

# St-Pierre-Jolys Lagoon Expansion

## NATIVE PLANT SOLUTIONS & WSP

A presentation to the Village of St-Pierre-Jolys  
January 14<sup>th</sup>, 2016



# Who we are?

**NPS** is a consulting branch of Ducks Unlimited Canada, we provide science-based solutions for wetland and upland ecosystems and environmental remediation across Canada

**WSP** provides engineering services in urban wastewater planning and environmental remediation across Canada.



# Why is expansion needed?

Like many communities throughout Manitoba St-Pierre-Jolys is faced with the challenge of balancing their current needs and future community growth with the capacity of their existing wastewater lagoon system.

Due to the capacity shortfalls of the existing lagoon, expansion is required for the storage and treatment cells.



# Goals of Lagoon Expansion

## Meeting the needs of the community

1. Capacity of current system constrained by having to accommodate the volume and timing of stormwater events and the community's wastewater treatment.
2. Potential pollutants that enter the system with incoming water and the time needed to ensure that the water becomes of good enough quality for release. Potential contaminants can further constrain timing of release.



# Manitoba Wastewater Lagoon Standards and Guidelines

## ➤ RELEASE DATES

- June 15<sup>th</sup> set to reduce ammonia levels

## ➤ LAGOON DISTANCE BUFFERS

- 300m to the nearest residence

## ➤ WATER QUALITY STANDARDS

- with expansion, required to meet new standard for release = 1mg/L Total Phosphorus
- Due to the sensitive region (Red River Watershed) in which the village is located, the new TP requirement will have to be met



# The project

- Village of St. Pierre Jolys has an existing two-cell wastewater stabilization pond.
- Dictated by current usage and growth within the Village, the existing facility requires additional treatment and storage capacity.
- The current (2015) population of St. Pierre-Jolys is approximately **1,099 people**. In addition to the serviced residents, the Community sewer system serves 257 bussed-in students equivalent to 86 people, As a result, the **total equivalent population is 1,185**



# The project

- Village of St. Pierre-Jolys desires to provide wastewater treatment for a population of at least 2,000 people by using their available land around the existing facility.
- The major items of the proposed development are a new storage cell, combining the existing primary cells into one primary cell and a new wetland cell to reduce the total phosphorus in the effluent at discharge.



# Treatment options

- Chemical \$\$, Logistics, Increased Maintenance
- Mechanical \$\$\$, Maintenance & Management
- Phytoremediation \$\$, Low Maintenance/Management



