



LCI Engineering Group

Brian David LaCas, P. Eng., FEC, IntPE (Canada)

I am Brian David LaCas, P.Eng., Senior Hydrotechnical Engineer, and the founder and President of LCI Engineering Group, a hydrotechnical consulting firm owned by LaCas Consultants Inc. since 1991. With decades of experience in the field, I am registered with Engineers and Geoscientists British Columbia, Professional Engineers Ontario, Engineers Nova Scotia, and Professional Engineers and Geoscientists of Newfoundland & Labrador. I am a member of the Engineers Canada Mobility Register, enabling me to provide services internationally.

CORE COMPETENCIES

- Hydrology
- River engineering
- Land drainage
- Bridge hydraulics
- Dam reservoir design and operations
- Flood control, erosion control, dike design
- Flood damage assessment
- Forensic flood engineering of creek wet avalanches and river ice
- Climate analysis including precipitation, snowpack/snowmelt
- Hydro power dam operation, maintenance & surveillance manuals
- Dike and dam inspection and review
- Construction review services
- Open-channel hydraulic modelling
- Regional hydrological analysis
- Flood frequency analysis
- Selection of flow monitoring station locations
- Watershed numerical modelling
- Rainfall analyses return period, intensity-duration-frequency analysis
- Numerical stormwater modelling
- Ditch and road drainage, pump stations hydraulics
- Altitude temperature adjustment
- Hydraulic modelling of flood gates
- Spillways, and pipe outlets
- Vehicle accident analysis, drowning analysis
- River and ocean coastal shoreline engineering
- River restoration, weir design
- Channel assessment of logged watersheds, forestry bridge hydraulics
- River pipeline crossings
- Creek restoration
- Flood construction level for river and ocean
- Mining water management plans, mining dam safety reviews
- Mine water management plans, mining dump drainage design
- Mining ditch designs, mining pond design, PAG rock storage ponds
- Mining tailings pond review



Brian David LaCas, P. Eng., FEC, IntPE (Canada)

These projects have been performed for a broad range of clients including legal firms, government, mining industry, First Nations, and land developers.

PROFESSIONAL LICENCES

Registered Professional Engineer (P.Eng.) Engineers and Geoscientists British Columbia (APEGBC Registration No. 14240), 1983.

Registered Professional Engineer (P.Eng.) Professional Engineers of Ontario (PEO Registration No. 100664150), 2025.

Registered Professional Engineer (P.Eng.) Professional Engineers Nova Scotia (ENS Registration No. 20250503), 2025.

Registered Professional Engineer (P.Eng.) Professional Engineers of Newfoundland and Labrador (PEGNL Registration No. 12289), 2025.

Education

Bachelor of Applied Science degree (B.A.Sc.) in Civil Engineering (Water Resources Option) from the University of Waterloo, Waterloo, Ontario, Canada, in 1981.

During the University of Waterloo Co-op Program, I worked for IBM as a computer programmer, for the City of Hamilton Wentworth on road design, CP Rail on drainage and the B.C. Ministry of Environment as a creek surveyor for riverbank protection works.

WORK EXPERIENCE

1981-1982: Junior Engineer, for Willis Cunliffe Tait/DELCAN in Victoria, B.C., on engineering projects involving drainage, potable water system (numerical computer modelling), creek design and sanitary works.

1982-1988: Water Allocation Engineer (hydrotechnical engineer) for the B.C. Water Management Branch, B.C. Ministry of Environment (various ministry name changes) in Nanaimo, B.C. and was designated as an Engineer pursuant to the Water Act, and adjudicated applications pursuant to the Act. My responsibilities included: river engineering design and construction supervision of river erosion control projects, water rights investigations of water intake works and water systems, hydrological calculations, small dam inspections, creek crossing investigations, and review Water Act approval applications to carry out work in and about a stream.

1988-1989: Design Engineer, UMA Engineering Ltd., Burnaby, B.C., work involved storm water design calculations and numerical computer modelling.

1989-1991: Hydrotechnical Engineer, Sigma Engineering Ltd., Vancouver, B.C., in which work involved numerical computer modelling for flood control, hydrology for mine site planning, aerial photograph interpretation, preparation of Operation, Maintenance Manuals for B.C. Hydro dams, and flood control and drainage design for land development projects.

1991-Present: President and Senior Hydrotechnical Engineer, LaCas Consultants Inc. I have been responsible in a hands-on role for the completion of hundreds of projects relating to hydrotechnical engineering.



