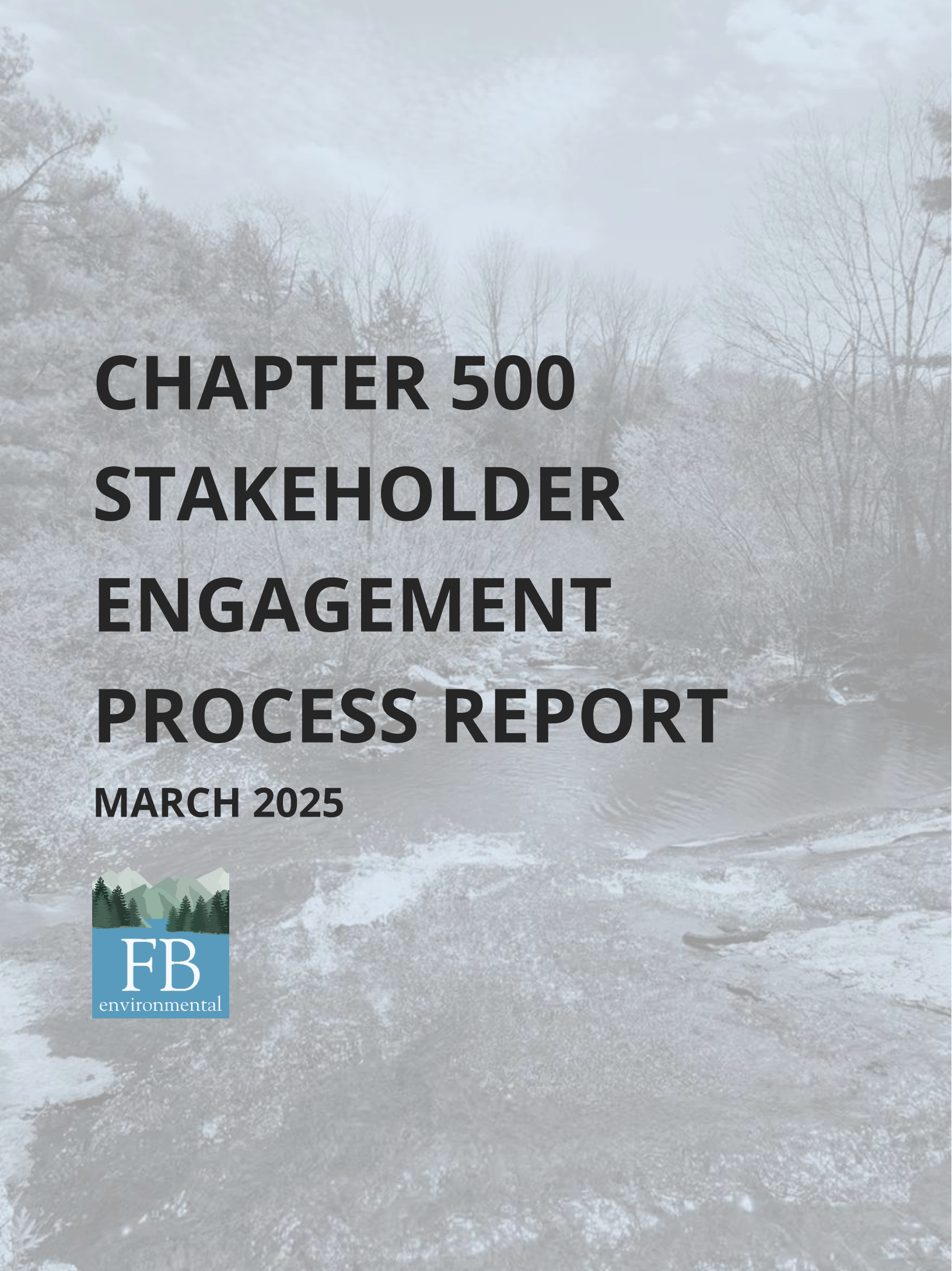

CHAPTER 500 STAKEHOLDER ENGAGEMENT PROCESS REPORT

MARCH 2025

FB environmental

CHAPTER 500
STAKEHOLDER ENGAGEMENT PROCESS REPORT

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Key Terms

**Note that these definitions are simplified for the purposes of this report and may differ from the full definitions in Chapter 500 regulations. All definitions are subject to change in the official rulemaking process.*

[New] Basic Standards: Set of fundamental stormwater management requirements that apply to all development projects that trigger the stormwater law. Erosion and sediment control during construction (Appendix A) would be moved from Chapter 500 and incorporated into the Maine Construction General Permit. The new Basic Standards will incorporate important components of Low Impact Development in the Wetlands and Natural Drainage Network Protection Standard that will limit the impact of projects by protecting the wetlands and natural drainage network through site layout and design. Projects that only have to meet the Basic Standards will not be required to implement unnecessary and high maintenance engineered structural treatment measures. Additionally, the Permit-by-Rule eligibility thresholds of certain SML projects that meet the new Basic Standards will be increased. The Stormwater Conveyance Hydraulic Capacity Standard is also included in the new Basic Standards, rather than in the Flooding Standard.

Best Management Practice (BMP): Methods, techniques, or structural and non-structural controls designed to reduce the quantity and improve the quality of stormwater runoff. These practices help mitigate the impact of development and human activities on water resources by preventing or minimizing pollutants from entering natural water bodies such as rivers, lakes, and streams. BMPs are an essential part of stormwater management plans and can vary depending on site-specific conditions and regulatory requirements.

Chapter 500 (Ch. 500): Stormwater management rules that implement the Stormwater Management Law and sets the standards for the State, except for unorganized territories.

Environmental Justice (EJ): This report uses the term "Environmental Justice" consistent with the definition adopted by the U.S. Environmental Protection Agency: The just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other [activities] that affect human health and the environment.

Erosion and Sediment Control (ESC): Methods, techniques, designs, practices, and other means to control erosion and sedimentation.

General Stakeholder: Interested individuals not part of the Technical or Steering Committees.

[New] General Standards: Set of more comprehensive stormwater management requirements that apply to larger or more impactful projects, beyond the Basic Standard. The new General Standards are intended to address concerns with the existing Chapter 500 General Standards. The new General Standards will apply to projects or locations that require additional Stormwater Control Measures (SCMs) beyond the new Basic Standards. The new General Standards consist of two main parts: Runoff Volume Reduction Standard and Stressor Guided Stormwater Treatment Standard. The new General Standards will require treatment of nitrogen and phosphorus and control of runoff volume. A hierarchical approach will be used to select the SCMs for the treatment of nitrogen, phosphorus, and runoff volume, with nature-based, non-structural retention SCMs having the highest priority.

Groundwater Recharge: The process by which water from the land surface infiltrates into the soil and eventually reaches the water table.

Impervious Cover (IC): The total area of a parcel covered with a low-permeability material that is highly resistant to infiltration by water, such as asphalt, concrete, or rooftop, and areas such as gravel roads and unpaved parking areas that will be compacted through design or use to reduce their permeability.

Infiltration: The process by which runoff percolates through the unsaturated overburden and fractured bedrock to the water table, including any process specifically used to meet all or part of the stormwater standards of this Chapter by actively directing all or part of the stormwater into the soil.

Low Impact Development (LID): A land development activity that protects natural stormwater infrastructure and mitigates post-development stormwater impacts by utilizing stormwater infiltration, evapotranspiration, reuse processes and addressing stressors of concern in the receiving waters.

Maine Department of Environmental Protection (DEP): A state agency responsible for protecting and restoring Maine's natural resources and ensuring a clean and healthy environment for its residents. It oversees the implementation and enforcement of environmental laws, including air and water quality, waste management, and natural resource conservation, while supporting sustainable development and public engagement. DEP is charged with implementing the laws related to erosion and sediment control during construction, post construction runoff, and defining sensitive and threatened watersheds.

New Development: Development activity undertaken on undeveloped property.

Nonstructural Stormwater Management Techniques: Stormwater management techniques that have no or minimal constructed features.

Permit-By-Rule (PBR): A simplified and streamlined permit that has a shorter review window. Projects eligible for PBR must have no significant impact upon the environment. (38 M.R.S. §344(7)).

Redevelopment: Development activity undertaken on previously developed property.

Runoff: Water that flows over land as surface water instead of being absorbed into groundwater or evaporating. Runoff is that part of the precipitation, snow melt, or irrigation water that appears in uncontrolled surface streams, rivers, drains, or sewers.

Sensitive & Threatened Regions and Watersheds (STRW): Specific geographic areas or watersheds that require additional protection due to their vulnerability to stormwater impacts.

Stormwater Control Measures (SCM): Structural or nonstructural stormwater management practices. Updated term for best management practices.

Stormwater Pollution Prevention Plan (SWPPP): A site-specific, written document developed to identify and control potential sources of stormwater pollution.

Stressor Guided Stormwater Control Measures: Stormwater management practices that are specifically designed and implemented to address environmental stressors identified for a particular watershed or site.

Structural Stormwater Management Techniques: Stormwater management techniques or devices that rely principally on constructed features, e.g. ponds, basins, and filters.

Total Maximum Daily Load (TMDL): A calculation that determines the maximum concentration of pollutants that a body of water can receive while still meeting water quality standards.

Urban Impaired Streams (UIS): A stream or stream segment that fails to meet aquatic life water quality standards, principally because of urbanization, and is listed in Chapter 502 Appendix B.

Abbreviations

BEP - Board of Environmental Protection
BMP - Best Management Practice
Ch. 500 Chapter 500
DEP - [Maine] Department of Environmental Protection
EJ - Environmental Justice
EPA - Environmental Protection Agency
ESC - Erosion and Sediment Control
FBE - FB Environmental Associates
IC - Impervious Cover
KSAT - saturated hydraulic conductivity
LID - Low Impact Development
MCGP - Maine Construction General Permit
MS4 - Municipal Separate Sewer Storm System
MSGP - Multi-Sector General Permit
NDW - Natural Drainageways (NDW-1 indicates more critical NDW and NDW-2 indicates less critical NDW)
NPDES - National Pollutant Discharge System
PBR - Permit-By-Rule
PQV - Pre-Qualified Vendor
RFP - Request for Proposals
SC - Steering Committee
SCM - Stormwater Control Measure (replacing the term “BMP”)
SML - Stormwater Management Law
STRW - Sensitive and Threatened Regions and Watersheds
SWPPP - Stormwater Pollution Prevention Plan
TC - Technical Committee
TMDL - Total Maximum Daily Load
UIS - Urban Impaired Stream

Executive Summary

Maine's stormwater regulations have not been updated in over a decade. In the intervening time, development has continued to alter natural hydrology, and climate change has intensified impacts of stormwater runoff and pollution. Maine's legislature, through a Sea Level Rise Resolve, directed Maine Department of Environmental Protection (hereafter referred to as "DEP") to update land management rules to incorporate measures to address climate change. The proposed rule changes address this and update the Chapter 500 (Ch. 500) stormwater rules to better address known pollutants, preserve natural hydrology during development, and require more to prevent harm in sensitive and threatened regions and watersheds (STRW). The rules also streamline the permitting process and eliminate unnecessary measures that exist in current rules. This Stakeholder Engagement Report details the process and outcomes of facilitated stakeholder engagement for the DEP Ch. 500 Stormwater Management rule update. This stakeholder engagement process was conducted as part of a consensus-based rule development process in accordance with 5 M.R.S. §8051-B.

DEP's goals in proposing to update Ch. 500 include protecting water quality, supporting climate resilience, enhancing the clarity and accessibility of the rules, and encouraging low-impact, sustainable development. These goals are closely tied to the stakeholder engagement process, which aimed to foster collaboration, gather diverse perspectives, and ensure the newly proposed rules are practical and effective. By engaging stakeholders, DEP sought to build transparency, trust, and broad-based support while incorporating innovative solutions and best practices. The engagement process also emphasized the importance of inclusivity, providing multiple platforms for stakeholders to voice concerns and propose solutions. This collaborative approach helps align the proposed rule revisions with the needs of diverse communities and the realities of implementation. The updated framework will be designed to simplify and clarify regulatory language, reducing confusion for developers, municipalities, and other stakeholders.

DEP's Ch. 500: Stormwater Management Rules are a cornerstone of the State's efforts to protect water quality and manage stormwater impacts from development. Established pursuant to the Maine Stormwater Management Law (SML; 38 M.R.S. §420-D), Ch. 500 sets standards for controlling runoff, mitigating pollution, and preserving natural hydrology. Its primary objectives are to prevent water quality degradation in Maine's rivers, lakes, streams, and coastal waters; reduce flooding and erosion risks associated with unmanaged stormwater; and protect degraded, STRW and waterbodies most at risk by the establishment of stormwater quantity and quality standards for projects that disturb one acre or more in Maine (with certain exceptions). The rules play a critical role in safeguarding Maine's natural resources while balancing the needs of development and climate resilience.

The stakeholder engagement process was carefully structured to maximize input from diverse groups, including municipal officials, technical experts, developers, and environmental advocates. A Steering Committee (SC) provided overarching guidance, while a Technical Committee (TC) and subcommittees addressed specific topics such as low impact development (LID), groundwater recharge, stormwater control measures (SCMs), and STRW. Public participation was facilitated

through hybrid (in-person and virtual) meetings, written correspondence, and open comment opportunities. Discussions focused on critical issues, including, but not limited to, new stormwater standards, cumulative impacts, soil testing for infiltration, and addressing chloride pollution. This inclusive approach ensured that the updated regulations would be informed by a wide range of perspectives and expertise.

The proposed Ch. 500 framework builds on the existing Ch. 500 standards, with significant enhancements.

Main Goals of the Chapter 500 Rulemaking Process:

- Add LID requirements to best protect natural hydrology and encourage sustainable development.
- Add elements, as required by state law, to consider climate change adaptation and resilience.
- Improve the day-to-day operation of the State's stormwater program.
- Develop a framework for the rules.

Current Rules

General Standards

- All regulated activities meet the same General Standards regardless of where they are located, the potential for development in that location, or what stressors impact the location.
- The existing rules call out two types of watersheds for additional stormwater treatment: “urban impaired streams” and “lakes most at risk from new development.”
- Standards do not directly address these concerns:
  - Post-development stormwater volume increase and loss of groundwater recharge,
  - Stressors of concern in a regulated activity’s location, or
  - Nature-based/LID stormwater treatment.
- Current Ch. 500 standards are based around limiting the increase of the pollutant load (see Ch. 500(4)(C)(2)(d)). This allows a higher concentration of pollutant runoff from the existing site and typically a reduced treatment level.

Basic Standards

- Chapter 375(5) addresses erosion and sedimentation control and sets submission requirements for the Site Law permit applications. Chapter 375 is outside the scope of Ch. 500 rulemaking project.

Other Standards

- Urban Impaired Streams (UIS) Standard: Not changing.
- Phosphorus Standard: Not changing.
- Flooding Standard: Static precipitation table (Appendix H) does not consider non-stationary precipitation patterns due to climate change. Stormwater conveyance capacity standards only apply to the Site Law projects.

Proposed Rules

General Standards

- Will apply to both new development and redevelopment.
- Will apply to all projects that: Result in 20,000 square feet or more of impervious cover (IC) or five acres or more of developed area in UIS watersheds; result in one acre or more of IC or five acres or more of developed area in a STRW; result in three acres or more of IC or 20 acres or more of developed area (Site Law Projects) in a non-lake watershed.
- In addition to “urban impaired streams” and “lakes most at risk from development,” the new Ch. 500 proposal includes “sensitive and threatened regions and watersheds.”
- The designers will be required to consider the SCM hierarchy as they select the SCMs for regulated activities.
- New rule intends to address concerns listed to the left under Current Rules and will consist of two main parts: Runoff Volume Reduction Standard and Stressor Guided Stormwater Treatment Standard.
  - Stressors to be treated or controlled include nitrogen, phosphorus, and chloride.
  - The Runoff Volume Reduction standard aims to compensate for the pre-development infiltration loss due to new IC, reduce post-development runoff volume, and maintain post-development hydrology to pre-development hydrology.

Basic Standards

- Site Law projects will continue complying with Chapter 375 erosion and sedimentation control submission requirements.
- Important components of LID that will limit the impact of projects by protecting the wetlands and natural drainage network through site layout and design will be incorporated.
- Projects meeting certain criteria will only need to meet the Basic Standards and will not be required to meet the General Standards.
- Permit-by-Rule (PBR) eligibility thresholds of certain SML projects that meet the new Basic Standards will be increased.
- Post-construction management (minimum inspection and maintenance standards and minimum good housekeeping standards) will be addressed.

Other Standards

- Discharge to Wetlands: Applicant will have to demonstrate that the post-development runoff volume stored within a wetland will be released within 48 hours after a 2-year 24-hr storm restoring the pre-storm water elevation in the wetland.
- Flooding: This standard is not changing from the current version in Ch. 500, except for the source of precipitation data and the addition of an optional detention waiver for the regulated activities in UIS watersheds.

1. Background & Scope of Work

1.1 What is Chapter 500?

1.1.1 Definition and Legal Framework

The SML, 38 M.R.S. §420-D, requires DEP to adopt rules specifying quantity and quality standards for stormwater from projects that disturb one acre or more. DEP's Ch. 500 rules implement this requirement. Applicability of the standards to a given project largely depend on the project's "impervious area" and "developed area" as defined in Ch. 500(3) (often referred to as "impervious cover," and referred to as "IC"). Ch. 500 focuses on controlling pollution and runoff from development projects to prevent harm to rivers, lakes, streams, and coastal waters. These rules currently apply to certain construction and development activities and are administered by DEP.

At the federal level, stormwater management is governed by the **Clean Water Act**, with general stormwater permits issued under the **National Pollutant Discharge Elimination System** (NPDES) program. The Clean Water Act requires general NPDES permits for certain categories of stormwater, including commercial and industrial facilities, construction sites, and municipal separate storm sewer systems in Maine's most urbanized areas. The U.S. Environmental Protection Agency (EPA) has delegated its authority to issue these permits to DEP, but it retains regulatory oversight.

The **Maine Municipal Separate Storm Sewer Systems Permit** (MS4) regulates stormwater discharges from certain municipalities and institutions to reduce pollution in waterways. It requires permittees to implement stormwater management programs addressing public education, construction site runoff, post-construction management, and other measures. The MS4 permit aligns with Ch. 500 by requiring municipalities to enforce similar stormwater standards, ensuring compliance with state regulations while addressing local water quality concerns. There are currently 30 MS4 municipalities in Maine required to adhere to the permit (this number is subject to change as the MS4 permit is periodically updated). All other municipalities do not have to adhere to the MS4 standards.

The **Maine Construction General Permit** (MCGP) is a state-issued permit that regulates stormwater discharges from construction activities that disturb one or more acres of land. It ensures that construction projects implement erosion and sediment control measures to minimize water quality impacts. The State has its own laws used for enforcement and does not rely on MCGP for enforcement. Projects subject to Ch. 500 must comply with MCGP requirements, such as preparing an Erosion and Sedimentation Control (ESC) Plan and implementing Best Management Practices (BMPs) to prevent polluted runoff from entering waterbodies.

The **Multi-Sector General Permit** (MSGP) regulates stormwater discharges from industrial facilities. The MSGP covers a wide range of industrial sectors, including manufacturing, mining, and transportation. Facilities in these sectors that discharge stormwater are required to obtain a MSGP to prevent pollution from their runoff.

Maine's State-Specific SML is a state-level regulatory framework designed to address stormwater quality and quantity from projects that disturb over one acre of land. While SML incorporates elements of federal water quality goals, it is tailored to Maine's unique environmental conditions and does not fall under federal NPDES jurisdiction. Instead, it regulates stormwater through permits and rules like Ch. 500, focusing on state-specific priorities such as development impacts, stormwater runoff quantity, and waterbody protection, while federal regulations emphasize broader municipal and industrial compliance. With respect to projects, the NPDES program regulates erosion and sediment control through the MCGP. State law regulates erosion and sediment control through statute.

1.1.2 Opportunities & Shortcomings of the Current Chapter 500 Rules

Currently, Ch. 500 regulates development activities, sets performance standards, provides guidance for stormwater management plans, and strives to protect water quality. Under current state statutes, Ch. 500 can regulate stormwater from new developments and redevelopments to protect water quality, set enforceable standards for stormwater management and pollution control, and provide a framework for municipalities to adopt local stormwater rules consistent with state law. Ch. 500 cannot, under current state statutes, address stormwater pollution issues, fund infrastructure improvements directly, or expand regulatory authority beyond what is outlined in state law (e.g., it cannot regulate activities exempted by statute, such as certain agricultural or forestry practices). It does not regulate small-scale projects less than one acre of land nor does it regulate activities exempted under the statute, such as single-family residential lots.

1.2 Chapter 500 Update Timeline

DEP began the Ch. 500 consensus-based rule development process with internal meetings in December 2022. DEP decided to retain a third-party facilitator for the stakeholder engagement process and selected a pre-qualified vendor (PQV) through a new request for proposals (RFP). The stakeholder engagement meetings started soon after the selection of FB Environmental (FBE) as the third-party facilitator. The stakeholder engagement meetings occurred from December 2023 to December 2024, with the goal of ensuring balanced, equitable, and consensus-based rule development. DEP engaged stakeholders to review its stormwater regulations and discuss opportunities to improve them, considering the SML, the State's environmental protection and climate resilience goals, and the stormwater sector's needs.

The table below represents the timeline of the major milestones of the Ch. 500 rulemaking process as well as proposed milestones for activities to come:

Table 1. Ch. 500 rulemaking project milestones & timeline.

Date	Milestone
September 2023	Facilitator PQV List
October 2023	PQV Mini Bid Process Completed & Facilitator Selected
December 2023	Stakeholder Kick-off Meeting

September 2024	RFP for Manual Update
March 2025 – October 2026	Manual Update Project
December 2024	Final Stakeholder Meeting
March 2025	Final Stakeholder Engagement Process Report and Long Memo
April 2025	Technical Work: Evaluation of the Implementation of the New Standards Using Example Development Projects
May – August 2025	Drafting the Rules for the Board of Environmental Protection (BEP)
September 2025	Submit Draft Rules to BEP
January 2026	Submit Rules to the Legislature
June-August 2026	Rules from the Legislature to BEP
November 2026	Final Adoption of the Rules by BEP
November 2026	Final Manuals

1.3 Chapter 500 Update Goals

At the beginning of the stakeholder process, DEP identified three primary goals that the rule updates would seek to address. These goals were approved by the SC:

- Require LID
- Address climate adaptation and resiliency
- Streamline rules and improve day-to-day implementation

1.4 Chapter 500 Limitations

DEP identified the following limitations of current Ch. 500 rules, which needed to be addressed to accomplish the goals and brought them to the stakeholders for consideration:

- Current Ch. 500 LID credit has been proven to be insufficient to promote actual implementation of LID principles on the ground.
- Current Ch. 500 does not directly require the control of stormwater volume increase due to regulated land development.
- Current Ch. 500 does not require selection of SCMs to address the specific stressors on the receiving waters.
- Current Ch. 500 does not require preservation of the natural stormwater infrastructure.
- Current Ch. 500 does not address peak flow increases due to climate change.
- Current Ch. 500 requires the same level of stormwater treatment regardless of the location of regulated land development and its potential impact on the receiving water (i.e., regulations are the same in a rural area versus a densely developed urban area).

DEP anticipated that major standards of Ch. 500 would be significantly revised along with the chapter's format and structure. These major standards are:

A. **Basic Standards (Section 4(B)):** Applies to all Ch. 500 projects, addressing ESC, inspection and maintenance, and housekeeping (Appendix A through C).
B. **General Standards (Section 4(C)):** Frequently called as the "quality treatment" standards by the stormwater practitioners. Aims to treat stormwater pollutants, including temperature, and mitigate for stream channel erosion due to stormwater discharges associated with small and frequent storms.
C. **Flooding Standard (Section 4(F)):** Typically applies to the projects requiring a license under the Site Location of Development Act (SLODA) and primarily requires the post-development peak.

2. Stakeholder Engagement Method & Tools

2.1 Engagement Levels

The stakeholder engagement process included three main, active levels of participation with one sub-level:

1. Steering Committee
2. Technical Committee
    a. Subcommittees
3. General Stakeholders

Passive approaches to stakeholder engagement outside of designated meetings times included:

1. **Email:** An email account (Chapter500.DEP@maine.gov) specifically for Ch. 500 stakeholder engagement. Stakeholders emailed their comments and questions regarding specific documents or highlighted areas of concern related to their experiences.
2. **Website:** A webpage was created under DEP's website for stakeholders to stay up to date on the latest developments in the process.
3. **GovDelivery:** A specific topic was established under DEP's GovDelivery communication system.

At the beginning of the stakeholder engagement process, DEP staff selected potential members for the SC and TC as described below.

2.1.1 Steering Committee

The SC was comprised of nineteen individuals, consisting of industry professionals, municipal representatives, nonprofit leaders, and DEP staff. See Appendix A: Technical Team and Committee Members for list of members. Members of this committee had varying degrees of knowledge and experience regarding the state's stormwater regulations and stormwater management. The SC's goal was to identify the areas of Ch. 500 that need to be improved, defining the TC's assignments.

Table 2. Summary of all seven SC meetings held throughout the process.

Meeting No.	Date	Topic
1	December 5th, 2023	Introductions and project framework/plan.
2	February 5th, 2024	Presentations of DEP proposals for rule updates and Identification of key discussion topics.
3	February 26th, 2024	Discussion of DEP proposals, Taunton River watershed case study, and discussions on IC analysis, LID standards, and flooding standards.
4	July 15th, 2024	DEP stormwater programs overview (MCGP, MS4, and Ch. 500), identification of project goals, including decision tree, and discussion on environmental justice.
5	September 23rd, 2024	Precipitation data source, criteria for identifying STRW, and redevelopment standards.
6	November 25th, 2024	TC progress, existing standards and updated standards, and groundwater recharge subcommittee consensus report.
7	December 16th, 2024	Review stakeholder feedback and new rules implementation review.

2.1.2 Technical Committee

The TC consisted of fifteen industry professionals with experience and expertise in stormwater management applications and rules. See Appendix A: Technical Team and Committee Members for list of members. The TC's goal was to develop scientifically, technically defensible, and practicable stormwater standards as assigned by the SC. TC meeting invites were sent out only to limited number of stakeholders (primarily committee and subcommittee members). Access for other stakeholders was granted upon request.

Table 3. Summary of all seven TC meetings held throughout the process.

Meeting No.	Date	Topic
1	March 18th, 2024	Introductions; overview of tasks assigned by SC; review of DEP proposals, including decision tree and LID proposals; LID discussion; development of subcommittees.
2	April 1st, 2024	Review of subcommittee progress; discussions on precipitation data source, culvert and flood design application, and flooding standard.
3	June 25th, 2024	Review of subcommittee progress; presentation and discussion on STRW; review of tasks assigned by SC.
4	September 9th, 2024	Refined LID standards, including standards for natural drainage ways, setbacks, and vegetation.
5	November 14th, 2024	Refined basic and general standards, developed the STRW list, and adjusted groundwater recharge requirements. Also discussed the implementation of stormwater treatment measures, balancing regulatory fairness for developers, and addressing site-specific challenges like wetland crossings and urban stream impacts.
6	December 6th, 2024	Discussed STRW areas, reviewed long memo, received draft consensus report from groundwater recharge subcommittee.
7	December 11th, 2024	Long memo updates, testing and evaluating new standards with example projects, discussion on final long memo distribution and additional meetings.

2.1.3 Subcommittees

To explore the topics discussed by both committees in further detail and to fully develop rule change recommendations, five subcommittees were created under the TC. These subcommittees were open to SC members as well. When appropriate, other industry professionals were asked to lend their expertise on certain topics. The subcommittees were as follows:

Table 4. Goals and outcomes of each Subcommittee.

Subcommittee	No. meetings	Goal of Subcommittee	Outcome*
Core LID Standards	4	Develop standards to incorporate LID by maintaining natural hydrology on a site. Refine the LID Standard proposal document.	Created standards for all projects that incorporate LID, including setbacks from natural drainageways and wetlands and standards to prevent downstream impacts (collectively labeled as New Basic Standards; see Long Memo). Wrote Runoff Volume Reduction Standard and the Groundwater Recharge Subcommittee Consensus Report.
Groundwater Recharge	4	Refine details in the LID Standard proposal document, including submission requirements for this standard.	Wrote a Groundwater Recharge Subcommittee Consensus Report. Developed the Runoff Volume Reduction Standard.
Sensitive & Threatened Watersheds	2	Develop criteria for designation of STRW. Update Ch. 502 with new list and methodology.	Developed criteria for STRW and drafted a STRW list and methodology for updating the list.
Definitions	3	Review Ch. 500 definitions to incorporate new terms and clarify existing terms where needed.	Identified definitions not currently included. Set up a working document to organize definitions. Work will continue during rule drafting.
Stressor Guided SCMs	3	Ensure that SCMs are easily operated, inspected, and maintained, and effectively and efficiently address the vulnerabilities and stressors of concern of the receiving waters.	Four stressors were identified: altered habitat (influenced by stormwater volume), nitrogen, phosphorus, and chloride. Determined an SCM selection hierarchy which uses performance curves to select and size SCMs.

*For more details on all outcomes, see the Long Memo in Appendix F: The Long Memorandum ("Long Memo").

2.1.4 General Stakeholders

General stakeholders included any member of the public interested in the process. This group was given the opportunity to attend the SC meetings, which were broadly publicized through DEP's GovDelivery system, and speak during a dedicated period in each meeting. General stakeholders were invited to submit questions and comments to the Ch. 500 email. All feedback received was compiled and shared with the committees as appropriate.

2.1.5 Environmental Justice Communities

DEP and FBE contacted various environmental justice (EJ) communities to ensure all voices were heard. DEP did the initial outreach to the towns, and FBE followed up with each community or potential member two additional times to ensure their involvement. Many were unable to attend or commit to either committee but stayed informed through meeting minutes and website updates. Bangor, Orono, and Brewer are MS4 towns and members of the Bangor Area Stormwater Working Group which had a representative on the SC. Additionally, EJ concerns were discussed throughout the process. See Appendix A: Technical Team and Committee Members for a full list of EJ towns invited.

2.2 Meeting Procedures

The project team developed a set of meeting procedures to maintain consistency and efficiency throughout the stakeholder engagement process. SC meetings were facilitated by Bina Skordas (FBE), who ensured meetings remained on task and topics were covered efficiently. TC meetings were facilitated by DEP staff with the attendance of Bina Skordas (FBE) to provide additional facilitation. Prior to each meeting, committee members received an agenda of topics to be discussed, though members had liberty to diverge from these topics if desired to achieve the goal. Committee members and general stakeholders were notified of meetings through messages sent via the Ch. 500 email at least one week in advance. SC meetings were broadly publicized through GovDelivery as well. All stakeholders, including both SC and TC members and general stakeholders, were invited to attend the SC meetings. TC members were invited to participate in TC meetings, and SC members were invited to listen in to TC meetings.

2.2.1 Meeting Format

SC meetings were hybrid with an in-person option available in Augusta and a virtual option available via Microsoft Teams. TC meetings were held fully virtually via Microsoft Teams. Subcommittee meetings were coordinated and led by DEP team members, and all occurred virtually via Microsoft Teams.

2.2.2 Decision-Making

Ground rules, meeting procedures, and a consensus decision-making process were presented at the first SC meeting. The decision-making process for this project was designed to incorporate structured input and consensus from both the SC and TC.

Stakeholders were encouraged to voice objections during meetings, with any formal objections required in writing. Technical issues were mainly discussed by the TC. Decisions were considered approved once TC consensus was reached, provided no written objections were submitted. Before reaching the SC, any objections from the TC were addressed. The SC's role often involved reviewing policy-related concerns. The SC was given multiple opportunities to voice concerns during SC meetings and by email. A formal voting process was attempted at certain meetings but proved to be ineffective for the process. Instead, DEP requested objections to any proposal be provided in writing so they could be documented and considered.

3. Steering & Technical Committee Discussions & Outcomes

The original proposals shared by DEP include the following:

1. LID Standard Proposal: Provides core standards for all projects, establishes STRW (with additional groundwater recharge requirements and nutrient removal requirements using performance curves).
2. Flood Control Proposal: Removes precipitation table and instead uses best available data that factors in climate change, removes 2-year peak controls, and requires all projects to prevent flooding access roads and meet minimum conveyance design standards.
3. IC Study: Continuous addition of IC inevitably requires more resources for stormwater management and stricter standards and regulations in watersheds. Generic stormwater controls may fall short in rapidly developing watersheds.
    a. Questions stakeholders considered: How can the Ch. 500 update address rapidly developing watersheds to avoid the creation of future UISs? Should these watersheds have additional standards to meet? What are some points we should carry through in discussion of the different Ch. 500 topics?
    b. Maine NLCD Impervious Surface Change Tool: For each town, the average change in percent IC between 2001 and 2019 was calculated using the NLCD Impervious Cover layers.
4. Stormwater Control Manual: This is a dynamic field since SCMs are constantly updated and created. The goal is to move the technical details of these systems to the manual so they can be updated as needed.
5. Two-Step Permitting – Post-Construction to Construction Proposal: Decouple MCGP and Ch. 500 and specify Ch. 500 to post-construction phase and MCGP to construction phase. The contractor becomes a key factor in ESC planning and design. The goal is to create more effective and responsive construction stormwater management.
6. Other proposals:
    a. 5-year recertification.
    b. Construction oversight.
    c. As-built plan.
    d. Phosphorus, nitrogen, and chlorides.

These proposals were revised based on feedback from the stakeholders.

3.1 Steering Committee

3.1.1 Discussions and Outcomes

Below is a high-level summary of discussions by the SC during their meetings.

SC MEETING #1

Tailored BMP Guidance

- Stormwater infrastructure should protect receiving waters, with BMPs tailored to specific projects and watersheds. Develop BMP recommendations specific to towns and watersheds to address local impairments effectively.

GIS Analysis of IC

- Maine is conducting a GIS project analyzing IC trends (2001-2019) at town, watershed, and catchment levels (~1 square mile resolution) to aid in decision-making. The SML initially targeted "most at risk" and STRW but the latter was excluded in 2005 to avoid encouraging sprawl. The new data can help identify these areas for prioritization, especially in sensitive headwaters.

Contractor Involvement in ESC

- Current permitting processes (e.g., Site Law, stormwater permits) lack contractor input during planning, leading to boilerplate plans and compliance issues in large projects where five or more acres are disturbed.
- Utility contractor projects, often disturbing less than one acre, frequently evade regulation and use inadequate BMPs, impacting MS4 communities significantly. There is a lack of continuity among state entities, municipal staff, contractors, and project owners, contributing to enforcement challenges.
- Compensation fees for phosphorus removal do not reflect the actual cost or amount of phosphorus removed.
- Development pressures conflict with stormwater regulations, viewed as burdensome by national housing groups and local governments. Smaller towns may face compensation fees to meet stormwater requirements due to lack of focus on ESC. State assistance is needed to support local governments in managing ESC challenges effectively.

New MS4 Requirements

- MS4 communities must integrate ESC requirements into local ordinances under the new MS4 permit. Annual inspections and third-party certifications for stormwater infrastructure are now required, facing pushbacks from property owners.

Streamlining Stormwater Review

- National housing groups and developers seek uniform, simplified stormwater plans to avoid project-specific reviews, adding to the pressure on local and state governments.

SC MEETING #2

Presentation: Taunton Project - Holistic Watershed Management for Existing and Future Land Use Development Activities

- Groundwater recharge was analyzed under four conditions: pre-development, new IC without control, new IC with Massachusetts MS4 control, and new IC with a watershed protection standard, which closely replicates pre-development conditions, especially in less permeable soils.
- Monitoring and runoff duration curve modeling showed that watershed protection standards perform significantly better than Massachusetts Department of Environmental Protection standards in mimicking pre-development hydrology.
- Nitrogen removal: Infiltration can attenuate dissolved nitrogen if it is implemented on native vegetated soil.
- Urban watersheds: Pre-development conditions are assumed as natural land (meadow-forest), though interpretations vary in permitting.
- Roadway salt management: Winter bypass systems and reduced salt application in drinking water areas are used in some locations.
- Volatile organic compounds: Source hotspots should be excluded from infiltration areas to prevent groundwater contamination.
- Statewide application: Encouraged infiltration for recharge and peak flow control, with recognition that high restoration costs emphasize the importance of robust protection standards.

IC Changes in Maine

- IC changes from 2001–2019 were examined using GIS tools to identify catchments with significant increases in IC.
- 57 watersheds had IC increases of >100 acres, often near major highways. 45 Hydrologic Unit Code 12 watersheds exceeded 10% imperviousness, requiring further stormwater performance analysis. DEP's IC analysis indicated that IC significantly increased in areas with strict stormwater regulations, suggesting that stormwater regulations have little influence on sprawl.

Watersheds & Ch. 500 Standards

- Current standards (UISs, Phosphorus, and General Standards) are criticized for insufficient specificity and effectiveness.
- Proposed LID Standards aim to improve watershed-specific management through groundwater recharge requirements by soil type and stressor-guided SCM design to address pollutants (nitrogen/phosphorus).
- 60–70% pollutant removal targets focus on nitrogen and phosphorus, not all pollutants. Updated technical guidance and SCM manuals will provide flexibility to adapt standards over time.

Other Major Proposals

- Flood control proposal: Address overbank and extreme floods using updated precipitation data and storm distributions.
- Two-step permitting: Separate construction (MCGP) and post-construction (Ch. 500) permitting phases to enhance stormwater management.
- Technical guidance: Move SCM technical requirements from Ch. 500 to a separate manual for easier updates.

Other Discussion Points

- Chloride management: A persistent challenge due to increasing road salt usage. Creative solutions and technical guidance are needed. Regulatory changes to SML will be required to address chlorides.
- Legacy developments: Managing pre-SML developments is a high priority.
- LID implementation: Distributed SCMs (e.g., rain gardens, rainwater harvesting) are emphasized for practicality and effectiveness.
- Incentives: Encouraging redevelopment and smart growth while providing flexibility in urban areas.
- Long-term view: Standards must aim to improve impaired waters over time, despite hardships to developers.
- Challenges: Maintenance of stormwater structures post-development, alignment of multiple standards (MS4, Total Maximum Daily Loads (TMDLs), Maine Climate Council recommendations), and the need for cost-effective and practical solutions for developers.

SC MEETING #3

Taunton Project Recap

- Groundwater recharge & nutrient export control: Mimicking predevelopment conditions relies heavily on infiltration and recharging groundwater.
- Equity in development standards: Dense developments for housing and EJ areas need flexibility in meeting stormwater goals.
- Dense developments: Massachusetts' EJ-related EPA thresholds show significant impacts in EJ areas. Dense developments can align with stormwater goals.
- Tiered standards: MS4 communities with limited resources need less stringent regulations than rural or undeveloped areas.
- Infiltration variability: Soil types and coastal evapotranspiration must be considered when planning infiltration solutions. Coastal areas face unique challenges like salt contamination.
- Taunton study relevance: While the study provides insights, its applicability in other regions (e.g., Maine) depends on maintenance feasibility and local conditions.

- Development constraints: DEP must balance protecting natural resources and enabling development, especially in EJ communities. Tools like unsuitable site maps can help.
- Pollutants: Emphasis on total nitrogen for coastal areas and chloride in sensitive watersheds. These pollutants need further research to inform regulations.
- Language and standards: Regulations need clearer language, better technical validation, and flexibility for different development types.

IC Analysis Recap

- IC trends: High concentrations near transportation hubs and stricter local regulations.
- STRW: Need clear identification and mandates for protection under the SML for fresh, estuarine, and marine waters.
- IC and development thresholds: Projects under one acre, especially in Southern Maine, require local regulations due to state-level staffing limits.
- Sensitive areas: IC percentage alone cannot define risk; resources like shellfish and small streams must guide protection efforts.
- Proactive approach: Focus on preventing risks in currently healthy watersheds. Small developments add cumulative impacts.
- Stream class standards: Different stream types require tailored regulations to maintain ecological health.

LID Standards

- Core standards: Include nutrient removal and groundwater recharge, particularly in sensitive watersheds.
- Clear language: Standards must minimize impacts, encourage low-maintenance vegetation, and differentiate between development types.
- Effective IC: Minimizing IC impacts through infiltration is crucial. Clear definitions and practical incentives for redevelopment are needed.
- Redevelopment incentives: Brownfield projects need revised standards to balance economic benefits with environmental protections.
- Vegetation and aesthetic BMPs: Shift from unaesthetic grass sumps to habitat-focused designs. Engage landscape architects for better BMP planning.
- Natural drainageways (NDWs): Clarify what constitutes "natural" drainage, including man-made systems.

Flooding Standards

- Data-driven standards: Use the best available precipitation data incorporating climate change. Remove outdated 2-year peak controls.
- Watershed-wide focus: Shift from site-scale to watershed-scale solutions.
- Choke points: Analyze stream capacity and address critical flood zones without creating new issues downstream.

- Stream classification: Regulations must account for stream class and risk levels.
- Education and clarity: Ensure the language is accessible and changes are well-communicated.
- Testing standards: Test new standards under various scenarios to address gaps and risks.

SC MEETING #4

Overview of DEP Stormwater Programs

- Ch. 500: Maine's state-level stormwater program focused on post-construction stormwater management.
- MS4 General Permit: Federally delegated program addressing municipal stormwater systems.
- MCGP: Updated draft includes standards for large construction activities disturbing ≥5 acres; streamlining of Ch. 500 construction standards into MCGP.
- Collaboration between Ch. 500 and MS4 General Permit focuses on minimizing municipal burdens while advancing LID and habitat restoration.

Goals and Updates

- Ch. 500 updates: Promote basic core LID for new development and promote LID for redevelopment. Also promote climate adaptation and streamlined rules. Includes standards for groundwater recharge, STRW, and BMP selection.
- MCGP updates: New appendix added that includes standards for large construction activities disturbing ≥5 acres.
- Integration of programs: A two-step permitting process in which MCGP covers construction and Ch. 500 covers post-construction (Ch. 500 appendices containing "construction stormwater management standards" will be removed and covered by MCGP). This modification aims to reduce compliance challenges and capacity burden for municipalities.

Other SC Input

- Support for LID and climate resilience, with concerns about challenges in groundwater recharge and wetlands preservation.
- Importance of proactive land protection, minimizing new impairments, and outreach to municipalities.
- Recognition of climate migration and the need for forward-looking stormwater management criteria.
- Concern about development projects that fall below the current Ch. 500 threshold of one-acre were widely expressed. The one-acre threshold was considered inadequate by some members due to the cumulative impact of these small projects, and enhanced municipal guidance and support for stormwater management on small lots was recommended.

- Promote redevelopment of brownfield and Voluntary Response Action Program (VRAP) lands.
- Streamline communication and collaboration among DEP, municipalities, and stakeholders.

EJ Considerations

- Recommendations to prioritize redevelopment in areas with EJ concerns and balance affordable housing goals with long-term environmental and EJ concerns
- Suggestions to fast-track permits for affordable housing rather than lowering environmental standards and encouragement to address existing EJ issues and ensure sustainable urban infill development.
- Ensuring that affordable housing is not built in locations that are at risk of flooding or other future environmental risks. When non-suitable sites are used for affordable housing because they are less expensive, marginalized populations are placed in harm's way, incurring significant long-term liability and costs.

SC MEETING #5

Consensus Items

- Precipitation data: Recommendation to use NOAA Atlas 14 data with an 18% rainfall multiplier until NOAA Atlas 15 is released in 2026-2027. The 18% multiplier is based on Maine Department of Transportation analysis of climate models predicting future rainfall. This was broadly agreed on.
- IC: Some SC members questioned the sufficiency of IC to address issues and designate STRW. It was clarified that IC is intended to be used as a tool for the STRW approach and not as a regulatory mechanism. It was suggested to strengthen the UIS and Lakes Most at Risk designations.

STRW

- New standards aim to protect aquatic habitats and prevent future impairments.
- TC recommendations:
    - Use percent IC and change in percent IC to identify STRW. Criteria:
        1. Watersheds with IC > 10%, or lower IC with significant changes.
        2. Streams with watersheds >200 acres.
    - Future work includes identifying coastal sensitive areas and updating STRW lists regularly.

Redevelopment Standards

- Goals: Incentivize redevelopment over greenfield development and address past impacts to reduce stormwater pollution.
- Proposed methods: Treatment scaled to pollutant discharge and land use; off-site mitigation allowed if on-site standards cannot be met and prioritize areas with high pollutant rankings.

- Agreement on incorporating redevelopment into broader standards.
- Balance between incentives for redevelopment and environmental protection.

SC MEETING #6

Summary of Redevelopment

- Tailored standards:
    - Proposed revising Ch. 500 to include location- and size-specific stormwater treatment standards.
    - Aim to address the unique stressors and development patterns of different watersheds, moving away from a "one-size-fits-all" approach.
- Addressing specific stressors:
    - Emphasis on targeting key pollutants, including phosphorus, nitrogen, chloride, and stormwater volume.
    - Utilize data such as phosphorus TMDLs and chloride impact studies to improve stormwater system designs.
- STRW list:
    - Develop a dynamic, data-driven list of STRW.
    - Update the list regularly (every 5 to 10-years) using GIS and IC data, following applicable rulemaking processes.
- UIS and prevention:
    - Focus on proactive stormwater management practices to prevent further degradation of UIS.
    - Prioritize preventive measures to avoid costly restoration efforts.
    - Emphasize protection of remaining natural hydrology, including headlands, shorelines, and intact drainage networks, to maintain ecosystem functions and resilience.
- Proactive monitoring and adaptation:
    - Incorporate regular assessments of stormwater systems using updated data, such as new GIS datasets.
    - Implement adaptive management strategies to respond to changing development patterns.

Updating Standards

- Focused on revising Chapters 500 and 502 to separate construction and post-construction stormwater standards.
- Background:
    - Ch. 500 currently includes both construction and post-construction stormwater management standards.
    - Proposing to remove construction stormwater standards from new Ch. 500 and use MCGP standards for construction stormwater management.

  - Introduce basic standards for protecting natural drainage networks, wetlands, and hydrologic systems.
  - Proposing a new PBR process for small projects that protect natural stormwater infrastructure in initial site layout.
  - Proposing standards that address specific pollutants, including nitrogen, phosphorus, chloride, and stormwater volume.
- Report from the TC:
  - Discussion of new standards focused on:
    - Hydraulic capacity for stormwater systems to handle peak flows and prevent erosion.
    - Point systems for managing chloride runoff, including rooftop infiltration options.
    - Seasonal high-water table separation and hydraulic conductivity testing for infiltration systems.
    - Prioritizing non-structural stormwater controls (e.g., vegetated buffers) over structural solutions.
  - Need for more BMPs to address chloride runoff.
  - Concerns about achieving point system thresholds; suggestions to adjust or lower standards.

Groundwater Recharge Subcommittee

1. Task: Refining soil testing procedures and stormwater management practices to improve groundwater recharge.
2. Background: Proposed soil testing to validate Web Soil Survey data and determine Hydrologic Soil Groups.
   - New standard: one soil pit or confirmation test per half-acre of IC.
   - Emphasis on hydraulic conductivity testing for infiltration-based stormwater controls.
   - Updated seasonal high-water table separation requirements to prevent groundwater mounding, with a minimum one-foot separation.

- Report from the TC:
  - Soil testing standards balance data accuracy with reasonable burdens on developers.
  - Flexibility for sites using underdrains, allowing design rates based on soil types.
  - Minimum one-foot separation distance deemed sufficient for seasonal high-water table concerns.
  - Highlighted the importance of clear protocols for hydraulic conductivity testing to ensure effective groundwater recharge.

Other Discussion Points

- Discussion on climate change impacts on seasonal high-water table and storm intensity.
- Concluded that current separation standards adequately address these concerns.

SC MEETING #7

Overarching Goals

- Promote LID: Introduce basic standards like wetland and natural drainageway (NDW) protection.
- Address climate adaptation and resiliency: Include a runoff volume reduction standard using up-to-date precipitation data and an 18% multiplier to account for climate change.
- Streamline rules: Simplify processes for developers with a new PBR option for compliant projects.

Updates to Rules

- New Basic Standards
    - Wetland protection: No-disturbance zones, setbacks for IC, and exceptions for wetland crossings.
    - NDW protection: Ensures post-development drainage matches pre-development patterns.
    - Stormwater conveyance hydraulic capacity: Applies to both stormwater and site law projects to manage peak flows.
    - Suggestions for renaming standards for clarity (e.g., “Resource Protection Standard” and “Stormwater Management Standard”).
- New General Standards
    - Runoff Volume Reduction Standard: Implements a requirement to approximate pre-development hydrology by incorporating infiltration, evaporation, or beneficial capture and re-use. More stringent requirements exist for UIS watersheds.
    - STRW: Adding new regions and expanding watersheds to Ch. 500 and 502.
    - Stressor-guided stormwater treatment: Addresses nitrogen, phosphorus, and chloride with specific treatment goals.
    - SCM hierarchy controls: Preference given to nature-based stormwater retention SCMs.
    - Questions about integrating nutrient and runoff volume reduction standards. Clarification needed on defining "coastal" areas.
        - *Note: Maine state law defines “coastal area” as follows: The "coastal area" encompasses all coastal municipalities and unorganized townships on tidal waters and all coastal islands. The inland boundary of the coastal area is the inland line of coastal town lines and the seaward boundary is*

the 3-nautical-mile line as shown on the most recently published Federal Government nautical chart. (38 MRSA § 1802)

- New Flooding Standard
  - Maintains existing peak flow controls with a revised precipitation data source.
  - Introduces compensation option in lieu of detention for regulated activities in UIS watersheds.
- Redevelopment projects
  - Discussion of proposed redevelopment standards.

Other Standards

- Phosphorus, Flooding, and UIS Standards: Largely unchanged. Phosphorous compensation is to be revised such that all projects will use $25,000 per lb. of phosphorous left untreated. UIS watersheds will have more stringent runoff volume reduction requirements.
- Wetland Discharge Standard: Adjustments to maximum storage depth requirements.

3.1.2 Stakeholder Feedback during SC Meetings

Below is a table synthesizing the feedback heard from the general stakeholders during each SC meeting:

Table 5. Stakeholder feedback from each SC meeting.

Meeting No.	Stakeholder Feedback/Questions
1	Stakeholders were initially most concerned with the review process, clarity of definitions, stressor-specific BMPs, the importance of LID, the one-acre permitting threshold, rule language changes, and contractor certifications.
2*	After the poll was completed by stakeholders and the SC, key topics emerged as priorities, for stakeholders in particular: • Treatment requirements for development. • Identifying the function and role of the BMP manuals. • Providing specific guidance pertaining to the characteristics of receiving waters.
3	• Add cost considerations to keep funding and municipal burden issues. • Determine how low maintenance vegetation is defined and decide which plants are most effective for climate change. Tap into NH stormwater center for information on this and include in manual updates. • Will the new standards focus on the definition of what constitutes a NDW and if historical development drainage (man-made) is considered a NDW?

	• Consider criteria under which DEP stormwater engineering can waive the flooding standard (specific criteria).
4	• There are a lot of 0.99-acre projects proposed to avoid Ch. 500 regs. Have the cumulative effects of these projects been evaluated? Maybe the PBR threshold can be reduced. • Post-construction inspection and maintenance is a challenge whether local MS4 certification or DEP 5-year recert. BMP selection should take inspection and maintenance and municipal bandwidth into account. • Redevelopment on brownfields, VRAP, etc. lands should be highly incentivized for redevelopment. It can be difficult to qualify for redevelopment vs. new development. • Worry that the 10% IC threshold will be used to block larger residential projects that meet other goals. • Regarding addressing <1 acre developments – even though it cannot be included in the rule, it would be helpful for DEP to include guidance on managing stormwater on small lots in their outreach. This way the information can be used by local planners and developers who want to build sustainably. • There is a gap in management strategies between MS4 and non-MS4 communities and between <1 acre developments vs. bigger developments that fall under the MCGP. Communicating and collaborating with these different efforts is very important and receiving guidance from DEP would be helpful.
5	• Consistency with other state initiatives (e.g., Maine Climate Council) is very important. • Need criteria on different phosphorous standards. • The goals of redevelopment standards should be to address impacts from the past to the extent practicable. • Incentivize development on brownfield over greenfield. • The goal should be to require some reduction of stormwater pollution.
6	• While there are effective BMPs for nitrogen and phosphorus, more are needed for chloride. • Develop a point system for setting standards for chloride? • It is going to be difficult to achieve the minimum number of points for developers. • The point system needs to be tweaked, and the number of points may need to be lowered.

7	• Make sure new requirements are clear, and clear process for granting waivers and exceptions. • Help people getting to “yes” and not “no” when it comes to development / developers. • Aging infrastructure and ability to adapt is a concern. SML is clear that you cannot touch grandfathered portions of the site, so it is beyond the purview of the rules. • Especially in the downstream sections of some of our more impaired waters, there's a lot more stormwater and subsequent stream flow moving through those culverts. Flooding and historic development need to be considered. Portland is trying to figure out how we can take some of that into account so that existing conditions are not exacerbated by people. • Will be helpful to see definitions. Hard to have good knowledge of where it’s going without a framework, foundation for each word. Examples are also extremely helpful. • Clear concise definitions and examples will be helpful from a design standpoint.

3.2 Technical Committee

3.2.1 Discussions and Outcomes

Below is a high-level summary of discussions by the TC during their meetings.

TC MEETING #1

Key Tasks and Goals

- Clarification and definitions:
  - Clearly state that the primary goal is minimizing environmental impacts.
  - Differentiate between “threatened” and “sensitive” watersheds.
  - Define “low-maintenance vegetation” and clarify its meaning contextually.
  - Specify requirements based on various applications (e.g., development vs. redevelopment, pollutants of concern, urban vs. rural definitions).
- Framework development: Create a testing framework to assess rule changes under different scenarios, including project size, location, and costs.
- LID definition update: Address the misuse of “green infrastructure” as interchangeable with LID, which has distinct characteristics.
- Decision tree review: Discussed assumptions and potential issues like areas with low recharge capability and unintended consequences (e.g., sodium accumulation in aquifers from recharge efforts).
- Groundwater recharge and infiltration:

    - Recharge requirements are necessary but challenging, especially in areas with impermeable soils.
    - Discussed unintended consequences like chloride contamination and the need for site-specific soil data for accurate modeling.
    - Suggested tiered requirements for large and small projects, potentially requiring soil testing for larger developments.
- Implementation challenges:
    - Issues with existing rules being overly restrictive or unclear, deterring compliance and innovation.
    - Acknowledged the shortage of soil scientists and the need for simplified yet accurate soil testing methods.

LID

- Preservation of hydrology:
    - Emphasis on protecting on-site hydrology, pollutant control, and natural resource protection.
    - Importance of site-specific soil and hydrology data in developing regulations.
- Regulatory challenges:
    - Need to balance clear, measurable standards with flexibility to accommodate unique site challenges.
    - Consideration of alternative pathways for sites with difficult soil conditions or where infiltration is not feasible.
- Incentivization and education:
    - Encourage LID practices through targeted education, particularly for engineers.
    - Explore potential incentives for municipalities with zoning regulations and developers to adopt LID principles early in the design process.
- Improving BMP design:
    - Highlighted the need for incentivizing tailored BMPs rather than generic approaches.
    - Discussed the importance of protecting natural soil conditions and encouraging infiltration where feasible.

TC MEETING #2

Appendix H and Precipitation Data for Stormwater BMPs

- Current data source:
    - Appendix H in Ch. 500 uses precipitation data from Cornell University's 2014 extreme precipitation tables for 24-hour rainfall events, covering 1 to 500-year events.
    - While this dataset is reliable, stormwater infrastructure with lifespans of 50-100+ years requires updated data to align with climate change projections.

    - NOAA Atlas 14 is seen as a better alternative due to its precise, location-specific data and confidence intervals beneficial for stormwater design.
- Proposed transition to NOAA Atlas 14/15
    - Agreement to adopt NOAA Atlas 15 when released (estimated 2025-2027); in the interim, Atlas 14 or a comparison to Appendix H may guide updates.
    - A potential adjustment factor (10-20%) could bridge the gap between current datasets and future projections.
    - BMPs with shorter lifespans (e.g., 25 years) should not be overdesigned for 100-year projections, balancing cost-effectiveness and environmental resilience.
- Implementation and outreach:
    - Education and outreach efforts, including guidance documents, webinars, and partnerships with organizations like the Lakes Environmental Association, are essential for public and professional understanding of updates.
    - Modeling exercises comparing Appendix H and Atlas 14 data will support informed, science-based decisions.
    - Flexibility for site-specific project designs is emphasized to balance clear regulations with engineering autonomy.

Culvert and Flood Design Standards

- Flood design standards:
    - Current flooding standards require systems to handle 10-year 24-hour storms without flooding and ensure primary access roads remain passable during 25-year 24-hour storms.
    - Discussion focused on expanding these requirements to all projects, considering whether the 10-year storm design is adequate or should be increased for larger infrastructure.
- Challenges and impacts:
    - Applying these standards to all projects could increase costs by requiring HydroCAD analyses, especially for smaller municipalities with limited resources.
    - DOT's current 10-year storm design standards create inconsistencies when other entities design for 25-year storms.
    - Smaller projects might not need similarly stringent standards; a dual standard (10-year for smaller projects, 25-year for larger) was proposed.
- Peak flow standards:
    - Concerns were raised about prolonged peak flows increasing stream erosion, suggesting alternatives such as "no exceedance" or "peak reduction" options.
    - There was consensus to keep the two-year peak matching requirement, as removing it could exacerbate flooding and erosion issues, especially in UISs.

