

Shoreline Remediation Presentation

October 1, 2026

What is Happening?

- Shoreline rock is deteriorating due to freeze, thaw and pressure of lake ice in the winter
- Boulders are becoming dislodged, are cracking, crumbling and falling into the lake.
- Rock wedges that were used initially to level out the wall, are now deteriorating causing the boulders to be seated insecurely
- Rock that was chosen has not fulfilled its anticipated life span
- This has not been identified as an issue at other Calgary lake communities

What is
Happening?



What is the Issue?

- Shoreline is under title to ABRA
- Shoreline is common asset of the Residents' Association

Common asset = Common responsibility

What is the Concern?

- Safety to users
- Liability to the Residents' Association
- Reputation to the community
- If we defer action, costs will increase in future

What is the Need?

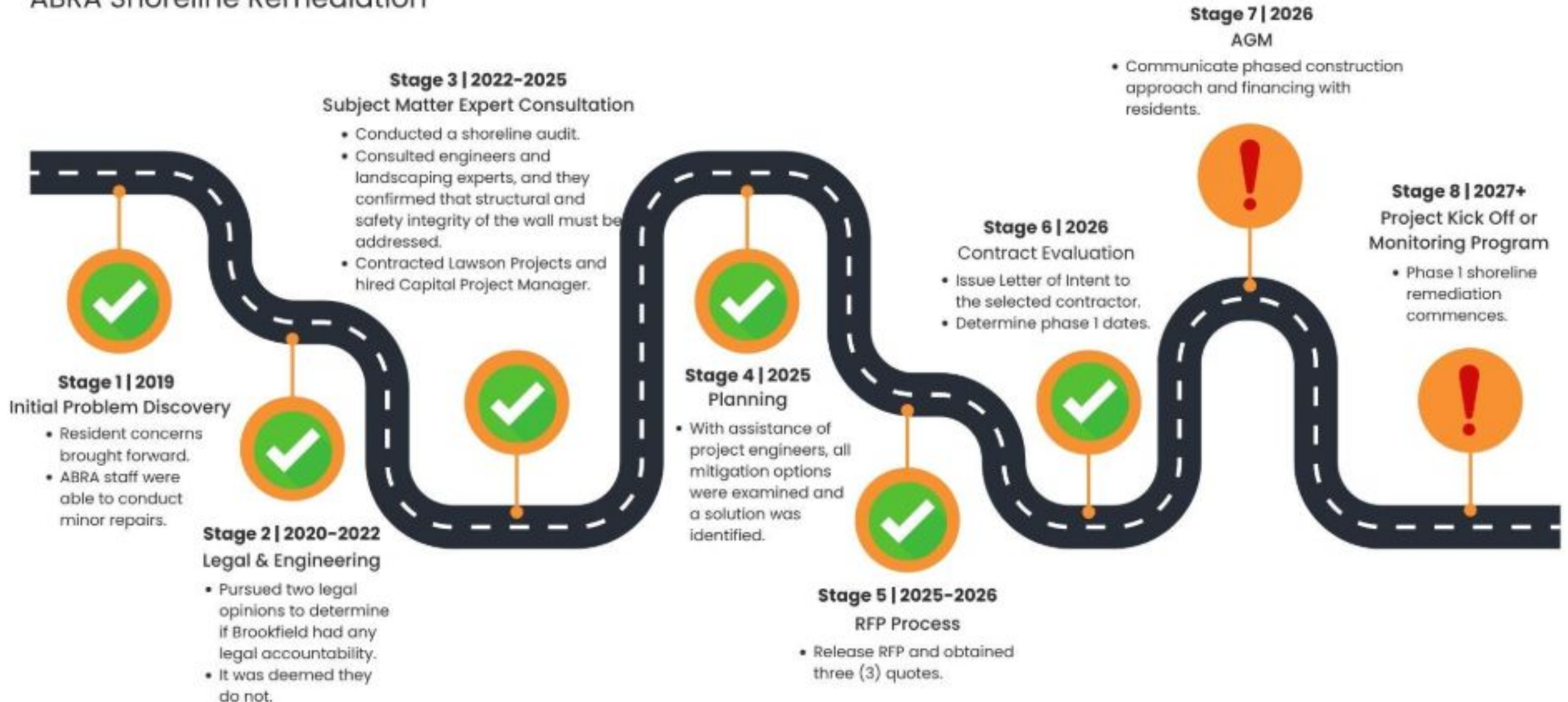
- There is no immediate identified risk to the liner or the lake – need is not related to the findings of an engineering report
- Remediation action proposed as result of legal opinions received by ABRA for a duty of care to address a condition for which a number of safety incidents have been reported
- Obligation to maintain, repair and keep it's assets in sound condition

