CHANGES TO THE MASSACHUSETTS STORMWATER MANAGEMENT STANDARDS

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
(As published in the January 15, AMWS Newsletter)

"How else dispose of an immortal force
No longer needed? Staunch it at its source
With cinder loads dumped down? The brook was thrown
Deep in a sewer dungeon under stone
In fetid darkness still to live and run –
And all for nothing it had ever done"

From "A Brook in the City"
By Robert Frost

Stormwater runoff results from rainfall and snow melt. It represents the single largest source responsible for water quality impairments in the Commonwealth's rivers, lakes, ponds, and marine waters. New projects and redeveloped areas typically add impervious surfaces that, when not properly managed, alter natural drainage features, increase peak discharge rates and volumes, reduce recharge to wetlands and streams, and increase the discharge of pollutants to wetlands and water bodies.

In 1996 the Massachusetts Department of Environmental Protection (MassDEP) issued a Stormwater Policy that established Stormwater Management Standards (Standards) aimed at encouraging recharge and preventing stormwater discharges from causing or contributing to the pollution of the surface waters and ground waters of the Commonwealth. By state action, these Standards are applied in areas subject to the jurisdiction under the Massachusetts Wetlands Protection Act. In addition, through local bylaws, some municipalities are applying these Standards to upland areas.

Applied to areas under the jurisdiction of local Conservation Commissions, the Stormwater Policy and the Stormwater Handbook, which was first published in 1997, provided guidance for how to address potential water quality (e.g., pollutants) and water quantity (e.g., flooding, low base flow, and recharge) problems by establishing standards that require the implementation of a wide variety of stormwater management strategies.

What is MassDEP Trying To Accomplish?

Since the mid-1990s, we have learned much more about stormwater in Massachusetts. The Massachusetts Water Resources Commission identified many Massachusetts water basins as "stressed" due to increased withdrawals of water. MassDEP publishes lists of "impaired waters" identifying those surface waters that are failing to meet minimum state standards for water quality. Nationally, the movement towards stormwater Best Management Practices (BMPs) that mimic natural hydrology (e.g., Low Impact Design) have successfully increased local recharge and significantly reduced pollutants flowing into nearby waters and streams.

Coupled with federal NPDES program permitting requirements instituted in the early 2000s, the new and emerging knowledge about the role of stormwater management in addressing water quality and quantity and the explosive growth of LID techniques spurred MassDEP to review and update the Standards. The updated Standards, incorporated into the state's Wetlands Regulations in the January 2, 2008 revision, accomplish five main goals:

Increase recharge of stormwater: this adds needed water to local underground drinking water supplies and adds base flow to local streams and rivers. These local, project-specific actions also allow time for other water quantity-related programs and actions to take effect to ensure that we have sufficient water supplies for the future.

Promote LID: these site design techniques and Stormwater BMPs minimize the creation of impervious surfaces, disconnect drainage pathways, and increase the time of concentration, leading to more recharge and decreased pollution. Whether reflected in new LID Site Design Credits, explicitly listed as BMPs, or now requiring that LID techniques be "considered" for every development, MassDEP is actively encouraging a wide range of LID techniques across the Commonwealth.

Ensure that redevelopments always improve existing conditions: MassDEP's Stormwater Advisory Committee said that the 1996 Stormwater Standard addressing redevelopment properties needed to be strengthened; in response, MassDEP rewrote this Standard to unequivocally require that all redevelopments both address the stormwater Standards AND always improve existing conditions, and gives both Conservation Commissions and project proponents guidance on how to ensure that these improvements are made.

Provide better environmental protection: as we learned more about how much stormwater affected local water quality, we also learned that adding water quality treatment before stormwater seeps underground or flows into local streams is much less expensive than trying to "de-pollute" aquifers and surface water bodies afterwards. The new Standards now require the identification and removal of Illicit Discharges to stormwater systems as well as increased treatment of stormwater, particularly in Critical Areas and from Land Uses with Higher Potential Pollution Loads. They improve the effectiveness of stormwater BMPs by clearly identifying who is responsible for Operation and Maintenance (O&M) and requiring that O&M activities be tracked and the resulting logs be made available for inspection.

