STATE OF IDAHO

DEPARTMENT OF LANDS

2021 CFI RE-MEASUREMENT

REQUEST FOR QUOTE NO. 21-238

DUE BEFORE 3:00:00 PM PT ON APRIL 8, 2021

STATE OF IDAHO
DEPARTMENT OF LANDS
REQUEST FOR QUOTE 21-238

2021 CFI RE-MEASUREMENT

RESPONSES DUE BEFORE **3:00:00 PM PT on APRIL 8, 2021**

The purpose of this Request for Quote (RFQ) package is to solicit quotes for the efficient completion of the CONTINUOUS FOREST INVENTORY work outlined in the attached project descriptions and contract documents.

QUESTIONS:

Questions pertaining to RFQ specifications must be submitted in writing via email to **Sherry Groeschl** at sgroeschl@idl.idaho.gov. The deadline for receiving questions is 5:00 P.M., PT, Thursday, April 1, 2021. Only questions answered by written amendment are binding. Oral interpretations have no legal effect. Unofficial communication streams are not binding and at your own risk. Responses to questions received will be posted as an addendum on the IDL website at www.idl.idaho.gov. Verbal questions will not be accepted.

INSTRUCTIONS:

All price quotes will be entered on the attached Schedule A. The signed Schedule A may be electronically submitted to the **email address** listed below. Idaho Department of Lands shall award the Contract to the qualified Vendor submitting the lowest responsible and responsive quote. In the case of math errors, the PRICE PER UNIT will be correctly extended and the corrected TOTAL EXTENDED AMOUNT will be the basis for award.

RFQ DEADLINE AND DELIVERY REQUIREMENTS:

Quotes must be received by the Idaho Department of Lands at the **Email address** listed below **before 3:00:00 PM PT on APRIL 8, 2021.** The Department of Lands is not responsible for lost or undelivered quotes by the RFQ deadline. The Idaho Department of Lands assumes no responsibility for failure of any electronic submission process, including any computer or other equipment to deliver all or a portion of the Quote at the time, or to the location, required by the Solicitation. The date and time of electronically received Quotes, to the Idaho Department of Lands email address listed below, will be used to determine if electronically submitted Quotes were received by the due date and time specified. **Late quotes will not be accepted. Fax quotes will not be accepted. Mailed quotes will not be accepted.**

Delivery Address:
EMAIL ONLY
sgroeschl@idl.idaho.gov

Sealed Quote For:	RFQ 21-238 2021 CFI Re-Measurement
Responses due Before:	**3:00:00 PM PT on APRIL 8, 2021**

IDAHO DEPARTMENT OF LANDS

STANDARD INFORMATION

ADDENDA

It will be the respondent's responsibility to check for any addenda prior to submitting a quotation. In the event it becomes necessary to revise any part of the solicitation documents, addenda will be made available. Information given to a respondent will be available to all other respondents if such information is necessary for purposes of submitting a quotation or if failure to give such information would be prejudicial to uninformed respondents.

BURDEN OF PROOF

ANY VARIATIONS of brand names or deviations from the specifications MUST BE CLEARLY STATED. It shall be the responsibility and burden of the submitting vendor to furnish the State WITH ITS ORIGINAL SUBMISSION, sufficient data to determine if the goods or services offered conform to the specifications.

ORAL INFORMATION

The State will not be responsible for any verbal or oral information regarding a quote.

DISQUALIFICATION AND AWARD INFORMATION

The state reserves the right to make reasonable inquiry to determine the responsibility of a contractor. Such requests may include but not be limited to financial statements, credit ratings, statements of experience and past performance, references, etc. Successful contractors must show to the satisfaction of the Idaho Department of Lands that they have sufficient equipment and work crews to complete the work contracted by the time specified. The unreasonable failure of a contractor to promptly supply information in connection with such a request is reason for disqualification. Except as otherwise provided by law, information furnished by the contractor pursuant to this provision may not be disclosed outside the Idaho Department of Lands without prior written consent of the Contractor. Disqualification of a high-ranking contractor may be pursued when their reputation, experience or references are such as to create a doubt about satisfactory job completion or if the price quotes are considerably below Department estimates and the other quotes. The purchasing agent will contact the contractor and request that they disqualify themselves by withdrawing in writing. If the contractor refuses to withdraw, the purchasing agent may notify the contractor in writing or email that the Department will not offer the contractor a contract and proceed with an award to the next responsible contractor.

PARTNERSHIPS

Contractors responding as partners must furnish the Idaho Department of Lands the name of the partnership, names of the partners, and the partnership's federal taxpayer ID number. All payments will be made to the partnership.

INTERNAL REVENUE SERVICES REPORTING REQUIREMENT

IRS rules and regulations require employers to submit a miscellaneous income form (IRS form 1099) for all contractual persons who receive $600 or more in a calendar year. Incorporated firms are exempt from this reporting requirement. The contractor's taxpayer identification number (Social Security or employer number) must be listed on the signature page of the contract.

PUBLIC RECORDS

The Idaho Public Records Law, Idaho Code Sections 74-101 through 74-126, allows the open inspection and copying of public records. Public records include any writing containing information relating to the conduct or administration of the public's business prepared, owned, used, or retained by a state or local agency regardless of the physical form or character. ALL, OR MOST (there are exceptions), OF THE INFORMATION CONTAINED IN YOUR RESPONSE TO THE STATE'S SOLICITATION WILL BE A PUBLIC RECORD SUBJECT TO DISCLOSURE UNDER THE PUBLIC RECORDS LAW.

WORKERS COMPENSATION INSURANCE

All persons working for the State under any contract of hire, expressed or implied, must be covered by worker's compensation insurance. (Reference Title 72, Idaho Code). Contact the Idaho Industrial Commission with any Worker's Compensation questions.

Any contractor who hires employees to accomplish the contracted work must provide a certificate of worker's compensation insurance.

PREFERENCES

Section 67-2349, Idaho Code, requires application of a preference in determining which contractor submitted the lowest responsible quote. If the contractor who submitted the lowest quote is domiciled in a state which has a preference law that penalizes Idaho domiciled contractors, then the State must apply a preference. The penalty applied to out-of-state contractors competing against Idaho contractors is determined by the penalty applied by the contractor's domiciliary state to its out-of-state contractors.

In determining domicile, the following "rule of thumb" will be used: Corporations – the state in which the corporation is chartered or incorporated; Sole proprietor or partnership – the state in which the permanent headquarters of the business is located.

A contractor domiciled outside the boundaries of the state of Idaho may be considered as an Idaho domiciled contractor provided that there exists for a period of one year preceding the date of the quote a significant Idaho economic presence as defined herein. A significant Idaho economic presence shall consist of the following: (a) That the contractor maintains in Idaho fully staffed offices, or fully staffed sales offices or divisions, or fully staffed sales outlets, or manufacturing facilities, or warehouses or other necessary related property; and (b) if a corporation, that it be registered and licensed to do business in the state of Idaho with the Office of the Secretary of State.

REJECTION OF QUOTES AND CANCELLATION OF QUOTE SOLICITATION

Prior to the issuance of a contract, the State shall have the right to accept or reject all or any part of a quote when: (i) it is in the best interests of the State of Idaho; (ii) the quote does not meet the minimum quote specifications; (iii) the quote is not the lowest

responsible quote; (iv) a finding is made based upon available evidence that a respondent is not responsible or is otherwise incapable of meeting specifications or providing an assurance of ability to fulfill contract requirements; or (v) the item offered deviates to a major degree from the quote specifications, as determined by the State (minor deviations, as determined by the State, may be accepted as substantially meeting the quote requirements of the State of Idaho). Deviations will be considered major when such deviations appear to frustrate the competitive solicitation process or provide a respondent an unfair advantage. Prior to the issuance of a contract, the State shall have the right to reject all quotations or to cancel a solicitation or request for quotations. Cancellation may be for reasons that include but are not limited to: (i) inadequate or ambiguous specifications; (ii) specifications have been revised; (iii) property is no longer required; (iv) there is a change in requirements; (v) all quotes are deemed unreasonable or sufficient funds are not available; (vi) quotes were not independently arrived at or were submitted in bad faith; (vii) it is determined that all requirements of the solicitation process were not met; (viii) insufficient competition; or (ix) it is in the best interests of the state of Idaho.

AWARD PROCEDURES

For contracts with a total value of $100,000 or less, the State will email all respondents within five (5) business days following the solicitation closure of its intent to award a contract(s) and the party(ies) to whom the contract(s) will be awarded and will then email a contract award to the successful respondent(s).

For contracts with a total value of more than $100,000, the State will notify all respondents within five (5) business days following the solicitation closure, by mail and/or email, of its intent to award a contract and the party(ies) to whom the contract will be awarded. After elapse of the five (5) day appeal period, if no appeals are received, the State will award a contract to the successful respondent(s).

Respondents to whom a contract has been awarded will have fourteen (14) calendar days from the mailing date of the award notice to return to the State a signed copy of the contract along with the required bonding and certificates of insurance. If the State does not receive such documents within the specified time period, the State may declare, at its sole discretion, that all respondent's rights to the contract are forfeited, and the State may proceed without further delay or notice to award the contract to the next low respondent.

IMPORTANT: In order to be considered a complete application, Contractor must ensure the appropriate Field Supervisor and Timber Cruiser questionnaires accompany this form for each project Contractor bids.

SCHEDULE A
CONTRACT NO. 21-238
CONTINUOUS FOREST INVENTORY

SUPERVISORY AREA	PROJECT NAME AND NUMBER	NUMBER OF UNITS	PRICE PER PLOT	TOTAL EXTENDED AMOUNT
Maggie Creek Contract No. 21-238	Maggie Creek 2021 CFI Re-measurement FM # 00-064-930-17			
	Permanent Plots	60 Plots	$ -	$ -
Mica-Cataldo Contract No. 21-238	Mica-Cataldo 2021 CFI Re-measurement FM # 00-064-930-17			
	Permanent Plots	61 Plots	$ -	$ -
			TOTAL	**$ -**

Any additional work required under this contract but not scheduled will be performed at the rates shown herein. An approved and signed contract modification will be required prior to the starting of additional work.

In the case of math errors, the **PRICE PER UNIT** will be correctly extended and the corrected **TOTAL EXTENDED AMOUNT** will be the basis for award.

NOTE: The quantities of work to be done under this contract as set forth in Schedule A have been estimated and may not be accurate in any or all particulars. They are only for the purpose of comparing on a uniform basis the quotes offered for the work under this contract. The Contractor understands and agrees that these are estimates only and that the State shall not be responsible for any claim of profits, loss of profit or for damages because no work is ordered under certain items or because of a difference between the estimated quantities of work to be done and the actual quantities ordered by the State.

Company Name _____ Contractor's Email _____

Contractor's Name _____ Contractor's Phone _____

Mailing Address _____ Taxpayer ID # _____

_____

Contractors Signature _____ Signed by _____
Please Print Name

Title _____

IMPORTANT: In order to be considered a complete application, please make sure that the Field Supervisor and Timber Cruiser questionnaire accompanies this form.

RETURN THIS PAGE WITH THE SCHEDULE A

SCHEDULE A
CONTRACT NO. 21-238
2021 CFI REMEASUREMENT

FIELD SUPERVISOR AND TIMBER CRUISER QUESTIONNAIRE

Contractor is required to fill in the information listed below. Offers which list personnel that do not meet minimum performance or personnel requirements as set forth in the contract specifications will be considered nonresponsive.

NAME OF CONTRACTOR_____

Field Supervisor:
Complete this information for each Field Supervisor who will/may also act as the Contractor Representative under this contract:

NAME OF FIELD SUPERVISOR	COLLEGE DEGREE or FORMAL TRAINING CERTIFICATE	NO. OF YEARS CRUISING	GEOGRAPHIC LOCATION(S) OF CRUISING EXPERIENCE

Cruisers:
Complete this information for each timber cruiser who will cruise “stands” under the contract:

NAME OF CRUISER	NO. OF YEARS CRUISING	GEOGRAPHIC LOCATIO(S) OF CRUISING EXPERIENCE

RETURN THIS PAGE WITH THE SCHEDULE A

STATE OF IDAHO

DEPARTMENT OF LANDS

2021 CFI RE-MEASUREMENT

CONTRACT NO. 21-238

(CONTRACTOR NAME)

STATE OF IDAHO
DEPARTMENT OF LANDS

2021 CFI RE-MEASUREMENT
CONTRACT NO. 21-238

TABLE OF CONTENTS

Table of Contents

STATE OF IDAHO
DEPARTMENT OF LANDS

2021 CFI RE-MEASUREMENT
CONTRACT NO. 21-238

THIS CONTRACT is by and between the STATE OF IDAHO, acting through the DEPARTMENT OF LANDS on behalf of the Idaho State Board of Land Commissioners, hereafter referred to as the "STATE," and _____TBD_____., hereafter referred to as the "CONTRACTOR."

1. DEFINITIONS AND TERMS

   a. Attachments: The attached project description(s), work supplement(s), work agreement(s), exhibit(s), map(s), and other labeled references are a part of this contract and any special terms therein are binding upon all parties.

   b. Contract: This duly executed written agreement between Idaho Department of Lands (IDL) and the Contractor resulting from the solicitation, which shall include these Terms and Conditions, the Statement of Work, the Cost Proposal, and all attachments thereto.

   c. Contracting Officer: The IDL employee with the authority to enter into, administer, modify, and/or terminate this contract, and make related determinations and findings. The Contracting Officer is responsible for handling the contractual relationship with the contractor.

   d. Contracting Officer Representative (COR): The designated Department of Lands representative, *also referred to as the Forester-in-Charge (FIC*), who will provide daily technical oversight to the contractor and ensure the contractor performs according to the Scope of Work. The COR cannot modify the stated terms of the contract unilaterally or direct the contractor to perform work not specified in the contract. Only the Contracting Officer and the Contractor can do so bilaterally.

   e. Contractor: The individual or business who has been awarded this Agreement to furnish goods or services for a certain price.

   f. Contractor's Representative: The Contractor's representative, authorized in writing to act on the Contractor's behalf and to be present on the area at nearly all times. This person must be able to speak English fluently for satisfactory communication with the Contracting Officer Representative.

   g. Crew: May be one or more individuals performing work under this contract.

   h. Forester-in-Charge (FIC): The designated Department of Lands representative, *also referred to as the Contracting Officer Representative (COR)*, who will provide daily technical oversight to the contractor and ensure the contractor performs according to the Scope of Work. The FIC cannot modify the stated terms of the contract unilaterally or direct the contractor to perform work not specified in the contract. Only the Contracting Officer and the Contractor can do so bilaterally.

   i. Idaho State Department of Lands (IDL): Acceptable and legal reference to the Idaho Department of Lands for the purposes of this contract.

   j. Pre-work Conference: The meeting between the COR and Contractor about specifics of the contract administration.

   k. Property: Goods, services, parts, supplies and equipment, both tangible and intangible, including, but not exclusively, designs, plans, programs, systems, techniques and any rights and interest in such property.

   l. Procurement Manager or Purchasing Agent: The Contracting Officer for IDL.

m. Scope of Work: Detailed outline of the location, project description, timeline, and deliverables.

n. Services: Includes services performed, workmanship, and materials furnished or utilized in the performance of services, including any deliverables.

o. State of Idaho Board of Land Commissioners or Land Board: The State Board of Land Commissioners (Land Board) is comprised of Idaho's Governor, Secretary of State, Attorney General, Superintendent of Public Instruction, and State Controller. The Land Board serve as the trustees for more than 2.4 million acres of state endowment trust lands in Idaho, with the IDL acting as the administrative arm of the Board, carrying out the executive directives necessary to meet the mandated Constitutional charge codified in Article IX Section 8 of the Idaho Constitution. The Land Board also oversees the work of the IDL in its regulatory and assistance duties, and in managing Idaho's public trust lands.

p. Unit: A distinct area designated on the ground with specified boundaries. For purposes of this Contract, the unit(s) are found in the project description(s) and are shown on the project maps.

2. REPRESENTATIONS AND WARRANTIES OF THE CONTRACTOR

In order to induce the State to execute this Contract and recognizing that the State is relying thereon, the Contractor, by executing this Contract, makes the following express representations to the State:

2.1 The Contractor is fully qualified to act as the Contractor and shall maintain any and all licenses, permits, or other authorizations necessary to perform as the Contractor.

2.2 The Contractor has become familiar with the project sites and the local conditions under which the Contract is to be performed particularly in correlation to the requirements of the Contract.

2.3 The Contractor has received, reviewed, compared, studied and carefully examined all of the documents which make up the Contract documents, including maps and specifications, and any addenda, and has found them in all respects to be complete, accurate, adequate, consistent, coordinated and sufficient to perform the Scope of Work. Such review, comparison, study and examination shall be a warranty that the Contractor believes that the documents are complete and as described except as reported.

2.4 The Contractor warrants that the period of performance is a reasonable period for performing the Work.

2.5 The Contractor warrants to the State that all labor furnished shall be competent to perform the tasks undertaken; materials and equipment furnished under the Contract will be new and of high quality unless otherwise required or permitted by the Contract documents; that the Work will be complete, of high quality and free from defects not inherent in the quality required or permitted; and that the Work will strictly conform to the requirements of the contract documents. Any Work not strictly conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse by the State or its representatives, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the State, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty shall survive the completion of the Contract and final payment to the Contractor.

3. CONTRACT RELATIONSHIP

It is distinctly and particularly understood and agreed between the parties that this Contract does not create an employer/employee relationship. Furthermore, the State is in no way associated or

otherwise connected with the performance of any service under this contract on the part of the Contractor or with the employment of labor or the incurring of expenses by the Contractor. Said Contractor is an independent contractor in the performance of each and every part of this Contract, and solely and personally liable for all labor, taxes, insurance, and other expenses, except as specifically stated herein, and for any and all damages in connection with the operation of this Contract, whether it may be for personal injuries or damages of any other kind. The Contractor shall exonerate, indemnify and hold the State harmless from and against and assume full responsibility for payment of all federal, state and local taxes or contributions imposed or required under unemployment insurance, social security, and income tax laws with respect to the Contractor or Contractor's employees engaged in performance under this Contract. The State does not assume liability as an employer.

4. ANTIDISCRIMINATION/EQUAL EMPLOYMENT OPPORTUNITY CLAUSE

Acceptance of this Contract binds the Contractor to the terms and conditions of Section 601, Title VI, Civil Rights Act of 1964 in that "No person in the United States shall, on the grounds of race, color, national origin, or sex, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving Federal financial assistance." In addition, "No otherwise qualified handicapped individual in the United States shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance" (Section 504 of the Rehabilitation Act of 1973). Furthermore, for contracts involving federal funds, the applicable provisions and requirements of Executive Order 11246 as amended, Section 402 of the Vietnam Era Veterans Readjustment Assistance Act of 1974, Section 701 of Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act of 1967 (ADEA), 29 USC Sections 621, et seq., the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, U.S. Department of Interior regulations at 43 CFR Part 17, and the Americans with Disabilities Action of 1990, are also incorporated into this Contract. The Contractor shall comply with pertinent amendments to such laws made during the term of the Contract and with all federal and state rules and regulations implementing such laws. The Contractor must include this provision in every subcontract relating to purchases by the State to insure that subcontractors and vendors are bound by this provision.

5. CONTRACTOR RESPONSIBILITY

The Contractor shall be required to assume responsibility for production and delivery of all material and services included in this Contract, whether or not the Contractor is the manufacturer or producer of such material or services. Further, the Contractor will be the sole point of contact on contractual matters, including payment of charges resulting from the use or purchase of goods or services.

6. REGISTRATION WITH SECRETARY OF STATE AND SERVICE OF PROCESS

a. Contractor must independently verify whether it is required by Idaho law to register its business entity or assumed business name with the Idaho Secretary of State and, if required to do so, must remain in good standing during the term of this Contract.

b. Regardless of its registration with the Idaho Secretary of State, and in addition to any methods of service allowed by Idaho law, Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested, at its last known address. Contractor must notify the State in writing of any change of address to which service of process can be made. Service shall be completed upon Contractor's actual receipt of process or upon the State's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Contractor shall have thirty calendar days after completion of service in which to respond.

7. SUBCONTRACTING

Unless otherwise allowed by the State in this Contract, the Contractor shall not, without written

approval from the State, enter into any subcontract relating to the performance of this Contract or any part thereof. Approval by the State of Contractor's request to subcontract or acceptance of or payment for subcontracted work by the State shall not in any way relieve the Contractor of responsibility for the professional and technical accuracy and adequacy of the work. The Contractor shall be and remain liable for all damages to the State caused by negligent performance or non-performance of work under the contract by Contractor's subcontractor or its sub-subcontractor.

8. STATE OF IDAHO MINIMUM WAGE LAW

It will be the responsibility of the Contractor to fully comply with Section 44-1502, Idaho Code, regarding minimum wage.

9. TAXES

If the Contractor is required to pay any taxes incurred as a result of doing business with the State, it shall be solely and absolutely responsible for the payment of those taxes.

