                      |       |
| Twp                 | Rge   | Sec         | Tract            | Type             | Acres  | Plots  | Sample Trees     | CuFt                          | BdFt |                     |                |            |       |       |       |             |     |     |           |                      |       |
| 032                 | 013   | 29          | CHUM             | 00U5             | 87.17  | 40     | 70               | S                             | W    |                     |                |            |       |       |       |             |     |     |           |                      |       |
| S<br>Sp             | So<br>T   | Gr<br>rt ad | %<br>Net<br>BdFt | Bd. Ft. per Acre |        |        | Total<br>Net MBF | Percent Net Board Foot Volume |      |                     |                |            |       |       |       | Average Log |     |     |           | Logs<br>Per<br>/Acre |       |
|                     |   |             |                  | Def%             | Gross  | Net    |                  | Log Scale Dia.                |      |                     |                | Log Length |       |       |       | Ln          | Dia | Bd  | CF/<br>Lf |                      |       |
|                     |   |             |                  |                  |        |        |                  | 4-5                           | 6-11 | 12-16               | 17+            | 12-20      | 21-30 | 31-35 | 36-99 | Ft          | In  | Ft  |           |                      |       |
| DF                  | DM  | 2S          | 30               | 4.0              | 6,165  | 5,918  | 516              |                               |      |                     |                |            |       |       | 100   | 40          | 13  | 214 | 1.71      |                      | 27.7  |
| DF                  | DM  | 3S          | 57               | 7.0              | 11,826 | 10,999 | 959              |                               |      |                     |                |            |       | 1     | 5     | 94          | 39  | 9   | 103       | 0.96                 | 107.1 |
| DF                  | DM  | 4S          | 12               | 5.2              | 2,315  | 2,194  | 191              | 72                            | 28   |                     |                | 35         | 39    | 7     | 20    | 22          | 5   | 23  | 0.36      |                      | 95.9  |
| DF                  | DM  | UT          | 1                |                  | 182    | 182    | 16               | 100                           |      |                     |                | 100        |       |       |       | 11          | 5   | 10  | 0.20      |                      | 18.2  |
| <b>DF</b>           | <b>Totals</b>                                   |             | 60               | 5.8              | 20,488 | 19,293 | 1,682            | 9                             | 60   | 31                  |                | 5          | 5     | 4     | 86    | 31          | 7   | 77  | 0.88      |                      | 249.0 |
| WH                  | DM  | 2S          | 14               |                  | 1,843  | 1,843  | 161              |                               |      |                     |                |            |       |       | 100   | 40          | 12  | 214 | 1.51      |                      | 8.6   |
| WH                  | DM  | 3S          | 70               | 1.5              | 8,873  | 8,739  | 762              |                               |      |                     |                |            |       |       | 100   | 40          | 8   | 102 | 0.77      |                      | 85.8  |
| WH                  | DM  | 4S          | 15               |                  | 1,854  | 1,854  | 162              | 84                            | 16   |                     |                | 26         | 56    | 18    |       | 21          | 5   | 22  | 0.31      |                      | 85.2  |
| WH                  | DM  | UT          | 1                |                  | 41     | 41     | 4                | 100                           |      |                     |                | 100        |       |       |       | 5           | 6   | 4   | 0.20      |                      | 9.8   |
| <b>WH</b>           | <b>Totals</b>                                   |             | 39               | 1.1              | 12,612 | 12,477 | 1,088            | 13                            | 72   | 15                  |                | 4          | 8     | 3     | 85    | 30          | 7   | 66  | 0.66      |                      | 189.5 |
| SF                  | DM  | 2S          | 88               | 4.2              | 247    | 237    | 21               |                               |      |                     |                |            |       |       | 100   | 40          | 13  | 230 | 1.78      |                      | 1.0   |
| SF                  | DM  | 4S          | 12               |                  | 31     | 31     | 3                |                               |      |                     |                |            |       | 100   |       | 23          | 6   | 30  | 0.56      |                      | 1.0   |
| <b>SF</b>           | <b>Totals</b>                                   |             | 1                | 3.7              | 278    | 268    | 23               |                               |      |                     |                |            |       | 12    | 88    | 32          | 10  | 130 | 1.33      |                      | 2.1   |
| RC                  | DM  | 3S          | 54               | 8.3              | 70     | 65     | 6                |                               |      |                     |                |            |       |       | 100   | 40          | 13  | 220 | 2.45      |                      | .3    |
| RC                  | DM  | 4S          | 46               | .0               | 54     | 54     | 5                | 84                            | 16   |                     |                | 100        |       |       |       | 19          | 5   | 21  | 0.32      |                      | 2.6   |
| <b>RC</b>           | <b>Totals</b>                                   |             | 0                | 4.7              | 124    | 119    | 10               | 38                            | 7    | 54                  |                | 46         |       | 54    |       | 21          | 6   | 42  | 0.74      |                      | 2.9   |
| SS                  | DM  | 3S          | 93               | 6.7              | 94     | 87     | 8                |                               |      |                     |                |            |       |       | 100   | 40          | 10  | 140 | 1.36      |                      | .6    |
| SS                  | DM  | UT          | 7                |                  | 6      | 6      | 1                |                               |      |                     |                | 100        |       |       |       | 11          | 6   | 10  | 0.37      |                      | .6    |
| <b>SS</b>           | <b>Totals</b>                                   |             | 0                | 6.2              | 100    | 94     | 8                |                               |      |                     |                | 7          |       | 93    |       | 26          | 8   | 75  | 1.15      |                      | 1.2   |
| RA                  | DM  | UT          | 100              |                  | 57     | 57     | 5                | 100                           |      |                     |                | 100        |       |       |       | 18          | 5   | 20  | 0.24      |                      | 2.9   |
| <b>RA</b>           | <b>Totals</b>                                   |             | 0                |                  | 57     | 57     | 5                | 100                           |      |                     |                | 100        |       |       |       | 18          | 5   | 20  | 0.24      |                      | 2.9   |
| <b>Type Totals</b>  |   |             |                  | 4.0              | 33,660 | 32,308 | 2,816            | 11                            | 64   | 25                  |                | 5          | 6     | 3     | 85    | 30          | 7   | 72  | 0.79      |                      | 447.4 |

| TC TSTATS  |             | STATISTICS   |                        |               |               |               |                 |               |               | PAGE          | 1 |
|--|-------------|--------------|------------------------|---------------|---------------|---------------|-----------------|---------------|---------------|---------------|---|
|  |             | PROJECT      |                        |               |               | CHUM          |                 | DATE          |               | 9/24/2015     |   |
| TWP  | RGE         | SECT         | TRACT                  | TYPE          | ACRES         | PLOTS         | TREES           | CuFt          | BdFt          |               |   |
| 032  | 013         | 29           | CHUM                   | 00U5          | 87.17         | 40            | 262             | S             | W             |               |   |
|  |             |              |                        | TREES         | ESTIMATED     | PERCENT       |                 |               |               |               |   |
|  |             | PLOTS        | TREES                  | PER PLOT      | TOTAL         | SAMPLE        |                 |               |               |               |   |
|  |             |              |                        |               | TREES         | TREES         |                 |               |               |               |   |
| TOTAL  |             | 40           | 262                    | 6.6           |               |               |                 |               |               |               |   |
| CRUISE   |             | 15           | 70                     | 4.7           | 20,922        | .3            |                 |               |               |               |   |
| DBH COUNT  |             |              |                        |               |               |               |                 |               |               |               |   |
| REFOREST   |             |              |                        |               |               |               |                 |               |               |               |   |
| COUNT  |             | 25           | 169                    | 6.8           |               |               |                 |               |               |               |   |
| BLANKS   |             |              |                        |               |               |               |                 |               |               |               |   |
| 100 %  |             |              |                        |               |               |               |                 |               |               |               |   |
| <b>STAND SUMMARY</b>   |             |              |                        |               |               |               |                 |               |               |               |   |
|  | SAMPLE      | TREES        | AVG                    | BOLE          | REL           | BASAL         | GROSS           | NET           | GROSS         | NET           |   |
|  | TREES       | /ACRE        | DBH                    | LEN           | DEN           | AREA          | BF/AC           | BF/AC         | CF/AC         | CF/AC         |   |
| DOUG FIR   | 32          | 131.9        | 17.8                   | 61            | 53.9          | 227.3         | 20,488          | 19,293        | 6,699         | 6,699         |   |
| WHEMLOCK   | 32          | 101.1        | 14.8                   | 61            | 31.5          | 121.1         | 12,612          | 12,477        | 3,728         | 3,728         |   |
| PS FIR   | 2           | 1.0          | 22.0                   | 65            | 0.6           | 2.7           | 278             | 268           | 87            | 87            |   |
| WR CEDAR   | 2           | 2.6          | 12.0                   | 28            | 0.6           | 2.0           | 124             | 119           | 44            | 44            |   |
| S SPRUCE   | 1           | .6           | 20.0                   | 53            | 0.3           | 1.4           | 100             | 94            | 37            | 37            |   |
| R ALDER  | 1           | 2.9          | 8.0                    | 24            | 0.4           | 1.0           | 57              | 57            | 13            | 13            |   |
| <b>TOTAL</b>   | <b>70</b>   | <b>240.0</b> | <b>16.5</b>            | <b>60</b>     | <b>87.6</b>   | <b>355.5</b>  | <b>33,660</b>   | <b>32,308</b> | <b>10,607</b> | <b>10,607</b> |   |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |             |              |                        |               |               |               |                 |               |               |               |   |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |             |              |                        |               |               |               |                 |               |               |               |   |
| CL:  | 68.1 %      | COEFF        | <b>TREES/ACRE</b>      |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |   |
| SD:  | 1.0         | VAR.%        | S.E.%                  | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |   |
| DOUG FIR   | 60.9        | 9.6          |                        | 119           | 132           | 145           |                 |               |               |               |   |
| WHEMLOCK   | 84.6        | 13.4         |                        | 88            | 101           | 115           |                 |               |               |               |   |
| PS FIR   | 632.5       | 99.9         |                        | 0             | 1             | 2             |                 |               |               |               |   |
| WR CEDAR   | 562.7       | 88.9         |                        | 0             | 3             | 5             |                 |               |               |               |   |
| S SPRUCE   | 632.5       | 99.9         |                        | 0             | 1             | 1             |                 |               |               |               |   |
| R ALDER  | 632.5       | 99.9         |                        | 0             | 3             | 6             |                 |               |               |               |   |
| <b>TOTAL</b>   | <b>22.3</b> | <b>3.5</b>   |                        | <b>232</b>    | <b>240</b>    | <b>248</b>    | <b>20</b>       | <b>10</b>     | <b>5</b>      |               |   |
| CL:  | 68.1 %      | COEFF        | <b>BASAL AREA/ACRE</b> |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |   |
| SD:  | 1.0         | VAR.%        | S.E.%                  | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |   |
| DOUG FIR   | 59.9        | 9.5          |                        | 206           | 227           | 249           |                 |               |               |               |   |
| WHEMLOCK   | 83.6        | 13.2         |                        | 105           | 121           | 137           |                 |               |               |               |   |
| PS FIR   | 632.5       | 99.9         |                        | 0             | 3             | 5             |                 |               |               |               |   |
| WR CEDAR   | 441.4       | 69.7         |                        | 1             | 2             | 3             |                 |               |               |               |   |
| S SPRUCE   | 632.5       | 99.9         |                        | 0             | 1             | 3             |                 |               |               |               |   |
| R ALDER  | 632.5       | 99.9         |                        | 0             | 1             | 2             |                 |               |               |               |   |
| <b>TOTAL</b>   | <b>20.9</b> | <b>3.3</b>   |                        | <b>344</b>    | <b>355</b>    | <b>367</b>    | <b>17</b>       | <b>9</b>      | <b>4</b>      |               |   |
| CL:  | 68.1 %      | COEFF        | <b>NET BF/ACRE</b>     |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |   |
| SD:  | 1.0         | VAR.%        | S.E.%                  | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |   |
| DOUG FIR   | 60.4        | 9.5          |                        | 17,453        | 19,293        | 21,134        |                 |               |               |               |   |
| WHEMLOCK   | 84.7        | 13.4         |                        | 10,808        | 12,477        | 14,146        |                 |               |               |               |   |
| PS FIR   | 632.5       | 99.9         |                        | 0             | 268           | 536           |                 |               |               |               |   |
| WR CEDAR   | 454.3       | 71.8         |                        | 33            | 119           | 204           |                 |               |               |               |   |
| S SPRUCE   | 632.5       | 99.9         |                        | 0             | 94            | 187           |                 |               |               |               |   |
| R ALDER  | 632.5       | 99.9         |                        | 0             | 57            | 115           |                 |               |               |               |   |
| <b>TOTAL</b>   | <b>21.4</b> | <b>3.4</b>   |                        | <b>31,213</b> | <b>32,308</b> | <b>33,402</b> | <b>18</b>       | <b>9</b>      | <b>5</b>      |               |   |
| CL:  | 68.1 %      | COEFF        | <b>V-BAR/ACRE</b>      |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |   |
| SD:  | 1.0         | VAR.%        | S.E.%                  | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |   |
| DOUG FIR   |             |              |                        | 77            | 85            | 93            |                 |               |               |               |   |
| WHEMLOCK   |             |              |                        | 89            | 103           | 117           |                 |               |               |               |   |
| PS FIR   | 632.5       | 99.9         |                        | 0             | 98            | 197           |                 |               |               |               |   |
| WR CEDAR   | 454.3       | 71.8         |                        | 17            | 59            | 102           |                 |               |               |               |   |
| S SPRUCE   | 632.5       | 99.9         |                        | 0             | 69            | 137           |                 |               |               |               |   |
| R ALDER  | 632.5       | 99.9         |                        | 0             | 57            | 115           |                 |               |               |               |   |

**STATISTICS**

PROJECT CHUM

| TWP          | RGE        | SECT      | TRACT       | TYPE        | ACRES | PLOTS | TREES           | CuFt  | BdFt      |
|--------------|------------|-----------|-------------|-------------|-------|-------|-----------------|-------|-----------|
| <b>032</b>   | <b>013</b> | <b>29</b> | <b>CHUM</b> | <b>00U5</b> | 87.17 | 40    | 262             | S     | W         |
| CL:          | 68.1 %     | COEFF     |             | V-BAR/ACRE  |       |       | # OF PLOTS REQ. |       | INF. POP. |
| SD:          | 1.0        | VAR.      | S.E. %      | LOW         | AVG   | HIGH  | 5               | 7     | 10        |
| <b>TOTAL</b> |            | 367.1     | 58.0        | 88          | 91    | 94    | 5,383           | 2,746 | 1,346     |

**T032 R013 S16 T00U6** **T032 R013 S16 T00U6**  
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt  
 032 013 16 CHUM 00U6 29.58 14 27 S W

| S<br>Spp           | So<br>T       | Gr<br>rt ad | %<br>Net<br>BdFt | Bd. Ft. per Acre |        |        | Total<br>Net MBF | Percent Net Board Foot Volume |      |       |     |            |       |       |       | Average Log |           |          |           | Logs<br>Per<br>/Acre |      |      |       |
|--------------------|---------------|-------------|------------------|------------------|--------|--------|------------------|-------------------------------|------|-------|-----|------------|-------|-------|-------|-------------|-----------|----------|-----------|----------------------|------|------|-------|
|                    |               |             |                  | Def%             | Gross  | Net    |                  | Log Scale Dia.                |      |       |     | Log Length |       |       |       | Ln<br>Ft    | Dia<br>In | Bd<br>Ft | CF/<br>Lf |                      |      |      |       |
|                    |               |             |                  |                  |        |        |                  | 4-5                           | 6-11 | 12-16 | 17+ | 12-20      | 21-30 | 31-35 | 36-99 |             |           |          |           |                      |      |      |       |
| WH                 | DM            | 2S          | 31               | 5.4              | 6,677  | 6,319  | 187              | 100                           |      |       |     | 100        |       |       |       | 40          | 13        | 247      | 1.75      | 25.6                 |      |      |       |
| WH                 | DM            | 3S          | 55               | .4               | 11,005 | 10,963 | 324              | 100                           |      |       |     | 1          |       |       |       | 99          | 39        | 9        | 138       | 1.09                 | 79.7 |      |       |
| WH                 | DM            | 4S          | 14               |                  | 2,765  | 2,765  | 82               | 73                            | 27   |       |     |            |       | 15    | 47    | 14          | 25        | 27       | 5         | 30                   | 0.39 | 92.6 |       |
| <b>WH</b>          | <b>Totals</b> |             | 83               | 2.0              | 20,447 | 20,047 | 593              | 10                            | 58   | 32    |     |            |       |       | 2     | 7           | 2         | 89       | 34        | 8                    | 101  | 0.93 | 197.9 |
| SS                 | DM            | 2S          | 47               |                  | 855    | 855    | 25               | 100                           |      |       |     | 100        |       |       |       | 40          | 14        | 290      | 1.98      | 2.9                  |      |      |       |
| SS                 | DM            | 3S          | 48               |                  | 858    | 858    | 25               | 100                           |      |       |     | 17         |       |       |       | 83          | 35        | 9        | 124       | 1.09                 | 6.9  |      |       |
| SS                 | DM            | 4S          | 5                |                  | 79     | 79     | 2                | 100                           |      |       |     | 100        |       |       |       |             | 18        | 6        | 20        | 0.43                 | 4.0  |      |       |
| <b>SS</b>          | <b>Totals</b> |             | 7                |                  | 1,792  | 1,792  | 53               |                               | 52   | 48    |     |            |       |       | 4     | 8           |           | 87       | 31        | 9                    | 130  | 1.23 | 13.8  |
| RC                 | DM            | 3S          | 89               | 13.8             | 859    | 741    | 22               |                               | 29   | 71    |     |            |       |       | 100   | 40          | 11        | 159      | 2.09      | 4.7                  |      |      |       |
| RC                 | DM            | 4S          | 8                |                  | 63     | 63     | 2                | 100                           |      |       |     | 100        |       |       |       | 15          | 7         | 25       | 0.59      | 2.5                  |      |      |       |
| RC                 | DM            | UT          | 3                |                  | 22     | 22     | 1                | 100                           |      |       |     |            | 100   |       |       |             | 9         | 5        | 10        | 0.29                 | 2.2  |      |       |
| <b>RC</b>          | <b>Totals</b> |             | 3                | 12.5             | 944    | 826    | 24               | 3                             | 34   | 63    |     |            |       |       | 10    |             |           | 90       | 26        | 9                    | 88   | 1.72 | 9.3   |
| DF                 | DM            | 2S          | 82               | 5.6              | 1,232  | 1,164  | 34               | 100                           |      |       |     | 100        |       |       |       | 40          | 15        | 340      | 2.32      | 3.4                  |      |      |       |
| DF                 | DM            | 3S          | 18               | .0               | 240    | 240    | 7                | 100                           |      |       |     | 100        |       |       |       | 40          | 7         | 70       | 0.75      | 3.4                  |      |      |       |
| <b>DF</b>          | <b>Totals</b> |             | 6                | 4.7              | 1,472  | 1,403  | 42               |                               | 17   | 83    |     |            |       |       | 100   | 40          | 11        | 205      | 1.53      | 6.8                  |      |      |       |
| <b>Type Totals</b> |               |             |                  | 2.4              | 24,655 | 24,068 | 712              | 8                             | 55   | 37    |     |            |       |       | 2     | 7           | 2         | 89       | 33        | 8                    | 106  | 0.99 | 227.9 |

| TC TSTATS  |           |              |                 | STATISTICS    |               |               |                 | PAGE          | 1            |              |
|--|-----------|--------------|-----------------|---------------|---------------|---------------|-----------------|---------------|--------------|--------------|
| PROJECT  |           |              |                 | CHUM          |               |               |                 | DATE          | 9/24/2015    |              |
| TWP  | RGE       | SECT         | TRACT           | TYPE          | ACRES         | PLOTS         | TREES           | CuFt          | BdFt         |              |
| 032  | 013       | 16           | CHUM            | 00U6          | 29.58         | 14            | 62              | S             | W            |              |
|  |           |              |                 | TREES         | ESTIMATED     | PERCENT       |                 |               |              |              |
|  |           |              |                 | PER PLOT      | TOTAL         | SAMPLE        |                 |               |              |              |
|  |           |              |                 | PLOTS         | TREES         | TREES         | TREES           |               |              |              |
| TOTAL  |           | 14           | 62              | 4.4           |               |               |                 |               |              |              |
| CRUISE   |           | 8            | 27              | 3.4           | 3,797         |               | .7              |               |              |              |
| DBH COUNT  |           |              |                 |               |               |               |                 |               |              |              |
| REFOREST   |           |              |                 |               |               |               |                 |               |              |              |
| COUNT  |           | 6            | 26              | 4.3           |               |               |                 |               |              |              |
| BLANKS   |           |              |                 |               |               |               |                 |               |              |              |
| 100 %  |           |              |                 |               |               |               |                 |               |              |              |
| STAND SUMMARY  |           |              |                 |               |               |               |                 |               |              |              |
|  | SAMPLE    | TREES        | AVG             | BOLE          | REL           | BASAL         | GROSS           | NET           | GROSS        | NET          |
|  | TREES     | /ACRE        | DBH             | LEN           | DEN           | AREA          | BF/AC           | BF/AC         | CF/AC        | CF/AC        |
| WHEMLOCK   | 21        | 113.4        | 17.7            | 63            | 46.2          | 194.5         | 20,447          | 20,047        | 6,175        | 6,174        |
| S SPRUCE   | 2         | 6.9          | 20.3            | 64            | 3.4           | 15.6          | 1,792           | 1,792         | 526          | 526          |
| WR CEDAR   | 3         | 4.7          | 23.7            | 54            | 2.9           | 14.3          | 944             | 826           | 418          | 418          |
| DOUG FIR   | 1         | 3.4          | 25.0            | 82            | 2.3           | 11.7          | 1,472           | 1,403         | 420          | 420          |
| <b>TOTAL</b>   | <b>27</b> | <b>128.4</b> | <b>18.4</b>     | <b>64</b>     | <b>55.1</b>   | <b>236.0</b>  | <b>24,655</b>   | <b>24,068</b> | <b>7,539</b> | <b>7,538</b> |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |           |              |                 |               |               |               |                 |               |              |              |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |           |              |                 |               |               |               |                 |               |              |              |
| CL:  | 68.1 %    | COEFF        | TREES/ACRE      |               |               |               | # OF PLOTS REQ. |               | INF. POP.    |              |
| SD:  | 1.0       | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10           |              |
| WHEMLOCK   |           | 30.9         | 8.6             | 104           | 113           | 123           |                 |               |              |              |
| S SPRUCE   |           | 165.3        | 45.8            | 4             | 7             | 10            |                 |               |              |              |
| WR CEDAR   |           | 144.4        | 40.0            | 3             | 5             | 7             |                 |               |              |              |
| DOUG FIR   |           | 198.7        | 55.0            | 2             | 3             | 5             |                 |               |              |              |
| <b>TOTAL</b>   |           | <b>10.4</b>  | <b>2.9</b>      | <b>125</b>    | <b>128</b>    | <b>132</b>    | <b>5</b>        | <b>2</b>      | <b>1</b>     |              |
| CL:  | 68.1 %    | COEFF        | BASAL AREA/ACRE |               |               |               | # OF PLOTS REQ. |               | INF. POP.    |              |
| SD:  | 1.0       | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10           |              |
| WHEMLOCK   |           | 28.5         | 7.9             | 179           | 194           | 210           |                 |               |              |              |
| S SPRUCE   |           | 164.1        | 45.5            | 8             | 16            | 23            |                 |               |              |              |
| WR CEDAR   |           | 139.2        | 38.6            | 9             | 14            | 20            |                 |               |              |              |
| DOUG FIR   |           | 198.7        | 55.0            | 5             | 12            | 18            |                 |               |              |              |
| <b>TOTAL</b>   |           |              |                 | <b>236</b>    | <b>236</b>    | <b>236</b>    |                 |               |              |              |
| CL:  | 68.1 %    | COEFF        | NET BF/ACRE     |               |               |               | # OF PLOTS REQ. |               | INF. POP.    |              |
| SD:  | 1.0       | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10           |              |
| WHEMLOCK   |           | 33.1         | 9.2             | 18,206        | 20,047        | 21,887        |                 |               |              |              |
| S SPRUCE   |           | 164.9        | 45.7            | 974           | 1,792         | 2,610         |                 |               |              |              |
| WR CEDAR   |           | 139.9        | 38.8            | 506           | 826           | 1,146         |                 |               |              |              |
| DOUG FIR   |           | 198.7        | 55.0            | 631           | 1,403         | 2,176         |                 |               |              |              |
| <b>TOTAL</b>   |           |              |                 | <b>24,068</b> | <b>24,068</b> | <b>24,068</b> |                 |               |              |              |
| CL:  | 68.1 %    | COEFF        | V-BAR/ACRE      |               |               |               | # OF PLOTS REQ. |               | INF. POP.    |              |
| SD:  | 1.0       | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10           |              |
| WHEMLOCK   |           |              |                 | 94            | 103           | 113           |                 |               |              |              |
| S SPRUCE   |           | 91.3         | 25.3            | 63            | 115           | 168           |                 |               |              |              |
| WR CEDAR   |           | 86.7         | 24.0            | 35            | 58            | 80            |                 |               |              |              |
| DOUG FIR   |           | 77.3         | 21.4            | 54            | 120           | 186           |                 |               |              |              |
| <b>TOTAL</b>   |           | <b>216.9</b> | <b>60.1</b>     | <b>102</b>    | <b>102</b>    | <b>102</b>    | <b>2,022</b>    | <b>1,031</b>  | <b>505</b>   |              |

|                     |     |     |       |      |       |       |              |      |      |                     |  |  |  |  |
|---------------------|-----|-----|-------|------|-------|-------|--------------|------|------|---------------------|--|--|--|--|
| T032 R013 S16 T00U7 |     |     |       |      |       |       |              |      |      | T032 R013 S16 T00U7 |  |  |  |  |
| Twp                 | Rge | Sec | Tract | Type | Acres | Plots | Sample Trees | CuFt | BdFt |                     |  |  |  |  |
| 032                 | 013 | 16  | CHUM  | 00U7 | 13.63 | 8     | 21           | S    | W    |                     |  |  |  |  |

| S<br>Spp           | So<br>T       | Gr<br>rt ad | %<br>Net<br>BdFt | Bd. Ft. per Acre |        |        | Total<br>Net MBF | Percent Net Board Foot Volume |      |       |     |            |       |       |       | Average Log |     |      |           | Logs<br>Per<br>/Acre |
|--------------------|---------------|-------------|------------------|------------------|--------|--------|------------------|-------------------------------|------|-------|-----|------------|-------|-------|-------|-------------|-----|------|-----------|----------------------|
|                    |               |             |                  |                  |        |        |                  | Log Scale Dia.                |      |       |     | Log Length |       |       |       | Ln          | Dia | Bd   | CF/<br>Lf |                      |
|                    |               |             |                  |                  |        |        |                  | 4-5                           | 6-11 | 12-16 | 17+ | 12-20      | 21-30 | 31-35 | 36-99 | Ft          | In  | Ft   | Lf        |                      |
| WH                 | DM            | 2S          | 53               | 7.8              | 11,915 | 10,981 | 150              |                               | 67   | 33    |     |            |       | 100   | 40    | 14          | 289 | 1.94 | 38.0      |                      |
| WH                 | DM            | 3S          | 39               | 1.9              | 8,065  | 7,912  | 108              |                               | 100  |       |     | 9          |       | 91    | 37    | 8           | 97  | 0.86 | 81.9      |                      |
| WH                 | DM            | 4S          | 8                | 3.5              | 1,512  | 1,459  | 20               | 75                            | 25   |       |     | 62         | 38    |       | 29    | 5           | 33  | 0.41 | 44.0      |                      |
| <b>WH</b>          | <b>Totals</b> |             | 71               | 5.3              | 21,491 | 20,352 | 277              | 5                             | 41   | 36    | 18  | 3          | 4     | 3     | 89    | 35          | 9   | 124  | 1.04      | 163.9                |
| SS                 | DM            | 2S          | 88               |                  | 6,886  | 6,886  | 94               |                               | 35   | 65    |     |            |       | 100   | 40    | 15          | 394 | 2.35 | 17.5      |                      |
| SS                 | DM            | 3S          | 12               | 4.0              | 921    | 884    | 12               |                               | 100  |       |     |            | 41    | 59    | 35    | 7           | 80  | 0.83 | 11.0      |                      |
| <b>SS</b>          | <b>Totals</b> |             | 27               | .5               | 7,807  | 7,770  | 106              |                               | 11   | 31    | 58  |            |       | 5     | 95    | 38          | 12  | 273  | 1.82      | 28.5                 |
| DF                 | DM            | 2S          | 81               | 10.3             | 628    | 563    | 8                |                               | 100  |       |     |            |       | 100   | 40    | 14          | 260 | 2.11 | 2.2       |                      |
| DF                 | DM            | 3S          | 19               |                  | 130    | 130    | 2                |                               | 100  |       |     |            | 100   |       | 34    | 7           | 60  | 0.67 | 2.2       |                      |
| <b>DF</b>          | <b>Totals</b> |             | 2                | 8.6              | 758    | 693    | 9                |                               | 19   | 81    |     |            |       | 19    | 81    | 37          | 11  | 160  | 1.44      | 4.3                  |
| <b>Type Totals</b> |               |             |                  | 4.1              | 30,056 | 28,814 | 393              | 4                             | 32   | 36    | 28  | 2          | 3     | 4     | 91    | 36          | 9   | 147  | 1.17      | 196.7                |

| TC TSTATS  |        | STATISTICS   |              |                 |               |               |                 |               | PAGE          | 1            |
|--|--------|--------------|--------------|-----------------|---------------|---------------|-----------------|---------------|---------------|--------------|
|  |        | PROJECT      |              | CHUM            |               |               | DATE            |               | 9/24/2015     |              |
| TWP  | RGE    | SECT         | TRACT        | TYPE            | ACRES         | PLOTS         | TREES           | CuFt          | BdFt          |              |
| 032  | 013    | 16           | CHUM         | 00U7            | 13.63         | 8             | 34              | S             | W             |              |
|  |        |              |              | TREES           | ESTIMATED     | PERCENT       |                 |               |               |              |
|  |        | PLOTS        | TREES        | PER PLOT        | TREES         | SAMPLE        |                 |               |               |              |
|  |        |              |              |                 |               | TREES         |                 |               |               |              |
| TOTAL  |        | 8            | 34           | 4.3             |               |               |                 |               |               |              |
| CRUISE   |        | 4            | 21           | 5.3             | 1,484         | 1.4           |                 |               |               |              |
| DBH COUNT  |        |              |              |                 |               |               |                 |               |               |              |
| REFOREST   |        |              |              |                 |               |               |                 |               |               |              |
| COUNT  |        | 4            | 13           | 3.3             |               |               |                 |               |               |              |
| BLANKS   |        |              |              |                 |               |               |                 |               |               |              |
| 100 %  |        |              |              |                 |               |               |                 |               |               |              |
| <b>STAND SUMMARY</b>   |        |              |              |                 |               |               |                 |               |               |              |
| SAMPLE   |        | TREES        | AVG          | BOLE            | REL           | BASAL         | GROSS           | NET           | GROSS         | NET          |
| TREES  |        | /ACRE        | DBH          | LEN             | DEN           | AREA          | BF/AC           | BF/AC         | CF/AC         | CF/AC        |
| WHEMLOCK   |        | 17           | 92.5         | 18.7            | 67            | 40.9          | 176.9           | 21,491        | 20,352        | 6,050        |
| S SPRUCE   |        | 3            | 14.2         | 24.8            | 81            | 9.6           | 47.6            | 7,807         | 7,770         | 1,960        |
| DOUG FIR   |        | 1            | 2.2          | 24.0            | 76            | 1.4           | 6.8             | 758           | 693           | 232          |
| <b>TOTAL</b>   |        | <i>21</i>    | <i>108.9</i> | <i>19.7</i>     | <i>69</i>     | <i>52.1</i>   | <i>231.4</i>    | <i>30,056</i> | <i>28,814</i> | <i>8,241</i> |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |        |              |              |                 |               |               |                 |               |               |              |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |        |              |              |                 |               |               |                 |               |               |              |
| CL:  | 68.1 % | COEFF        |              | TREES/ACRE      |               |               | # OF PLOTS REQ. |               | INF. POP.     |              |
| SD:  | 1.0    | VAR.%        | S.E.%        | LOW             | AVG           | HIGH          | 5               | 7             | 10            |              |
| WHEMLOCK   |        | 51.5         | 19.4         | 75              | 92            | 110           |                 |               |               |              |
| S SPRUCE   |        | 99.5         | 37.5         | 9               | 14            | 20            |                 |               |               |              |
| DOUG FIR   |        | 282.8        | 106.6        |                 | 2             | 4             |                 |               |               |              |
| <b>TOTAL</b>   |        | <i>46.5</i>  | <i>17.5</i>  | <i>90</i>       | <i>109</i>    | <i>128</i>    | <i>98</i>       | <i>50</i>     | <i>25</i>     |              |
| CL:  | 68.1 % | COEFF        |              | BASAL AREA/ACRE |               |               | # OF PLOTS REQ. |               | INF. POP.     |              |
| SD:  | 1.0    | VAR.%        | S.E.%        | LOW             | AVG           | HIGH          | 5               | 7             | 10            |              |
| WHEMLOCK   |        | 39.4         | 14.9         | 151             | 177           | 203           |                 |               |               |              |
| S SPRUCE   |        | 95.4         | 36.0         | 31              | 48            | 65            |                 |               |               |              |
| DOUG FIR   |        | 282.8        | 106.6        |                 | 7             | 14            |                 |               |               |              |
| <b>TOTAL</b>   |        | <i>32.7</i>  | <i>12.3</i>  | <i>203</i>      | <i>231</i>    | <i>260</i>    | <i>49</i>       | <i>25</i>     | <i>12</i>     |              |
| CL:  | 68.1 % | COEFF        |              | NET BF/ACRE     |               |               | # OF PLOTS REQ. |               | INF. POP.     |              |
| SD:  | 1.0    | VAR.%        | S.E.%        | LOW             | AVG           | HIGH          | 5               | 7             | 10            |              |
| WHEMLOCK   |        | 42.5         | 16.0         | 17,090          | 20,352        | 23,613        |                 |               |               |              |
| S SPRUCE   |        | 95.9         | 36.2         | 4,961           | 7,770         | 10,579        |                 |               |               |              |
| DOUG FIR   |        | 282.8        | 106.6        |                 | 693           | 1,432         |                 |               |               |              |
| <b>TOTAL</b>   |        | <i>34.5</i>  | <i>13.0</i>  | <i>25,066</i>   | <i>28,814</i> | <i>32,563</i> | <i>54</i>       | <i>28</i>     | <i>14</i>     |              |
| CL:  | 68.1 % | COEFF        |              | V-BAR/ACRE      |               |               | # OF PLOTS REQ. |               | INF. POP.     |              |
| SD:  | 1.0    | VAR.%        | S.E.%        | LOW             | AVG           | HIGH          | 5               | 7             | 10            |              |
| WHEMLOCK   |        |              |              | 97              | 115           | 133           |                 |               |               |              |
| S SPRUCE   |        |              |              | 104             | 163           | 222           |                 |               |               |              |
| DOUG FIR   |        | 282.8        | 106.6        |                 | 102           | 210           |                 |               |               |              |
| <b>TOTAL</b>   |        | <i>153.2</i> | <i>57.7</i>  | <i>108</i>      | <i>125</i>    | <i>141</i>    | <i>1,067</i>    | <i>544</i>    | <i>267</i>    |              |