Reflect science since the mid 1990s: the revised 2008 Massachusetts Stormwater Handbook will include revised Total Suspended Solids (TSS) removal rates and new BMPs that reflect scientific studies of stormwater from the past decade.

This article will describe how the revised Standards affect the existing Wetlands Regulations, discuss major changes to the Standards, depict how MassDEP resolved a potential conflict between LID and above ground stormwater structures and Wetlands Jurisdiction, and detail how you can find out more about the changes to the Standards.

How Did the Stormwater Management Standards Affect the Wetlands Regulations?

The Stormwater Standards, originally adopted as Policy, are now adopted as part of the state's Wetlands Regulations and Water Quality Certification Regulations[1] and take affect January 2, 2008. Incorporation of the Standards into the Wetlands Regulations does not amend other parts of the Wetlands Regulations. The portions of the Wetland Regulations that were not modified by the Standards still apply as they did before.

Two new provisions of the Wetlands Regulations make it easier to maintain stormwater management systems. First, any legally constructed stormwater system built after November 18, 1996[2] does not require a Notice of Intent to conduct maintenance. Second, stormwater systems built after January 2, 2008 do not create additional wetland resource area or Buffer Zone and shall be reviewed as stormwater structures, not as wetlands areas.[3]

Lastly, the Standards themselves, which have been part of the State's Wetland rules as Policy since 1996, have been changed, some in major ways and others in minor ways.

How Have the Standards Changed?

The chart below lists all ten Stormwater Standards and notes where significant changes have occurred. The chart is followed by a discussion of each Standard, a discussion of the changes to jurisdiction and an overview of the LID Site Design Credits.

Stormwater Standard	**Nature of the Changes**
Standard 1: No Untreated Discharges/Erosion	No Substantive Changes
Standard 2: Peak Rate	No Substantive Changes
Standard 3: Recharge	Substantive Changes
Standard 4: Water Quality	Substantive and Minor Changes
Standard 5: Land Uses with Higher Potential Pollution Loads	Substantive Changes
Standard 6: Critical Areas	Minor Changes
Standard 7: Redevelopment	Substantive Clarification and Minor Changes

[1] For Wetlands, 310 CMR 10.05(6)(k) and for Water Quality Certification, 314 CMR 9.06(6)(a).

[2] 310 CMR 10.02(3) now provides that a Notice of Intent is not required to maintain any stormwater management system constructed in accordance with the Stormwater Management Standards after November 18,1996, the effective date of the Stormwater Policy. This exemption from filing a Notice of Intent extends to above ground systems such as vegetated swales, bioretention areas and rain gardens that are located outside of an Area Subject to Protection under the Act or Buffer Zone and that are not the subject of an Order of Conditions and to stormwater management systems such as underground infiltration structures or leaching catch basins that are located within wetlands jurisdiction but lack any wetlands characteristics.

[3] 310 CMR 10.02 and 10.04 now provide that: (a) the operation of a stormwater management system constructed after the effective date of the proposed regulatory revision does not create additional wetland resource area or Buffer Zone; and (b) review of proposed modifications to a stormwater management system constructed after the effective date of the proposed regulatory revision shall be limited to maintenance of the stormwater functions of the system, compliance with the Stormwater Management Standards, and compliance with only those wetland performance standards that would apply in the absence of the stormwater management system.

Standard 8: Construction Period	Minor Changes
Standard 9: Operation & Maintenance	Minor Changes
Standard 10: Illicit Discharges	New Standard
Jurisdiction	Minor Changes
LID Site Design Credit	New Credit

"Standard 1: No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth."

"Standard 2: Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04."

MassDEP wants practitioners to note that Standard 2 is designed to prevent storm damage and downstream and offsite flooding from the 2-year and the 10-year 24-hour storm events, and that the 100-year 24-hour storm event must be evaluated to demonstrate that there will not be increased flooding offsite, with all downstream impacts carefully considered.

"Standard 3: Loss of annual recharge to ground water shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook."

