

REPORT TO MAGIC LAKE ESTATES WATER AND SEWER COMMITTEE MEETING OF NOVEMBER 13, 2025

SUBJECT Capital Projects and Operational Update – November 2025

ISSUE SUMMARY

To provide the Magic Lake Estates Water and Sewer Committee with capital project status reports and operational updates.

BACKGROUND

The Magic Lake Estates (MLE) Water and Sewer Systems are located on the south shore of north Pender Island in the Southern Gulf Islands Electoral Area, and provides drinking water services to approximately 1,082 customers, and wastewater services to approximately 651 customers. Capital Regional District (CRD) Infrastructure and Water Services is responsible for the overall operation of the water and wastewater systems with day-to-day operation, maintenance, design and construction of water and wastewater system facilities provided by the CRD Infrastructure, Planning and Engineering and Infrastructure Operations Divisions. The quality of drinking water provided to customers in the MLE Water System is overseen by the CRD Water Quality Division.

CAPITAL PROJECT UPDATE

Magic Lake Estates Water

26-02 | Water Treatment Plant (WTP) Process Pipe Condition Assessment

Project Description: Conduct updated condition assessment of process piping in the Water Treatment Plant (WTP) with potential repairs or segment replacement.

Project Rationale: Weld deficiencies identified following completion of the WTP in 2012/2013 resulted in a settlement and funds to be utilized for future corrective work or replacement. Funding has been reallocated for 2025 to review the condition and address the most critical deficiencies.

Project Update and Milestones:

- After a leak developed at a weld location, CRD drafted a scope of work and specifications for replacement of a segment of pipe that feeds Captain's Tank.
- Caird Mechanical Contractors Ltd. have visited the site and have been issued a purchase order to complete the fabrication and installation. Acuren is being contracted for weld inspection quality control.
- Piping has been factory fabricated and tested. Installation deferred until winter, to be facilitated in low demand season, and to align internal and contractor resourcing.

Milestone	Completion Date
Budget setup complete	March 2025
Specifications developed for segment replacement and Contractor site visit	April 2025
Target fabrication and testing	Q3 2025
Installation	Q4 2025 (Target)

21-04 | Buck Lake Dam Repairs – Phase 1

Project Description: Conduct additional inspections, minor repairs, and performance analysis highlighted in the 2019 Dam Safety Review. Phase 2 of the dam improvements is to be completed in the following five years.

Project Rationale: As a result from the Hatch 2019 Dam Safety Review, funds are required to conduct additional inspections, minor dam repairs, and performance analysis. Phase 2 dam improvements to be completed in the following five years.

The November 26, 2020, staff report outlines the detailed expenditure plan for Phase 1.

Project Update and Milestones:

- Detailed scope of work and acceptable options for preventing high live loads at Buck Lake Dam's west dam have been developed. This was reviewed during the 2022 annual inspection and a scope for warning signage is being proposed to be installed in 2023.
- Consultant was retained to conduct a dam breach analysis for both dams to confirm the dam flood area and improve the dam emergency plan. This report was finalized in January 2023.
- Operations to coordinate with CRD Protective Services so that dam emergencies are part of CRD's Public Alert Notification System (PANS).
- CRD staff are compiling required information for the Dam Emergency Plan and Operating and Maintenance Manuals. Updates were completed January 2023.
- In 2023, engineering assessed options for the installation of a v-notch weir to monitor lower flow seepage rates. This will continue with design work into 2024.
- Engineering consultant onboarded for design in July 2024.
- Design complete and weir plate fabrication underway in third quarter (Q3) 2024.
- Design complete and fabrication completed in Q4 2024.
- Construction could not be facilitated during the 2025 dry weather window due to resourcing constraints. Installation will be targeted for summer 2026.

Milestone	Completion Date
Consultant retained to conduct dam breach analysis	December 20, 2021
Draft Dam Breach Analysis Complete and Comments returned	July 14, 2022
Final Dam Breach Analysis Complete	January 2023
Design of Seepage Weir on West Dam	Q2 2024
Fabrication of Weir Plate Complete	Q4 2024
Installation	Q3 2026

WATER SYSTEM OPERATIONAL UPDATE

This is a water system operational update report from May through October 2025.

