

Erica Bonhomme, M.Sc., P.Geo.

Principal, Environmental Services Northern Canada

Erica Bonhomme has over 27 years of experience in Northern Canada as an environmental assessment and regulatory specialist, as an environmental geoscientist, and project manager. Her expertise includes regulatory planning, permitting, and environmental assessment coordination for major developments, stakeholder engagement, and technical writing. Through her ongoing leadership and involvement in a broad range of northern projects, Erica maintains a current and practical knowledge of environmental legislation, Board processes, government programs and policies and regional challenges and opportunities unique to the Territories. Erica is based in the Yellowknife, Northwest Territories office.

Education

- Carleton University, B.Sc. Physical Geography/Geology, Ottawa, Ontario, 1996
- Carleton University, M.Sc. Earth Sciences, Ottawa, Ontario, 1998

Qualifications/Memberships

- Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists, Professional Geoscientist, 2014-present

Work History

- 2011-2013, 2016-pres. Stantec Consulting Ltd. Senior Environmental Planner. Led environmental planning, permitting and assessment projects for industrial, government, and municipal, clients in NWT and Nunavut.
- 2013-2015. De Beers Canada Inc. Environmental Manager, Snap Lake Mine. Responsible for environmental management and compliance programs at an operational diamond mine in NWT.
- 2003-2011. Indian and Northern Affairs Canada. Environmental Scientist. Coordinated departmental input during regulatory reviews and environmental assessments of proposed developments in NWT.
- 2001-2003. Aurora College. Senior Instructor, Natural Resources Technology Program, Inuvik NWT.
- 1997-2000. Geological Survey of Canada. Placer/Permafrost Geologist. Led/supported geomorphology research programs in NWT and Yukon.

Selected Project Experience

Environmental Assessment

Mackenzie Valley Highway Project Environmental Assessment, Government of the Northwest Territories, Project Director, 2019-present

Coordinated the preparation of the Developer's Assessment Report for the Environmental Assessment of the Project by the Mackenzie Valley Environmental Impact Review Board; (filed October 2023); coordinated baseline environmental studies including bird species at risk, archaeology, fish and fish habitat assessments, hydrotechnical studies, borrow/quarry reconnaissance; provided support to GNWT as subject matter expert during stakeholder engagement and traditional land and resource use studies.

Diavik Mine Processed Kimberlite to Mine Workings Environmental Assessment Support, Rio Tinto Inc., Project Manager, Regulatory Advisor, 2019

Coordinated multidisciplinary technical team to prepare a Summary Impact Statement to support the environmental assessment of a closure-related project by the Mackenzie Valley Environmental Impact Review Board; supported client during the environmental assessment process, including public hearings.

Grays Bay Road and Port Project Environmental Review, Kitikmeot Inuit Association, Environmental Project Director, 2017-2019

Supported the client during the scoping phase of the environmental review of a proposed road and port project by the Nunavut Impact Review Board; established an Inuit Advisory Group and led two workshops to gather Inuit knowledge about the project area and environmental mitigations; advanced environmental baseline reports.

Grays Bay Road and Port Project, NIRB Screening, Government of Nunavut and Nunavut Resources Corporation, Project Director, 2016-2017

Led the development of a Project Proposal for a 230 km highway and deep water port in Western Nunavut for screening by the Nunavut Planning Commission and Nunavut Impact Review Board; engaged with regulators on pre-permit applications; coordinated limited field studies used to supplement existing information for the project area; provided engagement support to project proponents.

Snap Lake Mine Water Licence Amendment Environmental Assessment | De Beers Canada Inc. | Snap Lake, NT | 2013-2015 | Resident Environment Manager*

Responsible for environmental management and compliance at an operating diamond mine; developed plan and led multidisciplinary technical team, including consultants, to amend the mine's type A water licence to reflect operational changes. The amendment was subject to an EA by the MVEIRB; led the developer through Information Requests, Technical Hearing and Public Hearings held for the EA and water licence, as the De Beers panel lead.

Western Alberta Transmission Line 500 kV Project, AltaLink Management Ltd., Technical Director, 2011-2012

Provided strategic planning environmental technical input during AUC regulatory review of 350 km, high-voltage DC transmission line; oversaw environmental program study design and hearing preparation.

Inuvik to Tuktoyaktuk Highway Environmental Impact Review, Environmental Studies Project Manager, 2011-2012

Managed, and coordinated the completion of field-based traditional land use, vegetation, bird species at risk, archaeological, terrain and permafrost studies, and wildlife habitat modelling to supplement the Environmental Impact Statement used as the basis for the Substituted Panel Review of the ITH Project - a 140 km new all-season highway project connecting Tuktoyaktuk to Inuvik. Represented technical studies during the public hearings for the project.

Permitting and Regulatory Compliance**Redknife River Bridge Replacement Project, Government of the Northwest Territories, Environmental & Regulatory Lead, 2023-2024**

Led development of applications for water licence, land use permit and Navigation Protection Program approvals for a project to replace a bridge structure over the Redknife River in the Dehcho Region of the NT. This included development of a Project Description Report and Environmental Management Plans to support the preliminary screening of the Project by the Mackenzie Valley Land and Water Board (MVLWB).

Oscar River Bridge Relocation Project, Government of the Northwest Territories, Environmental and Regulatory Lead, 2022-2024

Led development of regulatory applications for a project to relocate a bridge structure over Oscar Creek, and to construct two new tributary crossings along the Mackenzie Valley Winter Road in the Sahtu Region of the NT. This included development of water licence, quarry permit and land use permit applications, DFO request for review, Navigation Protection Program Minor Works approval and a Project Description Report and Environmental Management Plans to support the preliminary screening of the Project by the Sahtu Land and Water Board.

Iqaluit Apex Supplemental Water Supply Project 2019-2026, City of Iqaluit, Permitting Lead, 2019

Identified permitting requirements and developed regulatory plan associated with obtaining approval to withdraw water from the Apex River as a temporary supplementary potable water source. Developed submissions to the Nunavut Impact Review Board and Nunavut Water Board (NWB) to amend the City's type A water licence; supported City during Nunavut Water Board's technical review and public hearing process; provided regulatory oversight during supplementary pumping completed in 2020.

Iqaluit Emergency Supplementary Pumping Programs 2018 and 2019, City of Iqaluit, Project Manager, Environmental and Permitting Lead, 2018-2020

Under the emergency provisions of the Nunavut Planning and Project Assessment Act and Nunavut Waters Act, developed applications for DFO Authorization and amendment to type A water licence on emergency basis to permit supplementary pumping of water to augment the City of Iqaluit's drinking water supply. Obtained NUPPAA exemptions; coordinated meetings with regulators and led development of applications and associated monitoring and management plans; oversaw compliance monitoring programs and reporting. Managed all aspects of the Owner's representative role during emergency pumping, including scheduling, budget management and construction administration

Great Bear River Bridge Permitting, Government of the Northwest Territories - Infrastructure, Project Manager / Permitting Lead, 2019-present

Ongoing. Preparing Project Description Report to support land use permit and water licence applications to construct a new bridge over the Great Bear River and highway approaches; engagement support.

Prohibition Creek Access Road Culvert and Approach Design and Permitting, Government of the Northwest Territories, Permitting Lead, 2021

Led preparation of application to amend the Project's water licence to permit construction of four crossing culverts; led development of Erosion and Sedimentation Control Plan and Permafrost Protection Plan for regulatory approval and licence amendment application and DFO request for review to enable a channel re-alignment of Christina Creek.

Dhu-1 Quarry Permitting, Government of the Northwest Territories, Project Manager / Regulatory Lead, 2021

Developed applications and supporting documents (Project Description Report and Environmental Management Plans) to permit the development and operation of a new quarry; facilitated the completion of a Traditional Knowledge study; supported client-led engagement with stakeholders; provided technical support during the preliminary screening of applications by the Sahtu Land and Water Board.

Tuktoyaktuk Erosion Mitigation Project Screening, W.F. Baird and Associates, Regulatory Advisor / Quality Reviewer, 2021-2022

Provided senior environmental permitting support for a project to mitigate against coastal erosion in Tuktoyaktuk. This included identifying the regulatory requirements associated with constructing the project; provided quality review of a Project Description Report and Environmental Management Plans prepared for the screening of the Project by the Environmental Impact Screening Committee.

Coral Harbour Remediation Project, Public Services and Procurement Canada, Quality Reviewer, 2021-2022

Provided senior regulatory advisory support to the team developing the Remedial Action Plan for a former military installation; completed a technical quality review of a Project Proposal prepared to support the screening of the Project by the Nunavut Impact Review Board.

Snap Lake Mine Closure Environmental Management and Monitoring, MetNuna Joint Venture, Environmental Lead, 2022-2023

Coordinated and was accountable for activities of on-site and off-site teams conducting environmental compliance and effects monitoring, environmental management and reporting activities in accordance with the Owner's type 'A' water licence, land use permit, Environmental Agreement and Wildlife Management and Monitoring Plan.

Mould Bay Causeway Reconstruction Project, Public Works and Government Services Canada, Permitting Lead, 2019

Identified permitting requirements and permitting schedule for a project to repair a causeway over Station Creek at Mould Bay NT; worked with the design team to complete permit applications; and liaised with regulators during the screening of the project by the Environmental Impact Screening Committee, and applications review by Inuvialuit Water Board, CIRNA and DFO; developed environmental and permitting specifications for inclusion in tender documents; developed draft management plans and worked with contractor to finalize.

Kimmirut Sewage Lagoon Relocation Project, Government of Nunavut Community and Government Services, Regulatory Advisor, 2018

Oversaw the development of airport bird hazard risk assessment and development of all permit applications to Transport Canada and NAV Canada associated with the proposed construction of a new sewage lagoon in Kimmirut to be located within the airport exclusion zone.

Hamlet of Tulita Municipal Water Licence Renewal, Hamlet of Tulita, Regulatory Advisor, 2016

Developed workplan and coordinated development and update of various management plans and reports required for renewal of municipal water licence, including additional studies.

Community of Fort Good Hope Water Licence Renewal, Charter Community of K'asho G'otine, Project Manager, Permitting Lead, 2020.

Developed workplan and coordinated development and update of various management plans and reports required for renewal of municipal water licence, including additional studies.

Snap Lake Mine Water Licence Amendment, De Beers Canada Inc., Resident Environment Manager, 2015*

Developed strategy and plan and led multidisciplinary technical team to support two major amendments to Type A water license for an active mine.

Snap Lake Mine Environmental Compliance Programs, De Beers Canada Inc., Resident Environment Manager, 2013-2015*

Planned and managed all aspects of compliance monitoring and reporting at an operational diamond mine in Northwest Territories.

Inuvik to Tuktoyaktuk Highway Permitting, Government of Northwest Territories - Department of Transportation, Project Manager / Technical Director, 2012-2013

Coordinated field and desktop studies to support development of application and supporting documentation for type A water licence for construction of new 140 km highway; developed environmental management plans and quarry pit development plans to support quarry permit and land use permit applications.

Inuvik Tuktoyaktuk Highway Construction Regulatory Support, EGT Northwind Ltd., Senior Advisor, 2016

Provided regulatory (compliance) support to contractor building 140 km all-season road between Tuktoyaktuk and Inuvik, Northwest Territories; provided technical support during the closure phase for borrow sources, including input on closure objectives and criteria. Conducted post-closure assessment of the closure condition and stability of borrow sources.

Chinook EL470 Exploration Drilling Program Permitting, ConocoPhillips Resources Canada, Technical Director / Project Manager, 2011-2013

Provided regulatory and permitting advice during preparation of permit applications to Sahtu Land and Water Board; coordinated regulatory consultations; led preparation of a regional cumulative effects assessment.

Baseline Studies**Mackenzie Valley Highway Environmental Baseline Studies, Government of the Northwest Territories, Project Director , 2021-Present**

Coordinated and provided direction through the planning and completion of field-based studies of avian species at risk, borrow sources, fish and fish habitat assessments, hydrotechnical assessments, and archaeological impact assessments to support the Environmental Assessment of the Mackenzie Valley Highway Project. These studies were completed in a remote area, exclusively by helicopter. Each study program required obtaining a scientific research license and program-specific permits and licenses from DFO, GNWT-ECE and GNWT-ECC.

Desktop-based Evaluations of Water Availability Mackenzie Valley Highway, Government of the Northwest Territories, Project Director / Task Manager, 2022

Coordinated and provided direction to water resource specialists to conduct a desktop-based evaluation of over 50 stream and lake sources that may be considered for water use to support the construction and operation of the Mackenzie Valley Highway. The report was used to support the Environmental Assessment of the project.

Grays Bay Road and Port Project Environmental Baseline Studies, Government of Nunavut – Dept. of Economic Development and Transportation, Project Manager, 2017-2018

Completed gaps analysis, planned and managed field- and desktop-based environmental baseline studies and Inuit Knowledge studies in the Kitikmeot Region to support the development of an Environmental Impact Statement for the Project.

Fisheries and Hydrotechnical Assessments Mackenzie Valley, Government of the Northwest Territories - Department of Infrastructure, Project Manager, 2018

Planned and managed all aspects of health and safety, schedule and scope of hydrotechnical and fisheries assessments at river and stream crossings in the Tlicho, Sahtu and Inuvialuit regions where new and replacement culvert crossings are planned.

