

**Appendix 1: Stormwater BMPs and Educational Resources**

**Contents**

Types of Implementation Measures to Restore Impaired Waters ..... 1

Low Impact Development Strategies ..... 3

Low Impact Development Site Planning and Design Checklist ..... 9

Educational Resources ..... 13

References ..... 15

**Types of Implementation Measures to Restore Impaired Waters**

Best Management Practices (BMPs) to help mitigate the effects of impervious cover on Connecticut’s surface waters generally take two forms: non-structural and structural. Restoration of stormwater impaired watersheds typically requires a combination of both types of BMPs.

*Best Management Practices (BMPs) are effective, practical, structural or nonstructural methods which prevent or reduce the movement of pollutants from the land to surface or ground water. BMPs are designed to protect water quality and to prevent new pollution.*

**Non-structural BMPs** are a broad group of practices that prevent pollution through maintenance and management measures. They are typically related to the improvement of

operational techniques or the performance of ongoing stewardship tasks. These include institutional and pollution-prevention practices designed to control pollutants at their source and to prevent pollutants from entering stormwater runoff. Non-structural measures can be very effective at controlling pollution generation at the source, thereby reducing the need for costly “end-of-pipe” treatment by structural BMPs.

There are three primary components of non-structural BMPs:

1. ***Land use planning and standards*** - Municipalities may develop land use and zoning criteria to promote design and construction that minimize or eliminate adverse stormwater impacts from new development.
2. ***Pollution prevention and good housekeeping measures*** – Good housekeeping measures are aimed at minimizing exposure and release of pollutants and may include: a) pavement sweeping; b) winter maintenance BMPs (e.g. proper placement, storage and application of sand and salt); c) landscaping management BMPs; d) road, highway and bridge maintenance; and e) storm drainage system maintenance (CT DEEP, 2004).
3. ***Education and outreach*** - Education and outreach efforts encourage broader implementation of BMPs, improve acceptance of innovative and effective stormwater management practices, and

promote awareness of the connection between land use, water quality and the health of riparian and in-stream habitats. These efforts may include: educational pamphlets; use of the media; classroom education and promotional giveaways.

**Structural BMPs** are generally engineered, constructed systems that can be designed to provide water quality and water quantity control benefits. Structural BMPs are used to address both existing watershed impairments as well as the impacts of new development. A few examples of structural BMPs include: infiltration systems designed to capture a volume of stormwater runoff, retain it and infiltrate that volume into the ground; detention systems designed to temporarily store runoff and release it at a gradual and controlled rate; retention systems designed to capture a volume of runoff and retain that volume until it is displaced in part or whole by the next runoff event; constructed wetland systems to provide both water quality and water quantity control; and filtration systems, which use a media such as sand, gravel or peat in order to remove particulate pollutants found in stormwater runoff. Ideally, structural BMPs treat and infiltrate stormwater runoff to enable the land surface to mimic the hydrologic characteristics of a natural system.

Structural and non-structural BMPs are often used together. The key distinction between non-structural BMPs and structural BMPs is that the former are intended to prevent stormwater generation or contamination, while the focus of the latter is on mitigating stormwater-related impacts. Effective pollution management is best achieved from a management systems approach, as opposed to an approach that focuses on individual practices. Some individual practices may not be very effective alone but, in combination with others, may provide a key function in highly effective systems.

Effective BMP implementation should focus not only on reducing existing pollutant loads, but on preventing new pollution. Once pollutants are present in a waterbody, or after it reaches a receiving waterbody, it is much more difficult and expensive to restore to an unimpaired condition. Therefore, management systems that rely first on preventing degradation of receiving waters are recommended.

Stormwater detention BMPs are structures that temporarily store runoff and slow its release to the watershed. These methods are primarily designed to reduce stormwater surges and the concentrations of sediments and nutrients in stormwater.

The following categories of structural BMPs may be employed to mitigate for the hydrologic impact of impervious cover:

1. **Recharge/exfiltration BMPs** - Stormwater exfiltration and retention BMPs store runoff and allow it to gradually infiltrate to groundwater. Retention BMPs, also known as exfiltration systems, include infiltration basins, trenches, swales, and vegetated filter strips. Exfiltration systems remove pollutants by filtration through the soil matrix and reduce stormwater volume.
2. **Extended detention BMPs** - Stormwater detention BMPs are structures that temporarily store runoff and slow its release to the watershed. These methods are primarily designed to reduce

stormwater surges and the concentrations of sediments and nutrients in stormwater. These BMPs may include created wetlands or extended detention basins.

