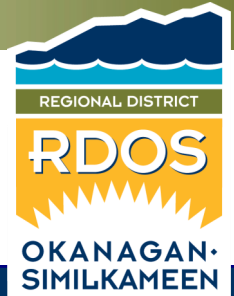


Regional District of Okanagan-Similkameen

Chain Lake Dam Upgrade Project

Spring 2024

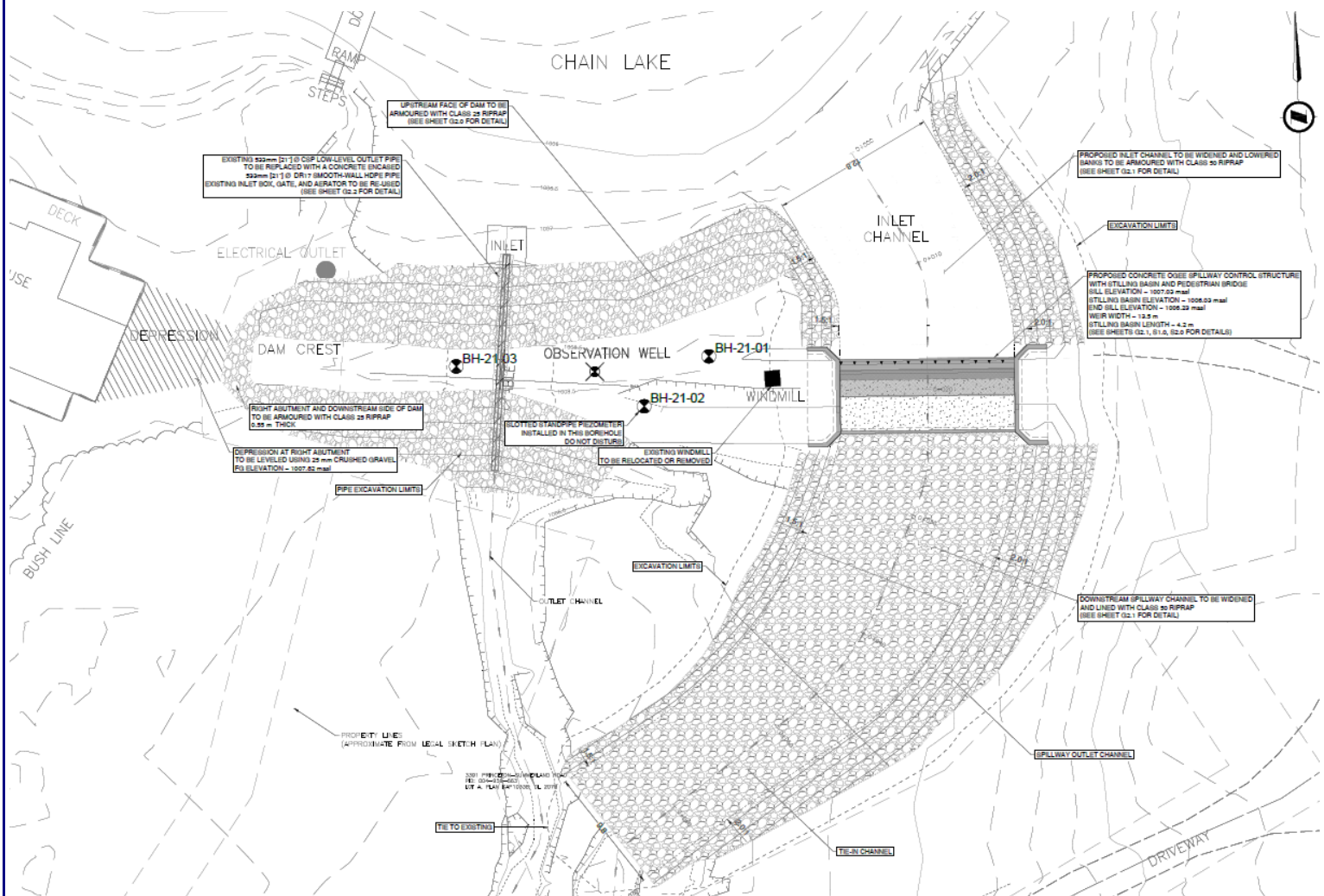


Keeping the Community Informed

The issue:

