Cochrane Lake Improvement Plan Review

Item F-1

Jan 7, 2025

Capital and Engineering Services

Cochrane Lake Improvement Plan Review

Objective

To present Council with the preferred stormwater management option that will formulate the bases of the future Cochrane Lake Improvement plan, if approved.

Background

- Cochrane Lake Sub-Catchment Master Drainage Plan (SSI-Sept 2016 and updated in 2023) outlines lands that will divert drainage to Cochrane Lake and mandates a stormwater solution for future development.
- Macdonald Communities Ltd. (MCL) presented the Cochrane Lake Revitalization Plan to Council in 2023 proposing a partnership funding model - focusing on the option to berm the lake to increase freeboard, mitigate against future flooding and continued discharge to Horse Creek.
- January 2024: Council approved the Terms of Reference and budget adjustment to hire an independent consultant to review existing studies and complete subsequent field work to formulate the Cochrane Lake Improvement plan review.
- April 2024: RFP process awarded work to ISL Engineering and Land services (“ISL”)
- November 2024: Final report and analysis receive from ISL

Stormwater Solutions Explored

Option 1: A dedicated pipeline to the Bow River

Option 2: Dredging of Cochrane Lake

Option 3: Construction of a berm with continued discharge to Horse Creek

Option 1: A dedicated pipeline to the Bow River

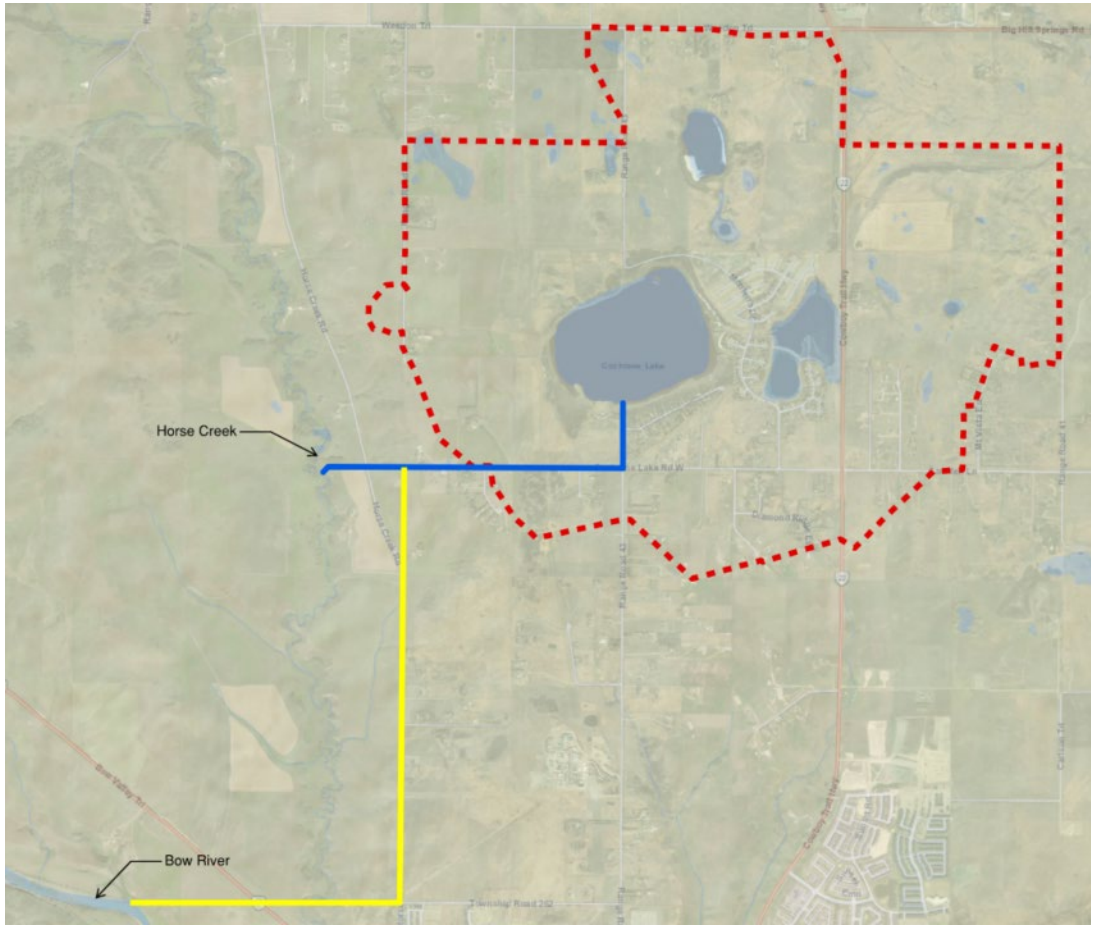
A dedicated pipeline to the Bow River was the original solution presented by SSI in the 2016 version of the Sub-Catchment Master Drainage Plan.

