

The Northwest Environmental Training Center Presents:

Stormwater Management: Innovative Strategies

Course ID: WPOL-502

April 21 - 22, 2004, 8:30 A.M. - 5 P.M. (2 Days)

**Mountaineers Conference Center
300 Third Avenue West, Seattle, WA**

Instructors: Michael Broili, Linda Dawson, and David Felstul

Course Description

This course is intended for environmental professionals seeking an improved understanding of stormwater management. During the first day, the instructors will discuss stormwater regulations, Best Management Practices (BMPs), stormwater monitoring, and an integrated approach to stormwater management. The second day will consist of a field trip where we will visit a number of sites which display innovative stormwater management techniques. The course curriculum is designed for environmental professionals who require an understanding of stormwater management techniques.

About the Instructors

Mike Broili has extensive experience in the construction trades as a contractor and designer with a low impact and sustainable approach to environmentally sensitive ventures. His experience includes project management overseeing contracts and regulatory compliance. He is a trainer and has presented at numerous workshops and seminars. Focusing on integrated stormwater management, Mike is committed to advancing environmental stewardship by promoting economically viable solutions to environmental problems with individuals, businesses and government entities. He is the founder and past president of the Kruckeberg Botanic Garden Foundation, a member of the City of Shoreline Parks Board, a Washington Native Plant Steward, a King County Forest Adviser and a certified compost facility operator. He offers his experience and a broad network of contacts across the low-impact design community.

Linda Dawson, of Dawson Consulting, has over 20 years of experience in industrial stormwater and wastewater management, including pollution prevention planning, stormwater characterization and treatment, regulatory evaluations, and negotiation of NPDES permit terms and conditions. She has designed and managed treatment technology evaluations, stormwater pollution prevention plans, mixing zone and receiving water studies, and sediment studies.

Dave Felstul works at the Portland office of AMEC Earth and Environmental and has over 17 years of experience as an environmental scientist working with water resources. Projects have included water quality and sediment monitoring programs; hydrologic, hydraulic, and water quality modeling; analysis of mixing zones; GIS analysis, and watershed planning. Dave has special expertise working in stormwater best management practices (BMPs). He has authored guidance manuals and conducted training for numerous clients on BMP selection, effectiveness, and operation and maintenance.

Tuition (includes field trip with lunch): \$295 (\$260 tuition available for government employees; nonprofits; Native American Tribe representatives; students; teachers; and AFS, NAEP, NWAEP, and NEBC members). Lunch is included on the second day.

Continuing Education Units: 1.5

What to Bring: Pen/pencil and rain gear (for field trip). We will be inside on the first day. Everyone should dress for prevailing weather during the field trip on the second day. Lunch will be provided on the second day.

To request further information, call us at (206)762-1976 or send us an email at dobyrne@nwetc.org.

Course Outline

Stormwater Regulations Review

Federal Clean Water Act

Washington Department of Ecology Program

- State Surface Water Quality
- State Groundwater Quality Standards
- Stormwater Management Manual

Common Stormwater Contaminants/Sources

Overview of Regulatory Approaches for:

- Municipal, Industrial and Construction Stormwater Technology-Based and Water Quality-Based Standards

NPDES Permitting and Permit Issues

- Mixing zones
- SWPPPs
- Individual vs. general permits
- 303(d) Listed Waters

Stormwater Best Management Practices

Introduction to BMPs

Effects of urbanization (What are BMPs trying to fix?)

Benefits of BMPs

Source control vs Treatment

Erosion control vs Post-construction measures

Structural vs Non-structural

Structural BMPs

- Detention (Ponds)
- Wetlands
- Filtration (media and vegetative)
- Infiltration
- Engineered and proprietary devices

Non-Structural BMPs

- Street sweeping
- Good housekeeping
- Inspection programs

BMP Selection

Physical site characteristics

Social and safety considerations

Codes and ordinances

Maintenance requirements

Costs

Selection matrices

Effectiveness

Measurement methods

- Percent removal
- Effluent quality
- Total loads

Range of estimated effectiveness

Operation and Maintenance

Stormwater Monitoring and Sampling

Who Must Monitor

Visual Monitoring

Sampling Requirements

- storm event requirements
- sampling locations
- grab vs. composite samples
- sampling costs
- WET testing

Stormwater Monitoring Plans

Voluntary Sampling

Integrated Approach to Stormwater Management

Minimize Footprint

- Cottage Housing

Roofscapes

- Vegetated Roofs

Hardscapes

- Permeable Surfaces

Landscapes

- Soil BMPs

Plant Selection

Geo-Engineering

- Bio-swailes & planters

Rainwater Harvesting

Water Use Reduction

- Fixtures and composting toilets

Reduced Site Disturbance

- Pin Foundations

Compost Berms, Blankets & Socks

Field Trip (all day Thursday - includes lunch)

Cedar River Watershed Educational Center, North Bend:

- Vegetated roofs
- Waterless urinals
- Native plant landscape

Washington Aggregates & Concrete Association, Des Moines:

- Permeable concrete

Cottage Housing, Shoreline

Carkeek Park Environmental Learning Center, North Seattle:

