John Hart Dam Seismic Upgrade Project

Community Construction Report #4:

Early Site Works Transitioning To Project Construction

May-June 2023

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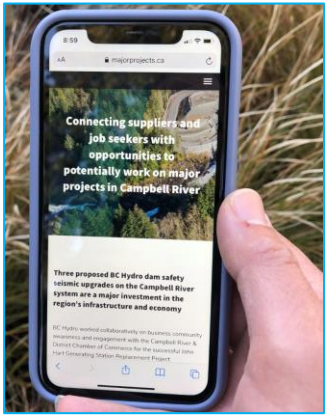
Project Status

- Completed: Early site works that include new construction laydown areas, a new non-public boat ramp into John Hart Reservoir, and power line and fibre optic relocations. Some construction photos are shown to describe the site activities from May to June.
    - No lost time accidents.
- May 2023: Successful completion of the BC Utilities Commission process. The Commission found the project's expenditures to be in the public interest.
- June 2023: Received the Fisheries Act Authorization (FAA) for the project from Fisheries and Oceans Canada. The FAA provides the ability for project work near and within water. One of the project fish mitigation works is detailed on page 18.
- June 2023: Received Species at Risk Act permit from the Ministry of Environment and Climate Change Canada. This permit relates to Barn Swallow empty nest relocations from the concrete section of the John Hart Dam. In our September-December 2022 construction report we showed the Barn Swallow condo construction, as mitigation, within the John Hart Facility lands.

Project Schedule

- July 4: Begin seismic upgrade project for the John Hart Dam
- July 10: Brewster Lake Road closed across the dam for about six years
- Late July: Begin work on berms along penstock corridor with the placement of berms. This work will allow for the placement of the dredgeate material that will be removed within the reservoir immediately upstream of the John Hart Dam. The barge and crane dredging may begin in fall 2023
- Late July: Begin installation of double-silt curtain within the John Hart Reservoir
- August: Begin concrete work on spillway section of the dam (photo shown below)
- October: Begin work on new water seepage barrier within the Middle Earthfill Dam



General project information, including for job seekers and subcontractors, can be found at www.majorprojects.ca

Early Site Works Construction Photos

The completed boat ramp for BC Hydro use. Not for public use.

Early Site Works Construction Photos

View down the completed boat ramp.

Early Site Works Construction Photos

A concrete barrier was placed to protect worker pedestrian access and the adjacent wetland.

Early Site Works Construction Photos

View from the boat ramp of the clear water of the John Hart Reservoir.

Early Site Works Construction Photos

View of the reservoir, dock and John Hart facility in the background.

Early Site Works Construction Photos

View from the North Earthfill Dam.

Early Site Works Construction Photos

A view, looking towards the John Hart Reservoir, of the main laydown area that's being occupied with office trailers and eventually other project-related materials, equipment, and storage. The Aecon-EBC General Partnership, the contractor building the civil works or first stage of the project, has been busy getting things set up so they can begin work in July.

Early Site Works Construction Photos

Another view from the other side of the trailers looking back towards the reservoir.

