

Little Mountain Reservoir Reconstruction Complete

Sustainability in Action

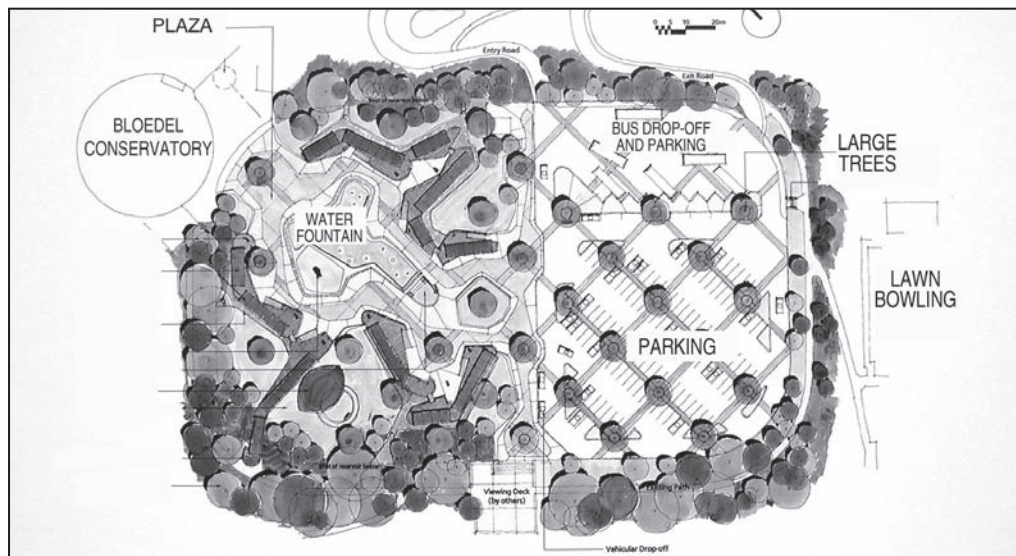
Reconstruction of the Little Mountain Reservoir in Queen Elizabeth Park is now complete. This project was initiated because of concerns of how the old reservoir would stand up to a major earthquake. The newly constructed reservoir will be able to withstand a major earthquake while maintaining the necessary water supply.

The reservoir now holds 175 million litres of water, an increase from 140 million litres, and provides water for about one million people primarily in Vancouver and Richmond.

The GVRD owns and operates the reservoir, and the Vancouver Board of Parks and Recreation (VPB) leases the top of the reservoir for parks purposes.

What's next?

Now that the reservoir is complete, the VPB will begin developing the rooftop of the reservoir by adding landscaping, covered pavilions, a water feature, and parking area. This work is scheduled to be completed by summer 2005, at which time the VPB will be ready to welcome everyone back to the top of Little Mountain. Tour buses will be able to park near the conservatory. Tai Chi will return a sense of serenity to the park, with specially designed covered practice areas. The illustration below represents the plans for the rooftop.



Architectural rendering of the proposed upgrade plan (Vancouver Board of Parks and Recreation)

The completion of this seismic upgrade adds another page to the history of Queen Elizabeth Park. Read on to find out more about this history.

A historical look at the reservoir site

- Pre-1880** The area called Little Mountain, at 168 metres elevation, is a geographical anomaly in a relatively flat region of the new city of Vancouver.
- 1880s** Forest on Little Mountain logged in B.C.'s first steam logging operation.
- 1900s** At least three major quarries are developed to provide crushed rock for Vancouver's first roads. Little Mountain has the only easily accessible occurrence of strong basaltic rock in Vancouver.
- 1900s** Little Mountain included in the land given to Canadian Pacific Railway (CPR) for a railroad terminus, to secure the cross-Canada terminus, which had been slated for Port Moody.
- 1905** City council recognizes that the city expanded faster than anticipated, and that more potable water is needed. City council decides to build a high level reservoir in one of the quarries as it has a partial natural rock liner.
- 1910** Remaining quarries closed.
- 1911** Little Mountain Reservoir put into operation. It is an open basin, meaning it has no roof.
- 1925** Vancouver Board of Parks and Recreation (VPB) acquires Little Mountain site from CPR for parkland.
- 1930** B.C. Tulip Association suggests making the quarries into sunken gardens.
- 1939** Little Mountain renamed Queen Elizabeth Park to commemorate a visit to B.C. by King George VI and Queen Elizabeth.
- 1954 & 1961** VPB opens two ornamental Quarry Gardens.
- 1966** A pre-cast concrete roof is added to the Little Mountain Reservoir.
- 1969** Bloedel Conservatory and rooftop plaza open.
- 1970s** Queen Elizabeth Park continues to grow as a major attraction for tourists and residents, who highly value its beauty, views and recreational opportunities.
- late 1990s** Decision made to upgrade the reservoir for seismic security and increased capacity.
- 1999** VPB completes a public consultation on a long-range vision for the park in anticipation of reservoir reconstruction.
- 2001** Public consultation begins on reservoir upgrade.
- 2002** Demolition and recycling of the old reservoir.
- 2003** Reservoir cells are in service.
- 2004** Reservoir reconstruction complete in February. Revitalization of the rooftop by the VPB to begin in the fall.



