



LANDSCAPE DESIGN FOR WETLANDS

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WETLANDS 101



VALUES, FUNCTIONS & BENEFITS OF A WETLAND SYSTEM

Floodwater storage

Water quality improvement

Wildlife habitat

Recreation, fishing and farming

TYPES OF WETLANDS

BORDERING VEGETATED WETLAND (BVW)

RIVERS & STREAMS

LAKES, PONDS & VERNAL POOLS

COASTAL SHORES & MARSHES

Fun Facts about Wetlands

An acre of wetland can store 1–1.5 million gallons of floodwater

Up to one-half of North American bird species nest or feed in wetlands

Although wetlands keep only about 5 percent of the land surface in the conterminous United States, they are home to 31 percent of our plant species

Massachusetts Wetland Protection Act

- **1963:** The Massachusetts Wetlands Protection Act (WPA) was established to safeguard wetlands and associated resource areas from negative impacts of development.
- **1972:** The Act was codified, reinforcing the protected status of wetlands and establishing buffer zones.
- **1996:** The Rivers Protection Act was introduced, creating additional protections for riverfront areas, which are administered under the WPA.

Conservation Commissions

- **1957:** The Conservation Commission Act authorized municipalities to create conservation commissions to oversee the protection of open spaces and wetlands, allowing communities to acquire land for conservation purposes.
- **1963:** The Massachusetts Wetlands Protection Act gave local Conservation Commissions the authority to issue permits in accordance with the Act.
- Commissions (or ConCom) consist of 3-7 volunteer members
- Public meetings and hearings typically occur 1-2 times per month
- Most municipalities have also enacted Wetland Protection Bylaws with more detailed regulations, also administered by the local ConsCom

Resource Area

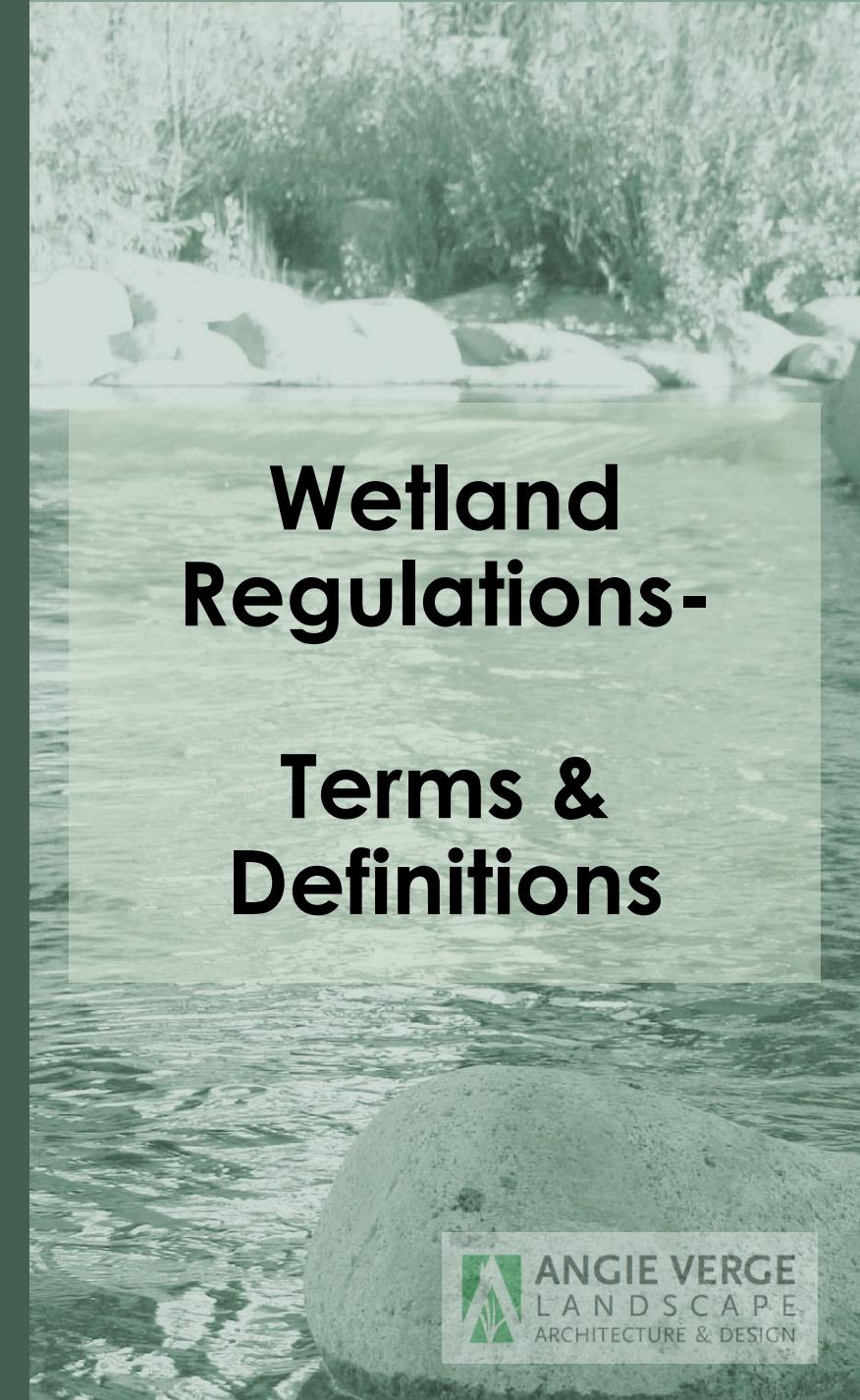
- A designated zone where water is present at or near the surface of the soil for significant periods, supporting a variety of plant and animal life adapted to these saturated conditions.