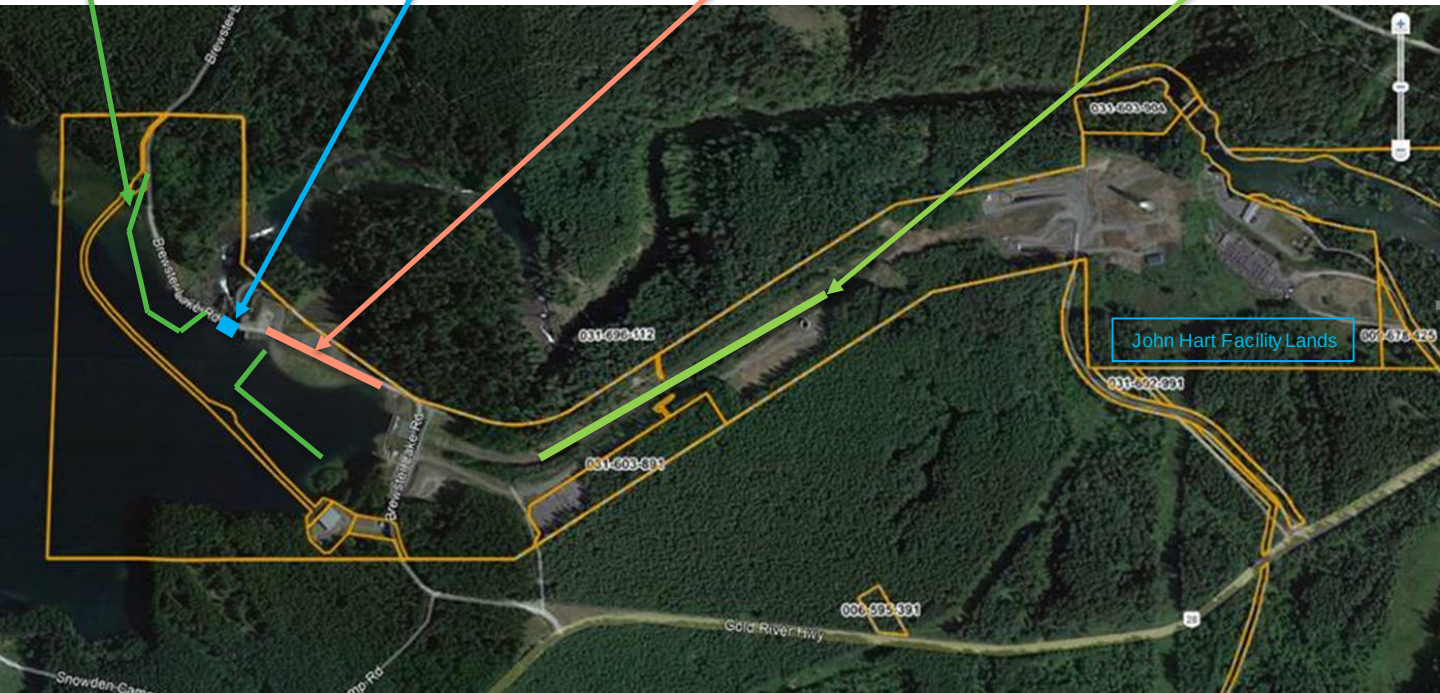
Project Construction – John Hart Site Map

Approximate location of silt curtains installation.

Work on concrete dam.

Work on water seepage barrier.

Work area for new berms placed within the old penstock corridor.



Public Notice: Closure of Brewster Lake Road Across the John Hart Dam

Six-year Brewster Lake Road across John Hart Dam closure begins July 10

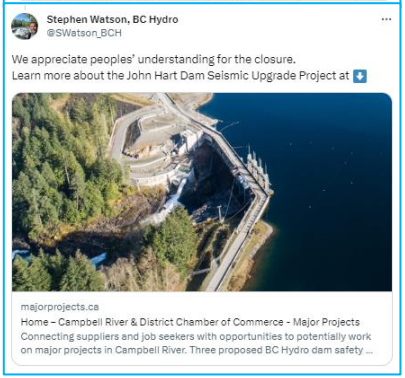
We are providing public notice that Brewster Lake Road across the John Hart Dam will be closed for about six years starting July 10, at 8:00 am, to enable construction of important seismic upgrades to the dam. Road closure signage will be placed in various areas to advise of the road closure. During the closure the detour route is Highway 19.

The six-year road closure is required for the John Hart Dam Seismic Upgrade Project. The road across the dam was closed for about three years from 2015 to 2018 during the John Hart Generating Station Replacement Project.

The key components of the seismic upgrade project are new water seepage barriers and stability improvements to the earthfill dams, new spillway gates and hoist systems, and a new overflow spillway on the main concrete dam.

Unlike other social and environmental elements of the project that may be mitigated or enhanced, there are no other viable road detour alternatives than using Highway 19 to loop around. We appreciate peoples' understanding of the need for the closure to allow us to complete this important seismic upgrade work. The road is planned to re-open in summer 2029 and once the project is finished by 2030, the John Hart Dam will be able to withstand a major earthquake event and also be able to safely pass water downstream after the event has taken place.