Shovel dating from the early 1900's that was uncovered during the demolition of the reservoir



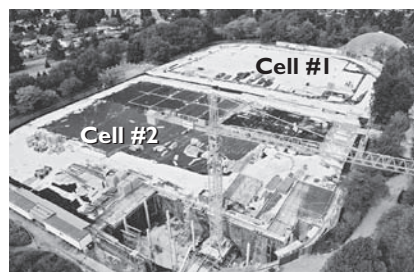
Originally built as an open basin – 1911



Concrete roof added – 1966



Demolition of the old reservoir and on-site separation of concrete and rebar – Sept 2002



Cell #1 completed May 2003
Cell #2 completed November 2003

Public consultation for Little Mountain Reservoir

The reconstruction of Little Mountain Reservoir, about the size of four football fields, took place in a busy, well-loved park in the heart of a growing city, and like any large-scale project, faced interesting challenges:

- construction window to complete cell 1 was extremely short, due to an impending high water demand for summer 2003
- reservoir roof was used every morning by 500 people who practiced Tai Chi
- construction vehicles shared a road with tourists, and restaurant and conservatory users
- all concrete and rebar from demolishing the old reservoir had to be recycled.

From the outset, the GVRD realized that there would be impacts on both the park and people. A public consultation process, which included four open houses, resulted in hundreds of comments gathered from public responses, feedback forms and emails. This public feedback assisted in determining construction decisions.



Participation from the public helped the GVRD to complete the reconstruction by February 2004. This is the area the VPB will redevelop. See the current plans of the cover of this fact sheet.

Social
Partnership
Public Consultation
Impact Mitigation
Communication
Discussion

Environment
Recycling Materials
"Green" Construction
Environmental Monitoring
Tree Protection & Replanting

Economic
Safety and Reliability
Optimizing Resources
Minimize Costs during the Life Cycle
Plan Long Term
Multiple Use

Sustainability in Action

Sustainable Region Initiative

Applied to the Little Mountain Reservoir Reconstruction

The GVRD's Sustainable Region Initiative embraces environmental integrity, social well-being and economic prosperity. Initiated by the GVRD, the SRI involves many residents and agencies who are committed to keeping our region the way we want it now, and into the future. For more information on the SRI, please visit www.gvrd.bc.ca/sustainability



People practice the art of Tai Chi on Little Mountain

The community around Queen Elizabeth Park can be proud. . .

- The construction of the largest joint-free concrete structure in B.C. was completed on schedule and under budget
- The reservoir was built with a 100 year service life, and is designed to remain fully operational after an earthquake
- It was built using EcoSmart™ concrete, which resulted in a reduction of greenhouse gas emissions by about 4,000 tonnes
- The old concrete and reinforced steel structure were recycled rather than landfilled
- This project won two awards: the first annual *Sustainability 2005 Award* from the Association of Professional Engineers and Geoscientists of B.C., and a *Consulting Engineers of B.C. Award of Excellence* in 2004
- This reservoir project is recognized through international requests for presentations and publications.

Did you know?

- The Little Mountain Reservoir is one of 22 GVRD reservoirs in the Lower Mainland.
- The reservoirs are re-filled overnight in time for peak use every day.
- Little Mountain reservoir is so large that internal inspections are done by boat.
- On average, the Lower Mainland uses over one billion litres of water each day. On a hot summer day this amount has been known to double.
- For tips on how to conserve water, please contact the RCBC Recycling Hotline at 604-732-9253, or turn to the **Home Pages: Choices for Wiser Living** in the front section of your SUPERPAGES™ White Directory.

Thank you!

Completing the reservoir reconstruction required the efforts of a significant list of people and organizations, and the GVRD would like to thank:

- Park users
- Tai Chi groups
- Tour bus operators
- Lawn bowling club
- Seasons in the Park Restaurant
- Bloedel Conservatory
- Queen Elizabeth Park staff
- Neighbouring residents
- Artists and buskers
- Oakridge Shopping Centre for hosting Tai Chi during construction
- City of Vancouver Waterworks
- Vancouver Board of Parks and Recreation
- GVRD consultants and contractors.

For more information

On the Little Mountain Reservoir, please call the GVRD Information Centre at 604-432-6200 or visit www.gvr.bc.ca.