This option involves a 7km pipeline requiring right-of-way (ROW) and AEPA approvals, with many stakeholders involved.

The advantages include a higher discharge rate and easier water quality targets.

Challenges involve land procurement, higher capital costs and regulatory approvals.

The estimated cost for this option is $11,110,731



Option 2: Dredging

The dredging concept with sediment removal aims to increase lake volume.

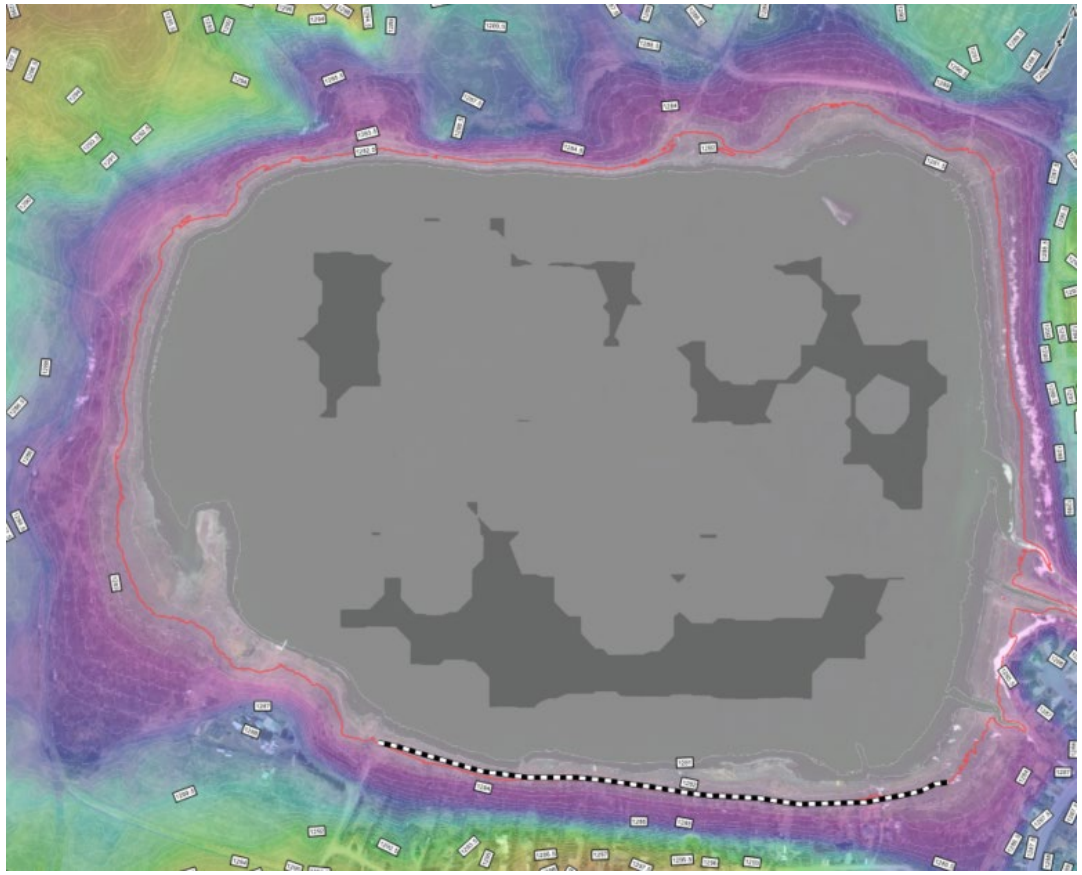
Sediment tests show heavy metals and hydrocarbons leading potentially to larger capital costs, disposal costs, environmental risks and recurring maintenance.

