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## REPORT TO MAGIC LAKE ESTATES WATER AND SEWER COMMITTEE MEETING OF THURSDAY, JUNE 11, 2026

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**SUBJECT**     **Capital Projects and Operational Update – Mid Year**

### **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, located on the south shore of north Pender Island in the Southern Gulf Islands Electoral Area, provide 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**

##### **25-01 | Captains Tank Upgrade – Concept Design**

Project Description: Development of site investigation, options assessment, concept design, and cost estimates, to inform the future replacement of Captains Tank.

Project Rationale: The existing tank is beyond its anticipated service life and exhibiting signs of deterioration. Advancing planning for its replacement will support long-term system reliability and inform future capital investment decisions.

Project Update and Milestones: A consulting engineer was engaged in 2025 to complete a conceptual design. This work was finalized in 2026 and will be presented separately through a forthcoming staff report.

##### **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 (570 pressure zone).

- Caird Mechanical Contractors Ltd. have visited the site and have been issued a purchase order to complete the fabrication and installation. Acuren contracted for weld inspection quality control.
- Piping factory fabricated and tested. Installation deferred until winter, to be facilitated in low demand season, and to align internal and contractor resourcing.
- Installation of critical pressure zone 570 process piping segment was completed in Q4 2025.
- Remaining project budget will be used for subsequent assessment and monitoring of other process piping within the facility.

<b>Milestone</b>	<b>Completion Date</b>
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

**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.
- Constructability and field conditions being reassessed with the design, based on groundwater conditions observed in late 2025.

<b>Milestone</b>	<b>Completion Date</b>
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	TBD

**WATER SYSTEM OPERATIONAL UPDATE**

This is a water system operational update report from October 2025 through April 2026:

- Completed replacement of identified failed hydrant isolation valves (MLE060 and MLE047) at Chart Drive and Shoal Road. Corrective work was funded by the Operating Reserve Fund (ORF). 5 hydrant isolation valves have now been replaced from 2025 to Q1 of 2026.
- Magic Lake WTP corrective maintenance:
  - Saturator solenoids wired to UPS backup for improved plant startup following power failure
  - Responded to several communication failures at raw water pump stations. Added cellular communications to improve/rectify issues.
  - Dedicated SCADA PC configured to meet cyber security standards
  - Captains Reservoir UPS battery replacement
  - Annual DAF Tank cleaning
  - Frigate Reservoir drain, clean, inspection
  - Pulled WTP sludge pump for maintenance
- 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 planning is underway. The leak has been temporarily isolated.
- 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 prepared a work plan to address the issue and oversee the repairs as required by the Provincial Dam Regulators. The repair was completed in December.

**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 provide a second aeration tank and clarifier to Schooner Wastewater Treatment Plant (WWTP). The scope was revised during design and after the tender for 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:**

- Substantial completion was attained on December 10, 2024. | Since then, the CRD has been operating and maintaining the new WWTP and pump stations. 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 have been completed or progressed. 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 was added to the 2025 capital plan through a Financial Plan Amendment, which was approved by the CRD Board on November 12, 2025. Fall protection and pump extraction upgrades at the WWTP and sewer lift stations are now underway. Danger trees around the WWTP have been removed and a technical process review is ongoing to improve biological conditions with support from CRD Process Engineer.
- The 1-year deficiency walkthrough was completed, and a list of vetted deficiencies are being brought to Coast Contracting’s attention for correction under warranty before December 10, 2026.
- Operations and Engineering staff received additional support and training by McElhanney including site walkthrough and a classroom training session on May 13, 2026.
- CRD is pursuing McElhanney for explanation and issue closure regarding the continuing design vs actual discrepancies with the RAS pump and chemical addition.

<b>Milestone</b>	<b>Completion Date</b>
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 October 2025 through April 2026.

- Operations of the new MBR WWTP:
  - Ongoing treatment optimization/commissioning continues.
  - Chemical pH control mixing and dosing system added into process
  - Project deficiency 1-year walkthroughs with Engineering and consultant
  - Bioreactor foaming has been problematic. Operations is looking at ways to reduce and manage foam including installing a fixed sprinkler system over bioreactor.
  - Effluent bypass occurred in February at the WWTP following heavy rain which negatively impacted process biology and limited membrane throughput.
- Sewer back-up on Schooner Way requiring emergency response, camera inspection, and remediation. A significant repair is needed to address root intrusion and low point in the sewer main. Additional preventative maintenance/inspections until repair can be executed. A job scope and estimate has been prepared.

**Table 1: Operating Permit Regulatory Non-compliance reporting for October 2025 through April 2026**

Facility	October to April Reports Issued	Reports YTD 2026	Total Reports 2026	Cause
<b>Schooner WWTP</b>	3	3	3	Environmental Incidence Reports are issued typically because of: <ol style="list-style-type: none"> <li>1. Exceedance of permitted daily maximum flows (756m<sup>3</sup>/day). Flow exceedances are due to excessive collection system inflow and infiltration (I&amp;I).</li> <li>2. Exceedance of permitted total suspended solids (TSS) (&lt;45mg/l) or biochemical oxygen demand (CBOD) and other federal regulatory requirements such as toxicity tests</li> <li>3. Emergency facility bypasses due to equipment failure or inflows that exceed treatment equalization and emergency storage capacity.</li> </ol>

**RECOMMENDATION**

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

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