

Wetlands 101

West Newbury Conservation Commission

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Image Credit: North Quabbin Photography

What is a Wetland?

It's all in the name, wetlands are wet land!

Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season.

The Three Components of Wetlands

1

Hydrology

The presence of water

2

Hydric Soil

Soils inundated long enough during the growing season that anaerobic (low-oxygen) conditions form.

3

Hydrophytic Vegetation

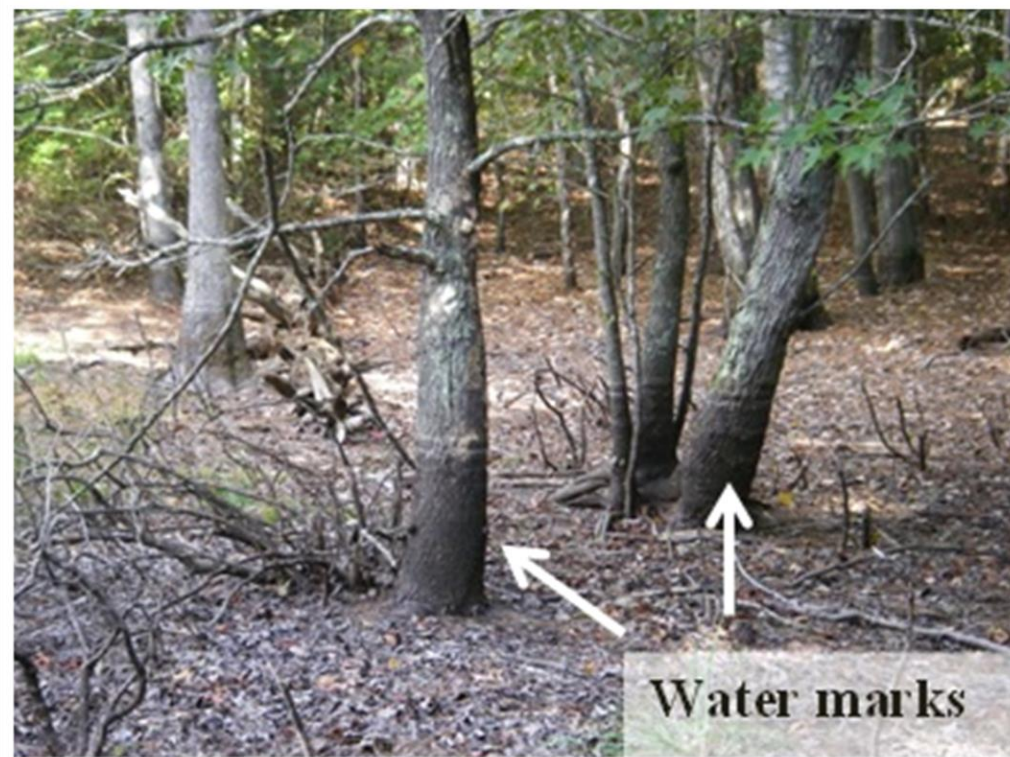
Wetland plants are hydrophytes, plants that love living in water.
hydro = water, phyte = plant

Hydrology

In the absence of observing water during the growing season, wetland scientists rely on indicators of hydrology

COMMON EXAMPLES OF HYDROLOGY

Image Credit: Research Gate, US ACOE



Water Marks



**High Water Table
(within 12" of surface)**



Water Stained Leaves

Hydric Soils

The anaerobic (low oxygen) conditions in hydric soils produce physical and chemical changes in the soil that are observable

COMMON FEATURES OF HYDRIC SOILS

Image Credit: Research Gate, Rozewood Environmental



Oxidized Rhizospheres



Redox Concentrations



Gleyed Soil

Hydrophytic Vegetation

Hydrophytes have adapted to growing in the anaerobic conditions associated with prolonged saturation or flooding

COMMON HYDROPHYTES IN WEST NEWBURY

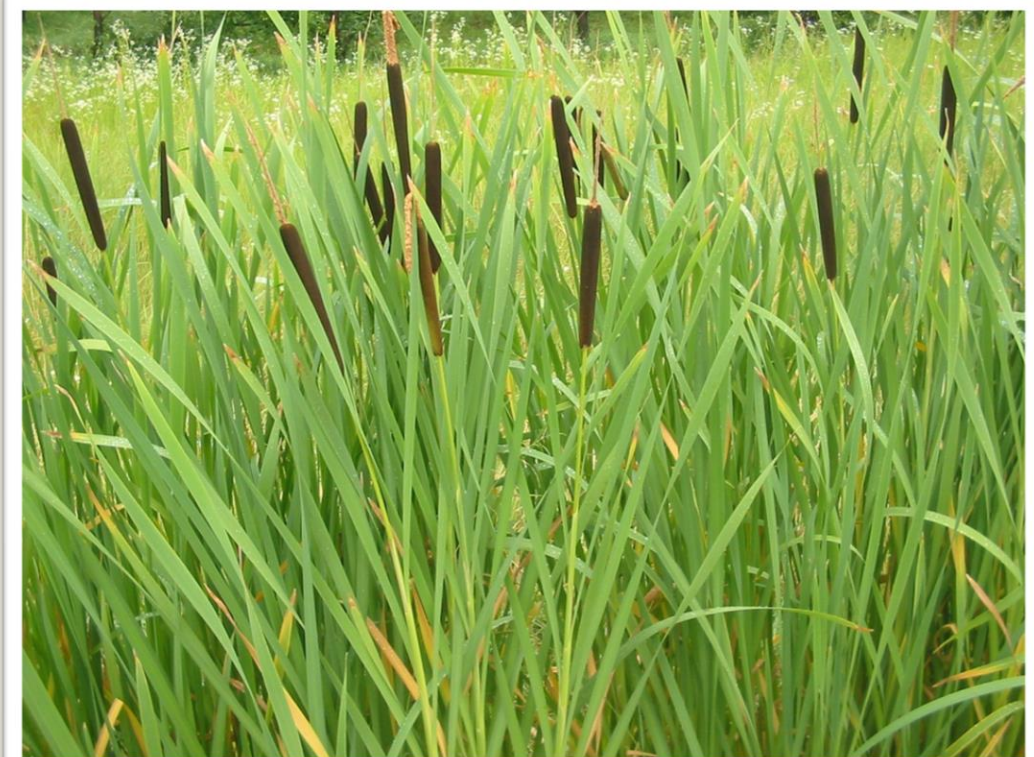
Image Credit: Kelly Nursery, GSW,, NC Univ.



