



Jennifer's experience also includes completing the necessary assessments and documentation to obtain environmental permits (typically Section 401 and 404 permits) in a timely manner, including identifying necessary permits, coordinating with permitting agencies, completing necessary field assessments, preparing permit applications, and producing thorough mitigation or restoration plans.

### **Wetland Restoration**

Jennifer has been involved in a recent stream and wetland restoration effort on a site bisected by Whitley Branch in London, Kentucky for the City of London using an EPA 319(h) grant to reduce nonpoint source pollution. The project also includes enhancement of Whitley Branch to facilitate a connection to the adjacent floodplain and enhance wetland hydrology and functions throughout the approximately 80-acre site. Background hydrology data was collected on a continuous basis within site to support the restoration design. The design included excavation of niche wetland habitats and creation of surface microtopography to enhance wetland hydrology on the site. The design also includes a site-specific, native planting plan to achieve site stability and long-term function.

Jennifer led design, construction, and hydrology monitoring of a large parcel of prior-converted farmland near Boston, Kentucky. The project included the design, construction, planting (native species), and monitoring of approximately 39-acres of bottomland hardwood and emergent wetlands within a 70-acre site. Background hydrology data was collected on a continuous basis across the site to support the restoration design. The design included enhancement of overbank flooding, placement of berms along low-lying areas and the creation of surface microtopography to enhance wetland hydrology on the site.

Jennifer was also instrumental in the design, construction, and hydrology and water quality monitoring of a 375-acre parcel of prior-converted farmland in North Carolina. The parcel was converted back to wetlands and included stream restoration and creation. This restoration included the elimination of enhanced drainage by filling field ditches and creating an improved stream system, riparian corridor, and floodplain wetlands. The design included 1,900 feet of freshwater stream and

over 4,500 feet of tidal creek with significant floodplain wetlands (marsh).

### **BARRY TONNING**

**Education:** M.A., Env. Risk Communication, Morehead State University, 1994; B.A., Journalism, University of Georgia, 1977

**Certifications:** Certified Erosion, Sediment, and Storm Water Inspector; Erosion and Sediment Control (KY KEPSC, GA Soil & Water Conservation Commission, Louisville MSD); Kentucky Division of Water Class I Wastewater Treatment Plant Operator

**Affiliations:** International Erosion Control Association; American Society of Agricultural Engineers; National Onsite Wastewater Recycling Association; Water Environment Federation

**Office:** Lexington, Kentucky

**Years of Experience:** 28

**Years with Tetra Tech:** 11

Mr. Tanning is a senior-level water resource consultant specializing in industrial, construction site, and municipal stormwater management, erosion and sediment control, risk assessment and communication, public health, and technology transfer with extensive experience in training, policy development, and program design. He has directed and managed various stormwater and erosion/sediment control compliance and training programs, environmental and natural resource policy research initiatives, solid waste planning and management programs, decentralized wastewater and nonpoint source pollution assessment and control projects, and watershed planning and management activities.

### **EXPERIENCE**

#### **Industrial and Construction Stormwater**

**Inspections and Audits** – Project lead, inspector, stormwater plan developer, and compliance consultant for a 3-year program serving Kiewit Corporation, a major construction contractor based in Omaha. Inspected industrial facilities and construction sites for stormwater compliance, developed construction site and industrial facility Stormwater Pollution Prevention Plans (SWPPPs), conducted compliance audits, and provided



consultation to the company on cost-effective approaches for improving stormwater permit compliance during 2010–2014.

**Construction Site Stormwater Audit Inspections and Permit Compliance** – Staff consultant and audit program inspector for more than 50 construction site inspections in the City of Lexington (KY), as part of the city’s obligations under a federal consent decree related to stormwater program improvements. Conducted inspections, developed a SWPPP template for construction contractors, conducted training programs for city staff and outside contractors, and provided consultation on various stormwater management topics during 2008–2014.

**USEPA Stormwater Phase II - National Training Program** – Project leader and trainer for a series of USEPA workshops on the Stormwater Phase II program, delivered in Charleston (WV), Philadelphia, Atlanta, Kansas City, Boise, Lexington (KY), and other USEPA Regional Office locations and Phase I and II cities during 2004–2009. Developed and delivered training materials on construction site runoff controls, inspector training, education/ outreach, and public participation; led sessions at workshops; assisted in training program review.

**USEPA Low-Impact Development Training Modules** – Developed training and other materials for USEPA training program on low-impact development during 2005–2006. Researched LID principles, field applications, performance data, and demonstration projects. Created slides and text for workshop presenters, and used the materials personally in presentations related to stormwater management, smart growth, and integrated water resource management.

**Indiana Low-Impact Development and Watershed Management Workshops** – Created training materials and conducted workshops in northern Indiana on “improving development by design” and watershed assessment, planning, and management during 2006–2007. Presented information on design principles and field application of LID practices, developed and delivered watershed assessment, planning, management workshop, sponsored by regional conservation foundation and local government.

