



Morgan's Grant Statewood SWF

Condition Assessment, Findings and
Alternative Solutions

June 15, 2026



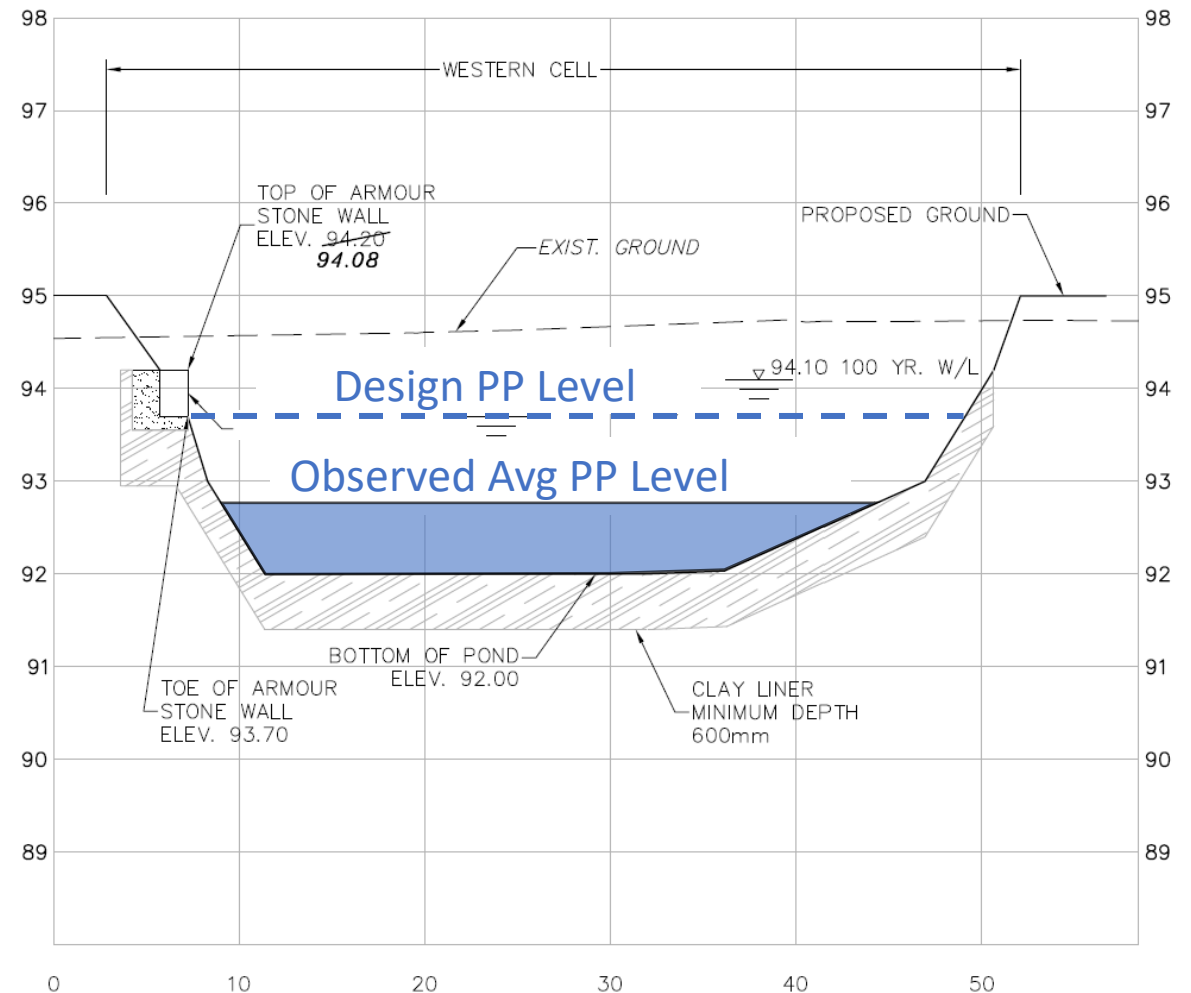
Overview of the Facility

- Pond constructed in 2006
- 2 Cells - 2.5m elevation difference separated by a retaining wall
- 0.9m clay liner



