CS-1 Construction Site Runoff Assessment

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Planning Department

INTERDEPARTMENTAL COMMUNICATION

To: Planning Board **Date:** May 5, 2005

From: Kristin K. Alexander, AICP, Assistant Town Planner

Subject: Stormwater Management Regulations Comparison

The Town has been working on the National Pollution Discharge Elimination System (NPDES) Storm Water Program. Attached are: (1) the executive summary of the Town's 5 year plan for compliance with the NPDES requirements; (2) a memo Doug Halley sent to the Planning Board last year regarding the Board's involvement with the 5 year plan, and (3) the Town's Draft Year Two Compliance Report, to provide you with some history of the Storm Water Program. As part of the Storm Water program, the Town hired Woodard & Curran to develop a Storm Water Management Plan (which has been completed).

To assist with the Town's efforts in achieving the goals of the Town's Storm Water Management Plan, I have reviewed and compared the State Stormwater Management Policy Handbook (SHP) to Acton's Zoning Bylaw (Bylaw) and Subdivision Rules and Regulations (Rules). Attached is a table highlighting where there are potential inconsistencies between the SHP and the Bylaw and Rules.

In summary, I found that there are over 65 sections that involve storm water management in the Bylaw and Rules. Out of those sections, over 45 of them should be further evaluated in relation to State Storm Water Management Regulations. In some cases, the Town requirements appear more restrictive, and in some cases, the State requirements appear more restrictive. The main storm water management issues that should be further evaluated include:

- Calculating groundwater recharge
- Discharging surface water (on and off site)
- Defining and regulating different types of impervious cover
- Determining best management practices (BMPs) suitable for Acton & consistent with SHP
- Evaluating 100-year 24-hour storms
- Working with incongruencies between the SHP and other State laws

It appears that SHP standards prefer above ground solutions to storm water management (versus underground) and that limit the use of curbs, catchbasins, drainage pipes, etc. The SHP encourages filter storm water through vegetated areas before discharging the water into wetlands and water bodies. While the intentions of these standards are admirable, it is our belief that keeping all structures above ground, reducing the use of curbing and piping, and trying to size above ground structures to capture runoff, will eventually lead to larger storm water management

areas and sprawl. The above ground solutions are not really practical in Acton's village areas. These differences in philosophy will prove challenging when trying to work on the Storm Water Management Program.

Based on the preliminary comparison, staff recommends the following next steps:

- Conducting a detailed analysis of the sections identified in the attached table to identify discrepancies between State and Town storm water regulations;
- Having the Planning Department, Health, Engineering, Building, and Natural Resources Departments work together to:
  - address any discrepancies between State and Town storm water management regulations;
  - incorporate low impact development solutions (LIDs) into the Bylaw and Rules where feasible;
  - determine where storm water regulations should be located in the Town bylaw and which departments or agencies should be responsible for reviewing, monitoring, and enforcing storm water management plans and facilities in the future.

Dough Halley, Health Director for the Town, and Jane Cerasa Environmental Manager for the Acton Water District will attend the discussions at the upcoming Board meeting. In addition, Peter Shanahan from MIT will be attending with some of his students to present the results of a student project study on the subject.

CS-2 Erosion and Sediment Control Assessment

ACTON ZONING BYLAW (Bylaw)		STATE STORMWATER POLICY HANDBOOK (SPH)		NOTES
Section	Requirement	Number	Standard	
Entire Bylaw (& Subd. Rules)		"Applicability"	For projects of any size, direct discharges of untreated stormwater from pipes to wetlands or waters are not allowed.	The implementation of the Bylaw and Subdivision Rules generally follows this standard, but it is not specifically written anywhere in the Bylaw or Rules.
3.5.17.12	Contents of a Golf Course Special Permit application	8	Stormwater management systems (SMS) must have an operation & maintenance plan	Bylaw doesn't specifically reference that information on infrastructure operations and maintenance after construction must be submitted.
3.8.1.5.k	Adequate drainage shall be provided for Common Drives	2,4,5,9	Requirements: Post-development = or < pre-development peak discharge; system must remove 80% of the average annual load of total suspended solids (TSS); BMPs in critical areas; operation & maintenance plan	Bylaw discusses drainage onto streets & subsurface discharge to a public drain – unable to find any specific references to these issues in the SPH, but the overall goal and result of this Bylaw section is consistent with SHP standards. Bylaw discusses design based on a 10-year storm only, but SPH also discusses 100-year storm.
3.8.1.5.l	Common Drive design requirements	4,5	System must remove 80% of TSS; BMPs required in critical areas	Bylaw Common Drive design standards are very general so cannot determine complete consistency w/SPH BMP standards
4.1	Flood Plain Overlay District	1-9	No new stormwater conveyances may discharge untreated stormwater directly to or cause erosion in wetlands or waters of MA; stormwater discharges to critical areas must utilize certain BMPs	Bylaw section 4.1 should probably refer to SPH and the general purposes of SPH
4.1.9	Submittal requirements for persons wanting to erect a structure, excavate, fill, grade, etc. in the floodway or floodway fringe	8	Erosion and sediment controls must be implemented	Bylaw section might need to require an erosion & sediment control plan be submitted

