

Graham Lake Water Local Service Area Treatment and Fire Infrastructure Update



The Comox Valley Regional District respectfully acknowledges the land on which it operates is on the unceded traditional territory of the K'ómoks First Nation, the traditional keepers of this land.

CVRD Staff Introductions

Kris La Rose, P.Eng – General Manager of Engineering Services

Caley Leimert, EIT – Water/Wastewater Analyst

Lilly Marie Peterson - Senior Communications and Engagement Advisor

Introduction

What is being proposed?

A new water treatment plant is required for the Graham Lake Water Service to meet Provincial Public Health Requirements

Who is impacted?

All owners of property within the Graham Lake Water Service area

Historical Treatment Selection

- 2017 – Notification of requirement to meet SWTO
- 2019 – WSP Treatment Options Analysis
- 2020 – CVRD Applied for grant
- 2021 – frontrunning treatment technology disqualified
 - WSP recommended piloting Biosand-Filtration + Nano Filtration (BSF+NF)
- Fall 2021 - GLID initiated pilot study with support from CVRD
- Jan 2023 – Conversion from GLID to CVRD Service
- Spring 2023 – BSF+NF Pilot study complete
 - Demonstrated technology should be able to meet guidelines
- Spring 2025 – initiate second pilot of BSF + NF
 - Familiarize operators with technology & resolve outstanding questions
- Late 2025/Early 2026 – conclude second pilot of BSF+NF and analysis.
- March 2026 – confirmation of BSF+NF as Graham Lake Treatment Technology

Technology Descriptions

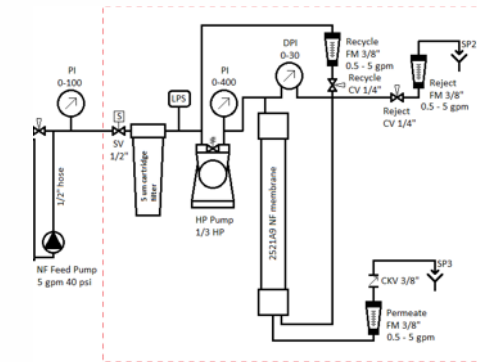
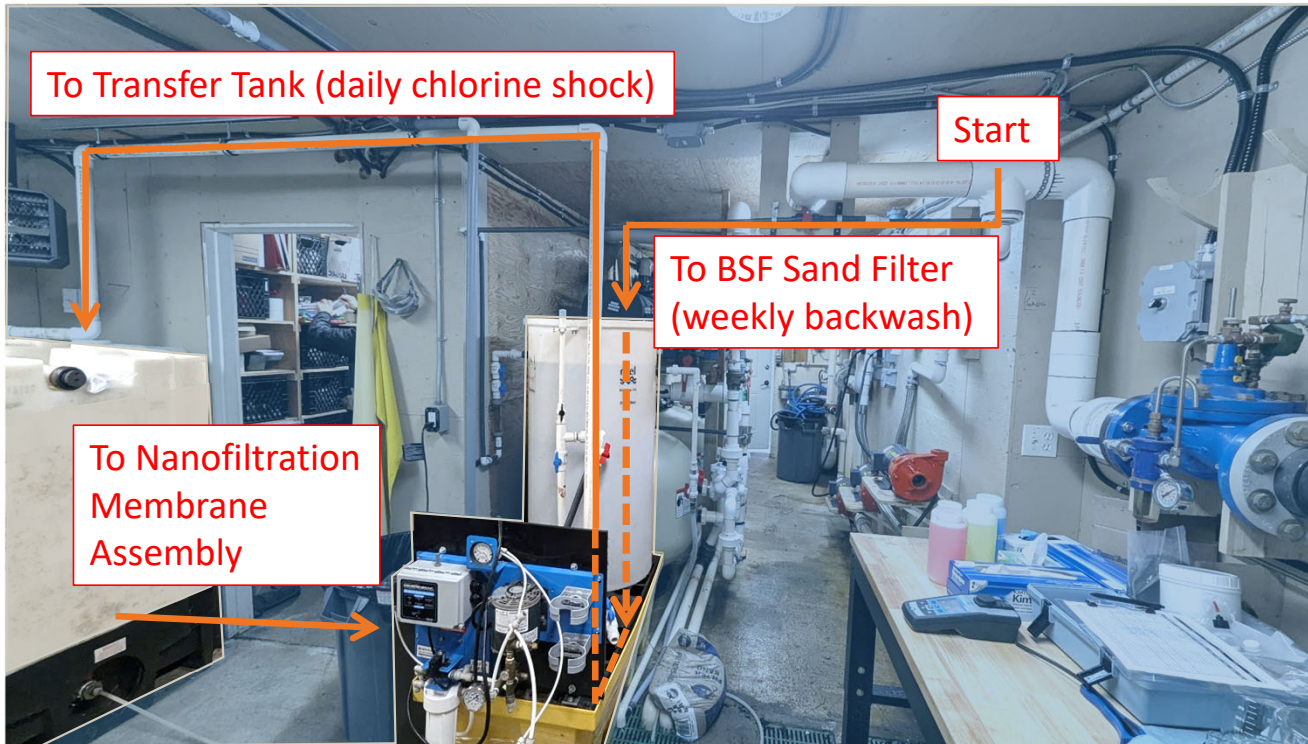
- **Biosand Filtration**
 - A form of slow sand filtration using microorganisms on the sand surface to capture fine materials and partly digest organic matter
- **Nanofiltration**
 - A membrane filtration process using nanometer sized pores to completely remove turbidity and organic molecules.