Brian David LaCas, P. Eng., FEC, IntPE (Canada)

PFC TRAINING

In 1999, I graduated from the Proper Functioning Condition (US Bureau of Land Management) and in 2004, graduated from the Trainer Program. The Proper Functioning Condition Proper functioning condition (PFC) is a qualitative method for assessing the condition of both creeks (lotic) and wetlands (lentic).

AWARDS & RECOGNITION

In 2010, I received the 2010 Recognition from the Vancouver 2010 Olympic Committee including the Prime Minister of Canada and the Premier of British Columbia for LaCas Consultants Inc. work on Callahan Valley, Cypress Bowl, and Whistler, B.C.

In 2018, I received the Environmental Award from Engineers and Geoscientists B.C. (jointly with EXP Services Inc. and Aqua-Tex Scientific Consultants Ltd.) for LaCas Consultants Inc. work on the Mark Creek Restoration Project, Kimberley, B.C. The work included numerical computer modelling, channel restoration design and construction review of a 500 meter long urban stream with three lakes replacing a narrow concrete flume built in the 1950's through the City of Kimberley.

In 2019, I received the Certificate of Fellowship (FEC) from Engineers Canada in honour of exceptional contributions to the engineering profession in Canada.

PROFESSIONAL ACTIVITIES

2021-Present: Independent Engineering Review Panel, Mount Polley Mining Corporation

2017-2018: Committee Member, Environment and Social Responsibility Society, CIM

2017-2018: Member Institute of Corporate Directors

2014-2018: B.C. Director Canadian Water Resources Association

2014-2018: B.C. Vice-President, Canadian Water Resources Association.

2004-2018: National Director, Canadian Water Resources Association

2002-Present: Hydrotechnical Engineering Reviewer, Engineers & Geoscientists B.C.

1994-1994: Forest Industry Liaison Committee: Consulting Engineers of B.C.

1995-1997: B.C. Director, Canadian Water Resources Association

1992-1993: B.C. President: Canadian Society of Hydrological Sciences

1992-1993: Professional Practice Committee, Engineers & Geoscientists B.C.

1991-1992: Editorial Board, B.C. Professional Engineer Magazine



EXPERIENCE

Engineering Expert Legal Opinions

Shapiro & Hankinson, Barristers & Solicitors, 1997

Expert opinion for ENCON insurers after detailed review of rainfall runoff calculations of a Vancouver based engineering firm (Defendant).

Bellamy & Long, Barristers & Solicitors, 1998

Expert opinion on debris flow and flooding on Arnold Creek in Chilliwack, B.C. (Plaintiff or Defendant?)

Scarlett Manson Angus, Barristers & Solicitors, 2001

Expert opinion relating to the alleged flooding of 6092-224th Street in Langley, B.C. for Alantic Contractors Ltd. (Defendant).

George Kincaid and Sharon Radcliffe, West Vancouver, BC, 2002

Expert opinion regarding drainage onto the Kincaid/Radcliffe property (Plaintiff).

L Murdy & McAllister, Barristers & Solicitors, 2003

Expert opinion regarding land drainage at #24-35060 Clayburn Road, Abbotsford, B.C. for the City of Abbotsford (Defendant).

Lindsay Kenny, Barristers & Solicitors, 2003

Expert opinion on drainage at Westwood Plateau Golf Course in Coquitlam, B.C. (Defendant).

Lindsay Kenny, Barristers & Solicitors, 2003

Expert opinion on impact of fill on Brohm Lake levels near Squamish, B.C. for local contractor (Defendant).

Miller Thomson, Barristers & Solicitors, 2004

Expert opinion as part of legal team on bridge hydraulics, flooding including review of memoranda and site visit for a MVA in Langley, B.C. (Defendant).

Whitelaw Twinning, Barristers & Solicitors, 2007

Expert opinion regarding land drainage issues at Westwood Plateau Golf Course, Coquitlam, B.C. (Defendant).

Alexander, Holburn Beaudin + Lang LLP – Langley, B.C., 2012

Expert opinion relating to the alleged flooding of a business on the Langley Bypass (Defendant).

Alexander Holburn Beaudin & Lang, LLP, Barristers & Solicitors, 2013

Expert opinion for the Tyson Creek Hydroelectric Project, Sechelt, B.C. relating to hydrology, lake taps, turbidity, sediment, and responsibilities of hydrologists. (Defendant).

Harper Grey, LLP, Barristers & Solicitors, 2015

Expert opinion for a drainage problem in Comox, B.C., including a hydrological analysis (Defendant).