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# EXISTING SITE PLAN

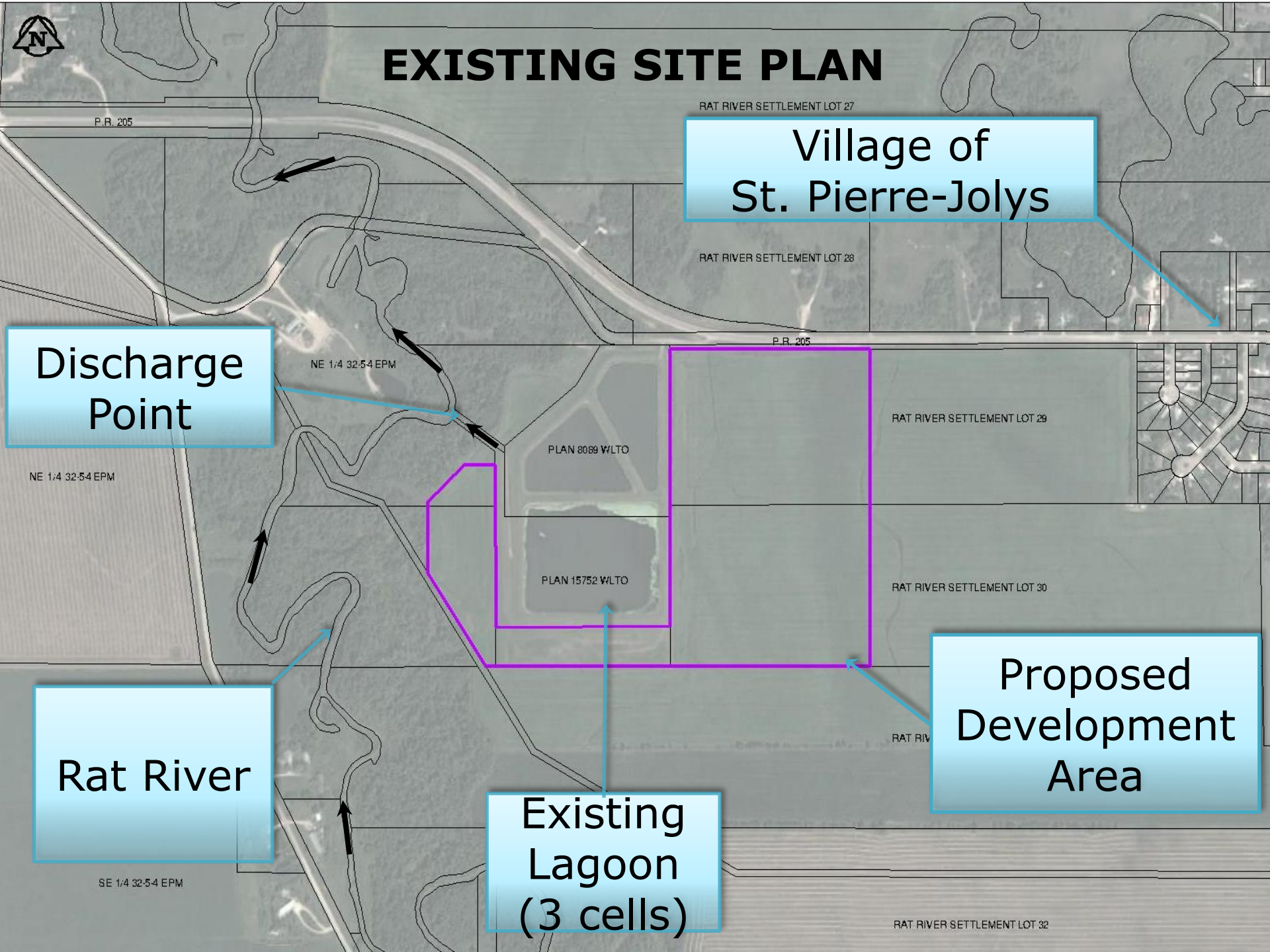
Village of  
