



Province of
British Columbia



MINISTRY OF FORESTS

*A Project funded by Forest Renewal BC
and managed by BC Ministry of Forests*

Request for Proposal

v1.0

Vegetation Resources Inventory Ground Sampling

for

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2007-07-13

Documentation

Summary of Key Information

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Part C: Attachments
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Issuing Office

Error! Reference source not found.Error!

Ministry Contact Officer: Error! Reference source

Telephone: (Error! Reference source not found.)

Facsimile: (Error! Reference source not found.)

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SUMMARY OF KEY INFORMATION

1. Viewing Session: (Mandatory)

There shall be a one day viewing session at which all contract details will be made available. The time and location for the viewing is:

On **Error! Reference source not found.** from 9:00 am to 5:00 PM at:
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2. Request For Proposal (RFP) Overview (Mandatory)

There shall a brief half hour overview of the contract and RFP details:

On **Error! Reference source not found.**, from 9:00 am to 9:30 am at
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Error! Reference source not found.B.C.

3. Closing Date for Response: **Error! Reference source not found.**, at 2:00 PM local time.

4. Send two (2) complete copies of each proposal.

5. Ministry Contact:

Error! Reference source not found......**Error! Reference source not found.**

Ministry: Ministry of Forests, **Error! Reference source not found.**

Address: **Error! Reference source not found.**
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Tel No.: **Error! Reference source not found.****Error! Reference source not found.**

Fax No.: **Error! Reference source not found.****Error! Reference source not found.**

Information offered from sources other than the above is not official and may be inaccurate.

6. This RFP is in three parts:

- Part A - Administration
- Part B - Requirements Section
- Part C - Attachments

Proponents are advised to read and respond appropriately to all three parts of this RFP, an incomplete proposal may be rejected.

7. Completion date for the contract is **Error! Reference source not found.**

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PART A: ADMINISTRATION

1.0 GENERAL INFORMATION

1.1 Purpose

The purpose of this Request for Proposals (RFP) is to inform private sector businesses of a contract requirement of the Ministry of Forests (the "Ministry") of the Province of British Columbia (the "Province"), and to solicit detailed proposals from interested and qualified parties ("proponents") setting out one or more means by which the stated goals, objectives and other requirements of the RFP may be best met.

1.2 Identification

This Request for Proposals includes:

- The Request for Proposals notice (the "Notice");
- Part A: Administration ("Part A");
- Part B: Requirements ("Part B");
- Part C: Attachments ("Part C").

A list of attachments is provided in the RFP Package Cover Sheet. It is the responsibility of proponents to ensure that they have all the components of the RFP package, including all attachments and subsequent addenda.

References to the RFP in the Notice, in any Part, or in any attachment are references to the RFP in its entirety.

Proponents are advised to read the RFP thoroughly and respond appropriately to the entire RFP. An incomplete proposal may be rejected.

1.3 Changes to the RFP

Changes by the Ministry to the RFP will be made in the form of written addenda or of re-issued documents which will be available at least four working days prior to the RFP closing date. All addenda shall be considered to be integral to the RFP and having the same effect as if part of the original RFP.

The Ministry will make every effort to distribute addenda to all registered or known proponents. However, it is solely the proponent's responsibility to be aware of and familiarized with any addenda or supplementary information issued.

Proponents are advised to return the RFP Receipt Confirmation Form to the Ministry, if one has been included with this RFP, to ensure that they receive any changes to the RFP.

1.4 Ownership Of Proposals

All proposals submitted, other than any proposal withdrawn prior to the opening of proposals or any late proposal, become the property of the Ministry and will not be returned to proponents. The successful proponent will be required under the contract to assign copyright of the proposal and of all material produced during the project to the Province.

1.5 Freedom of Information

All proposals are subject to the disclosure provisions of the *Freedom of Information and Protection of Privacy Act*.

1.6 Conflict of Interest

Prospective proponents are not eligible to submit a proposal if current or past corporate or other interests of the proponent, or of any of the proponent's subcontractors to be engaged in this project, give rise, in the sole opinion of the Ministry, to a conflict of interest in connection with this project.

Acceptance of a proposal submitted in response to this RFP will preclude the successful proponent, and any subcontractor to be engaged on this project, from participating as a proponent on subsequent project phases where, in the sole opinion of the Ministry, a conflict of interest may arise.

1.7 Proponent Responsibility

While the Ministry has made every effort to ensure an accurate representation of information in the RFP, proponents must conduct their own investigations into the material facts affecting the anticipated contract. Nothing in this RFP is intended to relieve a proponent from forming their own opinions and conclusions in respect of this RFP.

1.8 Acceptance of Terms

Proposals are submitted and accepted on the basis that proponents have read and agree to all the terms and conditions of this RFP. Proposals which include any condition or modification to the terms and conditions of this RFP may be rejected.

1.9 Form of Agreement

Included in this RFP is a pro forma, specimen contract which the successful proponent will be expected to enter into should a contract be awarded as a result of this RFP. An accepted proposal may form part of this contract.

Proponent's are cautioned to thoroughly review the specimen contract to ensure, before incurring the expense of proposal preparation, that they are capable of meeting all terms and conditions of the contract.

1.10 Funding Limitation

Notwithstanding any other provision of this RFP, the contract contemplated by this RFP and the financial obligations of the Ministry pursuant to that contract are subject to the availability of funds in accordance with the *Financial Administration Act*.

2.0 PREPARATION AND SUBMISSION

2.1 Proponent's Conference

A proponent's conference, if any, will be held at the time and in the location specified in the Notice. Proposals will not be accepted from proponents who do not attend a mandatory proponent's conference in its entirety.

At the conference, proponents may raise questions and seek clarification on any matters related to this RFP. While verbal questions will be permitted during the meeting, questions of a complex nature, or questions where a proponent requires anonymity, should be forwarded before the meeting in writing to the Ministry Contact named in the Notice. Questions which cannot be answered by the Ministry at the meeting will be responded to in writing in an attachment to the meeting minutes.

Minutes of the meeting will be prepared and forwarded to each proponent in attendance at the conference, and, if the conference attendance is not mandatory, also to those proponents who have returned the RFP Receipt Confirmation Form, if one has been included with this RFP.

2.2 Site Viewing

A guided site tour, if any, will be held at the time and location specified in the Notice. Proposals will not be accepted from proponents who do

not attend a mandatory site viewing in its entirety.

2.3 Inquiries

Inquiries must be directed only to the Ministry Contact specified in the Notice. The Ministry Contact may require that an inquiry be submitted in writing.

Inquiries and responses may be distributed to all proponents at the Ministry's option.

Inquiries will not be received after the date and time, if any, indicated as the inquiry deadline in the RFP Notice.

2.4 Proposal Outline

All copies of the proposal must conform to the proposal outline provided in the attachment to this RFP. Failure to follow the prescribed outline may result in a reduction in evaluation points or may be cause for rejection. If alternative solutions are offered, submit the information in the same format using subheadings to identify alternatives.

2.5 Proposal Price

Proponents are solely responsible for their own expenses in preparing a proposal, including expenses related to attending the proponent's conference, the site viewing, and to conducting negotiations with the Ministry, if any.

All prices provided in the proposal shall be in Canadian dollars and shall not be increased or decreased after the submission deadline, or during or after a presentation or interview, except as provided for in section 3.10.

The Province of British Columbia does not pay the federal Goods and Services Tax (GST), therefore all proposal prices shall exclude GST.

The Province pays the provincial Social Services Tax (also known as the Provincial Sales Tax or PST) on certain goods and services. It is the proponent's responsibility to properly include the PST in the proposal price. Proposal prices are considered to be inclusive of all applicable taxes and duty.

Unless otherwise specified in Part B or C, bids on multi-year contracts are to be inclusive of inflation in future-year portions of the contract.

The proposal price shall be submitted in a separate envelope from the management and technical sections of the proposal, and in the manner specified in Parts B and C of this RFP.

2.6 Cooperating Firms / Subcontractors

Where two or more independent firms are cooperating in the submission of a proposal, the proposal shall be submitted in the name of one firm which shall be considered by the Ministry to be the prime contractor. Firms other than the prime contractor shall be identified in the proposal as subcontractors. The proposal must identify all subcontractors, their qualifications, and their respective roles in the project.

Negotiations during proposal evaluation, award and execution of the contract, and all contract payments shall be between the Ministry and the prime contractor.

2.7 Submission

Three complete copies of the proposal must be received at the location and before the time specified in the Notice.

Proposals must be submitted in envelopes clearly marked with the name and address of the proponent and the words, "**Proposal for Vegetation Resources Inventory Ground Sampling - Error! Reference source not found.**" on the envelope. The proposal price shall be submitted in a separate envelope. All envelopes shall be sealed and marked "**Confidential**". Proposals shall be treated by the ministry as confidential until the proposal opening, after which all or parts of them may be publicly released under the *Freedom of Information and Protection of Privacy Act*.

