

Proposal for
Baseline Monitoring of Soils, Vegetation and Wildlife
along the Pacific Trails Pipeline within Wet'suwet'en Territory
Phase 1 – Sampling Plan Development

Prepared for:
Pacific Trails Pipelines
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BACKGROUND

The Pacific Trails Pipeline Limited Partnership (PTP) was issued a BC Environmental Assessment Act Environmental Assessment Certificate (EAC E08-01) in June 2008 for the Kitimat - Summit Lake Pipeline Looping Project, which was renamed the Pacific Trails Pipeline Project. As part of the certificate, the Proponent has committed to the completion of a number of tasks (Table 1). These commitments arose from concerns and issues voiced by the Office of the Wet'suwet'en (OW) about the monitoring of soils, vegetation and wildlife, especially where they relate to country foods and medicinal plants along the PTP pipeline footprint on Wet'suwet'en Traditional territory

Table 1. Relevant PTP Commitments from the Environmental Assessment

#	PTP Commitment	Responsible Agency / Group
4.21 7.6	PTP will undertake, post-certification, additional studies where warranted on areas of high value / high risk. These studies will incorporate traditional knowledge, where applicable.	OW, MOE, HFN, KFN
4.22	PTP will work with the OW to develop appropriate monitoring programs.	OW, MOE, HFN, KFN
7.53	PTP commits to undertake an analysis of country foods (plants and fish) before and following construction.	OGC, OW, MOE

The following proposal will address the commitment requirements, providing a methodology, budget and schedule to meet the commitments.

PROJECT PHASES

To address the outlined commitments, the Project Team proposes to complete a two-phased project:

Phase 1 - review available information and develop a strategy and sampling plans for the monitoring of 'Country Foods' (Commitments #4.21/7.6 and #4.22), and

Phase 2 - conduct the monitoring of 'Country Foods' prior to construction (Commitment #7.53).

This proposal provides the details of the completion of Phase 1, with the sampling strategies and sampling plans created in that phase to be used in the completion of Phase 2.

PROJECT TEAM

Three established resource consultants have teamed up to complete this project: Laurence Turney of Ardea Biological Consulting Ltd., Rick Budhwa of Crossroads Cultural Resource Management Ltd., and Anne-Marie Roberts of A. Roberts Ecological Consulting. Together Laurence, Rick and Anne-Marie provide a wealth experience in their respective fields, and have worked together on projects and as members of the Bulkley Valley Research Centre for almost 10 years.

Laurence Turney is a Wildlife Ecologist with over 25 years experience in ecology and wildlife management issues, who has worked in northwest BC for a variety of government, First Nations and industry clients. He has completed dozens of large-scale baseline assessments for terrestrial resources as part of mining and forestry developments, including the design and implementation of vegetation and wildlife monitoring programs for contaminants and habitat use.



Laurence has experience in bringing understanding to the Public and First Nations of complex resource use issues, bridging the gap between science, traditional knowledge and local knowledge. He has experience in a wide variety of sampling techniques, plant and animal identification and working in remote locations and has made his home in northwest BC since 1991. As a project manager for multi-disciplinary teams, Laurence has extensive experience in managing personnel and budgets to ensure that clients receive high quality results within the expected timeframes and budget.

Rick Budhwa is a leading figure in cultural resource management in British Columbia and principal of Crossroads Cultural Resource Management. For the past 18 years, he has been involved in issues pertaining to indigenous cultural resources. As a result of some of the relationships that he has established, Rick has been formally adopted into the Gitumden Clan of the Wet'suwet'en. He is often asked by government, industry and First Nations to create cultural resource management policies and protocols considered acceptable to multiple stakeholders. His professional, graduate and personal research includes; First Nations oral traditions and oral histories, British Columbia legal proceedings and government legislation regarding oral traditions (and First Nations history in general) including the Delgamuukw decision, indigenous perceptions and interpretations of past and present, catastrophic paleoenvironmental events, geomorphology, science vs. indigenous interpretation, indigenous archaeology, and First Nations cultural heritage and land management.