Jurisdiction

- Refers to the legal authority to regulate wetlands under specific laws. Wetlands are considered jurisdictional if they meet certain criteria, such as being adjacent to navigable waters or having a significant connection to them.

Buffer Zone

- The area surrounding a wetland that helps protect it from negative external influences. This zone enhances the wetland ecological functions, supports biodiversity, and improves water quality by filtering runoff before it enters the wetland.



Wetland Regulations- Terms & Definitions

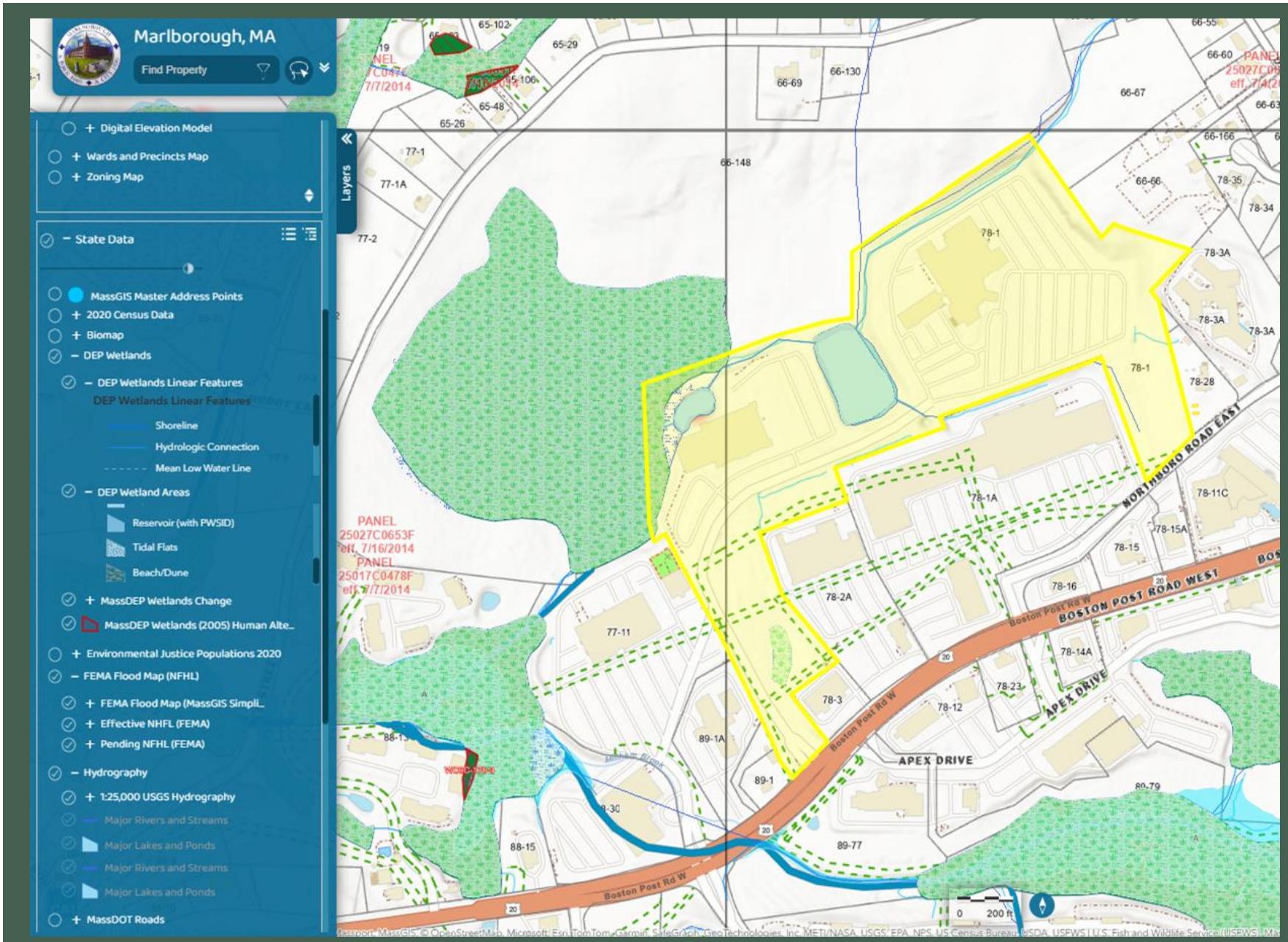
BUFFER ZONES - Typical



Rivers and perennial streams have a protected Riverfront Area of 200 ft to either side of the Mean Annual High-Water Mark.

(for Swamps, Vernal Pools, Bogs, Wet Meadows, Marshes, Ponds, Lakes, Banks, Bordering and Isolated Vegetated Wetlands and others)

WHERE DO I EVEN START?



Step 1:

Check the maps

241 Boston Post Rd.
Marlborough, MA

- Town of Marlborough Assessor Database/GIS Map
- Turn on layers that pertain to water



Step 2: Notify The Client

- Explanation of local, state and federal laws
- Permission to speak to the Municipal conservation department

Create a Website Account - Manage notification subscriptions, save form progress and more.

Website Sign In

Marlborough
MASSACHUSETTS

GOVERNMENT DEPARTMENTS SERVICES HOW DO I...