Description of the Issues

- Low water level in the upper cell
- Concerns re: the retaining wall
- Phragmites in the lower cell





Condition Assessment

- Engineering consultant assignment
- Field Investigations:
 - Six boreholes, field and laboratory testing
 - Continuous water level and groundwater monitoring
 - Various site inspection including assessment of the clay liner
- Review of existing conditions
 - Geotechnical of the structural stability of the existing wall
 - Hydro-geological assessment
 - Evaluation of stormwater management performance
 - Safety assessment per Ontario Building Code
- Assessment of Alternatives



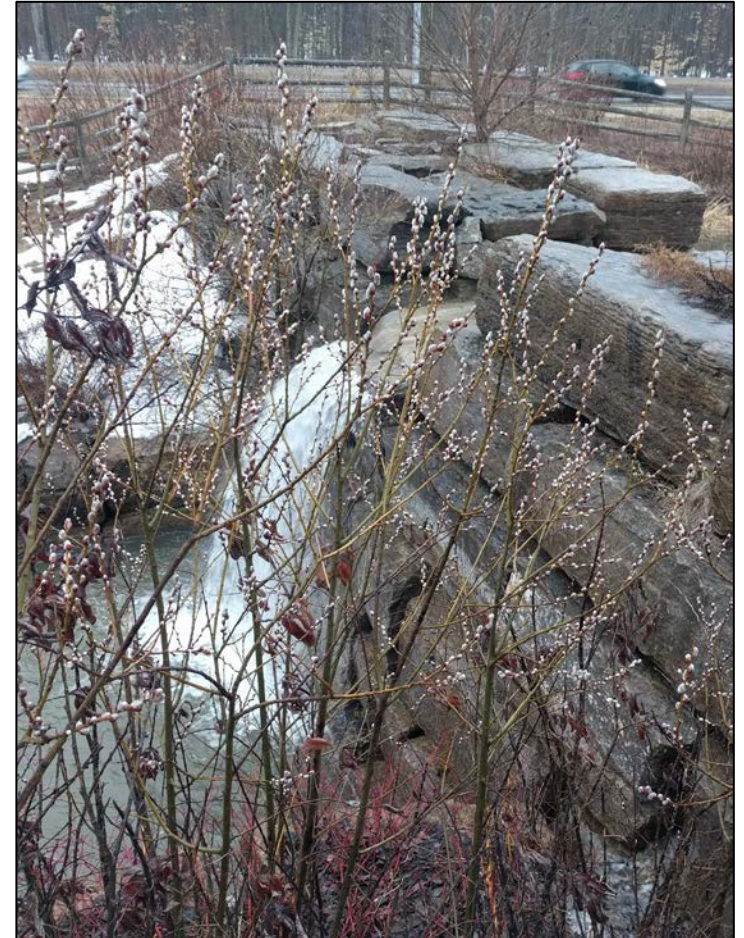
Key Findings

- **Armour Stone Wall:**
 - No structural risk
- **Water Loss in Upper and Lower Cells**
 - Upper and lower cells and the sandstone aquifer are hydraulically connected
- **Performance of the Facility:**
 - The previous clay liner repairs u/s of the armour stone wall and weir were ineffective.
 - The upper cell functions as an infiltration basin
 - Very short draw-down time in the lower cell



List of Alternatives

- A. Maintain Existing Conditions + Landscaping Improvements
- B. Re-line Upper Cell
- C. Convert Upper Cell to Dry Pond
- D. Convert Upper Cell to Wetland



A. Maintain Existing Conditions

- **Continued infiltration** in upper cell
- No changes to the armour stone Retaining Wall
- General landscaping improvements (trees, plants, pollinators)
- Cost: **100K**