**Low impact development (LID)** is an approach that will help to minimize the impacts of traditional development, while still allowing for growth. LID is an ecologically friendly approach to site development and storm water management that aims to mitigate development impacts to land, water, and air. The approach emphasizes the integration of site design and planning techniques that conserve natural systems and hydrologic functions on a site. LID has also been adopted as the preferred method of site design in the *2004 Connecticut Stormwater Quality Manual* (CT DEEP, 2004). With proper design and installation, the LID approach can provide multiple benefits including decreased construction costs, reduced impacts to receiving waters, increased habitat for wildlife, beautiful landscape features, and increased property values (EPA, 2007; Dietz and Arnold, 2011). More information about LID strategies to reduce stormwater runoff is included below.

### Low Impact Development Strategies

Low impact development (LID) strategies are a set of tools intended to restore or maintain the hydrology of the watershed by reducing runoff rates and volumes and by increasing groundwater recharge. Although LID Strategies are often intended primarily for new development, many LID practices can be applied as retrofits to existing sites with similar benefits. The following section focuses on the LID strategies that are most likely to be applicable to existing developments.

Examples of types of common LID strategies are described below. The end of this section there are lists of types of LID practices appropriate for roads, and residential and commercial-industrial settings.

#### *Bioretention*

Bioretention uses a conditioned planting soil bed and planting materials to filter runoff stored within a shallow depression (Clar et al., 2004). The method combines physical filtering and adsorption with biological processes. These processes are likely to remove sediments and associated pollutants from the water. A bioretention system can include the following components: a pretreatment filter consisting of a grass channel inlet area, a shallow surface water ponding area, a bioretention planting area, a soil zone, an underdrain system, and an overflow outlet structure.



*Bioretention swale installed in 2011 at UCONN's new West Classroom Building. (Source: UConn CLEAR)*

#### *Disconnecting Impervious Areas*

One of the most effective LIDS is “disconnecting” impervious areas (ENSR, 2005). Impervious areas that

drain directly to closed drainage systems or receiving waters produce runoff in all but the smallest rain events. If runoff from paved surfaces is allowed to flow over pervious or vegetated surfaces before entering a drainage collection system, some or all of the runoff from small rain events will be intercepted and percolated into the ground. The following steps can be taken to disconnect impervious areas:

- Remove curbs on roads and parking lots;
- Locate catch basins in pervious areas adjacent to parking lots, as opposed to in the paved portion of the lot;
- Disconnect roof drains and direct flows to vegetated areas;
- Direct flows from paved areas such as driveways to stabilized vegetated areas;
- Break up flow directions from large paved surfaces;
- Encourage sheet flow through vegetated areas; and
- Carefully locate impervious areas so that they drain to natural systems, vegetated buffers, natural resource areas, or other zones or soils in which infiltration can take place.

### ***Green Roofs***

Green roofs, also known as vegetated roof covers, eco-roofs or nature roofs, are multi-beneficial structural components that help to mitigate the effects of urbanization on water quality by filtering, absorbing or detaining rainfall (EPA, 2007). They are constructed of a lightweight soil media, underlain by a drainage layer, and a high quality impermeable membrane that protects the building structure. The soil is planted with a specialized mix of plants that can thrive in the harsh, dry, high temperature conditions of the roof and tolerate short periods of inundation from storm events.

Green roofs provide stormwater management benefits by (EPA, 2007):

- Utilizing the biological, physical, and chemical processes found in the plant and soil complex to prevent airborne pollutants from entering the storm drain system; and
- Reducing the runoff volume and peak discharge rate by holding back and slowing down the water that would otherwise flow quickly into the storm drain system.

Other benefits include energy savings and lengthened life of the roof, improved air quality, and cooler air temperatures.

### ***Minimizing Site Imperviousness***



*Green roof installed in 2011 at UCONN's new West Classroom Building. (Source: UConn CLEAR)*

Reducing the amount of imperviousness on the site will have a significant impact on the amount of other storm water management practices required for mitigating development impacts. The following practices may be employed to help minimize site imperviousness (ENSR, 2006):

- Evaluate alternative roadway layouts to minimize total road length;
- Use reduced road width sections;
- Limit sidewalks to one side of primary roads;
- Use vertical construction to reduce rooftop footprints;
- Use shared driveways whenever possible;
- Limit driveway width to 9 feet;
- Minimize building setbacks to reduce driveway length; and
- Use pervious/porous pavement or pavers.