An audit of the Chain Lake Dam in 2018 highlighted the low-level outlet (LLO) had exceeded its life expectancy and the cold joints in the spillway were deteriorating. To address the concerns of the audit, the RDOS commissioned an inspection of the dam in May 2021. The findings of this inspection indicated it would be prudent to upgrade the existing dam by replacing the concrete spillway and the 550 mm diameter corrugated steel pipe (CSP) low-level outlet. These findings have prompted the request for dam upgrade engineering services for the site.

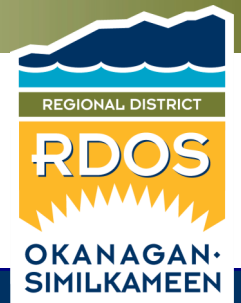
The RDOS contracted the completion of pre-design, detailed design, tendering, construction services, and post construction documentation for the proposed Chain Lake Dam upgrades.



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Regional District of Okanagan-Similkameen

Chain Lake Dam Upgrade Project



Keeping the Community Informed

Ecora, the RDOS contracted consultant, has provided detailed engineered designs and implementation work plans for each of the specified dam upgrades. The detailed design included the completion of a pre-tender cost estimate outlining the scope of the dam upgrades. All required Provincial and Federal permits for the anticipated works will be completed as necessary.

Dam Audit

On July 11, 2023, the B.C. Ministry of Forests Dam Safety Officer performed a dam audit. The audit highlighted some of the known issues with the dam spillway structure, catwalk, and crest. Discussions with the province are occurring as efforts move to correct these issues as part of the dam upgrade project.

The Solution

An upgraded dam includes the construction of a new single-stage reinforced concrete spillway structure, along with a single-span pre-fabricated bridge.

Submission of Plans to Province

In early May 2024, the RDOS submitted a documentation package to the province for review and approval by the dam authority. The data package includes the following:

- 100% design drawings; comprising the features and details of the dam
- Upgrade Plan Submission Report
- Dam Emergency Plan
- Operations, Maintenance, and Surveillance Plan, and Environmental Management Plan

Costs

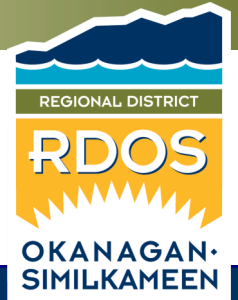
Detailed design of a new Ogee style Spillway Dam has taken place and is 100% complete. A Class A cost estimate (+/- 10%) completed in November 2023, calculated a tender price of about \$1.1 M. Based on preliminary calculations, the borrowing amount and costs for each parcel in the service area is as follows:

- Estimated project cost is \$ 1.1-1.2M
- Funds available from Area "H" Growing Communities Fund: \$498,111
- Estimated maximum funds to be borrowed: \$700,000
- Estimated maximum cost per parcel: \$1200 per year (based on 20-year amortization)



Regional District of Okanagan-Similkameen

Chain Lake Dam Upgrade Project



Keeping the Community Informed

Schedule of Activities

May 2024

- ◇ Ongoing discussions with provincial Dam authority
- ◇ sylix Okanagan engagement: referral initiated
- ◇ Continue discussions with Recreation Sites and Trails B.C.
- ◇ Statutory Right of Way (SRW)
 - ◇ To be drafted and discussed with affected owners
 - ◇ To be surveyed and marked
 - ◇ Legal documents for SRW to be prepared by solicitor
- ◇ Identify borrowing amount and costs for each parcel in service area
 - ◇ Estimated at a maximum of \$700,000
- ◇ Complete preparation of service area bylaw update and borrowing bylaw
- ◇ Bring bylaws forward for discussion at the RDOS Board and commence assent process
- ◇ Community newsletter
- ◇ Forward SRW documents to property owners for review and signing

June or July 2024

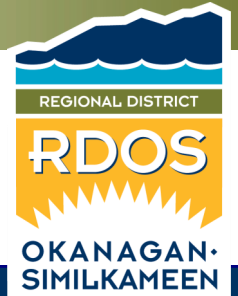
- ◇ Anticipate approval from provincial dam authority for project to proceed
- ◇ Complete applications for required permits