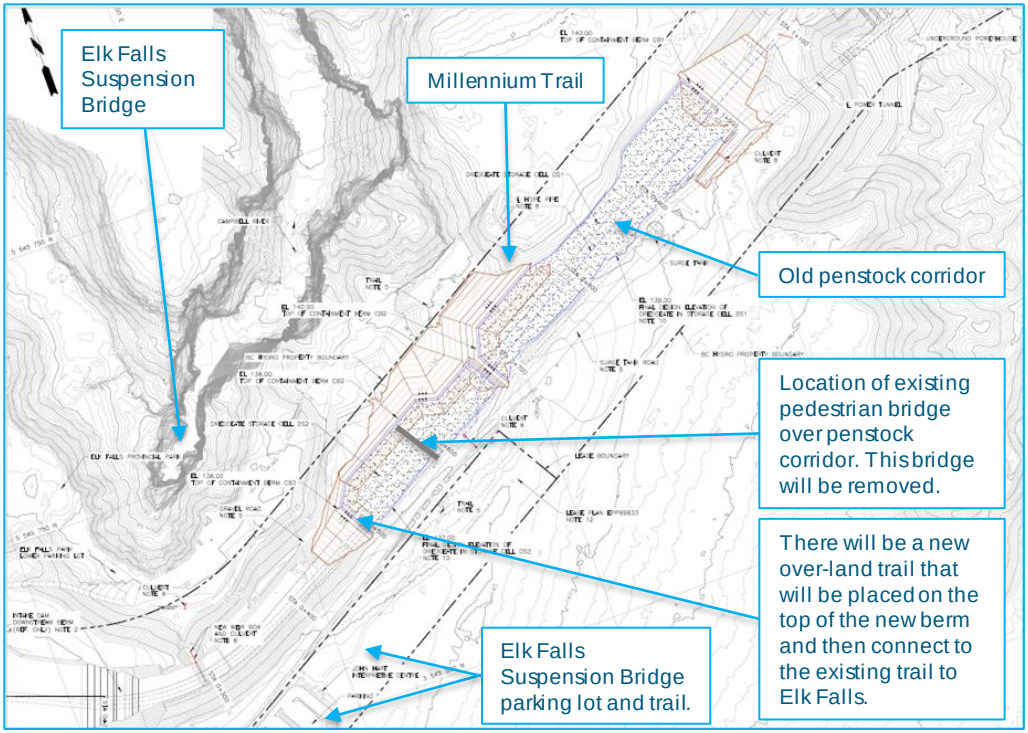
You can follow the project along with news, updates and regular construction reports at www.majorprojects.ca.



Planned Construction – Old Penstock Corridor

This area will be the biggest public point of interest as people will walk past this work area on the way to the Elk Falls Suspension Bridge. The brown lines show the first stage of the work with the placement of the berms. The blue lined and dotted area shows the placement of the dredgeate material.

To complete the work there will be some trail closures to the Millennium Trail and to the trail leading from the Elk Falls Suspension Bridge parking lot. There will also be trail reconfigurations within the penstock corridor. Any required trail closures will be communicated in advance.