Onoclea sensibilis
(sensitive fern)
FACW



Symplocarpus foetidus
(skunk cabbage)
OBL



Typha latifolia
(broadleaf cattail)
OBL

Wetlands Provide a Variety of Important Functions

Can you name some of these functions?



WILDLIFE HABITAT

- Breeding grounds for migratory birds
- Cover, food, and spawning grounds for fish
- Food, shelter, and water for upland mammals
- Breeding habitat for reptiles and amphibians



WATER QUALITY

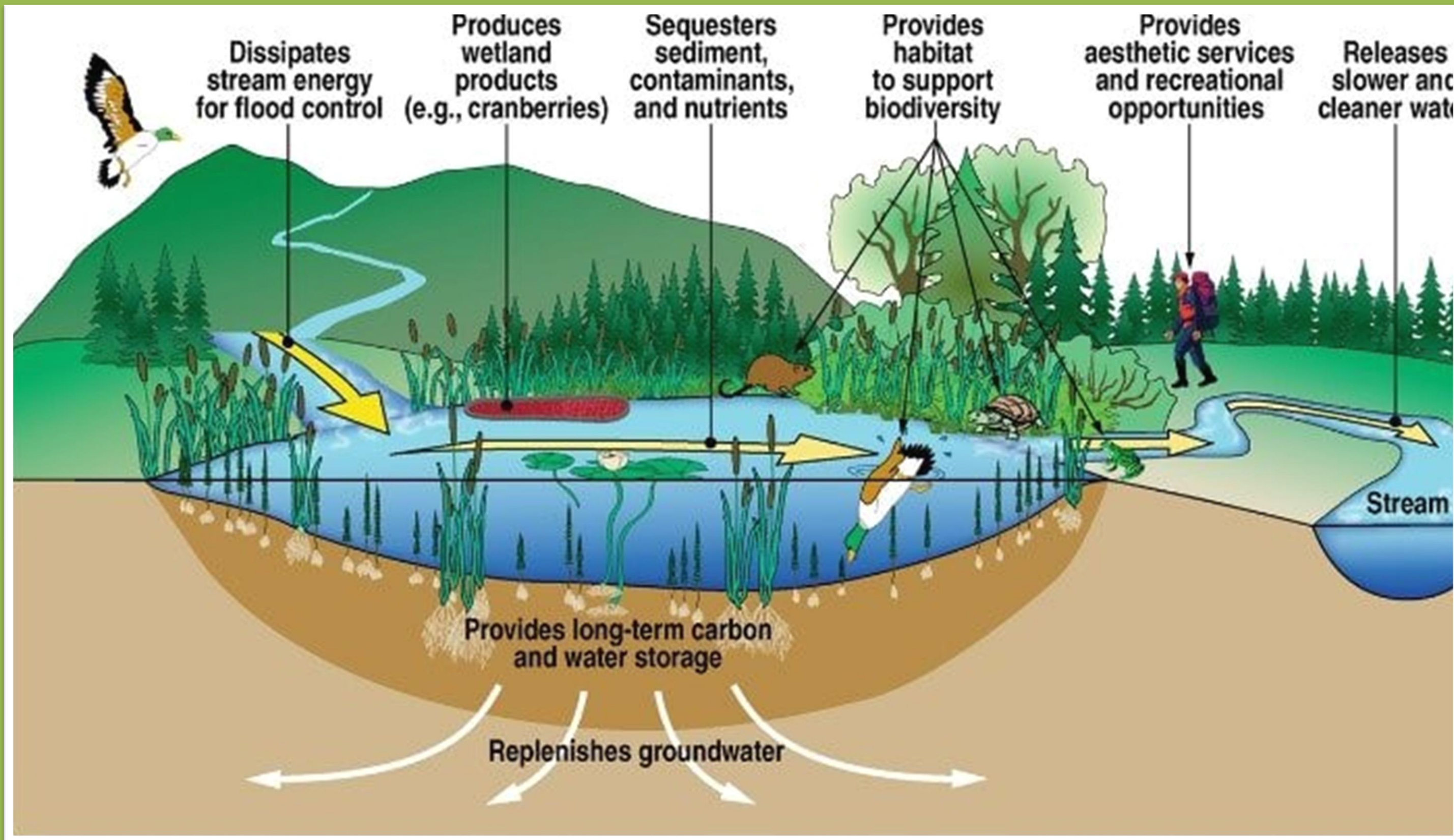
- Acting as “nature’s kidneys” wetlands filter water and remove pollutants as they slowly release water into the surrounding areas



CARBON STORAGE

- Wetlands plants capture carbon dioxide from the atmosphere during photosynthesis. When plants die the carbon in them is stored in the sediment locking it away for many years.

Wetland Functions



Wetlands Have Not Always Been Protected

The U.S. Fish and Wildlife service estimates that Massachusetts has lost 28 percent of its original wetlands over the 200-year period between the 1780's and the 1980's (Dahl, 1990). Agricultural and urban expansion in the Boston, Cape Cod, and Connecticut River Valley areas have caused many wetland losses (Motts and O'Brien, 1981).



Image Credit: The Nature Conservancy

Wetlands Protection in Massachusetts

1967

Massachusetts Conservation
Commission Act, G.L.
Chapter 40 Section 8a

1972

Massachusetts Wetlands
Protection Act, "the Act", G.L.
Chapter 131 Section 40

1996

Massachusetts Rivers
Protection Act amends the
Wetlands Protection Act

West Newbury Conservation Commission

- Five member board appointed by the Select Board
- One staff person – conservation agent
- Typically meets on the first and third Mondays of each month
- Meetings are open to the public

CONSERVATION COMMISSION: A THREE PART MISSION

1 WETLAND PROTECTION & PERMITTING

Oversees, administers,
and enforces the Act at
the local level

2 OPEN SPACE MANAGEMENT

Holds Conservation
Restrictions and real
property for open space
on behalf of the town

3 PUBLIC EDUCATION & ENGAGEMENT

Informs and educates the
public about wetlands,
natural resources, and
wetland permitting



Image Credit: Native Plant Trust

Eight Presumed Public Interests Provided by Wetlands



Image Credit: Mass Day Tripping

1. Protection of public and private water supply
2. Protection of groundwater supply
3. Flood control
4. Storm damage prevention
5. Prevention of pollution
6. Protection of land containing shellfish
7. Protection of fisheries
8. Protection of wildlife habitat

Areas Subject to Protection under the Act

- Any bank
- Any freshwater wetland
- Any coastal wetland
- Any beach
- Any dune
- Any tidal flat
- Any marsh
- Any swamp

