THE NEW W.R. BENNETT BRIDGE IN KELOWNA AND A NEW berth at the Port of Vancouver’s largest container terminal are more than just showcase projects for Vancouver Pile Driving Ltd. (VPDL). They represent its evolution from a respected pile driver to a comprehensive marine service provider.

VPDL works with joint venture partners on major infrastructure projects and oversees complex marine jobs. For example, Deltaport’s $195-million third berth consists of 465 additional metres of berth and 20 hectares of dock space to accommodate an anticipated threefold increase in container traffic.
“We’re not just pile drivers,” says Wayne Saunders, the company’s vice-president and general manager. “Today’s market seeks companies with a wide range of engineering and construction skills, and as marine specialists we can participate in public-private partnerships that are the government’s preferred vehicle for creating critical infrastructure.”

Saunders is quick to add VPDL’s evolution doesn’t mean its company is unrecognizable—or inaccessible—to its many long-term clients. “Far from it,” he says. “We expect our relationships with our valued clients will strengthen as new jobs and maintenance work come down the turnpike.”

VPDL, which first opened for business on Vancouver’s Coal Harbour in 1913, has an impressive pedigree. Its resume includes the Seabus Terminal, Fairview Terminal in Prince Rupert and, more recently, Bayshore Land Reclamation and Convention Centre, which kicked off the massive Coal Harbour redevelopment. But arguably, the new W.R. Bennett Bridge best exemplifies the efficiency and ingenuity VPDL brings to any project. Launching work in 2005 with joint-venture partner SNC-Lavalin, VPDL was charged with decommissioning the Okanagan Lake Bridge and replacing it with a new one-kilometre-long floating bridge consisting of nine concrete pontoons.

VPDL’s contract required its crews to first build a dry dock on the shores of Okanagan Lake for the construction of the pontoons. “Originally there were to be 12 60-metre pontoons, but it proved to be more advantageous to the schedule to make some of the pontoons 90 metres long and restrict the total number to nine,” says G.W. (Gordon) Carlson, VPDL’s estimating and engineering manager. VPDL also had to supply and install 89 piles in five piers. Due to the sandy bottom of Okanagan Lake, some of these piles were 63 metres long and driven 48 metres into the lakebed.

Since the new bridge uses the existing bridge’s anchors, the new structure had to be built alongside and connected to the old with only a 6.5-metre gap between the two. When each pontoon was completed it was towed to its designated location, and then the anchor cables severed from the corresponding section of old bridge and attached to the new pontoon. The new pontoons were secured together via an elaborate bolt and post-tensioning system. The old bridge will be removed in a similar fashion after the new bridge is open to traffic. “It’s a complicated way of bridge building, but using the existing anchors has resulted in an enormous cost saving,” says Carlson. VPDL also constructed and installed four new 70-ton anchors at the east end of the structure. Altogether three
derricks with crawler cranes, one material barge and three tugboats were used to provide Kelowna motorists with a unique new crossing.

The new structure, one of only eight floating bridges in the world, opened to traffic in May 2008, 108 days ahead of schedule. VPDL has until June 2009 to fully decommission the old Okanagan Lake Bridge.

VPDL and Graham Construction won the contract for the Berth 3 project at Deltaport, a 430-metre linear extension to Deltaport’s two other berths, in December 2006. VPDL’s main task was to create a new berth face using 10 concrete caissons slip-formed in its North Vancouver dry dock and towed to the site.

But like the W.R. Bennett Bridge, there’s much more to the project than meets the eye. First, VPDL constructed a containment dike for 20 hectares of reclaimed land. Then it dredged a million cubic metres of earth from the seabed for the foundation below the caissons and for the land reclamation. “Then, the sandy seabed was densified by dumping a million tons of crushed rock into the trench and pushing it into the ground,” says Carlson. “This provided the appropriate earthquake-proof base for the caissons, which were manoeuvred into place and sunk.” The caissons, the design of which is similar to caissons made by VPDL for the past 50 years and evident in dock facilities up and down the B.C. coast, were filled with aggregate ballast for topside dock construction. Berth 3 will open for business next fall.