Anne-Marie Roberts is a Wildlife and Vegetation Ecologist with over 16 years of professional experience working in the fields of wildlife biology and vegetation and ecosystem ecology. Based in Northwest BC since 1996, she has been involved in many multidisciplinary and collaborative environmental resource projects where she was part of the completion of terrestrial and wetland resources baseline assessments for mining, forestry and hydroelectric developments. She is experienced in ecosystem mapping, modeling and understanding interpretation of ecosystems, especially in the interpretation ecosystems value as wildlife habitats. Her previous work has included developing and conducting sampling for analysis of trace metals in vegetation for mining clients and has completed several projects interpreting background and post-development trace metal results and their potential effects on vegetation and wildlife.

PROPOSED METHODOLOGY

The range of tasks that are being undertaken in this project involve significant scientific and cultural components that must be completed together effectively to ensure that this project is successful. The Project Team has outlined the following as guiding principles to be used in the completion of Phase 1, with the understanding that the development of a sampling strategy and monitoring plan would be iterative and to be effective would require a continuous and regular dialogue between the Project Team and representatives from PTP and the OW.

Scope of Assessment

Interpretation of Commitment Statements

The commitments outline that additional studies would occur on high value / high risk areas post-certification and that monitoring of country foods be conducted before and after construction. After consultation with representatives from PTP and the OW, it was agreed that high value / high risk areas are those areas identified by the Wet'suwet'en through ecosystem mapping.

Monitoring of country foods has been defined more broadly than what was outlined in the commitments for this project and would include plants, fish and animals that could be used by the Wet'suwet'en for food, traditional, medicinal or cultural purpose. Since contaminant



pathways can start with soil and air-borne contaminants, sampling for soils and air are also included within the potential scope of sampling. Sampling of water quality is being conducted under a complementary study and will not be included in this project.

Spatial Scope

The spatial scope of the assessment was discussed with the representatives from PTP and the OW and it was identified that the proposed pipeline corridor (500 m each side of centerline) would be the priority area for any soils and vegetation sampling. It was also identified that in specific areas such as near Owen Lake and Equity Silver Mine, previous development activities may serve as sources of potential trace metals or contaminants and that these sources may travel downstream into the pipeline corridor. It was identified that sampling may be required outside of the pipeline corridor to adequately capture baseline conditions near these, and possibly other areas that may be identified during the development of the sampling plan.

Temporal Scope

Ensuring that sampling is initiated prior to construction activities is critical to allow for the development of a baseline data set and so Phase 1 must be completed prior to the spring of 2013. It is also important that we take advantage of any potential sampling of animal tissues from trapped or hunted animals during the early winter of 2013. The Project Team is committed to meeting those timing issues and will work during late 2012 and early 2013 so that sampling opportunities are not lost.

Sampling the Diverse Vegetation and Wildlife Species

The project encompasses a large area with a wide range of vegetation and wildlife species that could be assessed. Every effort will be made to determine a range of samples from culturally important plants and animals that is comprehensive, but within the limits of scientifically defensible results, budgets and time constraints. The list of plants and animal species that will be sampled will be developed in conjunction with the Wet'suwet'en and will be reviewed with the Wet'suwet'en, the client and scientific experts.

During the development of the monitoring strategy, sampling for animals will be both targeted for species and areas, as well as opportunistic, and include sampling by Wet'suwet'en hunters, fishers and trappers. Soils, air and plant sampling will be more targeted for species and specific areas, although the distances from the PTP corridor will be variable and dependent on previous development activities (e.g. mines), topography, hydrography and potential contaminants being looked for.

Concerns regarding the potential for a large number of vegetation and animal species to be sampled and a subsequent large number of samples required to meet statistical requirements have been raised. A contrasting concern is that imposing an a-priori short list of potential species for sampling would not meet the needs of the Wet'suwet'en. The Project Team recognizes the challenges of developing a sampling plan that meets these needs and will work interactively with PTP and the OW. As the sampling plan is being developed, regular updates will be provided to outline the range of sampling species being considered and obtain feedback early in the sampling plan development process.