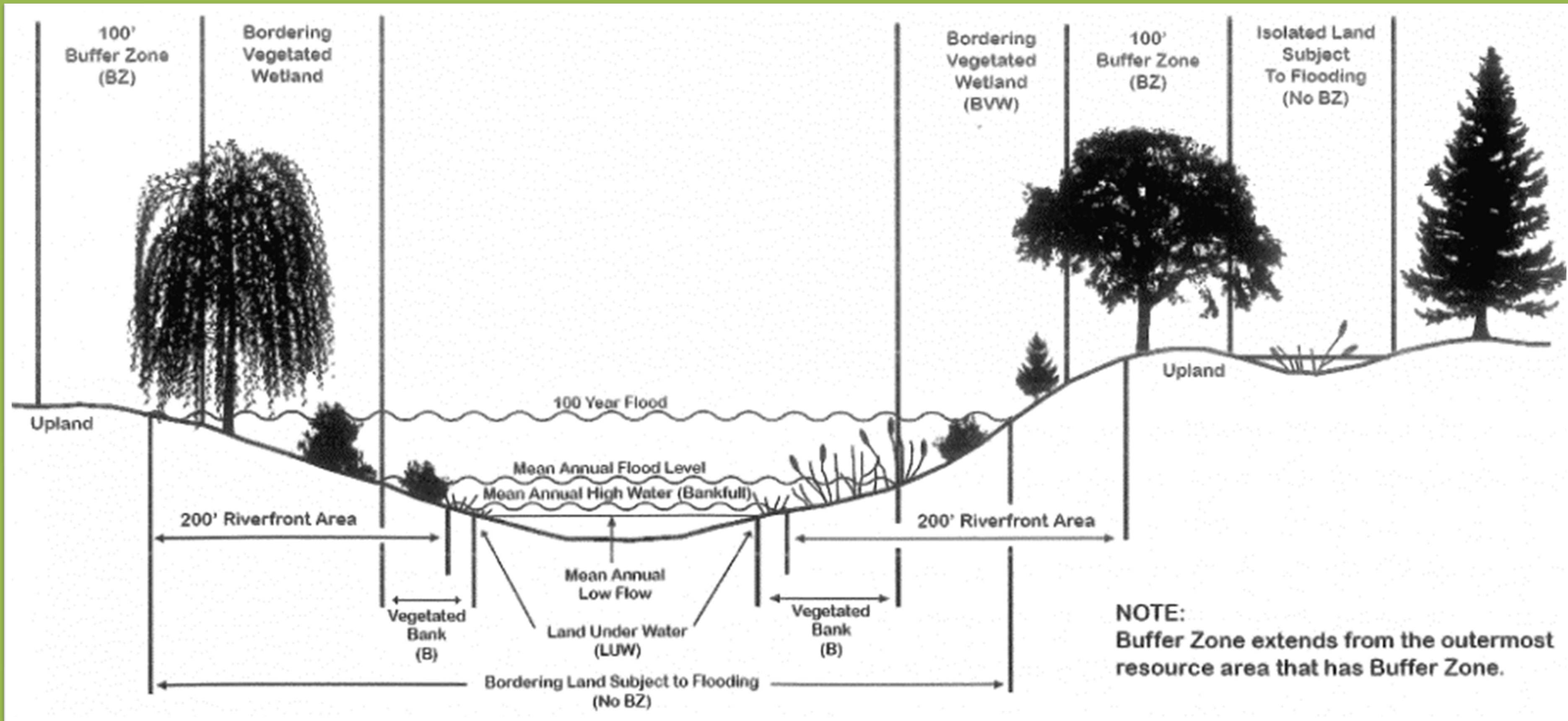
**BORDERING
ON:**

- The ocean
- Any estuary
- Any creek
- Any river
- Any stream
- Any pond
- Any lake

ALSO

- Land under any of the water bodies listed on the right
 - Land subject to tidal action
 - Land subject to coastal storm flowage
 - Land subject to flooding
 - An area extending 100 feet out from the edge of resource areas on the left known as the buffer zone
 - An area extending 200 feet out from the mean annual highwater line of any river or perennial (flowing year-round) stream known as the riverfront area
-