The estimated cost for this option is $66,082,751

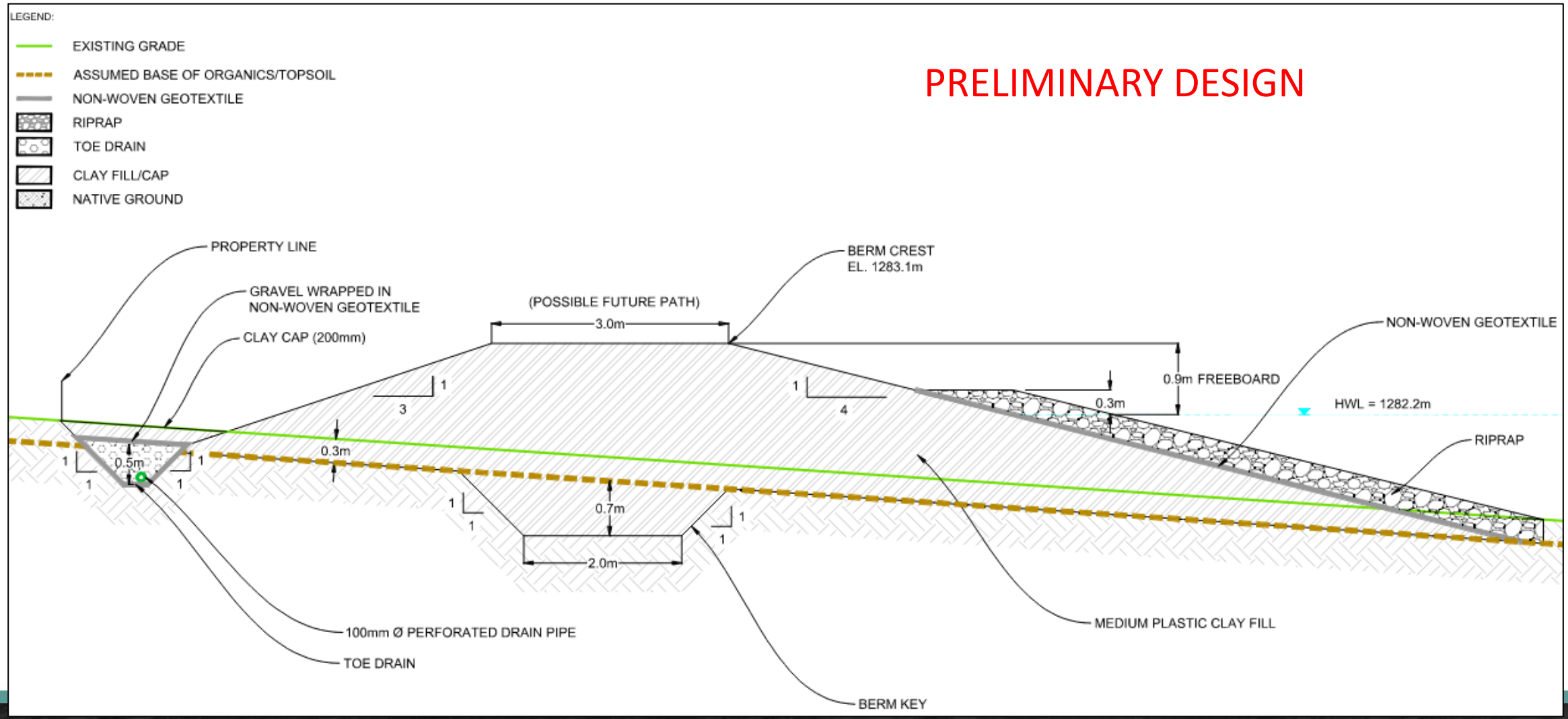
Option 3: Berm the lake with continued discharge to horse creek – Preferred Option

- Construction of a berm around a portion of the lake
- Update existing infrastructure
- Discharge to Horse Creek at 150 L/s (AEPA approval)
- A Mechanical treatment to disrupt the growth of Cyanobacteria.
- Wetland plantings