August - Early 2025

- ◇ Community engagement
- ◇ Assent process is completed
 - ◇ Borrowing bylaw approved: proceed with construction plan in 2025
 - ◇ Borrowing bylaw rejected: likely to proceed with dam decommissioning
- ◇ Preparation of construction tender documents
- ◇ Receipt of approved permits



Regional District of Okanagan-Similkameen Chain Lake Dam Upgrade Project



Keeping the Community Informed

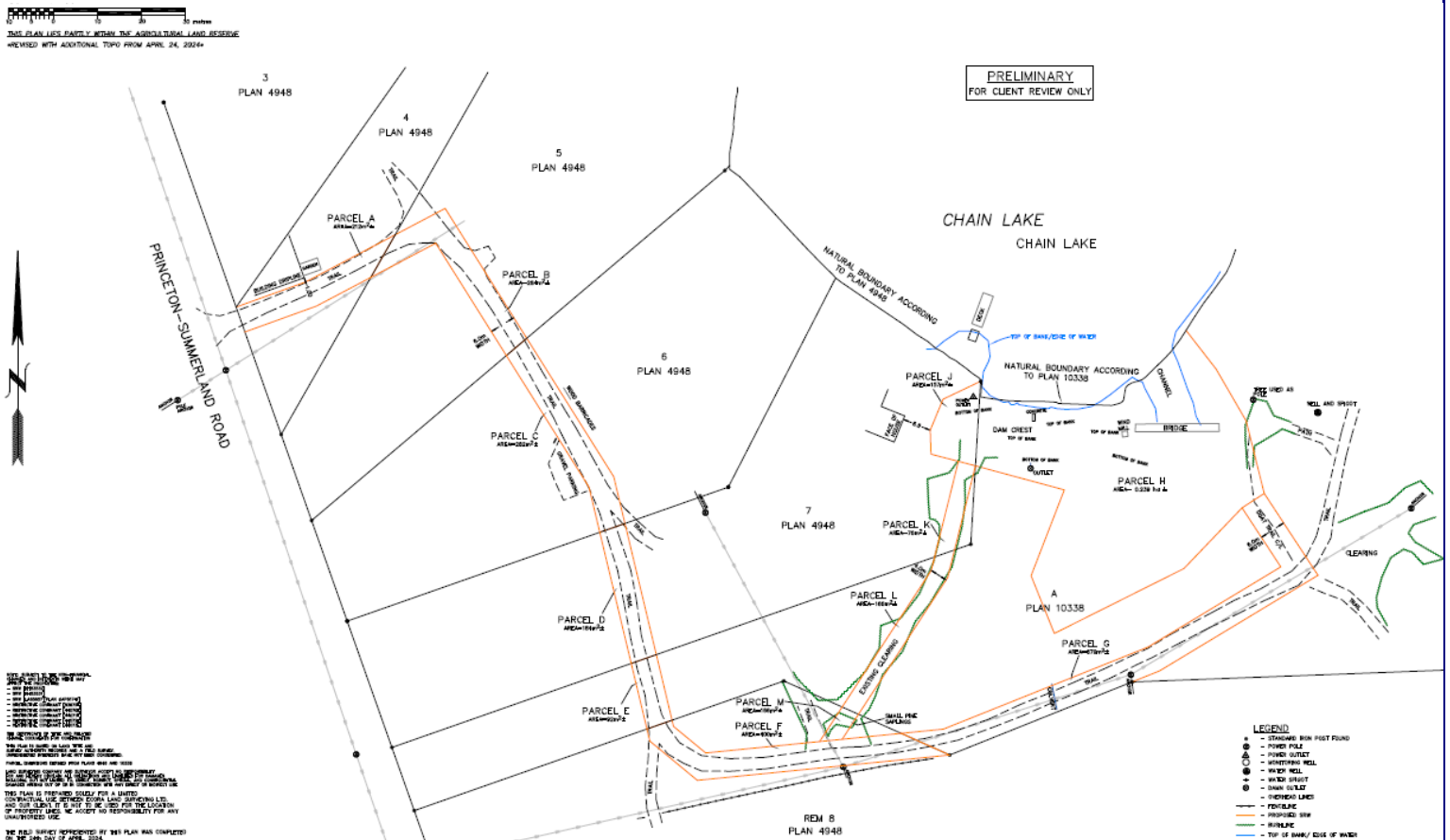
Schedule of Activities

Early 2025 [unknown length of time – assuming 3 months]

