



CSDA CONCRETE OPENINGS JOB STORY

Canadian Cutting and Coring Pontoon Renovation.

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Sewell's Marina in British Columbia sits in picturesque Horseshoe Bay, at the entrance to Howe Sound. The marina hosts 3 million visitors a year to their ocean playground and is a popular spot for boaters and travelers. Sewell's offers moorage, a fuel dock, launch ramp, boat rentals, and a tourist info center.

In February 2019 a severe winter storm caused a rupture in the marina's protective breakwater, a large barge that was permanently moored to the sea floor. The breakwater started taking on water and eventually sank.

Replacing a breakwater is no easy task. Fortunately, the owners of Sewell's Marina discovered that parts of Washington State's decommissioned Hood Canal floating bridge were stored nearby on the Fraser River in Vancouver. The remaining portions of the bridge included a well-preserved floating concrete pontoon which could be repurposed as a breakwater. But the 1,087-foot pontoon was too long - the new breakwater had to be 661 feet.

In 2009, CSDA member Cutting Edge Services of Batavia, OH, did the initial wire sawing of the Hood Canal bridge over a period of 45 days. In 2013, some of those parts were wire sawed by CSDA member Canadian Cutting and Coring for repurposing as a ship loading pier on the north coast of Australia. Because of their previous work on the Hood Canal bridge sections, Canadian Cutting and Coring was called on again to right-size the pontoon for use as a breakwater.

CCC determined that the only solution to rightsize the pontoon for use in Horseshoe Bay was with 2 vertical cuts. The cutting would be done at the storage location on the Fraser River and when complete, the section would be towed to its new home at Sewell's Marina.

At one end of the pontoon stood what remained of a concrete and steel control tower which had been used for opening and closing the bridge. The control tower had to be removed before the vertical cuts could be made. But if a 120-ton+ concrete structure was suddenly removed from one side of the pontoon it would capsize or at best become very unstable. Additionally, removing hundreds of square feet from the length of the pontoon would also make it unstable. Re-ballasting would have to be undertaken first.

Re-ballasting the pontoon to compensate for the buoyancy was accomplished with careful calculations. Then, water was pumped in or out of the isolated cells in the pontoon. CCC emptied the cells on the opposite side from the tower before cutting began.

The aged control tower was 44 feet high with a base footprint of 15' x 15' and a steel structure at the top. The peak of the control tower was first to go, so CCC used cutting torches to cut the structural steel roof members. Then the steel was lifted in one piece by a 600 Ton crane. CCC then went to work on what remained of the control tower with a Hilti TS-20 wall saw, cutting the concrete structure into two sections weighing 40 tons and 80 tons. The top half was lifted by crane onto the opposite pontoon. Then the bottom half of the control tower was sawn off at the base and lifted onto the opposite pontoon.

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Later the remnants of the control tower were transported by barge for demolition by a salvage company.

Once the tower was gone, pre-tensioning cables had to be cut in the pontoon without damaging the internal walls. CCC placed wood cribbing behind the ends of the post tensioning cables and in front of the internal walls. When the cable was released, the wood absorbed the energy of the impact, protecting the walls from damage.

Next, sections of the pontoon which connected the two lengths had to be sawn. The only catch was that these sections were submerged 17 feet. Further complicating this cutting was the amount of slurry that would be created, which would harm marine life. To minimize the marine impact, a slurry containment jacket was designed in-house and built by a client. The slurry jacket was basically a stainless steel channel strapped around the bottom and sides of the pontoon. Vacuums were used to remove the slurry from the channel and then emptied into a Golz slurry recycling system onsite.

At last ready to make the vertical cuts, CCC drilled 6 core holes with Hilti core drills and Diamond Weka core drills for diamond wire runs. Then two vertical cuts were made in each section of the pontoon with a Hilti WS-15 Wire Saw with Hilti blades and wire. Each section measured 529 square feet.

With the vertical cuts complete and the pontoon rightsized, this former piece of the Hood Canal bridge was ready to be towed to its new home in Horseshoe Bay.

John Van Dyk of Canadian Cutting And Coring said, "This is an excellent example of cutting technology being used to re-purpose a structure and to quickly help Sewell's Marina get back in business."