- Maintenance and enforcement:
    - Poor BMP maintenance, including blocked porous pavements and cattail growth in stormwater systems, was highlighted as a frequent issue.
    - Improved monitoring and enforcement, such as a more robust recertification program, were recommended to ensure compliance.
- Future considerations:
    - Discussion around transitioning terminology to "annual exceedance probabilities" for clarity.
    - Subcommittees to further explore these topics, including maintenance, watershed-wide infrastructure improvements, and potential flooding subcommittee establishment.

TC MEETING #3

STRW

- Zoning & growth tracking: Concern about how municipalities track growth, with current data being outdated. It was noted that urbanized areas often have impaired streams due to past growth patterns.
- GIS catchment layers: A request was made for a layer to show catchments, but it was acknowledged that the process is complex due to the need to meet specific standards and complicated regulations.
- Watershed & lakes: Clarified that lake watersheds are separate from this proposal, with a focus on IC thresholds for "most at-risk" areas.
- Public engagement: The public needs a clear explanation of how the standards are determined, with an emphasis on presenting essential numbers while providing detailed explanations for those interested in the process.
- Impacts of population growth: The growing population and its effect on watersheds was raised, particularly concerns about development in sensitive regions.
- Standards for sensitive watersheds: There was agreement that applying sensitive watershed standards universally would be easier to justify and implement.
- Climate change & watershed growth: There was a suggestion to consider the impact of climate change on watershed growth, which could inform future groundwater recharge plans.
- Defining sensitive vs. threatened watersheds: There is a need for further clarification of the distinction between "sensitive" and "threatened" watersheds, as they are likely to receive the same treatment and requirements.

Tasks Assigned to the TC

- Stakeholder engagement: Consensus that engaging with stakeholders sooner is essential, but clarity on the approach is needed to avoid rejection, especially with differences compared to other Northeast states.

- Clarification of standards: Importance of defining core LID standards clearly (e.g., 25 feet buffer) for more consistency and understanding.
- Conservation zones & sea level rise: A suggestion was made to discuss new conservation zones related to sea-level rise, although it may fall outside the scope of Ch. 500.
- Flooding standards – urban growth and development: The rapid demand for housing, especially in urban areas, may complicate the use of past data (2001-2019), necessitating the inclusion of more recent land cover projections and future growth estimates.

TC MEETING #4

Core LID and NDWs

- The 15-feet buffer around NDWs is to limit human disturbance, mainly in ephemeral streams that rely less on shade, leaf litter, and woody debris. The 15-feet no-disturbance buffer is seen as a general protection for NDW-2 streams, though permitting may be complicated for intermittent streams.
- Determining the appropriate stormwater outfall depends on the situation and watershed stressors.
- There is a gap in how delineators identify streams, with many failing to identify intermittent and ephemeral ones, potentially leading to improper grading and lack of required permits.
- The NDW definition needs alignment with NRPA standards and Shoreland Zoning to avoid confusion. Additional definitions from agencies like USACE and DHHS may further complicate stream types and setback requirements.

NRPA

- Discussion on encouraging minimized impacts rather than zero impacts, particularly for channelized systems. DEP is considering flexibility for wetland crossings but acknowledges that if NRPA is triggered, LID may not be possible.

Downstream/Offsite Channel Landscape Protection

- Specific guidelines will be developed for culverts and drainage systems to ensure flow is managed appropriately, with possible exceptions for certain drainage areas. Clarification is needed on "drainage easements" and responsibilities for downstream landowners.

Stormwater and Urban Areas

- Urbanizing areas with high IC or rapid growth should follow STRW stormwater standards. MS4 municipalities are also recommended to be on the list.
- The best metrics to assess watershed threats are current and changing IC percentages.

Stressor Guided Stormwater Management Criteria

- A NH Green SnowPro-like program is being considered, though there are concerns about its integration into stormwater regulations.
- A point system based on chloride as a stressor will apply to STRW, but the specifics of its application and the impact on municipal and private entities need further refinement.
- The system will address the challenge of high chloride levels in developed watersheds and aims to reduce overall salt application. Strategies will also need to account for synergistic stressors like temperature.

TC MEETING #5

Terminology Changes

- The terms have been updated as follows:
    - **Core LID standards** are now **Basic Standards**.
    - **Groundwater Recharge** is now referred to as **Runoff Volume Reduction**.
    - **Stormwater Quality-Related Standards** are now **New General Standards**.

Stormwater Manual Update

- Proposals for a contractor for the Stormwater Manual have been received, and evaluations will begin soon.
- The contractor will be onboard by December, working with the rule-drafting team until the final rulemaking is complete. There will be 12 meetings with DEP staff and a workgroup.
- A panel of experts will guide the manual development process.
- Timeline: Expected start in December 2024, with the project ending in July 2026.
    - *Note: the timeline for the manual update project has changed since this meeting.*
- A sole-source contract is being pursued with a company that developed EPA Region 1 performance curves, which will help create sizing and performance curves for vegetated buffers.
- The new standards will incorporate vegetative measures (including forested and meadow buffers), which are commonly used in Maine but less so in New England.

Long Memo - Overview of New Ch. 500 Standards

- Purpose and background:
    - Updates to Ch. 500 are intended to address shortcomings of current standards by tailoring rules to specific locations and stressors. Current rules apply uniform General Standards, leading to some inefficiencies.
    - The updates prioritize preserving natural infrastructure, addressing watershed-specific stressors, and managing post-development stormwater volume in areas of growth.
- UIS and STRW:

    - UIS: The definition remains the same as in Chapter 502. Projects creating ≥ 20,000 square feet of IC or ≥ 5 acres of developed area in UIS watersheds must meet the General Standards.
    - STRW: The inclusion of UIS provides additional protection for already impaired urban streams. Urban streams in developing areas are at risk and can be more cost-effectively protected than restored later. A list of STRWs is being developed and will be updated regularly using GIS data through the appropriate rulemaking process.
- Basic Standards:
    - Incorporates LID principles to protect wetlands and NDWs through site design.
    - ESC: Appendix A will be moved to the MCGP and will no longer be a part of Ch. 500.
    - A PBR process for eligible projects will reduce burdens for applicants and reviewers, provided they meet all Basic Standards.
    - General Standards exemption: Projects meeting certain criteria only need to meet Basic Standards, avoiding high maintenance engineered treatments.
    - Basic Standards apply to:
        - Activities licensed under the SML with ≥1 acre of disturbed area.
        - Activities under SLODA.
    - Questions and discussion on Basic Standards:
        - If a project meets Basic Standards but impacts wetlands, it may need to shift from a PBR to an individual permit.
        - Ensuring wetland buffers are maintained helps control stormwater flow and manage impacts.
        - MS4 communities, and those added to sensitive regions, will have to meet the General Standards for additional treatment.
        - Reduced standards will apply in urbanizing regions to avoid discouraging development.
- PBR eligibility criteria:
    - In lake/UIS watersheds: < 20,000 square feet of IC and < 5 acres developed.
    - In STRW: < 1 acre IC and < 5 acres developed.
    - In non-lake watersheds: < 3 acres IC and < 20 acres developed.
- Wetland and NDW protection: Focus on maintaining wetlands, NDWs, and protecting stormwater conveyance capacity.

General Standards

- Runoff volume reduction: Focus on reducing post-development runoff volume to replicate pre-development hydrology. Waivers are available if channel protection standards are met.

- Stressor-guided stormwater treatment: Focus on reducing nitrogen (for coastal waters) and phosphorus (for non-coastal waters). Redevelopment projects will have reduced nutrient load reduction requirements to encourage redevelopment.
- SCM performance curves: These will quantify water quality benefits, based on long-term pollutant removal performance data from New England weather.
- Redevelopment: Reduced runoff volume reduction standards apply for redevelopment compared to new development.
- Phosphorus Standard: Remains unchanged and will apply to projects in lake watersheds or those creating significant IC in these watersheds.
- Flooding Standard: Based on NOAA Atlas data, modified for climate change. Projects causing significant IC or development will have to meet these standards.

Draft Consensus Report

- Groundwater recharge subcommittee: The new "runoff volume reduction standard" replaces groundwater recharge terminology. The focus is on reducing post-development runoff and offsetting infiltration loss.
- Applicability: Full standard applies to UIS watersheds; reduced standard applies to STRW and certain Site Law projects.
- Soil testing: Specific testing requirements for SCMs like infiltration, evapotranspiration, and capture/reuse. Soil exploration and hydraulic conductivity tests will guide these efforts.
- Waivers: Waivers are available for sites with hazardous materials or near certain karst zones.

GIS for NDWs and Wetland Protection

- GIS tools for wetland protection: GIS and flow accumulation maps will help identify NDWs for buffer protection. Two types of NDWs have been defined, with specific setbacks for higher-order and smaller streams.
- Developers can build outside buffer zones around NDWs, but adjustments to drainage divides may impact stormwater management.

TC MEETING #6

STRW

- Reviewed the Ch. 502 list of STRW towns and examined whether they align with current data on water quality and vulnerabilities.
- Discussions highlighted that many municipalities have watersheds and streams that are at risk.
- The STRW committee will continue to be active for additional review.
- Key question: Has DEP examined water quality data for these towns to support their STRW designation over the past 23 years? Response: There's insufficient data, but trends show conditions worsening due to similar development patterns.

Long Memo

- UIS: Minimal changes to applicability thresholds.
- Lakes Most at Risk for New Development: No major changes; will remain in Ch. 502.
- STRW: New criteria focus on small order streams and factors like IC and change over time.
- Basic Standards: PBR thresholds are expanding.
- Emphasis on connecting discussions to water quality standards, particularly regarding the protection of aquatic habitats and wetlands.
- Setbacks for wetlands are 15 feet, with exceptions for permeable crossings.
- NDWs require field verification, with setbacks of 75 feet for NDW-1 and 15 feet for NDW-2. Stormwater outfalls are exempt from no-disturbance requirements if stabilization is needed.
- Post-development hydrology: Focus on protecting hydrology, limiting changes in catchment size and IC.
- Discussion on stormwater conveyance, inspection, maintenance, and the role of MS4 communities in reporting and upkeep.
- The importance of considering statewide impacts at the municipal level was emphasized, particularly with respect to developers understanding the broader environmental impact.
- General Standards: No major comments.
- Runoff volume reduction: A new concept in Maine but not in the country, with focus on soil testing for infiltration.
- New development vs. redevelopment: Lower requirements for redevelopment projects.
- Stressor-guided stormwater treatment: Focus on nitrogen and phosphorus reduction. Maps will be developed to identify relevant stressors in specific watersheds.
- Flooding and Other Standards: No significant comments or changes.
- Flow charts: Clarification needed in flowcharts related to non-lake areas to ensure accurate representation of PBR pathways.

TC MEETING #7

Updates

- Flow charts: Redevelopment was added in response to feedback requesting its inclusion.
- Site Law & Ch. 375: Emphasized compliance with Ch. 500 and erosion control (Ch. 375). Site Law's relationship to NDWs and overlap with Ch. 500 was discussed.

Outstanding Items

- Basic & General Standards: Need for an Alternatives Analysis when unable to meet Basic Standards and for selection of items lower in the SCM hierarchy.

- Redevelopment: Redevelopment projects are required to meet a reduced runoff volume reduction and nutrient control (nitrogen, phosphorus) as compared to new development.
- Chloride control: Ongoing discussion.
- Operation & maintenance:
    - Subcommittees are focusing on operation and maintenance. A five-year recertification is necessary, but compliance is lacking.
    - Suggestions for an annual, simplified form for property owners to ensure maintenance.
    - Issues with awareness and understanding of stormwater maintenance requirements were raised.
    - Potential solution: a one-page form with certification for annual maintenance (like Portland's system).

Example Project - Scarborough Hotel

- This project demonstrated the challenges of fully developing a parcel with challenging soils.

Other Discussion Points

- Runoff volume reduction: Concerns over steep slopes, discharge points, and easements. Suggestions for extending easements to streams and using alternative methods for stormwater conveyance, like step-pool systems or manholes.
- Site constraints: Challenges due to steep slopes, wetlands, and high groundwater levels, and limiting options for stormwater management.
- Challenges in development: Acknowledgment that some sites may not be suitable for development due to physical constraints (e.g., poor soils, steep slopes).
- Zoning overlay districts: Suggested as a local control solution to limit development in sensitive areas, ensuring that development stays within suitable boundaries.
- Site development feasibility: Some members emphasized the need to accept that not all sites are viable for full development, particularly when stormwater management standards cannot be met without significantly limiting the site's use.

4. Important Correspondence

4.1 Bulletins

Bulletins were sent to stakeholders periodically throughout the project to provide updates on meeting schedule, disperse meeting materials, and provide invitations to upcoming SC meetings. Bulletins were sent out via the chapter500.dep@maine.gov email and the GovDelivery "Stormwater Engineering" and "Chapter 500 stakeholders" topics. All bulletins can be found in Appendix D: Meeting Minutes.

4.2 Stakeholder Feedback

4.2.1 Feedback via Email

Twenty-seven total substantial comments were received from stakeholders via the Ch. 500 email. See E2: **Written Stakeholder Feedback** for a brief description of each comment and stakeholder information. Feedback from stakeholders, notably SC and TC members, were received via the Ch. 500 email as well. Comments made on the draft of the Stakeholder Engagement Report were integrated. See Section 6.3 for a discussion on the Long Memo and associated survey feedback.

4.2.2 Compilation of Stakeholder Feedback and Discussions

Stakeholder feedback and discussions from the SC and TC meetings, as well as the emails received in the Ch. 500 inbox included a wide range of concerns, ideas, and suggestions. The following represents a summary of this feedback, created by compiling the stakeholder feedback from each meeting and email and grouping the discussion by subject. WC = Written Comment and refers to the unique identifiers for comments received by stakeholders and committee members via the Ch. 500 email. All written comment identifiers are in E2: **Written Stakeholder Feedback**.

SUBDIVISIONS & REDEVELOPMENTS

- A potential loophole was raised regarding IC calculations for subdivision projects. It was noted that if the developer doesn't build the individual lots, the IC (such as buildings and driveways) are not counted towards stormwater management design calculations. This means the required stormwater treatment is often only sized to handle the IC from the road, not the entire potential development. Ch. 500 should address this interpretation.
- Reframe redevelopment measures: Rather than focusing on addressing past harm, the goal should be framed around what measures must be taken during redevelopment to ensure stormwater pollution is reduced and treated to the maximum extent practicable. This shift in language aims to maintain the same goal but to avoid focusing on past impacts, instead emphasizing stormwater mitigation during redevelopment. (WC-1)

COMMITTEE MEETINGS

- DEP should consider opening future SC and TC meetings to in-person Stakeholder attendance, find an alternate meeting room that can accommodate in-person Stakeholder attendance, and designate time for Stakeholders to speak before the Committee in addition to the option to submit comments virtually in the online meeting chat room. (WC-3)
- Ensuring clear communication with developers, municipalities, and the public was consistently mentioned as a key component of successful stormwater regulation implementation. Efforts to engage stakeholders early in the process, provide clear guidance, and address concerns about the feasibility of new standards were seen as critical to ensuring buy-in and compliance.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

- DEP should require a formal SWPPP like the EPA model, which includes ESC, hazardous waste management, construction waste/debris management and construction site management. (WC-3)
- ESC measures must be installed prior to any activity on the site including clearing, grubbing and other activities where the soil is disturbed by heavy equipment and hydrology or drainage is impacted (e.g.: access roads, log conveyance paths, vehicle/equipment rutting, decreased evapotranspiration clearing resulting in ponding surface water, etc.). (WC-3)

DEFINITIONS

- Must revisit and refine definitions of development and redevelopment.
- Develop a clearer definition of “maintenance”, as opposed to activities requiring stormwater review and management. Clearing trees, shrubs or vegetation, with or without grubbing, significantly alters hydrology by affecting the site’s evapotranspiration rate, by disturbing, rutting & compacting soil where the equipment is active and by generally changing how precipitation acts on the site after the clearing.
- Certified Professional in ESC: Update to clarify what types of professional certifications qualify, since relatively few are certified through Enviro-Cert International, and the majority are DEP certified; Note that there is an Ecopliant certification as well.
- Update to reflect the broader site planning and natural resource protection meaning of LID. Maximize natural resource protection, define the acceptable buildable area and then use green or grey stormwater infrastructure to treat & manage runoff from the areas on a site in a manner that preserves and mimics that site’s natural drainage patterns.

IMPAIRED STREAMS

- Ch. 500 includes a strong focus on "impaired streams" (303(d)-listed) and places the "UIS" designation on many if not all of them for the purposes of stormwater regulation. What about the other waterbodies that are impaired because of runoff from the impervious urban landscape such as ponds, lakes, rivers, wetlands and other fresh waters? Would "Urban Impaired Waters" be a more appropriate, encompassing designation that reflects the scope of the impact of stormwater on our water resources?
- UIS Standard: The exception for IC removal should require a stream, natural stream buffer, or riparian buffer restoration standard.

GENERAL & BASIC STANDARD

General Standard

- The City of Portland emphasized the need to prioritize stormwater management for surfaces that contribute significantly to pollution, such as surface parking lots and external storage areas. These areas tend to generate high levels of runoff and pollutants, which should be addressed more directly in stormwater regulations.

Basic Standard

- The City of Saco raised concerns about the cumulative effect of smaller developments that don't implement proper stormwater BMPs. While individual small projects may not seem problematic, their combined impact on water quality can be significant over time, contributing to issues like UISs. (WC-6)
- There is concern about larger projects meeting all stormwater standards. The suggestion was made that while these projects may be asked to meet standards to the extent practicable, there should be clearer guidance on how this process works, particularly regarding stream buffers and the protection of natural resources.

Wetland Protection

- The current standards, which prohibit any wetland disturbance, may be difficult to apply, particularly to larger projects. There is a need for flexibility or clarification to ensure that the rules are practical and achievable.
- There was agreement with the minimum 15-foot setback for IC from wetlands, but it was suggested that the final standards should include clearer explanations and requirements for vegetation restoration and decompaction within these buffer zones. (WC-6)
- The City of Saco fully supported the Stream Smart Crossing guidelines for streams, emphasizing their importance in preserving stream health.

NDW Network

- The City of Saco suggested changing the term "setback" to "buffer" for NDWs and recommended including provisions for perpetual protection of these buffers, like stormwater buffers. This ensures long-term conservation and protection of these critical areas. (WC-6)
- Concerns were raised about the NHD Plus High-Resolution Stream Layer data, which has inaccuracies. There was a call for a process to address these inaccuracies in the final standards and for clearer guidance on how to handle discrepancies in the mapping.
- There was strong support for a 75-foot buffer for more significant NDWs (NWD-1) and a 15-foot buffer for less critical NDWs (NWD-2), with a suggestion to increase the latter to 25 feet for additional protection.

Downstream and Off-Site Channel

- There was a request for clearer definitions and requirements around downstream drainage easements, specifically to what extent they cover (e.g., one property, two properties, etc.) and how they are applied to the project site. (WC-3)
- It was noted that changes to NDWs onsite can often violate standards, and the drainage easement approach, while useful, may not fully mitigate impacts within the project site itself.

DRAINAGE / RUNOFF / GROUNDWATER RECHARGE

Runoff

- The City of Portland emphasized the importance of considering runoff from upgradient, off-site areas in drainage calculations. It is crucial that BMPs on a development site are designed to handle additional runoff from off-site sources to avoid incremental water quality degradation and habitat loss.
- There was a DEP query regarding whether the separation distance from the seasonal high groundwater table could be reduced for runoff from clean sources like roofs and less active areas. Roof runoff, especially from non-industrial sources, was noted as significantly cleaner than runoff from IC and reducing the separation requirement to 1 foot (from the current 3 feet) could be acceptable under certain conditions. (WC-7)
- DEP highlighted concerns about the use of impermeable liners in stormwater practices. While stormwater runoff often infiltrates into the ground, it was questioned whether the impermeable liner is truly beneficial, particularly in areas without high seasonal groundwater levels. There are concerns that pollutants may accumulate in infiltration basins, potentially leaching into groundwater, which could lead to negative environmental impacts. (WC-7)

Alignment with TMDLs

- Portland raised the need to better align Ch. 500 regulations with TMDLs to address sources of water quality impairment. The stormwater regulations alone do not provide adequate habitat protection, and it was noted that aligning them with water quality standards (such as those in the Clean Water Act) would enhance their effectiveness in meeting the state's water quality standards.

Groundwater Recharge Requirements

- DEP and other stakeholders questioned the effectiveness of groundwater recharge in certain areas, particularly in sand and gravel aquifers. Recharge practices, while beneficial, were noted to be ineffective in highly developed areas or those with tight soil and shallow groundwater tables. It was suggested that recharge could only effectively restore pre-development hydrology in less-developed, smaller watersheds. Recharge might also reduce evapotranspiration and contribute to overloading in certain locations.
- The challenge of balancing recharge with maintaining baseflow in streams and protecting drinking water sources was discussed, especially for regions near sensitive or valuable aquifers.
- A DEP hydrogeologist discussed concerns about groundwater recharge requirements, particularly in areas with tight soils or shallow water tables. While infiltration is considered beneficial, the capacity for infiltration is limited in certain areas, and it's important to acknowledge that recharge doesn't always replicate pre-development hydrology, especially in highly developed watersheds. The suggestion was made to consider whether recharge is the right approach or if there are better alternatives for some sites. Further infiltration modeling was recommended to understand its feasibility and impact better.
- It was also discussed that the goal of recharge might not always be to restore baseflow in streams, particularly where water quality concerns (such as pollutants) may be present. Instead, the focus might be better placed on managing stormwater in a way that preserves natural hydrology and minimizes negative environmental impacts.
- Some stakeholders raised concerns about the presentation of data in reports related to groundwater recharge and stormwater runoff volume reduction. Issues included inconsistencies in percent reduction numbers and a lack of clarity in the underlying assumptions for those numbers. The suggestion was to simplify these numbers or provide more context to ensure that they are seen as reliable and useful for decision making.
- Discussions focused on the challenge of balancing the benefits of stormwater infiltration (such as pollutant removal) with the need to protect groundwater, particularly from contaminants like chloride. The need for region-specific infiltration

solutions was raised, as some areas (e.g., coastal zones) rely on evapotranspiration to manage runoff, while others may have better conditions for infiltration.

Chloride Management

- Chlorides were noted as a major stress factor for aquatic life, particularly in headwater streams. Chlorides were found to be particularly toxic when urbanization and development lead to higher concentrations in the water, especially in smaller streams with little dilution from baseflow. DEP also raised concerns about the impact of chlorides on benthic habitat, especially in freshwater settings, and emphasized the importance of considering the long-term effects of chloride buildup in stormwater management practices.
- The Environmental Services Superintendent from Lewiston raised concerns about the impact of chloride as a stressor and suggested the need for chloride-specific BMPs and reduction standards. It was noted that chloride management remains one of the most difficult challenges in stormwater management, especially in areas with high winter salt usage.

Infiltration and Stormwater Management

- Maine Turnpike Authority and other stakeholders raised the issue of in-situ saturated hydraulic conductivity, referred to as KSAT, testing for stormwater infiltration. While some soil profile descriptions and KSAT data can be used, on-site testing remains the most accurate way to determine whether a site can support stormwater infiltration. However, the cost and time involved in such tests can be significant. (WC-3)
- The suitability of infiltration as a stormwater management tool is heavily dependent on the site conditions. It was noted that infiltration might not be a practical solution in tight soil or areas with shallow groundwater, as it could lead to inefficient water movement and possible negative environmental effects.
- The feasibility of implementing infiltration methods in coastal and rural areas was discussed. In areas with poor soil types or where evapotranspiration is relied upon for runoff management, alternative solutions to infiltration were proposed. There was recognition that while infiltration is preferred where possible, it is not always the viable option for every site.

Channel Conveyance and Stream Protection

- There were concerns raised about the effectiveness of existing detention standards like channel protection storage and flood standards. These standards were noted to not adequately address stormwater volume, which is essential for protecting stream hydrology and geomorphology. Volume control is seen as crucial to avoid habitat alteration, as changes to stream habitats and geomorphology are major stressors

for aquatic life after chloride contamination. More robust measures are needed to address these issues effectively. (WC-8)

Stormwater Control Measures and Soil Considerations

- The need for adequate soil testing for determining appropriate infiltration was highlighted. Soil profiles and KSAT values must be properly considered when designing stormwater systems. Stakeholders suggested using NRCS data for KSAT where appropriate but also emphasized that in-situ testing might still be necessary for certain projects to accurately gauge infiltration capabilities. The challenge remains to strike a balance between affordability and effectiveness in stormwater management systems.
- Another concern was whether the use of impermeable liners in stormwater basins is justified, given that infiltrated water may eventually reach the same ground despite the liner. The debate centered around the potential for liners to create concentrated pollutant buildup in certain locations, which could negatively affect groundwater quality over time. Instead, the preference was to encourage dispersed runoff to minimize pollutant concentration in one area.

General Comments on Stormwater Rules and Standards

- Some stakeholders raised concerns about the application of LID rules and the confusion surrounding "non-structural SCMs." The importance of clear definitions and footnotes for these terms was stressed, particularly for stakeholders who may not have extensive technical backgrounds.
- It was noted that development can increase the drainage area of a given watershed, which can destabilize drainageways and increase nutrient and sediment export, ultimately leading to water quality degradation. The question was raised about whether the goal of volume reduction or volume maintenance was being achieved, as development can have substantial impacts on drainage systems.

BMPS & DESIGN STANDARDS

- There was a strong consensus across all meetings on the need for BMPs to be tailored to specific watersheds and receiving waters, particularly impaired ones. The BMPs should be adaptable to the unique conditions of each site. Several discussions highlighted the importance of applying BMPs to brownfield redevelopment sites, with a focus on urban infill projects to address environmental damage from previous development.
- A recurring issue is the concern about small projects (especially those under one acre) avoiding stormwater review by not triggering the permit thresholds. There were discussions on whether the one acre threshold should be reduced to capture more projects, particularly in urban areas where development pressure is high. However, some meetings noted that the one acre threshold is commonly used

across other states and should remain as is, with an acknowledgment that municipalities could better address projects under this threshold.

- The need for effective post-construction maintenance of BMPs was highlighted, especially for systems like permeable pavement, which can lose effectiveness without proper upkeep. The importance of ensuring that maintenance responsibilities are clearly outlined and manageable for municipalities and developers was emphasized.
- The City of Portland emphasized the importance of designing BMPs with accessible, easily maintained pre-treatment elements that are separate from the primary treatment portion. This approach prevents sediment and pollutants from resuspending and affecting BMP performance. BMPs like riprap sediment plunge pools should not be placed inside a soil filter, as high flows can push sediments out and compromise the filter. Maintenance and long-term functionality are key concerns for all BMP types, especially those requiring subsurface pre-treatment.
- There were calls to strengthen design specifications for level spreaders and plunge pools/forebays to withstand high-volume storm events without failure. Additionally, level spreaders should be installed outside wetlands to de-concentrate flow before it reaches sensitive wetland areas.

Low Impact Development and Site Planning

- The City of Portland suggested eliminating LID credits in regulations, as LID should be a mandatory practice rather than an optional one. They stressed the need for a two-step LID process: first, thoughtful site planning to protect natural resources, and second, the use of green stormwater infrastructure. LID should not simply be about using greener stormwater management techniques but must start with protecting the site's natural hydrology and limiting development impacts.
- Discussions also pointed out the feasibility of implementing LID standards, especially in compact urban areas. Constraints such as soil types and site conditions (e.g., inability to support recharge) were flagged as potential issues in meeting recharge standards. There was concern about applying these standards uniformly across sites with vastly different conditions.
- There were concerns about conflicts between the proposed LID envelope and existing setback standards. The LID envelope restricts development in certain areas (e.g., 100 feet from protected natural resources), which could be problematic for smaller sites with high-quality soils (A and B soils). This could limit redevelopment potential and site flexibility. (WC-6)
- A comment from the Maine Association of Site Evaluators recommended simpler, low-maintenance measures over more complex, high-maintenance BMPs. They highlighted the importance of using measures that are effective even with minimal maintenance, stressing that under-drained biofilters and other complex systems

often perform poorly in the long term, particularly in rural or under-resourced areas.

- Recharge through LID techniques is seen as a necessary tool, but site-specific challenges (e.g., poor soils or the inability to support infiltration) can complicate its use. Several comments pointed out that C and D soils are less suitable for infiltration, which raises concerns about implementing recharge requirements in these areas. Some proposed using alternative methods for stormwater management when recharge isn't feasible, rather than making it the sole LID focus.

Regulatory Issues and Land Use

- A major concern from Saco was the need for clear setbacks to protect NDWs. The 50-foot setback should apply to natural systems (such as intermittent streams) but not to artificial systems like swales and culverts. Questions were raised about including setbacks for wetlands, with suggestions for a minimum 25-foot buffer around wetlands that are not Wetlands of Special Significance for enhanced stormwater treatment and pollutant reduction.

Regulatory Harmonization

- A concern from Lewiston's Environmental Services Superintendent was the attempt to impose zoning standards (like parking and site design regulations) through Ch. 500, which could conflict with local zoning laws. It was suggested that stormwater standards should focus solely on improving stormwater treatment rather than encroaching on areas already regulated at the municipal level.

Stormwater Design and Flexibility

- Flexibility in stormwater management design was emphasized as essential, especially for smaller projects or urban areas with limited stormwater infrastructure options. The need for innovation in BMP design was highlighted, with discussions about exploring alternatives like rainwater harvesting and new small-scale BMPs.
- Long-term sustainability and maintenance of BMPs were frequently discussed, with concerns about the decline in performance of systems like porous pavements and the need for clear maintenance guidelines. The importance of considering the long-term viability of BMPs during the planning and design stages was emphasized.

PERMITTING

PBR for Small Sites Next to Impaired Streams

- The City of Portland's Stormwater Program Coordinator expressed concerns about the adequacy of the PBR for small sites near impaired streams. It was argued that the PBR allows incremental damage to stream buffers, wetlands, and other ecological features. This incremental degradation could harm unimpaired waters

and worsen the conditions of already impaired waters. The comment emphasizes the need for stronger protection for these sensitive areas.

Permit Modification for MS4 Communities

- Casco Baykeeper noted that the BEP Order issued in November 2023 required DEP to set the elements to be included in municipal LID ordinances for the municipalities subject to the appeal. This action requires DEP to establish clear, measurable standards for these ordinances in line with the permit modification.
- Casco Baykeeper highlighted the need for coordination between the DEP Land and Water Bureau so that Ch. 500 and MS4 regulations complement each other to avoid conflict. An example is in Appendix F of the MS4 permit, which details LID requirements for municipalities. The aim is to align LID standards between Ch. 500 and MS4 permits to ensure that municipalities meet both state and federal requirements without undue overlap or confusion.

Stormwater Permit Interplay

- Casco Baykeeper urges the need to consider the interplay between Ch. 500 standards and the MS4 requirements. Gregg Wood from DEP is tasked with aligning these regulations, especially considering the November 2023 BEP Order. By considering the differences between urbanized and rural sectors, the goal is to ensure that stormwater permits and rules work together efficiently to reduce stormwater pollution across Maine.

Regulatory Harmonization and Data Gaps

- The need to align stormwater regulations, such as Ch. 500, with other state and federal programs (e.g., MS4, TMDLs, Maine Climate Council recommendations) was a common theme. Ensuring that stormwater regulations complement broader environmental goals, such as controlling nitrogen, phosphorus, and chloride, was emphasized. The harmonization of stormwater rules with other programs is seen as crucial to avoid conflicting requirements and to ensure more effective management of water quality.

DATA & METRICS

Precipitation Data & Storm Design

- The City of Saco supports the use of updated precipitation data but suggests specifying a single data source for consistency. This would help avoid confusion in applying varying data sets.
- The elimination of the 2-year storm event in the new standards is welcomed, as many of the stormwater management requirements are already met through the water quality volume captured and treated.

- Saco has already required the 50-year storm for more than 15 years and supports its inclusion in the updated standards. However, they do not support the 100-year event, suggesting that it is too stringent for general application but suitable for large stream crossings, especially in watersheds larger than 100 acres.

NHD Plus High-Resolution Stream Layer

- There are concerns about inaccuracies in the NHD Plus High-Resolution Stream Layer (used for stream mapping), as exemplified by the inaccurate depiction of Innes Brook in Saco. These inaccuracies could lead to unintended consequences, such as requiring buffers where they are not necessary. Clarity is needed on how these discrepancies will be handled in the new regulations.

Web Soil Survey & Hydrologic Soil Group Assignment

- Stakeholders, including Flycatcher, raised concerns about the effort and cost involved in verifying soil types on a site, particularly to confirm Hydrologic Soil Groups for stormwater management purposes. Soil tests can be costly, ranging from under $1,000 for simple test pits to over $20,000 for a comprehensive soil survey, depending on the scope.
- There's concern about the limited capacity for soil scientists in Maine, especially since the University of Maine no longer offers sufficient coursework to support the licensing process. This may strain resources as demand increases for LID standards and soil verification.
- The ability to estimate KSAT for certain soil types based on test pits is also discussed, with varying estimates depending on soil series and test pit data. Accurate assessment of KSAT is vital for selecting appropriate stormwater management practices. (WC-10)

General Stormwater Management Challenges

- There is concern about the effectiveness of BMPs in addressing various pollutants:
    - Nitrogen: Many BMPs lack denitrification components, limiting their ability to reduce nitrogen levels.
    - Metals & Pathogens: There is variability in BMP performance in treating metals and pathogens.
    - Chlorides: Chlorides pose a significant challenge in stormwater management, especially as they interact with other pollutants, making them more bioactive or toxic. Source control, rather than treatment, is seen as the only viable approach to managing chlorides.

Regulatory Integration and Coordination

- The need to harmonize Ch. 502 regulations (UIS Watersheds) with other regulatory frameworks such as the 303(d) list of impaired waters and TMDLs is emphasized.

Stakeholders call for an integrated approach that links water quality impairments, BMPs, and action plans in a single, amendable document. This would streamline efforts and avoid confusion created by multiple disconnected lists.

- The current 303(d) list and TMDL approach are seen as insufficient in identifying the full scope of stressors and suggesting appropriate BMPs. The need for a more comprehensive and actionable system is crucial to effectively protect water resources.
- The importance of collecting better data, particularly on water quality trends and the impact of chloride and urbanization, was reiterated. There was a call for improved data collection to inform decision-making and regulatory updates, particularly in relation to urban growth and watershed health.

SENSITIVE AND THREATENED REGIONS AND WATERSHEDS

- Stakeholders expressed concerns about how the new STRW list would relate to the Ch. 502 UIS list, the 303(d) list of impaired waters, and the TMDL system. There is a push for a single, comprehensive document that lists all waters with impairments, identifies STRW, and includes stressor-specific BMPs. This could simplify understanding and improve management by eliminating confusion from multiple, overlapping lists. This STRW list would have to be developed via rulemaking.
- Current systems like the UIS list and 303(d) have not effectively captured all stressors or linked the correct BMPs. The need to harmonize these existing frameworks was highlighted to ensure that stormwater management practices are directly addressing the most significant stressors in each watershed.
- The maintenance and longevity of BMPs, such as permeable pavements, were noted as significant concerns. Without proper upkeep, these systems lose effectiveness, which can undermine water quality goals.

Impervious Cover

- Stakeholders stressed the importance of more comprehensive data on IC trends, especially their relationship with water quality. Better data is necessary to make informed decisions on which watersheds are most at risk and BMP selection.
- The 10% IC threshold was discussed as a tool for identifying sensitive watersheds, but concerns were raised about its sufficiency in capturing the cumulative effects of urbanization and its potential legal challenges. More nuanced data collection and thresholds may be needed.
- A key theme across the discussions was the impact of increasing IC on watershed health. The need for data on IC trends from 2001-2019 was repeatedly mentioned to help identify STRW, especially headwater areas. This data would help guide decisions about which areas need stricter stormwater regulations.

Regulatory Complexity

- Adding another list for STRW could increase complexity without addressing existing gaps. Stakeholders are calling for a more streamlined approach that aligns the 303(d), TMDLs, and UIS lists to ensure a clearer, more actionable framework.
- Some stakeholders suggest that certain development projects, especially in EJ areas, should be incentivized, possibly through more lenient stormwater regulations, while others argue for stronger protections to prevent further environmental degradation in these areas.
- The challenge of defining and designating STRW was discussed. There was consensus that areas with high IC should meet stricter stormwater standards but determining the thresholds for STRW designation and aligning this with MS4 and other regulatory frameworks is complex. The issue of whether small projects, just under the one acre threshold, are contributing to watershed stress and should be considered in the STRW designation was raised.
- There was consensus that redevelopment projects, especially those on brownfield sites, should be prioritized. These areas provide an opportunity to mitigate past environmental damage while meeting housing and development needs. Incentivizing redevelopment was seen as a key strategy to reduce IC and improve water quality in urbanized areas.

ENVIRONMENTAL JUSTICE

- EJ considerations were discussed, with a focus on balancing housing development in vulnerable communities with the need for robust stormwater management. Some discussions suggested that relaxing stormwater regulations in these areas could incentivize development, while others felt that stricter standards should be applied to prevent exacerbating existing environmental issues.
- Fast-tracking permits for affordable housing, particularly in EJ areas, were proposed to stimulate development without compromising environmental goals. Incentives for redevelopment were also discussed, particularly for brownfield sites, with the idea of improving stormwater management and addressing past environmental impacts.

4.3 Survey Responses & Long Memo Feedback

4.3.1 Survey Responses

SC members completed a brief survey about the proposed Ch. 500 rule updates in the Long Memo. The survey included nine questions with five response categories for respondents to choose from for each question: **Endorse, Agree with Reservations, Stand Aside, Hold,** and **Stop.** Respondents could leave comments after each question to further explain their choices. Survey questions included:

1. **Sensitive and Threatened Regions and Watersheds:** (refer to Section 1.3 of the Long Memo): *Please include your opinions on both the Regions and the Watersheds portions of the proposal.*
2. **Removing Construction Stormwater Standards from Chapter 500** (refer to Section 2.0 of the Long Memo) *Focusing Chapter 500 on post-construction stormwater management and regulating construction stormwater management through MCGP.*
3. **Basic Standards**: **Wetland and Natural Drainage Network Protection Standard** (refer to Section 2.1 of the Long Memo): *To promote key features of LID statewide, projects must avoid wetland and natural drainageway disturbance. If this standard cannot be met, the project must meet the Runoff Volume Reduction Standard.*
4. **Basic Standards**: **Adjusting Stormwater PBR eligibility criteria** (refer to Section 2.0 of the Long Memo): *PBR eligibility criteria will be amended to allow larger projects to qualify (up to 3 acres of IC and 20 acres of developed area). Regardless of size, a project will be required to meet the new Basic Standards to qualify for PBR (Wetland Protection and Natural Drainage Network Protection).*
5. **General Standards**: **Stormwater Control Measure Hierarchy** (refer to Section 3.1 of the Long Memo): *Prioritize nature-based stormwater control measures.*
6. **General Standards**: **Runoff Volume Reduction Standard** (refer to Section 3.2 of the Long Memo): *Use infiltration and evapotranspiration to mitigate runoff volume increase from IC.*
7. **General Standards**: **Stressor Guided Stormwater Treatment Standard: Nitrogen and Phosphorus** (refer to Section 3.3.1 of the Long Memo): *Selection, design, and sizing of SCMs to effectively address the conventional stormwater pollutant stressors of concern in the receiving water.*
8. **General Standards**: **Stressor Guided Stormwater Treatment Standard: Chloride** (refer to Section 3.3.2 of the Long Memo): *Selection of control measures to effectively address baseflow chloride toxicity in the receiving water.*
9. **Flooding Standard: Replacing Appendix H in current Chapter 500 with NOAA Atlas 14 + an 18% modifier, then utilizing NOAA Atlas 15 when released.** (refer to Section 5.0 of the Long Memo): *Address concerns about climate driven changes in precipitation patterns and their impacts on peak flows.*
10. **Other Comments** (Optional): *Any other comments you wish to share.*

The figure below depicts the total number of votes per response category. See E3: **Survey Responses** for detailed survey comments.

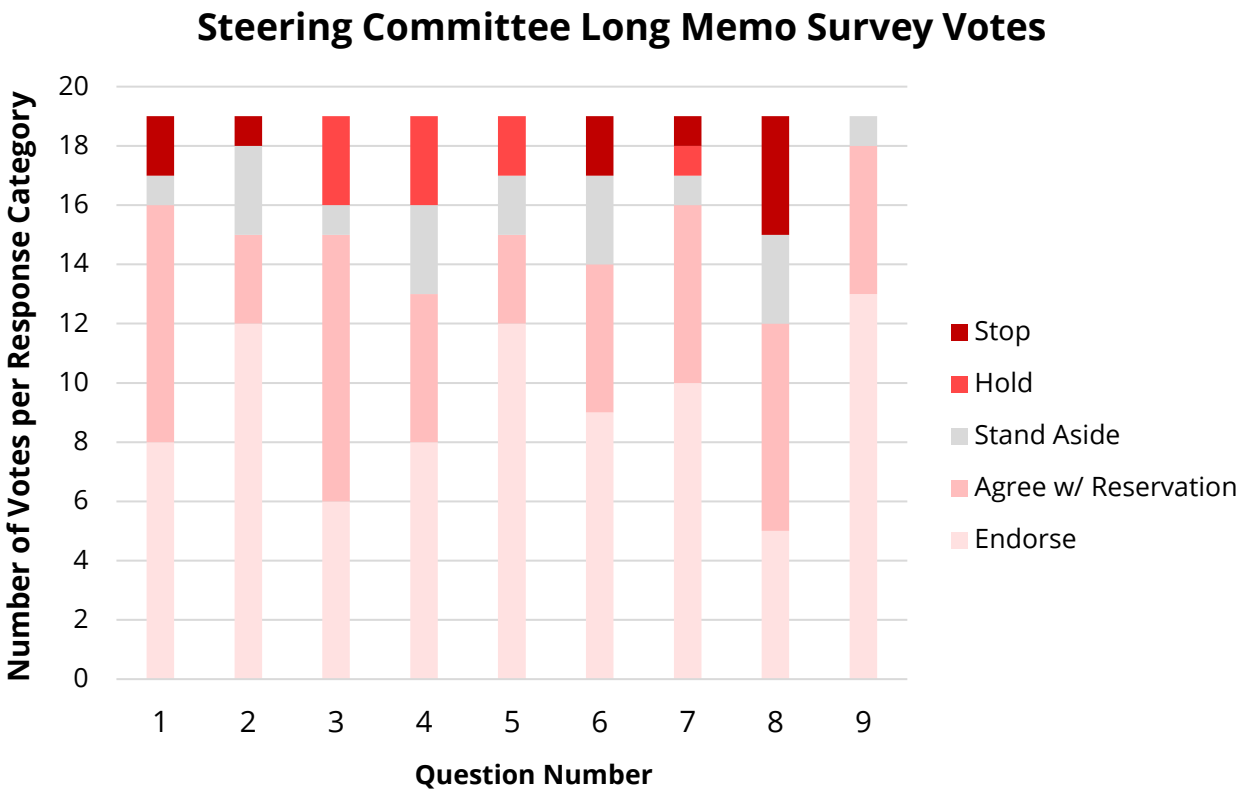


Figure 1. Long Memo survey results from the SC.

4.3.2 Long Memo Comments

SC members were asked, not required, to submit comments on the Long Memo. DEP has received these comments and will consider their integration into the Long Memo.

5. Conclusion

The Ch. 500 stakeholder engagement process has been a cornerstone of the DEP's efforts to develop updated stormwater management standards, achieving the goal of gaining feedback from a wide range of perspectives on the current Ch. 500 rules and proposed changes. Over the course of 14 SC and TC meetings, seven each, as well as additional subcommittee sessions, stakeholders from a wide range of industries, municipalities, and advocacy groups collaborated to address the multifaceted challenges posed by stormwater runoff and climate change. These discussions were integral to shaping a regulatory framework that balances environmental protection, practical implementation, and the diverse needs of communities across the state.

The SC provided guidance on policy concerns and regulatory priorities, focusing on topics such as the integration of LID principles, the refinement of stormwater treatment standards, the alignment of regulations with climate resilience goals, and improvement of the day-to-day implementation of the State's stormwater management rules. Early meetings concentrated on establishing project goals and frameworks, while later discussions addressed specific challenges, including incorporating updated precipitation data, incentivizing redevelopment, and refining sensitive watershed criteria. Importantly, stakeholders advocated for flexibility to accommodate regional differences, such as the unique stressors affecting UIS and STRW.

The TC, comprising of experts in stormwater management, discussed the scientific and technical aspects of the rule updates. Topics at each meeting included the development of performance-based SCMs, the application of hydraulic capacity standards, and soil testing requirements to improve groundwater recharge. The committee also explored innovative solutions, such as stressor-guided stormwater treatment frameworks targeting pollutants like nitrogen, phosphorus, and chloride, and strategies for maintaining natural hydrology in both new and redevelopment projects.

Subcommittees further specialized in areas such as refining LID standards, establishing criteria for identifying STRW, and crafting detailed methodologies for stormwater treatment selection. For example, the Groundwater Recharge subcommittee contributed a consensus report introducing a new "Runoff Volume Reduction Standard" to ensure post-development hydrology approximates pre-development conditions. Meanwhile, the STRW subcommittee developed criteria for identifying the municipalities and watersheds where additional stormwater standards will apply to counteract the impact of land development.

Through this engagement process, DEP gathered and incorporated valuable feedback on critical regulatory components. Stakeholders emphasized the need for clearer definitions, streamlined permitting pathways, and proactive strategies to manage the cumulative impacts of smaller developments. The engagement process also highlighted the importance of addressing the unique needs of EJ communities, where redevelopment and affordable housing must align with long-term sustainability goals.

Looking ahead, the DEP is committed to leveraging the knowledge, recommendations, and collaborative spirit of this stakeholder process as it finalizes the updated Ch. 500 regulations. By maintaining open channels of communication and continuing to engage with stakeholders, the DEP aims to implement a regulatory framework that promotes sustainable development, protects Maine's vital water resources, and supports the state's climate resilience objectives.

5.1 Recommendations for DEP

To ensure the long-term success and adaptability of the Ch. 500 framework, the DEP should consider the following recommendations:

1. **Enhance stakeholder education and support**: Develop accessible guidance materials and training sessions for municipalities, developers, and engineers. These resources should focus on the application of updated standards, including LID principles, the use of SCM performance curves, and compliance with runoff volume reduction requirements.
2. **Expand monitoring and feedback mechanisms**: Establish a structured process for ongoing stakeholder feedback after implementation. This could include periodic reviews, surveys, and public forums to evaluate the effectiveness of the updated standards and address unforeseen challenges.
3. **Promote equity and environmental justice**: Prioritize outreach and collaboration with EJ communities to ensure redevelopment projects in these areas meet both environmental and affordable housing goals. Consider streamlining permit processes for projects that align with these priorities while maintaining robust environmental protections. Ensure that affordable housing is not built in locations that are at risk of flooding or other environmental risks in the future such that marginalized communities are not subject to significant long-term liability and costs.
4. **Encourage regional collaboration**: Facilitate coordination among municipalities to address cross-boundary stormwater challenges, particularly in shared watersheds. Regional workshops or committees could enhance collective problem-solving and resource-sharing.

6. Lessons Learned

The stakeholder engagement process for the Ch. 500 rule updates provided a valuable opportunity to gather diverse input and foster collaboration among municipalities, developers, environmental advocates, and technical experts. While the overall process successfully achieved key objectives, it revealed challenges with certain engagement methods and emphasized the importance of providing clear context, creating opportunities for detailed discussions, and maintaining flexibility in the engagement approach. This section outlines general observations and specific recommendations based on lessons learned.

1. **Online Voting Approach**
    - Observation: The trial use of online polls and surveys was not preferred by participants, as many preferred in-depth discussions rather than voting on overarching concepts.
    - Recommendation: Replace online voting with interactive workshops or facilitated discussions that allow participants to explore the nuances of proposed ideas. Consider using surveys only as supplementary tools to collect targeted feedback (allow participants of surveys to comment on why they selected answers for each question).
2. **Meeting Voting Approach**
    - Observation: Voting during meetings proved ineffective because a simple "yes" or "no" response did not provide sufficient information for the project team to understand participants' reasoning or concerns.
    - Recommendation: Replace meeting votes with structured opportunities for participants to articulate their positions and concerns in written or verbal formats. Open-ended discussions or facilitated consensus-building exercises may yield richer insights.
3. **Written Memos**
    - Observation: Written memos significantly enhanced the productivity and effectiveness of the engagement process by providing participants with a clear framework for their input and ensuring their concerns were communicated in detail.
    - Recommendation: Continue to utilize written memos as a core engagement tool, ensuring they are concise, focused, and distributed well in advance of meetings. Encourage participants to submit written feedback in response to proposed ideas to enhance the quality of input.
4. **Background and Context**
    - Observation: Providing detailed background information and context was essential to productive discussions, as participants needed a solid

understanding of the issues being addressed. Revisiting this information multiple times was necessary to ensure all stakeholders were fully informed.

- Recommendation: Dedicate time at the beginning of meetings to review background materials, particularly for complex or technical topics. Supplement this with accessible, well-organized reference documents and visual aids that participants can refer to throughout the process.

7. Appendices

Appendix A: Technical Team and Committee Members

Project Team

Bina Skordas, Senior Project Manager and Climate & Watershed Solutions Lead, FB Environmental
Cody Obropta, P.E., Environmental Engineer, Maine Department of Environmental Protection
David Waddell, Assistant Environmental Engineer, Maine Department of Environmental Protection
Jeff Dennis, Biologist, Maine Department of Environmental Protection
Kerem Gungor, P.E., Senior Environmental Engineer, Maine Department of Environmental Protection
Lauren Caffe, Assistant Project Manager & Planner II, FB Environmental
Maggie Kosalek, Project Manager, FB Environmental
Naomi Kirk-Lawlor, Senior Planner, Maine Department of Environmental Protection
Tracy Krueger, TMDL Coordinator, Maine Department of Environmental Protection

Steering Committee

Brenda Zollitsch, Facilitator, Bangor Area Stormwater Working Group
Brian Ambrette, Senior Climate Resilience Coordinator, Governor's Office of Policy Innovation and the Future
Cindy Dionne, Stormwater Manager, Maine Department of Transportation
Curtis Bohlen*, Director, Casco Bay Estuary Partnership
David Courtemanch, Freshwater Science/Policy Analyst, The Nature Conservancy
Doug Roncarati, Stormwater Coordinator, City of Portland
Fred Dillon, Stormwater Program Coordinator, City of South Portland
Ivy Frignoca, Casco Baykeeper, Friends of Casco Bay
Jeff Dennis, Biologist/Watershed Management Department Lead, Maine Department of Environmental Protection
Jodie Keene, Stormwater Coordinator, City of Portland
Joe Laverriere*, City Engineer, City of Saco
John Kuchinski, City Engineer, City of Lewiston
John McMeeking, Landscape Architect, SMRT Architects and Engineers
Kerem Gungor, P.E., Senior Environmental Engineer, Maine Department of Environmental Protection
Mark Bergeron, P.E.*, Northern New England Area Leader, TRC Environmental
Matt Marks, Principal, Cornerstone Government Affairs, representing Associated General Contractors of Maine
Nathan Robbins, Climate Change Specialist, Maine Department of Environmental Protection
Philip Ruck*, President and Senior Project Manager at Stillwater Environmental Engineering
Rebecca Graham, Legislative Advocate, Maine Municipal Association
Rick Licht, Principal, Licht Environmental Design, representing Maine Real Estate Development Association

***** *Served on Technical Committee as well*

Technical Committee

Alton Palmer, President and Principal, Gorrill Palmer Engineering
Andy Johnston, Founding Principal at Atlantic Resource Consultants
Angela Blanchette, Director of Engineering and Technical Services, Town of Scarborough
Aubrey Strause, Municipal Services Coordinator, Acorn Engineering (formerly)/Stormwater Program Coordinator, City of South Portland (currently)
Charlie Hebson, Manager, Surface Water Resources Division at Maine Department of Transportation
Chris Baldwin, District Engineer, Cumberland County Soil & Water Conservation District
Curtis Bohlen*, Director, Casco Bay Estuary Partnership
Dan Diffin, Vice President & Senior Civil Engineer, Sevee & Maher Engineers
Joe Laverriere*, City Engineer, City of Saco
Mark Bergeron, P.E.*, Northern New England Area Leader, TRC Environmental
Paul Ostrowski, Senior Project Engineer/Engineering Design Manager, Sebago Technics
Peter Newkirk, Retired Professional Civil Engineer
Philip Ruck*, President and Senior Project Manager at Stillwater Environmental Engineering
Rodney Kelshaw, President, Maine Association of Professional Soil Scientists & Managing Partner/Senior Scientist, Flycatcher
Ryan Barnes, Project Manager, Maine Turnpike Authority(formerly)/Project Manager, Gorrill Palmer, an LJB Engineering Company (currently)
***** *Served on Steering Committee as well*

In addition to the formal committee members, the following people contributed significantly to the Technical Committee:
John Kuchinski, Engineer, City of Lewiston
Doug Roncarati, Stormwater Program Coordinator, City of Portland
Fred Dillon, Stormwater Program Coordinator, City of South Portland
Sean Donohue, Permitting Coordinator/Environmental Liaison, Maine Turnpike Authority
Ivy Frignoca, Casco Baykeeper, Friends of Casco Bay

Subcommittees

Definitions

- Aubrey Strause
- Paul Ostrowski
- Phil Ruck
- Ryan Barnes
- *DEP: Dave Waddell & Cody Obropta*

Sensitive and Threatened Regions and Watersheds

- Andy Johnston
- Aubrey Strause
- Curtis Bohlen
- David Courtemanch
- Doug Roncarati
- Fred Dillon
- Ivy Frignoca
- Peter Newkirk
- *DEP: Jeff Dennis, Dave Waddell, Tracy Krueger & Kerem Gungor*

Core Low Impact Development Standards

- Angela Blanchette
- Aubrey Strause
- Chris Baldwin
- Joe Laverriere
- Peter Newkirk
- *DEP: Kerem Gungor, Cody Obropta, Tracy Krueger & Dave Waddell*

Stressor-Guided Stormwater Control Measures

- Andy Johnston
- Aubrey Strause
- Curtis Bohlen
- Fred Dillon
- Joe Laverriere
- Mark Voorhees (EPA Region 1 Engineer (Retired); University of New Hampshire Stormwater Center)
- Ryan Barnes
- *DEP: Kerem Gungor, Jeff Dennis, Tracy Krueger, & Dave Waddell*

Groundwater Recharge

- Andy Johnston
- Charles Hebson
- Peter Newkirk
- Rodney Kelshaw
- Ryan Barnes
- *DEP: Cody Obropta, Kerem Gungor, Dave Waddell, & Jeff Dennis*

Environmental Justice Communities

Bangor
Augusta
Orono
Waterville
Brewer
Houlton
Madison
Oxford
Note: *Bangor, Orono, Brewer are MS4 towns and members of Bangor Area Stormwater Working Group. Brenda Zollitsch serves as the working group's facilitator and represented it in the stakeholder meetings.*

Nations & Tribes

Penobscot Nation
Passamaquoddy Tribe at Indian Township
Passamaquoddy Tribe at Pleasant Point
Mi'kmaq Nation
Houlton Band of Maliseet Indians
Penobscot Indian Nation
Maine Indian State Tribal Commission
Note: *The Nations and Tribes were invited to participate in the stakeholder engagement process by both the Department staff and the Facilitator on separate occasions.*

Appendix B: Technical Committee Expertise

Alton Palmer, President and Principal, Gorrill Palmer Engineering

Alton brings over thirty years of site and roadway design experience, working in both the public and private sector throughout New England and the Mid-Atlantic Area. His expertise includes site selection, feasibility evaluation, civil and site design and permitting for a wide variety of land development projects including institutional projects such as courthouses, hospitals and schools, retail projects ranging in size from neighborhood shopping centers to super regional malls, office and hospitality uses and residential developments.

Andy Johnston, Founding Principal at Atlantic Resource Consultants

Andy is a licensed Professional Engineer and a LEED Accredited Professional. He also is a Chartered Engineer, Chartered Environmentalist, and a member of the Chartered Institution of Water and Environmental Management. Andy also has a Master of Science in coastal zone management and a rich background in civil engineering, master planning, environmental permitting, and project management.

Angela Blanchette, Director of Engineering and Technical Services, Town of Scarborough

Angela is an experienced engineer with a demonstrated history of working in the government administration industry as well as the private sector. She is skilled in water resource management, roadway design, site development, traffic engineering, and sanitary sewer design and is a licensed Professional Engineer in the State of Maine.

Aubrey Strause, Municipal Services Coordinator, Acorn Engineering (formerly)/Stormwater Program Coordinator, City of South Portland (currently)

Aubrey is a Professional Engineer licensed in Maine and is active in local and regional water quality organizations. Aubrey is a past president of the Maine Water Environment Association and works with municipalities and businesses in their efforts to comply with stormwater and wastewater regulations.

Charlie Hebson, Manager, Surface Water Resources Division at Maine Department of Transportation

Charlie is a licensed Professional Engineer with a PhD in civil engineering from Princeton University. He brings a wealth of engineering, hydrology, hydraulics for transportation design, and stormwater modeling experience having worked for Maine Department of Transportation for over two decades. He previously worked in engineering consulting, the USDA Agricultural Research Station, and US Geological Services.