[Community Garden](#)

[Conservation Commission Facebook Page](#)

[Environmental Organizations](#)

[Green Community Sustainability Efforts](#)

[Native Pollinator Gardens](#)

[Open Space Plan](#)

[Stream Team Reports](#)

[Trail Maps](#)

[Wetland Permit Forms](#)

[Home](#) | [Government](#) | [Boards & Committees](#) | [Conservation Commission](#)

Conservation Commission

Meetings

- 7 pm
- 1st and 3rd Thursdays of the Month
- City Hall
140 Main Street
Marlborough, MA 01752

Agendas & Minutes

Agendas are available prior to the meetings. Minutes are available following approval.

[View Most Recent Agendas and Minutes](#)

Members

- Edward Clancy, Chair
- Elizabeth Austin
- William Dunbar
- John Skarin
- Dave Williams
- Allan White
- Robert McCabe

Staff

- [Priscilla Ryder](#), Conservation Officer
- [Craig Sullivan](#), Administrative Assistant

Overview

The Conservation Commission is a seven-member board of dedicated volunteers appointed by the Mayor.

The Conservation Commission's mission is to protect the natural resources of Marlborough, including both the wetlands and natural open spaces. Tasks include administering the Massachusetts Wetlands Protection Act, undertaking land acquisition, managing conservation land, and offering public education and participation on environmental issues.

