

## Registration

Four ways to register: **PHONE FAX MAIL ONLINE**

Fees: Course fee is \$895 and includes workshop materials, breaks, and lunch both days.

### Design of Storm Sewers and Pavement Drainage

Gulfport, MS March 4-5, 2010

Name(s)/Title(s) \_\_\_\_\_

Department \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone/Fax \_\_\_\_\_

Email \_\_\_\_\_

Special Dietary Requirements \_\_\_\_\_

Cell # for Emergency Contact only \_\_\_\_\_

P.O. Number \_\_\_\_\_

Credit Card:  American Express  Mastercard  Visa

Credit Card Number \_\_\_\_\_ Expiration \_\_\_\_\_

Cardholder's Name \_\_\_\_\_

Cardholder's Signature \_\_\_\_\_

Make checks payable to  
**Water Resources  
Learning Center, Inc.**  
3918 Prosperity Avenue  
Suite 305  
Fairfax, VA 22031  
703.289.9600 voice  
703.289.9622 fax  
info@waterlearning.org



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Suite 305  
Fairfax, VA 22031

## CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT COURSES 1.4 CEUs/14 PDHs



RESOURCES LEARNING CENTER  
waterlearning.org

## DESIGN OF STORM SEWERS AND PAVEMENT DRAINAGE

Gulfport, MS March 4-5, 2010

(Florida Provider#0003363)

Please see our website for other courses & locations

[www.waterlearning.org](http://www.waterlearning.org)

See Our Website For Online Training Programs!

To be removed from our in-house mailing list, please send a fax or email us.

## Design of Storm Sewers and Pavement Drainage

Gulfport, MS

March 4-5, 2010

### Course Description

This two day course provides students with a thorough knowledge of surface pavement drainage design and hydraulic design of storm sewer systems. The course includes a review of hydrology for pavements, and detailed information on sizing curb open inlets, grates, and curb and gutter flow. One day is spent on sizing storm sewers, computing energy losses and hydraulic grade line calculations. Example problems are performed using nomographs and calculators (bring your calculator!). 1.4 CEUs

### Course Outline

- Review of Hydraulic Theory
- Hydrology Using Rational Method
- Drainage of Highway Pavements
- Surface Drainage Example Problem
- Intro to Storm Sewers
- Energy Losses
- Hydraulic Grade Line Calculations
- Storm Drain Example Problem

### Benefits

- Understand open channel and closed system hydraulic theory.
- Learn the types of collection systems available for pavement drainage and how to design them.
- Learn the types of energy losses that occur in storm sewer systems and how to calculate them.
- Learn how to compute a hydraulic grade line.
- Perform actual hands-on design examples.

### Course Material

Attendees will receive a course workbook, selected reference material and publications; FHWA HDS-3 Design Charts for Open Channel Flow, FHWA HEC-22 Urban Drainage Design, and FHWA software Visual Urban Drainage Design.

### Who Should Attend?

The workshop is intended for engineers, consultants, designers, technicians, and planners involved in storm sewer and pavement drainage design. Those involved in other areas of drainage who would like to obtain a better understanding of the design practices are also encouraged to attend. The course material is presented in a manner that will benefit individuals who are new to this field as well as those with much experience.

*“That Brian knows his stuff. He was on storm drainage like a pack of dogs on a 3 legged cat.”*

Kevin Chrisman, Tenneson Engineering Corp

*“Excellent course, excellent instructor. Brian knows water.”*

Caleb Thornhill, Freese & Nichols

*“Brian is a super instructor. His style of instruction and presentations at the University of Maryland prompted me to take a trip to Arlington, TX for a second class. I’ll be chasing him around the globe for more knowledge.”*

Bethel Oguike, Naval Facilities Engineering Command

*“Great Seminar-learned more than in my college class.”*

Brittany, McCormick Taylor

*“An excellent course for those interested in or involved with the design of pavement drainage & storm sewers. Thank you for your fine presentation.”*

Edward R. Zabala, PE

*“Brian was an extremely effective presenter. I enjoyed his presentation and came away with a better understanding of pavement drainage and storm drain design. Thank you!!”*

Glen Robison, Psomas

*“Recommend to anyone wanting to learn how to do pipe design.”*

Jennifer West, US Army Corps of Engineers

*“Brian - you’re a great guy and a joy to listen to, especially with a potentially boring topic - you’re a good teacher dude!”*

Shawn Hardy, Moffatt & Nichol

**Course Time 8:30AM–4:30PM**

**Registration & Continental Breakfast 8:00AM**

### Location

**GULFPORT, MS**  
Hilton Garden Inn  
14108 Airport Rd  
Gulfport, MS 39503  
228-863-4996  
Room Rate: \$119.00

## Water Resources Learning Center

The Water Resources Learning Center is a training organization dedicated to continuing education in the field of water resources. The organization offers courses in hydrology, hydraulics, stormwater management, watershed planning and management, software applications, drainage design, storm sewers, stream channels, NPDES & TMDL’s, erosion and sediment control, etc. These highly “interactive” courses are designed for an adult learning environment for the professional and are taught throughout the United States and abroad. Courses are offered in both a “live” instructor lead environment and online (coming soon).

**In-house training programs are also available to organizations. This may be more economical and allows for course material to be customized to meet your specific needs.**

**PLEASE NOTE: In order to maintain a credible environment conducive to learning, we do not endorse products nor accept sponsorships or exhibits from providers of products and services.**

### Instructor

Brian C. Roberts, Director of the Water Resources Learning Center, will present this workshop. Mr. Roberts has held several significant water resources positions throughout the years including President of Water Resource Consultants, Hydraulics Engineer for FHWA, Project Manager for Fairfax County Stormwater Management, Executive Director of National Corrugated Steel Pipe Association. He has taught for the Federal Highway Administration, American Society of Civil Engineers, International Erosion Control Association, Soil Conservation Service and more than 35 State Departments of Transportation. He has a BS and MS in Civil Engineering (Water Resources) and has held professional engineering licenses in Virginia and Maryland.

### Continuing Education Units

Seminar participants are eligible for 1.4 (one and four tenths) CEUs for successful completion of the program. The CEU is a nationally recognized unit of measurement for continuing education and training programs that meet certain requirements. Certificates of completion will be issued to each participant.

### Fees

Course fee is \$895 and includes workshop materials, breaks, and lunch both days.

### Cancellation Policy

Cancellations must be made five (5) working days in advance to be eligible for refund. Participants can be substituted at any time. Credit will be given for future courses for those unable to make the cancellation deadline. Please note that seating is limited at these locations.

### Book Store

Hard copies of our reference manuals can now be purchased directly from Water Resources Learning Center. Please see website for details.