Proponents are solely responsible for timely delivery of their proposals to the Ministry location specified. Late proposals will be returned unopened.

Unless otherwise provided for in Part B, proposals will not be accepted by facsimile transmission.

2.8 Amendments

Amendments to the proposal may be made prior to the closing date and time. Amendments:

- must be submitted in writing;
- must be in accordance with all RFP requirements;
- should be submitted in a sealed envelope which clearly identifies the proposal being amended;
- if not in a sealed envelope or if submitted by facsimile transmission, any price amendment should be stated in the form of an increase or

decrease to the bid price by a specified value or unit, in words and figures, without disclosing the original price; and

- must be signed by an authorized official of the firm, preferably by the same person signing the original submission.

The proponent is solely responsible for the timely delivery of amendments. The Ministry will not accept responsibility for the lack of availability of a facsimile machine at the closing location.

2.9 Withdrawal

Unless specified in Part B as irrevocable, a proposal may be withdrawn by submitting a written request to withdraw to the Ministry Contact identified in the Notice. Facsimile transmission of a request to withdraw is acceptable. A proposal withdrawn after the closing date and time cannot be resubmitted.

3.0 EVALUATION AND AWARD

3.1 Contract Award

Depending on the proposals submitted in response to this RFP, a contract will normally be negotiated and executed with the leading proponent (the "frontrunner") selected in accordance with the evaluation format contained in this RFP. The lowest priced or any proposal will not necessarily be accepted.

The Ministry reserves the right to:

- award portions of the project to different proponents through separate contracts;
- accept proposals in whole or in part, with or without negotiation;
- refuse award of the contract to a proponent the Ministry judges to be fully or over committed on other projects;
- refuse award of the contract to a proponent where, in the Ministry's sole opinion, the proposal does not represent fair value;
- refuse award of the contract to a proponent where, in the Ministry's sole opinion, the proposal price is considered too low to properly perform the contract; and
- in the case of a sole proposal being received, either:
 1. cancel the RFP, return the proposal unopened to the proponent, and re-solicit proposals for better response with or

without any change being made to the RFP; or

2. open the proposal without reference to the proponent, and, if such proposal does not merit contract award under the terms and conditions of this RFP, cancel the RFP and re-solicit proposals with or without any change being made to the RFP.

3.2 Opening of Proposals

Envelopes containing the technical and management sections of the proposals are normally opened on or shortly after the closing time and date. To avoid the potential for price bias in the evaluation of proposals, proposal price envelopes are not opened until after the evaluation of the technical and management sections of proposals is completed, or as otherwise provided for in section 3.5.

Due to the nature of the RFP process and the confidentiality to be afforded proposals, proposal opening and evaluation is not open to the public. Public access to information following contract award will be in accordance with provisions of the *Freedom of Information and Protection of Privacy Act*.

3.3 Mandatory Requirements

Proponents are cautioned to carefully read the mandatory requirements specified in the RFP and respond appropriately. A "mandatory" is an item of information which must be submitted as part of a proposal as proof of eligibility, or may apply to required attendance at a site viewing or proponent's conference. **Proposals not meeting all mandatory requirements of the RFP will be rejected without further consideration.**

3.4 Evaluation of the Technical and Management Sections of Proposals

The technical and management sections of proposals will be evaluated in accordance with the Proposal Evaluation Form attached to this RFP. Proposals must achieve the minimum evaluation points specified in the Proposal Evaluation Form in order to be placed on a shortlist for further consideration.

3.5 Presentation/Interview - Process and Evaluation

This subsection applies where a proposal presentation or interview of proponent

personnel is indicated in Part B to be a part of the evaluation process.

Where, following the evaluation under section 3.4, the number of shortlisted proponents is in excess of the ministry's needs, the ministry may reduce the number of eligible proposals to not less than three by:

- opening the proposal price envelopes;
- completing a preliminary price evaluation in accordance with the method indicated in the Proposal Evaluation Form; and
- selecting, up to the number of proposals the ministry desires, the highest ranked proposals based on the preliminary price evaluation.

Proposals of those proponents who are not selected for a presentation/interview shall not be considered further in the evaluation.

The presentation/interview process shall be conducted in accordance with additional specifications provided in Part B of the RFP, if any. Presentations/interviews are for the purpose of determining proponent suitability and for expanding upon or clarifying information contained in the proposal. Presentations/interviews are not to be used by proponents as an opportunity to amend their proposals or the proposal price. Proponents may have evaluation points deducted where an attempt is made to do so.

Following a presentation or interview process, the Ministry shall evaluate the presentations/interviews in accordance with the Proposal Evaluation Form. Proposals must achieve the minimum required evaluation points specified in the form in order to remain on the shortlist for further consideration.

3.6 Clarification

Notwithstanding that a presentation/interview process has not been indicated in the Proposal Evaluation Form, at the ministry's sole discretion, one or more proponents may be asked to provide additional clarification respecting their proposals, or to address areas where the Ministry clarifies its needs.

3.7 Evaluation of Proposal Price

Prices of only those proposals on the shortlist shall be evaluated in accordance with the method indicated on the Proposal Evaluation Form. The proponent selected according to the method in use shall be the "frontrunner".

3.8 Frontrunner Notification

The frontrunner shall be notified in writing of his/her status. Where possible, verbal notification shall also be given.

3.9 Suitability of the Frontrunner

The frontrunner may be interviewed and/or the Ministry may conduct such independent reference checks or verifications as are deemed necessary by it, to clarify, test, or verify information contained in the proposal and to confirm the suitability of the frontrunner.

If the frontrunner is deemed unsuitable by the Ministry, or if the proposal is found to contain errors, omissions or misrepresentations of a serious nature, the originally selected frontrunner may be rejected and another proponent selected as the frontrunner according to the evaluation format, or the Ministry may choose to terminate the RFP process and not enter into a contract with any of the proponents.

The Ministry may interview key persons to assess their scientific, technical or managerial abilities and to determine if they would be adequate for the proper performance of the proposed contract.

3.10 Negotiation With the Frontrunner

Negotiations may be held with the frontrunner including, but not limited to, matters such as:

- price, insofar as a change in price is directly associated with a change in the proposal as a result of negotiations;
- changes in technical content;
- contract details;
- contract payment details; and
- expectations of the parties applicable to the service requirements.

If a written contract cannot be negotiated within seven days of notification to the frontrunner, the Ministry may terminate negotiations with that proponent and negotiate a contract agreement with another proponent selected as the frontrunner according to the evaluation procedure, or may choose to terminate the RFP process and not enter into a contract with any of the proponents.

The Ministry shall not be obligated in any manner to any proponent whatsoever until a written contract has been duly executed relating to an approved proposal.

The Ministry reserves the right to modify the RFP at any time during the negotiation phase without notification to other proponents.

3.11 Contract Execution

Following completion of negotiations, if any, or following the notification to a frontrunner of acceptance of his/her proposal, the Ministry shall complete as appropriate the specimen contract attached to this RFP and forward the contract to the frontrunner for execution.

The Ministry reserves the right to modify the contract as necessary to be commensurate with the proposal or to recognize any new matter which may have arisen since the commencement of the RFP process.

The frontrunner must complete and return the contract within the time period specified in the letter forwarding the contract for signature. Failure to do so may result in cancellation of the award.

4.0 SUMMARY OF CAUSES FOR REJECTION OF A PROPOSAL - PART A

A proposal **will** be rejected for the following reasons:

1. failure to attend a mandatory proponent's conference or site viewing in its entirety;
2. failure to include a specified "mandatory";
3. failure to achieve the required minimum scores in the evaluation;
4. the proposal contains errors, omissions or misrepresentations which, in the sole opinion of the Ministry, are of a serious nature;
5. the proponent is deemed unsuitable by the Ministry;
6. in the sole opinion of the Ministry, a proponent conflict of interest exists in connection with the project;
7. a proposal is submitted after the closing date and time;
8. unless otherwise provided for in Part B, a proposal is submitted via facsimile transmission; or
9. other reasons specified in Part B of the RFP.

A proposal **may** be rejected for the following reasons:

1. failure to negotiate a contract with the frontrunner within seven days of notification;

2. failure to return a duly executed contract within the time specified in the Ministry forwarding letter;
3. failure to follow the required outline;
4. the proposal is incomplete;
5. the proposal includes a condition contrary to the terms and conditions of the RFP;
6. technical/performance requirements specified in the RFP are not met;
7. the proposal specifies a pricing or a basis of payment which differs from that specified in the RFP; or
8. other reasons specified in Part B of the RFP.

PART B - REQUIREMENTS SECTION

1.0 Background

1.1 Overview

This report describes the steps that can be used to prepare a sampling plan for the ground sampling phase of the provincial vegetation resources inventory.