Chris Baldwin, District Engineer, Cumberland County Soil & Water Conservation District

Chris is a licensed Professional Engineer and Certified Professional in Erosion and Sediment Control. He has provided engineering, technical, and training assistance to CCSWCD programs for

over ten years. He has expertise in evaluating development plans for stormwater management and erosion and sedimentation control and performing third party inspections during construction. In addition to engineering assistance, Chris works with customers to create Spill Prevention, Control, and Countermeasures Plans and Stormwater Pollution Prevention Plans. He also provides training for municipal audiences on stormwater management, SPCC, Illicit Discharge Detection & Elimination, erosion and sedimentation control, as well as Best Management Practice Installation for contractors.

Curtis Bohlen, Director, Casco Bay Estuary Partnership

Curtis, an aquatic and wetland ecologist with expertise in ecology, economics, and public policy, leads the Casco Bay Estuary Partnership, focusing on collaborative solutions to improve Casco Bay's health. His recent projects include the 2021 State of Casco Bay Report, tidal restoration research, leading the Casco Bay Nutrient Council, and studying coastal acidification. Bohlen also serves on the boards of the Long Creek Watershed Management District and Maine's Board of Pesticide Control. Previously, he worked as an environmental consultant, taught at Bates and Colby Colleges, and served in science roles at Trout Unlimited, the Chesapeake Bay Foundation, and on Capitol Hill. He holds degrees from Stanford (BS, MS) and Cornell (PhD).

Joe Laverriere, City Engineer, City of Saco

Joe oversees municipal engineering projects, including the planning, design, and maintenance of infrastructure such as roads, drainage systems, stormwater management, and public facilities. He brings extensive expertise in stormwater management and has technical proficiency and the ability to represent municipal interests in environmental and infrastructure planning.

Mark Bergeron, Northern New England Area Leader, TRC Environmental

Mark is trained as a civil engineer with deep public policy and government experience. He is skilled at explaining complex technical or legal issues to diverse audiences. He has demonstrated ability to lead small and large teams and is confident in making decisions based on science and evidence.

Paul Ostrowski, Senior Project Engineer/Engineering Design Manager, Sebago Technics

Paul provides technical expertise on projects involving stormwater and wastewater design and permitting, particularly in urban areas.

Peter Newkirk, Retired Civil Engineer

Peter Newkirk is a retired professional civil engineer that previously worked for Maine Department of Transportation, Maine Department of Environmental Protection, and Natural Resources Conservation Service.

Phil Ruck, President and Senior Project Manager at Stillwater Environmental Engineering

Phil earned B.S. and M.S. degrees in Civil Engineering at the University of Maine and is a licensed professional engineer in Maine, New Hampshire, Vermont, and New York. Phil has extensive involvement in projects related to Clean Water Act requirements, most notably the National Pollutant Discharge Elimination System and Maine Pollutant Discharge Elimination System permit programs. Over his career he has developed Stormwater Management Plans for all 11 of the MS4 municipal and State-owned facilities in the Bangor area, in addition to multiple municipalities in other parts of the state.

Ryan Barnes, Project Manager, Maine Turnpike Authority(formerly)/Project Manager, Gorrill Palmer, an LJB Engineering Company (currently)

Ryan is a licensed Professional Engineer as well as a Certified Professional in Erosion and Sediment Control. Ryan has over 24 years of engineering experience. He previously worked as a project engineer for the City of Lewiston, served as the town engineer for the Town of Brunswick, worked as a project manager for the Maine Turnpike Authority, and now has returned to work for Gorrill Palmer (where he previously worked for nearly a decade) as a project manager.

Rodney Kelshaw, President, Maine Association of Professional Soil Scientists & Managing Partner/Senior Scientist, Flycatcher

Rodney is a managing partner and senior scientist at Flycatcher, LLC. He also serves as the president of the Maine Associations of Professional Soil Scientists. Rodney maintains numerous certifications, including Certified Wetland Biologist, Certified Professional Soil Scientist, Professional Wetland Scientist, Certified Professional in Erosion and Sediment Control, Licensed Site Evaluator, Licensed Soil Scientist, and Certified Erosion Sediment and Stormwater Inspector.

Appendix C: Useful References

1. DEP. Chapter 500 Stakeholder Engagement Webpage. https://www.maine.gov/dep/land/stormwater/ch500.html
2. DEP. 2024. Low Impact Development (LID) Standard Proposal. https://www.maine.gov/dep/land/stormwater/ch500/DEP%20Low%20Impact%20Development%20Standard%20Proposal.pdf
3. DEP. 2024. Flood Protection Proposal. https://www.maine.gov/dep/land/stormwater/ch500/DEP%20Flood%20Control%20Proposal.pdf
4. DEP. 2024. MCC Community Resilience Planning Sub-Group Recommendations. https://www.maine.gov/dep/land/stormwater/ch500/DEP%20Maine%20Climate%20Council%20Resiliency%20Working%20Group%20Proposal.pdf
5. DEP. 2024. Maine NLCD Impervious Surface Change Tool. https://maine.maps.arcgis.com/apps/instant/portfolio/index.html?appid=7aad01a667c142c3bdcc4f05f6e87856
6. SNEP. Holistic Watershed Management for Existing and Future Land Use Development Activities: Opportunities for Action for Local Decision Makers: Modeling and Development of Flow Duration Curves (FDC 1 and 2 Projects. https://www.epa.gov/snep/holistic-watershed-management-existing-and-future-land-use-development-activities#pptsc
7. Imberger, M., Hatt, B. E., Brown, S., Burns, M. J., Burrows, R. M., & Walsh, C. J. (2023). Headwater streams in an urbanizing world. Freshwater Science, 42(3), 323-336.

Appendix D: Meeting Minutes

D1: Steering Committee Meeting Minutes

CHAPTER 500 STAKEHOLDER ENGAGEMENT | STEERING COMMITTEE MEETING #1 MINUTES

RE: Chapter 500 Stakeholder Engagement, Steering Committee Meeting #1
DATE: Tuesday, December 5, 2023
TIME: 9:00am – 12:00pm
LOCATION: Hybrid – in-person (32 Blossom Lane, Augusta, Room 332) and remotely via Microsoft Teams
INVITEES: Kerem Gungor, Naomi Kirk-Lawlor, and Rob Wood (Maine DEP)
Bina Skordas and Maggie Kosalek (FB Environmental Associates)
Chapter 500 Steering Committee
Chapter 500 Stakeholders

OVERVIEW:

TOPIC	WHO	ESTIMATED DURATION
1. Welcome and project overview	Kerem Gungor (DEP)	10 mins
2. Introductions	FBE, DEP, & Steering Committee (FBE facilitates)	45 mins
3. Ground rules and process	Bina Skordas (FBE)	10 mins
4. DEP Land Bureau Stormwater Program Overview	Kerem Gungor (DEP)	60 mins + additional time for questions
5. Next steps: future meetings and Technical Committee	Bina Skordas (FBE)	15 mins
6. Questions	FBE facilitates	15 mins

ACTION ITEMS:

- Share the Taunton Watershed SNEP project.
  - Watershed protection standard
- Share slides from Kerem's presentation.
- Schedule Steering Committee meeting #2 for late January.
- Finalize Technical Committee.

DISCUSSION TOPICS:

1. Welcome and project overview.
   - The goal is to improve stormwater regulations via LID, climate change adaptation, and resiliency and improvement of day-to-day program.
   - This process is to come up with a framework for the rules which will then go on to the rulemaking process. There is currently no draft of the updated rules. That is to be created with the recommendations from the Steering and Technical Committees.
   - Two parties: Steering Committee (looking at big picture of stormwater regulations; coming up with task for Technical Committee) and Technical Committee (create framework for chapter 500 update based on Steering Committee suggestions).

2. Introductions
   - **FBE**
     - Bina Skordas: Senior Project Manager. Facilitator
     - Maggie Kosalek: Facilitation support; notetaker.

- **DEP**
  - Kerem Gungor: Senior Environmental Engineer in Bureau of Land Resources. Has supervised the DEP stormwater team since spring 2022 and is spearheading these efforts to improve stormwater regulations.
  - Rob Wood (DEP): Director of Bureau of Land Resources.
  - Naomi Kirk-Lawlor (DEP): Policy development specialist in Office of the Commissioner. Will be helping with the rulemaking process.
  - Dave Waddell (DEP): Water Bureau. Reviews projects and helps create permits.
  - Cody Obropta (DEP): Environmental Engineer. Reviews stormwater and site law applications; heads 5-year recertification efforts as well as post-construction stormwater maintenance efforts; and does internal and external education.

- **Steering Committee**
  - Brenda Zollitsch (Bangor Area Stormwater Working Group): Facilitator and representative of BASWG; faculty at University of Southern Maine teaching public policy to graduate students.
  - Brian Ambrette (Governor's Office of Policy Innovation and the Future): Climate Resilience Coordinator for GOPIF.
  - Curtis Bohlen (Casco Bay Estuaries Partnership): CBEP Director. Involved in Chapter 500 long ago and on various projects throughout his career. Currently working on the Long Creek watershed project.
  - David Courtemanch (The Nature Conservancy): Former DEP employee where he worked with staff on Chapter 500.
  - Doug Roncaratti (City of Portland): Stormwater coordinator. Involved in last iteration of stormwater regulation changes in 2015. Believes stormwater is front and center of tension between protecting natural and water resources and allowing and planning for sound development.
  - Fred Dillon (City of South Portland): Stormwater Program Coordinator.
  - Ivy Frignoca (Friends of Casco Bay): Casco Bay Keeper. Involved in MS4 process, working on stormwater issues from policy perspective. FCB also works to monitor water quality in Casco Bay.
  - Jeff Dennis (DEP): Head of watershed management Department and long term aquatic biologist, mostly with lakes and streams. Has been working on stormwater quality since 1980 and been involved with every iteration of stormwater management rule updates.
  - Joe Laverriere (City of Saco): City engineer, previously consultant. Now reviews applications and uses stormwater for small projects. Involved in previous iterations of Chapter 500 updates.
  - John Kuchinski (City of Lewiston): Public Works department working on stormwater designs for 40 years in a few states including Maine.
  - Mark Bergeron (TRC Environmental): Engineering and environmental consultant. Previously with DEP Land Bureau for 8 years; worked on last iteration of stormwater regulation changes in 2015. TRC does much work with stormwater design.
  - Nathan Robbins (DEP): Climate change specialist and in Commissioners office. Has worked with the Climate Council.
  - Rick Licht (Maine Real Estate Development Association – MEREDA): Principal of Licht Environmental Design; civil engineer and site evaluator. Working with stormwater permitting for 25+ years. Representing MEREDA. Purpose of MEREDA is to ensure responsible development. Wants stormwater to be more of a creative process.
  - Rebecca Graham (Maine Municipal Association): Legislative advocate at MMA. Involved in Chapter 500 regulations through local planning and regulated communities.
  - Cindy Dionne (DOT): Stormwater Manager. Former DEP Water Bureau.
  - John McMeeking (Landscape Architect).

Steering committee members who were unable to attend meeting #1:

1. Matt Marks (Associated General Contractors of Maine): Meredith McLaughlin attended on his behalf.

3. Ground rules and process – *see attached.*
    - Question: If Friends of Casco Bay does educational programming on this project, can they discuss with DEP/FBE to ensure that the programming is done at the right time and with the correct information.
        - Yes, this project is a great opportunity to involve the public.

4. DEP Land Bureau Stormwater Program Overview (presented by Kerem Gungor, DEP)
    - *These slides will be provided in a separate attachment.*

5. Next steps
    - FBE to present and facilitate discussion on future Steering Committee meetings.
    - To be added to GovDelivery messaging system to receive email updates, email chapter500.dep@maine.gov with the following: name, title/job function/profession, affiliation/organization, and email address.

6. Questions

- Data shared – is the number of permits here just permits reviewed through DEP or does it include those processed through other towns/cities?
    - This is just the number of permits through DEP (Kerem's team)

- Is DEP going to consult with EPA for technical support?
    - Yes, working with a couple people from EPA.

- Has DEP looked at what other states are doing as a guide?
    - States such as NH are currently working to update their own regulations including groundwater recharge standards.
    - A Southeast New England Program (SNEP) project in Taunton watershed: developed watershed protection standards. DEP is keeping an eye on this to see how we may be able to pull from it to improve our standards. The project looks at watershed level and site level.
        - Could perhaps be interesting and helpful to have someone talk about this project at an upcoming meeting.

- Will the MCGP update that is being drafted be similar to the update EPA construction general permit (CGP) which is much more detailed? Asked since the updating of Chapter 500 regulations has to take the MCGP into account to complement it.
    - The MCGP update project is separate from this project. DEP is in communication with EPA on the MCGP update. EPA's detailed CGP is designed for their own purposes under their jurisdiction area. The MCGP is designed to meet Maine's own needs, so DEP has their own approach to it while adopting useful and applicable elements of EPA's CGP. This draft MCGP will be up for public comment when the draft is ready.

- Will there be any consideration of requiring treatment for redevelopment projects that don't require treatment under the current rules? Because every redevelopment project represents an opportunity to provide SW treatment where it didn't exist previously.
    - This will need to be discussed. Currently, for stormwater projects, there is an exception under general standards that if the existing pollutant load is reduced by a redevelopment project, then DEP can allow no treatment (for stormwater projects under 3 acres of impervious cover.

- In the past, Maine was looking to see if there was a way to get rid of the MCGP by making changes to Chapter 500. EPA said no to this, but is it still an option?

    - We are not discussing this option as this is not on the table. The MCGP will stay, but we can get creative in implementing it in a way that benefits the environment. MCGP may be used as a tool to help improve compliance.
    - The draft of MCGP will be up for public comment after EPA review.

- What does the approval process for the BMP manual update look like?
    - This will be an open process. The function and role of the manual will be discussed in this Ch.500 update process.

- How has DEP historically viewed the MCGP and Chapter 500 as different but complimentary as compared to how you view them in this round of updates?
    - Similarities of the two rules include that their jurisdictional thresholds are both one or more acres of soil disturbance.
    - The unique features of MCGP are that an ESC plan must be submitted with a Notice of Intent (NOI) to comply, and the project must be ended with a Notice of Termination (NOT).
    - Maine has developed the process such that the NOI can be submitted with the State permit to streamline the process for the developer.
    - Whether or not this is the ideal process remains to be discussed further down the road.

- Any thoughts about providing guidance for more consistently uniform ESC plans since there's currently a range of BMPs / practices included in plans submitted by designers?
    - This guidance will need to come with the new MCGP. Better guidance is needed on both the construction and post construction sites.
    - The NPS training center led by John Maclaine is doing a great job at ESC training. He is the steward of the ESC manual, so he is a key player to be involved in improving this guidance.

- Who is on the Technical Committee?
    - This is still being identified. If you have interest or recommendations, please reach out via the Chapter 500 email.
- Aren’t most contractors certified in ESC through the state program or is this just the larger contractors leaving the bulk of the smaller projects not requiring permits subject to local CEO enforcement which no CEO has real time for?
    - The topic of staff capacity will likely be a topic of discussion in this process.
    - DEP has training requirements for contractors working in the shoreland zone, but this is the only requirement at the moment. Even so, it may be that a contractor only has some certified employees, not all certified. If the project is in the shoreland zone, a certified employee must be on the project or at least on call.
    - Even though some projects are under 1 acre disturbance, they are still required to comply with ESC Law and NRPA. This issue lies with enforcement, both on the local and state level.
    - We should discuss whether certification should be required through the law or not.

- Will MCGP also be updated considering SLR and climate change?
    - This needs to be looked into, but DEP is more limited in technical regulations like this. A possibility could be to require added BMPs or cease of construction in extreme weather events.
    - Also important to tighten up timing/window in which materials are exposed.
    - Receiving streams are typically super loaded with natural sediment BEFORE entering the site due to natural stream erosion and the type of soils typically present in Maine, such that the effects of additional controls for such events are diminished.

- Will there be any consideration of requiring treatment for redevelopment projects that don't require treatment under the current rules? (Because every redevelopment project represents an opportunity to provide SW treatment where it didn't exist previously) (Fred Dillon)
    - Will be open for discussion.

- Can we get rid of MCGP and envelop it into CH500 changes?
    - No, this is not being considered. MCGP will remain and be updated as needed.

- BMP Manual updates – what does the approval process look like?
    - Open process, haven't discussed details yet. The function and role of manual needs to be discussed and clarified in this process by committees. Planning on info webinar and needs assessment in that process. The new form of the manual needs to support the rules.

- How historically have you viewed the MCGP and ch500 as complimentary yet under separate jurisdictions?
    - They have so many similarities including jurisdictional threshold (1 acre). The NOI at beginning and NOT at end of project are the big differences required by MCGP. Whether or not this is the ideal way of doing things needs to be discussed

- Considering DEP chloride concerns, what is the current thinking on requiring infiltration? Can you clarify the trigger for definition as infiltration? Is it the liner or the underdrain?
    - The standard refers to the underdrain as the trigger for definition. If you remove the underdrain, you are implicitly removing the liner; they go together. When you remove the liner, you trigger Appendix D.
    - The current rules on infiltration may be too in-depth and benefit from being simplified. This will have to be discussed when the topic of infiltration and groundwater recharge standards arises.

Comments

- Ensure that when developers are spending money on stormwater infrastructure that they are protecting the receiving water. This may mean different BMPs will be needed for different projects in different areas. IT will be important to develop guidance on BMP usage more specific to receiving water impairment. It's not one size fits all.
    - Could develop BMP recommendations for a given town based on their specific watershed(s).

- Maine is doing a GIS project that analyzes impervious cover trend in the state from 2001-2019. It will show how IC has changed on a town level, watershed level, and catchment level. The catchment area resolution is around a sq mile or less (USGS NHDPlus High Resolution Dataset) is down to about one square mile. Once this is available, it can help guide the committee's work.
    - Stormwater Management Law originally targeted "most at risk watersheds" and "sensitive and threatened watersheds", but the "sensitive and threatened watersheds" were never included due to an argument at the time (2005) that if a "sensitive and threatened watershed" sector was created, sprawl would be encouraged because it would be requiring people to do more in some places and less in others to adhere to regulations. By foregoing this, everyone was required to do the same thing/adhere to the same regulations. The impervious cover data will allow for identification of sensitive and threatened watersheds and anticipation of places that are urbanizing. This is most important to analyze in first and second (sometimes third) order watersheds (i.e., the headwaters) which are the areas that are most sensitive.

- When an application is prepared for Site Law or Stormwater permitting, there is not yet a contractor on board. The contractor makes critical decisions regarding erosion and sedimentation control. This causes DEP to receive boilerplate plans since the contractor is not yet involved. This is a major issue for large construction (5+ acres of disturbance). This causes compliance, erosion, and enforcement issues in the project and is something that needs to be looked at when updating MCGP.
    - These issues persist with utility contractor projects as well which are almost impossible to manage and are impacting MS4 significantly and often use inadequate BMPs (if any)
        - These projects typically disturb under 1 acre of land which does not trigger the permits and thus they can fly under the radar.
    - The lack of continuity between the state, city, contractor, and owners is where the issues come from.

- The compensation fee for phosphorus removal is inadequate compared to the amount of phosphorus actually being removed.

- The new MS4 permit will have a requirement for MS4 communities to build ESC into town ordinance.

- There are siloed pressures happening across state and local government regarding attack on development. The more the state is able to assist in local lifts on ESC the better due to enormous pressure for development coming from the other direction. This is especially true for towns that don't focus on ESC issues, and there have been discussions about the town just fronting compensation fees to deal with stormwater requirements for development. National housing groups view stormwater issues and regulations as onerous, and they are looking for plans to apply to all development to get away from stormwater review.
    - These MS4 communities are also now required to do annual inspection and reporting which is essentially a mini re-certification each year where property owners have to get a third-party inspection to confirm proper functioning, this is receiving pushback.

- Siloed pressures due to pressure for development. Stormwater issues and regulations are seen as onerous, and they are looking for plans to apply to all development to get away from stormwater review.

Closing Remarks

The path for future Steering Committee meetings will likely be to identify large topics for discussion versus going through Chapter 500 section by section. The project team will develop an agenda for the next meeting (January) and send a poll to Steering Committee members to guide agenda-making.

Committee meeting schedule:

	December	January	February	March	April	May	June
Steering Committee							
Technical Committee							

IN PERSON ATTENDEES	ONLINE ATTENDEES
Bina Skordas	Adam Bliss
Kerem Gungor	Aimee Mountain
Rob Wood	Ali Clift
Naomi Kirk-Lawlor	Amanda Campbell
Dave Waddell	Anna Dedon
Cody Obropta	Aubrey Strause
Meredith McLaughlin	Kristen Chamberlain
Curtis Bohlen	Colin Holme (LEA)
David Courtemanch	Craig Burgess
Doug Roncaratti	Derek Berg
Ivy Frignoca	Charles Hebson
Jeff Dennis	Ashley Hodge
Joe Laverriere	Jodie Keene
John Kuchinski	John McMeeking
Mark Bergeron	Johnathan Malloy
Nathan Robbins	Katherine Kelley
Angela Blanchette	Kristie Rabasca
Rebecca Graham	Lauren Swett
Cindy Dionne	Ken Libbey
	Lynn Leavitt
	Matthew Orr
	Morgan Jones
	Neil Rapoza
	Monika Niedbala
	Paul Ostrowski
	Peter Newkirk
	Alexis Racioppi
	Randy Stephenson
	Rodney Kelshaw
	Ryan Barnes
	Sara Walsh
	Sean Donohue
	Sean Thies

	Alison Sirois
	Stephen Salsbury
	Theresa McGovern
	Kirsten Thompson
	Tom Milligan
	Lauren Walsh
	Whitney Baker
	William Savage
	Gregg Wood
	Brenda Zollitsch
	Fred Dillon
	Rick Licht
	Brian Ambrette

Additional information regarding the Taunton Watershed Project:

"*Holistic Watershed Management for Existing and Future Land Use Development Activities: Opportunities for Action for Local Decision Makers: Modeling and Development of Flow Duration Curves (FDC 1 and 2 Projects)*

This two-year, two-phase project funded by the Southeastern New England Program (SNEP) investigated the possibility of developing and applying Flow Duration Curves (FDC) and Runoff Duration Curves (RDC) for addressing watershed impacts resulting from impervious cover. The project's Technical Steering Committee consisted of federal and state agencies, non-governmental organizations, academia, and consultants. The project was completed last year.

The Executive Summary is highly recommended for gaining a better insight into the key objectives and components of the project: specifically, the environmental importance of controlling in-stream flow frequency and duration through site-scale Stormwater Control Measures or Best Management Practices (BMPs) to counteract the impact of land development.

In addition to multiple project deliverables, there is a three-hour long recorded webinar available on the project's website.

Phase 1 of the project (FDC1) concentrated on watershed-scale stormwater management under the future land cover and climate scenarios.

Phase 2 of the project (FDC2) focused on site-scale stormwater management through RDC based on the performance curves of the post-development BMPs.

We strongly recommend "Appendix G. Methodology for the Development of A Watershed Protection Standard (WPS)" technical memorandum available in the "Appendices for FDC2B Draft Final Report". The WPS provides groundwater recharge level of control which contributes to the overarching Low Impact Development goal of mimicking pre-development hydrology. As stated in the Department's presentation in the first Steering Committee meeting, Maine's Stormwater Management Rules (Chapter 500) do not include a groundwater recharge standard."

CHAPTER 500 STAKEHOLDER ENGAGEMENT | STEERING COMMITTEE MEETING #2 MINUTES

RE: **Chapter 500 Stakeholder Engagement, Steering Committee Meeting #2**
DATE: Monday, February 5, 2024
TIME: **9:30am – 1:00pm**
LOCATION: Hybrid: in-person (Deering Conference room 101- 90 Blossom Ln, Augusta ME) & remotely via Microsoft Teams
INVITEES: Kerem Gungor, Naomi Kirk-Lawlor, and Rob Wood (Maine DEP)
Bina Skordas and Maggie Kosalek (FB Environmental Associates)
Chapter 500 Steering Committee
Chapter 500 Stakeholders

MEETING OVERVIEW:

TOPIC	WHO	ESTIMATED DURATION
1. First Steering Committee Meeting minutes & overview	Bina Skordas (FBE)	5 mins
2. Stakeholder input	Stakeholders; facilitated by Bina Skordas (FBE)	5 mins
3. Presentations on (a) Taunton Project, (b) Impervious Cover Changes in Maine, (c) LID Standard Proposal Framework, (d) Other Major Proposals, (e) New MCGP Large Construction Standards And general discussion and questions	(a) Mark Voorhees (UNH) & Robert Roseen (Waterstone Engineering) (b) Kerem Gungor & Jeff Dennis (DEP) (c) Kerem Gungor (DEP) (d) Kerem Gungor (DEP) ~~(e) Kris Bears (DEP)~~ *Postponed to next meeting*	165 mins
Break (10 min)		
4. Identify & prioritize key topics	Steering Committee; facilitated by Bina Skordas (FBE)	10 mins
5. Stakeholder input	Stakeholders; facilitated by Bina Skordas (FBE)	5 mins
6. Next steps: future meetings	Bina Skordas (FBE)	10 mins

1. First Steering Committee Meeting minutes & overview:
    - Minutes are approved.
    - Process intentions: improve stormwater regulations via LID, climate change adaptation, and resiliency and improvement of day-to-day program. Develop a framework for the rules which will then go on to the rulemaking process.
    - Feedback: Q&A / FAQ will go online.

2. Presentations on relevant information:

Taunton Project: Holistic Watershed Management for Existing and Future Land Use Development Activities
Mark Voorhees (UNH) & Robert Roseen (Waterstone Engineering)

- 2-year intensive analysis of stormwater management impacts, particularly relating to using flow duration curves and runoff duration curves. The purpose of the study was to better understand how to avoid having to fix problems with stormwater control measures (SCMs) after implementation.
- Analyzed groundwater recharge under four different conditions: Pre-development conditions, new IC with no control, new IC with MA MS4 control, and new IC with watershed protection standard (WPS). WPS becomes more necessary to attain pre-development recharge conditions as soil becomes less permeable and drainage decreases.
- Watershed Protection Standard is intended to return development impacts to predevelopment hydrology, nutrient load, and landscape resiliency (peak flow controls).
- Although the monitoring results showed good results for both MA DEP and WPS standards, runoff duration curve modeling showed that the WPS will get you much closer to pre-development conditions under a variety of runoff conditions.
- Questions
    - How does roadway nitrogen get removed just by infiltration? Or is the assumption being that if it infiltrates, the nitrogen is not directly put into surface waters, but rather into the groundwater?
        - Mark: Yes, we recognize that dissolved nitrogen will move through the groundwater and that depending on location within the watershed will be attenuated further based on its path unless it's directly into sand adjacent to sensitive coastal waters. In the tracking of this we are contemplating accounting for the attenuation and/or lack thereof. Generally, we see dissolved inorganic nitrogen as being typical 30-50% of total nitrogen.
        - Robert: This is actually a design challenge which could be handled easily by putting runoff through vegetated infiltration before getting to subsurface infiltration. This wasn't done in the Taunton study because there was no TMDL to deal with.
    - How do you deal with densely developed urban watersheds and how do you determine what predevelopment conditions are?
        - Mark: One of the real-world applications was a commercial redevelopment. We assume natural land for pre-development (meadow-forest). Implementation of small-scale infiltration controls goes a long way to solve these issues.
        - Rob: Sometimes predevelopment condition is not being viewed as natural land from a permitting sense. Sometimes the existing load is the "uncontrolled" condition.
    - Maine DEP has been hesitant to allow roadway infiltration, because of salt issues. How do you handle this in MA?
        - Tom: In Boston, they have winter bypass of runoff flows in their stormwater systems.
        - Mark: Other than what Tom mentions about Boston, I'm not aware that this is being considered directly except lower salt applications in drinking water watersheds. I think it depends on the receiving waters (coastal marine, larger rivers or low order streams). I think diversion during high chloride runoff times of the year needs to be more fully vetted.
    - Did you monitor volatile organic compounds? Any impacts on groundwater with additional infiltration? Concerns about groundwater contamination?
        - Mark: I'm not personally aware of the volatile organic monitoring and think that it makes sense that hot spots for such source areas be excluded for infiltration.
    - How do you take what you learned on a watershed level and apply it statewide where some areas are rural and some are developed, like Maine?

        - Rob: The larger the volume of infiltration for recharge the better. If we can manage peak controls in the form of infiltration, that's accomplishing it. Something surprising in the modeling data is that we were meeting peak flow control for MA DEP standards, but when you look at it under a runoff duration curve, it is substantially different.
        - Mark: The costs of restoration are very high, so having good protection standards in place for a developing area can save a lot of money and protect resources.
    - Do you have a lot of chloride being put down on your roads?
        - Rob: We used porous pavement at one project site which deterred the need for salt, but porous pavement has its own issues and can be challenging. The issue of chloride is really challenging.

Impervious Cover Changes in Maine
Kerem Gungor & Jeff Dennis, DEP

- Analyzed how IC changed after the implementation of the IC law, using USGS (NHD), National Land Cover Database (2001-2019), and DEP/MEGIS data.
    - 57 HUC12 watersheds had IC increase of over 100 acres from 2001-2019, making these the watersheds of interest for rapidly increasing IC. Many of these are centered around major highways (I-95 & I-295).
    - 35 1st order and 10 2nd order catchments increased to over 10% imperviousness 2001-2019. Can use GIS to screen these catchments to understand which streams need to be further inspected to analyze stormwater standards performance.
- Case Study: Stone Brook watershed, Bond Brook Headwater catchment, and Meadow brook watershed, Augusta. Each of these areas has IC >10%. GIS screening will allow us to search for and find watersheds/catchments like this to analyze if further monitoring is needed.
- Main takeaway: stormwater regulations do not necessarily drive development sprawl.

Watersheds & Existing Chapter 500 Standards
Kerem Gungor (DEP)

- Urban Impaired Streams Standard: Require General Standards AND mitigation of IC or pay compensation fee (Ch.501).
- Phosphorus Standard: different thresholds for at risk lakes versus all other lakes; potentially have to pay compensation fees.
- General Standards: apply to all non-lake and non-UIS watersheds. This results in too much regulation on rural watersheds and not enough for urban watersheds. LIDs are suggested and incentivized but not effectively. The standards need to be more watershed-specific.

LID Standard Proposal Framework
Kerem Gungor, DEP

- Proposed additions cover the following:
    - Groundwater recharge level of control;
    - Core LID standards;
    - Sensitive and threatened watersheds; and
    - Watershed stressor guided SCM selection.
- LID Implementation Chart: Specifies LID standards for specific waterbody types.
- Groundwater Recharge Requirement: Specifies groundwater recharge requirements for different soil types. Sets standards for amount of runoff infiltrated.
- Stormwater Control Measure Performance Curves: Used to determine design storage volume for SCM designs.
- Water Quality Level of Control & Performance Curves: DEP proposing stressor-guided SCM design to best treat stormwater for each different project/development. Pollutant removal will be 70% for UIS and 60% for other watersheds.

<u>Questions</u>

- In the LID Standard Implementation Chart - are the definitions of watershed type (for example not in a UIS) static? Or will they be periodically updated, if so, how often?
- Are the "Core LID Standards" required?

    - Yes.
- The percent pollutant removal of 60-70% is not achievable with all pollutants of concern.
    - We are focusing on nitrogen and phosphorus, no other pollutants.

Other Major Proposals
Kerem Gungor (DEP)

Flood Control Proposal
- Current flood standard does not specifically target overbank and extreme floods, which are occurring more frequently.
- Other states focus on peak flow attenuation, precipitation data, and storm distribution to determine flood control standards.
- See presentation for DEP proposed changes to the Ch500 flooding standard.

Two-Step Permitting: Post-Construction to Construction
- Decouple MCGP and Chapter 500 and specify Chapter 500 to post-construction phase and MCGP to construction phase.
- Contractor becomes a key actor in ESC planning and design.
- The goal is to create more effective and responsive construction stormwater management.

Technical Guidance: Stormwater Manual
- This is a dynamic field as SCMs are constantly updated and created. The goal is to move the technical details of these systems to the manual so they can be updated as needed.

Other Proposals/Recommendations
- 5-year recertification.
- Construction oversight.
- As-built plan.
- Phosphorus.

Large Construction Activity Standards in New MCGP
Kris Bears, DEP
- Moved to the next meeting due to time constraints.

Questions/Discussion

- In the IC analysis, did you look at how the water quality changes from 2001 to today in relation to IC increase? This seems to be important in gauging how we have done in terms of current stormwater standards and treatment.
    - There is not enough data or any data for most of the catchments.
- There seemed to be a big overlap between HUC12 watersheds with high IC increase and urban impaired streams. Wouldn't this mean you have data for these areas to address the previous question?
    - There still needs to be more in-depth analysis of first and second order catchments including types and timing of development, permitting data, etc. This will require more time and effort.
- What is the direction for solving the chloride issue?
    - This has been the hardest to address. Hoping the Steering Committee charges the Technical Committee with brainstorming ways to solve this problem.
- Will we discuss the MCGP more?
    - Yes, it will be presented and discussed next meeting.
- How can we look at all the different standards and programs we have out there – MS4, TMDLs, MCGP, Maine Climate Council recommendations, etc. – and make sure our recommendations align with/complement those and allow us to meet the goals of them? For example, if BMPs are not pollutant specific, it is more challenging for communities to meet TMDL requirements.

    - Maine Climate Council (MCC) recommendations: DEP went through the MCC recommendations and commented on each as they relate to Ch500. This document will be shared with the Steering Committee. Note that not all of the recommendations fall under the jurisdiction of Ch500. Some fall under other areas of the Stormwater Law. There is only a tiny number of projects permitted under Ch500 that have to do with draining to coastal wetlands and thus being impacted by sea level rise.
    - There will be harmonization between MS4 and Ch500. Gregg Moore will be utilizing the conversation that comes from this process in updating LID standards for the MS4 permit.
    - Standards and tools created by other New England states and EPA will be leveraged in curating updates.
    - For TMDLs, this is the first time Ch500 is aiming to address specific pollutants, so this is trying to accomplish harmonizing TMDLs. Clearly our watersheds are still impaired under current regulations, and we don't know the perfect solution due to lack of data, but if we wait for the data, it will take too long.
    - The method in which we ensure all these aspects complement each other will undoubtedly be a part of conversation throughout this process.
- The rules have forced us away from infiltration for a long time, and now we are trying to focus on infiltration, so there will have to be thorough discussion on how we implement this. Implementing LIDs to accomplish this goal on site is already challenging. As an example, despite it being a great option, the LID credit for a rain garden is minimal compared to filter beds which are filtration systems instead of infiltration systems.
    - Our approach to stormwater control measure design needs to be changed. One of the key components will be limiting the drainage areas that each SCM treats. Once you start distributing smaller SCMs across a project site, you can stay on the surface and don't need to dig deep (which is causing issues under current practice in hitting bedrock, groundwater, etc.). We will need to get creative with our SCM toolbox (e.g., rainwater harvesting via rain barrels). The SCM manuals will be updated to include new SCMs and strong technical guidance.
    - Right now, Ch500 includes regulation framework as well as technical requirements which makes it difficult to modify over time. Ch500 should be the regulatory framework and the SCM manual should include the technical requirements and be able to be modified over time as these requirements change.
- What are the thresholds for MCGP and Ch500?
    - All permit structures are currently based on a threshold of 1 acre of soil disturbance, and this is not proposed to be changed. If we split permits as proposed in the presentation, we will do away with stormwater PBRs because they will be taken care of under MCGP. IC and developed area will be focused on under Ch500. Both regulations will still have a 1 acre threshold.
- Ch502 is for UIS and LMARS? And the 305b report is for impaired waters – is there going to be a regulatory process that identifies stressors?
    - We were not anticipating a regulatory process. If there is no data available, there will be default stressors. Identified or default stressors will serve as guidance when deciding which SCMs to use from the manual. Default stressors will be phosphorus for freshwater and nitrogen for estuarine waters.
    - The anticipated method will be to focus on the default stressor until we can use the IC tool to identify at-risk waterbodies then go through them one by one to identify stressors of concern. As this happens for each waterbody, the mitigation plan and chosen SCMs can be tailored to address the appropriate stressors.
    - Chloride may be a default stressor for some waterbodies considering how it is rapidly growing as an issue and is a clear pollutant in some watersheds.
- It used to be implied in the standards that there would be a pass for redeveloping from parking lot to building. This seems like a good opportunity to implement SCMs. Is this pass off the table now and will there be requirements to implement SCMs in this type of redevelopment?
    - This is to-be-decided as there needs to be more discussion on it. It is not necessarily off the table.
    - Looking at the watershed characteristics will be helpful in deciding this. Take a watershed that is already highly urbanized - if someone is planning a redevelopment of an already-developed area in poor shape and they are planning to remove a lot of IC, this may be enough already.
    - We could potentially consider environmental justice aspects with redevelopment.
- Might the designation of a watershed being "at risk" become a challengeable action that someone can complain about?

- What actually ends up dominating the way a stormwater design engineer implements their work on the ground? This will help guide our work by thinking about the practical implications of how Ch500 will be implemented in the field. Thinking about this process is how we will get real work done.
    - Dominating factors are cost, time, and determining what the easiest way to get through the DEP process is.
    - Many people are restricted to one lot and whatever comes along with that lot (i.e., fully IC lot vs. green lot). Sometimes there are very limited options for lots, so understanding these implications will be very helpful in shaping the regulations and manuals.
    - People are typically driven by location over what stormwater regulations are in the area. It is also interesting to note that the areas identified by the IC tool are primarily in MS4 communities. This gives us a good idea of where people are going to develop in the state.
    - Portland is incentivizing people to build out roof over parking lot since parking lots contribute more pollutant loading than roofs. If they increase roof runoff instead of parking lot runoff, they can reduce quality control and save money.
    - Maintenance is really important in implementing these SCMs as well and has to be included.
- There is a quote from NH in the Taunton materials that states at a 1 acre threshold, we are capturing 30% of IC, whereas at a 5,000 sqft threshold, we are capturing 80% of IC. Why aren't we looking at a lower threshold to address this problem?
    - This brings up the point of legacy development that was created before stormwater laws. This is arguably a greater concern than <1acre developments. We don't have a method to address these legacy developments other than the redevelopment standards.
- Addressing <1acre developments becomes unmanageable by the DEP team when you are looking at the entire state. This is a responsibility that could be taken on at the municipal level by MS4s.
    - This goes back to understanding the considerations between MS4, Ch500, MCC recommendations, etc. This will allow us to address areas that need lower thresholds, redevelopment considerations, etc.
        - Some MS4s are already going above and beyond the 1acre threshold, though likely voluntary, so it is definitely worthy of discussion in how this may be implemented through regulations.
    - Looking at LID from a planning perspective instead of solely stormwater perspective will save time and money and help communities better address watershed issues.
- Chat: One of the major issues that I have seen over the years is the disconnect over time with residential subdivision especially, once the developer has sold all the lots, and when the homeowners association supposedly takes over responsibility for storm water structures. Many, many times, the homes get sold to new homeowners that have no idea when they purchase their properties that they are required to maintain storm water structures. In my opinion this is a major disconnect and issue with storm water treatment maintenance in future years. Many storm water structures are not maintained by homeowner associations, so not operating as originally designed.
- Chat: All of the hardships to developers and the task of maintenance are understood. But at the end of the day, we need to develop standards of practice that will not only preserve the characteristics of receiving waters, but improve those that are now impaired due to the lack of management in the past. It took us 400 years to get to this point, and we will not turn it around in one year or ten. The standards need to be developed with the long view in mind, and that they will ultimately need to adapt to future considerations.
- Chat: Agree with several of prior speakers - we should be working to incentivize re-development and Smart growth and providing more flexibility towards creative solutions where strict compliance with the BMP Design Standards cannot specifically met in tight urban areas... A single example is when using pervious pavers as a BMP the pavers count against you as impervious area in your SW impervious are calculations while that SW BMP is providing a positive benefit.
    - Permeable pavers are the least well-maintained BMP.
    - UNHSC research showed that after 3 years, most permeable pavements lost over 90% of their permeability, primarily due to lack of maintenance.
    - The lack of specifications in BMP designs has caused issues in the ability to maintain and inspect them.
    - Developing creative solutions will be key to handling the vast differences between sites and necessary designs.
- The criteria for the 5-year recertification are quite light compared to what is done for MS4 annual inspections. It would be nice to have consistency between these two.

3. Identify and prioritize key topics for discussion (facilitated by Bina Skordas, FBE)
   - Poll results: there was a general consensus of priority topics between the stakeholders and Steering Committee.
   - Topics vs Considerations: Considerations will be discussed for every topic. They will not be their own discussions as they touch on each topic and are important to consider throughout all parts of Ch500.
   - The current lists are below with additions mentioned in the meeting. Please reach out to the Ch500 email with feedback on any additions to either list.

Topics

- LID Standards & Green Infrastructure.
  - Groundwater recharge.
  - Water quality.
  - Channel protection.
- New development vs redevelopment.
- Flood control.
- Stormwater control measures/manual.
  - Specify BMP designs and respective reduction rates.
- Standard conditions.
  - Inspection & maintenance.

Considerations

- Climate change.
- Municipal effort.
- Clarity.
- Treatment level.
- Environmental justice.
- Watershed scale stormwater management.
- Permitting considerations.
- Regulatory implications.
- On-the-ground implementation.
- Legal challenges.

4. Stakeholder input
   - Priority will be given to the Stakeholders who are not on the Steering Committee.
5. Next steps
   - Steering Committee meeting #3: tentatively February 26th.
   - Technical Committee meeting #1: tentatively March 18th or 20th.

Resources provided to Steering Committee:
-Meeting #2 presentations.
-DEP MCC Resiliency Proposal (DEP comments on MCC recommendations).
-DEP Flood Control Proposal.
-DEP LID Standard Proposal.

In-person Attendees

Tracy Krueger
Bina Skordas
Jeff Dennis
Kerem Gungor
Ivy Frignoca
Curtis Bohlen
Cindy Dionne
Rob Howard
John Maclaine
Fred Dillon
Doug Roncarati
Cody Obrupta
Rebecca Graham
Matt Marks
Joe Laverriere
Dave Courtemanch
John Kuchinski
Mark Bergeron
Brian Ambrette
Angela Blanchette
Kris Bears

Online Attendees

Maggie Kosalek
Abby Sherwin
Adam Bliss
Ali Clift
Aimee Mountain
Amanda Campbell
Andrew Hedrich
Andrew Manzi
Boyd Snowden
Ben M
Ben Torres
Brenda Zollitsch
Charles Norton
Charlie Baeder
Christine Rinehart
Damon Yakovleff
Derek Berg
Shane Decker
Derek Berg
Ethan Moskowit
Frank Crabtree
Gretchen Anderson
Alex Groblewski
Charles Hebson
Ashley Hodge
Jan Wiegman
Jeff Spaulding
Jessa Kellogg
Joe Marden
Johnathan Malloy
John McMeeking
Ken Libbey
Kristie Rabasca
Lauren Swett
Lynn Geiger
Lynn Leavitt
Mark Arienti
Mark Vorhees
Matthew Orr
Matt Provencher
Mike Foster
Morgan Jones
Neil Rapoza
Paul Ostrowski
Peter Newkirk
Alexis Racioppi
Randy Stephenson
Rich May
Nathan Robbins
Marybeth Richardson
Rick Licht
Robert Roseen
Ryan Barnes
Phoebe Scott
S Jain
Sean Donohue
Stephen Salsbury
Steve Blake
Stuart Cole
Tom Ballestero
Lauren Walsh
William Lane
Emily Wood
Gregg Wood

CHAPTER 500 STAKEHOLDER ENGAGEMENT | STEERING COMMITTEE MEETING #3 MINUTES

RE: **Chapter 500 Stakeholder Engagement, Steering Committee Meeting #3**
DATE: Monday, February 26, 2024
TIME: **9:30am – 1:00pm**
LOCATION: Hybrid: in-person (Deering Conference room 101- 90 Blossom Ln, Augusta ME) & remotely via Microsoft Teams
INVITEES: Cody Obropta, Naomi Kirk-Lawlor, and Rob Wood (Maine DEP)
Bina Skordas and Maggie Kosalek (FB Environmental Associates)
Chapter 500 Steering Committee
Chapter 500 Stakeholders

MEETING OVERVIEW:

TOPIC	WHO	ESTIMATED DURATION
1. Topics & considerations review	Bina Skordas (FBE)	15 mins
2. Taunton recap and discussion	Bina Skordas (FBE) & Cody Obropta (DEP)	20 mins
3. IC analysis recap and discussion	Bina Skordas (FBE) & Cody Obropta (DEP)	20 mins
4. LID standards discussion	Bina Skordas (FBE) & Cody Obropta (DEP)	70 mins
Break (15 min)		
5. Flooding standards discussion	Bina Skordas (FBE) & Cody Obropta (DEP)	40 mins
6. Stakeholder input	Stakeholders; facilitated by Bina Skordas (FBE)	20 mins
7. Next steps	Bina Skordas (FBE)	10 mins

1. **Topics & considerations review.**

Topics

- LID Standards & Green Infrastructure.
  - Groundwater recharge.
  - Water quality.
  - Channel protection.
- New development vs redevelopment.
- Flood control.
- Stormwater control measures/manual.
  - Specify BMP designs and respective reduction rates.
- Standard conditions.
  - Inspection & maintenance.

Considerations

- Climate change.
- Municipal effort.
- Clarity.
- Treatment level.
- Environmental justice.
- Watershed scale stormwater management.
- Permitting considerations.
- Regulatory implications.
- On-the-ground implementation.
- Legal challenges.

- On "watershed scale stormwater management": The goal is to address specific needs for different watersheds/areas of the state. Hoping to do this through the sensitive & threatened watershed approach.
- Although DEP would like to take a fully holistic approach to updating these regulations, it is important to remember that some aspects are out of the scope of work for them.
- Reminder of organizational overview: Chapter 500 is separate from MS4, TMDL, MCGP, etc. Members of the water bureau are in the room, and we are hoping to harmonize things with their regulations, but the land bureau is not in charge of the MS4 and TMDL process, so we are not handling or making changes to those directly in this process.

2. **Taunton recap and discussion.**

- Key Points:
  - Incorporating GW recharge & controlling nutrient exports is the closest we can get to mimicking predevelopment conditions.
  - Heavily reliant on filtration.

- Discussion:
  - One of the nice things about this example is that it has more dense development, so for example, in a situation where you need more housing for environmental justice concerns, you can achieve stormwater goals.
    - Massachusetts recently implemented an EJ component to their MEPA review thresholds. The impact of development within an EJ area can be quite significant.
  - We can't apply the same stringent rules to MS4 communities as we do to more rural and undeveloped communities or communities with less resources, so we will need something like a tiered approach to fit the needs of many.
  - We have to think about soil type in a given community for their ability to infiltrate. Also, some communities (coastal) reduce a lot of runoff through evapotranspiration, and this cannot be replaced with infiltration. Many streams are only transporting water during wet weather events and are dry otherwise which means they are not getting the groundwater recharge they need to support the system. Need to find how to fix this and also deal with the salt issue when doing so. There is definitely a difference between coastal developed areas and other areas where we can infiltrate properly and take advantage of GI to the fullest extent.
  - It would be really interesting to see the Taunton study done in Maine. How does the installation hold up over time? These sorts of solutions require maintenance by the property owner which doesn't always happen.
  - Where we can't infiltrate, we need a backup. It's not always an option to pick a different site.
    - It is still not possible in some places.

        - Some current requirements make it difficult to implement infiltration when this actually seems to be the preferred method of dealing with runoff. Infiltration does happen laterally in poorer soils more than we thought, so we may be underestimating the power of it.
    - Is there any consideration by DEP that you want to avoid rendering sites undevelopable? Is there any thought to make a map that shows sites that are unsuitable for development?
        - If you own land on, for example, wetlands of special significance or coastal sand dunes, you will definitely run into issues developing aside from stormwater considerations. This rule is trying to find missed opportunities as well as address specific pollutants and incorporate LID to the extent we can. DEP is not necessarily trying to make development more difficult, especially for places where it is needed, like EJ communities, but that will always come along with placing more regulations on it. If we are trying to seriously protect our natural resources, regulations are necessary.
    - What other models did DEP review other than the Taunton study?
        - DEP has looked at models all over New England and beyond. Taunton was determined to be the most applicable due to it being relatively close, recent, and it combined a lot of the latest science on the topic.
    - Since the MCGP will be much different than it currently is, seeing a draft of it to keep in mind during this process would be helpful.
        - We will be discussing this at the 4th Steering Committee meeting where Kris Bears will give a presentation on it.
    - In DEP's proposed changes, there seem to be two different ways to address pollutants. There is an intention to add total nitrogen in the same way there is phosphorus now, and then there is also a way to address pollutants of concern and chloride seems to be under this. Can you explain these distinctions and how you would determine impairments, especially since we don't always have the data to understand the impacts of these?
        - This specifically pertains to sensitive and threatened watersheds. We want to equip stormwater designers in these watersheds to actually address these pollutants of concerns. This is why we are adding in the total nitrogen aspect, especially for coastal communities where this is more of a concern than phosphorus. Likewise, with chloride, this is a very prominent and difficult pollutant to deal with. None of this is fully fleshed out, so that is intended to be a part of this process.
    - Regarding infiltration -agree with many of comments and on the technical end the need to protect groundwater. However, let's look at Ch500 Appendix D1-4: the tone of the regulation is very negative (i.e. language such as "may not" and "must include") and there are very stringent requirements for aspects such as monitoring, which in some cases (aquifers, Adams Soils, etc.) are well justified, but the rules and the need to line most systems into a bath tub (essentially making the system a :filtration system with an underdrain) puts this BMP at the bottom of the toolbox for many qualified sites. We need to make sure the technical standards are validated (i.e., 2.41 inches per hour, etc.).

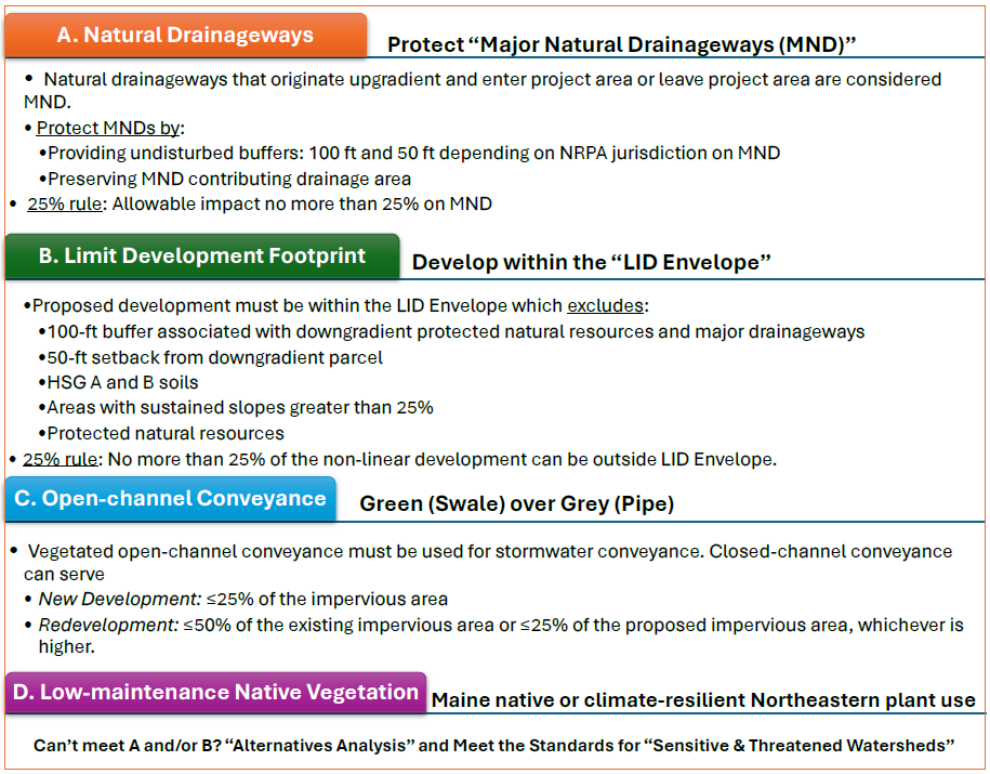
3. IC analysis recap and discussion.

- <u>Key Points:</u>
    - Impervious cover increases in concentration are:
        - Along transportation hubs
        - In areas with local laws stricter than Ch 500 rules
    - Need to establish threatened/sensitive watersheds.
        - Mandate already exists in Stormwater Management Law (SWML). This is not currently being utilized.
- <u>Discussion:</u>
    - Lewiston goes from densely developed area to very rural within a few miles. We have strict development regulations in the densely developed city center and they get more lax as you reach more rural areas.
    - There are so many development projects that fall under the 1 acre threshold, especially in the southern Maine towns. It seems like it would make sense to lower this threshold to capture those. In

Portland/South Portland we have the staff to handle these projects under 1 acre, but many smaller towns do not.
    - The 1 acre threshold at the state level is pretty common among other states. DEP relies on municipalities to create their own regulations for projects under 1 acre. It is not feasible for DEP to lower the standard due to staffing constraints, and this is a better suited job for municipalities.
    - Addressing redevelopment in which the original development occurred before stormwater regulations existed is a really good opportunity to implement change.
  - Can we use % IC to determine threatened/sensitive areas? This may help to reduce rate of development in communities where it is high and threatening to the health of waters.
    - Using IC to determine risk areas misses the ability to identify sensitive areas since this should be more based on sensitive resources (i.e., shellfish, fish, etc.).
    - The smaller the stream the more sensitive it is and the more likely it is to be threatened if stressors are introduced. How small are we willing to consider? At what level can you still maintain a healthy community? This may help us determine which areas of the state are more important/worth targeting for protection.
    - It is also really important to focus on watersheds that are not yet threatened and pay attention to them so that they do not become at risk. There are a lot of small developments going in on a lake such as Watchic Lake that are under 1 acre, but all these added up may eventually lead this watershed to be on the highly developed list. We want to proactively prevent these issues from happening.
    - Different class streams should have different standards that are specific to their needs.

4. LID standards discussion.

- Key Points:
  - Need clear, specific, and measurable standards.
    - Core Standards:



  - Establish sensitive/threatened watersheds.
    - Additional GW recharge requirements here.
    - Nutrient removal requirements (performance curves).

- Discussion:

- Why is IC not a part of the core LID standards?
  - If you address the core LID standards, you will be considering and impacting IC. IC is not directly mentioned in the core standards because the point of them is to minimize impacts and be as close to a natural state as possible, which, in an ideal world, means no IC at all. The point is also about effective IC versus real IC. If you have a large impervious area that you are infiltrating through the whole area, the impact is 0. If you have a small impervious area that is completely runoff, there are impacts.
  - DEP was also trying to address IC with the LID envelope (i.e., 25% rule under B, above). If you are following these rules, then you have to minimize IC.
    - This needs to be very clear in the rules.
- The standards are missing the specific language to minimize impacts to the maximum extent possible (i.e., low maintenance native vegetation – maintain to the maximum extent possible / don't cut anything down). Need to clearly define that this is the purpose – minimize impact.
  - In Portland, developers get credit for developing on the already existing footprint and not expanding it. There are lots of other factors that come along with redevelopment too. The distinction for everything from development to greenfield must be made.
  - Ch500 Section 4 redevelopment standards should be revisited to provide more incentive to brownfield sites. For example, taking an almost entirely historical/legacy lot, making it into an economic contributor to the community, going through VRAP to clean the site and use Smart Growth principles, reducing IC – still having to treat 60% of the site after all this doesn't make sense. We need to look at specific examples and run the numbers to see if tables 1 and 2 here should be revised. Incentivizing is key.
  - Rules give much less credit to rain gardens and bioswales than soil filters in terms of capacity – why is this? Potentially get landscape architects involved to better define why Maine rules favor unaesthetic grass sumps instead of more habitat and vegetation focused BMPs. The go-to for meeting Ch500 standards becomes the soil filter in many projects.
- Is DEP trying to implement 50 ft buffer zone to all non-jurisdictional sites?
  - TC has to look at how this would work in a real application. This is currently a simplification and needs to be fleshed out, but the intention is to maintain natural hydrology.
- Define different standards for different areas and test them in scenarios.
- The model ordinance committee for the MS4 process did an extensive review on regulation in other states. The TC may find this helpful to flesh out the LID proposal along with the MCC recommendations and Appendix F.
  - The Technical Committee will receive and has received many of these resources.
- Have to be thoughtful in how we think about natural drainage ways since so many have been altered by humans and they still need protection. Also need to keep in mind that higher order streams and wetlands that drain into these main channels are just as important in determining the main channel's health and habitat. We need to look at the whole system.
  - We have to be careful talking about habitat under this law because it will legally get tricky.
    - Habitat is very relevant here due to the way the water quality system is set up in Maine.
- Potentially have less stringent regulations for developments that help low income communities such as low income housing.
  - Alternatively, have more stringent regulations on developments near low income housing which is where there are often unequitable development considerations.
  - Might be helpful for the Steering Committee to analyze whatever the Technical Committee comes up with for this so as to see how it impacts the market when applied to real scenarios.
  - Important to remember that there are other regimes that decide factors that impact costs (i.e., parking).
  - Defining what EJ means and the other considerations is important. <u>DEP team to work on defining all considerations from topics & considerations list.</u>

- <u>Technical Committee tasks:</u>
  - Clarify in the language that the goal is specifically to minimize impacts.
  - Decipher between threatened and sensitive watersheds.