Inuvik to Tuktoyaktuk Highway Baseline Studies, Government of the Northwest Territories, Project Manager, 2011-2012

Managed, and coordinated the completion of field-based traditional land use, vegetation, bird species at risk, archaeological, terrain and permafrost studies, and wildlife habitat modelling to supplement the Environmental Impact Statement used as the basis for the Substituted Panel Review of the ITH Project - a 140 km new all-season highway project connecting Tuktoyaktuk to Inuvik. Represented technical studies during the public hearings for the project.

Aggregate Source Evaluations

Mackenzie Valley Highway Borrow Source Reconnaissance, Government of the Northwest Territories - Department of Infrastructure, Field Geologist, 2020

Planned field reconnaissance of 36 prospect quarries between Wrigley and Norman Wells, collected field observations and samples during helicopter based reconnaissance program.

Acid Rock Drainage & Metal Leaching Potential Assessment Yellowknife Quarry, NWT Construction Ltd., Project Manager; Geologist, 2019

Managed the assessment of the acid-rock drainage and metal leaching potential of an operational quarry; conducted field evaluation and rock sampling.

HWY4 KM21.0 Quarry Geotechnical/Geochemical Assessment, Government of the Northwest Territories - Infrastructure, Project Manager; Field Geologist, 2018

Managed the assessment of the geotechnical properties and acid-rock drainage and metal leaching potential of a prospect quarry; conducted geological reconnaissance and sampling; and coordinated team conducting a helicopter-based drilling program.

Acid Rock Drainage & Metal Leaching Assessment of Prospect Quarries Behchoko to Yellowknife, Government of the Northwest Territories - Infrastructure, Project Manager; Independent Reviewer, 2017

Managed all aspects of delivery of a foot-based reconnaissance and geological sampling program to assess the acid-rock and metal leaching potential of eleven prospective quarries between Behchoko and Yellowknife NT; conducted independent review of report.

Inuvik to Tuktoyaktuk Highway Borrow Sources Investigations Program, E. Gruben's Transport Ltd., Project Manager / Permitting Lead, 2012

Coordinated permitting and planning of geotechnical investigations program to investigate type and quantity of granular resources along proposed highway; led development of borrow pit management plans required in support of Quarry Permit applications.



BIOGRAPHY

Mike is a senior terrestrial biologist who has worked in western and northern Canada since 1995 on wildlife and bird ecology, habitat management, impact assessment, and post-environmental assessment monitoring. On mining projects, he has worked through baseline knowledge and impact risk assessment with Indigenous knowledge holders in northern Canada. He has supported an Indigenous organization's review of caribou protected areas and a caribou range management plan. Mike is a strategist who assesses and mitigates the environmental risk of development projects on wildlife in western and northern Canada. He guides EDI's internal team to ensure defensible approaches are taken to analyzing issues and works with the client and team members to implement practical and effective solutions.

EDUCATION

- **BScF (Forestry)**, University of New Brunswick, 1993
- **MSc (Biopsychology)**, Memorial University of Newfoundland, 1996

QUALIFICATIONS/MEMBERSHIPS

- Registered Professional Biologist #1114, College of Applied Biology, British Columbia
- Certified Wildlife Biologist (CWB®), The Wildlife Society (2001-present)

WORK EXPERIENCE

- **Baffinland Iron Ore Mines — Mary River Project Terrestrial Ecosystem Mitigation and Monitoring Plan and Terrestrial and Marine Environment Working Groups, NU.** Mike is the terrestrial biologist lead on post-approval environmental monitoring for an iron mine project on Baffin Island, Nunavut. Follow-up monitoring has been conducted to address project terms and conditions. This includes wildlife abundance surveys, bird surveys, long-term vegetation monitoring, bird nesting, and traffic and dust monitoring correlating to the project's zone of influence. Annual reports are produced. Two terrestrial working group meetings occur each year to review with regulators and project partners results, adaptive management actions, and monitoring plans for successive years. (2008–present)
- **Casino Copper and Gold** — Mike has been the terrestrial discipline lead on the proposed Casino project. His work has involved terrestrial discipline management, bird and caribou surveys, data analysis, First Nation and regulator engagement, baseline reporting, environmental assessment, addressing supplemental information requests and client engagement. (2011–present)
- **Chance Oil and Gas, YT** — Mike is the senior biologist and assessment lead for a proposed oil and gas exploration project in north-central Yukon. The tasks include strategy, regulator and community engagement, and sponsoring a multi-disciplinary effects assessment team. (2014–present)
- **Government of Northwest Territories — Mackenzie Valley Highway Project** — Mike is the lead caribou and moose impact assessment biologist for the MVH project from Wrigley to Norman Wells, NWT. The work includes supervising the summary of baseline information, habitat model development, and characterizing potential impacts and protection planning and mitigation. The work is conducted with an integrated team of wildlife and other biophysical disciplines (2021–present).
- **Newmont — Senior Terrestrial Effects Advisor for the Coffee Project, YT.**
Mike is the internal EDI team leader preparing the terrestrial wildlife, vegetation, and bird impact assessment for the proposed Coffee gold mine project in central Yukon. Issues and tasks associated with the project include migratory and non-migratory caribou, addressing First Nation concerns and Technical comments, and representing Newmont at the regulator and First Nation engagement and consultation meetings. (2014–present)

- **Agnico Eagle Mines (AEM) — Whale Tail Expansion Project, Baker Lake, NU.** Mike provided a technical review of unpublished evidence on caribou movements and the impacts of a mining road for the Whale Tail expansion project. He was sworn in as an expert witness at the project's final hearing and attended all hearing proceedings and follow-up working group meetings to address ongoing concerns about weak evidence of impacts. (2018–2020)
 - **Kitikmeot Inuit Association and West Kitikmeot Resources — Grays Bay Road and Port Project, NU.** Mike is the wildlife discipline co-lead on a Nunavut infrastructure project, including a road and port through caribou calving and wintering grounds. As discipline lead, his work involves team management, workshop strategy, and advice on management and monitoring plans to ensure that effects on caribou are low risk. (2011–present)
 - **Kitikmeot Inuit Association (KIA) — Caribou Protected Areas Review and Bathurst Caribou Range Plan Review, NU.** Mike coordinated the review of Bathurst and Bluenose East caribou collar data to determine the annual variability of calving ground use for the KIA's consideration for feedback on land use planning in Nunavut. Mike also represented the KIA's technical review of the Bathurst Caribou Range Plan and attended a technical meeting in Yellowknife with GNWT and other parties and a Land Use Plan hearing in 2022. (2017–2022)
 - **Tr'ondek Hwech'in First Nation — Review of Conservation Measures for the Porcupine Caribou Herd, YT.** Mike and technical colleagues reviewed conservation measures for the Porcupine Caribou Herd. He directed technical associates in their conduct of a review of the Yukon Government's Interim Conservation Measures for the Porcupine Caribou Herd. This included a scientific review of population dynamics and survey methods used for the herd. (2009)
- TMAC Resources — Senior Advisor on Impact Assessment Strategy for the Hope Bay Phase 2 Proposal, NU.** Mike was a senior advisor to TMAC's Director of Environmental Affairs to prepare a technical review of the Phase 2 impact assessment. Tasks included developing Indigenous knowledge holder workshops to explore wildlife risk assessment and providing guidance to consultants preparing the impact assessment.



KERMAN BAJINA, MSc, RPBio, P. BIOL.

QUANTITATIVE ECOLOGIST

BIOGRAPHY

Kerman is a Registered Professional Biologist with 8+ years of combined experience in ecological research and environmental consulting. Kerman has a strong theoretical and applied knowledge of ecology. He is an experienced technical writer with expertise in applying quantitative approaches to study caribou habitat selection and space use (movement). Much of his work is focused on conducting baseline studies, environmental assessments, and research programs for caribou across the species' Arctic ranges (barren-ground subspecies) and woodland ranges (mountain and boreal ecotypes). Kerman is based in EDI's Calgary, Alberta office.

EDUCATION

- **M.Sc. Biology (Evolutionary Ecology)**
Lakehead University, Thunder Bay, ON, 2019
- **B.Sc. Life Science**
McMaster University, Hamilton, ON, 2013

QUALIFICATIONS/ MEMBERSHIPS

- **Registered Professional Biologist (R.P.Bio.)**
British Columbia College of Applied Biologists, 2023–present
- **Professional Biologist (P.Biol.)**
Alberta Society of Professional Biologists, 2022–present

WORK EXPERIENCE

- **Quantitative Ecologist**
EDI Environmental Dynamics Inc., 2019–present
Technical lead on terrestrial wildlife (mainly caribou) baseline studies, environmental assessments, and research programs focusing on quantitative analyses and technical writing. Experience with projects across western Canada (British Columbia and Alberta) and the Canadian Arctic (Yukon, Northwest Territories, and Nunavut).

SELECTED PROJECT EXPERIENCE

- **Mackenzie Valley Highway Project Environmental Assessment (NWT), K'alo-Stantec Limited and Government of Northwest Territories, 2023–present.**
Developed and executed a technical study on boreal caribou movement barriers due to the Mackenzie Valley Winter Road to make inferences on potential effects from the all-season highway (*Inferring the Potential Barriers to Boreal Caribou Movement*, EDI 2024); filed as supplementary evidence for the Developer's Assessment Report. Ongoing support with technical issues (and information requests) related to caribou.
- **Casino Project Caribou Baseline Studies and Environmental Assessment (YT), Casino Mining Corporation, 2022–present.**
Technical lead on caribou-related baseline studies, which included quantifying seasonal home ranges and habitat selection of the Klaza caribou herd. Provided technical support during stakeholder and regulator engagement regarding baseline studies. Ongoing contributions to the effects assessments of Klaza and Fortymile caribou herds.

- **Grays Bay Road and Port Project Caribou Baseline Studies and Environmental Assessment (NU), Nunami-Stantec Limited and West Kitikmeot Resources Corporation, 2024–present.**
Technical lead on caribou-related baseline studies (Bathurst and Dolphin-Union herds) to assess habitat selection and movement to develop help develop project design controls and mitigations. Ongoing contributions to the effects assessments of caribou.
- **Tenas Project Caribou Baseline Studies and Environmental Assessment (BC), Telkwa Mining Limited, 2020–present.**
Supported caribou baseline studies and assessment of range-level disturbances for the Telkwa caribou herd. Evaluated habitat loss and the potential for disturbance-mediated apparent competition. Quantified direct and indirect habitat effects as part of the environmental assessment. Evaluated offsetting potential (desktop and field) to maintain critical caribou habitat. Ongoing client support for engagement with regulators, First Nations, and stakeholders.
- **Eagle Plains Project Caribou Baseline Studies and Environmental Assessment (YT), Chance Oil and Gas Limited, 2021–2024.**
Conducted caribou baseline studies to assess habitat selection and movement of the Porcupine caribou herd. Engaged with the Porcupine Caribou Technical Committee to refine study methods and objectives. Used baseline results to inform the effects assessment of the project on caribou.
- **Mary River Project Caribou Monitoring Program (NU), Baffinland Iron Mines Corporation, 2021–2024.**
Developed a study design and technical report for follow-up effects monitoring of North Baffin Island (barren-ground) caribou in the project study area. Proposed a decision-making pathway with quantitative triggers to connect existing surveillance monitoring, population abundance estimates, and implementation of a GPS collaring program. Engaged with members of the Terrestrial Environmental Working Group to refine monitoring protocols. Contributed to aerial surveys used to quantify population abundance. Ongoing efforts to monitor status and project interaction of caribou.
- **Kudz Ze Kayah Project Caribou Baseline Studies (YT), BMC Minerals Limited, 2023–present.**
Technical lead on caribou-related baseline studies to assess the habitat selection and space use of the Finlayson caribou herd. Completed several analytical studies and technical reports on the following topics: late-winter distribution in relation to snow, post-calving abundance/distribution in relation to snow patches, and seasonal habitat selection models.
- **Coffee Project Caribou Studies (YT), Newmont Corporation, 2024.**
Evaluated fall migration timing and speed of the Fortymile caribou herd and the potential for interaction with the project. Related the analysis outcomes to mitigation measures identified in the project’s Wildlife Protection Plan to determine the expected mitigation response times.
- **Caribou Calving and Post-calving Variability (NU), Kitikmeot Inuit Association, 2021.**
Assessed the annual variation in calving and post-calving ranges of the Bluenose-East and Bathurst caribou herds using GPS collar data. Identified peak calving dates and locations by assessing the daily movements of individuals.
- **Lawyers Exploration Project Caribou Baseline Studies (BC), Benchmark Metals Incorporated, 2021.**
Conducted caribou baseline studies to assess habitat selection of several caribou herds overlapping the exploration project. Used baseline study results to develop a caribou mitigation strategy and wildlife mitigation and monitoring plan. Designed a camera study to monitor predator-prey dynamics between wolves and caribou to determine whether local roads/trails facilitate predation of caribou.