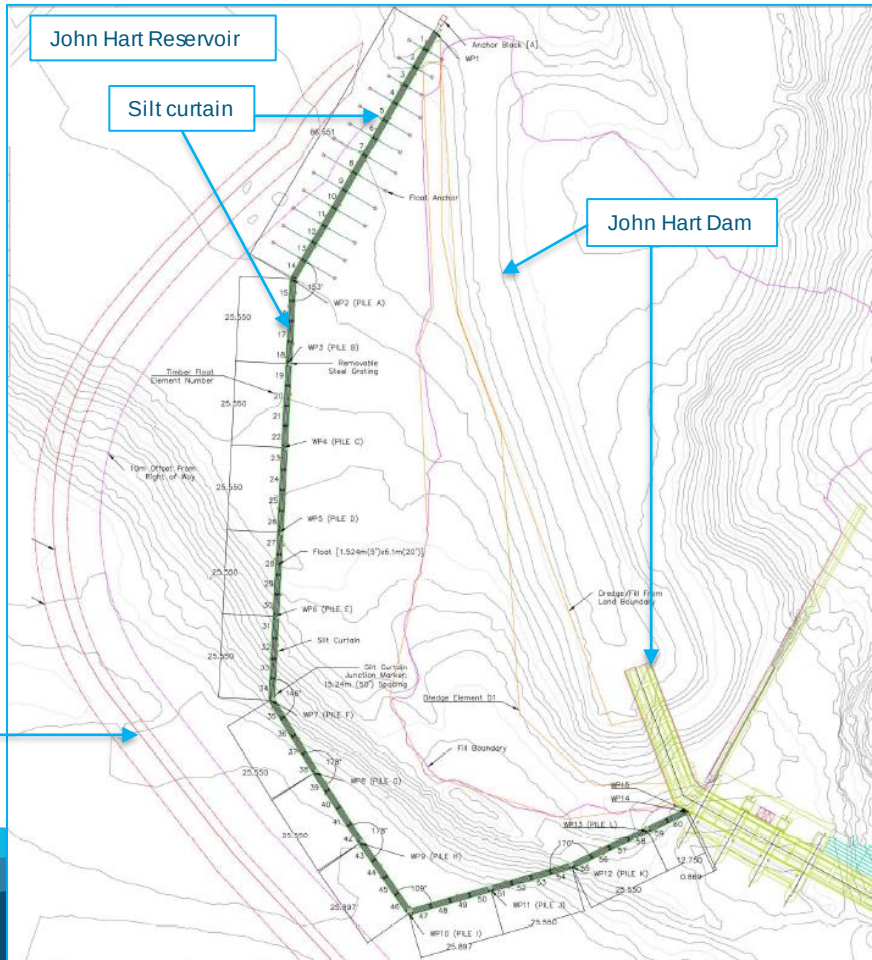


The work will take place this summer, starting at the far east berm. The main trail may be modified, and the pedestrian bridge removed, over the next year.

Planned Construction – Silt Curtains Within John Hart Reservoir

Protecting water quality within the reservoir for fish habitat and domestic water supply is a major goal for the project, and the biggest community point of interest. Diligent planning between BC Hydro and our contractor is illustrated by the diagram showing the placement of the curtains on the upstream side of the North Earthfill Dam. The double silt curtain will be anchored in place with steel piles, with the curtains able to move up and down as needed with reservoir level fluctuations. Floating anchors will be used for the shallow reservoir area on the north side of the curtain. Work will begin on the curtain in July. Once in place the curtains will contain water turbidity within the work zone. The double silt curtain for the Middle Earthfill Dam will be completed later this year.

City of Campbell River water line that runs along the bottom of the reservoir.



Planned Construction – Concrete Dam

Work will begin on various components of the concrete dam, including upgrades to the left bank concrete training wall (the wall guides water flow downstream) shown in the foreground. This work will also help set the stage for the work on the earthfill berm to be placed on the downstream side of the North Earthfill Dam.

Site Photo – Riparian Area off North Earthfill Dam

This is the site area for the upstream berm. Riparian areas around the construction site that will be impacted by the seismic upgrades will be mitigated. Impacts to this site will be offset by fish habitat enhancement work at the same location once the berm is in place. Any impacts to riparian habitat on the downstream side of the dam will be mitigated by some planned enhancement work within the estuary – see next page.

John Hart Dam – Environment

Fish mitigation project with Greenways Land Trust

The project is partnering with Greenways to implement riparian habitat enhancement in the Campbell River estuary to offset project impacts on riparian habitat immediately downstream of the John Hart Dam. The impact is from downstream works to the Middle Earthfill Dam and North Earthfill Dam.

An area of about 6,170 m2 will be enhanced within the estuary to improve the habitat quality and functions for fish rearing. The work will have the dual benefit of removing invasive blackberries and replacing them with native conifers, alder and shrubs. Four of the five areas that will be enhanced are shown in the estuary map. This initiative is part of Fisheries and Oceans Canada offsetting requirements and is in addition to fish habitat enhancement works BC Hydro will implement around John Hart Reservoir. BC Hydro recently received a Fisheries Act Authorization for the project.

Greenways is a conservation organization that aims to enhance the community through the creation and management of networks of greenways, based on stewardship principles. Greenways is responsible for managing and completing restoration work around Campbell River, including in the Campbell River estuary.

People Profile – Zach Everson

About Zach

Background:

Zach has been working in and around water for the last eight years, starting as a summer student and now as a Fisheries Technician for the A-Tlegay Fisheries Society. Zach obtained his commercial diving certificate and has worked on environmental assessments and species surveys throughout Jackson Bay to Comox. Zach also works as an environmental monitor, working on construction projects for the last few years around Campbell River.