|  |                     |
|--|---------------------|
| T032 R013 S16 T00U8                                  | T032 R013 S16 T00U8 |
| Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt | BdFt                |
| 032 013 16 CHUM 00U8 17.91 9 25 S                    | W                   |

| Spp                | So            | Gr | % Net BdFt | Bd. Ft. per Acre |        |        | Total Net MBF | Percent Net Board Foot Volume |      |       |     |            |       |       |       | Average Log |        |       |       | Logs Per /Acre |       |
|--------------------|---------------|----|------------|------------------|--------|--------|---------------|-------------------------------|------|-------|-----|------------|-------|-------|-------|-------------|--------|-------|-------|----------------|-------|
|                    |               |    |            | Def%             | Gross  | Net    |               | Log Scale Dia.                |      |       |     | Log Length |       |       |       | Ln Ft       | Dia In | Bd Ft | CF/Lf |                |       |
|                    |               |    |            |                  |        |        |               | 4-5                           | 6-11 | 12-16 | 17+ | 12-20      | 21-30 | 31-35 | 36-99 |             |        |       |       |                |       |
| WH                 | DM            | 2S | 76         | 3.8              | 25,512 | 24,549 | 440           |                               |      | 70    | 30  |            |       |       |       | 100         | 40     | 14    | 314   | 1.97           | 78.3  |
| WH                 | DM            | 3S | 21         | 1.3              | 6,869  | 6,776  | 121           |                               |      | 100   |     |            |       |       | 14    | 86          | 37     | 7     | 78    | 0.78           | 87.1  |
| WH                 | DM            | 4S | 3          |                  | 837    | 837    | 15            | 68                            | 32   |       |     |            | 33    | 32    | 35    |             | 26     | 5     | 30    | 0.39           | 27.7  |
| <b>WH</b>          | <b>Totals</b> |    | 87         | 3.2              | 33,218 | 32,162 | 576           | 2                             | 22   | 53    | 23  |            | 1     | 1     | 4     | 95          | 37     | 10    | 167   | 1.27           | 193.1 |
| SS                 | DM            | 2S | 46         |                  | 1,155  | 1,155  | 21            |                               |      | 100   |     |            |       |       |       | 100         | 40     | 16    | 400   | 2.40           | 2.9   |
| SS                 | DM            | 3S | 45         | .0               | 1,089  | 1,089  | 20            |                               |      | 100   |     |            |       |       |       | 100         | 40     | 8     | 106   | 0.83           | 10.3  |
| SS                 | DM            | 4S | 9          |                  | 222    | 222    | 4             | 100                           |      |       |     |            |       | 100   |       |             | 27     | 5     | 30    | 0.29           | 7.4   |
| <b>SS</b>          | <b>Totals</b> |    | 7          |                  | 2,466  | 2,466  | 44            | 9                             | 44   | 47    |     |            |       | 9     |       | 91          | 35     | 8     | 120   | 0.93           | 20.6  |
| RC                 | DM            | 3S | 89         | 13.2             | 1,255  | 1,089  | 20            |                               |      | 22    | 78  |            |       |       |       | 100         | 40     | 13    | 219   | 2.41           | 5.0   |
| RC                 | DM            | 4S | 11         | 19.9             | 165    | 132    | 2             |                               |      | 100   |     |            | 25    | 75    |       |             | 21     | 7     | 27    | 0.61           | 5.0   |
| <b>RC</b>          | <b>Totals</b> |    | 3          | 14.0             | 1,420  | 1,221  | 22            |                               |      | 30    | 70  |            | 3     | 8     |       | 89          | 30     | 10    | 123   | 1.80           | 9.9   |
| RA                 | DM            | UT | 100        |                  | 1,187  | 1,187  | 21            | 100                           |      |       |     |            |       | 32    | 34    | 34          | 32     | 5     | 36    | 0.27           | 32.9  |
| <b>RA</b>          | <b>Totals</b> |    | 3          |                  | 1,187  | 1,187  | 21            | 100                           |      |       |     |            |       | 32    | 34    | 34          | 32     | 5     | 36    | 0.27           | 32.9  |
| <b>Type Totals</b> |               |    |            | 3.3              | 38,290 | 37,036 | 663           | 5                             | 23   | 52    | 20  |            | 1     | 3     | 4     | 92          | 36     | 9     | 144   | 1.14           | 256.5 |

| TC TSTATS  |              |              |                 | STATISTICS    |               |               |                 | PAGE          | 1             |               |
|--|--------------|--------------|-----------------|---------------|---------------|---------------|-----------------|---------------|---------------|---------------|
| PROJECT  |              |              |                 | CHUM          |               |               |                 | DATE          | 9/24/2015     |               |
| TWP  | RGE          | SECT         | TRACT           | TYPE          | ACRES         | PLOTS         | TREES           | CuFt          | BdFt          |               |
| 032  | 013          | 16           | CHUM            | 00U8          | 17.91         | 9             | 50              | S             | W             |               |
|  |              |              | TREES           | ESTIMATED     | PERCENT       |               |                 |               |               |               |
|  |              |              | PER PLOT        | TOTAL         | SAMPLE        |               |                 |               |               |               |
|  |              |              | TREES           | TREES         | TREES         |               |                 |               |               |               |
| TOTAL  | 9            | 50           | 5.6             |               |               |               |                 |               |               |               |
| CRUISE   | 6            | 25           | 4.2             | 2,674         |               |               | .9              |               |               |               |
| DBH COUNT  |              |              |                 |               |               |               |                 |               |               |               |
| REFOREST   |              |              |                 |               |               |               |                 |               |               |               |
| COUNT  | 3            | 15           | 5.0             |               |               |               |                 |               |               |               |
| BLANKS   |              |              |                 |               |               |               |                 |               |               |               |
| 100 %  |              |              |                 |               |               |               |                 |               |               |               |
| STAND SUMMARY  |              |              |                 |               |               |               |                 |               |               |               |
| SAMPLE   | TREES        | AVG          | BOLE            | REL           | BASAL         | GROSS         | NET             | GROSS         | NET           |               |
| TREES  | /ACRE        | DBH          | LEN             | DEN           | AREA          | BF/AC         | BF/AC           | CF/AC         | CF/AC         |               |
| WHEMLOCK   | 17           | 101.2        | 21.2            | 74            | 53.9          | 248.0         | 33,218          | 32,162        | 9,008         | 9,008         |
| S SPRUCE   | 2            | 10.3         | 18.0            | 73            | 4.3           | 18.1          | 2,466           | 2,466         | 678           | 678           |
| WR CEDAR   | 3            | 5.0          | 24.7            | 63            | 3.3           | 16.5          | 1,420           | 1,221         | 541           | 541           |
| R ALDER  | 3            | 32.9         | 8.6             | 46            | 4.5           | 13.3          | 1,187           | 1,187         | 290           | 290           |
| <b>TOTAL</b>   | <b>25</b>    | <b>149.3</b> | <b>19.1</b>     | <b>67</b>     | <b>67.8</b>   | <b>296.0</b>  | <b>38,290</b>   | <b>37,036</b> | <b>10,517</b> | <b>10,517</b> |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |              |              |                 |               |               |               |                 |               |               |               |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |              |              |                 |               |               |               |                 |               |               |               |
| CL:  | 68.1 %       | COEFF        | TREES/ACRE      |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0          | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| WHEMLOCK   | 28.5         | 10.1         |                 | 91            | 101           | 111           |                 |               |               |               |
| S SPRUCE   | 212.1        | 74.9         |                 | 3             | 10            | 18            |                 |               |               |               |
| WR CEDAR   | 211.2        | 74.5         |                 | 1             | 5             | 9             |                 |               |               |               |
| R ALDER  | 300.0        | 105.9        |                 |               | 33            | 68            |                 |               |               |               |
| <b>TOTAL</b>   | <b>19.7</b>  | <b>7.0</b>   |                 | <b>139</b>    | <b>149</b>    | <b>160</b>    | <b>17</b>       | <b>9</b>      | <b>4</b>      |               |
| CL:  | 68.1 %       | COEFF        | BASAL AREA/ACRE |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0          | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| WHEMLOCK   | 19.4         | 6.8          |                 | 231           | 248           | 265           |                 |               |               |               |
| S SPRUCE   | 212.1        | 74.9         |                 | 5             | 18            | 32            |                 |               |               |               |
| WR CEDAR   | 224.1        | 79.1         |                 | 3             | 17            | 30            |                 |               |               |               |
| R ALDER  | 300.0        | 105.9        |                 |               | 13            | 27            |                 |               |               |               |
| <b>TOTAL</b>   |              |              |                 | <b>296</b>    | <b>296</b>    | <b>296</b>    |                 |               |               |               |
| CL:  | 68.1 %       | COEFF        | NET BF/ACRE     |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0          | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| WHEMLOCK   | 20.3         | 7.2          |                 | 29,860        | 32,162        | 34,464        |                 |               |               |               |
| S SPRUCE   | 212.1        | 74.9         |                 | 620           | 2,466         | 4,313         |                 |               |               |               |
| WR CEDAR   | 234.9        | 82.9         |                 | 209           | 1,221         | 2,233         |                 |               |               |               |
| R ALDER  | 300.0        | 105.9        |                 |               | 1,187         | 2,443         |                 |               |               |               |
| <b>TOTAL</b>   |              |              |                 | <b>37,036</b> | <b>37,036</b> | <b>37,036</b> |                 |               |               |               |
| CL:  | 68.1 %       | COEFF        | V-BAR/ACRE      |               |               |               | # OF PLOTS REQ. |               | INF. POP.     |               |
| SD:  | 1.0          | VAR.%        | S.E.%           | LOW           | AVG           | HIGH          | 5               | 7             | 10            |               |
| WHEMLOCK   |              |              |                 | 120           | 130           | 139           |                 |               |               |               |
| S SPRUCE   | 183.7        | 64.8         |                 | 34            | 136           | 238           |                 |               |               |               |
| WR CEDAR   | 222.1        | 78.4         |                 | 13            | 74            | 135           |                 |               |               |               |
| R ALDER  | 300.0        | 105.9        |                 |               | 89            | 183           |                 |               |               |               |
| <b>TOTAL</b>   | <b>181.6</b> | <b>64.1</b>  |                 | <b>125</b>    | <b>125</b>    | <b>125</b>    | <b>1,479</b>    | <b>754</b>    | <b>370</b>    |               |

**Species Summary - Trees, Logs, Tons, CCF, MBF**

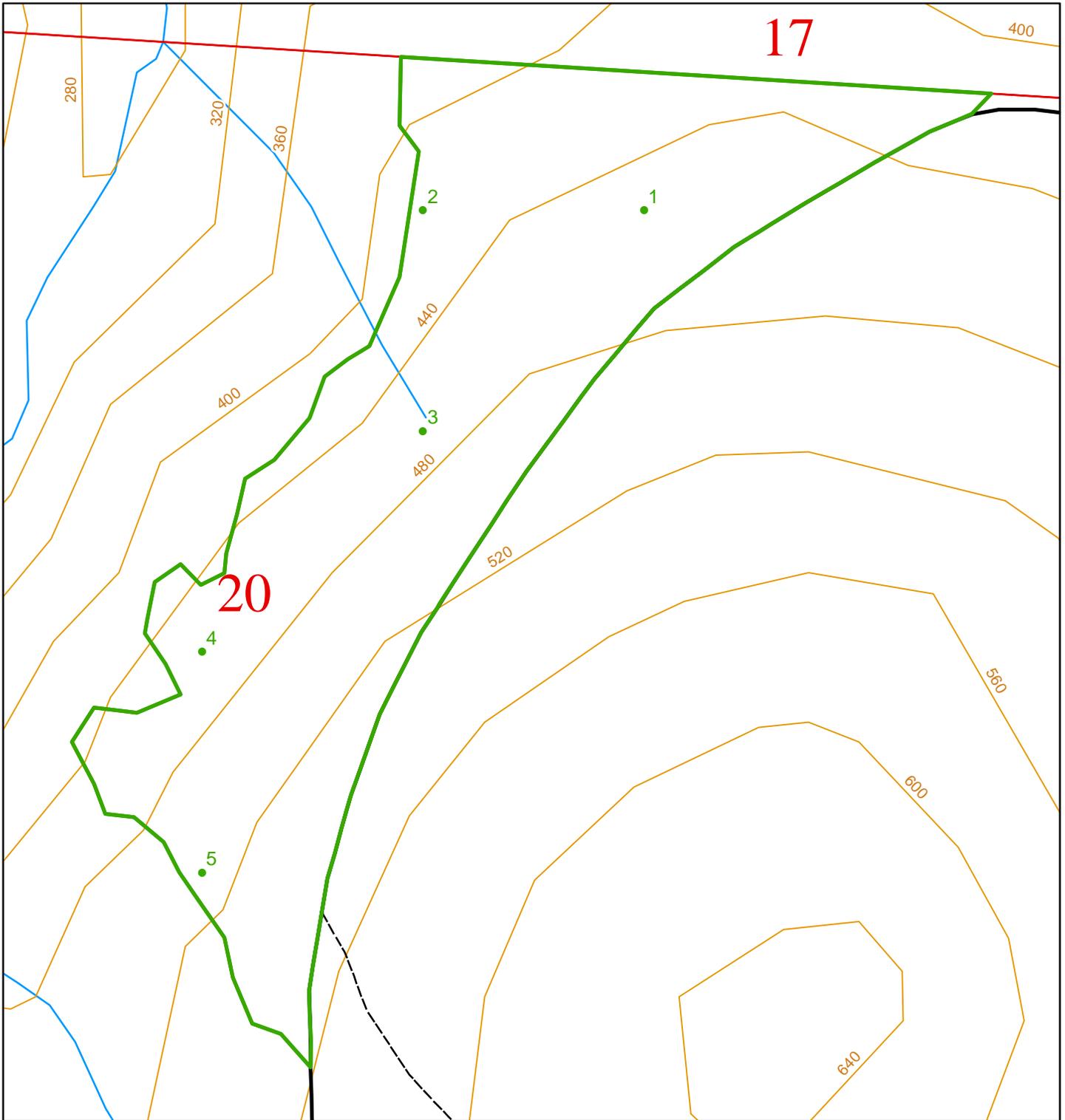
|                      |      |
|----------------------|------|
| T032 R013 S16 Ty00U6 | 29.5 |
| T032 R013 S16 Ty00U7 | 13.6 |
| T032 R013 S29 Ty00U5 | 87.1 |

**Project CHUM**  
**Acres 211.03**

**Page No 1**  
**Date: 11/9/2015**  
**Time 9:33:03AM**

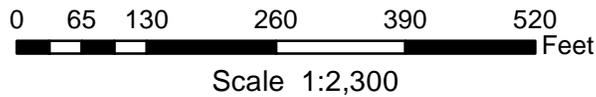
| Species       | Total         | Total         | Total         | Net Cubic Ft/ |              | CF/<br>LF   | Total CCF     |               | Total MBF    |              |
|---------------|---------------|---------------|---------------|---------------|--------------|-------------|---------------|---------------|--------------|--------------|
|               | Trees         | Logs          | Tons          | Tree          | Log          |             | Gross         | Net           | Gross        | Net          |
| WHEMLOCK      | 23,765        | 45,041        | 33,733        | 44.28         | 23.37        | 0.74        | 10,542        | 10,524        | 3,595        | 3,487        |
| DOUG FIR      | 18,229        | 36,108        | 28,117        | 54.12         | 27.32        | 0.87        | 9,865         | 9,865         | 3,112        | 2,944        |
| S SPRUCE      | 680           | 1,360         | 1,584         | 89.59         | 44.80        | 1.31        | 609           | 609           | 221          | 219          |
| WR CEDAR      | 822           | 1,075         | 680           | 35.20         | 26.93        | 1.04        | 289           | 289           | 62           | 54           |
| R ALDER       | 1,022         | 1,794         | 330           | 11.74         | 6.69         | 0.30        | 120           | 120           | 36           | 35           |
| PS FIR        | 90            | 180           | 217           | 84.09         | 42.04        | 1.31        | 76            | 76            | 24           | 23           |
| <b>Totals</b> | <b>44,609</b> | <b>85,559</b> | <b>64,661</b> | <b>48.16</b>  | <b>25.11</b> | <b>0.80</b> | <b>21,502</b> | <b>21,484</b> | <b>7,050</b> | <b>6,763</b> |

| Wood Type<br>Species | Total         | Total         | Total         | Net Cubic Ft/ |              | CF/<br>LF   | Total CCF     |               | Total MBF    |              |
|----------------------|---------------|---------------|---------------|---------------|--------------|-------------|---------------|---------------|--------------|--------------|
|                      | Trees         | Logs          | Tons          | Tree          | Log          |             | Gross         | Net           | Gross        | Net          |
| C                    | 43,587        | 83,764        | 64,331        | 49.01         | 25.50        | 0.81        | 21,382        | 21,364        | 7,014        | 6,728        |
| H                    | 1,022         | 1,794         | 330           | 11.74         | 6.69         | 0.30        | 120           | 120           | 36           | 35           |
| <b>Totals</b>        | <b>44,609</b> | <b>85,559</b> | <b>64,661</b> | <b>48.16</b>  | <b>25.11</b> | <b>0.80</b> | <b>21,502</b> | <b>21,484</b> | <b>7,050</b> | <b>6,763</b> |



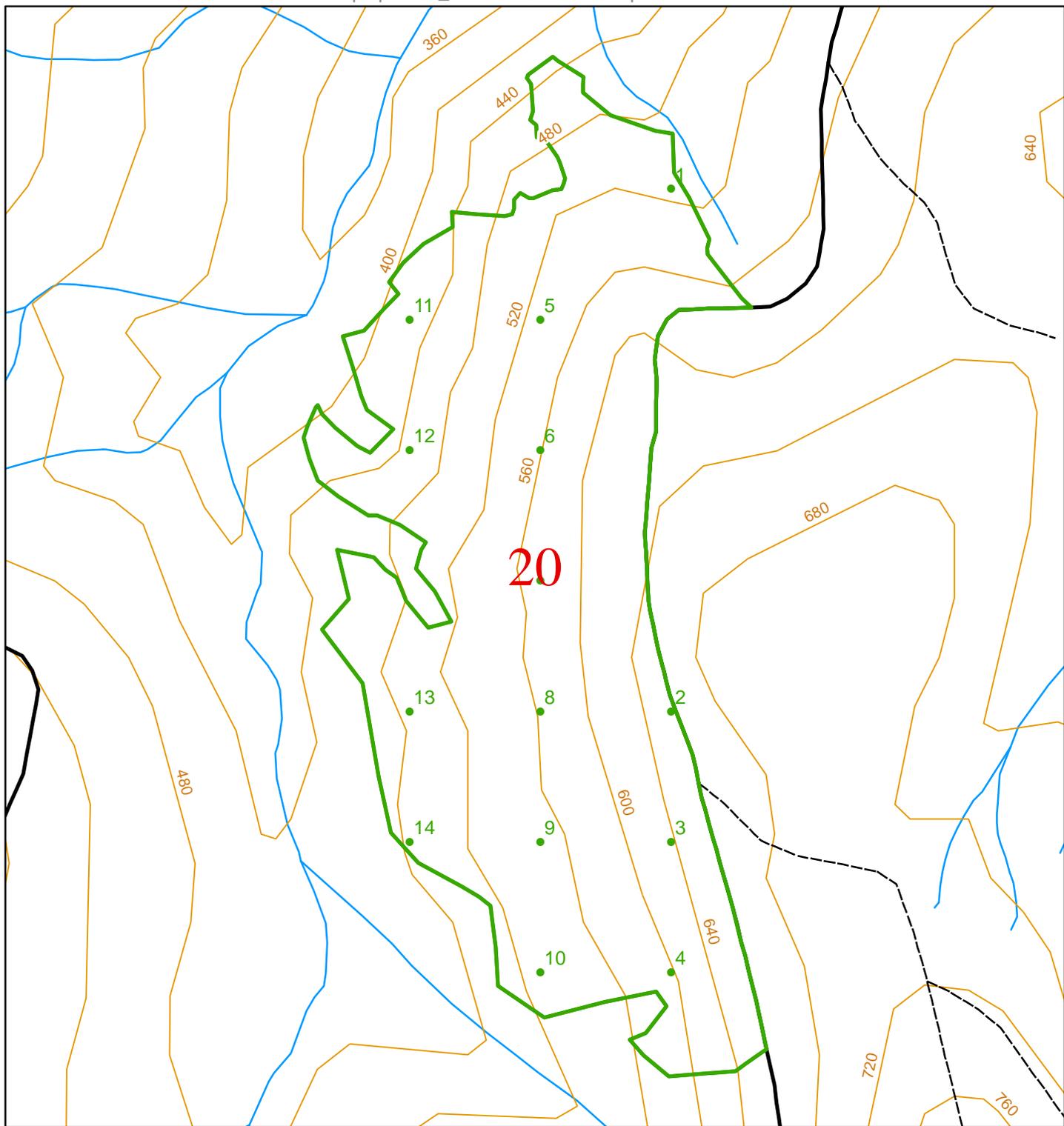
**Cruiser Sample Point Locations**

|             |      |                         |                        |
|-------------|------|-------------------------|------------------------|
| LAYER NAME: | chum | Township:               | T32R13W                |
| POLY ID:    | 1    | Total Sample Points:    | 5                      |
| Acres:      | 11   | Spacing Between Points: | Width: 300 Height: 300 |
|             |      | Point Rotation Degrees: | 0                      |



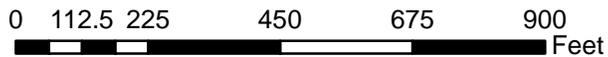
**Legend**

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



**Cruiser Sample Point Locations**

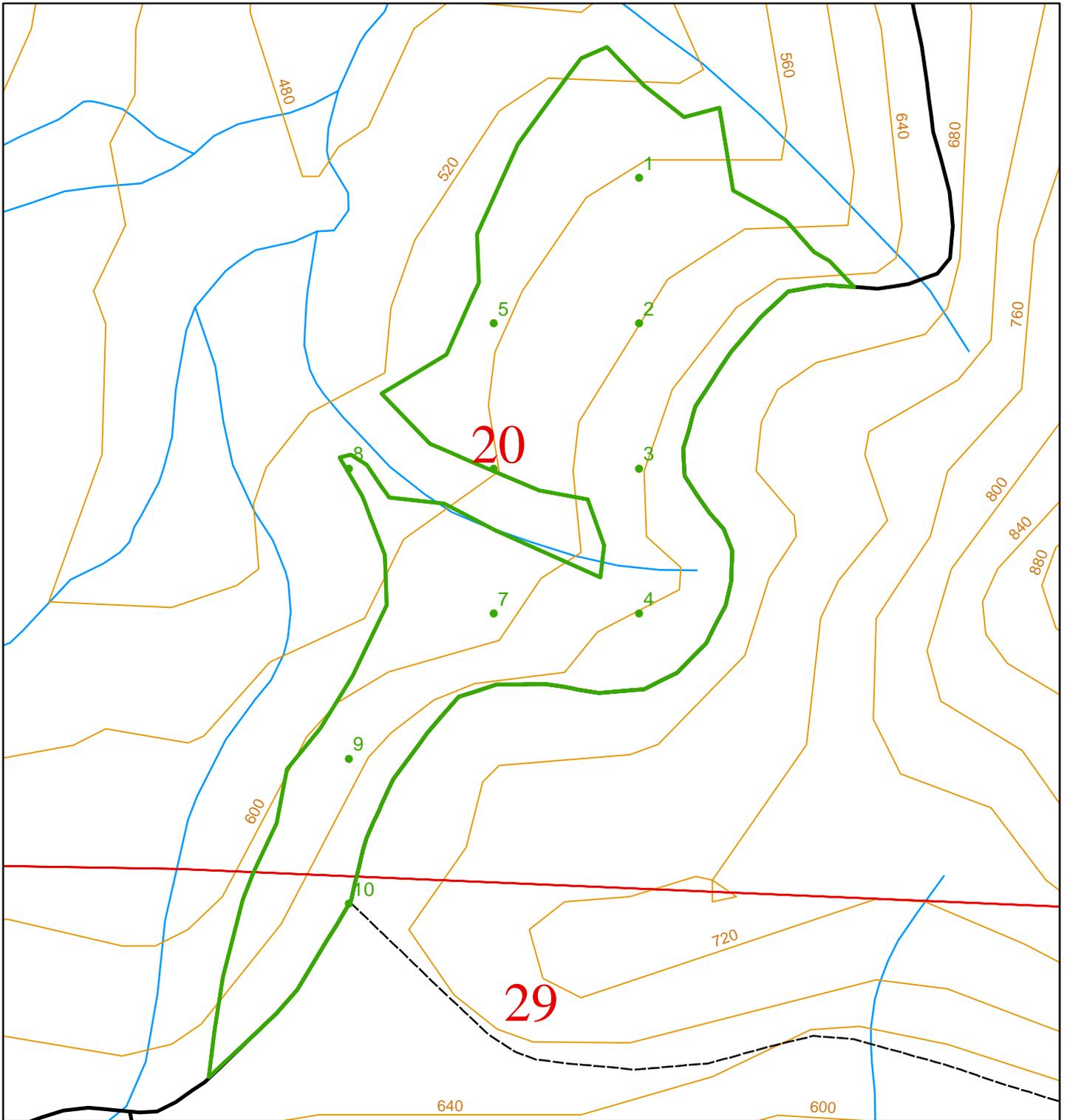
|             |      |                         |                        |
|-------------|------|-------------------------|------------------------|
| LAYER NAME: | chum | Township:               | T32R13W                |
| POLY ID:    | 1    | Total Sample Points:    | 14                     |
| Acres:      | 31   | Spacing Between Points: | Width: 300 Height: 300 |
|             |      | Point Rotation Degrees: | 0                      |



Scale 1:3,900

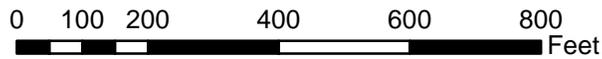
**Legend**

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



**Cruiser Sample Point Locations**

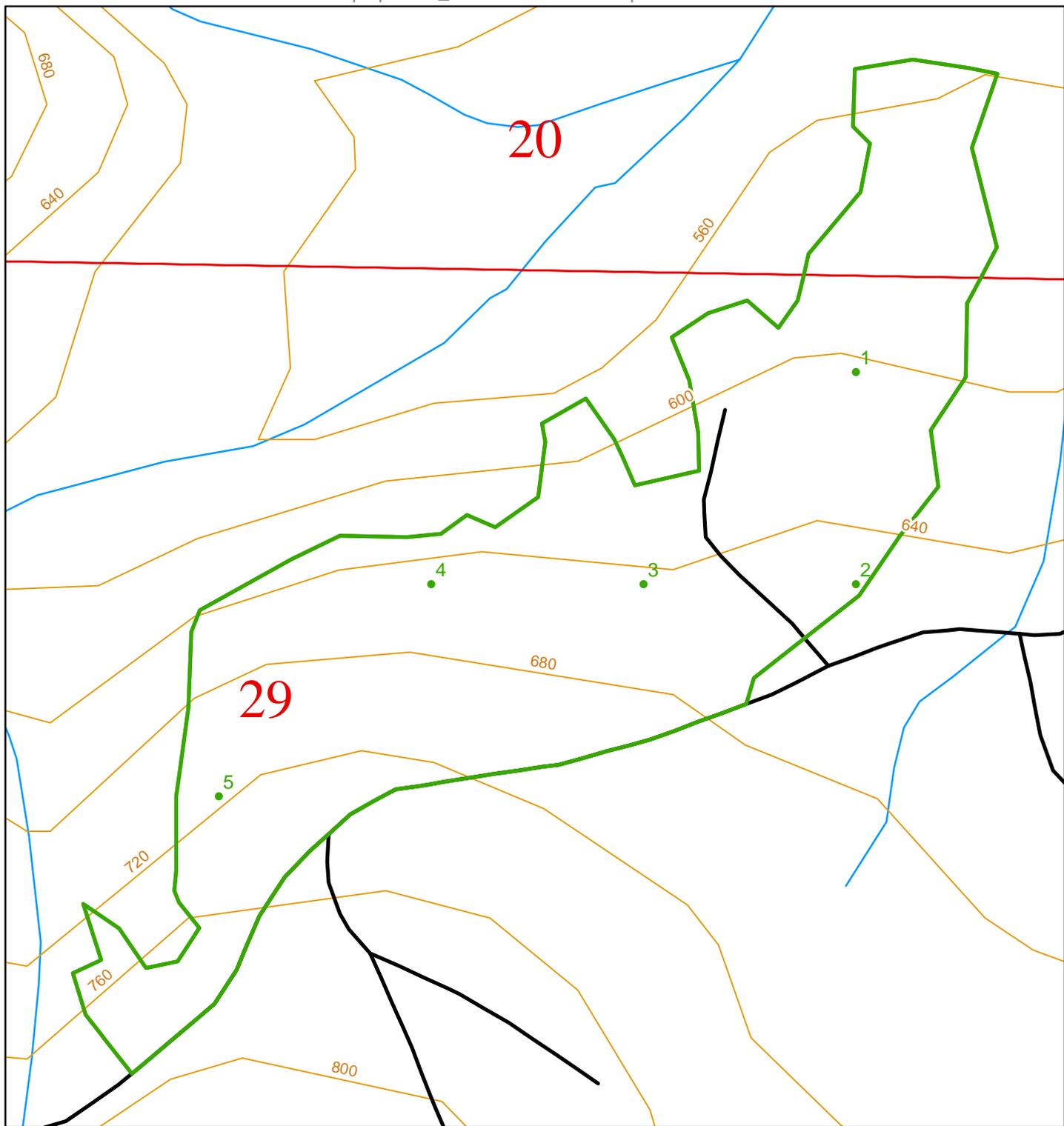
|             |      |                         |                        |
|-------------|------|-------------------------|------------------------|
| LAYER NAME: | chum | Township:               | T32R13W                |
| POLY ID:    | 1    | Total Sample Points:    | 10                     |
| Acres:      | 20   | Spacing Between Points: | Width: 300 Height: 300 |
|             |      | Point Rotation Degrees: | 0                      |