10. AFFIDAVIT OF COMPLIANCE

The Contractor, upon completion of the project work, must furnish the State with a notarized affidavit (See Exhibit A) stating that:

a. At least the minimum Idaho wage was paid.
b. There was compliance with all labor laws.
c. All debts incurred as a result of this contract were paid.
d. Any further claims against the State under this Contract are relinquished, pending payment for services rendered.

11. LICENSES, PERMITS & FEES

The Contractor shall, without additional expense to the State, obtain all required licenses and permits and pay all fees necessary for executing provisions of this Contract unless specifically stated otherwise herein.

12. SAVE HARMLESS

The Contractor shall protect, indemnify, and save the State harmless from and against any damage, cost, or liability including reasonable attorney's fees for any or all injuries to persons, property or claims for damages arising from any acts or omissions of the Contractor, its employees, or subcontractors.

13. OFFICIALS, AGENTS AND EMPLOYEES OF THE STATE NOT PERSONALLY LIABLE

It is agreed by and between the parties hereto that in no event shall any official, officer, employee or agent of the State be in any way personally liable or responsible for any covenant or agreement herein contained whether expressed or implied, nor for any statement, representation or warranty made herein or in any connection with this Contract.

14. RISK OF LOSS

Risk of loss and responsibility and liability for loss or damage will remain with Contractor until final inspection and acceptance when responsibility will pass to the State except as to latent defects, fraud and Contractor's warranty obligations. Such loss, injury or destruction shall not release the Contractor from any obligation under this Contract.

15. INSURANCE

a. The Contractor shall obtain and retain in force for the duration of this Contract, the following forms of insurance written by an insurance company having a Best's rating of AV or better and be licensed and admitted in Idaho. The Contractor shall furnish the State with a certificate of insurance executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements set forth below. All certificates shall provide for written notice to the State upon cancellation or material change of any insurance referred to therein. All policies shall be endorsed to include the State of Idaho, its departments, agents, officials, and employees as additional insureds and shall protect the Contractor and the State from claims for damages for bodily injury, including accidental death, as well as for claims for property damages, which may arise from operations under this Contract whether such operations be by the Contractor, his employees, subcontractors, agents, or guests. All policies shall contain waiver of subrogation coverage or endorsements. Failure of the State to demand such certificate(s) or other evidence of full compliance with these insurance requirements or failure of the State to identify a deficiency from evidence that is provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance. Failure to maintain the required insurance may result in termination of this Contract. The Contractor shall provide certified copies of all insurance policies required within ten (10) days if requested by the State.

(1) Commercial General Liability Insurance

Contractor shall maintain commercial general liability insurance with a combined single limit of not less than $1,000,000 each occurrence. The commercial general liability shall be written on an International Organization of Standardization (ISO) occurrence form or a substitute form approved by the Contracting Officer and shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury, advertising injury, and liability assumed under an insured contract including the tort liability of another assumed in a business contract.

(2) Automobile Insurance

The Contractor shall maintain automobile liability insurance which shall provide a minimum $1,000,000 combined single limit per occurrence and shall include coverage for owned, non-owned, and hired automobiles.

(3) Workers Compensation

The Contractor shall maintain worker's compensation insurance in amounts as required by statute in all states in which the Contractor performs work, and employer's liability insurance with a limit of $100,000 Bodily Injury by Accident each Accident; $100,000 Bodily Injury by Disease – each employee; and $500,000 Bodily Injury by Disease – Policy Limit.

b. By requiring insurance herein, the State does not represent that coverage and limits will necessarily be adequate to protect Contractor and such coverage and limits shall not be deemed as a limitation on Contractor's liability under the indemnities granted to the State in this Contract.

c. The Contractor shall require all subcontractors utilized in performance of this Contract to provide certificates of insurance to the State evidencing insurance coverage with the required additional insured endorsements as set forth in the preceding paragraphs.

16. ASSIGNMENTS

The Contractor shall not assign a right or delegate a duty under this Contract without the prior written consent of the State.

17. APPOINTMENT OF REPRESENTATIVES

The State shall, at any given time, designate a COR of the operation. The Contractor shall designate an individual, in writing, who shall be responsible for proper compliance with all Contract provisions which apply to the operation and who will be available on the site at all reasonable times for consultation with the COR.

18. PROHIBITED CONTRACTS

No member of the legislature or officer or employee of any branch of the state government shall directly themselves, or by any other person execute, hold or enjoy, in whole or in part, any contract or agreement made or entered into by or on behalf of the State, if made by, through or on behalf of the department in which they are an officer or employee or if made by, through or on behalf of any other department unless the same are made after competitive bids. (Idaho Code Section 67-9230(2)).

19. GOVERNING LAW

This Contract shall be construed in accordance with, and governed by the laws of the State of Idaho. Any action to enforce the provisions of this Contract shall be brought in State district court in Ada County, Boise Idaho. In the event any term of the Contract is held to be invalid or unenforceable by a court, the remaining terms of this Contract will remain in force.

20. SAFETY INFORMATION

The Contractor assumes full responsibility for the safety of his employees, equipment and supplies. All safety training is the responsibility of the Contractor.

All chemicals, equipment and materials proposed and/or used in the performance of this Contract must conform to the standards required by the William-Steiger Occupational Safety and Health Act of 1970. Contractor must furnish all Material Safety Data Sheets (MSDS) for any regulated chemicals, equipment or hazardous materials at the time of delivery.

21. USE OF THE STATE OF IDAHO NAME

Contractor agrees that it will not, prior to, in the course of, or after performance under this contract, use the State's name in any advertising or promotional media as a customer or client of Contractor without the prior written consent of the State.

22. OWNERSHIP

All information furnished to the Contractor for its use pursuant to this Contract shall belong to the State and shall be returned to the State in good order upon completion of the Contract or upon the State's request. All documents, reports, and any other data developed by the Contractor for the State in the performance of this Contract shall become the property of the IDL. The State shall retain exclusive rights of ownership to all work produced by the Contractor under this Contract.

23. APPROPRIATION BY LEGISLATURE REQUIRED

It is understood and agreed that the State is a government entity and this Contract shall in no way or manner be construed so as to bind or obligate the State beyond the term of any particular appropriation of funds by the State's Legislature as may exist from time to time. The State reserves the right to terminate this contract in whole or in part (or any order placed under it) if, in its judgment, the Legislature of the state of Idaho fails, neglects, or refuses to appropriate sufficient funds as may be required for the State to continue such payments. All affected future rights and liabilities of the parties hereto shall thereupon cease within ten (10) calendar days after notice to the Contractor. It is understood and agreed that the State's payments herein provided for shall be paid from Idaho

State Legislative appropriations and, in some instances, direct federal funding.

24. FORCE MAJEURE

Neither party shall be liable or deemed to be in default for any Force Majeure delay in shipment or performance occasioned by unforeseeable causes beyond the control and without the fault or negligence of the parties, including, but not restricted to, acts of God or the public enemy, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, unusually severe weather, provided that in all cases the Contractor shall notify the State promptly in writing of any cause for delay and the State concurs that the delay was beyond the control and without the fault or negligence of the Contractor. If reasonably possible, the Contractor shall make every reasonable effort to complete performance as soon as possible.

25. ENTIRE AGREEMENT

This Contract, with the State's Invitation to Bid, Request for Proposal or Request for Quotation, including any addenda (such deemed incorporated by reference) and the vendor's response, to the extent it is not in conflict with the specifications or the States terms and conditions (such document deemed incorporated by reference), constitute the entire agreement between the parties with respect to the subject matter hereof and shall supersede all previous proposals or quotations, both oral and written, discussions, representations, commitments, and all other communications between the parties. Where terms and conditions specified in the State's documents or the Contractor's response differ from those specifically stated in this Contract, the terms and conditions of this Contract shall apply.

26. CONTRACT TERMINATION

a. TERMINATION FOR CAUSE WITH NOTICE:

1. The occurrence of any of the following events shall be an Event of Default under this Contract:

a. A material breach of any term or condition of this Contract; or

b. Any representation or warranty by Contractor in response to the Solicitation or in this Contract proves to be untrue or materially misleading; or

c. Institution of proceedings under any bankruptcy, insolvency, reorganization or similar law, by or against Contractor, or the appointment of a receiver or similar officer for Contractor or any of its property, which is not vacated or fully stayed within thirty (30) calendar days after the institution or occurrence thereof; or

d. Any default specified in another section of this Contract.

2. The State may terminate the Contract (or any order issued pursuant to the Contract) when the Contractor has been provided written notice of default or non-compliance and has failed to cure the default or non-compliance within a reasonable time, not to exceed thirty (30) calendar days. If the Contract is terminated for default or non-compliance, the Contractor will be responsible for any costs resulting from State's placement of a new Contract and any damages incurred by the State, as a result of the default. The State, upon termination for default or non-compliance, reserves the right to take any legal action it may deem necessary including, without limitation, offset of damages against payment due.

3. Upon written notice of default, Contractor shall be in breach of its obligations under this Contract and the State shall have the right to exercise any or all of the following remedies:

a. Exercise any remedy provided by law or equity;

b. Terminate this Contract and any related Contracts or portions thereof;

c. Impose liquidated damages as provided in this Contract;

d. Suspend Contractor from receiving future bid solicitations;

e. Suspend Contractor's performance;

f. Withhold payment until the default is remedied.

b. TERMINATION FOR CAUSE WITHOUT NOTICE

The State shall not be required to provide advance written notice or a cure period and may immediately terminate this Contract in whole or in part for an Event of Default if the State, in its sole discretion, determines that it is reasonably necessary to preserve public safety or prevent immediate public crisis. Time allowed for cure shall not diminish or eliminate Contractor's liability for damages, including liquidated damages to the extent provided for under this Contract.

c. TERMINATION FOR CONVENIENCE

1. The State may terminate this Contract for its convenience in whole or in part, if the State determines it is in the State's best interest to do so.

2. After receipt of a notice of termination for convenience, and except as directed by the State, the Contractor shall immediately proceed with the following obligations, as applicable, regardless of any delay in determining or adjusting any amounts due under this clause. The Contractor shall:

a. Stop work.

b. Place no further subcontracts for materials, services, or facilities, except as necessary to complete the continuing portion of the Contract.

c. Terminate all subcontracts to the extent they relate to the work terminated.

d. Settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts.

3. Unless otherwise set forth in the Solicitation, if the Contractor and the State fail to agree on the amount to be paid because of the termination for convenience, the State will pay the Contractor the following amounts; provided that in no event will total payments exceed the amount payable to the Contractor if the Contract had been fully performed:

a. The Contract price for Deliverables or services accepted by the State and not previously paid for; and

b. The total of:

i. The reasonable costs incurred in the performance of the work terminated, including initial costs and preparatory expenses allocable thereto, but excluding any cost attributable to

Deliverables or services paid or to be paid;

ii. The reasonable cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the Contract; and

iii. Reasonable storage, transportation, demobilization, unamortized overhead and capital costs, and other costs reasonably incurred by the Contractor in winding down and terminating its work.

4. The Contractor will use generally accepted accounting principles, or accounting principles otherwise agreed to in writing by the parties, and sound business practices in determining all costs claimed, agreed to, or determined under this clause.

d. TERMINATION FOR FISCAL NECESSITY

The State is a government entity and it is understood and agreed that the State's payments herein provided for shall be paid from Idaho State Legislative appropriations. The Legislature is under no legal obligation to make appropriations to fulfill this Contract. This Contract shall in no way or manner be construed so as to bind or obligate the State beyond the term of any particular appropriation of funds by the State's Legislature as may exist from time to time. The State reserves the right to terminate this Contract in whole or in part (or any order placed under it) if, in its sole judgment, the Legislature of the State of Idaho fails, neglects, or refuses to appropriate sufficient funds as may be required for the State to continue such payments, or requires any return or "give-back" of funds required for the State to continue payments, or if the Executive Branch mandates any cuts or holdbacks in spending, or if funds are not budgeted or otherwise available, or if the State discontinues or makes a material alteration of the program under which funds were provided. The State shall not be required to transfer funds between accounts in the event that funds are reduced or unavailable. All affected future rights and liabilities of the parties shall thereupon cease within ten (10) calendar days after notice to the Contractor. Further, in the event of non-appropriation, the State shall not be liable for any penalty, expense, or liability, or for general, special, incidental, consequential or other damages resulting therefrom.

27. PERFORMANCE OF THE CONTRACTOR

Failure of the Contractor to commence operations as mutually agreed upon by the Contractor and the State, to maintain the required production rate, to complete operations as prescribed herein, or failure to meet other terms of the contract, shall give the State the right to terminate the Contract. Such termination shall not affect any rights of the State for recovery of damages from any payment for services due Contractor hereinbefore provided for in any action at law or in equity.

28. MODIFICATION

This Contract may not be released, discharged, changed or modified except by an instrument in writing signed by a duly authorized representative of each of the parties.

29. PUBLIC RECORDS

Pursuant to Idaho Code Section 74-101 through 74-126, information or documents received from the Contractor may be open to public inspection and copying unless exempt from disclosure. The Contractor shall clearly designate individual documents as “exempt” on each page of such documents and shall indicate the basis for such exemption. The State will not accept the marking of an entire document as exempt. In addition, the State will not accept a legend or statement on one (1) page that all, or substantially all, of the document is exempt from disclosure. The Contractor

shall indemnify and defend the State against all liability, claims, damages, losses, expenses, actions, attorney fees and suits whatsoever for honoring such a designation or for the Contractor's failure to designate individual documents as exempt. The Contractor's failure to designate as exempt any document or portion of a document that is released by the State shall constitute a complete waiver of any and all claims for damages caused by any such release. If the State receives a request for materials claimed exempt by the Contractor, the Contractor shall provide the legal defense for such claim.

30. CONFIDENTIAL INFORMATION:

Pursuant to this Contract, Contractor may collect, or the State may disclose to Contractor, financial, personnel or other information that the State regards as proprietary, confidential or exempt from disclosure ("Confidential Information"). Confidential Information shall belong solely to the State. Contractor shall use such Confidential Information only in the performance of its services under this Contract and shall not disclose any Confidential Information to any third party, except with the State's prior written consent or under a valid order of a court or governmental agency of competent jurisdiction, and then only upon timely notice to the State. The State may require that Contractor's officers, employees, agents or subcontractors separately agree in writing to the obligations contained in this section or sign a separate confidentiality agreement. Confidential Information shall be returned to the State upon termination of this Contract. The confidentiality obligation contained in this section shall survive termination of this Contract. Confidential Information shall not include data or information that:

a. Is or was in the possession of Contractor before being furnished by the State, provided that such information or other data is not known by Contractor to be subject to another confidentiality agreement with or other obligation of confidentiality to the State;

b. Becomes generally available to the public other than as a result of disclosure by Contractor; or

c. Becomes available to Contractor on a non-confidential basis from a source other than the State, provided that such source is not known by Contractor to be subject to a confidentiality agreement with or other obligation of confidentiality to the State.

31. NON-WAIVER

The failure of any party, at any time, to enforce a provision of this Contract shall in no way constitute a waiver of that provision, nor in any way affect the validity of this Contract, any part hereof, or the right of such party thereafter to enforce each and every provision hereof.

32. NO WAIVER OF SOVEREIGN IMMUNITY

In no event shall this Contract or any act by the State, be a waiver of any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court. If a claim must be brought in a federal forum, then it must be brought and adjudicated solely and exclusively within the United States District Court for IDL. This section applies to a claim brought against the State only to the extent Congress has appropriately abrogated the State's sovereign immunity and is not consent by the State to be sued in federal court, or a waiver of any form of immunity, including but not limited to sovereign immunity and immunity based on the Eleventh Amendment to the Constitution of the United States.

33. ATTORNEYS' FEES

In the event suit is brought or an attorney is retained by any party to this Contract to enforce the terms of this Contract or to collect any moneys due hereunder, the prevailing party shall be entitled to recover reimbursement for reasonable attorneys' fees, court costs, costs of investigation and

other related expenses incurred in connection therewith in addition to any other available remedies.

34. TRASH CLEANUP

The Contractor shall be responsible for picking up and properly disposing of all trash generated as a result of this Contract at the end of each day. This includes any camps made by Contractor personnel. Cleanup shall be done to the satisfaction of the COR and shall not affect any rights of the State for the recovery of costs of the cleanup.

35. CAMPING ON STATE LAND

Contractor personnel may, with written approval from the State, camp during the Contract period on State land. Such camping will be at the Contractor's own risk. Any camps will be made according to conditions set forth by the IDL Supervisory Area and be in compliance with State Land Board rules and regulations for fire prevention.

36. FIRE PREVENTION RESPONSIBILITIES

a. The Contractor will adhere to the State Land Board rules and regulations which set forth fire prevention safety precautions for woods operations. Such rules and regulations are available at any IDL office. These rules and regulations will be outlined during the pre-work conference with the Contractor.

b. The Contractor shall not build any open fires at any time of the year on the contract area without first obtaining written permission from the State.

c. Fire spreading through the Contract area which is a result of the Contractor's operation or employees' actions shall be the liability of the Contractor.

37. GOVERNMENT REGULATIONS

The Contractor shall abide by and comply with all laws and regulations of the United States, the State of Idaho including the Forest Practices Act (Title 38, Chapters 1 and 13, Idaho Code), counties or other governmental jurisdictions wherein the work is executed insofar as they affect this contract. The Contractor will make all payments, contributions, remittances, and all reports and statements required under said laws.

Contractor guarantees that all items meet or exceed those requirements and guidelines established by the Occupational Safety and Health Act, Consumer Product Safety Council, Environmental Protection Agency, or other regulatory agencies.

38. PAYMENTS AND COMPLIANCE

Payment(s) shall be made to the Contractor following satisfactory completion of all Contract requirements and as described in the attached project description(s). Payment(s) will be at the rate(s) set forth in Schedule A. Total Contract payments shall not exceed $ TBD_. All payments will be made according to Idaho Code Section 67-2302.

39. CONTRACT PERIOD

This Contract will become effective once signed by all parties. The Contractor and Contracting Officer Representative(s) will discuss the Contract terms, work performance requirements, and tentative work schedule. This Contract shall terminate one year from its effective date unless terminated earlier by the State under any of the provisions of paragraph 26 of this Contract. All requirements of the Contract must be satisfactorily completed by the Contract termination date.

SIGNATURE PAGE

IN WITNESS WHEREOF, the parties have caused this Contract to be executed effective this _____ day of _____, 20__, in Boise, Idaho.

IDAHO DEPARTMENT OF LANDS

By_____

Title _____

CONTRACTOR NAME

By_____

Title _____

Contractor's Social Security
or Employer Number

_____
Taxpayer ID# (TIN)

Contractor's Phone/Contact No.

_____

_____
email if available

ATTACHMENT 1

SPECIAL PROVISIONS
CONTINUOUS FOREST INVENTORY

1. ADDITIONAL DEFINITIONS AND TERMS

   a. Basal Area Factor or BAF: Critical angle used to determine "in" and "out" trees on variable cruising plots.

   b. Diameter Breast Height (DBH): The diameter of a tree stem four and one-half feet (4.5') above average ground level.

   c. Forest Inventory: Refers to the work described in this contract and the attached project description.

   d. Inventory Manual: Acceptable reference to the Forest Inventory: Field Procedures, Specifications, and Definitions manual published by the Idaho Department of Lands.

   e. Plots: The plots, for purposes of this contract, are shown on the project map(s).

   f. Variable Plot Cruising: A "multi-plot" or "concentric-plot method, with each tree having its own plot size dependant on the diameter of the tree.

2. CONTRACT ADMINISTRATION

   The COR will administer the contract as required in all specifications. The COR will inspect contract work to determine if work is satisfactory. Inspection reports will be furnished to the Contractor by the COR so that any deficiencies may be corrected as contract work progresses.

   Disputes between the COR and the Contractor will be resolved by the State.

   The COR has the following authority in addition to that delegated in other portions of the contract:

      1) Decide questions of fact arising in regard to quality and acceptability of equipment to be used, materials furnished, and all work performed.

      2) Make recommendations for payment.

3. ITEMS TO BE FURNISHED BY THE CONTRACTOR

   The Contractor will furnish all labor, equipment, supervision, transportation, materials, and incidentals necessary to satisfactorily complete this contract including all safety equipment required by current laws and regulations.

   The Contractor will also provide all necessary bilingual (English and the principal language of the crew members) supervisory personnel needed to accomplish the inventory in an orderly manner.

   The Contractor will also furnish the following items:

      (1) White tree marking paint. Comparable to Nelson's Tree and Log Marking Paint.

      (2) Radius end aluminum tree marking tags (1" X 2 3/4") and nails. Comparable to Forestry Supplier's Racetrack-shaped tags.

      (3) 2.0 foot long x 3/8" metal rebar stakes to mark subplot centers.

   The Contractor will furnish an address or telephone number where he can be contacted within a 24-hour period.