Bernard LLP, 2017

Bandrova Farms Ltd. v. District of Kent, Vancouver Registry,

Expert opinion on flooding issues along Fraser River within District of Kent (Plaintiff).

Whitelaw Twinning, Barristers & Solicitors, 2018

Expert opinion regarding flooding and land drainage issues near Silver Star Mountain, B.C. (Defendant).

Rush, Ihas, Hardwick, LLP, 2018

Waterway Houseboats Ltd. et. al. v. HMTQ et. al., Sicamous, B.C.

Expert opinion on flooding on Sicamous Creek. (Plaintiff)



Brian David LaCas, P. Eng., FEC, IntPE (Canada)

Branch McMaster, LLP, Barristers & Solicitors, 2019

Expert opinion for road drainage issues for MVA in Chilliwack, B.C. Cache Creek, B.C., including a hydrological analysis (Defendant).

Morelli Chertkow, LLP, 2019

Millard v. Village of Cache Creek, Cache Creek, B.C.

Expert opinion on flooding on Lopez Creek. (Plaintiff)

Edwards, Kenny & Bray LLP 2019

Expert Opinion on restoration of Brooklyn and Pup Creeks in Brooklyn, B.C., including a hydrological assessment (Plaintiff).

Harper Grey, LLP, Barristers & Solicitors, 2019

Expert opinion for a flooding issue in Naramata, B.C., including a hydrological analysis (Defendant).

Kwasnicki Law Corporation, 2019

Expert opinion for a land drainage issue in West Kelowna, B.C. (Plaintiff).

Kahn Zack Ehrlich Lithwick LLP 2019

Expert opinion for Commotion Creek flooding issue, Chetwynd, B.C. (Plaintiff).

Morelli Chertkow, LLP, 2020

Kuipers v. City of Kamloops et. al., Jorgensen v. City of Kamloops et. al., Kamloops, B.C. Expert opinion on flooding on unnamed gully. (Plaintiff).

Alexander Holburn Beaudin + Lang LLP, 2020

Fletcher v. Wallberg, Victoria Registry

Expert opinion on road and land drainage issues in Saanich, B.C. (Defendant).

Branch McMaster, LLP, Barristers & Solicitors, 2020

Expert opinion for a flooding issue in Cache Creek, B.C., including a hydrological (Plaintiff)

Baker Newby, LLP 2020

Expert opinion for stormwater issue, Chilliwack, B.C. (Defendant).

Joseph M Prodor, Law Corporation, 2021

Expert opinion for Serpentine River Dike flooding issue, Surrey, B.C. (Plaintiff).

Drysdale, Bacon, McStravick, LLP, 2021

Expert opinion for Salamander Creek flooding issue, Burnaby, B.C. (Plaintiff)

Paul A. Hildebrand Law Corporation, LLP, 2021

Review of watershed boundaries for Coquitlam River Watershed, B.C. (Defendant).

SI Taylor, Tait, Ruley & Co, 2021

Expert Opinion on flooding issues on properties on Ranch Ave, Abbotsford, B.C. (Defendant) [On-going].

Slater Vecchio, LLP, 2022

Expert opinion for Sumas Prairie flooding issue, Abbotsford, B.C. (Plaintiff) [On-going].

Killian Cordell Barristers 2022

Expert opinion for Anderson Creek flooding issue, Township of Langley, B.C. (Defendant)

Cox Taylor Barristers, Solicitors Notaries, 2022

Expert opinion for Tseycum Creek (Wsikem Creek) flooding issue, North Saanich, B.C. (Plaintiff).

Lakes, Whyte LLP, 2022

Expert opinion for Kilmer Creek flooding issue, District of North Vancouver, B.C. (Plaintiff)



LCI Engineering Group

Brian David LaCas, P. Eng., FEC, IntPE (Canada)

Mc Kia Law Firm 2023

Expert opinion drowning at a beach in Georgian Bay, District of Tiny, Ontario (Plaintiff).

Quarrie Hunter LLP 2023

Expert opinion for 232nd Street Flooding, Langley, B.C. (Defendant).

Boyle & Company Lawyers 2024

Expert opinion for Prairie Creek Flooding, Summerville, B.C. (Plaintiff).

Mohrman, Kaardal & Erickson PA 2024

Expert opinion on flooding issues related to restoration of Roseau Creek in Michigan, USA (Plaintiff) [On-going].