- Define low maintenance vegetation and consider – low maintenance to who?
- Specify requirements based on different applications. Potential examples include:
    - Development vs redevelopment;
    - Stream class;
    - Sensitive vs threatened;
    - Pollutants of concern;
    - Rural vs urban (and how this is defined);
    - Population type/resource access (i.e., EJ community, different regions of state).
- Develop a framework for testing the rule changes under different scenarios. Potential considerations include:
    - Project description: size; development vs redevelopment.
    - Project location/impact characteristics: coastal vs inland; natural vs manmade channel; urban vs rural; threatened vs sensitive watershed; climate change impacts on the area; etc.
    - Cost: social; construction; maintenance; the cost of doing something now vs restoration later due to continued pollution; etc. (state costs are a consideration out of the scope of TC to be handled by DEP).

5. Flooding standards discussion.

- <u>Key Points:</u>
    - Remove precipitation table and use best available data that factors in climate change.
    - Remove 2-year peak controls.
    - Require all projects to prevent flooding access roads and meet minimum conveyance design standards.
    - More work is needed (50-yr & 100-yr storm controls? Impaired system controls? Evaluate waivers?).

- <u>Discussion:</u>
    - TC should decide on a singular best data source to use.
        - Cornell tactic? Atlas?
    - It will be important to properly educate on the changes that are made, and with this comes ensuring the language itself is clear and easy to understand
    - Specify regulations based on stream class
    - Important to consider larger storms events – perhaps leave to TC to decide just how large to go.
    - Agree with removing 2-year peak control.
    - Potentially take money that would be spent on detention basins due to new development and spend it on analyzing/addressing choke points in stream and the ability to handle the current flows with the current IC status.
        - This goes with addressing watershed-scale instead of stie-scale. It is really important to look at the whole system.
        - This may not work because when you get rid of one choke point, another one is likely created.
        - Important to keep in mind requirements from other agencies (Corps/Stream Smart) for culverts when/if addressing choke points.
    - Important to keep in mind that DEP's scope in dealing with these regulations is mainly with permits, so the scope is oftentimes forced to be smaller than would maybe be ideal. TC should figure out a way to consider larger impact.
    - Need to address uncertainty within the standards and how that will be dealt with.
        - The new standards need to be tested similarly to how the LID standard needs to be tested (and all other changes to be made)

- <u>Technical Committee tasks:</u>
    - Decide on which source to use for precipitation data.
    - Determine the uncertainty that persists after changes are made and decide how this will be delt with.
        - This goes along with testing the standard after changes are made by running it through scenarios, similar to LID standard.

- Clarify language to ensure standards can be understood by less technical audiences.
- Define DEP scope and consider how this can be framed around a watershed-wide perspective as opposed to project site specific view. Consider how regulations from other agencies and municipalities impact this.
- Specify flood requirements based on stream risk/classifications (similar to LID TC task)
- Ensure proper education of changes made (this is a task related to all Ch500 changes made, not just flooding standard).
- Consider EJ perspective (this is a task related to all Ch500 changes made, not just flooding standard). As aforementioned, DEP team will define EJ in the scope of this project along with other considerations.

6. Stakeholder input.

- Add cost to considerations to keep funding and municipal burden issues.
- Determine how low maintenance vegetation is defined and decide which plants are most effective for climate change. Potentially tap into NH stormwater center for information on this. Include in manual updates.
- Will the new standards focus on the definition of what constitutes a natural drainage way and if historical development drainage (man-made) is considered a natural drainage way?
- Consider criteria under which MEDEP stormwater engineering can waive the flooding standard (specific criteria).

7. Next Steps

- Next Steering Committee meeting: TBD. There will be two more SC meetings.
- First Technical Committee meeting: March 18th.

In person attendees

Bina Skordas
Cody Obropta
Curtis Bohlen
Dave Waddell
David Courtemanch
Doug Roncarati
Fred Dillon
Ivy Frignoca
Jeff Dennis
Joe Laverriere
John Kuchinski
Matt Marks
Mark Bergeron
Naomi Kirk-Lawlor
Rob Wood
Tracy Kreuger

Online Attendees

Adam Bliss
Alexis Racioppi
Ali Clift
Angela Blanchette
Ashley Hodge
Aubrey Strause
Brenda Zollitsch
Brian Ambrette
Brian Bernosky
Boyd Snowden
Charles Hebson
Christine Rinehart
Chuck Norton
Cindy Dionne
Derek Berg
Ethan Moskowi
Gary Fish
Gregg Wood
Gretchen Anderson
Jeff Spaulding
Johnathan Boynton
John McMeeking
Kristie Rabasca
Lauren Swett
Logan MacDonald
Lynn Geiger
Mark Arienti
Matt Cannon
Matt Provencher
Matthew Orr
Mike Foster
Nathan
Neil Rapoza
Paul Iorio
Paul Ostrowski
Peter Newkirk
Randy Stephenson
Rich May
Rick Licht
Rodney Kelshaw
Ryan Barnes
Sean Donahue
Sean Thies
Stuart Cole
William Longley

CHAPTER 500 STAKEHOLDER ENGAGEMENT | STEERING COMMITTEE MEETING #4 MINUTES

RE:	**Chapter 500 Stakeholder Engagement, Steering Committee Meeting #4**
DATE:	Monday, July 15, 2024
TIME:	**9:30am – 1:00pm**
LOCATION:	Hybrid: in-person (Deering Conference room 101- 90 Blossom Ln, Augusta ME) & remotely via Microsoft Teams
INVITEES:	Cody Obropta, Naomi Kirk-Lawlor, and Rob Wood (Maine DEP) Bina Skordas (FB Environmental (FBE) Associates) Chapter 500 Steering Committee Chapter 500 Stakeholders

MEETING OVERVIEW:

The Steering Committee Meeting will be run by the Facilitator, Bina Skordas (FBE).

Topics:

1. Topics & considerations review
2. DEP Stormwater Programs Overview (Chapter 500, Municipal Separate Storm Sewer System General Permit, Maine Construction General Permit)
3. Goals of Chapter 500 Update and General Framework Envisioned for the Bureau of Land Resources Stormwater Programs
4. Status update from the Technical Committee
5. Steering Committee Discussion
6. Stakeholder Feedback
7. Environmental Justice Discussion
8. Action Items & Next Steps

DISCUSSION TOPICS:

1. Topics & Considerations Review
    - Brief review of the Steering Committee (SC) Meeting #3 Minutes
        i. See the webpage for the meeting agendas and minutes.
        ii. Comment: this is really valuable information for other entities that are working on regulations directly related to this. It is important that they are kept in the loop, especially considering they are trying to remove as many barriers as possible.
            1. GIS Impervious Cover webapp is available on the website:
                a. https://www.maine.gov/dep/gis/datamaps/ → Maine NLCD Impervious Surface Change Tool (arcgis.com)
        iii. Are you providing these tools to other government agencies?
            1. DECD and GOPIF are included and part of the discussion.
    - Updated Rulemaking Timeline
        i. Stakeholder meetings to end in November, but SC to review final report after that.

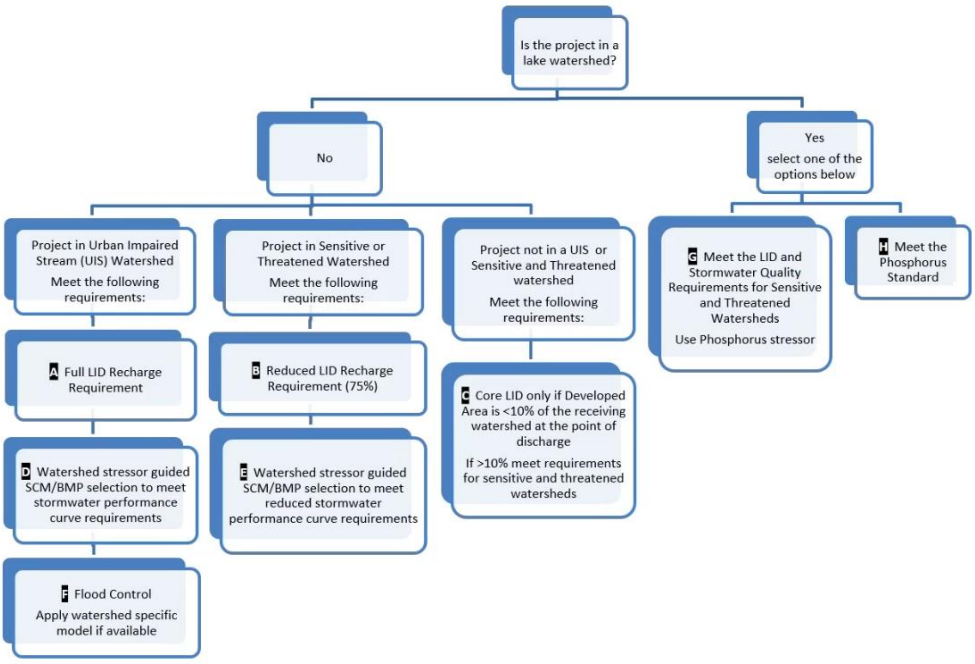
Milestone	Initial (First SC Meeting)	Updated (Fourth SC Meeting)
	Date	
Stakeholder Kick-off Meeting	December 2023	December 2023
Stormwater BMP Manual Update Project*	March 2024 – December 2025	TBD – 2026*
Final Stakeholder Meeting	June 2024	November 2024
Draft proposed rules (with stakeholder review/written feedback)	May-July 2024	December 2024 – mid-2025
Introduce proposed rule to BEP	Mid to Late 2024	Mid-2025
Provisionally adopted rule filed with Legislature	January 2025	January 2026
Final Adoption of the Rules by BEP	Mid-2025	Mid-2026
Final Manual	End of 2025	Mid-2026
*: No contractor on board yet; first Request for Proposal received no bid. Starting date "To Be Determined (TBD)"		

2. DEP Stormwater Programs Overview (Chapter 500, Municipal Separate Storm Sewer System General Permit, Maine Construction General Permit)
   Please see the Steering Committee Meeting #1 DEP presentation
   - Refresher on the state's own stormwater program (Chapter 500) and the state's federally delegated stormwater programs (MS4GP & MCGP)
   - Interoperation of the stormwater programs
   - Brief updates on
     i. New MCGP
        1. Draft MCGP has a new appendix that includes standards for "large construction activities" disturbing 5 or more acres.
        2. Ch500 appendices containing "construction stormwater management standards" will be removed and covered by MCGP.
     ii. Municipal MS4GP Low Impact Development modification
        1. Appeal from Friends of Casco Bay; a new modified App. F highlighting LID requirements. Comment period ends 7/22/2024
        2. Can you speak more to the collaboration between the MS4GP update and Ch500 update?
           a. Greg Wood & Kerem Gungor collaborating
           b. Ch. 500 supporting MS4 permit. Both trying to ensure lowest possible burden on municipalities.
           c. Stormwater / LID
              i. All the best stormwater BMPs and practices will not take the place of protecting wetlands, forests, streams .etc., so it will always be important to care about habitat restoration and not just stormwater BMPs for watershed protection. Technical Committee is definitely thinking about this.

3. Goals of Chapter 500 Update and General Framework Envisioned for the Bureau of Land Resources Stormwater Programs
   Please see the Steering Committee Meeting #2 DEP presentation
   - Overarching goals

i. Promote LID.
ii. Address climate adaptation & resiliency.
iii. Streamline rules/improve day-to-day implementation.

- The Decision Tree explaining how the following new elements apply to the
  i. Core Low Impact Development standards.
  ii. Sensitive & threatened watersheds/regions.
  iii. Groundwater recharge standard.
  iv. Stressor guided stormwater control measure/best management practice selection



v. Question (re: Stressor Guided BMP Selection): Has there been a stressor analysis so there is a list of stressors to choose from?
   1. The goal is to develop a list of stressors for each sensitive and threatened watersheds. This will be separate of Ch500 rules so it is amendable. This has not been developed yet.
vi. Question (re: Groundwater Recharge): In a chloride-impaired watershed, how do you achieve groundwater recharge without chloride contamination?
   1. This will be outlined in the BMP selection process. For example, in a chloride-impaired watershed, you may only be able to use rooftop stormwater for recharge.
   2. The definition of groundwater recharge will be centered around infiltrating clean water.
vii. Who would be doing the identification of the stressors?
   1. DEP would identify stressors.

- Vision for new Chapter 500 and MCGP
  i. MCGP for construction stormwater management - New MCGP is raising the bar and focusing on the large projects.
  ii. Chapter 500 exclusively for post-construction stormwater management
  iii. Two-step permitting: 1st Chapter 500, 2nd MCGP
- New Chapter 500 and MS4GP
  i. Chapter 500 technical reference for MS4GP.

ii. It will be very important for Ch500 and MS4 to collaborate on regulations, particularly from a permitting standpoint.
iii. There is some burden on municipalities to figure out how to comply with both regulations. Any assistance from the state that advise on complying with both is welcomed.

4. Status update from the Technical Committee
   - Review of the tasks assigned to the Technical Committee by the Steering Committee (see presentation).
   - Summary of the Technical Committee and sub-committee activities
     i. Three subcommittees formed. SC may listen into these meetings from now on. Summary of work completed by each as follows:
        1. Core LID subcommittee: still discussing core LID requirements. Planning more meetings in August with the goal of presenting ideas to the TC then SC.
        2. Groundwater recharge subcommittee: needed input from Maine DEP geology and drinking water folks which they have already provided. These inputs will be discussed in the upcoming subcommittee meeting.
        3. Definitions subcommittee: met 3 times. Goal is to fix obvious errors in current definitions; provide clarity on currently confusing terms; define/redefine terms that are evolving as rule evolves (i.e., groundwater recharge); define new terms (i.e., environmental justice); clarify what is meant by green infrastructure vs. blue infrastructure vs. LID; ensuring that words in definitions are defined.
     ii. Emerging consensus points: precipitation data (NOAA Atlas 14 - then 15 once it is available). Meeting with John Field, geologist to discuss more on flooding.

5. Steering Committee Discussion

   - Land protection is really important to consider. Add nitrogen and chloride to the list in addition to phosphorus. Still feel that the 1 acre threshold doesn't cut it but recognize that this is a very difficult topic to resolve.
   - Addressing climate adaptation and resiliency is a huge challenge open to interpretation. The goals are great but huge.
   - Support the goals, they are in line with where we're at. Also agree that climate adaptation is very important. Important to ensure that when it get to the technical BMP application, it is achievable. Also important to have a bit of flexibility in the final rules.
   - If groundwater recharge and infiltration is so challenging at some sites, then there is a need to bolster the wetland recharge protection areas. If the engineering doesn't cut it, the land preservation need is amplified.
   - The concept of paying a fee for environmental damage (i.e., filling in a wetland) seems like a poor way to go about conservation. At some point we have to consent that this is not an acceptable solution.
     - Municipalities can apply to have delegated permitting authority under NRPA.
       - Difficult to have capacity for this, but it is an option for those who do have the capacity.
   - Going through different real-life scenarios to test the rules will be extremely important.
   - For sensitive and threatened waters, is or could part of the definition be %IC so that we can look at cumulative impacts?
     - It is not envisioned to have IC as part of the sensitive and threatened watershed standard. There is not an IC estimate that is accurate enough for this to be a part of regulation. Best to focus on the pollutants that will come along with the IC.
     - Seems more important to focus on how well the IC is being treated vs solely %IC.

        - Back to the first point, if IC is being used to determine sensitive and threatened watersheds, then all new and re-development in these watersheds (aka watershed >10% IC) should be following stringent guidelines, particularly ensuring no loopholes for redevelopment.
    - For IC such as parking lots, land ownership (private or public) has the potential to really limit control over chloride use and other pollutants. There's no preventative action on this. This is something to consider.
- The progress on the precipitation is huge. Figuring out how to incorporate the margin issue (i.e., 15% increase on the 100-year storm) will also be really important to ensuring climate adaptation. Part of this is likely understanding the life span of certain LID – this comes back to testing to the importance of testing real-life scenarios. Also important to consider human climate migration – reports already show that people are moving to this region to escape climate change-induced disasters. Figuring out how this applies to Ch500 is a unique challenge. We've talked a lot about how to be proactive vs. minimize damage done.
- Location of development is also an important factor to consider in climate resiliency (i.e., development in floodplain). Overall, must improve the criteria for how we evaluate impacts to watersheds and water quality in terms of identifying and reducing stressors and minimizing impact. Also, the stressor list is separate from the rule, allowing the regulation to evolve overtime which is a good change from before.
- Outreach to municipalities is the most important aspect. Having one solid message and place for municipalities to get all the information about their watershed they need is crucial. Resources include rules, funding, and staff support.
    - Can we make broader recommendations that fit in the context of this but are not directly changing the rule (i.e., gain more funding and staff at the state level to support outreach efforts)?
        - Yes, this would be helpful and is a unique opportunity to offer bigger recommendations.
    - This outreach and education aspect can empower smaller property owners to make their own choices of improving stormwater management. This has the potential to make the <1 acre threshold gap smaller. This also reduces the burden on municipality.
- If we invest more (time, money, staff, etc.) into managing more land (lower thresholds) then there will be less new impairments in the future and thus less resources will have to be used to fix these impairments.
- What are communities currently concerned about with redevelopment and how can Ch500 more adequately address it? TO BE DISCUSSED NEXT MEETING.

6. Stakeholder Feedback

- Request for a presentation on threatened and impaired waters by Jeff.
- Needs to be more encouraged to use native plantings for treating and infiltrating runoff.
- There are a lot of 0.99 acre projects proposed to avoid Ch500 regs. Has the cumulative effects of these projects been evaluated? Maybe the PBR threshold can be reduced.
    - This is currently not on the table. DEP to develop a clearer explanation as to why.
- Post construction inspection and maintenance is a challenge whether local MS4 certification or DEP 5-year recert. BMP selection should take inspection and maintenance and municipal bandwidth into account.
- Redevelopment on brownfield, VRAP, etc. lands should be highly incentivized for redevelopment. It can be really difficult to qualify for redevelopment vs. new development.

- A lot of lawmakers are pushing for reducing stormwater/environmental regulations, particularly to stimulate building housing, so we are trying to balance the competing needs of housing and environmental protection. Worry that the 10% IC threshold will be used to block larger residential projects that meet other goals. Also wonder if there is a way to do an IC trading mechanism, similar to development transfer for density (this is done in Gorham).
    - 10% IC threshold only applies if you are NOT in an urban impaired/sensitive and threatened watershed or lake watershed. The goal is not to inhibit necessary housing, especially in light of EJ concerns.
- Regarding addressing <1 acre developments, even though it cannot be included in the rule, it would be helpful for DEP to include guidance on managing stormwater on small lots in their outreach. This way the information can be used by local planners and developers who want to build sustainably.
    - This can be a part of the broader, out-of-scope recommendations.
- Regarding construction, most pollutant loading comes from the construction phase vs. the post-construction phase. There is a gap in management strategies between MS4 and non-MS4 communities and between <1acre developments vs. bigger developments that fall under the MCGP. Communicating and collaborating with these different efforts is very important and receiving guidance from DEP would be helpful.

7. Environmental Justice Discussion
    - It is difficult to understand if we should be the people making recommendations for this as we are not experts on EJ by any means.
    - "Affordable" is the buzz word right now, and development is only affordable for a finite period of time. This is where redevelopment is going to be an important factor. EJ also means access to the ability to deal with an appeal process and ability for a homeowner to deal with negative impacts on them from another development.
    - Look at areas that are already having EJ problems and instead of allowing new development in those areas, move it elsewhere. Also utilize funds to resolve existing issues rather than exacerbating them. People should also be prevented from developing in areas where they will face EJ concerns and negative environmental impacts in the future.
    - Understanding EJ impacts on an area, has potential to guide planning.
    - While lessening the standards for affordable housing might reduce costs, what might be better is to fast-track permit approval for these projects
    - Urban infill areas are often candidates for redevelopment with reduced treatment requirements

8. Action Items & Next Steps
    - Tasks Assigned to the Technical Committee: Amendments, add new tasks, or remove tasks
        i. Add discussion about re-development.
        ii. Discuss how can creativity be allowed/ encouraged in development
        iii. Review standards concerning wetlands.
    - Tentative date and agenda for the next Steering Committee meeting
        i. Next SC meeting in September
    - Any additional information requested from the Department
        i. Steering Committee members should reach out if they are interested in attending subcommittee meetings.
        ii. Email any input to chapter500.dep@maine.gov

Attendees

In-person

- Jeff Dennis
- Nathan Robbins
- Kerem Gungor
- Fred Dillon
- Doug Roncarati
- Ivy Frignoca
- Joe Laverriere
- John Kuchinski
- Rebecca Graham
- Bina Skordas
- Rob Wood
- Cody Obropta

Online

- Abbie Sherwin
- Alexis Racioppi
- Ali Clift
- Amanda Campbell
- Ashley Hodge
- Aubrey Strause
- Brenda Zollitsch
- Christine Rinehart
- Chuck Norton
- Damon Yakovleff
- David Waddell
- Derek Berg
- Erin Wilson
- Gary Fish
- Holliday Keen
- Jami Fitch
- John McMeeking
- Josh Hogan
- Kris Bears
- Lauren Swett
- Matt Provencher
- Meredith McLaughlin
- Mike Foster
- Neil Rapoza
- Patrick Coughlin
- Peter Newkirk
- Phil Ruck
- Randy Stephenson
- Rich May
- Rick Licht
- Robert Howard
- Rodney Kelshaw
- Ryan Barnes
- Sarah King
- Sean Donohue
- Sean Thies
- Stephen J. Puleo
- Gregg Wood

CHAPTER 500 STAKEHOLDER ENGAGEMENT | STEERING COMMITTEE MEETING #5 MINUTES

RE: **Chapter 500 Stakeholder Engagement, Steering Committee Meeting #5**

DATE: Monday, September 23rd, 2024

TIME: **9:30am – 1:00pm**

LOCATION: Hybrid: in-person (Deering Conference Room 101 – 90 Blossom Ln, Augusta, ME)
& remotely via Microsoft Teams

INVITEES: Cody Obropta, Jeff Dennis, David Waddell, Naomi Kirk-Lawlor, and Rob Wood (Maine DEP)
Bina Skordas (FB Environmental Associates)
Chapter 500 Steering Committee
Chapter 500 Stakeholders

SUMMARY

The Chapter 500 Steering Committee Meeting #5, held on September 23, 2024, addressed the use of NOAA Atlas 14 data with an 18% rainfall increase multiplier until NOAA Atlas 15 is available, with consensus (with some reservation) to use the best available NOAA data for stormwater modeling. Criteria for identifying Sensitive and Threatened (S&T) watersheds were reviewed, focusing on impervious cover thresholds and municipal inclusion, with discussions on municipalities with high impervious cover and changes in impervious cover. The committee examined existing redevelopment standards, debating how they incentivize redevelopment over greenfield development, and considered the goals for redevelopment standards, including addressing past stormwater impacts and promoting brownfield development. The integration of redevelopment into Core LID and S&T standards was also discussed. Stakeholder feedback was incorporated, and the next steps for the Technical Committee were outlined to refine the standards and continue engagement.

TECHNICAL COMMITTEE INFORMATION

- **Cody's Updates:**
  - Review of subcommittee meetings and technical meeting objectives.
- Updates on working with the AG office and policy teams.
  - Stressor-Specific Committee: Focus on nitrogen (N), phosphorus (P), and chloride (Cl).
- Performance Curves: To be based on SNEPs, tailored with regional data for Maine, in collaboration with Paradigm Enviro.
- TMDL Integration: TMDL discussions to be integrated with the broader standards.
- Data for Performance Curves

Questions/Discussion

1. *Cindy requested data that informs performance curves.*
   a. Some data is available through the EPA Opti Tool and will be supplemented with Maine-specific data. More monitoring data is needed for developing performance curves for vegetated buffers, a unique consideration for Maine.
2. *Nathan Robbins stressed the importance of consistency with other state initiatives, such as the Maine Climate Council.*

3. *Ivy raised the need for criteria on different phosphorous standards*
4. *Doug highlighted effective BMPs for nitrogen and phosphorus but noted a need for more on chloride.*
    a. Jeff proposed a potential point system for chloride standards.

Consensus Items

- **Precipitation Data**
    - Does the Steering Committee support the recommendation of the Technical Committee to utilize NOAA Atlas 14 data + 18% until NOAA atlas 15 data is published? Is there an agreement to use the best available data from the NOAA atlas? Does anyone have any concerns using the best available NOAA Atlas data?
        - Endorsement: Ivy, Kerem, Doug, Nathan, Cindy, Mark Beregon (best available data to NOAA Atlas)
- **Impervious Cover (IC)**
    - Rick: How IC alone factors into the discussion.
        - Cindy: Regardless of the goal, she doesn't believe IC alone addresses the issue effectively and that the Sensitive and Threatened (S&T) designation may not be necessary. She also noted that IC doesn't account for many factors.
        - Ivy: Does Cindy disagree with using IC in the Total Maximum Daily Load (TMDL) approach, clarifying that it's not intended as a regulatory tool but simply states that IC can be used.
        - There was also a suggestion to strengthen the Urban Impaired Stream (UIS) list and the Lakes Most At Risk (LMARS) designation.

Redevelopment

- Cody presented on the current provisions in Chapter 500.
    - The committee then discussed whether they agree with the goal and how to incorporate it into the standards, reviewing various considerations.
    - Considered how to task the Technical Committee (TC) with this issue and what direction the Steering Committee (SC) can give the TC regarding redevelopment standards.
- Discussed whether implementing these standards would satisfy other parts of the permitting process.

Meeting Topic #1: Precipitation Data Source

Flooding Technical Committee Task: Decide on which source to use for precipitation data

Background

- Designers and engineers currently use a static data table located in Appendix H to model flooding standards. This data table uses information extracted from the Northeast Regional Climate Center Extreme Precipitation Tables back in June of 2014. The average design life for stormwater infrastructure is between 50 and 100 years. The Maine Climate Council released a scientific and technical assessment for the State of Maine which found precipitation intensity and storm event frequency are changing due to climate change. Using data from 2014 to model infrastructure that will potentially still be in use in the year 2100 is out of alignment with Maine's climate resiliency goals. Further, needing to engage in major substantive rulemaking to update the precipitation table when new data sets are released is a hinderance to using best available science and data.

Results from Technical Committee:

- The Technical Committee is actively voting on a proposal to use NOAA Atlas 14 data with an 18% rainfall multiplier for all design storm events until NOAA Atlas 15 is released, reviewed, and approved by the Department.
- This proposal considers the Maine DOT's analysis of CMIP5 climate model data under the RCP 4.5 climate scenario, which shows a projected 18% increase in rainfall over the next 50 years.
- The Technical Committee believes the 18% multiplier accurately reflects future rainfall projections and can be used until NOAA Atlas 15 is available in 2026, with supplemental data expected in 2027

Meeting Topic #2: Sensitive and Threatened Watersheds

LID Technical Committee Tasks:

- Decipher between threatened and sensitive watersheds.
- Specify requirements based on different applications. Potential examples include:
    - Development vs redevelopment;
    - Stream class;
    - Sensitive vs threatened;
    - Pollutants of concern;
    - Rural vs urban (and how this is defined);
    - Population type/resource access (i.e., EJ community, different regions of state).

Background

- Except for lake watersheds, compliance with the current Chapter 500 General Standards is required for projects meeting the post construction thresholds in all organized municipalities throughout the State. This is overprotective in many portions of the lightly developed areas where the density and frequency of such projects is very low. To remedy this situation the Department has proposed implementation of the mandate in the Stormwater Management Law to create a list of Sensitive and Threatened Regions and Watersheds. The standards applied to these watersheds would be aimed at preventing future impairments of the aquatic biota and the habitat they require in watersheds that are currently not impaired and elevation of impairments in watersheds that are already impaired.

Results from the Technical Committee:

- The technical committee is actively voting on the proposed criteria for inclusion into Sensitive/Threatened Watershed list (identified below):
- % impervious cover (%IC) in the watershed is the best available tool for identifying S&T stream watersheds and, specifically, that current %IC (2021 CCAP) and the 2001 to 2019 change in %IC (NLCD) were the best currently available means of assessing threat.
- Impervious cover thresholds for inclusion in the list:
    - Current watershed %IC > 10%
    - Current watershed %IC 7 to 10%, Change in %IC > 1%
    - Current watershed %IC 4 to 7%, Change in %IC > 2%
- 1st, 2nd and 3rd order streams should be evaluated and that only streams with watershed area greater than 0.8 sq km (200 acres) should be considered for inclusion on the list.
- Municipalities with the following conditions may be included in the Sensitive/Threatened watershed list:
    - high current townwide %IC (>5%) and high change in townwide %IC (>0.5%) or

    - high densities (>6) of catchments that exceed the individual watershed thresholds or
    - at least part of the municipality within a designated Municipal Separated Storm Sewer System (MS4) (Note: this is subject to subjective confirmation of appropriateness for inclusion.)
- The Technical Committee also supported future work on the following:
- Assessment of the feasibility of and methodology for identifying Sensitive and Threatened Coastal Regions
- Identification of the likely current and future stressors for the listed stream watersheds
- Evaluation of options to ensure timely updates of the S&T lists.

Meeting Topic #3: Redevelopment

Redevelopment Project Treatment Requirements:

- Treatment is scaled based on the pollutant discharge from the redevelopment, with a pollutant ranking assigned to each land use based on Table 2.
- The Department may adjust the pollutant ranking by up to 2 points based on project-specific features.

Method for Determining Treatment Requirements

1. Calculate existing impact by multiplying land area by pollutant ranking for each land use.
2. Calculate proposed impact similarly for the redevelopment.
3. Divide the existing and proposed impact ratings by total redevelopment area.
4. Subtract existing impact from proposed impact to determine treatment level.

Treatment Priorities

- Priority must be given to areas with the highest pollutant ranking.

Additional Considerations

- If meeting the general standards on-site is not practicable, equivalent treatment or mitigation on an off-site parcel in the same watershed may be allowed.
- If the redevelopment spans multiple watersheds, treatment requirements must be calculated for each.

Questions/Discussion

1. *Does the Steering Committee agree with the general goal of redevelopment standards as they exist currently (to incentivize redevelopment over new development in greenfield sites)?*
    1. If yes, should the Technical Committee be tasked with incorporating redevelopment into the standards being developed (Core LID, Sensitive/Threatened Watersheds, etc.)?
    2. If not, what should the goal of redevelopment standards be? How should the technical committee be directed to incorporate these goals?
2. *The goals of redevelopment standards should be to address impacts from the past to the extent practicable.*
3. *Incentivize development on brownfield over greenfield.*
4. *The goal should be to require some reduction of stormwater pollution.*

CHAPTER 500 STAKEHOLDER ENGAGEMENT | STEERING COMMITTEE MEETING #6 MINUTES

RE: **Chapter 500 Stakeholder Engagement, Steering Committee Meeting #6**

DATE: Monday, November 25, 2024

TIME: **9:30am – 1:00pm**

LOCATION: Hybrid: in-person (Deering Conference Room 101 – 90 Blossom Ln, Augusta, ME)
& remotely via Microsoft Teams

INVITEES: Cody Obropta, Jeff Dennis, David Waddell, Naomi Kirk-Lawlor, and Rob Wood (Maine DEP)
Bina Skordas (FB Environmental Associates)
Chapter 500 Steering Committee
Chapter 500 Stakeholders

SUMMARY

The Technical Committee reviewed updates to Chapters 500 and 502, focusing on post-construction stormwater management. Key changes include the separation of construction-related stormwater requirements to a dedicated permit, while Chapter 500 will now specifically address post-construction management, including new standards for wetland protection, runoff pollutants, and stormwater conveyance systems. The committee also discussed stormwater control measures (SCMs), with an emphasis on approaches like vegetated buffers and infiltration systems. Subcommittees made significant revisions, including renaming the Groundwater Recharge standard to the "Runoff Volume Reduction Standard" and introducing a Permit by Rule (PBR) for smaller projects. There was also concern about chloride standards, with engineers proposing a point system for better managing chloride runoff. Additionally, the Groundwater Recharge Subcommittee refined soil testing procedures and stormwater management practices, focusing on ensuring accurate soil data and proper hydraulic conductivity testing. Updates aim to streamline permitting, enhance environmental protections, and ensure more effective stormwater management across the region, with ongoing stakeholder input shaping future revisions.

TECHNICAL COMMITTEE INFORMATION

Updates

1. Technical Committee Work
    - Reviewed how the new Chapter 500 standards will work and their applicability.
    - Discussed the first draft of the Groundwater Recharge Subcommittee's consensus report.
    - Explored how GIS will aid in implementing the new standards, especially for wetland protection and natural drainage.
2. Subcommittee Activities
    - Groundwater Recharge: Renamed standard to "Runoff Volume Reduction Standard"; developed a technical memo comparing Maine's approach to that of other states.
    - Core LID: Renamed to "Basic Standards"; introduced eligibility for Permit by Rule (PBR) for certain projects.
    - Sensitive & Threatened (S&T) Watersheds: Discussed criteria for identifying S&T watersheds and how standards will evolve.
    - Stormwater Control Measures (SCM): Focused on redevelopment designs and the selection of compliant measures.

- Chloride Standards: Engineers raised concerns over feasibility; reviewed a proposed chloride point system.

3. Progress and Communication
    - Maine's Construction General Permit will be rolled out in January, with a webinar planned to help contractors understand the permit and its connection to Chapter 500.
    - The MOA between DEP, DOT, and the Turnpike Authority needs updating post-rule adoption.

Redevelopment

1. Tailored Standards
    - Revise Chapter 500 to include location- and size-specific stormwater treatment standards.
    - Address the pace of land development and watershed stressors to avoid a "one-size-fits-all" approach.
2. Addressing Specific Stressors
    - Target key pollutants such as phosphorus, nitrogen, chloride, and stormwater volume in project designs.
    - Use data like phosphorus TMDLs and chloride impacts to create more effective stormwater systems.
3. Sensitive & Threatened Watershed List
    - Develop a dynamic list of S&T watersheds based on data-driven assessments (e.g., GIS and imperviousness data), and update regularly.
4. Urban Impaired Streams (UIS) and Prevention
    - Implement targeted stormwater management practices for UIS and focus on preventive measures to avoid costly restoration.
5. Proactive Monitoring and Adaptation
    - Regularly assess stormwater management systems using updated data (e.g., new GIS datasets).
    - Introduce adaptive management strategies to adjust standards based on evolving development patterns.

MEETING TOPIC 1: UPDATING STANDARDS

Task: The committee focused on updates to Chapters 500 and 502, particularly related to stormwater management for construction and post-construction activities. The revisions hope to streamline permitting processes and enhance environmental protection in the region.

Background: The major update is the separation of construction stormwater standards from Chapter 500, with construction-related stormwater requirements now moved to the MCGP. Chapter 500 will now focus specifically on post-construction stormwater management. The changes were introduced to ensure better management of stormwater impacts on wetlands, natural drainage networks, and hydrologic systems. New basic standards were introduced to protect these natural features, and a PBR process was designed to expedite permits for smaller projects that meet these standards, encouraging developers to incorporate environmental protections early in the design phase. These updates emphasize hydrologic connectivity, ensuring that development projects don't disrupt natural water flow and drainage patterns. The revised standards introduce a more structured approach to addressing runoff pollutants, with new treatment standards for nitrogen, phosphorus, and chloride runoff, particularly in urban and sensitive watersheds.

Results from the Technical Committee: The committee introduced specific requirements in Chapter 500 to ensure the protection of wetlands and natural drainage systems. One of the key updates is the establishment of a hydraulic capacity standard for stormwater conveyance systems, ensuring that these systems can handle peak flows without contributing to erosion or water quality degradation. The committee also focused on the importance of managing runoff pollutants like nitrogen, phosphorus, and chloride, with particular attention to UIS and S&T watersheds. A new point system for managing chloride runoff is under development, offering developers different methods for addressing

chloride levels, including the use of rooftop infiltration systems. These options allow for more flexibility in how developers mitigate the impacts of urban runoff.

Additionally, the committee introduced new standards for seasonal high water table separation and hydraulic conductivity testing to ensure the proper design of SCMs. The goal is to maintain adequate separation distances to prevent groundwater mounding and avoid altering the natural flow of groundwater. A new emphasis was placed on non-structural SCMs, such as vegetated buffers and infiltration systems, which should be prioritized over structural solutions like detention basins. This non-structural approach is seen as more effective in mitigating the impacts of impervious surfaces and improving the overall health of urban watersheds. The development of these standards and permitting processes marks a significant step toward improving stormwater management, enhancing environmental protection, and promoting sustainable development practices across the region.

Discussion/Feedback:

- While there are effective BMPs for nitrogen and phosphorus, more are needed for chloride.
- Develop a point system for setting standards for chloride?
- It is going to be difficult to achieve the minimum number of points. What do people do if they can't reach this?
- The point system needs to be tweaked and the number of points may need to be lowered.

Meeting topic #2: GROUNDWATER RECHARGE SUBCOMMITTEE CENSUS REPORT

Task: The Groundwater Recharge Subcommittee worked on refining soil testing procedures and stormwater management practices to ensure better groundwater recharge. This included addressing the limitations of the Web Soil Survey, implementing hydraulic conductivity testing for infiltration-based stormwater control measures, and updating the separation requirements from the seasonal high-water table to prevent groundwater mounding.

Background: The primary goal of the subcommittee was to enhance the accuracy of soil data and improve stormwater management strategies, especially considering the limitations in the Web Soil Survey at smaller sites. To address these challenges, the committee proposed requiring soil testing to verify the findings of the Web Soil Survey. In cases where the survey's data is found to be inaccurate, additional analysis will be needed to determine the appropriate hydrologic soil group. A key part of this process includes setting a requirement for one soil pit or confirmation test per half-acre of impervious area. This standard was developed in collaboration with professional soil scientists to balance the need for accurate data without placing an undue burden on developers.

Additionally, the subcommittee focused on SCMs that rely on infiltration for volume reduction. Hydraulic conductivity testing was identified as critical to ensure that the design infiltration rate aligns with the site's actual conditions. For sites with underdrains, the need for specific hydraulic conductivity tests may be waived, as design rates based on soil types would be sufficient. The committee also worked on updating the separation distance from the seasonal high-water table to prevent groundwater mounding, with a minimum one-foot separation distance proposed as a reasonable standard.

Discussion/Feedback:

- Given the change in storm intensity, how does the seasonal high-water table consider how things are shifting with climate change?
    - Different distribution is unlikely to affect the seasonal high-water table, and that one foot of separation should meet the flux and address mounding.

Results from the Technical Committee: The technical committee proposed several key updates to stormwater management practices, including the requirement for soil testing to validate the accuracy of the Web Soil Survey data. The standard of one soil pit or confirmation test per half-acre of impervious area was considered a reasonable approach to ensure sufficient data without imposing excessive testing burdens on developers. This standard was determined with input from professional soil scientists, who helped shape the methodology.

The subcommittee also discussed the implementation of hydraulic conductivity testing for stormwater control measures that rely solely on infiltration to reduce volume. The committee emphasized the importance of testing to ensure that the site's design infiltration rate is accurate. However, if an underdrain system is used, the need for hydraulic conductivity testing may be waived, with design rates based on soil types serving as an alternative. This flexibility was considered important for accommodating various site conditions and stormwater management approaches.

The committee updated the seasonal high water table separation requirements, clarifying existing rules to ensure consistency and prevent confusion. The new minimum one-foot separation distance was deemed adequate to avoid groundwater mounding while ensuring the effectiveness of stormwater control measures. In response to concerns about shifting precipitation patterns, the committee acknowledged the potential effects of changing storm intensities and seasonal variations on the seasonal high-water table. This led to discussions about site-specific factors, such as perched water tables versus regional aquifers, which may require tailored separation distances.

Lastly, the committee stressed the importance of establishing clear and consistent protocols for hydraulic conductivity testing. Proper testing procedures are vital for ensuring that stormwater management systems are designed effectively, and that groundwater recharge is properly managed. The committee's recommendations aim to enhance the accuracy and reliability of testing, thereby supporting the updated standards for groundwater recharge and stormwater management.

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CHAPTER 500 STAKEHOLDER ENGAGEMENT | STEERING COMMITTEE MEETING #7 MINUTES

RE: **Chapter 500 Stakeholder Engagement, Steering Committee Meeting #7**

DATE: Monday December 16, 2024

TIME: 9:30AM-1:00PM

LOCATION: 90 Blossom Lane, Augusta, ME and Remotely via Microsoft Teams

INVITEES: Kerem Gungor, Cody Obropta, Jeff Dennis, Tracy Krueger, and David Waddell (Maine DEP)

Bina Skordas (FB Environmental Associates)

Chapter 500 Technical Committee & Steering Committee

Summary:

The meeting focused on reviewing the progress of updating Maine's stormwater management rules under Chapter 500. Key topics included a detailed project timeline, stakeholder feedback, and proposed new standards aimed at promoting low-impact development (LID), addressing climate resiliency, and streamlining compliance. Stakeholders discussed adjustments to definitions, new basic and general standards, and implementation of region-specific requirements. Questions and comments addressed clarity on standards, challenges with aging infrastructure, and ensuring streamlined processes for waivers and exceptions. Action items include finalizing a comprehensive stakeholder engagement report, circulating a long memo for feedback, and continuing technical work. The goal is to adopt the new rules by summer 2026.

Meeting Agenda:

TOPIC
1. Project Progress Update and Timeline Review
2. Review of Stakeholder Feedback
3. Implementation of New Rules
4. Discussion a. Stakeholder Input b. Action Items & Next Steps

Project Progress Update and Timeline Review

- 12-month long process, meetings held every month except for January and May, 7 Steering Committee meetings, 7 Technical Committee meetings, 16 subcommittee meetings, +70 hours of meeting time
    - 100s of hours updating Maine's stormwater management rules
- Technical Committee Meeting #7
    - Discussed updates and remaining outstanding items in Long Memo
    - Discussed a DEP testing and evaluation of an example project under new Chapter 500 Proposal
    - Discussed updated draft chloride point system by Jeff Dennis. Needs more work to finalize it

Review of Stakeholder Feedback

- See Table 1 in Appendix

- Feedback is written by topic. Definitions have been a big part of feedback (defining maintenance and urban impaired streams).
    - Meetings, Definitions, Impaired Streams, General and Basic Standards, Subdivisions and Redevelopment, Runoff and Groundwater Recharge, BMPs and Design Standards, Permitting, Data and Metrics, Sensitive and Threatened, Environmental Justice
- Making Ch. 500 rules more legible, simplified, and clear for compliance
- Runoff and Groundwater Recharge received a lot of feedback.
- Other Major Topics not addressed in list: No comments at the moment

Implementation of New Rules

- **Overarching goals:** Promote LID (Basic Standards), address climate adaptation and resiliency (runoff volume reduction standard), streamline rules (improve day-to-day implementation, new PBR)
    - Required applicants to use up-to-date precipitation data and 18% multiplier to account for changes over time due to climate change
    - If applicants comply with new basic standards, they will be eligible for new PBR
- Current and New Chapter 500 waterbodies (Figure 1 in Appendix). New set of regions and watersheds identified as sensitive and threatened will be incorporated into Ch. 500
- Standards apply to activities disturbing one or more acre (Figure 2 in Appendix).
    - **Question** about post-construction standards
- **Question:** Kristie asked about recertification for disturbance of one or more acre of land. This relates to impervious surface that kicks-in 5-year recertification requirements. Not understanding why post-construction items are applying when the rules were applying to construction previously. DEP is redefining the basic standards because of wetland and natural drainage way requirements.
    - **Rob Wood:** Ch.500 rules address both pre and post construction, we are changing what falls under basic and general standards. Might want to consider different headings to better display what they are.
- **New Basic Standards:**
    - Wetland Protection: no disturbance area, impervious area setbacks, exception for wetland crossings
        - Part of outstanding LID strategy
    - Natural Drainage Network Protection: no disturbance setbacks for Natural Drainage Ways (NDW), post-development NDW catchment size, redistribution of stormwater at the property boundary, maintenance of channel continuity and catchment area at road crossings
        - Part of outstanding LID strategy
    - Stormwater Conveyance Hydraulic Capacity: under current Ch.500 in flooding standard which only applies to site law projects. So, moving this standard to basic standards for both stormwater and site law projects
    - **Comments:**
        - **Doug:** New Basic Standard could be Resource Protection Standard and General Standard could be Stormwater Management Standard
        - **Engineer:** Standard 1 and Standard 2 as new names? Rather than there being connotation associated with it.
        - **Ivy:** Combine ideas, Standard 1: Resource Protection, Standard 2: Stormwater Management. Tabulating the standards, defining them in both ways, and understanding how they're evolving the standards.
- **New General Standards:**
    - Runoff Volume Reduction Standard: compensation for infiltration loss, reduced post-development runoff volume, approximate pre-development hydrology

        - UIS-100%
        - STRW, site law, cannot meet basic standards – 75%
    - Stressor Guided Stormwater Treatment Standard: nitrogen and phosphorous stressors (minimum average annual reductions using SCMs, coastal and noncoastal applications), chloride stressor (proposed point system)
    - Nature-based stormwater control measures will be required under new general standards
    - **Comments:**
        - **Dionne:** Does DEP plan on getting the blessing from John for new infiltration standard? (Answered, yes)
        - **Anonymous:** What is the nexus between this and nutrient standards? This designation would not trigger going through a different pathway. (Jeff: looking at what is happening in streams, quantitative nutrient standards will not apply to Chapter 500)
        - Is there a definition of what is coastal? How far would that extend? (Answer: that is a tricky one. Taking a simple approach)
- **New Flooding Standard**
    - Remains unchanged, except for source of precipitation data and optional detention waiver for UIS watersheds
    - Use NOAA Atlas 14 with an 18% for climate change until NOAA Atlas 15 is released
    - Applies to Site Law Projects
- **New Development in a Non-Lake Watershed (Figure 3)**
    - Not playing around with thresholds for impervious. Performance curves have been discussed in depth in previous meetings, used in New England area so we are adopting what is out there
    - Step 1 – New Basic Standards
        - All projects must meet New Basic Standards
        - Stormwater law projects qualify for a PBR if they are not required to meet: the new general standards or the phosphorous standard
    - Step 2 – Urban Impaired Stream
        - Projects in urban impaired stream watersheds that exceed size thresholds must also meet new General Standards
    - Step 3 – S&T Regions or Watersheds
        - Projects in these regions or watersheds that exceed size thresholds must also meet new general standards
    - Step 4- Site Law Projects
        - Not in UIS or ST must also meet new general standards
            - 75% of Runoff Volume Reduction Standard
            - Stressor Guided Stormwater Treatment
                - DEP identified stressors: nitrogen, phosphorous, chloride
                - Sized using performance curves
- **New Development and Redevelopment in a Non-Lake Watershed (Figure 4)**
    - For redevelopment, there are going to be select credits, and lower bar for redevelopment projects or portions of a project
- **Other Standards**
    - Phosphorous
        - Remaining in place
    - Flooding
        - Remaining in place
    - UIS
        - Remaining in place

    - Discharge to Wetlands Standard
        - Changing maximum storage depth requirement
- **Example Project Reviews**
    - DEP Engineering Team
        - Evaluated the originally proposed LID standards using example projects. Used to craft new basic standards
        - Has been working on example projects to demonstrate how ch.500 will be implemented
        - Will continue into January 2025
    - New chapter 500 framework has been established. Engineering team's work will flesh out finer technical details
    - **Comments:**
        - Devil is in the details about it being arduous. Some people might not get permits and they'll be upset about it.
        - Sometimes developers from elsewhere think they are lax or not lax depending on where they've worked previously

Discussion and Next Steps

Stakeholder Input

- **Municipal Representative:** Being pulled in multiple directions. 2 ways: make sure new requirements are clear, and clear process for granting waivers and exceptions
- **Anonymous:** Like helping people getting to yes and not no when it comes to development / developers
- **Karem:** For challenging sites, need to expand stormwater manual for people to use
- **Nathan:** Aging infrastructure and ability to adapt. Karem said he has a few reservations about aging infrastructure in Chapter 500. Stormwater management law is clear that you cannot touch grandfathered portions of the site, so it is beyond the purview of the rules.
    - Especially in the downstream sections of some of our more impaired waters, there's a lot more storm water, lot more storm flow and stream flow moving through those culverts. So, we had to move them to 52 closes to 100 years old. You just to avoid flooding; it is associated with historic development. So sometimes those things need to be considered. Portland's trying to figure out how we can take some of that into a so that we're not allowing, you know, an existing condition to be exacerbated with people.
    - Committee and stakeholders further discussed redevelopment of sites and of aging infrastructure
- **Cynthia:** Will be helpful to see definitions. Hard to have good knowledge of where it's going without a framework, foundation for each word. Examples are also extremely helpful.
- **Ryan:** Long memo is going well so far
- **Rick:** Clear concise definitions and examples will be helpful from a design standpoint

Action Items & Next Steps

- FBE will be creating a complete stakeholder engagement report
    - Dozens of pages very comprehensive
    - Implement executive summary
- Long memo will be circulated around for feedback
- In the process of evaluating new standards as it pertains to development projects
- Asking for stakeholder input via our email for written comments
- Schedule and timeline: engage steering committee on process report, rule drafting, rulemaking, technical work (performance curve development for vegetative buffers, stormwater manual (contractor selection, establish work group)

    - Aiming for summer 2026 for adoption of new rules
    - Stakeholders discussed the stormwater manual's relationship with chapter 500.
- Conclusion of official stakeholder process. DEP will engage with stakeholders on an as need basis

APPENDIX

Table 1. Overview of Stakeholder Feedback

Topic	Feedback
Meetings	• Maine DEP should consider opening future Steering Committee and Technical Committee meetings to in-person Stakeholder attendance • Ensuring clear communication with developers, municipalities, and the public was consistently mentioned as a key component of successful stormwater regulation implementation.
Definitions	• Develop a clearer definition of "maintenance" • Certified Professional in ESC – Update to clarify what types of professional certifications qualify • LID – update to reflect the broader site planning and natural resource protection meaning of LID
Impaired Streams	• Chapter 500 includes a strong focus on "impaired streams" (303(d)-listed) and places the "Urban Impaired Streams" designation on many if not all of them for the purposes of stormwater regulation; What about the other water bodies that are "impaired" • Urban Impaired Stream Standard: The exception for impervious cover removal should require a stream, natural stream buffer or riparian buffer restoration standard.
General & Basic Standards	• General Standard: Pollutant-Generating Impervious Surfaces • Basic Standard: Cumulative Impact of Small Developments • Challenges for Larger Projects • Wetland Protection • Natural Drainage Network • Downstream and Off-Site Channel
Subdivisions & Redevelopment	• A potential loophole was raised regarding impervious coverage calculations for subdivision projects. • Rather than focusing on addressing past harm, the goal should be framed around what measures must be taken during redevelopment to ensure stormwater pollution is reduced
Runoff & Groundwater Recharge	• Roof Runoff and Groundwater Separation • Off-Site Drainage • Infiltration and Impermeable Liners • Alignment with TMDLs • Recharge Effectiveness and Hydrology • Aquifer and Aquatic Ecosystem Considerations • Recharge and Site-Specific • Recharge Goal Clarification • Clarification of Data in Reports • Balancing Infiltration with Groundwater Protection • Chloride Management / Chloride as a Stressor • Infiltration Testing and Site Conditions • Challenges with Site-Specific Infiltration • Infiltration Feasibility • Channel Protection and Stormwater Volume • Stormwater Control Measures and Soil Considerations • Soil Testing for Infiltration • Challenges with Impermeable Liners • Stormwater Rules Alignment • Impact of Development on Drainage Areas

BMPs & Design Standards	• Small Projects and Thresholds • Tailored BMPs • Post-Construction Maintenance • Pre-Treatment and Maintenance • Design Robustness • Core LID Requirements • Challenges in Urban and Rural Sites • LID Envelope Conflicts • Practical Approaches to LID and Maintenance • Recharge and Infiltration Challenges: Recharge through LID techniques is seen as a necessary tool, but site-specific challenges (e.g., poor soils or the inability to support infiltration) can complicate its use • Setbacks and Buffer Zones • Balancing Stormwater and Land Use Regulations • Chloride Reduction and Stormwater BMPs • Flexibility in BMP Design • Maintenance and Long-Term Sustainability • Formal SWPPP more like the EPA model • ESC measures must be installed prior to any activity
Permitting	• Permit-by-Rule (PBR) for Small Sites Next to Impaired Streams • Permit Modification for MS4 Communities • Appendix F and LID Requirements • Need for Clear Interplay Between MS4 and Chapter 500 • Regulatory Harmonization and Data Gaps
Data & Metrics	• Precipitation Data & Storm Design: • 50-Year Storm Event for Larger Infrastructure • NHD Plus High-Resolution Stream Layer • Web Soil Survey (WSS) & Hydrologic Soil Group (HSG) Assignment • Challenges in Verifying Soil Types • Potential Shortage of Soil Scientists • Ksat Estimation for HSG Soils • Management Practices (BMPs) in addressing various pollutants: Nitrogen, Metals & Pathogens, Chlorides • Integration of Regulations: The need to harmonize Chapter 502 regulations (UIS Watersheds) with other regulatory frameworks such as the 303(d) list of impaired waters and TMDLs (Total Maximum Daily Loads) • Challenges in Current Framework
S&T	• Integration with Existing Lists • Maintenance Challenges • Stakeholders stressed the importance of more comprehensive data on impervious cover (IC) trends • IC as a Key Indicator • Impervious Cover (IC) and Watershed Health • Overlapping Frameworks • Regulatory Flexibility • S&T Designations and Regulatory Challenges • Proactive Measures in Redevelopment Areas
Environmental Justice	• Balancing Development and Environmental Protection in EJ Areas • Redevelopment and Affordable Housing

Figure 1. Waterbodies included in the previous and new Chapter 500 rules.

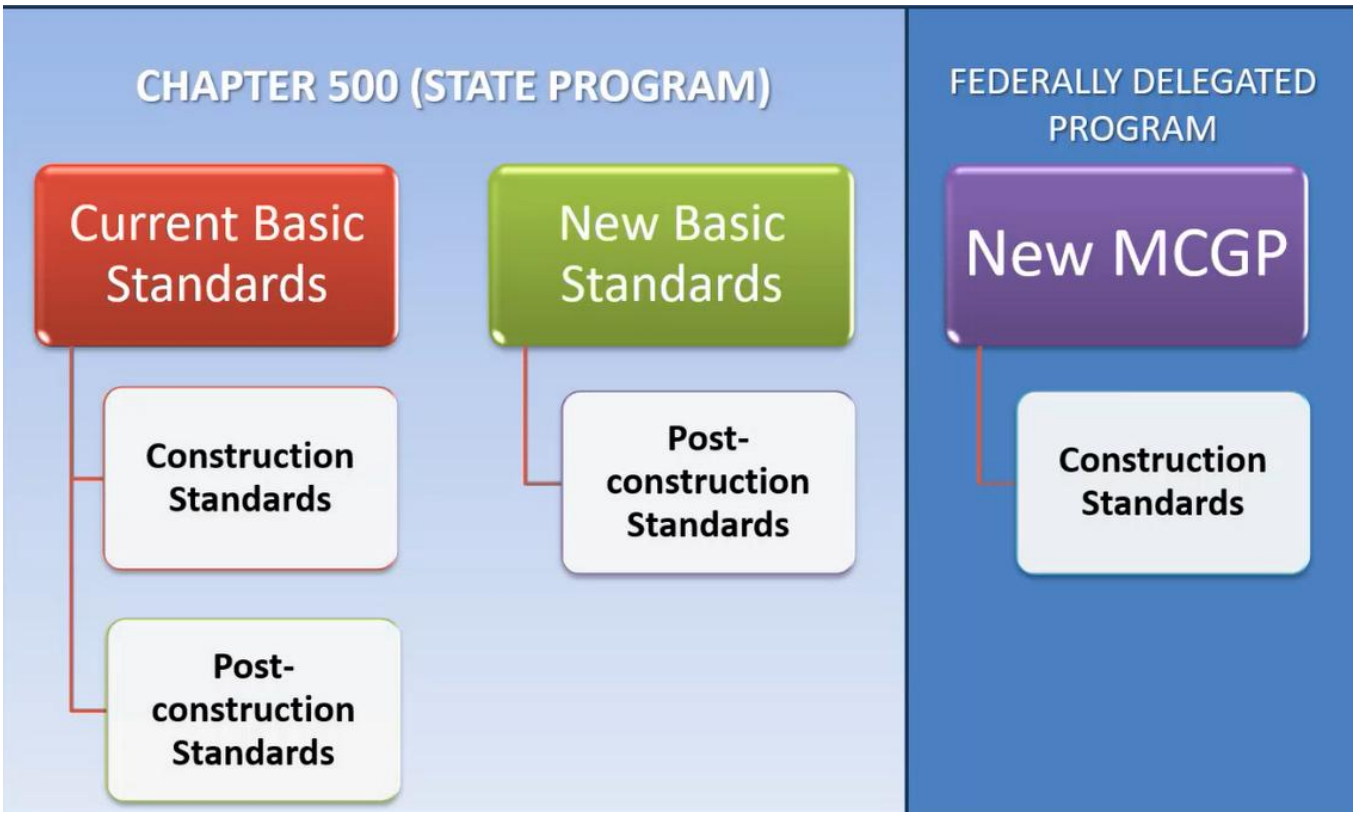


Figure 2. Standards apply to activities disturbing one or more acres.