Development of a sampling plan is part of the pre-inventory assessment (PIA) process. This is a consultative process involving potential data gatherers and users who identify inventory needs and priorities, evaluate the existing information, and identify the options for achieving this. The sampling plan is included in a PIA document which is signed off by the District Manager, the Regional Manager, and the Resources Inventory Branch Director before the inventory project is implemented.

In summary, the pre -inventory assessment fulfills the following objectives:

- To define the population of interest (inventory unit) and the inventory objectives.
- To identify the key vegetation attributes to drive the planning of the inventory sampling.
- To state the number of samples and clusters per sample.
- To evaluate the existing inventory as a basis for deciding whether to use one of the following options for obtaining Phase I estimates:
 - a) existing polygons and estimates from current maps (with updates where possible)
 - b) new estimates (and possibly new polygon borders), probably from newer photos
 - c) field visitation (to improve estimates for areas of special interest)
 - d) any combination of the above options

See the PIA procedures manual for further details.

To provide background to this report, the sampling design of the vegetation inventory is first outlined.

1.1.1 Sampling Design

The vegetation resources inventory is designed to estimate overall population totals and averages, as well as the totals and averages of individual polygons in the population. Typically, the population would be a large management unit (a TSA or TFL), but it could be smaller (a watershed), or larger (one or more Forest Districts).

The inventory design is a simple equal- probability sampling scheme implemented in two phases. Phase I (photo interpretation) involves subjective delineation of the polygon boundaries and consistent estimation of the attributes for all polygons in a population. Well- defined criteria and observable differences recognized on aerial photographs on a scale of 1: 1 5 000 are used. Phase II (ground sampling) involves taking observations (samples) on the ground.

Ground sampling points are selected systematically with equal probability. The selection is from a sorted list (sorted by attribute estimates) and accumulated polygon areas. In essence the selection is two -step: 1) a sample polygon is selected from the list with probability proportional to size, and 2) one or more observations (samples) are selected from the polygon. (Note, however, that the design is not the traditional two -stage sampling .) The intent of the design is to have observations that are approximately equally weighted for ease of combining or adding data. This is achieved with the two -step selection process. The suggested weighting is to state the number of hectares represented by the sample.

The photo-interpreted polygon areas and attribute estimates facilitate the selection of sampling points and the estimation of population and polygon totals. The attribute estimates, if consistent, improve the precision of the estimates of the overall and polygon -specific totals or averages. Ground observations provide the means for making an unbiased estimation of the population totals or averages and for correcting the individual polygon photo estimates. (The corrections are based on the relationships, such as ratio or regression, between the photo attribute estimates and the ground observations .) Ground sampling also provides the means to make statements of precision for an inventory unit. Any errors in the ground sampling phase translate directly into a bias in the inventory estimates. Thus, it is important that this phase be planned and executed carefully and correctly.

In general, the core of the inventory process consists of the following seven steps:

Data evaluation

1. Review existing information and inventory needs (PIA).

Data collection

2. Polygon delineation and attribute estimation (Phase I).
3. Ground sampling and initial compilation of field data (Phase II).

Data management

4. Statistical adjustments and analysis.
5. Loading of summary of and adjusted data to database.

Data update

6. Reporting and updating of the database.
7. Special additions and corrections as required.

1.2 Project Scope - Vegetation Resources Inventory Ground Sampling

The Contractor will perform the ground sampling data collection according to the procedures outlined in the references in section 1.4 of this document, and the enclosed attachments A, B and C.

1.3 Contract Coordinator

All contract inquiries and submissions of work shall be directed to:

Name: **Error! Reference source not found.**
Title: **Error! Reference source not found.**
Phone: **(Error! Reference source not found.) Error! Reference source not found.**
Cell Phone: **(Error! Reference source not found.) Error! Reference source not found.**
Fax: **(Error! Reference source not found.) Error! Reference source not found.**
Address: **Error! Reference source not found., Error! Reference source not found., Error! Reference source not found., Error! Reference source not found.**
Email: **Error! Reference source not found.**

Mailing Address: As above

1.4 Contract Officer

Name: **Error! Reference source not found.**
Phone: **(Error! Reference source not found. Error! Reference source not found.**
Fax: **(Error! Reference source not found.) Error! Reference source not found.**
Office Address: **Error! Reference source not found., Error! Reference source not found., Error! Reference source not found., Error! Reference source not found.**

Mailing Address: As above

1.5 References

- Ministry of Forests, Vegetation Resources Inventory Sampling Procedures (1996) or the Ministry WEB site: <http://www.for.gov.bc.ca/resinv/Veginv/home.htm>
- Ministry of Forests, A Field Guide for Site Identification and Interpretation for the **Error! Reference source not found.** Forest Region (1994)
- Attachment B: General Field Procedures
- Reference materials may be purchased from the RIC Publications Service:
Superior Reproductions Ltd.
#200 - 1112 West Pender Street
Vancouver, BC V6E 2S1
TEL: (604) 683-2181
FAX: (604) 683-2189

Email: afancy@superiorprint.com

1.6 Schedule For Deliverables

All deliverables must be submitted, unless otherwise directed, to the Forest Region office, on or before the final date for delivery specified in the contract. Delivery dates will be specified to ensure progressive submission of final products.

1.7 Acceptance Of Service For Payment

Prior to payment for services, all completed products will be checked for technical standards. All work must be in accordance with the standards and specifications outlined in the contract. Work not conducted in accordance with the documents listed in Section 1.4 will be deemed unacceptable, in which case the Contractor will make necessary changes to the deliverables at its sole cost and expense, until the Province is satisfied that the deliverables meet the specifications and standards set out in the contract.

If one or more specific deliverables provided by the Contractor is rejected by the Province for failing to meet the standards set out in the contract specifications then the Contractor will receive notice of non-compliance and given notice to comply within 14 days.

All deliverables will consist of a batch of completed measured field samples. All Ministry field and office checks will be based on batch checks. This will include a minimum 10% field check of the total work and a 100% office check.

The first batch submitted for quality control will consist of between two and four completed samples. This will give the contract officer an opportunity to ensure the Contractor understands all phases of the work.

Subsequent batch sizes will be determined during the pre-work conference.

One sample per batch will be field checked by the contract officer. If the sample fails to meet the specifications and standards, the sample will be returned to the Contractor and the Contractor will be required, at their own expense, to make any necessary corrections. A second sample in the batch will then be field checked. If it also fails to meet the specifications and standards, the whole batch will be returned to the Contractor for corrections at his/her own expense. Upon return of the batch to the Ministry, a third check will be conducted. If that sample fails to meet the specifications and standards, the contract may be canceled.

Upon the second submission of the same batch for review by the Province, re-inspection costs (to be determined at the time) to the Province will be payable by the Contractor immediately upon demand. If the Contractor does not comply within the time specified, all payments will be withheld until the Contractor produces the deliverables to the required standards.

Work deemed to be acceptable, but submitted after the delivery schedule specified in the contract, unless agreed upon by the Ministry, may result in cancellation of the contract.

The Contractor will submit to the Province on or after completion of each Contract Phase, a written statement of account showing the calculation of all fees claimed for the services completed in the period preceding the date of the statement.

Payment will be made for the batch, if in the opinion of the contract officer, the work meets the specifications and standards required.

In the event of default by the Contractor, the Ministry will take all the work out of the Contractors hands and employ such means as they see fit to complete the works. The Contractor shall have no claim for any further payment in respect for any work performed, and all materials shall remain the property of the Ministry for all purposes incidental to the completion of the work. Such action shall not prejudice in any way the Ministry's right to claim for any damage and extra costs resulting from such default or delay. If the faulty work can be corrected by the Ministry to its original specifications and standards, the Contractor will be entitled to receive only the difference between the specified contract price and the Ministry's actual cost.

1.8 Workers' Compensation Board (WCB) Registration

Independent WCB registration and coverage is required from Contractors contracting to the Ministry of Forests who qualify as independent firms. Independent coverage must be obtained and be valid prior to executing the contract on behalf of the Ministry. The Contractor's coverage must include all employees and any family members or partners who work on the contract.

1.9 Replacement of Materials

Any materials or documents lost or in any way misplaced by the Contractor must be replaced by the Contractor at his/her own cost. This is to include, but not limited to: aerial photographs, field cards and any maps.

2.0 Proposal Guidelines

To facilitate the evaluation of proposals, respondents must provide detailed descriptions of the following criteria in their submissions.

2.1 Technical, Operational and Administrative

2.1.1 Project Leadership / Crew Experience

Project management personnel assigned to the project are to be identified by name, company, responsibility, qualifications, certification, and experience in handling similar projects. Other personnel identified for the project, including any back-up personnel, are to be listed, along with a brief statement of qualifications and relevant experience for each.

A minimum of two field crew members on each contractor crew must be certified; one in Timber and one in Ecology attribute collection through the provincial Ground Sampling Training Program. The Contractor is obliged to provide proof of this certification along with two references as a mandatory requirement.