Brian David LaCas, P. Eng., FEC, IntPE (Canada)

Mackoff Mohamed Law Firm 2024

Expert opinion and rebuttal report for dike removal flood concerns, Rolla Creek, B.C. (Plaintiff). [On-going].

Lewis Brisbois Law Firm 2024

Expert opinion on flooding issues related to tunnel flooding and drowning in San Francisco USA (Defendant) [On-going].

Whitelaw Twinning, Barristers & Solicitors, 2024

Expert opinion on flooding for a property in West Vancouver, B.C. (Plaintiff) [On-going].

Preszler Law Firm 2025

Expert opinion for a slip and fall accident 33405 Bourquin Place, Abbotsford, B.C. regarding ice/frost on a wooden walkway. (Plaintiff)

McInnes Cooper LLP/Province of Nova Scotia 2025

Expert Opinion on ditch/culvert erosion potentially causing a hazard, Kentville, Nova Scotia (Plaintiff).

Alexander Holburn Beaudin + Lang LLP, 2025

Expert opinion on drainage design for Ottawa LRT, Ontario, Ontario (Defendant).

Dolden Wallace Folick LLP 2025

Expert opinion on flooding during construction of a culvert on Highway 1, Langley, B.C.(Defendant).

McQuarrie Hunter LLP/ Dolden Wallace Folick LLP 2025

Supplementary expert opinion for 232nd Street Flooding, Langley, B.C. (Defendant). [On-going].

Whitelaw Twinning, Barristers & Solicitors, 2025

Expert opinion on flooding in Oak Bay, B.C. (Defendant?) [On-going]

McInnes Cooper LLP/Nova Scotia Health Organization 2025

Expert Opinion on Liverpool Hospital Drainage Issues, Nova Scotia Health Organization Protective Association; Liverpool, Nova Scotia (Defendant).

Wagner 2025

Expert Opinion on Mud Lake Flood May 2017; Labrador, Newfoundland / Labrador (Plaintiff).

River Flood Hazard Assessments

Green Lakes Golf Course Project, Whistler, B.C., 1990

Review of 1990 Flood on Fitzsimmons Creek and Green Lake impacts the proposed Green Lake Golf Course, (renamed the Nicklaus North Golf Course).

Glencoe Stream and Tavern Creek, Mount Cook, New Zealand, 1996

International Project working with a consortium of engineers on a hazard assessment to road and infrastructure of The Hermitage Ski Resort.

Whistler Creek Flood and Debris Flow Mitigation Project, Whistler, B.C., Flood control and for Whistler Creek base for Whistler Mountain Ski Corporation. **1997**

Horstman Creek, Whistler, B.C.,1997

Flood control design of a river training berm.

District of Mission, Mission, B.C., 1999

Preparation of flood control designs for temporary diking structures along the Fraser River.



Brian David LaCas, P. Eng., FEC, IntPE (Canada)

City of Merritt, B.C., 1999

Preparation of flood control and erosion control designs for Nicola River including hydrological analysis and hydraulic modelling.

Whistler Listel Hotel, Whistler, B.C., 2007

Flood control design with flood control door and floodproofing for wine room.

Sundial Hotel, Whistler, B.C., 2008

Flood control design for hotel office entrance and vent.

Recommendations for flood control for a warehouse/office project for MC Freight.

Aava Hotel, Whistler, B.C., 2009

Paradise Trails Project, District of Squamish, B.C., 2012

Responsible for hydrological and hydraulic analysis including a dam break analysis of a natural landslide dam on the Cheakamus River.

Waldorf School, Whistler, B.C., 2013

Flood control review of school located on Fitzsimmons Creek floodplain.

Three Points Development, Colwood, B.C. 2014

Flood control for land development project

Panorama Ridge Project, Whistler, B.C., 2015

Responsible for hydrology and flood control for an unnamed drainage on Whistler Mountain, work included the design of a stepped flood channel.

Fraser River, Maple Ridge, B.C., 2015

Flood control design for facilities in underground parking area.

Seymour River, District of North Vancouver, B.C., 2015

Flood control engineering for a proposed dwelling along the Seymour River.

Gavles Creek, District of North Vancouver, B.C., 2016

Responsible for hydraulic modelling of Gavles Creek and recommendations for flood control for a private property owner.

Resort Municipality of Whistler, Whistler, B.C., 2016

Review of floodbox damage in White Gold Estates along White Gold Dike on Fitzsimmons Creek.

