

# THE GIBSONS AQUIFER



## AT A GLANCE

- The aquifer is considered a “natural asset” which provides a municipal service in the same way that engineered assets do
- 75% of the Town’s water currently provided by the aquifer; 25% supplied by SCRD from Chapman Creek.
- The aquifer is gravel and sand that is saturated by water (not an underground lake or river).
- It takes about 10 years for a drop of water that falls on Mt Elphinstone to enter the aquifer and make its way to Town wells.

### Connecting Zone 3 to the Gibsons Aquifer

Currently, residents who live in the Town’s “Zone 3” area (i.e. most of Upper Gibsons) are served by the SCRD’s Chapman Creek water supply.

To help reduce the water usage at Chapman Creek, the Town has proposed connecting Zone 3 to the Gibsons Aquifer. This would require an investment of approximately \$2 million and would reduce Gibsons’ use of SCRD water by 95% - 98%.

On completion of this initiative, the Town would continue to be reliant on the SCRD for peak hour demand, emergency storage and fire flow. This initiative has been made possible by the reduced water use by metering.

## ASSET MANAGEMENT

The cost to build, operate and maintain an equivalent engineered asset has not been determined, but any option would be prohibitively expensive.

### Operations & Maintenance

#### Groundwater Monitoring Program

\$28,000 annually

Gathers detailed information about the long-term effects of variables such as user demand, climate change, and sea level rise on the aquifer’s total capacity. Current data helps us respond quickly to changing conditions and make well-informed decisions about the aquifer, our water usage and our future buildout.

### Current & Planned Capital Projects

#### 2018

- Well #3 Generator: \$65,000
- Well Inspection #2 & #3: \$63,700
- Additional Monitoring Wells: \$133,000
- Zone 3 Water Supply Design: \$175,000

#### 2019

- Zone 3 Pump Station: \$787,500

#### 2020

- Zone 3 Well: \$826,900

Other initiatives, such as the scheduled replacement of the Town’s watermains, help reduce water consumption from the Aquifer.

## COMMUNITY GOALS

- Maintain groundwater monitoring program
- Protect groundwater and aquifer
- Map significant recharge areas
- Watershed planning
- Ensure water sustainability
- Manage demand

## RELIABILITY AND RISKS

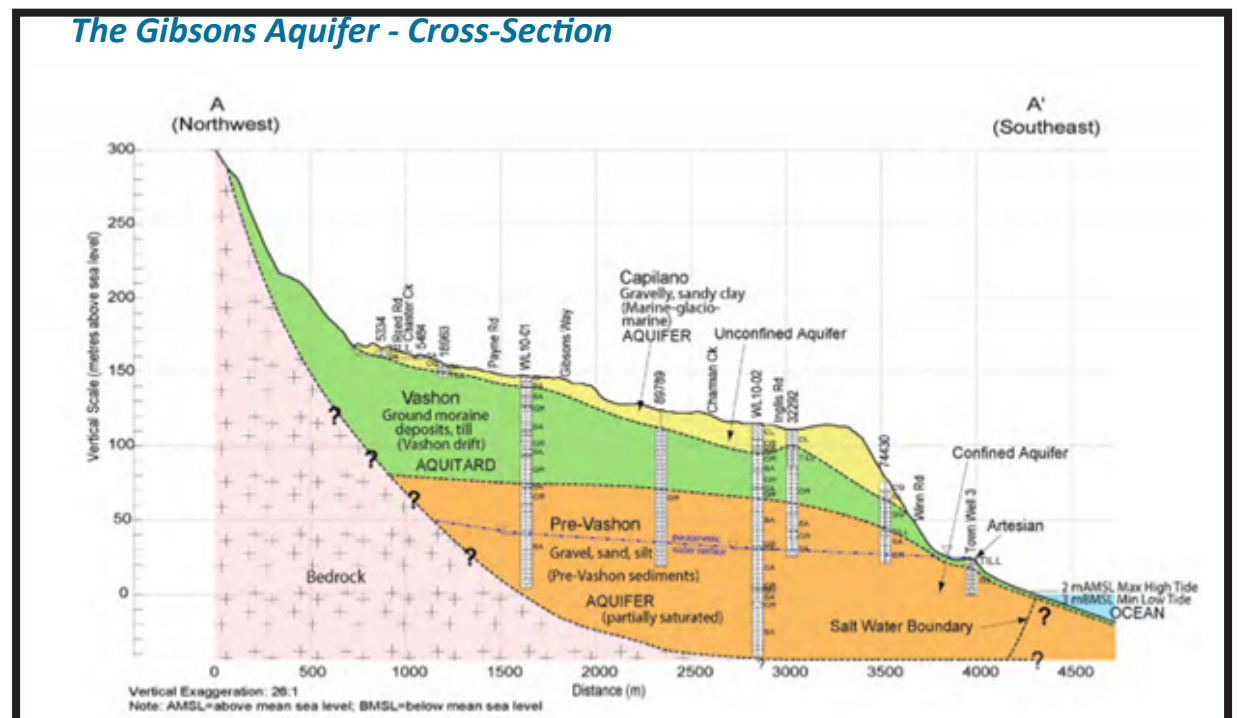
### Reliable service requires:

- annual monitoring
- maintaining “cross-connection control program” to prevent contamination
- consistent communications re) water’s value and the importance of conserving and protecting it
- metering to track leaks and usage

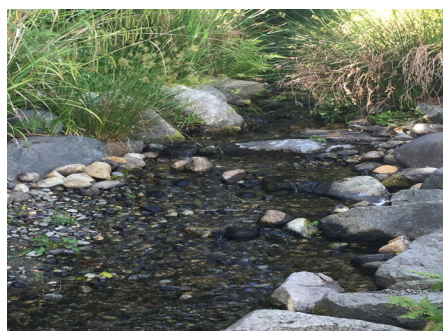
### Risks of cutting costs are:

- damage to/pollution of the aquifer
- more frequent water restrictions
- inability to respond to changing aquifer conditions

### The Gibsons Aquifer - Cross-Section



## PROTECTING THE AQUIFER



In Gibsons, we have been blessed with favorable access to the Gibsons Aquifer, a pure groundwater resource which currently provides potable water to almost 75% of the Town. It’s a pristine, award-winning and irreplaceable natural asset and we take our stewardship of it very seriously. Some of the initiatives we have undertaken to protect our water resource include:

### AQUIFER MAPPING STUDY

Commissioned in 2009, at a total cost of \$500,000, this four-year, comprehensive, science-based water-strategy document has become a key resource for any person contemplating projects that might impact the aquifer, from the Town’s planners to the province’s

environmental officers. Additionally, the Town has implemented several of the recommendations made in the Mapping Study, including:

### CREATION OF DEVELOPMENT PERMIT AREA 9 IN TOWN’S OFFICIAL COMMUNITY PLAN

Strict regulations and a permitting process is required for excavation and drilling, as well as for development with the potential for contamination.

### BYLAW UPDATES

Revision of Town’s Water Regulation Bylaw, with a section dedicated to the protection of the Gibsons Aquifer; Zoning bylaw (no drilling for water permitted); DCC Bylaw (includes cost of using natural assets, recommended inclusion of monitoring wells).

### WELL INSPECTION PROGRAM

Commenced in 2016, includes regular inspection of all Town supply wells.

### ADOPTION OF WATER USE AND CONSERVATION POLICY

This Council-adopted policy provides Council’s objectives around appropriate water use, goals for water use reduction and ensuring continued excellent water quality.

### ANNUAL GROUNDWATER MONITORING PROGRAM

Commenced in 2009, the Town has a network of monitoring wells that are sampled in an annual program which monitors chemistry and minerals in the Aquifer, as well as water levels and pressure. This info is compared to the predictions in the Mapping Study, to ensure the health of the Aquifer.

### ANNUAL WATERMAIN REPLACEMENT PROGRAM

Risk-based annual watermain replacement program reduces system leakage and impact to the aquifer.

### CROSS CONNECTION CONTROL PROGRAM

Protects the Town’s drinking water from contaminants.

### UNIVERSAL WATER METERING

Used to track water usage and locate leaks. (Refer to *Engineered Water Assets* Fact Sheet for more details.)