The major changes for Standard 3 regarding recharge are:

- Increases in the volume of stormwater that must be recharged;
- Added a standardized dynamic method to size infiltration BMPs;
- Added treatment requirement for soils with high infiltration rates or near Critical Areas.

Stormwater volume for recharge is calculated by multiplying the impervious area times a Volume Requirement. MassDEP has increased the Volume Requirements for hydrologic soil types significantly. The infiltration systems built to meet this requirement must be installed in soils capable of absorbing the recharge volume (i.e., not D soils). The table below illustrates the old and new Volume Requirements:

NRCS Hydrologic Group	1996 Volume Requirement	2008 Volume Requirement
Soil Type A: gravels, sand, loamy sand or sandy loam	0.4 inches	0.6 inches
Soil Type B: silty loam	0.25 inches	0.35 inches
Soil Type C: sandy clay loam	0.1 inches	0.25 inches
Soil Type D: clay, silty clay loam, sandy clay, silty clay	Not required	0.10 inches

To size infiltration BMPs, proponents may use either the static method or the dynamic infiltration method. The static method assumes that the entire volume is discharged to storage instantaneously, is easy to calculate, and generally results in a larger recharge volume than the dynamic method. The dynamic method, which will be described in Volume 2 of the 2008 Stormwater Handbook, assumes that that the recharge BMP is infiltrating as it fills and requires certain technical calculations that take this recharge into account when sizing the infiltration BMP. While it is a more complex analysis, the dynamic method generally results in slightly smaller recharge volume than the static method.

For discharges to areas with high infiltration rates (i.e., more than 2.4 inches per hour), at least 44% of the TSS must be removed prior to discharge to the infiltration structure (i.e., two 25% TSS removal treatment BMPs in series). Since higher infiltration rates reduce the soil's capability to provide stormwater treatment, MassDEP required additional treatment for these "faster" soils.

"Standard 4: Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This standard is met when:

a) Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;
b) Structural stormwater best management practices are sized to capture the required water quality volume as determined in accordance with the Massachusetts Stormwater Handbook; and
c) Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook."

The major changes to Standard 4 regarding water quality are:

- Emphasizing source controls;
- Long-term Pollution Prevention Plan to be required;
- New BMPs in TSS table;
- Some TSS removal efficiencies to be revised; and
- Charts to be added describing removal efficiency potential beyond TSS.

Standard 4 requires the development and implementation of suitable practices for source control and pollution prevention. These measures must be identified in a long-term pollution prevention plan. The long-term pollution prevention plan shall include the proper procedures for the following: good housekeeping; storing materials and waste products inside or under cover; routine inspections and maintenance of stormwater BMPs; spill prevention and response; turf management; pet waste management; integrated pest management; and proper management of deicing chemicals and snow.[4]

To reflect what we've learned in the last decade about the effectiveness of stormwater BMPs, MassDEP is providing revised and new information in various TSS charts to make it easier for Conservation Commissions to identify how well BMPs reduce TSS and other pollutants.

[4] Snow & Deicing Policies -- http://www.mass.gov/dep/water/laws/policies.htm#snowsalt.

"Standard 5: For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00."

The major changes to Standard 5 regarding Land Uses with Higher Potential Pollution Loads ("LUHPPLs") are:

- Require treatment train (i.e., at a minimum, a pretreatment and terminal treatment BMP);
- 44% TSS removal to be required for pretreatment prior to infiltration;
- Roof top runoff from metal roof of industrial buildings will no longer be a LUHPPL; and
- Hazardous Waste sites to be added as LUHPPL.

Like all stormwater discharges, stormwater discharges from land uses with higher potential pollutant loads require the use of a treatment train that provides 80% TSS removal prior to discharge. For LUHPPLs, however, this treatment train shall provide for at least 44% TSS removal prior to discharge to the infiltration BMP and shall also be designed to treat one (1) inch of runoff times the total impervious area at the post development site.

MassDEP has more specific requirements for how this will be met, requiring a treatment train with at least one pretreatment BMP, one terminal treatment BMP, and one infiltration BMP from a Chart in Volume 1 of the 2008 Stormwater Handbook.

