KEEPING THE BALANCE

Feature-based water balance in the planning process

Conclusion: Post-development

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Environment Canada Environnement Canada

Toronto and Region Conservation Authority

Objectives

Answer the following questions:

- What happens during and after construction
- What is an adaptive management plan for FBWB?
- How can monitoring and design accommodate adaptive management?

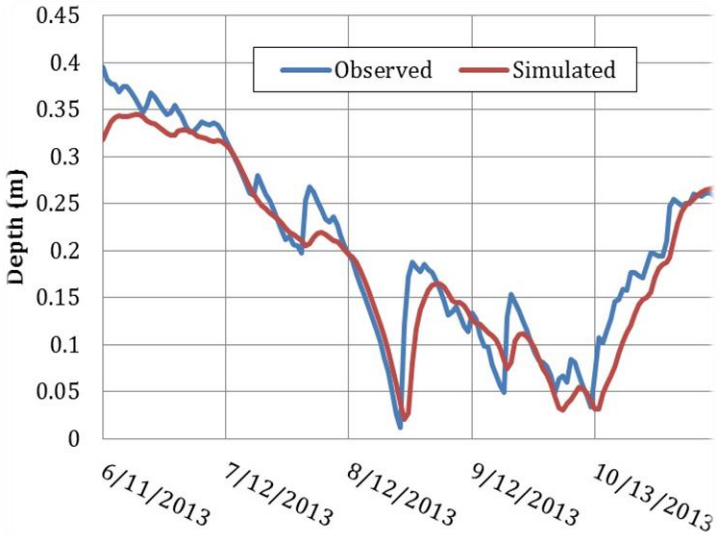
Also:

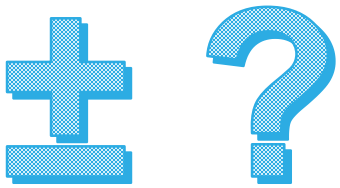
- FBWB process and supporting tools and guidelines
- Research at TRCA to inform future improvements to FBWB process

+ Discussion and questions

What happens during and after construction?

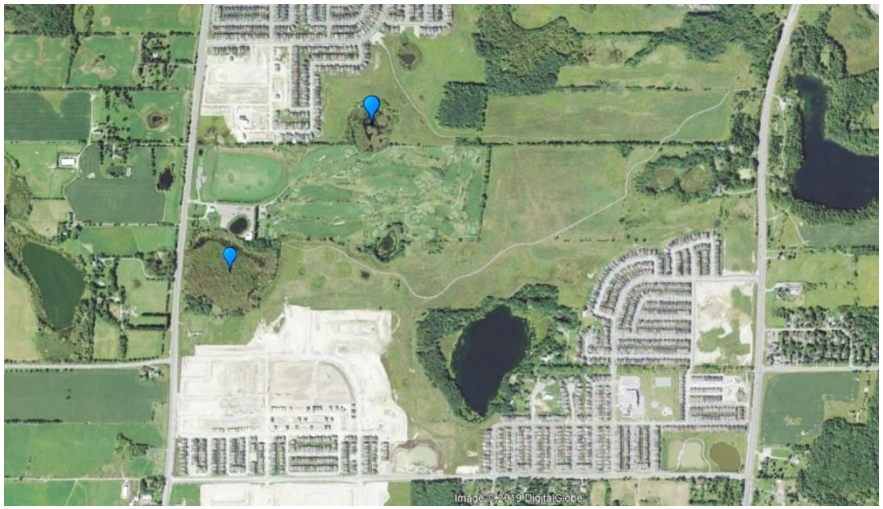
- All models and developments have uncertainty → Can't guarantee that modeled solution matches reality
- Adaptive management may be needed to maximize success of exercise, preserve water balance of sensitive features





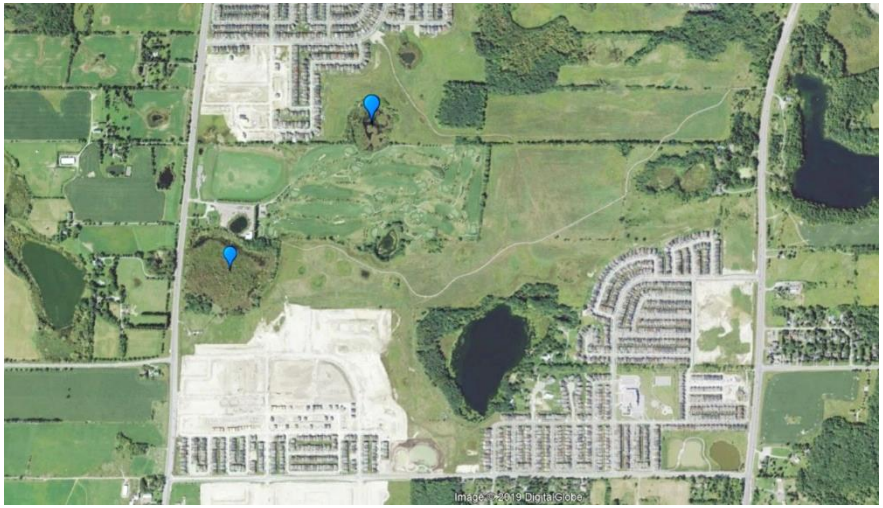
What happens during and after construction?