- ◇ Service Area update approval and borrowing bylaw from Inspector of Municipalities
- 2025
- ◇ Release Invitation to Tender
- ◇ Construction schedule to be determined after tender has closed
- ◇ Project work is awarded provided the tender is within approved budget
- ◇ Construction completed

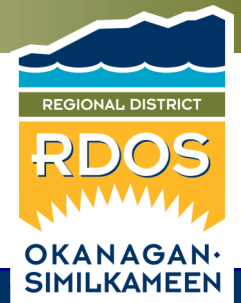
Proposed Statutory Right of Way (SRW)

The map shows the proposed statutory right of ways and dam



Regional District of Okanagan-Similkameen

Chain Lake Dam Upgrade Project



Keeping the Community Informed

Prepared Plans and Manuals for the Chain Lake Dam

Dam Emergency Plan

The *Water Sustainability Act* requires a Dam Emergency Plan (DEP) for all dams. A **draft** revision to the DEP has been created to identify potential emergencies along with action plans on how to prevent potential loss of life or damage to property or environment.

Operation, Maintenance and Surveillance Manual

A **draft** Operation, Maintenance, and Surveillance (OMS) manual has been prepared for the new Chain Lake Dam. The OMS contains operating, maintenance, and surveillance instructions prepared for use by the operating personnel who are assigned direct responsibility for operating and maintaining the dam.

The instructions in the OMS manual will also permit those who have knowledge of reservoir operations, but are unfamiliar with the Chain Lake Dam, to make informed decisions during emergencies or when the regular operator cannot perform those duties.

The benefits to the dam owner that come from creating and using the OMS manual include preservation of dam safety, optimization of water usage, avoidance of costly repairs, and extension of the useful life of the structure.

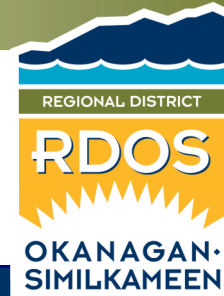
Environmental Management Plan

A **draft** Environmental Management Plan (EMP) has been prepared. The EMP provides recommendations to mitigate the planned and potential impacts to reduce or avoid harm to the environmental values during construction. No-disturb limits will be identified, delineated, and adhered to. It is recommended that instream works be conducted within the least-risk fisheries timing window of August 7 to October 15. The overall reduced-risk period for the project is September through October, which coincides with the reduced risk periods for identified species of concern. Lake water levels are proposed to be lowered gradually, over a two-week period to reduce the risks of stranding aquatic life and downstream effects. Isolation fencing around the low-level outlet will reduce the risk of entrainment of aquatic life when lower lake water level. Site restoration will include seeding and willow stake installation.



Regional District of Okanagan-Similkameen

Chain Lake Dam Upgrade Project



Keeping the Community Informed

A Summary of Next Steps

- Identify and review the Service Area boundary to pay for the dam replacement.
- Confirm SRW with community parcel owners.
- Continue syilx Okanagan engagement.
- Public engagement meeting.
- Hold referendum vote on whether to move forward with dam replacement.
- If referendum vote approves moving forward, the project will be completed and only the required funds up to the maximum of \$700,000 would be borrowed.
- If referendum vote rejects moving forward with dam replacement, plans to decommission the dam will begin.



RDOS
www.rdos.bc.ca
utilities@rdos.bc.ca
250-490-4135

Liisa Bloomfield
RDOS Senior Manager of Utilities
lbloomfield@rdos.bc.ca
Phone: 250-490-4229

Bob Coyne
Electoral Area "H" Director
bcoyne@rdos.bc.ca
Phone: 250-582-9090



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