Scale 1:3,500

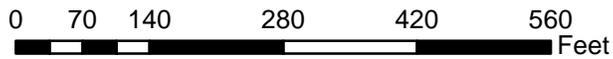
**Legend**

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



**Cruiser Sample Point Locations**

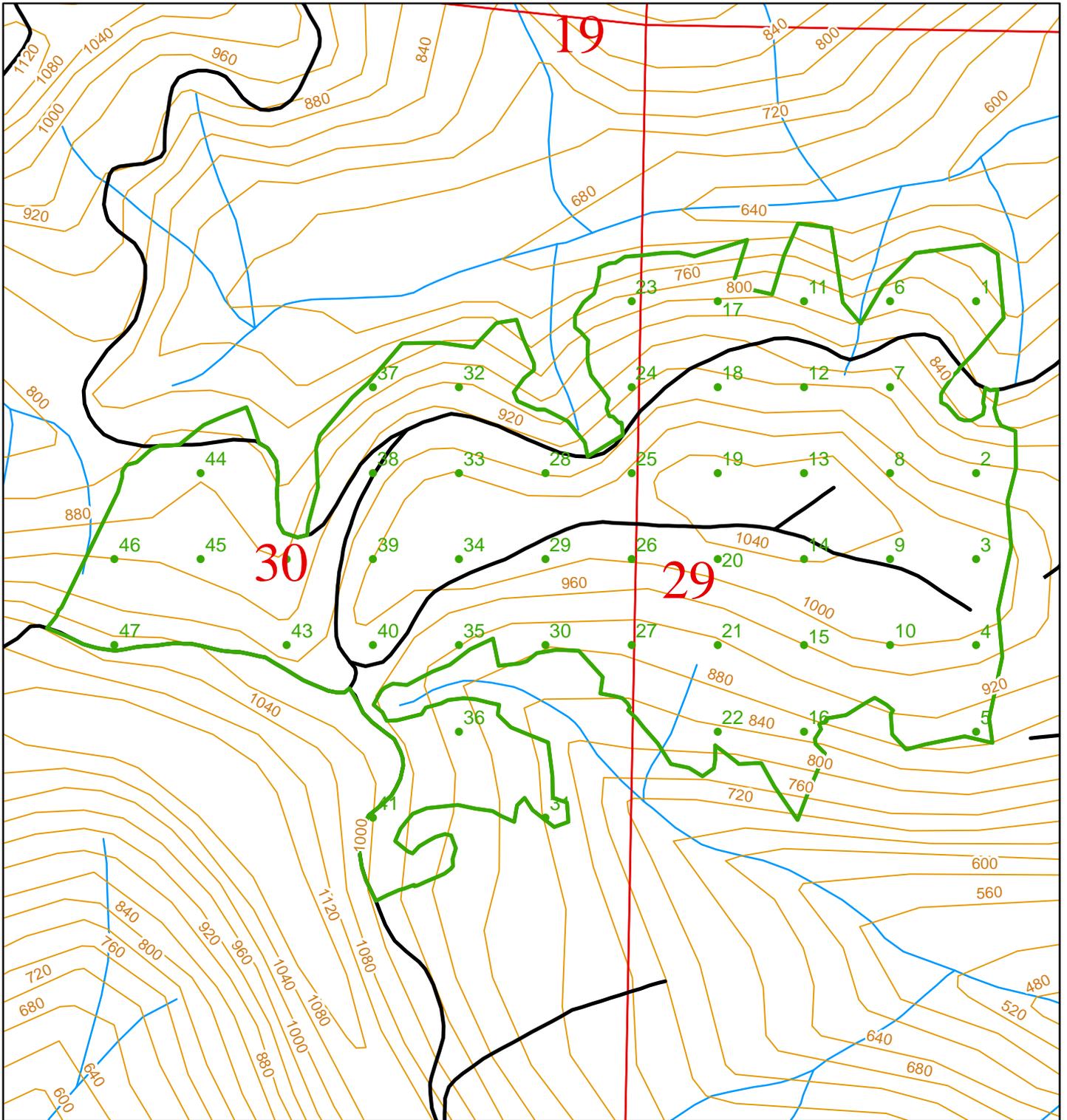
|             |      |                         |                        |
|-------------|------|-------------------------|------------------------|
| LAYER NAME: | chum | Township:               | T32R13W                |
| POLY ID:    | 1    | Total Sample Points:    | 5                      |
| Acres:      | 13   | Spacing Between Points: | Width: 300 Height: 300 |
|             |      | Point Rotation Degrees: | 0                      |



Scale 1:2,400

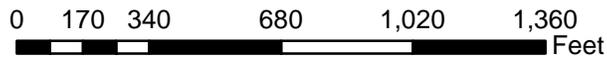
**Legend**

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



**Cruiser Sample Point Locations**

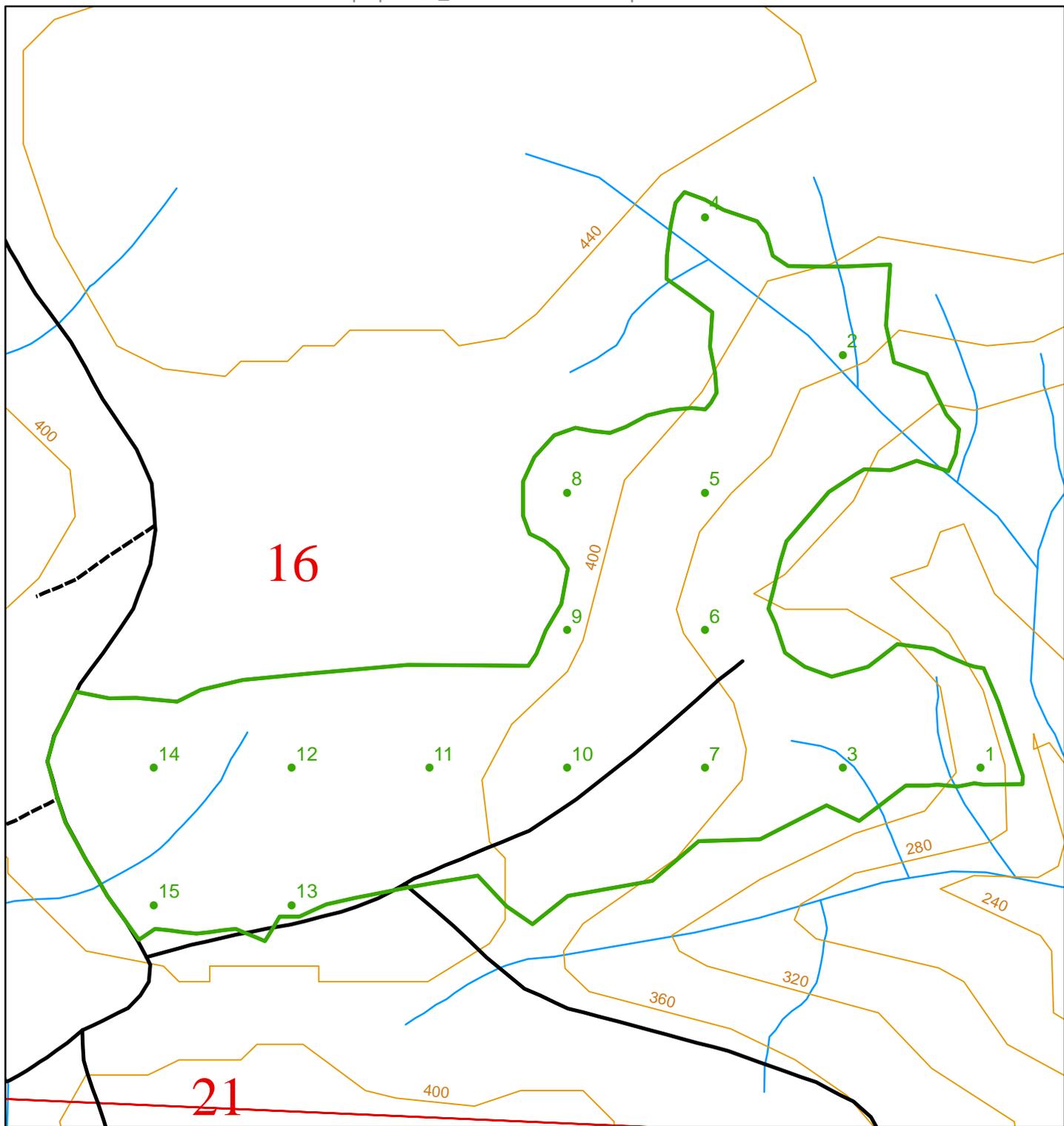
|             |      |                         |                        |
|-------------|------|-------------------------|------------------------|
| LAYER NAME: | chum | Township:               | T32R13W                |
| POLY ID:    | 1    | Total Sample Points:    | 47                     |
| Acres:      | 95   | Spacing Between Points: | Width: 300 Height: 300 |
|             |      | Point Rotation Degrees: | 0                      |



Scale 1:5,900

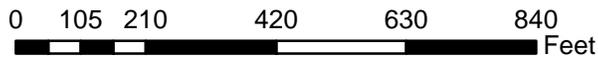
**Legend**

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



**Cruiser Sample Point Locations**

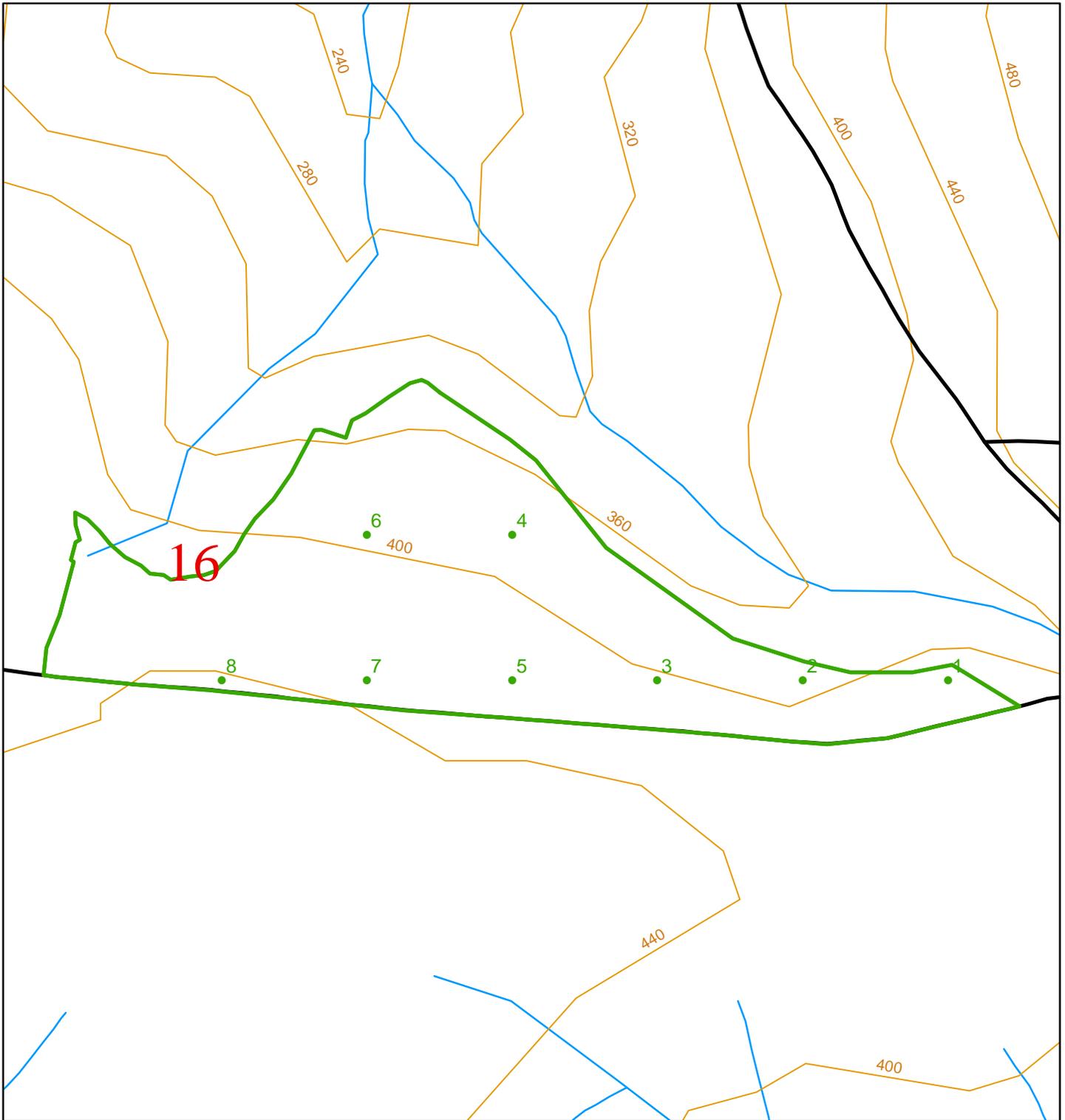
|             |      |                         |                        |
|-------------|------|-------------------------|------------------------|
| LAYER NAME: | chum | Township:               | T32R13W                |
| POLY ID:    | 1    | Total Sample Points:    | 15                     |
| Acres:      | 32   | Spacing Between Points: | Width: 300 Height: 300 |
|             |      | Point Rotation Degrees: | 0                      |



Scale 1:3,700

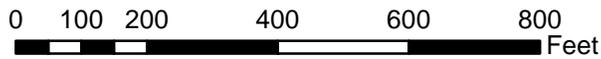
**Legend**

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



**Cruiser Sample Point Locations**

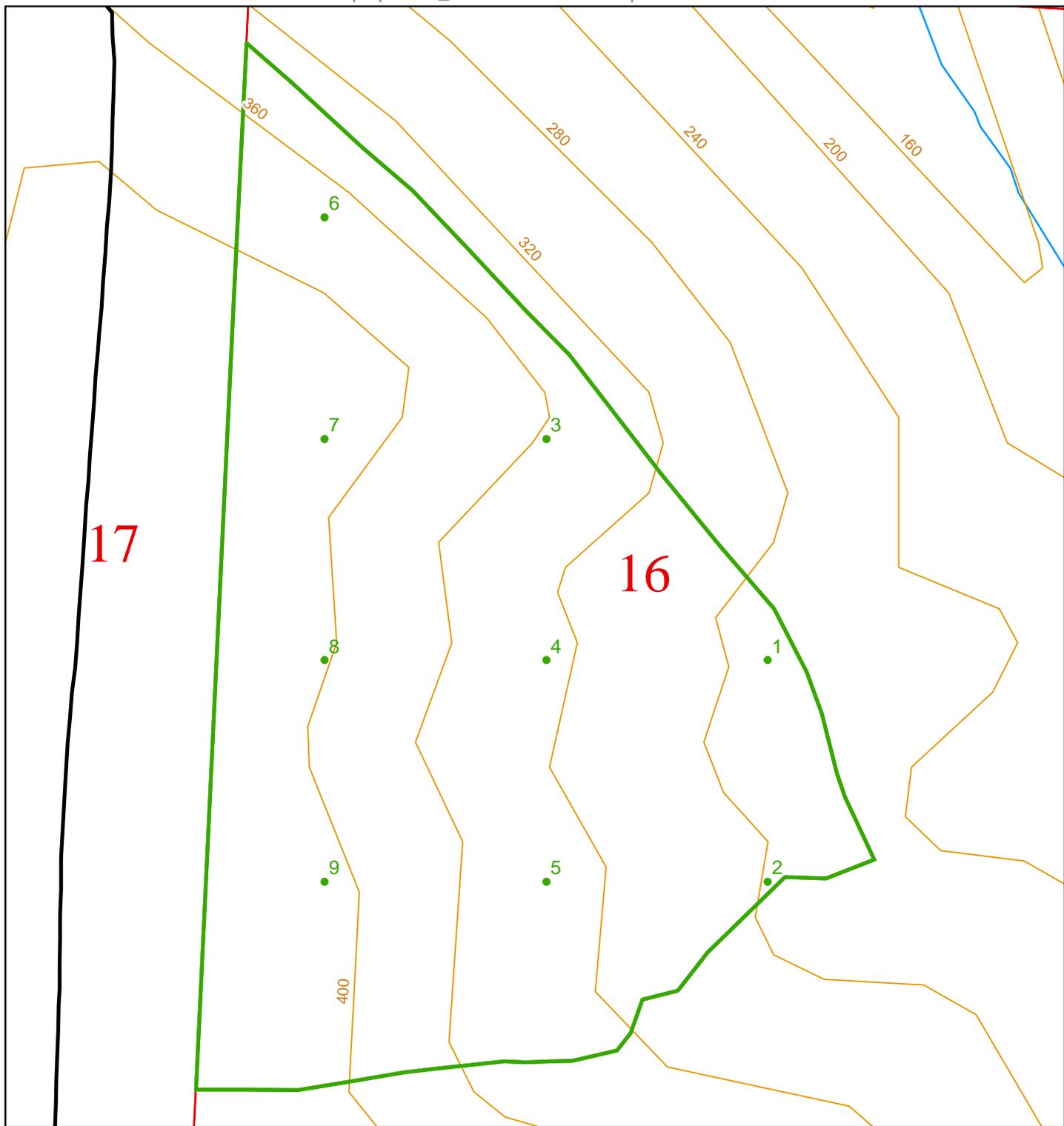
|             |      |                         |                        |
|-------------|------|-------------------------|------------------------|
| LAYER NAME: | chum | Township:               | T32R13W                |
| POLY ID:    | 1    | Total Sample Points:    | 8                      |
| Acres:      | 15   | Spacing Between Points: | Width: 300 Height: 300 |
|             |      | Point Rotation Degrees: | 0                      |



Scale 1:3,500

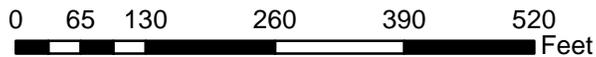
**Legend**

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



**Cruiser Sample Point Locations**

|             |      |                         |                        |
|-------------|------|-------------------------|------------------------|
| LAYER NAME: | chum | Township:               | T32R13W                |
| POLY ID:    | 1    | Total Sample Points:    | 9                      |
| Acres:      | 18   | Spacing Between Points: | Width: 300 Height: 300 |
|             |      | Point Rotation Degrees: | 0                      |



Scale 1:2,300

**Legend**

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



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

**Forest Practices Application/Notification  
 Notice of Decision**

FPA/N No: 2613973  
 Effective Date: 1/6/2016  
 Expiration Date: 1/6/2019  
 Shut Down Zone: 650  
 EARR Tax Credit:  Eligible     Non-eligible  
 Reference: DNR - Chum

**Decision**

- Notification**      Operations shall not begin before the effective date.
- Approved**            This Forest Practices Application is subject to the conditions listed below.
- Disapproved**        This Forest Practices Application is disapproved for the reasons listed below.
- Closed**                Applicant has withdrawn FPA/N.

**FPA/N Classification**

Class II     Class III     Class IVG     Class IVS

**Number of Years Granted on Multi-Year Request**

4 years     5 years

**Conditions on Approval / Reasons for Disapproval**

Issued By: Erik Dukes

Region: Olympic

Title: Forest Practice Forester

Date: 1/6/2016

Copies to:     Landowner, Timber Owner and Operator.

Issued in person:     Landowner     Timber Owner     Operator By: Connie L. Saliee

*Connie L. Saliee*  
 Connie L. Saliee

**Appeal Information**

You have thirty (30) days to appeal this Decision and any related State Environmental Policy Act determinations to the Pollution Control Hearings Board in writing at the following addresses:

**Physical address: 1111 Israel Rd. SW, Ste 301, Tumwater, WA 98501**

**Mailing address: P.O. BOX 40903, OLYMPIA, WA 98504-0903**

Information regarding the Pollution Control Hearings Board can be found at: <http://www.eho.wa.gov/>

At the same time you file an appeal with the Pollution Control Hearings Board, also send a copy of the appeal to the Department of Natural Resources' region office and the Office of the Attorney General at the following addresses:

Office of the Attorney General  
Natural Resources Division  
1125 Washington Street SE  
PO Box 40100  
Olympia, WA 98504-0100

And

Department Of Natural Resources  
Olympic Region  
411 Tillicum Lane  
Forks, WA 98331

**Other Applicable Laws**

Operating as described in this application/notification does not ensure compliance with the Endangered Species Act, or other federal, state, or local laws.

**Transfer of Forest Practices Application/Notification (WAC 222-20-010)**

Use the "Notice of Transfer of Approved Forest Practices Application/Notification" form. This form is available at region offices and on the Forest Practices website: <http://www.dnr.wa.gov/businesspermits/forestpractices>. Notify DNR of new Operators within 48 hours.

**Continuing Forest Land Obligations (RCW 76.09.060, RCW 76.09.070, RCW 76.09.390, and WAC 222-20-055)**

Obligations include reforestation, road maintenance and abandonment plans, conversions of forest land to non-forestry use and/or harvest strategies on perennial non-fish habitat (Type Np) waters in Eastern Washington.

Before the sale or transfer of land or perpetual timber rights subject to continuing forest land obligations, the seller must notify the buyer of such an obligation on a form titled "Notice of Continuing Forest Land Obligation". The seller and buyer must both sign the "Notice of Continuing Forest Land Obligation" form and send it to the DNR Region Office for retention. This form is available at DNR region offices.

If the seller fails to notify the buyer about the continuing forest land obligation, the seller must pay the buyer's costs related to continuing forest land obligations, including all legal costs and reasonable attorneys' fees incurred by the buyer in enforcing the continuing forest land obligation against the seller.

Failure by the seller to send the required notice to the DNR at the time of sale will be prima facie evidence in an action by the buyer against the seller for costs related to the continuing forest land obligation prior to sale.

**DNR affidavit of mailing:**

|  |
|--|
| On this day _____, I placed in the United States mail at _____, WA,                              |
| (date) <span style="float: right;">(post office location)</span>                                 |
| postage paid, a true and accurate copy of this document. Notice of Decision FPA # <u>2613973</u> |
| <u>Connie L Sallee</u> _____   |
| (Printed name) <span style="float: right;">(Signature)</span>                                    |