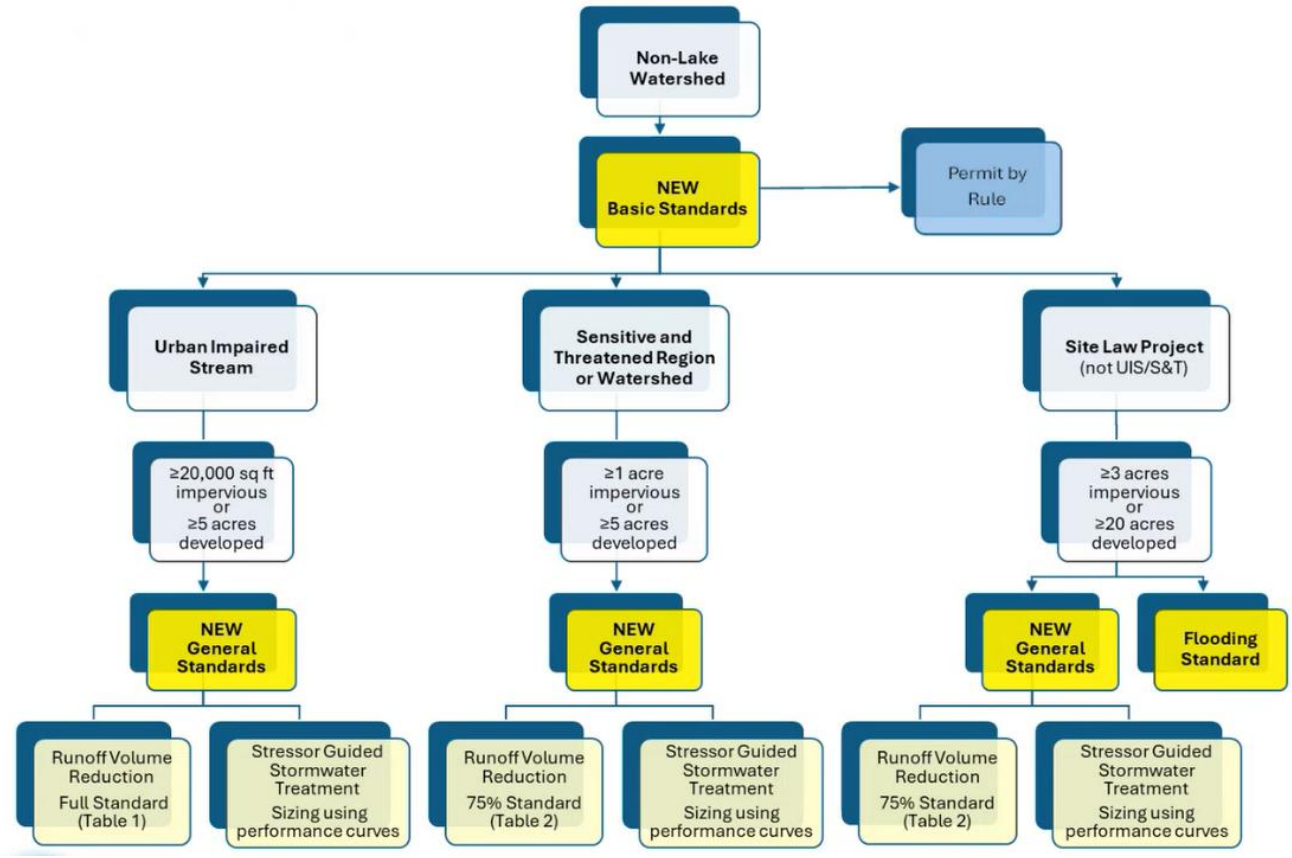


Figure 3. New Development in a Non-Lake Watershed

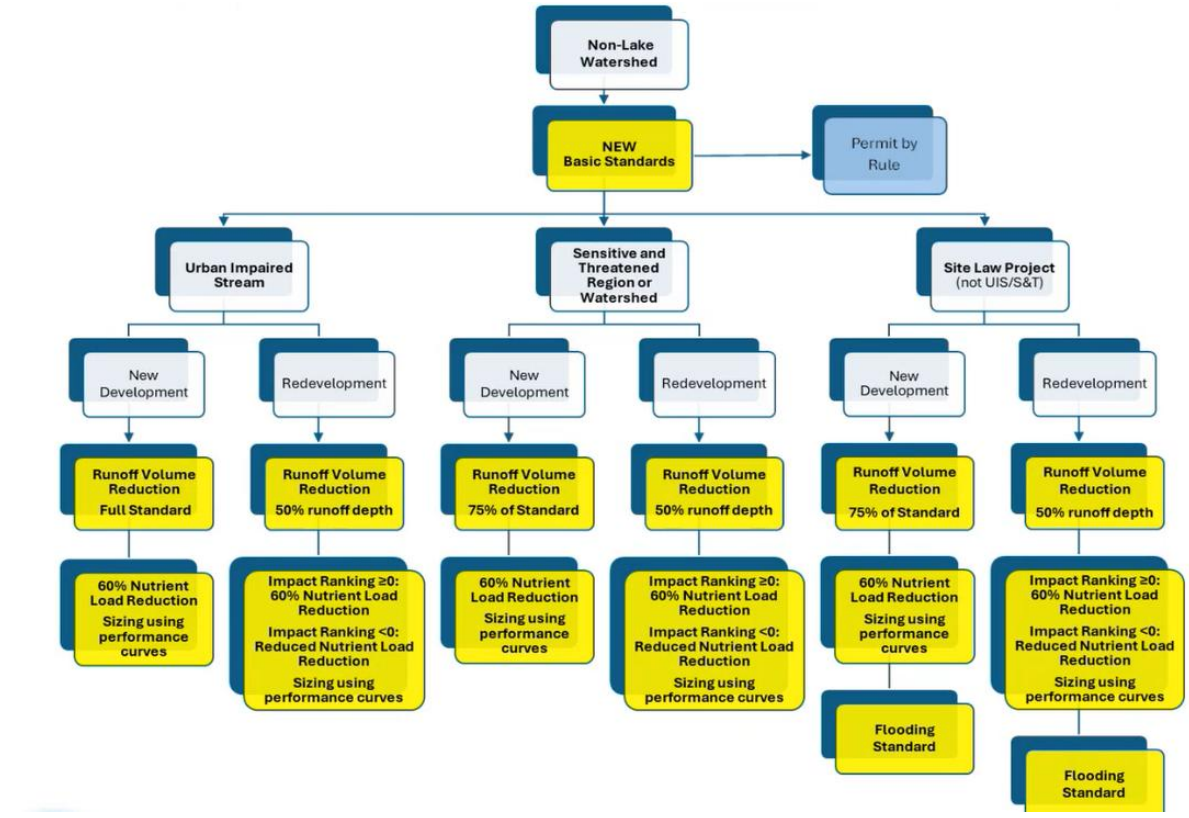


Figure 4. New Development and Redevelopment in a Non-Lake Watershed

Attendees:

In person

Jeff Dennis

Curtis Bohlen

Doug Roncaratti

Rebecca Graham

Matt Marks

John Kuchinski

Mark Beregeron

Nathan Robbins

Cody Obrupta

Rob Howard

Kerem Gungor

Bina Skordas

Tracy Kruger

Naomi

David Waddell

Online:

D2: Technical Committee Meeting Minutes

CHAPTER 500 STAKEHOLDER ENGAGEMENT | TECHNICAL COMMITTEE MEETING #1 MINUTES

RE: **Chapter 500 Stakeholder Engagement, Technical Committee Meeting #1**

DATE: Monday, March 18th, 2024

TIME: **9:30am – 1:00pm**

LOCATION: Remote via Microsoft Teams

INVITEES: Cody Obropta, Jeff Dennis, Dave Waddell, John Maclaine, and Tracy Kreuger (Maine DEP)
Bina Skordas and Maggie Kosalek (FB Environmental Associates)
Chapter 500 Technical Committee

MEETING OVERVIEW:

TOPIC	WHO	ESTIMATED DURATION
1. Introduction of committee members	Bina Skordas (FBE)	10 mins
2. Overview of SC referral items	Bina Skordas (FBE) & Cody Obropta (DEP)	10 mins
3. Review Decision Tree DEP Proposal	Cody Obropta (DEP)	20 mins
4. LID standard discussion	Facilitated by Bina Skordas (FBE) & Cody Obropta (DEP)	150 mins
5. Next Steps	Cody Obropta (DEP)	20 mins

DISCUSSION TOPICS:

1. Introduction of committee members (10 minutes)

- Bina Skordas: FB Environmental, facilitator.
- Maggie Kosalek: FB Environmental, project support.
- Cody Obropta: DEP stormwater engineering team, filling in for Kerem as project lead.
- Dave Waddell: DEP water bureau, assisting on this project.
- Jeff Dennis: Biologist in DEP watershed management unit, assisting on this project.
- Tracy Kreuger: TMDL coordinator DEP watershed management unit.
- John Maclaine: NPS training center in Commissioner's Office.
- Pete Newkirk: DOT stormwater engineer (15 yrs), DEP water bureau (4 yrs), ag engineer with NRCS (13 yrs).
- Chris Baldwin: District engineer Cumberland Country Soil & Water District (CCSWD).
- Aubrey Strause: Acorn Engineering, previously CCSWD engineer and DEP stormwater engineer.
- Phil Ruck: Stillwater Environmental Engineering, representing Bangor Area Stormwater Working Group.
- Al Palmer: Gorrill Palmer owner.
- Rodney Kelshaw: Flycatcher Environmental Consulting, soil scientist, President of Maine Association of Professional Soil Scientists.
- Joe Laverriere: City of Saco engineer.
- Andy Johnston: Atlantic Resource Consultants.
- Charlie Hebson: Maine DOT hydrologist/hydraulic engineer.
- Ryan Barnes: Maine Turnpike Authority, member of Maine chapter of American Public Works Association Executive Board.
- Angela Blanchette: Town of Scarborough engineer.
- Curtis Bohlen: Director of Casco Bay Estuary Partnership, working on stormwater as stream and wetland ecologist.
- Paul Ostrowski: Engineering design manager at Sebago Technics.

2. Overview of Steering Committee referral items

<u>Technical Committee tasks for LID</u>:

i. Clarify in the language that the goal is specifically to minimize impacts.
ii. Decipher between threatened and sensitive watersheds.
iii. Define low maintenance vegetation and consider – low maintenance to who?
iv. Specify requirements based on different applications. Potential examples include:
    1. Development vs redevelopment;
    2. Stream class;
    3. Sensitive vs threatened;
    4. Pollutants of concern;
    5. Rural vs urban (and how this is defined);
    6. Population type/resource access (i.e., EJ community, different regions of state).
v. Develop a framework for testing the rule changes under different scenarios. Potential considerations include:
    1. Project description: size; development vs redevelopment.
    2. Project location/impact characteristics: coastal vs inland; natural vs manmade channel; urban vs rural; threatened vs sensitive watershed; climate change impacts on the area; etc.
    3. Cost: social; construction; maintenance; the cost of doing something now vs restoration later due to continued pollution; etc. (state costs are a consideration out of the scope of TC to be handled by DEP).

- Should update the definition of LID itself. Often see "green infrastructure" used interchangeably with LID when it is actually very different.

- Will TC be receiving all information through attachments?
    - OneDrive folder was shared with TC.

3. Review decision tree DEP Proposal and LID proposal.

- Is the decision tree under the assumption that you've already met the threshold?
    - Yes, this is assuming you triggered the stormwater permit and/or SLODA.
- Has any thought been given to determine how much area will no longer be able to be developed as a result of soils which are unable to support recharge? If there happens to be large areas surrounding waterbodies that are unable to support recharge, this recharge requirement will be problematic.
    - DEP not aware of estimates for area considering this. GW recharge is certainly going to be a discussed topic.
- Concerned about the cumulative impacts of waiting until IC is 10% for some of these criteria to apply. This may turn out to become a policy challenge.
- Recharge is a big thing in Massachusetts, but they had the unintended consequence of having several aquifers with high sodium as a result of it. Want to make sure we are analyzing the unintended consequences.
- Does "developed area" mean area in the whole watershed or area in the proposed project?
    - DEP to answer
- Must have clear definition around how the 10% is determined.
- There were issues that arose with using open-channel conveyance when it first started. The rules surrounding this will have to be tested for unintended consequences.
- Will areas where a site has 100% A or B soils be excluded from the LID standard?
    - If you cannot meet A or B soils, which are in the "LID Envelope" and "Major Natural Drainageways," you would have to meet the standards for sensitive and threatened watersheds, which includes the performance curves for the stormwater quality treatment. Having only A and B soils does not mean you cannot develop your site, it just means you have to meet some additional stormwater quality treatment and recharge standards.
    - The idea of this LID is two-fold: 1) it is something you want to encourage in impaired, sensitive, and threatened watersheds, and 2) make it easier for watersheds that are not impaired, sensitive, or threatened.
        - Making it easier for development in these smaller rural communities may lead to more development in these communities and SCMs that are not properly maintained.
            - DEP has observed the opposite of this happen. For example, Long Creek, which is a UIS with stricter standards, has actually seen more development. It appears that the stricter standards are not pushing people away from the location they wish to develop on. (in other words, it is being proven that urban sprawl is not occurring).
- The C and D soils is where it will be difficult to actually implement these standards, so we may be creating a situation where we have an ideal that is not feasible.
- It is interesting that we are trying to increase buffer zones and setbacks that would normally be land use for communities rather than the jurisdiction of DEP.
    - This may be related to soil compaction which is more likely to happen to A and B soils.
    - The point of this may have been to utilize these buffers for stormwater quality treatment to meet groundwater recharge and infiltration standards.
    - There are a number of LID resources that recommend protecting existing on-site permeable soils.
- Create subcommittee to fine tune definitions (see subcommittee list at end)

4. LID Discussion – preserving/protecting on-site hydrology.
    a. How do we define "Low Impact Development?"
    b. How do we create clear, specific, and measurable standards?
    c. Discuss groundwater recharge / infiltration requirements.

d. Remember, this is a Chapter 500 Rule Update, we aren't currently touching Wetland/NRPA Regs, Site Law Regs, nor are we developing a comprehensive masterplan for the entire State of Maine.***

- The goal of the LID proposal is to 1) preserve and protect on-site hydrology, 2) controlling pollutant runoff, and 3) protecting natural resources in general.
    - Groundwater recharge and infiltration are large topics that are under 1).
    - Appendix D is so difficult to meet right now due to the valid concern that pollutants can accumulate in groundwater (chloride and sodium being the biggest ones). Chloride makes infiltration a difficult subject because you would not want to infiltrate chloride-filled runoff.
- Recharge requirement is long overdue. Some urban areas have tried to test the quality of water infiltrated through GI to find that no water comes out at all because it infiltrates sideways and downwards. Rate of infiltration is highly underestimated and has even been seen in some C and D soils. Natural soil is always the best way to treat pollutants.
- Have you had the discussion around infiltration with dep groundwater team AND drinking water team? It is important to include both.
    - The DEP groundwater team has been involved in discussions, but the drinking water team has not.
- In the infiltration table – are the measurements per design event?
    - It is based on the area you are impacting. You store and infiltrate X inches of runoff.
- Was any thought given to doing real infiltration modeling to see how good the SCS hydrology approach is?
    - DEP will likely lean on UNH Stormwater Center for information.
    - https://stormwater.pca.state.mn.us/index.php/Design_infiltration_rates
        - Doubtful that people will go for the option of doing more research, but every once in a while, someone might. Thinking of Richards equation and Green Amp type of infiltration that will get you much closer to modeling infiltration, though these are not design tools.
        - Potentially have standard approaches for infiltration rates in different soils and then a separate option for people to provide more site specific information if they think that will allow them more flexibility. There may be ways of taking advantage of greater infiltration than the soil types may suggest, and conversely, if a site has high infiltration rates, you need to figure out how to slow it down.
        - This will likely trigger full soil surveys for many sites. Jamie Houle stressed the importance of soil testing.
        - For a given site, depending on the size of the map unit, there could be a dissimilar limiting inclusion within that map unit, so it could be a completely different soil type that is larger than the whole site. Given this, you'll probably want at least a pit test to verify soil type.
            - Being able to access soil scientists has been a limiting factor on projects in the past.
    - Important to keep in mind, right now, there is channel protection storage and the flood standard which are both detention standards and do nothing about stormwater volume and thus are only marginally effective at protecting stream hydrology and geomorphology. Habitat, geomorphic, and hydrologic alterations in streams are the biggest stressor on aquatic life in streams after chloride. Only after that do you get into conventional pollutants (nutrients, heavy metals, hydrocarbons, etc.). In dealing with this, dealing with volume is likely a good way to avoid altering habitat.
    - Getting site-specific soil data should be a requirement. Perhaps you can have two tiers where larger projects require a soil scientist, and smaller projects can use licensed site evaluators which is faster and easier.
        - Have many people done infiltration testing over the years on stormwater projects? This is common in Geotech field studies.
            - DEP has not seen any infiltration testing, even on projects that propose infiltration.
        - In New Jersey, they have a groundwater recharge requirement, so they have to obtain data and do test pits for each site. They also do hantoush groundwater mounding analysis. Perhaps engineering consulting firms could do these.

    - Is it true that a soil evaluator actually cannot state whether a soil is of any specific kind/type?
        - Correct. The way the state rules are set up currently, only licensed soil scientists can practice pedology. There is a separate license for someone who is just doing septic designs in which they collect enough data to design a system. Wetland scientists are only able to make the call on if a soil is hydric or not. Allowing for other people to collect this type of data and make these types of claims would be a larger conversation than this. That being said, there is a shortage of soil scientists, and it is difficult to get soil surveys done, so if there was streamlined process in which a smaller singular test could be done, such as is being done for stormwater controls, that may be helpful.
    - In developing standards for soil testing, it will be important to know how the data will be used and how the site is going to change through construction (i.e., if 12" of soil will be removed, this will change depth to groundwater table).
- The first table on the Groundwater Recharge Requirement sheet was derived using 30-year simulation model to test the recharge that occurred over the 30 years under various soil conditions. If this is changed, we'll have to figure out what the target infiltration is and how that relates to net recharge (if that is what we are concerned about – or maybe we are concerned about recharge for another reason that does not require us to simulate along a precipitation dataset).
- If you are doing a new development site in a place where land is scarce and soil is potentially difficult, it is recognized that infiltrating to the standard may be difficult. We have to figure out some different options to deal with this.
    - It is entirely appropriate that some sites are not developable. The different options will have to be for sites that are *almost* not developable. It is actually important that some sites can't get through the regulations because that means they shouldn't be developed.
    - Some places have a "get out" clause for sites that have impermeable soils or sites in which you don't want to infiltrate (asphalt plant). Important to have language that states 1) if it is not possible to infiltrate, or 2) if you should not infiltrate, then here is the alternative.
- The majority of the permits that DEP receives are in MS4 communities. The challenges with LID regulations are making them clear, specific, and measurable so that they can be implemented. The current regulations are not clear on this (i.e., what is meant by "minimize"?). We need to make sure our LID standard is clear so as to save time and money for developers, municipalities, DEP, etc. in the future.
- Although LID seems to be a holistic approach, it is important to remember that DEP cannot fully achieve this holistic approach based on certain restrictions. This is often why LID is boiled down to green infrastructure since this is what DEP actually can regulate.
- Do we all agree that at least some level of groundwater recharge where possible is beneficial and should be in the regulations?
    - It would be helpful to understand and see what this looks like when applied to specific examples to see how it may impact specific design decisions.
        - The designs likely wouldn't change very much. BMPs would probably just get a bit smaller.
    - It seems like a standard like this may land on applying to roof runoff or areas that are not salted.
    - What other changes is DEP considering for infiltration that is currently under appendix D? (i.e., groundwater table separation, soil types, ongoing maintenance and monitoring requirements, etc.).
        - Appendix D needs to be totally revamped. Some of the restrictions are valuable depending on drainage area, but for some cases they are overly restrictive.
            - These overly restrictive regulations deter people from utilizing infiltration. The more flexibility we have in the regulations, the more people will take advantage of infiltration.
- Chloride becomes particularly toxic in headwater streams that are urban/urbanizing and shows up in baseflow conditions when the stream is mostly groundwater. In this case, stormwater is a relief to aquatic life. In a third order stream, there is not significant salt being applied to the watershed. In first and second order streams where a high percentage of the watershed is developed, there is a high concentration of salt and no dilution from baseflow that isn't exposed to salt. There are some places where this is not so critical and some where it is

very critical. We are even seeing chloride become an issue in watersheds that have little development but a few large parking lots (i.e., Stone Brook, Augusta).
    - Potentially address this through sensitive and threatened watersheds and provide additional restrictions on infiltration and stormwater control measures (i.e., cannot infiltrate water from a parking lot unless you meet certain requirements such as it will not be salted)
- A potential option could be to remove hydrologic soil group D (non-wetland) from the groundwater recharge table and supplement with language that allows developers to do more on site investigation to prove whether or not there is an adequate infiltration rate for treating stormwater.
    - Agree that the approach should be that it is not required in type D soils, but if you show there is an adequate infiltration rate, then you can use it.
        - Are you seeing infiltration as being a design benefit, giving flexibility and options, rather than it being negative and an obligation?
            - You will probably find different opinions on this, but from a resource consultant perspective, infiltration is what is opted for, unless there is a good reason to have a big landscaped wet pond, which there usually isn't.
    - The phrasing of "wetland soil" should be clarified. If wetlands shouldn't be used, just say that instead of wetland soils, especially since wetland soils can be found outside of a wetland.
    - Say you have a D soil that is marine clay, and you have some head to work with, so you can store your water above the clay. Is it a matter of storing it over a larger area to get it to infiltrate? Conversely you could store water over smaller area on group A soil because it will infiltrate faster?
        - This is correct but is a matter of "how much space do I need?" This may be worth doing some modeling on.
            - This is similar to septic systems. If there is not enough depth to groundwater or the underlying soil is clay, the system is made larger or raised higher.
        - There are absolutely some soils that are effectively impervious that will never allow for infiltration. It might be better to just say, for D soil, you don't have to meet groundwater standard, but if you can, you should, so show us why you can't. Group D soils are a unique example and thus should have a unique approach.
- There are many engineering groups that do the same BMP for every project and do not tailor the BMPs to the needs of the site. Because of this, there needs to be incentivization in order to reach the goals of the regulations. Important to think about how engineering companies will actually utilize the regulations.
    - May be able to, in part, accomplish this with clear education, especially targeted towards engineers.
    - What are NH and MA doing with their newer permits to incentivize?
        - NH and MA have very basic state standards, but the rest is up to municipalities, with hardly any review at the state level. It is comparing apples to oranges.
    - Many people will try to take the easiest path. Have to make regulations such that small projects that actually do not need intensive analysis are not required to do intensive analysis, and then utilizing intensive analysis as pathways to complete other projects that need it.
    - NH has a checklist for site evaluations for smaller projects (i.e., does it meet groundwater separation, have you met the percentages, etc.) that must be stamped and sent in with a permit application. This makes the review easier and certifies that it has actually been done if it is stamped.
        - In the past, DEP thought about doing this with spreadsheets that are for standard types of BMPs to confirm channel protection, water quality volume, etc. This is used internally but hasn't been made public.
        - A problem with these is that they are oftentimes not correct, despite being stamped.
        - There used to be a table that consultants used, but many would play with the numbers on it, so if this is done, make sure the equations are protected and can't be changed. This also requires delegated reviewers to have a lot more knowledge on the design to ensure numbers aren't messed with.
            - DEP is currently working to better train delegated reviewers.

    - It is easier to create incentives in a municipality that has zoning, and some of these incentives that fit into zoning regulations do not fit into a state stormwater rule. This makes incentives tricky.
    - In many instances, there is very little evaluation of the site before it is decided where parking lots, roads, buildings, etc. will go. At this point, you have probably buried a lot of BMP opportunities. Incentivizing developers to design with LID in mind can provide a lot of benefits, including saving time and money in the long run.
- In terms of preserving the contributing drainage area – it is an issue that development can increase the drainage area for a given drainage/stream, increasing the amount of water that goes into this drainage. This can completely destabilize the drainageway which sometimes creates more nutrient and sediment export. Preserving the natural drainageways would mean the watersheds post-development are as close to the same as possible as pre-development (at least <25%).
    - What are you trying to achieve by this? Volume reduction or volume maintenance?
        - DEP concern is energy maintenance. Increasing watershed area leads to more flow which leads to erosion because the drainageway/stream was not equipped to handle the added flow.
        - Infiltration can also contribute to this.
    - How often are you seeing sites that are actually in 2 or more drainage watersheds that make this impact?
        - See it often in subdivisions and large commercial developments where all runoff is collected and put through one BMP.
- We have to determine how groundwater recharge and LID will work together or if they are independent of each other.
    - Could develop a number of approaches for a given site. Recharge is an option for some sites but not all, so recharge is ONE of the ways you can incorporate LID concepts. There have to be other options if you cannot recharge. May be helpful for both of these subcommittees to identify that recharge is a subset/one tool in the LID kit but cannot be the only thing.
    - The core LID is currently phrased as if it is a baseline or a benchmark that everyone has to meet. If we are saying that some of these can't be achieved, we shouldn't call them "core".
        - The original thought behind core LID was to allow for varied restrictions on rural development versus denser development. The levels of what is required and what is passable are up for discussion along with the language we use.

- How should the TC incorporate Environmental Justice, particularly from a stormwater treatment standpoint?
    - Part of this is ensuring there is no unnecessary burden on EJ communities or on development such as low income housing with the requirements set forth by these regulations. Another part is ensuring the language is accessible to those who do not speak in the technical language of the engineers who are creating these rules. This will come through the actual rule language as well as proper education. Project team to share more information on this.

5. Discuss next steps, subcommittees, topic for the next meeting, research needed between now and next meeting.
    - Subcommittees to meet between now and next meeting and report back.
        - Definitions subcommittee to revise Ch500 definitions to be clear.
            - Ryan Barnes
            - Aubrey Strause
            - Paul Ostrowski
            - Phil Ruck
            - *DEP: Dave Waddell*
        - Groundwater recharge subcommittee to iron out requirements for groundwater recharge in more detail. For example, determining requirements for separation to groundwater table, determining specific requirements based on soil type, thresholds for the requirement, etc.
            - Andy Johnston
            - Peter Newkirk

        - Rodney Kelshaw
        - *DEP: Cody Obropta & Jeff Dennis*
    - Core LID standards subcommittee to refine the proposed core LID standards.
        - Joe Laverriere
        - Angela Blanchette
        - Aubrey Strause
        - Chris Baldwin
        - Peter Newkirk
        - *DEP: Cody Obropta*
- Next TC meeting April 1st.
    - Subcommittees to report on work done.
    - Flooding standard discussion. TC to determine what precipitation estimates to use, among other topics.

Attendees

Bina Skordas
Cody Obropta
David Waddell
Jeff Dennis
John Maclaine
Maggie Kosalek
Tracy Kreuger
Al Palmer
Andy Johnston
Angela Blanchette
Aubrey Strause
Charles Hebson
Chris Baldwin
Curtis Bohlen
Joseph Laverriere
Mark Bergeron
Paul Ostrowski
Peter Newkirk
Phil Ruck
Rodney Kelshaw
Ryan Barnes

CHAPTER 500 STAKEHOLDER ENGAGEMENT | TECHNICAL COMMITTEE MEETING #2 MINUTES

RE: **Chapter 500 Stakeholder Engagement, Technical Committee Meeting #2**

DATE: Monday, April 1st, 2024

TIME: **9:30am – 1:00pm**

LOCATION: Remote via Microsoft Teams

INVITEES: Cody Obropta, Jeff Dennis, and David Waddell (Maine DEP)
Bina Skordas and Maggie Kosalek (FB Environmental Associates)
Chapter 500 Technical Committee

MEETING OVERVIEW:

TOPIC	WHO	ESTIMATED DURATION
1. Review goals and procedures	Bina Skordas (FBE)	10 mins
2. Summarize Subcommittee Discussions	Cody Obropta (DEP) & Other Subcommittee Members	10 mins
3. Review tasks from Steering Committee	Cody Obropta (DEP)	10 mins
4. Discuss Precipitation Data Source	Bina Skordas (FBE) & Cody Obropta (DEP)	60 mins
Break (15 min)		
5. Discuss Culvert and Flood Design Standards to Apply to All Projects	Bina Skordas (FBE) & Cody Obropta (DEP)	20 mins
6. Discuss Flooding Standard Applicability – Return Interval Storms	Bina Skordas (FBE) & Cody Obropta (DEP)	60 mins
7. Discuss Watershed Approach to Flooding (if time permits)	Bina Skordas (FBE) & Cody Obropta (DEP)	30 mins
8. Next steps	Bina Skordas (FBE)	10 mins

DISCUSSION TOPICS:

Meeting Topic 1: Review goals and procedures

- After the next Technical Committee meeting there will be a Steering Committee meeting. Meeting schedule below. There is potential for more meetings if needed but it would be best to try fit into the calendar already established.
    - April 29: Technical Committee meeting #3.
    - May 13: Steering Committee meeting #4.
    - June 3: Technical Committee meeting #4.
    - June 10: Technical Committee meeting #5.
    - June 24: Steering Committee meeting #5.

- Reiteration of the goals of the SC versus the TC:
    - Steering committee's goal according to the Department's wording is to identify the areas of the stormwater regulations that need to be improved to define the technical committee's assignments.
    - Technical committee's goal is to develop scientifically, and technically defensible, practicable stormwater standards as assigned by the steering committee.

Meeting Topic 2: Summarize Subcommittee Discussions

i. Core LID subcommittee:
- "Major natural drainage ways" should just be called "natural drainage ways" because "major" confounds the term.
- How to best preserve core LID in the post-construction phase:
    - Adding buffers to natural intermittent channels and perennial streams.
    - Putting buffers on wetland areas ("non-permittable wetland impacts").
        - Referred to Scarborough's efforts to put buffers on their wetlands based on how large the contiguous wetland area is.
        - Subcommittee settled on 25 ft but will discuss it further in follow-up meetings.
        - Rationale of wetland buffer is to protect wetlands to the maximum extent feasible.
    - Buffers would be subject to similar regulations as vernal pools, where one can impact a certain amount of the wetland.
- Downgradient parcel setbacks: agreed the buffer from the property line (50 ft) is not feasible, especially on some of the more tightly spaced sites. Subcommittee agreed that probably would not make final cut.
- A&B soil exclusion: may not be necessary to include in the LID envelope but pending more information from the groundwater recharge group.
- Steep slopes: passed issue over to Definitions subcommittee to discuss definition of a "steep slope" further.
- Buffers could be located beyond the LID envelope and still count for credit.
- Linear portion caveat (where linear development is allowed outside the LID envelope): subcommittee agreed that this makes sense, but that at the same time hydraulic connectivity should be maintained, using rock sandwiches, culverts or some other means.
- Open conveyances:
    - Reiterated what had been discussed at last TC meeting that it may not be practical on all sites. DEP employees say pipes are fine and the focus should be on disconnecting impervious.
    - Future discussions will focus on disconnecting impervious surfaces rather than requiring open channels for conveyance features.
- Agreed that subsurface filters shouldn't be used anymore, and that they're not an effective BMP.
- Native species:

    - Want to emphasize and require native species wherever possible.
    - Low-hanging fruit would be to require native species in all stormwater management practices that require vegetation, such as the grass under drain soil filters, planted vegetated buffers, vegetated buffers around wet ponds, etc.
    - Higher level of control would be to incorporate native species throughout the site for landscaping purposes as well. This may elicit pushback from landscape architects.
        - Scarborough has tried to bridge the gap by having a species list put together with lots of landscape architect input. This list includes a variety of native species and acceptable alternatives. Then they would be required to use, for example, 75% native species and 25% could be acceptable alternatives for landscaping purposes to allow for flexibility.
- Was there any discussion about how to apply the LID credit? One of the reasons that it's challenging for people to use LID credit right now is that it's hard to figure out how to apply it. The current table in Ch500 makes you treat a large amount of LID to get very little credit.
    - What is in Ch500 currently will likely go away, and everyone will have to meet a core LID standard on all projects.
    - Core LID would apply everywhere, and if core LID can't be met to the full extent, the project can still proceed as long as it is justified. The project will then have to meet a slightly higher standard (i.e. the groundwater recharge standards).
    - Linear projects will still have to follow the core LID framework, but they will be excluded from the envelope requirement.

ii. Groundwater recharge subcommittee:

- There was a lot of push-back to the idea that blanket groundwater recharge requirements can be provided for certain watersheds.
- Discussed the process of digging stormwater test pits as it stands currently, the limitations of those test pits, and evaluating on-site hydrologic soil groups from those test pits. Useful documents to review were shared.
- Discussed type of testing and analysis that might be needed for infiltration.
- Discussed coming up with a way to incorporate infiltration on a site without necessarily having to do a massive amount of testing that would make it too expensive to even consider infiltration.
- Discussed limiting factors of infiltration in the soils themselves.
- Some mentioned that channel protection volume might better protect stream channels compared to groundwater recharge.
- Agreed that more case studies or examples are needed that show how this would look on projects.
    - Recommended to come up with a baseline level of what a groundwater recharge requirement would look like, and then come up with example projects having different soil types, development types, etc. on which this recharge requirement is applied.
- Agreed feedback was needed from John Hopeck (hydrogeologist at the Land Bureau) and the drinking water team.
- Putting chlorides into groundwater is one of the issues to be addressed.
    - One of the larger challenges is that stormwater infiltration does a really good job at pollutant removal, as shown by latest research from the UNH Stormwater Center and others. Infiltration is being relied upon heavily to accomplish removal rates and volume reduction standards, so it becomes difficult to square the advantage of its great pollutant removal properties while also protecting groundwater sources and not putting chloride into the ground.
- There was also discussion around development on A&B soils, and whether Type D soils should be excluded from having a groundwater recharge requirement. No consensus was reached, and the topic became quite complicated and left for further discussion.

iii. Definitions subcommittee:

- Reported out that they had a very productive sub-committee meeting.
- Pulled definitions from other areas that should be in Ch500, but that aren't there currently, and these will likely need to be based on the ongoing LID discussions.

- Set up a working document with different definitions: how they exist currently, the proposed changes to the definition, references, and additional comments on why the definition should or shouldn't be changed.

iv. Additional subcommittees:
- Open to adding any additional subcommittees, potentially a flooding subcommittee.

Meeting Topic 3: Review tasks from Steering Committee

Flooding Technical Committee tasks:

i. Decide on which source to use for precipitation data.
ii. Determine the uncertainty that persists after changes are made and decide how this will be delt with.
    - This goes along with testing the standard after changes are made by running it through scenarios, similar to LID standard.
iii. Clarify language to ensure standards can be understood by less technical audiences.
    - Hoping to accomplish this with the Definitions subcommittee, mostly by organizing things better to make it easier to read through.
iv. Define DEP scope and consider how this can be framed around a watershed-wide perspective as opposed to project site specific view. Consider how regulations from other agencies and municipalities impact this.
v. Specify flood requirements based on stream risk/classifications (similar to LID TC task).
    - Are there going to be different flood requirements based on whether the watershed is threatened or sensitive?
vi. Ensure proper education of changes made (this is a task related to all Ch500 changes made, not just the flooding standard).
    - Educate the engineers, towns, delegated reviewers, etc. so that everyone is on the same page regarding the changes made.
vii. How to incorporate environmental justice?
viii. Additional context for flooding discussion
    - EPA EJ Screening Tool
        - Two items specifically related to flooding: Flood Risk and 100 Year Floodplain.
        - Ch500 limited in its capacity to deal with sea level rise, which is another item in the screening tool.
        - Tool could potentially be a good way to address EJ through the flooding discussions.
    - Maine Climate Council's Vulnerability Mapping Report
        - From 2020 (older than EPA EJ screening tool).
        - Map showing riverine and coastal flood risk (1% and 0.2% chance annual flood).
        - Map showing culverts vulnerable to riverine flooding. Important because culverts are a significant contributor to riverine flooding.
    - Scientific Assessment of Climate Change and Its Effects in Maine
        - 30% increase in annual precipitation in the state from 2005-2014.
        - Increase in heavier rain event frequency, but also the smaller rainfall events.

Meeting Topic 4: Precipitation Data Source

Background: Designers and engineers currently use a static data table located in Appendix H to model flooding standards. This data table uses information extracted from the Northeast Regional Climate Center Extreme Precipitation Tables back in June of 2014. The average design life for stormwater infrastructure is between 50 and 100 years. The Maine Climate Council released a scientific and technical assessment for the State of Maine which found precipitation intensity and storm event frequency are changing due to climate change. Using data from 2014 to model infrastructure that will potentially still be in use in the year 2100 is out of alignment with Maine's climate resiliency goals. Further, needing to engage in major substantive rulemaking to update the precipitation table when new data sets are released is a hinderance to using best available science and data.

Objectives:

1. Determine a new data source to use to be used for stormwater modeling and infrastructure design.
    a. Discussion item: factor of safety multiplied to data source?
2. Develop a streamlined process to update precipitation data moving forward (in the event that new, better data is released).
    a. Establish a procedure with public comment?
    b. Move to stormwater BMP manual?

Discussion:

i. Current data source (appendix H in Ch500)
- 24-hour rainfall events for each of the different storm events for the 1-year through 500-year events, for the different counties in Maine.
- Data comes from extreme precipitation tables produced by Cornell University's Northeast Regional Climate Center in 2014. At that time Cornell was doing a great job projecting extreme precipitation events.
- Data seems good, but some of the stormwater infrastructure we plan to install in the ground needs to last 50-100+ years, which is the impetus for having a discussion around updating the data source.
- We don't want to have to go through major, substantive rulemaking in order to change which precipitation data is being used for stormwater modeling.

ii. Introduction to objectives
- Objective 1:
    - Should we be using a new source of data for stormwater modeling and to base our infrastructure design off? If so, what data source are we going to use?
    - One of the possibilities could be to add a factor of safety to some of the data. For example, an adjustment factor of 11% (or some value agreed by the committee) could be added to the current dataset until a more accurate source is established.
- Objective 2:
    - We want to establish a procedure so that we can update the precipitation tables if new, better data becomes available.
    - Could be a public comment procedure, or the precipitation data could be moved to the BMP manual and then come up with a way to update the BMP manual more regularly without having to go through major substantive rulemaking.

iii. Discussion:
- The precipitation calculations aren't extremely important when calculating culvert size. When they fail it's mostly because they get blocked by debris, rather than because they were built too small. Many of the existing culverts are small because they're old but when they fail it's usually because of blockage or because they're in bad condition, not their size.
- The data NOAA is using is what should be used (Atlas 14).
    - Atlas 14 includes a confidence interval which is beneficial in stormwater design.
- What kind of guidance do you want to provide when designing for projected rainfalls? Where do you find those projected rainfalls?
    - Atlas 15 can address these questions, but it won't be available until 2027.
- Federal Highway developed a tool that creates a projection based on numerous climate models, which is a cumbersome process for design engineers to do themselves. However, even this tool is cumbersome to be used on a project-by-project basis, unless it's a huge project. A crude use of the tool for the state of Maine that averaged between about 30 sites came up with a 20% increase in precipitation by 2100, and a similar but more robust model from NY DOT came up with 15%. These are quite close, and the suggestion is that a simple number like 10% or 15% be used until Atlas 15 comes out with a more detailed dataset.
- The life cycle of the BMP is important to consider when deciding to use projected rainfall data. Stormwater BMPs are only expected to last 25 years, unlike a large concrete box culvert that's expected to last 75-100 years.

There is no reason to design a stormwater BMP for 2100 precipitation if such a short life span - that would be needlessly expensive.
    - By the time the stormwater BMP is updated or replaced in 25 years, a new precipitation projection dataset will be out.
    - Keeping perspective is important. Does it make sense to design for 2100? Case-by-case determination.
    - DOT input in this discussion is very important and helpful as they've been working on this issue for a long time.
    - BMPs should be designed for storm events that are within their lifespan – don't design a 25-year BMP for the 50 or 100-year storm event. We shouldn't be telling the public that these systems will be safe beyond the 25-year storm because we are putting our stamp on these structures.
    - The importance of the asset to human life is another factor to consider when choosing the design standard. DOT deals with highways and culverts that carry people and so need to be more robust to the 50- and 100-year storms. Lives will not be at risk if a stormwater pond fails. Water quality isn't being controlled in those big events anyway.
    - Designing for the 100-year storm isn't going to change a BMP's life expectancy- at the end of the day it comes down to maintenance.
    - A concern is that the public assumes that the technical committee should be designing for the bigger storm events at all times, and there needs to be a good justification or explanation to give to them if that is not what we do.
    - Another concern is that the public doesn't know the difference between a 25-year storm surge and 25-year rainfall event.
- Going with Atlas 14 approach is a higher (10-20%) storm standard than the Cornell dataset, which would help address these concerns.
- "Design for the 25, check for the 50" is a design standard that Ryan followed when working in Brunswick.
- Another consideration to remember is that Ch500 isn't regulating storm drain systems in municipalities, which is what people really care about, along with DOT and Turnpike infrastructure.
- USGS statistical analyses are not showing strong evidence that peak design flows are increasing. The assumption is that 25-year rainfall events are equivalent to 25-year runoff events, but it's not a very good assumption. The smaller the watershed and the more impervious the cover, the more accurate that assumption of rainfall equaling runoff becomes, but it should be kept in mind that it's not always true.
- Watersheds should be looked at from both the broader lens of blanket design standards, and the more detailed watershed-specific details that are often spelled out in WMPs.
    - It may not be smart to put a detention pond in certain structures where that money could be used to fix flooding in another location by using something like a flooding CFUP. Essentially, upgrade infrastructure along the entire drainage way instead of building a larger stormwater detention structure.
    - A challenge with this is the cost difference between BMPs. Funds for a $40-60k detention pond will not be able to fund a $500k culvert, which has high impact fees.
- What will our education and outreach component be? Selling this story to both engineers and the public will be critical.
    - No concrete plans yet but we know there will be an education and outreach component at some point in the process.
        - Will probably include guidance documents posted to Ch500 website that explain the changes made.
        - Webinars/in-person trainings for people this information might affect.
        - Groups like the Lakes Environmental Association and CCSWCD will help get the word out.
- NOAA Atlas 15 projected timeline: preliminary estimate version for continental US by 2025, final continental US by 2026, and including non-continental US by 2027.
- NOAA might be good because it doesn't get updated every six months, which is something that makes it difficult for engineers to keep track of when following regulations.
- Atlas 14 data is very location-specific (not county-wide) because it triangulates the position of the site.

- NOAA is the authoritative climate source and should be used for Ch500.
- The best way to approach a project is risk-based, project-specific, and with thought given to the uncertainties and the consequences of under- or overdesigning.
    - There needs to be a balance between the Ch500 regulations being clear enough for people to understand why they should do things a certain way, but not so prescriptive that engineers or their clients can't have control over their site-specific projects; if they want to overdesign, they should be able to.
- Another advantage of Atlas is that many drainage softwares can automatically input the NOAA data.
- An option would be to require designing to the 90th percentile of Atlas 14 until Atlas 15 comes out.
- An aspect of Appendix H is that it includes Type 2 and Type 3 storm events- not sure if Atlas 14 does the same, or if Atlas 14 is closer to Type 3 storm events, but based on the way Atlas 14 triangulates rainfall between areas, it might not matter that it doesn't produce different Type 2 and Type 3 values.
- Is it worth doing a modelling exercise to compare Appendix H with Atlas 14 values for the different counties?
    - It would be useful for educational purposes to show that the decision the committee ultimately makes is informed and based on science. (Cody to run this exercise)
- Agreement among committee to use NOAA's Atlas 15 when it comes out; until then, Atlas 14 or Appendix H will be used pending output of the modelling exercise. The comparison will also help determine whether to apply a factor to Atlas 14 data or require the upper confidence interval values.

Meeting Topic 5: Culvert and Flood Design Applicable to All Projects

Background: Contained within the flooding standard are requirements to design piped or open channel systems based on the 10-year 24-hour storm event without overloading or flooding beyond channel limits. Additionally, requirements for projects to not flood primary access roads during the 25-year 24-hour storm event are contained within flooding standards.

Objectives:

1. Discuss moving these requirements to General Standards or a separate standard that applies to all projects.
2. Discuss whether these requirements should be made more protective.
3. Discuss any additional flooding requirements that should apply to all projects.

Discussion:

- In order for the two standards (within the Background section) to kick in, you have to meet the flooding standard.
    - On-site location of development projects of 3 acres or more of impervious cover.
    - Should these two standards be applicable to broader projects?
    - Are there any other flooding-type standards that should be applied to all projects that require a stormwater permit/site location development permit/stormwater review?
- There are certain Ch500 stormwater projects that if they don't require flooding, they don't have to provide a HydroCAD study or any analysis. Changing the requirements will therefore require everybody to run a HydroCAD analysis on every project, which might add extra costs to some projects.
- Is the 10-year storm the right storm to be sizing for, or should we be sizing for lager infrastructure?
    - DOT closed system requirements are for 10-year storms.
    - This becomes a pinch point in the system when others are designing for 25-year storms.
    - There is no anticipated policy for DOT to change their standards from 10 years.
- What would be the impact of this change on smaller municipalities that don't always have their own stormwater overview? It might be more impactful for them than the more urbanized southern parts of the state.
- [Sebago Technics] tends to overdesign for larger projects anyway, usually using the 25-year storm event as a minimum for culverts in closed channel systems.

- Giving as much flexibility and discretion to the design engineer would be preferable.
- How do we address watershed-wide infrastructure improvements in a meaningful way when we are just looking at single projects?
- A dual standard could be applied: for projects under 3 acres in size of impervious cover the 10-year storm is appropriate, and for those over 3 acres it could be the 25-year storm.
    - But taking into consideration whether the flooding from a 10-year storm occurs on or off the site. If it is on the site, it's up to the designer, if it is off the site, that can't be allowed.
- A reason that these standards may have been placed in the flooding standard, is the third standard between the two that are being considered for moving: if your area is proposed to be flooded in a 10-year storm event, it can't contain a building- you can have parking lots, recreation areas, etc., but not a building. It then goes on to say if you are going to flood downstream, the site has to have a drainage easement. But not having these standards apply to all projects makes it difficult to regulate the few exceptions where engineers are making the wrong choices.
- Another aspect to consider is that getting a waiver for the flooding standard does not waive a developer from meeting these specific standards being discussed.
- Is there a way to separate standards into wetland, urban impaired, general standards? Is there a conveyance standard? Could smaller projects need to meet standards from a conveyance standpoint, while larger scale and site law projects have to meet another standard? And potentially tie this to threatened watersheds too?
- Adjacent to these topics is the municipal waiver for connecting into a closed drainage system.
- These topics could be discussed in a subcommittee. No consensus was reached on this discussion topic in this meeting, but it will be revisited in a future (subcommittee) meeting.

Meeting Topic 6: Flooding Standard – Return Interval Storm Events

Background: Current flooding standards require peak matching for the 2, 10, and 25 year 24-hour storm events. Maine Department of Transportation is currently designing stormwater conveyance structures for the 50 and 100 year 24-hour storm events in certain contexts.
Bankfull discharge for most streams has a recurrence interval of between 1 and 2 years, with approximately 1.5 years as the most prevalent (Leopold, 1964 and 1994), and maintaining this discharge rate should act to prevent downstream erosion. Recent research, however, indicates that two-year peak discharge control does not protect channels from downstream erosion and may actually contribute to erosion since banks are exposed to a longer duration of erosive bankfull and sub-bankfull events (MacRae, 1993 and 1996, McCuen and Moglen, 1988). Consequently, 2-year peak discharge control may have some value for overbank flood control, but is not effective as a channel protection criterion, since it may actually reach peak flow that is too high and extend the duration of erosive velocities in the stream and increase downstream channel erosion.

Objectives:
1. Discuss removing 2-year peak matching requirement.
2. Discuss merits of peak-reduction standards in some settings.
3. Discuss adjusting peak flow control for higher intensity storm events (50-year/100-year).

Discussion:
- Under current requirements, developers are required to match or reduce peak flows to match existing, predevelopment conditions.
    - Matching the predevelopment peak does not necessarily mean following the same hydrograph, it just means not going above that peak discharge rate.
    - The peak rate could last a longer time period than the predevelopment condition, and that would be allowed.

- The concern is that this prolonged exposure/drain-down time leads to a higher channel erosive volume, and therefore contributes to additional stream erosion.
    - Not having this specific requirement might help mimic more natural channel-forming situations.
- Potential options presented to address this:
    - No Exceedance option: at no point in the graph should the post-development hydrograph exceed the pre-development hydrograph (discharge rate never rises above, at any time interval).
    - Peak Reduction option: instead of peak-matching requirement, there's a peak reduction requirement (e.g. reduce the peak of the 2-, 10- and 100-year events by 50% compared to the predevelopment).
        - This option comes from a highly developed watershed. Might be worth considering for areas with particularly flashy streams or large projects.
- Original standard (stream protection standard) was designed to address this issue. It involved releasing over 24-48 hours, which was enough in many cases (especially for small streams) to get back under the non-erosive velocity, but this doesn't work everywhere.
- If using an infiltration standard, a large volume under the storm hydrograph will be removed and stored on-site, then infiltrated.
- The committee was asked if they should consider changing the peak flow controls for the flooding standard from 2-, 10- and 25-year storms to 2-, 10-, 50-/100-year storms.
    - Consensus was to leave the standard, based on earlier discussions around how BMPs are for the most part not designed to be active beyond 25 years.
    - It was noted that it is difficult to make a decision because in some cases it is appropriate to design for a higher standard. Such as for wet ponds, which have longer lifespans than other BMPs.
    - USGS is trying to move away from the 10-year, 25-year, etc. terminology and replace it with annual exceedance probabilities, because the recurrence interval is misunderstood by the public.
    - There's a 63% chance that a structure that is in the ground for 25 years will experience a flow equal to or higher than a 25-year event. Same for a structure that is in the ground for 50 years, that it will experience flow equal to or greater than a 50-year storm event.
    - Wet pond design requirements: you have to do a plug flow calculation for the 25-year event, but also for a 50 to make sure it doesn't over-top. You are also required to have one foot of freeboard for the berm at the 50-year storm, not plugged, and it has to be able to hold the 100-year flood without going over the top of the berm. This builds in protection for the municipality or whoever receives that water.
    - A concern about newer systems, such as underdrain soil filters or anything porous, is that they often end up flooding municipalities because they are not maintained properly. Often, even after the first season, the pores become blinded and the porous surfaces end up acting as paved surfaces.
    - How can we encourage better maintenance through this process? The five-year recertification program is in place, but it was not effective for a few years when there was not enough staff to work on it.
        - The updated environmental licensing system will give MEDEP more capability to issue reminders to people who are not submitting. The state needs to do a better job at supporting municipalities deal with people that are non-compliant.
    - It is not really clear how many cases of under-designing are occurring because it is not something that engineers self-report. Anecdotal data shows that often the porous pavement BMPs are not working, for example observation ports are paved over. But there is no real data on how well these BMP types are working.
    - More common than complete BMP failures, are erosion and the inability to stabilize sites long-term.
    - Microtopography is very important when designing BMPs. Some catch basins sit an inch or two above the surrounding pavement, meaning sheetflow will not drain into the basin rather around it.
    - MEDEP doesn't receive many as-built drawings to make sure they conform to the original project designs.
    - Another maintenance issue is cattails growing in BMP systems, which retard flow and reduce catchment volume, changing the functioning of the system from how it was designed.
- General consensus to not change the peak flow to 50/100-year events (Objective 3).

    - Justification: these BMP systems are not realistically going to last beyond 25 years in most cases, so it doesn't make sense to require their design to meet the 50- or 100-year storm events.
        - It comes down to designing it to the realistic lifespan of the system, not designing it to what would be ideal given unlimited resources.
    - This wording shouldn't be spelled out in Ch500, it should just say that we are guaranteeing that the 25-year storm passes through the site with some level of safety.
    - What is being left out of the discussion is that it is on the property owner to update or replace their system at some point so that it can keep handling 25-year events in the future.
- General consensus not to get rid of the two-year peak matching requirement (Objective 1). Committee will reach out to John Field for his technical expert opinion but if there's not enough justification to change it, the requirement will most likely be kept.
    - Don't want to give a designer the chance to bypass the two-year storm requirement, for flashy UISs.
    - It would be a hard-sell to communities that experience flooding that DEP is getting rid of the two-year storm peak-matching requirement.
    - Some municipalities deal with the two-year flooding more frequently and it would have to be up to them to possibly rewrite their stormwater ordinances to be stricter than the Ch500 regulations if the language is changed to remove the two-year peak requirement.
    - Might be worth reaching out to technical experts that are not part of the technical committee, such as John Field, to get a better understanding of the erosion/flooding/force equation of this objective.
- Subcommittees to meet before the next technical committee meeting. No consensus reached on whether to establish a flooding subcommittee.

Meeting Topic 7: Watershed Approach to Flooding

Background: DEP regulates flooding at a site level through permitting, but flooding challenges are often expressed at a watershed scale level. Some flooding standard waivers already exist as an attempt to combat this issue – notably the waiver for direct discharge into a great pond, major river, or coastal area.

Objectives:

1. Identify opportunities address flooding issues in a larger watershed through site permitting.

Attendees:

TAC members:
Al Palmer
Angela Blanchette
Aubrey Strause
Chris Baldwin
Charlie Hebson
Mark Bergeron
Paul Ostrowski
Phil Ruck
Rodney Kelshaw
Ryan Barnes
Peter Newkirk

DEP & FBE:
Bina Skordas
Tracy Kreuger
Cody Obropta
Dave Waddell

CHAPTER 500 STAKEHOLDER ENGAGEMENT | TECHNICAL COMMITTEE MEETING #3 MINUTES

RE: **Chapter 500 Stakeholder Engagement, Technical Committee Meeting #3**
DATE: Tuesday, June 25th, 2024
TIME: **9:30am – 1:00pm**
LOCATION: Remote via Microsoft Teams
INVITEES: Kerem Gungor, Cody Obropta, Jeff Dennis, Tracy Krueger, and David Waddell (Maine DEP)
Bina Skordas & Sierra Guite (FB Environmental Associates)
Chapter 500 Technical Committee

MEETING OVERVIEW:

TOPIC	ESTIMATED DURATION
1. Meeting #2 recap & minutes	10 mins
2. Project Timeline	10 mins
3. Refresher: tasks from Steering Committee	20 mins
4. Summarize Subcommittee Discussions a. Core LID Meeting b. Groundwater Recharge Meeting c. Definitions Meetings	30 mins
~ BREAK 15 MINUTES ~	
5. Sensitive/Threatened Watersheds & Regions	60 mins
6. Discussion on the Tasks Assigned to the Technical Committee a. Consensus Points b. Items that Require More Work	30 mins
7. Next Steps for the Technical Committee & Subcommittees a. Short-term Tasks between 6/25 & 7/15	30 mins

The next Steering Committee meeting will be held on Monday, July 15th from 9:30am-1:00pm.

1: Meeting #2 recap & minutes

2: Project Timeline

- Started December 5th
- All committee meetings are on schedule.
- Hoping to wrap all the meetings up by the end of September.
- Then FBE will be providing stakeholder engagement report.

3: Refresher: tasks from Steering Committee

Documents shared with stakeholders include:

- LID Standard Proposal
    - Watershed and stressor specific standards promoting LID

    - Important LID standard implementation chart
        - Projects in Urban Impaired System watershed
        - Project in sensitive or threatened watershed
        - Project not in UIS or sensitive and threated watershed
- Flood Protection Proposal
    - 5 Recommendations for protection
- MCC Resiliency WG Proposal

Tasks that were given to this committee from the steering committee

1. Clarify the language that the goal is specifically to minimize impacts
2. Decipher between threatened and sensitive watershed
3. Define low maintenance vegetation and consider- low maintenance to who
4. Specify the requirements based on different applications
5. Develop a framework for testing the rule changes under different scenarios

Flooding tasks

1. Decide on source for precipitation data
2. Determine uncertainty that persists following changes and decide how to deal with that
3. Clarify the language (less technical more accessible)
4. Define DEP scope and consider how this can be framed around watershed-wide perspective
5. Specify flood requirements based on stream risk/classification
6. Ensure proper education of changes made
7. How to incorporate Environmental Justice (EJ)?

4: Summarize Subcommittee Discussions

Core LID Subcommittee:

- The intent of developing core standards is to come up with clear standards to help developers because LID does not have very clear or measurable stands out there.
- These standards have to goal of being applicable to all sites, but if not realistic, these stands at least require people to be more selective and aware when developing a project
- In ideal scenarios core LID would be required for all watershed development, because keeping them in mind would affect site selection and development, but if not possible, people should need to demonstrate why these cannot be met
- If you cannot achieve core LID, for whatever reason, then you should have to do something else, such as doing more storm weather control measures
- If one comes up with a good design, there is not much required for quality or groundwater treatment.

Groundwater Recharge Meeting recap:

- It is important to note the differences between Stormwater vs Geology perspective on groundwater
    - When geologists look at groundwater recharge, they think of aquifers but here stormwater scientists do not think of aquifer recharge and instead, they think about just putting water into the ground.
- It is important to consider how we define required infiltrations because it is dependent on how we apply soils. Maybe instead of soil type there should be clarification such as: infiltrating all the rooftops.

Definitions Meeting Recap

- Discussion of variety of new proposed definitions including LID, flooding, astronomical tide
- Need to clarify the definition for environmental justice because there are two possible definitions for this project, and each could be applied to chapter 500 in a different way.
    - 1: There are communities that have expressed that they are in dire need of housing and having to comply with stringent definitions reduces the ability to apply housing.

- 2: From an EJ standpoint they could say do the people occupying this standard require the same standard, because if not up to standard, then housing but poor quality.

