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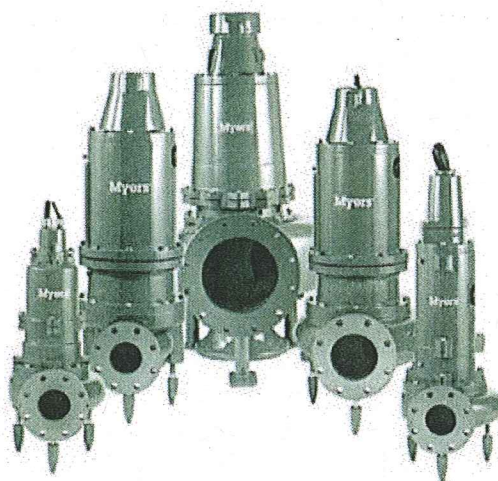
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**Athletes' Village in Whistler,
British Columbia.**

PROMOTIONAL FEATURE

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For veteran engineering firm Kerr Wood Leidal Associates, developing an innovative water management system for Whistler's Athletes' Village is all in a day's work



WITH A HISTORY OF OVER 30 years in B.C., a team of over 100 in Burnaby, Victoria and Vernon, and widely varying areas of expertise, it would take a huge amount of space to detail the contributions that Kerr Wood Leidal Associates (KWL) has made to B.C.'s infrastructure.

It has nine major areas of expertise and

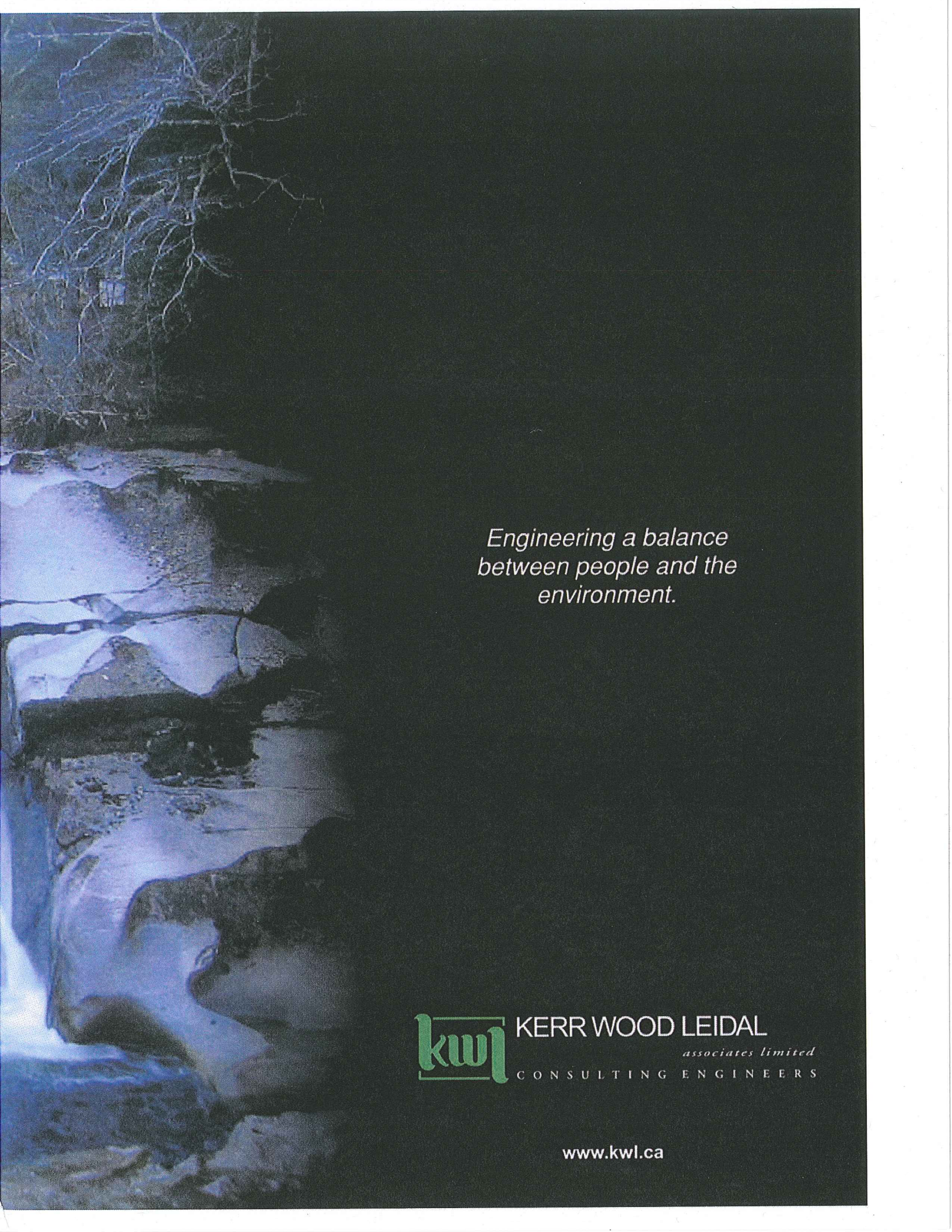
serves many long-term clients: municipalities, First Nations, government, private developers, and the industrial, mining and energy sectors. Many of its projects involve water conveyance, treatment, pumping, conservation and protection.