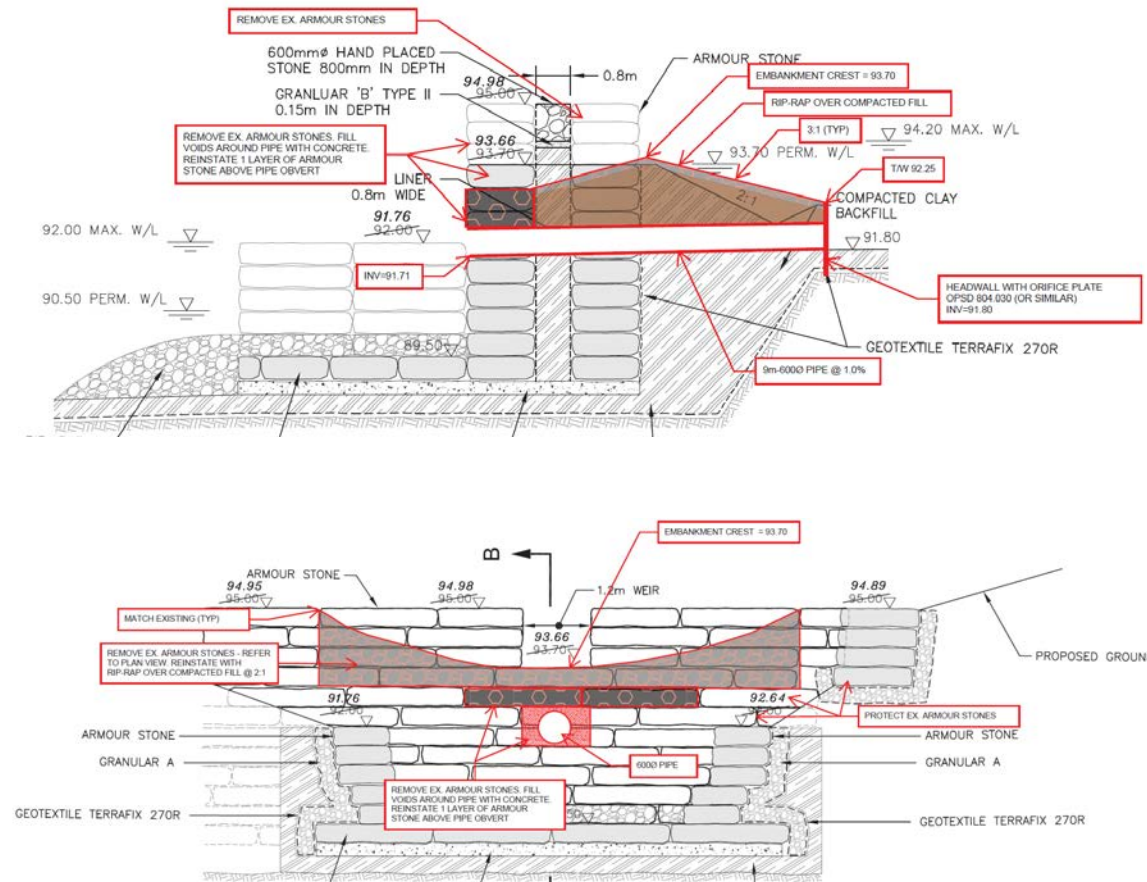
B. Re-line Upper Cell

- Replace the existing liner with a new **Geosynthetic Clay Liner (GCL)**
- Hydraulic functioning returns to “as designed” condition
- Cost: **960K**