**Construction Site Stormwater Field Guide and Technical Manual, KY** – Conducted research on construction site erosion, sediment, and stormwater management approaches in various states and localities during 2004–2006; wrote and produced new statewide Field Guide on construction site stormwater runoff control in 2005, co-developed (with Richard Walker of Tetra Tech, Lexington, KY) and produced the new Technical Specifications Manual for the Kentucky construction site stormwater management program in 2006.

**Construction Site Inspector Certification Program Development** – Provided training materials, slide presentations, instructor services, and consultation for the development of the Kentucky Erosion Protection and Sediment Control inspector qualification program, sponsored by the Kentucky Transportation Cabinet and the University of Kentucky’s Technology Transfer Program. Served as one of the first training program instructors, and later developed a separate course covering how to develop a construction site Stormwater Pollution Prevention Plan, and taught those classes during 2010–2013.

**Construction Site Stormwater Training, WV** – Conducted training workshops on construction site erosion, sediment, and stormwater permit compliance in Hurricane (2008), Beckley (2007), and Charleston (2007, as part of the USEPA stormwater workshop). Conducted all presentations and provided analysis for field trip site reviews, in cooperation with local workshop hosts.

**Lake Maumelle Watershed Management Plan, AR** – Provided support for construction site erosion and sediment control ordinance development and wastewater treatment options for Central Arkansas Water, which manages Lake Maumelle near Little Rock. Developed portions of local ordinances and SWPPPs.

**USEPA Low-Impact Development Training Modules** – Developed training and other materials for USEPA training program on low-impact development during 2005–2006. Researched LID principles, field applications, performance data, and demonstration projects. Created slides and text for workshop presenters, and used the materials personally in presentations related to stormwater management,



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**Clean Water Act (CWA) – USEPA National Training Program, 2000–2011** – Served as work assignment leader for CWA training programs that the EPA Office of Water (OW) sponsor. Assisted in program development, conducted presentations on various sections of the CWA, facilitated group exercises, and led discussion groups for workshops at EPA regional offices in Denver, Chicago, Atlanta, Boston, New York, and other state/federal training sites.

## **RICHARD WALKER, P.E., CFM**

**Education:** Master of Civil Engineering (Water Resources), University of Kentucky, 1989; B.S., Agricultural Engineering, University of Kentucky, 1982

**Registrations/Certifications:** Professional Engineer, Kentucky, 1988, No. 15345; Professional Engineer, Ohio, 2013, No. 77599; Certified Floodplain Manager, 2011

**Professional Affiliations:** National Society of Professional Engineers

**Office:** Lexington, Kentucky

**Years of Experience:** 31 (Since 1983)

**Years with Tetra Tech:** 23 (Since 1991)

Mr. Walker has 30 years of experience in civil and water resources engineering, and has specialized in the areas of hydrology, hydraulics, and stormwater management. He is a certified floodplain manager (CFM) by the Association of State Floodplain Managers. He manages water resource projects for cities, state governments, and industries. His projects have included program management, floodplain analyses, watershed master plans, stormwater utilities, and MS4 Phase I and Phase II permit compliance. He is currently the MS4 program manager for Lexington, KY.

### **EXPERIENCE**

**MS4 Program Manager, Lexington, KY** – Mr. Walker is the program manager for the Municipal Separate Storm Sewer System (MS4) permit and the Federal Consent Decree that addresses stormwater violations of the Clean Water Act. Mr. Walker is responsible for ensuring the appropriate procedures and processes are in place for compliance with the MS4 permit and the Consent Decree. He is also responsible for assisting the city with implementing the Stormwater Quality Management Program (SWQMP) that is part of the Consent Decree and MS4 permit. The SWQMP, developed by Tetra Tech, is a comprehensive program for complying with the EPA Phase I Stormwater regulations and addresses public education/involvement, watershed management, illicit discharges, construction site runoff, industrial facilities, high risk commercial



facilities, municipal operations, residential/commercial development, water quality monitoring, and recordkeeping.

**Water Quality Management Fee, Lexington, KY –** Mr. Walker was part of a team that conducted a rate study for the city, created the impervious area database, and developed the enabling ordinance. The fee generates approximately \$11M annually.

**Stormwater Permit, Danville, KY –** Mr. Walker assisted the city with developing and implementing the MS4 permit in 2003. He wrote the city's stormwater manual that includes design criteria for stormwater management facilities. He also directed the development of new ordinances regarding illicit discharges, erosion control, and post-construction runoff control.

**Stormwater Manual, Lexington, KY –** Mr. Walker was the primary author of the Stormwater Manual. The manual contains requirements for stormwater management, floodplain management, stream buffers, flood control, and water quality. Options for controlling stormwater runoff from new development include bioretention systems, swales, infiltration basins, and detention ponds. The manual is comprehensive and provides clear design criteria for engineers and developers.

**Stormwater Utility and Master Drainage Plan, Hopkinsville, KY –** Mr. Walker prepared a stormwater master drainage plan for the city that identified projects to address river flooding and surface drainage problems with a total construction cost of approximately \$22M. In addition, he helped the city implement a stormwater utility to generate approximately \$1M in annual revenues. He also managed a feasibility study for a large flood control structure on the South Fork of the Little River.