DISTRICT ENERGY SYSTEM IN WHISTLER

KWL is currently working on one of the

highest-profile jobs around, the Olympic Athletes' Village in Whistler, but this didn't happen overnight. The privilege of designing the infrastructure was earned after years of working with the Resort Municipality of Whistler (RMOW) on many of the community's neighbourhoods. KWL has worked on everything from roads, utilities, street lighting





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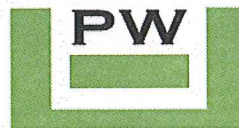
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and storm water and flood plain management systems to debris-flow basins. The Village is simply a continuation of that work.

Whistler 2020 Development Corp., a separate RMOW-owned company charged with the responsibility of building the Village, selected KWL for two key reasons: it was the only firm that had ample staff, plus plenty of local experience and familiarity with the construction standards that are different than in those in the Lower Mainland. Chris Johnston, KWL vice-president gives his take on the firm's advantage.

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— Chris Johnston
vice-president

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Like all current developments, the Village is being planned with careful consideration to environmental issues and Whistler 2020 is piloting the new Leadership in Energy and Environmental Design (LEED) neighbourhood designation for this project.

The Village is also being built on a brownfield site, a former landfill that is scheduled for closure in 2007. It will offer a mixture of dorms and permanent structure townhouse sites to house some 3,000 people during the 2010 Winter Olympic Games. It will house approximately 2,900 people geared toward locals, many of who commute to Whistler from Squamish and Pemberton. There will also be a high-performance training facility built by VANOC and about 6,000 square feet of commercial and retail space.

Starting any project from scratch gives designers a chance to try new ideas without incurring the costs associated with retrofitting; this project is taking full advantage of the opportunity to break new



Insulation (left) and installation (right) of pipe during construction of the District Energy System (DES) in Whistler, British Columbia.

ground with an innovation that may be a first in North America.

The Village will incorporate a District Energy System (DES) that will take heat from the treated effluent of the wastewater treatment plant (WWTP) via heat exchangers to heat the closed-loop DES containing clean water. A one-kilometre-long, 350-millimetre-diameter supply pipe will convey 10°C water through the DES distribution system to heat pumps that will be built into each unit.

These individual heat pumps will boost the temperature to about 50°C and will heat the units via in-floor radiant

heating. On leaving the units, the water temperature will drop to 5°C and will be returned to the WWTP through a 350-millimetre-diameter return pipe and reheated at the heat exchangers. It is worth mentioning that Vancouver's Olympic Athletes' Village will also incorporate a similar system, but it will capture the heat from raw sewage instead of from treated effluent as is the case in Whistler.

"Wherever possible, utility construction economies have been achieved by using common trench construction," says DES project

manager Neil McDonald. "Our life cycle cost-benefit analysis indicated that the system will have significant financial and environmental benefits compared to conventional electrical and gas-fired heating systems. The DES system is to be the primary heat energy source for all residential accommodation within the Village."

Natural gas piping will be installed for the core buildings to supplement their heating and domestic hot water needs. The DES extraction facilities at the WWTP will be equipped with standby gas-fired boilers as a backup. KWL was assisted by DEC

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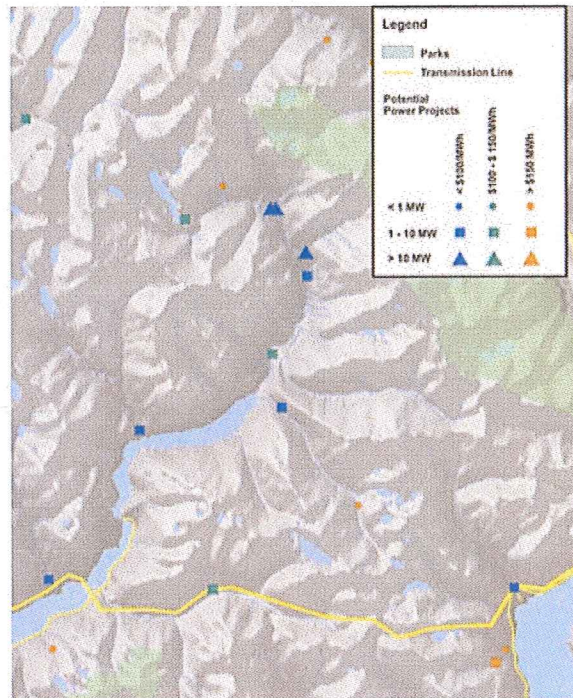
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Design Mechanical Consultants Ltd. of New Westminster in the design of the DES system.