Each crew performing work under this contract shall include a foreman who shall be present during all phases of the field operations. The foreman must have at least:

(1) Seven years of experience in timber cruising, experience must include variable plot cruising techniques for a minimum of 5 years.

(2) Knowledge of timber defects.

(3) Ability to identify insects, disease, and parasites commonly damaging to conifers within the Inland Northwest Region.

(4) Ability to identify animal and weather damage.

(5) Familiarity with the interpretation of aerial photography.

(6) Ability to read maps and locate points on the ground.

(7) Ability and knowledge to determine forest habitat types as described in Forest Habitat Types of Northern Idaho: A Second Approximation, Stephen V. Cooper, Kenneth E. Neiman, and David W. Roberts, General Technical Report INT-236.

4. ITEMS TO BE FURNISHED BY THE STATE

(1) A COR to conduct periodic field inspections.

(2) Copies of Idaho Department of Lands administrative maps that are available and needed by the Contractor.

(3) A copy of Idaho Department of Lands manual Forest Inventory: Field Procedures, Specifications, and Definitions.

(4) Copies of previous plot data

(5) Plot record sheets

5. PLOT LOCATION-METHODOLOGY-NUMBER

a. Plots will be located and data collected according to information and procedures described in the Idaho Department of Lands' Forest Inventory: Field Procedure, Specifications and Definitions manual and shown on the project map.

b. Preliminary estimates for the number of plots are listed in the project description. The Idaho Department of Lands may require the Contractor to decrease or increase this number by ten percent (10%) without changing the contract price per plot.

6. INSPECTION

a. Inspection reports will be furnished to the Contractor by the COR so that any deficiencies may be corrected as contract work progresses.

b. Inspection of Work: The Idaho Department of Lands will inspect the plots to determine compliance with contract specifications and to provide a basis for payment. The Contractor shall submit completed plot information in groups of five (5) plots within seven (7) days after completion of each group to the COR. A minimum of one (1) plot from each group of five (5) plots will be randomly selected for inspection to determine if the prescribed standards have been met. This will constitute the minimum sampled plot inspection for determining satisfactory performance. All plots may be inspected for compliance with work standards and procedures.

c. Determination of Acceptable Work: Inspection as stated above shall be performed by the

Idaho Department of Lands for evaluation of contract specification compliance. Two procedures will be used for determination of acceptable or unacceptable work.

(1) Point score deduction for each deficient entry or procedure on the inspected plot:

Acceptable tolerance levels for individual measurements are shown in Tolerance Specifications for Point Score Deductions (Exhibit A). Each item or measurement indicated in the tolerance specifications, shown by inspection to be outside the tolerance levels, will be assigned a point score deduction.

Point score deductions will be summed and averaged for the inspected plot as shown:

Form Heading Deduction =
# of Subplots Inspected

Other Deductions +
# of Subplots

Total Deduction =

If the Total Deduction for the inspection equals twenty (20) or fewer points, then that group is acceptable on a "Point Score Deduction" basis.

(2) Pass-fail check of specified standards and procedures for each plot:

Plots which are deficient in the following specifications are unacceptable:

a) Plot record sheets and data not submitted to the Idaho Department of Lands as specified.

b) Plot record sheets which are illegible

c) Plot not located at correct starting point or bearing not correct.

d) If, upon inspection, any of the above deficiencies are found, the plot in which the deficiency occurs is unacceptable on a "pass-fail" basis.

d. Unacceptable Work Pass-Fail Basis: Payment will not be made for any plots in a group until corrective rework is completed by the Contractor, the Department of Lands inspects that rework, and reworked groups are found to be acceptable. The Idaho Department of Lands reserves the right to require unacceptable groups to be redone. Upon written notification by the COR that a group is unacceptable, the Contractor may be required to complete and submit rework before beginning work on another group.

The Idaho Department of Lands will specify rework requirements on an individual basis.

(1) Point score deduction failures require:

Revisiting all remaining plots (yet to be inspected) in the group to correct individual items or measurements.

(2) Pass-fail deficiencies require:

Correct deficient items throughout the group that resulted in failure. Upon submission of the reworked group to the Idaho Department of Lands, inspection will be re-conducted for that group to determine compliance. Re-inspection for point score basis failures may be conducted on the same or different plots than originally inspected.

7. PAYMENT AND COMPLIANCE

a. If work on a plot or part thereof fails to meet contract specifications, payment will be withheld on the unsatisfactory plot(s). The Contractor shall, at no additional expense to the State, re-cruise unsatisfactory plots or parts thereof. In the event the contract is terminated for unsatisfactory performance, payment will be made for work satisfactorily completed.

b. If the point deduction is more than 20 points, the Idaho Department of Lands will inform the contractor in writing. The Contractor shall then revisit the unacceptable plot(s) and bring the work up to satisfactory levels.

c. If the original inspection results are unacceptable to the Contractor on either a completed or partially completed plot, one re-inspection of the inspection plot(s) may be requested in writing. The COR and Contractor Representative shall together revisit the inspection plots to determine the accuracy of the inspected plots. The results of the second inspection will be used in determining payment. If the second inspection results fall outside the acceptable limit, the Contractor shall pay the cost of the re-inspection.

d. The number of plots completed shall constitute the basis of payment. Plots must be complete and accepted by the COR, including the submission of satisfactorily completed data sheets, prior to payment. Partial payment may be made when approved by the COR. Partial payment may be initiated by the COR at the completion of the initial twenty-five (25) plots.

8. CONFIDENTIAL NATURE OF INFORMATION

The Contractor will not indulge and shall take all reasonable steps to ensure that no member of its staff or organization divulges any information concerning such inventory data to any person other than a duly authorized representative of the Idaho Department of Lands or a person authorized in writing by the Idaho Department of Lands COR to obtain such information.

CONTINUOUS FOREST INVENTORY

FIELD PROCEDURE,

SPECIFICATIONS AND DEFINITIONS

TABLE OF CONTENTS

INTRODUCTION

This manual is intended to serve as a guide for personnel conducting the State of Idaho forest inventory. This manual includes definitions, specifications, and a description of the procedures to be followed for the plot measurement phase of the inventory. Although system instructions are detailed, it was not considered necessary to give specific instruction for use of equipment and methods with which a trained forester should be familiar.

It will be the responsibility of all personnel connected with this inventory to be completely familiar with all methods and procedures outlined in this manual. It will also be their responsibility to see that all revisions and additions are entered as soon as possible to ensure that a current manual is available at all times.

Problems may arise that are not covered by the manual; in such cases problems should be referred to the Forest Inventory Analyst for instruction. The success of this inventory and subsequent inventories will depend upon the accuracy of field measurements and recordings. All measurements must be made in the same manner and based on the same standards. In all cases, the procedures and standards set forth in this manual are to be followed.

Inventories may consist of three types of plots:

1. Remeasure plots
2. Newly-established plots
3. Temporary plots

Remeasure plots are those plots that have been established during a previous inventory and are scheduled for remeasurement. These trees have DBH marks and have numbered tags at the base. It is very important that these trees correspond to the tree numbers for the new measurement.

Newly-established plots are those being established for the first time and will be remeasured at subsequent inventory periods.

Some of the data taken on these plots require slightly different procedures. When procedures are different, a procedure will be described for each type of plot.

A. ESTABLISHMENT OF PLOTS AND SUBPLOTS

The number and location of the starting points for a plot cluster have been determined beforehand. This includes both remeasure and newly-established plots. The starting point is usually a section or quarter corner. A starting point may be a reference point (RP) that is established when a corner could not be located or a specific timber type was to be sampled. From a starting point, a plot will be a series of three subplots at a bearing of 45 degrees at 3-chain intervals. Some remeasure plot clusters may have four or five subplots.

1. PLOT CLUSTER STARTING POINTS

a. Remeasure Plots: Maps, photos, and directions on the old plot form will aid in relocating the plot cluster.

b. If a starting point is a RP where a corner could not be positively located and a good corner is now established, reference the first subplot to the good corner with distance and bearing.

c. Newly-established Plots: The starting points for all newly-established plots will be a section or quarter corner. Correct identification of the starting point will be made in the field. If a corner cannot be found, select a RP for a starting point.

d. Reference Point (RP): When the establishment of a RP is necessary, select a landmark readily identifiable on both the ground and the photograph as close to the marked starting point as possible. Select landmarks such as fence corners, prominent trees, or rocks.

   Paint, in large white letters, the plot number on the RP. When using trees, paint the plot number at DBH and below stump height. See Figure 1 for an example. RP from previous inventories were marked with an aluminum location tags.

   Record a brief description of the RP on the plot form. If the RP is a tree, record its species and DBH.

2. ESTABLISHING THE SUBPLOTS

a. Remeasure Plots: Remeasure plots already have subplot centers located and witness trees established. Usually just a compass bearing and pacing will enable the crew to locate the subplot center. Not all remeasure plots are at a 45-degree bearing from the starting point. Be sure to check the old plot form for distance and bearing to the subplots. Occasionally, a subplot center cannot be located because of logging or other disturbances. Previously established witness trees can be used to reestablish the plot center. The previous inventory measured witness trees from a metal tag located at stump height and facing subplot center. The distance is from this tag to the ground. The intersection of two distance measurements is the best way to reestablish the subplot center. If the plot center cannot be found and witness trees have been logged, reestablish the plot center using tagged trees, DBH marks, and stumps. Be sure all previously measured trees are in the plot.

   Establish new witness trees if they are dead or have been logged. In heavily-cutover areas or where no trees are close to the subplot center, stumps or large rocks may be used to witness the center.

FIGURE 1

EXAMPLE: REFERENCE POINT (RP)
IDENTIFICATION

b. Newly-established Plots: Set the compass on the required 45-degree bearing and, as accurately as possible, measure with a tape the 3-chain interval from the starting point. In some cases, the subplot center may fall in a small opening, a bog, rock outcrop or man-made clearing. Do not move the plot center aside or adjust the plot interval to avoid these situations. <u>They are integral and normal variations in our forests and part of each stratum and should be included in the sample.</u>

The first subplot will be located three chains from the starting point. The second and third subplots are three chains apart also.

Each plot center-stake will be witnessed by two marked trees. These <u>witness</u>

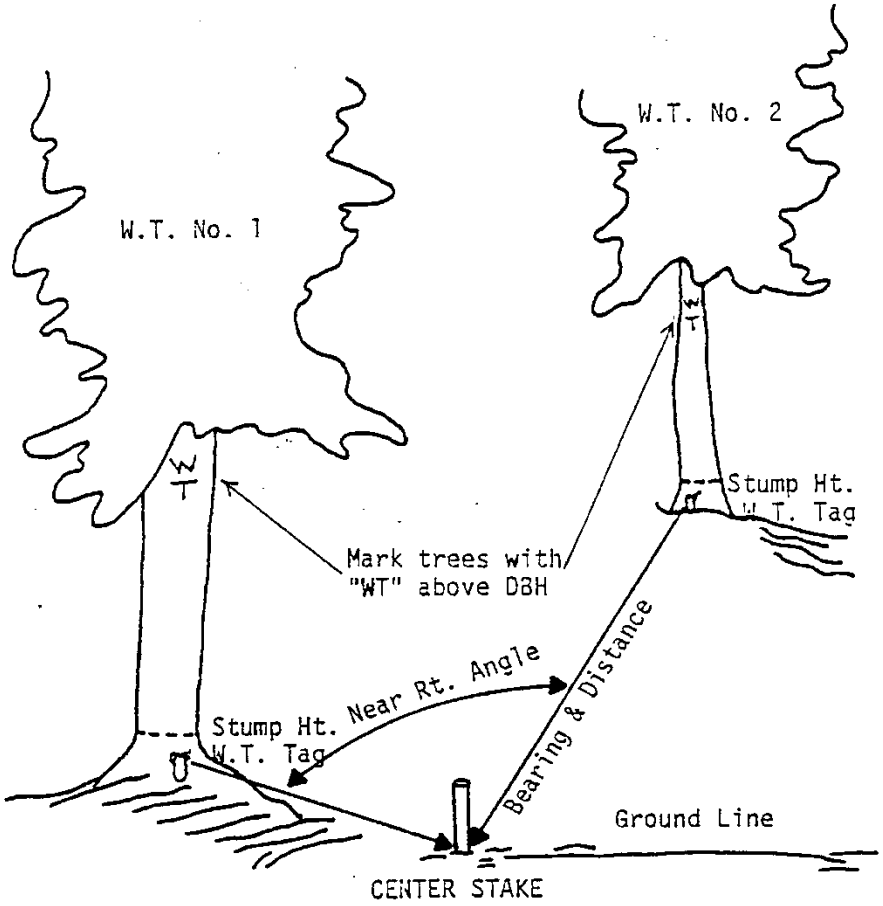
trees should be chosen from smaller trees most likely to be left after logging, but not too distant from the plot center for easy location of the plot center. The witness trees, if possible, should be chosen so their angle of intersection with the center-stake is acute or nearly a right angle. (See Figure 2.)

Witness trees will be marked with a small metal tag nailed below stump height. The tags will be marked "WT 1," "WT 2," and "WT 3" corresponding to the tree subplots. Paint "WT" on the trees above DBH.

In the space provided on each plot form, record the DBH, bearing from the witness tree to the plot center, and distance from the tag to the ground line of the center-stake. The distance is a slope distance, not a horizontal distance.

FIGURE 2

TYPICAL WITNESS TREE - PLOT CENTER LAYOUT



3. FOREST INVENTORY PLOT FORM

The form is designed to permit orderly notation of field measurements and transfer of data to magnetic medium for subsequent processing. See Figure 3. All entries must be neat and legible. Some numbers can easily be mistaken for other numbers if they are poorly written.

For example:

1. A four can be written __ or __. The latter could be mistaken for a nine (9) always use the open four ( ).

2. Be sure to close all zeros (0). A hastily-written zero can sometimes look like six (6) if the ends do not touch.

3. Be sure a one (1) looks like a one and not a seven (7).

The crew leader shall have the responsibility for checking over the form before leaving the subplot and plot cluster to ensure all required information has been recorded.

FIGURE 3

IDAHO DEPARTMENT OF LANDS CFI PLOT FIELD DATA SHEET

AREA NUMBER	PLOT NUMBER	SUB PLOT NUMBER	MONTH	YEAR	TOWNSHIP	RANGE	SECTION	FORTY	TIMBER TYPE	CRUISERS:
						. ρ				DATE:

MEASURED TREES

TREE NUMBER	SPECIES	DBH	LOG HEIGHT	TOTAL HEIGHT	PRODUCT	AGE	MORTALITY	SAWLOG CULL PERCENT	VIGOR CLASS	CROWN CLASS	TREE STATUS	% LIVE CROWN	NOTES
01								-					
02								-					
03								-					
04								-					
05								-					
06								-					
07								-					
08								-					
09								-					
10								-					
11								-					
12								-					
13								-					
14								-					
15								-					
16								-					
17								-					
18								-					
19								-					
20								-					
21								-					
22								-					
23								-					

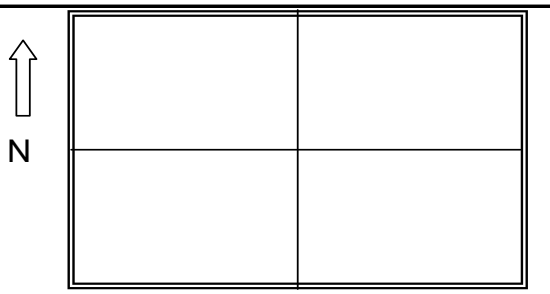
SEEDLING PLOT (ALL STEMS UNDER 4.5 FEET TALL) 1 / 400 ACRE - 5.9 FOOT RADIUS

DF	PP	WP	LPP	GF	AF	ES	WH	WRC	WL	JUN	PIN	WB	YEW	HW

DIRECTIONS TO PLOT:

CORNER INFORMATION:

FIGURE 3 (cont)

SUBPLOT STAND INFORMATION								PLOT LOCATION DIAGRAM
BASAL AREA FACTOR	WORKING CIRCLE	STAND CONDITION	SITE CLASS	% SLOPE	SLOPE POSITION	ASPECT	HABITAT TYPE	
								ACRES REPRESENTED BY DIAGRAM _____

WITNESS TREE INFORMATION			
SPECIES:	DIAMETER:	DISTANCE:	BEARING TO PLOT:
SPECIES:	DIAMETER:	DISTANCE:	BEARING TO PLOT:

STAND DATA SUMMARY	STOCKING AGE AND SITE CALCULATIONS OF OVERSTORY
ROLL AND EXPO. # _____ **Lat:** Deg _____ Min ___ ___ Sec _____ **Long:** Deg _____ Min ___ ___ Sec _____ **Elevation:** _____ Comments	STOCKING: AGE: SITE:

INDIVIDUAL TREE CULL CALCULATIONS	
TREE # REASONS LOGS AFFECTED % CULL	TREE # REASONS LOGS AFFECTED % CULL

B. SAMPLING METHODS

1. VARIABLE-RADIUS PLOT
The variable-radius plot, measured first, is used to tally all live and dead trees 3.0 inches and larger.

a) Sampling Method: Holding the relaskop exactly over plot center, the cruiser rotates clockwise from due north and determines which trees 3.0 inches and larger are tally trees.

See Appendix for detailed procedures to measure limiting distance.

A 20 basal-area-factor will be used for all plots, newly-established and remeasure.

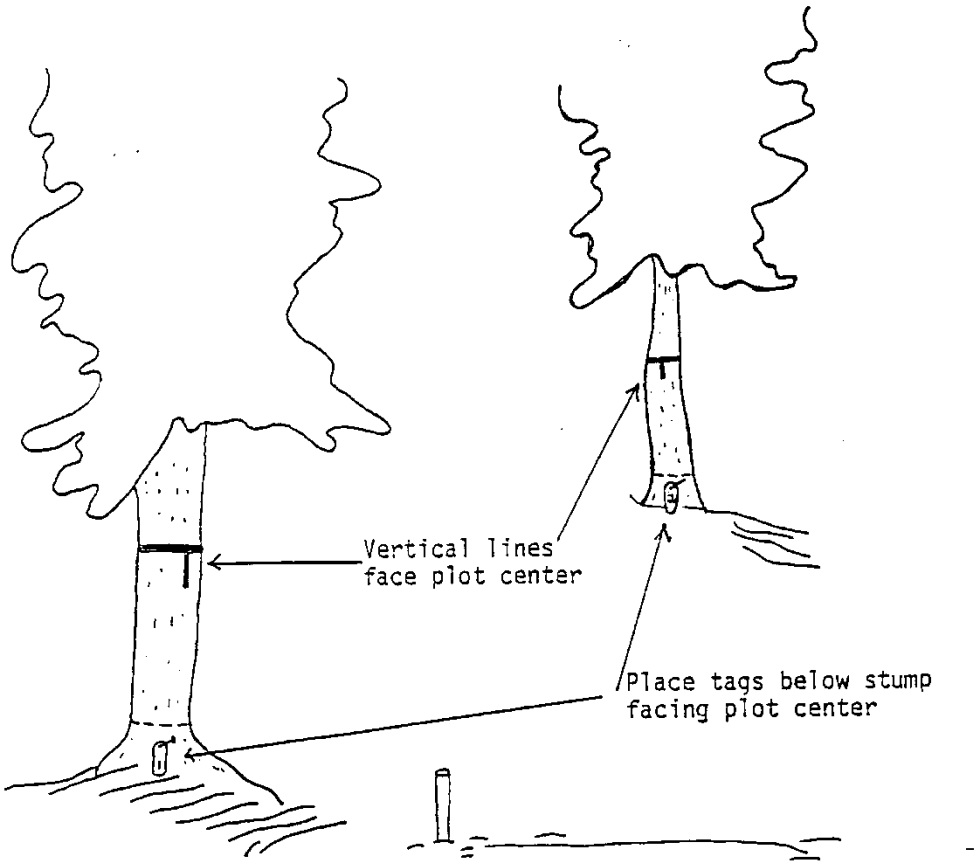
b) Tree Identification: If a tree is "borderline" or is not definitely "in" or "out," its limiting distance must be measured.

c) DBH Mark: DBH is identified with a band of white paint with a vertical line under the band which faces plot center.

d) Tree Numbers: Trees are numbered in a clockwise direction beginning at due north. Trees will be numbered with white paint and tagged. Numbered tags are placed at a point below stump height facing plot center with about 1 inch of the nail exposed. (See Figure 4.) For remeasure plots, only ongrowth trees are assigned new numbers starting from due north. Trees that were dead at the time of the previous inventory or earlier should be dropped and their tree number assigned to an ongrowth tree.

FIGURE 4

TAGGING AND MARKING TALLY TREES



2. FIXED-RADIUS PLOT (5.9 Feet)
This sample collects data on live trees less than 3 inches DBH.

a. **Sampling Method**: The fixed-radius plot is a circle with a radius of 5.9 feet (1/400 acre). Trees are tallied if the horizontal distance from stake to the center of the stem is 5.9 feet or less.

b. **Types of Trees Sampled:** Live saplings and established seedlings are tallied on the fixed-radius plot.