Fraser River, Mission, B.C. 2016

Preparation of spur dike designs along Fraser River for erosion/scour protection for the Fraser Pacific industrial lands.

Crabapple Creek, Whistler, B.C., 2017

Flood control design for a floodwall along Whistler Golf Course.

Resort Municipality of Whistler, Whistler, B.C. 2017

Responsible for the hydraulic design of a flood bypass channel design for Twenty-One Creek.

Steele Properties, Hope, B.C., 2017

Responsible for the hydrological and hydraulic analysis for flood control on the lower Coquihalla River and flood control engineering for a subdivision.

White Glacier Project, Whistler, B.C., 2017

Responsible for the flood control for several areas of habitation including 1-D Modelling and 2-D Modelling as well as a transfer of risk assessment.



Brian David LaCas, P. Eng., FEC, IntPE (Canada)

Nesters Crossing Project, Whistler, B.C., 2017

Responsible for flood control for several areas of habitation including 1-D Modelling and 2-D Modelling as well as a transfer of risk assessment.

Resort Municipality of Whistler, Whistler, B.C., 2017

Responsible for hydraulic design of the Fitzsimmons Creek Dry Channel and bike park.

District of Hope, Hope, B.C., 2017-2022

Hydrological and hydraulic analysis for flood control on the lower Coquihalla River.

Langford Heights Development, Strand/Bastion Development, Saanich 2020

Hydrological and hydraulic analysis for flood control on Millstream Creek. Trudy Creek relocation and Millstream Creek flood channel hydraulic design.

Squamish B.C., Paul Wood Development Project, 2021

Flood control review and recommendation of open surface garage in floodway.

Whistler B.C., Cameron Wallin Flood Control, 2021

Hydraulic analysis for flood control on River of Golden Dreams

Colwood, B.C., Flood Hazard Assessment, 2022

Flood control report for a subdivision on Wishart Creek.

North Vancouver, B.C., Flood Hazard Assessment, 2022

Flood control report for a women's centre near Mackay Creek.

Coquitlam, B.C., Minnekhada Project, 2022

Flood control scheme for agricultural/commercial/residential project on Pitt River.

Mission, B.C., Flood Construction Level, 2022

Flood control report for a proposed dwelling on the Fraser River.

Bridge, Dike (Levee), Hydraulic Design

Island Highway Nanaimo By-pass Project, Nanaimo, B.C., 1982-1988

Water Management Engineer-review of highway bridge crossings and impact on the water resources of numerous creeks.

Resort Municipality of Whistler - Lorimer Road Bridge Project, Whistler, B.C., 1989,

Project Engineer - bridge hydraulics study of the proposed \$3 Million, 40 m long concrete bridge crossing Fitzsimmons Creek. Design included erosion protection works along the main channel and a side channel of Fitzsimmons Creek.

Nicklaus North Golf Course Fairway 1 & 3 Bridge Project, Whistler, B.C., 1992

Hydrological analysis and bridge hydraulic design for a construction road including the determination of the 200-year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

Venture Pacific Development Corporation, Pemberton, B.C., 1994

Carried out a hydrological assessment and river training berm design on Pemberton Creek for a 54-townhouse development.

Stensen Creek Bridge Project, Retallack, B.C., 1995

Hydrological analysis and bridge hydraulic design for a cat ski road.

Frederick Creek Bridge Project, Port Alberni, B.C., 1995

Hydrological analysis and bridge hydraulic design for a logging road including the determination of the 50 and



Brian David LaCas, P. Eng., FEC, IntPE (Canada)

100-year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

South Main 25KM Creek Bridge Project, Port Alberni, B.C., 1995 – hydrological analysis and bridge hydraulic design for a logging road including the determination of the 50 and 100-year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

Stephanie Creek Bridge Project, Port Alberni, B.C., 1995

Hydrological analysis and bridge hydraulic design for a logging road including the determination of the 50 and 100-year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

Tenas Creek Bridge Project, Port Alberni, B.C., 1995

Hydrological analysis and bridge hydraulic design for a logging road including the determination of the 50 and 100-year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

Corter Creek Bridge Project, Port Alberni, B.C., 1995

Hydrological analysis and bridge hydraulic design for a logging road including the determination of the 50 and 100-year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

Nadira Creek Bridge Project, Port Alberni, B.C., 1995

Hydrological analysis and bridge hydraulic design for a logging road including the determination of the 50 and 100-year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

Barbara Creek Bridge Project, Port Alberni, B.C., 1995

Hydrological analysis and bridge hydraulic design for a logging road including the determination of the 50 and 100-year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

Birch Creek Bridge Project, Creston, B.C., 1995

Hydrological analysis and bridge hydraulic design for a logging road including the determination of the 100year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

Little Moyie Creek Bridge Project, Creston, B.C., 1995

Hydrological analysis and bridge hydraulic design for a logging road including the determination of the 100year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

O'Brien Creek Bridge Project, Creston, B.C., 1995

Hydrological analysis and bridge hydraulic design for a logging road including the determination of the 100year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control.

