

Partnering for Protection

Wetlands Workshop for Municipal Officials

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Please Note: This presentation is for a workshop only and is not meant to be a substitute for the Freshwater Wetlands Act or the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act*.

Goals of Wetlands Engineering Review

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Evaluate designer's submittal for four aspects of program:

- **Hydrologic impacts to receiving wetlands.**
- **Water quality impacts to receiving wetlands.**
- **Impacts from any filling/displacement of any 100-year floodplain.**
- **Impacts from erosion & sedimentation.**

Hydrologic Impacts – Goals:

Reasons to Avoid Impacts in Wetland Water Levels

- Avoid increases in peak wetland water levels that may worsen flooding conditions on other property.
- Avoid impacts that may affect wetland water levels and in doing so affect flora and/or fauna
 - (i.e., increases from peak flows/volumes or significant decreases from reductions in contributing drainage areas to a wetland).

Hydrologic Impacts – Goals:

Reasons to Avoid Impacts in Wetland Water Levels

- Avoid impacts of groundwater flow to a wetland that may affect wetland water levels, and thus may adversely affect water quality and/or flora/fauna.

Hydrologic Impacts – Pertinent Rules

Rules 10.05 C (12), 10.05 C (18), 10.05 C (20), 10.05 C (21), and 10.05 C (22).

- Rule 10.05 C (12) relates to changes in water elevations that may affect water quality.
- Rule 10.05 C (18) relates to changing the path of flood flows to pre-project rates in the 2, 10, 25, and 100-year 24-hour Type III rainfall events.
 - ex. Increasing road grade over a culvert.

Hydrologic Impacts – Pertinent Rules, cont.

- Rule 10.05 C (20) relates to control of peak runoff discharge rates
 - ex.: as a result of increased impervious areas
- Rule 10.05 C (21) relates to control of total runoff volumes and discharge rates to flood prone areas.
- Rule 10.05 C (22) relates to control of total runoff volume to isolated wetlands.

Hydrologic Impacts – Methods

- Use TR55/TR20 methodology
- Use storage-indication method for detention storage routing
- Provide pre- and post-development subwatershed maps
- Provide a drainage diagram that shows subwatershed areas, detention/infiltration features, and design points

Hydrologic Impacts – Methods, cont.

- Address impacts to each receiving wetland / design point
- Provide a drainage narrative: describe design points, include the design criteria of each project component
- Provide adequate supporting documentation of areas, CN's, Tc's, detention storage/routing inputs
- Design BMP's as per RISDISM and RISESCH

Hydrologic Impacts – Results Evaluation

- If there is an increase in peak discharge rates or volumes, need to evaluate impacts on peak wetland water levels.
- Effects of decrease in water levels may need to be evaluated.

Water Quality Impacts – Goals:

- The overall goal of the RI FWWP is to avoid further degradation of water quality of receiving wetlands.
- For typical projects, goal is to meet the standards of the RISDISM

Water Quality Impacts – Rules:

- Rule 10.05 C (12)
- Appendix 1: 5 (b), which references the Rhode Island Stormwater Design and Installation Standards Manual (RISDISM) (1993)

Water Quality Impacts –

Evaluation of how design meets RISDISM standards

- Provide BMP for WQV: 1" x contributing impervious area
- Use infiltration, extended detention, and/or wet ponds
- Include a long term inspection and maintenance program

Impacts to Floodplain & Floodway

Goals:

- Avoid impacts that may worsen peak floodplain elevations of rivers and streams
- Protection of life and property of people living in / near the floodplain
- Avoid the floodway

Impacts to Floodplain & Floodway

Pertinent Rules, Definitions:

- 10.05 C (16), 10.05 C (17), 10.05 C (19)
- Flood Plain: not limited to FEMA mapped Flood hazard areas
- Floodway: refer to FEMA Floodway maps; otherwise main channel
- 10.02 E 4 c (iv) (aa)-(ff): floodplain compensation standards

Impacts to Floodplain:

- Determine limits of floodplain
- Avoid filling and /or displacement within floodplain
- If filling / displacing floodplain provide volumetric floodplain compensation, or
- Address impacts to flood levels by hydraulic study, such as HEC-RAS.

Erosion & Sedimentation Impacts

Goals:

- Minimize water quality impacts from erosion and sedimentation

Erosion & Sedimentation Impacts

Rules:

- 10.05 C (12)
- Appendix 1: 5 (b)
- Rhode Island Soil Erosion and Sediment Control Handbook (RISESCH) *

* Available at: <http://www.dot.state.ri.us/programs/enviro/>

Erosion and Sedimentation Impact Mitigation

- Provide E & S Control Program consisting of Narrative and Plans
- Include Perimeter Controls
- Provide temporary cover, permanent vegetative cover
- Provide for minimization of turbidity production at excavations into groundwater and at stream crossings
- Address Maintenance