1. **Saplings:** Saplings include live trees 4.5 feet high to 2.9 inches DBH. Record all data as a tree in the variable-radius plot except for radial growth and cull percent (place zeros in these fields). Record age for the first tree in DBH class 0.1-1.9 inches and the first tree in DBH class 2.0-2.9 inches.

2. **Seedlings**: Seedlings include live trees 6.0 inches to 4.5 feet high. Record number of seedlings for each species. If a seedling will survive to sapling size, regardless of the presence of insects, disease, or form defect, consider it established.

c. **Tree Identification:** Saplings and seedlings are not painted or tagged with a tree number.

C. TREE MEASUREMENTS

1. SPECIES
Species and their respective number codes are shown as follows:

SUMMARY OF SPECIES CLASSES

Species	Recording Number
Douglas-fir	DF
Ponderosa pine	PP
Western white pine	WP
Lodgepole pine	LP
Grand fir	GF
Subalpine fir	AF
Engelmann spruce	ES
Western hemlock	WH
Western redcedar	CE
Western larch	WL
Juniper	JU
Pinyon	PI
Whitebark or Limber pine	WB
Hardwoods	HW

2. DIAMETER BREAST HEIGHT (DBH)
DBH is one of the variables used to estimate tree volume measured on all "in" trees at four and one-half (4.5) feet above ground level on the uphill side of the tree. The DBH mark may have already been determined by the paint mark on remeasure plots.

Do not change this mark, even if it is wrong.

DBH's are measured with diameter tapes and are recorded to the one-tenth (0.1) inch. Always round down to the tenth inch.

If for some reason, 4.5 feet does not represent the diameter of the tree, (visualize bulge, burrow, knot, etc.), the measurement should be taken at the point where the bole of the tree returns to normal form, and this point is to be marked with a horizontal band of paint. If the tree forks at or below 4.5 feet, treat each stem as a separate tree, and measure DBH on each stem at a point that represents the diameter of the tree.

If the tree forks at or above 4.5 feet, i.e., crotch of the fork is at or above 4.5 feet, consider the tree as one tree and measure the diameter below the swell as near to 4.5 feet above ground level as possible. Trees of this type will be treated as single trees with a total height equal to that of the principal fork.

On dead remeasured inventory trees, DBH, height, and cull percent will be the same as previous measurement. See Figure 5 for measuring DBH in various situations.

FIGURE 5

MEASURING DBH IN VARIOUS SITUATIONS

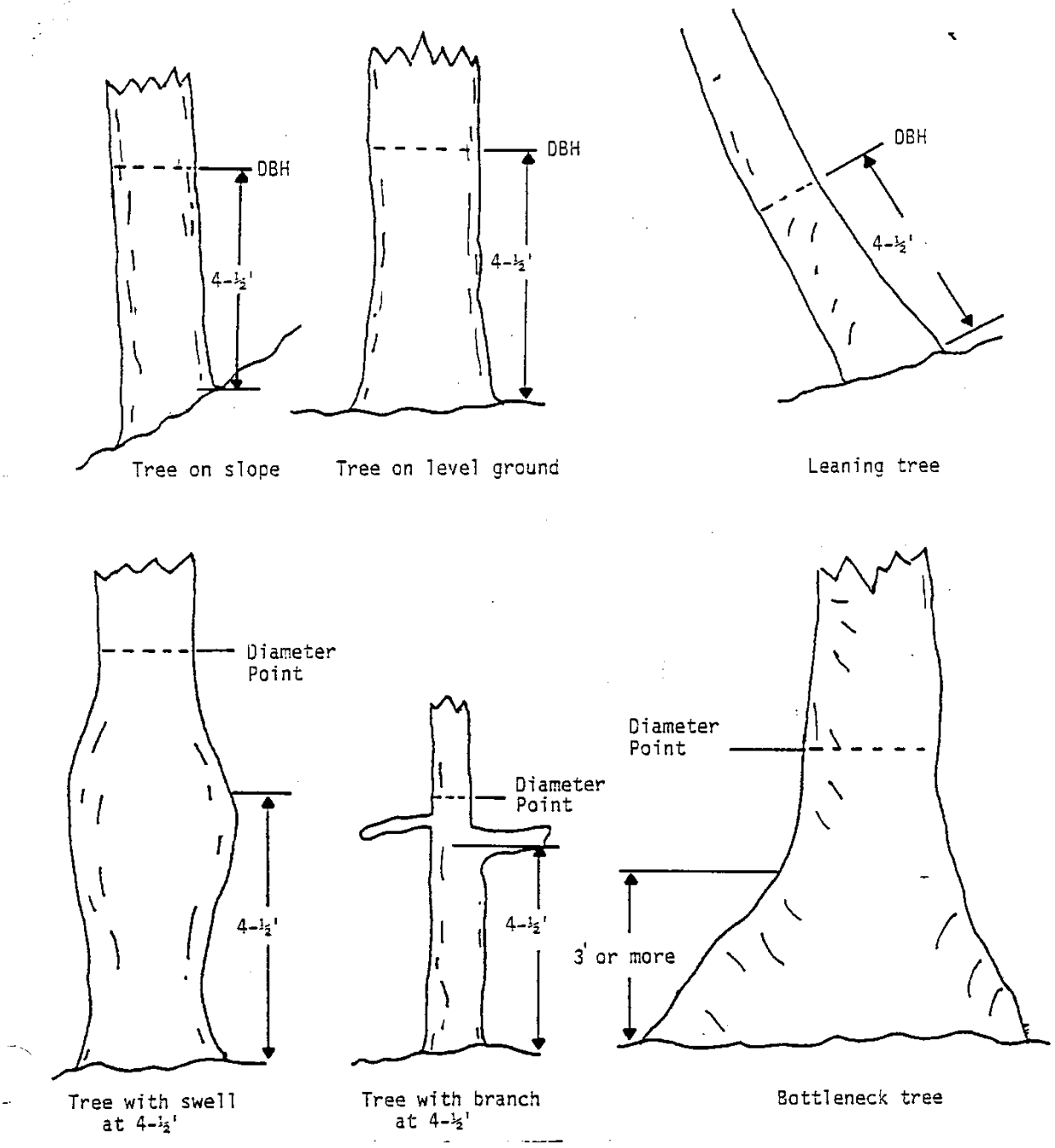
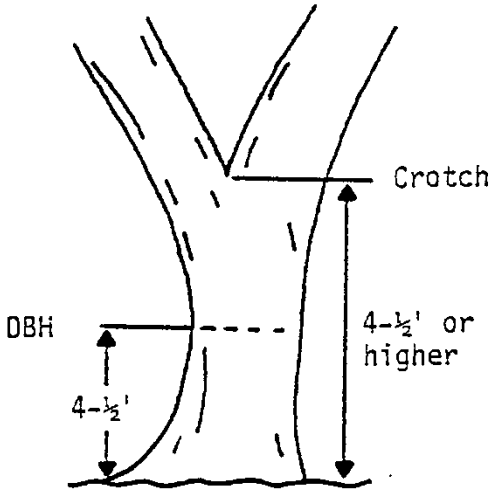
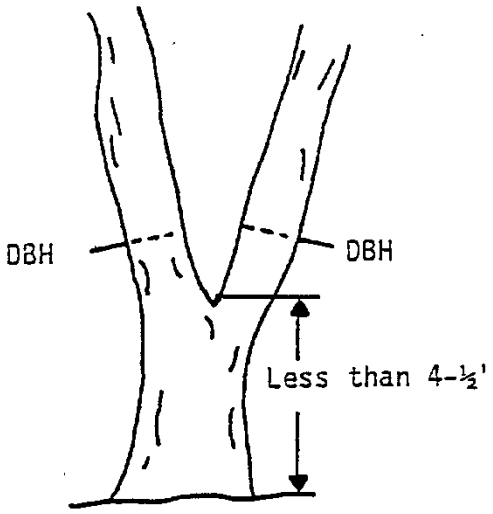


FIGURE 5
(Continued)



FORKED 4-½' OR HIGHER

Record as one tree and consider only the main fork.



FORKED BELOW 4-½'

Record each fork which is "in" as a separate tree.

3. LOG HEIGHT

Log height is used to estimate the amount of cull material in a tree and is determined by the total height of the tree.

The log height to be used in this inventory is sixteen and one-half (16.5) feet. The "Merchantable Height by Logs by Species" table (Table 2) is used to select the appropriate log height.

This table is designed for easy computation of log heights. Take, for example, a Douglas-fir that has a total height of 143 feet. By consulting the Douglas-fir column, 143 falls in the 138 to 154 range and qualifies as a 7-log tree and is coded 07.

4. TOTAL HEIGHT

Total height is defined as the height of the tree from the tree base to the tip of the leader. The tree base is the point at which the stem intersects high ground level (the uphill side of the tree). Total height is measured with a relaskop or clinometer. Total height is recorded to the nearest one (1) foot.

On trees with a missing top, find the top nearby on the ground and measure the top. Add this measurement to the standing portion of the tree to get the total height. If the top cannot be found, the length of the missing top must be estimated and added to the measured portion of the tree to determine total DBH height. Note in the comments the length of stem that was added. Further information on the total height can be found in Table 2.

Slope correction will be used to determine the horizontal distance the estimator should stand from the tree base. For example, if a tree could be measured from 100 feet on a 50- percent slope, the estimator would have to go out an additional 12 feet, or 112 feet total, in order to get an accurate reading of the total height for 100 feet.

TABLE 1

plot radii (measured to tree face in feet) for trees
of different diameters using a BAF of 20.

DBH (inches)	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
3	5.7	5.9	6.1	6.3	6.5	6.7	6.8	7.0	7.2	7.4
4	7.6	7.8	8.0	8.2	8.4	8.6	8.7	8.9	9.1	9.3
5	9.5	9.7	9.9	10.1	10.3	10.5	10.6	10.8	11.0	11.2
6	11.4	11.6	11.8	12.0	12.2	12.4	12.5	12.7	12.9	13.1
7	13.3	13.5	13.7	13.9	14.1	14.3	14.4	14.6	14.8	15.0
8	15.2	15.4	15.6	15.8	16.0	16.2	16.3	16.5	16.7	16.9
9	17.1	17.3	17.5	17.7	17.9	18.1	18.2	18.4	18.6	18.8
10	19.0	19.2	19.4	19.6	19.8	20.0	20.2	20.3	20.5	20.7
11	20.9	21.1	21.3	21.5	21.7	21.9	22.1	22.2	22.4	22.6
12	22.8	23.0	23.2	23.4	23.6	23.8	24.0	24.1	24.3	24.5
13	24.7	24.9	25.1	25.3	25.5	25.7	25.9	26.0	26.2	26.4
14	26.6	26.8	27.0	27.2	27.4	27.6	27.8	27.9	28.1	28.3
15	28.5	28.7	28.9	29.1	29.3	29.5	29.7	29.8	30.0	30.2
16	30.4	30.6	30.8	31.0	31.2	31.4	31.6	31.7	31.9	32.1
17	32.3	32.5	32.7	32.9	33.1	33.3	33.5	33.6	33.8	34.0
18	34.2	34.4	34.6	34.8	35.0	35.2	35.4	35.5	35.7	35.9
19	36.1	36.3	36.5	36.7	36.9	37.1	37.3	37.4	37.6	37.8
20	38.0	38.2	38.4	38.6	38.8	39.0	39.2	39.4	39.5	39.7
21	39.9	40.1	40.3	40.5	40.7	40.9	41.1	41.3	41.4	41.6
22	41.8	42.0	42.2	42.4	42.6	42.8	43.0	43.2	43.3	43.5
23	43.7	43.9	44.1	44.3	44.5	44.7	44.9	45.1	45.2	45.4
24	45.6	45.8	46.0	46.2	46.4	46.6	46.8	47.0	47.1	47.3
25	47.5	47.7	47.9	48.1	48.3	48.5	48.7	48.9	49.0	49.2
26	49.4	49.6	49.8	50.0	50.2	50.4	50.6	50.8	50.9	51.1
27	51.3	51.5	51.7	51.9	52.1	52.3	52.5	52.7	52.8	53.0
28	53.2	53.4	53.6	53.8	54.0	54.2	54.4	54.6	54.7	54.9
29	55.1	55.3	55.5	55.7	55.9	56.1	56.3	56.5	56.6	56.8
30	57.0	57.2	57.4	57.6	57.8	58.0	58.2	58.4	58.6	58.7
31	58.9	59.1	59.3	59.5	59.7	59.9	60.1	60.3	60.5	60.6
32	60.8	61.0	61.2	61.4	61.6	61.8	62.0	62.2	62.4	62.5
33	62.7	62.9	63.1	63.3	63.5	63.7	63.9	64.1	64.3	64.4
34	64.6	64.8	65.0	65.2	65.4	65.6	65.8	66.0	66.2	66.3
35	66.5	66.7	66.9	67.1	67.3	67.5	67.7	67.9	68.1	68.2
36	68.4	68.6	68.8	69.0	69.2	69.4	69.6	69.8	70.0	70.1
37	70.3	70.5	70.7	70.9	71.1	71.3	71.5	71.7	71.9	72.0
38	72.2	72.4	72.6	72.8	73.0	73.2	73.4	73.6	73.8	73.9
39	74.1	74.3	74.5	74.7	74.9	75.1	75.3	75.5	75.7	75.8
40	76.0	76.2	76.4	76.6	76.8	77.0	77.2	77.4	77.6	77.8

TABLE 2

MERCHANTABLE HEIGHT BY LOGS BY SPECIES

Tree Heights in logs	Ponderosa pine & Cedar	Douglas-Fir	Engelmann Spruce	Grand fir & Hemlock
1 log	38 to 54	38 to 55	40 to 56	41 to 57
2 log	55 - 70	56 - 71	57 - 72	58 - 73
3 log	71 - 87	72 - 88	73 - 89	74 - 90
4 log	88 - 103	89 - 104	90 - 105	91 - 106
5 log	104 - 120	105 - 121	106 - 122	107 - 123
6 log	121 - 136	122 - 137	123 - 138	124 - 139
7 log	137 - 153	138 - 154	139 - 155	140 - 156
8 log	154 - 169	155 - 170	156 - 171	157 - 172
9 log	170 - 186	171 - 187	172 - 188	173 - 189
10 log	187 - 202	188 - 203	189 - 204	190 - 205
11 log	203 - 219	204 - 220	205 - 221	206 - 222

Tree Heights in logs	Larch	Lodgepole	White Pine	Subalpine Fir
1 log	42 to 58	43 to 59	43 to 59	46 to 62
2 log	59 - 74	60 - 75	60 - 75	63 - 78
3 log	75 - 91	76 - 92	76 - 92	79 - 95
4 log	92 - 107	93 - 108	93 - 108	96 - 111
5 log	108 - 124	109 - 125	109 - 125	112 - 128
6 log	125 - 140	126 - 141	126 - 141	129 - 144
7 log	141 - 157	142 - 158	142 - 158	145 - 161
8 log	158 - 173	159 - 174	159 - 174	162 - 177
9 log	174 - 190	175 - 191	175 - 191	178 - 194
10 log	191 - 206	192 - 207	192 - 207	195 - 210
11 log	207 - 223	208 - 224	208 - 224	211 - 227

Above figures include the following top heights

28 feet ..... Ponderosa Pine; Cedar
29 feet ..... Douglas-fir
30 feet ..... Engelmann Spruce
31 feet ..... Grand Fir; Hemlock
32 feet ..... Western larch
33 feet ..... White Pine; Lodgepole Pine
36 feet ..... Subalpine Fir

5. PRODUCT
The product is determined to segregate the volume of State timber into various product classes. The product classes are generally based on the uses of the stumpage by species, size, and cull percent.

The various product classes used for this inventory are:

a. Sawtimber: Any living tree 8.0 inches DBH or larger that has one sound 8-foot log or more is classed as a sawtimber tree.

b. Utility Pole: Not used.

c. Pulpwood: Not used.

a. Unmerchantable Due to Size: All trees growing with the prospect of meeting, but not yet attaining, sawtimber, utility pole or pulpwood size specifications shall be product-classed as unmerchantable due to size.

b. Living Cull: Not used.

c. Dead Cull: All mortality trees since the last inventory will be product-classed as a dead cull.

SUMMARY OF PRODUCT CLASSES

Product Class	Recording Number
Sawtimber	1
Unmerchantable due to size	4
Dead cull	6

6. AGE
Age information is taken to calculate an age class for the stand of timber and is obtained by boring increment trees **(the first tree, with a sound core, in each 2-inch diameter class by species)** at DBH with an increment borer. For this inventory, age is determined by counting the annual rings on the increment core from the cambium to the tree center, then adding ten years to compensate for growth to DBH. Age will not be measured on dead trees. The age of the tree is recorded to the number of rings counted. For example: Rings counted from cambium to center of tree total 74; add 10 which totals 84. **The age of the tree will be recorded as 84. If a tree was aged during the last inventory, the age of the tree is the age at last inventory plus the time span since the last inventory.** If the age of the tree during the last inventory was 84, and it has been six years since the last inventory, the current age is 90.

Tree age for saplings and seedlings will be estimated by counting the whorls of branches. If an accurate tree age cannot be determined by counting whorls, the tree may be bored, as close to the base of the tree as possible. **Do not bore seedlings.**

7. MORTALITY
There are seventeen possible classes for tree mortality; one live, eight dead-standing and

eight dead-down. Cause of death coded in the mortality column will be primary cause of death.

a. Live: Any tree with two or more live branches with living needles and connecting live cambium from roots to live crown somewhere on the circumference of the bole will be considered a living tree and will have a recording number of 10. A tree recently attacked by insects may still have live branches, but if the wood, upon inspection, has blue stain, the tree should be considered dead. Any tree that has been put down on or near the ground by man-made or natural forces and will be dead within one year will be considered as dead-down.

b. Dead-Standing and Dead-Down: Any standing tree with no live branches and dead or no needles on the branches and with no connecting live cambium on the stem will be considered dead-standing. For remeasure plots, dead trees are coded only if they were alive on the previous inventory. The 20-series code will cover dead-standing trees.

Broken-out tops are not considered down-trees unless they contain all of the live crown. The 30-series code will cover dead-down trees.

In any dead-standing or dead-down mortality class, some cause of death will be shown. The cause of death is shown by a number at the right of the 20- or 30-series code.

1. **Mistletoe:** Those trees which show severe "brooming" and other deformities associated with mistletoe and have died from no other apparent major cause will be recorded as mistletoe mortality.

2. **Logging Damage:** Logging damage will only be shown as a cause of death when it is a direct cause such as mechanical girdling, severe defoliation, push-over, breakout of crown, severe debarking, root exposure, etc. If a tree has been cut for firewood, code it as mortality. This status will also be assigned to a tree that has been cut in a thinning and not removed for utilization.

3. **Blister Rust:** Due to the importance of blister rust in white pine, blister rust will be shown as primary cause of death if evident with other causes. Only when positive evidence shows that insects or other factors were the primary cause of death in blister rust infected white pine, will they be shown as the primary death cause.

4. **Disease:** Disease as the cause of death will include all rots and blights, natural mechanical damage such as frost, sunscald, frostburn and sunburn, ice, and animal injury. Fire will be designated as a separate cause of death, and mortal diseases starting in fire scars will be shown as the cause of death.

5. **Insects:** Insects will be designated as cause of death only when positively determined as the cause. This will include bark insects, defoliating insects, or any others. Many insects are not primary causes of tree death.

6. **Windthrow:** Windthrow will be shown as a cause of death if occurring naturally or due to man-made openings and exposure.

7. **Fire:** Fire will be shown as the cause of death if either man-or naturally-caused.

8. **Other:** Other will be used as cause of death only when one of the above causes cannot be applied. A note should be made in the comments as to the cause of death. This can be applied to trees dying from suppression.

SUMMARY OF MORTALITY CLASSES

Mortality Class	Recording Number
Live	10
Dead (died since last inventory or within last five years on new plots)	
Dead-standing series	
Mistletoe	22
Logging damage	23
Blister rust	24
Disease	25
Insects	26
Windthrow	27
Fire	28
Other	29
Dead-down series	
Mistletoe	32
Logging damage	33
Blister rust	34
Disease	35
Insects	36
Windthrow	37
Fire	38
Other	39

9. **Information to Record:** Record all information except age and growth. Crown class will be the same as it was when the tree was alive or as recorded on the previous inventory. Product is recorded as the tree exists at the time of inventory. Cull will be the same as that recorded from the previous measurement on remeasure plots. DBH height, and cull percent will be the same as the previous measurement or as measured on new plots.

   A missing tree caused by logging utilization is not classed as mortality. A missing tree caused by firewood cutting is classed as mortality.