----Break-----

5: Sensitive/Threatened Watersheds & Regions

Presentation ---Sensitive and Threatened Regions and Watersheds TAC Initial Discussion

- Stormwater Management Law – 420-D.4 Degraded, sensitive or threatened regions or watersheds.
- Unnecessary Requirements: Regardless of receiving water vulnerability. All stormwater projects are currently treated equally unless in a UIS or Lake Most at Risk Watershed.
- Prevention is Priority: It is difficult, expensive and often not feasible to restore stream watersheds once they are impaired. Prevention/ protections are much more effective, but no one must know where to prioritize those efforts.
    - You can always make them better, but it is hard to fully restore
- Why use IC as a metric?
    - Strong (not perfect) predictor of health of a stream's aquatic life and the quality of the habitat that it requires
    - Data on impervious cover is currently available and can be applied to very small hydrologic units
        - NHDPlus HR
        - National Land Cover database
        - 2021 NOAA C-CAP Version 2 IC Layer
    - Relationship with IC may vary depending on
        - Baseline stream characteristics
        - Integrity of the riparian corridor
        - Location of development
        - Type and density of development
- Effects of Urbanization on the Aquatic Life of Maine Streams (Danielson, TJ et al., 2016 MDEP)
    - Conclusions: Class AA/A - 1% to 3%, Class B - 3% to 6%, Class C -10% to 15%
- Challenges and considerations of IC
- Determining appropriate IC thresholds
    - Current %IC
    - Change in %IC overtime
- Stream Order
    - First and second order most vulnerable
        - There is a new layer of first and second order catchments with associated C-CAP and NLCD IC data.
    - In Maine, 3rd order is only vulnerable if contributing headwaters are developed.
- Catchment size
    - Stream catchments >0.4sqkm (400 acres) support robust aquatic communities but resulting list could be very long and difficult to implement.
- Urban and rapidly urbanizing watershed conundrum
    - The proposed decision tree would only require core LID in watersheds that are not on the S&T list, the UIS list, or in a lake watershed.
    - A catchment size threshold of 0.8 sq km or higher will leave many viable streams off the S&T list.
    - In already urban or rapidly urbanizing areas this will result in many currently high IC small streams with inadequate protection.
- Possible solution- identify urban/urbanizing regions that would protect those streams
    - All regulated development would have to meet the S&T stormwater requirements.

    - Regions could be highly impervious and high growth municipalities.
    - Would dramatically reduce the number of S&T watersheds make implementation much easier.
- It was clarified that Jeff is using big categories to determine why certain streams should be selected and wanting feedback on these categories.
- There was confusion surrounding what Maine gets to define and what EPA gets to define. Specifically surrounding what was proposed as changes to the existing policies.
- EPA takes a long time to response. Maine water quality standards are not EPA's, they are Maine's. EPA just approves the standards, but we get to set them. It defines goals for various parameters for different classes of streams and one of the criteria in these standards is narrative biological criteria for aquatic life. Our goal is to meet the aquatic life criteria in these streams (not EPA metal standard).
- The difference between sensitive and threatened in comparison to other classifications was asked. The clarification stated that the sensitive and threated life idea is determined by whatever EPA has established is sensitive and threatened.
    - Following up on this it was noted that the group here will hopefully have different people working on water quality standards

First cut thresholds

- Standards
    - 2021 C-CAP %IC> 15, NLDC 2001-19 change>0
    - 2021 C-CAP %IC> 10 <15, NLDC 2001-19 change>0
    - 2021 C-CAP %IC> 7<10 15, NLDC 2001-19 change>1
    - 2021 C-CAP %IC> 4<7, NLDC 2001-19 change>2
- Catchment size
    - 1.0sqkm
    - 0.8sqkm
- Urban/urbanization regions
    - Municipalities with town wide
        - 2021 C-CAP %IC> 5, NLDC 2001-19 change>0.5
- Findings
    - Number of catchments that meet the threshold and are not in UIS or urban urbanizing municipality
        - >1sq km 52, >0.8sq km 61
    - Number of catchments that meet thresholds and are in UIS or urban urbanizing municipalities
        - >1sq km 133, >0.8sq km 151
    - Number of catchments that meet threshold and are in the UIS watershed
        - >1sq km 38, >0.8sq km 44

  * at least 70 polygons were removed for these purposes after evaluation
    - Flow path of the catchment was mostly tidal waters
    - The CCAP impervious layers were falsely identifies
    - The NLCD changed analysis layers and identified pervious areas as impervious
    - This is due to significant areas of the polygon did not drain into the stream

Next Steps

- Refine the initial analysis input from the TAC
- Consider alternative ways to define S&T regions
- Preform parallel analysis for 3rd order streams
    - Identify missed streams
    - Will likely add some streams
- Consider inclusion of S&T coastal and estuarine watersheds
    - Areas with first through third order drainage to nitrogen sensitive waters
    - Could be done in a way similar to the S&T

    - DEPs Marine unit is considering recommendations for this
- Consider ways to refine inform the list using available GOS land cover data and orthophotos to assess
    - Stream and corridor integrity
    - Dominant land cover type in the watershed
    - Will at least inform stressor identification

Discussion following presentation

- The zoning regulations were acknowledged, and it was noted that it should be relatively easy to determine what is residential
- There were concerns addressed surrounding the idea of referring to municipalities' regions and then how municipality growth is tracked. This comment brought up how the ways that this growth is projected is from previous observation, but there is likely a large change in growth rates from previous years to current years. The response addressed how this is not a perfect system, but many streams that are in heavily urbanized areas are impaired by urbanization.
- This led to a request to create a layer that displays catchments present. This is something that is in the process of getting completed. It is, however, a complicated process due to the standards that must be met and the streams that are not listed right now due to complicated regulations.
- The connection of how watershed and lakes loop into this whole proposed process was then clarified by stating that the scope of this proposal does not contain lake watershed because they are completely separate. The only difference is the impervious side threshold for most at risk.
- Another issue addressed was how this information would be told to the public. The public will request a much clearer explanation of the processes, and the group will need to decide how in depth we go with explanations of numbers (i.e. do they need to know why all numbers were picked or can we just post the numbers).
- Most people agreed that there needs to be a clear decision made of what is going to make the cut for getting presented to the public and then have more in-depth information additional to those that wish to understand how everything was decided.
- Maine's expanding population was acknowledged and way that this may affect watershed. Someone brought up how if there is a large store built on a smaller stream watershed, that people will want to be in that region. This would obviously cause issues and there needs to be a system in place to deny people the ability to build wherever they want.
- Many people agreed that any site should meet the sensitive watershed standards because that would be easy to justify and determine how much of the catchment area they are using. This seems to be relatively easy to implement.
- The final topic addressed in this discussion was what happens when a watershed grows due to climate change. This may be a good question to pose to potential modelers. Having this information would be helpful in determining future groundwater recharge.

6: Discussion on the Tasks Assigned to the Technical Committee

Major Takeaways

A. Consensus Items
- Subtract: is there a standard in the DEPs proposal that must be eliminated?
- Add: Is there an important LID strategy that is missing in the DEPs proposal which must be considered
- Roadblock: Is there required missing information?

Discussion

- Many people agreed that the sooner we can get in front of stakeholders the better. Certain stakeholders are expecting to see what they see in other NE states, and this proposal is different. Due to the differences, there will likely be some convincing required and since they will not understand this and therefore potentially reject it.

However, we need to have clear decisions before we can go and engage with the non-technical stakeholders. But we have good justification for the approach to LID and why it looks different than MA and NH so this should not be rejected by stakeholders.

- One of the roadblocks that have arisen before and may harm our proposal is what people's concepts of situations are. There are a lot of unknowns as to how we will directly address these issues. If we can bring up each one of these pieces and agree that each one of these standards is x then I think there will be more onboard. We need to establish these for core LID standards (i.e. 25ft).
- It was agreed that some of the importance is in the details. It appears the group for core LID has consensus on further back.
- For future meetings, there seems to be confusion amongst this committee in understanding some of the details. These are mostly clarification regarding why specific pieces are included and it would be helpful for Kerem to be present at the next meeting.

B. Items that require more work
   - Which items are higher priority
   - What is the progress status of these items
   - Considering the level of effort required can these tasks be completed on time? (regarding tasks given earlier)

Discussion

- Many agreed that there are issues with people being present during the summer and this may require a shift in the schedule for the foreseeable future. It seems to be unrealistic to achieve everything that is desired and produce a good product in this timeline. Almost everyone agreed to invest more time and effort into the project thus extending the deadline.
- There was also clarification requested regarding the difference between threated and sensitive watersheds. This is because they would be treated the same way and would get the same requirements.

Flooding

A. Major Take-aways
   a. Consensus items
      a. Authoritative precipitation reference for new chapter 500 must be NOAA Atlas 14 until Atlas 15 is released
      b. Retain 2-year storm peak flow attenuation standard
         i. Input from john field requested
      c. No need to require peak flow control beyond 25-year storm

Discussion

- Someone brought up that there has been more discussion on defining new zones and coming up with different conservation zones with respect to sea level rise. This may be outside the scope of Ch500 and what this directly needs to address, but it is still important to discuss.

b. Items that require more work
- Which items are higher priority
- What is the progress status of these items
- Considering the level of effort required can these tasks be completed on time? (regarding flooding tasks given earlier)

Discussion

- It was again addressed that there are places in the state where the demand for housing is greatly increasing, and more people means more need for stores. This addresses the concern that we don't really know what the future holds and using 2001 to 2019 to determine that may be understating things based on what we are really working on here. There is regularly available land cover projection, and we should incorporate that along with projections.

7: Next Steps for the Technical Committee & Subcommittees

- Eleven workdays between now and the next steering committee
- Technical meetings until the SC meeting:
    - TC and/or Subcommittees
- Short list of readily available references to speed up the technical team's work
    - Recently updates stormwater standards of other new England states
    - State of Washington BMP manuals
    - Minnesota stormwater manual
    - Others?

*Considering the discussions we might want to have a core LID meeting before the next meeting

Attendees:

TAC Members:

- Al Palmer
- Andy Johnston
- Aubrey Strause
- Chris Baldwin
- Joe Laverriere
- Mark Bergeron
- Paul Ostrowski
- Rodney Kelshaw
- Peter Newkirk
- Phil Ruck
- Doug Roncarati

Project Team DEP & FBE:

- Jeff Dennis
- Kerem Gungor
- Tracy Kreuger
- Cody Obropta
- Dave Waddell
- Sierra Guite
- Bina Skordas

Others in attendance:

- Cindy Dionne
- John Kuchinski
- Alexis Racioppi
- Nathan Robbins
- Gregg Wood

CHAPTER 500 STAKEHOLDER ENGAGEMENT | TECHNICAL COMMITTEE MEETING #4 MINUTES

RE: **Chapter 500 Stakeholder Engagement, Technical Committee Meeting #4**
DATE: Monday September 9, 2024
TIME: **9:30am – 1:00pm**
LOCATION: Remote via Microsoft Teams
INVITEES: Kerem Gungor, Cody Obropta, Jeff Dennis, Tracy Krueger, and David Waddell (Maine DEP)
Bina Skordas (FB Environmental Associates)
Chapter 500 Technical Committee & Steering Committee

SUMMARY

The Technical Committee Meeting for Chapter 500 discussed the project timeline, focusing on the low impact development (LID) standards and their application to Chapter 500. Key tasks include fleshing out LID standards and making Chapter 500 more user-friendly. The original LID proposal included standards for natural drainage ways, setbacks, and vegetation. Challenges identified included identifying major natural drainage ways and setbacks from abutting parcels. An alternative LID proposal was developed, focusing on protecting natural drainage networks and natural resources. The committee also discussed the need for clear, specific, and practical LID standards and the potential use of LIDAR layers for better identification of natural drainage ways.

REVIEW: STEERING COMMITTEE TASKS

LID

1. Clarify in the language that the goal is specifically to minimize impacts.
2. Decipher between threatened and sensitive watersheds.
3. Define low maintenance vegetation and consider – low maintenance to who?
4. Specify requirements based on different applications. Potential examples include:
    a. Development vs redevelopment;
    b. Stream class;
    c. Sensitive vs threatened;
    d. Pollutants of concern;
    e. Rural vs urban (and how this is defined);
    f. Population type/resource access (i.e., EJ community, different regions of state).
5. Develop a framework for testing the rule changes under different scenarios. Potential considerations include:
    a. Project description: size; development vs redevelopment.
    b. Project location/impact characteristics: coastal vs inland; natural vs manmade channel; urban vs rural; threatened vs sensitive watershed; climate change impacts on the area; etc.
    c. Cost: social; construction; maintenance; the cost of doing something now vs restoration later due to continued pollution; etc. (state costs are a consideration out of the scope of TC to be handled by DEP).

Flooding

1. Decide on which source to use for precipitation data.
2. Determine the uncertainty that persists after changes are made and decide how this will be dealt with.
    a. This goes along with testing the standard after changes are made by running it through scenarios, similar to LID standard.
3. Clarify language to ensure standards can be understood by less technical audiences.
4. Define DEP scope and consider how this can be framed around a watershed-wide perspective as opposed to project site specific view. Consider how regulations from other agencies and municipalities impact this.
5. Specify flood requirements based on stream risk/classifications (similar to LID TC task)

6. Ensure proper education of changes made (this is a task related to all Ch500 changes made, not just flooding standard).
7. How to incorporate Environmental Justice?

SUBCOMMITTEE DISCUSSION SUMMARY/TAKEAWAYS

Core LID (8/2/24) *part of joint meeting with Core LID and Groundwater Recharge*

The following gives a summary of the Core LID subcommittee discussion. From this discussion, DEP was tasked with testing the Core LID standard on real development projects. The results of this testing are explained, and an alternative proposal was created to account for challenges realized during testing.

Meeting Summary

Agreement on the core LID standard concept:

- Limited number of clear, specific, measurable, and practicable LID standards are necessary

Concerns on the specifics of the proposed core LID standards:

- Activities permitted under the Natural Resources Protection Act (NRPA) are restricted by the proposed LID setbacks,
- "Natural drainageway" term is unclear,
- Wide setbacks may restrict development significantly,
- LID value of open-channel vegetated conveyance is questionable,
- Low maintenance and native vegetation standard must be detailed to address ornamental, invasive species (Scarborough, Brunswick ordinances mentioned).

Overall Discussion on the proposed core LID standards:

- Nonstructural stormwater management through the core LID standards can be limited to the activities that require Stormwater Law permit and are outside Sensitive & Threatened regions,
- Percentage of parcel that will be kept in undeveloped condition can be factored into the core LID standards,
- Suggestion to harmonize the LID standards with other regulations: projects that require a NRPA permit can be considered "non-LID".

Action Items

- DEP team to test proposed standards using real development projects.
- DEP team to revise proposed standards using feedback from this meeting and circulate the revised proposal.

Results from DEP testing

DEP engineers reviewed **16** real-life development projects to test the proposed core LID standards.

- Challenges:
    - Identification of a major natural drainageway unless existing contours clearly indicate a channel or NRPA streams are shown on the plans,
    - Identification of the start and end point of "downgradient" portion of an abutting parcel,
    - Entire site can consist of HSG A or B soils,
- Conclusions:
    - HSG A&B, 25% sustained slope, 50 ft setback for downgradient parcels can be removed from the core standards,
    - The core standards can focus on the natural drainageways and natural resources which are important elements of natural green infrastructure.

Alternative Proposal

This proposal focuses on:

- Maintaining and appropriately protecting the natural drainage network,
- Protection natural resources,

- Avoiding downstream impacts.

It does not include:

- Setback 25% rule,
- Building envelope per say – resulting envelope is incidental,
- Prohibition on A and B soils,
- Native vegetation requirements.

Core LID-1. Natural Drainage Ways

Natural Drainage Way (NDW) Definition – any pre-development natural channel with an eroded mineral (sand, gravel, rock, or hard clay) bottom that is within or passing through the project site.

Minimum NDW No Disturbance Setbacks

- NDW-1 – mapped as a 1st or higher order stream in the NHD Plus High Resolution Stream Layer* = 75 feet
- NDW-2 – not mapped as a 1st or higher order stream in the NHD Plus High Resolution Stream Layer = 15 feet

No disturbance is allowed within these setbacks except for necessary road crossings and appropriate stormwater outfalls.

*No Disturbance Setbacks *are not* required for sections of channel flow that are in pipes or culverts but *are* required for previously channelized or otherwise altered reaches of 1st or higher order streams.

NDW Crossings

Road crossings are allowed on NDW-1 and NDW-2 drainage ways provided that:

- They are designed and constructed with Stream Smart principles, and
- It can be demonstrated that road layout is designed to limit the number of crossings of NDW-1 drainage ways and wetlands to the minimum necessary to support the project's function.

Questions/Discussion:

- Is this 15 ft criteria based on data?
  - Based on assumption that these would mostly be ephemeral streams which have hyperreic communities which rely less on shade for surface organisms, leaf litter for food, woody debris for habitat, etc.
  - The 15 ft is basically to keep people out of the channel to limit human disturbance.
- What is an "appropriate stormwater outfall"?
  - Depends on situation and watershed stressors, so will need to be careful in defining this.
- If an NDW-2 is an intermittent stream, and you are in the area 25-15ft, they might require an individual permit versus a PBR. This may be difficult/confusing to understand.
  - This could be true if there has been a site determination on the intermittent to ephemeral line, but DEP will likely not be able to do this on a regular basis for all projects. The idea here is that the 15 feet no-disturbance buffer for all NDW-2 streams offers general protections, and if other more stringent rules (i.e., NRPA) apply, then those will have to be followed.
- Notice in practice: delineators are not doing a good job at identifying anything but second order streams, including intermittent and ephemeral streams. In many cases, NRPA and PBRs are not being filed and these streams are being graded and eliminated. In a lot of cases, if BMPs are being installed, they are right at the top of the slope. With this, the planning department is not getting good information. Need to make it very clear what people can and can't do in the 15-75 ft from the stream, including where BMPs, crossings, development, etc. can go.
- Definitions committee did not come up with the NDW definition. This definition may conflict with NRPA or other DEP standards (i.e., can get within 25 ft of a stream with a PBR, but have to be 75 ft away from a NDW that may not be an actual stream). If this 75 ft rule is desired, should work with NRPA to make the standard the same.
  - If something is permittable under NRPA, that does not necessarily mean it is LID. Need to draw the line somewhere for LID. NRPA does not protect all NDW. Need to have a distinction between LID projects and non-LID projects.
  - There definitely may be confusion as this is adding more waterway types that need setbacks. Additionally, USACE will soon release rules that anything with a channel is now a Corp stream. This is going to add another waterway type that may matter to the Corp but not DEP. DHHS throws in even more definitions by using the terms "major

and minor watercourses" in the definitions for septic setbacks. It may be worth looking at those definitions as they could be closer to what we are trying to define here.

- How do you address artificial drainage ways that are naturalizing?

Core LID-2. NRPA Protected Natural Resource

No Disturbance

There can be no disturbance of an NRPA Protected Natural Resource on the project site

Wetland Crossings

Road crossings are allowed through NRPA protected wetlands provided that:

- The crossing is designed and constructed with Stream Smart principles and relief culverts or rock sandwiches to provide hydrologic connectivity along the entire crossing, and
- It can be demonstrated that project's road layout is designed to limit both the number of wetland crossings, and the cumulative square foot area of the wetlands impacted to the minimum necessary to support the project's function.

Questions/Discussion:

- May be helpful to have language that encourages/forces people to minimize impacts versus having no impacts. Having no impacts isn't always possible. Could also say no disturbance of NRPA resource within channelized system except for permitted actions (i.e., stream crossing) to give a bit more flexibility.
  - DEP had originally discussed allowing Tier 1 impacts up to 5,000 as part of this. However, if you have a large site, you should be able to avoid. Regarding crossings, under current ch500, if you are crossing a wetland, you're not required to treat it, but you are required to connect drainage. This is something DEP was trying to continue and thus is covered under Wetland Crossings. In trying to determine the LID cutoff, it was determined that if you trigger NRPA you won't make LID. DEP can reevaluate implementing some flexibility here.

Core LID #3. Downstream and Off-Site Channel and/or Landscape Protection

Post-Development NDW Catchment Size

For NDWs that drain from the site in the pre-development condition the area of the contributing post-development catchment upstream of the discharge point from the site may not be increased by more than 10% or 10,000 sq ft, whichever is greater, as compared to the pre-development catchment area unless a drainage easement is obtained from the owner of the property or stormwater system to which the catchment drains, in which case the catchment area can be increased by as much as 25%.

Redistribution of Stormwater Discharge at the Property Boundary

Stormwater runoff from areas greater than 10,000 sq ft that in the pre-development condition did not leave the site in an NDW channel must leave the site in well distributed, unconcentrated flow unless a drainage easement is obtained from the owner of the property to which the concentrated stormwater will drain.

Maintenance of channel continuity and catchment area at road crossings

When a proposed road crosses the slope appropriately sized culverts must be provided for each NDW that will drain across the road. In instances where the upgradient slope will drain in sheet flow to the road ditch, crossing culverts must be frequently placed at intervals no greater than 250 feet to avoid concentration of flow and catastrophic erosion of downgradient channels.

Questions/Discussion:

- A corner lot site in Lewiston, one street was separated storm drain and the other street was a combined sewer. Permitted such that all drainage was directed to the separated storm drain. This permitting decision would have violated the catchment size rule
  - DEP to address this in the rule with an exception.

- Assuming that under this standard, any culvert discharges would have to be equipped with a turnout, level lip spreader, etc. to turn the flow back to sheet flow?
    - Ideally yes, but it depends on the size of the drainage area. Large drainage areas would definitely need this but smaller ones may not. This will need to be clarified.
    - Could alter language to say if the water is received as sheet flow, it must be returned to sheet flow, via level spreader or equivalent.
    - Maybe use the term "crossing structure" instead of "culverts" to give the opportunity for a rock sandwich or something else that does not channelize flow.
- How far downstream would you be looking for the "drainage easements"?
    - The immediate downstream property owner or the municipality that owns the conveyance you're discharging to. It depends on what the downstream property owner is comfortable with.

Testing of Alternative Proposal

Dave Waddell (DEP Engineer) reviewed five real-life projects. The projects mostly complied with the revised standards.

- Non-compliance observed: Wetland impact → NRPA Protected Natural Resource standard (Core LID Standard #2)

Questions/Discussion:

- For these five projects, were you looking to see if they could still design as it was and meet the requirements? Want to make sure that we are going to a higher standard and not staying status quo, as this is the goal.
    - There were a lot of example sites that were immediately kicked out because they did not meet the wetland setbacks and A/B soil requirements. We are not looking to stop development, just looking to make sure they fit in the low impact criteria and still be able to justify not having BMPs. It's important to know these projects were not tested with S&T rules, which will catch a lot of projects and require BMPs. This is just not a part of the Core LID standards.
- Core LID subcommittee needs to talk more about wetlands setbacks to find a balance between protecting wetlands and still allowing for development.

Groundwater Recharge (8/2/24) *part of joint meeting with Core LID and Groundwater Recharge*

Meeting Summary

- Kerem Gungor presented a challenging fictitious development example to explain how the proposed standard applies:
    - Hydrologic Soil Group A (HSG) A is developed with impervious cover and HSG D is used for stormwater treatment.
- The example showed that it was feasible to meet the groundwater recharge requirement.
- Current "static" design approach results in oversized structural stormwater control measures. Proposed standard is based on "continuous" stormwater modeling which will result in more efficient structural measures.

Sensitive & Threatened Watersheds/Regions (7/31/24)

Meeting Summary

Objective of S&T Watersheds/Regions list:

- Prevent impairment of urbanizing streams by reducing impacts of new development – prevention is easier than restoration which is often not feasible
- Avoid requiring sophisticated stormwater management in streams that are not threatened with urbanization
- Inform other efforts to protect vulnerable streams
- Satisfy the requirement in the Stormwater Management Law (currently not used)

**While these were presented as a basis for discussion and there was agreement, the subcommittee viewed them as formal objectives that might be included in the rule and wanted some word smithing to avoid misunderstanding and clarify intent.

What metric(s) should be used?

- Agreement that IC is best available tool and, specifically, that current %IC (2021 CCAP) and 2001 to 2019 change in %IC (NLCD) were the best currently available means of assessing threat. Lots of discussion on the other factors that effect stream health and resiliency besides IC.

What % IC thresholds should be used for inclusion on the list?

- General support for the proposed thresholds:
- Current IC > 10%
- Current IC 7 to 10%, Change in IC > 1%
- Current IC 4 to 7%, Change in IC > 2%

*Recognition that thresholds are arbitrary, but these seem reasonable

What streams should be evaluated?

- Support for 1st, 2nd and 3rd order Streams

What watershed size threshold should be used?

- Support for watersheds > 0.8 sq km (200 acres)

How should we deal with urban and rapidly urbanizing areas?

- Agreement that best solution is to identify S&T Regions as municipalities with high current townwide % IC, high change in IC and/or a high densities of catchments that exceeded the individual watershed thresholds. Any stormwater permits within these municipalities would have to meet the S&T Stormwater standards.
- There was also a strong recommendation that MS4 municipalities be on the list. It was also recognized and discussed that it was unreasonable to expect that "objective" criteria alone would result in the best list and subjective, common-sense considerations should also inform the outcome.
- Other means of assessing growth were discussed but deemed not viable
- A new list has been created based on this input:

Auburn	Eliot	Oakland	South Berwick
Augusta	Fairfield	Ogunquit	South Portland
Bangor	Falmouth	Old Orchard Beach	Thomaston
Bath	Freeport	Old Town	Topsham
Belfast	Gardiner	Orono	Turner
Berwick	Gorham	Owls Head	Veazie
Biddeford	Hallowell	Portland	Waterville
Boothbay Harbor	Hampden	Randolph	Wells
Brewer	Hermon	Rockland	Westbrook
Brunswick	Kennebunk	Sabattus	Windham
Buxton	Kennebunkport	Saco	Winslow
Cape Elizabeth	Kittery	Sanford	Yarmouth
Cumberland	Lewiston	Scarborough	York
Eastport	Lisbon	Skowhegan	

Subcommittee ran out of time before discussing if these results seem reasonable and will accomplish the objectives. Based on discussion throughout the meeting the subcommittee was generally very supportive of the need for this and the direction it was headed. However, significant concerns were raised:

- Methodology relies on assumption that past and current IC will accurately predict future growth patterns and watershed conditions.
- Variables that controlled past growth may change in the near future
- The list should be re-evaluted and updated in a frequent and/or responsive way as new data becomes available.
- Chapter 502 is major substantive and not easily amended, requiring both Board and Legislative approval

- Could the list itself reside outside of Ch 502, with procedures and criteria for regular or responsive updates defined in 502?
- There may also be ways to facilitate the approval process for routine updates

Other remaining questions:

- What additional measures should be considered?
- Inclusion of S & T coastal regions and watersheds?
  - The committee agreed that this was a good idea and that, if feasible, it would be good to do it while we are in this major update process. Staff will be evaluating various possibilities for accomplishing this and sharing with the subcommittee.
- Targeted GIS analysis to support stressor identification?
  - As time allows DEP staff will be considering both the type of development and the condition of the riparian corridor within the identified stream watershed to inform determination of the dominant current and potential future stressor to aquatic life
- How should the list and associated stressor guidance be presented?

Questions/Discussion:

- Is this going to end up similar to a TMDL type of process (i.e., looking at each area, determining stressors, and coming up with a plan to combat)?
  - The hope is to determine stressors to guide/complement the effort to create stressor-guided SCMs.

Stressor-Guided SCMs (8/12/24)

Meeting Summary

- Objectives proposed by DEP staff were accepted without exception:
  - Ensure that the SCMs used effectively and efficiently address the vulnerabilities of the receiving waters and the stressors of concern,
  - Encourage the use of the SCMs that are easily operated, inspected, and maintained.
- Four stressors of concern: Phosphorus (P), Nitrogen (N), Altered Habitat, Baseflow Chloride Toxicity
- Proposed SCM selection strategy:
  - N, P, groundwater recharge: Nonstructural Retention SCMs ⊠ Structural Retention SCMs → Structural SCMs (No Retention)
  - Chloride: Source Control Measures ⊠ Structural Measures Mitigating Groundwater Contamination & Its Impacts
- SCM Performance Curves: EPA Region 1, UNHSC, New England Stormwater Retrofit Manual
  - Fictitious development example
- Potential chloride control measures discussed.
- SCM Operation & Maintenance issues (implementation & responsibilities) discussed.
- Possible Chloride Point System (see attached)
  - Detailed description of each practice would be in BMP Manual
  - Interpolation allowed?
  - Does not include sophisticated SWiM type maintenance practices due to complexity of definition, required support or certification, and compliance oversight

Questions/Discussion:

- Is Maine considering a NH Green SnowPro type of program?
  - This is on the table for consideration at DEP, but would hesitate to put it into the stormwater regulations.
- Was this point system created based on a different system?
  - No, Jeff came up with it.
- Need to determine the intersection of the point system with other standards, particularly groundwater recharge.
- A lot of the table items have to do with parking which is usually regulated by the town. Think this will backfire, particularly with technicalities like number of parking spaces.
- This point system would just apply to S&T watersheds in which chloride has been identified as a stressor. Do we know how many watersheds this will likely be?

    - It won't be many watersheds, but it will be watersheds with high development pressure, so it will impact many permits.
- A challenge with this point system: what are you making municipal and DOT/MTA entities do considering they are 92% of the problem/salt appliers?
    - There tend to be a much higher proportion of private salt appliers in chloride impaired watersheds than the 8%-92% which is for the whole state.
    - If chloride is determined a stressor, DEP will have to come up with a procedure for this point system. Also need to continue to take preventative measures via a Green SnowPro type of program. This needs to be in rule so that DEP can have control over large private chloride inputs. Further, the burden needs to be spread among residents, municipalities, commercial, etc.
- These chloride strategies will not get us where we need to go in a highly developed watershed. Need to think about how we address synergistic stressors (i.e., high temps).

STORMWATER BMP MANUAL

A qualified contractor will be selected via RFP process and tasked with the update of the Stormwater BMP Manual.

See RFP here.

- The manual project timeline: December 2024 – July 2026.
- A Workgroup made of Department staff and external subject matter experts will oversee the manual project.
    - Time commitment: 12 meetings with the Department staff and the Workgroup.

Role of the BMP Manual in the new Chapter 500

Chapter 500 will include:

- Carefully crafted standards and requirements that do not include too much detail which can go out of date
    - Example: Appendix H in current Chapter 500. Also, other appendices?

Stormwater BMP (SCM) manual will include:

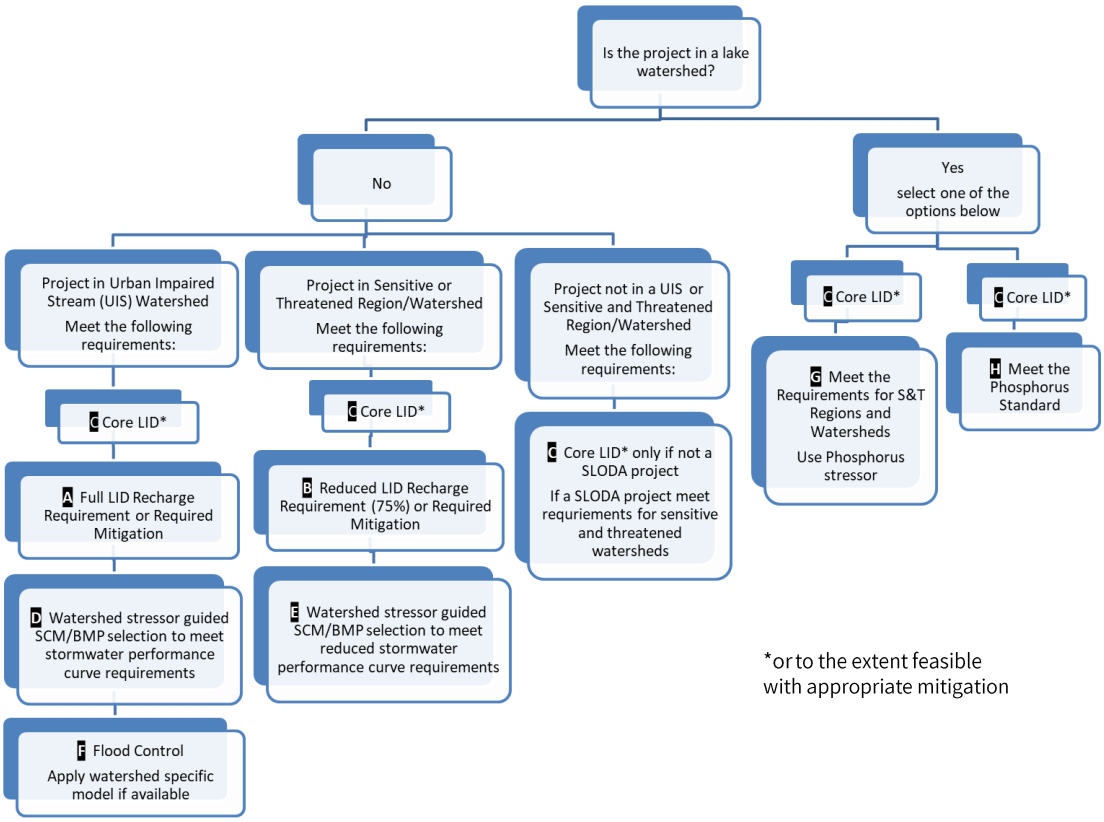
- Technical details and specifications fleshing out how Chapter 500 standards apply
    - Example: Phosphorus standard in current Chapter 500 (400 words)
- Regulatory role and revision procedure of the manual can be spelled out in Chapter 500

Questions/Discussion:

- How did you attract prospective bidders with the new RFP?
    - Reached out to potential bidders to gather interest and it is hopeful that the interested parties will apply.

REVISED DECISION TREE

- Watersheds not classified as UIS or S&T only have to comply with Core LID and not other, in-depth rules.



NEXT STEPS

Short-term tasks 9/9-9/23

- Send a high-level summary of the activities since the last Steering Committee meeting to the Steering Committee & Stakeholders
  - Sent 9/10
- Prepare a short progress report for the Steering Committee: progress on the tasks assigned to the Technical Committee, other important items & consensus points
  - DEP team will share a draft report (cloud document) with the Technical Committee members for their input and approval
- Prepare the agenda for the next Steering Committee meeting
  - Potential topics: Technical Committee report, redevelopment, operation & maintenance
- Work on the core LID standards
  - DEP team will share the working draft of the revised standards with the Core LID subcommittee.

Subcommittee tasks

The subcommittee meetings can resume immediately after the next Steering Committee meeting (9/23). Discussion over e-mails is encouraged.

Priority topics:

- Definitions: Environmental Justice (EJ), Drainageway
  - Should new Chapter 500 address EJ or not?
- Core LID: Revise the standards
- Groundwater Recharge: Work on the major submission requirements and exceptions
- Stressor-specific SCM: Work on the major treatment requirements for the identified stressors
- Sensitive & Threatened: Work on the identification procedure & the list

TIMELINE

Committee Meetings

Committee	2023	2024										
	December	January	February	March	April	May	June	July	August	September	October	November
Steering	1 (12/5)		2 & 3 (2/5 & 2/26)					4 (7/15)		5 (9/23)	Two Meetings	
Technical				1 (3/18)	2 (4/1)		3 (6/25)			4 (9/9)	Three Meetings	
Subcom.	December	January	February	March	April	May	June	July	August	September	October	November
Core LID				1 (3/25)	2 (4/12)				3 (8/2)			
Ground. Recharge				1 (3/26)	2 (4/5)				3 (8/2)			
Definitions				1 (3/29)	2 & 3 (4/5 & 4/26)							
S&T								1 (7/31)				
SCM									1 (8/12)			

Attendees:

TC members:

- Al Palmer (TC)
- Andy Johnston (TC)
- Angela Blanchette (TC)
- Curtis Bohlen (TC)
- Joseph Laverriere (TC)
- Paul Ostrowski (TC)
- Peter Newkirk (TC)
- Phil Ruck (TC)
- Ryan Barnes (TC)
- Rodney Kelshaw

-

Others:

- Bina Skordas
- Brenda Zollich
- Jeff Dennis
- Cindy Dionne
- Doug Roncarati
- Fred Dillon
- Kerem Gungor
- John Kuchinski
- John McMeeking
- Tracy Krueger
- Matt Marks
- Cody Obropta
- Alexis Racioppi
- Nathan Robbins
- Rick L
- Dave Waddell
- Gregg Wood
- Ben Torres

Proposed Chloride Point System

SCM/Practice to reduce contribution to baseflow chloride toxicity in the receiving water Must have a total of 100 points (40 points for redevelopment)	Points
Practices that minimize the area requiring salt application - Minimum Pts 50 (Redevelopment 10)	
Covered or stacked parking	
≥ 75% covered	100
50% to 75% covered	80
25% to 50% covered	50
Heated pedestrian surfaces	
Sidewalks and entryways heated	25
Designated pedestrian lanes in parking lot heated	15
Seasonally reduced parking for commercial retail from January 1 to April 15	
≥ 75% isolated and not plowed or salted	90
50% - 75% isolated and not plowed or salted	70
25% - 50% isolated and not plowed or salted	40
Minimize # of parking spaces and/or area required per parking space	
Does not exceed maximum recommended # of spaces for given use	5
Conservative sizing of individual parking spaces – 50% compact spaces	5
Angled head-in parking with one-way lanes	10
Redevelopment only - Replace existing parking with infill buildings or otherwise reduce parking	
Parking reduced by ≥ 45%	30
Parking reduced by 30% - 45%	20
Parking reduced by 15% - 30%	10
Practices that limit the amount of salt applied	
Sweep and reuse granular salt applied to all pedestrian surfaces after every storm/melt event	20
Practices that limit exposure of biota to toxic baseflow conditions	
Dilute groundwater by infiltrating low chloride roof runoff – SCM designed to infiltrate:	
≥ 0.75 inch depth of runoff from ≥ 90% of roof	24
0.5 to 0.75 inch depth of runoff from ≥ 90% of roof	18
≥ 0.75 inch depth of runoff from 60% - 90% of roof	16
0.5 to 0.75 inch depth of runoff from 60% - 90% of roof	12
≥ 0.75 inch depth of runoff from 30% - 60% of roof	8
0.5 to 0.75 inch depth of runoff from 30% - 60% of roof	6
Prevent contamination of groundwater	
Provide lined stormwater SCMs and secure/lined stormwater conveyances for parking runoff	required
Strategically locate snow storage on impervious surfaces that drain to secure conveyances	required
*Seasonally bypass parking storm/meltwater around intentional and incidental infiltration SCMs	35
**Provide a "Smart" that strategically stores and releases high chloride stormwater	50

CHAPTER 500 STAKEHOLDER ENGAGEMENT | TECHNICAL COMMITTEE MEETING #5 MINUTES

RE:	**Chapter 500 Stakeholder Engagement, Technical Committee Meeting #5**
DATE:	Thursday, November 14, 2024
TIME:	**6:00pm – 8:30pm**
LOCATION:	Remote via Microsoft Teams
INVITEES:	Kerem Gungor, Cody Obropta, Jeff Dennis, Tracy Krueger, and David Waddell (Maine DEP) Bina Skordas (FB Environmental Associates) Chapter 500 Technical Committee & Steering Committee

SUMMARY

The Chapter 500 Technical Committee convened to review progress on updates to Maine's stormwater standards as part of the ongoing rulemaking process. Discussions focused on the refinement of basic and general standards, the development of a sensitive and threatened watershed list, and adjustments to groundwater recharge requirements. Members also discussed the implementation of stormwater treatment measures, balancing regulatory fairness for developers, and addressing site-specific challenges like wetland crossings and urban stream impacts.

The committee explored updates to key standards, including new requirements for protecting natural drainage networks, setbacks for wetlands, and runoff volume reduction measures. Stakeholders emphasized the importance of developing clear and actionable rules, particularly for small-scale projects and sensitive areas. To address stakeholder concerns, the committee proposed expanding eligibility for permit-by-rule (PBR) approvals and streamlining compliance pathways while maintaining environmental protections. Action items and next steps include finalizing technical memos, continuing subcommittee work, and preparing materials for upcoming committee and steering group meetings.

REVIEW: TECHNICAL COMMITTEE TASKS

Project Timeline & Activities Overview

Timeline

- Next Technical Committee meetings are scheduled for December 6th and tentatively scheduled for December 11th
- The Steering Committee will meet on November 25th and December 16th

Activities Overview – Change in Terminology

- Core LID standards → Basic Standards
- Groundwater Recharge → Runoff Volume Reduction
- Stormwater Quality Related Standards → New General Standards

Activities Overview – Stormwater Manual Update

- Received proposals for the Stormwater Manual RFP contractor; evaluation process will begin soon.
- The contractor expected to be onboard by December to work alongside rule drafting until final rulemaking.
    - Will have 12 meetings with department staff and workgroup
- A workgroup with panel experts will guide the manual development process.

- Timeline: December 2024 = anticipated start date; July 2026 = project ends
- Pursuing a sole source contract with a company that developed EPA Region 1 performance curves to create sizing and performance curves for vegetated buffers.
- New standards will incorporate vegetation measures, including forested and meadow buffers, which are widely used in Maine but not common in the rest of New England.

Memo: Overview of New Chapter 500 Standards

Purpose and Background

This memo summarizes updates to Chapter 500, addressing current shortcomings by tailoring standards to specific locations and stressors. Current rules apply uniform General Standards, often leading to unnecessary or insufficient stormwater controls. The proposed updates prioritize preserving natural infrastructure, addressing watershed-specific stressors, and managing post-development stormwater volume in areas of growth.

Urban and Impaired Streams & Sensitive and Threatened Regions and Watersheds

- Urban Impaired Streams (UIS)
    - Definition and criteria remain the same as in Chapter 502, listed in Appendix B.
    - Projects in UIS watersheds must meet General Standards if they create ≥ 20,000 sq. ft. of impervious area or ≥ 5 acres of developed area.
- Sensitive and Threatened Regions and Watersheds (STRW)
    - UIS inclusion provides additional protection for already impaired urban streams.
    - Streams in urbanizing areas are at risk of impairment due to development, and prevention is more cost-effective than restoration.
    - The Stormwater Management Law (SML) requires a Sensitive and Threatened Regions and Watersheds list, now being developed for Chapter 502.
        - The STRW list will be regularly updated using GIS data and include urban and urbanizing municipalities as Sensitive and Threatened Regions. "Land development is dynamic, so we need to monitor it. We don't want this list to be static and just sit there collecting dust." – Kerem Gungor

Basic Standards

- Incorporates Low Impact Development (LID) principles to protect wetlands and natural drainage through site layout and design.
    - "First look at your site and see all these important features. If your parcel has natural drainage ways or wetlands, just don't impact them. That's the gist of it." – Kerem Gungor
- **Erosion and Sediment Control:** Appendix A will move to the Construction General Permit, no longer part of Chapter 500.
- **Permit-by-Rule (PBR):** Includes a PBR process for eligible projects, reducing burdens for applicants and reviewers, provided all Basic Standards are met.
- **General Standards Exemption:** Projects meeting certain criteria only need to meet Basic Standards, avoiding high maintenance engineered treatment measures.
- **Basic Standards apply to:**
    - Activities licensed under the State's SML with ≥ 1 acre of disturbed area.
    - Activities under the Site Location of Development Act.
- **PBR Eligibility Criteria:**
    - In lake/urban impaired watersheds: < 20,000 sq. ft. impervious area and < 5 acres developed.
    - In sensitive/threatened watersheds: < 1 acre impervious area and < 5 acres developed.
    - In non-lake watersheds: < 3 acres impervious area and < 20 acres developed.

- Wetland and Natural Drainage Network Protection
- Stormwater Conveyance Hydraulic Capacity
- Inspection, Maintenance, and Good Housekeeping

Questions

1. *If a project meets the new Basic Standards but has unavoidable wetland impacts, how does that affect the stormwater permitting process? Does it change the path from a Permit by Rule (PBR) to requiring an individual stormwater permit?*
    a. Short answer, yes
2. *Under the Basic Standards, if a site protects wetlands and maintains buffers, is there any concern about an increase in stormwater flow or peak flow from the site, assuming the wetlands will absorb the impact?*
    a. Right, maintaining buffers, natural drainageways, and wetlands serves the purpose of managing stormwater flow effectively. Additionally, it's important to note that in many Maine watersheds, especially rural and undeveloped areas, stormwater projects are approved infrequently. In some cases, years can pass between projects, meaning there isn't a constant influx of stormwater impacts in these areas.
3. *The MS4 communities and then the those added to the sensitive and threatened would then have to do additional treatment going into the general standards then?*
    a. Correct, they will still need to meet the basic standards. Might come up with alternative analysis for impacts. Something along the lines of what NERPA requires.
4. *As you move into redevelopment areas, particularly in sensitive, threatened, and urbanizing areas, will there be a reduced standard under the general standards to avoid discouraging development in these urban areas?*
    a. Yes

<u>General Standards</u>

1. Focus on 1. Runoff Volume Reduction and 2. Stressor Guided Stormwater Treatment.
2. Projects must implement engineered structural treatment measures based on size and location; redevelopment faces reduced requirements.
3. SCM Performance Curves: Utilized to quantify water quality benefits, based on long-term pollutant removal performance from New England weather data.
4. **General Standards apply to projects that:**
    - Create ≥ 20,000 sq. ft. impervious area or ≥ 5 acres of developed area in Urban Impaired Stream Watersheds.
    - Create ≥ 1 acre impervious area or ≥ 5 acres of developed area in Sensitive and Threatened Watersheds.
    - Create ≥ 3 acres of impervious area or ≥ 20 acres of developed area in non-lake watersheds (Site Law Projects).
    - Cannot comply with Basic Standards.
5. "Redevelopment will still need to comply with the general standards, but we're suggesting a lower requirement for runoff volume reduction to account for site constraints." – Kerem Gungor
6. **Runoff Volume Reduction Standard:** Aims to reduce post-development runoff volume and replicate pre-development hydrology. Waivers are available if applicants meet channel protection standards.
    a. New Development: Full Runoff Volume Reduction Standard applies in Urban Impaired Stream watersheds. Reduced standard (75%) applies to projects in Sensitive & Threatened Regions, Site Law-triggering projects, and those not fully meeting Basic Standards.
    b. Redevelopment: Runoff Volume Reduction Standard applies at a reduced level compared to new development.

7. **Stressor Guided Stormwater Treatment Standard:** Focuses on three stressors: nitrogen, phosphorus, and chloride. Nitrogen targets coastal watersheds, and phosphorus targets non-coastal watersheds.
    a. Nitrogen and Phosphorus Stressors:
        i. New Development: Requires minimum annual nutrient load reductions using SCM performance curves. Rooftops excluded from nutrient load reduction.
        ii. Redevelopment: Reduced nutrient load reduction requirements to encourage redevelopment over greenfield development.
        iii. Stormwater Control Measure (SCM) Hierarchy. Designers must prioritize SCMs:
            1. Non-structural Retention Measures
            2. Structural Retention Measures
            3. Structural Treatment Measures
    b. Chloride Stressor:
        i. Control methods under development, including a draft point system.
        ii. Control measures include minimizing salt application area, reducing salt amounts, and mitigating baseflow toxicity.
        iii. SCM options for chloride include source control and structural measures.

<u>Phosphorous Standards</u>

- The phosphorus standard remains unchanged from the current Chapter 500 version.
- An allowable per-acre phosphorus allocation for each lake will be determined by the Department, or applicants may propose an alternative allocation for approval.
- The phosphorus standard applies in addition to the new Basic Standards.
- It applies to projects that:
    - Require a Site Law permit in a lake watershed.
    - Create ≥ 20,000 sq. ft. of impervious area or ≥ 5 acres of developed area in the watershed of a Lake Most at Risk for Development.
    - Create ≥ 1 acre of impervious area or ≥ 5 acres of developed area in a lake watershed.
- It also applies to projects not meeting the new General Standards that:
    - Create ≥ 20,000 sq. ft. of impervious area or ≥ 5 acres of developed area in the watershed of a Lake Most at Risk for Development but result in < 3 acres of impervious area and < 5 acres of developed area and are not located in a severely blooming lake.
    - Create ≥ 1 acre of impervious area or ≥ 5 acres of developed area in a lake watershed but result in < 3 acres of impervious area and < 5 acres of developed area.

<u>Flooding Standard</u>

- The Flooding Standard remains unchanged from the current version in Chapter 500, except for the source of precipitation data and the addition of an optional detention waiver for UIS watersheds.
- The Department proposes using NOAA Atlas 14 with an 18% modifier to account for climate change until NOAA Atlas 15 is released, at which point it will be used.
- The Flooding Standard applies to projects that:
    - Result in 3+ acres of impervious area or 20+ acres of developed area.
    - Require a Site Law Permit.

Questions/Discussion

1. *I just wanted to confirm if I'm correct in understanding that, according to your flow chart, the standard is being lowered for Urban Impaired Streams (UIS). Currently, UIS projects only trigger the standard at a Site Law project size, but this proposal would trigger it at a lower threshold. Is that accurate?*
    a. Great question, and a topic we should talk more about. CH.500 Section 4H. Currently, projects have a lower threshold for the General Standards, set at 20,000 square feet of impervious area. These standards apply if the projects are in the direct watershed of an UIS. However, if they are in urban areas or suburbs and are Site Law projects, they must comply with the UIS Standard, which has not yet been fully addressed in our discussions.
2. *I can see an issue with abutting towns having different standards. Instead of having designated regions and watersheds, apply the General Standards statewide. Allow rural developers who want to apply for a PBR Basic Standard to demonstrate to DEP that their site qualifies or does not meet the criteria for triggering the General Standards. This would allow them to follow the Basic Standards instead. I'm raising this point for consideration, as developers may face challenges with frequent updates to Chapter 502 that add new Sensitive and Threatened Watersheds to the list. This could create a moving target for developers who need to stay informed about changes as they evaluate potential sites for development, potentially leading to opposition in the future.*
3. *If I understand correctly, a project outside Urban Impaired Streams or Sensitive and Threatened Watersheds could have up to three acres of new impervious cover and qualify for a Permit by Rule, if it meets all Basic Standards. If a project fails to meet one of the Basic Standards, it will require an individual permit, and I wonder if a graduated system could be used before jumping to a full individual permit.*
    a. That can be considered.
4. *The core or basic standards are important in rural areas without current impairments to prevent future degradation, but at some point, there may be fairness concerns. As development increases and impairments trigger stricter standards, earlier developers may not have faced those requirements, which could lead to questions about why newer projects are being held to higher standards. This shift could spark conversations about long-term fairness, as developers may question why they are now required to meet more stringent standards while earlier projects were not.*
    a. The goal of maintaining wetlands and natural drainage areas is to prevent long-term degradation, not just to require cheaper BMPs for early developers and more expensive ones later. By preserving these natural features now, future development will have less impact on the watershed, reducing the likelihood of impairment or becoming threatened. While this may not fully resolve fairness concerns, it highlights the long-term benefits of protecting natural resources early on.
5. *Jeff Dennis: Lake watersheds are highly sensitive and require proactive protection because once degraded, they cannot be restored. Streams, however, are generally more resilient, with most classified as Class B, meaning they meet high aquatic life criteria and are healthy overall. Most areas of the state easily maintain Class B standards, even in regions like Buxton or Shapleigh, where some growth is expected near sensitive regions. Significant population increases would be required to cause widespread stream impairments, which is unlikely in Maine's foreseeable future given the abundance of undeveloped land.*
    a. Impervious cover growth was very small. Most areas of the state saw no impervious cover growth for 20 years.

DRAFT CONSENSUS REPORT

Cody Obropta explained, on behalf of the Groundwater Recharge Subcommittee, the Draft Consensus Report.

Summary

- The new "runoff volume reduction standard" replaces the term "groundwater recharge" to reflect its purpose better.
- Aims to offset pre-development infiltration loss, reduce post-development runoff, and align post-development hydrology with pre-development conditions.
- Based on the Taunton Watershed Project and aligned with practices in other New England states.

Applicability

- Full standard applies to projects in Urban Impaired Stream watersheds.
- A reduced standard (75%) applies to Sensitive & Threatened Regions, Site Law projects (outside UIS watersheds), and projects unable to meet new Basic Standards.

Technical Implementation

- Projects must reduce runoff volume using stormwater control measures (SCMs) like infiltration, capture/reuse, and evapotranspiration.
- Waivers may be granted if projects maximize compliance and release remaining volume over 36-72 hours.
    - *Comment: Is that at the start of the rainfall event or end of rainfall event?* Going to start at maximum ponding, and that ponding should be released (drawn down) over 36-72.
- Soil testing and hydraulic conductivity tests required to determine hydrologic soil group and infiltration rates.

Table 1. Average annual impervious cover runoff volume reduction requirements as they apply to the urban impaired stream projects.

Predevelopment Land Cover Being Converted to Impervious Cover (IC)	Percent Reduction in Average Annual IC Runoff Volume (Meadow/Forest)
Meadow/Forest (HSG A)	68% / 73%
Meadow/Forest (HSG B)	62% / 70%
Meadow/Forest (HSG C)	51% / 58%
Meadow/Forest (HSG D)	40% / 50%

Design Standards and Specifications

- Soil Testing Requirements
    - Conduct at least one soil exploration per half acre of proposed impervious area to confirm or determine the hydrologic soil group (HSG).
    - For infiltration-based stormwater control measures (SCMs) without underdrains, conduct at least two in-situ hydraulic conductivity tests to determine infiltration rate, applying a safety factor of 2.
- Projects with Underdrains
    - Use design infiltration rates based on soil texture instead of hydraulic conductivity testing, but still conduct soil exploration per Chapter 500 rules.
- Non-Structural SCMs

    - Less rigorous soil testing requirements will apply.
- Groundwater and Drainage Area Requirements
    - Maintain a minimum of one-foot separation from the seasonal high groundwater table for structural SCMs.
    - A maximum contributory drainage area for certain infiltration SCMs may be established by the stormwater control measure subcommittee.

Waivers and Limitations

- Exclusions for sites with hazardous materials, near public water supplies, or within certain karst feature zones.
- Alternative volume control requires maximizing compliance and slow-release mechanisms (a period of 36-72 hours) for excess runoff.

Subcommittee Information

- Subcommittee includes DEP engineers, biologists, and external experts.
- Four meetings held between March and October 2024, with technical memos prepared to guide implementation.

Questions/Discussion

1. *Need to distinguish between meadow vs forest cover, maybe for the Definition Group.*
2. *Are we going to require runoff volume reduction in lake watersheds? Kerem said he personally believes it should be required to stay consistent with the requirement for non-lake watersheds*
    a. Cody: If they are going to need to meet stressor-guided requirements, they're going to need to meet this as well because it is more in-line with what the other projects are doing. However, if a project opts to follow the phosphorus standard, I would lean toward also requiring the runoff volume reduction standard, though I can see a case for applying only the existing phosphorus standards as they currently stand.
    b. Kerem: It's important to remember that some projects will be in direct lake watersheds but will discharge into lake tributaries rather than directly into the lake itself.
    c. Jeff: I haven't evaluated the streams yet, but I think most lake watersheds are rural enough that, if they didn't drain to a lake, they would only need to meet the core LID or Basic Standards, qualify for a Permit by Rule, and not be required to meet the volume reduction standard. Most streams in these lake watersheds are in rural settings and not currently threatened, so we need to consider this before requiring stricter standards simply because they are in a lake watershed. Without the presence of the lake, many of these streams would likely qualify for a Permit by Rule (PBR). So I think we have it covered in lake watersheds.
3. *Doug: I support incorporating retention and infiltration measures, as increasing droughts are stressing vegetation like maples and oaks, causing issues like splitting bark and branch drop. Keeping water on the landscape to infiltrate, rather than running off into water bodies, can help maintain healthier ecosystems around lakes and watersheds.*
4. *John K: I agree with you that if a project is not in a heavily threatened watershed, lakes or ponds in sensitive and threatened areas, as well as more urban watersheds, will still require the recharge and general standards, correct?*
    a. Kerem: Correct. Jeff: The question is whether municipalities requiring the phosphorus standard, some of which have had it in place for 25 years, would also require projects to meet the general standard. We want to avoid a situation where projects are obligated to meet both the phosphorus and general standards due to municipal requirements.

GIS FOR NATURAL DRAINAGEWAY AND WETLAND PROTECTION

Kerem explained how to leverage GIS capabilities for more efficient implementation of New Basic Standards.

Wetland and Drainage Way Protection + GIS and Flow Accumulation for NDWs

- The focus is on protecting jurisdictional wetlands and natural drainage ways (NDWs) using National Wetlands Inventory (NWI) and high-resolution hydrology data.
- Two types of NDWs are considered:
    - NDW 1:Higher-order streams with a 75-foot no-disturbance setback.
    - NDW 2: Smaller streams with a 15-foot no-disturbance setback.
- GIS tools like flow accumulation maps help identify NDWs, with a minimum drainage area set at 6.2 acres for NDW 2.
- Flow lines are created using NHT+ data to locate NDW 2s in areas like Berwick and York.

Development Examples

- In Berwick, a residential site could develop the area while avoiding the 15-foot buffer around NDW 2.
    - Can assist regulators with conducting a desktop analysis for compliance purposes
- In York, the development is more complex due to the presence of both a first-order stream and NDW 2, with additional buffers of 15 feet and 75 feet to consider.
- Developers can build outside the identified buffers, but altering drainage divides could impact the site's stormwater management and may require further analysis.

Next Steps

- An SCM subcommittee meeting is scheduled for Monday, with a Steering Committee meeting on the 25th.
- Further feedback, including suggestions from Peter and Joe Laverrier's comments, will be incorporated as the project progresses.