St. Pierre-Jolys

Discharge  
Point

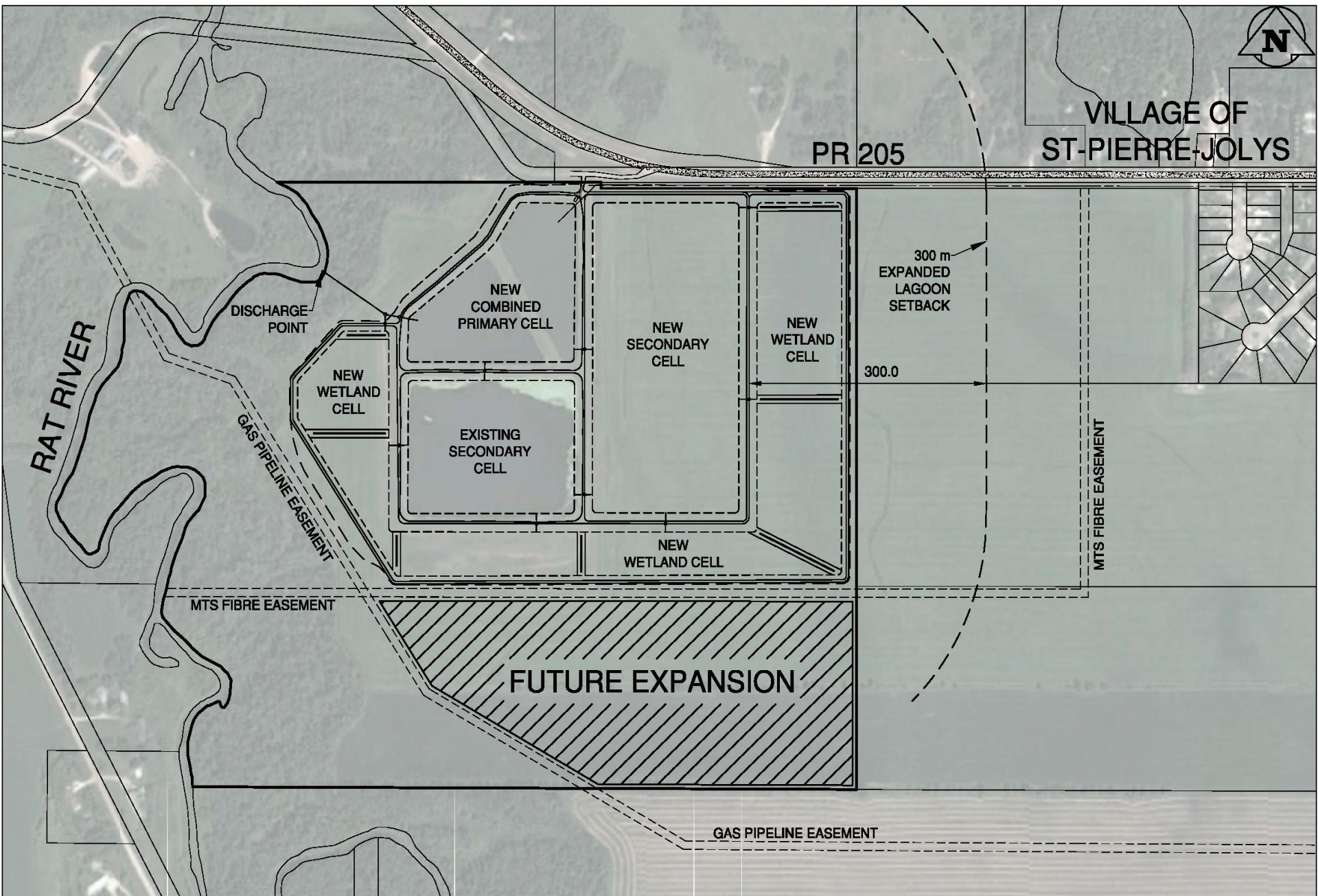
Rat River

Existing  
Lagoon  
(3 cells)