- Planned replacement of a failed hydrant isolation valve (MLE060 and MLE047) at Chart Drive and Shoal Road. Corrective work is funded by the Operating Reserve Fund (ORF). Additional failed isolation valves and hydrant drain valves have been identified at various locations that also require replacement and corrective maintenance. This work will be ongoing as resources allow.
- WTP remotely operated vehicle inspection completed on August 27. The planned work was funded by the ORF. The inspection noted visible sediment on floors and walls of both clear well concrete tanks including some unidentified minor debris at a few locations. Future tank cleaning is being planned based on the inspection observations.
- Replacement of the radio communications antenna located at Captains Tank. Unstable radio communications were affecting operations between the Magic Lake Raw Water Pump Station and the Magic Lake WTP resulting in emergency response.
- Installed new water conservation signage by a contractor with support from CRD Communications staff. The sign was fully funded by a grant provided through the Union of British Columbia Municipalities (UBCM). These fixed signs were installed in the same location as the previous fixed outdated signage located at the intersection of Schooner Way and Ketch Road.
- Magic Lake WTP corrective maintenance:
 - Replacement of dissolved air floatation (DAF) train 2 failed flocculator mechanical equipment.
 - Replacement of DAF train 2 actuated flow control valve.
 - Replacement of several large uninterruptible Power Supply UPS units.
- Water system leak repairs:
 - Privateers at Signal Hill (significant repair requiring external resources). Initial repairs completed during this reporting period, however additional repair work is required and planned for completion in November.
 - Privateers water service line leak repair.
 - Signal Hill water service line leak repair.
- Investigated ongoing concern from a resident of excessive water flowing along the ditch line near the intersection of Signal Hill Road and Spyglass Road. CRD Operations staff continue to monitor this site regularly with the primary goal of ruling out a water distribution system leak at this location.
- During regular weekly dam inspections, a significant hole was observed on the face of the Magic Lake dam structure. Action was taken immediately, as per the Magic Lake DEP, triggering a level 1 response that included engaging a technical representative who will prepare a work plan to address the issue and oversee the repairs as required by the Provincial Dam Regulators. Emergency dam repair work is not anticipated to commence until late November.
- Emergency response to a motor vehicle incident that occurred on August 21. A motor vehicle collided with the Bosun Water Booster Station causing significant damage to the wooden structure. The building internal equipment, including pipework and electrical systems, were inspected and no damage identified. Although the building structure sustained damage, there is minimal risk of the building collapsing. An insurance claim has been submitted, and repairs are being coordinated.

Magic Lake Estates Sewer Utility

21-01 | Wastewater Improvements – Pump Station and Treatment Plant Upgrades

Project Description: To complete the renewal, replacement and upgrades to aging and failing sewer infrastructure in the MLE sewer service area. The original scope was to upgrade six pump stations and to provide a second aeration tank and clarifier to Schooner Wastewater Treatment Plant (WWTP). The scope was revised during design and after the tender, due to several reasons including consultant recommendations, operational requests, and escalating costs. The final revised scope was to upgrade two existing pump stations, install a new pump station at Cannon, and install a new membrane bioreactor (MBR) wastewater treatment process at Schooner WWTP.

Project Rationale: Successfully received an Infrastructure Canada grant to complete upgrades on pump stations, install a new pump station at Cannon to pump to Schooner WWTP, and upgrade Schooner WWTP to treat flow from Cannon and renew many components to bring the wastewater system into compliance with environmental regulations.

Project Update and Milestones:

- In September of 2024, the new WWTP was partially commissioned and handed over to the CRD to operate and maintain. As commissioning continued, operational staff identified several deficiencies and additional required improvements, including facility treatment process optimization, programing adjustments, installation of an additional membrane cassette for increased plant capacity, and additional need for onsite technical equipment to monitor the new treatment process. Several occupational health and safety items were identified as needing to be addressed to comply with WorkSafeBC regulatory requirements as well. These safety and required improvement items were not fully identified until the operations of the facility commenced.
- The estimated cost to complete the required improvements is \$300,550 and is to be funded by interest earnings for a total revised project budget of \$11,953,815 from the original budget of \$11,653,265. This budget increase has been added to the 2025 capital plan through a Financial Plan Amendment, which was presented to the CRD Board for approval on November 12, 2025.

Milestone	Completion Date
Preliminary Design (30%)	September 2022
Detailed Design (90%)	December 2022
Tender Period	January 27 – March 14, 2023
Construction Period	May 2023 – November 2024
Commissioning Period	September - November 2024
Substantial Completion	December 10, 2024
Warranty Period	December 10, 2026



Schooner WWTP in Operation

WASTEWATER SYSTEM OPERATIONAL UPDATE

This is a wastewater system operational update report for May through October 2025.

- Operations of the new MBR WWTP:
 - Ongoing treatment optimization/commissioning continues.
 - Ongoing system familiarization and data collection continues.
 - Emergency response to an excessive foaming and wastewater spill event of the bioreactor. The sudden foaming event was attributed to biology treatment plant upset that resulted in the generation of wastewater foam and overflow from the bioreactor. It is suspected to have been caused by intrusion of toxic substance in the sewer collection system. Significant operational oversight was required to manage plant process during the upset.
- Operational support of the installation of an additional membrane cassette as part of the capital project. The additional cassette installation provides more treatment capacity for peak flow conditions.
- Operational planning to remove solids fouling from process tanks.
- Operations training for new wastewater treatment plant.

Table 1: Operating Permit Regulatory Non-compliance reporting for January through April 2025

Facility	May to October Reports Issued	Reports YTD 2025	Total Reports 2024	Cause
Schooner WWTP	2	3	13	Environmental Incidence Reports are issued typically because of: 1. Exceedance of permitted daily maximum flows (756m3/day). Flow exceedances are due to excessive collection system inflow and infiltration (I&I). 2. Exceedance of permitted total suspended solids (TSS) (<45mg/l) or biochemical oxygen demand (CBOD) and other federal regulatory requirements such as toxicity tests 3. Emergency facility bypasses due to equipment failure or inflows that exceed treatment equalization and emergency storage capacity.

RECOMMENDATION

There is no recommendation. This report is for information only.

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