



NHDES Alteration of Terrain Program

Manchester/Nashua Regional Stormwater Coalitions

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The Purpose of Alteration of Terrain

To protect **surface waters**,
drinking water supplies, and **groundwater**
from construction activities
and development



AoT Jurisdiction

- 100K sq. ft. of disturbance
- 50K in Protected Shoreland
- MS4s – 43.56K



Alteration of Terrain Permit Requirements

Temporary erosion & sediment control

Permanent treatment
(sediment, nitrogen, phosphorous, metals, etc.)



Address Flooding
Stream bank erosion

Three Major Review Components

- Hydrologic Analysis
- Sediment & Erosion Control Plans
- Stormwater Control & Treatment

Sediment & Erosion Control Plans

- Sequencing, minimize open area
- Perimeter controls
- Construction entrances
- Inlet/outlet protection
- Runoff directed to temporary practices
- Slope protection/vegetation requirements
- Inspection requirements

Stormwater Treatment Systems

- Stormwater ponds, no micro-pools (note error in rules text)
- Stormwater wetlands
- Gravel wetlands
- Infiltration practices
- Filtering practices
- Treatment Swales
 - 10 minute residence time, 4-inch depth
- Vegetated Buffers

Some of the More Significant Rule Revisions

Discharges to Impaired Waters (40 CFR 130.7 or 130.8)

Chloride

Nitrogen and Phosphorous

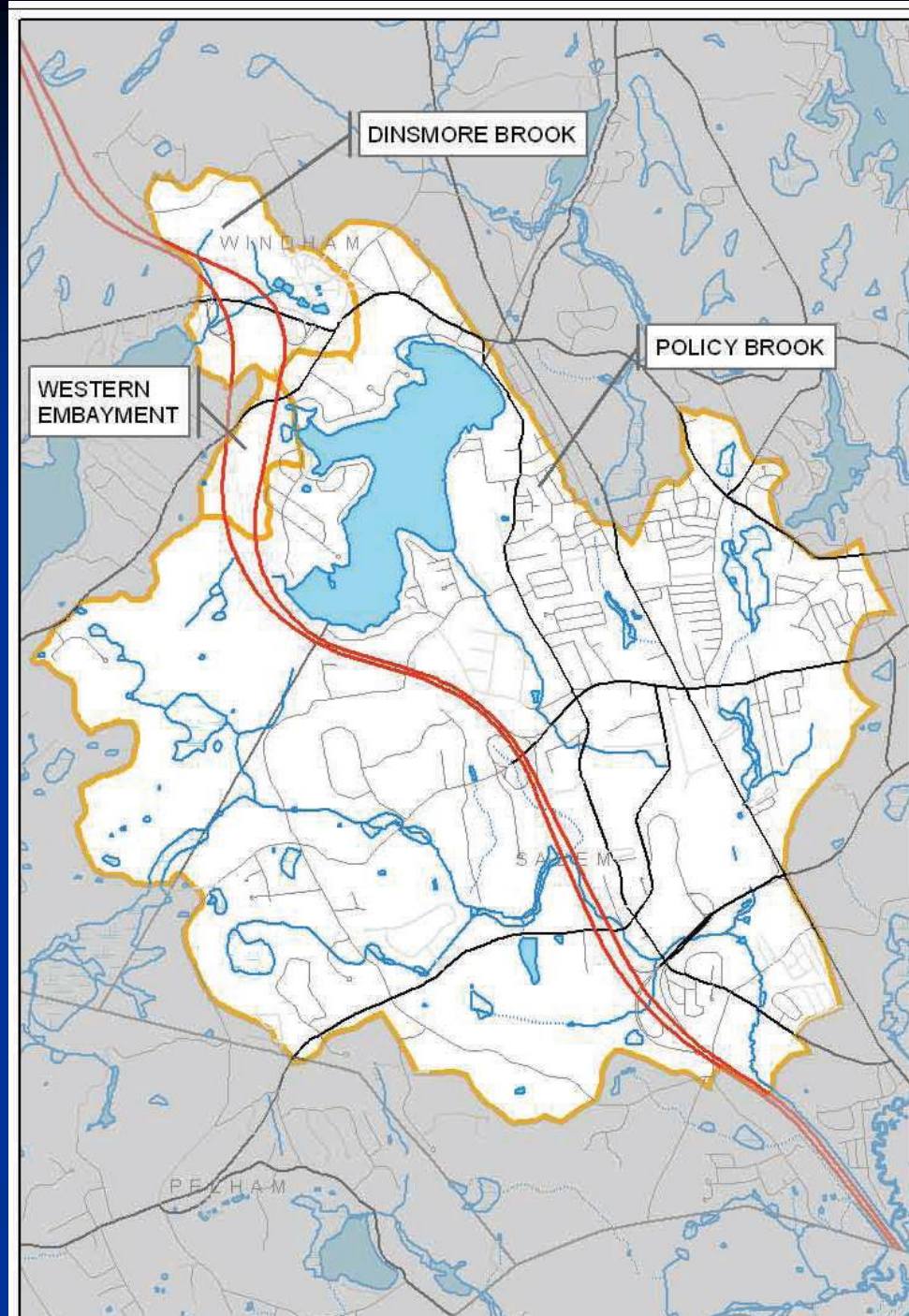
Address 2014 Science & Technical Advisory Panel Report, Sea-level Rise, Storm Surges, and Extreme Precipitation