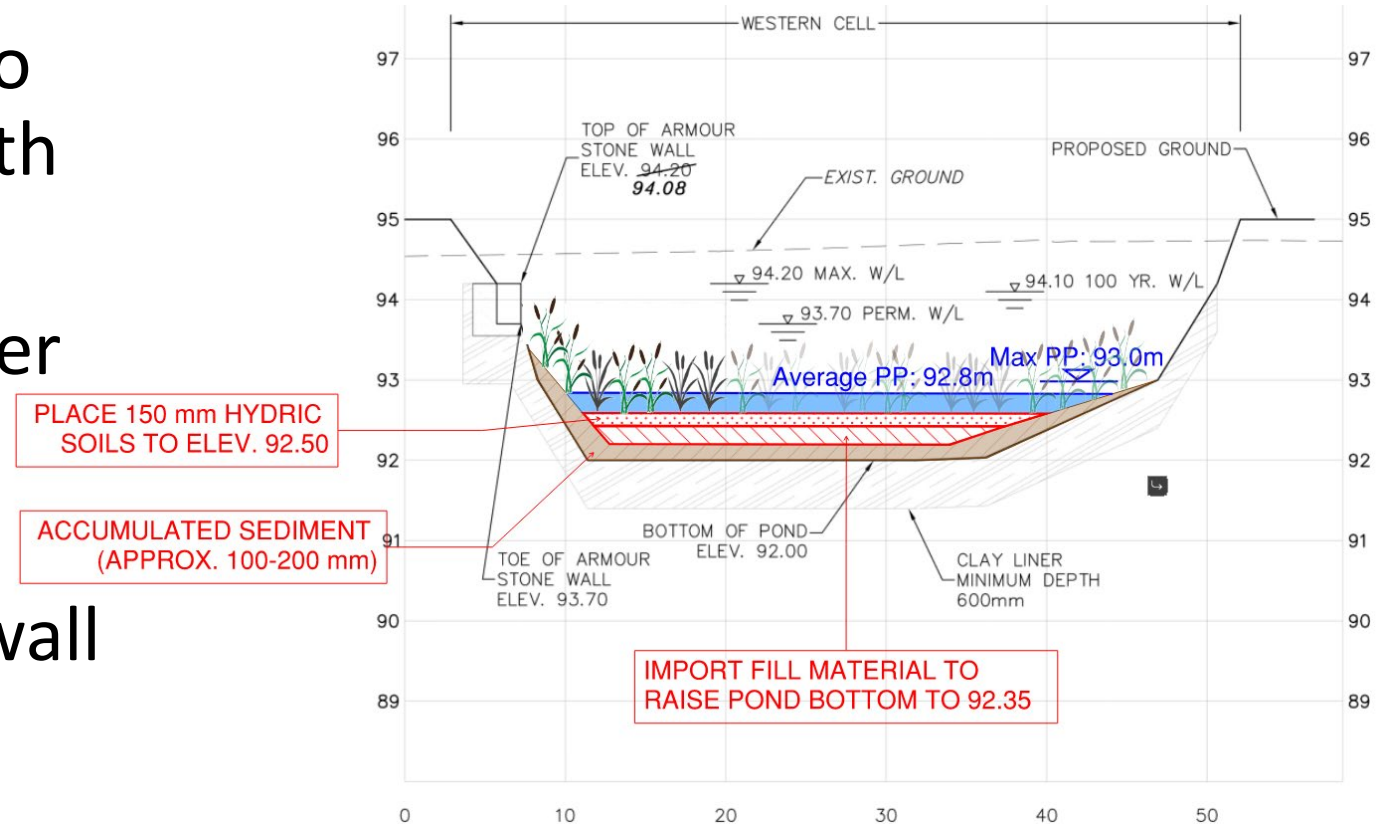
C: Convert Upper Cell to Dry Cell

- Armour stone wall modification to **include a culvert with orifice**; height of armour stone wall is reduced at weir
- Upper cell provides water quantity function but no water quality function
- Infiltration in upper cell is significantly reduced; infiltration in lower cell continues
- Cost: **550K**



D. Convert Upper Cell to Wetland

- **Regrading and landscape** improvements in upper cell to create a wetland, working with the existing water levels
- **Continued infiltration** in upper cell. No changes to hydraulic functioning.
- No changes to the retaining wall
- Cost: **250k**



Example of Constructed Wetland



Summary

	Maintain Existing + Landscaping	Re-line	Convert Upper Cell to Dry Cell	Convert Upper Cell to Wetland
Cost	100K	960K	550K	250K
Comments	Low cost, high SWM performance	Algae and odor concerns will remain (small catchment area)	Complete loss of permanent water level	High SWM performance, creation of a new ecosystem



Preferred
Solution

Recommended Measures