CONFERENCE PRESENTATIONS

- Bajina, K., Audet, P., and Settingington, M. (2024). Learning by design, not by accident: A case study of impact monitoring on north Baffin Island.** 2024 Effects Monitoring Joint Symposium: Perspectives on Measuring and Monitoring Biological Effects in Impact Assessment. International Association for Impact Assessment – Western and Northern Canada and the British Columbia Association of Professional Biology, Vancouver, British Columbia.
- Bajina, K. and Settingington, M. (2022). Application of the zone of influence concept in impact assessments.** International Association for Impact Assessment 2022 Conference, Vancouver, British Columbia.
- Bajina, K., Settingington, M., & Mahon, T. (2021). Improving the zone of influence paradigm for effective conservation and management of caribou.** 18th North American Caribou Workshop, Québec (Virtual).

Eliot Terry, M.Sc., P. Biol.

Senior Wildlife Biologist

Eliot Terry is a senior wildlife biologist with over 30 years of professional work experience in the environmental consulting industry. Mr. Terry has held a number of senior level positions as a Group Leader as well as Project Manager/Wildlife Biologist for environmental consulting companies in both Alberta and British Columbia. As a senior wildlife biologist, he has provided environmental consulting services to several sectors including transportation, mining, oil and gas, oil sands, government (land use planning/risk assessment) as well as renewable energy and municipal infrastructure. His area of expertise focuses on wildlife related issues associated with environmental impact assessment including the development of wildlife mitigation and monitoring plans. Eliot is based in Calgary, Alberta.

Education

- University of British Columbia, Master of Science (Animal Science), Vancouver, British Columbia, 1994
- University of Guelph, Bachelor of Science in Wildlife Biology, Guelph, Ontario, 1984

Qualifications/Memberships

- Alberta Society of Professional Biologists, Professional Biologist

Work History

- 2013-present. Stantec Consulting Limited. Senior Wildlife Biologist. Calgary, Alberta.
- 2006-2013. Lethbridge College. Instructor, School of Environmental Sciences. Lethbridge, Alberta.
- 2004-2006. Jacques Whitford. Group Leader/Wildlife Biologist. Calgary, Alberta.
- 2003-2004. Lethbridge College. Instructor, School of Environmental Sciences. Lethbridge, Alberta.
- 2001-2003. Triton Environmental Consultants. Wildlife Biologist. Prince George, British Columbia.
- 1995-2001. Keystone Wildlife Research. Wildlife Biologist. Prince George, British Columbia.

Selected Project Experience

Roadways

Mackenzie Valley Highway (MVH) Project, GNWT - Department of Infrastructure, Senior Wildlife Biologist, 2022-present

Responsible for senior technical review of the wildlife and biodiversity components of a Developer's Assessment Report (DAR) prepared to support the GNWT-INF application to construct and operate an all-season gravel highway in the Mackenzie Valley between Wrigley, Tulita and Normal Wells. The environmental assessment focused on the potential environmental effects of replacing the existing seasonal Mackenzie Valley Winter Road (MVWR) with a new all-season gravel highway. The wildlife assessment included potential Project effects as well as cumulative effects on wildlife and wildlife habitat as well as birds and bird habitat including species at risk. In addition, developed a Tier 2 Wildlife Management and Monitoring Plan (WMMP) to support the DAR.

Oscar Creek Bridge Relocation Project, GNWT-Department of Infrastructure, Senior Wildlife Biologist, 2023

Responsible for the wildlife component of a Project Description Report (PDR), which included a preliminary screening of potential effects of relocating the Oscar Creek Bridge located on the Mackenzie Valley Winter Road (MVWR) approximately 35 km northwest of Norman Wells, NWT. The wildlife assessment focused on the potential effects of the Project on wildlife including species at risk as well as mitigation measures to reduce potential Project effects on wildlife habitat, movement and mortality risk.

Highway 3 Twinning Project - West of Burdett to West of Taber, Alberta Transportation, Senior Wildlife Biologist, 2021-present

Identified potential wildlife constraints and risks related to a proposed construction schedule as well as coordinating wildlife field surveys. Provided senior technical review of the wildlife component of a detailed Environmental Evaluation (EE) prepared to meet provincial regulatory requirements. Report included an assessment of existing conditions as well as potential Project effects related to construction activities and operation on wildlife habitat including species at risk, wildlife movement and mortality risk (e.g., animal-vehicle collisions).

Hwy 914 All-Weather Road, Saskatchewan Ministry of Highways and Infrastructure (MHI), Wildlife Discipline Lead, 2018-2019

Prepared the wildlife component of a provincial environmental assessment to support MHI application to build a 50 km all-weather road between the McArthur River and Cigar Lake Mine Sites in northern Saskatchewan. Client deliverables included regulatory presentations related to potential effects of the project on boreal caribou (SK1 population) as well as proposed mitigation and potential offsets.

Kivalina Evacuation and School Site Access Road, State of Alaska Department of Transportation & Public Facilities Northern Region, Senior Wildlife Biologist, 2017

Contributed to an environmental assessment of the proposed Kivalina evacuation road in northwestern Alaska to meet regulatory requirements under the National Environmental Policy Act (NEPA). Responsible for completing the wildlife component, which included a description of existing baseline conditions and potential project effects of route alternatives on large mammals including caribou, muskoxen, and brown bears.

Mining**Snap Lake Mine 2022 Annual Report - Wildlife Management and Monitoring Plan, De Beers Canada Inc., Senior Wildlife Biologist, 2022-present.**

Prepared the 2022 Annual Wildlife Management and Monitoring Report (WMMR) in accordance with a Tier 2 Wildlife Management and Monitoring Plan (WMMP). The 2022 WMMR provides a summary of wildlife mitigation measures implemented at the Mine during Year 1 of Closure as well as wildlife monitoring results that included wildlife observations recorded during decommissioning/demolition activities of Mine infrastructure including the North Pile, water management system, airstrip, buildings and waste management areas.

Valentine Lake Gold Project - Environmental Assessment, Marathon Gold Corp., Senior Wildlife Biologist, 2020-2022

Provided technical direction and development of dynamic Brownian Bridge Movement Models (dBBMM) designed to identify seasonal movement patterns of GPS collared boreal caribou in Newfoundland. Analysis focused on identifying high use spring and fall movement corridors and stopover sites of the Buchans caribou herd prior to mine construction and operation (i.e., baseline conditions).

Depositing Processed Kimberlite in Pits and Underground Project, NWT, Diavik Diamond Mines Inc., Wildlife Discipline Lead, 2019

Responsible for completing the wildlife component of an environmental assessment prepared to support Diavik Diamond Mines Inc. (DDMI) application to amend a water licence and to meet the Mackenzie Valley Environmental Impact Review Board regulatory requirements. The wildlife assessment focused on potential Projects effects and cumulative effects related to changes in water quality and wildlife health (barren-ground caribou).

Lynn Lake Gold Project, Alamos Gold Inc., Quality Review - Wildlife

Responsible for senior technical review of the wildlife component of an Environmental Impact Statement (EIS) prepared to support Alamos application to build and operate two historical open pit gold mines in northern Manitoba.

Roman Mountain Mine - Caribou Monitoring, Peace River Coal Inc., Wildlife Discipline Lead, 2014

Responsible for senior technical review for annual woodland caribou monitoring reports prepared to support Peace River Coal's regulatory permit approval requirements for the government of British Columbia. The monitoring programs focus on GPS radio-collared caribou and their seasonal habitat use patterns relative to mine exploration activities. Prepared a Caribou Mitigation and Monitoring Plan (CMMP) for the Waterfall Creek Surface Exploration Program.

Number 14 Mine - Wildlife Mitigation and Monitoring Plan, Summit Coal Inc., Wildlife Discipline Lead, 2014

Prepared a Wildlife Mitigation and Monitoring Plan (WMMP) to support Summit Coal's application to build and operate the Number 14 underground coal mine near Grande Cache, Alberta. The WMMP focused on updates related to the potential project effects (e.g., habitat loss) as well as proposed mitigation strategies for five species of management concern including moose, elk, mountain goat, marten and grizzly bear.

Woodland Caribou Migration Monitoring, Grande Cache Coal Corp., Wildlife Biologist/Technical Advisor, 2006-2013

Responsible for completing biannual woodland caribou migration monitoring reports to support Grande Cache Coal's regulatory permit approval requirements for Alberta Environment. This multi-year study was designed to monitor woodland caribou migration patterns near Caw Ridge, Alberta. The monitoring program focused on GPS radio-collared caribou and their spring and fall migration patterns relative to surface as well as underground coal mining activities. A 7-year summary review of woodland caribou migration patterns was completed using Brownian bridge movement models. Report focused on GPS collared caribou and their utilization distributions relative to coal mining activities (e.g., blasting events) and snow conditions. Developed a wildlife movement/corridor study using passive infrared cameras to determine the potential effects of proposed coal mining activities on large mammals.

Strategic Environmental Assessment**Beaufort Region Strategic Environmental Assessment - Data Synthesis and Assessment Report, Inuvialuit Regional Corporation, Inuvialuit Game Council and Crown-Indigenous Relations and Northern Affairs Canada, Senior Wildlife Biologist, 2019**

Responsible for synthesizing and assessing the potential effects of offshore oil and gas development activities on caribou in the Beaufort Region. The assessment included an analysis of three oil and gas development scenarios that reflected different types and intensities of oil and gas activities that could result in varying effects on coastal habitats and seasonal caribou use.

Airports**Airport Bird Hazard Risk Assessment, Kimmirut, Government of Nunavut Department of Community and Government Services, Senior Wildlife Biologist, 2016**

Responsible for senior technical review of a bird hazard risk assessment designed to evaluate and mitigate potential risks associated with the construction and operation of a waste treatment facility near the Kimmirut airport, Nunavut.

Airport Bird Hazard Risk Assessment, Sanikiluaq, Nunavut, Government of Nunavut Department of Community and Government Services, Senior Wildlife Biologist, 2020

Responsible for senior technical (quality) review of an airport bird hazard risk assessment designed to evaluate and mitigate potential risks associated with a proposed wastewater treatment facility near the Sanikiluaq airport. The bird hazard risk assessment examined the relationship between land use, bird species occurrence and behaviour as well as aircraft movement to assess aviation safety.

Airport Bird Hazard Risk Assessment, Arviat, Government of Nunavut Department of Community and Government Services, Senior Wildlife Biologist, 2021

Responsible for senior technical (quality) review of a bird hazard risk assessment designed to evaluate the risks associated with the expansion of an existing wastewater treatment facility (WWTF) lagoon system, and solid waste management facility (SWMF) (the Project) in Arviat, Nunavut. A bird hazard risk assessment examines the relationship between land use, bird species occurrence and behaviour as well as aircraft movement to assess aviation safety.

Airport Bird Hazard Risk Assessment, Springbank, Alberta, Alberta Transportation, Senior Wildlife Biologist, 2021

Completed a bird hazard risk assessment to support the Springbank Off-Stream Reservoir Project following the methods outlined in the Airport Bird Hazard Risk Assessment Process (ABRAP), which is designed to address the development of potentially hazardous land uses related to bird collision risk in the vicinity of an airport. The report provided an assessment of potential bird hazards associated with the Project focusing on the potential for the off-stream reservoir to temporarily attract birds during flood operations, which might result in increased risk to aviation safety in the vicinity of the Springbank Airport.

Water Dams & Reservoirs**Peace-Athabasca Delta (PAD) Water Control Structure, Parks Canada, Senior Wildlife Biologist/Technical Advisor, 2023**

Provided senior technical review of the wildlife assessments completed to support the Peace-Athabasca Delta (PAD) Water Control Projects located in Wood Buffalo National Park and Big Egg Lake on the Athabasca Chipewyan First Nation (ACFN) Jackfish Reserve. The purpose of both Projects was to improve the ecological integrity of the hydrologic system by restoring historic inundation patterns and reintroduce frequent flooding of perched basins to increase the suitability of important wildlife habitats (i.e. open water, wetlands) and harvesting areas for local Indigenous communities. The assessments were prepared to meet the requirements of Parks Canada's Detailed Impact Assessment and focused on potential Project effects during operations (i.e., inundation frequency, duration and magnitude) on wetland-associated wildlife including muskrat, migratory birds, waterfowl and species at risk.

Springbank Off-stream Reservoir Project, Alberta Transportation, Senior Wildlife Biologist/Technical Advisor, 2016-present

Responsible for technical (quality) review of the wildlife component of an environmental assessment prepared to support Alberta Transportation's application to build and operate the Springbank Off-stream Reservoir Project west of Calgary, Alberta. The environmental assessment was prepared to meet both provincial and federal regulatory requirements and included an assessment of potential Project effects on wildlife and biodiversity during construction and dry operations as well as flood and post-flood operations. Participated in Public Open Houses and the Natural Resources Conservation Board (NRCB) Public Hearing as an expert witness (wildlife). Presented environmental assessment results as well as proposed mitigation and monitoring programs to the Technical Advisory Group as well as Indigenous groups. Developed a Wildlife Mitigation and Monitoring Plan (WMMP) designed to monitor wildlife response to Project components as well as determine the effectiveness of mitigation measures during all project phases.

Lake Manitoba and Lake St. Martin Outlet Channels Project, Manitoba Transportation and Infrastructure, Senior Wildlife Biologist/Quality Reviewer, 2019-present

Responsible for senior technical review of the wildlife component of an environmental assessment prepared to meet provincial (Environment Act) and federal (CEAA 2012) regulatory requirements. Report included an assessment of potential Project effects on wildlife and wildlife habitat during construction and operation. The assessment focused on potential effects of the Project on species of conservation concern including species at risk and species of traditional importance.

