

Agenda

Presented by Daryl Norris

Stormwater Management System Objectives and Design Considerations

- Complying with stormwater regulations
- Site assessment
- Preparing stormwater pollution prevention plans
 - Stormwater goals
 - Design considerations
- Anticipated developments in NPDES stormwater permitting

Stormwater Detention Basics

- Detention goals
- Determining impact area and flow
- Excavation
- Soil preparation and vegetation
- Inflow and outlet structures
- Detention pond safety and maintenance

Stormwater Retention Basics

- Retention goals
- Determining impact area and flow
- Sizing and excavation
- Forebay, primary pool and emergency outflow
- Soil preparation and vegetation
- Retention pond safety and maintenance
- Multiple use options

Sustainable Detention and Retention Options

- Implementing low impact development practices
- Naturalizing detention/retention basins
- Rain gardens
- Underground storage and water reuse options

Detention and Retention Case Studies

Can't Attend? Order the Manual and Audio from the Live Seminar as a Self-Study Package!

Audio recordings of this seminar are available for purchase starting at \$269. See registration panel for more information and please refer to specific state licensing rules or certification requirements to determine if this learning method is eligible for continuing education credit.

**Stormwater Detention/
Retention System Design**
Greensboro, NC - Friday, July 26, 2019



HalfMoon Education Inc.
PO Box 278
Altoona, WI 54720-0278

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Learning Objectives

You'll be able to:

Understand stormwater management system objectives and design considerations.

Determine stormwater impact area and flow for detention and retention ponds

Get tips on sizing ponds, and discuss soil preparation and vegetation.

Address retention pond safety and maintenance.

Implement low impact development practices, and naturalize detention/retention basins.

Review detention and retention case studies.



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Stormwater Detention/ Retention System Design

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Comply with stormwater regulations

Identify anticipated developments in NPDES stormwater permitting

Get tips on excavation and soil preparation

Size stormwater detention and retention basins

Learn about sustainable detention and retention options

Review detention and retention case studies

Continuing Education Credits

**Professional Engineers &
Land Surveyors**
6.5 PDHs

Architects
6.5 HSW Contact Hours
6.5 AIA LU|HSW

Landscape Architects
6.5 NCBLA Continuing Ed. Hours
6.5 LA CES HSW PDHs

Floodplain Managers
6.5 ASFPM CECs



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Faculty

Daryl Norris *Civil Engineer, City of Greenville, NC*

Mr. Norris is a civil engineer for the City of Greenville, North Carolina, specializing in stormwater engineering, and he is the owner of Norris Environmental Engineering, PLLC. He is a professional engineer, a certified floodplain manager, a certified professional in stormwater quality, and a certified professional in low impact development. Prior to working for the City of Greenville, Mr. Norris worked with the North Carolina Wildlife Resources Commission and the North Carolina Division of Water Quality. He was also the environmental specialist and floodplain administrator for the City of Wilson. He holds a bachelor’s degree in Fish and Wildlife Management and a master’s degree in Biological and Agricultural Engineering, both from North Carolina State University. Mr. Norris is the president of the Stormwater Association of North Carolina and volunteers his time as president/point man of Trail Life of Eastern North Carolina, a non-profit organization.

Seminar Information

Greensboro-High Point Marriott Airport	Registration	Lunch (On your own)
One Marriott Drive	8:00 - 8:30 am	11:45 am - 12:45 pm
Greensboro, NC 27409	Morning Session	Afternoon Session
(336) 852-6450	8:30 - 11:45 am	12:45 - 4:30 pm

Tuition

\$289 for individual registration

\$269 for three or more simultaneous registrations.

Included with your registration:

Complimentary continental breakfast and printed seminar manual.

Receive a reduced tuition rate of \$101 by registering to be our on-site coordinator for the day. For availability and job description, please visit www.halfmoonseminars.org.

How to Register

- Visit us online at www.halfmoonseminars.org
- Mail-in or fax the attached form to 715-835-6066
- Call customer service at 715-835-5900

Cancellations: Cancel at least 48 hours before the start of the seminar, and receive a full tuition refund, minus a \$39 service charge for each registrant. Cancellations within 48 hours will receive a credit toward another seminar or the self-study package. You may also send another person to take your place.