Spider Creek Bridge Project, Creston, B.C., 1995

Hydrological analysis and bridge hydraulic design for a logging road including the determination of the 100year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

Klaskish River Bridges, Port Hardy Operations, B.C., 1996

Carried out a hydrological review of 3 bridge crossings on the Klaskish River including the determination of the 100-year return period flood levels, bridge scour depth calculations, bridge waterway opening, and erosion control works.



Brian David LaCas, P. Eng., FEC, IntPE (Canada)

Carol Creek Bridge Project, Revelstoke, B.C., 1996

Hydrological analysis and bridge hydraulic design for a logging road including the determination of the 100-year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

Wood River Trib 'A' Bridge Project, Revelstoke, B.C., 1996

Hydrological analysis and bridge hydraulic design for a logging road including the determination of the 100-year return period flood levels, bridge scour depth calculations, bridge waterway sizing and erosion control works.

Horstman Creek Flood & Debris Torrent Control, Whistler B.C., 1997

Design of a 140 m long river training berm with erosion control works to provide protection for development to be constructed on the slopes of Blackcomb Mountain. Work included an assessment of the upper watershed and channels of Horstman Creek to investigate potential sediment loading.

Klaskish River Road Alignment Design, INTERFOR, Port Hardy, B.C., 1998

Design of road encroaching into riverbed. Hydraulic design of road berm and erosion and scour protection works.

Misery Creek Audit of Bridge Failure, West Coast of B.C., 1999

Carried out a forensic review of the Misery Creek logging road bridge (designed and built by others). Work included a site investigation, key hydraulic data collection, video and photo record, on-site construction inspection of emergency works, and preparing an emergency action plan to mitigate potential damage to fisheries habitat and to stabilize the crossing.

Swan Creek Restoration, Victoria, B.C., 2000

Preparation of riparian restoration design and flood control modelling.

Britannia Creek and Mineral Creek Bridge Review Project, Britannia, B.C., 2004 Hydrological analysis and bridge hydraulic design for a two existing vehicle bridges including the determination of the 200-year return period flood levels, design velocity, bridge waterway sizing and review of existing erosion control works.

Rogers Creek Bridge Project, Lillooet Lake, B.C., 2005

Hydrological review and construction review for the Lillooet Lake Road 36 m long bridge replacement across Rogers Creek hydraulic design for a logging road including the determination of the 200-year return period flood levels, bridge waterway sizing with 1.5 metres freeboard and erosion control works.

Cheam Creek, Cheam First Nation, B.C. 2016

Responsible for hydrology and hydraulics and scour protection of a pipeline crossing Cheam Creek.

White Glacier Project, Whistler, B.C., 2016

Design of river training berm along Nineteen-Mile Creek.

River Restoration

Fitzsimmons Creek Restoration, Whistler, B.C., 1991

Carried out review and prepared designs for the restoration of Fitzsimmons Creek after the 1991 Flood.

Millar Creek Erosion Control Works & Fisheries Corridor, Whistler, B.C., 1992

Design of 300 m of erosion control works and the provision of a fisheries corridor for riparian vegetation. Work site description and photograph published in B.C. Professional Magazine.

Mosquito Creek Restoration, District of North Vancouver, B.C., 1997

Design of a compensatory backwater channel works refuge, fish habitat restoration within Mosquito Creek Park. Design and construction review.



Brian David LaCas, P. Eng., FEC, IntPE (Canada)

Colquitz Creek, Saanich, B.C., 2002

Provided the preliminary hydrological studies, finger channel design and construction supervision services for the restoration for Quick's Bottom wetland, within the Colquitz Creek watershed.

Boyd Creek Relocation, Whistler B.C., 2007

Preparation of a channel design and construction review of the relocation of Boyd Creek for the 2010 Olympics.

Mark Creek Restoration, Kimberley, B.C., 2015

Preparation of riparian restoration design and flood control modelling for Mark Creek flume project. 2017 Environmental Award, Engineers Geoscientists British Columbia.

