MULTI-CELL WETLAND FOR TERTIARY TREATMENT OF AGRICULTURAL RUNOFF

A three cell wetland was constructed in the summer of 2017. This end-of-pipe (tertiary) wetland is designed to capture and treat runoff from 120 acres of agricultural land. The wetland will reduce sediment and nutrients in the runoff, which would otherwise discharge into an adjacent watercourse.

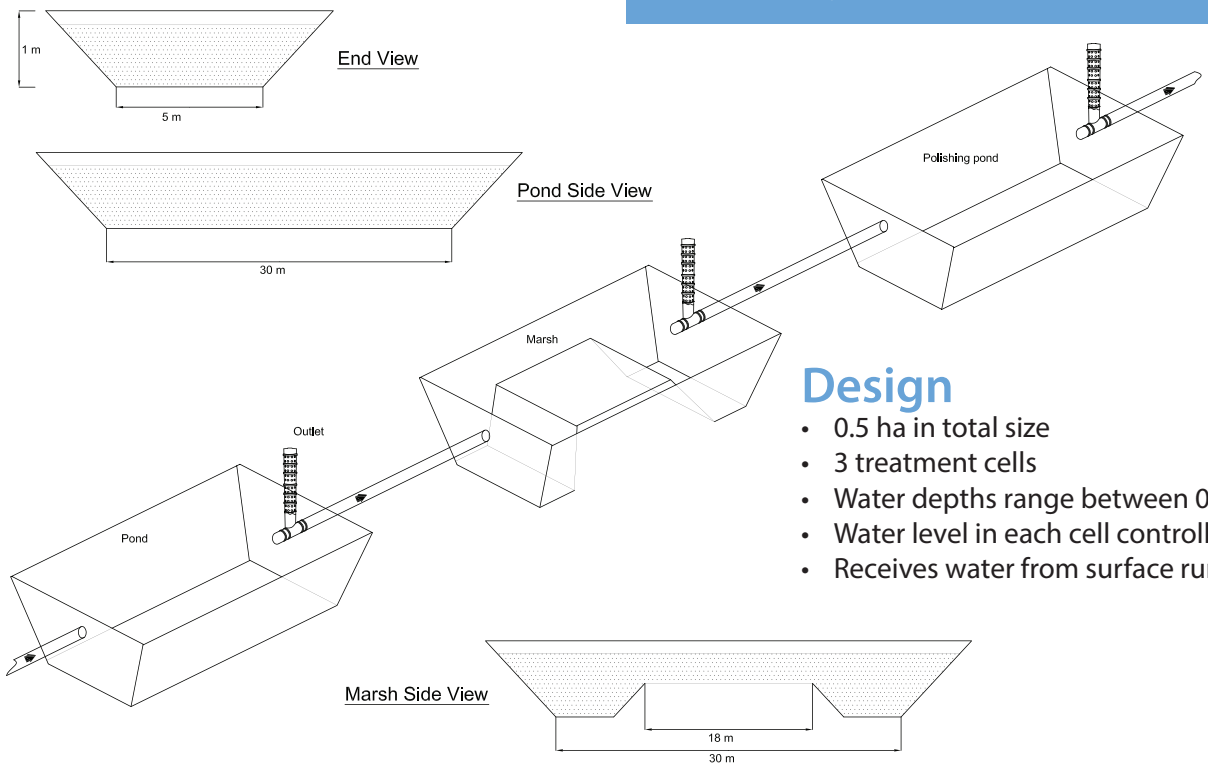
The wetland's location was chosen due to the well managed upland agricultural fields. These fields include a variety of in-field best management practices, such as nutrient management, conservation tillage, cover crops and erosion control structures.

A suite of best management practices offers multiple opportunities to reduce nutrients and sediment at the field scale. As a result, the concentration of nutrients entering the wetland is typically low. This allows the wetland to provide the final removal of sediment and nutrients before the water reaches the stream.

Benefits

- Control agricultural runoff
  - Reduce peak volume of water entering the watercourse
  - Slowly release runoff back into drain
- Reduced sediment and nutrients in agricultural runoff
  - Sediment and associated nutrients can settle out of the water column or be filtered physically by vegetation
  - Nutrients are taken up and cycled by vegetation
- Provides habitat to terrestrial and aquatic species

Each cell is designed to have a different function for treating runoff



Design

- 0.5 ha in total size
- 3 treatment cells
- Water depths range between 0.3 m-1 m
- Water level in each cell controlled by a standpipe
- Receives water from surface runoff and tile drainage

Considerations

- The planning, design and construction of a wetland should be carried out by qualified professionals.
    - Contact your local Conservation Authority or Ducks Unlimited Canada for technical assistance.
- Contact your local Conservation Authority to obtain written approval prior to undertaking construction or site alteration within or adjacent to Natural Hazard features. Natural Hazard features include: watercourses, wetlands, floodplains, erosion hazards and shorelines.
    - Conservation Authorities regulate the excavation, placement of fill, site grading/alteration, construction and development activity within and adjacent to these features.
- Approval is required from your local Drainage Superintendent to conduct any work within or next to a municipal drain.
    - Activities not approved by a Drainage Superintendent could impede the drain's function or maintenance.

Project Timeline and Costs

June 2017: Wetland excavated
September 2017: Standpipe and tile connections completed
Total cost of wetland excavation: $2800
Total cost of standpipe, tile and installation: $3500
Total cost of aquatic plants and ground cover: $1550
Total cost of project: $7850

For more information:

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UPPER THAMES RIVER CONSERVATION AUTHORITY