### ***Porous Pavement***

Porous pavement is a special type of pavement that allows rain and snowmelt to pass through it, thereby reducing the runoff from a site and surrounding areas (UNHSC, 2007). The two primary types of porous pavement include porous asphalt and pervious concrete. Porous asphalt pavement consists of an open-graded coarse aggregate, bonded together by asphalt cement, with sufficient interconnected voids to make it highly permeable to water. Pervious concrete consists of specially formulated mixtures of Portland cement, uniform, open-graded coarse aggregate, and water. Pervious concrete has enough void space to allow rapid percolation of liquids through the pavement.

The porous pavement surface is typically placed over a highly permeable layer of open-graded gravel and crushed stone. The void spaces in the aggregate layers act as a storage reservoir for runoff. Two common modifications made in designing porous pavement systems are (1) varying the amount of storage in the stone reservoir beneath the pavement and (2) adding perforated pipes near the top of the reservoir to



*Porous pavers installed in 2011 at UCONN's new West Classroom Building. (Source: UConn CLEAR)*

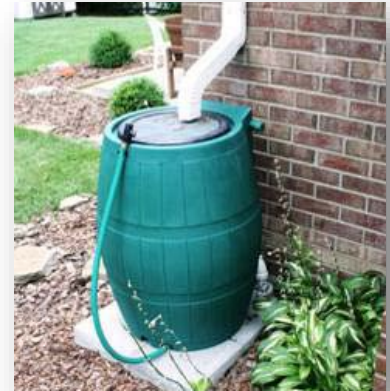


*Porous pavement (top) in a lot beside conventional asphalt (bottom) at the UNH Stormwater Center (UNHSC) at University of New Hampshire.*

discharge excess storm water after the reservoir has been filled. Porous pavement may substitute for conventional pavement on parking areas, areas with light traffic, and the shoulders of airport taxiways and runways, provided that the grades, sub-soils, drainage characteristics, and groundwater conditions are suitable. Slopes should be flat or very gentle (UNHSC, 2007).

### ***Rain Barrels and Cisterns***

Rain barrels are low-cost, effective, and easily maintained retention devices applicable to residential, commercial, and industrial sites. Rain barrels operate by retaining a predetermined volume of rooftop runoff. Rain barrels are typically used to store runoff for later reuse in lawn and garden watering. Stormwater cisterns are roof runoff management devices that provide retention storage volume in underground storage tanks for reuse for irrigation or other uses. On-lot storage with later reuse of stormwater also provides an opportunity for water conservation and the possibility of reducing water utility costs.



*A residential rain barrel.*

*(Source: EPA)*

### ***Rain Gardens***

A simple, yet effective method to control stormwater is through the use of rain gardens. Also known as bioretention areas, rain gardens are small vegetated depressions that collect, store, and infiltrate stormwater runoff. They contain various soil types from clays to sands and their size varies depending on area drained and available space. The design of a rain garden involves the hydrologic cycle, non-point pollutant treatment, resource conservation, habitat creation, nutrient cycles, soil chemistry, horticulture, landscape architecture, and ecology. Beyond its use for stormwater control, the rain garden provides aesthetically pleasing landscaping and a natural habitat for birds and butterflies.

Following are lists of types of LID practices appropriate for roads, and residential and commercial-industrial settings:

**LID Practices for a Residential Setting** (Fuss and O'Neill, 2011a)

- *Bioretention or Rain Gardens* – Vegetated depressions that collect runoff and either filter before discharge or infiltrate it into the ground.
- *Dry Wells* – Gravel- or stone-filled pits that are located to catch water from roof downspouts or paved areas.
- *Filter Strips* – Bands of dense vegetation planted immediately downstream of a runoff source designed to filter runoff before entering a receiving structure or water body.
- *Grass Swales* – Shallow channels lined with grass and used to convey and store runoff.
- *Infiltration Trenches* – Trenches filled with porous media such as bioretention material, sand, or aggregate that collect runoff and exfiltrate it into the ground.
- *Permeable Pavement* – Asphalt or concrete rendered porous by the aggregate structure.
- *Permeable Pavers* – Manufactured paving stones containing spaces where water can penetrate into the porous media placed underneath.
- *Rain Barrels and Cisterns* – Containers of various sizes that store the runoff delivered through building downspouts. Rain barrels are generally smaller structures, located above ground. Cisterns are larger, are often buried underground, and may be connected to the building's plumbing or irrigation system.
- *Soil amendments* – Minerals and organic material added to soil to increase its capacity for infiltration, absorbing moisture and sustaining vegetation.
- *Planter box filters* – Curbside containers placed below grade, covered with a grate, filled with filter media and planted with a tree in the center.
- *Vegetated Buffers* – Natural or man-made vegetated areas adjacent to a waterbody, providing erosion control, filtering capability, and habitat.
- *On-lot tree-save areas* – Runoff can be directed to existing on-lot tree conservation areas to encourage stormwater retention.
- *Small detention features* – For example driveway culverts can be undersized to detain flow and encourage stormwater retention.
- *Infiltration Swales* – Swales designed with infiltration trenches.