"Standard 6: Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00.[5] Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of the public water supply."

The major changes to Standard 6 regarding Critical Areas are:

[5] If an NPDES Construction General Permit or Multi-Sector General Permit is required for a discharge to an ORW, DEP must approve the Stormwater Pollution Prevention Plan ("SWPPP").

- 44% TSS removal is required for pretreatment prior to infiltration; and
- All projects that have the potential to impact critical areas must implement a source control and pollution prevention program that includes proper management of snow and deicing chemicals.

As a practical matter, the 44% TSS removal requirement means that before any discharge to or near a Critical Area enters an infiltration device, the discharge will typically flow through two 25% TSS removal BMPs before the discharge may enter the infiltration BMP.

MassDEP will include new charts in the 2008 Massachusetts Stormwater Handbook that will assist in tailoring BMPs to target multiple constituents.

"Standard 7: A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions."

The major changes to Standard 7 regarding water quality are:
- Projects must meet the Standards to maximum extent practicable AND improve existing conditions;
- Provide flexibility to tailor improvements to site conditions (e.g., if existing flood problem; the proponent can't simply say: "no change in runoff so no peak attenuation required").
- Provide guidance on retrofits; and
- Provide guidance to assist in determining if a project complies with Standards AND improves existing conditions.

Despite what MassDEP believes is clear language in the 1996 Standards requiring improvements to existing conditions for redevelopments, the Stormwater Advisory Committee told MassDEP that a number of redevelopment projects were being proposed where improvements to existing conditions were not included. Since Massachusetts is already widely developed, these improvements are a critical part of reversing the loss of recharge, improving water quality, and preventing floods.

The local knowledge of Conservation Commissions and other local departments is a key component of this requirement. In addition to explicitly restating that improvements to redevelopments are always required, the 2008 Stormwater Handbook contains guidance to help both proponents and local agencies determine what improvements are needed and to appropriately scale the improvements. For example, smaller projects should require smaller improvements, and areas with specific known problems (e.g., flooding of impaired waters) should have the improvements tailored to those problems.

In addition, MassDEP has guidance on the differences between a new developments and a re-development project.

"For purposes of the Stormwater Management Standards redevelopment projects are defined to include the following:

1. Maintenance and improvement of existing roadways including widening less than a single lane, adding shoulders, correcting substandard intersections, improving existing drainage systems and repaving;

2. Development, rehabilitation, expansion and phased projects on previously developed sites, provided the redevelopment results in no net increase in impervious area; and

3. Remedial projects specifically designed to provide improved stormwater management such as projects to separate storm drains and sanitary sewers and stormwater retrofit projects."

The portion of a property that is currently undeveloped is not a redevelopment and thus does not fall under Standard 7. Any development on previously undeveloped portions of a property must comply fully with all of the other Stormwater Management Standards.

"Standard 8: A plan to control construction related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented."

Changes to the guidance for this Standard include:

- Require an erosion control plan or Stormwater Pollution Prevention Plan (SWPPP) for construction phase;
- For land disturbances of one (1) acre or more, if a SWPPP is required by EPA NPDES Construction General Permit, a copy must be submitted to Commission; and
- One document may be used to satisfy both requirements.

Projects that disturb one acre of land or more are required to obtain coverage under the NPDES Construction General Permit issued by EPA and prepare a SWPPP.[6] To avoid duplication of effort, a project proponent can prepare a single document that satisfies the SWPPP requirements of the Construction General Permit and the construction period erosion, sedimentation and pollution prevention plan requirements of Standard 8.

The BMPs used during construction must be different from the BMPs that will be used to handle stormwater after construction is completed and the site is stabilized. Many stormwater technologies (infiltration technologies) are not designed to handle the high concentrations of sediments typically found in construction runoff, and thus must be protected from construction related sediment loadings.

"Standard 9: A long term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed."

[6] EPA NPDES -- http://cfpub.epa.gov/npdes/stormwater/cgp.cfm.

