



## Award of Merit

### South Fork Water Treatment Plant – Safe Drinking Water, Sustainable Design



#### Consultant

Associated Engineering (B.C.) Ltd.

#### Owner/Client

City of Nanaimo

#### Category

Municipal & Civil Infrastructure

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Traditionally, water supply and treatment facilities are one of the largest power consumers for municipalities. The City of Nanaimo's new South Fork Water Treatment Plant is an exception, and a model for sustainability.

Associated Engineering provided pilot testing of treatment options, preliminary design, detailed design and construction services for the preferred option — membrane filtration.

Taking advantage of the hydraulic pressure in the water supply from the South Fork Dam impoundment and the steep topography of the plant site, the design team used a siphon to suction water through the submerged membrane filtration treatment process. The siphon eliminates mechanical pumping, the typical approach for most treatment plants, significantly reducing energy use. Using a siphon also reduces the building footprint, and capital and operating and maintenance costs. The South Fork plant, the largest siphon powered membrane treatment plant in North America, treats 116 million litres of water per day. The two stage process increased plant efficiency, and reduces drinking water production costs. A constructed wetland treats waste streams from the water treatment process, eliminating the need for onsite mechanical waste treatment equipment or conveying wastes to a distant waste treatment facility.

The South Fork Water Treatment Plant provides safe, reliable drinking water to residents, and supports the City of Nanaimo's continued growth, in an energy-efficient and environmentally-sustainable manner.