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

CHUM VRH TIMBER SALE ROAD PLAN  
CLALLAM COUNTY  
COAST DISTRICT

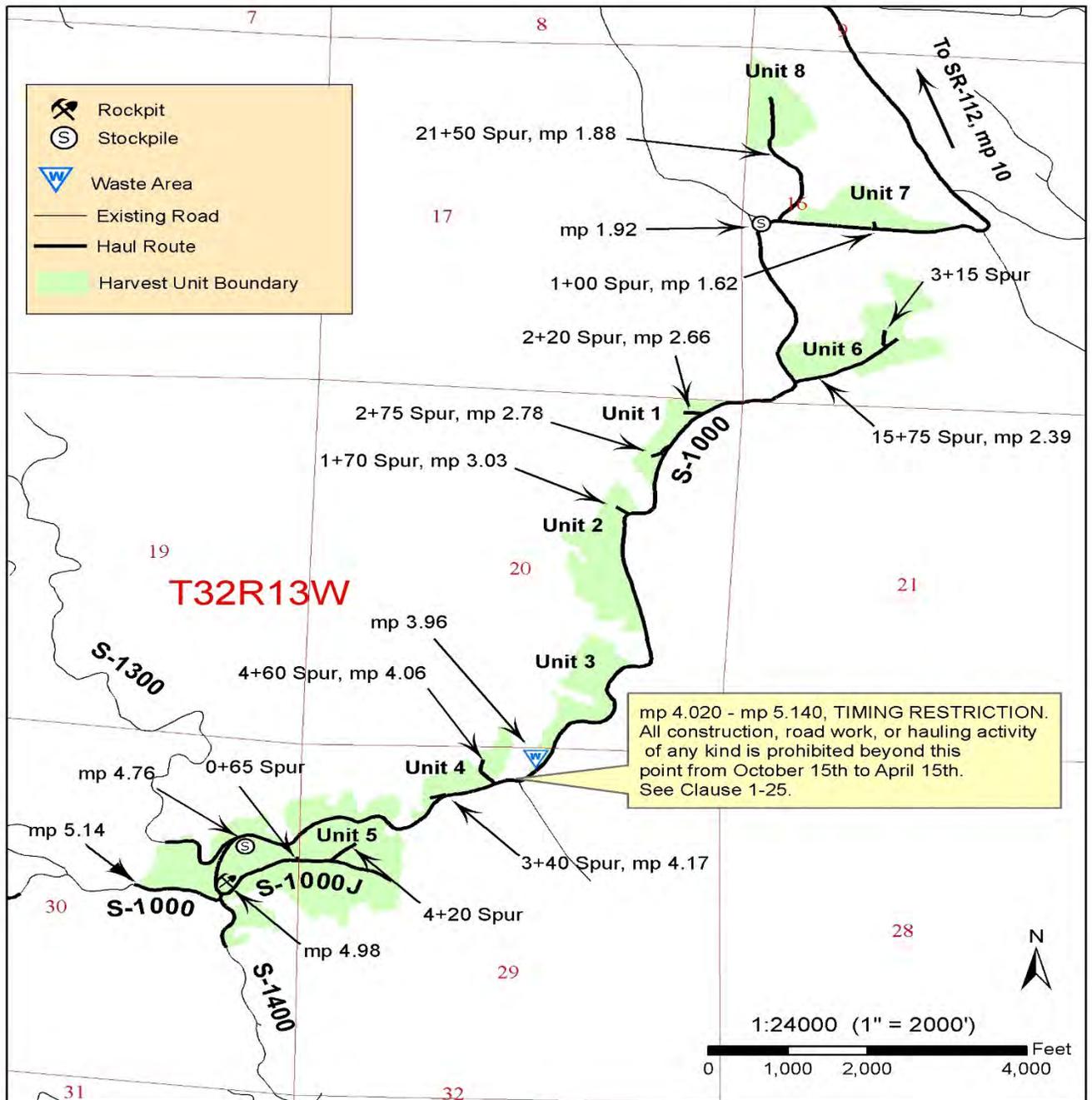
AGREEMENT NO.: 30-093140

DISTRICT ENGINEER: BILL MEHL

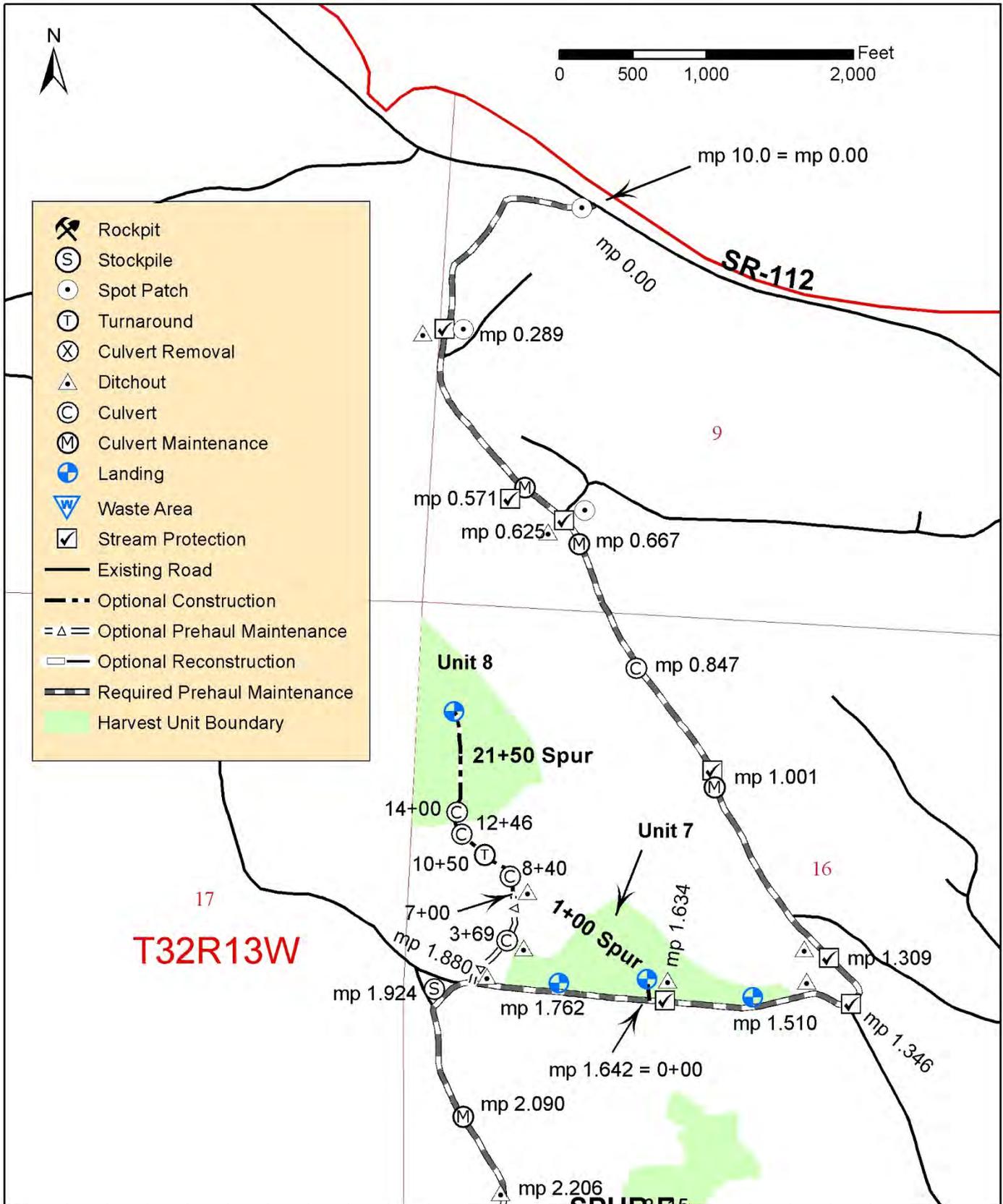
DATE: FEBRUARY 8, 2016

DRAWN & COMPILED BY: CURTIS JENSEN

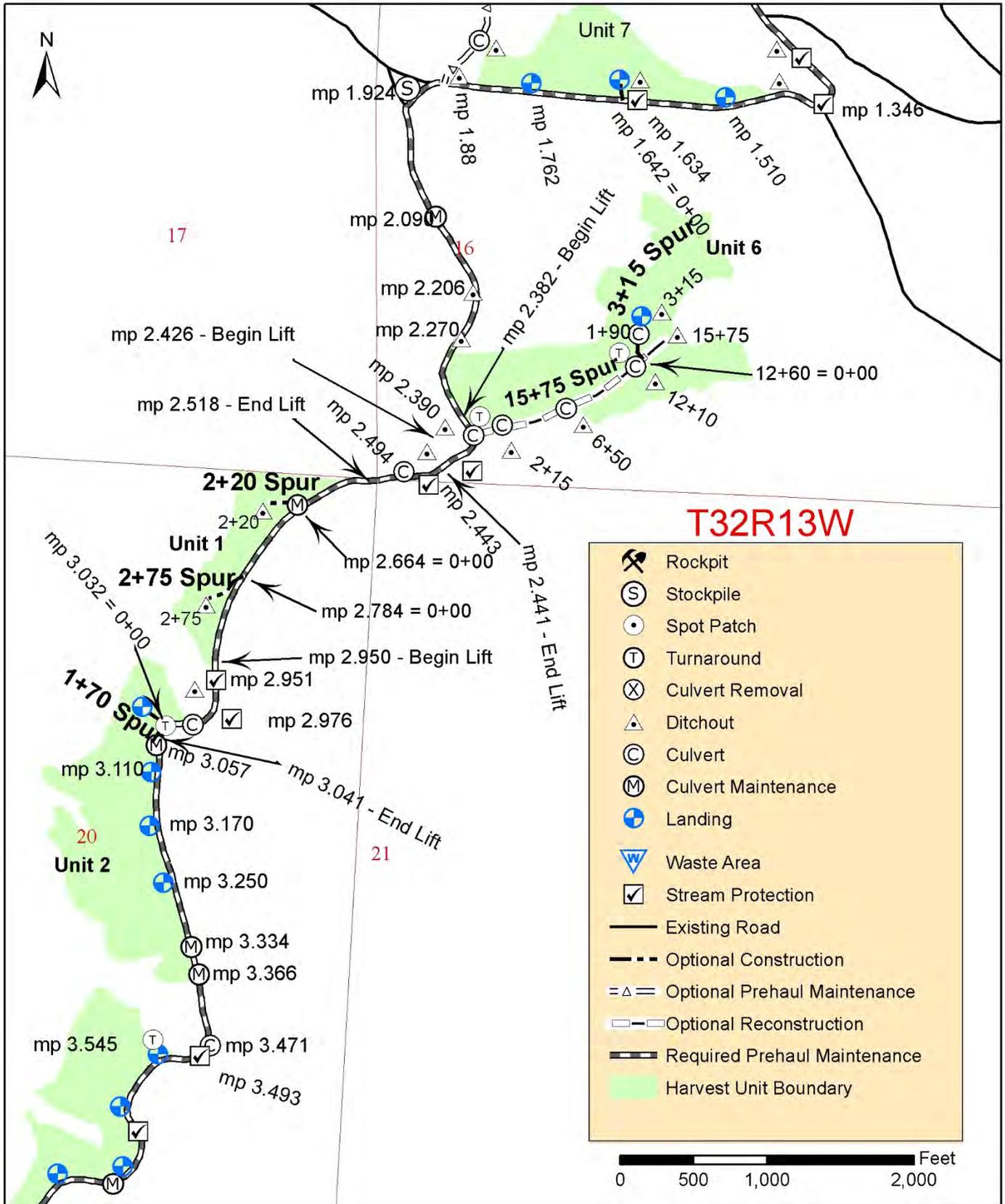
# Project Map



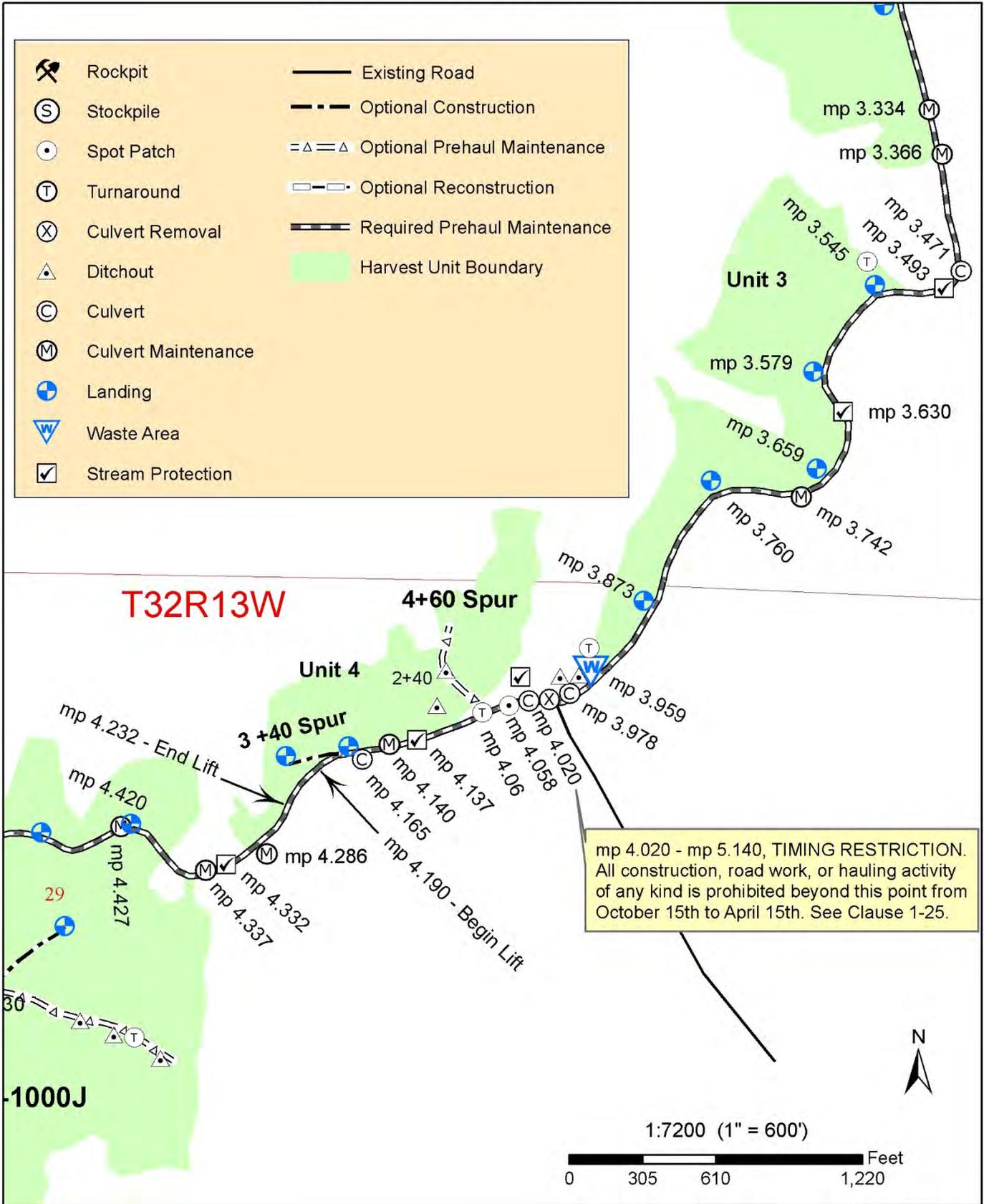
# Chum VRH Prehaul #1



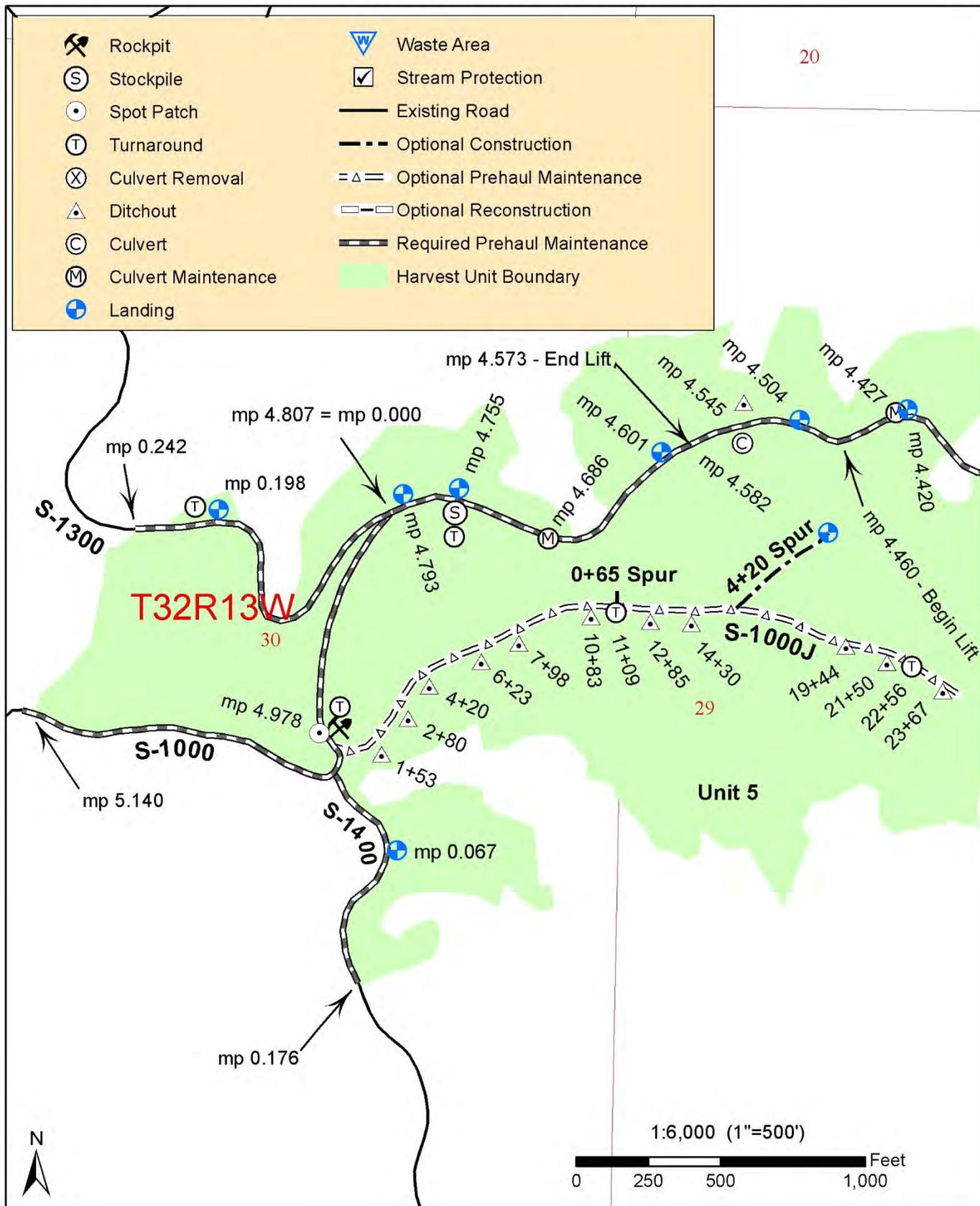
# Chum VRH Prehaul #2



# Chum VRH Prehaul #3



# Chum VRH Prehaul #4



SECTION 0 – SCOPE OF PROJECT

**0-2 REQUIRED ROADS**

The specified work on the following roads is required.

| <u>Road</u> | <u>Stations</u>    | <u>Type</u>         |
|-------------|--------------------|---------------------|
| S-1000      | MP 0.00 – MP 5.140 | Prehaul Maintenance |
| S-1300      | MP 0.00 – MP 0.242 | Prehaul Maintenance |
| S-1400      | MP 0.00 – MP 0.176 | Prehaul Maintenance |

**0-3 OPTIONAL ROADS**

The specified work on the following roads is not required. Any optional roads built by the Purchaser shall meet all the specifications in this Road Plan.

| <u>Road</u> | <u>Stations</u> | <u>Type</u>         |
|-------------|-----------------|---------------------|
| S-1000J     | 0+00 – 24+00    | Prehaul Maintenance |
| 0+65 Spur   | 0+00 – 0+65     | Construction        |
| 1+00 Spur   | 0+00 – 1+00     | Construction        |
| 1+70 Spur   | 0+00 – 1+70     | Construction        |
| 2+20 Spur   | 0+00 – 2+20     | Construction        |
| 2+75 Spur   | 0+00 – 2+75     | Construction        |
| 3+15 Spur   | 0+00 – 3+15     | Construction        |
| 3+40 Spur   | 0+00 – 3+40     | Construction        |
| 4+20 Spur   | 0+00 – 4+20     | Construction        |
| 4+60 Spur   | 0+00 – 4+60     | Reconstruction      |
| 15+75 Spur  | 0+00 – 15+75    | Reconstruction      |
| 21+50 Spur  | 0+00 – 7+00     | Prehaul Maintenance |
| 21+50 Spur  | 7+00 – 21+50    | Construction        |

**0-4 CONSTRUCTION**

This project includes, but is not limited to, the following construction requirements:

| <u>Road</u> | <u>Stations</u> | <u>Requirements</u>   |
|-------------|-----------------|---|
| 0+65 Spur   | 0+00 – 0+65     | See Below. Utilize puncheon in accordance with Clause 5-3. Apply rock at 80 yd <sup>3</sup> /station. |
| 1+00 Spur   | 0+00 – 1+00     | See Below. Utilize puncheon in accordance with Clause 5-3. Apply rock at 80 yd <sup>3</sup> /station. |
| 1+70 Spur   | 0+00 – 1+70     | See Below. Utilize puncheon in accordance with Clause 5-3. Apply rock at 80 yd <sup>3</sup> /station. |
| 2+20 Spur   | 0+00 – 2+20     | See Below. Utilize puncheon in accordance with Clause 5-3. Apply rock at 80 yd <sup>3</sup> /station. |
| 2+75 Spur   | 0+00 – 2+75     | See Below. Utilize puncheon in accordance with Clause 5-3. Apply rock at 80 yd <sup>3</sup> /station. |
| 3+15 Spur   | 0+00 – 3+15     | See Below. Utilize puncheon in accordance with Clause 5-3. Apply rock at 80 yd <sup>3</sup> /station. |
| 3+40 Spur   | 0+00 – 3+40     | See Below. No puncheon may be utilized. Apply rock at 80 yd <sup>3</sup> /station.                    |
| 4+20 Spur   | 0+00 – 4+20     | See Below. Utilize puncheon in accordance with Clause 5-3. Apply rock at 80 yd <sup>3</sup> /station. |
| 21+50 Spur  | 7+00 – 21+50    | See Below. Utilize puncheon in accordance with Clause 5-3. Apply rock at 80 yd <sup>3</sup> /station. |

Construction includes, but is not limited to:  
 Clearing, grubbing, right-of-way debris disposal, excavation and/or embankment to subgrade, end hauling material for construction, constructing ditchlines, constructing ditchouts, constructing turnouts and turnarounds, curve widening, acquisition and installation of drainage structures, application of rock, spreading grass seed and hay.

**0-5 RECONSTRUCTION**

This project includes, but is not limited to, the following reconstruction requirements:

| <u>Road</u> | <u>Stations</u> | <u>Requirements</u>   |
|-------------|-----------------|---|
| 4+60 Spur   | 0+00 - 4+60     | Remove all vegetative material and debris from road with a minimum loss of rock. Construct ditches in accordance with Clause 2-7. Apply rock in accordance with Rock List, grade and shape road in accordance with Typical Section Sheet, and compact in accordance with Compaction List. Dispose of waste material in accordance with Clauses 4-35 through 4-39. Utilize puncheon as necessary at the direction of the Contract Administrator.   |
| 15+75 Spur  | 0+00 – 15+75    | Remove all vegetative material and debris from road with a minimum loss of rock. Construct ditches in accordance with Clause 2-7. Install Culverts in accordance with Culvert List. Apply rock in accordance with Rock List, grade and shape road in accordance with Typical Section Sheet, and compact in accordance with Compaction List. Dispose of waste material in accordance with Clauses 4-35 through 4-39. Utilize puncheon as necessary at the direction of the Contract Administrator. |

Reconstruction includes, but is not limited to:  
 Installing additional culverts, realigning road segments, application of rock, removing culverts.

**0-6 PRE-HAUL MAINTENANCE**

This project includes, but is not limited to the following prehaul maintenance requirements:

| <u>Road</u> | <u>Stations</u>    | <u>Requirements</u>   |
|-------------|--------------------|---|
| S-1000      | MP 0.00 – MP 5.140 | Clean culvert inlets and outlets in accordance with Clause 2-6. Install Culverts in accordance with Culvert List. Clean and/or construct ditches in accordance with Clause 2-7. Apply rock in accordance with Rock List, grade and shape road in accordance with Typical Section Sheet and compact in accordance with Compaction List. Remove shoulder berms in accordance with Clause 5-1. Dispose of waste material in accordance with Clauses 4-35 through 4-39. |
| S-1000J     | 0+00 – 24+00       | Remove all vegetative material from road with a minimum loss of rock. Construct ditches in  |

|            |                    |   |
|------------|--------------------|---|
|            |                    | accordance with Clause 2-7. Apply rock in accordance with Rock List, grade and shape road in accordance with Typical Section Sheet and compact in accordance with Compaction List. Dispose of waste material in accordance with Clauses 4-35 through 4-39.  |
| S-1300     | MP 0.00 – MP 0.242 | Clean culvert inlet and outlet in accordance with Clause 2-6. Clean and/or construct ditches in accordance with Clause 2-7. Apply rock in accordance with Rock List, grade and shape road in accordance with Typical Section Sheet and compact in accordance with Compaction List. Remove shoulder berms in accordance with Clause 5-1. Dispose of waste material in accordance with Clauses 4-35 through 4-39.   |
| S-1400     | MP 0.00 – MP 0.176 | Remove all vegetative material from road with a minimum loss of rock. Clean culvert inlet and outlet in accordance with Clause 2-6. Clean and/or construct ditches in accordance with Clause 2-7. Apply rock in accordance with Rock List, grade and shape road in accordance with Typical Section Sheet and compact in accordance with Compaction List. Remove shoulder berms in accordance with Clause 5-1. Dispose of waste material in accordance with Clauses 4-35 through 4-39. |
| 21+50 Spur | 0+00 – 7+00        | Clean culvert inlet and outlet in accordance with Clause 2-6. Install Culverts in accordance with Culvert List. Clean and/or construct ditches in accordance with Clause 2-7. Apply rock in accordance with Rock List, grade and shape road in accordance with Typical Section Sheet and compact in accordance with Compaction List. Dispose of waste material in accordance with Clauses 4-35 through 4-39.  |

Maintenance includes, but is not limited to:

Brushing right-of-way, right-of-way debris disposal, cleaning ditches, constructing ditches, installing additional culverts, widening road segments, constructing headwalls, cleaning culvert inlets and outlets, cross drain culvert replacement, installing erosion control materials and sediment removal structures, spot rocking, grading and shaping existing road surface and turnouts, constructing additional turnouts, compaction of road surface, application of rock, acquisition and application of grass seed and hay.

**0-7 POST-HAUL MAINTENANCE**

This project includes, but is not limited to, post-haul road maintenance listed in Clause 9-5 Post Haul Maintenance.

**0-13 STRUCTURES**

The Purchaser shall acquire and install all structures. Requirements for these structures are listed in Section 7 Structures.

**SECTION 1 – GENERAL**

**1-1 ROAD PLAN CHANGES**

If the Purchaser desires a change from this Road Plan including, but not limited to relocation, extension, change in design, or adding roads; a revised road plan shall be submitted, in writing, to the Contract Administrator for consideration. The State must approve the submitted plans before road work begins.

**1-2 UNFORESEEN CONDITIONS**

Quantities established in this road plan are minimum acceptable values. Additional quantities required by the state due to unforeseen conditions, or Purchaser's choice of construction season or techniques will be at the Purchaser's expense. Unforeseen conditions include, but are not limited to, solid subsurface rock, subsurface springs, saturated ground, and unstable soils.

**1-3 ROAD DIMENSIONS**

Unless controlled by construction stakes or design data (plan, profile, and cross-sections), road work shall be performed in accordance with the dimensions shown on the Typical Section Sheet and the specifications within this Road Plan.

**1-5 DESIGN DATA**

S-1000 Stream Crossing design data is available upon request at the Department of Natural Resources Olympic Region Office in Forks, WA.

**1-6 ORDER OF PRECEDENCE**

Any conflict or inconsistency in this Road Plan shall be resolved by giving the documents precedence in the following order:

1. Addenda.
2. Designs or Plans. On designs and plans, figured dimensions shall take precedence over scaled dimensions.
3. Road Plan Clauses.
4. Typical Section Sheet.
5. Standard Lists.
6. Standard Details.

In case of any ambiguity or dispute over interpreting the Road Plan, the Contract Administrator's or designee's decision will be final.

**1-7 TEMPORARY ROAD CLOSURE**

The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before the closure of any road. Road work shall not close any road for more than 5 consecutive days.

| <u>Road</u> | <u>Total Allowable Closed Days</u> |
|-------------|------------------------------------|
| S-1000      | 5                                  |

**1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS**

The Purchaser is responsible for the repair or replacement of all materials, roadway infrastructure, and road components damaged during roadwork or operation activities. Repairs and replacements shall be directed by the Contract Administrator. Repairs to structural materials will be made according to the manufacturer's recommendation, and shall not begin without written approval from the Contract Administrator.

**1-9 DAMAGED METALLIC COATING**

Any damaged galvanized or aluminized coating on existing or new bridge components, culverts, downspouts, and flumes must be cleaned and treated with a minimum of two coats of zinc rich paint.

**1-10 WSDOT STANDARD SPECIFICATION REFERENCE**

References in this road plan to “WSDOT Standard Specifications” mean the Washington State Department of Transportation’s Standard Specifications for Road, Bridge, and Municipal Construction 2012 (M41-10).

**1-11 FPA/HPA REQUIREMENTS**

The following work is subject to requirements under a Forest Practice Hydraulics Project Approval issued by the State of Washington.

| <u>Road</u> | <u>Stations</u> | <u>Work Type</u>                             |
|-------------|-----------------|--|
| S-1000      | MP 4.020        | Stream Crossing Replacement For Fish Passage |

**1-12 SURVEY MONUMENTS**

At no time during construction, reconstruction, or maintenance shall survey monuments, witness trees, or bearing trees be disturbed or damaged. If damaged or disturbed, Purchaser shall hire a licensed land surveyor to repair, replace, and/or reset them.

SUBSECTION ROAD MARKING

**1-15 ROAD MARKING**

Road work must be in accordance with the State’s marked location. All road work is marked as follows:

- Orange ribbon and paint for construction centerlines.
- Construction stakes for everything else.

**1-16 CONSTRUCTION STAKES SET BY STATE**

Purchaser shall perform work on the following road(s) in accordance with the construction stakes and reference points set in the field for grade and alignment.

| <u>Road</u> | <u>Stations</u> | <u>Type</u>  |
|-------------|-----------------|--|
| S-1000      | MP 4.020        | Stream Crossing Culvert - Inlet/Outlet, Centerline Offsets, Reference Points |
| 3+40 Spur   | 0+00 – 3+40     | Roadway - Construction Centerline, Slope Stakes, Reference Points            |

**1-18 REFERENCE POINT DAMAGE**

Purchaser shall reset reference points (RPs) that were moved or damaged at any time during construction to their original locations. Excavation and embankment may not proceed on road segments controlled by said RPs until Purchaser resets all moved or damaged RPs.

**1-21 HAUL APPROVAL**

The Purchaser shall not use roads under this Road Plan without written approval from the Contract Administrator.

**1-22 WORK NOTIFICATIONS**

On all roads, the Purchaser shall notify the Contract Administrator a minimum of 3 calendar days before work begins.

**1-23 ROAD WORK PHASE APPROVAL**

Written approval by Contract Administrator needs to be given at these phases of road work:

- Subgrade approval
- Drainage installation
- Subgrade compaction
- Rock application
- Rock compaction

**SUBSECTION RESTRICTIONS**

**1-25 ACTIVITY TIMING RESTRICTION**

On the following road(s), the specified activities are not permitted during the listed closure period(s) unless authorized in writing by the Contract Administrator.

| <u>Road</u>          | <u>Stations</u>           | <u>Activity</u> | <u>Closure Period</u>                             |
|----------------------|---------------------------|-----------------|---|
| S-1000               | MP 4.020 – MP 5.140 (End) | All             | October 15 <sup>th</sup> – April 15 <sup>th</sup> |
| S-1000J              | All                       | All             | October 15 <sup>th</sup> – April 15 <sup>th</sup> |
| S-1300               | All                       | All             | October 15 <sup>th</sup> – April 15 <sup>th</sup> |
| S-1400               | All                       | All             | October 15 <sup>th</sup> – April 15 <sup>th</sup> |
| 4+60 Spur            | All                       | All             | October 15 <sup>th</sup> – April 15 <sup>th</sup> |
| 3+40 Spur            | All                       | All             | October 15 <sup>th</sup> – April 15 <sup>th</sup> |
| 0+65 Spur            | All                       | All             | October 15 <sup>th</sup> – April 15 <sup>th</sup> |
| 4+20 Spur            | All                       | All             | October 15 <sup>th</sup> – April 15 <sup>th</sup> |
| All New Construction | All                       | Construction    | October 15 <sup>th</sup> – April 15 <sup>th</sup> |

**1-26 OPERATING DURING CLOSURE PERIOD**

If permission is granted to operate during a closure period listed in Clause 1-25 Activity Timing Restriction, the Purchaser shall provide a maintenance plan to include further protection of State resources. The Contract Administrator must approve the maintenance plan in writing, and preventative measures shall be put in place, before operation in the closure period. The Purchaser shall be required to maintain all haul roads at their own expense including those listed in Contract Clause C-060 Designated Road Maintainer. If other operators are using, or desire to use these designated maintainer roads, a joint operating plan shall be developed. All parties shall follow this plan.

**1-29 SEDIMENT RESTRICTION**

Purchaser shall not allow silt-bearing runoff to enter any streams.

**1-30 CLOSURE TO PREVENT DAMAGE**

In accordance with Contract Clause G-220 State Suspends Operation, the Contract Administrator shall suspend road work or hauling of right-of-way timber, forest products, or rock under the following conditions:

- In the opinion of the Contract Administrator excessive road damage or rutting may occur.
- In the opinion of the Contract Administrator delivery of sediment to a water resource may occur.

Operations must stop unless authority to continue working or hauling is granted, in writing, by the Contract Administrator. In the event that surface or base stability problems persist, the Purchaser will be required to cease operations, or perform corrective maintenance or repairs, subject to specifications within this Road Plan. Before and during any suspension, the Purchaser shall protect the work from damage or deterioration.

**1-33 SNOW PLOWING RESTRICTION**

On all roads, snow plowing shall be permitted only after the execution of a Snow Plowing Agreement, which is available from the Contact Administrator upon request. Purchaser shall request a Snow Plowing Agreement each time plowing occurs. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

SUBSECTION OTHER INFRASTRUCTURE

**1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS**

At existing road approaches to county roads and state highways, any mud, dirt, rock or other material tracked or spilled on the asphalt surface shall be removed immediately by the Purchaser.

If additional damage to the surface, signs, guardrails, etc. occurs then the damage shall be repaired, at the Purchaser’s expense, as directed by the Contract Administrator and when authorized by the county or WSDOT.

The following county roads and state highways are affected by this sale:

|                  |
|------------------|
| <u>Road Name</u> |
| SR - 112         |

**1-41 REQUIREMENTS FOR PAVED ROAD APPROACHES**

Requirements for the SR-112 road approaches:  
Purchaser shall build up approaches to allow a smooth grade transition between the S-1000 and SR-112 roads. The top of the S-1000 road surfacing must be kept level with the surface of the SR-112 at all times.

SECTION 2 – MAINTENANCE

**2-1 GENERAL ROAD MAINTENANCE**

Purchaser shall maintain all roads used under this contract in accordance with the FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS for the entire term of this contract. Maintenance is required even during periods of inactivity.

**2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE**

Purchaser shall perform maintenance on roads listed in Contract Clause C-050 PURCHASER ROAD MAINTENANCE AND REPAIR in accordance with FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

**2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER**

Purchaser may be required to perform maintenance on roads listed in Contract Clause C-060 DESIGNATED ROAD MAINTAINER as directed by the Contract Administrator. Purchaser shall maintain roads in accordance with FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

**2-5 MAINTENANCE GRADING – EXISTING ROAD**

On the following road(s), a grader shall be used to shape the existing surface.

| <u>Road</u> | <u>Stations</u>    | <u>Requirements</u>  |
|-------------|--------------------|--|
| S-1000      | MP 0.00 – MP 5.140 | Grade, shape, compact, remove shoulder vegetation and shoulder berms |

|         |                    |  |
|---------|--------------------|--|
| S-1000J | 0+00 – 24+00       | Grade, shape, compact, remove shoulder vegetation and shoulder berms |
| S-1300  | MP 0.00 – MP 0.242 | Grade, shape, compact, remove shoulder vegetation and shoulder berms |
| S-1400  | MP 0.00 – MP 0.176 | Grade, shape, compact, remove shoulder vegetation and shoulder berms |

## 2-6 CLEANING CULVERTS

On the following road(s), all inlets and outlets of culverts shall be cleaned before the start of timber haul and shall be subject to the written approval of the Contract Administrator.

| <u>Road</u> | <u>Stations</u> | <u>Comment</u> |
|-------------|-----------------|----------------|
| S-1000      | MP 1.010        | Inlet          |
| S-1000      | MP 2.090        | Inlet/Outlet   |
| S-1000      | MP 2.400        | Inlet/Outlet   |
| S-1000      | MP 2.664        | Inlet/Outlet   |
| S-1000      | MP 3.057        | Outlet         |
| S-1000      | MP 3.366        | Outlet         |
| S-1000      | MP 3.472        | Inlet/Outlet   |
| S-1000      | MP 4.286        | Inlet          |
| S-1000      | MP 4.427        | Inlet/Outlet   |
| S-1000      | MP 4.686        | Outlet         |

## 2-7 CLEANING DITCHES

On the following road(s), Purchaser shall clean and/or construct the ditches, headwalls, and catch basins. Work shall be completed before the start of timber haul and shall be done in accordance with the Typical Section Sheet. Pulling ditch material across the road or mixing in with the road surface will not be allowed. Ditchlines, headwalls, and catch basins shall not encroach into the existing road. Excavated material shall be disposed of in accordance with Clause 4-35 through Clause 4-38.

| <u>Road</u> | <u>Stations</u>     | <u>Comment</u>  |
|-------------|---------------------|---|
| S-1000      | MP 1.342            | Left  |
| S-1000      | MP 3.505 – MP 3.544 | Left  |
| S-1000      | MP 4.010            | Connect S-1018 ditchline to existing S-1000 ditchline |
| S-1000      | MP 4.150 – 4.310    | Left  |
| S-1000      | MP 4.414 – MP 4.631 | Left  |
| S-1000      | MP 4.543 – 4.573    | Right   |
| S-1000      | MP 4.814 – 4.829    | Left  |
| S-1000J     | 0+00 – 23+67        | Right   |
| 2+20 Spur   | 0+50 – 2+20         | Left  |
| 2+75 Spur   | 0+50 – 2+75         | Left  |
| 3+15 Spur   | 0+00 – 3+15         | Left  |
| 3+40 Spur   | 1+03 – 3+40         | Left  |
| 4+60 Spur   | 0+00 – 2+40         | Left & Right  |
| 15+75 Spur  | 0+00 – 15+75        | Left & Right  |
| 21+50       | 0+00 – 7+00         | Left & Right  |
| 21+50       | 7+00 – 21+50        | Left  |
| S-1000      | MP 0.571            | Catch Basins Left                                     |
| S-1000      | MP 0.646            | Catch Basins Left                                     |
| S-1000      | MP 1.360            | Catch Basins Left                                     |

**2-9 REMOVING VEGETATIVE MATERIAL**

On the following road(s), Purchaser shall remove all vegetative material, dirt, mud, and other debris on the existing road surface with a minimum loss of rock. Material removed shall be disposed of in accordance with Clause 4-36 through Clause 4-38.

| <u>Road</u> | <u>Stations</u> |
|-------------|-----------------|
| S-1000J     | All             |
| 15+75 Spur  | All             |
| 4+60 Spur   | All             |
| 21+50 Spur  | 0+00 – 7+00     |

**SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL**

**SUBSECTION BRUSHING**

**3-2 BRUSHING RESTRICTION**

Pulling, digging, pushing over, and other non-cutting methods used for vegetation removal shall not be used for brushing. Excavator buckets, log loaders and similar equipment shall not be used for brushing.

**3-3 BRUSH REMOVAL**

Remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets. Brush should be disposed of so that it will not fall back onto the road prism.

**SUBSECTION CLEARING**

**3-5 CLEARING**

Purchaser shall fall all vegetative material larger than 5 inches DBH or over 15 feet high between the marked right-of-way boundaries or if not marked in the field, between the clearing limits specified on the TYPICAL SECTION SHEET. Clearing must be completed before starting excavation and embankment.

**3-6 WOODY DEBRIS AT TYPE 1-3 STREAM CROSSING**

Purchaser shall place the marked trees in the stream in accordance with Sheet 1 of the S-1000 Stream Crossing Replacement Detail.

**3-7 RIGHT-OF-WAY DECKING**

Deck all merchantable right-of-way timber. Decks shall be parallel to the road centerline and placed within the cleared right-of-way. Decks shall be free of dirt, limbs and other right-of-way debris, and removable by standard log loading equipment.

**3-8 PROHIBITED DECKING AREAS**

Right-of-way timber shall not be decked in the following areas:

- Within the grubbing limits.
- Within 50 feet of any stream.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- On slopes greater than 40%.
- Against standing trees unless approved by the Contract Administrator.

## SUBSECTION GRUBBING

### 3-10 GRUBBING

Remove all stumps between the grubbing limits specified on the Typical Section Sheet. Those stumps outside the grubbing limits but with undercut roots shall also be removed. Stump removal shall be accomplished using a hydraulic mounted excavator unless authorized, in writing, by the Contract Administrator. Grubbing shall be completed before starting excavation and embankment.

### 3-12 STUMP PLACEMENT

Grubbed stumps shall be placed outside of the clearing limits, as directed by the Contract Administrator and in compliance with all other clauses in this road plan. Stumps shall be positioned upright with root wads in contact with the forest floor and on stable locations.

### 3-13 STUMPS FOR PUNCHEON MATERIAL

On all roads allowing the use of puncheon, stumps from within the grubbing limits may be overturned and driven flush with the ground surface for use as a subgrade puncheon material in accordance with Clause 5-3.

### 3-14 STUMPS WITHIN DESIGNATED WASTE AREAS

In the following waste area(s), the removal of stumps is not required within waste areas if they are cut flush with the ground.

| <u>Road</u> | <u>Waste Area</u> |
|-------------|-------------------|
| S-1000      | MP 3.959          |

## SUBSECTION ORGANIC DEBRIS

### 3-20 ORGANIC DEBRIS DEFINITION

Organic debris is defined as all vegetative material not eligible for removal by Contract Clauses G-010 Products Sold And Sale Area or G-011 Right To Remove Forest Products And Contract Area, that is larger than one cubic foot in volume within the grubbing limits shown on the Typical Section Sheet.

### 3-21 DISPOSAL COMPLETION

All disposal of organic debris, shall be completed before the application of rock.

### 3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

Waste areas for organic debris at the following locations shall be located as listed below.

| <u>Road</u> | <u>Stations</u> | <u>Waste Area Location</u> |
|-------------|-----------------|----------------------------|
| All         | All             | S-1000, MP 3.959           |

### 3-23 PROHIBITED DISPOSAL AREAS

Organic debris shall not be deposited in the following areas:

- Within 5 feet of a cross drain culvert.
- Within 50 feet of a live stream, or wetland.
- On road subgrades road prism excavation and embankment slopes.
- On slopes greater than 45%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush will fall into the ditch or onto the road surface.
- Against standing timber.

**3-24 BURYING ORGANIC DEBRIS RESTRICTED**

Organic debris shall not be buried unless otherwise stated in this Road Plan.

**3-25 SCATTERING ORGANIC DEBRIS**

Organic debris shall be scattered outside of the grubbing limits in accordance with Clause 3-23 unless otherwise detailed in this Road Plan and as directed by the Contract Administrator.

**SECTION 4 – EXCAVATION**

**4-1 EXCAVATOR CONSTRUCTION**

All roads shall be constructed, reconstructed, and maintained using a track mounted hydraulic excavator unless stated otherwise within this Road Plan, or permission to do otherwise is granted in writing by the Contract Administrator.

**4-2 PIONEERING**

Pioneering shall not extend past construction that will be completed during the current construction season. Pioneering shall not extend more than 1000 feet beyond completed construction unless approved in writing by the Contract Administrator. In addition, the following actions shall be taken as pioneering progresses:

- Drainage shall be provided on all uncompleted construction.
- Road pioneering operations shall not undercut the final cut slope or restrict drainage.
- Culverts at live stream crossings shall be installed during pioneering operations prior to embankment.