**LID Practices for High Density Industrial and Commercial Development** (Fuss and O'Neill, 2011a)

(in addition to the techniques listed above)

- *Planter Boxes* – Bioretention systems within containers designed for filtration and or infiltration.

- *Green Roofs* – Vegetated roofs designed for retention / detention storage and, filtration.
- *Underground Storage* – Use of cisterns, pipes, vaults or other storage devices for retention or detention storage.
- *Porous Pavers and Surfaces* – Porous surfaces design in combination gravel storage or other.
- *Manufactured Devices* – Numerous commercial devices are available for filtration, screening, storage and treatment that can be integrated in the high density development.
- *Building Architecture* – Buildings can be designed to capture hold and use more runoff with, cisterns, planter boxes and wall planting systems.

**Other LID Roadway Design Considerations** (Fuss and O’Neill, 2011a)

- *Maximize natural drainage* – when planning streets, consider preserving natural drainage patterns and soil permeability by preserve natural drainage patterns and avoid locating streets in low areas or highly permeable soils.
- *Uncurbed roads* – where feasible, build uncurbed roads using vegetated swales as an alternative.
- *Urban curb/swale system* – runoff runs along a curb and enters a surface swale via a curb cut, instead of entering a catch basin to the storm drain system.
- *Dual drainage system* – a pair of catch basins with the first sized to capture the water quality volume into a swale while the second collects the overflow into a storm drain.
- *Concave medians* – median is depressed below the adjacent pavement and designed to receive runoff by curb inlets or sheet flow. Can be designed as a landscaped swale or a biofilter.
- *Street Length* – Reduce the length of residential streets by reviewing minimum lot widths and exploring alternative street layouts.
- *Access* – Consider access for large vehicles, equipment, and emergency vehicles when designing alternative street layouts and widths.



## Low Impact Development Site Planning and Design Checklist

One way towns can encourage low impact development is to require applicants submitting new projects to complete a checklist. The checklist on the following pages was drafted for the Town of Mansfield, CT by the Center for Land Use Education and Research (CLEAR; Dietz and Arnold, 2011). The checklist contains various LID practices that are suggested for residential developments. The structure of the checklist is such that a developer first is asked which LID components they will be using on a project. If LID cannot be used, the reason for this must be justified (Dietz and Arnold, 2011).

The checklist addresses the following five key areas of focus to help guide planning for LID projects. (Excerpted from the *Eagleville Brook Watershed Management Plan*, Dietz and Arnold, 2011):

- 1. Assessment of natural resources.** Ideally, LID is considered early in the site planning process. The objective is to allow for development of the property, while maintaining the essential hydrologic functions of the site. A thorough assessment of the existing natural resources on the site needs to be performed, so that essential features can be preserved, and suitable sites for development can be identified.
- 2. Preservation of open space.** Cluster subdivision design can complement the LID approach. Cluster subdivisions provide a key way to protect natural resources while still providing landowners with the ability to develop their property. In most cases, the number of residential units allowed in a cluster subdivision equals the number allowed under conventional subdivision regulations.
- 3. Minimization of land disturbance.** Once the development envelope is defined, the goal is to minimize the amount of land that needs to be disturbed. Undisturbed forest, meadow, and wetland areas have an enormous ability to infiltrate and process rainfall, providing baseflow to local streams and groundwater recharge. Construction equipment causes severe compaction of soils, so after development, even areas that are thought to be pervious such as grass, can be quite impervious to rainfall.
- 4. Reduce and disconnect impervious cover.** With careful planning, the overall percentage of impervious cover in a proposed project can be minimized. Roads, driveways, sidewalks, parking lots, and building footprints can be minimized to reduce impacts, but still provide functionality. Additionally, not all impervious surfaces have the same impact on local waterways. With proper planning, runoff from impervious surfaces can be directed to pervious areas such as grass or forest, or to LID treatment practices.
- 5. LID practices installed.** There are a variety of practices that can be used to maintain the pre-development hydrologic function of a site. For more detail on the following practices, see the references below:

**Low Impact Development Site Planning and Design Checklist**

Items listed below need to be considered by developers when submitting plans for subdivisions. Due to individual site differences, not all items will apply to each individual property. Check items that have been applied, or explain why the items have not been used. For more information on LID practices and how to implement them please refer to the 2004 Connecticut Stormwater Quality Manual.

**1. Assessment of Natural Resources**

- Natural resources and constraints have been indicated and are identified on the plans (wetlands, rivers, streams, flood hazard zones, meadows, agricultural land, tree lines, slopes [identified with 2 foot contours], soil types, exposed ledge & stone walls.
- Is the property shown on the latest copy of CT DEEP State and Federal Listed Species and Significant Natural Communities Map as listed in the Natural Diversity Data Base (NDDB)? If so, provide a copy of the CT DEEP NDDB request form and CT DEEP reply letter.
- Development is designed to avoid critical water courses, wetlands, and steep slopes.
- Soils suitable for septic & stormwater infiltration have been identified on plans.
- Soil infiltration rate/permeability has been measured and listed on plan:  
See sheet# \_\_\_\_\_
- Onsite soils have been assessed to determine suitability for stormwater infiltration.
- Natural existing drainage patterns have been delineated on the plan and are proposed to be preserved or impacts minimized.

For items not checked, please use the space below to explain why that item was not appropriate or possible for your project, or any other pertinent information:

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**2. Preservation of Open Space**

- Percent of natural open space calculation has been performed.  
Percent = \_\_\_\_\_
- An open space or cluster subdivision design has been used.
- Open space/common areas are delineated.

- Open space is retained in a natural condition.
- Reduced setbacks, frontages, and right-of-way widths have been used where practicable.

For items not checked, please use the space below to explain why that item was not appropriate or possible for your project, or any other pertinent information:

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**3. Minimization of Land Disturbance**

- The proposed building(s) is/are located where development can occur with the least environmental impact.
- Disturbance areas have been delineated to avoid unnecessary clearing or grading.
- Native vegetation outside the immediate construction areas remains undisturbed or will be restored.
- Plan includes detail on construction methods and sequencing to minimize compaction of natural and future stormwater areas.

For items not checked, please use the space below to explain why that item was not appropriate or possible for your project, or any other pertinent information:

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**4. Reduce and Disconnect Impervious Cover**

- Impervious surfaces have been kept to the minimum extent practicable, using the following methods (check which methods were used):
  - Minimized road widths
  - Minimized driveway area
  - Minimized sidewalk area
  - Minimized cul-de-sacs
  - Minimized building footprint
  - Minimized parking lot area

- Impervious surfaces have been disconnected from the stormwater system, and directed to appropriate pervious areas, where practicable. Pervious areas may be LID practices, or uncompacted turf areas.

For items not checked, please use the space below to explain why that item was not appropriate or possible for your project, or any other pertinent information:

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**5. LID Practices Installed**

- Sheet flow is used to the maximum extent possible to avoid concentrating runoff.
- Vegetated swales have been installed adjacent to driveways and/or roads in lieu of a curb and gutter stormwater collection system.
- Rooftop drainage is discharged to bioretention/rain gardens.
- Rooftop drainage is discharged to drywell or infiltration trench.
- Rain water harvesting methods such as rain barrels or cisterns have been installed to manage roof drainage.
- Driveway, roadway, and/or parking lot drainage is directed to bioretention/rain gardens.
- Cul-de-sacs include a landscaped bioretention island.
- Vegetated roof systems have been installed, if appropriate.
- Pervious pavements have been installed, if appropriate.

For items not checked, please use the space below to explain why that item was not appropriate or possible for your project, or any other pertinent information:

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## **Educational Resources**

The following websites provide additional information on low impact development strategies and stormwater BMPs:

**2004 Connecticut Stormwater Quality Manual** – The purpose of this manual is to provide guidance to the regulated and regulatory communities involved in stormwater management in the State of Connecticut. This manual outlines management methods necessary to protect Connecticut waters from the adverse impacts of polluted stormwater runoff. The Manual is applicable to new development, redevelopment and existing development upgrades and focuses on site planning, source control, pollution prevention and stormwater treatment. Erosion and sedimentation, stormwater drainage, flood control, and watershed management are also addressed as secondary considerations. The manual does not address agricultural runoff.