- Implementation of mitigation as soon as possible following initial grading.
- For proposals where gap >2 years, an interim plan may be required → proponents should consult with CA and municipal staff



What is an adaptive management plan for FBWB?

- **Adaptive management plan:** defines triggers for action and associated active management measures
- Necessary to protect ecological + hydrological functions of wetland from irreversible degradation following multi-year disturbances

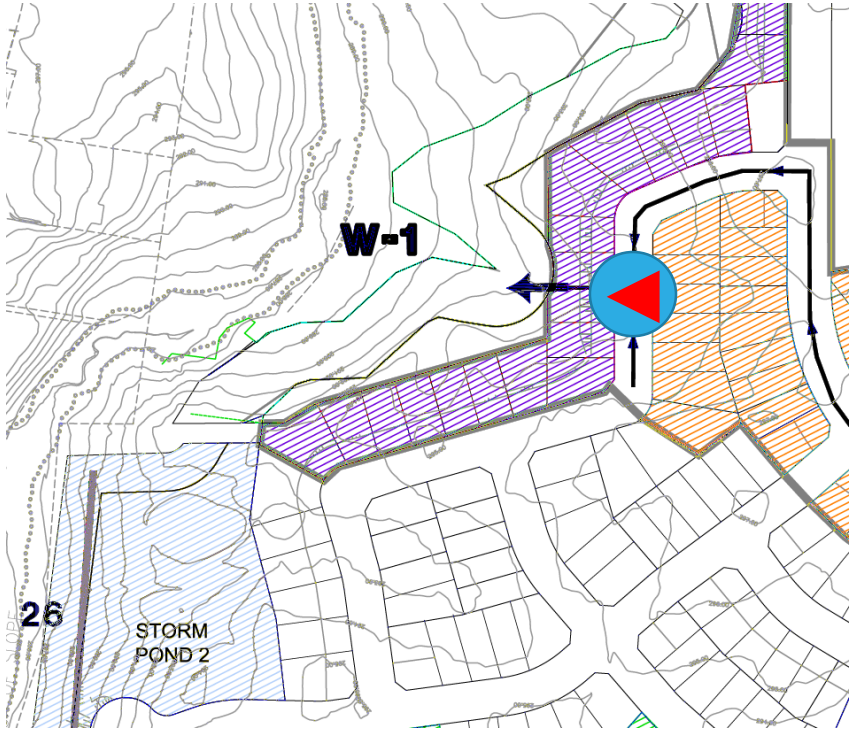


What is an adaptive management plan for FBWB?

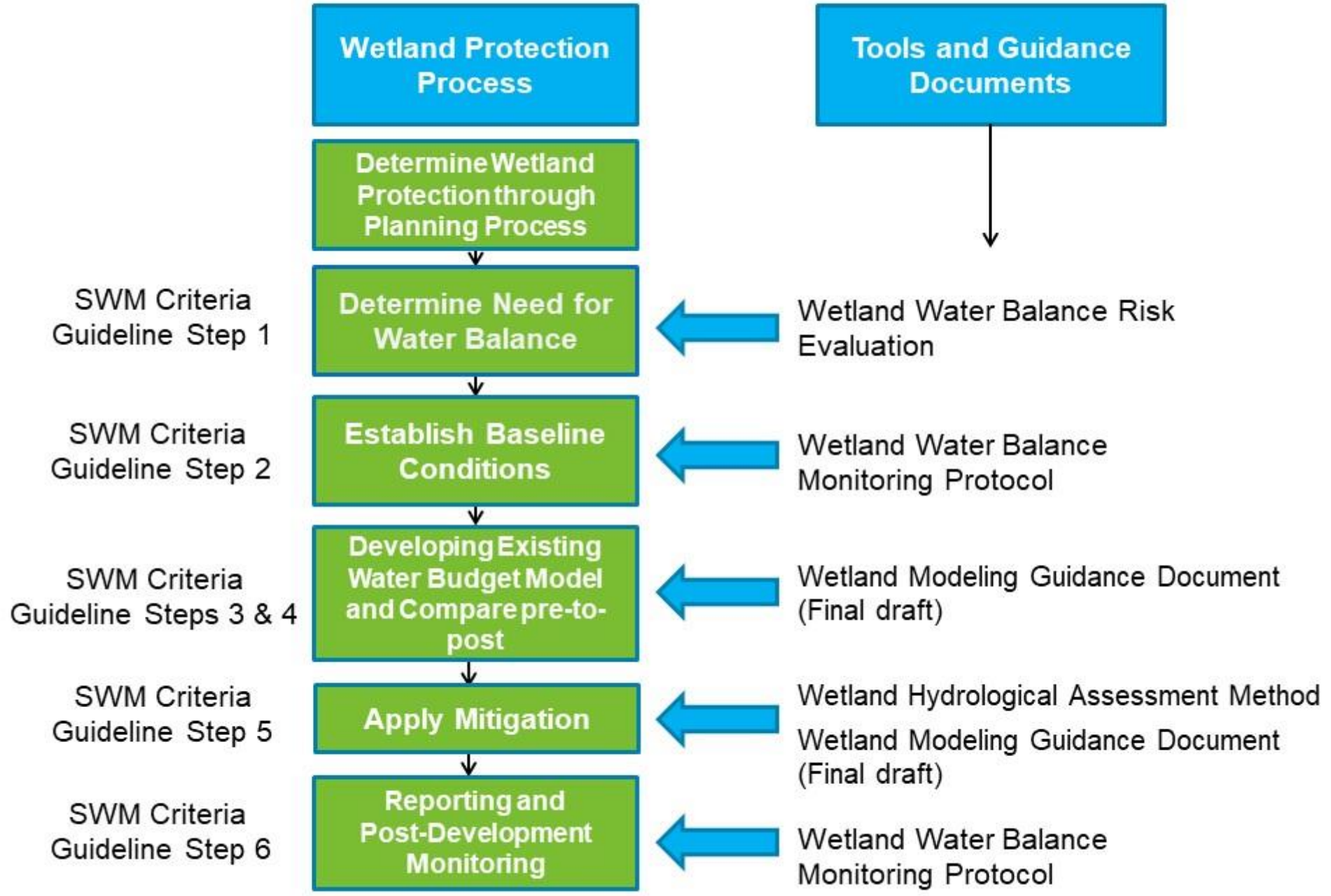
- Leaving monitoring instrumentation in place permits post-development comparison with baseline → identify issues with mitigation system
- Ideal mitigation measure design will permit post-construction modifications to passive function (e.g. flow splitters to control roof area draining to RDC)