Changes to the guidance for this Standard include:

- Tighter O&M requirements to ensure treatment (including source controls), recharge, and peak rate attenuation provided over long term;
- Require rolling log be maintained of O&M activities for 3-year periods;
- Log to be made available to Conservation Commissions and MassDEP upon request;
- Routine continuing conditions:
  - BMPs must be maintained; and
  - Cannot alter or replace a BMP without Conservation Commission review. Such a review is limited to insuring that the stormwater standards are met; and
- The case where a municipality is to take over maintenance of the stormwater management system. Guidance will specify that the town agency must be given an opportunity to "sign-off" on O&M plan.

The guidance for this Standard intends to make the O&M process both more transparent and more certain. For example, Conservation Commissions are directed to "presume that the owner of the BMP is the landowner of the property unless other legally binding agreements are established with another entity." If a proponent plans for the municipality to take over maintenance, the guidance requires that the proponent "notify the Conservation Commission and make available to the municipal official responsible for stormwater management" details about the BMPs. Both of these examples help ensure that every BMP on a completed project has someone assigned to operate and maintain that BMP.

MassDEP also suggests that the Conservation Commission inspect the site to determine whether the Stormwater BMPs are operating as designed.

"Standard 10: All illicit discharges to the stormwater management system are prohibited."

Stormwater collection systems typically do not treat stormwater, so any non-stormwater discharges that go into the stormwater collection system can carry their pollutants directly to groundwater or surface waters. EPA recognized this as a major problem when it required municipalities that operate smaller stormwater systems (through the NPDES MS4 permit) to establish a program to detect and eliminate illicit discharges. This new Standard will help municipalities meet that responsibility.

For roadways covered by this permit, the proponent may demonstrate compliance with Standard 10 by documenting the actions taken to identify and eliminate illicit discharges under the NPDES Permit. To prevent duplication of effort, the proponent may submit copies of reports prepared to satisfy the illicit discharge detection and elimination program requirements of the NPDES General Permit as its Illicit Discharge Compliance Statement.

The guidance for this Standard requires proponents of projects to demonstrate compliance with this requirement by submitting to the issuing authority an Illicit Discharge Compliance Statement verifying that no illicit discharges exist on the site. If not filed as part of the NOI, the Final Order of Conditions "shall require" the submission of an Illicit Discharge Compliance Statement prior to the start of construction.

What About Changes to Jurisdiction?

Various Stormwater Advisory Committee members and participants noted that the state's wetlands rules could act as a disincentive for the use of LID and other above ground stormwater BMPs. Since those types of BMPs mimic natural hydrology, they had the potential of attracting wetlands plants and species over time. If that area could then be construed as deserving protection under the Wetlands Protection Act, that could persuade some project proponents to decline to build LID or above ground stormwater BMPs to avoid that inadvertent regulation.

To encourage increased use of low impact development techniques relying on above ground stormwater BMPs that mimic natural hydrologic conditions, the Wetlands Regulations, 310 CMR 10.02(2)(d), have been modified to provide that the installation of stormwater management systems designed and constructed on or after January 2, 2008 in accordance with the Stormwater Management Standards do not create any additional Wetland Resource Area or Buffer Zone.

The Wetland Regulations, 310 CMR 10.02(4), further provide that review of future modifications to any such systems located within a wetland resource area or Buffer Zone shall be limited to the stormwater functions of the system, compliance with the Stormwater Management Standards and those performance standards that would apply in the absence of the stormwater management system.

For example, a stormwater management system that includes a water quality swale, an infiltration basin, and a rip-rap outlet is designed and constructed in accordance with the Stormwater Management Standards on or after January 2, 2008 in a portion of the site that is outside of any wetland resource area and outside of the Buffer Zone (See figure 1). No additional wetland resource area or Buffer Zone is created solely as a result of the installation of the stormwater management system. Ten years later, the project proponent proposes to fill in the infiltration basin and replace it with a subsurface structure also located outside of a wetland resource area or Buffer Zone. The project proponent can fill in the infiltration basin and replace it with a subsurface structure without filing a Notice of Intent, Notice of Resource Area Delineation, or Request for Determination of Applicability, since both the infiltration basin and the subsurface structure are located in upland.