Using Best Available Information and Expertise

Trace metals contamination of soils, air, vegetation and tissue, along with contaminant pathways in the terrestrial environment is a complicated and contentious topic. The Project Team recognizes this and also recognizes that specific expertise on these topics is required that is outside of the current Project Team. We are committed to finding and retaining recognized experts in this field within government, academic institutions and industry. The development of a



monitoring strategy may also requires expertise in study design and statistics to supplement the Project Team's experience that we would be obtaining from recognized individuals in the field.

Community Engagement

This project will follow all relevant cultural and community engagement protocols established by the OW. One of the initial steps will be to meet with the OW and determine those protocols, and then incorporate them into this project.

This project will consult with the OW, and determine the best way to obtain appropriate cultural information related to country foods. This will undoubtedly involve communications with the OW Natural Resources Dept, Fisheries Dept, Wet'suwet'en chiefs, elders, and other Clan members. Honorariums/wages and other forms of respect will be paid, where appropriate and as guided by the OW.

Data Integration

This project will involve a high degree of scientific and culturally sensitive information. We must recognize that these two perspectives come from different worldviews. Therefore, data and information may not always be readily compatible. We are aware of this potential, and will ensure that scientific information is communicated appropriately with the Wet'suwet'en community, and that appropriate cultural information is presented in a manner that is useable by PTP and government regulators. During Phase 1 we will complete a review to ensure that any data collected during the Phase 2 monitoring portion, is structured to be easily integrated into existing corporate, government and OW databases and spatial data structures.

Traditional Knowledge (TK) Management

Given the nature of information involved, our approach will prioritize cultural sensitivity. During the process by which the Wet'suwet'en identify plant and animal species of cultural importance, sensitive information will be managed in accordance with OW cultural protocols and the existing information sharing agreement.

The term "traditional" used in describing this knowledge does not imply that this knowledge is old or non-technical in nature, but "tradition-based." Given the variety of references for TK, researching, collecting, and documenting TK can also significantly vary. TK is present in written ethnographies, oral histories, interviews, land-use inventories, archived transcripts and recording, public hearings, media, scientific meetings, and in the 1980's and 1990's court cases of the Gitksan and Wet'suwet'en First Nations - where TK was well documented in the Delgamuukw-Gisdaywa court cases in the B.C. Supreme Court and in the Supreme Court of Canada. We are well versed in all areas where such TK information may exist, that is relevant to this project. This knowledge allows us to start at an informed position, and ensure a comprehensive research program.

Connections with Culture

This project will not compartmentalize the First Nations worldview into micro-manageable components such as cultural heritage, fisheries, wildlife, socioeconomic measures, as standard resource management approaches tend to do. It is necessary to recognize the integrity of the Wet'suwet'en traditional territories as an interconnected whole. This project will emphasize the interconnection of multiple facets of Wet'suwet'en geographies as encompassing the spiritual, emotional, historic, practical, legal, educational, cultural, and economic realms. An integral component of all of these connections is the Wet'suwet'en sense of place to their territories. These connections with 'country foods' shall be identified and documented, for the Office of the Wet'suwet'en to utilize in future work with PTP.



Community Capacity Building and Training

This project will emphasize community capacity building. This may occur in several different ways. Firstly, all information gathered will be provided to the Office of the Wet'suwet'en. This will contribute to their information base in the short and long term. Secondly, this project will hire at least one community worker to support in as many aspects of this project as possible. The intention here is to build multiple and lasting skills in 1-2 individuals that they may be able to apply to future projects. Lastly, this project will contribute to the Natural Resources department of the OW in the form of a fee for service basis, whereby we shall compensate for GIS and elder time for information shared (as guided by the OW).

PROPOSED TASKS

The Project Team has identified a number of tasks that will need to be undertaken to meet the commitments outlined for Phase 1 and complete the development of the monitoring program for country foods. These tasks are outlined below and will be guided by the proposed methodologies and principles outlined previously.