4.2.3.5.e	Common land in open space developments (OSDs) may contain stormwater detention & retention facilities	4,5	System must remove 80% of TSS, BMPs required in critical areas	Unsure if the stormwater infrastructure standards in this section of the Bylaw are consistent w/SPH
4.3	Groundwater Protection District requirements	6	Discharges to critical areas must utilize certain BMPs	"Critical areas" as defined by SPH includes cold water fisheries and surface drinking water. If Acton has any cold water fisheries and/or if Nagog Pond isn't completely surrounded by Town of Concord land, these Bylaw requirements might have to be extended to those areas too.
4.3.3.8	Definition of Impervious Cover	4,5,6	Roof runoff except from certain metal roofs may be infiltrated. If infiltration is allowed, roofs do not count as impervious cover.	The Bylaw and SPH define impervious cover differently. For example, the Bylaw doesn't differentiate between different roof types – they're all considered impervious.
4.3.5	Depth to Groundwater	"Applicability"	Standards apply to subdivisions with 5 or more lots, or 4 or fewer lots if in a critical area	Bylaw requirements for Groundwater Protection Zones 1-3 do not apply to any single-family residential uses or buildings.
4.3.6.3	Design of Groundwater Recharge Facilities in Zones 1-3	4,6	Pretreatment is required for certain BMP technology	Unsure whether SHP pre-treatment standards & other standards would apply to Bylaw section 4.3.6.3.
4.3.6.2	Watershed Recharge	3	Annual groundwater recharge from post-development should approximate the annual recharge from pre-development or existing conditions, based on soil types	The Bylaw requirement appears similar requiring that post development recharge cannot be less than pre-development recharge
4.3.6.3	Treatment & Renovation of runoff in Zones 1-3	4,6	Discharges to critical areas must utilize certain BMPs	Unsure whether stormwater facilities in Bylaw are consistent with SHP BMPs
4.3.7.2	Prohibited Uses in Zones 1-3	4,6	Discharges to critical areas must utilize certain BMPs	Unsure whether SHP prohibits certain uses altogether from critical areas (similar to the Bylaw)

4.3.8.1	Change or substantial extension of an existing use located but prohibited in a groundwater protection zone	7	Allowed redevelopment = development, rehab., expansion, & phased projects on previously developed sites, provided there is no net increase in impervious area	The Bylaw "substantial extension" definition & the SHP "redevelopment" definition are slightly different but touch on overlapping issues.
6.7 (1st par.)	Parking lot design requirements	"Applicability"	Standards apply to subdivisions with 5 or more lots, or 4 or fewer lots if in a critical area	Bylaw is based on the number of parking spaces and SHP is based on the number of lots. Bylaw also doesn't discuss parking lot drainage design in detail.
6.9.4.6	West and South Acton Village Parking Lot Design Requirements	"Applicability"	Standards apply to subdivisions with 5 or more lots, or 4 or fewer lots if in a critical area	See notes on Bylaw section 6.7 (above). Also, Bylaw discusses "adequate drainage" – which may need further definition.
9.6.2.6 & 9B.7 & 9A.7.6	Stormwater Runoff in PCRDs, Senior Residences, and Planned Unit Developments	2	Controls must be developed for 2-year & 10-year 24-hour storm events, and 100-year 24-hour storm events must be evaluated	Bylaw discusses design based on a 10-year storm only.
9.6.3.2.e & 9B.9.2.5	Stormwater Facilities in PCRC and Senior Residence Common	4,5,6	System must remove 80% of the average annual load of total suspended solids (TSS); discharge from higher potential pollutant loads areas and critical areas are required to use certain BMPs	Bylaw lists the types of stormwater management facilities allowed. Some of these facilities are generally not preferred by SHP, but aren't necessarily inconsistent with SHP standards.
10.4.3.1	Site Plan Special Permit Site Design Standards	2	Controls must be developed for 2-year & 10-year 24-hour storm events, and 100-year 24-hour storm events must be evaluated	Bylaw discusses design based on a 25-year storm only. Bylaw discusses prevention of drainage overflow on a street – can't find a SHP reference to street overflow. Bylaw does not discuss runoff onto adjacent properties.
4.3.6.5, 9.7, 9B.13, 9A.7.3				If stormwater management sections of the Bylaw (in this table) change, these sections might also need to change for consistency within the Bylaw.