Open space increases the quality of life for all residents: a healthy environment provides clean water, clean air, recreation, and increased property values. Protecting land around water supplies helps to keep our drinking water clean. The Commission permits and oversees the construction of projects within 100 feet of wetlands, or 200 feet from rivers, to ensure that the wetlands are protected from siltation or contamination due to the adjacent construction.

Cider Knoll Conservation Area
Beaver Dam



[Contact Us](#)

Priscilla Ryder
Conservation Officer
[Email Priscilla Ryder](#)
Phone: [508-460-3768](#)

Conservation Commission
Physical Address [View Map](#)
140 Main Street
Marlborough, MA 01752

[Directions](#)
Phone: [508-460-3768](#)
Fax: 508-460-3638

Hours of Operation
Monday through Friday
9 am to 5 pm

[Directory](#)

Calendar

December 2025						
SUN	MON	TUE	WED	THU	FRI	SAT
30	1	2	3	4	5	6
7	8	9	10	11	12	13

Step 3:

Contact the Conservation Department

- Let them know the status of the project and general scope of work
- Ask what type of permit would be required and the submittal requirements

Step 4:

Assemble the Wetland Team

Engineering Team (surveyor; wetland scientist; civil engineer)

Design Team (Landscape Architect, Designer or Horticulturist)

Landscape Contractor

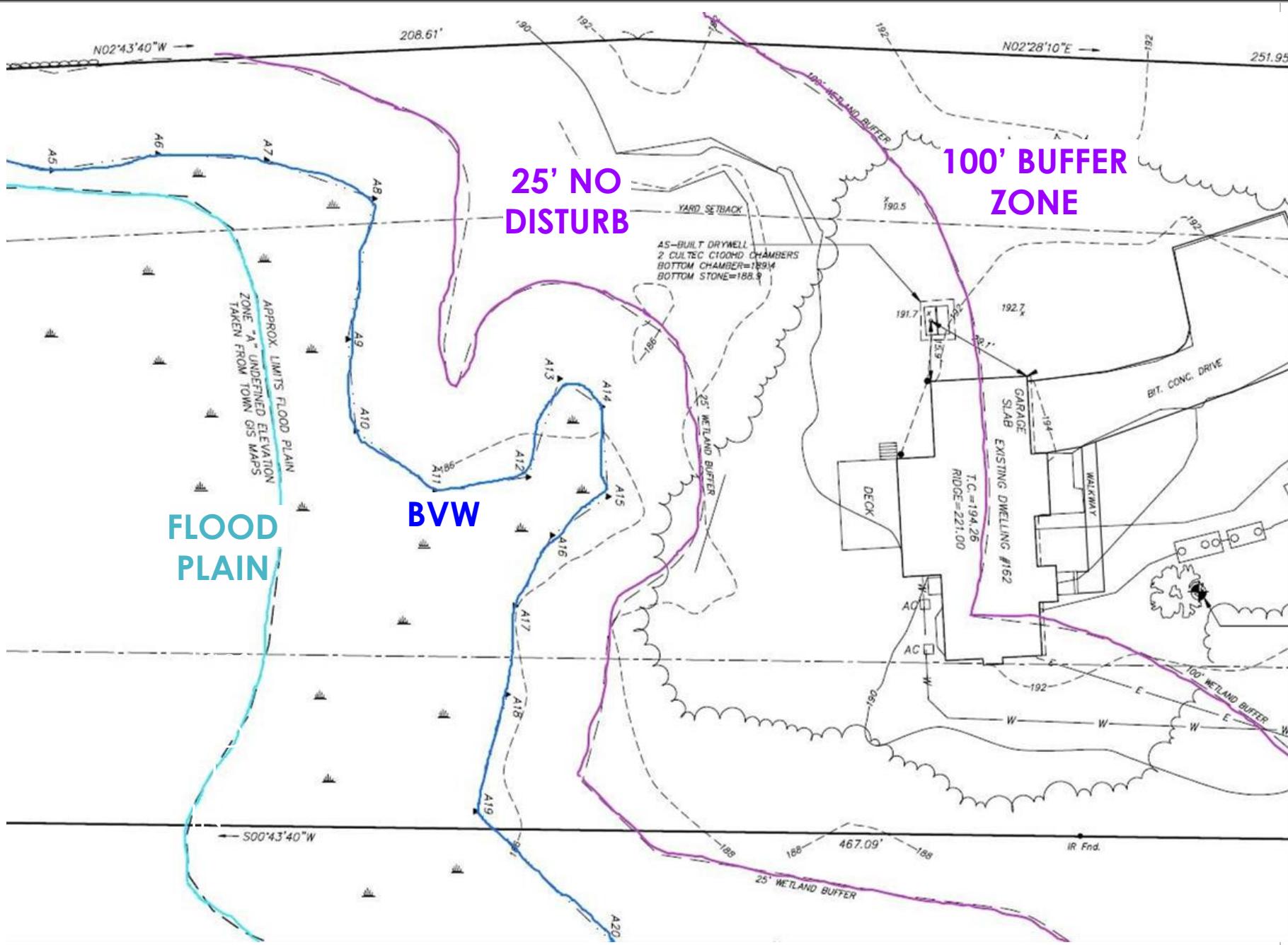
You'll need:

- 1. Wetland scientist to delineate or “flag” the wetland
- 2. Surveyor to create an existing conditions plan and map the wetland flags onto the plan. Include limited topography.
- 3. Environmental consultant or civil engineer to prepare the site plan and file the Wetland permit application (known as Notice of Intent).
- 4. These professionals, depending on the size of the project, can cost \$1,500 - \$3,500+

Step 5:

Engineering,
Wetland
Flagging &
Site Survey

Call a firm that
has experience
working in your
town or city



Step 6:

Obtain the Survey

PDF or CAD file
should be used as
your base layer

THE LANDSCAPE PLAN

SITE PREPARATION

Sediment Control & Limit of Work

- Straw Bales
- Siltation Fence
- Filter Sock with Compost

✗ Avoid straw wattles with plastic netting!



Tree Removal

- Remove large trees using a crane
- Leave stumps in place - flush cut
- Consider leaving 10' snags
- Replace the trees being removed



Stockpile Areas & Tree Protection

- Designate a stockpile area for bulk materials/debris
- Mark off limit of work
- Protect critical root zones of existing trees



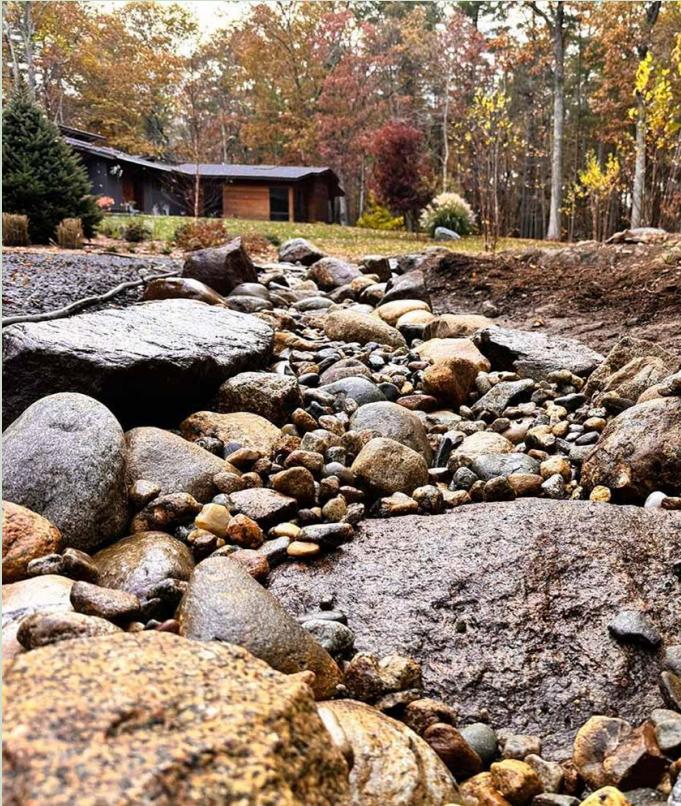
THE LANDSCAPE PLAN

SITE PREPARATION

DESIGN ELEMENTS & MATERIALS

Stormwater Management

- Managing downspouts & roof runoff
 - Gravel Drip Strips
 - Drywells
- Rain gardens & swales