High Value Ecosystems Review

- Obtain from PTP the Terrestrial Ecosystem Mapping (TEM) of the pipeline corridor and review the map data to understand spatial limits, correlation with the corridor and previous mapping (e.g. PEM/TEM) outside of the pipeline corridor.
- Obtain from PTP the plot data associated with PTP TEM and any other vegetation studies and assess the plot data for information related to high value ecosystems and plant communities found within the plots.
- Review the Wet'suwet'en High Value Ecosystem Mapping and work with the OW regarding assumptions on the plant communities identified. Using the information from PTP determine if assumptions require modification or updating due to the new information.
- Work with the OW to complete an updated map of WHVEs using the PTP TEM data.

Developing Monitoring Strategies

- Review the Wet'suwet'en published sources and with elders and other community members the important medicinal, food and cultural plants and animals of interest in the vicinity of the PTP corridor.
- Identify through a review of available scientific sources and discussions with Wet'suwet'en Chiefs, elders and community members a short list of plant and animal species to sample.
- Consult with recognized academic and industry experts in sampling design and contaminant pathways to help develop monitoring strategy that will sample the identified plant and animal species in a scientifically defensible manner. Review this information with Wet'suwet'en community members to help develop final list of plant and animal species, methods for sampling and target sampling areas.
- Review PTP, Wet'suwet'en and regulatory agency data management structures and ensure monitoring data will be collected, stored and delivered in compatible formats and structures.



- Develop a winter, and early spring animal monitoring strategy using experts in contaminants, contaminant pathways and sampling design, along with Wet'suwet'en community members, elders and OW resources.
- Develop a late spring, summer and fall soil, air and plant monitoring strategy using experts in contaminants, contaminant pathways and sampling design, along with Wet'suwet'en community members, elders and OW resources.

SCHEDULE

The Phase 1 schedule is provided below, and is based on an assumption that work would be initiated December 1st, 2012.

	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13
Review of Apache TEM and Wet'suwet'en Mapping					
Obtain TEM, review data structure and plot data					
Assess plot data and WHVE assumptions in association with Wet'suwet'en					
Update map of WHVEs using TEM			D		
Develop Monitoring Strategy for Soils, Plants and Animals along Pipeline Route					
Review available information on important plants and animals					
Discussions with Wet'suwet'en re plant and animals species to sample					
Review data management structures and ensure collected data is compatible			D		
Consult with experts re sampling design and contaminant pathways					
Develop winter/spring animal monitoring strategy			D		
Develop spring/summer/fall soil, air, plant and animal monitoring strategy					D

DELIVERABLES

The following deliverables will be provided during Phase 1:

- 1) Map and summary report outlining the methods used to update the Wet'suwet'en High Value Ecosystem Mapping completed by February 28th, 2013
- 2) Data structure and data dictionary document outlining data storage methods and requirements for the results of the monitoring strategy completed by February 15th, 2013
- 3) The monitoring strategy for winter sampling of animal tissues would be completed by February 28th, 2013 and would include proposed pre-construction sampling rates, estimated costs and identified areas for sampling.
- 4) The monitoring strategy for sampling of soils, air, plant and animal tissues would be completed by April 15th, 2013. This monitoring strategy would include pre-construction, construction and post-construction monitoring plans outlining sampling rates, estimated costs and identified sampling areas.

PROCEEDING TO PHASE 2

The monitoring of country foods would be conducted as Phase 2 of the program, with a winter sampling of animal tissues initiating in March 2013, to take advantage of any hunting and trapping activities that may be occurring. The monitoring would be based upon an agreed-upon monitoring strategy and sampling plan. It is anticipated that this winter and early spring sampling would be relatively limited in scope. A more comprehensive monitoring strategy and sampling plan would be developed for a wider range of plant and animal species, as well as soils and air sampling. This sampling would be initiated in the late spring and conducted during the summer and into the fall to capture baseline data prior to construction. Construction and post-construction monitoring would be conducted as the project proceeds, based on the strategies and sampling plans outlined in this second document.