The estimated cost of this option is $5,087,051



Preliminary Berm Design



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Conclusion

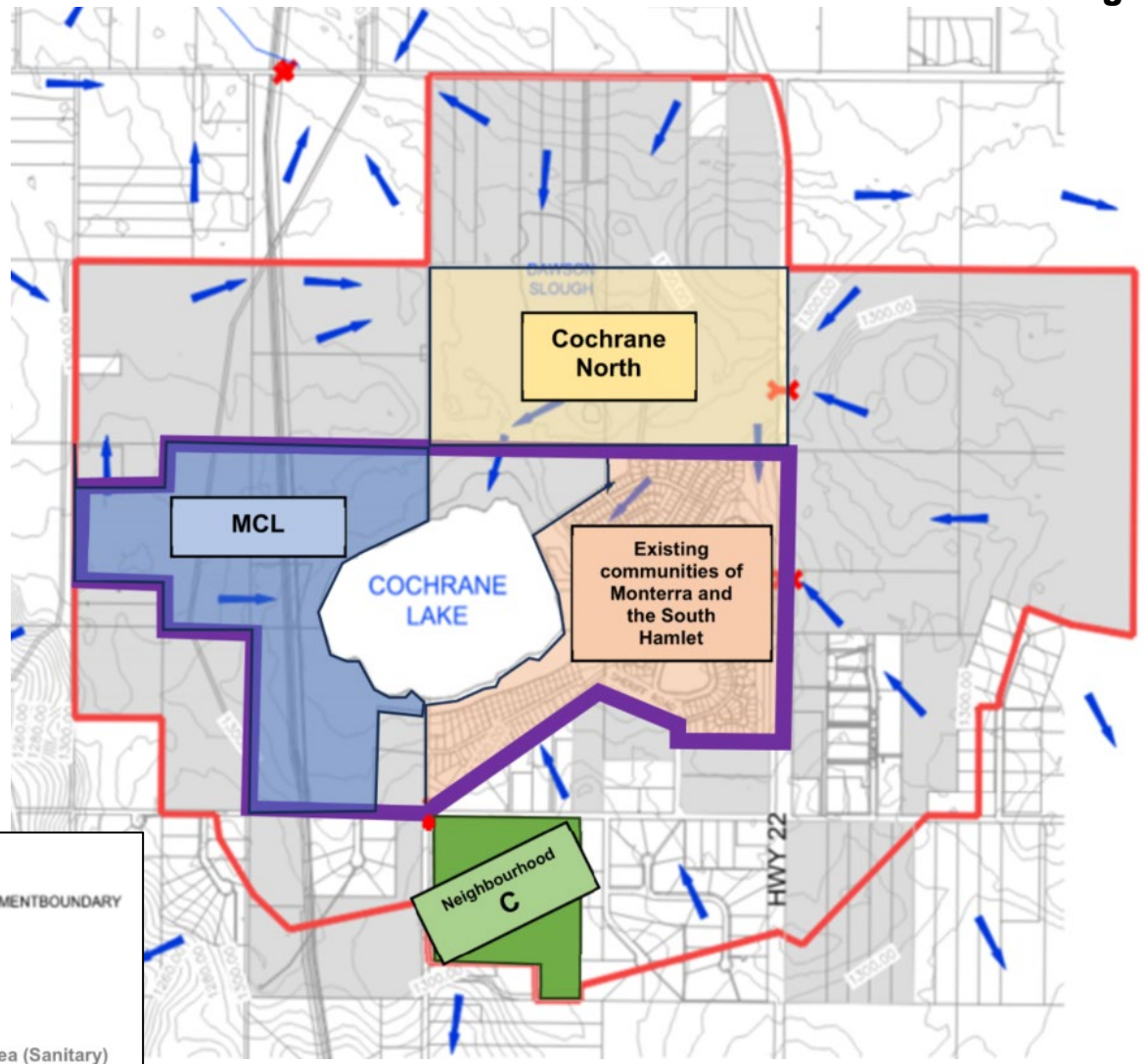
Cochrane Lake Improvements

Increasing the lake capacity (berm) / increased discharge to Horse Creek / Upgrade existing infrastructure / mechanical treatment / wetland plantings

- Satisfy AEPA discharge concerns
- Satisfy Sub-Catchment Master Drainage Plan and provide a solution for future development
- Address residents' ongoing concerns with odor and water quality and contribute to a more thoughtfully managed community
- Provide a higher level of service that leads to County cost recovery on regional servicing systems