Oil & Gas Midstream, Pipelines**Keystone XL Pipeline Project, TransCanada, Discipline Lead - Wildlife, 2018**

Responsible for coordination of confirmatory wildlife field surveys and technical data reporting to meet certificate Condition 7 issued by the National Energy Board (NEB) for the Keystone XL Pipeline Project. The purpose of the wildlife surveys was to confirm previously observed species occurrences or their habitat features (e.g., leks, breeding wetlands, nests) along the Canadian portion of the crude oil pipeline that extended through southeastern Alberta and southwestern Saskatchewan.

Enbridge Northern Gateway Pipeline, Environmental Assessment | Enbridge Inc. | Alberta and British Columbia | 2005-2006 | Senior Technical Leader, Mammals & Amphibians

Responsible for coordinating wildlife field surveys and senior review for the Environmental Assessment application undertaken to support a 1200 km crude oil pipeline project in Alberta and British Columbia.

Energy East Pipeline Project, TransCanada, Senior Wildlife Biologist and National Discipline Lead, 2014-2017

Responsible for provincial coordination and senior technical review of the wildlife component of the Environmental and Socio-economic Assessment (ESA) as well as Technical Data Reports (TDRs) prepared to support a National Energy Board (NEB) section 52 application to construct and operate a 4600 km pipeline extending from Alberta to New Brunswick.

Peace River Mainline (PRML) Abandonment Project, Nova Gas Transmission Limited (NGTL), Senior Wildlife Biologist and Quality Review

Responsible for senior technical review of the wildlife component of the Environmental and Socio-economic Assessment (ESA) prepared to support a National Energy Board (NEB) section 74 application to abandon a 266 km section of the PRML.

Land Use Planning

Environmental Risk Assessments for Land and Resource Management Plans, Ministry of Employment and Investment. Project Manager and Senior Wildlife Ecologist, 1995-2003

Completed strategic environmental risk assessments for 11 Land and Resource Management Plans (LRMPs) including: Lillooet, Sea to Sky (Squamish Forest District), Robson Valley, Dawson Creek, Fort St. John, Fort Nelson, Mackenzie, Lakes, Cassiar Iskut-Stikine, Kalum, and Central Coast. Using an environmental risk assessment approach, reports focused on identifying wildlife resource values at risk and determining the potential short and long-term implications of implementing proposed land use plans compared to low risk benchmarks and current management practices (Base Case). Also responsible for oral presentations of the Base Case and Resource Analysis components to Round Table members including the public, industry, government agencies, environmental groups and First Nations.

Publications

- Simpson, K. and E. Terry. 2001. Captive Breeding of Mountain Caribou—Problem Analysis, *Ministry of Environment Lands and Parks, Victoria, BC*, 2001.
- Simpson, K. and E. Terry. 2000. Impacts of Backcountry recreation on mountain caribou: management concerns, interim management guidelines and research needs, *Report to Ministry of Environment, Lands and Parks, Victoria, BC.*, 2000.
- Terry, E., B. McLellan, and G. Watts. 2000. Winter habitat ecology of mountain caribou in relation to forest management, *Journal of Applied Ecology* 37: 589-602., 2000.
- Terry, E., and M. Wood. 1999. Seasonal Movements and Habitat use of Woodland Caribou in the Omineca Mountains, *Wolverine Herd. Phase 2. Peace Williston Fish and Wildlife Compensation Program. BC Hydro*, 1999.
- Simpson, K., E. Terry, and D. Hamilton. 1997. Towards a mountain caribou management strategy for British Columbia - habitat requirements and sub-population status, *Wildlife Working Report No. WR-90. BC Environment, Victoria, BC* 27. pp, 1997.
- Terry, E., B. McLellan, G. Watts and J. Flaa. 1996. Early winter habitat use by mountain caribou in the North Columbia and Cariboo Mountains, British Columbia, *Proceedings of the 6th North American Caribou Workshop. Prince George, BC Rangifer Special Issue no. 9. pp. 133-140*, 1996.
- Stevenson, S., H. Arender, M. Jull, D. King, E. Terry, G. Watts, B. McLellan and K. Child. 1994. Mountain Caribou in Managed Forests: Preliminary recommendations for Managers, *Ministry of Forests, Victoria. Lands and Parks, Prince George. 63p + appendices*, 1994.
- Stevenson, S., K. Child, G. Watts, and E. Terry. 1991. The mountain caribou in managed forests program: integrating forestry and habitat management in British Columbia, *Proceedings 5th North American Caribou Workshop. Rangifer Special Issue No.7. pp.130-136*, 1991.

Walter Orr, P.Eng.

Senior Civil Engineer

Mr. Orr is Senior Civil Engineer with more than 30 years' experience in northern civil, municipal, petroleum, transportation, structural and environmental engineering throughout the Northwest Territories, Nunavut and the Yukon. His responsibilities involve design and design coordination, project management, project personnel coordination and control, contract administration and client relations. Projects he has completed include airports and highways, municipal upgrading, land development, water supply, fuel storage facilities and pipelines, sewage and solid waste disposal, environmental assessments, building structural and mechanical works.

Walter's strengths are his versatility and creativity, together with his broad experience across almost all facets of Civil Engineering. His background allows him to both work directly in specific areas of specialization at a senior level and also to interface intelligently with specialist consultants across all disciplines.

Qualifications/Memberships

- University of Saskatchewan, B.Sc. (Civil Engineering), Saskatoon, Saskatchewan, 1991
- Association of Consulting Engineering Companies - Canada, Past Director, 2004-2009, 2017-2023
- Association of Consulting Engineering Companies - Northwest Territories, Past President
- Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists, Member

Project Experience

Bridges

Mackenzie Valley Winter Road: Saline River Bridge (128m long) and Steep Creek Bridge (64m long), Design Team Lead

Design Team Lead. Engineer of Record. Responsible for bridge and road alignment and configuration

Inuvik to Tuktoyaktuk Highway, Crossing Location Team Location Lead

Established Cross locations for 65 stream and river crossings in the field, over two field programs. Prepared the Hydrotechnical Report for the entire 118 km alignment, plus the 18 additional km of 177 access road.

Roadways

Corridor Selection, initial works for proposed all weather highway from Tibbett Lake to Lockhart Lake in Slave Geologic Province

Route Selection, preliminary horizontal and vertical design of more than 180 km of primary and alternate alignment for the Lockhart All Season Road (LASR). In progress 2024.

Route Selection, Preliminary Design and Costing of Kivalliq Intercommunity Road (KICR); Proposed all weather highway in Kivalliq area of Nunavut

Route Selection, preliminary horizontal and vertical design of more than 800 km of primary and alternate alignments for inter community roads connecting Arviat, Whale Cove, Rankin Inlet, Chesterfield Inlet and Baker Lake. In Progress 2024.

GNWT Tlicho All Season Road – P3 Planning & Design, Stantec, Geometric Design Lead

Walter lead the geometric design team, producing a high quality design which was fully compliant to requirements, while maximizing the use of in-situ resources, and minimizing construction material haul distances.

Preliminary Design and Costing of Inuvik access road for new Satellite Station

Design of 500m of new access road for existing Satellite Station. Engineer of Record.

Preliminary Design and Costing of Inuvik access road for new Satellite Station Park

Design of 9500m of new access road with 20+ new satellite locations. Engineer of Record.

Detailed Design and Construction Engineering of Inuvik to Tuktoyaktuk all Weather Highway

Design of Northern 85km of project for Project Description Report. Engineer of Record.

Preliminary Design and Costing of Mackenzie Valley all Weather Highway in the Sahtu Region

Design Lead for Northern 145 km of project for Project Description Report

Preliminary Design and Costing of Mackenzie Valley all weather highway in Gwichin Settlement Area

Design of Northern 110 km of project for Project Description Report

Preliminary Design and Costing of Inuvik to Tuktoyaktuk all Weather Highway

Design of Northern 85 km of project for Project Description Report

Hydrotechnical Design and Costing of Inuvik to Tuktoyaktuk all Weather Highway

Technical Lead for Hydrotechnical study of 130km of project with 65 named crossings for pre-tender costing. Determined crossing locations over two separate field programs in 2009 and 2012.

Tuktoyaktuk to 177 Pit Granular Supply Access Road, 20 km new highway.

Design and Engineering Construction Management. Engineer of Record.

Downtown Core Roads Design – City of Iqaluit

Roadway, sidewalk, curb and gutter design for 500 m of downtown City Core roads. Engineer of Record.

20km New Highway Construction for Shell Oil – Sakhalin Island, RU

Detailed Design and engineering construction team management, remote area of Russian Far East.

Design of New Landfill Baler Access Road – City of Yellowknife

Design of Road and Sidewalk Upgrade of Existing Hay River Subdivision – McBryan Drive

Mackenzie Highway #1 Reconstruction of km 106 to 126, Engineering and Survey Management

Conceptual Roadway Design for the Proposed Acklands Site Redevelopment

Ed Grozic, M.Eng., P.Eng.

Director, Arctic Engineering & Principal Consultant

Ed Grozic is a Professional Engineer registered in Northwest Territories, Nunavut, Yukon, and Alberta with over 29 years of work experience on northern transportation, infrastructure, energy, mining, and environmental cleanup projects for public, private, and Indigenous clients. Ed is the Director of Arctic Engineering and a Principal Consultant with Tetra Tech's Arctic Engineering Practice.

His permafrost and geotechnical skills include engineering design, routing evaluations, field reconnaissance, geotechnical and geophysical investigations, granular and rock resource assessments, and construction projects across the Canadian Arctic including linear infrastructure developments, fibre optic communication systems, and energy projects.

He is a contributing author to several key industry guidelines and standards, including the Transportation Association of Canada (TAC) *Guidelines for Development and Management of Transportation Infrastructure in Permafrost Regions*, the Canadian Standards Association (CSA) *PLUS 4011.1 Technical Guide: Design and Construction Considerations for Foundations in Permafrost Regions*, and the Bureau de normalization du Québec (BNQ) standards on *Geotechnical Site Investigations for Foundations of Buildings and Structures in Permafrost Zones (CAN/BNQ 2501-500)*, as well as the *Risk-based Approach for Community Planning in Northern Regions (CAN/BNQ 9701-500)*.

Ed is currently a member of a CSA Working Group tasked with developing a Technical Specification on process guidance and methodology for implementing a risk-based approach to managing assets in Canada's northern regions.

Ed is also the General Manager of two indigenous-owned Joint Venture partner companies Nehruh-EBA Consulting Ltd. in the Gwich'in Settlement Area (GSA) and Kiggiak-EBA Consulting Ltd. in the Inuvialuit Settlement Region (ISR) in the Northwest Territories.

Education

- B.Sc., Civil Engineering, University of Alberta, Edmonton, AB (1994)
- M.Eng., Geotechnical Engineering, University of Alberta, Edmonton, AB (1997)

Qualifications/Memberships

- Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists, Licensee
- Association of Professional Engineers and Geoscientists of Alberta, Member
- Engineers Yukon, Licensee
- Canadian Geotechnical Society and Cold Regions Geotechnology Division, Member
- Canadian Permafrost Association, Member
- Canadian Standards Association, Member
- Geotechnical Society of Calgary, Member

Work History

- 1994 to Present – Tetra Tech Canada Inc. (formerly EBA Engineering Consultants Ltd.) Director of Arctic Engineering & Principal Consultant. Expertise in Permafrost and Geotechnical Engineering, Northern Transportation, Energy and Communication Infrastructure, and Solid Waste Facilities. Technical Engineering Lead, Project Manager, Field Manager, Resident Engineer for site investigations, route evaluations, designs, and construction projects.

Selected Project Experience

Northern Transportation Experience

Grays Bay Road and Port Project (GBRP), NU, West Kitikmeot Resources, Senior Geotechnical Permafrost Engineer/Reviewer, 2023-Present

Providing geotechnical and permafrost preliminary engineering support for advancing the project through the Nunavut Impact Review Board (NIRB) Environmental Review, planning Winter 2025 geotechnical drill program onshore and offshore investigation.

To develop a 400 km all-season road and a deep-water port at Grays Bay on the Arctic Ocean, which would link to the proposed Slave Geological Province (SGP) Corridor.

Slave Geologic Province Corridor (SGPC), NT, Government of the Northwest Territories Department of Infrastructure (GNWT-INF), Senior Geotechnical Permafrost Engineer/Reviewer, 2023-Present

Geotechnical Permafrost Engineer for developing a Winter 2024 geotechnical investigation program for investigating granular borrow sources near the proposed Lockhart All-Season Road (LASR) for advancing SGPC.

Mackenzie Valley Highway Extension Project (MVHE), Government of the Northwest Territories Department of Infrastructure (GNWT-INF), Senior Geotechnical Permafrost Engineer/Reviewer, 2018-Present

Geotechnical Permafrost Lead for geotechnical site investigations and reporting for Oscar Creek, Hodgson Creek, Canyon Creek, and Prohibition Creek bridge crossings along the Mackenzie Valley Highway alignment, NT. Responsible for geotechnical and geophysical investigations of Prohibition Creek Access Road, Norman Wells, NT and Wrigley to Mount Gaudet Access Road, NT. Senior reviewer of Prohibition Creek and Amount Gaudet Access Roads Thermal Assessment evaluations and Reports for the proposed all- season Mackenzie Valley Highway extension. Provided helicopter-based reconnaissance-level field surveys In the Tulita District of the Sahtu Settlement Area (SSA) in support of Project Description submissions to construct the proposed Mackenzie Valley Highway all-weather road through the SSA. Activities include routing studies, field investigation, preliminary design, physical environmental impact assessment and development of mitigation measures, construction logistics, and quantity/cost estimates.

