

DAVID J. PUTT
FORTERRA CONSULTANTS LTD.
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PROFESSIONAL ASSOCIATION

Member, British Columbia Institute of Agrologists (P.Ag.)
Member, Association of Professional Engineers and Geoscientists of British Columbia (P.Geo.)

EDUCATION

B.Sc.(Hons.) (1967) and M.Sc.(1969) (Geology)

Courses/workshops completed in the past 10 years include:

- Hydrologic assessment of mountain streams
- Rehabilitation of Disturbed Slopes and Landslides - Assessment and Treatment Options
- Restoration of Disturbed Sites using 'Bioengineering' Techniques
- Channel Assessment Procedure, Forestry Continuing Studies, Castlegar, B.C.
- Windthrow Assessment
- Soil Disturbance Assessment
- Road Deactivation and Restoration
- Geosynthetics for Soil Stabilization

- Terrain Mapping, UBC Credit Course. Instructor: Prof. J. Ryder, Vancouver.

- Terrain Stability Mapping and Assessment, UBC Credit Course. Instructor: D. Van Dine, Vancouver.

LANGUAGE SKILLS

	Writing	Speaking	Reading
English	Excellent	Excellent	Excellent
Spanish	Good	Very Good	Very Good
French		Basic Proficiency	Basic Proficiency

WORK EXPERIENCE

The experience outlined below is principally that involving work in the past 13 years related to the forest industry and, more recently, the petroleum and natural gas industry. Detail on my work experience in the mining industry from 1967-1979 and agriculture industry (1979 -1990) can be provided on request. I have completed a wide range of projects involving application of geological and agrolological principles to environmental protection and management of soil, water and forest resources.

Focuses have included:

- Terrain and terrain stability mapping for the forest industry and government including surface erosion and landslide hazard assessment and mapping. Applications include design and implementation of erosion and slope stability controls and remediation works.
- Watershed assessment and restoration to protect water and fisheries resources
- Establishment, auditing and assessment of pipeline erosion control procedures

Since 1991 I have practiced principally in south eastern British Columbia, Canada working in the forest industry, and more recently on a major gas pipeline project in Peru. My experience combines a range of skills and knowledge of bedrock and surficial geology, engineering geology, forest hydrology and temperate zone forest soils and ecosystems. I have deliberately maintained a pragmatic 'hands on' orientation, working directly with construction and rehabilitation crews, technicians, professionals and management, to ensure the field application of practical techniques for resource and environmental protection.

Following is a more detailed work experience history:

- **1996 to 2003 -- Forterra Consultants Ltd. (Principal)**

Consulting work for the forest industry and government land management agencies in south eastern British Columbia, primarily in the East and West Kootenays regions and more recently auditing erosion control work on a gas pipeline in Peru. Much of the work in British Columbia was completed in partnership with other professionals including botanists, fish and wildlife biologists, hydrologists and foresters. Since much of my work was in areas where there are land use conflicts the work has involved frequent consultation with the public.

A partial outline of work and projects completed includes:

Pipeline Erosion and Landslide Control/Remediation

This work, reporting to the pipeline consortium construction manager, involved auditing of erosion control work on a 700km long major gas pipeline (32" gas and 14" gas liquids). The line runs from the Peruvian Amazon to Lima; most of my work was in the jungle and high sierra sections of the project. The work was primarily to audit the major contractor's compliance with specifications for temporary and permanent erosion control so as to prevent ecological damage and to protect the integrity of the pipeline. I contributed to writing the construction and final restoration specifications for the project and instructed consortium compliance inspectors and major contractor crews in application of erosion control techniques and in stabilization of landslide sites. In

addition I guided consortium inspectors supervising the final restoration and cleanup in a portion of the high sierra route final cleanup and restoration.

Watershed restoration

This work in southeastern British Columbia has been to develop and apply basin wide road deactivation and rehabilitation plans to restore natural drainage patterns and slope stability and to control erosion. It has also included some stream channel remediation work. Most work has been carried out in community or domestic watersheds.

Soil erosion hazard assessment and sediment/erosion control

In British Columbia involved application and development of methods to control surface and ditch erosion on roads and cutblocks, particularly in areas of highly erodible soils. Erosion control work was also completed on roads in community and domestic watersheds and in parts of the Kootenay Lake District West Arm Demonstration Forest.

Rehabilitation of landslides and streambanks using 'bioengineering' techniques

These techniques were prescribed to stabilize slide sites, mostly on landslides in community watersheds but also including streambank restoration and highway and forest road cutbank and fillslope stabilization.

Watershed and stream channel assessments

Watershed assessments included review of channel condition and evaluation of the impacts of logging and road building on peak flow, water yield and channel stability as well as identification of sediment sources and assessment of sediment delivery. Most work has been in community watersheds. Channel assessments have also been carried out in a number of domestic watersheds. The latter work included establishing criteria for measurement of stability and disturbance of very small stream channels.

Detailed terrain stability assessments on proposed forest roads and cutblocks

Assessments have been completed in a wide variety of terrains, ecosystems and climates in the southern Rocky Mountains, Rocky Mountain trench and Columbia Mountains including the Purcell, Selkirk and Monashee Ranges

Detailed terrain mapping in community watersheds

Mapping at 1:20000 scale of terrain types and processes included ratings of surface erosion hazard, landslide hazard and sediment delivery hazards.

Reconnaissance terrain stability hazard mapping

1:20000 scale slope stability hazard mapping primarily in the Purcell and southern Rocky Mountains. The total area mapped was approximately 300,000 ha.

- **April 1996 to September 1996 - Acting District Earth Scientist, B.C. Ministry of Forests, Arrow Forest District, Castlegar, B.C.**

Work included review and audit of forest licensee submitted erosion control prescriptions, terrain and terrain stability mapping, watershed assessments, terrain stability assessments, cutblock and road stability prescriptions and landslide remediation prescriptions. It also included cutblock slope stability assessment for the Ministry of Forests, some detailed terrain mapping as well as assessment of landslides, with recommendations for remedial work.

- **April 1991 to March 1996 - Appropriate Forestry Services Ltd., Kaslo, B.C.**
Worked independently and in association with fellow professionals including hydrologists, agrologists and foresters on forest industry related projects in south eastern British Columbia. Projects completed independently and/or with associates included:

Detailed terrain mapping in community or domestic watersheds

This work included sediment delivery potential and surface erosion hazard assessment and channel and gully assessment

Reconnaissance terrain stability hazard mapping

Approximately 200,000 ha. in southeastern British Columbia

Ecoclassification of permanent (forest) sample plots

This work, which I completed in conjunction with a botanist, involved terrain and soils classification in all seven districts of the Nelson Forest Region, southeastern British Columbia, with data analysis. It was done for the Research Branch, Ministry of Forests.

Benchmark soil disturbance and degradation surveys

Most work was for the Nelson Region Research Branch, Ministry of Forests and was carried out in a number of areas in southeastern British Columbia. The work focused on assessment and analysis of compaction.