MassDEP has other examples that it will use to illustrate this jurisdiction issue. Figure 2 shows the same sample stormwater system in the Buffer Zone. As with the earlier example, no additional wetland resource area or Buffer Zone is created solely as a result of the installation of the stormwater management system.

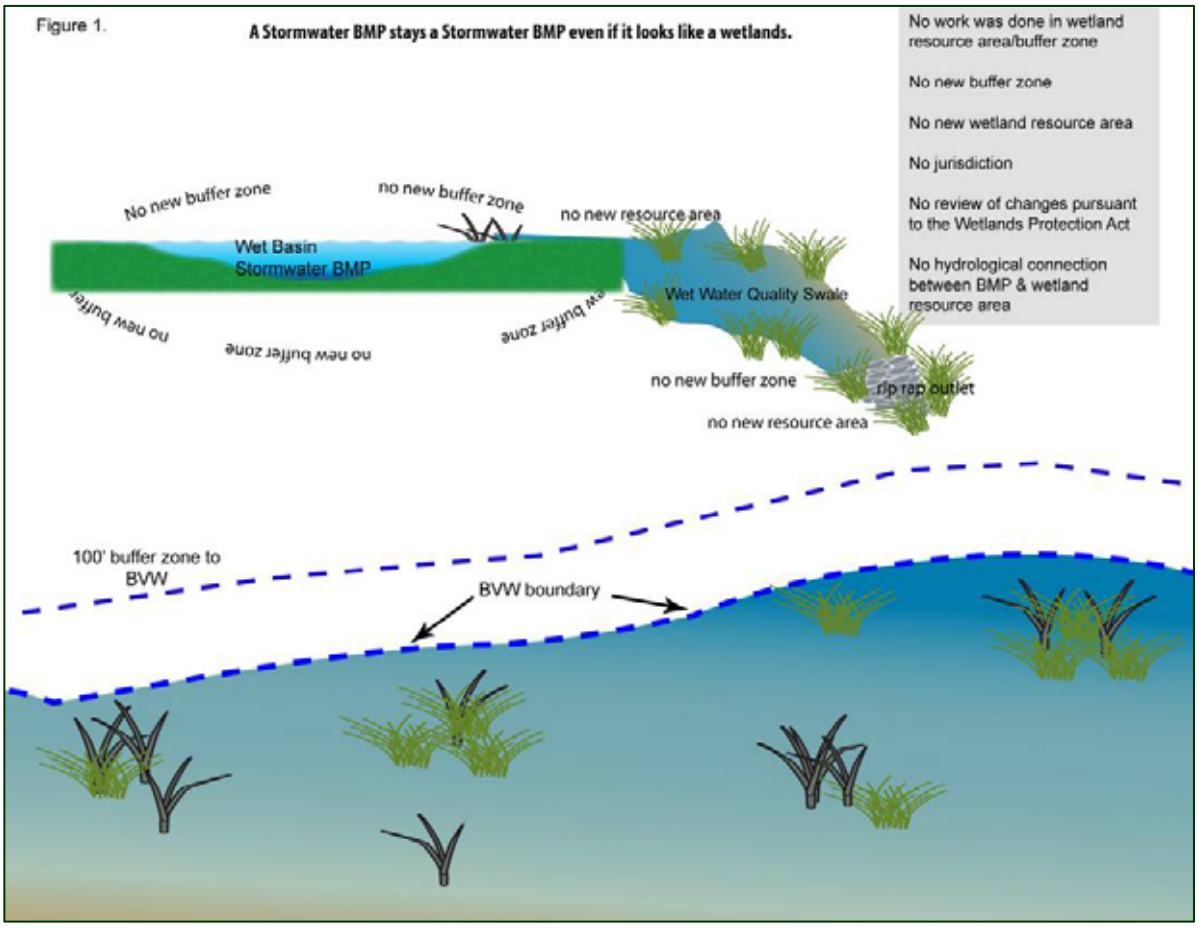
Figure 1.
A Stormwater BMP stays a Stormwater BMP even if it looks like a wetlands.
No work was done in wetland resource area/buffer zone
No new buffer zone
No new wetland resource area
No jurisdiction
No review of changes pursuant to the Wetlands Protection Act
No hydrological connection between BMP & wetland resource area
No new buffer zone
no new buffer zone
no new resource area
Wet Basin Stormwater BMP
Wet Water Quality Swale
no new buffer zone
rip rap outlet
no new resource area
100' buffer zone to BVW
BVW boundary