**4-3 ROAD GRADE AND ALIGNMENT STANDARDS**

The following road grade and alignment standards shall be followed:

- Grade and alignment shall have smooth continuity, without abrupt changes in direction.
- Maximum grade shall not exceed 18% favorable and 16% adverse.
- Minimum curve radius is 60 feet at centerline.
- Sag vertical curves shall not have a grade change greater than 5% in 100 feet.
- Crest vertical curves shall not have a grade change greater than 4% in 100 feet.

**4-4 SWITCHBACK STANDARDS**

A switchback is defined as a curved segment of road between a beginning and end of the same curve, where the change of traffic travel direction is greater than 90 degrees. The following standards for switchbacks shall be followed:

- Adverse grades on switchbacks shall not exceed 10%.
- Favorable grades through switchbacks shall not exceed 12%.
- Transition grades entering and leaving switchbacks shall not exceed a 5% grade change.
- Transition grades required to meet switchback grade limitations shall be constructed on the tangents preceding and departing from the switchbacks.

**4-5 CUT SLOPE RATIO**

Unless construction staked or designed excavation slopes shall be constructed no steeper than shown on the following table:

| <u>Material Type</u>                    | <u>Excavation Slope Ratio</u> | <u>Excavation Slope Percent</u> |
|---|-------------------------------|---------------------------------|
| Common Earth (on side slopes up to 55%) | 1:1                           | 100                             |
| Common Earth (56% to 70% side slopes)   | ¾:1                           | 133                             |

|                                   |     |     |
|-----------------------------------|-----|-----|
| Common Earth (on slopes over 70%) | ½:1 | 200 |
| Fractured or loose rock           | ½:1 | 200 |
| Hardpan or solid rock             | ¼:1 | 400 |

**4-6 EMBANKMENT SLOPE RATIO**

Unless construction staked or designed embankment slopes shall be constructed no steeper than shown on the following table:

| <u>Material Type</u>            | <u>Embankment Slope Ratio</u> | <u>Embankment Slope Percent</u> |
|---------------------------------|-------------------------------|---------------------------------|
| Sandy Soils                     | 2:1                           | 50                              |
| Common Earth and Rounded Gravel | 1½:1                          | 67                              |
| Angular Rock                    | 1¼:1                          | 80                              |

**4-7 SHAPING CUT AND FILL SLOPE**

Excavation and embankment slopes shall be constructed to a uniform line and left rough for easier revegetation.

SUBSECTION INTERSECTIONS, TURNOUTS AND TURNAROUNDS

**4-20 RUNNING SURFACE DIMENSIONS FOR INTERSECTIONS**

On the following road(s), the Purchaser shall construct the road to the dimensions shown on the Typical Intersection Detail.

| <u>Road</u> | <u>Stations</u> |
|-------------|-----------------|
| S-1000      | MP 3.545        |
| 0+65        | 0+00 – 0+40     |
| 1+70        | 0+00 – 0+40     |
| 3+15        | 0+00 – 0+40     |
| 4+60        | 0+00 – 0+40     |
| 15+75       | 0+00 – 0+40     |

**4-21 TURNOUTS**

Turnouts shall be intervisible with maximum of 1,000 feet between turnouts unless shown otherwise on drawings. Locations shall be adjusted to fit the final subgrade alignment and sight distances. Turnout locations shall be subject to written approval by the Contract Administrator.

**4-22 TURNAROUNDS**

Turnarounds shall be no larger than 50 feet long and 30 feet wide. Locations shall be subject to written approval by the Contract Administrator.

SUBSECTION DITCH CONSTRUCTION

**4-25 DITCH CONSTRUCTION AND RECONSTRUCTION**

The Purchaser shall construct ditches into the subgrade as specified in Clause 2-7 and on the Typical Section Sheet. Excavated slopes shall be consistent with Clause 4-5 Cut Slope Ratio. Ditches shall be constructed concurrently with construction of the subgrade.

**4-27 DITCH WORK – MATERIAL USE PROHIBITED**

On all roads, pulling ditch material across the road or mixing in with the road surface will not be allowed. Excavated material shall be disposed of as specified in Clause 4-36 through Clause 4-38.

**4-28 DITCH DRAINAGE**

Ditches must drain to cross-drain culverts or ditchouts.

**4-29 DITCHOUTS**

Ditchouts shall be constructed at locations shown on the list below, and as needed to fit as built conditions. Ditchouts shall be constructed in a manner that diverts ditch water onto the forest floor and shall have excavation backslopes no steeper than a 1:1 ratio. L or R denotes ditchout left or ditchout right heading in.

| <u>Road</u> | <u>Stations</u> | <u>Left/Right</u> | <u>Length</u> |
|-------------|-----------------|-------------------|---------------|
| S-1000      | MP 0.289        | Right             |               |
| S-1000      | MP 0.625        | Right             |               |
| S-1000      | MP 1.284        | Right             |               |
| S-1000      | MP 1.399        | Right             |               |
| S-1000      | MP 1.634        | Right             | 20'           |
| S-1000      | MP 1.880        | Right             | 35'           |
| S-1000      | MP 2.206        | Right             |               |
| S-1000      | MP 2.270        | Right             |               |
| S-1000      | MP 2.390        | Right             | 45'           |
| S-1000      | MP 2.426        | Right             | 50'           |
| S-1000      | MP 2.976        | Right             |               |
| S-1000      | MP 3.000        | Right             |               |
| S-1000      | MP 3.972        | Right             |               |
| S-1000      | MP 3.994        | Right             |               |
| S-1000      | MP 4.010        | Right             | 50'           |
| S-1000      | MP 4.543        | Right             | 20'           |
| S-1000J     | 1+53            | Right             |               |
| S-1000J     | 2+80            | Right             |               |
| S-1000J     | 4+20            | Right             |               |
| S-1000J     | 6+23            | Right             |               |
| S-1000J     | 7+98            | Right             |               |
| S-1000J     | 10+83           | Right             |               |
| S-1000J     | 12+85           | Right             |               |
| S-1000J     | 14+30           | Right             |               |
| S-1000J     | 19+44           | Right             |               |
| S-1000J     | 21+50           | Right             |               |
| S-1000J     | 23+67           | Right             |               |
| 15+75 Spur  | 2+15            | Right             |               |
| 15+75 Spur  | 6+50            | Right             |               |
| 15+75 Spur  | 12+10           | Right             |               |
| 15+75 Spur  | 15+75           | Both              |               |
| 4+60 Spur   | 2+40            | Both              |               |
| 21+50 Spur  | 3+69            | Right             |               |
| 21+50 Spur  | 7+00            | Right             |               |
| 3+40 spur   | 3+40            | Left              |               |
| 2+75 Spur   | 2+75            | Left              |               |
| 2+20 Spur   | 2+20            | Left              |               |

|           |      |      |  |
|-----------|------|------|--|
| 3+15 Spur | 3+15 | Left |  |
|-----------|------|------|--|

SUBSECTION WASTE MATERIAL (DIRT)

**4-35 WASTE MATERIAL DEFINITION**

Waste material is defined as all dirt, rock, mud, or related material that is extraneous or unsuitable for construction material. Waste material, as referred to in Section 4 EXCAVATION, is not organic debris.

**4-36 DISPOSAL OF WASTE MATERIAL**

Purchaser may sidecast waste material on side slopes up to 45% if the waste material is compacted and free of organic debris. On side slopes greater than 45%, all waste material must be end hauled or pushed to the designated embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

**4-37 WASTE AREA LOCATION**

Waste material shall be deposited in the listed designated areas. The amount of material to be contained in a waste area shall be at the discretion of the Contract Administrator. Note: All amount values are estimated bank yards.

| <u>Waste Area Location</u> | <u>Waste Generated From Road</u> | <u>Waste Generated at Stations</u> | <u>Estimated Volume</u> |
|----------------------------|----------------------------------|------------------------------------|-------------------------|
| S-1000, MP 3.959           | All                              | All                                | 1000 yd <sup>3</sup>    |

**4-38 PROHIBITED WASTE DISPOSAL AREAS**

Waste material shall not be deposited in the following areas:

- Within 5 feet of a cross drain culvert.
- Within 50 feet of a live stream or wetland.
- Within a riparian management zone.
- On side slopes steeper than 45%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Within the operational area for cable landings.
- Against standing timber.

**4-39 WASTE AREA COMPACTION**

Excavated material may be deposited adjacent to the road prism on side slopes up to 45% if the waste material is compacted and free of debris. On side slopes of 45% or more, all excavation shall be end hauled or pushed to designated waste areas. All waste material shall be compacted. The minimum acceptable compaction is achieved by placing embankments in 2 foot or shallower lifts and routing excavation equipment over the entire width of the lifts, with the exception of side hill embankments too narrow to accommodate excavation equipment which may be placed by end-dumping or sidecasting until sufficiently wide to support the equipment.

SUBSECTION BORROW

**4-45 SELECT BORROW**

Select borrow shall consist of granular material, either naturally occurring or processed, and shall contain no more than 5% clay, organic debris, or trash by volume.

**4-46 COMMON BORROW**

Common borrow shall consist of soil, and/or aggregate that is non-plastic and shall contain no more than 5% clay, organic debris, or trash by volume. The material is considered non-plastic if the fines (passes the U.S. #40 sieve) in the sample cannot be rolled between the hand and a smooth surface into a thread at any moisture content.

**4-47 NATIVE MATERIAL**

Native material shall be excavated material free of organic debris, trash, and rocks greater than 12" in any dimension.

**4-48 BORROW MATERIAL**

Borrow material shall contain no more than 5% clay, organic debris, or trash by volume.

**4-49 BORROW SOURCE**

Borrow may be obtained from the listed borrow source(s). Development of the borrow source shall be in accordance with Borrow Source Detail.

| <u>Source</u> | <u>Location</u>  | <u>Volume</u>        |
|---------------|------------------|----------------------|
| S-1000 Pit    | S-1000, MP 4.978 | 1450 yd <sup>3</sup> |

**4-50 BORROW APPLICATION**

Borrow shall be applied in accordance with quantities shown below. Borrow for the culvert backfill shall be spread, shaped and compacted full width concurrent with hauling operations. Borrow for landing fills may be bucket compacted.

| <u>Road</u> | <u>Stations</u> | <u>Cubic Yards</u> | <u>Type / Comments</u> |
|-------------|-----------------|--------------------|------------------------|
| S-1000      | MP 3.250        | 150                | Landing Fill           |
| S-1000      | MP 4.020        | 400                | Culvert Backfill       |
| S-1000      | MP 4.175        | 100                | Landing Fill           |
| S-1000      | MP 4.504        | 200                | Landing Fill           |
| S-1000      | MP 4.793        | 300                | Landing Fill           |
| S-1400      | MP 0.062        | 300                | Landing Fill           |

**SUBSECTION SHAPING**

**4-55 ROAD SHAPING**

The road subgrade and surface shall be shaped as shown on the Typical Section Sheet. The subgrade and surface shape shall ensure runoff in an even, un-concentrated manner, and shall be uniform, firm, and rut-free.

**4-56 DRY WEATHER SHAPING**

At any time of year, the Contract Administrator may require the application of water to facilitate shaping activities. The method of water application is subject to written approval by the Contract Administrator.

**SUBSECTION COMPACTION**

**4-60 FILL COMPACTION**

Purchaser shall compact all embankment and waste material in accordance with the Compaction List by routing equipment over the entire width of each lift. A plate compactor must be used for areas specifically requiring keyed embankment construction, and embankment segments too narrow to accommodate equipment.

**4-61 SUBGRADE COMPACTION**

Purchaser shall compact constructed and reconstructed subgrades in accordance with the Compaction List by routing equipment over the entire width, except ditch. Purchaser shall obtain written approval from the Contract Administrator for subgrade compaction before placement of rock.

**4-62 DRY WEATHER COMPACTION**

At any time of the year, the Contract Administrator may require the application of water to facilitate compaction activities. The method of water application is subject to written approval by the Contract Administrator.

**4-63 EXISTING SURFACE COMPACTION**

Purchaser shall compact maintained road surfaces in accordance with the Compaction List by routing equipment over the entire width.

**4-64 WASTE MATERIAL COMPACTION**

All waste material shall be compacted by running equipment over it or bucket tamping.

**4-65 CULVERT BACKFILL COMPACTION**

Culvert backfills shall be accomplished by using a jumping jack compactor, performing at least 2 passes per lift, in lifts not to exceed 8 inches.

**4-66 COMPACTION BY METHOD**

Compaction shall consist of three complete passes over the entire width of each lift with a vibratory drum roller weighing a minimum of 6,000 pounds at a maximum operating speed of 3 mph. For embankment segments too narrow to accommodate a drum roller, a plate compactor shall be used.

**SUBSECTION SUBGRADE REINFORCEMENT**

**SECTION 5 – DRAINAGE**

**5-1 REMOVAL OF SHOULDER BERMS**

On the following road(s), berms shall be removed from road shoulders to permit the escape of runoff. Material shall be disposed of in accordance with Clauses 4-35 through 4-38. The construction of ditchouts will be required where ponding will result from the effects of sidecast debris.

| <u>Road</u> | <u>Stations</u> |
|-------------|-----------------|
| S-1000      | All             |
| S-1300      | All             |
| S-1400      | All             |

**5-3 PUNCHEON PLACEMENT**

On the following road(s), puncheon can be utilized in the construction of the subgrade with the approval of the Contract Administrator. Puncheon shall consist of logs of at least 4 inches in diameter and shall be at least 17 feet long.

| <u>Road</u> | <u>Stations</u> | <u>Comment</u>       |
|-------------|-----------------|----------------------|
| 0+65 Spur   | 0+00 – 0+65     | Puncheon Allowed     |
| 1+00 Spur   | 0+00 – 1+00     | Puncheon Allowed     |
| 1+70 Spur   | 0+00 – 1+70     | Puncheon Allowed     |
| 2+20 Spur   | 0+00 – 2+20     | Puncheon Allowed     |
| 2+75 Spur   | 0+00 – 2+75     | Puncheon Allowed     |
| 3+15 Spur   | 0+00 – 3+15     | Puncheon Allowed     |
| 3+40 Spur   | 0+00 – 3+40     | Puncheon NOT Allowed |
| 4+20 Spur   | 0+00 – 4+20     | Puncheon Allowed     |
| 4+60 Spur   | 0+00 - 4+60     | Puncheon Allowed     |
| 15+75 Spur  | 0+00 – 15+75    | Puncheon Allowed     |
| 21+50 Spur  | 7+00 – 21+50    | Puncheon Allowed     |

**SUBSECTION CULVERTS**

**5-5 CULVERTS**

Culverts shall be installed as part of this contract. Culverts shall be installed concurrently with subgrade work and shall be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the Culvert List. Culvert, downspout, and flume lengths shall be adjusted to fit as-built conditions and shall not terminate directly on unprotected soil. Culverts shall be new and meet the material specifications in Clauses 10-15 through 10-23.

**5-8 BEVELED ENDS**

The following culverts shall have their ends beveled as specified below.

| <u>Road</u> | <u>Stations</u> | <u>Bevel Type</u>   |
|-------------|-----------------|---|
| S-1000      | MP 4.020        | 1½:1 Half-Diameter Miter<br>Inlet Only<br>As Per S-1000 Stream<br>Crossing Drawings Sheet 2 |

**5-11 UNUSED MATERIALS STATE PROPERTY**

On required roads, any materials listed on the Culvert List and Rock List that are not installed shall become the property of the State. Purchaser shall stockpile materials as directed by the Contract Administrator.

## SUBSECTION CULVERT INSTALLATION

### 5-15 CULVERT INSTALLATION

Installation shall be in accordance with the Typical Cross Drain Culvert Installation Detail, Typical Type Ns Np Culvert Installation Detail, the National Corrugated Metal Pipe Association's "Installation Manual for Corrugated Steel Drainage Structures", and the Corrugated Polyethylene Pipe Association's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings". Corrugated Polyethylene pipe shall be installed in a manner consistent with the manufacturer's recommendations.

### 5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

Installation of culverts 30 inches in diameter and larger shall be subject to written approval by the District Engineer or their designee before backfilling.

### 5-17 CROSS DRAIN SKEW AND SLOPE

Cross drains on road grades in excess of 3% shall be skewed at least 30 degrees from perpendicular to the road centerline, except where the cross drain is at the low point in the road. Where the cross drain is at the low point in the road, culverts shall not be skewed. Cross drain culverts shall be installed at a slope steeper than the incoming ditch grade, but not less than 3% or more than 10%.

### 5-18 CULVERT DEPTH OF COVER

Cross drain culverts shall be installed with a depth of cover of not less than 18 inches of compacted depth over the top of the culvert at the shallowest point. Stream crossing culverts shall be installed with a depth of cover specified in the Engineer's design, Type Ns Np Typical Detail Sheet, or to the minimum depth recommended by the culvert manufacturer for the type of cover material over the pipe, whichever is greater.

### 5-19 ABOVE GROUND CULVERTS

Above ground culverts shall be installed in accordance with the S-1000 MP 2.494 Above Ground Culvert detail sheet and as marked in the field. Culvert shall be approved in writing by the District Engineer or their designee.

## SUBSECTION ENERGY DISSIPATERS

### 5-20 ENERGY DISSIPATERS

Energy dissipaters shall be installed in accordance with the Culvert List in order to prevent erosion and are subject to approval by the Contract Administrator. Rock shall weigh at least 10 pounds and be placed by zero-drop-height method. Energy dissipater shall extend a minimum of  $\frac{3}{4}$  foot to each side of the culvert at the outlet and a minimum of 2 feet beyond the outlet.

### 5-21 DOWNSPOUTS AND FLUMES

Downspouts and flumes longer than 10 feet shall be staked on both sides at maximum intervals of 10 feet with 6-foot heavy-duty steel posts or 1  $\frac{1}{2}$ " X  $\frac{3}{16}$ " angle iron, and fastened securely to the posts with No. 10 galvanized smooth wire, or bolted using minimum  $\frac{5}{16}$ " bolts and 2 washers per bolt, in accordance with the S-1000 MP 2.443 Flared Inlet and Flume and the Typical Culvert Installation detail sheets.

### 5-22 FLARED INLETS AND ELBOWS

Flared inlets and elbows for above ground culverts and flumes shall be installed in accordance with the S-1000 MP 2.443 Flared Inlet and Flume detail sheet, S-1000 MP 2.494 Above Ground Culvert detail sheet, and as marked in the field. All junctions shall sealed with duct tape for at least 1ft from the end of junction.

**5-23 STAKING ABOVE GROUND CULVERTS**

Culverts shall be staked at both the outlet and inlet and along the length of the culvert at a maximum interval of 10 ft. Staking shall consist of driving two heavy duty steel fence posts, or 1 1/2" X 3/16" angle iron, at least 2 feet into the ground at each point, and attaching them to the culvert using No.10 or larger galvanized smooth wire.

SUBSECTION CATCH BASINS, HEADWALLS, AND ARMORING

**5-25 CATCH BASINS**

Catch basins shall be constructed to resist erosion. Approximate dimensions are 1-2 feet deep, 1-2 feet wide, and 2-4 feet long.

**5-26 HEADWALLS FOR CROSS DRAIN CULVERTS**

Headwalls shall be constructed in accordance with the Typical Cross Drain Culvert Installation Detail at all cross drain culverts that specify the placement of rock. Rock used for headwalls shall consist of oversize or quarry spall material. Rock shall be placed on shoulders, slopes, and around culvert inlets and outlets. Rock shall not restrict the flow of water into culvert inlets or catch basins. No end dumping of rock is allowed.

**5-27 ARMORING FOR STREAM CROSSING CULVERTS**

At the following culvert(s), rip rap shall be set in place immediately following construction of the embankment. Rock shall be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the Typical Type Ns Np Culvert Installation Detail as directed by the Contract Administrator. Rock shall not restrict the flow of water into culvert inlets or catch basins. Rock shall be set in place by machine. Placement shall be by zero-drop-height method only. No placement by end dumping or dropping of rock shall be allowed.

| <u>Road</u> | <u>Stations</u> | <u>Rock Type</u>    |
|-------------|-----------------|---------------------|
| S-1000      | MP 4.020        | Light loose rip rap |

SECTION 6 – ROCK AND SURFACING

SUBSECTION ROCK SOURCE

**6-2 ROCK SOURCE ON STATE LAND**

Rock used in accordance with the quantities on the Rock List may be obtained from the following source(s) on state land at no charge to the Purchaser. Use of material from any other source must have prior written approval from the Contract Administrator. If other operators are using, or desire to use, the rock source(s), a joint operating plan shall be developed. All parties shall follow this plan. The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before starting any operations in the listed locations.

| <u>Source</u>  | <u>Location</u> | <u>Rock Type</u>   |
|----------------|-----------------|--|
| Mary Clark Pit | T30N R12W Sec32 | 1 1/2" Minus crushed stockpile, Pitrun, Oversized, Light loose rip rap |
|                |                 |  |

**6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE**

Rock used in accordance with the quantities on the Rock List may be obtained from the following existing stockpile on state land at no charge to the Purchaser. Purchaser shall remove no more than 1290 cubic yards of 1½” minus crushed rock and no more than 20 cubic yards of light loose rip rap. If the 1½” minus stockpile is insufficient, then the larger stockpile of 1¼” minus may be used for all applications listed in this road plan.

| <u>Source</u>  | <u>Location</u>               | <u>Quantity (yd<sup>3</sup>)</u> |
|----------------|-------------------------------|----------------------------------|
| Mary Clark Pit | 1½” minus crushed stockpile   | 1290                             |
| Mary Clark Pit | Light loose rip rap stockpile | 20                               |
|                |                               |                                  |

**6-5 ROCK FROM COMMERCIAL SOURCE**

Rock used in accordance with the quantities on the Rock List may be obtained from any commercial source at the Purchaser's expense. Rock sources will be subject to written approval by the Contract Administrator before their use.

**SUBSECTION ROCK GRADATIONS**

**6-28 1 ¼-INCH MINUS CRUSHED ROCK**

|                             |          |
|-----------------------------|----------|
| % Passing 1 ¼” square sieve | 100%     |
| % Passing 5/8” square sieve | 50 - 80% |
| % Passing U.S. #4 sieve     | 30 - 50% |
| % Passing U.S. #40 sieve    | 3 - 18%  |
| % Passing U.S. #200 sieve   | 5%       |

The portion of aggregate retained on the No. 4 sieve shall not contain more than 0.2% organic debris and trash. All percentages are by weight.

**6-29 1 ½-INCH MINUS CRUSHED ROCK**

|                             |             |
|-----------------------------|-------------|
| % Passing 1 ½” square sieve | 100%        |
| % Passing 1” square sieve   | 50 - 85%    |
| % Passing U.S. #4 sieve     | 30 - 50%    |
| % Passing U.S. #40 sieve    | 16% maximum |
| % Passing U.S. #200 sieve   | 5% maximum  |

The portion of aggregate retained on the No. 4 sieve shall not contain more than 0.2% organic debris and trash. All percentages are by weight.

**6-50 LIGHT LOOSE RIP RAP**

Rip rap shall consist of angular, hard, sound, and durable stone. It shall be free from segregation, seams, cracks, and other defects. Light loose rip rap shall be free of rock fines, soil, organic debris or other extraneous material, and shall meet the following requirements:

|                               |                     |                   |
|-------------------------------|---------------------|-------------------|
| <u>At Least/Not More Than</u> | <u>Weight Range</u> | <u>Size Range</u> |
| 20% / 90%                     | 300 lbs. to 1 ton   | 12” - 36”         |

**6-52 OVERSIZE**

|                           |      |
|---------------------------|------|
| % Passing 8” square sieve | 100% |
| % Passing 4” square sieve | 0%   |

Rock shall not contain more than 5% vegetative debris or trash. All percentages are by weight.

## SUBSECTION ROCK MEASUREMENT

### 6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of specified rock depths are defined as the compacted depth(s) using the compaction methods required in this Road Plan. Estimated quantities specified in the Rock List are estimated truck yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction.

## SUBSECTION ROCK STOCKPILE

### 6-65 ROCK STOCKPILE LOCATION

The Purchaser may stockpile rock as listed below, or as directed by the Contract Administrator.

| <u>Rock Source</u> | <u>Rock Size</u>  | <u>Quantity (yd<sup>3</sup>)</u> | <u>Stockpile Location</u> |
|--------------------|-------------------|----------------------------------|---------------------------|
| Mary Clark Pit     | 1½" minus, Pitrun | Discretionary                    | S-1000, MP 1.924          |
| Mary Clark Pit     | 1½" minus, Pitrun | Discretionary                    | S-1000, MP 4.755          |

### 6-67 ROCK STOCKPILE SPECIFICATIONS

Rock stockpiles listed in Clause 6-65 Rock Stockpile Location shall meet the following specifications:

- Before placing aggregates upon the stockpile site, the site shall be cleared of vegetation, trees, stumps, brush, rocks or other debris and the ground leveled to a smooth, firm, uniform surface.
- When completed, the stockpile shall be neat and regular in shape.
- The stockpile height shall be limited to a maximum of 30 feet.
- Stockpiles in excess of 500 cubic yards shall be built up in layers not more than 8 feet in depth. Stockpile layers shall be constructed by trucks, clamshells, or other methods approved, in writing, by the Contract Administrator.
- Each layer shall be completed over the entire area of the pile before depositing aggregates in the next layer. The aggregates shall not be dumped so that they run down and over the lower layers in the stockpile. The method of dropping from a bucket or spout in one location so as to form a cone shaped pile will not be permitted.
- Stockpiles of different types or sizes of aggregate shall be spaced far enough apart, or separated by suitable walls or partitions, to prevent the mixing of the aggregates.

## SUBSECTION ROCK APPLICATION

### 6-70 APPROVAL BEFORE ROCK APPLICATION

Subgrade drainage installation including grading and compaction, shall be completed and approved in writing by the Contract Administrator, before rock application.

### 6-71 ROCK APPLICATION

Rock shall be applied in accordance with the specifications and quantities shown on the Rock List. Rock shall be spread, shaped, and compacted full-width concurrent with rock hauling operations. Rock shall be compacted in accordance with Compaction List, in lifts not to exceed 6 inches.

### 6-72 ROCK APPLICATION AFTER HAULING

On the following road(s), upon completion of all hauling operations, Purchaser shall apply 1½" minus crushed rock in accordance with the quantities shown on the Rock List and as directed by the Contract Administrator.

| <u>Road</u> | <u>Stations</u> | <u>Amount</u>             |
|-------------|-----------------|---------------------------|
| S-1000      | All             | As Needed                 |
| S-1300      | All             | As Needed                 |
| S-1400      | All             | As Needed                 |
|             | <b>Total:</b>   | <b>250 yd<sup>3</sup></b> |

**6-73 ROCK FOR WIDENED PORTIONS**

Turnarounds, turnouts, and areas with curve widening shall have rock applied to the same depth and specifications as the traveled way.

**6-78 ROCK FOR SPOT PATCHING**

Rock for spot patching shall be applied before any grading is done and before any rock lifts are applied. Once applied, spot patches shall be graded into the existing running surface.

SECTION 7 – STRUCTURES

SUBSECTION STREAM CROSSING STRUCTURES GENERAL

**7-5 STRUCTURE DEBRIS**

The Purchaser shall ensure that debris from the installation or removal of structures does not enter any stream. Components removed from the existing structures(s) shall be placed at designated site(s), as directed in writing by the Contract Administrator. The Purchaser is responsible for maintaining a clean jobsite, with all materials stored away from any high water mark or other area presenting a risk of the materials entering a stream. Debris entering any stream shall be removed immediately and placed in the site(s) designated for stockpiling or disposal. The Purchaser is responsible for retrieving all material carried downstream from the jobsite by the stream current.

**7-6 STREAM CROSSING INSTALLATION**

Installation of stream crossing structures shall be in accordance with the manufacturer's requirements, and as directed by the District Engineer or their designee.

**7-7 BANK PROTECTION FOR STREAM CROSSING STRUCTURES**

Bank protection shall be designed and constructed to prevent the undermining of the structure.

SUBSECTION ACCEPTANCE

**7-16 STRUCTURE ACCEPTANCE**

The Region Engineer or their designee will inspect the structure upon delivery. Acceptance will be issued if the structure meets all specifications and certifications.

**7-17 INSTALLATION PRODUCTION SCHEDULE**

Purchaser shall provide the District engineer or their designee with a production schedule showing projected completion dates of the following items before starting construction of structure(s). Production schedule shall include, but is not limited to:

- a) Excavation
- b) Backfill compaction, streambed material placement, rock application and compaction.

Purchaser shall provide 72 hours of advance notice before commencement of the above activities. The District engineer or their designee is required to be on site at the commencement of the above activities.

**7-18 INSTALLATION STAGE ACCEPTANCE**

The Purchaser shall be responsible for ensuring that all materials and procedures used during construction comply with the design. Each stage of construction, according to the production schedule listed in Clause 7-17 Installation Production Schedule, shall be accepted in writing by the District Engineer or their designee before starting construction on the next stage. The Purchaser shall notify the District Engineer or their designee in writing when each construction stage is complete.

**7-19 INSTALLATION FINAL ACCEPTANCE**

The Purchaser shall notify the District Engineer in writing when each structure is complete.

SUBSECTION LARGE CULVERTS

**7-55 LARGE CULVERT INSTALLATION**

On the following road(s), Purchaser shall install large culverts as specified below. The installation of the culvert shall follow the appropriate detail sheet. Culvert designs shall meet or exceed the following specifications:

|                                      |                                    |
|--------------------------------------|------------------------------------|
| <u>Road</u>                          | S-1000                             |
| <u>Station</u>                       | MP 4.020                           |
| <u>Type</u>                          | Pipe                               |
| <u>Material and Coating Type*</u>    | Aluminized Steel                   |
| <u>Span (in.)</u>                    | 72                                 |
| <u>Rise (in.)</u>                    | 72                                 |
| <u>Length (ft.)</u>                  | 60                                 |
| <u>Depth of Cover Material (ft.)</u> | 1.5                                |
| <u>End design</u>                    | See Plans                          |
| <u>Corrugations</u>                  | 5" X 1"                            |
| <u>Gauge</u>                         | 10                                 |
| <u>Detail Sheets</u>                 | S-1000 Stream Crossing Replacement |

\* See Clause 10-15 Corrugated Steel Culvert or Clause 10-18 Corrugated Steel Structural Plate

**7-56 STEEL PIPE, PIPE ARCH, AND STRUCTURAL PLATE INSTALLATION**

Steel pipe, pipe arches, and structural plate culverts shall be installed according to the National Corrugated Pipe Association Installation Manual, and are subject to the inspection and approval of the Contract Administrator before placement and backfill. The latest edition of the NCSIPA Installation Manual can be found at [www.ncspa.org](http://www.ncspa.org).

**7-57 CULVERT SHAPE CONTROL**

Purchaser shall monitor the culvert shape during backfill and compaction. Special attention shall be paid to maintaining the structure's rise dimensions, concentricity and smooth, uniform curvature. If compaction methods are resulting in peaking and/or deflection of the culvert, Purchaser shall, in consultation with the District Engineer or their designee, modify their compaction method to achieve the appropriate end-result. The National Corrugated Steel Pipe Association "Installation Manual for Corrugated Steel Pipe, Pipe Arches, and Structural Plate" includes guidance on how to monitor culvert shape control and recommends corrective actions to take when shape control problems arise.