Any sub-Contractors or consortium members are to be listed. Any registered incorporated names of companies should be clearly identified, as well as the company signing authority(s) for contracts.

2.1.2 Quality Control

A description of the quality control to be undertaken by the Contractor is required.

2.1.3 Access Evaluation / Scheduling

A description should be supplied as to the methodology undertaken by the Contractor to validate the Ministry of Forests helicopter air estimates.

Also required is a schedule for initiating and completing the project which must be adhered to during the completion of the contract. The schedule should consider the consistency of staff assigned to this project, planning for weather, optimizing helicopter time, and ensuring the timely delivery of the summarized data.

2.2 Proposal Costs

2.2.1 Price

Prices are to be quoted in the enclosed "Attachment C: Price Schedule" provided in this package and returned as part of the proposal submission.

Costs for fieldwork are to be quoted on a per sample basis.

Any terms and conditions for the prices quoted should be clearly stated. Prices quoted are to include all taxes applicable. If not specifically noted, quoted prices will be accepted as being inclusive of all applicable taxes.

2.2.2 Helicopter Time Assessment

The Contractor should evaluate the Ministry of Forests helicopter air time assessments indicated in Attachment A. The assessment of the allotted amount of helicopter time should be detailed in Attachment B "Price Schedule".

2.3 Proposal (40 points of a possible 100)

Components of the proposal will be scored as per the following table:

PROJECT LEADERSHIP/PERSONNEL	
<i>A minimum of two field crew members on each contractor crew must be certified; one in Timber and one in Ecology attribute collection through the provincial Ground Sampling Training Program. The Contractor is obliged to provide proof of this certification along with two references as a mandatory. Without this certification, the proposal will be awarded zero points under this section.)</i>	
Project Manager - Manager with experience in managing large complex projects; 1 point awarded for each year of experience	Maximum 5 points
Field Crew Leader - Qualifications and experience of the cruiser responsible for the crew while in the field; 2 points awarded for previous crew supervision experience and 1 point for each six months of cruising experience (max. 18 months).	Maximum 5 points
1 point awarded to the timber cruiser for each six months of cruising experience in call grading and net factoring (max. 18 months).	Maximum 3 points
1 point awarded to each ecologist for each six months of ecological data collection and BEC classification experience (max. 18 months)	Maximum 3 points
Back-up personnel with similar qualifications	Maximum 2 points
Check Cruiser - Qualifications and experience of the cruiser responsible for the checking work completed by initial cruising crew; 1 point for each six months of check cruising experience in ecology and timber attributes (max. 18 months).	Maximum 2 points
Personnel SubTotal	20 points
QUALITY CONTROL	
Description of the amount of quality control to be undertaken internally within the contracting firm.	Maximum 8 points
When will quality checks be undertaken (i.e. when crews are still in field, after all plots have been completed, at start of field work, throughout contract	Maximum 5 points
Description of office check of field cards to ensure completeness of information being submitted.	Maximum 2 points
Quality Control SubTotal	15 points
ACCESS EVALUATION AND SCHEDULING OF PROJECT	
A description as to the methodology undertaken by the Contractor to validate the Ministry of Forests helicopter time estimates.	Maximum 2 points
Schedule includes planning for bad weather and any other unforeseen circumstances while ensuring a timely delivery of the requested data, completing a large portion of the air access polygons in a suitable time frame.	Maximum 2 points
Use of helicopter is proposed on consecutive days (weather permitting) to optimize helicopter time while reducing ferrying time between bases	Maximum 1 point
Access Evaluation SubTotal	5 points
TOTAL	40 POINTS

2.3.1 Price (60 Points of a possible 100)

Price is the total project price quoted in the proposal. A cost ratio process is used to calculate the prorated points awarded to each project. This prorated point value in combination with the points awarded for the remainder of the proposal will be used in the final RFP and contract evaluation to determine Contractor short listing.

The project cost values taken from the proposals will be for comparable deliverables.

Formula to calculate the prorated points by projects:

$$\text{Points calculated} = \frac{\text{lowest bid price}}{\text{bid price}} \times \text{BPT (60 points)}$$

Points calculated - points calculated for rating project cost.

BPT- base points - the maximum values assigned for project cost in the Contractor rating process (60 points).

Bid price - the individual project costs from the RFP.

Lowest bid price - the lowest acceptable price amongst the qualified proposals for the project.

2.3.2 Proposal Standards

Each component of the proposal must achieve a minimum of 50% of the maximum possible points available for the component. Any proposal which has components which do not achieve 50% of the possible maximum points for all components will not be considered to meet the minimum required proposal standard and will not be considered further. Those components which must achieve a minimum of 50% of the possible maximum points are: i) Project leadership/personnel requirements; ii) Quality control; iii) Scheduling/access evaluation.

Costs are evaluated separately in relation to the lowest proposed cost for all proposals meeting the minimum requirements and therefore have no minimum standard requirement.

RFP Evaluation Criteria - VRI Ground Sampling

Company Name	Cost	Project Leadership/ Personnel	Quality Control	Schedule/ Access Evaluation	Total Points Obtained
Total Points Possible	60	20	15	5	100

Evaluated by: _____

Signature: _____

Evaluated by: _____

Signature: _____

Date: _____

PART C - ATTACHMENTS

ATTACHMENT A

PROJECT DEFINITION AND LISTING OF SAMPLES

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VEGETATION RESOURCES INVENTORY

Ground Sampling Data Collection

1.0 *Field Collection of Inventory Data*

The following tables indicate the location of the polygons that require sampling. The polygons to be sampled have been divided into 2 blocks (for contract administration) and Contractors are invited to bid on each block separately.

The two blocks are:

- | | |
|--------------|--------------|
| A) {BLOCK 1} | {XX} samples |
| B) {BLOCK 2} | {YY} samples |

Note that in cases where access to a sample is considered unsafe by the field crew, the unsafe sample may be dropped from the field program and the polygon sampled by other means. All plots identified to be sampled within the polygon must be completed, unless they are considered unsafe. Polygons not completed for reasons other than unsafe access will not be accepted.

2.0 *Helicopter Access*

The Ministry of Forests shall NOT be providing a designated helicopter firm to access remote polygons. It is the responsibility of the Contractor to negotiate the best price from a firm of their choice, and provide an all inclusive bid that reflects the total cost to complete all phases of this project.

Contractors are obliged to use helicopter firms that are approved by the Ministry of Forests and must ensure that any contract staff performing "hover exits" are trained in these procedures to

The Ministry has estimated the total amount of helicopter time required for two field crews to simultaneously travel to two polygons, unload each field crew, and either return to base, or set down, pick up the crews and return to base. Time estimates are based on a single entry/return to each polygon only, using a Eurocopter A-Star helicopter that is equipped with a Global Positioning System (GPS) and capable of transporting a minimum of 5 persons. Time estimates do not consider multiple drop off/pick ups at any one polygon. Field work should be planned so that two field crews are being transported on each flight. The flying out of any one particular base should be carried out, weather permitting, on consecutive days to reduce the movement of the helicopter between the bases.

For helicopter access polygons the nearest acceptable landing spot has been identified primarily from the most recent aerial photographs available. This landing spot has been referenced by latitude and longitude. The Contractor should verify these position. **The majority of these landing spots have not been verified by a reconnaissance flight by MoF staff.**

In the polygon summaries all air transportation distances are approximate and are measured as a one way distance to the polygon. The MoF has determined an appropriate base where an acceptable helicopter firm(s) is located. The distances should be used as an estimate only. An error factor of 10% has been added to the total number of travel hours (travel to the polygon and return to base) to allow for bad weather or other unforeseen circumstances. This is the total amount of helicopter time estimated by

the Ministry of Forests. In preparing their bid Contractors should very carefully review the accuracy of the Ministry of Forests access summary.

In the event that a Contractor arrives at the designated MoF designated landing spot and is unable to safely land and exit field crews in accordance with "hover exit" safety policy the Contractor is obliged to land at the next closest "acceptable" landing spot. The Contractor shall document the additional helicopter air time required to access the alternative landing spot.

MoF will reimburse the Contractor for this additional documented helicopter cost.

Note: MoF shall not reimburse any additional field access costs.

It should also be noted that all polygons shall be accessed regardless of the level of inaccessibility. It is suggested that Contractors make provision to camp overnight where necessary in order to complete the sample.

Polygons that cannot be sampled by the field crews due to unsafe conditions will be dropped from the field program. Polygons are generally considered unsafe due to very steep ground or cliffs, areas of severe blowdown or active bear areas. Polygons are not considered unsafe due to poor access or long hikes; these polygons are to be sampled. A report shall be submitted to the contract officer outlining the reasons why a polygon was unsafe.

Helicopter time estimate:

- The average helicopter speed (based on the use of an A-Star) used to determine this time is 160 kph (100 mph).
- The total amount of MoF estimated helicopter time is **Error! Reference source not found.** hours. The 10 % allowance factor time is **Error! Reference source not found.** hours
- Total amount of Ministry of Forests estimated helicopter time is **Error! Reference source not found.** + **Error! Reference source not found.** hours.