Blasting Considerations

Detention Ponds – lined or accept treated water only

Chloride Impaired

- 48+/- Watersheds
- Develop CMP
- DES Guidance:
 - Green SnowPro
 - Equip Calibration
 - Weather Monitoring
 - Salt Usage Eval. & Monitoring



Nitrogen/Phosphorus Impairment

- Demonstrate the project will not cause a net increase to:
 - Impaired waters, Class A waters or ORWs
 - Lakes and Ponds - phosphorus
- Use infiltration/filtration
- Elevated groundwater, use gravel wetland





Basic navigation tools: Welcome, Bookmarks, Open, Save, Pan, Zoom In, Zoom Out, Initial View, Full Extent, Previous Extent, Next Extent.

Save and Share tools: Print Map, Save Image, Share, Download Data, Upload Data.

Layers

Alteration Of Terrain Permit

Filter Layers... Filter

- Screening Layers
 - Class A Surface Waters
 - Coastal and Great Bay Region
 - Groundwater Classification
 - Groundwater Classification
 - Outstanding Resource Water
 - Public Water Supply Wells
 - Surface Water Impairments
 - Water Supply Intake
 - Wellhead Protection Areas
- Base Layers

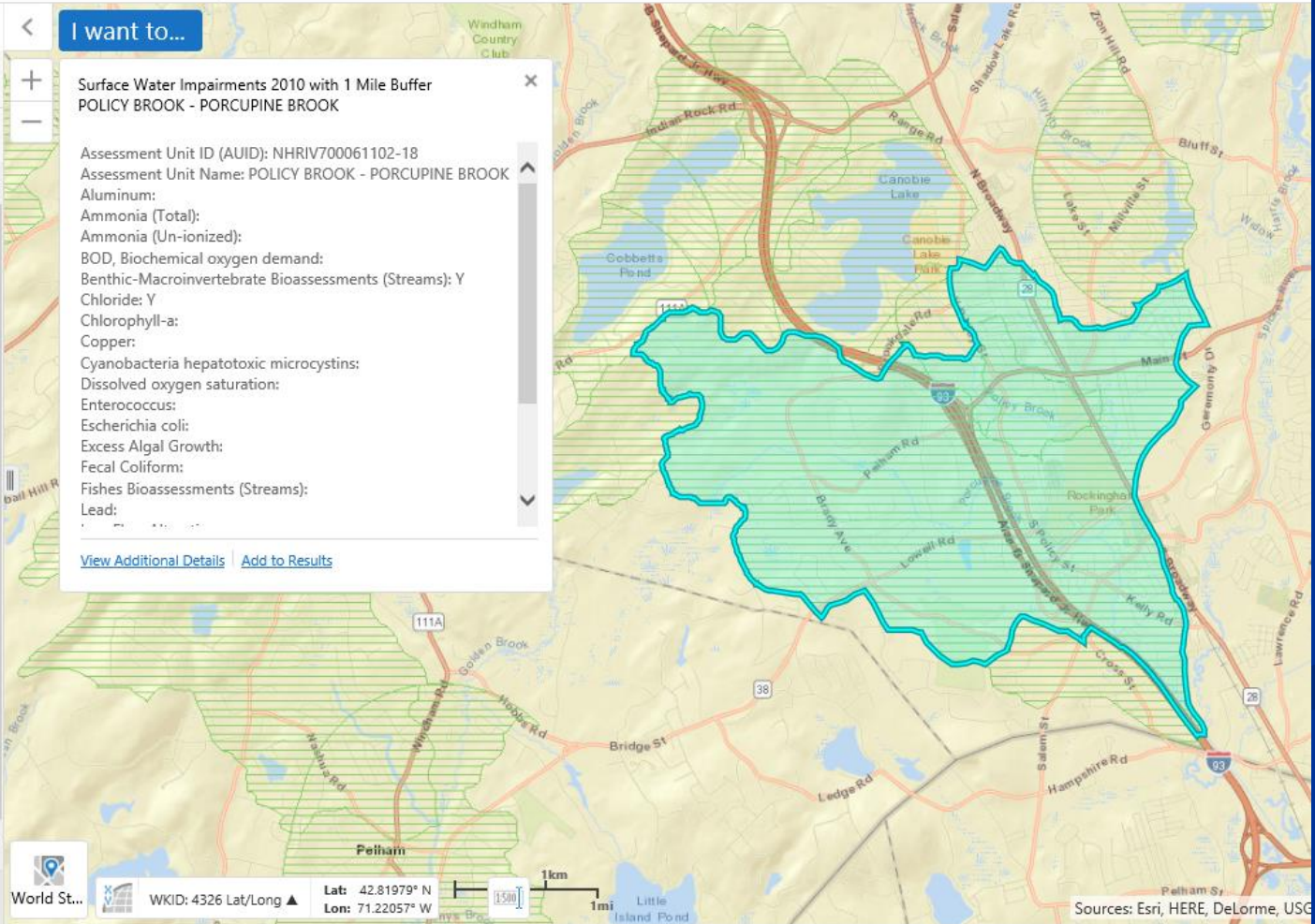
I want to...