Home:

Zach was born and raised in the Comox Valley, is a member of the K'ómoks First Nation, and is currently residing in Campbell River.

Hobbies:

He enjoys fishing, hunting, scuba diving, and golf.

Project Responsibility:

Zach has worked as the early works environmental monitor. He completed daily checks of all machinery, tailboards with the crew, and monitored work to ensure environmental standards were held. Zach conducted all the amphibian salvages prior to construction of the boat ramp.

"It's been a pleasure to work with so many great people during the early works to prepare for the John Hart Dam upgrades. I look forward to working alongside the local First Nations and BC Hydro on this project."

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People Profile – Zach Everson

Kudos: Zach was very diligent in the salamander recoveries over about a 40-day period, and to celebrate his dedication, to his surprise the small wetland beside the boat ramp was named Zach's Wetland. These fun recognitions build comradery and help support project environmental initiatives and monitoring.

Sign

People Profile – Brock Greif

About Brock

Background:
Prior to working on the John Hart Dam, Brock worked in fish plants processing salmon for six years.

Home:
Brock lives in Campbell River on the We Wai Kai Quinsam lands.

Hobbies:
Brock enjoys hunting and fishing, and working out at the gym.

Project Responsibility:
Brock, who works for a project subcontractor called the Roga Group, is all about working safely and those around him, and in keeping Campbell River's drinking water clean.

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Construction Point of Interest

Tribute paid to retiring BC Parks official on Elk Falls Suspension Bridge's eighth anniversary

ALISTAIR TAYLOR
Campbell River Mirror

Eight years of operation and the impending retirement of one of the movers and shakers of the Elk Falls Suspension Bridge project prompted a small get together at the popular Campbell River attraction recently.

While disbelief was expressed that the iconic bridge was already eight years old – it opened in May 2015 – there was agreement that it came about because everybody involved did what had to be done to make the project a reality. And one person in particular, BC Parks' area supervisor Brent Blackmun, was being recognized for the crucial role he played in bringing the bridge from a concept drawing to a popular attraction that has drawn 1.4 million visitors since opening.

Rotarian Lorrie Bewza, who was one of the originators of the idea to build the bridge, and BC Hydro's Stephen Watson, who represented the power utility that funded and facilitated a lot of the project, cited Blackmun's key role in making it happen.

Watson said BC Hydro and BC Parks have had many occasions to interact over the years because the John Hart hydroelectric facility is located beside Elk Falls Provincial Park. With the Canyon View Trail operations, water release for flood risk management and the $1 billion John Hart Generating Station replacement project, BC Hydro worked closely with BC Parks and particularly Blackmun.

"You know, he's a good person, he's trying to find solutions. He's asking hard questions. He's protecting the park. And yet, the biggest thing is collaboration," Watson said. "He's open to discussion and finding good solutions for the park or BC Hydro and making our system safe and reliable."

From left: Rotarian Lorrie Bewza, Brent Blackmun, BC Parks area supervisor, and Stephen Watson, BC Hydro spokesperson, visited the Elk Falls Suspension Bridge Wednesday, May 24, 2023, on the occasion of Blackmun's impending retirement and the bridge's eighth anniversary. All three were instrumental in getting the bridge built and Watson and Bewza took the moment to thank Blackmun for his crucial rule in shepherding the project through to completion. Photo by Alistair Taylor/Campbell River Mirror

The benefit out of that relationship is the "amazing community asset" that is the Elk Falls Suspension Bridge. Watson said he just wanted to mark Blackmun's retirement, which conveniently coincides with the bridge's eighth anniversary, and "thank him for just going that extra mile all these years to have a really nice benefit for the community."

Projects like the bridge involve many people in all of the organizations involved, Watson said, "but as a point person, he was always great to work with."

Bewza said he never tires of visiting the bridge and seeing what was accomplished. He said he learned a lot during the process, a time he termed "a very interesting period."

"I learned an awful lot, especially from Brent, from Stephen, on all the nuances, all the little details that have to be considered – the impact on the environment and the people, the stakeholders," he said. "Working with Brent and Stephen, it was a joy because there was three people that wanted to make this happen. And any problems you ran into, we figured out a solution."