**7-58 MATERIAL INSIDE CULVERT**

Purchaser shall furnish and install rock in accordance with detail sheets listed below and quantities in the Rock List. Rock shall be placed inside the following culvert(s) as specified in the detail sheets.

| <u>Road</u> | <u>Station</u> | <u>Detail Sheet Name</u>   |
|-------------|----------------|--|
| S-1000      | MP 4.020       | S-1000 Stream Crossing Replacement Sheet 3   |
|             |                | <p align="center"><b>Summary</b></p> <p align="center">Streambed = 60 yd<sup>3</sup> Pitrun<br/>                     Pipe zone = 110 yd<sup>3</sup> Crushed<br/>                     Backfill = 400 yd<sup>3</sup> Borrow<br/>                     Rip rap = 20 yd<sup>3</sup> Light loose<br/>                     Road Resurfacing = 60/50 yd<sup>3</sup> PR/CR<br/>                     Total Excavation = 570 yd<sup>3</sup></p> |

**SECTION 8 – EROSION CONTROL**

**8-1 SEDIMENT CONTROL STRUCTURES**

On the following roads, Purchaser shall install silt fences in accordance with the Clause/Silt fence detail, berms in accordance with Clause/Detail/Rocklist, and catch basins in accordance with Clause/Detail.

| <u>Road</u> | <u>Stations</u>     | <u>Type</u>              | <u>Left/Right</u> | <u>Comment</u>                               |
|-------------|---------------------|--------------------------|-------------------|--|
| S-1000      | MP 0.289 – MP 0.309 | Install Rock Berm        | Right             | 96'  |
| S-1000      | MP 0.305            | Install Ditch Silt Fence | Left              |  |
| S-1000      | MP 0.571            | Install Catch Basins     | Left              |  |
| S-1000      | MP 0.571            | Install Ditch Silt Fence | Left              |  |
| S-1000      | MP 0.571 – MP 0.580 | Install Silt Fence       | Left              | 50'  |
| S-1000      | MP 0.625 – MP 0.643 | Install Rock Berm        | Right             | 95'  |
| S-1000      | MP 1.001            | Install Ditch Silt Fence | Left              |  |
| S-1000      | MP 1.025            | Install Ditch Silt Fence | Left              |  |
| S-1000      | MP 1.297            | Install Ditch Silt Fence | Left              |  |
| S-1000      | MP 1.284 – MP 1.301 | Install Rock Berm        | Left              | 88'  |
| S-1000      | MP 1.346 – MP 1.363 | Install Rock Berm        | Right             | 89'  |
| S-1000      | MP 1.360            | Install Catch Basins     | Left              |  |
| S-1000      | MP 1.365            | Install Ditch Silt Fence | Left              |  |
| S-1000      | MP 1.634            | Install Ditch Silt Fence | Left              |  |
| S-1000      | MP 2.425 – MP 2.442 | Install Rock Berm        | Right             | 90'  |
| S-1000      | MP 2.438 – MP 2.487 | Install Rock Berm        | Right             | 260'   |
| S-1000      | MP 2.470            | Install Ditch Silt Fence | Left              |  |
| S-1000      | MP 2.474            | Install Hay Bales (x2)   | Left              | Place bails in trench as marked in the field |
| S-1000      | MP 2.885 – MP 2.897 | Install Rock Berm        | Left              | 64'  |
| S-1000      | MP 2.885 – MP 2.897 | Install Rock Berm        | Right             | 64'  |
| S-1000      | MP 2.895            | Install Ditch Silt Fence | Left              |  |
| S-1000      | MP 2.976 – MP 3.001 | Install Rock Berm        | Right             | 130'   |
| S-1000      | MP 3.457 – MP 3.487 | Install Silt Fence       | Right             | 156'   |
| S-1000      | MP 3.502            | Install Ditch Silt Fence | Left              |  |

|        |                     |                          |       |      |
|--------|---------------------|--------------------------|-------|------|
| S-1000 | MP 3.630            | Install Catch Basins     | Left  |      |
| S-1000 | MP 3.641            | Install Ditch Silt Fence | Left  |      |
| S-1000 | MP 3.978 – MP 3.994 | Install Rock Berm        | Right | 87'  |
| S-1000 | MP 3.979 – MP 4.024 | Install Rock Berm        | Left  | 240' |
| S-1000 | MP 4.083 – MP 4.108 | Install Rock Berm        | Right | 130' |
| S-1000 | MP 4.095            | Install Ditch Silt Fence | Left  |      |
| S-1000 | MP 4.326 – MP 4.342 | Install Rock Berm        | Right | 85'  |
| S-1000 | MP 4.312            | Install Ditch Silt Fence | Left  |      |

**8-2 PROTECTION FOR EXPOSED SOIL**

Purchaser shall furnish and evenly spread a 3-inch layer of straw to all exposed soils at stream culvert installations. Soils shall not be allowed to sit exposed during any rain event.

**8-7 ROCK SHOULDER BERM INSTALLATION**

On the following road(s), the Purchaser shall construct rock berms on the road shoulders.

| <u>Road</u> | <u>Stations</u>     | <u>Type</u>       | <u>Left/right</u> | <u>Length</u> |
|-------------|---------------------|-------------------|-------------------|---------------|
| S-1000      | MP 0.289 – MP 0.309 | Install Rock Berm | Right             | 96'           |
| S-1000      | MP 0.625 – MP 0.643 | Install Rock Berm | Right             | 95'           |
| S-1000      | MP 1.284 – MP 1.301 | Install Rock Berm | Left              | 88'           |
| S-1000      | MP 1.346 – MP 1.363 | Install Rock Berm | Right             | 89'           |
| S-1000      | MP 2.425 – MP 2.442 | Install Rock Berm | Right             | 90'           |
| S-1000      | MP 2.438 – MP 2.487 | Install Rock Berm | Right             | 260'          |
| S-1000      | MP 2.885 – MP 2.897 | Install Rock Berm | Left              | 64'           |
| S-1000      | MP 2.885 – MP 2.897 | Install Rock Berm | Right             | 64'           |
| S-1000      | MP 2.976 – MP 3.001 | Install Rock Berm | Right             | 130'          |
| S-1000      | MP 3.978 – MP 3.994 | Install Rock Berm | Right             | 87'           |
| S-1000      | MP 3.979 – MP 4.024 | Install Rock Berm | Left              | 240'          |
| S-1000      | MP 4.083 – MP 4.108 | Install Rock Berm | Right             | 130'          |
| S-1000      | MP 4.326 – MP 4.342 | Install Rock Berm | Right             | 85'           |

**SUBSECTION REVEGETATION**

**8-15 REVEGETATION**

Purchaser shall grass seed and hay mulch all exposed soils including, but not limited to, stream culverts, waste areas, sidecast pull back areas, stream crossing removals, bridge installations, and other areas directed by the Contract Administrator. Revegetation of exposed soils shall be accomplished by manual dispersal of grass seed unless otherwise detailed in this Road Plan. Other methods of revegetation must be approved in writing by the Contract Administrator.

**8-16 REVEGETATION SUPPLY**

All seed, mulch, hay, matting, etc. will be provided by the Purchaser.

**8-17 REVEGETATION TIMING**

Purchaser shall perform revegetation during the first available opportunity. Soils shall not be allowed to sit exposed for longer than one month without receiving revegetation treatment unless otherwise approved in writing by the Contract Administrator. Soils shall not be allowed to sit exposed during any rain event.

**8-18 PROTECTION FOR SEED**

Purchaser shall provide a protective cover over the revegetated area. The protective cover may consist of, but not be limited to, such items as dispersed hay mulch 3" thick or jute matting.

**8-19 ASSURANCE FOR SEEDED AREA**

The Purchaser shall be responsible to ensure a uniform and dense crop of grass. The Purchaser shall reapply the seed and/or mulch in areas that have been damaged through any cause, before approval from the Contract Administrator. The Purchaser shall restore eroded or disturbed areas, clean up and properly dispose of eroded materials, and reapply the seed and/or mulch at no additional cost to the state.

SUBSECTION SEED, FERTILIZER, AND MULCH

**8-25 GRASS SEED**

Purchaser shall evenly spread the seed mixture listed below on all exposed soils at a rate of 60 pounds per acre of exposed soil.

- Perennial Ryegrass 40.00
- Creeping Red Fescue 40.00
- White Dutch Clover 10.00
- Colonial Bentgrass 10.00

Grass seed shall meet the following specifications:

1. Weed seed may not exceed 0.5% by weight.
2. All seed species must have a minimum 90% germination rate, unless otherwise specified.
3. Seed must be certified.
4. Seed must be furnished in standard containers showing the following information:
  - a. Common name of seed
  - b. Net weight
  - c. Percent of purity
  - d. Percentage of germination
  - e. Percentage of weed seed and inert material

SECTION 9 – POST-HAUL ROAD WORK

SUBSECTION STRUCTURES

**9-3 REMOVAL OF CULVERT MATERIAL FROM STATE LAND**

Culvert material removed from roads becomes the property of the Purchaser and must be removed from state land.

SUBSECTION POST-HAUL MAINTENANCE

**9-5 POST-HAUL MAINTENANCE**

Post-haul maintenance shall be performed in accordance with the Forest Access Road Maintenance Specifications and as specified below.

| <u>Road</u> | <u>Stations</u> | <u>Additional Requirements</u>  |
|-------------|-----------------|---|
| S-1000      | All             | Clean culverts, clean ditches, grade road shape and compact as directed by the Contract Administrator. Apply post haul rock as per Clause 6-72. |
| S-1300      | All             | Clean culverts, clean ditches, grade road shape and compact as directed by the Contract Administrator. Apply post haul rock as per Clause 6-72. |

|            |     |   |
|------------|-----|---|
| S-1400     | All | Clean culverts, clean ditches, grade road shape and compact as directed by the Contract Administrator. Apply post haul rock as per Clause 6-72. |
| All others | All | Clean culverts, clean ditches, grade road shape and compact as directed by the Contract Administrator.  |

#### SUBSECTION POST-HAUL LANDING MAINTENANCE

##### 9-10 LANDING DRAINAGE

On all roads, Purchaser shall provide for drainage of the landing surface as approved in writing by the Contract Administrator.

##### 9-11 LANDING EMBANKMENT

On all roads, landing embankments shall be sloped to original construction specifications.

#### SECTION 10 MATERIALS

##### SUBSECTION GEOTEXTILE

##### 10-6 GEOTEXTILE FOR TEMPORARY SILT FENCE

Geotextiles shall meet the following minimum requirements for strength and property qualities, and shall be designed by the manufacturer to be used for filtration. Woven slit-film geotextiles will not be allowed. Material shall be free of defects, cuts, and tears.

|                         | <u>ASTM Test</u> | <u>Requirements</u>  |
|-------------------------|------------------|--|
| Type                    | --               | Unsupported between posts  |
| Apparent opening size   | D 4751           | No. 30 max., No. 100 min.  |
| Water permittivity      | D 4491           | 0.02 sec <sup>-1</sup>   |
| Grab tensile strength   | D 4632           | 180 lb in machine direction,<br>100lb in cross-machine direction |
| Grab tensile elongation | D 4632           | 30% max. at 180 lb or more                                       |
| Ultraviolet stability   | D 4355           | 70% retained after 500 hours of exposure                         |

##### SUBSECTION CULVERTS

##### 10-15 CORRUGATED STEEL CULVERT

Metallic coated steel culverts shall meet AASHTO M-36 (ASTM A-760) specifications. Culverts shall be aluminized (aluminum type 2) coated meeting AASHTO M-274.

##### 10-16 CORRUGATED ALUMINUM CULVERT

Aluminum culverts shall meet AASHTO M-196 (ASTM A-745) specifications.

##### 10-17 CORRUGATED PLASTIC CULVERT

Polyethylene culverts shall meet AASHTO M-294 specifications. Culverts shall be Type S – double walled with a corrugated exterior and smooth interior.

##### 10-18 CORRUGATED STEEL STRUCTURAL PLATE

Structural plate culverts shall be galvanized steel meeting AASHTO M-167 (ASTM A-761) specifications.

##### 10-19 CORRUGATED ALUMINUM STRUCTURAL PLATE

Structural plate culverts shall be aluminum alloy meeting AASHTO M-219 (ASTM A-746) specifications.

**10-20 FLUME AND DOWNSPOUT**

Downspouts and flumes shall meet the AASHTO specification designated for the culvert. Plastic downspouts and flumes shall be Type S – double walled with a corrugated exterior and smooth interior.

**10-21 METAL BAND**

Metal coupling and end bands shall meet the AASHTO specification designated for the culvert and shall have matching corrugations. On culverts 24 inches and smaller, bands shall have a minimum width of 12 inches. On culverts over 24 inches, bands shall have a minimum width of 24 inches.

**10-22 PLASTIC BAND**

Plastic coupling and end bands shall meet the AASHTO specification designated for the culvert. Only fittings supplied or recommended by the culvert manufacturer shall be used. Couplings shall be split coupling band. Split coupling bands shall have a minimum of four corrugations, two on each side of the pipe joint.

**10-23 RUBBER CULVERT GASKETS**

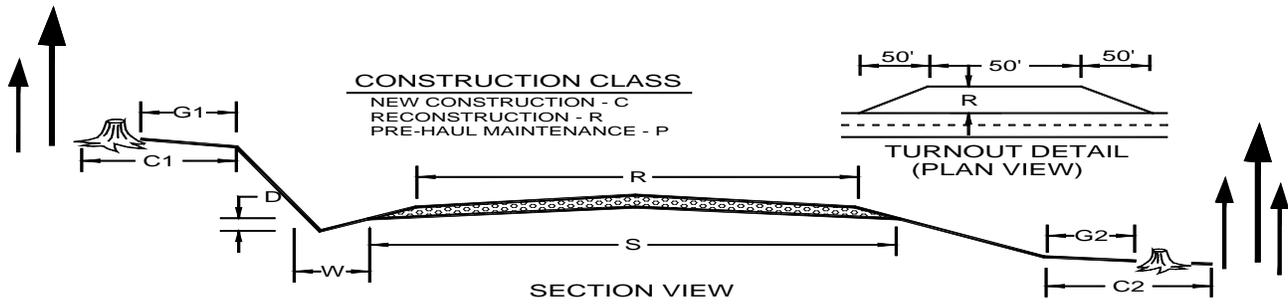
Rubber gaskets must be continuous closed cell, synthetic expanded rubber gaskets conforming to the requirements of ASTM D 1056. Rubber gaskets must be used with all corrugated metal pipe coupling bands.

**10-24 GAGE AND CORRUGATION**

Metal culverts shall conform to the following specifications for gage and corrugation as a function of diameter.

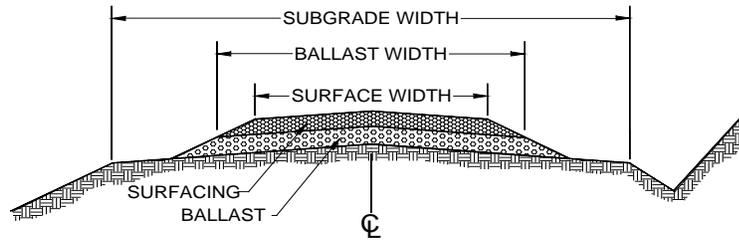
| <u>Diameter</u> | <u>Gage</u> | <u>Corrugation</u>                     |
|-----------------|-------------|--|
| 18"             | 16 (0.064") | 2 <sup>2</sup> / <sub>3</sub> " X 1/2" |
| 24" to 42"      | 14 (0.079") | 2 <sup>2</sup> / <sub>3</sub> " X 1/2" |
| 48" to 54"      | 12          | 3" X 1"                                |
| 60" +           | 10          | 5" X 1"                                |

# TYPICAL SECTION SHEET



| ROAD NAME  | START STATION | END STATION | CONSTRUCTION CLASS | SUBGRADE WIDTH (S) | ROAD WIDTH (R) | CROWN AT CL | DITCH (Left/Right) | DITCH WIDTH (W) | DITCH DEPTH (D) | GRUBBING CUT BANK (G1) | GRUBBING FILL TOE (G2) | ROAD CUT CLEARING (C1) | ROAD FILL CLEARING (C2) |
|------------|---------------|-------------|--------------------|--------------------|----------------|-------------|--------------------|-----------------|-----------------|------------------------|------------------------|------------------------|-------------------------|
| S-1000     | MP 0.000      | MP 2.438    | P                  | 17'                | 12'            | 3"          | L                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| S-1000     | MP 2.438      | MP 2.487    | P                  | 17'                | 12'            | +3/-3       | L                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| S-1000     | MP 2.487      | MP 3.994    | P                  | 17'                | 12'            | 3"          | L                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| S-1000     | MP 3.994      | MP 4.024    | P                  | 17'                | 12'            | +3/-3       | L                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| S-1000     | MP 4.024      | MP 5.140    | P                  | 17'                | 12'            | 3"          | L                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| S-1300     | MP 0.000      | MP 0.242    | P                  | 17'                | 12'            | 3"          | L                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| S-1400     | MP 0.000      | MP 0.176    | P                  | 17'                | 12'            | 3"          | R                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| S-1000J    | 0+00          | 24+00       | P                  | 17'                | 12'            | +3/-3       | R                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| 0+65 Spur  | 0+00          | 0+65        | C                  | 17'                | 12'            | 3"          |                    |                 |                 | 5'                     | 5'                     | 10'                    | 5'                      |
| 1+00 Spur  | 0+00          | 1+00        | C                  | 17'                | 12'            | 3"          |                    |                 |                 | 5'                     | 5'                     | 10'                    | 5'                      |
| 1+70 Spur  | 0+00          | 1+70        | C                  | 17'                | 12'            | 3"          |                    |                 |                 | 5'                     | 5'                     | 10'                    | 5'                      |
| 2+20 Spur  | 0+00          | 2+20        | C                  | 17'                | 12'            | 3"          | L                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| 2+75 Spur  | 0+00          | 2+75        | C                  | 17'                | 12'            | 3"          | L                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| 3+15 Spur  | 0+00          | 3+15        | C                  | 17'                | 12'            | -3/+3       | L                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| 3+40 Spur  | 0+00          | 1+03        | C                  | 17'                | 12'            | 3"          |                    |                 |                 | 5'                     | 5'                     | 10'                    | 5'                      |
| 3+40 Spur  | 1+03          | 3+40        | C                  | 17'                | 12'            | 3"          | L                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| 4+20 Spur  | 0+00          | 4+20        | C                  | 17'                | 12'            | 3"          |                    |                 |                 | 5'                     | 5'                     | 10'                    | 5'                      |
| 4+60 Spur  | 0+00          | 2+40        | R                  | 17'                | 12'            | 3"          | L/R                | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| 4+60 Spur  | 2+40          | 4+60        | R                  | 17'                | 12'            | 3"          |                    |                 |                 | 5'                     | 5'                     | 10'                    | 5'                      |
| 15+75 Spur | 0+00          | 15+75       | R                  | 17'                | 12'            | 3"          | L/R                | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| 21+50 Spur | 0+00          | 7+00        | P                  | 17'                | 12'            | 3"          | L/R                | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
| 21+50 Spur | 7+00          | 21+50       | C                  | 17'                | 12'            | 3"          | L                  | 3'              | 1'              | 5'                     | 5'                     | 10'                    | 5'                      |
|            |               |             |                    |                    |                |             |                    |                 |                 |                        |                        |                        |                         |
|            |               |             |                    |                    |                |             |                    |                 |                 |                        |                        |                        |                         |
|            |               |             |                    |                    |                |             |                    |                 |                 |                        |                        |                        |                         |

# ROCK LIST SHEET

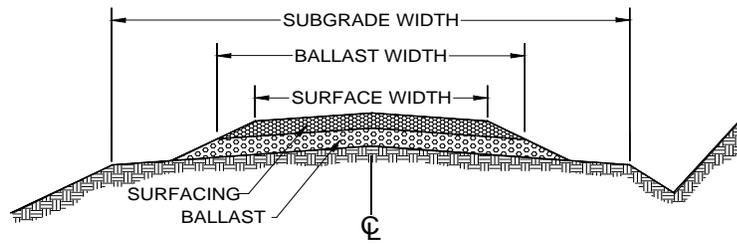


SECTION VIEW

1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Mary Clark 1½" minus Crushed, 2: Mary Clark Pitrun, 3: Mary Clark Oversized, 4: Mary Clark Light loose Rip Rap, 5: S-1000 Ballast

| ROAD NAME      | START STATION | END STATION | SUBGRADE WIDTH (ft) | Pitrun SOURCE | Pitrun WIDTH (ft) | Pitrun DEPTH (in) | Pitrun Quantity(yd <sup>3</sup> /sta) | Pitrun SUBTOTAL(yd <sup>3</sup> ) | Crushed SOURCE | Crushed WIDTH (ft) | Crushed DEPTH (in) | Crushed Quantity(yd <sup>3</sup> /sta) | Crushed Subtotal(yd <sup>3</sup> ) | Oversize/ Rip rap Source | Oversize/Rip Rap Quantity(yd <sup>3</sup> ) |
|----------------|---------------|-------------|---------------------|---------------|-------------------|-------------------|---------------------------------------|-----------------------------------|----------------|--------------------|--------------------|--|------------------------------------|--------------------------|---|
| <b>S-1000</b>  |               |             |                     |               |                   |                   |                                       |                                   |                |                    |                    |  |                                    |                          |   |
| Misc Prehaul   | MP 0.000      | MP 5.140    |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 140                                |                          |   |
| Misc Posthaul  | MP 0.000      | MP 5.140    |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 250                                |                          |   |
| Spot Patch     | MP 0.000      |             |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 20                                 |                          |   |
| Rock Berm      | MP 0.289      | MP 0.309    |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 2                                  |                          |   |
| Spot Patch     | MP 0.289      |             |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 10                                 |                          |   |
| Culvert        | MP 0.571      |             |                     |               |                   |                   |                                       |                                   |                |                    |                    |  |                                    | 3                        | 1   |
| Spot Patch     | MP 0.625      |             |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 10                                 |                          |   |
| Rock Berm      | MP 0.625      | MP 0.643    |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 2                                  |                          |   |
| Culvert        | MP 0.667      |             |                     |               |                   |                   |                                       |                                   |                |                    |                    |  |                                    | 3                        | 1   |
| Culvert        | MP 0.847      |             |                     | 2             |                   |                   |                                       | 10                                | 1              |                    |                    |  | 10                                 | 3                        | 1   |
| Rock Berm      | MP 1.284      | MP 1.301    |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 2                                  |                          |   |
| Rock Berm      | MP 1.346      | MP 1.363    |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 2                                  |                          |   |
| Landing        | MP 1.510      |             |                     | 2             |                   |                   |                                       | 50                                |                |                    |                    |  |                                    |                          |   |
| Landing        | MP 1.762      |             |                     | 2             |                   |                   |                                       | 50                                |                |                    |                    |  |                                    |                          |   |
| Lift           | MP 2.382      | MP 2.518    |                     |               |                   |                   |                                       |                                   | 1              | 12                 | 6                  | 35                                     | 250                                |                          |   |
| Culvert        | MP 2.390      |             |                     | 2             |                   |                   |                                       | 10                                | 1              |                    |                    |  | 10                                 | 3                        | 1   |
| Rock Berm      | MP 2.425      | MP 2.442    |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 2                                  |                          |   |
| Special Lift   | MP 2.426      | MP 2.441    |                     |               |                   |                   |                                       |                                   | 1              | 12                 |                    |  | 20                                 |                          |   |
| Rock Berm      | MP 2.438      | MP 2.487    |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 4                                  |                          |   |
| Culvert        | MP 2.494      |             |                     | 2             |                   |                   |                                       | 10                                | 1              |                    |                    |  | 10                                 | 3                        | 1   |
| Rock Berm      | MP 2.885      | MP 2.897    |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 1                                  |                          |   |
| Rock Berm      | MP 2.885      | MP 2.897    |                     |               |                   |                   |                                       |                                   | 1              |                    |                    |  | 1                                  |                          |   |
| <b>Totals:</b> |               |             |                     |               |                   |                   |                                       | <b>130</b>                        |                |                    |                    |  | <b>748</b>                         |                          | <b>5</b>                                    |

## ROCK LIST SHEET CONTINUED

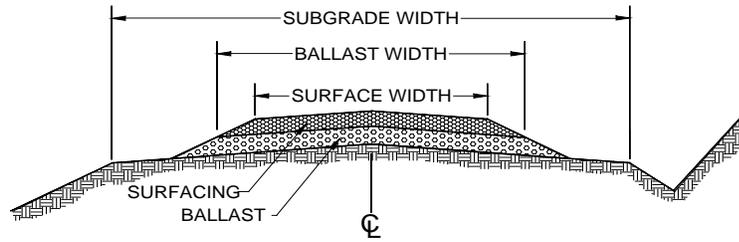


SECTION VIEW

1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Mary Clark 1½" minus Crushed, 2: Mary Clark Pitrun, 3: Mary Clark Oversized, 4: Mary Clark Light loose Rip Rap, 5: S-1000 Ballast

| ROAD NAME       | START STATION | END STATION | SUBGRADE WIDTH (ft) | Pitrun SOURCE | Pitrun WIDTH (ft) | Pitrun DEPTH (in) | Pitrun Quantity(yd³/sta) | Pitrun SUBTOTAL(yd³) | Crushed SOURCE | Crushed WIDTH (ft) | Crushed DEPTH (in) | Crushed Quantity(yd³/sta) | Crushed Subtotal(yd³) | Oversize/ Rip rap Source | Oversize/Rip Rap Quantity(yd³) |
|-----------------|---------------|-------------|---------------------|---------------|-------------------|-------------------|--------------------------|----------------------|----------------|--------------------|--------------------|---------------------------|-----------------------|--------------------------|--------------------------------|
| <b>S-1000</b>   |               |             |                     |               |                   |                   |                          |                      |                |                    |                    |                           |                       |                          |                                |
| Lift            | MP 2.950      | MP 3.041    |                     |               |                   |                   |                          |                      | 1              | 12                 | 6                  | 35                        | 170                   |                          |                                |
| Rock Berm       | MP 2.976      | MP 3.001    |                     |               |                   |                   |                          |                      | 1              |                    |                    |                           | 2                     |                          |                                |
| Culvert         | MP 3.000      |             |                     | 2             |                   |                   | 10                       | 10                   | 1              |                    |                    |                           | 10                    | 3                        | 1                              |
| Landing         | MP 3.110      |             |                     | 2             |                   |                   | 50                       | 50                   |                |                    |                    |                           |                       |                          |                                |
| Landing         | MP 3.170      |             |                     | 2             |                   |                   | 50                       | 50                   |                |                    |                    |                           |                       |                          |                                |
| Landing         | MP 3.250      |             |                     | 5             |                   |                   | 150                      | 150                  |                |                    |                    |                           |                       |                          |                                |
| Landing         | MP 3.250      |             |                     | 2             |                   |                   | 70                       | 70                   |                |                    |                    |                           |                       |                          |                                |
| Culvert         | MP 3.334      |             |                     |               |                   |                   |                          |                      |                |                    |                    |                           |                       | 3                        | 1                              |
| Culvert         | MP 3.471      |             |                     | 2             |                   |                   | 10                       | 10                   | 1              |                    |                    |                           | 10                    | 3                        | 2                              |
| Landing         | MP 3.545      |             |                     | 2             |                   |                   | 60                       | 60                   |                |                    |                    |                           |                       |                          |                                |
| Landing         | MP 3.579      |             |                     | 2             |                   |                   | 50                       | 50                   |                |                    |                    |                           |                       |                          |                                |
| Landing         | MP 3.659      |             |                     | 2             |                   |                   | 50                       | 50                   |                |                    |                    |                           |                       |                          |                                |
| Landing         | MP 3.760      |             |                     | 2             |                   |                   | 50                       | 50                   |                |                    |                    |                           |                       |                          |                                |
| Landing         | MP 3.873      |             |                     | 2             |                   |                   | 50                       | 50                   |                |                    |                    |                           |                       |                          |                                |
| Turnaround      | MP 3.959      |             |                     | 2             |                   |                   | 50                       | 50                   |                |                    |                    |                           |                       |                          |                                |
| Spot Patch      | MP 3.972      | MP 4.004    |                     |               |                   |                   |                          |                      | 1              |                    |                    |                           | 40                    |                          |                                |
| Culvert         | MP 3.978      |             |                     | 2             |                   |                   | 10                       | 10                   | 1              |                    |                    |                           | 10                    | 3                        | 1                              |
| Rock Berm       | MP 3.978      | MP 3.994    |                     |               |                   |                   |                          |                      | 1              |                    |                    |                           | 2                     |                          |                                |
| Rock Berm       | MP 3.979      | MP 4.024    |                     |               |                   |                   |                          |                      | 1              |                    |                    |                           | 4                     |                          |                                |
| Culvert Removal | MP 3.979      |             |                     | 2             |                   |                   | 10                       | 10                   |                |                    |                    |                           |                       |                          |                                |
|                 |               |             |                     |               |                   |                   |                          |                      |                |                    |                    |                           |                       |                          |                                |
|                 |               |             |                     |               |                   |                   |                          |                      |                |                    |                    |                           |                       |                          |                                |
| <b>Totals:</b>  |               |             |                     |               |                   |                   |                          | <b>670</b>           |                |                    |                    |                           | <b>248</b>            |                          | <b>5</b>                       |

## ROCK LIST SHEET CONTINUED

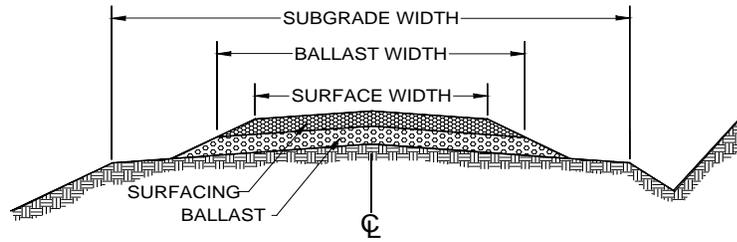


SECTION VIEW

1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Mary Clark 1½" minus Crushed, 2: Mary Clark Pitrun, 3: Mary Clark Oversized, 4: Mary Clark Light loose Rip Rap, 5: S-1000 Ballast

| ROAD NAME             | START STATION | END STATION | SUBGRADE WIDTH (ft) | Pitrun SOURCE | Pitrun WIDTH (ft) | Pitrun DEPTH (in) | Pitrun Quantity(yd³/sta) | Pitrun SUBTOTAL(yd³) | Crushed SOURCE | Crushed WIDTH (ft) | Crushed DEPTH (in) | Crushed Quantity(yd³/sta) | Crushed Subtotal(yd³) | Oversize/ Rip rap Source | Oversize/Rip Rap Quantity(yd³) |
|-----------------------|---------------|-------------|---------------------|---------------|-------------------|-------------------|--------------------------|----------------------|----------------|--------------------|--------------------|---------------------------|-----------------------|--------------------------|--------------------------------|
| <b>S-1000</b>         |               |             |                     |               |                   |                   |                          |                      |                |                    |                    |                           |                       |                          |                                |
| Culvert - Streambed   | MP 4.020      |             |                     | 2             |                   |                   |                          | 70                   |                |                    |                    |                           |                       | 4                        | 20                             |
| Culvert - Pipe zone   | MP 4.020      |             |                     |               |                   |                   |                          |                      | 1              |                    |                    |                           | 110                   |                          |                                |
| Culvert - Backfill    | MP 4.020      |             |                     | 5             |                   |                   |                          | 400                  |                |                    |                    |                           |                       |                          |                                |
| Culvert - Resurfacing | MP 4.020      |             |                     | 2             |                   |                   |                          | 60                   | 1              |                    |                    |                           | 50                    |                          |                                |
| Rock Berm             | MP 4.083      | MP 4.108    |                     |               |                   |                   |                          |                      | 1              |                    |                    |                           | 2                     |                          |                                |
| Culvert               | MP 4.165      |             |                     | 2             |                   |                   |                          | 10                   | 1              |                    |                    |                           | 10                    | 3                        | 1                              |
| Landing               | MP 4.175      |             |                     | 5             |                   |                   |                          | 100                  |                |                    |                    |                           |                       |                          |                                |
| Landing               | MP 4.175      |             |                     | 2             |                   |                   |                          | 70                   |                |                    |                    |                           |                       |                          |                                |
| Lift                  | MP 4.190      | MP 4.232    |                     |               |                   |                   |                          |                      | 1              | 12                 | 6                  | 35                        | 80                    |                          |                                |
| Rock Berm             | MP 4.326      | MP 4.342    |                     |               |                   |                   |                          |                      | 1              |                    |                    |                           | 2                     |                          |                                |
| Culvert               | MP 4.337      |             |                     |               |                   |                   |                          |                      |                |                    |                    |                           |                       | 3                        | 1                              |
| Landing               | MP 4.420      |             |                     | 2             |                   |                   |                          | 50                   |                |                    |                    |                           |                       |                          |                                |
| Landing               | MP 4.504      |             |                     | 5             |                   |                   |                          | 200                  |                |                    |                    |                           |                       |                          |                                |
| Landing               | MP 4.504      |             |                     | 2             |                   |                   |                          | 70                   |                |                    |                    |                           |                       |                          |                                |
| Lift                  | MP 4.516      | MP 4.573    |                     |               |                   |                   |                          |                      | 1              | 12                 | 6                  | 35                        | 110                   |                          |                                |
| Culvert               | MP 4.545      |             |                     | 2             |                   |                   |                          | 10                   | 1              |                    |                    |                           | 10                    | 3                        | 1                              |
| Landing               | MP 4.601      |             |                     | 2             |                   |                   |                          | 50                   |                |                    |                    |                           |                       |                          |                                |
| Landing               | MP 4.755      |             |                     | 2             |                   |                   |                          | 50                   |                |                    |                    |                           |                       |                          |                                |
| Landing               | MP 4.793      |             |                     | 5             |                   |                   |                          | 300                  |                |                    |                    |                           |                       |                          |                                |
| Landing               | MP 4.793      |             |                     | 2             |                   |                   |                          | 80                   |                |                    |                    |                           |                       |                          |                                |
| Spot Patch            | MP 4.978      |             |                     |               |                   |                   |                          |                      | 1              |                    |                    |                           | 20                    |                          |                                |
| <b>Totals:</b>        |               |             |                     |               |                   |                   |                          | <b>1440</b>          |                |                    |                    |                           | <b>394</b>            |                          | <b>23</b>                      |