Proposed  
Development  
Area



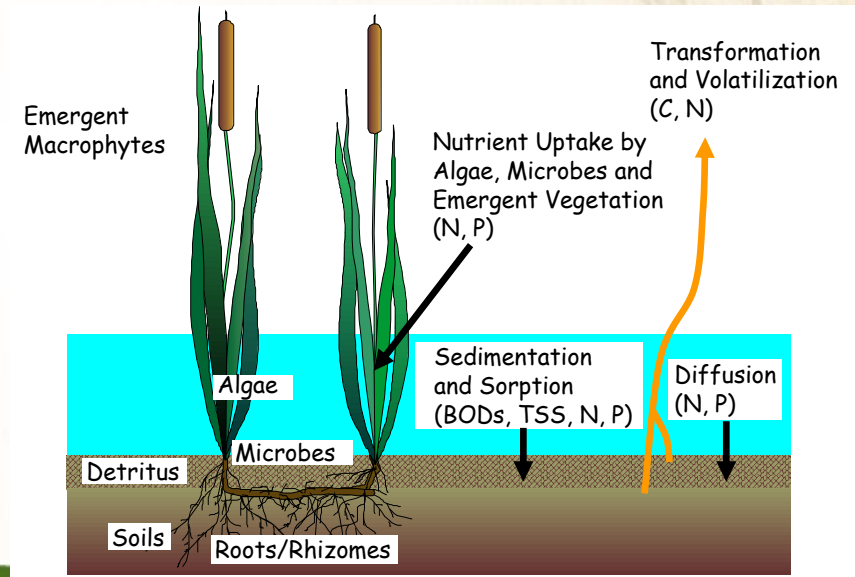
# PROPOSED SITE PLAN



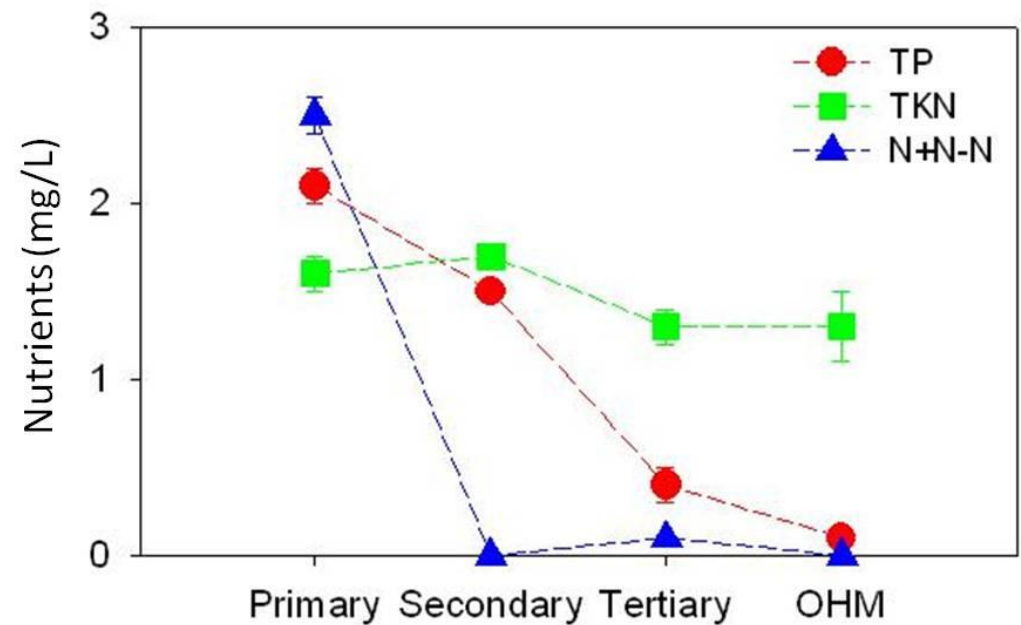
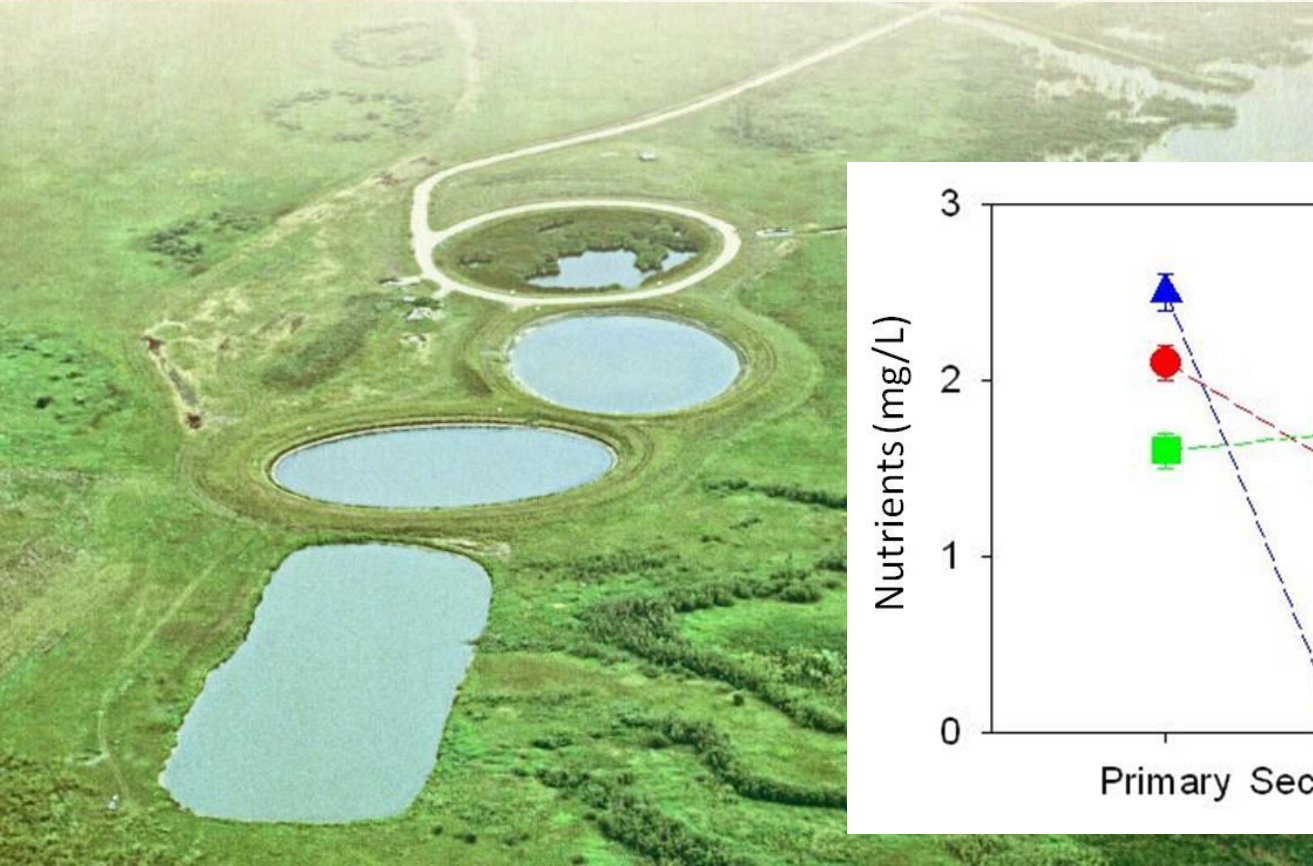
# Why Phytoremediation (Tertiary wetland cell)