Surface Water Impairments 2010 with 1 Mile Buffer
POLICY BROOK - PORCUPINE BROOK

Assessment Unit ID (AUID): NHRIV700061102-18
 Assessment Unit Name: POLICY BROOK - PORCUPINE BROOK

Aluminum:
 Ammonia (Total):
 Ammonia (Un-ionized):
 BOD, Biochemical oxygen demand:
 Benthic-Macroinvertebrate Bioassessments (Streams): Y
 Chloride: Y
 Chlorophyll-a:
 Copper:
 Cyanobacteria hepatotoxic microcystins:
 Dissolved oxygen saturation:
 Enterococcus:
 Escherichia coli:
 Excess Algal Growth:
 Fecal Coliform:
 Fishes Bioassessments (Streams):
 Lead:

[View Additional Details](#) [Add to Results](#)



Address 2014 STAP Report

- Assume 15% in precipitation depths
- Address sea-level rise and storm surge
- Update every 5 years




Blasting Considerations

- All projects with blasting – include BMPs
- Groundwater monitoring plan required if:
 - $> 5,000$ cy
 - Public or private wells within 2,000 feet



Additional Rules

- Temporary stormwater diversion/storage
- No >50% extended detention
- Certification of completion of work by owner and engineer
- Responsibilities for I&M activities
 - Document in writing transfer to political subdivision
 - No I&M manual required but document activities
 - For homeowners associations, responsible party as specified in association documentation
 - IF HOA dissolves/discontinued, individual homeowners shall have joint and several liability



NH Small MS4 GP Part 2.3.5 Construction Site Stormwater Runoff Control

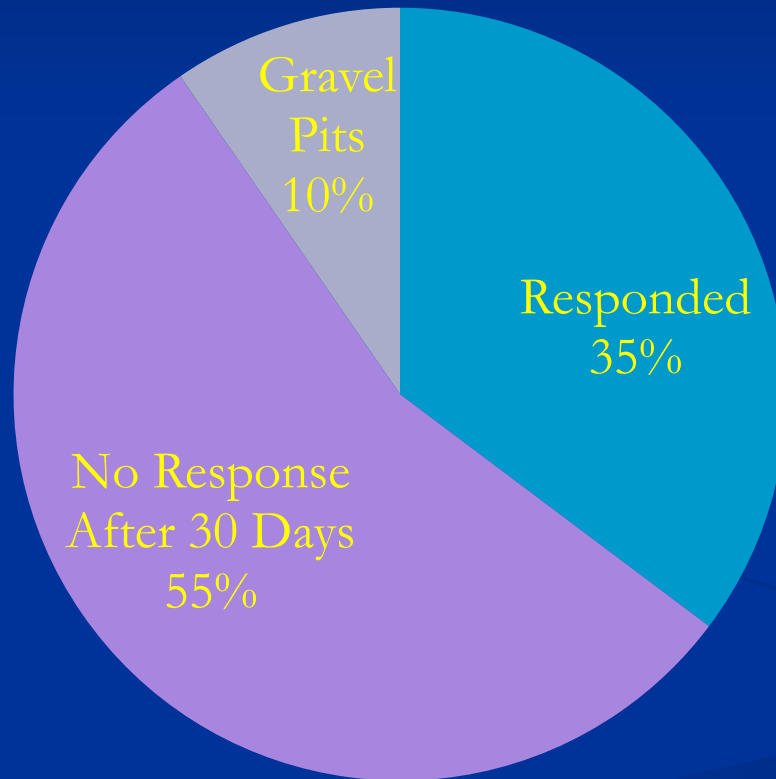
- ▶ Applies to sites ≥ 1 acre
- ▶ Ordinance to require sediment and erosion control measures at construction sites
- ▶ Written procedures for site inspections for sites that discharge to the MS4
- ▶ Require construction operators to implement sediment and erosion control measures and control other wastes associated with construction projects
- ▶ Written procedures for site plan review of construction BMPs