Benefitting Area

	Area (ha)	Area (ac)
Existing Communities	102.95	254.27
MCL	138.00	340.86
Cochrane North	108.59	268.22
Neighbour C	47.71	117.84
Total =	450.45	1112.60
Approved Service area + Cochrane N + Neighbourhood C	477.74	1180.01
Existing communities % =		22%



Administration's Recommendation

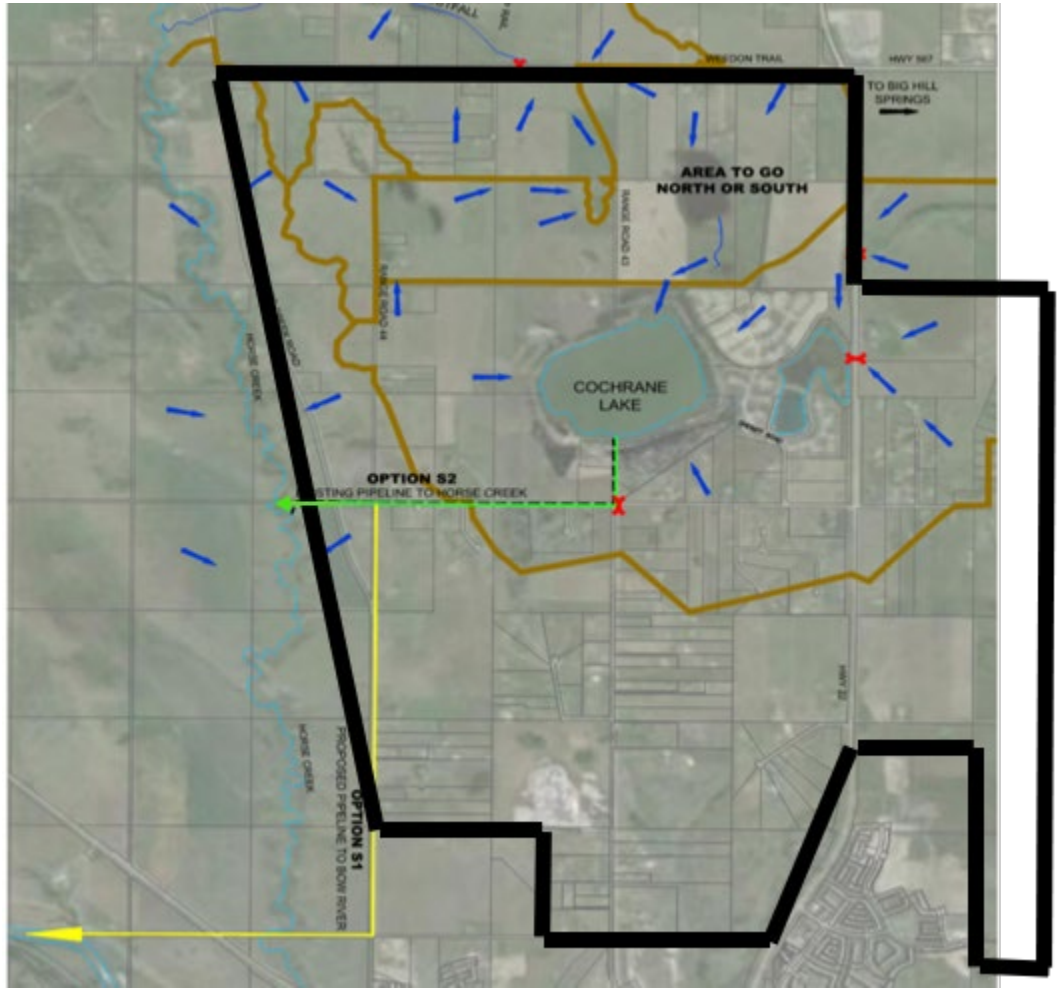
THAT Council approves the recommended Option 3 as the preferred Cochrane Lake Improvement Plan solution

THAT Council direct Administration to proceed to negotiate with Contributing Landowners (CLOs) to formalize a cost-sharing agreement and budget adjustment for Council's consideration in Q1, 2025

THAT Council further direct Administration to proceed with applying for a grant for the Cochrane Lake Improvements

END

Backup



ASP: Black Line

Discharge to Horse Creek

Yellow - Proposed pipe to Bow River

Orange – Catchment area