## ROCK LIST SHEET CONTINUED



SECTION VIEW

1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Mary Clark 1½" minus Crushed, 2: Mary Clark Pitrun, 3: Mary Clark Oversized, 4: Mary Clark Light loose Rip Rap 5: S-1000, Ballast

| ROAD NAME        | START STATION | END STATION | SUBGRADE WIDTH (ft) | Pitrun SOURCE | Pitrun WIDTH (ft) | Pitrun DEPTH (in) | Pitrun Quantity(yd³/sta) | Pitrun SUBTOTAL(yd³) | Crushed SOURCE | Crushed WIDTH (ft) | Crushed DEPTH (in) | Crushed Quantity(yd³/sta) | Crushed Subtotal(yd³) | Oversize/ Rip rap Source | Oversize/Rip Rap Quantity(yd³) |
|------------------|---------------|-------------|---------------------|---------------|-------------------|-------------------|--------------------------|----------------------|----------------|--------------------|--------------------|---------------------------|-----------------------|--------------------------|--------------------------------|
| <b>S-1000J</b>   | 0+00          | 24+00       |                     | 2             | 12                | 12                | 80                       | 1920                 |                |                    |                    |                           |                       |                          |                                |
| Turnaround       | 22+56         |             |                     | 2             |                   |                   |                          | 50                   |                |                    |                    |                           |                       |                          |                                |
| <b>S-1300</b>    |               |             |                     |               |                   |                   |                          |                      |                |                    |                    |                           |                       |                          |                                |
| Landing          | MP 0.198      |             |                     | 2             |                   |                   |                          | 60                   |                |                    |                    |                           |                       |                          |                                |
| <b>S-1400</b>    |               |             |                     |               |                   |                   |                          |                      |                |                    |                    |                           |                       |                          |                                |
| Landing          | MP 0.067      |             |                     | 5             |                   |                   |                          | 300                  |                |                    |                    |                           |                       |                          |                                |
| Landing          | MP 0.067      |             |                     | 2             |                   |                   |                          | 80                   |                |                    |                    |                           |                       |                          |                                |
| <b>1+00 Spur</b> | 0+00          | 1+00        | 17                  | 2             | 12                | 12                | 80                       | 80                   |                |                    |                    |                           |                       |                          |                                |
| Landing          | 1+00          |             |                     | 2             |                   |                   |                          | 50                   |                |                    |                    |                           |                       |                          |                                |
| <b>1+70 Spur</b> | 0+00          | 1+70        | 17                  | 2             | 12                | 12                | 80                       | 136                  |                |                    |                    |                           |                       |                          |                                |
| Flared Approach  | 0+00          | 0+40        |                     | 2             |                   |                   |                          | 20                   |                |                    |                    |                           |                       |                          |                                |
| Landing          | 1+70          |             |                     | 2             |                   |                   |                          | 50                   |                |                    |                    |                           |                       |                          |                                |
| <b>2+20 Spur</b> | 0+00          | 2+20        | 17                  | 2             | 12                | 12                | 80                       | 176                  |                |                    |                    |                           |                       |                          |                                |
| <b>2+75 Spur</b> | 0+00          | 2+75        | 17                  | 2             | 12                | 12                | 80                       | 220                  |                |                    |                    |                           |                       |                          |                                |
| <b>3+15 Spur</b> | 0+00          | 3+15        | 17                  | 2             | 12                | 12                | 80                       | 252                  |                |                    |                    |                           |                       |                          |                                |
| Flared Approach  | 0+00          | 0+40        |                     | 2             |                   |                   |                          | 30                   |                |                    |                    |                           |                       |                          |                                |
| Culvert          | 1+90          |             |                     |               |                   |                   |                          |                      |                |                    |                    |                           |                       | 3                        | 1                              |
| Landing          | 3+15          |             |                     | 2             |                   |                   |                          | 50                   |                |                    |                    |                           |                       |                          |                                |
| <b>3+40 Spur</b> | 0+00          | 3+40        | 17                  | 2             | 12                | 12                | 80                       | 272                  |                |                    |                    |                           |                       |                          |                                |
| Landing          | 3+40          |             |                     | 2             |                   |                   |                          | 50                   |                |                    |                    |                           |                       |                          |                                |
| <b>4+20 Spur</b> | 0+00          | 4+20        | 17                  | 2             | 12                | 12                | 80                       | 336                  |                |                    |                    |                           |                       |                          |                                |
| Landing          | 4+20          |             |                     | 2             |                   |                   |                          | 50                   |                |                    |                    |                           |                       |                          |                                |
| <b>4+60 Spur</b> | 0+00          | 4+60        | 17                  | 2             | 12                | 12                | 80                       | 368                  |                |                    |                    |                           |                       |                          |                                |
| Flared Approach  | 0+00          | 0+40        |                     | 2             |                   |                   |                          | 30                   |                |                    |                    |                           |                       |                          |                                |
| <b>Totals:</b>   |               |             |                     |               |                   |                   |                          | <b>4580</b>          |                |                    |                    |                           |                       |                          | <b>1</b>                       |



## CULVERT LIST

| ROAD NAME | STATION  | CULVERT DIAMETER (in) | CULVERT LENGTH (ft) | FLUME LENGTH (ft) |  | RIP RAP - INLET (cy) | RIP RAP - OUTLET (cy) | BACKFILL MATERIAL | NOTES   |
|-----------|----------|-----------------------|---------------------|-------------------|--|----------------------|-----------------------|-------------------|---|
| S-1000    | MP 0.571 |                       |                     |                   |  |                      | 1                     |                   | Add energy dissipater to outlet   |
| S-1000    | MP 0.667 |                       |                     |                   |  |                      | 1                     |                   | Add energy dissipater to outlet   |
| S-1000    | MP 0.847 | 18                    | 30                  |                   |  | 0.5                  | 0.5                   | PR                | Install plastic culvert. Replace existing metal culvert.                          |
| S-1000    | MP 1.001 |                       |                     |                   |  |                      |                       |                   | Clean inlet   |
| S-1000    | MP 2.090 |                       |                     |                   |  |                      |                       |                   | Clean inlet and Outlet  |
| S-1000    | MP 2.390 | 18                    | 32                  |                   |  | 0.5                  | 0.5                   | PR                | Install plastic culvert. Ditchout right 45'.                                      |
| S-1000    | MP 2.443 | 12                    |                     | 60                |  |                      |                       |                   | Install flared inlet, 12"x60' flume, 12"x20' perf pipe. See detail sheet.         |
| S-1000    | MP 2.494 | 18                    | 30                  |                   |  | 0.5                  | 0.5                   | PR                | Install plastic culvert. See detail sheet.  |
| S-1000    | MP 2.494 | 18                    | 20                  |                   |  |                      |                       |                   | Install above ground culvert, 45°-90° elbow, 18"x40' perf pipe. See detail sheet. |
| S-1000    | MP 2.664 |                       |                     |                   |  |                      |                       |                   | Clean inlet and outlet.   |
| S-1000    | MP 3.000 | 18                    | 40                  |                   |  | 0.5                  | 0.5                   | PR                | Install plastic culvert   |
| S-1000    | MP 3.057 |                       |                     |                   |  |                      |                       |                   | Clean outlet  |
| S-1000    | MP 3.334 |                       |                     |                   |  |                      | 1                     |                   | Add energy dissipater to outlet   |
| S-1000    | MP 3.366 |                       |                     |                   |  |                      |                       |                   | Clean outlet  |
| S-1000    | MP 3.471 | 24                    | 48                  | 40                |  | 1                    | 1                     | PR                | Install plastic culvert   |
| S-1000    | MP 3.742 |                       |                     |                   |  |                      |                       |                   | Clean outlet and inlet  |
| S-1000    | MP 3.978 | 18                    | 40                  |                   |  | 0.5                  | 0.5                   | PR                | Install cross drain culvert. Ditchout right 50'.                                  |
| S-1000    | MP 3.979 |                       |                     |                   |  |                      |                       | PR                | Remove existing culvert in spur approach.   |
| S-1000    | MP 4.020 | 72                    | 60                  |                   |  | 10                   | 10                    | CR/NT             | Remove existing culvert. Install culvert as per design.                           |
| S-1000    | MP 4.140 |                       |                     |                   |  |                      |                       |                   | Clean inlet and outlet  |
| S-1000    | MP 4.165 | 18                    | 28                  |                   |  | 0.5                  | 0.5                   | PR                | Install plastic culvert. Replace existing metal culvert.                          |
| S-1000    | MP 4.286 |                       |                     |                   |  |                      |                       |                   | Clean inlet   |
| S-1000    | MP 4.337 |                       |                     |                   |  |                      |                       |                   | Add energy dissipater to outlet   |
| S-1000    | MP 4.427 |                       |                     |                   |  |                      |                       |                   | Clean inlet and outlet  |
| S-1000    | MP 4.545 | 18                    | 36                  |                   |  | 0.5                  | 0.5                   | PR                | Install plastic culvert. Replace existing metal culvert.                          |
| S-1000    | MP 4.686 |                       |                     |                   |  |                      |                       |                   | Clean outlet  |
|           |          |                       |                     |                   |  |                      |                       |                   |   |

## CULVERT LIST CONTINUED

| ROAD NAME  | STATION | CULVERT DIAMETER (in) | CULVERT LENGTH (ft) | FLUME LENGTH (ft) |  | RIP RAP - INLET (cy) | RIP RAP - OUTLET (cy) | BACKFILL MATERIAL | NOTES                   |
|------------|---------|-----------------------|---------------------|-------------------|--|----------------------|-----------------------|-------------------|-------------------------|
| 21+50 Spur | 3+69    | 18                    | 26                  |                   |  |                      |                       | PR                | Install plastic culvert |
| 21+50 Spur | 8+40    | 18                    | 30                  |                   |  |                      |                       | NT                | Install plastic culvert |
| 21+50 Spur | 12+46   | 18                    | 26                  |                   |  |                      |                       | NT                | Install plastic culvert |
| 21+50 Spur | 14+00   | 18                    | 40                  |                   |  |                      |                       | NT                | Install plastic culvert |
| 15+75 Spur | 0+00    |                       |                     |                   |  |                      |                       | NT                | Clean inlet and outlet  |
| 15+75 Spur | 2+15    | 18                    | 28                  |                   |  | 0.5                  | 0.5                   | NT                | Install plastic culvert |
| 15+75 Spur | 6+50    | 18                    | 28                  |                   |  | 0.5                  | 0.5                   | NT                | Install plastic culvert |
| 15+75 Spur | 12+10   | 18                    | 28                  |                   |  | 0.5                  | 0.5                   | NT                | Install plastic culvert |
| 3+15 Spur  | 1+90    | 18                    | 28                  |                   |  | 0.5                  | 0.5                   | NT                | Install plastic culvert |

All rip rap shall be Oversize unless specified in the Rock List, or in the field.

All backfill shall be native material (NT) unless specified otherwise. CR= 1½" minus crushed rock, PR = pitrun or ballast

DEPARTMENT OF NATURAL RESOURCES

FDJ001 (Rev/Dec 01-08)

SUMMARY - Road Development Costs

SALE NAME: Chum VRI  
 LEGAL DESCRIPTION: Sec 9, 16, 20, 29, 30 T32N R13W

CONTRACT#: 30-093140

REGION: Olympic

DISTRICT: Coast

| ROAD NAME:                               | ROAD TYPE: | NUMBER OF STATIONS: | SIDE SLOPE: | 0+65 Spur    | 1+00 Spur    | 1+70 Spur    | 2+20 Spur    | 2+75 Spur    | 3+15 Spur    | 3+40 Spur    | 4+20 Spur    | 21+50 Spur   | Stockpile 1  | Stockpile 2  | TOTAL:    |
|--|------------|---------------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------|
|  |            |                     |             | Construction | TOTAL:    |
|  |            |                     |             | 0.65         | 1.00         | 1.70         | 2.20         | 2.75         | 3.15         | 3.40         | 4.20         | 14.50        | 0.00         | 0.00         | 33.55     |
|  |            |                     |             |              |              |              |              |              |              |              |              |              |              |              | \$ 358.81 |
| CLEARING AND GRUBBING:                   |            |                     |             |              |              |              |              |              |              |              |              |              |              |              |           |
| ROAD BRUSHING:                           |            |                     |             | \$90         | \$139        | \$236        | \$306        | \$382        | \$438        | \$797        | \$584        | \$1,653      | \$0          | \$0          | \$4,626   |
| EXCAVATION AND FILL:                     |            |                     |             | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0       |
| ROAD GRADING:                            |            |                     |             | \$207        | \$319        | \$825        | \$1,069      | \$1,337      | \$1,005      | \$2,410      | \$2,041      | \$7,047      | \$0          | \$0          | \$16,258  |
| DITCH CLEANING/CONSTRUCTION:             |            |                     |             | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0       |
| ROCK TOTALS (Cl. Yds.):                  |            |                     |             | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0       |
| Ballast:                                 | 8060       | \$472               | \$741       | \$1,418      | \$1,132      | \$1,428      | \$2,076      | \$1,949      | \$4,746      | \$7,206      | \$55,520     | \$66,528     | \$143,305    | \$ 31,014.92 |           |
| Borrow:                                  | 1450       | \$0                 | \$0         | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0       |
| Subbase:                                 | 1390       | \$0                 | \$0         | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0       |
| Oversize:                                | 41         | \$0                 | \$0         | \$0          | \$0          | \$0          | \$0          | \$0          | \$7          | \$0          | \$0          | \$27         | \$216        | \$425        | \$675     |
| CULVERTS AND PILES:                      |            |                     |             | \$0          | \$0          | \$0          | \$0          | \$0          | \$616        | \$0          | \$0          | \$2,112      | \$0          | \$0          | \$3,728   |
| STRUCTURES:                              |            |                     |             | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0       |
| MISC. EXPENSES:                          |            |                     |             | \$4          | \$6          | \$10         | \$13         | \$46         | \$48         | \$50         | \$55         | \$85         | \$0          | \$0          | \$316     |
| OVERHEAD:                                |            |                     |             | \$62         | \$96         | \$199        | \$202        | \$255        | \$335        | \$416        | \$594        | \$1,458      | \$4,459      | \$5,356      | \$13,453  |
| TOTAL COSTS:                             |            |                     |             | \$835        | \$1,301      | \$2,688      | \$3,222      | \$3,448      | \$4,524      | \$5,621      | \$8,020      | \$19,678     | \$60,195     | \$72,309     | \$181,341 |
| COST PER STATION:                        |            |                     |             | \$1,285      | \$1,301      | \$1,581      | \$1,237      | \$1,254      | \$1,436      | \$1,653      | \$1,910      | \$1,357      | \$0          | \$0          | \$5,405   |
| MOBILIZATION:                            |            |                     |             |              |              | \$5,600      |              |              |              |              |              |              |              |              | \$5,600   |
| ROAD DEACTIVATION AND ABANDONMENT COSTS: |            |                     |             |              |              |              |              |              |              |              |              |              |              |              | \$0       |
| PA Work:                                 |            |                     |             |              |              |              |              |              |              |              |              |              |              |              | \$0       |

NOTE: This appraisal has no allowance for profit and risk.  
 Sheet 1 of 2  
 Plans to be furnished by:

|                          |               |
|--------------------------|---------------|
| TOTAL (All Roads) =      | \$333,835     |
| SALE VOLUME MBF =        | 6,763         |
| TOTAL COST PER MBF =     | \$49.36       |
| TOTAL COST PER STATION = | \$580.84      |
| Revised by: Bill Mehl    | DRC: 02/08/16 |

Chum Cost Sheet REVISED.kisx

| ROAD NAME:                   | S-1000 LNDS 4+60 Spur | 15+75 Spur | S-10001  | S-1000   | S-1300   | S-1400  | 21+50 Spur | Subtotal |
|------------------------------|-----------------------|------------|----------|----------|----------|---------|------------|----------|
| ROAD TYPE:                   | Construction          | Recon      | Recon    | Prehaul  | Prehaul  | Prehaul | Prehaul    |          |
| NUMBER OF STATIONS:          | 14                    | 5          | 16       | 24       | 271      | 13      | 9          | 7        |
| SIDE SLOPE:                  |                       |            |          |          |          |         |            |          |
| CLEARING AND GRUBBING:       | \$1,197               | \$393      | \$1,347  | \$2,052  | \$0      | \$0     | \$0        | \$0      |
| ROAD BRUSHING:               | \$0                   | \$0        | \$0      | \$0      | \$0      | \$0     | \$0        | \$0      |
| EXCAVATION AND FILL:         | \$1,582               | \$1,465    | \$4,300  | \$9,828  | \$0      | \$0     | \$0        | \$17,175 |
| ROAD GRADING:                | \$0                   | \$30       | \$102    | \$156    | \$1,764  | \$83    | \$60       | \$2,241  |
| DITCH CLEANING/CONSTRUCTION: | \$0                   | \$187      | \$1,229  | \$923    | \$858    | \$0     | \$0        | \$3,743  |
| ROCK TOTALS:                 | \$0                   | \$0        | \$0      | \$0      | \$0      | \$0     | \$0        | \$0      |
| Ballast:                     | \$6,920               | \$2,503    | \$7,946  | \$12,116 | \$2,680  | \$282   | \$378      | \$189    |
| Surface:                     | \$6,870               | \$0        | \$0      | \$22,916 | \$0      | \$1,680 | \$0        | \$31,466 |
| Oversize:                    | \$0                   | \$0        | \$22     | \$0      | \$243    | \$0     | \$0        | \$266    |
| CULVERTS AND FLUMES:         | \$0                   | \$0        | \$1,848  | \$0      | \$10,035 | \$0     | \$0        | \$572    |
| STRUCTURES:                  | \$82                  | \$0        | \$0      | \$24,607 | \$0      | \$0     | \$0        | \$24,607 |
| MISC. EXPENSES:              | \$1,332               | \$418      | \$1,525  | \$374    | \$4,058  | \$75    | \$54       | \$4,962  |
| OVERHEAD:                    |                       |            |          | \$2,290  | \$6,044  | \$40    | \$196      | \$11,976 |
| TOTAL COSTS:                 | \$17,983              | \$3,066    | \$18,468 | \$27,739 | \$73,205 | \$479   | \$2,369    | \$1,584  |
| COST PER STATION:            | \$1,285               | \$1,101    | \$1,173  | \$1,156  | \$178    | \$38    | \$255      | \$226    |
|                              |                       |            |          |          |          |         |            | \$409    |

## COMPACTION LIST

| Road                | Stations | Type                                       | Max Depth Per Lift | Equipment Type        | Min Equipment Weight (lbs) | Minimum Number of Passes | Maximum Operating Speed (mph) |
|---------------------|----------|--|--------------------|-----------------------|----------------------------|--------------------------|-------------------------------|
| All                 | All      | Culvert Backfill                           | 8"                 | Jumping Jack          |                            | 2                        |                               |
| Prehaul Maintenance | All      | Existing Surface                           | N/A                | Vibratory Smooth Drum | 6,000                      | 3                        | 3                             |
| Prehaul Maintenance | All      | Rock Placement                             | 6"                 | Vibratory Smooth Drum | 6,000                      | 3                        | 3                             |
| Reconstruction      | All      | Subgrade (except puncheon), Rock Placement | 6"                 | Vibratory Smooth Drum | 6,000                      | 3                        | 3                             |
| Construction        | All      | Subgrade (except puncheon), Rock Placement | 6"                 | Vibratory Smooth Drum | 6,000                      | 3                        | 3                             |
| Post-Haul           | All      | Rock Lifts                                 | 6"                 | Vibratory Smooth Drum | 6,000                      | 3                        | 3                             |
| Post-Haul           | All      | As directed by Contract Administrator      | 6"                 | Vibratory Smooth Drum | 6,000                      | 3                        | 3                             |

## FISH STREAM WORK, PROVISIONS

1. **TIMING LIMITATIONS:** The fish culvert project may begin July 1 and shall be completed by September 30.
2. Work shall conform to plans and specifications in the road plan.
3. Prior to the commencement of in-stream work, the Purchaser shall isolate the work area in a manner that fish cannot enter the work area, capture and safely move fish and other fish life from the work area. The Purchaser shall have fish capture and transportation equipment ready and on the job site. Captured fish shall be immediately and safely transferred to free-flowing water downstream of the work area.

### TEMPORARY STREAM FLOW BYPASS

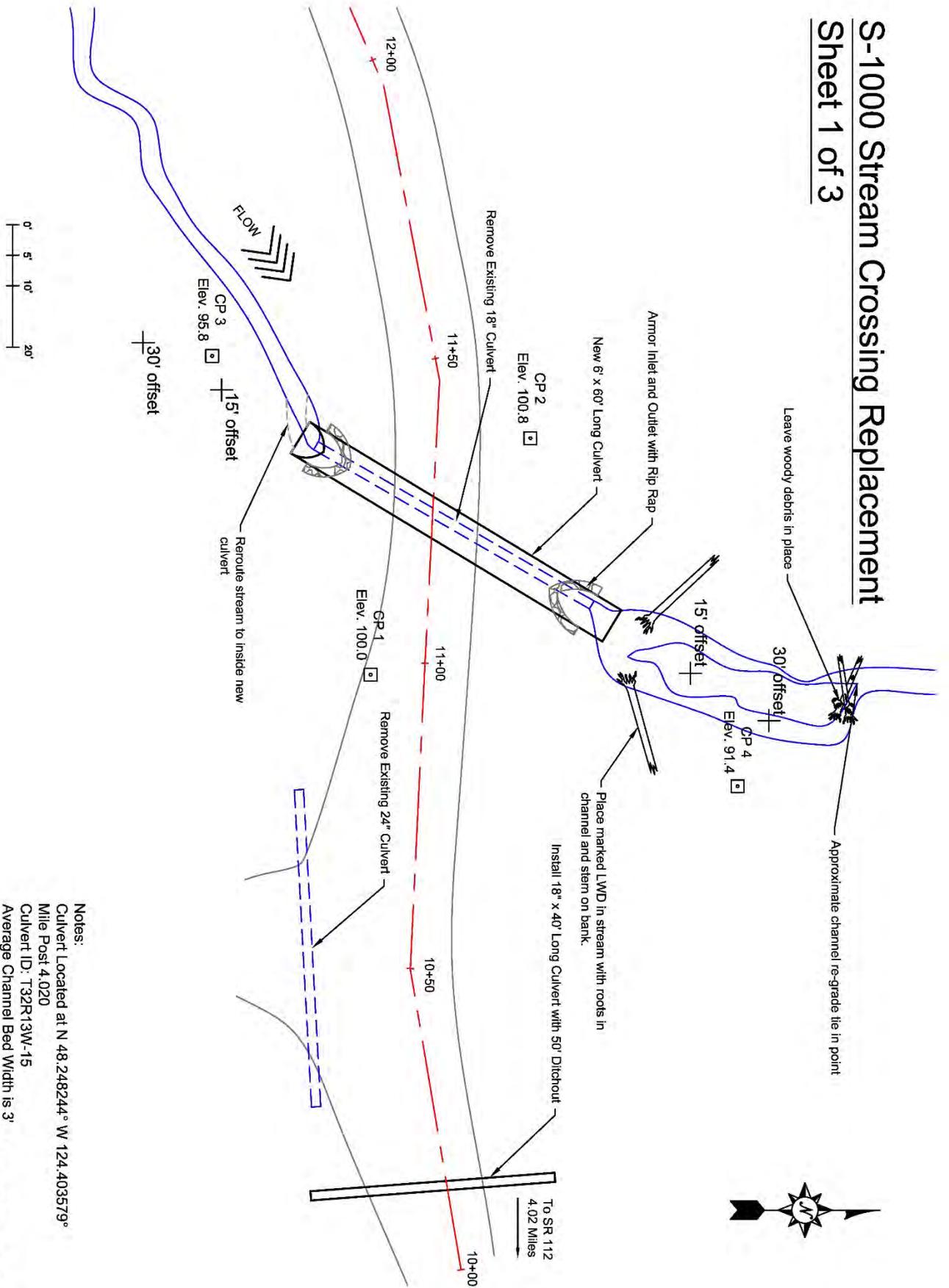
4. All in-stream work shall be conducted in the dry or in isolation from the stream flow by the installation of a bypass flume/pipe or by pumping the flow around the work area, back into the stream below the work area. Waste water pumped from within the work area shall terminate on the forest floor, sufficient distance from the stream to filter sediment prior to entering the stream.
5. The temporary bypass to divert flow around the work area shall be in place prior to initiation of other work in the wetted perimeter.
6. A sandbag revetment or similar device shall be installed at the bypass inlet to divert the entire flow through the bypass.
7. The bypass shall be of sufficient size to pass all flows and debris for the duration of the project.
8. If a pump is used for diverting water from the stream where fish are present, as per RCW 77.57.010 and 77.57.070, the pump intake shall be equipped with a fish guard to prevent passage of fish into the diversion pump. The pump intake shall be screened with 1/8 inch mesh to prevent fish from entering the pump. Velocity through the screened intake shall be less than 0.4 feet per second. Screens shall be maintained to prevent injury or entrapment of juvenile fish.

### WATER QUALITY

9. Extreme care shall be taken to ensure that no petroleum products, hydraulic fluid, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into the stream.

# S-1000 Stream Crossing Replacement

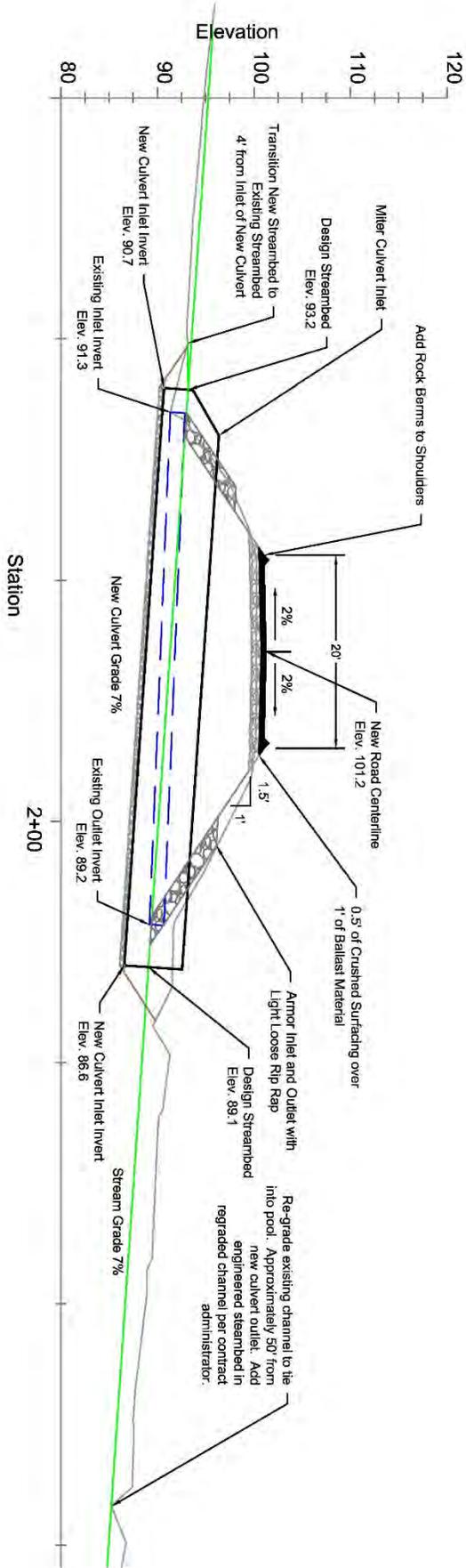
## Sheet 1 of 3



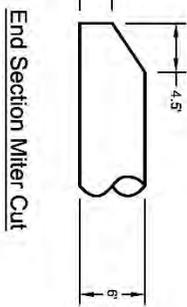
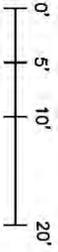
**Notes:**  
 Culvert Located at N 48.248244° W 124.403579°  
 Mile Post 4.020  
 Culvert ID: T32R13W-15  
 Average Channel Bed Width is 3'  
 Coordinates and elevations relative to an arbitrary datum

# S-1000 Stream Crossing Replacement

## Sheet 2 of 3



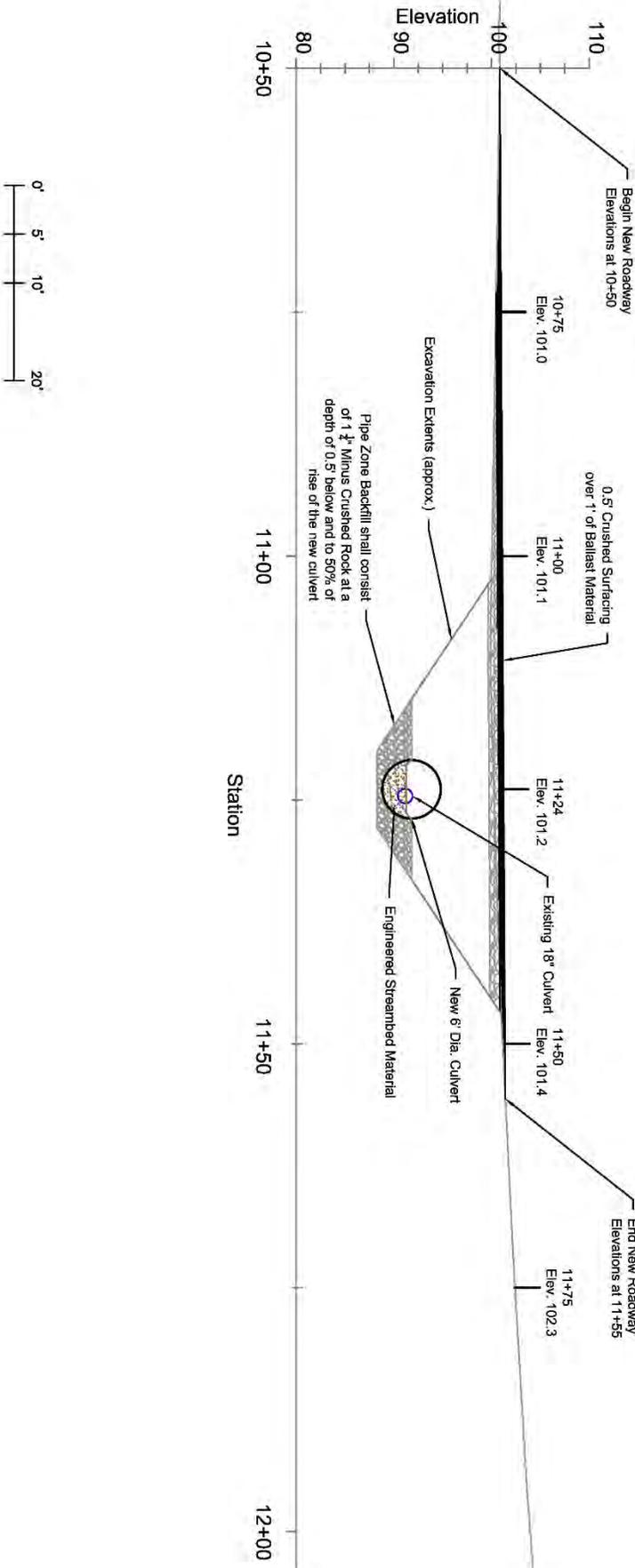
6' Dia. x 60', 10 gauge corrugated aluminized steel pipe to be installed as a stream simulation fish crossing in accordance with the FP-HP and Fish Stream Work Provision sheet. Backfill inside of pipe to a depth of 2.5' with engineered streambed material consisting of 10" minus pit run rock.