If the Contractor decides that a best price proposal could be achieved by using other means than the MoF recommended access method, they are encouraged to detail those alternate methods.

For more details on the specific helicopter time estimates see the polygon specific access summaries in the following table or contact the contract officer.

3.0 Price Schedule

3.1 Contract Costs

The contract costs are based on the per sample estimates provided and the day rate/crew for services such as training and inaccessible/incomplete plots. The Contractor will submit invoices for payment in batches based on the completion of samples and the costs provided and the use of the day rate for other services where necessary. Invoices submitted with day rate amounts must be fully documented as to why the day rate was used

3.2 Day Rate for Services

The day rate for services (such as attending training or inaccessible/incomplete plots) based on a 10 hour field day is:

\$ _____ /crew/day

3.2 Costs for Plot Establishment

Project: _____ Error! Reference source not found.

Block: _____ Error! Reference source not found.

Map #	Polygon Number	Sample Number	* GPS Location			Road Access			Dist To Plot (R) Metres	Heli - Access		Cost
			UTM			Type	Distance Km	Nearest Centre		Dist Km	Time Hours	
			Zone	Easting	Northing							

* To be verified by contractor.... AND SO ON TO THE TOTAL NUMBER OF SAMPLES

Block Error! Reference source not found.

Map #	Polygon Number	Sample Number	* GPS Location			Road Access			Dist To Plot (R) Metres	Heli - Access		Cost
			UTM			Type	Distance Km	Nearest Centre		Dist Km	Time Hours	
			Zone	Easting	Northing							

ATTACHMENT B General Field Procedures

1.0 General Quality Assurance Standards

Sampling Procedures shall comply with the Vegetation Resources Inventory Ground Sampling Procedures, unless otherwise stated.

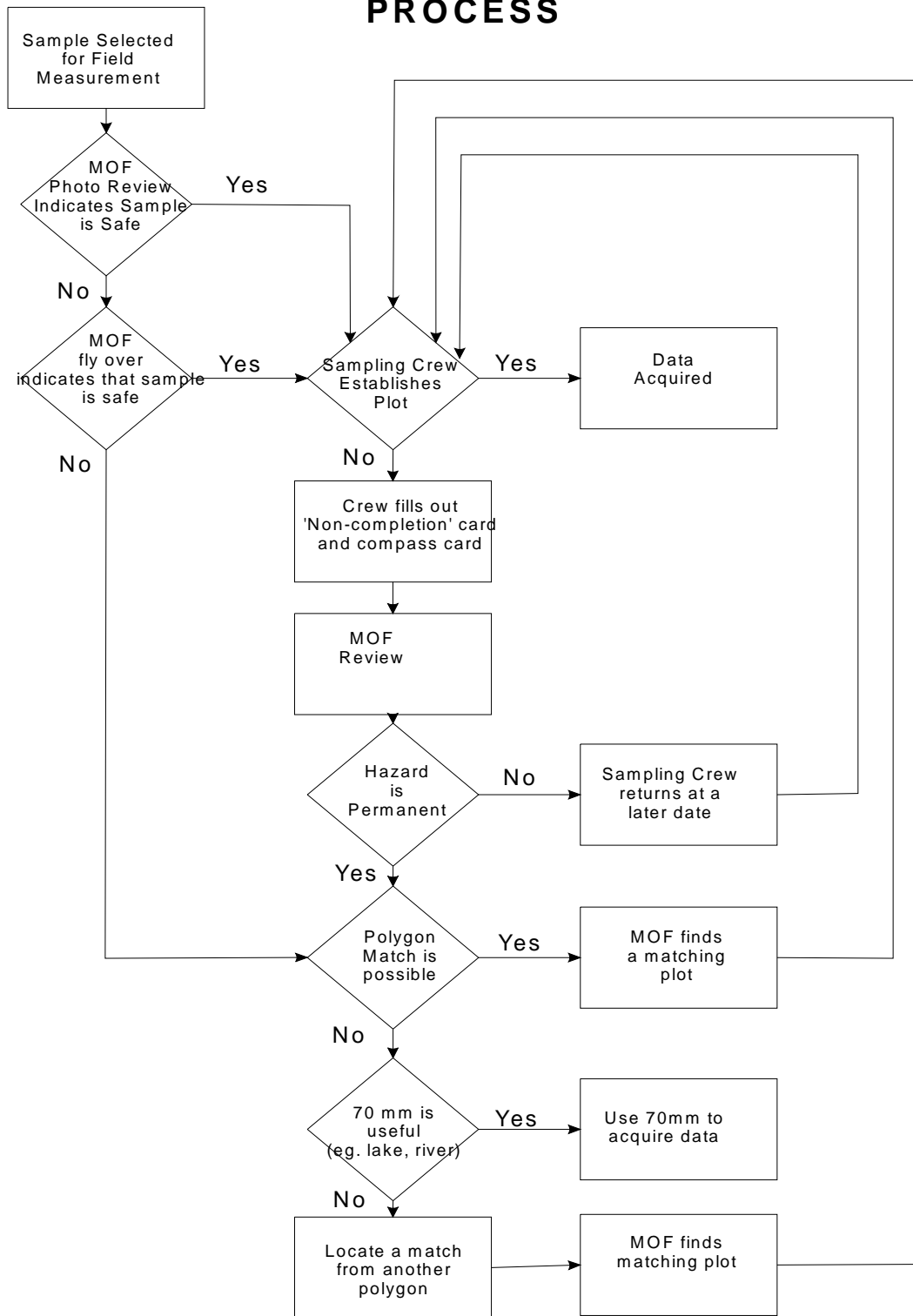
At the start of all contracts, MoF staff will conduct a pre-work meeting with the Contractor to ensure that all the contract conditions, standards and procedures are clearly understood. A portion of sample polygons (minimum 10%) will be checked by the Ministry of Forests quality assurance staff. Quality assurance will be assessed on a batch plot basis. The number of plots per batch shall be determined by the contract officer.

Quality assurance by MoF staff will involve submitting a Vegetation Resources Inventory Quality Assurance Report containing each Contractor-measured field plot with the quality control-measured plot. An evaluation form the quality of the work shall be prepared by the MoF Contract Coordinator.

1.1 VRI Ground Sampling Completion Process

Ground crews must be aware of the following process for completing ground sample plots, particularly as they relate to inaccessible plots. In the event that a crew cannot establish a plot, the crew will fill out the 'Non-Completion Card' (see below) and a VRI Compass Card (CP) (FS 505N).

PHASE II SAMPLE COMPLETION PROCESS



VRI Ground Sample - Record of Plot Non-Completion

(to be filled out for any plot that cannot be established)

Sample #	
Mapsheet	
Polygon #	

Crew	
Date	
Project	

Reason that plot cannot be established (Check all applicable boxes)

- Plot is too far, temporarily inaccessible
- Access to plot is too dangerous
- Plot would be located in an unsafe area
- Plot would be located in river or lake
- Permission denied to access private land
- Other (Specify: _____)

Detailed comments:

Please Note:

A detailed compass card must be completed and submitted for any effort made to establish the plot. All materials (photos, maps, field cards, etc.) must be returned for the plot.

1.3 Check-Cruise Sampling Standards for the New Vegetation Inventory

ATTACHMENT C

PRICE SCHEDULE: VRI GROUND SAMPLING DATA COLLECTION

TO: Ministry of Forests

We hereby offer to perform all work in accordance with the specifications and general conditions for this contract as furnished with this request for proposal for the individual prices and the lump sum price as shown below and to complete the work within the schedules agreed upon.

Ground Sampling Data Collection

Ground Sampling Data Collection \$

Total Data Collection Cost \$

* please include a copy of the individual polygon summary costs sheets.

Day Rate/Crew (based on a 10 hour field day) for non-plot establishment activities
\$

We understand that the Ministry of Forests will not be providing any of the helicopter access arrangements and that all access costs are the responsibility of the Contractor. Any helicopter firm(s) used in this contract must be approved by the MoF and any staff performing "hover exits" must be trained to MoF standards. The total data collection and summarization cost is to include all access costs as determined by the Contractor.

We understand that the Ministry reserves the right to accept proposals for the whole work specified or may delete any part at their discretion.

CONTRACTOR

_____	_____	_____
Authorized Signing Officer	Title	Date
_____	_____	_____
Name of Company	Address	Phone
_____		_____
Witness		Date

SEAL:

ATTACHMENT D VRI Ground Sampling Program: Post Contract Evaluation

1.0 Introduction

The Ministry of Forests has developed a post contract evaluation process to document the performance of both the MoF and contract staff in the execution of an VRI Ground Sampling contract. The process assigns points for the relative performance of the contractor which will be used in the awarding of subsequent provincial inventory contracts. An evaluation shall be completed for each project. The performance of the MoF is also considered in this system. The post contract performance summary is to be completed by the primary MoF contract officer and sent to the contractor for validation. The contractor is encouraged to respond to this summary if they have any issue with this report.