Protected Resource Areas and Buffer Zones



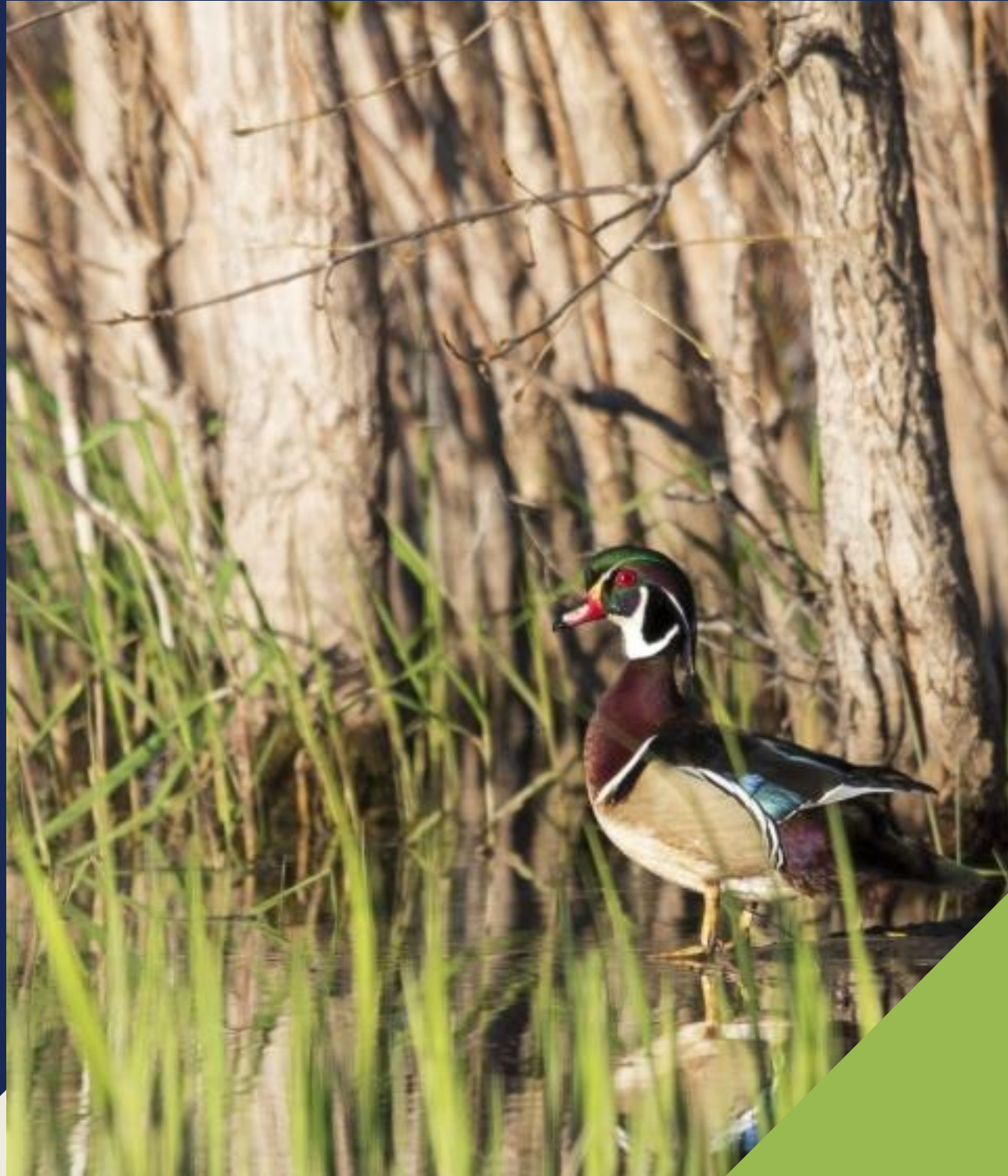


Image Credit: US FWS

What's Regulated Under the Act?

The Act states “**no person shall remove, dredge, fill, or alter**” any area subject to protection under the Act without first filing with the Commission.

The Regulations under the Act define “**alter**” as **changing the condition of any area subject to protection under the Act.**

Examples of alter include, but are not limited to:

- changing pre-existing drainage characteristics, flushing characteristics, salinity distribution, sedimentation patterns, flow patterns and flood retention areas;
- lowering the water level or water table;
- destruction of vegetation;
- changing the water temperature, biochemical oxygen demand (BOD), and other physical, biological or chemical characteristics of the receiving water.

What Must be done to Comply with the Act?

To ensure compliance with the Act, any person proposing to **“work” within 100 feet of a wetland or 200 feet of a river or perennial stream** must first reach out to the Conservation Commission.

The work will likely require a filing and issuance of a permit before it can commence.



Image Credit: NSRWA

Can you Think of Some Examples of “Work”?

INSTALLING A DOCK

- Installation of a new seasonal dock
- Construction of a boardwalk to a dock
- Clearing a path to a dock
- Placing fill, stones, or other material to create a path to an existing dock

CUTTING VEGETATION

- Lawn expansion
- Brush clearing
“Cleaning up” the woods
- Removal of invasive plants
- Cutting trees and vegetation to improve a view
- Cutting down dead trees

GRADING

- Grading to expand or replace a lawn or driveway
- Grading associated with the replacement of a septic system
- Grading to change a site’s drainage pattern

BUILDING

- New construction
- Construction of an addition
- Construction of a barn or garage
- Razing a house and rebuilding on an expanded foundation

THIS LIST IS NOT CONCLUSIVE

ANY WORK THAT WILL ALTER A RESOURCE AREA IS REQUIRED TO BE PERMITTED

How to Determine if your Proposed Work is Near Wetlands

CHECK ONLINE MAPS

- Wetlands are shown on the town's GIS mapping called MIMAP
- MassMapper, the state's GIS mapping also shows wetlands

CONTACT THE CONSERVATION COMMISSION

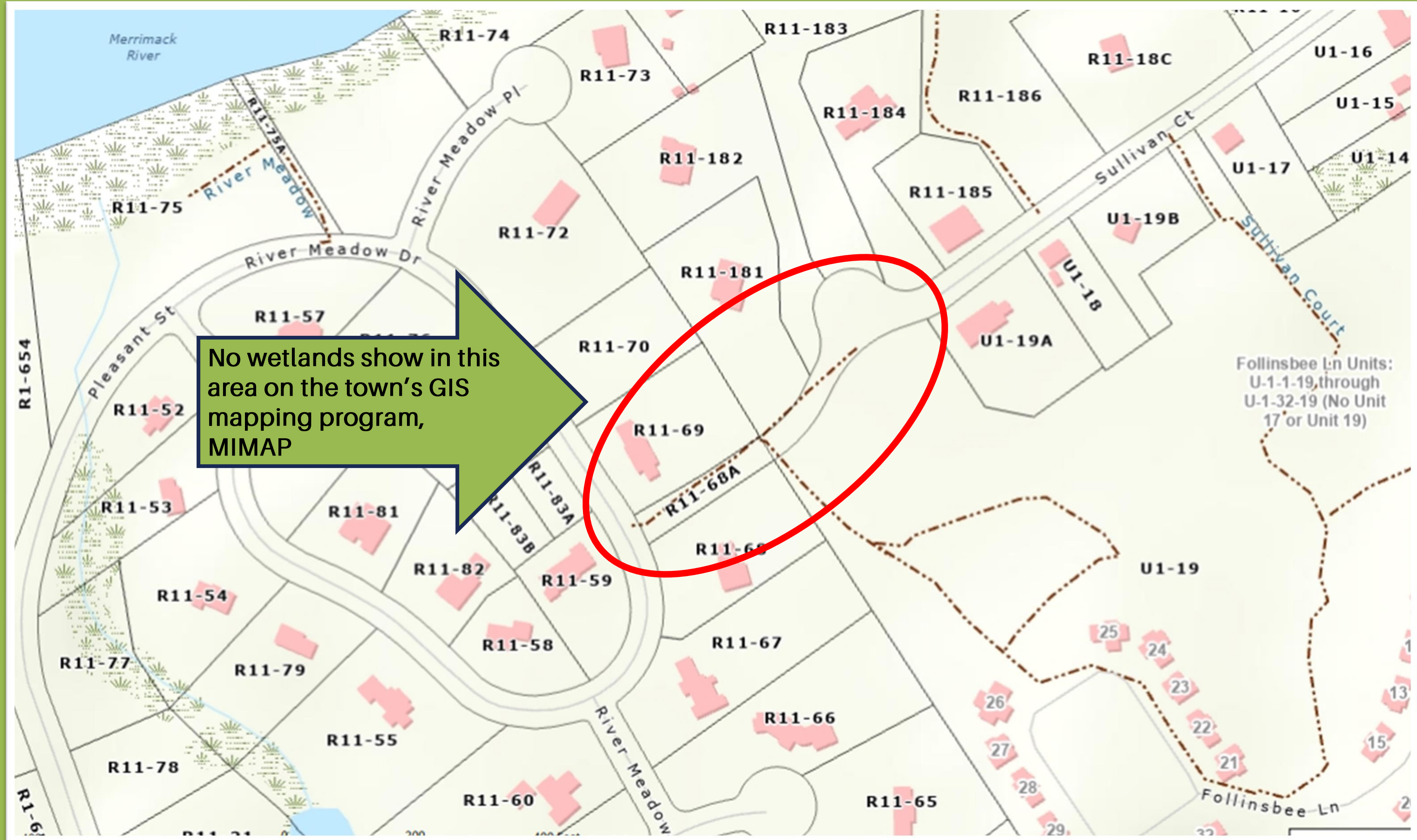
- The Commission is required to retain plans for all projects it permits. We may have a plan of your property or an abutting property that shows wetlands