Hudson Bay Railway (HBR) Geotechnical and Permafrost Mitigation Services at Mile 461 and Mile 465, MB, 2023

Geotechnical services to evaluate excavated ditches at Mile 461 and Mile 465 along the railway alignment, and provide mitigation options, the timeline for corrective action, proposed monitoring, and recommendations to consider improving the thermal and slope stability conditions at the two ditching sites.

Inuvik Tuktoyaktuk Highway, NT, Government of the Northwest Territories Department of Infrastructure (GNWT-INF), 2009-2019

Geotechnical Permafrost Lead from initial planning through to construction completion for the 138 km all-weather highway. Completed route evaluations, permafrost terrain mapping, thermal analyses, and geotechnical engineering design. Provided helicopter-based reconnaissance field surveys and geotechnical permafrost engineering services. The project involved several innovative approaches including site-specific specifications for road embankment and culvert construction during winter conditions, temporary ice tote roads during construction, and adfreeze steel pipe piles founded in permafrost through the strength of the frozen bond between the steel pipe pile and the permafrost soil for bridge abutments and piers and using the appropriate climate change models to forecast the temperature and precipitation for the area and the impact on the infrastructure. Challenging aspects of this project involved developing specifications that met adequate performance measures that had to consider the highly variable borrow material that was to be constructed in a cold-weather environment. This project won provincial, Territorial, National and International awards from BC ACEC, Engineers Canada, and FIDIC.

Tlicho All-Season Road (TASR), NT – Government of the Northwest Territories Department of Infrastructure (GNWT-INF), Senior Geotechnical Permafrost Engineer, Project Manager, 2017

Project Manager and Senior Engineer for the geotechnical and geophysical investigations and evaluations of 13 granular material and bedrock prospect sites along the proposed 94 km road.

Lead Geotechnical Permafrost Engineer supporting Aurora Access Partners Pursuit Team for the Design, Build, Finance Maintain, and Operation of the Tlicho All Season Road from Hwy 3 to Whati, NT.

Mackenzie Valley Highway Extension, Wrigley to Tuktoyaktuk, NT, Government of the Northwest Territories Department of Transportation (GNWT-INF), Senior Geotechnical Permafrost Engineer, 2010-2012

Participating in preliminary designs for segments of the proposed 1,000 km extension of the all-weather Mackenzie Highway (NWT Hwy No. 1) in the Northwest Territories including 138 km from Inuvik to Tuktoyaktuk through the Inuvialuit Settlement Region (as noted above), 181 km through the Gwich'in Settlement Area, and 285 km through the Tulita District of the Sahtu Settlement Area. Activities include routing studies, field investigation, preliminary design, physical environmental impact assessment and development of mitigation measures, construction logistics, and quantity/cost estimates.

Geotechnical Evaluation for Crossing Remediation at Gunghi Creek, ITH, NT, EGT Northwind Ltd., Senior Geotechnical Permafrost Engineer, Project Manager, 2017

Geotechnical drilling program to obtain subsurface stratigraphic information and conduct laboratory index testing in support of preliminary recommendations for the design of a bridge or culvert replacement at the site.

Geotechnical Design Recommendations for Gunghi Creek, NT, Government of the Northwest Territories, Department of Infrastructure (GNWT-INF), Senior Geotechnical Permafrost Engineer, Project Manager, 2017-2018

Adfreeze steel pipe pile design recommendations to support the construction of a precast concrete segmented box culvert bridge at Gunghi Creek, NT.

Publication "Guidelines for Development and Management of Transportation Infrastructure in Permafrost Regions", Transportation Association of Canada, Contributing Author, 2009-2010

Contributing author to publication, "Guidelines for Development and Management of Transportation Infrastructure in Permafrost Regions." The guide provides a compendium of best practices for planning, design, construction management, maintenance, and rehabilitation of transportation facilities in regions of northern Canada with permafrost terrain. Contributor to Chapter 3 – Route Investigation in Permafrost Regions, Chapter 4 – Embankment and Pavement Materials, Chapter 5 – Engineering Considerations, Chapter 7 – Construction, and Chapter 8 – Maintenance.

Transportation Infrastructure to the Kiggavik-Sissons Uranium Mine near Baker Lake, NU, AREVA Resources Canada Inc., Senior Geotechnical Permafrost Engineer, 2008-2009

Geotechnical Permafrost Lead for the functional planning and design of the transportation infrastructure. Elements of the infrastructure included 100 km of an all-season road with a 400 m bridge, options for a 100 km winter road, an airstrip, and a comparison of port facilities options.

Izok Project, NU, Preliminary Design for Prefeasibility Study, Ziniflex Ltd., Senior Geotechnical Permafrost Engineer, 2008

Geotechnical Permafrost Lead for the conceptual design of a 340 km long road from the Izok Mine site to a proposed port site at Grays Bay on the Coronation Gulf in the Slave Geologic Province, NT. The project included field investigation, route options analysis, and direction of the preliminary road design, construction and operations and maintenance costing.

Best Practices Guide for Engineering Design, Construction, and Maintenance of Winter Snow/Ice Roads on Permafrost, Conoco Phillips Canada, Senior Engineer, Project Manager, 2008-2009

Developed, authored, and delivered a "Best Practices Guide for Engineering Design, Construction, and Maintenance of Winter Snow/Ice Roads on Permafrost" for ConocoPhillips Canada. The guide is intended to be used by practitioners planning, designing, building, and maintaining northern winter snow/ice roads on permafrost for resource development purposes. The work included providing cost information for the construction and maintenance of alternative types of winter snow/ice roads.

Boson Gold Project, Miramar Mining, Project Engineer, 1997-1998

Prepared a preliminary feasibility design of a 68 km long winter access road from the Boston Gold Property to an arctic port at Roberts Bay in Melville Sound, Bathurst Inlet, and a preliminary feasibility design of an airstrip sized to support Lockheed C-130 Hercules and Boeing 737 aircraft for BHP World Minerals at the Boston Gold Project, NT.

Northern Energy Experience**Inuvialuit Energy Security Project (IESP), NT, Inuvialuit Energy Security Project Ltd. (IESPL), Project Manager, Senior Geotechnical Permafrost Engineer, 2021-Present**

Project Manager and Lead Geotechnical Permafrost Engineer for Site Works Engineering Design and Owner's Engineer Support Services for detailed engineering and design of a 4 km access road and Liquefied Natural Gas (LNG) facilities (the Site Works) to support the Inuvialuit Energy Security Project (IESP). Work completed for IPC by Kiggiak- EBA Consulting Ltd. (an Inuvialuit-owned Tetra Tech company). The Site Works include detailed engineering and design of 1) a 4 km all-season gravel access road and intersection from the ITH Km 128+800 to the wellsite; 2) bridge crossing along the access road; 3) infrastructure gravel pads at the wellhead and gas processing facility; foundations for a modular GPF; and remediation and drainage plan for the existing M-18 sump at the site.

2022 collect geophysical and geotechnical data to advance the engineering design for the IESP Energy Facility. A Geophysical survey program in advance of the drilling to better understand the variability of subsurface ground ice conditions and soil stratigraphy at the two preferred sites. Geotechnical boreholes to determine subsurface soil and permafrost conditions for geotechnical foundation design and site drainage purposes.

2023 construction Quality Control (QC) services during the Early Site Works (ESW) winter season (2023-2024). QC services include granular materials testing, and compaction testing (densometer in situ and control strip). Monitoring the following ESW activities: Construction of the Access Road connecting the ITH to the M-18 Well, Installation of a single-span bridge over an unnamed creek along the Access Road, Construction of the M-18 Well Pad at the M-18 Well site, Regrading of the existing M-18 Sump cap, Construction of the Energy Centre Pad two years.

M-18 Study Area, NT, Inuvialuit Petroleum Corporation (IPC), Project Manager, Senior Geotechnical Permafrost Engineer 2020-2021

Project Manager and Lead Geotechnical Permafrost Engineer for undertaking a geotechnical investigation at the M 18 Study Area to collect subsurface geotechnical data and develop preliminary engineering design recommendations for an infrastructure pad, access road, and bridge crossing in support of a proposed gas processing facility and truck loading terminal. Work completed for IPC by Kiggiak-EBA Consulting Ltd. (an Inuvialuit-owned Tetra Tech company).

Tuktoyaktuk Study Area, NT, ATCO Midstream NWT, Project Manager, Senior Geotechnical Permafrost Engineer, 2018-2019

Senior Project Manager and Lead Geotechnical Engineer for Environmental & Geotechnical Field Studies Summer including four environmental (vegetation, wildlife, fisheries, and surface water), one engineering, and one archaeology/heritage study. Geotechnical Lead for a field reconnaissance to collect pre-feasibility level baseline terrain, soils, and permafrost data within the M-18 Study Area for ATCO. Work completed for ATCO Midstream NWT by Kiggiak-EBA Consulting Ltd.

Enbridge Line 21 Geotechnical and Geophysical Investigation, Project Manager, Senior Geotechnical Permafrost Engineer, 2017

Km W158, Little Smith Creek, NT, Collecting geotechnical and geophysical stratigraphic and thermal data for the design and construction of HDD remedial measures for a section of the pipeline at the creek crossing. Completed in 2019.

Mackenzie Gas Pipeline Project, NT, Imperial Oil Resources Ventures Ltd., Senior Geotechnical Permafrost Engineer, 2003-2008

Senior Engineer responsible for preparing Pit Development & Reclamation Plans for 30 Borrow Sites along the proposed natural gas pipeline right-of-way for the Mackenzie Gas Project (MGP). Prepared pit development and reclamation concepts and guidelines, including qualitative and quantitative interpretations of granular source materials. Work completed as a secondment to ColtKBR (2005).

Geotechnical Field Manager for several MGP Geotechnical Investigation Programs in the Mackenzie Valley, including the Winter 2007 Program (Sahtu Tulita District), the Winter 2005 Program (Gwich'in Settlement Area), and the Winter 2004 Program (Gwich'in Settlement Area). The work involved investigations at prospective infrastructure sites, borrow sites, and river crossings, in support of preliminary engineering and regulatory applications.

Geotechnical Field Manager and Lead Engineer for the Mackenzie Gas Project Winter 2007 drilling program conducted in the Sahtu Settlement Area, NT in support of preliminary engineering and regulatory applications. The program involved geotechnical and geophysical data collection and the Saline River and Great Bear River Crossings, granular sources along the right-of-way and at proposed infrastructure sites.

Geotechnical Field Manager and Lead Engineer for the Winter 2005 drilling program conducted in the Gwich'in Settlement Area and Inuvialuit Settlement Region, NT in support of preliminary engineering and regulatory applications for the Mackenzie Gas Project. The program involved geotechnical and geophysical data collections at river crossings, granular borrow sources, locations along the proposed pipeline right-of-way and at the proposed Inuvik Area Facility location.

Geotechnical Field Manager and Lead Engineer for the Winter 2004 drilling program conducted in the Gwich'in Settlement Area, NT, for the Mackenzie Gas Project. The program involved data collection along the proposed pipeline alignment, river crossings and granular borrow sources.

Project Manager and Senior Engineer for undertaking geotechnical and geophysical investigations in the Yukon Territory from Watson Lake to Beaver Creek for the Alaska Pipeline Project (APP). Completed in 2011.

Senior Engineer responsible for accessing the extent of salt contamination of a sump at the Itiginkpak F-29 well-site for Devon Canada Corporation (Devon) and providing recommendations for remediation of the area and for re-establishing containment of drilling wastes in the sump.

Senior Engineer responsible for assessing the preliminary bearing capacity and settlement of the existing soil cap on the D-20 drilling waste sump and of an insulated granular pad that will be constructed over the sump as part of the proposed development of the Parsons Lake gas field by ConocoPhillips Canada.

Participated in a study to evaluate drill platform options for Anderson Resources Ltd. in support of a proposed offshore exploration program in the Beaufort Sea.

Alaska Pipeline Project, YT, Trans Canada Pipelines Ltd., Project Manager, Senior Geotechnical Permafrost Engineer, 2011

Provided a single point of contact to the Alaska Pipeline Project (APP) for undertaking a Winter 2011 Geotechnical and Geophysical Field Program in the Yukon. Responsible for field operations and specialty subcontractors engaged in the Winter investigation program related to all technical aspects of the field drilling, sample collection and handling, and laboratory testing programs, for the execution of the geophysical surveys, and review of data acceptability.

Northern Communication Infrastructure Experience

Tuktoyaktuk Erosion Mitigation Project, NT, E. Grubens Transport for the Hamlet of Tuktoyaktuk, Project Manager, Senior Geotechnical Permafrost Engineer, 2023-Present

Provide geotechnical permafrost and rock engineering services to produce dimensional stone for the revetments, supply Electrical Resistivity Tomography (ERT) and ground temperature cable instrumentation, and provide construction Quality Control (QC) services for the Hamlet of Tuktoyaktuk Erosion Mitigation Project.