If the MoF contract officer has not received a response to this report within 30 days then this summary will be used in the following years contract evaluation.

Post contract evaluation scoring points will be carried for one year. If a contractor completed more than one contract then their points will based on the average of the completed contracts.

2.0 Contract Information

Description of Inventory (TSA/TFL) _____

Contract Reference Number: _____ Contractor: _____

Contract Officer: _____

Dates: Contract signed _____

Dates: Contract Term _____

Actual Start Date: _____

Completion Date: _____

Contract Value _____

Contractors Personnel:

3.0 Quality Assurance

MoF Quality Assurance Personnel:

MoF Quality Assurance Summary

A.) Pre-work conference/field day(s)

Work completed satisfactorily Y _____ N _____

First Check (not to exceed 5 samples)

Office Work completed satisfactorily..... Y _____ N _____

Field Work completed satisfactorily..... Y _____ N _____

Comments: _____

B.) Batch 1 Check (not to exceed 15 samples)

Office Work completed satisfactorily..... Y____, N ____
Field Work completed satisfactorily..... Y____, N ____
Batch Rejected*..... Y____, N ____
Second Submission completed satisfactorily..... Y____, N ____

Comments: _____

C.) Batch 2 Check (not to exceed 15 samples)

Office Work completed satisfactorily..... Y____, N ____
Field Work completed satisfactorily..... Y____, N ____
Batch Rejected..... Y____, N ____
Second Submission completed satisfactorily..... Y____, N ____

Comments: _____

D.) Batch 3 Check (not to exceed 15 samples)

Office Work completed satisfactorily..... Y____, N ____
Field Work completed satisfactorily..... Y____, N ____
Batch Rejected..... Y____, N ____
Second Submission completed satisfactorily..... Y____, N ____

Comments: _____

E.) Batch 4 Check (not to exceed 15 samples)

Office Work completed satisfactorily..... Y____, N ____
Field Work completed satisfactorily..... Y____, N ____
Batch Rejected..... Y____, N ____
Second Submission completed satisfactorily..... Y____, N ____

Comments: _____

F.) Batch 5 Check (not to exceed 15 samples)

Office Work completed satisfactorily..... Y____, N ____
Field Work completed satisfactorily..... Y____, N ____
Batch Rejected..... Y____, N ____
Second Submission completed satisfactorily..... Y____, N ____

Comments: _____

G.) Batch 6 Check (not to exceed 15 samples)

Office Work completed satisfactorily..... Y____, N ____
Field Work completed satisfactorily..... Y____, N ____
Batch Rejected..... Y____, N ____
Second Submission completed satisfactorily..... Y____, N ____

Comments: _____

Total Number of Samples Field Checked by MoF Number____ Percent____

4.0 Internal Contractor Check Plot Summary

Total Number of Samples Field Checked by Contractor Number____ Percent____
All contractor and check plot cards attached and completed correctly Y____, N____

5.0 Project Summary

Summarise unusual or difficult conditions which may have prevented the contractor from achieving acceptable results, e.g. inaccurate assess notes, no back up photos, conflicting instructions, etc.

Summary of unsatisfactory work

6.0 Contract Administration

A. State reasons for contract amendments or extensions

B. Summarise total additional cost to administer the contract because of unsatisfactory work

Total additional persons days _____
Total additional operating costs _____
Travel_____ Other_____

C. Were the results of the quality assurance checks discussed with the contractor?

Yes_____, No _____

D. Were the outstanding issues resolved Yes_____ No_____ If no explain_____

7.0 Technical Assistance:

Describe technical assistance provided to the contractor, eg. meetings, workshops, training etc. (with dates)

8.0 Evaluation Points

(refer to Contractor Performance Matrix attached)

Criteria	Total Points Possible	Points Awarded
Timing/Scheduling	5	
Field Quality Assessment	15	
Office Quality Assessment	5	
Total Points	25	

** Batch rejected means that two samples in a batch have failed a field check and the contractor has been instructed to return to all samples in the batch and check or correct work.*

9.0 Guideline matrix for Contract Performance Evaluation

	Excellent	Acceptable			Unacceptable	Max Points	Points Achieved
Timing/ Scheduling	Completed on Time No delays (poor weather would not constitute a delay) 5 points	Minor Agreed to changes in scheduling contract initiated by contractor 4 points	Major agreed to changes Agreed to delay in contract Work completed on time 3 points	Major rescheduling, contract extensions required. Final work not completed on time 2 points	Contract not completed 0 points	5	
Field Quality Assessment	No Rejection 15 points	1 batch of samples rejected "the contractor is instructed to return to all samples and check or correct work" 10 points	2 batches of samples rejected 5 points	3 batches of samples rejected 0 points	4 batches of samples rejected Contract cancelled	15	
Office Quality Assessment	All sample data presented according to standards All materials returned 5 points	1 Batch of samples returned for correction 4 points	2 batches of samples returned for correction 2 point	Data returned 3 times for correction 0 points		5	
Subtotal							

Name of Primary Contractor _____

Signature of Contractor _____, that I have reviewed this summary.

Name of MoF Contract Officer _____

Signature of MoF Contract Officer _____, that I reviewed and prepared this summary

Date: _____

ATTACHMENT E MoF Standard Procedures for Georeferencing Field Sample Plots Using GPS Technology



Province of British Columbia

GPS Data Collection Procedures for Georeferencing Vegetation Resources Inventory Field Sample Plots

**Resources Inventory Branch
Ministry of Forests
722 Johnson Street
Victoria, B.C. V8W 9C2**

This document (in Microsoft Word 2.0 format) is available at the Ministry of Forests ftp site at:
ftp.for.gov.bc.ca/Branches/Resources_Inventory/external/outgoing/ita/gps_app.doc

March 31, 1997

Notes

This document is a modified version of section 5.0: GPS Field Data Collection, from the previously published document “MoF Standard Procedures for Georeferencing Field Sample Plots Using GPS Technology” (hereinafter called the Procedures). It is a “how-to-do” procedure manual designed specifically for GPS data collection by contractor crews for the vegetation resources inventory (VRI) field sampling. For complete detail standards, procedures, terms and acronyms, the reader must consult the Procedures, which is available at the Ministry of Forests web site at: <http://www.for.gov.bc.ca/resinv/standard/veginv/gps/gpsman.htm>.

For the purpose of this document, the following terms are often used:

1. Data collector: The person responsible for GPS data collection. It will be the VRI field sampling crews.
2. Data processor: The person responsible for processing the GPS data. It will be either another contractor independent from the field crews or the Ministry of Forests staff.

A target accuracy standard (i.e. maximum positioning error) is set at 10 meters horizontal and 15 meters vertical at the 95 percent confidence level for georeferencing VRI sample plots using GPS. All the specifications and procedures in this document are made to achieve this target accuracy.

The following relevant materials are also given in the Appendix.

- 1 Trimble GeoExplorer Operation Procedures
- 2 GPS Data Processing and Presentation
- 3 The Check List for GPS Project Management
- 4 The List of Validated GPS Reference Stations in BC (reference only)

For any questions, suggestions, and comments concerning the GPS data collection, please contact the under-signed at the following address:

Xiaoping Yuan, Ph.D., R.P.F.
Inventory Technical Applications Section
Resources Inventory Branch, Ministry of Forests
PO Box 9516, 722 Johnson St.
Victoria, B.C. V8W 9C2
Telephone:(250) 387-1314, Fax. (250) 387-5999
E-mail: xiaoping.yuan@gems9.gov.bc.ca

GPS Field Data Collection Procedures

The following is an overview of the procedures to collect GPS data for the vegetation resources inventory field sampling.

GPS Hardware and Software

GPS hardware and software must meet the minimum requirements specified in the Procedures. In particular, for field data collection, the GPS hardware and software must be capable of achieving the target accuracy (i.e. 10 meters horizontal and 15 meters vertical, 95% of times) using standard single-frequency pseudorange differential correction techniques. All the components of the GPS system, such as receiver, antenna, cables, battery, and connections, must be robust and reliable. The GPS receivers must have at least five parallel channels, adequate memory and battery capacity. Any GPS system to be used in the VRI field projects must be pre-approved by the Ministry of Forests' representative. Appendix 1 provides a quick step-by-step operation procedures of Trimble GeoExplorer, one of the commonly used GPS systems, for VRI field GPS data collection.

Point Feature

The tie point and plot center pin (integrate plot) are the point features that shall be measured for their locations using GPS. Access point (e.g. helicopter landing point) shall also be surveyed with GPS.

Observation

GPS observations shall be attempted immediately when arriving at the point features. If positioning is difficult, proceed other work and attempt again. Every effort must be made to collect the data. If data cannot be collected due to problems in receiving the signal or any other reasons, the data collector must document the reasons on the comment section of the compass and plot establishment cards.