HAVE THE PROPERTY DELINEATED

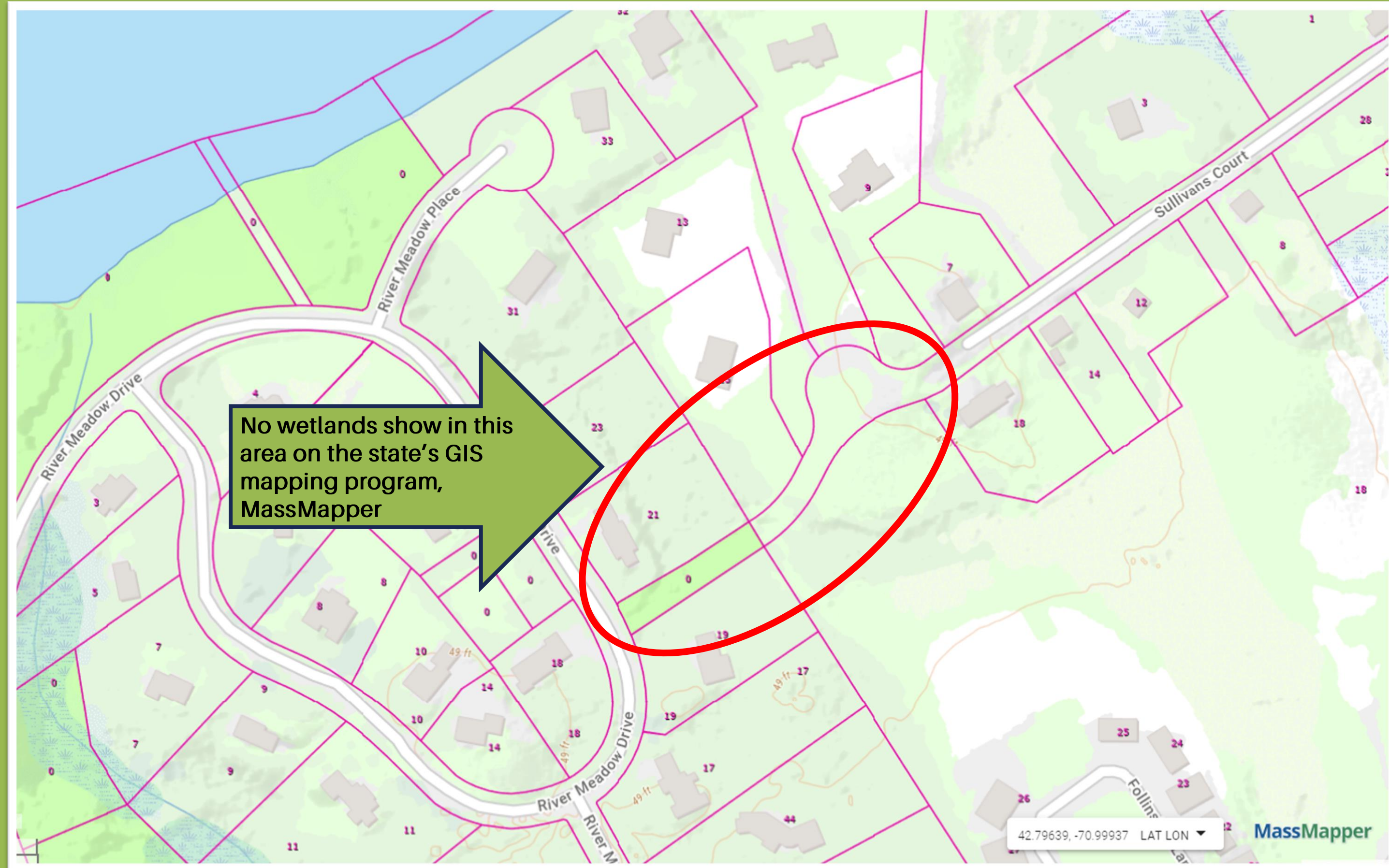
- A wetland scientist will look at hydrology, soils, and vegetation to determine the exact location of any wetlands on the property