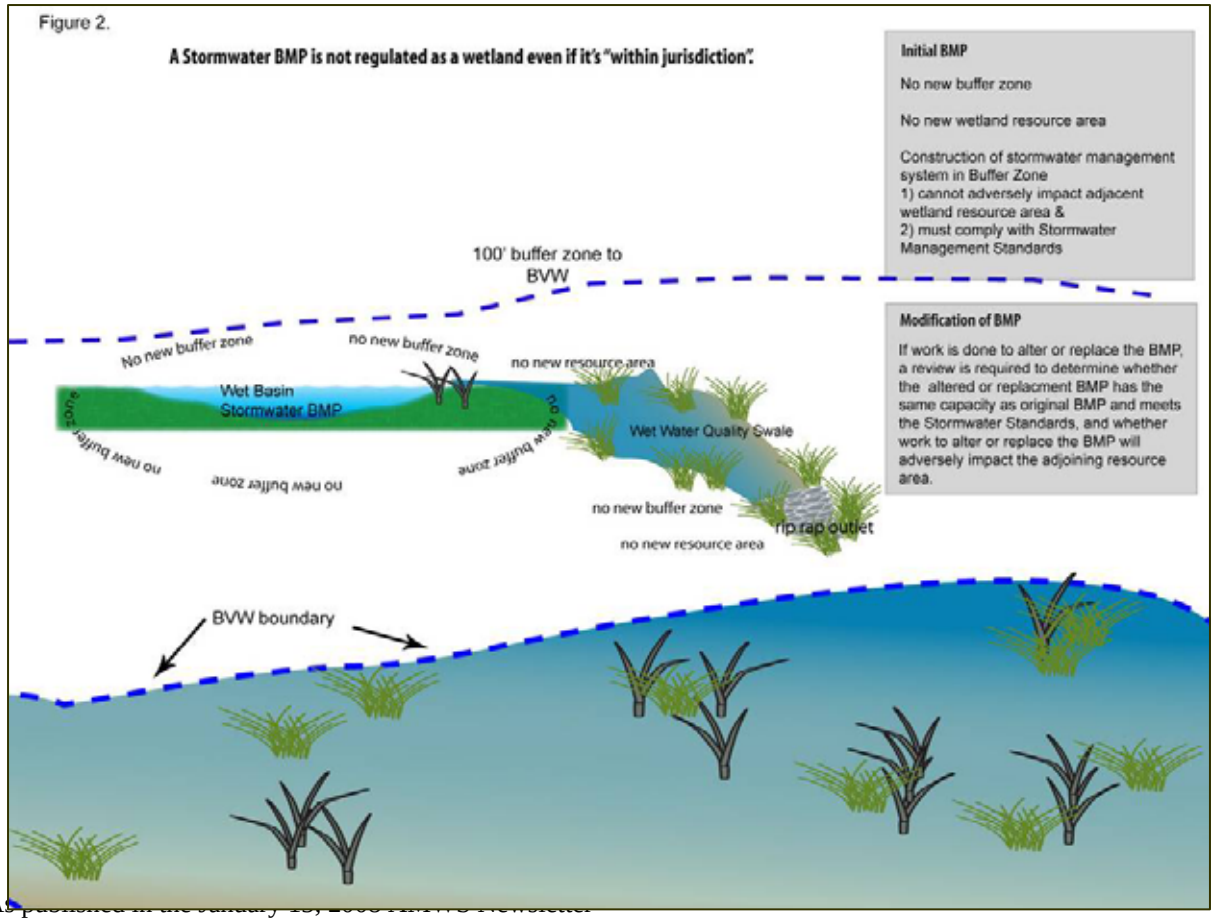
Figure 2.
A Stormwater BMP is not regulated as a wetland even if it's "within jurisdiction".
Initial BMP
No new buffer zone
No new wetland resource area
Construction of stormwater management system in Buffer Zone
1) cannot adversely impact adjacent wetland resource area &
2) must comply with Stormwater Management Standards
Modification of BMP
If work is done to alter or replace the BMP, a review is required to determine whether the altered or replacment BMP has the same capacity as original BMP and meets the Stormwater Standards, and whether work to alter or replace the BMP will adversely impact the adjoining resource area.
100' buffer zone to BVW
No new buffer zone
no new buffer zone
no new resource area
Wet Basin Stormwater BMP
Wet Water Quality Swale
no new buffer zone
rip rap outlet
no new resource area
BVW boundary