The VRI project manager shall provide the data collector with a summary of optimum satellite coverage for the areas in which they are working. The summary describes the time of day when the optimum number of satellites will be overhead to allow for data collection. The data collector must attempt to record data at these optimum times as this method will ensure the best opportunity for collecting the data.

Offset

GPS data must be collected directly over the point feature to be surveyed wherever possible. If it is not possible, an offset position shall be surveyed with GPS. The offset distance and true azimuth **from the GPS antenna to the point feature to be surveyed must be measured** with a sighting compass and nylon tape. The maximum offset distance allowed is 50 m (horizontal). Any offset distance over 25 m must have the compass azimuth observed both forward and backward (with the averaged forward azimuth being recorded). The offset information (forward azimuth, slope distance and vertical angle) is to be recorded on the field cards comment section (Compass Card and Cluster Layout Card) in the following format:

GPS offset :Slope dist: 12.4m @ 030^o, vertical angle + 8^o

Bearings must be accurate to 2 degrees, and distances to 1 meter.

Vertical angle is measured from the observation point (e.g. GPS antenna) to the target point (e.g. plot centre pin).

The vertical distance between ground level to the GPS antenna (called "Height of Instrument") must also recorded for every observation.

File Names

Field GPS data is logged to a file which must be uniquely named, not only within the GPS receiver itself, but it also must be unique among the many field GPS units that may be operating simultaneously on a large project. For the Trimble GeoExplorer the default naming convention shall be adopted:

File Name AMMDDHHa

- A Crew identifier (A..Z and 0....9 allowing up to 36 unique crew identifiers)
- MM 2 digit number corresponding to the current month (01-12)
- DD 2 digit number corresponding to the current day (01-31)
- HH 2 digit number corresponding to the current hour (00-23)
- a file identifier (a= first file open in this hour, b= second file etc.)

After GPS data has been collected, the data collector must record the default file names on the field cards (along with the offset information). Note that in the field data collection, only GPS file names are required to recorded on the field cards and the positions of the point features are recorded by the data processor after differential corrections.

Measurement

Each point feature must be observed with the GPS receiver for no less than 300 seconds with at least 200 position fixes (at 1 second logging interval) during that period. If satellite tracking is difficult, it shall be a minimum 150 seconds with at least 50 position fixes.

GPS Equipment

The data collector must ensure that all the field GPS equipment is properly maintained and operational (e.g. batteries are charged; receiver space is cleared; configuration is correctly done; etc.). The data collector must ensure that GPS data is downloaded properly each day, and storage and back-up of the data are done before erasing it from the receivers. The data collector will require a portable laptop computer and an adequate power source.

GPS Data Collection Parameters

The following GPS data collection parameters must be configured.

Parameter	Value	Comment
GDOP	< 10.0	use only if HDOP or PDOP not available in rover unit

PDOP	< 8.0	use only if HDOP not available in rover unit
HDOP	< 5.0	use of HDOP preferred over PDOP
Elevation angle	> 15	satellite elevation tracking angle (degrees)
Positioning modes	3D	no 2D positioning acceptable
Logging interval	1 sec.	maximum allowable is 5 sec under certain conditions
Signal strength	default	minimum threshold to be set at manufacturer's default value (or higher)
Dynamics	lowest	set to lowest value available
Static averaging	200	minimum observation time is 300 seconds with at least 200 position fixes during that period, or 150 seconds with at least 50 position fixes under difficult satellite tracking conditions

GPS Data Presentation

The data collector must submit GPS data in the original receiver download format to the GPS data processor designated by the VRI project manager once every week (or shorter if possible). The data submitted must be accompanied by the copies of field cards (i.e. the Header Card, Compass Card, and Cluster Layout Card) and any other field notes relating to GPS measurements. The presentation medium and means of delivery (e.g. through modem, ftp, Internet, Canada Post, or personal delivery) will be defined by the VRI project manager before the start of each project.

It is especially important to provide the first several samples in each VRI sampling project in order to ensure that data collection is being performed correctly. It is critical that the GPS data is processed and the results are communicated back to the field crews in a reasonable turn-around time so that if there are any problems or issues, they can be resolved while field crews are still in field.

GPS Data Archiving

The data collector must ensure that backups of the data are made on to 3.5 inch disks. Hard drive backup only is not acceptable. All the raw data collected must be archived for at least two years, unless otherwise instructed, after the completion of each field project.

Appendix 1 Trimble GeoExplorer Operation Procedures

This section is designed for the vegetation resources inventory for use of Trimble GeoExplorer GPS receivers as they are commonly used in the province.

Basic Operation

Trimble GeoExplorer	The GeoExplorer is a 6-channel GPS receiver made by Trimble Navigation capable of both displaying an uncorrected coordinate position and storing multiple position fixes for post processing.
Rover Data File	For each point feature to be surveyed, e.g. tie point and plot center, a file shall be created and data stored and a precise coordinate position of this point shall be determined after the differential correction. This data file is typically called rover file.
Major Keys	<p>The ESC key will allow you to back up to the previous screen or it will cancel entered data</p> <p>The DIAMOND key at the center is used to SELECT a menu option and to ACCEPT entered data.</p> <p>The UP and DOWN arrows are used to SCROLL up and down through the menu.</p> <p>The LEFT and RIGHT arrows are used to move the cursor left and right throughout the menu.</p> <p>The ON/OFF switch is the lower bottom button to turn receiver on and off.</p> <p>The ENTER key is used for accepting an entry.</p>
On/Off	Press the ON switch to turn the receiver on, and press the ON and hold it for 5 seconds to turn it off.
Main Menu	<p>Turn the receiver on. Press the ESC key until the menu 'backs up' to the MAIN MENU. Scroll up and down the main menu using the UP and DOWN arrows.</p> <p><i>Note: the receiver will power up to the same menu location that it was on when the power was turned off.</i></p>
GPS Positioning	<p>Press ESC until you reach the MAIN MENU. Scroll using UP and DOWN arrows to the 2. POSITION under the MAIN MENU. Press DIAMOND key to select the 2. POSITION option. Keep the receiver steady for at least more than 3 minutes. If the screen displays a set of coordinates and message GPS POSITION, this indicates that the receiver is receiving data and is able to calculate a position. If the message OLD POSITION is displayed, it indicates that the receiver is not able to determine its current position. If this happens (i.e. the receiver is not determining its position, please refer to the SATELLITE TRACKING.</p> <p><i>Note: the position displayed is not accurate (could be 100 meters off). It must be post corrected with the reference data to get a less than 10 meters accuracy.</i></p>

Recording GPS Positions Press ESC until you reach the MAIN MENU. Scroll using **UP** and **DOWN** arrows to the 1. DATA CAPTURE under the MAIN MENU. Press DIAMOND key to select the 1. DATA CAPTURE option. Scroll to 1. OPEN ROVER FILE using the **DIAMOND** key to select the option. The name of the rover file is automatically generated and is displayed in the upper left hand corner. This file name must be clearly recorded at this time on to the field card (along with feature type, offset if there is any, time, and any other notes). The number on the upper right corner will be showing up and accumulating. It is the number of acceptable points recorded.

Note: If the number is not changing, there may be problems with satellite tracking and you should refer to the SATELLITE TRACKING section. For configuration of the receiver, refer to the CONFIGURATION section.

File Closing When a suitable number of positions have been collected (i.e. 200 position fixes), select **CLOSE FILE** using **DIAMOND** key to close the file for storage.

*Note: You must close the file. Otherwise next time you select **DATA CAPTURE** and data will add to the old file that you have not closed.*

Receiver Shut off Press ON/OFF key and hold it for 5 seconds to turn it off.

Configuration

The configuration of the field GPS receivers must be done by a qualified technical person. Contractors and Regional staff should check with RIB remote sensing staff to ensure the receiver is configured correctly. However, the contractor must verify and check it during the field work.

View Configuration Options Press the **ESC** until you are at the MAIN menu. Scroll to the 6.CONFIGURATION menu using the **UP** and **DOWN** keys and select this menu using the **DIAMOND** key. Scroll to 1. ROVER OPTIONS and select this option with the **DIAMOND** key. Scroll through the PARAMETERS and check each one.

Position mode	Manual 3D
Elevation mask	15
PDOP mask	8
PDOP switch	8
SNR mask	4
Feature log pts	1 sec
Feature log line/are	5 sec
Feature log min pos	200
Not in feature rate	All

Parameter Setup Use the **LEFT**, **RIGHT**, **UP**, and **DOWN** keys to move the cursor and change value for each parameter and use the **DIAMOND** key to accept it.

Note: If the values do not match the above specifications, confirm the differences with RIB staff. Do not change them yourself, unless you have received approval.

Appendix 2 GPS Data Processing and Presentation

GPS data shall be processed and mapped by either another independent contractor or the MoF staff.