NH Small MS4 GP Part 2.3.6

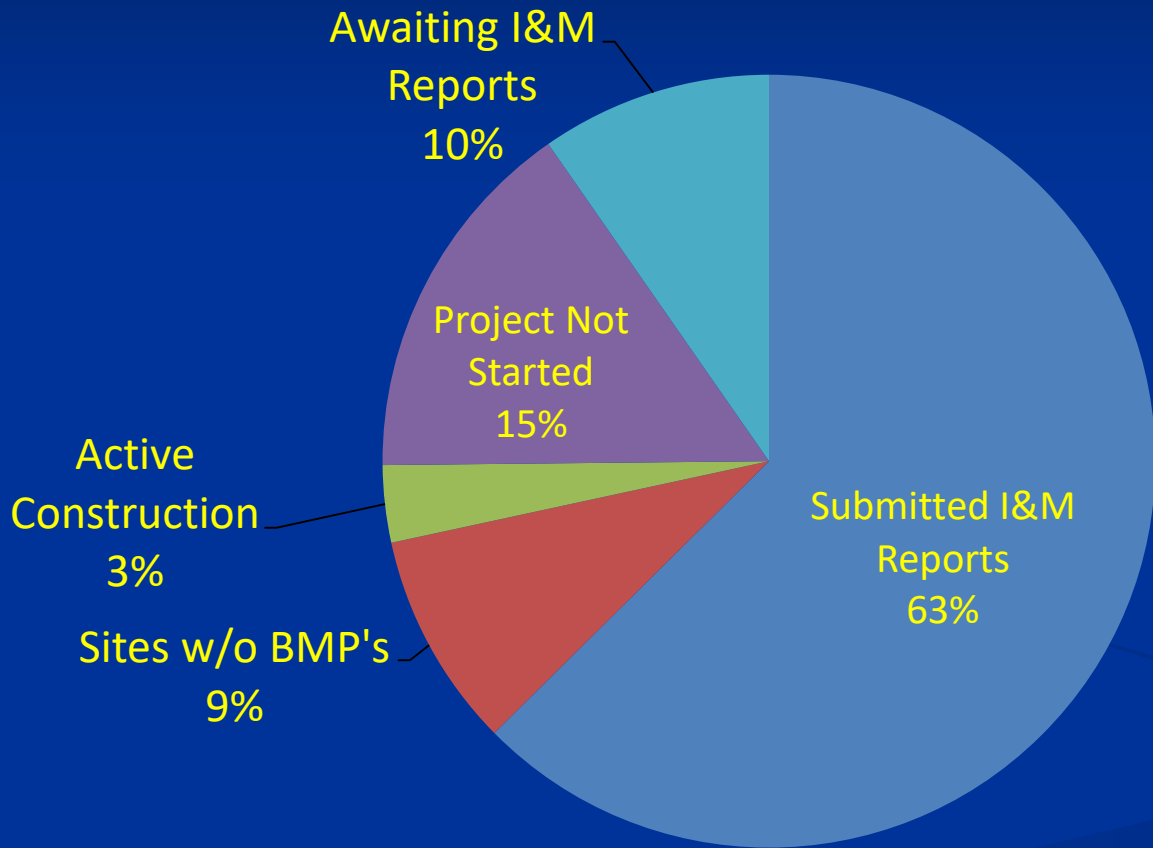
Stormwater Management in New Development and Redevelopment

- ▶ Applies to sites ≥ 1 acre
- ▶ Ordinance to address discharges from development to the MS4
 - ▶ Design of BMPs shall follow NH Stormwater Manual
 - ▶ BMPs must be designed to
 - ▶ Retain the WQV (runoff from 1 in of precipitation) in accordance with NH AOT OR
 - ▶ Remove 90% avg annual TSS load, 60% avg annual TP load generated from the site's impervious area
 - ▶ More flexibility allowed for redevelopment projects: offsite mitigation within the same watershed allowed, must remove 80% avg annual TSS load, 50% avg annual TP load
- ▶ OR the ordinance must be consistent with Sec. 4 Elements C and D of the SE Watershed Alliance Model Stormwater Standards for Coastal Communities
- ▶ Require the submission of as-built drawings for these projects for operator review, as well as plans for O&M of new BMPs

Inspection & Maintenance Document Request 800 Permits



Inspection & Maintenance Document Request



I&M Issues

- 75% of respondents not aware of responsibilities
- Not in possession of I&M Manual
- Lack of transfer of responsibility
- Commercial properties generally more aware than residential



Thank You!