8. SAWLOG CULL PERCENT

Cull percent is that portion of a tree that is made unmerchantable for sawlog purposes by any cause. Each tree is examined for visible defect or decay. The evidence may be exposed rot, a conk, lesion, catface, abnormally swollen butt or bole, decay showing on the increment core, spiral grain, insect, weather checks, cracks, or mechanical damage. Deductions for cull are made for defects within merchantable logs of the tree. If a tree contains an isolated piece less than 8 feet in length, the entire log containing the isolated piece will be cull.

By using Table 3, "Percentage Distribution of Volume by Sawlogs," as a guide and by using fractions of log lengths, reasonable accuracy may be attained for a cull-percent deduction. Pathogens, such as Indian paint fungus and *Phellinus pini*, normally always cause cull in quantities that will be entered in the cull-percent column. Since polesize trees usually do not have log heights, an estimate of the cull percent must be made. If the cull visible in polesize trees will cause the polesize tree to become a total cull when it reaches sawtimber size, it should be shown as 100 percent cull. Otherwise, enter polesize cull percents in the same manner as with sawtimber.

On the back of the plot form, under individual tree cull calculations, there is space provided for determining cull percent. This should always be completed before moving to the next subplot. Under the heading "Log(s) Affected," indicate what portion of each log was deducted (see examples below).

Tree #	Reason	Log(s) Affected	Cull %
3	Sucker	3 (2')	5%
2	Broken top	4, 5, 6 (all)	31%
7	Frost crack	Butt (1/4)	7%
5	Heart rot	Butt (all)	20%

For dead trees, record the cull which the tree had at the time of death. For remeasure plots, this will be the defect recorded on the old plot form from the previous measurement.

a. **Examples of Defect Deduction:**

1. **Serious Crook or Sweep:** Deductions will be made for crook or sweep which cannot be handled by proper bucking. Such crook will be considered as causing the loss of half or all of the particular 4-foot section, and a corresponding part of the total board-foot volume of the tree.

   Example: Given a 4-log tree with a sharp kink in the first 4 feet of the third log; the entire 4-foot section will have to be cut off in the woods. From Table 4, the board-foot defect percent loss of the entire tree is 5 percent.

2. **Forks:** The estimate of board-foot defect percent for forks will be obtained by estimating the portion of the length, all or one-half of the 4-foot section, which will be lost in cutting out the fork and translating this into percent of total tree volume.

   Example: Given a 3-log tree, forking in second section of second log; cutting out a 2-foot section will be necessary. From Table 3, the board-foot defect percent loss of the entire tree is 4 percent (one-half of 9).

3. **Lightning Scars:** The estimate of board-foot defect percent for lightning scars will be obtained by considering the 4-foot section or sections as being divided into quarters lengthwise. The percent loss in each quarter due to the scar will be estimated and translated into terms of the total tree.

   Example: Given a 4-log tree with a 12-foot lightning scar running through the last three 4-foot sections of the last log. The scar is of such depth and width as to cause

the loss of one-fourth of the volume of each 4-foot section. From Table 3, the board-foot defect percent loss of the entire tree is 2 percent (1/4 of 3 + 3 + 3).

4. **Fire Scar - Catface:** The estimate of board-foot defect percent will be obtained by considering the 4-foot section with defect as being divided into quarters lengthwise and making a decision as to what fraction of the whole section is defective. This percent applied to the percentages of total tree volume by 4-foot sections in Table 3 will give the estimate of defect percent for the tree.

   Example: Given a 16-inch 5-log tree with a fire scar running out 6 feet above the 1-foot stump. After examination it is decided that one-half of the first 4-foot section and one-fourth of the second 4-foot section will be lost. From Table 3, the board-foot defect percent for the entire tree is 6 percent (1/2 of 8 + 1/4 of 8).

Table 3

Precent Tree Volume by 16-Foot Log

Log Height	Log Number 1	2	3	4	5	6	7	8	9	10
1	100									
2	63	37								
3	45	33	22							
4	37	28	21	14						
5	32	25	19	15	9					
6	27	22	19	14	11	7				
7	24	21	19	17	11	5	3			
8	22	19	17	15	11	8	5	3		
9	20	16	14	13	12	10	7	5	3	
10	19	16	14	13	12	10	7	5	3	1

Table 3 shows the percentage of the tree volume that is in a 16-foot log for various logs per tree. If the cruiser believes that any log, parts, or combination of logs will be lost due to breakage, excessive roughness or defect, he can deduct the volume of these logs by applying the proper percentage shown in the table to the total gross volume of the tree.

9. DEFECT DEDUCTION FOR INTERIOR DEFECT

   A. *Phellinus pini* (fomes pini, red ring rot)

      1) Indicators present - Hoof-shaped conks, top dark gray to black concentric furrows, cream to yellowish-brown on the underside, and usually occurs at branch stubs. Swollen punk knots filled with yellow-brown mycelium may be overgrown and inconspicuous until chopped open. In the early stages of decay, the wood shows a pinkish to red discoloration. In the advance stages, the wood shows small, white, pockets of decay.

         All Species

2) Deductions - In white pine the defect associated with a single conk is generally confined to one-half the diameter of the scaling cylinder; while with other species, the defect extends through the entire diameter. Rot, from a conk, is estimated to extend 2 feet toward the top and 4 feet towards the butt.

In old growth timber, rot is estimated to extend 5 feet above and 7 feet below a conk. In white pine the defect associated with a single conk is confined to one-half the diameter of the scaling cylinder, while with other species the defect extends through the entire diameter.

B. *Echinodontium tinctorium* (Indian paint fungus)

1) Indicators present - Conks are large, woody, hoof-shaped, upper surface black, roughly cracked; bottom has hard gray teeth, and interior tissue of the conk is a distinctive rusty-red in color. Enters the trees through broken branch stubs, frost seams, lightning scars, scolytus scars, and sucker limbs. Infected branch stubs are red-orange in color and can be quite stringy. The first visible evidence of decay in the heartwood is a faint yellowish discoloration. As the decay progresses, the color darkens, and rusty-redstreaks appear in the wood. In the late stages, the wood breaks down into a brownish stringy mass. In larger trees, the rot destroys the entire heartwood.

SAF, H, GF, ES

2) Deductions - In second growth trees the rot extends four feet up and six feet down from the punk knot and extends through the entire diameter.

In old growth trees the rot extends six feet up and eight feet down from the punk knot and extends through the entire diameter.

C. *Fomes officinalis* (dry rot or red-brown trunk rot)

1) Indicators present - A circular area of yellowish discoloration marks the early stage of decay. As decay progresses, the wood becomes softer, breaking down into a crumbly mass of yellow-brown cubical chunks. In the late stages, these circular areas show extensive radial and concentric shrinkage cracks filled with white mats of fungus/tissue. Conks develop only after extensive decay of the heartwood. They are perennial, hard, and chalky and tend to be long and cylindrical in shape. The outer layers of tissue usually becomes grayish or black and extensively cracked, while the undersurface is white with small pores. Broken tops often indicate the presence of brown trunk rot.

PP, WL, ES, LP, DF

2) Deduction - The rot is quite extensive and the presence of a single conk may indicate the tree is a cull.

D. *Phaeolus schweinitzii* (red-brown butt rot)

1) Indicators present - The first visible evidence of decay is a pale yellowish- or reddish-brown discoloration. In the advanced stages, the wood is reduced to a

reddish-brown mass that cracks up into cubes. A very thin layer of cream-colored fungus tissue often develops in the cracks between the cubes. On the end section of logs, this rot may appear as several isolated pockets or a single pocket of decay. The decay can usually be traced to a cat face at the base of the log. Conks generally develop on the duff around the base of the tree. The conks are more or less circular, thin, and stalked. The uppersurface is reddish brown and velvety or plush-like with concentric zones. The undersurface is olive green on fresh growing conks and dark reddish-brown on dead ones. Occasionally the conks develop on the butt of the tree. These conks are thin and bracket-like.

All Species

2) Deductions - This rot generally extends 2 to 24 feet up the trunk from the butt.

E. *Poria weirii* (yellow ring rot)

1) Indicators present - In the early stages, the wood shows a yellowish discoloration and darkens as the wood becomes softer. The wood begins to separate along the annual rings and a definite ring shake develops. On the log ends, the rot may appear in crescent or ring-shaped areas. In older trees, the butt may become hollow.

Cedar

2) Deductions - Yellow ring rot is usually confined to the butt log of red cedar but may extend 30 feet up the trunk.

F. *Poria asiatica* (brown pocket rot)

1) Indicators present - In the early stages of decay, a light brown discoloration appears. In the advanced stages, the wood cracks extensively and breaks down into a fragile, crumbly mass of brown cubes. The decay first develops into well-defined pockets, which eventually run together and form solid cylinders of rot.

Cedar

2) Deductions - Large hollows often develop in older trees.

G. *Scolytus* (fir engraver)

1) Indicators present - The usual external evidence of such attacks is roughened patches of bark or small scars. The beetle destroys the cambium layer and leaves a brown pitch pocket or ring separation in the wood.

GF

2) Deduction - Diameter reduction for the length of the damage.

H. Ring Shake and Pitch Ring

1) Indicators present - Ring shake defect is the separation of one or more annual rings sufficient to cause loss of volume. This becomes known as a pitch ring when filled with pitch.

DF,WL

2) Deductions - Sometimes rings will stop at knots, for knots tend to hold the annual rings together.

I. Massed Pitch

1) Indicators present - Massed pitch is the accumulation of excess pitch in the butt of ponderosa pine, Douglas-fir, and larch.

2) Deduction - Most common method of deduction is the length cut method.

J. Crook or Sweep

1) Indicators present - Deviation of the log cylinder from a straight line accounting for volume loss.

2) Deductions - Use the length cut method to deduct for unusable volume.

K. Crotches

1) Indicators present - Cause by a forked stem in the tree.

2) Deductions - Use the length cut method for defect deduction.

L. Frost Checks and Bark Seams

1) Indicators present - Frost checks are common on butt logs of white fir and hemlock. The defect extends from the surface of the log to the heart and may extend up the log for 8 to 10 feet. The frost check can be traced on the surface of the log by a ridge of bark extending the length of the seam. A bark seam defect extends from the surface but does not extend to the heart.

2) Deduction - Depending on the amount of checks or seams, use the length cut or pie cut method.

M. Cat Face and Scars

1) Indicators present - Areas of the log where the bark was removed and the wood beneath the area was damaged.

2) Deduction - Most common method of deduction is the pie-cut method.

10. VIGOR CLASS

Vigor class is the thirteenth fact recorded. The vigor-class coding divides the trees according to their health and helps classify anticipated mortality. Each tree is classed into one of six vigor classes ranging from superior to dead. The crewman measuring the tree heights should note the vigor of each tree as he measures its height.

SUMMARY OF VIGOR CLASSES

Vigor Class	Recording Number
Superior	1
Excellent	2
Average	3
Poor	4
Very poor (dying)	5
Dead	6

Explanation of the General Guide for Vigor-Class Rating:

The following vigor-class guides were composed using experience gained in several years of timber marking and tree rating on forest inventory plots. Also considered was most of the literature available on the subject.

Personnel using this guide should keep in mind that the factors listed are "guides" not "rules." There will be many exceptions, more in some species than in others. The forester's judgment and common sense and experience with each species and stand will be as important in determining vigor as the guide.

Some stands may be generally low in health and vigor. The percentage figures used in the summary of the five vigor classes apply to normally healthy stands. Each tree's vigor must be rated relative to the good-health specimens in the entire forest. Do not range the vigor classes for "poor" to "superior" within one specific locality or stand. An "average vigor tree" should appear average to all trees in a forest being inventoried.

Conversely, some stands are relatively healthy and so should show a high percentage of "excellents" and "superiors" compared to the entire forest.

To use the guide, consider the several characteristics of the three major points; the crown, the bole, and the butt-root area. The cruiser's experience and the guide should show the cruiser whether the tree is average to better, or average to poorer. The cruiser can then rate the tree as excellent or superior on the healthiest side or poor to very poor (dying) on the unhealthy side.

Guide for General Vigor-Class Rating - All Species:

Superior: Top 10 percent of the excellent. Usually dominant. Cannot have any overmature weaknesses. Must be completely free of disease including mechanical damages and insects. Only perfect trees. Those that appear genetically superior in all characters that would be suitable for breeding and progeny testing for superior parent trees.

Excellent: Mostly dominants and codominants, but some inter-mediates of tolerant species. Best 20 percent of normally healthy stands that are free of epidemic diseases and

insects, and not showing overmaturity weaknesses.

Average: Middle 50 percent of health classes. Many dominants and codominants if showing some overmaturity weaknesses or moderate loss of vigor due to insects or disease. Many intermediates. Few if any suppressed of intolerant species. Many suppressed and many intermediates of tolerant species that will respond well to release.

Poor: All white pine with medium blister rust infection or minor spike-top. About 20 percent of a normal stand. Trees which are suppressed or intermediates. Those trees approaching mortal damage from disease or insects or overmaturity. Those poor-health intermediates and suppressed that will not respond to release but are not dying in ten years.

Very Poor (Dying): All white pine with heavy blister rust infection or considerable spike-top, or one or more stem cankers in lower 90 percent of bole. All trees that will die in ten years. In normal stands, the worst 10 percent in relative health. Mostly trees that are suppressed, severely diseased, defoliated or infested with insects. All trees dying from overmaturity.

Average and Better:

Crown:

Needles - of good color, bright. Dense, full compliment on all younger twigs; full length; only old needles dying back. Needles utilizing all light available, thrifty.

Crown area & volume maximum - 40 percent of total height of bole or more; crown full and dense, perimeter uniform and smooth for species.

Limbs - uniform, small to medium size for species. Well balanced between twigs and larger portion of branch. Most species with none or very little droop on branch ends; branches angle upwards in upper crown.

Crown shape - regular, tapered, more or less pointed on top, space well filled in. No excessive irregularity or gaps for species. Crown showing thrift at using aerial space available in dense stands.

Bole:

Smoothness - relatively free of lesions, conks, burls, swollen knots. Colors indicating relatively new bark.

Bark - older portions of bark with wide plates & deep fissures. Most species showing new bark exposed in fissures. Bark sloughing slower than produced. Color bright, minimal fading and weathering relative to protection from the weather.

Upper bole - whorls distinct and uniform. Top 10 percent not rough and gnarled. Limbs small, top log is merchantable to minimum top D.I.B.

Butt-Root Area:

Bark - plates on mature trees large and wide for species. Fissures deep, bark colors bright for species. Usually, newly-formed bark exposed in fissures.

Smoothness - free of conks, burls, catfaces, lesions and other scars.

Roots - appear deep and well distributed for species. Absence of root rots and erosion of soil around roots; roots not abnormally exposed.

Average to Poorer:

Crown:

Needles - of poor color, yellowing to faded green, sparse & thin. Few to numerous twigs, bare. Needles short. Old and newer needles dying back. Needles not utilizing all light available.

Crown area - for tree size is not maximum, less than cumulative of 40 percent of total height in crown. Crown has abnormal voids and thin areas. Perimeter rough and ragged for species.

Limbs - irregular, some to many rough, crooked and large. Poor balance between twigs and stems. Some to many dead limbs within live crown. Larch and Douglas-fir with mistletoe, adventitious twigs on many species. Limbs often on only one or two sides.

Crown shape - irregular, ragged. Older trees flattopped, crown not well tapered or conical for age and species. Crown often short, except on narrow-crowned species. Leader indistinct, interwhorl space small or none and indefinite. Top may be spiked or broken out.

Bole:

Smoothness - pole outline rough and lumpy with lesions, burls, swollen knots, conks, scars, catfaces; upper bole color dirty.

Bark - color indicating relatively old bark. Fissures shallow, bark sloughing faster than produced. On lower bole, bark is getting thinner than normal for species. Color dull, dirty, frequently faded and weathered relative to protection from the weather.

Upper bole - whorls indistinct, closely spaced. Top 10 percent of bole crooked, gnarled or rough with coarse limbs. Top log usually unmerchantable due to roughness on older trees.

Butt-Root Area:

Bark - plates smaller than normal for species and age. Fissures shallow. Bark colors dull and faded for species. Lack of evidence of newly formed bark in fissures.

Smoothness - outline lumpy or irregular. Swollen knots, conks, catfaces, churn-butt, lesions, frost checks, and burls.

Roots - may be exposed. Soil eroded from around roots. Evidence of root rots and poor distribution of roots.

11. CROWN CLASS

Crown class is the fourteenth fact recorded. Crown-class rating shows a tree's relative position among its competitors and also helps determine anticipated mortality. Each tree is assigned to one of eight crown classes - four in the overstory and four in the understory. Crown class will be judged on the basis of those trees occupying and surrounding the point being recorded. Again, as with insect, disease, cull and vigor classes, the crewman measuring heights has the better opportunity to assign the tree's crown class.

If the top is broken out of a tree, consider the crown class as if it did not have a broken top. In areas that have been logged recently, crown class should be judged on the basis of the tree's position before logging.

a. Overstory Crown Class:

1. **Dominant:** Dominants are trees with crowns reaching above the general level of the forest canopy forming the finest of the crop trees and receiving full light from above and partly on the side. The trees are usually larger than the average trees in size; crown is usually very well developed.

2. **Codominant:** Codominants are trees with crowns comprising the general level of the canopy forming the majority of the better crop trees and receiving full light from above but partial or none from the sides. Frequently, the crown is crowded on one to three sides and receiving light on one or two sides. Crown development is usually better than average.

3. **Intermediate:** Intermediates are trees with crowns reaching into the general level of the canopy but not as tall as the dominant or codominant trees. These trees are usually crowded on all sides but are receiving a small amount of light from above. The better intermediates are potential codominants and crop trees after thinning, whereas the poorer intermediates most likely will develop into part of the suppressed class.

4. **Suppressed:** Suppressed are trees with crowns under the main canopy. These trees are usually receiving no light from above nor from the sides except light filtered by crowns above. In some cases, intolerant species suppressed will be as tall as intermediates with a very spindly leader getting light from above, but so crowded on the sides that the crown development is subnormal and deficient.

b. Understory Crown Classes: Understory crown classes are assigned to trees one or more size classes smaller than the overstory. The same general criteria are used as with the overstory definitions. Classes 5, 6, 7, and 8.

Stands in which understory crown classes can be accurately and usefully defined are usually only those which have been partially cut or naturally thinned some years prior to the classification, or in all-age stands typically produced in ponderosa pine forests.

In fully-stocked, even-aged forests, the understory is usually intermediate and suppressed overstory trees. It is arbitrary and unnatural to classify the lower size class into the understory crown classes.

12. TREE STATUS

The tree-status code delineates between remeasurement trees and trees being measured for the first time. Each tree is assigned one of seven tree-status classes. On newly-established plots, all trees will be classed as initial inventory trees. On plots being remeasured, if the tree has a paint mark from a previous inventory and is not found to be a mistally, then the tree will be classed as a "reinventory" tree. Tree-status classes are defined as follows:

1. **Initial Inventory Tree:** Every tree tallied for the first time is an initial inventory tree.

2. **Reinventory Tree:** During the regular remeasurement of a management area, each tree being tallied for the second time is classed as a reinventory tree.

3. **Ingrowth Tree:** Not used for this inventory.

4. **Mistally Tree:** A mistally tree is a tree not close enough to the plot center to tally on a remeasurement, but is marked as being tallied on the previous measurement. Record species and DBH, record "4" as the status code, and put "O" in the remaining columns.

5. **Ongrowth Tree:** Those trees which have grown large enough since the last measurement to be picked up as an "in" tree this measurement.

6. **Logged Tree:** Those trees that were measured on previous inventories but are missing due to logging utilization will be given logged-tree status. Trees given this status should have been merchantable at the time of logging and/or their stumps readily identified by location, species, size, or metal number tags.

   However, trees that has been cut in a thinning and not removed for utilization will be coded under mortality.

   A tree that has been windthrown and has also been cut for merchantable wood product will be coded the same as a logged tree.

7. **Missing Tree:** Those trees that were measured on previous inventories but are now missing. This category should only be used when no other alternative exists for the inventory crew. A tree is usually missing for some reason. This reason should be determined or a possible reason given.

SUMMARY OF TREE STATUS CLASS

Status	Recording Number
Initial inventory tree	1
Reinventory tree	2
Ingrowth tree	3
Mistallied tree	4
Ongrowth tree	5
Logged tree	6
Missing tree	7

13. PERCENT LIVE CROWN

Percent live crown is calculated as the length of contiguous live crown divided by total tree height. Isolated branches or clumps of branches separated from the contiguous crown should be moved ocularly to the base of the crown and included in the percentage calculation. If the top is broken, percent live crown is that portion of live crown remaining in relation to the total tree height without a broken top.

SUMMARY OF PERCENT LIVE CROWN

Percent Live Crown	Recording Number
0-10	10
11-20	20
21-30	30
31-40	40
41-50	50
51-60	60
61-70	70
71-80	80
81 +	90

14. AZIMUTH TO TREES OVER 5 INCHES DBH

Using a declination of 14.16 degrees east (7/15/16), for each live tree over 5 inches DBH record the azimuth from plot center to the center of the bole at DBH (+-2 degrees). Enter this information under “AZ” in the “Notes” column of the plot sheet.