Hardscapes & Paving

- Permeable paving and gravel
- Dry stacked walls with gaps for wildlife
- Footings for decks and sheds



Fences

- Demarcate “no disturb zones”
- Allow wildlife passage
- Larger openings and gaps



Boulders & Permanent Bounds

- Demarcate buffer zones with boulders
- Stone, concrete or Feno Markers
- Prevents encroachment on future projects



THE LANDSCAPE PLAN

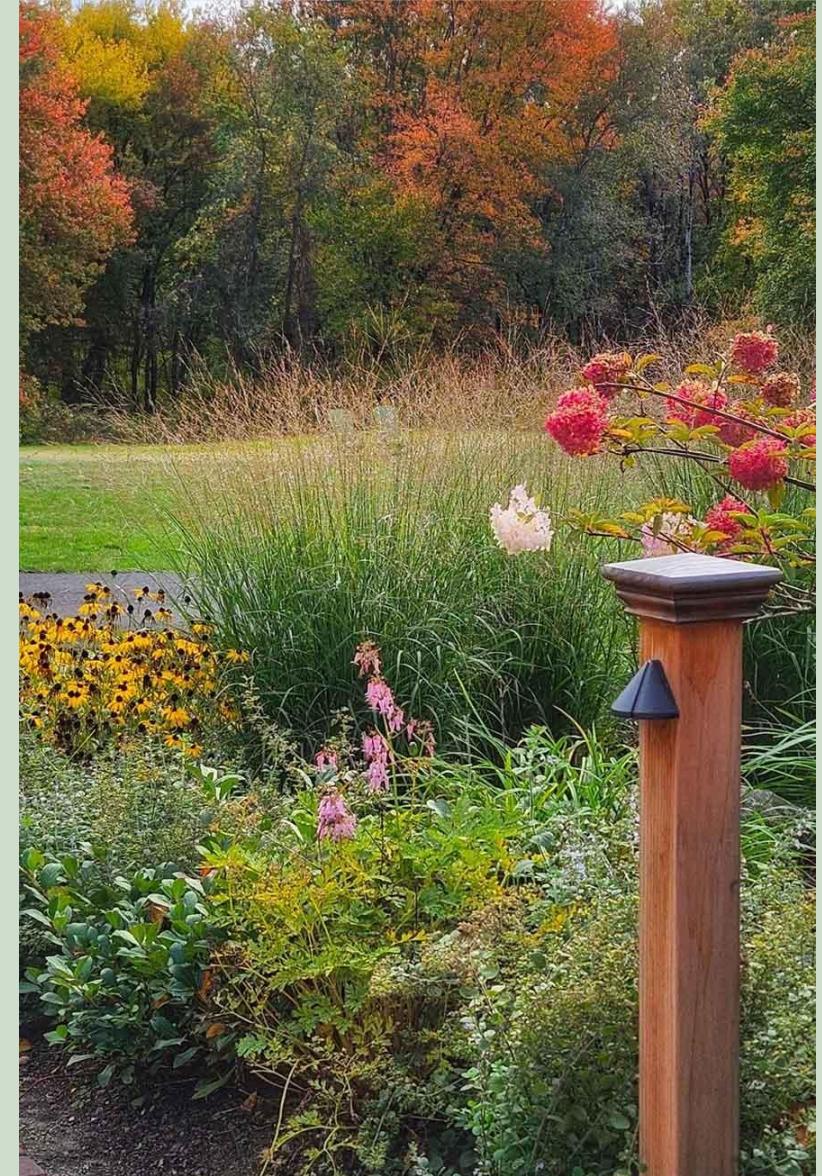
SITE PREPARATION

DESIGN ELEMENTS & MATERIALS

PLANTS

Planting Plan

- Consider site existing conditions (soil moisture, sun exposure, wildlife browsing)
- In jurisdictional areas, use only native species
- List native region on plant list



Plant Source Lists

- Go Botany at Native Plant Trust website
- Municipal Approved Plant List
- MA Natural Heritage Vascular Plant List - Native list by county

Native Plant Trust
GO BOTANY Discover thousands of New England plants

Home Simple Key PlantShare Full Key Dichotomous Key Teaching Help

You are here: Simple Key > Woody plants > Broad-leaved woody plants > *Clethra alnifolia*

***Clethra alnifolia* – coastal sweet-pepperbush**

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Facts

Coastal sweet pepperbush is primarily a member of the tall shrub layer of coastal swamps, where it can attain moderate densities as it proliferates from stolons. Praised for its fragrant, bottle-brush blooms of white flowers that attract many pollinators, as well as its easy growth and pleasing shape, this shrub is a good choice for moister garden borders.