Saunders, who’s been with VPDL for over 30 years, pursued the Deltaport and W.R. Bennett Bridge contracts to enhance his company’s status as a marine general contractor. While some analysts are beginning to question how long B.C.’s construction boom will last, Saunders notes there are more large-scale provincial projects in the offing, due to aging transportation infrastructure that needs to be expanded and upgraded in the near future. “Some of the projects in the works are of the magnitude that we haven’t seen since the 1970s,” he says.

So rapid is the rate of growth that the W.R. Bennett Bridge, as vital as it may be to Kelowna’s current traffic network, will have reached its maximum capacity in five years. “Rumour has it that a new crossing site has already been chosen,” says Carlson.

VPDL’s versatility is such that it has prevailed through bad times and good, and outlived several incarnations, the most historically significant being its ownership by...
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Dillingham Construction Canada in the 1960s. Carlson, a relative newcomer to VPDL (he joined the firm four years ago), revels in the history and expertise he’s exposed to daily. “It’s inspiring to work with colleagues who can pull off the most difficult challenge and make it look easy,” he says. “For the kind of work we do, we’re the best game in town, and whether it was before the Dillingham era, during or after, we’ve always been involved in interesting projects.”

A long list of docks and terminal facilities testify to VPDL’s capabilities, which range from repairs and remediation to renovation and complete construction services. The capacity of its fleet of marine derricks is the largest in Western Canada, with cranes rated to 350 tons. And because maintenance of a structure or facility is just as important as the initial build, VPDL has an extremely active small contracts division, which specializes in long-term maintenance and repair services around Vancouver Harbour, along the Fraser River and up and down B.C.’s south coast.

VPDL performs substantial land-based work as well, two notable examples being the construction of 74 caissons to support pier columns for an extension to the SkyTrain rapid transit system along the Fraser River, and the installation of approximately 1,000 steel pipe piles for the Vancouver Convention & Exhibition Centre expansion.

When Dillingham’s ownership ended in the lean years of the late 1980s, VPDL’s maintenance work proved an invaluable source of income. And by the time B.C.’s economy revitalized toward the end of the decade, Saunders and his colleagues had all the necessary skills to participate in public-private partnerships, which were changing the way large construction was organized in the province. “We really started taking off in 2002-2003,” he says.

VPDL’s success is also due to its knack for keeping abreast of technological advances that improve efficiency. Take, for example, VPDL constructs a pontoon for Kelowna’s W.R. Bennett Bridge in a special-purpose graving dock.

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example, its Manitowoc 4600 crane, built in 1963 and originally powered by thirsty twin two-cycle diesel engines. To improve performance and fuel economy and cut down exhaust emissions, VPDL refitted the crane with Detroit Diesel Series 60 engines from B.C.-based Cullen Diesel Power Ltd. in April 2007. The fully electronic engines boast the highest fuel economy in their class – reducing energy consumption by up to 50 per cent depending on the type of work being performed.

VPDL’s success hasn’t gone unnoticed. At the 2007 Vancouver Regional Construction Association’s Awards of Excellence, it won the General Contractor Gold Award in the $10-million to $40-million project category for the Swartz Bay Ferry Terminal Berth 2 reconstruction. “That was a design-build project in which we used pontoons to create the berth,” says Carlson. “Initially it was a tough sell but the pontoons worked very well and allowed us to apply many of the same construction techniques to the W.R. Bennett Bridge.” This year VPDL won another award of excellence for the W.R. Bennett Bridge.

Aside from completing its work on the bridge and at Deltaport, VPDL is monitoring the development of other public-private partnerships, recruiting and training new talent and integrating them into the company’s culture of maintaining safe and healthy work environments – and anticipating the future. “Our longtime customers have played an enormous role in getting us to where we are today, and we will continue to enjoy serving them to the best of our capabilities,” Saunders says. “This is a particularly good time to be in business and the potential for further growth is enormous.”

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