

Zachary Schuster, PE, Ph.D., CFM

Technical Director



EDUCATION

Ph.D., Nelson Institute for Environmental Studies, University of Wisconsin – Madison, 2017

M.S., Water Resources Engineering and Water Resources Management, University of Wisconsin – Madison, 2011

Joined Firm in 2022

Years of Experience: 13

REGISTRATIONS

Licensed Professional Engineer: Illinois

CERTIFICATIONS

Certified Floodplain Manager

MODELING SOFTWARE EXPERTISE

- HEC-RAS 2D
- HEC-HMS
- HEC-2
- EPA SWMM
- XPSWMM
- PCSWMM
- InfoWorks ICM

Zach is a Water Resources Engineer with a professional and academic background in floodplain and stormwater management. He received a Master's and a Doctorate from the University of Wisconsin-Madison. Zach currently serves as Baxter & Woodman's Water Resources Technical Director. He is responsible for managing stormwater and sanitary modeling projects in Infoworks ICM and PCSWMM and mentoring members of the modeling team. Zach also has experience in floodplain management, stormwater infrastructure design, and streambank stabilization projects.

REPRESENTATIVE PROJECTS

Bloomington, IL

Comprehensive Sanitary Sewer Model

Senior Hydraulic Modeler guiding the team building a comprehensive sanitary sewer model for the City of Bloomington. The model is being incorporated into the current Bloomington Stormwater and BNWRD interceptor model in Infoworks ICM. Project work included building out the sanitary network, developing dry-weather flow parameters, and calibrating the wet-weather RDII using available flow meter data.

Bloomington, IL

Comprehensive Stormwater Master Plan

Project Engineer. The SWMP developed a comprehensive Hydrologic and Hydraulic model in InfoWorks ICM which includes the City's complete stormwater network, complete combined sewer network, and portions of the City's sanitary network. The model includes Bloomington-Normal Wastewater Reclamation District's complete interceptor and force main system, extending throughout the City of Bloomington, the Town of Normal, and surrounding communities.

Glencoe, IL

Stormwater Master Plan

Project Manager for the creation of a comprehensive stormwater master plan. This plan will assess the current level of protection of the Village's stormwater system, and develop project and policy recommendations that move the Village closer to their goals. For this project, Baxter & Woodman is currently identifying cost-effective improvement projects that can be implemented in the short-term and long-term, reviewing available information to identify data gaps, providing survey, GIS, and stakeholder engagement services, and preparing a technical modeling report that summarizes the results of the existing data review and H&H modeling effort.

Elmhurst, IL

Sanitary Sewer Modeling

Zach has provided hydraulic technical support for Baxter & Woodman's management of Elmhurst's wastewater system. He performed capacity assessments for several proposed developments and used model data to recommend that developers line sewers to offset increases in wastewater flow.

Lake Forest, IL

Stormwater Master Plan

Senior Hydraulic Modeler for the City of Lake Forest's 2024 update to their Stormwater Master Plan. Zach provided QA/QC review of the 2D PCSWMM models for Buena Road/Quail Drive and Illinois Road study areas. Zach prepared the final draft of the plan update and reviewed cost estimates against recent bid data. Alternatives for these two new study areas will be used for the City's future Capital Improvement Plans.

Glenview, IL

Stormwater Master Plan Phase I

Lead Modeler responsible for creating Existing Conditions 1D/2D ICM model of Glenview's storm sewer network. Modeling work included representing the North Branch Chicago River in the model using ICM's river function and representing all completed Glenview storm sewer improvements in the model. Work included collaboration with Stantec during the model build.

Oak Brook, IL

Stormwater Master Plan

Lead Modeler for the Village of Oak Brook Master Plan. Created an ICM model representing all storm sewers, rivers, and storage using the model's 1D and 2D engines. Identified four problem areas based on model results and consultation with Village staff and developed conceptual alternatives to address known problems. He prepared a resident drainage survey that was sent to Village residents.

Kishwaukee Water Reclamation District, DeKalb, IL

Basin 16 Inflow and Infiltration Study

Responsible for preparing a calibrated PC-SWMM model of a gaged sanitary sewer basin for the Kishwaukee Water Reclamation District. Work included representing the sewer network in PC-SWMM, calculating RDII parameters based on flow meter data, and calibrating the model to several rainfall events.

Flossmoor, IL

Flossmoor Road Viaduct Outlet Study

Responsible for modeling and conceptual design of detention alternatives on a golf course property for a relief storm sewer proposed along Flossmoor Road. Conceptual basin grading was prepared using CAD to estimate the required basin footprint, and discharges to Butterfield Creek were modeled using XP-SWMM to determine the impacts on flows in the stream. Work also included coordination with MWRD to determine the requirements for permitting an outlet to the creek.

Glenview, IL

Longvalley Streambank Stabilization

Project Manager on a mid-sized streambank stabilization project along the banks of the West Branch Chicago River in Glenview. The project included preparing a design that is compliant with the IEPA 319 Grant Program requirements and input from residents and the Village of Glenview; preparing permit applications and working with regulators; and preparing project plans and specifications for the public bidding process.