D. COMPLETING THE GENERAL STAND DATA

The general stand data for the subplot is recorded as the condition exists for each subplot.

1. CONDITION CLASSES FOR FOREST INVENTORY

The condition class is determined for each stand that is sampled by a plot. There are eight classes.

a) **Uncut:** These stands show no signs of having been logged or under any organized logging or forestry plan. Sometimes virgin stands show signs of light cutting for tent poles, a few cabin logs, or other minor uses. This minor cutting will not class the stand as being partially cut. Also includes second growth sawtimber stands that show no signs of logging activity.

b) **Partial Cut:** Partially cut stands show signs of having been logged at some time; however, at least a poor stocking of sawtimber or other residual timber of the type that was harvested must be present.

c) **Clearcut:** Clearcut stands have been harvested in a manner exhibiting the clearcut seed block system or those cleared without provision for reproduction. The clearcut condition class may have clumps of sparsely-spaced individual trees remaining on the site. However, these residual trees must be unmerchantable or must not comprise sufficient net basal area to be considered an economically feasible logging operation. The clearcut condition class cannot have amounts of residual pole or

sapling timber that are considered to be seed trees, leave trees, or the next crop. Residual stands with merchantable or growing stock quantities of any size except seedlings are not to be classed as clearcut.

d) **Decadent Residual:** Stands more or less clearcut but with highly defective trees remaining that are marginal merchantable sawtimber, pulpwood or other products will be classed as decadent residual. These stands will not include those stands of chosen or planned residual trees left after practical cutting as sound and valuable seed trees, shelterwoods or selective cutting residuals. These stands are merchantable only at times of optimum accessibility and marketing.

e) **Other:** All other condition classes not covered by the seven classes will be classed as "other." This class will include areas fully or partially deforested by natural causes such as wind, insects, disease and fire. It will also include any man-caused deforestation not classed as some kind of harvesting.

f) **Overstory Removed:** Stands that have had seed trees or shelterwood removed.

g) **Seed Tree:** Stands where seed trees were left to regenerate the stand.

h) **Regeneration stand:** Stands that had been logged in the past and are now in some stage of regeneration (sapling, or pole stage).

SUMMARY OF CONDITION CLASSES

Condition Class	Recording Number
Uncut	1
Partially cut	2
Clearcut	3
Decadent residual only	4
Other	5
Overstory removed	6
Seed tree	7
Regeneration stand	8

2. SITE CLASSES FOR FOREST INVENTORY
Each plot determines the site class for the stand sampled. Site class is a site potential classification and is based upon the U.S. Department of Agriculture, Forest Service, Northern Rocky Mountain Experiment Station Research Paper, "RE-NRM-Forest Economics Reference Sheet, Form No. 23, Rev. 1,". The site classification table appearing on page 51 has been taken from the research paper. The site class is computed for each stand by taking the sum of the ages and heights of the dominant and codominant overstory trees and dividing by the number of trees used to make the sum. This average age-height relationship is then compared with the table on page 47, and the resultant class of poor, medium, or good is assigned to the stand.

SUMMARY OF SITE CLASSES

Site Class	Recording Class
Poor	1
Medium	2
Good	3

3. WORKING CIRCLE
   Using available maps, record the working circle in which the plot is located. Use the number codes shown on the map.

4. BASAL AREA FACTOR
   The basal area factor is used to expand the tree and plot volumes to a per-acre basis. A 20 basal-area-factor will be used for all inventories except where a 10 BAF is used.

5. PERCENT SLOPE
   The slope recorded will represent the average slope along the dominant aspect of the plot and is measured with the relaskop (or similar instrument) on the P scale.

   Percent slope is recorded in 10 percent slope classes with 5's being rounded to the even number.

% SLOPE	CODE
0 - 5%	0
6 - 15%	01
16 - 25%	02
26 - 25%	03
36 - 45%	04
46 - 55%	05
56 - 65%	06
66 - 75%	07
76 - 85%	08
86 - 95%	09
96 - 100%	10
106 -115%	11
116 -125%	12

6. SLOPE POSITION
   Slope is a description of the relative position which the plot occupies on a slope.

SLOPE POSITION CLASS	CODE
Lower 1/3 of the slope	1
Middle 1/3 of the slope	2
Upper 1/3 of the slope	3
No slope or slope indeterminate	4

7. ASPECT
   Aspect is a measure of the predominant direction in which the plot lies. These measurements are made to the half quadrant on the compass as follows:

1. ASPECT	CODE
2. North	1
3. Northeast	2

4.	East	3
5.	Southeast	4
6.	South	5
7.	Southwest	6
8.	West	7
9.	Northwest	8
10.	Flat or no aspect	9

8. HABITAT TYPE
   The habitat type for each subplot will be classified as described by the habitat-type manual appropriate for the geographic area. Codes for the habitat types are found in the habitat-type manual.

   The following habitat-type manuals will be used according to the geographic area of the inventory.

   North Idaho: Cooper, Stephen V.; Neiman, Kenneth E.; Steele, Robert; Roberts, David W. 1987. Forest habitat types of northern Idaho: a second approximation. Gen. Tech. Rep. INT-236. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 135 p.

   Central Idaho: Steele, Robert, Robert D. Pfister, Russell A. Ryker, and Jay A. Kittams. 1981. Forest habitat types of central Idaho. USDA For. Serv. Gen. Tech. Rep. INT-114, 138 p. Intermt. For. and Range Exp. Stn., Ogden, Utah 84401.

   Eastern Idaho:Steele, Robert, Robert D. Pfister, Russell A. Ryker, and Jay A. Kittams. 1981. Forest habitat types of central Idaho. USDA For. Serv. Gen. Tech. Rep. INT-114, 138 p. Intermt. For. and Range Exp. Stn., Ogden, Utah 84401.

9. TOWNSHIP
   Township is obtained by referring to the map coverage for the area in which the subplot lies.

10. RANGE
    Range is obtained by referring to the map coverage for the area in which the plot lies. Normally, the range number would be, for example, Range 5 East. This would be recorded as 05.0E. There are some land survey anomalies in the State, however, which have required the creation of a Range 10.5 East (hypothetical example) which would be coded as 10.5E.

11. SECTION
    The section number is obtained by referring to the map coverage for the area in which the subplot lies.

12. FORTY (40)
    This number is determined by locating the plot within a 40, within the section and then assigning it a code number for that 40 as depicted below.

FORTIES WITHIN A SECTION

6	5	2	1
7	8	3	4
10	9	14	13
11	12	15	16

13. TIMBER TYPE
    This is done by the department's contract supervisor.

14. PLOT LOCATION DIAGRAM

    a. In plot location diagram, draw in as accurately as possible the layout of the plot and subplot.

    b. Denote the number of acres represented by the diagram in the space provided.

    c. In the margin to the right of the diagram, list the section number and subsection, if used. An example is given below.

    d. Include any features in the area which would aid in the relocation of the plot and subplot at a later date.

15. COMMENTS
    Comments on the plot form can be very helpful for the inventory analyst when checking plots and during the analysis. Comments can be used to describe the stand which may not be described or is inadequately described by the plot data as well as peculiarities that the plot may exhibit. The inventory analyst will also use the comments to make up general stand descriptions for the timber types. Below is a list of items to consider when making comments.

    a. General structure and stocking conditions -- not necessarily from plot data. Seedlings and saplings are often missed on the individual plots.

    b. If the stand is harvested, comments on approximate age of harvest, vigor, and structure of the residual stand. (Was the stand high-graded?)

    c. If hardwoods are in the plot, indicate what species they are.

    d. If a tree contains more diseases and/or insects than can be coded on the plot form, describe them in the comments.

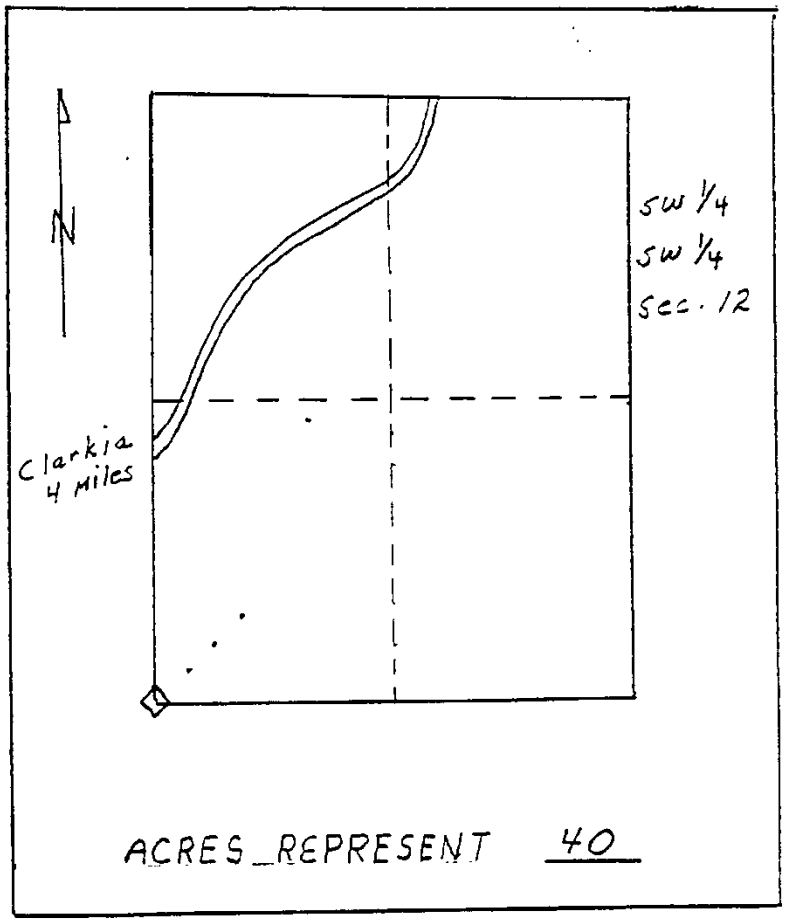
    e. Describe any activity on the plot and approximately how long ago the activity occurred.

This includes if plot is influence by a road and how far the road is from plot center.

Comments will be required at least for the three-plot cluster.

FIGURE 7

PLOT LOCATION DIAGRAM



16. COMPLETING THE PLOT

A completed plot from the field crew should have the following:

a. All nonshaded fields filled except timber type.

b. Three subplots forms (in numerical order

c. The old plot should be clipped to a newly-established plot for field and office checking.

E. ESTABLISHMENT OF TEMPORARY PLOTS

The number and location of the starting points for the plot cluster has been determined beforehand. Each plot will be a series of three subplots at a bearing of 45 degrees at 3-chain intervals.

a. Starting Point These plots may not come from section corners or quarter corners. All plots are points on the ground that are marked on the orthoquads. An approximate starting point along with an azimuth and distance will be provided to located these plots on the ground.

b. Reference Point (RP) An establishment of a RP is necessary. Select a landmark readily identifiable on the ground to mark the starting point.

Record a brief description of the RP on the plot form. If the RP is a tree, record its species and DBH.

c. Marking Plot Center Mark plot centers using a 1.5 foot wooden stake painted white or wire flags. Mark one witness tree with a WT and record the bearing and distance from the witness tree to plot center.

d. Information Recorded Temporary plots will be a cruise plot. Information gathered will be species, DBH, total height, age and cull percent. Do not take seedling information or fill out the stand information except for basal area factor (20 BAF). Tree number will be painted on each tree with white paint.

F. STANDARDS FOR CPS POSITION COLLECTION

1. Positions will be 3-D whenever possible.

2. Positions will be taken as close to the actual plot CFI plot center as possible. If not possible, the position can be taken at another location within 20 yards of plot center where the reading can be obtained, and referenced to the plot center by a bearing and distance offset.

3. Collect data in these units:

   Coordinate System to use – Latitude/Longitude/Altitude
   Units – Height above Geoid, Feet

   Lat: Deg Min Sec
   Long: Deg Min Sec

   Elevation Feet above Mean Sea Level

4. Above data will be recorded on CFI PLOT FIELD DATA SHEET.

G. APPENDIX

GUIDELINES FOR DETERMINING "IN" AND "OUT" TREES":

For hidden trees, the observation center may be moved away from the actual point as long as the distance from the point to the tree in question is maintained. By moving the observation center, it is often possible to get to one side of brush that is obstructing the view. It is necessary to move the center when a possible "in" tree is directly behind another tree.

For a leaning tree, rotate the relaskop so that its vertical axis corresponds with the center stem of the tree.

Occasionally, one tree will overlap an adjacent tree giving the appearance that it should be counted when actually it is "out." This can be avoided by careful observation. In some instances, having the crewman stand beside the closer tree will facilitate making the distinction.

It may be necessary to remove some of the brush that is obstructing the view.

Another method of determining whether a tree is "in" or "out" is through the use of a plot-radius factor. This distance from the point of observation to a tree that is just "in" is called the plot radius. Two methods may be used to determine to plot radius for a given tree.

a. One method to determine the limiting distance is to calculate the distance using the formula below:

   Limiting distance = DBH x plot-radius factor x slope factor

   The limiting distance is compared to the measured distance from the face of the tree. If the measured distance is greater than the limiting distance, the tree is out. The tree is in if the measured distance is less than or equal to the limiting distance.

   Plot-radius factor for a 20 BAF = 1.902

b. Another method of determining limiting distance is use of an instrument called a Stage gauge. This instrument works similar to a circular slide rule and will calculate a limiting distance, automatically correcting for slope. If this method is used, distance measurements are made to the center of the tree.

DIAMETER CLASS

DIAMETER CLASS

3.0 - 4.9	17.0 - 18.9
5.0 - 6.9	19.0 - 20.9
7.0 - 8.9	21.0 - 22.9
9.0 - 10.9	23.0 - 26.9
11.0 - 12.9	27.0 - 30.9
13.0 - 14.9	31+
15.0 - 16.9	

SLOPE CORRECTION FACTOR TABLE

SLOPE CORRECTION FACTOR TABLE

Slope Percent	Correction Factor	Slope Percent	Correction Factor
0-9	1.00	68-69	1.21
10-17	1.01	70	1.22
18-22	1.02	71-72	1.23
23-26	1.03	73-74	1.24
27-30	1.04	75	1.25
31-33	1.05	76-77	1.26
34-36	1.06	78-79	1.27
37-39	1.07	80	1.28
40-42	1.08	81-82	1.29
43-44	1.09	83	1.30
45-47	1.10	84-85	1.31
48-49	1.11	86	1.32
50-51	1.12	87-88	1.33
52-53	1.13	89	1.34
54-55	1.14	90-91	1.35
56-57	1.15	92	1.36
58-59	1.16	93-94	1.37
60-61	1.17	95	1.38
62-63	1.18	96-97	1.39
64-65	1.19	98	1.40
66-67	1.20	99-100	1.41

FOREST INVENTORY - CHECKLIST, FIELD EQUIPMENT

1. NECESSARY PHOTOGRAPHS AND MAP
2. NECESSARY PLOT AND HABITAT TYPE FORMS
3. LARGE TATUM BOARD
4. HEIGHT NOTES AND CALCULATION PAD (optional)
5. INVENTORY FIELD MANUAL
6. HABITAT TYPE MANUAL
7. POCKET STEREOSCOPE
8. PENCILS
9. PLASTIC ERASER
10. PHOTO MARKING PENCIL
11. PIN PRICKER
12. RELASKOP
13. 75-FT. TAPE
14. 20-FT. TREE DIAMETER TAPE
15. HAND COMPASS
16. CLINOMETER (optional)
17. INCREMENT BORER
18. TREE TAGS (take enough for 2 plots)
19. LUMBER CRAYON
20. HAND AXE
21. LOCATION TAGS
22. NAILS (box type)
23. WHITE SPRAY PAINT CANS
24. KNAPSACK TO CARRY EQUIPMENT
25. HAMMER OR PLIERS (for pulling out nails)

TREE HEIGHT MEASUREMENTS

It is best to take tree height measurements from a horizontal distance at least the height of the tree being measured unless the stand is dense and it is not possible to see the top and base of the tree from the desired distance.

Whenever possible, take tree height measurements standing on a plane approximately even with the base of the tree or on a plane above the base of the tree. The most important factor, however, is to be able to clearly see the base and top of the tree. If a treetop is hard to distinguish in a dense stand, it is often possible to shake the top of the tree by having one of the crewmen kick the base of the tree. This procedure even works with fairly large trees.

It is recommended that the distance at which trees are measured be 33, 66 (use the topog {T} scale), 50, and 100 (use the percent {P} scale). However, a table has been provided to give tree heights using the topog scale from 30- to 100-feet distances in 5-foot increments, or the Stage gauge can be used.

If the tree is leaning, stand perpendicular to the plane of the tree's lean and measure the tree's height, not correcting for the lean. If a tree is leaning heavily, locate the distance from the base of the tree with a vertical line from the top of the leaning tree. A crewman standing where this vertical line intersects the ground will aid in this procedure. Look up this distance and the tree height and find the corrected tree height.

From the table mentioned above, one can see that corrections are not necessary for leaning trees until the lean is critical. This is only true if the measurements are taken perpendicular to the plane of the tree's lean. Do not stand parallel to the plane of the tree's lean. This will either over- or underestimate the tree's height.

It is a good practice to compare the new tree height with the tree height on the old plot form for remeasure plots. Errors in height measurements can sometimes be caught. If a tree height is shorter than the previous measurement and you are sure your measurements are correct, record your measurement but leave the old measurement as is and make a note in the comments. This way the checker knows you tried to make a correct measurement.

HEIGHT CORRECTIONS FOR LEANING TREES

HEIGHT CORRECTIONS FOR LEANING TREES

Leaning Tree Height	Horizontal Distance from Tree Tip to Tree Base					
	5	10	15	20	25	30
30	0.4	1.6	3.5	6.1	9.0	12.4
40	0.3	1.2	2.7	4.7	7.2	10.0
50	0.2	1.0	2.2	3.8	5.9	8.3
60	0.2	0.8	1.8	3.2	5.0	7.1
70	0.2	0.7	1.6	2.8	4.3	6.2
80	0.2	0.6	1.4	2.5	3.8	5.4
90	0.1	0.6	1.2	2.2	3.4	4.9
100	0.1	0.5	1.1	2.0	3.1	4.4
110	0.1	0.5	1.0	1.8	2.8	4.0
120	0.1	0.4	0.9	1.7	2.6	3.7
130	0.1	0.4	0.9	1.5	2.4	3.4
140	0.1	0.4	0.8	1.4	2.2	3.2
150	0.1	0.3	0.7	1.3	2.1	3.0

True height of tree = leaning tree height + table value

VARIOUS PLOT CODES

VARIOUS PLOT CODES

SPECIES	Recording Code
Douglas-fir	DF
Ponderosa Pine	PP
Western White Pine	WP
Lodgepole Pine	LP
Grand fir	GF
Subalpine fir	AF
Engelmann Spruce	ES
Western hemlock	WH
Western redcedar	CE
Western larch	WL
Juniper	JU
Pinyon	PI
Whitebark pine	WB
Hardwoods	HA

CONDITION CLASSES	Code
Uncut	1
Partially cut	2
Clearcut	3
Decadent-residual	4
Other	5
Overstory removal	6
Seed tree	7
Regeneration stand	8

STATUS CLASS	Code
Initial inventory tree	1
Reinventory tree	2
Ingrowth tree	3
Mistallied tree	4
Ongrowth tree	5
Logged tree	6
Missing tree	7

SLOPE POSITION	Code
Lower 1/3	1
Middle 1/3	2
Upper 1/3	3
No slope	4

PRODUCT CLASS	Recording Code
Sawtimber	1
Unmerchantile due to size	4
Dead	6

VIGOR CLASS	Code
Superior	1
Excellent	2
Average	3
Poor	4
Very poor (dying)	5
Dead	6

SITE CLASS	Code
Poor	1
Medium	2
Good	3

CROWN CLASS	Code
Dominant overstory	1
Codominant "	2
Intermediate "	3
Suppressed "	4
Dominant understory	5
Codominant "	6
Intermediate "	7
Suppressed "	8

VARIOUS PLOT CODES

VARIOUS PLOT CODES

MORTALITY	Code
Live	10
Standing Dead…	20
Mistletoe	22
Logging damage	23
Blister rust	24
Disease	25
Insects	26
Windthrow	27
Fire	28
Other	29
Down Dead…	30
Mistletoe	32
Logging damage	33
Blister rust	34
Disease	35
Insects	36
Windthrow	37
Fire	38
Other	39

AREA	Code
Priest Lake	10
Pend Oreille Lake	20
Kootenai Valley	21
Mica	22
St Joe	30
Cataldo	31
Clearwater	40
Ponderosa	41
Maggie Creek	42
Craigmont	43
Payette Lakes	50
Southwestern	60
South Central	70
Eastern	80