Maple Creek, Surrey, B.C., 2016

Review of bank erosion and instream weir with recommendations for stream restoration.

Langdale Creek Restoration, Gibsons B.C. (2008)

Preparation of a channel design and fish refuge channel for BC Ferries Inc.

River Channel and Watershed Assessment

River of Golden Dreams, Hydrological Assessment, (Whistler)1989

A hydrological study of the River of Golden Dreams (Alta Creek), for the Environmental Impact Assessment for the Green Lakes Golf Course project.

Ministry of Environment, Penticton, B.C., 1996

Carried out a Level 1 & 2 Interior Watershed Assessment of the Keremeos Creek watershed. Work included training local persons in hydrology and the Channel Assessment Procedure.

Twin Creek Watershed Assessment, Revelstoke, B.C., 1996

Hydrological assessment to determine potential hydrological impact of future logging within the watershed.

Ministry of Environment, Penticton, B.C., 1996

Carried out a Level 1 & 2 Interior Watershed Assessment of the Shingle Creek watershed, including training local persons in hydrology and the Channel Assessment Procedure.

Ministry of Environment, Squamish, and B.C., 1997

Carried out a Level 1 Coastal Watershed Assessment of the Squamish River watershed, including training local persons in hydrology and channel assessment procedure.

Silver Star Mountain Watershed Assessment, Vernon, B.C., 1997

Responsible for hydrological assessment of a proposed golf course, channel assessments on the headwaters of Coldstream Creek and Vance Creek, helicopter reconnaissance of watershed, hydrological analysis of rainfall, snowpack and peak stream flows, stream gauging and establishing wetland water level monitoring sites was carried out.

Gold Creek Reservoir Watershed Assessment, Cranbrook, B.C., 1998

Carried out a channel assessment as part of a team for both Gold and Joseph Creeks which feed the Phillips Reservoir for Cranbrook, BC.

Jennis Lake Fish Habitat Restoration, Jennis Lake, B.C., 1999

Work carried out included an on ground and helicopter video reconnaissance, collection of habitat information and dam site measurements, low-intensity fish survey, measurement of DO levels, sedimentation source identification, hydrometric survey, dam removal scenarios and restoration designs for fish habitat.



Brian David LaCas, P. Eng., FEC, IntPE (Canada)

Ministry of Environment, Lillooet River Watershed, B.C., 2001

Operational Inventory of Douglas Creek, Gowan Creek and Rogers Creek requiring the selecting of a suitable stream gauging and Hydrometric/Climate station site within the Squamish River watershed.

2010 Vancouver Olympics, Whistler, B.C., 2004

Responsible for Phase I & II, Hydrology Study of the proposed cross-country, biathlon and ski jump venues at the Callaghan Valley.

River Erosion and Scour Protection

West Kettle River, Beaverdell, B.C., 1995

Review of flood/erosion requirements for a development site along the West Kettle River.

Fitzsimons Creek Erosion Control, Whistler, B.C., 1999

Design and construction review of 300 m of erosion control works and the provision of a fisheries corridor for riparian vegetation.

Blenkinsop Creek Restoration Design, Saanich, B.C., 2004

Designed a new 600m long meandering channel using specialized techniques and a multi-disciplinary approach to provide the farmer with a contiguous field simplifying access, irrigation and farm management.

Avalon Creek & Shoreline, Langdale, B.C., 2000

Provided a hydrological assessment of Avalon Creek and river/shoreline engineering design to protect sediment basin facilities for the Avalon Dry Land Sort facility

Fraser River, Mission, B.C., 2016

Preparation of preliminary spur dike designs along Fraser River for erosion/scour protection for the Fraser Pacific industrial lands.

Market Creek & Reedville Creek, Surrey, B.C., 2017

Responsible for the review of scour depths and hydraulic modelling of natural landslide damming of the creeks.

Fraser Riverbank Review, Maple Ridge B.C., 2021

Field review and recommendations for general riverbank protection works.

Water Licencing

Water Licencing Investigations, Vancouver Island, B.C., 1982-1988

Water resource investigations of several watercourses to determine water availability for licencing under the BC Water Act.

Water Development Plan for Farm, Surrey, B.C., 2016

Responsible for a water resource investigation of the Nicomekl River a blueberry farm's short term use of water for crop irrigation.

Ocean Shoreline Engineering

B.C. Ferry Corporation, Langdale, B.C., 2010

Preparation of the design of shoreline remedial works for the Langdale Ferry Terminal.