GPS Reference Station

Only the GPS reference stations that are validated and approved by the MoF are used for GPS differential corrections (see Appendix 4 for the list of available GPS reference stations in BC). The distance between the GPS reference stations and field receivers must be within 500 km. These reference stations must have a capability of archiving data for no less than 30 days and a data logging interval at no slower than 5 seconds. The data processor will ensure that reference stations are activated in the sample areas and for the times the field crews will be collecting the data. The VRI project manager must ensure that the data processor is notified of when the data collector will be in the field collecting data.

GPS Data Processing

All GPS positions must be corrected by standard differential GPS methods. Both Pseudorange and navigation corrections are acceptable. Any data editing processes, such as filtering, smoothing, interpretation, or generalization, must be noted in the project report. A quality assurance summary report must also be produced at the end of project.

Data Presentation

The data processor must submit to the VRI project manager the following deliverables:

- All raw GPS data files (including both field and reference station data) and corrected GPS data files before any editing and manipulations for each point feature in the original manufacture's proprietary or RINEX format on a 3.5 inch disk, associated with all field cards and notes regarding the GPS files;
- A Microsoft Excel table including (at a minimum): date of data capture in field, processing date, project ID, map #, polygon #, sample #, crew ID, file name, # of fixes, reference station ID, datum, offset, and final UTM Northing/Easting/Elevation;
- Digital plots (IGDS) and hardcopy maps showing the final positions of tie points and plot centres;
- A QA report per batch, as well a summary of QA results by the end of each project; and
- A summary report by the end of the project.

Note: It is a requirement that the data processor be stand-by in order to provide a quick turn-around of processed results back to field crews during the field data collection period. Plots that are questionable about their locations (e.g. outside the polygon to be sampled) are required to be submitted within no more than 2 days upon the receiving GPS field data. It is very crucial for field crews to get GPS data processing results back within a week so that any problems or issues can be resolved quickly while crews are still in field.

Data Archiving

The data processor must make a back-up and archive of all the raw data (directly downloaded from the receiver) in the manufacture's proprietary format and processed/interpreted data in the format specified by the VRI project manager.

Appendix 3 The Check List for VRI GPS Project Management

The following check list is provided to ensure the successful capture of GPS data.

The VRI project manager shall:

- check the contractors' (data collector and data processor) hardware and software, etc. and ensure that they are appropriate for the project work;
- provide training to the contractors on the use of GPS;
- provide GPS status information to the GPS field data collectors and the observation schedule according to current GPS almanac;
- identify methods and media for data archive and transfer;
- oversee the field data collection and data processing; and
- receive and conduct quality assurance on the project deliverables.

The data collector shall:

- provide (rent/purchase) an appropriate GPS data collection unit and provide adequate data backup (laptop PC);
- familiarize with its operation;
- ensure that all staff on the project attend the training session;
- collect GPS data; and
- provide digital GPS data to the data processor.

The data processor shall:

- check the availability of the GPS reference stations within the project area (e.g. if it is validated; if operating continuously during the scheduled time of the project; if its receiver/parameters/data format, etc. are appropriate; and cover the costs);
- ensure that GPS reference stations are turned on and order the reference data;
- receive uncorrected digital GPS data from the data collector and perform differential correction;
- map the GPS coordinates; and
- provide feedback to the VRI project manager that the data is collected correctly.

Appendix 4 Validated GPS Reference Stations in BC

The following GPS reference stations have been validated and accepted by the Ministry of Forests as of January 10, 1997.

BC Active Control System, The Geo-Spatial Reference Unit, Geographic Data BC, MoELP

- Locations: Victoria, Williams Lake, Penticton, Port McNeill, Terrace, Invermere, Fort St. John, Fort Nelson, Dease Lake
- GPS hardware: Trimble 4000SSE or SSI dual-frequency geodetic receivers
- Contact: Vern Vogt, P.Eng. phone: (250) 356-7091 fax: (250) 356-7831

TerraPro GPS Surveys Ltd.

- Locations: Cranbrook, Fort Nelson, Houston, Prince George, Summerland, Vernon, and Hinton (Alberta)
- GPS hardware: Trimble Community Basestation, single-frequency
- Contact: Colin Ernst, phone: (604) 932-8305, fax: (604) 932-4295

Am-bush

- Location: Houston
- GPS hardware: Trimble Community Basestation, single-frequency
- Contact: Delbert Arnold, phone: (250) 845-3264, fax: (250) 845-3245

Canadian Forest Products

- Location: Grande Prairie, Alberta
- GPS hardware: Trimble Community Basestation, single-frequency
- Contact: Craig Sharun, phone: (403) 538-7757, fax: (403) 538-7800

Cariboo Forest Consultants

- Location: Quesnel
- GPS hardware: Trimble Community Basestation, single-frequency
- Contact: Steve Curtis, phone: (250) 992-6688, fax: (250) 992-7029

Cool Creek Forest Service Ltd.

- Location: Princeton
- GPS hardware: Trimble Community Basestation, single-frequency
- Contact: Lorne Esselink, phone: (250) 295-7402, fax: (250) 295-4160

Interior Reforestation

- Location: Cranbrook
- GPS hardware: Trimble Community Basestation, single-frequency
- Contact: Percy Davis, phone: (250) 426-5300, fax: (250) 426-5311

West Kootenay Power

- Location: Trail
- GPS hardware: Trimble Community Basestation, single-frequency
- Contact: Ian Scott, phone: (250) 364-1270, fax: (250) 368-3321

ATTACHMENT F - VRI Ground Sampling Training - 1997

The training is aimed at upgrading inventory skills of experienced ecology and forestry personnel in the concepts and procedures of the Vegetation Resources Inventory. The course covers the following topics:

- Field orientation and navigation
- Inventory curising and plot establishment
- Call grading and net factoring
- Plants, soils and old growth
- Forage measurements
- Coarse woody debris

The course consists of thirteen days of classroom and field sessions. Since the VRI requires timber and ecological expertise, the course is structured to provide parallel training. All participants attend the first three and last two modules together. The participatns then split up to attend specialized inventory skills training in timber or ecology. Participants decide, prior to starting the course, which specialized training they will pursue.

We acknowledge that some contractors have a great deal of experience in VRI sampling, inventory sampling, and/or ecological sampling. As a result, a Challenge Process is in place for those who would like to attend only the final four days of the training program (basically, the two practice days and two evaluation days). A portfolio documenting the contractor's experience and training and a performance assessment are required for this process.

The course dates and locations for 1997 are:

Full training sessions (13 days) **Cost \$1,950**

Merritt	May 5-22
100 Mile House	June 2-18
Prince George	June 2-18

Challenge sessions (4 days) **Cost \$600**

Mesachie Lake	April 21-24
100 Mile House	May 20-23

All contractors performing ground sampling or ground sample auditing work under contract for the Ministry of Forests must have taken and passed the VRI Training Program (either the full program or challenge process). The Ministry will ensure that the closing date for Invitations to Quote or Requests for Proposal will be immediately following the appropriate training sessions in order for the contractors to be able to participate in the training and know their status prior to bidding on projects.

If you would like information on the training sessions, please contact Carmen Wheatley of the BC Forestry Continuing Studies Network at 847-8833. If you would like more information on the VRI ground sampling projects for 1997, please contact Mark Gillis, VRI Coordinator, at 387-1314

ATTACHMENT G - EXTRA ITEMS FOR INTERNAL USE



RFP NOTICE



REQUEST FOR PROPOSALS **Vegetation Resources Inventory Ground Sampling {UNIT}**

The ministry invites proposals from firms specializing in **Error! Reference source not found.** for **Error! Reference source not found.**. The objective of the project is to **Error! Reference source not found.**

(Optional) A **Error! Reference source not found.** will be held on **Error! Reference source not found.** **Error! Reference source not found.** at **Error! Reference source not found.** a.m./p.m. at **Error! Reference source not found.**. Attendance **Error! Reference source not found.** mandatory.

(Optional) Proponent inquiries will not be accepted after **Error! Reference source not found.**, 199**Error! Reference source not found.**. Inquiries are to be directed only to the contact person identified below.

Proposals will be received until **Error! Reference source not found.**, **Error! Reference source not found.**, 199**Error! Reference source not found.** at the address below. Late proposals will not be accepted. Proposals must be submitted in accordance with the terms and conditions specified in the information package. The lowest priced or any proposal will not necessarily be accepted. (Optional) This solicitation is subject to Chapter 5 of the *Agreement on Internal Trade*.

(Optional) Information packages are available on or after **Error! Reference source not found.**, and may be viewed free of charge, or purchased for a non-refundable charge of \$25 each (PST and GST included), at **Error! Reference source not found.**

To obtain further information, please contact: **Error! Reference source not found.**, telephone (**Error! Reference source not found.**), facsimile (**Error! Reference source not found.**), or email (**Error! Reference source not found.**).

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