University of Vermont

VERMONT
AGENCY OF TRANSPORTATION
RESEARCH PROGRAM

Advancing the use of DWTRs in stormwater treatment features to enhance phosphorus removal for transportation projects

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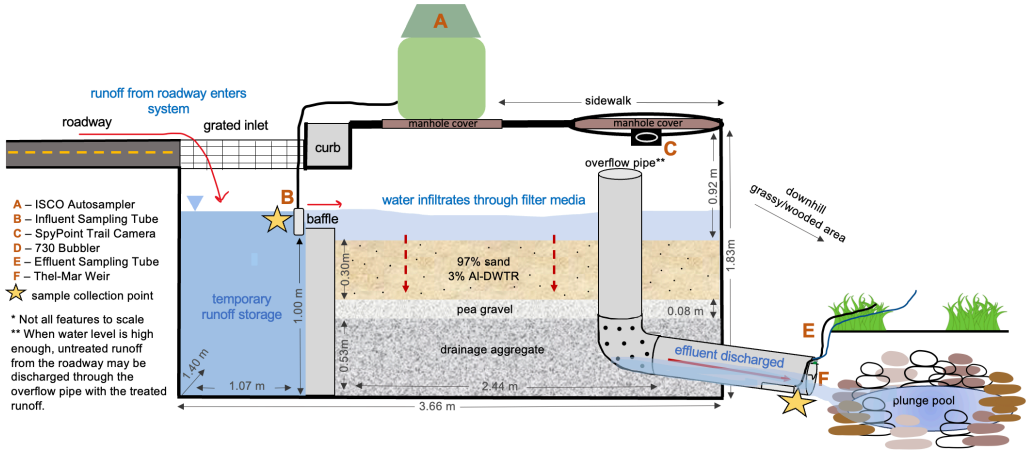


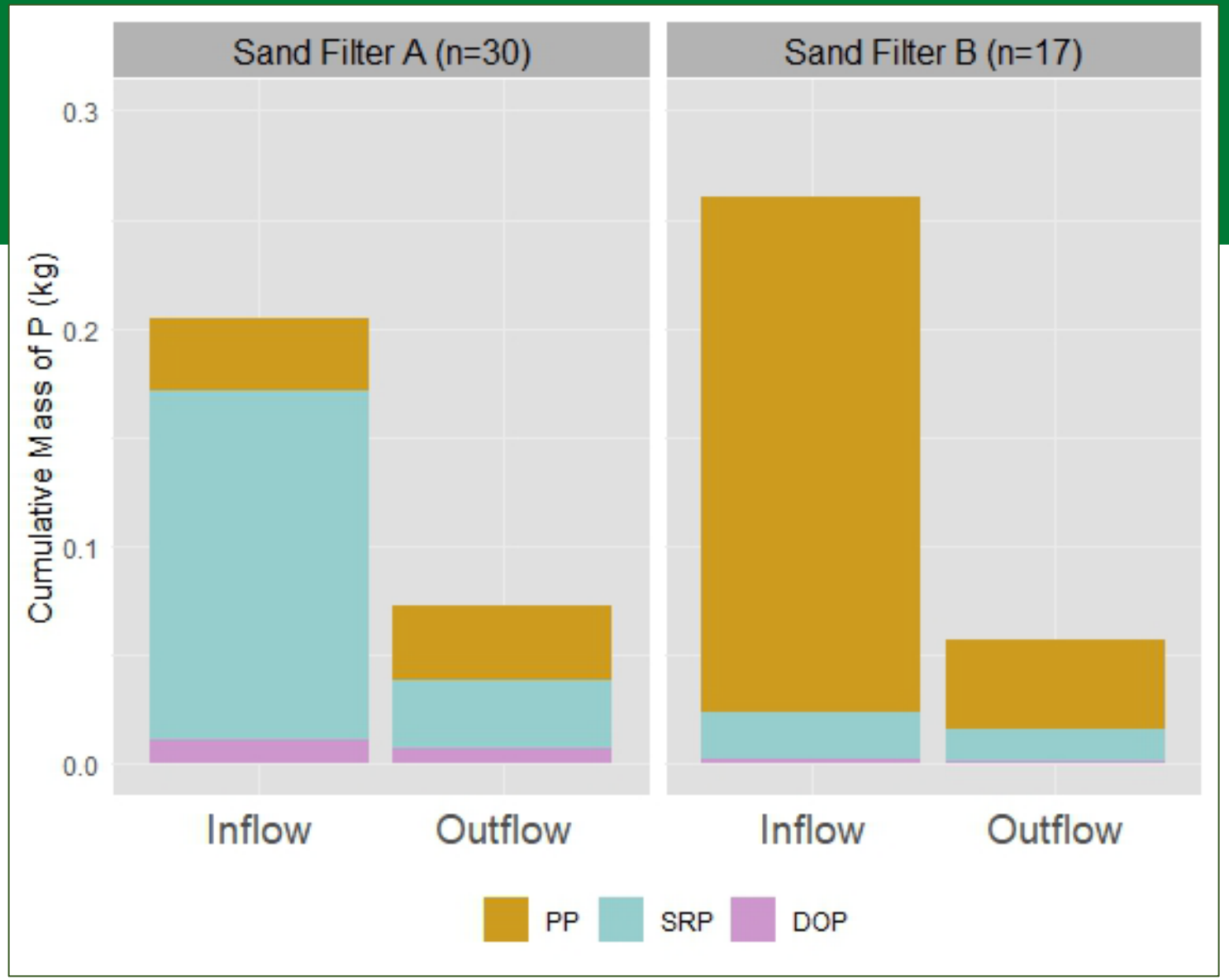
Project Background & Objectives

- Stormwater best management practices are needed that can contribute toward phosphorus (P) load reduction goals, but removal of dissolved P is challenging.
- Prior UVM research has indicated that aluminum-based drinking water treatment treatment residuals (DWTRs) can aid with removal of dissolved phosphorus in roadside bioretention.
- VTrans funded this project to evaluate P load reduction performance for two stormwater treatment sand filters amended with DWTRs.
- Sand filters included a uniformly mixed filter media consisting of ≥95% sand and ≤5% DWTRs.

Key Results

- **Sand Filter A** = residential, smaller catchment
- **Sand Filter B** = industrial/commercial, larger catchment

- **PP** = particulate P
- **SRP** = soluble reactive P
- **DOP** = dissolved organic P



Vermont Impacts/Benefits of the Project

- Mixing DWTRs into sand media-based stormwater infrastructure can enhance P removal from stormwater.
- Anticipated benefits of this practice include:
  - no substantial additional cost
  - reuse of local residual material that would otherwise be discarded/landfilled
  - increase in the longevity of P removal, targeting dissolved P that often passes through or is exported from stormwater treatment practices

Why you should visit the poster

- Would you like to discuss…
  - The monitoring methods used in the study?
  - More details on study results and implications?
  - Best practices for use of DWTRs?
  - Promising strategies for stormwater P load reductions?
- If yes to any of the above, please stop by.