ASPECT	Code
North	1
Northwest	2
East	3
Southeast	4
South	5
Southwest	6
West	7
Northwest	8
Flat or no aspect	9

PERCENT SLOPE	Code
0-5%	0
6-15%	1
16-25%	2
26-35%	3
36-45%	4
46-55%	5
56-65%	6
66-75%	7
76-85%	8
86-95%	9

DIAMETER CLASS	
3.0 - 4.9	17.0 - 18.9
5.0 - 6.9	19.0 - 20.9
7.0 - 8.9	21.0 - 22.9
9.0 - 10.9	23.0 - 26.9
11.0 - 12.9	27.0 - 30.9
13.0 - 14.9	31+
15.0 - 16.9	

SITE CLASSIFICATION TABLE

	Minimum height of average dominant and codominant trees by site-age class and forest type							
Total	Western White Pine [1]		Ponderosa Pine		Larch-Douglas Fir		Lodgepole Pine	
Age	Site Class		Site Class		Site Class		Site Class	
Years	Medium	Good	Medium	Good	Medium	Good	Medium	Good
	Total ht.	in feet	Total ht.	in feet	Total ht.	in feet	Total ht.	in feet
20	10	13	12	23	14	21	8	13
25	15	21	16	29	19	27	13	20
30	20	27	20	35	24	34	18	27
35	26	35	24	41	30	41	23	34
40	31	42	28	46	35	48	27	40
45	36	48	32	51	40	54	31	45
50	40	55	35	55	45	60	35	50
55	45	61	39	59	50	66	38	54
60	50	67	42	63	54	71	41	58
65	54	73	45	67	58	76	43	61
70	58	79	48	70	62	80	45	64
75	62	85	51	74	66	84	47	66
80	66	90	54	77	69	88	49	68
85	70	95	57	81	72	92	51	70
90	74	100	59	84	75	95	52	72
95	78	105	71	88	78	98	53	74
100	82	110	63	91	81	101	54	75
110	85	115	65	94	85	106	55	77
120	88	120	67	97	89	111	56	79
130	91	125	69	99	93	115	57	81
140	94	129	71	102	96	118	58	83
160	98	134	75	109	101	124	60	86
180	100	137	78	115	105	128	61	88
200	102	139	80	120	109	131	62	90
220	102	140	82	125	111	134	62	91
260	102	141	85	130	115	139	63	92
300	102	141	87	133	117	142	63	92
	Average height range of mature dominant trees in 16-ft sawlogs							
	4-5	6-8	3-5	6-8	4-5	6-8	2-3	4-5
	1/ Use the White Pine classification and, if possible, White Pine trees, to classify the site of grand fir, hemlock, cedar and spruce types							

EXHIBIT A

Tolerance Specifications for
Point Score Deductions

Item	Point Value	Acceptable Tolerance
Form Heading		
Area Number	20	Correct
Plot Number	20	Correct
Subplot Number	20	Correct
Date	20	Correct
Township	10	Correct
Range	10	Correct
Section	10	Correct
Forty Number	10	Correct
Subplot Stand Information		
Basal Area Factor	20	Correct
Working Circle	5	Correct
Stand Condition Class	5	Correct
Site Class	5	Correct
Percent Slope	5	1 Class
Slope Position	2	1 Position
Aspect	5	1 Class
Habitat Type	10	Correct
Witness Tree Information		
Species	10	Correct
Diameter	10	2/10 Inch
Distance	10	1/10 Foot
Bearing	10	5 Degrees
Tree Measurements		
Tree Number	20	Tree and Tag Match
Species	5	Correct
DBH	10	2/10 Inch
Total Height	10	5 Percent
Product	3	Correct
Radial Growth	5	2/20 Inch
Age		
Less Than 120 yrs	5	10 Years
120-200 yrs	2	20 Years
200+ yrs	2	30Years
Mortality	5	Correct
Sawlog Cull Percent	10	10 Percent
Vigor Class	5	1 Class
Crown Class	5	1 Class
Tree Status	10	Correct
Percent Live Crown	5	1 Class
Tree Tag Placement	5	Correct
DBH Mark Placement	5	0.5 Ft.

Item	Point Value	Acceptable Tolerance
Incorrect Tally Trees		
Variable Plot		
Live	60	No Misses
Dead	10	No Misses
Fixed Plot		
Saplings		
1-5 trees	10	1 Tree
6-10 trees	7	4 Trees
11+ Trees	3	10 Trees
Plot Layout		
Subplot Center Location	20	6 feet

STATE OF IDAHO
DEPARTMENT OF LANDS
Maggie Creek 2021 Re-measurement

PROJECT DESCRIPTION

SUPERVISORY AREA Maggie Creek

PROJECT NAME CFI Re-measurement

PROJECT NUMBER 00-064-930-17

LOCATION

The project area involves Idaho Department of Lands forestlands in Clearwater and Idaho Counties within the Idaho Department of Lands Maggie Creek Supervisory Areas.

DESCRIPTION

This project will collect forest resource data within the Idaho Department of Lands Maggie Creek Supervisory Areas from permanent forest inventory plots. Plot locations are listed below.

PLOTS

Sixty (60) permanent plots will be cruised. Each plot consists of three subplots. All of the sixty (60) permanent plots are re-measure plots. This number may be increased or decreased by ten percent (10%) at the discretion of the Idaho Department of Lands. The general locations of all plots are shown on the attached maps. Spatial files are available upon request.

PROCEDURE

Plots will be located and data collected according to information and procedures described in the Forest Inventory: Field Procedure, Specifications and Definitions manual. A twenty (20) basal area factor will be used for all plots.

CONTRACT PERIOD

The contract work may commence once the contractor has received a signed copy of the contract and has had a pre-work conference with the contract supervisor. All field work must be completed before November 1, 2021 without written authorization from the State.

PAYMENT

Partial payment may be initiated by the Contract Supervisor at the completion of twenty-five (25) plots. Payments will be at the rate(s) set forth in Schedule A attached hereto.

INFORMATION

Information regarding this project will be available by contacting the following address:

Contact information will be provided in final contract document.

Maggie Creek Remeasurement Permanent Plots

Plot Number	Azimuth	Number Of Subplots	**Latitude** of Reference Point	**Longitude** of Reference Point
1023	28	3	46.22199	-115.8909
1038	45	3	46.37546	-115.8695
1039	209	3	46.41149	-115.8064
1040	45	3	46.19269	-115.8079
1044	135	3	46.35355	-115.8486
1068	315	3	46.23656	-115.8907
1069	140	3	46.20745	-115.7764
1073	315	3	46.30231	-115.912
1094	225	3	46.42651	-115.8902
1100	45	3	46.39784	-116.0173
1129	190	3	46.19315	-115.8499
1130	135	3	46.32465	-115.912
1131	25	3	46.36847	-115.8486
1132	205	3	46.39757	-115.8696
1153	230	3	46.33895	-115.9332
1167	140	3	46.29517	-115.8699
1169	315	3	46.41889	-115.7648
1173	118	3	46.22253	-115.7867
1178	45	3	46.3096	-115.912
1199	135	3	46.30943	-115.8068
1200	295	3	46.38295	-115.8065
1201	240	3	46.33926	-115.9543
1202	135	3	46.31718	-115.8487
1203	45	3	46.28033	-115.8072
1229	135	3	46.37593	-115.9752
1298	218	3	46.33966	-116.0173
1299	225	3	46.32443	-115.8693
1306	135	3	46.41198	-115.8902
1307	225	3	46.33857	-115.7653
1310	135	3	46.29498	-115.8281
1312	135	3	46.16412	-115.8496
1313	315	3	45.97548	-115.8915
1321	224	3	46.30936	-115.7756
1330	225	3	46.42614	-115.828
1334	336	3	46.39795	-115.9965
1344	315	3	46.2075	-115.7975
1345	225	3	46.25127	-115.8907
1346	315	3	46.26603	-115.9111
1347	315	3	46.38323	-115.9542
1348	41	3	46.23699	-115.7862
1349	315	3	46.39753	-115.8485
1352	45	3	46.41133	-115.7856
1362	135	3	46.18654	-115.8287

Maggie Creek Remeasurement Permanent Plots

Plot Number	Azimuth	Number Of Subplots	**Latitude** of Reference Point	**Longitude** of Reference Point
1367	5	3	46.29497	-115.8071
1383	315	3	46.19304	-115.765
1406	135	3	46.32448	-115.8174
1409	315	3	46.14951	-115.7971
1410	135	3	46.14947	-115.8074
1524	45	3	46.20789	-115.8711
1525	225	3	46.20061	-115.871
1526	135	3	46.20062	-115.8498
1527	45	3	46.18612	-115.8912
1528	315	3	46.17129	-115.8175
1529	315	3	46.16402	-115.7651
1530	315	3	46.28024	-115.9637
1531	225	3	46.36871	-115.9752
1532	135	3	46.4265	-115.8799
1533	225	3	46.40429	-115.8064
1534	135	3	46.42673	-116.0178
1535	315	3	46.01938	-115.8392

CFI Re-measurement
FM#-00-064-930-17

N

0 — 5 Miles

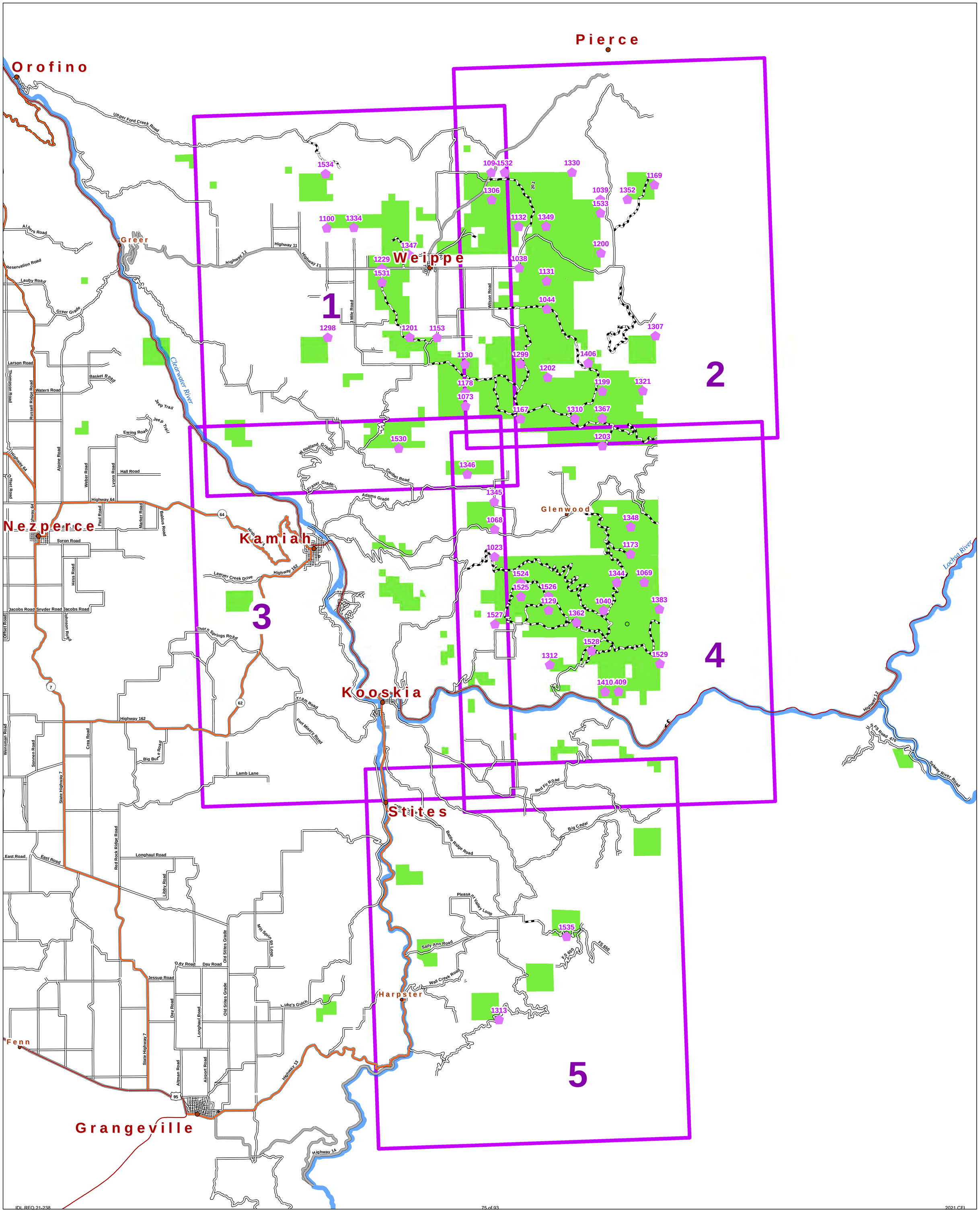
Maggie Creek 2021 Re-measurement
Vicinity/Index Map

CFI Plots
State Stands

Roads
Main
Highway
County

NTC 1/2021

IDAHO DEPARTMENT OF LANDS



CFI Re-measurement
FM#-00-064-930-17

N

0 0.5 1 Miles

Maggie Creek 2021 Re-measurement
Map 1 of 5

CFI Plots
State Stands
Streams

Roads
Spur
Secondary
Main
Highway
County

Barriers
Boulder
Cattle Guard

Earth Berm
Gate
Guard Rail
Jersey

NTC 1/2021

IDAHO DEPARTMENT OF LANDS

R 03 E | R 04 E | R 05 E

T 36 N | T 35 N | T 34 N

1534 1094 1532 1306 1100 1334 1347 1229 1531 1298 1201 1153 1130 1178 1073 1530 1346

Upper Ford Creek Road
Ranch Road
Road E
Road F
Road B
Road C
Road D
Winter Creek Road
Grasshopper Ridge Road
Road A
North Schlader Road
Schlader Road
South Schlader Road
Camp 1 Road
Road G
Road H
Hydro Road
Highway 11
Lower Fords Creek Road
Woods Road
Fidler Road
3 Mile Road
Shotgun Loop
Weippe
Musselshell Road
Cemetery Road
Chapman Road
Wilson Road
Brown's Ridge Loop
Camas Road
Lacey Meadows Road
Larson Road
Dairy Road
Lolo Creek Road
Spur B
Lower Wilson Grade
Miles Creek Road
Hub Road
Caribel Road
US Highway 12
Clearwater River
Jeep Trail
Woodland Grade
Fraser Grade

CFI Re-measurement
FM#-00-064-930-17

Maggie Creek 2021 Re-measurement
Map 2 of 5

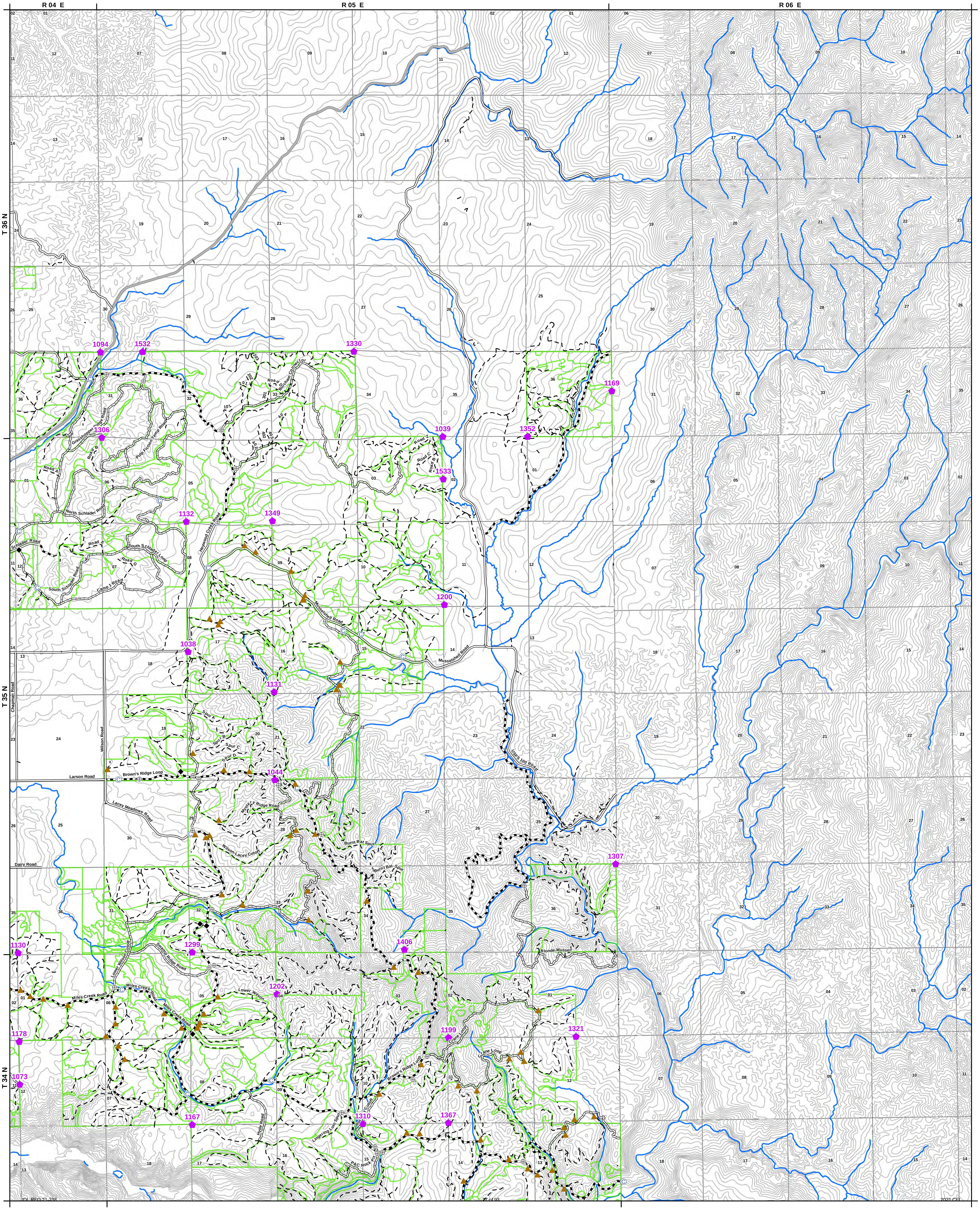
0 — 0.5 — 1 Miles

N

	Roads	Barriers	
CFI Plots	Spur	Boulder	Earth Berm
State Stands	Secondary	Cattle Guard	Gate
Streams	Main		Guard Rail
	Highway		Jersey
	County		

NTC 1/2021

IDAHO DEPARTMENT OF LANDS



CFI Re-measurement
FM#-00-064-930-17

N

0 0.5 1 Miles

Maggie Creek 2021 Re-measurement
Map 3 of 5

CFI Plots
State Stands
Streams

Roads
Spur
Secondary
Main
Highway
County

Barriers
Boulder
Cattle Guard

Earth Berm
Gate
Guard Rail
Jersey

NTC 1/2021

IDAHO DEPARTMENT OF LANDS

R 03 E
R 04 E
R 05 E
T 34 N
T 33 N
T 32 N

1530
1346
1345
1068
1023
1527

Kamiah
Kooskia

US Highway 12
Highway 64
Highway 64A
Highway 162
Woodland Grade
Frasier Grade
Caribel Road
Adams Grade
USFS 100 Road
Beaverslide Rd.
Ridgewood Drive
Lawyer Creek Drive
Thorn Springs Road
Winona Road
Tram Road
Fort Misery Road
Red Rock Ridge Road
Lamb Lane
Kidder Ridge Rd.
Harris Ridge Road
Too Kush Road
Ulmer Road
Clear Creek Road
Leitch Creek Road
Long Bluff Rd
Trenary Cutoff
N. River Road
Battle Ridge Road
Maggie Cr Rd
Road A-1
Road A
Road A-2
Jeep Trail
Hub Road
Lolo Creek Road
Clearwater River

CFI Re-measurement
FM#-00-064-930-17

N

0 0.5 1 Miles

Maggie Creek 2021 Re-measurement
Map 4 of 5

CFI Plots
State Stands
Streams

Roads
Spur
Secondary
Main
Highway
County

Barriers
Boulder
Cattle Guard

Earth Berm
Gate
Guard Rail
Jersey

NTC 1/2021

IDAHO DEPARTMENT OF LANDS

R 04 E
R 05 E
R 06 E
T 34 N
T 33 N
T 32 N

1346
1345
1068
1203
1348
1173
1023
1524
1525
1526
1344
1069
1129
1040
1383
1527
1362
1528
1312
1529
1410
1409

P&C Rock Pit
USFS 100 Road
Road A
Road A-2
Caribel Road
US FS 100 Road
Road A-1
USFS 100 Road
Maggie Butte Road
Glenwood Meadows Road
Bat Cave Road
Maggie Cr Rd
Asbestos Mine Road
South Breaks Road
Lower 4th of July Road
West Harris
4th of July Loop
Road B
B-1
B-2
Lucky Lane
Cutoff Road
Lookout Road
Beaver Slide
Harris Ridge Road
Lohrey Road
Lohrey Cutoff
Wilson Pit Road
Suttler Creek Road
Sechtol Road
A spur
B spur
C spur
F spur
Green Gate Road
I Spur
Ridge Road
US Highway 12
Middle Fork Clearwater River
Big Horse Canyon Road
Too Kush Road
Ulmer Road
Tahoe Road
Trenary Cutoff
Long Bluff Rd
Leitch Creek Road
Tahoe Loop
Red Fir Road
Big Cedar

CFI Re-measurement
FM#-00-064-930-17

N

0 0.5 1 Miles

Maggie Creek 2021 Re-measurement
Map 5 of 5

CFI Plots
State Stands
Streams

Roads
Spur
Secondary
Main
Highway
County

Barriers
Boulder
Cattle Guard

Earth Berm
Gate
Guard Rail
Jersey

NTC 1/2021

IDAHO DEPARTMENT OF LANDS

R 04 E | R 05 E | R 06 E

T 32 N | T 31 N | T 30 N

Stites
N. River Road
Long Bluff Rd
Leitch Creek Road
Tremary Cutoff
Tahoe Road
Tahoe Loop
Red Fir Road
Battle Ridge Road
Stites Grade
Clear Creek Road
USFS Road 286
Big Cedar
Potato Hill Loop
Wilson Road
Crane Hill Road
Luke's Gulch Road
Pleasant Valley Loop
FS 650
1535
Sally Ann Road
Sally Ann Spur A
Wall Creek Road
Sill Spur C
Sill Creek Spur D
1313
Jeep Trail
Highway 13
Highway 14

STATE OF IDAHO
DEPARTMENT OF LANDS
Mica/Cataldo 2021 Re-measurement

PROJECT DESCRIPTION

SUPERVISORY AREA Mica

PROJECT NAME CFI Re-measurement

PROJECT NUMBER 00-064-930-17

LOCATION

The project area involves Idaho Department of Lands forestlands in Kootenai and Shoshone Counties within the Idaho Department of Lands Mica Supervisory Area.