"This is a really big and complicated project, and, while we are on target, we still require a lot of focus to get the project completed," says Neil Godfrey, VP of Whistler 2020. "Our site-servicing budget alone is \$25 million that includes 3.5 kilometres of road, blasting 250,000 cubic metres of rock, building a 2.5-million-litre water reservoir and all related services. We are building a community to house 3,000 from scratch."

An elaborate storm water management system has been designed to protect the fish habitat downstream of the Village from run-off created by large snow dump areas. Steps are being taken to reduce light pollution to the LEED standard. This Village and the intersections and trails that surround it are required to meet a tough new standard for access for individuals with special needs.



Hydro power potential in B.C. demonstrated by run-of-river GIS modelling tool.

MEETING B.C.'S ELECTRICITY NEEDS

In the energy sector, KWL is making a difference on a provincial level by assisting the

British Columbia Transmission Corp. (BCTC) and BC Hydro in amassing reliable information on potential hydroelectric power. The inventory will be critical to re-

alistic planning for B.C.'s future electricity needs and comprises stream locations and differences in elevation, estimated flow at a given location, the power ($\text{Power} = \text{Elevation} \times \text{Flow}$) and areas of vulnerable fish habitat.

KWL is using a state-of-the-art GIS model that determines the viability of building these run-of-the-river plants. The model also factors in other elements such as distance to existing power lines and roads.

"As far as we know, large-scale GIS assessment of hydroelectric potential has not been done before in B.C.," says Ron Monk, sector leader of energy, industrial and mining for KWL. "Essentially, what we are doing is identifying viable sites to meet the goals and the timeline of the new B.C. Energy Plan to help the B.C. government meet its commitment to achieving energy self-sufficiency by 2016, and at the same time maintaining a portfolio of at least 90 per cent clean or renewable resources."

Rohan Soulsby, director of business development for BCTC elaborates on the importance of this project: "There are existing inventories of potential generation sites in B.C. KWL has developed a tool that will allow those inventories to be refined. It will enable BCTC to determine the total power potential at any point on any stream in the province."

To do this, KWL has integrated topographical and climate data including watershed area, contours, elevations, temperature and precipitation into existing inventories. The information provided by KWL is important because it assists BCTC to fulfill its mandate to build transmission lines that will facilitate the development of IPPs.

"We need to know where the most energy-intensive areas or regional pockets will be in terms of potential energy," says Soulsby. "Development of renewable resources is a key component of the B.C. Energy Plan. B.C. is a signatory to the Western Regional Climate Action Initiative and the development of renewable resources enabled by well sited transmission infrastructure will be one of the ways that B.C. will contribute to that initiative."

This pilot started in spring 2007, in the same year that BC Hydro and BCTC jointly retained KWL to complete the inventory in large part based on a relationship between Soulsby and Monk who had worked in the energy-planning group at BC Hydro.

"Ron pitched the concept to me," says Soulsby, "and I had complete confidence that he would be able to deliver the scope on time and on budget under very tight timelines and



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rigorous constraints, notwithstanding the innovation needed to complete it."

INTO THE FUTURE

KWL was founded 1975 by Ken Kerr, Alex Wood and Gordon Leidal, who focused on technical excellence and professionalism and who created a unique company culture of collegiality, respect and support for all staff that continues today. It is this ongoing commitment to the company's growing team that has set KWL apart from other firms.

KWL offers competitive salaries, profit-sharing for all staff, performance bonuses, flexible work hours, mentoring, career planning, support for continuing education and a broad-based employee ownership program. Over 50 per cent of the staff own shares, and no single person owns more than 10 per cent of the company. The shareholders' agreement and other company policies include a share purchase and divestiture program to ensure the firm's longevity.

Long ago, KWL made another commitment – to stay connected with UBC and BCIT through lecturing and assisting with course outlines, course material, and case studies. "At least six of our staff are scheduled to lecture at UBC in the 2007/2008 academic year," says Johnston. "Since UBC is the alma mater for many of us, we want to do our part to help the university to stay connected to the industry and to continue to be a source of new talent for our team."

KWL attributes its success to exceptional employees, notes company president Mike Currie. "The values of our people set us apart. We are passionate about giving back. By their own initiative, many KWL employees actively participate in environment-related stewardship and other community programs.

"Whether it is supporting staff to restore earthquake-stricken infrastructure in Northern Kashmir, building new water systems in Africa, enhancing local streams, or donating equipment and resources to streamkeepers groups, KWL staff and resources have been involved."

KWL's contribution was recently recognized by the City of Burnaby, when it was awarded the Environmental Star for Business Stewardship. ■

This promotional feature was prepared for Kerr Wood Leidal Associates Ltd. by BCBusiness magazine's Special Advertising Features Dept. Writer: Tonia Jurbin. For information contact BCBusiness director of corporate features John Cochrane at 604-299-7311. Email: jcochrane@canadawide.com



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