← **LEAST TO MOST ACCURATE** →

A Caution on GIS Maps



A Caution on GIS Maps



A Caution on GIS Maps

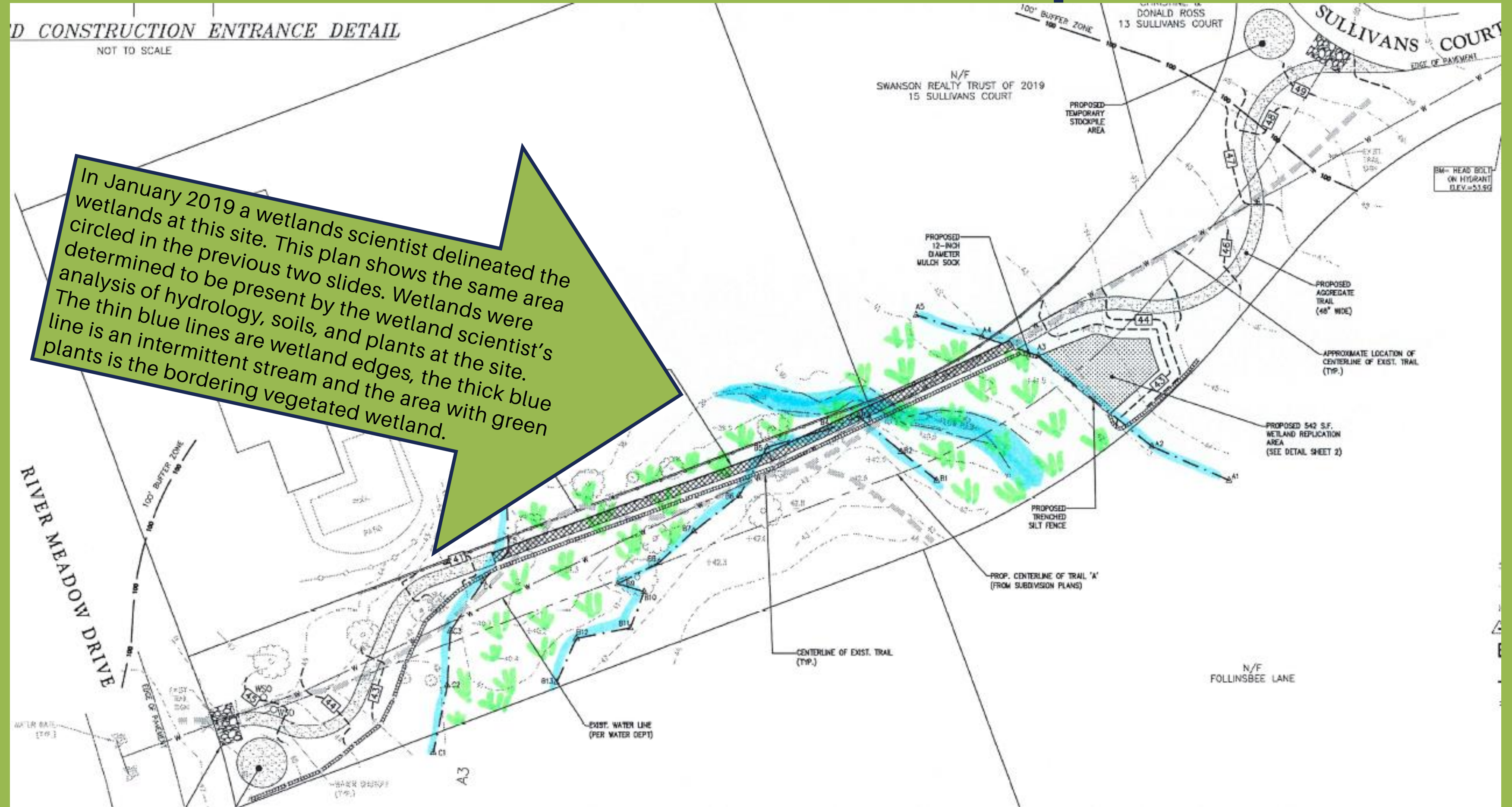




Image Credit: LinkedIn

Three Wetland Filing Types

ANRAD

ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION

- Confirm large or complex wetland delineations or delineations of multiple resource areas
- No work can be permitted through this filing
- Permit is called an Order of Resource Area Delineation (ORAD)

RDA

REQUEST FOR DETERMINATION OF APPLICABILITY

- Permit minor work in the buffer zone
- Permit most work that is occurring 50' or further away from the wetlands
- Permit is called a Determination of Applicability (DA or DoA)

NOI

NOTICE OF INTENT

- Permit major work in the buffer zone
- Permit most work 50' or closer to wetlands
- Permit most work in a resource area
- Permit work AND confirm a wetland delineation
- Permit is called an Order of Conditions (OOC)

The Filing & Permitting Process

DETERMINE THE FILING TYPE YOU NEED

- Contact the Commission to discuss your proposed work or project.
 - The Agent can help save you time and money by determining the best filing type for your project or work
 - Depending on the complexity of your project, you may wish to consider working with a wetlands consultant for the filing & permitting process

PREPARE YOUR FILING

- The Commission's website has forms and instructions on how to prepare your filing
- You will likely need the following:
 - A plan showing proposed work & resource area locations
 - A completed WPA form
 - Checks for filing fees
 - An abutter's list from the Assessor (for NOI & ANRAD filings only)

SUBMIT YOUR FILING

- The Commission's instructions indicate how many copies of the filing are needed
- Filings must be submitted to MA DEP at the same time they are submitted to the Commission
- If you haven't done so, send your abutter notifications (NOI & ANRAD only)

WHAT HAPPENS AFTER SUBMISSION

- The Agent will review your filing and contact you if any info is missing
- The Agent will prepare a legal ad for the Newburyport Daily News
- The Agent will place your filing on the next available agenda of the Commission
- You will need to pay the Daily News before they run your legal ad.

COMMISSION PERMITTING PROCESS

- At their meeting the Commission will review your filing & ask any questions they may have
- The Commission will likely ask to conduct a site visit & will ask your permission to continue until after a site visit
 - At the site visit the Commission will review resource area & proposed work locations
- At the next meeting the Commission will review the site visit & issue the permit or ask to continue again if more info is needed

Other Agencies

In addition to the Commission and MA DEP reviewing and permitting your proposed work, you may need to have your work permitted by other agencies which could include:

- The U.S. Army Corp. of Engineers
- The MA DEP Waterways Program
- The MA Natural Heritage and Endangered Species Program
- The EPA

The Conservation Agent can advise if it seems like you will need additional agencies to review and permit your proposed work or project.