DESCRIPTION

This project will collect forest resource data within the Idaho Department of Lands Mica Supervisory Areas from permanent forest inventory plots. Plot locations are listed below.

PLOTS

Sixty-one (61) permanent plots will be cruised. Each plot consists of three subplots. All of the sixty-one (61) permanent plots are re-measure plots. This number may be increased or decreased by ten percent (10%) at the discretion of the Idaho Department of Lands. The general locations of all plots are shown on the attached maps. Spatial files are available upon request.

PROCEDURE

Plots will be located and data collected according to information and procedures described in the Forest Inventory: Field Procedure, Specifications and Definitions manual. A twenty (20) basal area factor will be used for all plots.

CONTRACT PERIOD

The contract work may commence once the contractor has received a signed copy of the contract and has had a pre-work conference with the contract supervisor. All field work must be completed before November 1, 2021 without written authorization from the State.

PAYMENT

Partial payment may be initiated by the Contract Supervisor at the completion of twenty-five (25) plots. Payments will be at the rate(s) set forth in Schedule A attached hereto.

INFORMATION

Information regarding this project will be available by contacting the following address:

Contact information will be provided in final contract doucment.

Cataldo Remeasurement Permanent Plots

Plot Number	Azimuth	Number Of Subplots	**Latitude** of Reference Point	**Longitude** of Reference Point
19	95	3	47.64517	-116.1577
354	315	3	47.46322	-116.5231
383	135	3	47.57278	-116.2011
463	225	3	47.64522	-116.1685
464	45	3	47.48579	-116.3732
483	45	3	47.45663	-116.2871
604	135	3	47.60178	-116.1791
606	315	3	47.58727	-116.1689
612	225	3	47.61622	-116.1577
615	135	3	47.62341	-116.1578
622	315	3	47.471	-116.4902
623	225	3	47.4925	-116.4796
625	135	3	47.46367	-116.4365
626	45	3	47.64524	-116.1685
629	315	3	47.48519	-116.4052
631	225	3	47.50681	-116.5008
650	225	3	47.62335	-116.1792
651	45	3	47.41324	-116.478
659	315	3	47.4853	-116.5007
664	315	3	47.52136	-116.4803
701	315	3	47.46582	-115.8792
702	315	3	47.60177	-116.2114
703	45	3	47.57285	-116.1582
704	225	3	47.61587	-116.137
705	45	3	47.6309	-116.1475
706	315	3	47.50026	-116.3407
707	135	3	47.5148	-116.3086
708	225	3	47.44893	-116.3984
709	135	3	47.46601	-115.8633
710	225	3	47.49144	-116.5217
711	315	3	47.44895	-116.4908
712	135	3	47.47811	-116.3731
905	45	3	47.46312	-116.4696

Mica Remeasurement Permanent Plots

Plot Number	Azimuth	Number Of Subplots	**Latitude** of Reference Point	**Longitude** of Reference Point
5006	135	3	47.94738	-116.5805
5015	135	3	47.68699	-116.9695
5016	27	3	47.64395	-117.0323
5024	45	3	47.84605	-116.7106
5025	315	3	47.81754	-116.948
5026	45	3	47.89727	-116.9152
5029	225	3	47.84636	-116.8939
5030	200	3	47.90487	-117.0223
5031	45	3	47.93338	-116.8505
5061	315	3	47.62933	-116.905
5062	45	3	47.94072	-116.8504
5076	225	3	47.94812	-117.0118
5081	315	3	47.93336	-116.6989
5088	335	3	47.93655	-116.5697
5150	315	3	47.6825	-116.5898
5205	95	3	47.3806	-116.9167
5327	315	3	47.94045	-116.7165
5349	45	3	47.63651	-116.9155
5351	315	3	47.84629	-116.958
5352	225	3	47.87491	-116.9904
5353	45	3	47.94804	-117.0423
5361	45	3	47.85015	-117.0008
5364	45	3	47.80332	-117.0241
5385	315	3	47.93036	-116.9914
5386	45	3	47.9197	-117.0415
5387	315	3	47.87631	-116.9591
5388	225	3	47.67987	-116.9594
5389	45	3	47.5917	-116.7319

CFI Re-measurement
FM#-00-064-930-17

N

0 5 10 Miles

Mica/Cataldo 2021 Re-measurement Vicinity/Index Map

CFI Plots
State Highway
County Highway
Main Road
State Stands

NTC 1/2021

IDAHO DEPARTMENT OF LANDS

Sandpoint
Dover
Hope
East Hope
Algoma
Oldtown
Priest River
Pend Oreille River
Thama
Pend Oreille Lake
Clark Fork
Clark Fork
Cocolalla Lake
Cocolalla
Careywood
Blanchard
Coeur d'Alene River
Bayview
Lakeview
Athol
Spirit Lake
Spirit Lake
Twin Lakes
Rathdrum
Hauser Lake
Hauser
Hayden
Hayden Lake
Hayden Lake
Dalton Gardens
Post Falls
State Line
Huetter
Coeur d'Alene
Fernan Lake Village
Coeur D Alene Lake
Thompson Lake
Cave Lake
Harrison
Black Lake
Worley
Plummer
Chatcolet
Parkline
Saint Maries
Saint Joe River
Saint Joe
Saint Joe River
Avery
Tensed
Hangman Creek
Santa
Emida
Fernwood
Enaville
Smeltervillle
Kellogg
Pinehurst
Wardner
Osburn
Murray
Burke
Gem
Wallace
Mullan

1 2 3 4 5 6 7 8 9

5050 5006 5088 5327 5081 5353 5076 5385 5062 5031 5386 5030 5026 5387 5352 5361 5351 5029 5024 5025 5364 5205 5015 5388 5016 5349 5061 5150 5389 626 619 705 650 615 612 704 702 604 606 383 703 664 631 710 623 659 622 354 905 625 711 629 464 712 706 707 708 651 483

41 53 290 200 97 3 5 95 6 274 60

CFI Re-measurement
FM#-00-064-930-17

N

0 0.5 Miles

Mica/Cataldo 2021 Re-measurement

Map 1 of 9

CFI Plots	**Roads**	Spur Road	**Barrier Type**	Guard Rail	
State Stands	County Highway	State Highway	Gate	Earth Berm	
Streams	Main Road	Other			
	Secondary Road				

IDAHO DEPARTMENT OF LANDS

STH 2/2021

R 06 W | R 05 W | R 04 W

Spirit Lake | Twin Lakes | Hauser Lake | Rathdrum

5353 | 5076 | 5062 | 5031 | 5385 | 5386 | 5030 | 5026 | 5029 | 5387 | 5352 | 5361 | 5351 | 5364 | 5025

CFI Re-measurement
FM#-00-064-930-17

N

0 0.5 Miles

Mica/Cataldo 2021 Re-measurement

Map 2 of 9

CFI Plots	**Roads**	County Highway	Spur Road	**Barrier Type**	Guard Rail
State Stands		Main Road	State Highway	Gate	Earth Berm
Streams		Secondary Road	Other		

IDAHO DEPARTMENT OF LANDS

STH 2/2021

R 03 W | R 02 W | R 01 W

T 54 N | T 53 N | T 52 N

Athol | Hayden L | Pend Oreille Lake

5050 | 5006 | 5088 | 5327 | 5081 | 5024

SC-1100 | SC-3000 | SC-2000 | SC-1200 | SC-1000 | SC-4000

CH 1600 | CH 1700 | CH 1000 | CH 1500 | CH 1400 | CH 1300 | CH 1120 | CH 1100 | CH 1110 | CH 1010

CFI Re-measurement
FM#-00-064-930-17

N

0 0.5 Miles

Mica/Cataldo 2021 Re-measurement

Map 3 of 9

CFI Plots
State Stands
Streams

Roads
County Highway
Main Road
Secondary Road
Spur Road
State Highway
Other

Barrier Type
Gate
Guard Rail
Earth Berm

IDAHO DEPARTMENT OF LANDS

STH 2/2021

R 06 W | R 05 W | R 04 W

Post Falls
State Line
Spokane River
5015
5388
5016
5349
5061

IDL REQ 21-238

CFI Re-measurement
FM#-00-064-930-17

N

0 0.5 Miles

Mica/Cataldo 2021 Re-measurement

Map 4 of 9

CFI Plots	**Roads**	Spur Road	**Barrier Type**	Guard Rail
State Stands	County Highway	State Highway	Gate	Earth Berm
Streams	Main Road	Other		
	Secondary Road			

IDAHO DEPARTMENT OF LANDS

STH 2/2021

R 04 W | R 03 W | R 02 W

T 51 N | T 50 N | T 49 N

Hayden Lake | Dalton Gardens | Coeur d'Alene | Fernan Lake Village | Coeur D Alene Lake

5150 | 5389

CM 2000 | CM 3000 | CM 1000

FS 439 | FS 439C

US 90 | I 90

CFI Re-measurement
FM#-00-064-930-17

N

0 0.5 Miles

Mica/Cataldo 2021 Re-measurement

Map 5 of 9

CFI Plots	**Roads**	Spur Road	**Barrier Type** Guard Rail
State Stands	County Highway	State Highway	Gate Earth Berm
Streams	Main Road	Other	
	Secondary Road		

IDAHO DEPARTMENT OF LANDS

STH 2/2021

R 06 W R 05 W R 04 W

Coeur D Alene Lake

Worley

Plummer

5205

CFI Re-measurement
FM#-00-064-930-17

N

0 0.5 Miles

Mica/Cataldo 2021 Re-measurement

Map 6 of 9

CFI Plots
State Stands
Streams

Roads
County Highway
Main Road
Secondary Road
Spur Road
State Highway
Other

Barrier Type
Gate
Guard Rail
Earth Berm

IDAHO DEPARTMENT OF LANDS

STH 2/2021

R 02 W | R 01 W | R 01 E

T 49 N | T 48 N | T 47 N

Coeur d'Alene River | Cave Lake | Blackrock Gulch | Canary Creek | Bull Run | Dudley Gulch | Hunt Gulch | Latour Creek | Buell

Highway 3 | I-90 | Canyon Road | School House Loop | Poplar Street | Hardy Creek Road | Hardy Loop | 4th of July Creek Road | Harlan Road | River Road | Tamarack Ridge Road | Dudley County Road | Christmann | Dudley | Higbee | Higbee Creek | Eagle Peak | Initial Peak | Initial Peak - 2mile | Initial Cutoff | Eagle Peak | Beal's Road | Robinson | Blackrock Backside | Lost Girl | North Lost Girl | Eagle Ridge Road | Lower Eagle Ridge | Eagle Saddle | Lost Butler | Butler East Road | Kootenai Peak Spur | Higbee Camp Road | West Butler Creek | Forest Capital

RD 100 | RD 120 | RD 200 | RD 210 | RD 300 | RD 400 | RD 410 | RD 420 | RD 500 | RD 520 | RD 600 | RD 1 | RD 2 | RD 3 | RD 4 | RD 5 | RD 6 | RD 8 | RD 9 | RD 10 | RD 12 | RD 13

664 | 631 | 623 | 710 | 659 | 629 | 464 | 712 | 622 | 354 | 905 | 625 | 711 | 708 | 651

CFI Re-measurement
FM#-00-064-930-17

0 0.5 Miles

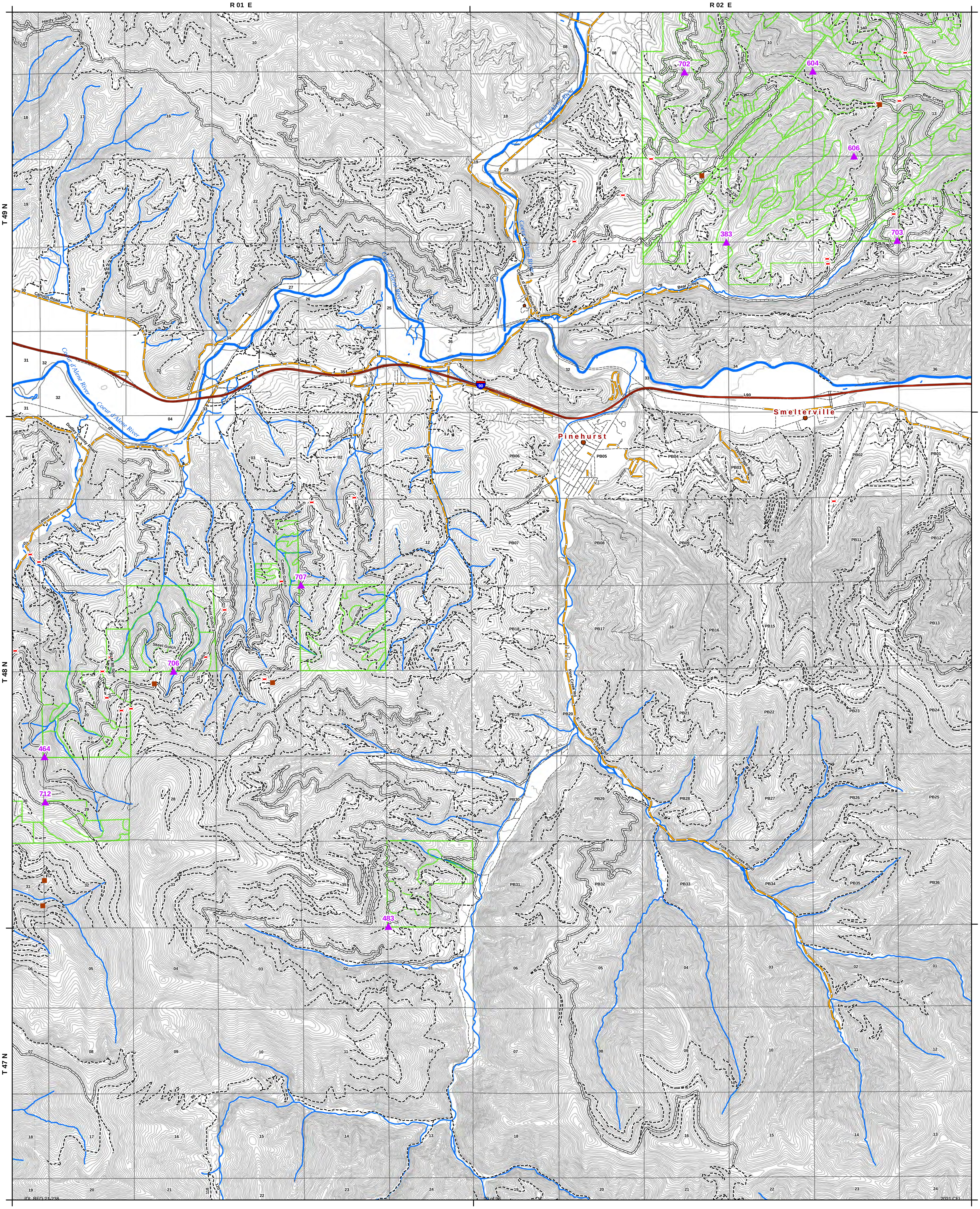
Mica/Cataldo 2021 Re-measurement

Map 7 of 9

CFI Plots	**Roads**	Spur Road	**Barrier Type**	Guard Rail
State Stands	County Highway	State Highway	Gate	Earth Berm
Streams	Main Road	Other		
	Secondary Road			

IDAHO DEPARTMENT OF LANDS

STH 2/2021



N
R 01 E
R 02 E
T 49 N
T 48 N
T 47 N
Hardy Saddle
Canyon Road
CCC Road
Coeur d'Alene River
Coeur d'Alene River Rd
Dudley County Road
Latour Creek
Cataldo Gulch
Hunt Ridge
Skeel Gulch 1
Skeel Gulch 2
Hunt Gulch 3
Hunt Gulch
BLM 80 Spur
Ross Gulch
McPhee Gulch
Bear Creek
Rd H
Rd D
Rd F
Rd 240
Rd 230
I-90
90
Pinehurst
Smelterville
Weir Gulch
Lower Page Road
Upper Page Road
Pine Creek Rd
E. Fork Pine Creek Road
702
604
606
383
703
707
706
464
712
483
PB01
PB02
PB03
PB04
PB05
PB06
PB07
PB08
PB09
PB10
PB11
PB12
PB13
PB14
PB15
PB16
PB17
PB18
PB19
PB20
PB21
PB22
PB23
PB24
PB25
PB26
PB27
PB28
PB29
PB30
PB31
PB32
PB33
PB34
PB35
PB36

CFI Re-measurement
FM#-00-064-930-17

N

0 0.5 Miles

Mica/Cataldo 2021 Re-measurement

Map 8 of 9

CFI Plots	**Roads**		Spur Road	**Barrier Type**	Guard Rail
State Stands	County Highway		State Highway	Gate	Earth Berm
Streams	Main Road		Other		
	Secondary Road				

IDAHO DEPARTMENT OF LANDS

STH 2/2021

R 01 E | R 02 E | R 03 E

T 50 N

T 49 N

T 48 N

Coeur d'Alene River | Coeur d'Alene River Road | CDA River Old Side | River Road | Deadman's Road | Bear Creek | Trail | TRAIL | Upper Page Road | Lower Page Road | Wear Gulch | McPhee Gulch | Hunt Gulch | Hunt Ridge | Pine Creek Rd | Big Creek | Trail 130 | I-90

Smelterville | Pinehurst | Kellogg | Wardner

463 | 19 | 626 | 705 | 650 | 615 | 612 | 704 | 604 | 702 | 606 | 383 | 703

PB01 PB02 PB03 PB04 PB05 PB06 PB07 PB08 PB09 PB10 PB11 PB12 PB13 PB14 PB15 PB16 PB17 PB18

IDL REQ 24238

2021 CFI

CFI Re-measurement
FM#-00-064-930-17

N

0 0.5 Miles

Mica/Cataldo 2021 Re-measurement

Map 9 of 9

CFI Plots
State Stands
Streams

Roads
County Highway
Main Road
Secondary Road

Spur Road
State Highway
Other

Barrier Type
Gate
Guard Rail
Earth Berm

IDAHO DEPARTMENT OF LANDS

STH 2/2021

R 04 E
R 05 E
R 06 E

T 49 N
T 48 N
T 47 N
T 46 N

Wallace
Mullan
I-90
South Fork Coeur d'Alene River
Slate Creek
701
709

IDL REQ 21-238
92 of 93
2021 CFI

EXHIBIT A
AFFIDAVIT OF COMPLIANCE
TO BE SUBMITTED WITH FINAL INVOICE

STATE OF)
) ss.
COUNTY OF)

TO: IDAHO DEPARTMENT OF LANDS

In conjunction with contract number 21-238 project number (_____)

I, (_____), of (_____), do state that I:

a) paid minimum wage;

b) complied, to the best of my knowledge, with all labor laws;

c) paid all debts incurred as a result of this contract; and

d) relinquish any further claims against the State of Idaho under this contract, pending final payment for contract services rendered.

_____
Affiant

Subscribed and sworn to me before this _____day of _____ 20__.

_____
Notary Public in and for _____

Residing at _____

My commission expires on _____