Questions/Discussion

1. *John K: How will the current Chapter 500 wetland buffer standard interact with the new Basic Standards, especially when stormwater is being directed into buffers around these wetlands? Also, regarding the buffer standard in Chapter 500, the requirement limits stormwater flow to 0.009 CFS per linear foot, which seems impractical for larger sites—how does that factor into the new approach?*
    a. Kerem: I'm glad you brought it up, John, as we haven't discussed that yet. Dave has been working on it, and I can defer to him, but we're considering improvements to that standard. It needs to be reevaluated for the new Chapter 500. The sizing standard, which dates back to older studies like John Simon's, is something we can look into in more detail with the Stormwater Manual project. We're aiming to avoid specifying every stormwater measure in the rules and hope to provide more flexibility.
    b. Jeff: I think that when we're using the performance curves to size buffers, some of those issues will be addressed. The devil will be in the details of how you lay out the level spreaders and how you break up the impervious watersheds to fit them into a reasonably short level spreader.
    c. Kerem: Yes, that's correct. Currently, there's an impervious area disconnection curve, which is the closest we have to stormwater buffers, but it's mainly for lawn areas that receive runoff from impervious surfaces like pavement. With the new curves we're developing, we'll be able to size buffers based on pollutant removal versus impervious cover for the buffer area. So, I think what Jeff said is spot on—this will take care of that sizing issue. The current study was based on Hydrocod 1, but the new performance curves will use a continuous simulation approach. If we can get good monitoring data, it will also be calibrated, so it will be a much more realistic model than what we currently have.

SUBCOMMITTEE UPDATES

Core LID *(10/28/2024)*

Deliverables

- Revised Core LID Proposal
- DEP Memo: Updates to proposed Core LID Standards

Sensitive and Threatened *(11/6/2024)*

Deliverables

- Summary of S&T Identification Criteria
- S&T Region Proposed List
- DEP Report on Effects of Urbanization on Aquatic Life of Maine Streams

Groundwater Recharge (*10/21)*

Focus Areas

- Transitioning from static groundwater recharge requirements to runoff volume reduction measures.
- Ensuring stormwater management approaches are adaptable to climate variability and evolving development needs.

Deliverables

- Groundwater Submission Requirements
- Consensus Report (in progress)

Stormwater Control Measures *(11/4/2024 & 11/18/2024)*

Focus Areas

- Updating the manual to provide clear, actionable guidance for implementing Chapter 500 standards.
- Ensuring the manual remains flexible to accommodate emerging technologies and methodologies.

Deliverables

- DEP Memo: Replacing the current Chapter 500 General Standards

ATTENDEES

Facilitator	• Bina Skordas (FB Environmental Associates)
Maine DEP Representatives	• Kerem Gungor • Cody Obropta • Jeff Dennis • Tracy Krueger • David Waddell
Technical Committee Members	• Andy Johnston • Aubrey Strauss • Paul Ostrowski • Peter Newkirk • Ryan Barnes • Rodney Kelshaw

	• Mark Bergeron
Observers and Stakeholders	• Brenda Zollich • Cindy Dionne • Doug Roncarati • Fred Dillon • John Kuchinski • John McMeeking • Matt Marks • Alexis Racioppi • Nathan Robbins • Rick L • Gregg Wood • Ben Torres

Figure 1. Timeline

Committee Meetings										
Committee	**2023**	**2024**								
	December	February	March	April	June	July	September		November	December
Steering	1 (12/5)	2 & 3 (2/5 & 2/26)				4 (7/15)	5 (9/23)		6 (11/25)	7 (12/16)
Technical			1 (3/18)	2 (4/1)	3 (6/25)		4 (9/9)		5 (11/14)	6&7 (12/6 & 12/11)
Subcom.	December	March		April	June	July	August	October	November	December
Core LID		1 (3/25)		2 (4/12)			3 (8/2)	4 (10/28)		
Ground. Recharge		1 (3/26)		2 (4/5)			3 (8/2)	4 (10/21)		
Definitions		1 (3/29)		2 & 3 (4/5 & 4/26)					TBD	TBD
S&T						1 (7/31)			2 (11/6)	
SCM							1 (8/12)		2 & 3 (11/4 & 11/18)	

Figure 2. New Development in a Lake Watershed

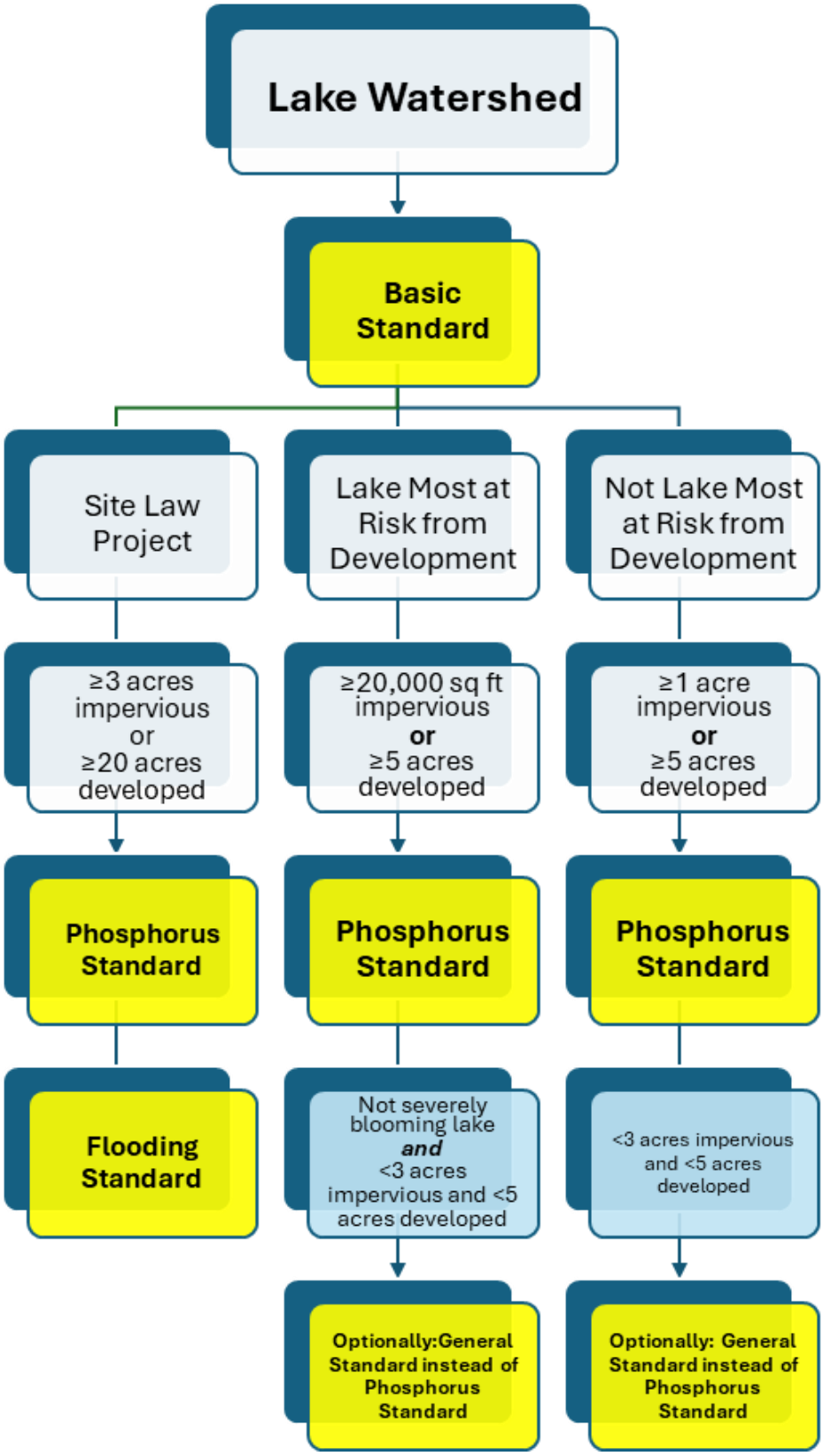
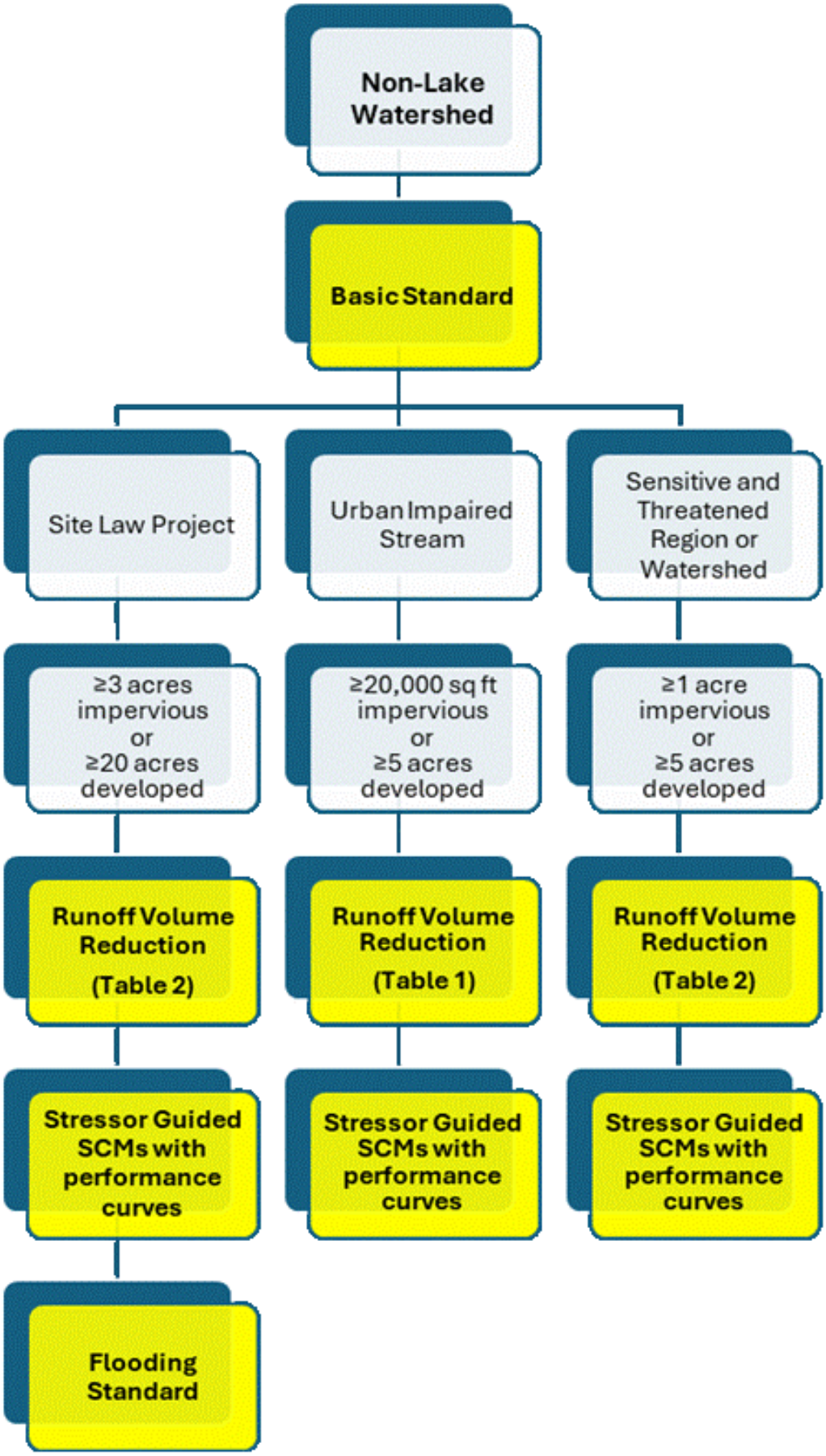


Figure 3. New Development in Non-Lake Watershed



CHAPTER 500 STAKEHOLDER ENGAGEMENT | TECHNICAL COMMITTEE MEETING #6 MINUTES

RE: **Chapter 500 Stakeholder Engagement, Technical Committee Meeting #6**
DATE: Friday, December 6, 2024
TIME: **9:30am – 11:30am**
LOCATION: Remote via Microsoft Teams
INVITEES: Kerem Gungor, Cody Obropta, Jeff Dennis, Tracy Krueger, and David Waddell (Maine DEP)
Bina Skordas (FB Environmental Associates)
Chapter 500 Technical Committee & Steering Committee

Summary:

The meeting covered several key topics, starting with an overview of the project timeline, including the launch of a new licensing system that will impact DEP staff workflows. Discussions on sensitive and threatened (S&T) areas focused on reviewing the 502 list, assessing water quality trends, and refining criteria for classification, particularly for small order streams. Updates to Chapter 500 include expanded permit-by-rule thresholds, strengthened natural drainage network protections, and hydrological safeguards for post-development catchments. Comments emphasized the importance of linking standards to water quality goals and addressing cumulative impacts on wetlands. The consensus report from the Groundwater Recharge Subcommittee introduced new runoff volume reduction requirements and testing protocols, alongside stressor-guided treatment standards for nitrogen and phosphorus. Questions arose about ensuring consistency in engineering submissions and mapping tools for site-specific stressor identification, highlighting the need for continued collaboration and clarity in communication.

Meeting Overview:

TOPIC
1. Project Timeline Overview & Follow Up from Last Meeting
2. Sensitive and Threatened
3. Long Memo discussion:
4. Consensus Report (Draft): Groundwater Recharge Subcommittee
5. Discussion & Next Steps a. Upcoming SCM Subcommittee & SC Meetings

Topic 1: Project Timeline Overview & Follow Up from Last Meeting

New licensing system is going to be launched soon for internal and external users; time consuming for the DEP staff. Apologies for sending documents so late.

Topic 2: Sensitive & Threatened Conversation

- Review the 502 list.
- Confirm what does/doesn't make sense on the list.
- Looked at municipalities that were mentioned to understand if they fit what Peter was discussing.
    - Most of them have watersheds / streams that are vulnerable.
    - Keep the S&T committee active to run additional thoughts by them.

Questions:
Has DEP looked at water quality data that may (or may not) be available for these towns to confirm how the list of S&T towns corroborates with changes in water quality parameters over this 23-year time period? Put another way, does available water quality data for these towns confirm they are trending in an undesirable direction and support the S&T designation?

Response:
I must answer it "no" because we don't have enough data. What we do have, the trend does show it is getting worse. Similar development is occurring.

Topic 3: Long Memo Discussion

Purpose and background

- The Urban Impaired Streams section doesn't have much change coming.
    - This topic is still in Chapter 502 and the applicability thresholds aren't going to change.
- Lakes Most at Risk for New Development section is going to stay in Chapter 502 and will not have much change.
- Sensitive and threatened Regions and Watersheds has some changes:
    - There are new criteria for what determines this classification.
    - The new focus is on small order streams because they are more vulnerable to impacts.
    - There are two main criteria: current impervious cover and change over time.
    - The criteria that the Technical Committee knows has not changed.

Basic Standards

- Permit by Rule is going to be expanded in terms of applicability threshold.

Comment:
More emphasis on connecting everything you are saying to the water quality standards. There is an aquatic standard of living, and the more you reduce base flow and fill in wetlands you are essentially eliminating the habitat that helps the stream.

Wetland Protection Standard and Natural drainage network protection

- Impervious area setback: any area must be at least 15 feet away from a protected wetland.
- The exception is wetland crossings: any road that people want to install to cross a wetland is an exception provided that the crossing is built with a permeable base or a bridge

Natural drainage network protection

- The definition of a natural drainage network has not changed.
- Some work has been done to help applicants.
    - NDW2 has to be field verified.
    - The setbacks for NDW1 is 75 feet and NDW2 is 15 feet.
    - Stormwater outfalls are excepted from the no disturbance requirement if there is a need for new or existing for stabilization.
    - NDW crossings people will need to have crossing structures that can accommodate at least 25-year peak flow.

Question:
NRPA projects; anyone could say they are avoiding wetlands; how do you know the applications are apples to apples? How do you know the engineer has the information needed?

Response:
That will be in the submission; we will need to require that all these drainages are mapped by qualified profession.

Post development Catchment size and Imperviousness: The goal is to protect the hydrology of the NDWs. We are trying to ensure that the catchment size doesn't change significantly.

If you increase the impervious area by more than 20,000ft then you need to worry about flooding

Redistribution of Stormwater Discharge at the Property Boundary

Stormwater Conveyance Structures: Moved stormwater conveyance structures from flooding to here so every project is properly designed

Comment:
If you are going to specify a design term or period and you are discussing culverts you should probably have an acceptable headwater ratio to go with that

Inspection, Maintenance and Good Housekeeping:

- New Chapter 500 will focus on post construction projects –

Comment:
In Appendix C please note that MS4 communities might have additional maintenance, inspection and reporting requirements (e.g.: annual reporting)

Comment:
We need to emphasize the narrative around the basic standards. While we frequently hear that we need to zoom out and take a statewide perspective, this approach shifts the focus back to the municipal level. It's important to clarify that when we speak of applying a broad-brush approach across the state, we are not suggesting that this will have zero impact on anyone in Maine. The key message is about mitigating these impacts, and that's the aspect developers are not fully understanding.

- *Scarborough could restrict more through ordinances. Scarborough has a lot more permits being pulled than other places around the state.*

Topic 4: Consensus Report (Draft): Groundwater Recharge Subcommittee

3. General standards

SCM Hierarchy

- No major notes of comments

Runoff Volume Reduction

- This is new for Maine.
- The groundwater research subcommittee came up with the soil testing requirements for the implementation of the runoff reduction. We are now figuring out if the in-situ permeability tests are going to be required if people are building structures that are going to be infiltrating.
    - The list of tests should not be final, people should be encouraged to reach out with suggestions. These are mostly from other states with similar testing.

New Development

- Requirements for redevelopment projects are going to be lower than the new development projects.

Stressor Guided Stormwater Treatment Standard

Nitrogen & Phosphorus Stressors:

- Ranked impact change due to redevelopment needs to be negative to be credited for a reduced nitrogen or phosphorus load.

Question:
How can you know what stressors impact which site, will there be mapping?

Response:
We will have a map where you can click on a watershed and see what stressors you may find.

Phosphorous standard: relies on volume 2 of the manual. Going to do some tweaks on the manual to use performance curves to comply with P standards; overall won't change much.

5. Flooding: No comments.

6. Other Standards: No comments

Flow charts:

Comment:

For the flowchart related to non-lake areas, the process involves reviewing non-basic standards, site law, and stormwater law. Only projects with less than 3 acres of impact will qualify for the permit-by-rule pathway. However, it's unclear if this distinction is effectively represented in the current flowchart.

Question:
Discharge to wetlands standard: is there a way to figure out the cumulative effect? We have large wetlands system—if everyone is adding their 2"? How do we look at this impacts cumulatively…?

CHAPTER 500 STAKEHOLDER ENGAGEMENT | TECHNICAL COMMITTEE MEETING #7 MINUTES

RE: **Chapter 500 Stakeholder Engagement, Technical Committee Meeting #7**

DATE: Thursday, December 12, 2024

TIME: 1:00PM-3:00PM

LOCATION: Remote via Microsoft Teams

INVITEES: Kerem Gungor, Cody Obropta, Jeff Dennis, Tracy Krueger, and David Waddell (Maine DEP)

Bina Skordas (FB Environmental Associates)

Chapter 500 Technical Committee & Steering Committee

Summary:

The presentation from Chapter 500 Technical Committee Meeting #7 focused on updates, feedback, and the testing of new stormwater management standards through example projects. It covered progress since the previous meeting, including edits to the long memo, a kick-off meeting for a vegetated stormwater buffer project, and plans for updating the stormwater manual. A new hotel development project in Scarborough served as a case study to evaluate standards such as runoff volume reduction and stressor-specific treatment. Challenges related to site constraints, such as high seasonal water tables and flat terrain, were explored. The presentation concluded with discussions on next steps, including finalizing the long memo and planning additional meetings as needed.

Meeting Agenda:

TOPIC
1. Project Timeline & Activities Overview & General Updates
2. Long Memo Updates & Outstanding Items
3. Testing & Evaluating New Standards: Example Projects
4. Discussion & Next Steps a. Final Long Memo Distribution b. Additional Meetings (as needed)

Project Timeline & Activities Overview & General Updates

- Technical Committee began meeting in December 2023. Feeling the framework is in a better place than last year. Tail end of process currently.
- Work done since the last (sixth) Technical Committee meeting (12/6):
    - Comments received via e-mail:
        - December 6th: Sean Donohue (MTA) sent his comments on the short memo.
        - December 9th: Doug Roncarati (Portland) sent his comments and suggested language for the long memo.
        - December 11th: Maine Turnpike Authority (MTA) is working on its comments on the long memo and planning to send them in by December 17.
    - DEP project team meeting on 12/11:
        - Testing and evaluating new Chapter 500 standards: new development project in Scarborough
        - Edits on the long memo

        - Retained a contractor for the performance curves, vegetated stormwater buffer performance project kick-off meeting scheduled for December 27th
            - Andy Johnson: I ran a quick example using a 10,000-square-foot impervious cover development we are currently working on and applied the New Hampshire performance curves. The results were interesting and raised questions about whether they align with the intended goals. For example, bioretention systems without underdrains, which infiltrate highly, ended up being smaller than those required under current standards. Conversely, bioretention systems with underdrains require more than twice the size compared to current standards. Similarly, the results seemed to favor smaller wet ponds or gravel infiltration trenches over bioretention with underdrains, which I find concerning. These outcomes suggest nuances in how the performance curves guide designers, potentially pointing them toward less effective or undesirable solutions. I'll share the comparative analysis spreadsheet, which highlights these differences, for further consideration when finalizing the performance curves to ensure they guide designers appropriately. I'll send it to you, Karem.
                - Jeff Dennis has similar concerns
        - Stormwater manual update proposal evaluation date scheduled
- FBE's work will be wrapping up at the end of December. Bina Skordas and her team will be putting together a stakeholder engagement consensus report between now and January as part of our agreement with FBE.

Long Memo Updates & Outstanding Items

- **Updates:**
    - Flow charts (redevelopment added). Received some feedback in terms of showing redevelopment, hence why it was added.
    - Site Law & Chapter 375 (which is beyond the scope of this work). What is related is that site law needs to comply with stormwater management (chapter 500) and Erosion and Sedimentation Control (chapter 375)
        - No Unreasonable Alteration of Natural Drainageways standard in Ch. 375 that applies exclusively to site law project. Under new chapter 500 proposal, planning for protection of natural drainage which overlaps with the chapter 375 rule
- **Outstanding: Things to Work On**
    - Basic & General Standards:
        - Need for Alternatives Analysis to ensure exhaustion of alternatives and justification for final alternative chosen
        - Ensuring initial steps of standards are evaluated by designer. Will want to bring to attention of this committee again
    - Redevelopment: will be part of Ch. 500 and receive credit to comply with standards as opposed to new development
        - Runoff Volume Reduction
        - Nutrients: Nitrogen and Phosphorus
    - Chloride Control
    - Operation & Maintenance: discussed in subcommittees. Becoming a more important item for us to consider. Karem would like to hear suggestions and comments on this.
        - Five-year recertification: compliance with this requirement is not where it's supposed to be.
        - Advanced stormwater systems
- **Comments on O&M:**

- **Andy:** I think there's an opportunity to address a key gap by implementing a simplified annual form that property owners could fill out and submit to confirm that someone has visited the site and performed necessary maintenance. This doesn't need to be overly complicated, but it would help ensure compliance by making it clear that action is required each year. Often, property owners either don't realize they need to do anything for five years or simply haven't done anything in that time. This small step could close that gap and provide a mechanism to track whether maintenance is being done, even if further discussions are needed on whether the work being done is sufficient.
- **Angela:** Agree with Andy. I mean we have the older you know the MS-4. We have our older sites that are the five year research and those people have no idea that this is even a requirement. So even like you said, even if it's an online portal that someone's at least acknowledging they have a stormwater facility, I think is huge on an annual basis might help a lot.
- **Doug:** To help reduce confusion, I recommend including a note in the Chapter 500 regulations reminding property owners and contractors that MS4 communities may have separate annual inspection requirements, distinct from the five-year recertification process. This would clarify responsibilities for property owners, consulting engineers, and contractors. Additionally, a process like Portland's, adapted from South Portland, could be beneficial. In Portland, property owners must complete a one-page form with a sign-off and certification as part of their annual reporting. They can also attach proprietary submittal forms, photos, and checklists from their contractors. This provides a useful check and reminder while ensuring all necessary details are documented. However, a broader issue is ensuring that property owners, site managers, and contractors have a clear understanding of the site's infrastructure and maintenance requirements. Often, changes in personnel lead to gaps in knowledge, and contractors may not fully understand what's on site. Tracking maintenance and providing engineering designs to contractors could help address this breakdown and ensure consistency across projects. While it's not a simple process, implementing these measures can provide clarity and improve compliance.

Testing & Evaluating New Standards: Example Projects

- Figure 1 (Appendix). Will be referring to the standards by their "Standard Code"

New Basic Standards - Example Project

- Karem discussed the New Stormwater Management Law Permit Application in Scarborough. New Hotel with both Basic and General Standards applying
  - Pre-Development Drainage Plan: not a lot of grade over site, no proposed fill. Stream abutting project parcel. But project parcel has no stream or natural drainageway on site.
  - Post-Development Drainage Plan: Figure 3 (Appendix).
- Impervious cover that replaces undeveloped areas (forest, meadows) needs to be compensation for runoff holding increase
  - Figure 3 (Appendix). Assuming site is HSG
  - In long memo, required runoff volume reduction is 35
- Figure 1 in Appendix, Karem walked through each of the standards to apply them to the new hotel in Scarborough.
- **Comments on B8 Standard Applicability:**
  - **Sean:** What conceptually does 35% post development runoff volume mean for treatment measure?
  - **Todd:** It would be beneficial to require more detailed information about the conditions at the primary discharge point, including the distance between the pipe outlet and the receiving water, as well as the length and specifications of the level spreader. Problems frequently arise between the discharge point, level spreader, plunge pool (if present), and the actual resource, particularly on steep slopes with friable soils. To address these issues, it may be prudent to require the drainage easement to extend all the way to

the receiving water body. This would ensure that the operator of the easement and discharge point has proper access to manage and maintain the area effectively. If extending a pipe all the way to the stream is not feasible, the drainage easement should cover the entire area between the discharge point and the receiving water body. In many cases, there is a significant distance between the piped outlet and the stream, particularly on steep slopes where burying a pipe over several hundred feet is impractical. Even with level spreaders, these systems often fail over time, causing water to find its own path down the slope, resulting in severe erosion all the way to the receiving water body. Ensuring the easement extends to the stream would allow for better management and mitigation of these risks.

- **Jeff:** To address steep slopes where a level spreader may not be feasible due to the need to cut into the slope to create a shelf, alternative approaches should be considered. A regenerative step-pool system could provide a viable option for safely conveying water down to the stream. Alternatively, a deep manhole could be installed to drop the water closer to the elevation of the stream, with an outfall at that lower point. These alternatives could minimize disturbance and mitigate challenges posed by steep slopes while ensuring proper water management.
- **Dave:** Within stream buffer, would require an NRPA permit.
- **Doug:** In Portland, there's an example of a proposed discharge system that would send runoff down an extremely steep slope for several hundred feet through a protected natural area to a river. Such designs are inherently flawed, as they are prone to failure, leading to habitat destruction and pollution being transported into the river. It raises concerns about whether access for maintenance would even be feasible in this setting. It's critical to either ensure these systems are designed correctly to prevent environmental damage or reconsider implementing them entirely to avoid significant ecological harm.
- **Angela:** This site presented significant challenges throughout a year-long process due to its poor conditions, including unsuitable soils and difficult grading requirements. The outfall location was constrained by overlapping setbacks: a 75-foot natural resource buffer and a 25-foot grading setback near the spillway and level spreader, pushing the design to the absolute limits of the site. The developers were forced to reduce the building footprint and abandon their original plan to pump stormwater due to site constraints. While this was an extremely difficult case to resolve, it serves as a worst-case scenario and highlights the need for careful design considerations. I'm glad to see this example being reviewed, as it underscores the complexities involved.
- **Rodney:** Not all drainage easements are equal, particularly when comparing simple water discharge easements to those requiring constructed features. For cases involving construction, municipalities should ensure extended mapping is conducted to account for potential site challenges, such as bedrock obstructions or wetlands that could complicate pipe installation. This kind of foresight can prevent unexpected issues, such as needing to extend a pipe months later, which might involve significant additional work or property impacts.
- **Jeff:** For NWD-1 buffers, since these are easily identifiable and based on existing database lines, the setback should be respected regardless of whether the stream is on the property in question or not. This avoids the need to access other properties and ensures consistency in applying the standard.
    - **Tracy:** Should a property boundary adjustment allow someone to avoid addressing an NWD-1 setback, even if they remain within the setback zone? This seems like a potential loophole that warrants further consideration to ensure the intent of the regulation is upheld.
    - **Cody:** The same loophole exists for significant vernal pools. It's just an unfortunate reality that you can't really regulate what's on someone else's property if they're not doing the project. So it's just a challenge.
    - **Doug:** There's a risk that insufficient oversight could result in drainage systems creating problems for neighboring properties. Concentrating runoff into a single point—especially in unnatural ways—can cause nuisance flooding, erosion, or pollution on adjacent properties. It's critical for property

owners and reviewers to ensure designs avoid these impacts, respect natural drainageways, and comply with local standards to prevent harm.
        - **David Waddell:** Even if a site didn't meet setbacks on an adjacent property, it would still likely fall under the sensitive and threatened standards, requiring compliance with those stricter measures. In these cases, developers would typically indicate that they've met the basic standard to the extent practicable for the site, which seems to align with how the process is currently interpreted and applied. If others interpret this differently, feedback would be welcome.
- Developing large portion of site with little undeveloped portion left for stormwater measures. We can address this by providing more options for nonstructural retention measures, like stormwater buffers. Will be challenge if you want to develop most of your site.
- **Comments on B9 Standard and General Standards (G1, Figure 2):**
    - **John Kuchinski:** Most engineers designing a site, particularly when working with stormwater pipes, are already performing some type of stormwater calculations as part of the process. While this might not always extend to calculations for ditches, stormwater pipe design typically involves these analyses to ensure proper functionality.
    - **Angela:** Locally, the concern was significant enough that we required calculations for the 25-year storm event, as initial designs showed runoff spilling directly toward the stream. Implementing this requirement ensured better containment and control of runoff. Adopting a 50-year standard would be an even greater improvement for long-term protection.
    - **John:** Is garage space usually cost 10 plus times more than a surface space? So if you put in a surface space of 5000, you're going to be spending $50,000. You know, rough order of magnitude for a garage space. So it gets very expensive for a garage.
        - **Andy:** Proposing structured parking or innovative solutions like covering parking spaces with solar panels has been explored but is often prohibitively expensive. Costs can range from $40,000 to $50,000 per parking space, which can make projects unfeasible. Even with favorable soil conditions, the expense often leads to projects being abandoned. While these ideas, like solar panel-covered parking areas, are creative and align with sustainability goals, their practicality remains a significant challenge.

<u>New General Standards – Figure 2 (Appendix)</u>

G1 - Nature-based/Low Impact Development (LID) stormwater treatment

- The designer will demonstrate that higher priority SCMs have been properly evaluated to move onto the lower priority SCM alternatives:
    A. Non-structural Retention Measures
    B. Structural Retention Measures,
    C. Structural Treatment Measures (treatment with no evapotranspiration or infiltration).
- **Non-structural retention measures:**
    - *Relative size of the proposed development to the project parcel:* It may be possible to adequately utilize non-structural measures once the performance curves for volume reduction and quality treatment are developed by Paradigm Environmental. Using currently available data, it does not appear there is adequate space for non-structural measures to meet the volume reduction and quality treatment necessary for the site.
- **Structural retention measures:**
    - *Is Gravel Wetland a Structural Retention Measure or Not?* High seasonal groundwater is the primary barrier to implementing structure retention measures. With seasonal groundwater at 2 feet below the surface, it's a challenge achieving the necessary separation distance. Implementing any underdrained systems also

poses a challenge due to the frost depth. Grassed swales are used to convey stormwater, allowing for incidental infiltration.

- **Structural treatment measures:**
    - Because the site is flat, having the proper head to facilitate drainage is a challenge. Thus, the site has been designed to utilize grassed swales to convey stormwater and a gravel wetland was proposed to provide the stormwater quality treatment.
    - Here, "retention" refers to all SCMs that can reduce stormwater volume through infiltration and/or evapotranspiration. Not to be confused with wet ponds, which are commonly called as "retention ponds".

G2 - Runoff Volume Reduction

- The project is in a Sensitive & Threatened region (i.e., Scarborough). Therefore, Table 2 in the long memo applies to the project.
- Limiting site constraints:
    - HSG for the site is A/D. The soil is very loose fine to coarse sand with a seasonal high water table at 2 feet below the surface. The site is also relatively flat, making it difficult to achieve the proper head for conveying stormwater runoff.
    - Because of the site constraints, this may be a situation where a waiver from strict adherence is needed. First we attempt to infiltrate the roof runoff. It must be noted that the new General Standards do not require rooftop runoff treatment for nitrogen or phosphorus removal. Thus, the separation to the seasonal high water table can be reduced to one foot. Potential alternatives for meeting the runoff volume reduction for the roof:
- Roof drip-edge filters
    - Approximate building perimeter = 600 feet. Rock porosity = 0.4. Depth = 1 ft (to maintain at least 1 feet separation from SHWT). Required width to achieve the 750 cubic feet storage (calculated below) = 3.2 ft wide system. This assumes no underdrain (frost depth issue). Overflow would spill over the filter edge.
- Impervious area disconnection with storage
- Infiltration gallery or similar system
- Rainwater capture & re-use
    - This would require a cistern or reservoir that's approximately 5,600 gallons + internal plumbing to facilitate re-use. If stored at the exterior of the building, additional winterization will be necessary.
- Subsurface storage basin from which stored stormwater will be pumped out to infiltrate.
- Last resort: slow release of stormwater that cannot be infiltrated.
- **Comments**
    - **Andy:** Integrating a methodology into the new regulation for artificially lowering groundwater tables in poor soil conditions, like Type D or Type C soils, could significantly expand site development options. Developers often install underdrains to address high groundwater, but this alters post-construction groundwater levels. Introducing solutions like curtain drains, which are permitted in other states around septic systems, could facilitate the use of features such as porous pavement by ensuring adequate separation from groundwater. For instance, placing a five-foot-deep curtain drain around a porous pavement system could enable proper drainage while allowing innovative stormwater management practices to function effectively. This approach could open up a range of possibilities for sustainable site designs.
    - **Doug:** Killing groundwater recharge. The natural storage in soils is what contributes to base flow in nearby streams, maintaining a critical hydrological balance. When systems like curtain drains are used, this natural subsurface hydrology is altered by redirecting the water into pipes, effectively converting it into stormwater flow. This approach changes the natural conditions and could be seen as bypassing the intent of maintaining base flow and preserving natural hydrological processes.

        - **Andy:** If foundation drains and underdrains are already being installed around buildings and parking lots due to poor soil conditions, it's important to recognize that these practices are inherently altering the subsurface hydrology. Instead of ignoring these changes, the system should allow for some flexibility to incorporate these elements into the stormwater system design. By acknowledging their presence, you could optimize their use to improve stormwater management outcomes, particularly in areas where soils necessitate such interventions. This approach provides practical adaptability while enhancing stormwater functionality.

G3 – Stressors of Concern

- Because the project is located in a sensitive & threatened region, the project needs to treat the stressors of concern. These have not yet been identified for this watershed, so we will examine both Phosphorous and Nitrogen as stressors.
- Currently, treatment for the site is provided by a gravel wetland sized to meet our current standards (1 inch of runoff from impervious areas and 0.4 inches of runoff from landscaped areas).
- For a design storage volume of 1 inch from impervious areas, 61% of the total phosphorous is removed and 68% of the total nitrogen is removed. Thus, the approved stormwater control measure meets the standard.
    - Note: if nitrogen was identified as the stressor in this watershed, the currently approved stormwater control measure would be oversized. According to the performance curve (and an interpolation calculation), the required design runoff depth would be 0.69 inches.

Discussion and Next Steps

Other

- **Angela:** In working with particularly challenging sites, such as one we struggled with locally for over a year, it's essential to have an honest conversation about whether the site is suitable for development. While the goal may be to maintain the ability to develop under both old and new rules, there are cases where attempting to force development on a poor site—essentially trying to fit a square peg into a round hole—is counterproductive. Developers need to recognize when a site simply may not be viable, even under the most flexible regulations. Clear guidance on these situations could help avoid prolonged struggles and ensure better outcomes for all stakeholders. This is not a good site and so that's where it goes back to. I was hoping that this new Chapter 500 might be able to address some of the shortcomings of, “Yep, you could develop it this way today, but it really shouldn't have been.”
- **Jeff:** This is an inappropriate development for this site, and I really hope we can reach a clear bottom line on this. It just shouldn’t be happening here—there are better locations for it. Scarborough is still a pretty big place, so let’s find a different site that makes more sense.
- **Andy:** I'm not sure that falls under stormwater law. I've always been a big proponent of zoning overlay districts, especially stream and wetland protection overlay districts. This approach allows towns to have local control over land use, which is important because this is all within Maine's local authority. By implementing zoning, towns can establish limits—like a maximum coverage of 25-30% in these sensitive areas. This way, towns have control, and everyone is on the same page. It prevents state overreach and ensures local concerns are addressed. To me, this seems like the simplest and most effective solution for managing these areas.
    - **Jeff:** I don’t think we should impose a blanket coverage limit, but on a site like this, where you can’t meet the standards because of factors like marine clay at just 2 feet and a flat site, there should be a point where we recognize this is not an appropriate location for development. We need to have the courage to say that, rather than pretending that every site can be developed to its fullest extent. Otherwise, we’re not really accomplishing anything.
    - **Andy:** What we've been discussing today—volumetric runoff reduction and storage—could be combined in a way where the onsite storage and release are so extensive that it takes up more of the

site coverage. By doing this, maybe there's a way to table those two standards and reconsider how we approach the site's development.
    - **Jeff:** If you can meet the standard, great. I'm just saying, if there's a way to meet it, then fine. But I also want us to have the ability to say no when necessary.
    - **Andy:** What I'm saying is, if you set those standards in stone and require them to be met, then either your BMP (Best Management Practice) becomes so large it takes up a huge portion of your site, or you'll just walk away because it's not feasible. Essentially, you're limiting development to a certain percentage of the site because there's no way to meet the standards otherwise.
- **Doug:** You can also consider the idea that no one's saying you can't develop the site—you just might not be able to do it the way you originally planned. You may need to scale back your project, which is totally fair. Just because you have a site doesn't mean you can build it out to its maximum potential without considering the surrounding resources or infrastructure, something we often see in Portland. Developers sometimes look at a five-acre parcel and ignore the realities of the site, focusing only on maximizing development without regard for the conditions. There needs to be a reality check in the community, as you said. It's important to have the right to say no. Just so everyone knows, Portland's LID standards actually passed last night, so in about a month, we'll be figuring out how to implement them.

Jeff's Chloride Discussion (Figure 7 in Appendix)

- The proposed point system initially required developers to earn 75 points for redevelopment and 100 for new development. Aubrey suggested considering fewer points to work with, so the system was simplified, and points are now easier to calculate. Key practices include stormwater management strategies, such as secured conveyances, strategically located storage, and reducing parking lot area through measures like covered or seasonal parking.
- A major focus is infiltrating runoff, particularly from roofs, with points assigned based on the area infiltrated relative to the site's impervious area. Scenarios were explored, such as covering 20% of parking or infiltrating roof runoff, which could help reach the point goals. For smaller sites or redevelopment projects, using techniques like seasonal parking isolation or roof infiltration can achieve the necessary points.
- While there's flexibility in the system, the challenge is aligning parking standards with development needs, especially for specific types of projects.
- A cheat sheet is available for developers to calculate points based on roof area and runoff depth. The system aims to be adaptable for various site conditions, and feedback is welcomed.

APPENDIX

Standard Code	Standards
	Wetland Protection (B1 thru B3)
B1	There can be no disturbance of NRPA Protected wetlands on the project site.
B2	Impervious areas must be located at least 15 feet away from an NRPA protected wetland.
B3	Wetland Crossings Exception: a. Maintain hydraulic connectivity. b. Minimum # of crossings and cumulative wetland impact.
	Natural Drainage Network Protection
B4	a. Natural Drainage Way (NDW) 1: 75-ft buffer. b. Natural Drainage Way (NDW) 2: 15-ft buffer.
B5	Exceptions: a. Stormwater outfall stabilization work allowed in B4 buffers. b. NDW crossing minimum opening size = 3 x NDW cross-sectional area or NDW crossing accommodates 25-year peak flow. c. The number of NDW-1 crossings must be minimized.
B6	The proposed development cannot increase the pre-development catchment area of a NDW at the parcel boundary by more than 10% or 10,000 sq. ft. whichever is greater.
B7	If NDW catchment's post-development impervious area exceeds 20,000 sq. ft. and is less than three acres, a drainage easement must be obtained from the downgradient parcel's owner. Exception: a. Site Law projects may be exempt from this requirement by complying with the flooding standard.
B8	a. Runoff from areas greater than 10,000 sq. ft. that in the pre-development condition did not leave the site in an NDW channel must leave the site in well distributed, unconcentrated flow unless a drainage easement is obtained from the downgradient parcel's owner. b. Level-lip spreader setback from the property boundary is minimum 15 ft unless its catchment area contains more than 20,000 sq. ft. impervious area, in which case the minimum setback is 50 ft. c. Where upgradient sheet flow is intercepted by a road ditch, crossing structures must be placed at a maximum interval of 250 ft.
B9	a. Open drainage systems must be designed using 50-year return period storm. b. Closed drainage systems must be designed using 10-year return period storm.

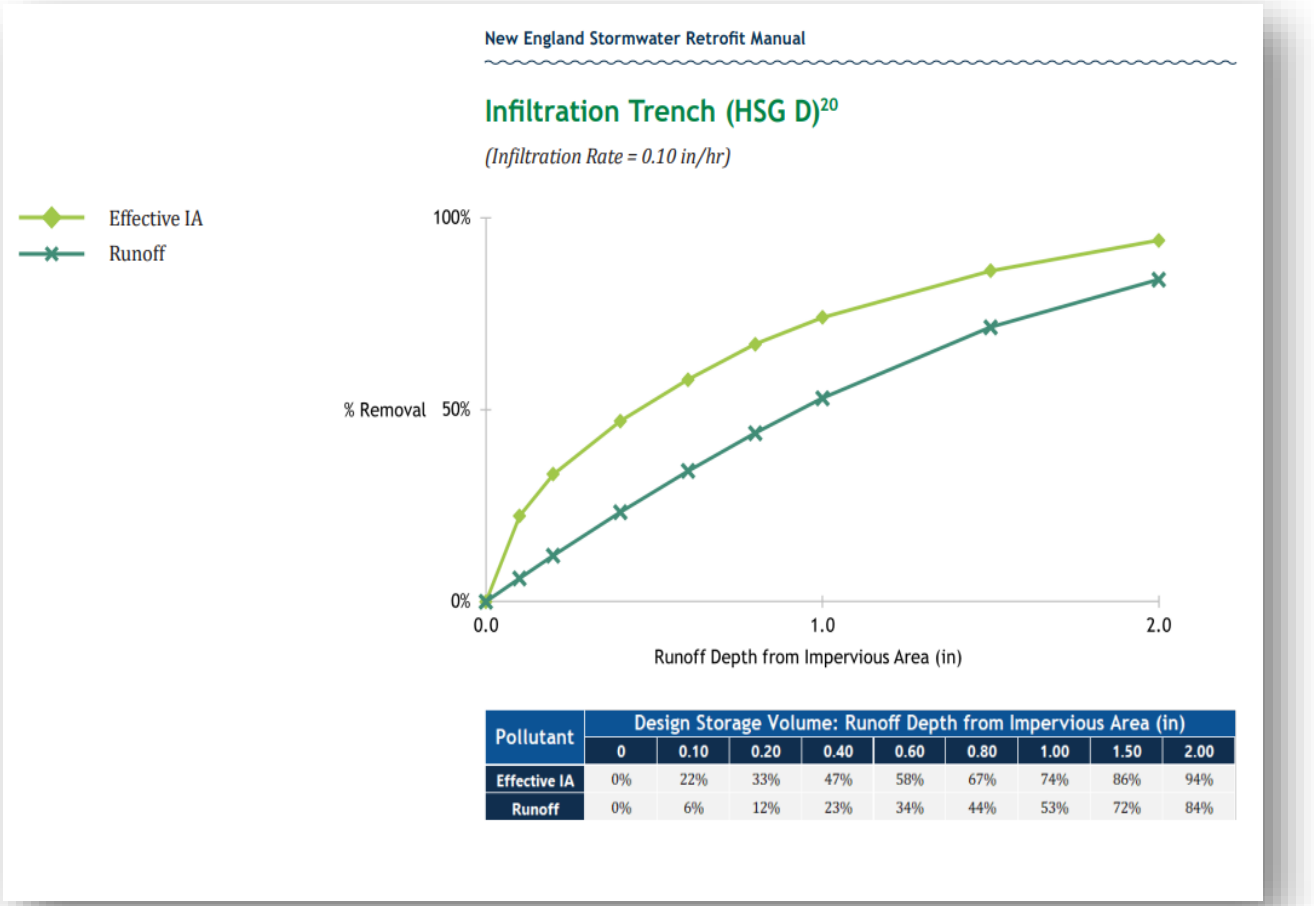
Figure 1. New Basic Standards

Standard Code	Standards
G1	Nature-based/Low Impact Development (LID) stormwater treatment
G2	Runoff Volume Reduction Standard
G3	Stressor Guided Stormwater Treatment Standard

Figure 2. New General Standards

Pre-development Meadow Replaced by Impervious Area (sq. ft.)	Pre-development Forest Replaced by Impervious Area (sq. ft.)	Project Site Hydrologic Soil Group (HSG)
32,156	21,438	A/D
Runoff Volume Reduction Requirement for Meadow (%)	Runoff Volume Reduction Requirement for Forest (%)	Area-weighted Runoff Volume Reduction Requirement (%)
31	42	35

Figure 3. Runoff volume reduction performance curve for infiltration trenches for the Example Project in Scarborough.

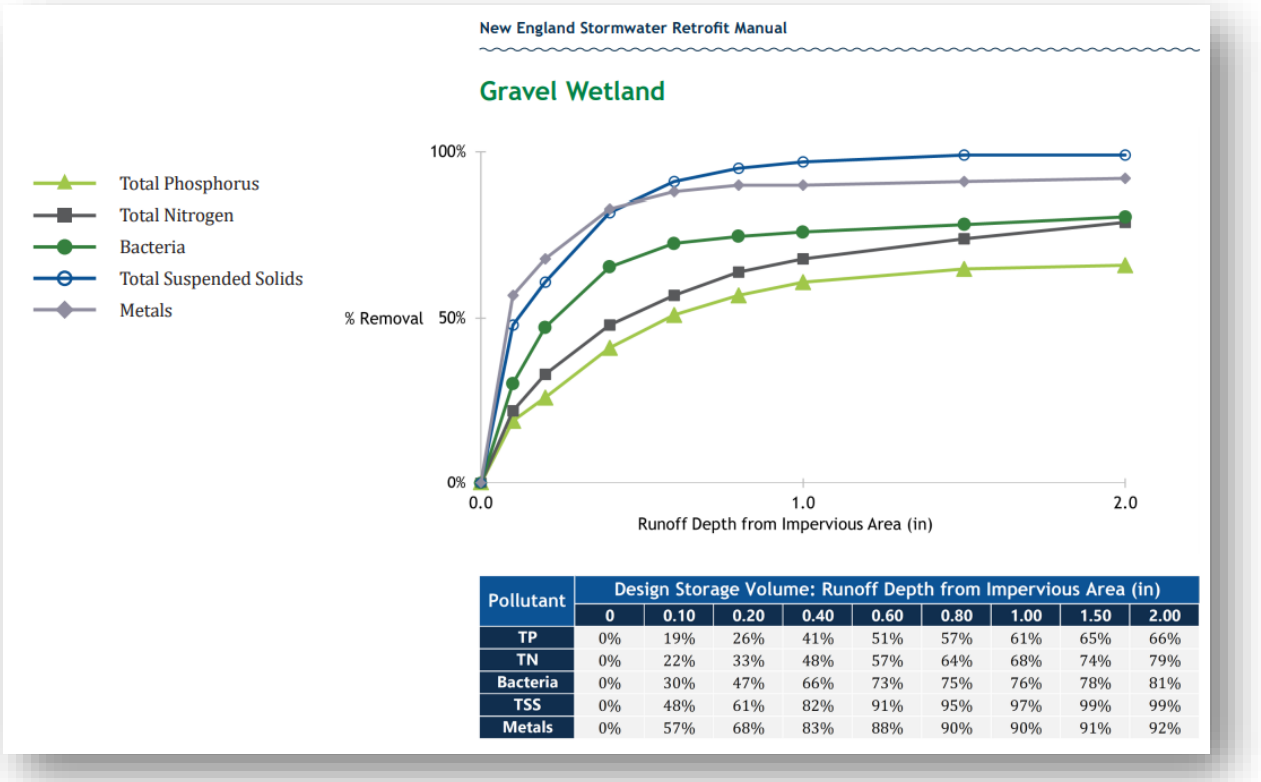


Pollutant	Design Storage Volume: Runoff Depth from Impervious Area (in)								
	0	0.10	0.20	0.40	0.60	0.80	1.00	1.50	2.00
Effective IA	0%	22%	33%	47%	58%	67%	74%	86%	94%
Runoff	0%	6%	12%	23%	34%	44%	53%	72%	84%

Figure 4.

Impervious Cover Type	Treated Impervious Area (sq. ft.)	Target Runoff Volume Reduction (%)	Runoff Depth from Impervious Area (Performance Curve) (inch)	Required Design Storage Volume (cubic ft)	Provided Design Storage Volume* (cubic ft)	Treatment Measure
Rooftop	15,000	35	0.60	750		Roof Drip Edge Filter
Pavement	38,594	35			7,002	Gravel Wetland
	*: Design storage volume provided to comply with current Chapter 500 standards. One-inch design storage volume required to treat impervious areas.					

Figure 5.



Pollutant	Design Storage Volume: Runoff Depth from Impervious Area (in)								
	0	0.10	0.20	0.40	0.60	0.80	1.00	1.50	2.00
TP	0%	19%	26%	41%	51%	57%	61%	65%	66%
TN	0%	22%	33%	48%	57%	64%	68%	74%	79%
Bacteria	0%	30%	47%	66%	73%	75%	76%	78%	81%
TSS	0%	48%	61%	82%	91%	95%	97%	99%	99%
Metals	0%	57%	68%	83%	88%	90%	90%	91%	92%

Figure 6. The pollutant removal performance curves for gravel wetlands.

Eligible Practices Total Points Required for New Development = 75, for Redevelopmenmt = 35	Points Earned	Scenarios	SC1 NEW	SC2 NEW	SC3 NEW	SC4 NEW	SC5 NEW	SC6 NEW	SC7 RE-D	SC8 R-D	SC9 RE-D
Practices that prevent infiltration of meltwater											
Provide lined stormwater SCMs and secure/lined stormwater conveyances for parking runoff	required										
Strategically locate snow storage on impervious surfaces that drain to secure conveyances	required										
*Seasonally bypass parking storm/meltwater around intentional and incidental infiltration SCMs	35										
**Provide a "Smart" that strategically stores and releases high chloride stormwater	50										
Practices that minimize the area requiring salt application - Minimum Pts 50 (Redevelopment 10)											
Covered or stacked parking											
Points assigned equivalent to % of total parking that is covered	0 to 100		20				40	75			
Heated pedestrian surfaces											
Sidewalks and entryways heated	25		25			25	25				
Designated pedestrian lanes in parking lot heated	15					15					
Seasonally reduced parking for commercial retail from January 1 to April 15											
Points assigned equivalent to % of total parking that is isolated and not plowed or salted	0 to 90			45							
Minimize # of parking spaces and/or area required per parking space											
Does not exceed maximum recommended # of spaces for given use ???	10				10	10					
Conservative sizing of individual parking spaces – 50% compact spaces	5		5	5		5	5			5	5
90 degree parking with rows parrallel to the longest dimension of the lot	5		5	5	5	5	5			5	5
Redevelopment only - Replace existing parking with infill buildings or otherwise reduce parking											
Points assigned equivalent to the % reduction in total parking area	0 to 50								35	25	15
Practices that limit the amount of salt applied											
Sweep and reuse granular salt applied to all pedestrian surfaces after every storm/melt event	15				15						
Practices that dilute chloride contamination in groundwater											
Dilute groundwater by infiltrating low chloride roof runoff – SCM designed to infiltrate:											
Points assigned equivalent to the ratio of the area of roof runoff infiltrated to project impervious area times the cumualtive percentage of annual runoff infiltrated (see table A)	0 to 50		21	20	46	19					10
		Total Points	76	75	76	79	75	75	35	35	35

Figure 7. Point System, as presented by Jeff Dennis.

Appendix E: Important Correspondence

E1: Bulletins

Bulletin #1: November 28th, 2023

Hello!

As we kick-off the Ch. 500 Stakeholder Engagement process, we wanted to share information with all interested parties. The Goal of this project and process is to work together to develop a consensus-based framework for improving the State's stormwater regulations, specifically Chapter 500, considering the State's environmental protection and climate adaptation goals. There are three levels of engagement. ALL of you are considered ***stakeholders****. Stakeholders include any member of the public, including those in the Technical and Steering Committees. This group will not meet; however, stakeholders will be able to watch the Steering Committee meetings and ask questions at the end of each meeting. Throughout the process stakeholders will be updated through the chapter500@maine.gov email. The facilitator will monitor the Chapter 500 email and respond within five business days to any questions received.*

The ***Steering Committee's*** *goal is to identify the areas of the State's stormwater regulations that need to be improved to define the Technical Committee's assignments. Members of this committee will have various degrees of knowledge and experience with the state's stormwater regulations and stormwater management. This committee will be capped at 20 members. The first Steering Committee meeting will be held on December 5th from 9am-noon. Members of the public are welcome to* ***join online here:*** *Webinar registration | Microsoft Teams****.*** *Due to space constraints, non-steering committee members are encouraged to watch online only.*

The ***Technical Committee's*** *goal is to develop scientifically, and technically defensible, practicable stormwater standards assigned by the Steering Committee. This committee will have up to 10 members and will have professional experience and expertise in stormwater management applications and rules. There will be five technical committee meetings, and the schedule will be set in the coming weeks.*

Please reach out with any questions to chapter500@maine.gov. We look forward to working together to improve stormwater regulations across the State of Maine.

Bulletin #2: January 24th, 2024

Hello Chapter 500 Stakeholders,

The second Steering Committee Meeting will be held on ***February 5th, 9:30am – 1:00pm****.*

Meeting location is Deering Building Room 101, Augusta AMHI Campus. The campus map is available here.

You are all invited to attend via Microsoft Teams. Please register from here for remote attendance.

Limiting seating is available for the stakeholders who are not in the Steering Committee. If you want to attend in person, please make sure to contact us via Chapter500.DEP@maine.gov

You can find the agenda for the meeting ground rules and procedures attached.

Please help us prioritize discussion topics by filling out this poll: https://forms.gle/AoNSyNWF3V1RimWP8. The results of this poll will be discussed in the meeting and will guide the discussion under agenda item #4.

As a reminder, refrain from forwarding these bulletins as that may unsubscribe you from them. Please advise those who wish to receive them to email Chapter500.DEP@maine.gov. As always, feel free to reach out to Chapter500.DEP@maine.gov with questions/comments at any time.

You are subscribed to Chapter 500 stakeholders for Maine Department of Environmental Protection. This information has recently been updated and is now available.

- *Ground Rules and Meeting Procedures.pdf*
- *Ch500 Steering Committee Meeting 2 Agenda.pdf*

Bulletin #3: February 13th, 2024

Hello Chapter 500 Stakeholders,

Please find attached the meeting minutes and presentations from the Steering Committee meeting on 2/5. The next Steering Committee meeting will be on February 26th from 9:30am-1:00pm. You will receive instructions on attendance as we get closer. As always, please do not hesitate to reach out to any questions, concerns, or feedback.

Bulletin #4: February 23rd, 2024

Hello Chapter 500 Stakeholders,

This is a reminder that the third Steering Committee meeting will be held on Monday February 26th from 9:30am-1:00pm. Please register for remote attendance here. We have limited seating for in person attendance for non-committee members, so please reach out to chapter500.dep@maine.gov to reserve a seat in person if you are interested. We look forward to hearing your input at the meeting.

Bulletin #5: March 5th, 2024

Hello Chapter 500 Stakeholders,

Please find attached the minutes from the third Steering Committee meeting as well as an electronic copy of the printouts the committee was provided at the meeting. The internal project team has revisited the schedule and is tentatively planning on the following schedule for the remainder of the process:

March 18: Technical Committee meeting #1

April 1: Technical Committee meeting #2

April 22: Technical Committee meeting #3

May 6: Steering Committee meeting #4

May 20: Technical Committee meeting #4

June 3: Technical Committee meeting #5

June 24: Steering Committee meeting #5

The remaining meetings will be 9:30am-1:00pm, and stakeholders are invited to attend the Steering Committee meetings (based above). Thank you for your engagement in this process, and as always, please reach out with any questions or feedback to chapter500.dep@maine.gov.

