STUART RIVER BRIDGE

The 235-metre Stuart River bridge is a single-lane, 4.9-metre-wide temporary bridge installed in support of the Coastal Gaslink project, across Stuart River in northeast BC. The nine-span bridge consists of an 85-metre main span, a 30.5-metre jump span, and seven 15-metre approach spans supported on driven piles. The main and jump span girders were incrementally launched across the Stuart River to minimize instream works. This project was designed with sustainability in mind, as all the bridge components were designed to be reused following removal of the bridge. The bridge construction started in April 2020 and was completed in June 2020 by Surespan Construction and the Nak'azdli Whut'en First Nation.

Participants: Onsite Engineering Ltd.: Paul Mysak, P.Eng.; Associated Engineering: Julien Henley, P.Eng., Helen Du, P.Eng., Jack Jiao, P.Eng.; Thurber Engineering: David Tara, P.Eng., Steven Coulter, P.Eng.; Coastal Gaslink, SA Energy Group, Surespan Construction, Nak'azdli Whut'en First Nation.

CLAYTON COMMUNITY CENTRE

This 53,800 square-foot, two-storey Passive House building features a dazzling double-height space at the main entry and a unique mix of community spaces. Working together, our engineering teams capture the architectural vision using intricate geometric shapes in a creative and environmentally conscious way. The aesthetic goal of establishing a "lattice-like" roof structure resembling tree canopies native to the area is achieved using an assembly of reciprocating "pinwheel" shaped modules. The two-way wood system allows the structure to span to discrete column locations without the need for dropped beams, a truly innovative approach. Fifteen custom-made 1'x1' LED panels, developed through expert coordination across various disciplines, illuminate architectural triangles scattered across the building's interior with diffused lighting to create an inviting and playful atmosphere. Sustainability and Passive House targets are central to the project and formed a guide to the centre's design and layout early on, driving us to maximize energy efficiency across all elements.

Participants: City of Surrey; HCMA Architecture + Design; RJC Engineers: CC Yao, P.Eng., Struct.Eng., Meredith Anderson, P.Eng., Struct.Eng.; AES Engineering: Andy Su, Sunny Ghataurah, P.Eng.

ROGERS PASS HIGHWAY 1 SNOWSHEDS LIGHTING

Motorists travelling the Trans-Canada Highway through Glacier National Park navigate through a series of five snowshed structures protecting the highway from a stretch of Rogers Pass avalanches. In 2015, Parks Canada engaged McElhanney Ltd. and PBX Engineering Ltd. to provide complete engineering planning and design, project, and construction management services for the installation of a new LED lighting systems in each snowshed. The LED lighting replaced existing high-pressure sodium lighting in the snowsheds and brought extensive upgrades to the power distribution system, including a 25-kilovolt substation and three avalanche-proof bunkers located adjacent to the snowsheds. Construction was challenged by the remote location and limited construction windows.

Participants: Alex Cosovanu, P.Eng., Principal and Senior Design Engineer; Annie Beauvillier, P.Eng., Design Engineer; Naginder Jabbal, P. Eng.; Richard Singer, P. Eng., Senior Construction Manager; Simon Armstrong-Bayliss, P. Eng., Project Manager.

KLUSKUS DOMESTIC WATER SYSTEM IMPROVEMENTS

Lhoosk'uz Dene Nation, located on Kluskus Lake, approximately 130 kilometres west of Quesnel, BC, have relied on bottled water since the early 2000s. Collaborating closely with the Nation, Indigenous Services Canada, First Nations Health Authority, and Reseau CMI, Associated Engineering worked to provide safe and reliable drinking water for the community. A Community Circle approach was adopted for this project, in response to the *Truth and Reconciliation Commission of Canada: Calls to Action*. This approach involved open dialogue and idea-sharing from all Community Circle members to encourage and facilitate full, honest, and respectful engagement with the Lhoosk'uz Dene Nation. In 2020, the team completed the construction of two new water supply wells; a new water treatment plant with UV and chlorine disinfection, and a new transmission main connecting to the existing water storage reservoir.

Participants: Freda Leong, P.Eng., Michael Owen, P.Eng., Robyn Casement, P.Eng., Kyle Shaw, P.Eng., Luc Blanchette, P.Eng. (APEGA).