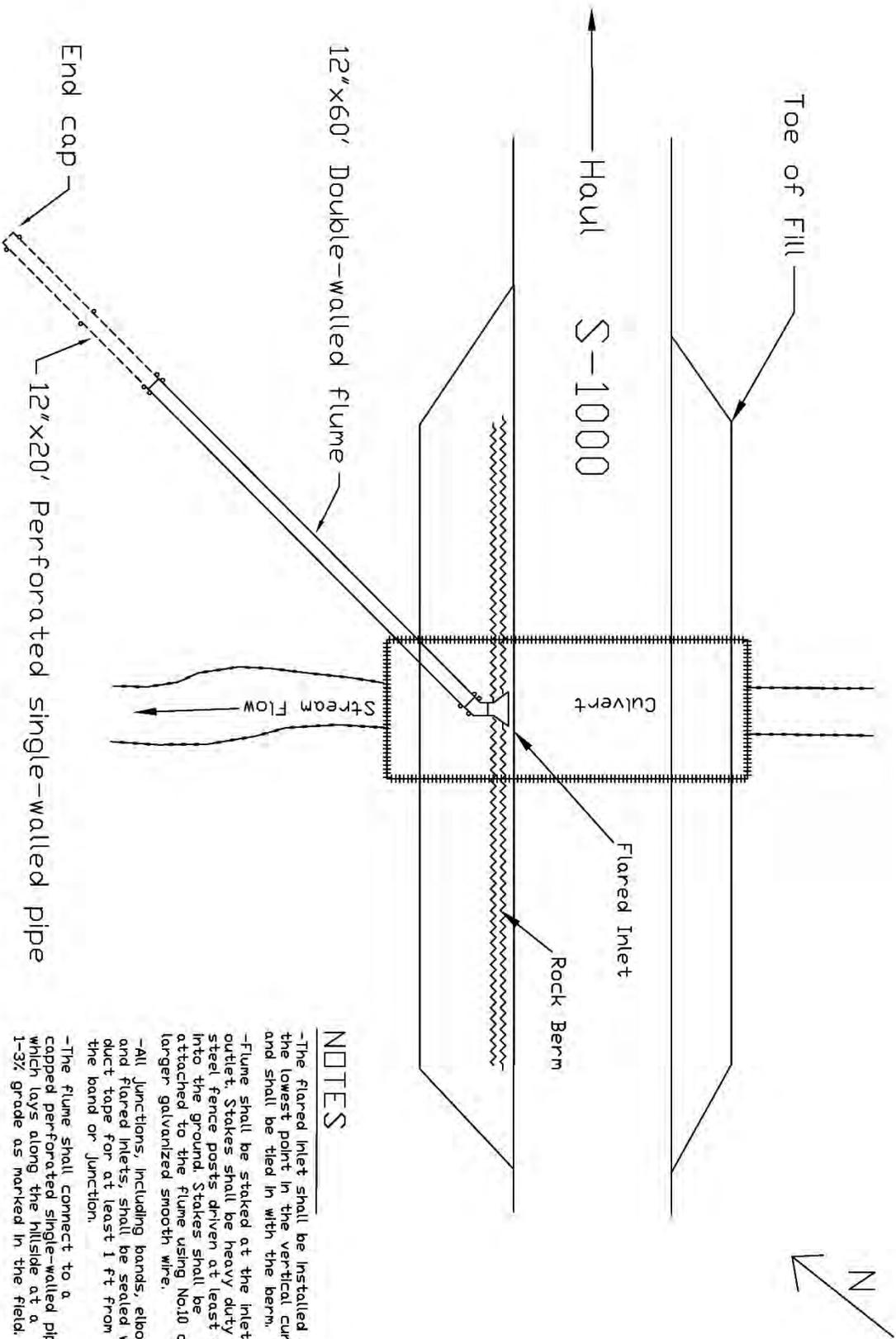
End Section Miter Cut

# S-1000 Stream Crossing Replacement

## Sheet 3 of 3



# S-1000 MP 2,443 Flared Inlet and Flume

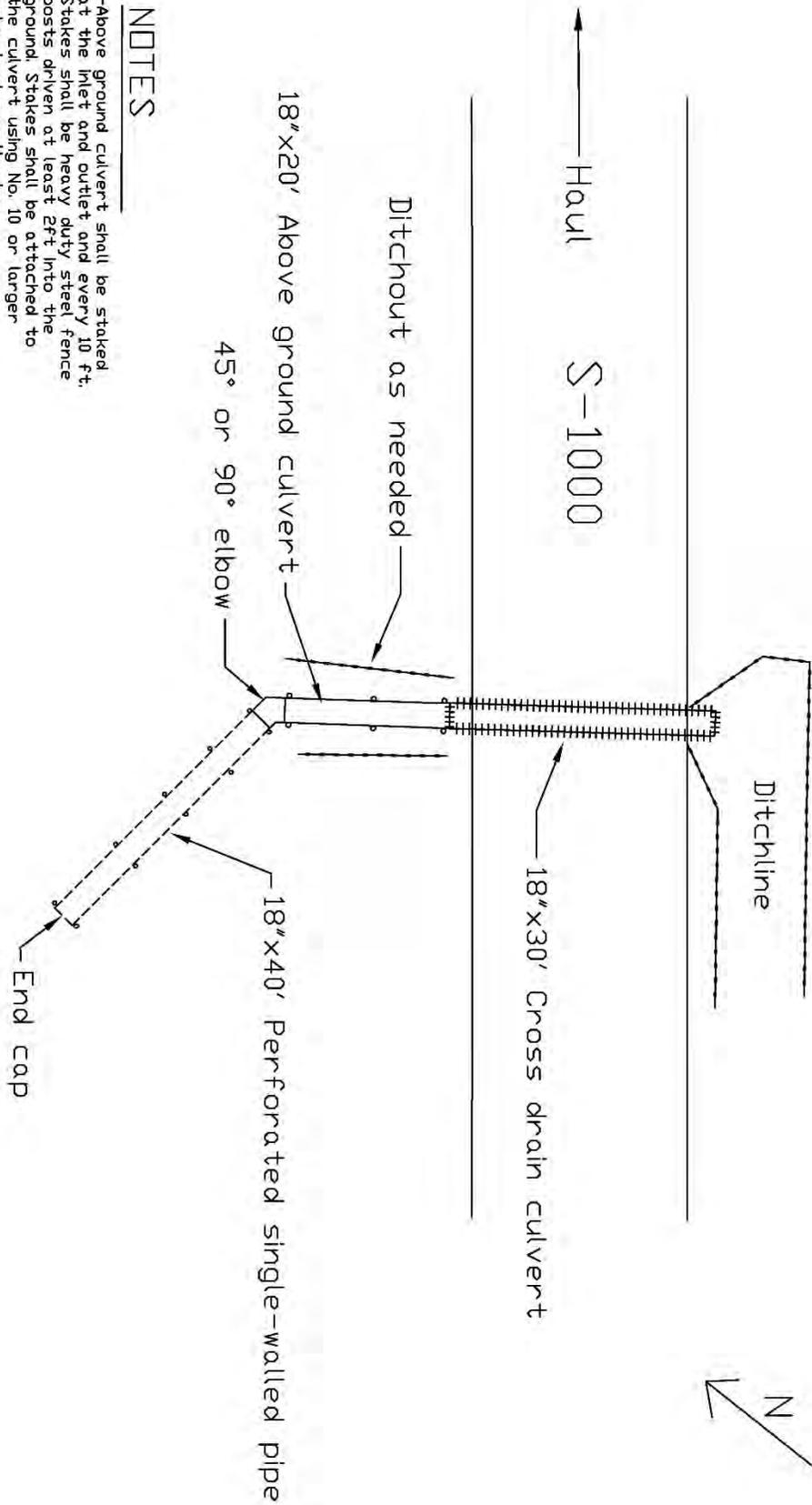


### NOTES

- The Flared Inlet shall be installed at the lowest point in the vertical curve and shall be tied in with the berm.
- Flume shall be staked at the inlet and outlet. Stakes shall be heavy duty steel fence posts driven at least 2ft into the ground. Stakes shall be attached to the Flume using No.10 or larger galvanized smooth wire.
- All junctions, including bands, elbows, and Flared Inlets, shall be sealed with duct tape for at least 1 ft from the band or junction.
- The flume shall connect to a capped perforated single-walled pipe which lays along the hillside at a 1-3% grade as marked in the field.

Not To Scale

S-1000 MP 2,494 Above Ground Culvert

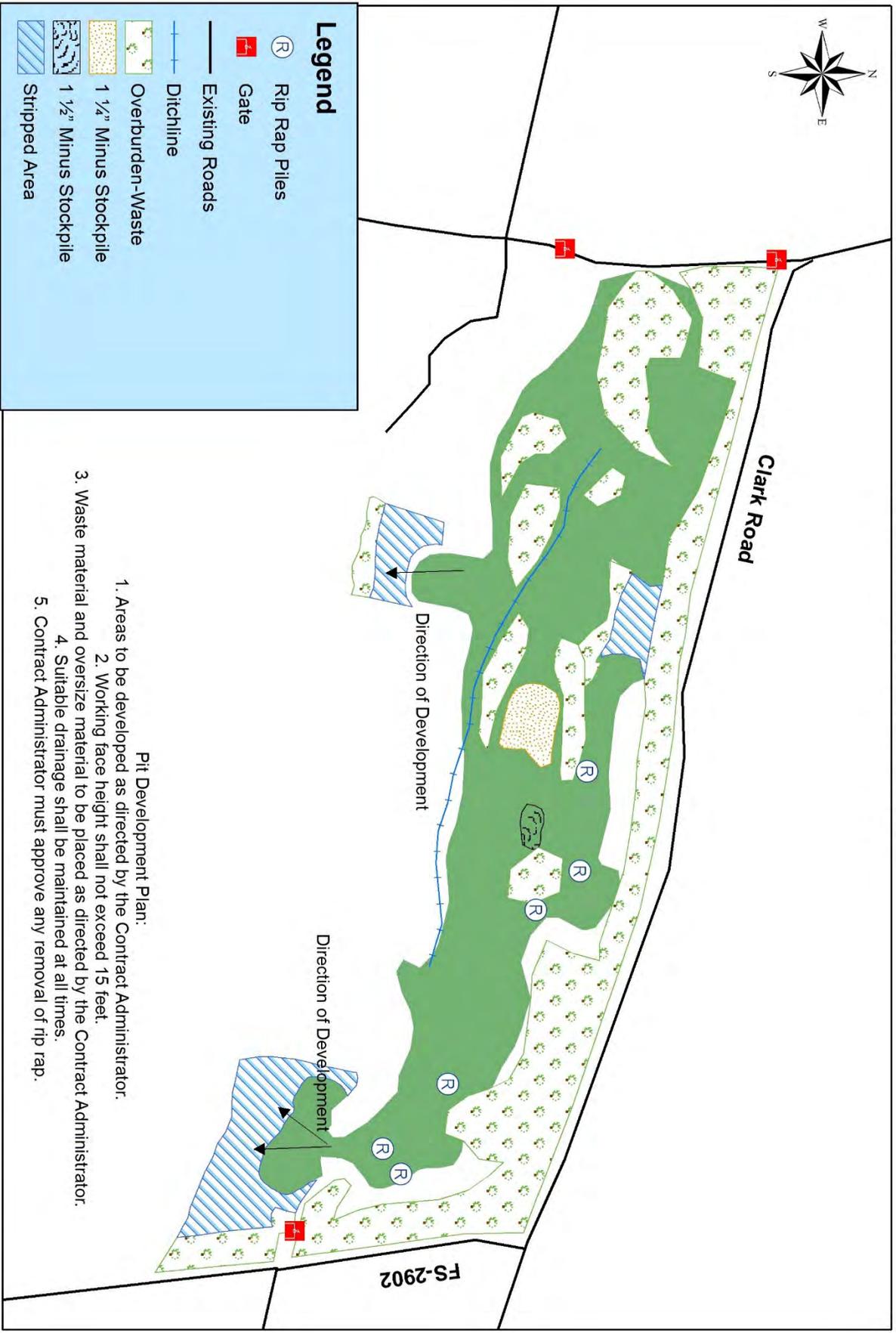


NOTES

- Above ground culvert shall be staked at the inlet and outlet and every 10 ft. Stakes shall be heavy duty steel fence posts driven at least 2ft into the ground. Stakes shall be attached to the culvert using No. 10 or larger galvanized smooth wire.
- All junctions, including bands, elbows, and flared inlets, shall be sealed with duct tape for at least 1 ft from the band or junction.
- Above ground culvert shall connect to a capped perforated single-walled pipe which lays along the hillside at a 1-3% grade as marked in the field.
- Ditchout outlet of cross drain culvert such that positive drainage of the above ground culvert is achieved.

Not To Scale

# Mary Clark Pit Plan T30N R12W Sec32



**Legend**

- (R) Rip Rap Piles
- Gate
- Existing Roads
- Ditchline
- Overburden-Waste
- 1 1/2" Minnus Stockpile
- 1 1/2" Minnus Stockpile
- Stripped Area

- Pit Development Plan:**
1. Areas to be developed as directed by the Contract Administrator.
  2. Working face height shall not exceed 15 feet.
  3. Waste material and oversize material to be placed as directed by the Contract Administrator.
  4. Suitable drainage shall be maintained at all times.
  5. Contract Administrator must approve any removal of rip rap.

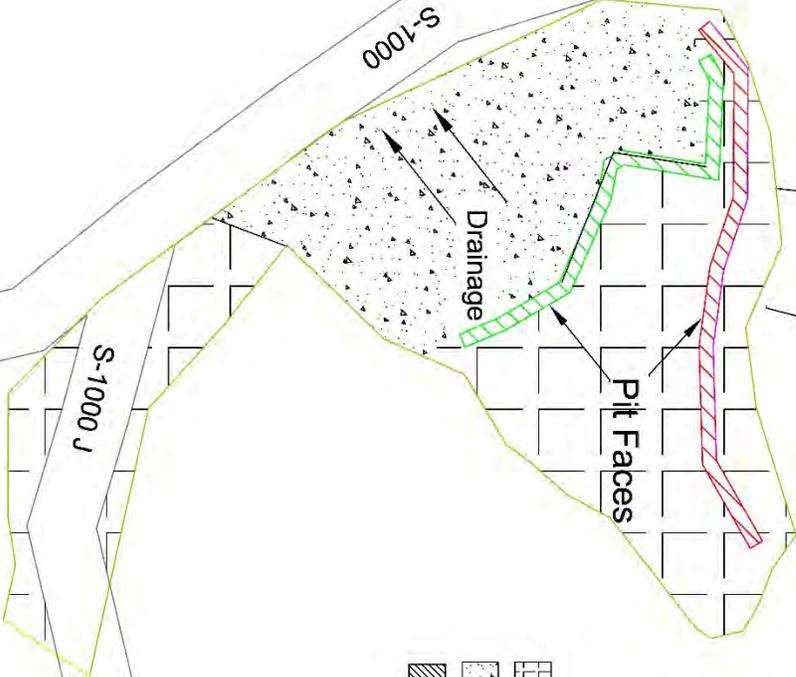
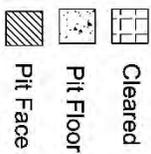
Not To Scale

Updated 10/22/2015

Direction of Development

### S-1000 Pit Plan SE1/4 NE 1/4 Sec. 30, T32N R13W

1. Working face height not to exceed 15 feet and shall not exceed 1/2:1.
2. Maintain 2% drainage on the pit floor shown.
3. The pit area shall be worked and left in a condition that future operations may proceed in an orderly manner.
4. Clearing and overburden stripping shall be maintained at a distance of 15 ft from an active pit face.
5. Safety berms shall be installed at the direction of the Contract Administrator.

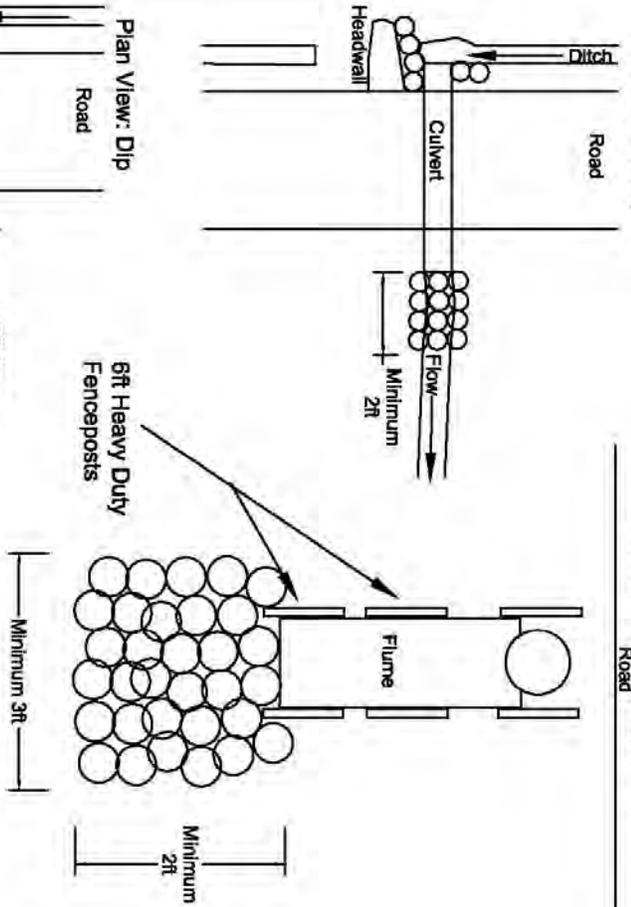


OLYMPIC REGION  
WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**  
Have Ourselves • Conserve for Their Use

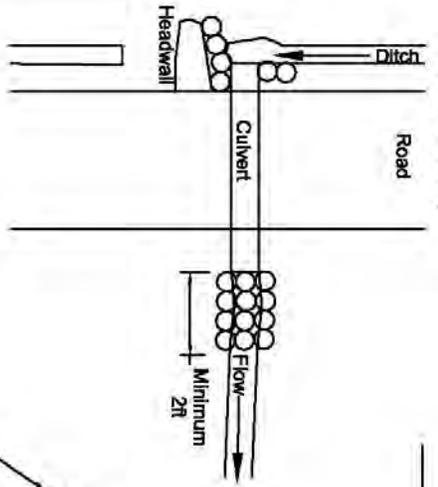
Designed By: G. Ellis  
Drawn By: G. Ellis  
Date: Dec 11, 2012  
Updated: 10/20/2015

# Typical Cross Drain Culvert Installation Detail Sheet.

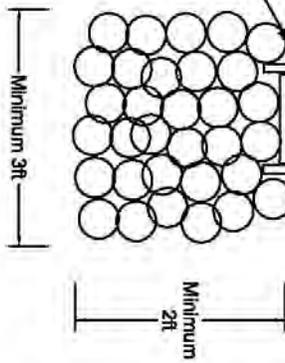
Cross Section View: Flume



Plan View: No Dip



6ft Heavy Duty Fenceposts



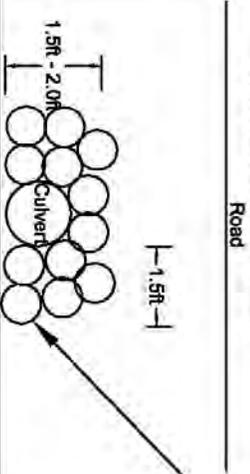
- Culvert lay shall not exceed 10%.
- Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.
- Oversize shall be placed using a "zero height drop method", and shall be set in conjunction with the culvert installation.
- Oversize shall be placed at headwalls, along the fill at the inlet, and at the end off flumes in accordance with this Detail. On culverts with no flume oversize shall be placed at the outlet as an energy dissipater as specified in this Detail. All oversize distance to be determined by the Contract Administrator.
- Backfill compaction for installations on existing roads shall be achieved using a jumping jack, or plate compactor on lifts not to exceed 8in. 3 complete passes per lift is required for compaction. Backfill shall be placed and compacted evenly on both sides of the culvert. Care shall be taken to ensure adequate compaction of backfill material under the haunches of the pipe. Excavation trench width shall be at least culvert diameter plus at least the width of the compactor footprint used..

| Culvert Minimum Cover |       |         |
|-----------------------|-------|---------|
| Diameter              | Steel | Plastic |
| 18"                   | 18"   | 18"     |

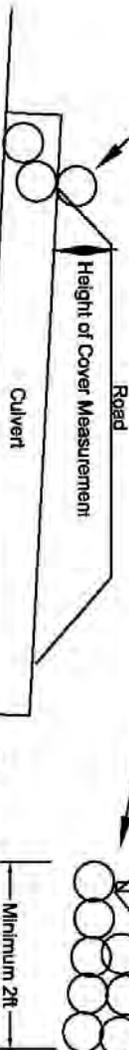
Profile View: Flume



Cross Section View: Inlet



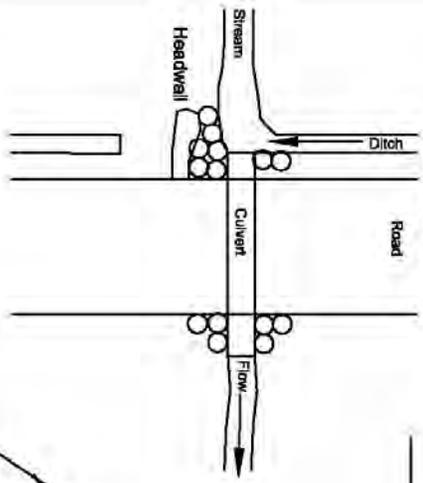
Profile View: No Flume



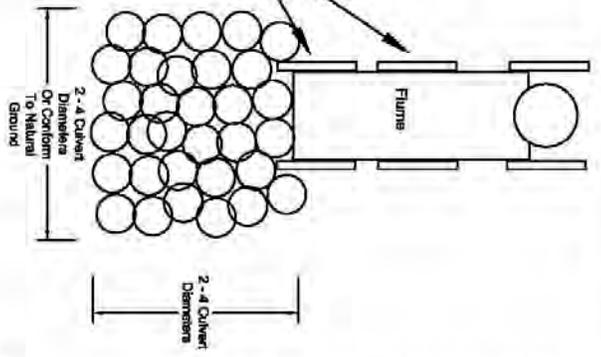
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# Typical Type Ns, Np Culvert Installation Detail Sheet.

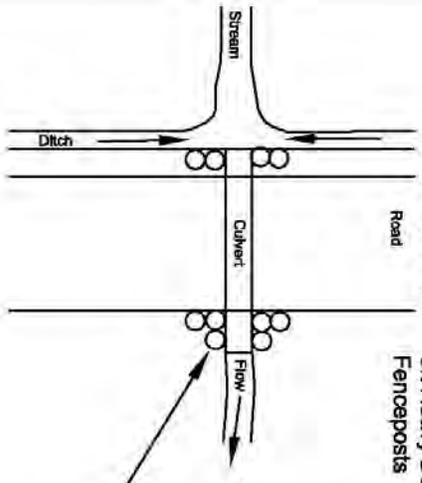
Plan View: No Dip



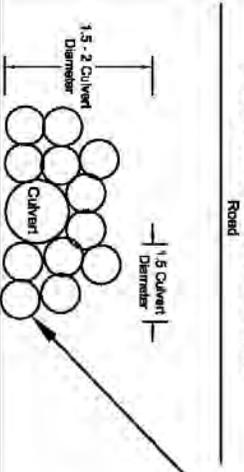
Cross Section View: Flume



Plan View: Dip



Cross Section View: No Flume



-Water shall be diverted away from the work site before any "in stream" work begins, and shall continue until culvert installation is complete.

-Culvert lay shall match stream gradient up to 5%.

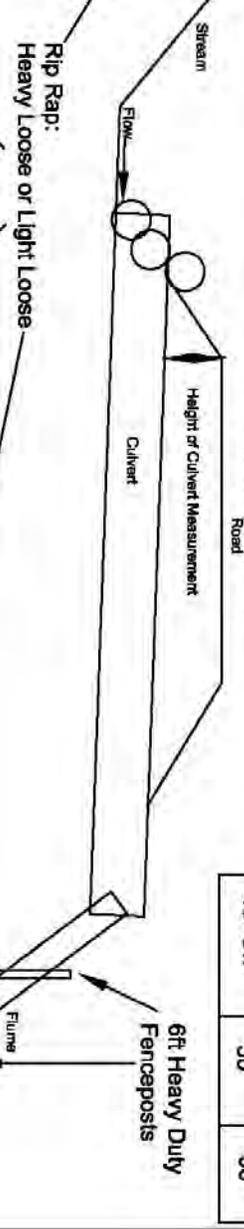
-Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.

-Rip rap shall be placed using a "zero height drop method", and shall be set in conjunction with the culvert installation.

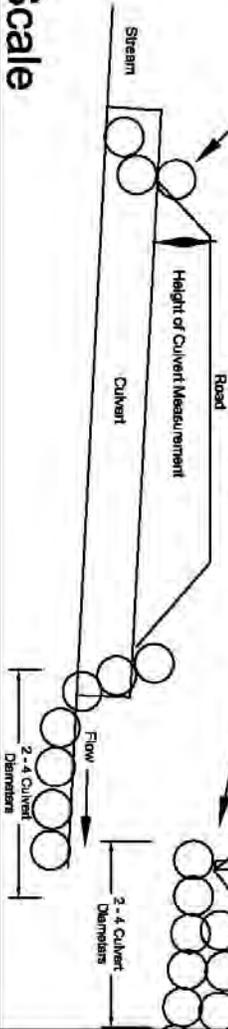
-Rip rap shall be placed at headwalls, along the fill at the inlet, and at the end of flumes in accordance with this Detail. On culverts with no flume rip rap shall be placed along the fill at the outlet, unless there is stream drop or it is called for in the Road Plan, at which point it will be installed as an energy dissipater at the end of the culvert as specified in this Detail. All rip rap distance to be determined by the Contract Administrator or the District Engineer.

-Backfill compaction shall be achieved using a jumping jack, walk behind vibratory roller, or plate compactor on lifts not to exceed 8in. 3 complete passes per lift is required for compaction. Backfill shall be placed and compacted evenly on both sides of the culvert. Care shall be taken to ensure adequate compaction of backfill material under the haunches of the pipe. Excavation trench width shall be at least culvert diameter plus 3 times the width of the compactor footprint used.

Profile View: Flume



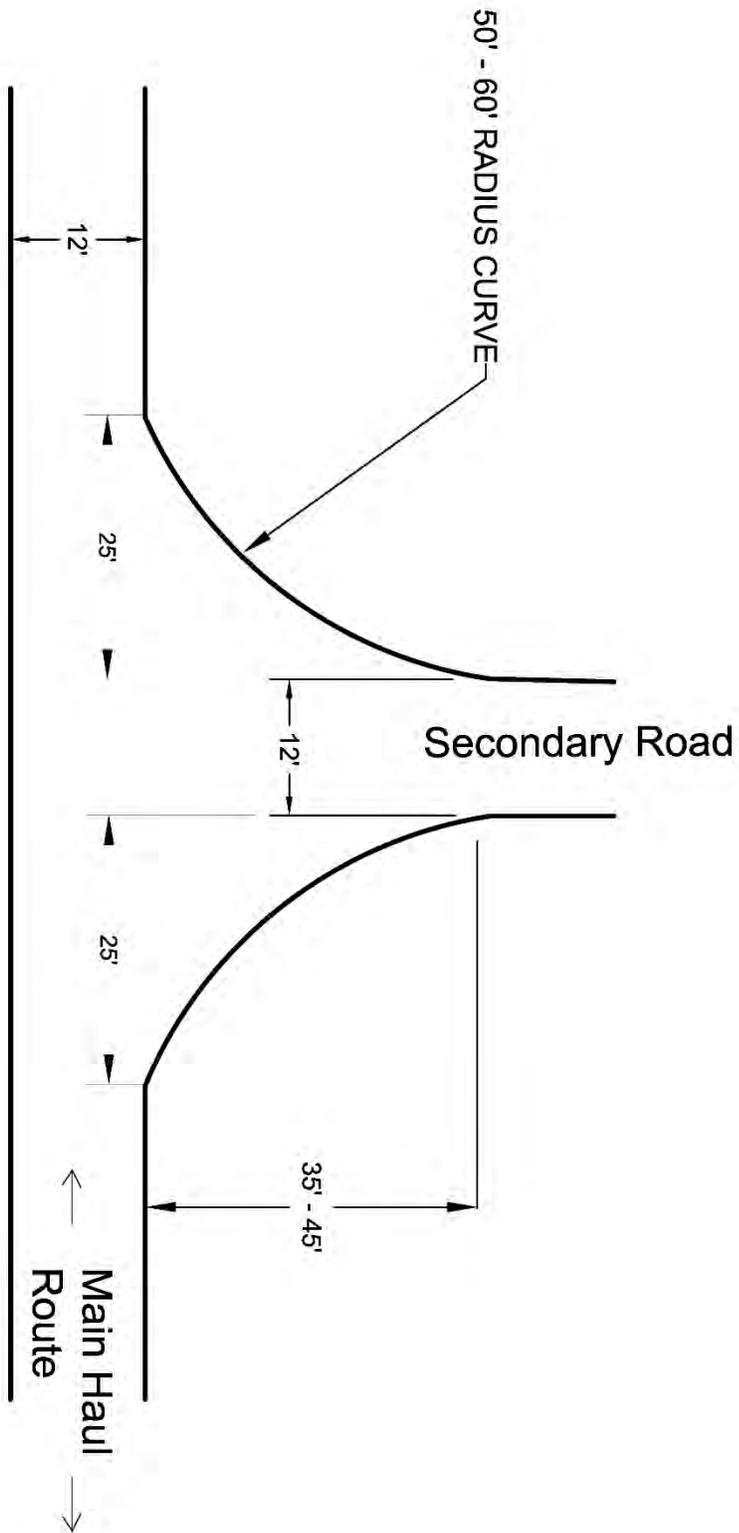
Profile View: No Flume



| Culvert Diameter | Minimum Steel | Cover Plastic |
|------------------|---------------|---------------|
| 24"              | 18"           | 24"           |
| 30" - 42"        | 24"           | 24"           |
| 48" On           | 36"           | 36"           |

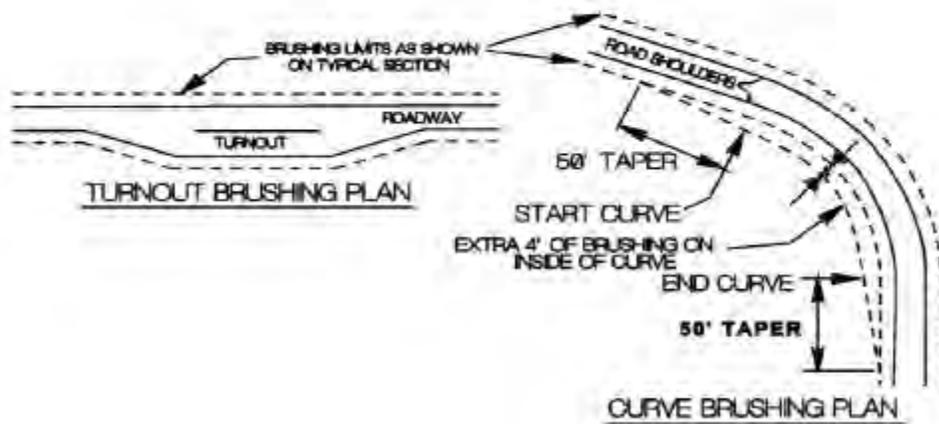
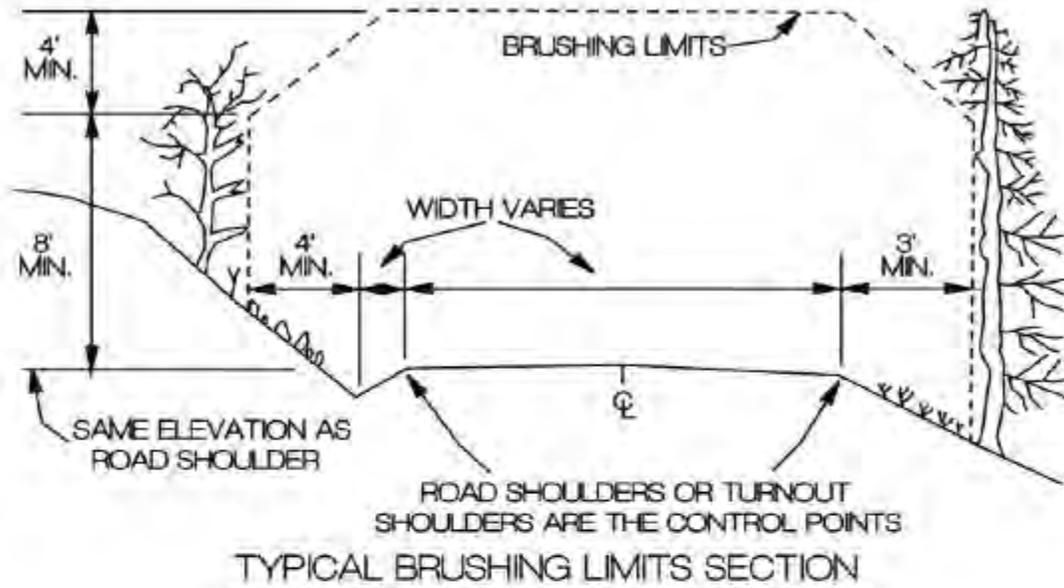
Not To Scale

# TYPICAL INTERSECTION TURNAROUND



NOT TO SCALE

# BRUSHING DETAIL



- 1) ALL VEGETATION WITHIN THE BRUSHING LIMITS SHALL BE CUT TO WITHIN 8' OF THE GROUND, UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.
- 2) ALL BRUSH, TREES, LIMBS, ETC. SHALL BE REMOVED FROM THE ROAD SURFACE.
- 3) ALL BRUSH, TREES, LIMBS, ETC. THAT MAY RESTRICT THE FLOW OF WATER SHALL BE REMOVED FROM THE DITCH LINE.
- 4) ALL DEBRIS THAT MAY ROLL OR MIGRATE INTO THE DITCHLINE SHALL BE REMOVED.

## FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

### Cuts and Fills

- Maintain slope lines to a stable gradient compatible with the cut slope/fill slope ratios. Remove slides from ditches and the roadway. Repair fill-failures in accordance with Clause 4-6 Embankment Slope Ratio, and with material approved by the Contract Administrator. Remove overhanging material from the top of cut slopes.
- Waste material from slides or other sources shall be placed and compacted in stable locations identified in the road plan or approved by the Contract Administrator, so that sediment will not deliver to any streams or wetlands.
- Slide material and debris shall not be mixed into the road surface materials, unless approved by the Contract Administrator.

### Surface

- Grade, shape, and compact the road surface, turnouts, and shoulders to the original shape on the Typical Section Sheet, to provide a smooth, rut-free traveled surface and maintain surface water runoff in an even, unconcentrated manner.
- Blading shall not undercut the backslope or cut into geotextile fabric on the road.
- If required by the Contract Administrator, water shall be applied as necessary to control dust and retain fine surface rock.
- Surface material shall not be bladed off the roadway. Replace surface material when lost or worn away, or as directed by the Contract Administrator.
- Remove shoulder berms, created by grading, to facilitate drainage, except as marked or directed by the Contract Administrator.
- For roads with geotextile fabric: spread surface aggregate to fill in soft spots and wheel ruts (barrel spread) to prevent damage to the geotextile fabric.

### Drainage

- Prevent silt bearing road surface and ditch runoff from delivering sediment to any streams or wetlands.
- Maintain rolling dips and drivable waterbars as needed to keep them functioning as intended.
- Maintain headwalls to the road shoulder level with material that will resist erosion.
- Maintain energy dissipaters at culvert outlets with non-erodible material or rock.
- Keep ditches, culverts, and other drainage structures clear of obstructions and functioning as intended.
- Inspect and clean culverts at least monthly, with additional inspections during storms and periods of high runoff. This shall be done even during periods of inactivity.

### Preventative Maintenance

Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

### Termination of Use or End of Season

At the conclusion of logging operations, ensure all conditions of these specifications have been met.

### Debris

Remove fallen timber, limbs, and stumps from the slopes, roadway, ditchlines, and culvert inlets.