374 Sea Shell Lane, North Vancouver, B.C., 2020 [on-going]

Preparation of the design of coastal flood construction level based on ocean wave modelling.

382 Sea Shell Lane, North Vancouver, B.C., 2020

Preparation of the design of coastal flood construction level based on ocean wave modelling. Recommending innovative self-raising flood barrier.



Brian David LaCas, P. Eng., FEC, IntPE (Canada)

5293 Indian River Road, North Vancouver, B.C., 2020

Preparation of the design of coastal flood construction level based on ocean wave modelling. Recommending innovative self-raising flood barrier and specialized flood glass barrier.

524 Lawry Lane, North Vancouver, B.C., 2020

Preparation of the design of coastal flood construction level based on ocean wave modelling.

Mining Water Management

Chu Chua Mine Project – Barriere, B.C., 1988-1991

Prepared a detailed regional hydrological study for the Stage 1 Environmental Assessment of the proposed Chu Chua Mine.

Mount Milligan Mine Project – Mackenzie, B.C., 1988-1991

Prepared a detailed regional hydrological study for the Stage 1 Environmental Assessment of the proposed Mount Milligan Mine.

Suncor, Fort McMurray, AB, 2005

Detailed hydrological modelling and river engineering design for artificial watershed on cap over Suncor pond with several channels and waterfalls. modelling included using Proper Functioning Condition principles in the design as well as channel equilibrium design principles.

Questa Mine, Taos, New Mexico, 2006

Hydraulic sizing of tailings pond spillways. Special design of steep rock lined spillways.

Trend Mine Expansion – Tumbler Ridge, B.C., 2006

Prepared a surface water study for the environmental assessment and permit application for the expansion of the Trend Mine for Northern Energy & Mining Inc. The work included rainfall runoff modelling and pond sizing for 10 sub-catchment areas. In addition, a preliminary design was carried out for a diversion channel to divert a stream channel around an open pit operation. Hydrological and hydraulic review of weirs.

Perry Creek Mine Expansion – Tumbler Ridge, B.C., 2007

Prepared a surface water study for the environmental assessment for Western Canada Coal Corporation. The work included rainfall runoff modelling and pond sizing for sub-catchment areas.

Willow Creek Mine, Chetwynd, B.C., 2009

Ditch sizing and North Pond 10-year volume and 200-year inlet/outlet works, plus construction drawings and reviews. Outlet work design and construction inspection included a concrete culvert constructed under the CN Rail. Design of a 3.6m dia. 90m long inlet pipe with an articulated concrete block spill pad design to prevent damage to the pond liner. Design of a 3m dia. culvert for ND2 including concrete cloth design of channel. Design of the emergency spillway for the North Pond with an articulated block spillway pad design. Recommendations for a decant pipeline flow monitoring device.

Quinsam Coal, Campbell River, B.C., 2009

Hydrological modelling and hydraulic modelling for ditches, inlets and outlets. Evaporation and evapotranspiration Model for 100-year time period to determine the variation in potential inundation of PAG in two ponds.

Efemcukuru Mine, Turkey, 2013

General hydrological review. Review of outlet channel profile and recommendation for channel design based on hydraulic modelling results.



Brian David LaCas, P. Eng., FEC, IntPE (Canada)

Kisladag Mine, Turkey, 2013

Hydrological modelling of the North Dump for 100-year flood. Preliminary sizing of construction, phased and full mine ditching for EIA. Special preliminary design of drop structures. Review of 100-year flood storage requirements for ponds. Review and preliminary design of terrace ditch structures. Review of construction methods applicable to the mine site in Turkey.

Peace River Coal Mine, Tumbler Ridge, B.C., 2014

Hydrological modelling for the 10-year, 200-year and PMF for the mine site. Open channel hydraulic modelling to determine ditch sizing and Roman Pond 1 and 2 for the 10-year volume and 200-year inlet/outlet works, plus construction drawings and reviews. Outlet work design and construction inspection included a measurement weir for both Roman Pond 1 and 2 spillway outlet channels. Design of several ditches and design of two PMF kick out lateral weirs.

Ajax Mine, Kamloops, B.C., 2015

Responsible for hydrological modelling for the 200-year and PMF for Jacko Lake. Determination of the PMF storage volume for Jacko Lake.

Mount Polley – Williams Lake, BC, 2021 - Present

Member of the Independent Engineering Review Panel for the Mount Polley Mine.

END OF DOCUMENT