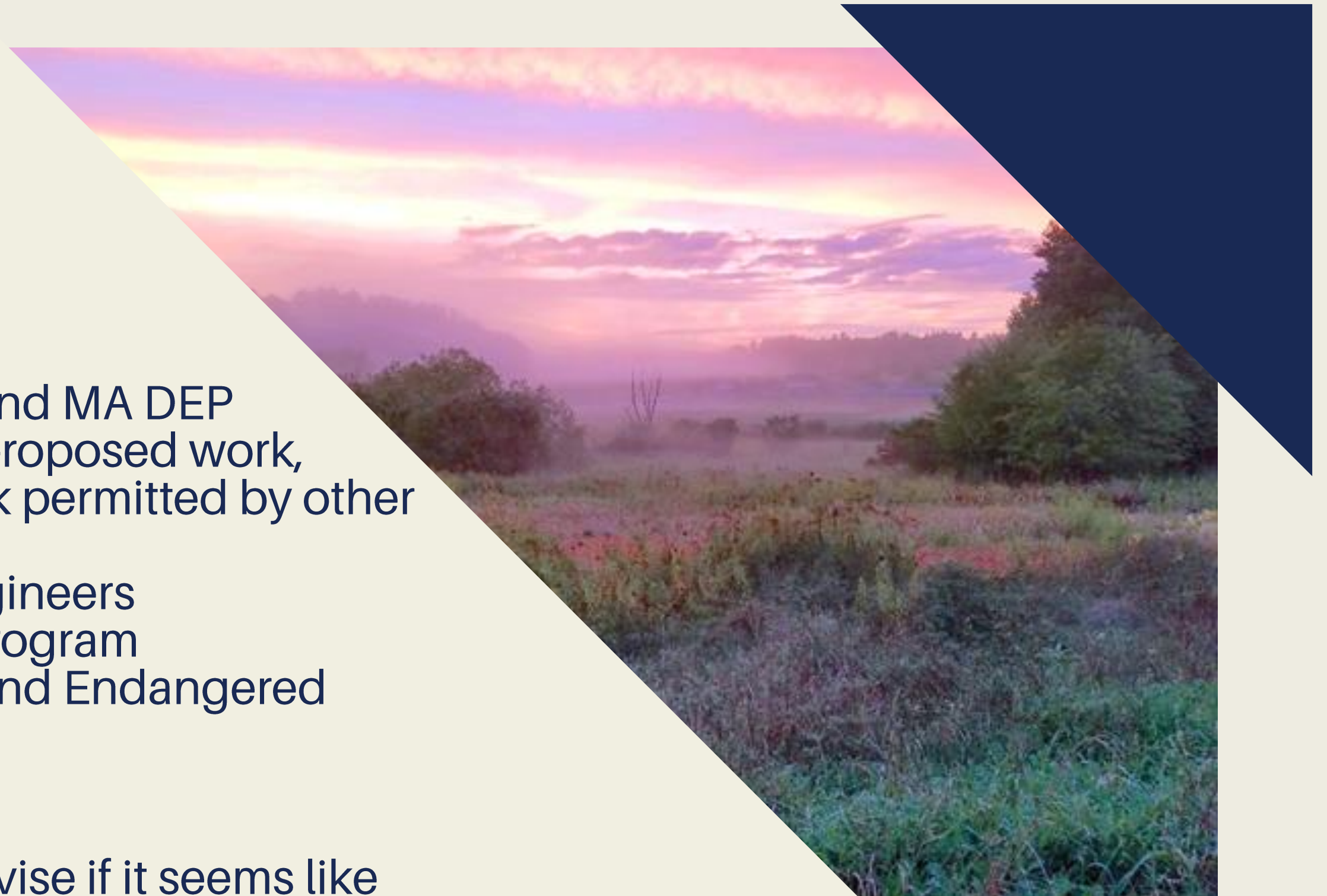


Image Credit: MACC

Conditions of Your Permit

Your permit will be issued with **conditions**.

- Conditions are issued to ensure the proposed work will not negatively impact resource areas or impact more resource areas than what have been approved in your permit;
- The Commission can intervene if conditions are not followed;
- Orders of Conditions typically have 3 sets of conditions: Standard Conditions & Special Conditions issued by the Commission and General Conditions issued by the MA DEP
- Some common conditions include, but are not limited to:
 - Installing erosion control before starting work;
 - Restrictions on the time of year work can be done;
 - Leaving the roots & stumps of cut trees;
 - Notice to the commission 72 hours before work starts

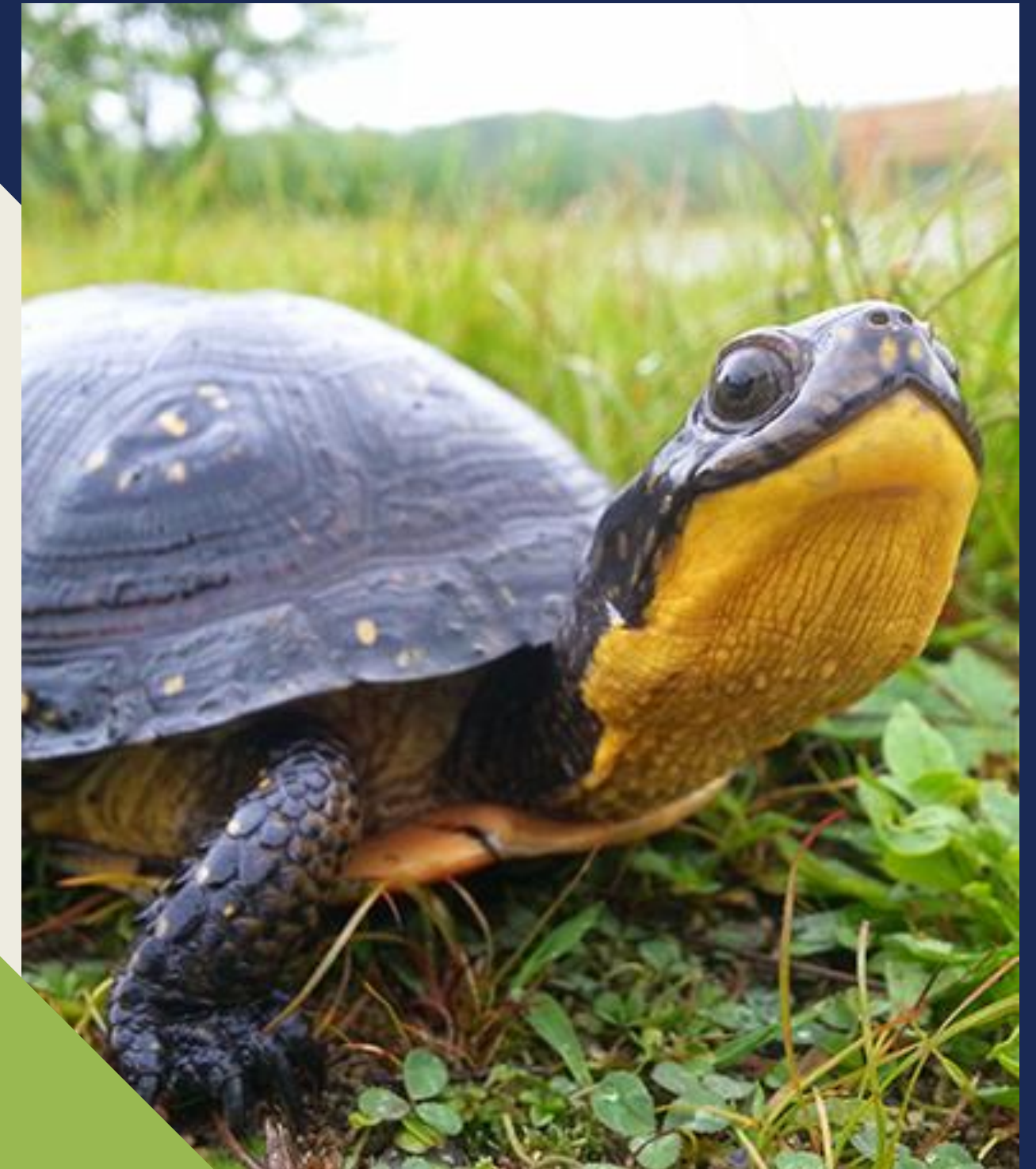


Image Credit: College of Veterinary Medicine

You Have a Permit!Now What?