Inuvik Tuktoyaktuk Fibre Line (ITFL), Government of Northwest Territories, Department of Finance, Project Manager, Senior Geotechnical Permafrost Engineer, 2022-2023

Technical engineering services to assist with route assessment, design, and specifications of the fibre line supporting the overall development of the ITFL considering hydrology, permafrost and geotechnical factors, installation considerations, resiliency, maintenance factors, and integration with the current MVFL system.

Inuvik Tuktoyaktuk Fibre Line (ITFL), ROHL Global Networks, Project Manager, Senior Geotechnical Permafrost Engineer, 2021-2022

Prepared a desktop-based permafrost and geotechnical design and construction considerations report for the installation of a fibre optic cable in sensitive permafrost terrain between Inuvik and Tuktoyaktuk along the Inuvik Tuktoyaktuk Highway (ITH), NT. Presented best practices for minimizing construction-related disturbances in sensitive permafrost terrain.

Iqaluit to Kimmirut Terrestrial Fibre Optic Cable Route Development, DRG Consulting Inc. on behalf of the Government of Nunavut (GN), Senior Geotechnical Permafrost Engineer, 2021

Geotechnical Permafrost Lead for developing fibre optic connectivity routing options from Iqaluit to Kimmirut, Nunavut. Evaluate surface lay and aerial deployment approaches, foundation design parameters, summer versus winter construction, and HDD versus aerial river crossing options. Deliver a Class 4 estimate for a proposed route optimized for ground lay cable and a proposed route optimized for single pole-mounted cable (aerial route) for side-by-side comparison.

Terrestrial Fibre Optic Cable Route Schefferville to Kuujuaq Feasibility Assessment, DRG Consulting Inc. on behalf of the Government of Nunavut (GN), Senior Geotechnical Permafrost Engineer, 2020

Geotechnical Permafrost Lead for evaluating a terrestrial fibre optic route from the community of Kawawachikamach, near Schefferville, QC to the proposed submarine landing point at the mouth of Koksoak River, Ungava Bay. Evaluate surficial geology, permafrost, and terrain conditions along the proposed alignment to verify a terrestrial fibre optic route that could be used in the development of a Class 5 cost estimate for the construction and implementation of fibre optic service, routing considered the terrain, accessibility, reliability, and constructability.

Dempster Fibre Link (DFL) Project, YT, Yukon Government (YG), Project Manager, Senior Geotechnical Permafrost Engineer, 2019-Present

Project Manager and Senior Engineer providing Geotechnical and Permafrost Engineering design support services for the detailed design and construction specifications for Dempster Fibre Line (DFL), including risk analysis of installation options, recommendations for installations in varying ground conditions, preparing design briefs summarizing geotechnical issues and risks that may arise during various installation option.

Mackenzie Valley Fibre Link (MVFL) Project, NT, Ledcor Technical Services, Project Manager, Senior Geotechnical Permafrost Engineer, 2014-2017

Project Manager and Lead Geotechnical Engineer providing permafrost engineering services to Ledcor Technical Services for the Mackenzie Valley Fibre Link (MVFL) Project, NT. Provided permafrost engineering, geotechnical investigations, terrain evaluations, field reconnaissance, and erosion and sediment control services through discontinuous to continuous permafrost regions and terrain.

Satellite Tracking Station, NT, Swedish Space Corporation, Project Manager, Senior Engineer, 2008

Geotechnical and permafrost engineering services for the Satellite Tracking Station. A rock-socket anchor foundation design was used to accommodate the loading conditions and satisfy strict deformation tolerances.

Northern Solid Waste Facilities and Environmental Remediation Experience

Kativik Regional Government, Municipal Public Works Department, Senior Geotechnical Permafrost Engineer, 2021-Present

Developed strategy and plan and led multidisciplinary technical team to support two major amendments to Type A water license for an active mine, using innovative approach, BATEA, and toxicology research.

PW10 Erosion and Sediment Control (ESC) Short-term and Long-term Remediation Plans, Inuvik, Tuktoyaktuk Highway, NT, Government of the Northwest Territories Department of Transportation (GNWT-INF), Senior Geotechnical Permafrost Engineer, 2022-Present

Develop and implement short-term and long-term ESC plans and mitigation approach for Pit PW10. Recommend stabilization measures. Implement ESC measures constructing berms and addressing surface drainage.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), Senior Engineer, 2018-2020

Expert Engineering, Scientific, Technical, and Environmental Evaluations associated with Northern Development. Technical review of the application for a water license for the proposed Iqaluit, NU Waste Transfer Station and Landfill.

Hamlet of Aklavik, Aklavik, NT, Senior Geotechnical Permafrost Engineer, 2020

Upgrade landfill design and operation plan for Aklavik Municipal Solid Waste Landfill ensuring required safety factors are maintained through the vertical expansion, and propose construction borrow materials.

DEW Line Cleanup Project, NT and NU, Department of National Defence (DND), Senior Engineer, 2001-2008

Undertook geotechnical site investigations at Distant Early Warning (DEW) sites across the Canadian Arctic in support of the cleanup of 21 military DEW sites. Sites include FOX-M (Hall Beach), CAM M (Cambridge Bay), CAM 2 (Gladman Point), CAM 4 (Pelly Bay), CAM 5 (Mackar Inlet), and BAR 4 (Nicholson Peninsula). Investigations involved items related to site cleanup, including existing landfills, proposed new landfill locations, and granular borrow sources using both geotechnical and geophysical investigative techniques.

Completed Landfill Monitoring assessments at CAM-M (Cambridge Bay), CAM-4 (Pelly Bay), FOX-3 (Dewar Lakes), FOX-5 (Broughton Island), and FOX-M (Hall Beach) DEW Line Sites to assess the post-construction geotechnical performance of remediated and newly constructed landfills.

Designed contaminated soil disposal facilities, demolishing waste landfills, and a leachate containment remediation system for existing landfills at the CAM-2, CAM-4, CAM-5, and FOX-M DEW Line sites.

Resident Engineer for construction of the leachate containment systems for the abandoned landfills at the CAM-M (Cambridge Bay) DEW Line Site between 2000 and 2003. The multi-year work involved constructing saturated granular containment berms around the perimeter of existing landfills that when frozen became low-permeable ice-saturated containment barriers and installing geosynthetic liner systems for secondary containment. Responsible for the 2004 and 2005 Landfill Monitoring assessments at CAM-M (Cambridge Bay) DEW Line Site following cleanup to assess the post-construction performance of remediated and newly constructed landfills.

Resident Engineer for construction of the leachate containment systems for the abandoned landfills at the CAM-4 (Pelly Bay) DEW Line Site between 2003 and 2005. The multi-year work involved constructing saturated granular containment berms around the perimeter of existing landfills that when frozen became low-permeable ice-saturated containment barriers and installing geosynthetic liner systems for secondary containment. Field engineer for the construction of contaminated soil disposal facilities and demolition waste landfills on site

Northern Mining Experience**Mary River Mine, Steensby Inlet Rail Project, Baffin Island, NU, Baffinland Iron Mines Corporation, Senior Engineer, Permafrost and Geotechnical Design Review**

Undertook a permafrost and geotechnical review of the design approach proposed for the Steensby Inlet Rail Project on behalf of Baffinland Iron Mines Corporation including design approach limitations, impacts that permafrost conditions along the proposed route could have on the project, and inherent risks based on the proposed design of the railway alignment, profile, and railbed embankment. Presented current and future considerations for advancing the design, optimization, and ultimately construction and operation of the Steensby Inlet railway.

Prairie Creek All-Season Road (ASR) linking the Prairie Creek Mine with the Nahanni Butte Access Road, NT, NorZinc Ltd., Senior Geotechnical Permafrost Reviewer, 2023-Present

Senior Geotechnical Permafrost Engineer and Reviewer for various aspects of the Winter 2023 Geotechnical and Geophysical investigations and geotechnical designs for Major Water Crossings, ASR embankment, and borrow sources.

Ekati Diamond Mine, BHP Billiton Diamonds, Project Engineer, 1995-2001

Project Engineer for the geotechnical site investigations of water retention dams and dike at the Beartooth and Sable kimberlite pipe developments at the Ekati Diamond Mine™, NT. Completed a winter drilling program using a diamond drill with circulating chilled brine to obtain intact frozen core samples.

Participated in preparing Waste Rock Management Plans for the Sable, Pigeon and Beartooth kimberlite developments at the Ekati Diamond Mine™, NT.

Project Engineer for a winter geotechnical drilling program of a proposed tailings disposal facility at the BHP Boston Gold Project, Bathurst Inlet, NU.

Participated in the preparation of the Wastewater and Processed Kimberlite Management Plan for BHP Billiton Diamonds Inc. in support of water license requirements for the Ekati Diamond Mine, NT.

Prepared water and solids balances for the Long Lake Tailings Facility as part of the wastewater and tailings management plan for the NWT Diamonds Project, NT.

Site Engineer for construction of the Long Lake Intermediate Dikes at the Ekati Diamond Mine™, NT. The dikes subdivide the Long Lake Tailings Facility into five cells for progressive filtering of the processed kimberlite tailings.

Site Engineer for construction of the Outlet Dam at the NWT Diamonds Project, NT - a zoned, frozen-core rockfill dam.

Prepared geotechnical foundation designs for the construction of the bridge abutments and approach embankments for the Paul Lake Bridge, and for the Nero-Nema stream crossing at the Ekati Diamond Mine, NT.

Project Engineer for a winter geotechnical drilling program of a proposed tailings disposal facility at the BHP Boston Gold Project, Bathurst Inlet, NU.

Conducted large strain consolidation analyses to predict the self-weight consolidation of kimberlite tailings for the NWT Diamonds Project, NT. Parameters were obtained from laboratory constant strain and step load testing.

Project Engineer for the design and construction of a fuel tank farm for Miramar Mining Corporation - Hope Bay Gold Inc. at the Boston exploration property east of Bathurst Inlet, NU.

Conducted laboratory testing to determine frozen and unfrozen thermal conductivities of diamond tailings for the NWT Diamonds Project, NT.

Conducted laboratory testing using Time Domain Reflectometry (TDR) to estimate unfrozen water content in diamond tailings for the NWT Diamonds Project, NT.

Laura Nuttall

Indigenous Services, Facilitator

B.Sc., M.A.

Laura has 24 years of professional experience and has worked with numerous Indigenous Nations in both Western and Northern Canada. As discipline lead and lead author for traditional use sections of environmental assessments in Western Canada, Laura is well-versed in a wide variety of potential project interactions with Aboriginal Rights and Traditional Land and Resource Use, as well as associated mitigations. She understands the importance of braiding Indigenous Knowledge alongside, equally weighted to Western Science into environmental assessments and works collaboratively with Indigenous Nations to develop Traditional Land and Resource Use studies to meet community-specific and regulatory needs.

Qualifications/Memberships

- Eastern Michigan University, Bachelor of Science, Geology, Anthropology and History, Ypsilanti, Michigan, 2001
- University of Calgary, Master of Arts, University of Calgary, Alberta, 2004
- University of Alberta, Indigenous Canada, Edmonton, Alberta, 2020

Work History

- 2004- present Stantec Consulting Ltd. Indigenous Services – Senior Facilitator (2018-present). Discipline lead and technical writer for environmental assessments, Indigenous Engagement, Indigenous Participation Plans for transportation, oil and gas, mining and infrastructure. Senior Archaeologist (2004-2018) led historical resources impact assessments for transportation, oil and gas, mining, infrastructure, power distribution and residential sectors.

Selected Project Experience

Environmental Assessment

Mackenzie Valley Highway Project Environmental Assessment, Government of the Northwest Territories, Discipline Lead, 2021-present

Discipline Lead for Traditional Use and Harvesting for the Developer's Assessment Report for the Environmental Assessment of the Project prepared for the Mackenzie Valley Environmental Impact Review Board; (filed October 2023). Collaborated with Norman Wells Renewable Resources Council and Tulita Renewable Resources Council to develop community-specific traditional land and resource use studies

Casino Mine Project Environmental and Socio-economic Environmental Statement, Casino Mining Corporation, Yukon, Discipline Lead, 2023-present

Discipline Lead for Cultural Continuity and TK integration for the Environmental and Socio-economic Environmental Statement for the Project, for review by Yukon Environmental and Socio-economic Assessment Board.

Redknife River Bridge Replacement Project , Government of the Northwest Territories, Discipline Lead for Traditional Use, 2023

Discipline lead for traditional use for a project to replace a bridge structure over the Redknife River in the Dehcho Region of the NT. This included technical writing for the traditional use section of the Project Description Report to support the preliminary screening of the Project by the Mackenzie Valley Land and Water Board (MVLWB).

Oscar River Bridge Relocation Project, Government of the Northwest Territories, Environmental and Regulatory Lead, 2022-2024

Discipline Lead for traditional use for a project to relocate a bridge structure over Oscar Creek, and to construct two new tributary crossings along the Mackenzie Valley Winter Road in the Sahtu Region of the NT. This included technical writing for the traditional use section in the Project Description Report to support the preliminary screening of the Project by the Sahtu Land and Water Board.

Great Bear River Bridge Project, Government of the Northwest Territories - Infrastructure, Technical Writer, 2020

Technical writer for traditional use section of the Project Description Report to support land use permit and water licence applications to construct a new bridge over the Great Bear River and highway approaches.