How can monitoring and design accommodate adaptive management?

- Roof drainage collector system with flow splitter to alter contributing drainage area
- System should be designed to function passively with as little intervention as possible



Summary: Feature-based Water Balance Process


Wetland Protection Process
Tools and Guidance Documents
Determine Wetland Protection through Planning Process
SWM Criteria Guideline Step 1
Determine Need for Water Balance
Wetland Water Balance Risk Evaluation
SWM Criteria Guideline Step 2
Establish Baseline Conditions
Wetland Water Balance Monitoring Protocol
SWM Criteria Guideline Steps 3 & 4
Developing Existing Water Budget Model and Compare pre-to-post
Wetland Modeling Guidance Document (Final draft)
SWM Criteria Guideline Step 5
Apply Mitigation
Wetland Hydrological Assessment Method
Wetland Modeling Guidance Document (Final draft)
SWM Criteria Guideline Step 6
Reporting and Post-Development Monitoring
Wetland Water Balance Monitoring Protocol

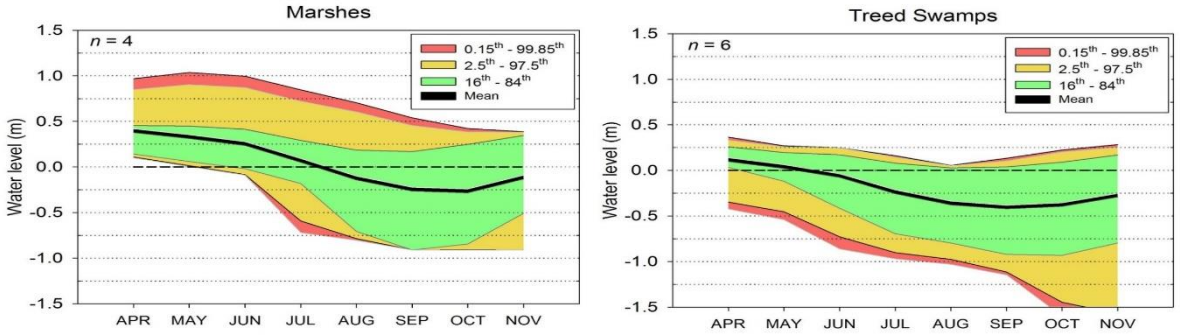
Wetland Water Balance Research – Monitoring Sites

- Partnership with CVC, Conservation Halton
- 25 locations
- Mix of impacted and natural reference sites

Wetland Water Balance Research – Monitoring Sites

Objectives:

- Determine natural range of wetland hydroperiod variation (within-year + between years) in natural communities
- Elicit thresholds of disturbance (i.e. “significant” impacts)
- Develop baseline data at soon-to-be-impacted sites (e.g. Seaton)
- Evaluate performance of mitigation measures where FBWB has been incorporated into development design



For further information:

- All guideline documents available at side table
- Actively soliciting feedback on Modelling Guidance Document (and modelling case studies companion document) – please take a copy to review!

Questions?