OOC

ORDER OF CONDITIONS

- 10 day appeals period before work can start
- Must be recorded at the Registry of Deeds before work can start
- Familiarize yourself with conditions and ensure they are followed
- Ensure all contractors have a copy of the OOC and are aware of all Conditions
- At the end of the project or if no work is ever done, get a Certificate of Compliance to close out the OOC and remove it from title

DoA

DETERMINATION OF APPLICABILITY

- 10 day appeals period but can start work sooner at your own risk
- Ensure you and any contractors are familiar with and follow any issued conditions
- No "formal" close out at end of work, no Certificate of Compliance needed

**Permits are only valid for approved work.
Additional work in resource areas or buffer zones
will require a new permit**

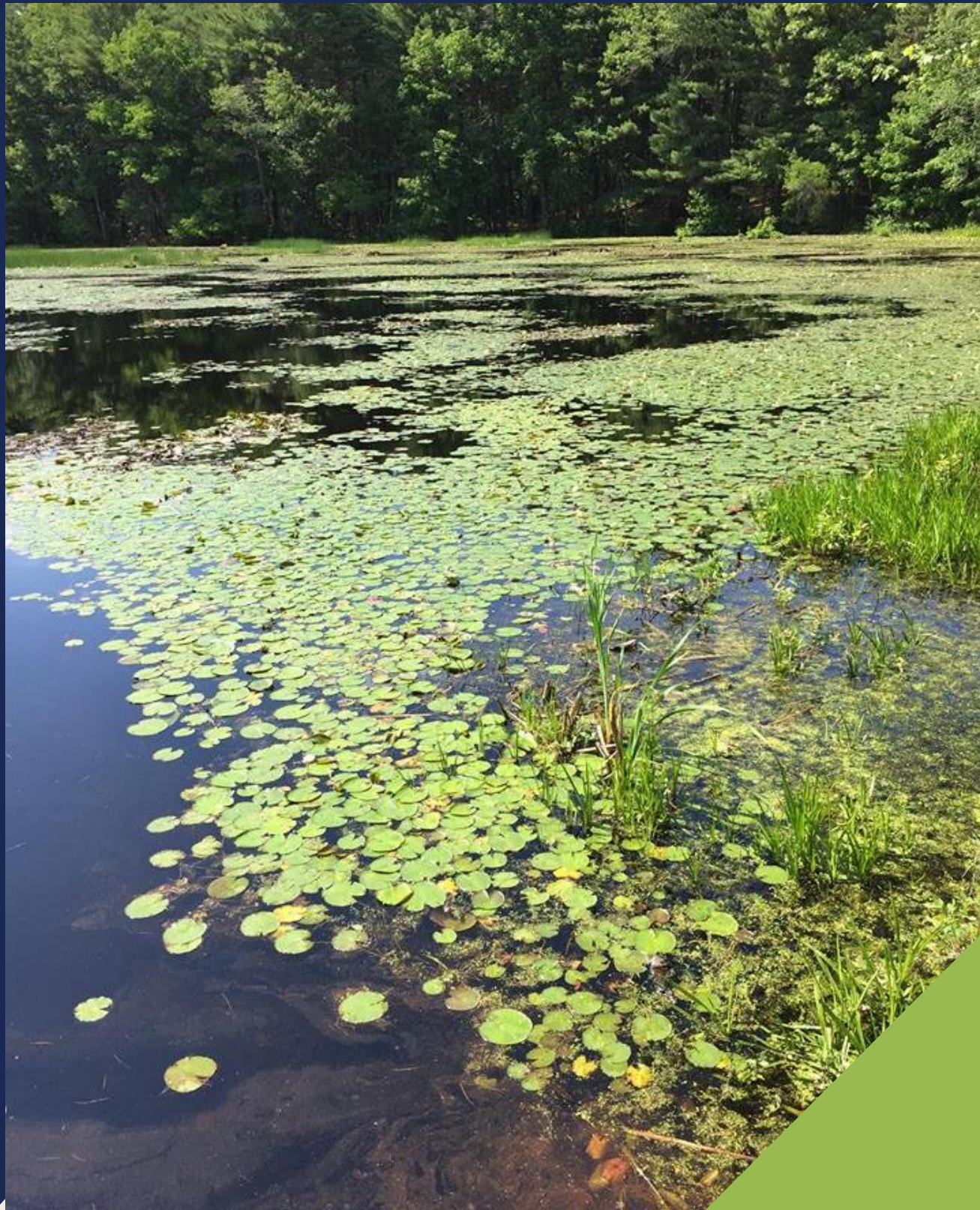


Image Credit: Protect Sudbury

What Happens if You Don't Get a Permit or Don't Follow Your Permit's Conditions?

VIOLATION LETTER

- Only if work appears minor
- Asks that work is stopped & that you appear before the Commission at their next meeting

ENFORCEMENT ORDER

- Formal order to cease & desist work
- MA DEP can intervene, take control of enforcement, and issue fines up to \$25,000 per day for each violation of the Act

RESTORATION

- If work is not permissible under the Act, the Commission or MA DEP can require the resource area(s) or buffer zone(s) to be restored
- Restoration may be required to be done by a wetlands scientist with site monitoring

AFTER-THE-FACT FILING

- If work is permissible under the Act, Commission or MA DEP can require an after-the-fact filing
- No additional work until a permit is issued
- May still need to restore resource areas or buffer zones
- Permit will have conditions that must be followed

COC NOT ISSUED

- If work deviates significantly from the plan approved or the conditions issued in an OOC, the Commission can move to not issue a COC until the property is brought into compliance

Where Can You Get More Information?

Contact the Conservation Agent:

Phone: 978-363-1100 x126

Email: conservation@wnewbury.org

WNCC webpage:

www.wnewbury.org/conservation-commission

MA DEP website:

www.mass.gov/wetlands-protection

The town's GIS map, MIMAP:

www.mimap.mvpc.org/map/index.html?viewer=westnewbury

The state's GIS map, MassMapper:

www.maps.massgis.digital.mass.gov/MassMapper/MassMapper.html



Image Credit: Unknown

Works Cited

- Dahl, T.E., 1990, Wetlands-Losses in the United States 1780's to 1980's: Washington, D.C., U.S. Fish and Wildlife Service Report to Congress, 13 p.
- Motts, W.S., and O'Brien, A.L., 1981, Geology and hydrology of wetlands in Massachusetts: University of Massachusetts, Water Resources Research Center Publication 123, 147 p.



Image Credit: ???