Bulletin #6: March 28th, 2024

Hello Chapter 500 Stakeholders,

Thank you for your continued interest in the Chapter 500 stakeholder engagement process. You can now find all project materials, including meeting agendas, minutes, and presentations online here, or by going to the Maine DEP webpage > Land Resources > Programs > Stormwater > Chapter 500 Stormwater Management Updates Stakeholder Engagement Process.

As a reminder, the schedule for the rest of the meetings is as follows, with Steering Committee meetings open to the public and Technical Committee meetings closed:

April 1: Technical Committee meeting #2

April 22: Technical Committee meeting #3

May 6: Steering Committee meeting #4

May 20: Technical Committee meeting #4

June 3: Technical Committee meeting #5

June 24: Steering Committee meeting #5

Thank you for your engagement in this process, and as always, please reach out with any questions or feedback to chapter500.dep@maine.gov.

Bulletin #7: April 30th, 2024

Hello Chapter 500 Stakeholders,

Please find the meeting materials, along with all other project materials here. There are shifts happening with the schedule for the remaining Steering and Technical Committee meetings to ensure the project is appropriately staffed by DEP. You will all be notified once a revised schedule has been determined. Thanks for your patience as we figure out the best next steps to make this project more efficient and effective.

Bulletin #8: June 20th, 2024

Hello Chapter 500 Stakeholders,

We are starting up meetings again for the Chapter 500 stakeholder engagement process.

The next Technical Committee meeting will be held on Tuesday, June 25th. While TC meetings are closed to general stakeholders, you can find the agendas and minutes here.

The next Steering Committee meeting will be held on Monday, July 15th from 9:30am-1:00pm. All stakeholders are invited to join remotely (registration link to come).

As always, please reach out with any questions or comments to chapter500.dep@maine.gov.

Bulletin #9: July 11th, 2024

Hello Chapter 500 Stakeholders,

The fourth Steering Committee meeting will be held on Monday, July 15th from 9:30am-1:00pm. The meeting will be open to all stakeholders. The stakeholders who are not represented in the Steering Committee are invited to join remotely using this webinar registration link. The agenda for the upcoming meeting will be made available shortly on the stakeholder engagement webpage. Please note that the webpage also contains information on the previous meetings of the Steering and Technical Committees.

We have limited seating for in person attendance for non-committee members, so please reach out to chapter500.dep@maine.gov to reserve a seat in person if you are interested. We look forward to hearing your input at the meeting.

Bulletin #10: September 10th, 2024

Hello Chapter 500 Stakeholders,

Thank you for your continued interest in the update of the Chapter 500 stormwater rules. The Technical and Steering Committees have been busy, working hard to have the necessary discussions for this process. Please find a summary of what they have been working on below.

Stakeholders are invited to attend the next Steering Committee meeting on September 23rd from 9:30am-1:00pm. A Teams invitation will be sent out in the next couple weeks. If you would like to join in person, please email chapter500.dep@maine.gov.

There have been five different subcommittees created to dive deeper into the weeds on certain aspects of Chapter 500:

Core Low Impact Development subcommittee: *This subcommittee has met three times to discuss the implementation of core LID standards. Discussion has centered on the need for clear, specific, and practicable guidelines. While there has been general agreement on the concept of the Core LID standards, concerns have been raised about their specifics. These include the unclear definition of "natural drainageways," the restrictive nature of setbacks under the Natural Resources Protection Act (NRPA), and doubts about the effectiveness of open-channel vegetated conveyance. The subcommittee also discussed the importance of harmonizing LID standards with other regulations and suggested incentives like fast-track permitting to encourage compliance.*

Groundwater Recharge subcommittee: *This committee has met three times to discuss the implementation of groundwater recharge. Discussion has focused on the application of the proposed standard. A challenging development scenario was presented to illustrate its feasibility, showing that meeting the groundwater recharge requirement is possible even in difficult soil conditions. The current "static" design approach, which often leads to oversized stormwater control measures, was contrasted with the proposed "continuous" stormwater modeling approach that promises more efficient designs. The committee agreed to test the proposed standards on real development projects and to revise them based on the feedback received.*

STRW subcommittee: *This subcommittee has met once to discuss the implementation of a STRW list/classification that would aid in applying greater protections to the sensitive or threatened regions or watersheds as required by the Stormwater Management Law. The subcommittee has discussed formalizing project objectives, particularly updated Chapter 502, and debated the need for legislative approval and methods to keep updates current. They agreed on watershed evaluation thresholds, supported using municipalities as Sensitive and Threatened Regions and Watersheds (S&T) regions, and planned to revisit coastal areas. The term "sophisticated stormwater management" was debated, with an emphasis on designing reliable, easy-to-maintain systems. The subcommittee explored how the STRW list can be routinely updated without major rulemaking hurdles. They also debated the appropriateness of IC thresholds for marine waters and agreed on watershed size thresholds, while acknowledging the need for subjective judgment in urban areas. Finally, they outlined next steps, including further analysis of STRW municipalities, coastal regions, and the development of selection criteria, along with a proposal to include a prologue in the final rule to clarify its scope and update methodology.*

Stressor-Guided Stormwater Control Measures (SCM) subcommittee: *This subcommittee has met once to discuss using stressor-guided SCMs to better target each watersheds' specific impairments/stressors. The subcommittee agreed on objectives to ensure SCMs effectively address receiving water vulnerabilities and stressors, while encouraging the use of SCMs that are easy to operate, inspect, and maintain. They reviewed four main stressors—phosphorus, nitrogen, altered habitat, and baseflow chloride toxicity—with a particular emphasis on how winter maintenance practices affect chloride levels. A proposed strategy promoting LID was presented, focusing on a hierarchy of SCMs based on nutrient removal targets and groundwater recharge, with challenges noted in meeting phosphorus removal targets, particularly for Urban Impaired Stream (UIS) watersheds. The subcommittee also discussed the challenges of maintaining SCMs, highlighting that above-ground SCMs are easier to manage than underground ones, and noting specific challenges with proprietary systems and permeable pavements. Potential measures for controlling chloride contamination, including source control and mitigation strategies, were also covered, with debates on feasibility considering costs and maintenance responsibilities. The meeting concluded with plans for the DEP team to continue work based on the discussions and to schedule another meeting, with email correspondence among subcommittee members encouraged to further progress on the objectives.*

Definitions subcommittee: *This committee has met three times to discuss strengthening definitions of terms used in the Chapter 500 rules to make them as clear as possible. This subcommittee continues to work with the other subcommittees to ensure definitions are provided for all necessary words and that they are clear and practicable.*

Bulletin #11: September 11th, 2024

Hello Chapter 500 Stakeholders,

DEP has released the RFP for updating the Stormwater BMP Manual. Please see below if you are interested in submitting a proposal. The bid submission deadline is October 10th.

As a part of its efforts to update the state's stormwater management regulations, the State of Maine Department of Environmental Protection has released (RFP#202408157: Update of the Stormwater BMP Manual), which you may be eligible to submit a proposal for.

Please see https://www.maine.gov/dafs/bbm/procurementservices/vendors/rfps for more information.

Bulletin #12: September 19th, 2024

Hello Chapter 500 Stakeholders,

The next Steering Committee meeting will be Monday, September 23rd, 9:30am-1:00pm.

To attend remotely, please register here. We have a limited number of additional seats in person (32 Blossom Ln, Augusta), so if you would like to attend in person, please email chapter500.dep@maine.gov to reserve a seat.

The agenda is posted online here (Meeting 5 under "Steering Committee Meetings" on the right-hand panel).

Bulletin #13: November 10th, 2024

Hello Chapter 500 Stakeholders,

There has been great progress in the Chapter 500 rules update project. Please see below the tentative schedule for the remainder of the project:

Date	Committee	Format	Location
Nov 14	Technical	Teams	-
Nov 25	Steering	Hybrid	Deering 101
Dec 6	Technical	Teams	-
Dec 11/12*	Technical	Teams	-
Dec 16	Steering	Hybrid	Deering 101

*Meeting poll in progress for Dec 11/12 dates

*To register for the **November 25th** Steering Committee meeting, click here.*

*To register for the **December 16th** Steering Committee meeting, click here.*

As a reminder, you can find more materials and information from this project on the DEP website.

E2: Written Stakeholder Feedback

The following table includes each written comment that was sent to the chapter500.dep@maine.gov email. Each email was given a Unique ID (WC = Written Comment).

#	Unique ID	Sender Information	Date of Receipt	Brief Description / Topic
1	WC-1	Casco Baykeeper, Friends of Casco Bay	September 23, 2023	Redevelopment
2	WC-2	P.E., City of Biddeford	December 6, 2023	Subdivisions
3	WC-3	Permitting Coordinator and Environmental Liaison, Maine Turnpike Authority	December 18, 2023	Stakeholder Input, Steering Committee Schedule
4	WC-4	Stormwater Program Coordinator, City of Portland, Department of Public Works, Water Resources	January 17, 2024	Deed Restrictions, SWPP Technicalities, ESC, Definitions, Urban Impaired Streams, General Standard Groundwater Recharge, TMDLs, BMPs, Core LID, PBR
5	WC-5	Director, Casco Bay Estuary Partnership	February 2, 2024,	Meeting Organization
6	WC-4	Stormwater Program Coordinator, City of Portland, Department of Public Works, Water Resources	February 13, 2024	Core LID
7	WC-1	Casco Baykeeper, Friends of Casco Bay	February 22, 2024	Permitting
8	WC-6	City Engineer, City of Saco	February 27, 2024	Core LID, Data
9	WC-7	Senior Hydrologist, Maine DEP Land Bureau	April 23, 2024	Runoff, Groundwater Recharge, Chlorides
10	WC-8	Licensed Soil Scientist, Environmental Geology Unit,	July 2, 2024	Channel Conveyance

		Division of Land and Licensing, DEP		
11	WC-4	Stormwater Program Coordinator, City of Portland, Department of Public Works, Water Resources	July 16, 2024	Sensitive and Threatened Regions and Watersheds
12	WC-9	Environmental Services Superintendent, Public Works Department, Lewiston	July 30, 2024	Core LID
13	WC-10	Managing Partner and Senior Scientist, Flycatcher	August 22, 2024	Web Soil Survey
14	WC-9	Environmental Services Superintendent, Public Works Department, Lewiston	September 9, 2024	Sensitive and Threatened Regions and Watersheds
15	WC-11	Maine Association of Site Evaluators	September 10, 2024	Stormwater Control Measures
16	WC-1	Casco Baykeeper, Friends of Casco Bay	September 23, 2024	Sensitive and Threatened Regions and Watersheds
17	WC-12	Stormwater Manager, Environmental Office, Maine Department of Transportation	September 24, 2024	Sensitive and Threatened Regions and Watersheds
18	WC-6	City Engineer, City of Saco	October 28, 2024	Basic Standards, Natural Drainage, Data
19	WC-12	Stormwater Manager, Environmental Office, Maine Department of Transportation	October 31, 2024	Disturbance Thresholds
20	WC-9	Environmental Services Superintendent, Public Works Department, Lewiston	November 14, 2024	Chloride
21	WC-12	Stormwater Manager, Environmental Office, Maine Department of Transportation	November 18, 2024	Sensitive and Threatened Regions and Watersheds
22	WC-5	Director, Casco Bay Estuary Partnership	November 22, 2024	Groundwater Recharge
23	WC-3	Permitting Coordinator and Environmental Liaison, Maine Turnpike Authority	November 24, 2024	Stormwater Infiltration, KSAT Testing
24	WC-3	Permitting Coordinator and Environmental Liaison, Maine Turnpike Authority	December 6, 2024	Comments on Short Memo (definitions, criteria for STRW, linear transportation projects

				and basic standards, NDWs, etc.
25	WC-4	Stormwater Program Coordinator, City of Portland, Department of Public Works, Water Resources	December 9, 2024	Comments on Long Memo (aquatic life use water quality standard)
26	WC-1	Casco Baykeeper, Friends of Casco Bay	December 16, 2024	Sensitive and Threatened Regions and Watersheds Identification Proposal
27	WC-12	Stormwater Manager, Environmental Office, Maine Department of Transportation	January 10, 2025	Feedback on Long Memo and Sensitive and Threatened Regions and Watersheds Identification Proposal

E3: Survey Responses

SC members completed a brief survey about the proposed Ch. 500 Rule Updates. The following details the comments provided by the SC for each question.

1. Sensitive & Threatened Regions & Watersheds

Endorse *8 votes*	• The ways in which the processes and mechanisms of landscape change / conversion affect and influence stream health have been extensively studied and very well documented. Therefore, I believe this is a well-conceived, proactive attempt to prevent streams from becoming impaired due to the impacts of surrounding development. • Fully support this measure as more needs to be done (preemptively) to protect the State's streams. • Update STRW list regularly to limit potential for sprawl where development is of greater interest where less/no stormwater control measures are required. This approach may be helpful to mitigate the impacts to water quality as a result of climate driven migration of people. Climate migration is already a partial driver of migration to Maine/Northern New England, and it is anticipated it will become a bigger driver of movement in the future – over the last few years, some communities have seen >20% growth which could make an enormous impact on water quality if development is not thoughtfully considered. • I am not an expert, so I defer to others who would know what should be on the list. The technical committee representative we have (Phil Ruck) represented our positions. • The addition of watersheds at risk is an important improvement and addresses the requirements of the SML. • The proposed STRW framework will be instrumental for protecting the State's waters from stormwater induced impairment. As repeatedly mentioned during the stakeholder meetings, restoring the quality of impaired waters is oftentimes a difficult and expensive endeavor. Under the proposed framework, DEP will maintain a STRW list in Chapter 502, which will be routinely updated through rulemaking. As a part of the routine update effort, DEP will monitor and analyze land cover, specifically IC, change in Maine leveraging the readily available Geographic Information System data. This proactive approach will not only help with updating STRW list but also increase awareness on land development-stormwater management relationship and inform DEP's biomonitoring efforts. Considering the cumulative stormwater impact of land development, DEP proposes to implement the new runoff volume reduction standard and stressor guided stormwater standard in STRW. This surgical approach considers the fact that most of Maine is rural area and engineered stormwater management infrastructure is mostly needed in urbanizing and urban areas. Alternatively, DEP could have proposed a blanket approach requiring Ch. 500

	regulated activities to meet the runoff volume reduction and stressor guided stormwater standards akin to what General Standards do under current Ch. 500. I certainly favor the surgical approach over the blanket one. I recommend considering future land cover projections as a factor before finalizing STRW list for official rulemaking.
Agree with Reservations *8 votes*	• The existing proposal has a number of weaknesses: o Abrupt transitions based on arbitrary thresholds: A watershed with 9% IC that was at 8.1% IC twenty years ago does not qualify, while a watershed with 9% IC that was at 8% IC in the past does. That is less than ideal. o Does not consider water quality classification or presence of high-value aquatic resources: Thresholds are set high enough to put water quality in Class A and Class B streams at risk; does not consider what might make a watershed important such as presence of Atlantic Salmon, use for drinking water, etc.; does not take into consideration other watershed characteristics that may affect how sensitive watersheds are to urbanization and land use change (like presence or lack of intact riparian buffers). o Criteria for establishing STRW are not defined and thus may face significant political pressure for "designation" of sensitive and threatened municipalities, posing future risk of political manipulation of designations. o Updating the list appears to require rulemaking (major Substantive?), which will make future updates difficult. I would like to see a legal opinion on whether there are ways to draft the Rule to make updates automatic (with new data) or easier. • Land use planning LID should be used on all development sites, regardless of the level of development or conditions of the watershed in question. The impacts of adding IC should still be managed, whether directly through targeted stormwater pollution reduction strategies, be they source controls or engineered solutions. • Overall support the concept, especially adding regions designed to keep STRW from becoming impaired. Please see comments in memos. • It would be better if the STRW was watershed based versus just municipality based. A municipality may include several different watersheds with different levels of potential impairment. The "professional judgement" section of the justification could be questionable if challenged. The basis for STRW should be based on the known cause and effect. • One concern is the level of GIS Mapping and accuracy which can be provided without boot on the ground or field survey to confirm channel, stream/non -stream. These are extremely important to understand in the site

	feasibility phase to be able to understand potential regulated buffers, etc. and determine development and open space areas.
Stand Aside *1 vote*	No comments.
Hold *0 votes*	No votes.
Stop *2 votes*	• AGC Maine believes that we do not have all the information related to the future declaration of an impaired watershed and highlights the qualification within the long memo that indicates the pre-qualification of a stream for prevention. In those cases, it is difficult to make a decision to support, knowing we are also under pressure to create housing development and related infrastructure to meet those needs and this proposal could create additional barriers. • Initial comments sent on 11/18/2024 to the DEP Ch. 500 mailbox [See Appendix E4 pg. 29 for full comment]. More comments will follow when the data layers are provided and definitions/final language is provided by DEP.

2. Removing Construction Stormwater Standards from Chapter 500

Endorse *12 votes*	• Sensible and streamlined. • It makes much more sense for the ESC standards to live in the MCGP than in Ch. 500. It also avoids discrepancies and duplications of effort not to have ESC standards in both places. • Construction standards should be in a SWPPP and MCGP. • I think moving the construction related stormwater management regulations into the MCGP is fine as long as the developer/contractor are still required to adhere to the ESC standards. • This is a good idea to regulate the construction phase through the MCGP and could make regulation more efficient and consistent. However, the DEP should monitor the effectiveness of this change? • Ch. 500 apply to the activities that require state permits under the SML and SLODA. Most permit applications are prepared and submitted without the involvement of contractors who are the key actors making critical stormwater management decisions during the projects' construction. This is due to the fact that developers retain contractors after they obtain the state permits. As a result, many applications contain boilerplate ESC plans. The regulators' site-specific ESC concerns are not properly communicated to contractors. In many cases, DEP staff is not notified about the start of construction. Considering these ongoing issues, there is little value in imposing

	construction stormwater standards on activities regulated by Ch. 500, especially on large or complex construction activities. DEP's federally delegated Maine Construction General Permit program has an identical soil disturbance threshold with Ch. 500 and also it applies to construction activities that can be exempt under SML or SLODA. In other words, MCGP has a wider regulatory umbrella than Ch. 500. DEP has issued the new MCGP on 1/14/25, which requires the contractors' involvement in MCGP coverage process. I support DEP's new approach for construction stormwater management, which needs to be supported by training and outreach activities to improve on-the-ground management of construction stormwater. I understand that there are concerns about relying on the federally delegated MCGP program for regulating construction stormwater in Maine. If MCGP program is negatively impacted for any reason, DEP can still regulate construction stormwater through its SML and SLODA permits by relying on SML, ESC law, and Chapter 375.
Agree with Reservations *3 votes*	• Current state ESC law allows DEP to regulate and prevent erosion and sediment pollution during construction without reference to a one-acre threshold. The MCGP, issued under the CWA, imposes a one-acre threshold. DEP could use state law to regulate and prevent pollution from construction on sites that disturb less than one acre. This would be particularly helpful in STRW and impaired watersheds. In addition, according to DEP, the new MCGP is more stringent than the SLODA requirements, so projects covered by site law will need to comply with the more stringent MCGP. In summary, there could be some messy legal implications of blending state and federal requirements in the MCGP. • Assuming there is capacity to support the training and implementation of ESC standards / ESCL.
Stand Aside *3 votes*	• I am not familiar enough with the new GP to have an informed opinion. I am, however, concerned right now about reliance on federal regulatory policy. The GP rests (in part) on the federal Clean Water Act. Also, Maine law on sediment and erosion control (Section 420-C) does not have acreage limits that apply to the rest of Ch. 500. I am unclear about the applicability of the new GP to smaller projects. Because of the paperwork burden, a permitting system may not be the best way to ensure adequate sediment and erosion control on smaller projects, but we need to figure out how to ensure better sediment and erosion control practices on small jobs. • My professional opinion is that I would not recommend implementing Rules in a Permit as Permits are appealable and are applicable only to those who are permittees. The Statute requires all who have disturbance to follow ESC, however this is not the threshold for the MCGP. This is a conflict that people may dispute. Also, I believe that if the Basic Standard is amended and moved to the MCGP, the public process was circumvented by not informing the public of the change to the Rule language at that time of Permit renewal. The public announcement was for

	the renewal of the MCGP and not amending the Basic Standard language and removing it from Ch. 500. I consider this DEP's risk, however, and will stand aside.
Hold *0 votes*	No votes
Stop *1 vote*	• AGC Maine is not convinced that moving the standards to the MCGP is the best approach.

3. Wetland and Natural Drainage Network Protection Standard

Endorse *6 votes*	• For all the reasons enumerated in the memo (importance of wetlands for pollutant attenuation, flood control, groundwater recharge, etc.), I endorse this provision. • If there is a disagreement between a developer and a municipality or regulatory group over classification of a natural drainage way, who makes the final decision? • Nature-based strategies are becoming recognized at an increasing scale as a best practice for climate resilience with respect to reducing the impacts from flooding. This standard is important to prioritize the protection of wetlands and natural drainage networks prior to looking at other control measures. Will the standard addressing the redistribution of stormwater discharge at the property boundary be sufficient to eliminate impacts to adjacent properties under the context of larger or more intense rain events given climate change projections? Should not allow for development to push stormwater to adjacent properties. • The Wetland and NDW Standards are much improved. As noted in the overview memo, inclusion of small 0-order Natural Drainage Ways is needed to better allow protection and better opportunity for attainment of downstream higher order drainages; however, this will be a challenge for both developers and regulators to identify and protect these small watershed capillaries. Protection of wetlands and small waterways will be necessary given the current trajectory of climate change and hydrologic alteration. The 15-foot "minimum" setback (NDW2) should be evaluated based on slope, soil, vegetation, etc. and additional guidance provided to developers when this minimum setback may not be sufficient. • DEP's Ch. 500 project team has undertaken a challenging task of crafting LID standards that are practicable and effective. There is not a universally agreed upon LID definition and many LID strategies exist in literature. For instance, nine strategies must be followed to qualify for LID credit under current Chapter 500. The proposed Basic Standards focus on key components of natural stormwater infrastructure which are wetlands and NDWs.

	Protection of the natural stormwater infrastructure is, unfortunately, an underrated approach and engineered SCMs are commonly used to compensate for the natural stormwater infrastructure impacted by land development projects. The proposed standards are easy to understand and effective for channel protection level of control; they incentivize LID in site selection and design phases of the land development projects. There is an alternative for the projects that cannot comply with the proposed standards which is to comply with the new runoff volume reduction standard. Since compliance with the runoff volume reduction standard may require structural SCMs and increase project cost, I anticipate that site designers will maximize their efforts to avoid triggering the runoff volume standard by impacting the wetlands or NDWs in their project sites.
Agree with Reservations *9 votes*	• Buffer requirements are exceedingly small and appear likely to lead to damage to wetlands and NDWs, directly due to physical disturbance and indirectly due to runoff. Also, buffers around wetlands and NDWs should be the same (e.g., all no disturbance areas) to better protect ecosystem health and simplify the rule. • May present challenges to developers and engineers, but I am okay with that. • These should be stronger. They should require, not just promote, LID. • The preservation of NDWs and wetlands is a good start for projects. The "easement" part of the standard appears unworkable as a practical matter. It would be better to include a volume control standard for larger areas of IC. Volume can be as much a "stressor" as nutrients or other pollutants. • Care should be taken for when the "no disturbance" standard for an entire site is applied. Applied need to emphasize wetland and natural channel protection – on some sites an absolute no disturbance verses only a minimal disturbance may make a huge difference based on unique site conditions. • We [BASWG] support promoting LID. Knowing how much controversy there is in the state about requirements for LID, we think that this could be a challenge. This will take careful thinking about HOW to make this work. We expect to have comments on the actual rule language once available. We think this could be a challenge.
Stand Aside *1 vote*	No comment
Hold *3 votes*	• Please provide the statutory authority under the SML to regulate setbacks around wetlands and waterbodies under Ch. 500. I'm not against the overall concept of protecting streams and wetlands, but I'm concerned about significant conflicts with NRPA and shoreland zoning and confusion by applicants and DEP PMs. Consider bolstering the protections under NRPA instead of adding this new Ch. 500 standard. • It is unclear if DEP intends to require DOT to comply with this standard. Therefore, more communication is necessary before we can endorse.

Stop *0 votes*	No votes

4. Adjusting Stormwater PBR eligibility criteria

Endorse *8 votes*	• Offering greater project flexibility by not requiring engineered SCMs while still providing the protections required for the Basic Standards will be an improvement over the current SML. I agree that it's also appropriate to deny PBR eligibility for projects that can't meet the Wetland and Natural Drainage Network Protection standards. • The new Basic Standards, which would now include many LID standards, should allow expansion of PBR eligible projects regardless of size. This change provides updated basic standards that will provide better water quality protections and will allow a more efficient permitting process. • Faster permitting is a strong incentive for the regulated community to comply with the newly proposed Wetland and Natural Drainage Network Protection Standard crafted to promote LID for all Ch. 500 regulated activities. I strongly endorse incentivizing the SML projects that meet the new Basic Standards through making them eligible for Stormwater PBR, which can be concluded as fast as 14 days within the application submission. I recommend reconsidering the upper limit of Stormwater PBR eligibility. Current Ch. 500(6)(A) limits Stormwater PBR eligibility to five acres of developed area. New MCGP classifies projects that disturb five or more acres as large construction activities. Considering these factors and the interoperability of MCGP and Stormwater PBR, I recommend that only projects that result in less than three acres of IC and occupy less than five acres be eligible for Stormwater PBR under new Ch. 500.
Agree with Reservations *5 votes*	• I hope there is language included that prevents developers and contractors from being eligible for this when their projects are just over the 3-acre IC threshold. Also, 20-acres is a large development area, I would feel more comfortable if this number was reduced. • I am concerned that the PBR process will lead to inadequate scrutiny for substantial projects. I do not know how many projects come through at the designated sizes, so I do not know how many projects that may be included and thus cannot evaluate whether to be concerned or not. Without a better sense of how this affects project design in practice, I cannot evaluate. • There is interest in the state climate plan recommendations for redevelopment and also for streamlining permitting of best practices for infrastructure where appropriate. Should this PBR threshold of up to 3 acres be considered only in areas that are already highly developed to encourage redevelopment? Would that be beneficial

	to redevelopment? In areas that have less development, or for example that are on the STRW list, does the current PBR threshold remain? Would the higher permitting threshold in less developed areas create a backstop against sprawl? • While we [BASWG] generally agree, BASWG will want to see and comment on how the actual rule language is framed and detailed.
Stand Aside *3 votes*	• The issue of increased peak runoff and volume for most projects can be a stressor on many waterbodies. Just under three acres of IC can have a significant hydraulic impact on a low order stream or intermittent stream. Volume reduction should be part of most, if not all, site development projects.
Hold *3 votes*	• It is unclear if DEP intends to require DOT to comply with this standard. Therefore, more communication is necessary before we can endorse. • As written, the PBR criteria do not appear sufficient to protect water quality.
Stop *0 votes*	No votes

5. Stormwater Control Measure Hierarchy

Endorse *12 votes*	• Looking forward to the clarifications on guidance in the upcoming Stormwater Manual. • Logical hierarchy • The hierarchy is integral to an LID approach, which prioritizes non-structural measures (where applicable) over structural measures. This prioritization will help preserve any existing natural hydrology thereby minimizing impacts to groundwater recharge and water quality. • Nature-based SCM appears to be a good starting point. Many projects may end up requiring structural measures to provide adequate protection. • Excellent idea. Fully support this. • Good idea. Requiring designers to demonstrate how higher priority SCMs have been evaluated before selecting lower priority SCMs should incentivize preferred higher priority SCM measures. • Proposed SCM hierarchy is another improvement that will promote LID under new Ch. 500 framework. Current Ch. 500 allows designers to select any SCM from Ch. 500's allowable SCM toolbox. There is no mechanism in place for the reviewers to ask for the use of SCMs capable of retaining stormwater. For instance, a designer can propose a lined subsurface sand filter SCM without exhausting the SCM alternatives that can retain stormwater. The

	proposed SCM hierarchy addresses this shortcoming under current Ch. 500. I believe the Stormwater Manual update project will add new nonstructural and/or retention SCMs into Ch. 500 SCM toolbox so that designers will have more alternatives to choose from under the new SCM hierarchy.
Agree with Reservations *3 votes*	• Prioritize LID site design principles and then move to a hierarchy of stormwater management controls, prioritizing nature-based stormwater control measures. Waiting to see how this is handled in the new Stormwater Manual. • Support prioritizing conservation of natural hydrology and nature-based approaches.
Stand Aside *2 votes*	• I like the concept of the hierarchy, but I am concerned about how it will work in practice. The rules should include clear criteria regarding how permit reviewers will evaluate whether projects have, in fact, complied adequately with the hierarchy. Also, the rule should include clear criteria for when a site is unsuitable for the proposed activity. Allowing use of less preferred alternatives when a site is "difficult" may encourage development in unsuitable locations. • We [BASWG] are strong proponents of nature-based solutions where appropriate. The question becomes language, details and requirements. We will definitely support efforts to include this, but expect to comment on the specific language developed into the rule.
Hold *2 votes*	• The current Long Memo does not give a hierarchy of SCM's that we can review, therefore it is difficult to endorse such language. Also, the Long Memo references manuals that may contain new SCMs which have not yet been presented. Additional information is needed to endorse. Once DEP proposes such a list, quick work can be made. • AGC Maine does not have all the information to make an informed decision on this proposal and looks forward to the sample project comparison and the ensuing best management practices to better understand the measures that will be required to meet the standard.
Stop *0 votes*	No votes

6. Runoff Volume Reduction Standard

Endorse *9 votes*	• Reducing impacts from post-development runoff volume is arguably the most critical element of the SML revisions and is strongly supported by extensive empirical evidence (e.g., Taunton River watershed project). • Volume reduction should be the "cornerstone" of the revised Ch. 500 standards. • Runoff volume reduction standard is currently used in several jurisdictions. Current Ch. 500 does not directly address post-development volumetric stormwater increase. As demonstrated by SNEP's Taunton watershed

	project, a runoff volume reduction standard is an effective tool for approximating post-development runoff duration curves to pre-development runoff duration curves. Deliberate runoff volume reduction also helps with stormwater quality control, especially for conventional stormwater pollutants. All in all, the runoff volume reduction has been a missing piece in Ch. 500, and adding it is instrumental for achieving one of the major LID objectives – approximating the post-development site hydrology to the pre-development hydrology.
Agree with Reservations *5 votes*	• Concerned about the extra cost of in-situ permeability tests on applicants. • May be a steep learning curve for designers, but OK with the approach. • Through this process, I am aware that many within the state still have some concerns about the differences in infiltration capacity, substrate, etc. BASWG has been active with Phil Ruck as our representative on the technical committee. We are aware that this may have a "steep learning curve" and that there might be need to troubleshoot how developers will plan "around" these requirements to build in guardrails to achieve the goals of the standard.
Stand Aside *3 votes*	• Like the idea behind a volume reduction standard but remain concerned that the standards may prove difficult to apply in coastal Maine because of low hydraulic conductivity. I wonder what engineering workarounds will become common as designers learn to live with the rule.
Hold *0 votes*	No votes
Stop *2 votes*	• DOT believes that infiltration of stormwater should be allowed only under very specific circumstances which are not defined in the current language. Therefore, DOT does not support this standard. • As discussed, we [AGC Maine] have concerns on the use of infiltration, and how this will be applied under certain conditions.

7. Stressor Guided Stormwater Treatment Standard: Nitrogen and Phosphorus

Endorse *10 votes*	• Very supportive of this targeted approach. • Cannot recall DEP's rationale for specifying a 60% load reduction for new development (as opposed to something higher), but support the effort to use SCMs designed specifically to reduce nutrient impacts for marine and freshwater. • As discussed to date in the process and after discussions with Phil Ruck, we [BASWG] like this target approach. • Current Ch. 500 SCM sizing requirements were implicitly based on 60% phosphorus removal. The proposed standard requires an average annual phosphorus load requirement of minimum 60% for the regulated activities in

	non-coastal areas. It assumes that an SCM that effectively removes phosphorus also removes most of the other conventional stormwater pollutants except nitrogen. This is a reasonable assumption. Furthermore, having a quantitative pollutant removal target helps with leveraging the SCM performance curves for SCM selection and design which are built using state-of-the-art stormwater models and monitoring data. This means existing performance curves can be updated when new and better monitoring data becomes available, or new performance curves can be developed for brand-new SCMs. This flexibility is valuable, and it ensures that best performing SCM is used for the target stormwater pollutant. I also anticipate that the proposed standard will deliver more cost-effective SCMs as compared to the ones designed under current Ch. 500 standards.
Agree with Reservations *6 votes*	• Thank you for adding nitrogen. • The chloride stressor will be the sticking point for most, if not all, volume reduction SCMs. • Need to be careful with including landscaped areas at a fixed rate, but overall, it makes sense.
Stand Aside *1 vote*	No comments
Hold *1 vote*	• DOT believes that infiltration of stormwater should be allowed only under very specific circumstances which are not defined in the current language. Also, DEP should be aware of statutory limitations via §420-D (1) Standards. DEP shall adopt rules specifying quantity and quality standards for storm water. Stormwater quality standards for projects with 3 acres or less of IC may address phosphorus, nitrates and suspended solids but may not directly address other dissolved or hazardous materials unless infiltration is proposed.
Stop *1 vote*	No comments

8. Stressor Guided Stormwater Treatment Standard: Chloride

Endorse *5 votes*	• State regulatory requirements to mitigate impacts from chloride contamination are long overdue since voluntary measures have proven to be ineffective as evidenced by increasing chloride concentrations in streams situated in watersheds with large areas of pavement that are salted in the wintertime. • DEP's monitoring efforts have clearly demonstrated that winter salt application is a very significant contributor to baseflow chloride toxicity in Maine's streams. The scope of Ch. 500 is not wide enough to effectively control the chloride contamination of freshwater, but the importance of regulatory impetus should not be overlooked if we want to change key actors' behavior to adopt best practices to lower salt use and minimize salt-laden stormwater

	contamination of stream baseflow and groundwater. Given the current regulatory limitations, chloride control standard may only apply to SLODA projects. Since large parking lots where excessive winter salt application commonly occurs are covered under SLODA permits, implementation of chloride control SCMs can have tangible water quality impacts in the direct watersheds of these projects. I must emphasize the importance of on-the-ground effect of chloride targeting SCMs. Successful examples will increase stakeholder awareness and willingness to embrace these SCMs.
Agree with Reservations *7 votes*	• I am concerned that many of the practices that receive points under the proposed scoring system rely on winter maintenance activities that will occur well after construction is completed. Ch. 500 is a permitting system that applies at the time of construction. Its leverage after that point is limited. Thus, many of these practices may be largely unenforceable, especially on future landowners and managers who were not party to the actual Ch. 500 permit. During the stakeholder discussions, other participants suggested Ch. 500 is more able to reach post-construction activities than I believe. I would like to see a legal analysis of enforceability of the activities' given points here. I also believe the point system should evolve rapidly as we gain experience with it. It is thus likely important that this be in the "Manual" that can be revised without going through formal rulemaking. • This is a good first attempt to deal with chloride issues but will likely require tweaking as time goes on. • Agree with the concept and look forward to seeing how this evolves. • Would add opportunity for projects to include covenants of no-chloride use (pavement winter treatment in lieu of sand or other acceptable method and include in their stormwater operation and maintenance. • While this is a good idea, there is not a lot of detail. The important elements are in the details. We [BASWG] are working hard to address chloride issues as one of our targeted behavior changes in the Greater Bangor Urbanized Area. We would need to see a more complete proposed set of ideas and language. We plan to review carefully and comment on the rule language. • Chapter 500 chloride control proposal is incomplete. Implementation of either a proposed point system or hierarchical scheme of control measures will provide some degree of chloride reduction, and in particular reduced groundwater contamination; however, it is uncertain whether waters can be expected to meet chloride water quality criteria or more importantly aquatic life criteria.
Stand Aside *3 votes*	• This section needs a lot more work. Appreciate the efforts and need to address chlorides; however, much of what is proposed in 3.3.2 (Long Memo) is not practicable and requires extensive monitoring and enforcement. • The chloride BMP measures require additional consideration to determine which should be required and which are optional. A hierarchical system should be developed starting with a robust source reduction program

	supported by the State (i.e. training & certification program, landowner outreach & education program, etc.). Aspirational BMPs or unrealistic source reduction measures that require significant oversight to prove compliance need to be thoroughly thought through before being included in this section.
Hold *0 votes*	No votes
Stop *4 votes*	• How can DEP regulate chlorides in Ch. 500 under the SML and under Site Law Statute? • DEP is proposing the current point system or a not-yet-available SCM hierarchy. DOT believes that some of the items in the point system are not reasonable or practicable, and some may have the potential to increase chloride toxicity. • The proposed "point system" is not practical. The first line of the table states all SCM to be lined (required). At this point STOP and go on to doing what engineers are doing now. Engineers will have to figure out how to release stored stormwater over 36 to 72 hours. This may require "pin hole" type orifices in outlet controls. • Again, as discussed in the meetings, we [AGC Maine] do not have enough information to decide. We did have very brief discussions on the NH model and believe that is worth exploring. However the Chloride point system was not fully developed and concerns within the subcommittee were not fully discussed at the Committee meeting.

9. Flooding Standard: Replacing Appendix H in current Chapter 500 with NOAA Atlas 14 + an 18% modifier, then utilizing NOAA Atlas 15 when released.

Endorse *13 votes*	• Clarify that 18% modifier increase should not be added when NOAA Atlas 15 is released. • This is a good placeholder until Atlas 15 comes out. • Using the most up to date data consistent with other NE states is completely rational and justifiable to ensure that SCM designs keep pace with the changing climate. • The only issue is to have agreement between the design engineer and DEP of the values used for a given site prior to the engineer doing the design and preparing calculations. • This best available data approach is good. • The proposed approach contributes to Maine Climate Council's climate adaptation and resiliency efforts. After attending the NOAA Atlas 15 pilot project webinar, the project appears to be on track and NOAA Atlas 15 conterminous US data will be released for peer review this year and complete Atlas 15 Volume 1 and 2 will be released for conterminous US in 2026. In the unlikely event that NOAA Atlas 15 is delayed, there are other

	alternatives that DEP can consider, factoring nonstationary precipitation trends into Ch. 500. For instance, EPA's National Stormwater Calculator already has a feature to factor in different climate scenarios for precipitation. One issue that needs to be addressed under the new Flooding Standard is to use future precipitation data for pre-development condition or not. If an 18% modifier is used for both pre- and post-development conditions, this will presumably have a limited impact on the required detention volume as compared to status quo. If a conservative approach is followed, it would be prudent not to apply the climate correction to the pre-development precipitation. I don't advocate for a specific approach here. I am just highlighting that some more technical work is necessary to address this issue.
Agree with Reservations *5 votes*	• I no longer have any confidence that NOAA's Atlas 15 product will be released, and if it is released, that it will reflect the best available science regarding future storm intensities. • We support this but caution whether you will be able to rely on NOAA Atlas 15, given the dismantling of science at a federal level. • Incorporating updated precipitation data when available is important. Flood control measures will still only be applied to Site Law projects. Creating a mitigation fund as a waiver for some UIS watersheds is a speculative means for addressing flood problems.
Stand Aside *1 vote*	No comments
Hold *0 votes*	No votes
Stop *0 votes*	No votes

Additional Comments

Rule-related feedback

- As someone who attended almost all meetings, participated in subcommittee meetings, and reviewed technical materials provided to us, the memos cover a lot of content in a manner that will be difficult for interested parties to follow during the rule-making process. It was difficult enough to follow having been through the process.

- The overall approach is an improvement to the current version. The use of SCMs is a good tool and will be valuable for future designs. Using phosphorus, nitrogen and volume stressors is a valid approach. The chloride stressor will become a problem with any type of recharge. Roof runoff will generally be eligible for recharge, but most surface areas will not. Generally, roof comprises about a quarter of a site's IC (often even less). This will result in only a small fraction of the total water volume being infiltrated into the ground.
- Generally, I am in agreement with the approach; however, I cannot officially endorse anything that the LPC has not reviewed. The practical application of the standards will continue to be an issue and require extensive education of both local boards reviewing projects that might trigger the standards and developers who are advocating for removal of reviews on projects where housing is an element but may be of mixed use as well. It will be important that DEP has a seat at the table for these discussions because preapproved plans that are not site specific but rather design specific to elude stormwater review is a proposal in the works currently. It's important that DEP provide some background and education for legislators to understand why this is in process and why it is important because it directly impacts municipalities who are also under extreme pressure to develop, resulting in mixed messages from DECD & regulatory agencies.
- Most of our efforts have been devoted to crafting new standards that would promote LID and replace current Basic and General Standards. I have responded by checking the endorsement box for each item, but I recognize that there are still details that need to be worked out and more testing of these proposals in both real and hypothetical development scenarios. I also recognize that there will likely be changes made in response to comments from the stakeholders that will make the proposal stronger. We have not had the opportunity to address some of the following issues in detail during the official stakeholder engagement meetings:
    - Standards around the operation and maintenance of the post-construction stormwater management systems: We have a persistent non-compliance issue with the five-year recertification standard condition and other stormwater management related conditions such as construction oversight reports and as-built plans. Ch. 500 project needs to re-evaluate these standards and conditions. Additionally, conditions and standards surrounding subdivision projects need to be re-evaluated since the permit compliance responsibility gets fuzzy and complicated due to multi-party involvement in stormwater compliance: developer, lot owner, homeowner association, and municipality. New Ch. 500 can have a provision to limit complex structural SCM use and maximize nonstructural retention SCM use for residential subdivisions.
    - Streamlining permitting through municipal capacity: Site capacity and Stormwater capacity provisions of the Stormwater and Site Law are currently underutilized. One of the overarching goals of the stakeholder engagement process is to streamline the State's stormwater regulations and permitting. Leveraging existing provisions in the Statute can serve this purpose. There are several municipalities, most of which are MS4 municipalities, that currently have ordinances that exceed Ch. 500 standards

and qualified in-house staff to review stormwater management systems. Ch. 500 projects proposed within these municipalities are required to obtain both municipal and DEP permits. If more of these municipalities have Stormwater/Site capacity, the projects will be permitted after municipal review process which will certainly streamline permitting. Also, this will free up time for the Land Bureau Stormwater Engineering Team I supervise and licensing team which can be directed towards compliance, municipal assistance, education and training efforts.

- Location of development. No standard was developed to address whether a new development or redevelopment site that falls within an area subject to sea level rise would be required to assess that risk and provide information on how that risk would be mitigated, both to that site, and as a result of any activities on that site to adjacent properties or waterbodies. This standard might also be constructed to be more restrictive for new development if that land is currently natural, which may result in no new development approval or an approval for limited development.
- Should we consider requiring that permits issued by state and municipalities be added to a GIS database? And that database is required to be referenced to inform permit requirements that address if/how any cumulative impacts on receiving waterbodies might occur?
- AGC Maine believes that additional work is required and should be reviewed by the Committee in advance of a rulemaking process. Review of sample projects, engineering discussion, constructability review and reviewing the process is imperative with a complete product.
- I cannot stress enough the importance of how this all gets disseminated to the public, municipalities, contractors, etc. will be critical using effective forms of media and outreach. There is a lot to understand and digest.

Process-related feedback

- I greatly appreciate the efforts and dedication of all DEP staff involved in conducting the stakeholder process and working through the language changes for Ch. 500. I know it's not an easy process!
- Thanks for all the effort to make this happen!
- DOT looks forward to engaging with DEP as soon as possible to discuss these comments. We also look forward to the official full Rule when it is available.
- I commend DEP staff for their thoughtful dedication, diligence and determination in putting together a much needed and well-conceived update to the State's SML.

- Thank you for including Friends of Casco Bay in the stakeholder process. For over 35 years, we have worked to understand the effects of and reduce stormwater pollution to Casco Bay. DEP clearly worked hard to prepare materials and present ideas to stakeholders and technical advisors during the process.
- Thank you to DEP staff who have been working on this project with me: Jeff Dennis, Tracy Krueger, Cody Obropta, and Dave Waddell. Thank you to all stakeholders who have actively participated in the stakeholder engagement process and provided thoughtful feedback on Ch. 500 which is a major undertaking.
- The Report was very well prepared. Kudos to all who pulled this together.
- I thank the DEP Land Bureau for taking the necessary time to develop these Chapter 500 proposed revisions, and then to take the time through a steering committee and technical committee meetings to discuss the proposals and make helpful amendments based on comments received. This has been a very open and deliberative process.

E4: Written Stakeholder Feedback from Transportation Agencies

Maine Turnpike Authority Comments

Summary of Maine Turnpike Authority Comments on 12-13-24 Draft of "New Chapter 500 Proposal - Long Memo"

The typical context for stormwater management and regulation is parcel-based development. Stormwater management in linear highway rights-of-way (ROW) has unique attributes, including: bisection of many sub-catchments that may create challenges for runoff collection and alteration of catchment area, the need to work with existing transportation infrastructure and drainage systems, narrow ROW space limitations compounded by the presence of regulated/protected natural resources and abutting development, and traffic management and safety. These and other considerations that are unique to linear ROW settings may challenge implementation of stormwater management strategies that are suited to non-linear parcel-based development. MTA has submitted detailed track change comments on the 12-13-24 Draft of the "New Chapter 500 Proposal - Long Memo" from this perspective. The following bulleted list summarizes key points from MTA's Long Memo comments:

- New Basic Standards
    - A waiver from the New Basic Standards appears warranted for existing linear ROWs with previously developed linear infrastructure. The wetlands and natural drainage features of the landscape have already been altered by prior ditching, crossings, and culverts, so strict compliance with the New Basic Standards in previously developed linear ROWs is likely to provide little benefit.
    - Exceptions/ allowances for roadway crossings of 'natural drainage ways' and wetlands do not appear broad enough to allow for essential highway design and operation/maintenance requirements, particularly where an existing crossing is in-place.
    - Downgradient drainage requirements of the New Basic Standards may not be feasible for narrow linear ROWs.

- The Runoff Volume Reduction Standard (RVRS) may not be practical for many linear highway ROW sites due to site, ROW, and soil limitations that constrain opportunities for infiltration.
    - Allowances for flexible or innovative measures suited to linear highway ROWs are likely needed. Otherwise, under the proposed framework highway impervious cover is apt to require structural treatment measures.
    - RVRS appears to conflict with the goal of minimizing infiltration of highway runoff containing chloride.

- Under the existing General Standards, there is an allowance/reduction for linear impervious cover 'treatment' compared to non-linear. Will a similar linear impervious cover provision be included in the new General Standards?

- "Table 3 Design Infiltration Rates Estimated Using Soil Textures" – The table does not appear to account for whether a seasonal high-water table or impervious hardpan layer is present, which is highly relevant to infiltration rate. The table does not appear to account for soil

profiles with mixed geologic origins, such as sandy outwash over dense marine clay, also relevant to infiltration. Suggest working with Maine Association of Professional Soil Scientists to refine the table.

- The proposed Chloride Stressor point system is developed with parcel-based development in mind. The Chloride Stressor point system and control measures should not apply to public highways adhering to chloride application best practices for winter road maintenance.

- Lists of Impaired Waters
    - When was the Chapter 502 list last updated and how frequently will it be updated?
    - How frequently will the proposed Sensitive and Threatened Watersheds list be updated?

- Incorporate a list of the municipalities/ watersheds to be designated as 'Sensitive and Threatened' in Appendix A

Maine Department of Transportation Comments

<u>February 29, 2024 Email RE: Steering Committee mtg #3</u>

Prior to the Technical Committee creating implementation language for what they have received, I believed (as noted by DEP in their agenda) that I would be able to enter a vote for the DEP proposals. It was indicated that this would occur at the third Steering Committee meeting, however, a vote did not occur.

Therefore, I would like to express my disappointment that the Steering Committee did not get the opportunity to vote on whether it believed the DEP proposals had merit enough to continue on to the Technical Committee. I believe that more input and discussion by the Steering and Stakeholders should have taken place prior to sending broad proposals to the Technical Committee.

<u>April 12, 2024 Email RE: Ch. 500 and CGP Questions and Concerns</u>

I have several questions/comments:

1. Minutes
    a. The meeting minutes that the DEP has posted on the webpage say that they were accepted. Can you please explain the acceptance process for these minutes?

2. Access to the Technical Committee
    a. At the Steering Committee meetings I asked and another person asked if the Technical Committee meetings were open for us to listen in. We were told they were not open to listen in. Recently, I have heard that Steering Committee members may listen in/participate. Can you please clarify this? If this is the case, will you please circulate the link for us to listen in/participate? As an aside, I did not

see any mention of this in the meeting minutes, so if I am in the wrong, please point out where those questions/answers are noted.

3. Voting
    a. Prior to the Tech Committee meetings, I submitted an email that spoke to my disappointment that we did not vote on the proposals going to the Tech committee, as I felt that it was too early to move them forward. The DEP response was that there was a vote. When I asked for clarification, I was told that the voting did not follow the rulemaking protocol that was circulated, but was more of a visual observation of people in the room. I was hoping to touch upon my concerns with the proposals during this vote and maybe others were too. To that end, will DEP be following the voting protocol in future meetings, and will DEP make public the comments that they have received via the Ch500 mailbox so that we can discuss those concerns (and the according responses) in the meetings?

4. No end date to rulemaking
    a. Can you please clarify that the Stakeholder/Steering/Technical committee meeting process is not ending in June as presented in the slides? It is my recent understanding that DEP does not have an expectation of an end date for Stakeholder meetings, and I would appreciate a better understanding of DEP's expectation as that is in contrast to what was presented to the Committees.

5. Ch. 500 Basic Standard
    a. While reviewing the Proposed Draft Construction General Permit (CGP) I noticed that additional language was added to Appendix A/B/C as well as the ESC plan. Some of the language came from Ch. 500 Appendix A/B/C (Basic Standard), but some was additive in the Appendices. I asked DEP if they planned to move the Basic Standard to the CGP and they confirmed that was the intent but it was not yet broached to the Steering/Stakeholder/Tech Committees. The comment period for the Draft CGP ends on May 20th, which is 7 days after the next Steering Committee meeting. Does the DEP plan to include a discussion of this move and amendment to the Basic Standard at the May 13th meeting? Will there be discussion to assure that rulemaking is taking into consideration other rules/permits that may contradict/conflict or need to be amended with Ch. 500 rulemaking?

<u>November 18, 2024 Sensitive and Threatened Watersheds/Regions DOT Preliminary comments</u>

At the request of DEP, I am submitting these preliminary comments on the S&T watersheds/region proposal. I believe it was the September Steering Committee meeting where I voiced my concern at the proposal, however I also emailed the Ch. 500 mailbox in February with concern that I did not believe that some of the proposals were ready to go to the Technical Committee.

These are not the entirety of comments from DOT for Ch. 500, however I believe that they touch upon the larger issues with the S&T watersheds/regions proposal and I hope you find them helpful.

1. I support DEP's proposal to create an "off ramp" via PBR for those areas/activities that would alleviate over regulation on a case-by-case basis, or where DEP identifies a need. I would recommend moving forward with this proposal.

2. DEP currently has the authority to permit projects by examining applications, their impacts, and then identifying those BMPs that they feel would best fit projects. I would not recommend creating S&T watersheds/regions, as proposed, to satisfy this language.

4. Using the IC % change metric nullifies treatment efforts and may violate Permit shield protections. Currently, and for approximately the last 20 years, BMPs were and are constructed as required under permits (Ch. 500/Site Law/NRPA) as treatment to mitigate the impacts of new IC. These existing BMPs are required to be monitored, inspected, and recertified by the permittees through DEP. Therefore, counting IC change in this timeframe as contributing to impairments is ignoring the protective permit measures currently in play for the permittees who are in compliance with said permits. Worse than ignoring it, it is signaling to the regulated community that those efforts may be for naught.

5. According to DEP, using IC is not without its faults, and I agree. I am opposed to using IC on its face because of the previously mentioned item as well as the fact that IC does not take into consideration the sensitivity of the receiving waterbody or other potential impacts like:
    a. Agricultural runoff
    b. Golf courses/athletic fields
    c. Geomorphological changes that may have happened in the past (i.e. channelization/underground piping/floodplain alteration)
    d. Permitted or historic wetland removal/alteration
    e. Permitted stormwater/wastewater discharges (including those covered under TMDLs)
    f. Climate change

6. Using IC creates a second regulatory instrument (the IC TMDL is the other) based on a number value, which infers that a number value is protective.

7. Historic IC (previous to 2008) can be >75% of the IC in many of the regions listed. This IC may not have treatment, or if does exist, it may require retrofitting. Therefore, I would recommend bolstering the current Redevelopment section of Ch 500 by using this metric.

8. IC % change values are statistically the lesser proportion in most of the S&T regions and have the rebuttable presumption of being innocuous since they were most likely required to have treatment to be compliant with permits.

9. Using the IC % change metric will require annual updates. Support of IC in this capacity may draw important staff resources away from more important or worthwhile tasks. Given that DEP has admittedly not had the staff time/support to update the UIS list in Ch. 502 and/or the 305(b) report, which both provide protections under water quality regulations, care should be given to creating another category that would require additional staff time.

January 10, 2025 Cover Letter RE: MaineDOT Comments on New Ch. 500 Rule Proposal - Long Memo

Kerem,

Please find MaineDOT comments in the attached Ch. 500 Long Memo that resulted from the Stakeholder process in 2024. The comments reflect the Long Memo's introductory nature of the proposals, the lack of available support data in some instances, as well as the lack of definitions. DOT will provide specific comments when proposed Ch. 500/502 Rules are available along with the support data used to substantiate the proposals as well as definitions.

MaineDOT voiced concerns regarding the process of the Stakeholder/Steering/Technical/Subcommittee meetings from the beginning. There was a lack of voting and ability to have broad discussion on the proposals at each of the meetings. Submitted comments to the Ch.500 did not always receive a response from DEP. I was able to meet with Jeff Dennis to discuss concerns with the intent of the rulemaking and with the S&T watersheds/regions, and I appreciate his time and effort. At this time, MaineDOT does not support these proposals as currently presented:

1. Sensitive & Threatened Watersheds/Regions
    a. Written comments by DOT submitted to Ch.500 mailbox on 9/24, 10/31, 11/18 (attached) provide insight;
    b. Verbal comment made at the second Steering Committee meeting in regards to the lack of protocol for identifying and defining stressors; and
    c. Lack of availability of the spacial data and therefore understanding of the process followed to create the watersheds/regions.
2. Infiltration Standard
    a. Comment made in final Steering committee meeting. These are a few of the concerns:
    b. Given the DEPs recognition of chlorides as a contaminant in the proposed Rule and their assertion that it is most likely a secondary stressor if not the primary stressor in many surface water bodies, MaineDOT would only support infiltration in sitespecific cases (i.e. some residential/commercial settings) using particular methods.
    c. MaineDOT has seen the impact to drinking water sources from the use of chlorides, and does not support infiltration due in part to these situations.
    d. Chlorides are not the only contaminant that draw concern as the suite of PFAs/PFOAs chemicals are also proving to be fairly widespread.

MaineDOT reiterates the fact that stormwater, in regard to transportation (construction and post construction), is a stand-alone category that does not generally "fit" in the most frequent scenarios under Ch. 500. Therefore, MaineDOT looks forward to working with DEP to resolve these differences and move toward a consensus on how to implement any new Ch.500 regulations in the transportation setting.

Maine DOT Comments left in the 12-13-24 Draft of "New Chapter 500 Proposal - Long Memo"

- Pg. 1: Definitions of all terms should be included as it is difficult to weigh in on the significance of the proposals without an agreement of meaning from the beginning.
- Pg. 2 Purpose and Background: It is difficult to follow the Department's rationale and intent in Section 1.
- Pg. 2 Purpose and Background: As DEP is already aware, linear projects completed by DOT do not have similar impacts as residential/commercial building projects more commonly regulated under Ch.500. Therefore, DOT looks forward to discussing a regulatory approach that is appropriate to transportation needs.
- Pg. 3 Sensitive and Threatened Regions and Watersheds: DOT has requested the data sets that DEP used to support this proposal. Once received, DOT will review and provide comments. Until that time, DOT has no further comments other than those submitted to the Ch. 500 mailbox on 11/18/24.
- Pg. 4 Sensitive and Threatened Regions and Watersheds: No Appendix A in this document.
- Pg. 4 Basic Standards: Has been?
- Pg. 4 Basic Standards: If DEP changed Appendix A when they moved it to the CGP, what happens in the interim now that there are two "Basic Standards"?
- Pg. 5 Wetland and Natural Drainage Network Protection Standard: For this section (through section 2.3), DOT reiterates the constraints that linear projects must concede to and that these standards may conflict with those constraints. DOT looks forward to discussing a path forward for these issues.
- Pg. 9 General Standards: DOT has a standing policy refraining from construction of infiltrating stormwater SCM's. DOT intends to remain consistent with this policy. I will oppose any new standard or regulation that requires stormwater infiltration (other than roof runoff in residential and some commercial settings).
- Pg. 10 Stormwater Control Measure Hierarchy: DOT has concerns as to how SCM's are chosen and the data that supports the treatment removal efficiency.
- Pg. 15 Stressor Guided Stormwater Treatment Standard: DOT has concerns regarding the protocol of identifying a "stressor" and how it related to an impairment.
- Pg. 20 Discharge to Wetlands Standard: DOT has concerns that Ch. 500 will overlap and/or contradict other surface water/wetland regulations.