**Kentucky BMP Planning and Specifications Manual –** Mr. Walker was co-author of the manual entitled *KY Best Management Practices (BMPs) for Controlling Erosion, Sediment, and Pollutant Runoff from Construction Sites*. The Manual includes sections on regulatory considerations; guidance for developing a BMP Plan; and technical specifications for site preparation, soil stabilization, slope protection, drainage system controls, sediment basins, stream and wetland protection, and good housekeeping.

**Detention Basin Survey and Evaluation, Lexington, KY –** Mr. Walker evaluated approximately 50 detention ponds and permanent pool retention ponds in Fayette County. The project involved reviewing the plat of each basin, conducting a field investigation, identifying maintenance problems, and preparing a cost estimate to repair them. He then helped the government develop a comprehensive maintenance program for basins that involved a cooperative arrangement between the government and the owner of the basin.

**Expansion Area 2 Stormwater Master Plan, Lexington, KY –** Mr. Walker was the project manager for developing a stormwater master plan for 3,000 acres of land slated for new development, called the Expansion Area, in Fayette County, KY. He worked with a multidisciplinary team of engineers, biologists, and planners to design a unique stormwater system of regional facilities and greenways. The project involved chemical and biological monitoring of the streams to establish baseline water quality conditions. A system of detention ponds, wetlands, riparian buffers, and greenways were proposed to control flooding and protect the water resources. The estimated cost of design and construction was \$10 million. Mr. Walker continues to serve as the government's consultant on matters related to stormwater management in the Expansion Area, which involves meetings with developers and their engineers to resolve drainage issues related to subdivision and commercial development.

**Expansion Area 2 Impact Fee Methodology, Lexington, KY –** Mr. Walker developed a financial methodology for assessing developers for their fair share of the stormwater management cost in three different watersheds in the Expansion Area. This involved determining the percent imperviousness of each land use and the cost of system improvements for each watershed.

**North Elkhorn SWMM Model, Lexington, KY –** Mr. Walker was the project manager for developing a hydrologic and hydraulic SWMM model for the North Elkhorn watershed in Fayette County, Kentucky. The work included installing rain gauges and stream gauges, field investigation of control structures, determining inputs to the model such as



percent impervious and soil infiltration parameters, and calibrating the model.

**OCEDA Low Impact Development (LID) Project, Oldham County, KY** – Mr. Walker was the senior engineer for the planning and design of the roadway drainage system for a large multi-use development project in Oldham County, KY. The drainage system incorporated curb cuts and open channels instead of a conventional curb and gutter drainage system.

**Engineering Manuals for New Development, Lexington, KY** – Mr. Walker was the project manager for the development of the engineering manuals for the Lexington-Fayette Urban County Government in 2001. The work included obtaining input from elected officials, government agencies (planning, law, and engineering), developers, citizen groups, and the engineering community. Mr. Walker coordinated the work of four consultants who wrote the Roadway, Geotechnical, Structures, Sanitary Sewer, and Construction Inspection manuals. Mr. Walker was the primary author of the Procedures Manual, which describes the role of the Developer, Engineer, and the government in the development process, beginning with the submission of construction plans and extending through home building. He was the primary author of the Stormwater Manual that established standards for flood control, water quality, and floodplain protection.

**Stormwater Fee-In-Lieu Program, Lexington, KY** – Mr. Walker developed a stormwater fee-in-lieu program that allows the local government to collect a fee from a developer instead of requiring the developer to construct on-site stormwater facilities. The money generated by this program is used to address flooding and water quality problems.

**KPDES Monitoring Services, Lexington, KY** – This project has involved chemical, biological, and physical sampling of streams in Fayette County since 1992. Surface water samples are collected and tested for the presence of pollutants listed on the stormwater permit issued by the State of Kentucky. In addition, a report is prepared each year that documents the activities of the government in fulfilling the requirements of the stormwater permit.

**Sanitary Sewer Overflow Response Plan (SORP), Lexington, KY** – Mr. Walker was on a team that developed the Sewer Overflow Response Plan. Mr. Walker was responsible for the public reporting and regulatory notification sections of the plan.

#### Special Training

- Natural Channel Design Principles and Applications (International Erosion Control Association)
- Stormwater Ponds: Type and Design (KSPE)
- Stormwater Quality Management (University of Alabama at Birmingham)
- Application of Modern Regional Rainfall Frequency Distributions (Haestad Methods, Inc.)
- National Flood Insurance Program Training (KYTC/KCEC Partnering Workshop)
- Comprehensive Storm and Waste Water Management Modeling Workshop (CAiCE Software)
- XP-SWMM200 Modeling Workshop (XP Software, Inc.)
- Thinking Beyond the Pavement, Context-Sensitive Design (University of Kentucky)
- Advanced Water Surface Profile Computations using HEC-RAS 3.1.3 (Kentucky Engineering Center)
- Erosion Control Plan Development Process (KYTC)
- Fundamentals of Erosion and Sediment Control (Kentucky Division of Water).