Can’t Attend? Order the Manual and Audio from the Live Seminar as a Self-Study Package!

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Additional Learning

Webinar Series

International Existing Building Codes

- **Working with the International Existing Building Code**
Thurs., June 20, 2019, 11:00 AM - 12:30 PM CDT
- **Chapters 3, 4 & 6**
Thurs., June 20, 2019, 1:00 - 3:00 PM CDT
- **Chapters 7-10: Alterations and Occupancy**
Fri., June 21, 2019, 11:00 AM - 1:00 PM CDT
- **Chapters 11, 12 and 14: Additions and Historic Buildings**
Fri., June 21, 2019, 1:30 - 3:00 PM CDT

Retaining Structures

- **Earth Pressures and Surcharges**
Wed., June 26, 2019, 11:00 AM - 12:30 PM CDT
- **Cantilever & Apparent Earth Pressures**
Wednesday, June 26, 2019, 1:00 - 2:30 PM CDT
- **Apparent Earth Pressures**
Thurs., June 27, 2019, 11:00 AM - 12:30 PM CDT

Industrial Stormwater

- **Understanding the Federal Industrial Stormwater Program**
Thurs., June 27, 2019, 11:00 AM - 12:30 PM CDT
- **Examining Stormwater Pollutants and the Development of Total Maximum Daily Loads (TMDLs)**
Thurs., June 27, 2019, 1:00 - 2:00 PM CDT
- **Creating Stormwater Pollution Prevention Plans (SWPPPs)**
Fri., June 28, 2019, 11:00 AM - 12:00 PM CDT
- **Implementing Best Management Practices (BMPs), Sampling and Reporting**
Fri., June 28, 2019, 12:30 - 2:00 PM CDT

For more information and other online learning opportunities visit: www.halfmoonseminars.org/webinars/

Continuing Education Credit Information

This seminar is open to the public and offers 6.5 PDHs to professional engineers and land surveyors in most states, including North Carolina. HalfMoon Education is an approved engineer and land surveyors continuing education provider in North Carolina (S-0130).

This course also offers a 6.5 hour continuing education opportunity to architects and landscape architects in most states. The North Carolina Board of Landscape Architects has approved this event for 6.5 continuing education hours.

This event is approved by the American Institute of Architects Continuing Education System for 6.5 HSW Learning Units (Sponsor No. J885) and the Landscape Architecture Continuing Education System for 6.5 HSW PDHs. Courses approved by the AIA qualify for North Carolina architects. Only full attendance can be reported to the AIA/CES and the LA/CES.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida, Indiana (License No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700), and North Dakota.

The Association of State Floodplain Managers has approved this event for 6.5 CECs.

Attendance will be monitored, and attendance certificates will be available after the seminar for most individuals who complete the entire event. Attendance certificates not available at the seminar will be mailed to participants within fifteen business days.

Registration

Stormwater Detention/Retention System Design

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How to Register

Online:
www.halfmoonseminars.org

Phone:
715-835-5900

Fax: 715-835-6066	Code:
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Mail:
HalfMoon Education Inc.,
PO Box 278, Altoona, WI
54720-0278

Complete the entire form. Attach duplicates if necessary.

Registrant Information

Name: _____

Company/Firm: _____

Address: _____

City: _____ State: _____ Zip: _____

Occupation: _____

Email: _____

Phone: _____

Additional Registrants:

Name: _____

Occupation: _____

Email: _____

Phone: _____

Name: _____

Occupation: _____

Email: _____

Phone: _____

Email address is required for credit card receipt, program changes, and notification of upcoming seminars and products. Your email will not be sold or transferred.

() I need special accommodations. Please contact me.

Tuition

() **I will be attending the live seminar.** Single Registrant - **\$289.00**. Three or more registrants from the same company registering at the same time - **\$269.00** each.

() **I am not attending.** Please send me the self-study package:

- ☐ Downloadable MP3 Audio/PDF Manual for **\$269.00**.
- ☐ CD/Manual Package for **\$289.00**.

(S&H included. Please allow five weeks from seminar date for delivery)

Checks: Make payable to HalfMoon Education Inc.

Credit Card: *Mastercard, Visa, American Express, or Discover*

Credit Card Number: _____

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