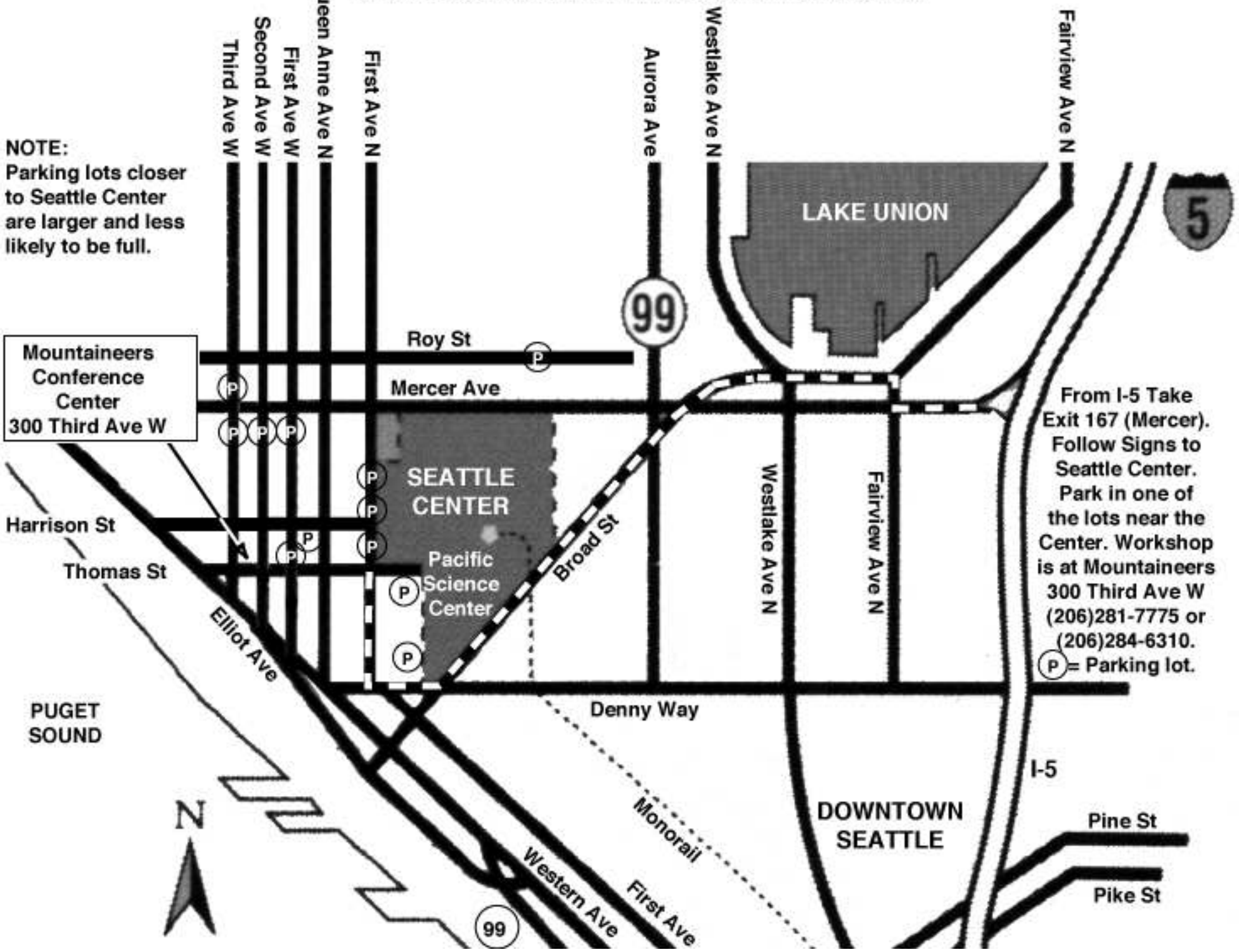
- Water harvesting

Sea Street Project, North Seattle:

- Bio-swailes

DIRECTIONS TO MOUNTAINEERS CONFERENCE CENTER

NOTE:
Parking lots closer to Seattle Center are larger and less likely to be full.



Mountaineers Conference Center
300 Third Ave W

From I-5 Take Exit 167 (Mercer). Follow Signs to Seattle Center. Park in one of the lots near the Center. Workshop is at Mountaineers 300 Third Ave W (206)281-7775 or (206)284-6310. P = Parking lot.

ACCOMMODATIONS

The following is a list of accommodations within walking distance from the Mountaineers Building, 300 Third Avenue West, Seattle, Washington. The list is arranged in order of proximity to the Mountaineers Building with closer hotels listed first.

Inn at Queen Anne

505 First Avenue N., (206)282-7357

Mar Queen Hotel

600 Queen Anne Avenue N., (206)282-7407

Best Western - Executive Inn

200 Taylor Avenue N., (206)448-9444

Comfort Suites

601 Roy Street (Corner of Roy and Fifth Avenue N.), (206)282-2600

Hampton Inn & Suites

700 Fifth Avenue N., (206)282-7700

Days Inn

2205 Seventh Avenue, (206)448-3434

Best Western Loyal Inn

2301 Eighth Avenue, (206)682-0200

If you would like further information regarding lodging or transportation, please contact Erick McWayne with NWETC at (206)762-1976.



NORTHWEST ENVIRONMENTAL TRAINING CENTER

Presented by the Northwest Environmental Training Center
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REGISTRATION FORM

Name: _____ Today's Date: _____

Agency/Organization: _____

Street Address: _____ Mail Code: _____

Street Address (cont.): _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

Email: _____ Title: _____

Indicate Session(s):

Stormwater Management: Innovative Strategies (WPOL-502)

April 21 - 22, 2004 Mountaineers Conference Center, 300 Third Ave W, Seattle, WA
Fee: \$295/\$260*

*Reduced rate applies to Native American Tribes; nonprofits; students; government employees; and members of NEBC, NWAEP, and NAEP.

Payment Method: Check PO Credit Card (Visa or Mastercard) Total: \$ _____

Credit Card or PO #: _____ Exp: _____

Cancellation Policy: Cancellation may occur up to 30 days prior to the event with a full refund and a 50 percent refund thereafter up to the day prior to the event. No shows and cancellations the day of the event will not be refunded. Please contact us regarding cancellation as soon as possible.