**Online at:** [http://www.ct.gov/deep/cwp/view.asp?a=2721&q=325704&depNav\\_GID=1654](http://www.ct.gov/deep/cwp/view.asp?a=2721&q=325704&depNav_GID=1654)

**Connecticut DEP website on Municipal Watershed Outreach and Low Impact Development** - This informational webpage defines low impact development and provides guidance to residents, business owners, municipal governments and decision makers. Resident Guides for LID concept implementation as well as links to the CT Stormwater Manual, CT Erosion and Sedimentation Guidelines and various project brochures are included.

**Online at:** <http://www.ct.gov/deep/cwp/view.asp?A=2719&Q=464958>

**State of Connecticut Green & Growing Program Toolbox** – This website contains an inventory of policies, plans and programs administered by state agencies to promote responsible growth in Connecticut’s municipalities. The site provides information for a variety of interests including separate inventories for municipalities, developers, farmers, conservationists, non-profits, small businesses and state agencies.

**Online at:** <http://www.dir.ct.gov/opm/IGP/Tools/index.asp>

**University of Connecticut Nonpoint Education for Municipal Officials (NEMO) Program** – University of Connecticut’s NEMO program was created in 1991 as a collaboration of its Cooperative Extension System, the Connecticut Sea Grant College Program, and the Natural Resources Management and Engineering Department. NEMO focuses on education and assistance for local land use decision makers as they are a key in fostering better land use outcomes in our communities. Their website provides training & workshop schedules, site planning concepts using LID elements and site design elements, and an LID Inventory of existing LID practices in Connecticut. In addition, the website contains an LID Town Regulation Inventory for the state of Connecticut as well as New England.

**Online at:** <http://nemo.uconn.edu/index.htm>

**Center for Watershed Protection (CWP)** - The Center for Watershed Protection works to protect, restore, and enhance our streams, rivers, lakes, wetlands, and bays. CWP creates viable solutions and partnerships for responsible land and water management so that every community has clean water and healthy natural

resources to sustain diverse life. The CWP website contains an extensive resource library with information on watershed planning, stormwater and BMPs.

**Online at:** <http://www.cwp.org/>

**National Menu of Stormwater Best Management Practices** - The National Menu of Best Management Practices for Stormwater Phase II was first released in October 2000. EPA has renamed, reorganized, updated, and enhanced the features of the website. These revisions include the addition of new fact sheets and revisions of existing fact sheets. Because the field of stormwater is constantly changing, EPA expects to update this menu as new information and technologies become available.

**Online at:** <http://water.epa.gov/polwaste/npdes/swbmp/index.cfm>

**University of New Hampshire Stormwater Center** - The UNH Stormwater Center serves as a unique technical resource for stormwater practitioners by studying a range of issues for specific stormwater management strategies including design, water quality and quantity, cost, maintenance, and operations. The field research facility serves as a site for testing stormwater treatment processes, for technology demonstrations and workshops. The testing results and technology demonstrations are meant to assist in the planning, design, and implementation of effective stormwater management strategies for resource managers.

**Online at:** <http://www.unh.edu/unhsc/>

**U.S. EPA Soak Up The Rain Program** – Focused in New England, Soak Up the Rain joins communities and neighbors interested in reducing the polluted runoff from their properties into surrounding watersheds. The website provides tutorials for constructing rain barrels, down spouts, rain gardens, permeable pavements, dry wells, green roofs and more. Stormwater guides, videos and a list of local stormwater management organizations are listed by region further guidance.

**Online at:** <http://www.epa.gov/region1/soakuptherain/index.html>

In addition to the resources listed above, the *CT DEEP Watershed Management Program* has compiled a *list of water protection and land reuse resources for municipalities.*

**Online at:**

[http://www.ct.gov/deep/lib/deep/water/watershed\\_management/wm\\_plans/lid/lid\\_resources.pdf](http://www.ct.gov/deep/lib/deep/water/watershed_management/wm_plans/lid/lid_resources.pdf)

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- Fuss & O'Neill (2011b). Low Impact Development Appendix to Connecticut Guidelines for Soil Erosion and Sediment Control. Partners for the Connecticut Low Impact Development and Stormwater General Permit Evaluation. August 2011. 70 pp.