Shoreline Remediation Challenges

- Limited Equipment access due to fully developed properties
- Restricted space – Restrictive Covenant allows access 2.5m into properties
- Narrow (2.0m) Lake Access Ways
- Limitations for winter work when lake is frozen
 - Alberta Government Guidelines restrict type of work based on ice thickness. This will restrict work to Jan and Feb only.
 - Working on ice necessitates distance of 100m between equipment.
- Impacts of lowering water level
 - Affects on water temperature risking impacts to fish and promoting algae growth.
 - Increased risk to liner drying out.
 - Cost to refill lake significant, ±\$270,000 to ±\$650,000

Project Roadmap 2026

ABRA Shoreline Remediation



Recommended Option

Replace Deteriorated Rock with New Rock

- Work executed from water side (barge)
- Enables the work to be completed with minimal disturbance to properties
- Reducing water level would not be required
- Rebuild of wall would be done using a combination of existing undamaged rock, supplemented with new rock
- Maintains aesthetic appearance

Other Options Explored

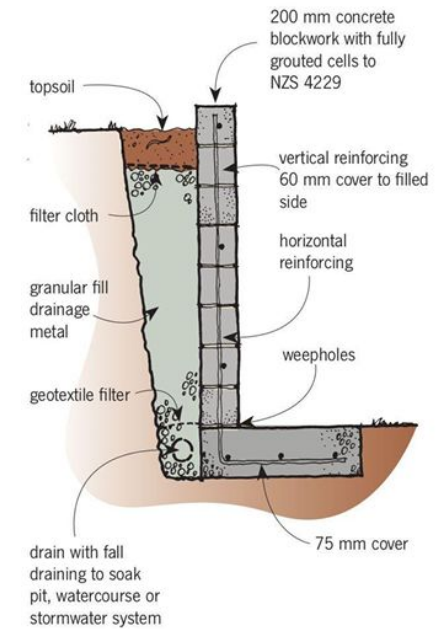
Do Nothing – Monitor & Document Issues

- No immediate risk to liner or lake
- Wall will continue to deteriorate causing increased safety risks
- Failure to act increases liability
- Further deterioration will worsen problems with dock blocks
- May result in increased costs in future

Other Options Evaluated But Not Pursued

New Cast in Place Concrete wall

- Higher cost
- Requires lowering of lake level to below rock wall for construction & curing



Replace deteriorated rock with pre-cast concrete blocks (Lego blocks)

- Not as esthetically appealing
- No significant cost savings



Other Options Evaluated But Not Pursued

Shotcrete face of existing rocks

- More complex project / Higher cost
- Requires lowering of lake water level, installing coffer dams and cost to refill



Polymer Injection

- Polyurethane resin is a two-component chemical grout that expands upon injection into voids and fractures within the damaged rock.
- This option discarded as not practical for any restoration below water level



Progress in 2025

Following the evaluation from Lawson Projects:

- ABRA PM evaluated the shoreline and produced maps of critical, high, medium, and low areas of concern for the shoreline
- An original RFP issued for a portion of shoreline with work to be completed in the early spring and late fall
- Original recommended Contractor declined to enter into a contract
- A revised RFP was issued for a portion of shoreline, proposals were reviewed and preferred contractor has been recommended
- As recent proposal was only for a portion of the lakeshore, mob-demob charges were a high proportion of the price submission

Progress 2026 to present

- Shoreline Committee Established – March 2026
 - 3 Board Members
[1 lake shore owner, 2 non-lake owners]
 - 2 ABRA Members (GM & PM)
[1 non-resident, 1 lake-access-way owner]
- Committee met over a dozen times in spring and summer 2026
- Undertook thorough review of info to date
- Evaluated and categorized scope, risks, options, cost scenarios

Scope of Work

- Total shoreline length: $\pm 2\text{km}$
 - $\pm 175\text{ m}$ accessible from land (north end)
 - $\pm 1,825\text{ m}$ accessible via water (barge)
- Breakdown by repair criticality:
 - Critical: $\pm 270\text{ m}$ (red)
 - High: $\pm 272\text{ m}$ (orange)
 - Medium: $\pm 724\text{ m}$ (yellow)
 - Low: $\pm 748\text{ m}$ (green)



Compare Scope of Work Options

Option	Scope Covered	Length Treated	Median Cost Estimate	Risk Profile
Option 1	Full shoreline	2,014 m	\$5,000,000	Lowest long-term risk
Option 2	Critical + High + Medium	1,266 m	\$4,000,000	Moderate risk (low areas deferred)
Option 3	Critical + High only	542 m	\$2,200,000	Highest risk (major deferral)
Option 4*	Critical + High & inspect Medium for local repair	2,014 m	\$2,800,000	Reduced-cost full shoreline improvement strategy

**Shoreline Committee has recommended and Board has adopted Option 4 as the preferred scope of work for shoreline restoration*

Dock Blocks



- 21 Dock Blocks need to be reset due to shifting docks
- Dock Blocks are a common asset to ABRA and part of the shoreline treatment
 - 1 was repaired urgently in 2026 as a safety concern (maintenance budget)
 - 20 to be most efficiently repaired from water-side using the barge
 - Est. \$10K per reset = \$200,000
 - *Added to Shoreline Scope

Median Cost
Estimate

Shoreline Remediation Option 4 (Critical + High & inspect medium for local repair)	\$2,800,000
Dock Block Reset (20)	<u>\$200,000</u>
Total Median Estimate for Repair	\$3,000,000

Funding Sources for Shoreline Remediation

1) Utilize Capital Reserves

- Cash & Non-Cash reserves total $\pm \$942,000$
- Other capital expenditures planned
- Do not want to deplete all capital reserves in case of emergency

2) Special Assessment

- Approx ± 6700 households implies $\pm \$600$ per household
- Do not want to impose additional financial hardship onto individual members

3) Financing Loan

- Current Borrowing limit based on Bylaws is $\pm \$375,000$ total
- As mortgage is paid off, **there is available debt servicing capacity without considerable impact to fees**

Borrowing Limit

- How much to ask as a maximum borrowing limit?

Estimates are best guesses but sometimes there are unexpected costs

Solution: Add Contingency to Median Estimate

Shoreline Remediation (Critical + High & inspect medium for local repair)	\$2,800,000
Dock Block Reset (20)	<u>\$200,000</u>
Total Median Estimate for Repair	\$3,000,000
Add Project Contingency ($\pm 30\%$)	<u>\$900,000</u>
Maximum Borrowing Limit	\$3,900,000

Outcome

- Prepare an ordinary resolution to members to vote on the option to borrow up to a maximum of \$3.9M for the shoreline remediation project

Issue

- Shoreline rock wall is a common asset and a common responsibility
- Ensure safety for users
- Address liability to the Residents' Association
- Maintain our reputation of a high quality and safe amenity

Thank you