Aurora Disposal Facility Project, Aurora Disposal Facility Ltd, Technical writer, 2020

Technical writer for traditional use section of the Project Description Report.

Nunavut Impact Review Board, Baffin Bay and Davis Strait, Strategic Environmental Assessment, Technical Writer, 2018

Technical writer for traditional use section of the Strategic Environmental Assessment.

Samuel Lacrampe, P.Eng.

Atmospheric Engineer

Samuel Lacrampe has 16 years of experience in environmental engineering in greenhouse gas (GHG), noise, and air quality assessment. His expertise includes technical assessment, technical writing, field data collection, and project management. He has completed projects in the oil and gas, transportation, industrial, manufacturing, and power generation sectors. He has worked under regulatory programs in Northwest Territories, Alberta, British Columbia, Saskatchewan, Quebec, Nova Scotia, Newfoundland, New Brunswick, Ontario, and the federal program. Samuel is based in the Calgary, Alberta office.

Education

- University of Alberta, Bachelor of Science in Mechanical Engineering, Edmonton, Alberta, 2008

Qualifications/Memberships

- Association of Professional Engineers and Geoscientists of Alberta, Professional Engineer, 2012-Present
- CSA Group, ISO 14064-3: Greenhouse Gas Verification and Validation, Toronto, Ontario, 2021

Work History

- 2021-pres. Stantec Consulting Ltd. Atmospheric Engineer. Conduct GHG verifications, GHG quantifications, environmental assessments for air quality, GHG, and noise; and noise assessment projects in Canada.
- 2021-2021. Amberg Environmental and Regulatory Consultants. Environmental Engineer. Conduct GHG verification and GHG quantification projects, and business development in several provinces in Canada.
- 2008-2020. Patching Associates Acoustical Engineering Ltd. Acoustical Engineer: Conduct noise assessment projects, project management, field data collection, technical reviews and supervision, for work in Alberta, British Columbia, and Saskatchewan.

Selected Project Experience

Environmental Assessment

Mackenzie Valley Highway, Analyst, Report Author, 2022-present

Assessment of air quality emissions under the National Pollutant Release Inventory (NPRI) objectives, and mitigations. Assessment of GHG emissions using quantification methods from the Federal National Inventory Report (NIR) and the Strategic Assessment of Climate Change (SACC) documents. Assessment of noise levels under Health Canada and Alberta Transportation objectives, and mitigations.

Telus Cawley Point, Analyst, Report Author, 2021

Assessment of noise levels under Health Canada objectives, and mitigations.

Air Quality Assessment / Management

Kootenay West Mine, Report Author, 2022, 2023, 2024

Assessment of dust monitoring and management, and meteorological monitoring.

Windermere Mining Operation, Report Author, 2022, 2023

Assessment of dust monitoring and management, and particulate matter and meteorological monitoring.

Myra Falls Mine, Analyst, Report Author, 2022, 2023

Assessment of particulate matter and meteorological monitoring, pollution control performance, and air permit compliance.

GHG Emissions Quantification**Town of Wolfville - Proposed Active Transportation Projects – Climate Lens Part 1, Analyst, 2022**

Climate Lens GHG mitigation assessment for the Investing in Canada Infrastructure program (ICIP) for the transportation sector.

Confidential Company - Expansion Project - GHG quantifier, 2023, 2024

GHG Climate Lens Assessment under the Investing in Canada Infrastructure Program (ICIP). Strategic Assessment of Climate Change (SACC) under the Canadian Energy Regulator Act, consisting of Best Available Technology (BAT) and Best Environmental Practices (BEP), the net-zero plan, and upstream GHG emissions assessment.

Confidential Company – Field Program - GHG Quantifier, 2024

GHG emissions quantification of the drilling equipment using quantification methods from the federal National Inventory Report (NIR) for the mining sector.

Confidential Company - GHG Inventory Review, Analyst, 2022

Technical review and improvement recommendations of the GHG quantifications using quantification methodologies from the Environment and Climate Change (ECCC) Greenhouse Gas Reporting Program (GHGRP) and the Alberta Specified Gas Reporting Regulation (SGRR), for the oil and gas sector.

Confidential Company - GHG Emissions Review – Analyst, 2023

Technical review and improvement recommendations of the GHG quantifications using quantification methodologies from the Western Climate Initiative (WCI) quantification documents for the mining sector.

Noise Assessment**Province House Pressblock Development, Analyst, Report Author, 2022**

Assessment of noise and vibration monitoring under the Ontario Environmental Noise Guideline and the American Society of Heating, Refrigerating and Air-Conditioning Engineers objectives.

TC Energy - Burton Compressor Station, Analyst, 2023

Occupational noise survey for TC Energy internal guidelines, oil and gas sector.

NOVA Gas Transmission Ltd. (NGTL) - Berland River Compressor Station, Analyst, 2024

Assessment of environmental noise emissions under the Alberta Energy Regulator (AER), oil and gas sector.

University Health Network - Toronto Western Hospital, Analyst, 2023

Assessment of environmental noise emissions under the Ontario Noise Guideline NPC-300, health sector.

CBRE IBM Canada - 3600 Steeles Avenue E, Analyst, 2022

Assessment of environmental noise emissions under the Ontario Noise Guideline NPC-300, utility sector.

Noise Assessment Projects at Patching Associates Acoustical Engineering Ltd., 2008-2020

Twelve years of noise assessment projects for the oil and gas, industrial, transportation, and architectural sectors.

GHG Emissions Verification

Completed over 45 GHG verification projects for the following sectors: oil and gas, power generation, pulp and paper production, manufacturing, fuel distribution, and municipal. The projects were conducted under the regulatory programs of the following provinces and organizations: Alberta, British Columbia, Saskatchewan, Quebec, Nova Scotia, Newfoundland, New Brunswick, Ontario, CDP, and the federal program.

Clio Bonnett, M.Sc., P.Biol, RPBio, P.Geo

Associate, Senior Aquatic Biologist

Clio Bonnett has 14 years of experience throughout western and northern Canada as a fisheries biologist and led the preparation and submission of provincial and federal regulatory applications. Her experience includes fish inventories, fish habitat assessments, water quality sampling, and extensive experience working in mapped critical habitat for species at risk including bull trout (*Salvelinus confluentus*). She works closely with design teams and regulatory agencies to integrate environmental mitigation strategies into projects. She has served as the fisheries lead on a range of projects that include highway and road development, permitting for watercourse crossings, infrastructure development for municipalities, wastewater treatment plants, fish habitat offsetting designs, and pipeline projects. Clio is based in the Calgary, Alberta office.

Education

- University of Victoria, B.Sc., Earth and Ocean Sciences, Victoria, British Columbia, 2008
- University of Victoria, M.Sc., Earth and Ocean Sciences, Victoria, British Columbia, 2011

Qualifications/Memberships

- Alberta Society of Professional Biologists, Professional Biologist, 2014 – Present
- British Columbia College of Applied Biologists, Registered Professional Biologist, 2022 - Present
- Association of Professional Engineers and Geoscientists of Alberta, Professional Geoscientist, 2015 – Present

Work History

- 2018-present. Stantec Consulting Ltd. Senior Aquatic Biologist. Led fish and fish habitat assessments and regulatory submissions for government, municipal, and government clients in western and northern Canada.
- 2014-2016. Integrated Sustainability Consultants Ltd. Environmental Scientist. Supported environmental assessments, monitoring programs, and regulatory submissions in Alberta and British Columbia.
- 2011-2014. Ocean Networks Canada. Marine Research and Project Analyst. Supported offshore operations for subsea observatories in the Pacific and Arctic Oceans and conducted data analysis on oceanographic data.
- 2008-2011. University of Victoria. Teaching Assistant. Laboratory Instructor for senior level Paleobiology course and first year geoscience.

Selected Project Experience

Mackenzie Valley Highway Project Environmental Assessment, Government of the Northwest Territories, Lead Fisheries Biologist, 2020-Present

Processed data collected from 2020 field program and supported preparation of the DAR. Role evolved to fisheries lead for the Project and coordination and development of fish and fish habitat assessments; provided support to the GNWT as subject matter expert during regulator engagement.

Springbank Off-stream Reservoir Project, Alberta Transportation, Lead Fisheries Biologist, 2020-Present

Provided support for fish and fish habitat assessments and support in the Environmental Impact Assessment process; Provided responses to Information Requests from the Impact Assessment Agency and the Natural Resources Conservation Board; supported hearing team for the NRCB; prepared regulatory submissions to provincial and federal regulators; regulatory submissions for works in critical habitat for bull trout (*Salvelinus confluentus*); supported development of offset measures; analysis of fish passage requirements.

Peace Athabasca Delta Water Control Structures Project, Parks Canada, Lead Fisheries Biologist, 2022-2024

Coordination and scope for the baseline fish and fish habitat programs; led authorship for fish and fish habitat for the EIA; evaluated and included Traditional knowledge; evaluation of fish passage requirements for species with historical presence in the Project area; provided advice for fish passage monitoring; supported development of mitigation measures.

Bebo Bank Restoration - Fish Creek Provincial Park Flood Repair, City of Calgary, Lead Fisheries Biologist, 2019-Present

Coordination of baseline fish and fish habitat assessments; submission of provincial and federal regulatory applications; Fisheries Act Authorization offset development using river restoration techniques, bioengineering, and rehabilitation measures; offset monitoring for evaluation of effectiveness of measures.

Deerfoot Trail Improvements, Aecon, Fisheries Lead, 2023-Present

Development of baseline fish and fish habitat assessments; preparation of provincial and federal regulatory submissions to support twinning of the Ivor Strong bridge over the Bow River; lead regulator communication; provided advice and recommendations during construction; ongoing regulatory and environmental support.

Bonnybrook Wastewater Treatment Plant - Plant D Expansion - River Engineering, Regulatory Approvals, Environmental Assessment, and Landscape Architecture, City of Calgary, Fisheries Biologist; Regulatory Approvals, 2018-Present

Supported provincial and federal regulatory submissions; worked with client to incorporate fish habitat offsetting features within the project footprint; developed post-construction and offset monitoring field programs; led post-construction monitoring reporting to regulatory agencies; led offset monitoring for evaluation of effectiveness of measures.

West Bow River Bridge Twinning, Alberta Transportation and Economic Corridors, Fisheries Biologist; Regulatory Lead, 2018-2024

Facilitated environmental regulatory components for the Project, including the *Fisheries Act* Authorization; Regulatory guidance and quality reviews provided during construction; confirm mitigation plans align with provincial and federal commitments; led construction monitoring efforts and prepared construction monitoring reports for regulatory agencies.

Waterline Creek Crossing, Town of Pincher Creek, Lead Fisheries Biologist; Regulatory Lead, 2020-2022

Led as environmental and regulatory lead to replace a waterline beneath Pincher Creek; crossing in mapped critical habitat for bull trout; coordinated fish and fish habitat assessments; coordinated provincial and federal regulatory submissions; coordinated construction monitoring program.

MAX Purple Bus Rapid Transit, Phase 2, City of Calgary, Fisheries Biologist, 2018-2022

Bridge construction over the Elbow River; led offset monitoring; led offset monitoring effectiveness reporting to federal regulators.

Small Craft Harbours - Fisheries Assessment, Fisheries and Oceans Canada, Fisheries Biologist, 2022

Evaluated fish species presence and potential for development of small harbours at three potential locations throughout Nunavut; evaluated potential effects to freshwater and marine fishes in the region; evaluated stock assessments based on available data; prepared final report.

Kivalina Traditional Use Study and Impact Assessment, Teck Alaska Incorporated, Fisheries Biologist, 2021

Reviewed relevant information regarding subsistence resources, traditional use of such resources, and natural and human impacts, including the Red Dog Mine; Traditional Knowledge was blended with Western science in summary reports of freshwater fish, marine fish, and benthic invertebrates with historical presence in the area.

Highway 3:12/3:14 Twinning from Taber to Burdett, Alberta Transportation and Economic Corridors, Lead Fisheries Biologist, 2021-2023

Twinning of the Alberta Highway 3 corridor; lead fisheries biologist for the project and designed and coordinated field assessment programs for the project; Prepared the fisheries component of the Environmental Evaluation and led the federal *Fisheries Act* submission.

East Calgary Ring Road Median Widening, Alberta Transportation, Environmental and Regulatory Support, 2020-2021

Led preparation of Environmental Evaluation; coordinated with engineering teams and biophysical disciplines; Provided environmental and regulatory support.

OE Highway 5, Highways 6 and 39 Corridor Improvements, Saskatchewan Ministry of Highways and Infrastructure, Fisheries Biologist, 2019-2020

Fisheries lead; coordinated and developed fish habitat assessments; provided environmental and regulatory guidance.

MHI - Highway 914 EA, Saskatchewan Ministry of Highways and Infrastructure, Fisheries Biologist, 2019-2021

Fisheries lead to support environmental assessment for highway; coordinated and organized recommendations and evaluation of supplementary fish and fish habitat assessments; authored fish and fish habitat baseline section of the environmental assessment.

NOVA Gas Transmission Ltd. 2021 Decommissioning Program, TC Energy, Lead Fisheries Biologist, 2022-2024

Provided technical review of the Environmental and Socio-Economic Assessment; led the preparation and submission of *Fisheries Act* and *Species at Risk Act* regulatory submissions for work in critical habitat for endangered Athabasca rainbow trout (*Oncorhynchus mykiss*).