Takes advantage of natural wetland process to assimilate, transform, and degrade sewage constituents to manageable and acceptable levels

- settling of particulate matter
- filtering of particles by vegetation
- uptake in plants
- breakdown by microbes and fungi
- sequestration in sediments
- anaerobic decomposition
- aerobic decomposition

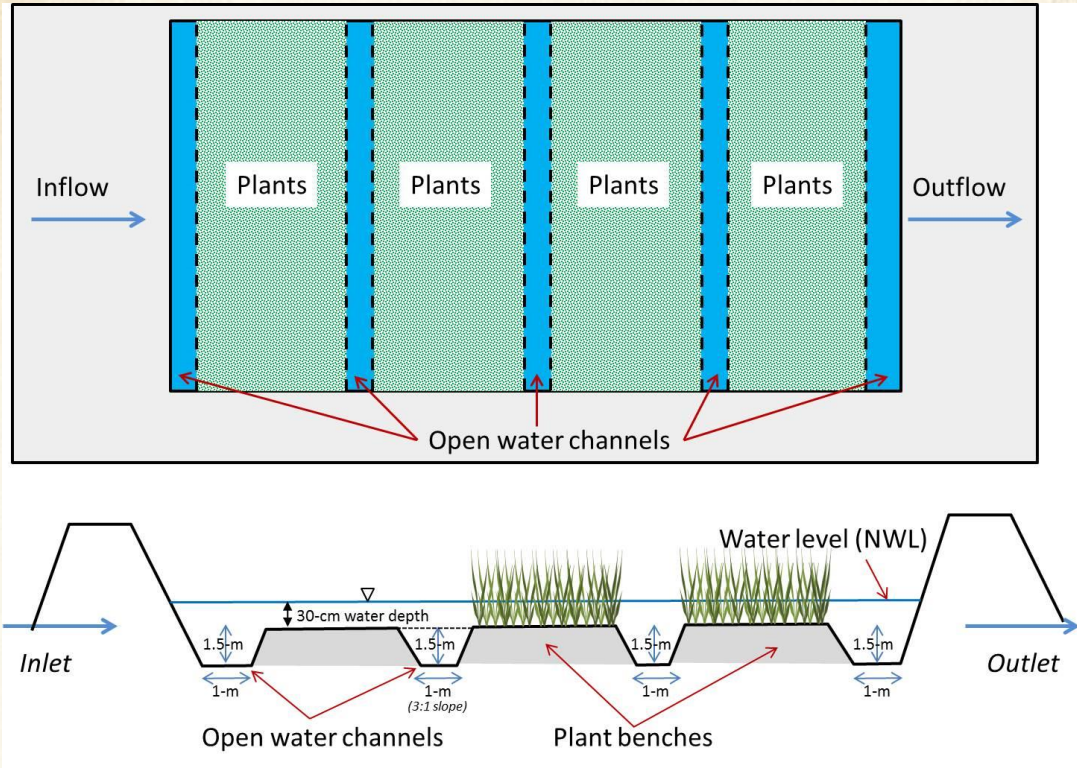


# Phytoremediation Tertiary wetland cell



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# Tertiary Wetland Cell



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# Questions?



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