Biosand Filtration + Nanofiltration

Anticipated Advantages

- Guaranteed drinking water quality
- No coagulant and associated sludge requiring special disposal
- Backwash waste can be settled and easily disposed
- Simple process that should only require periodic operator intervention.
- Low total operating cost compared to alternatives

2025 BSF+NF pilot set up



2025 Pilot Results

- Successfully replicated extended periods of nanofiltration operation seen in 2023 WSP pilot report.
- Periods of frequent backwashing were still experienced which will be reviewed further should the project advance into design.
 - To address this concern, we are budgeting for automated backwashes to be controlled remotely
- Pretreatment of the Nanofiltration membrane is required

Fire Infrastructure Improvements



Estimated Capital and Annual O&M Costs

	Option 1 Treatment Upgrade	Option 2 Treatment + Fire Infrastructure Upgrades
Capital Cost	\$4.44M	\$4.87M
Secured Grants	\$1.79M	\$1.79M
Borrowing	\$2.65M	\$3.08M
Total Annual Debt Servicing (25-year loan)	\$194K	\$225K
Annual Debt Servicing per Property	\$2,126	\$2,476

Potential New Grant

	Option 1 Treatment Upgrade
Capital Cost	\$4.44M
Secured Grants	\$1.79M
Strategic Priorities Fund	\$0.95M
Borrowing	\$2.65M \$1.70M
Total Annual Debt Servicing (25-year loan)	\$194K 124K
Annual Debt Servicing per Property	\$2,126 \$1,362

Timeline

- **April 21** – Open house at the Denman Island Firehall between 2 pm – 3:20 pm
- **May 2026** – Report on community support for additional fire cost results to Electoral Areas Services Committee
- **May 2026** - Initiate assent process for borrowing
- **July 2026** – Report on assent results to Electoral Areas Services Committee

If successful:

- **Mid – Late 2026** – Detailed design
- **Late 2026 – Early 2027** – Permitting and tendering
- **Early 2027 – Early 2028** – Construction of the Graham Lake WTP



Frequently Asked Questions

Q: If the fire infrastructure improvements are built, can I expect reduced fire insurance premiums?

A: No, most insurance companies use the same residential fire insurance premiums for hydrants as Superior Shuttle Tanker Accreditation

Frequently Asked Questions

Q: How do we let the CVRD know if we are or are not in support of the additional borrowing for the fire infrastructure upgrades?

A: An online poll is now live and can be found on our Graham Lake Water Service Website (comoxvalleyrd.ca/grahamlake)

Frequently Asked Questions

Q: What are the legislative requirements for this project to go forward?

A: Should a petition be initiated in May as recommended, to be successful it must meet two requirements:

- 1) The owners of at least 50% of the properties must consent
and;
- 2) Those properties must represent at least 50% of the net taxable value in the Graham Lake Water Service Area

Frequently Asked Questions

Q: What would be the impact next year of a successful assent process for Option 1 (treatment only) on our annual water bill?

A: Costs are anticipated to continue to be increased each year for the next 12 years largely consistent with the 2023 rate review (to be confirmed)

User Rate + 15 Year Parcel Tax Increase	Total Cost of Water (with Inflation)					
	2023	2024	2025	2026	2027	2028
Residential User	\$1600	\$1803	\$2034	\$2236	\$2470	\$2937

Frequently Asked Questions

Q: What happens if assent process not successful?

A: We are required to meet Provincial Regulations for Treatment, rates will continue to increase. An extension for the existing grant will be pursued regardless of the outcome as we await the result of the additional grant application

Summary

- Filtration is required to meet Provincial Regulations
- We are pursuing additional grant opportunities and looking for opportunities to reduce the impact of costs for residents
- We want to hear from you regarding potential additional costs to improve the fire system.
 - Please fill out online poll on our website by **April 28th**

comoxvalleyrd.ca/grahamlake