NOVA Gas Transmission Ltd. West Path Delivery 2023 Project, TC Energy, Fisheries Biologist, 2022-2023

Provided support and coordination for permitting under the *Fisheries Act* and *Species at Risk Act* for activities within streams which are mapped critical habitat for bull trout and westslope cutthroat trout (*Oncorhynchus clarkii lewisi*).

Tim Rochon – President and CEO

Mr. Tim Rochon is the President and Chief Executive Officer of DPRA Canada. Tim holds a Master's in Environmental Studies (MES). For over the past 25 years his professional consulting experience has included work in the areas of socio-cultural and economic impact assessment; Indigenous and community engagement; natural resource development; regulatory reform; and community economic development. He has worked on projects across Canada, including in the Yukon, Northwest Territories, Nunavut, British Columbia, Alberta, Ontario, Quebec, and Labrador.

Over the past 25 years Tim has worked on multiple territorial, federal and provincial environmental assessments conducting socio-cultural and economic impact assessment (SEIA) and Indigenous engagement. Tim has worked with proponents, Indigenous organizations and communities and federal and territorial governments conducting SEIA and/or providing strategic advice on SEIA related issues within an environmental assessment context. Community-level socio-economic research and baseline reporting have been a key component of Tim's SEIA work.

A foundation of Tim's practice is Indigenous engagement, he has 30 years of experience working with Indigenous governments, communities, and organizations.

RELEVANT EXPERIENCE

- **Government of the Northwest Territories Department of Infrastructure: Community Engagement and Socio-Economic Impact Assessment of the Mackenzie Valley Highway Extension. Project Director.** DPRA conducted the socio-economic impact assessment component of the project's Developer's Assessment Report (DAR), including of the development of socio-economic baseline conditions reporting, engagement with GNWT staff and community/Indigenous representatives on project effects and mitigations and making the determination of project effects.
- **Prodigy Gold Inc.: Magino Gold Project Socio- Economic Assessment, Indigenous Engagement and Public Consultation. Project Director.** DPRA led the socio-economic assessment, public consultation and Indigenous engagement for the federal environmental assessment including development of background baseline reports and community profiles on the local and regional study area and a framework to document and assess the Traditional/Indigenous Knowledge/land use & occupancy information.
- **Ontario Ministry of Mines. Evaluation of Resource Revenue Sharing Agreements between Ontario and Mushkegowuk Council and Wabun Tribal Council. Project Manager.** DPRA Canada evaluated the resource revenue sharing agreements that Ontario has with two tribal councils and their member First Nations to identify lessons learned and potential areas of improvement to support decision making on renewal and potential expansion, including undertaking interviews and in-depth research, including reviewing documentation provided on the agreements.
- **Victoria Gold Corporation: Socio-Economic Impact Analysis, First Nations / Public Consultation for the Eagle Gold Mine Project. Project Director.** DPRA's socio-economic assessment and all baseline materials were prepared in cooperation with the First Nation of Na Cho Nyäk Dun (on whose traditional territory the mine project was proposed) and involved public consultation and Aboriginal engagement activities, and producing an existing conditions technical document.

- **De Beers Canada Mining Inc.: Socio-Economic Impact Assessment and Cumulative Effects Assessment of the Snap Lake Diamond Mine. Project Manager and Facilitator.** DPRA facilitated consultation meetings with seven Indigenous communities, non-Indigenous stakeholders and federal/territorial regulators and reviewers, reviewed recent experiences of Indigenous communities with the diamond mine industry in the NWT, profiled baseline socio-economic conditions, determined potential cumulative socio-economic effects, and a report to reflect issues and concerns from all SEIA consultations.
- **Tulit'a District Steering Committee: Investment Plan for the Mackenzie Valley Socio-Economic Impact Fund. Project Manager.** DPRA led three rounds of community consultations with three Sahtu communities regarding potential socio-economic effects of the Mackenzie Gas Project and how these would be linked to initiatives to address impacts. DPRA worked alongside the Tulit'a District Steering Committee to design a plan for the Mackenzie Valley Socio-Economic Impact Fund in Tulit'a, Délı̄ne and Norman Wells and submit it to the Pipeline Readiness Office.
- **Mushkegowuk Council: Resource Development Protocol. Project Manager.** DPRA facilitated a series of engagement and consultation with First Nations as well as natural resource-based industries and federal and provincial governments and reviewed socio-economic community and regional data in order to develop a natural resource development protocol.
- **Mushkegowuk Council: Review of De Beers' Victor Diamond Mine Project Environmental Assessment. Project Manager.** DPRA conducted a socio-economic assessment review in the form of a Comprehensive Study with that focused on SEIA methodology and analysis, and identified areas of non-conformity with guidelines.
- **Moose Cree First Nation: Peer Review of the Environmental Assessment and Terms of Reference for the Detour Gold project. Project Manager.** DPRA conducted a peer review of the Terms of Reference and Record of Consultation for the Detour Lake Permanent Power Project and of the Detour Lake Power Project Individual EA and provided advice to Moose Cree First Nation leadership.
- **Crown-Indigenous Affairs and Northern Affairs Canada (CIRNAC) - Nunavut Region (NRO): Socio-Economic Peer Review of the Baffinland Phase 2 Project Final Environmental Impact Statement. Project Director.** DPRA carried out a peer review of the Baffinland Phase 2 Project Final Environmental Impact Statement and assisted in the production of Information Requests covering various SEIA topics, and in producing Technical Review Comments covering five socio-economic issues.
- **Indigenous and Northern Affairs Canada- Nunavut Regional Office: Socio-Economic Technical Review of Hope Bay Phase II Draft Environmental Impact Statement. Project Director.** DPRA led the socio-economic technical review of the TMAC Hope Bay Phase II Draft Environmental Impact Statement (DEIS) including production of the technical issue summaries based on the review.
- **Aboriginal Affairs and Northern Development Canada: Production of Socio-Economic Peer Review for the Kiggavik Project's Environmental Impact Statement. Project Director.** DPRA led the peer review of the AREVA Kiggavik Uranium Project Draft Environmental Impact Statement (EIS) and produced Information Requests covering numerous SEIA topics and analyzed the proponent's responses to socio-economic technical comments and recent concerns raised by transboundary First Nations.
- **Aboriginal Affairs and Northern Development Canada (AANDC) Pipeline Readiness Office (PRO): Mackenzie Valley Gas Pipeline EA Socio-Economic Review & Development of**

Information Requests. Senior Project Advisor. DPRA conducted a peer review of socio-economic issues associated with the Mackenzie Gas Project Environmental Impact Statement including production of two rounds of socio-economic Information Requests socio-economic Interventions, and prepared evidence on socio-economic issues for public hearings.

- **Parks Canada Agency/Public Works and Government Services Canada: Pacific Region Icefields Trail (North) Concept Indigenous Groups Consultation. Project Manager.** DPRA led the design, development and implementation of consultation with more than 20 Indigenous groups that have interest in and/or may be impacted by the proposed Icefields Trail from Jasper to the Columbia Icefields and produced a project summary report which provide an overview of the project and consultation methodology and summarized the specific issues raised during the workshops.
- **Nunavut Planning Commission: Socio-Demographic and Economic Analysis of Nunavut Communities. Project Director.** DPRA conducted a socio-demographic and economic analysis for the Nunavut Planning Commission, including developing socio-demographic profiles for each of Nunavut's communities, to support the development of a land use plan for Nunavut, by providing a comprehensive dataset of information on historical trends, present conditions and future opportunities at the territorial, regional and community levels in Nunavut.
- **Ontario Ministry of Northern Development, Mines and Forestry: Environmental Scan of Socio-economic Impact Assessment Models and Tools. Project Manager.** DPRA led the environmental scan of SEIA models and tools used in Canada and internationally, and provided analysis on the strengths and weaknesses of each model/tool

EDUCATION

- Master of Environmental Studies, York University, 1992
- Bachelor of Arts (Geography/History), University of Ottawa, 1987

PROFESSIONAL TRAINING & CERTIFICATIONS

- Canadian Evaluation Society – Credentialed Evaluator, 2024

Jen Heneberry – Senior Associate

Ms. Jen Heneberry is a Senior Associate with DPRA Canada who works across DPRA's consulting areas. Her professional experience includes Indigenous and stakeholder engagement, socio-economic based research projects, and program and policy development and review, working in both government and non-governmental organizations and contexts.

Jen holds a Master of Public Administration from Queen's University, a Certificate in Social Impact from the Smith School of Business at Queen's University, a Bachelor of Science and an Honours Bachelor of Science in Environmental Science, both from McMaster University. Jen has participated in a number of projects that involved socio-economic research and impact assessment and community development.

The majority of Jen's 20 year career has involved both qualitative and quantitative research and data analysis, jurisdictional, policy and legislative reviews, synthesis and interpretation of quantitative data, as well as the design and implementation of engagement processes including interviews, focus groups and facilitated discussions and meetings. She also has extensive experience developing materials for engagement and information sessions and facilitating discussions with a range of audiences including Indigenous communities, government ministries and agencies, not-for-profits and co-operative organizations.

Prior to joining DPRA Canada, Jen spent over 11 years employed with the Ontario government, working primarily in Indigenous relations and policy with the Ministry of Energy, the Ring of Fire Secretariat at the Ministry of Northern Development of Mines, and the Ministry of the Environment, Conservation and Parks. Some of her most relevant work experience at the Ontario government included identifying potential intersection of proposed policy or regulatory initiatives with Indigenous community interests and developing engagement plans to support relationship building and dialogue on initiatives such as modernization of Ontario's environmental assessment process, enhanced water quantity management policies, and regulatory initiatives.

Project Experience:

- **Government of the Northwest Territories Department of Infrastructure: Community Engagement and Socio-Economic Impact Assessment of the Mackenzie Valley Highway Extension. Senior Consultant/Project Manager.** DPRA conducted the socio-economic impact assessment component of the project's Developer's Assessment Report (DAR), including of the development of socio-economic baseline conditions reporting, engagement with GNWT staff and community/Indigenous representatives on project effects and mitigations and making the determination of project effects.
- **Ontario Ministry of Mines. Evaluation of Resource Revenue Sharing Agreements between Ontario and Mushkegowuk Council and Wabun Tribal Council. Senior Consultant.** DPRA Canada evaluated the resource revenue sharing agreements that Ontario has with two tribal councils and their member First Nations to identify lessons learned and potential areas of improvement to support decision making on renewal and potential expansion, including undertaking interviews and in-depth research, and reviewing documentation provided on the agreements.
- **De Beers Canada (DBC). Gahcho Kué Mine Impact Benefit Agreement Compliance Evaluation. Evaluator/Researcher.** DPRA Canada was contracted to conduct a compliance assessment of its Impact Benefit Agreements (IBAs) for the Gahcho Kué Mine. DPRA researched

and synthesized information on best practices for the implementation of IBAs and conducted interviews with representatives of communities, partners and other stakeholders and provided written summaries and content for the overall analysis and report.

- **Nuclear Waste Management Organization (NWMO), South Bruce Area. Development of Community Engagement Synthesis Reports. Senior Consultant.** DPRA Canada was contracted to collect, consolidate and synthesize information on NWMO's engagement with non-Indigenous residents, organizations and stakeholders in the South Bruce area in 2022 and 2023, to identify themes in engagement comments, and identify whether and how actions and initiatives taken by NWMO in the South Bruce area were responsive to comments, concerns and questions raised during engagement.
- **Ring of Fire Secretariat, Ontario Ministry of Northern Development and Mines. Creation of Templates and Reporting Approach for Funding Agreements. Developer.** Created a template and an approach for staff to use in reviewing materials submitted by funded organizations to assess progress and determine if reporting requirements had been met and ensure reporting was responsive to recommendations made by Ontario's Auditor General related to managing funding agreements.
- **Ring of Fire Secretariat, Ontario Ministry of Northern Development and Mines. Development of Dashboards and Reporting Tools for Socio-economic Investments. Developer.** Coordinated tracking of government investments in socio-economic initiatives and programming supports provided to Indigenous communities, including identifying results and completed activities. Developed dashboards for inclusion in reporting and briefing material to communicate community wellness information, initiatives undertaken and results, and government programming and investment supports provided to Indigenous communities related to proposed development in Ontario's Ring of Fire region.

EDUCATION

- MPA, Public Administration, Queen's University – 2011
- Honours B.Sc., Environmental Science, McMaster University – 1999
- B.Sc., Chemistry concentration, McMaster University – 1996

PROFESSIONAL TRAINING & CERTIFICATIONS

- Excel Skills for Data Analysis and Visualization, Macquarie University – 2022
- Certificate in Social Impact, Smith School of Business, Queen's University – 2018
- Alternative Dispute Resolution – Stitt Feld Handy – 2015

SELECTED PUBLICATIONS

- Heneberry, Jennifer and Rachel Laforest, "Cooperatives and the State: The Case of Ontario." Canadian Journal of Nonprofit and Social Economy Research 2 (2011): 57-73.
- Guy, Denyse and Jen Heneberry, "Building Bridges with Government: The Social Economy in Practice", in Living Economics, ed. J.J. McMurtry. (Toronto: Edmond Montgomery Press, 2009)