What Are the LID Site Design Credits?

MassDEP has established an "LID Site Design Credit" to encourage developers to incorporate LID techniques in their developments. In exchange for directing runoff from roads and driveways to vegetated open areas, preserving open space with a conservation restriction, or directing rooftop runoff to landscaped or undisturbed areas, MassDEP allows developers to reduce or eliminate the traditional BMPs used to treat and infiltrate stormwater.

Incorporating environmentally sensitive design that uses the land to filter and recharge the water back into the ground and that reduces the amount of paved areas is a critical first step in creating sustainable development. Inspired by EOEEA's Smart Growth Toolkit, MassDEP believes that the LID Site Design Credit protects our natural resources, encourages cluster development, and reduces the environmental impacts of growth.[7] By using this credit, proponents can reduce the volume of stormwater subject to Standard 3, the Recharge Standard, and Standard 4, the Water Quality Standard.

310 CMR 10.04 defines both environmentally sensitive site design and define low impact development techniques. The 2008 Stormwater Handbook also contains descriptions of how these credits are calculated, and how developers can reduce the size, extent, and expense of traditional stormwater BMPs by using these innovative credits.

How Can I Find Out More About Changes to the Massachusetts Stormwater Standards?

First, look to the MassDEP web site http://www.mass.gov/dep/, and click on the MassDEP Quick Link for Stormwater.

Second, you can attend training sessions sponsored by the MassDEP Wetlands Circuit Rider Program. Go to http://www.mass.gov/dep/water/resources/cridr.htm, the Circuit Rider web site, and check the Calendar of Events at the bottom of the page.

Third, you can contact any one of the MassDEP staff for answers to your questions:

- General questions about the Standards: Frederick.Civian@state.ma.us
- Technical questions about the Standards: Thomas.Maguire@state.ma.us
- Jurisdiction questions: local Conservation Commission or MassDEP Regional Offices

How Will These Changes Affect the Commonwealth?

These changes, by themselves, will not make impaired streams run clear, do not open closed shellfish beds, do not ensure that Western Massachusetts's ponds and lakes remain pristine, or

[7] Smart Growth Toolkit - http://www.mass.gov/envir/sgtk.htm.

clean up Cape Cod's bays. They will, however, help significantly by slowing the pace of degradation of our waters and allowing time for other programs that protect our drinking water and our fisheries to take effect.

And there are immediate benefits to the 2008 changes to the Massachusetts Stormwater Standards:

- More groundwater recharge - with every major storm falling on every project approved under these new Standards, additional water will infiltrate into the groundwater table and the base flow of our rivers and streams
- Less Pollution - many projects approved under the new Standards will include more treatment of stormwater, which means less pollution entering ground water and surface water;
- More LID projects - these stormwater treatment features that mimic natural hydrologic systems provide both reliable stormwater treatment and a more pleasing and higher quality habitat compared to traditional stormwater facilities;
- More reliable stormwater management systems - added pretreatment and operation and maintenance requirements makes stormwater management systems less likely to fail; and
- Redevelopments will improve local conditions - every time a property is redeveloped the proponents and Conservation Commission will agree on what improvements will be made to the project; even the smaller projects will result in continual improvements to already developed properties across the Commonwealth.

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