Blackmun said the bridge has been a "career project" that seems like it started a long time ago. The construction happens fast, he said, but "all the preparation takes forever."

These types of projects don't happen without community effort, the partnership between groups like Rotary which has been active in the park for decades, plus the support, financial and otherwise, from BC Hydro. BC Parks and BC Hydro's interface in Elk Falls Park has been "so intimate," Blackmun said.

He added that it's easy to focus on the suspension bridge but there are so many other benefits that are connected to that project that benefit the park in other ways. A new and better parking lot to access the falls is an offshoot of the bridge. That has taken the pressure off the grove of old growth in the park where the main parking lot used to be. The bridge project also allowed for the augmentation of salmon in the river by providing a place where a spawning gravel delivery system could be put in.

"So, there's a lot more to the project than meets the eye, in terms of the public recreation," Blackmun said.

Watson acknowledged that the suspension bridge is a unique project both in the actual bridge – it's the only suspension bridge within a BC Park – but also the community collaboration that brought it about and that was embodied by the legacy of the work done by Blackmun.

Campbell River Dam Safety Coordination

BC Hydro submits two projects to BC Utilities Commission

BC Hydro has achieved another capital project milestone this month by submitting a combined project application to the BC Utilities Commission on the planned seismic upgrades to the Strathcona and Ladore facilities on the Campbell River hydroelectric system.

"These two upgrade projects, along with the John Hart Dam seismic upgrades, will enable these facilities to continue to safely pass water downstream following a major earthquake or during a major flood event," says BC Hydro spokesperson, Stephen Watson. "These projects are about downstream public safety."

The Strathcona Dam Water Discharge Upgrade Project is required to address dam safety risks at the facility and enable the lowering of the reservoir water level after a major earthquake.

"The Strathcona project will replace or upgrade seismically deficient structures and components of the dam's spillway area to provide post-earthquake reservoir level drawdown capability," says Watson. "It is also to provide improved facility reliability for downstream water passage under normal conditions to extreme flood events."

A major part of the project will be the creation of a deep channel that forms a low-level outlet, located within rock on the right side of the dam. The outlet will be about 330 metres long, 29 metres wide, and 17 metres deep. Two gates in a concrete structure will be located within the new channel.

The Ladore Spillway Seismic Upgrade project will significantly improve the overall seismic withstand and reliability of the spillway gates system, and provide new spillway gate power supply, control and telecommunications, as well as the concrete dam's seismic withstand being improved with the anchoring of the spillway area to bedrock.

Since 2015, BC Hydro has been meeting with First Nations, government agencies and stakeholders on the two projects as designs were refined and to consider community interests.

Contingent on project approvals, construction is planned to begin at both the Ladore and Strathcona sites in early 2025. Both have project completions forecasted for 2028. The two combined projects may generate about 180 jobs per year.

"These safety-driven large capital projects are so important for the Campbell River area," says North Island MLA, Michele Babchuk. "I appreciate BC Hydro's ongoing commitment to comprehensive community engagement, and I encourage people to take every opportunity to learn more about the project's design and constructability considerations, fish and water quality protections, and the hundreds of jobs as well as subcontractor opportunities, particularly for First Nations."

In early May, the BC Utilities Commission concluded the John Hart Dam Seismic Upgrade Project regulatory process and found the project's expenditure was in the public's interest. Seismic upgrade work at the John Hart site is set to begin in July and may generate about 100 to 150 jobs per year.

Since 2014, BC Hydro, the City of Campbell River and the Strathcona Regional District have collaborated to inform the downstream community of the potential interim risk from a major earthquake. This collaboration includes the development of brochures, kiosks and evacuation area maps, with the overall messaging being: if it knocks you down, go to high ground.

The earthfill Strathcona Dam is 53 metres tall and 500 metres long. Water from the Upper Campbell Reservoir/Buttle Lake enters an intake upstream of the earthfill dam and passes through the dam to a 64 MW powerhouse on the downstream side.

The concrete Ladore Dam is about 38 metres tall and 95 metres long. Water from the Lower Campbell Reservoir/McIvor enters a 520-metre-long tunnel in rock and flows to the 47 MW powerhouse downstream. Water from the Ladore facility passes down into the John Hart Reservoir.

More information on the projects can be found online