Habitat

Ridges or ledges, shores of rivers or lakes, swamps, woodlands

New England distribution
 Adapted from BONAP data
 Native county documented

North America distribution
 Adapted from BONAP data

about the labels on this map
 Found this plant? Take a photo and post a sighting.

enlarge

CARLISLE CONSERVATION COMMISSION - APPROVED PLANT LIST for JURISDICTIONAL PROJECTS

TYPE	BOTANICAL NAME	COMMON NAME	FORESTED		BANKS & WATER'S EDGE		UNDER WATER INDICATOR	WETLAND STATUS
			DRIER UPLAND	WETLANDS & SHADE	WET, SUNNY MEADOWS	(>1' DEEP)		
Deciduous Trees	<i>Acer rubrum</i>	Red Maple	x	x	x	x	FAC	
	<i>Acer saccharinum</i>	Silver Maple	x	x	x	x	FACW	
	<i>Benthamidia (Cornus) florida</i>	Flowering Dogwood	x	x	x		FACU	
	<i>Betula nigra</i>	River Birch	x		x	x	FACW	
	<i>Betula papyrifera</i>	Paper Birch	x				FACU	
	<i>Hamamelis virginiana</i>	Witch-Hazel	x	x			FAC-	
	<i>Nyssa sylvatica</i>	Sweet Gum	x	x	x	x	FAC	
	<i>Quercus alba</i>	White Oak	x	x	x		FACU	
	<i>Quercus rubra</i>	Red Oak	x	x	x		FACU-	
Evergreen Trees	<i>Juniperus virginiana</i>	Eastern Red Cedar	x		x		UPL	
	<i>Pinus strobus</i>	White Pine	x	x	x		FACU	
	<i>Tsuga canadensis</i>	Eastern Hemlock	x	x			FACU	
Evergreen Shrubs	<i>Juniperus horizontalis</i>	Prostrate Juniper	x		x		FACU	
	<i>Kalmia latifolia</i>	Mountain Laurel	x	x	x		FACU	
Shrubs	<i>Amelanchier canadensis</i>	ShadBush	x	x	x		FAC	
	<i>Cephaelanthus occidentalis</i>	Buttonbush	x	x	x	x	OBL	
	<i>Clethra alnifolia</i>	Sweet Pepper Bush	x	x	x	x	FAC+	
	<i>Comptonia peregrina</i>	Sweet Fern	x		x		UPL	
	<i>Corylus americana</i>	American Hazelnut	x	x	x	x	FACU-	
	<i>Ilex verticillata</i>	Winterberry Holly	x		x	x	FACW+	
	<i>Lindera benzoin</i>	Spice Bush	x		x	x	FACW-	
	<i>Photinia (Aronia) arbutifolia</i>	Red Chokeberry	x		x		FACW	
	<i>Photinia (Aronia) melanocarpa</i>	Black Chokeberry	x		x		FAC	
	<i>Rhododendron viscosum</i>	Swamp Azalea		x	x	x	OBL	
	<i>Swida (Cornus) racemosa</i>	Grey Dogwood	x	x	x	x	FAC	
	<i>Swida (Cornus) sericea</i>	Red Osier Dogwood	x	x	x	x	FACW+	
	<i>Vaccinium angustifolium</i>	Low Bush Blueberry	x	x	x		FACU-	
	<i>Vaccinium corymbosum</i>	High Bush Blueberry	x	x	x	x	FACW	

Additional Ideas

- Removal of lawn to create plant beds instead
- Removal of invasive plants
- Native Seed Mixes



THE LANDSCAPE PLAN

SITE PREPARATION

DESIGN ELEMENTS & MATERIALS

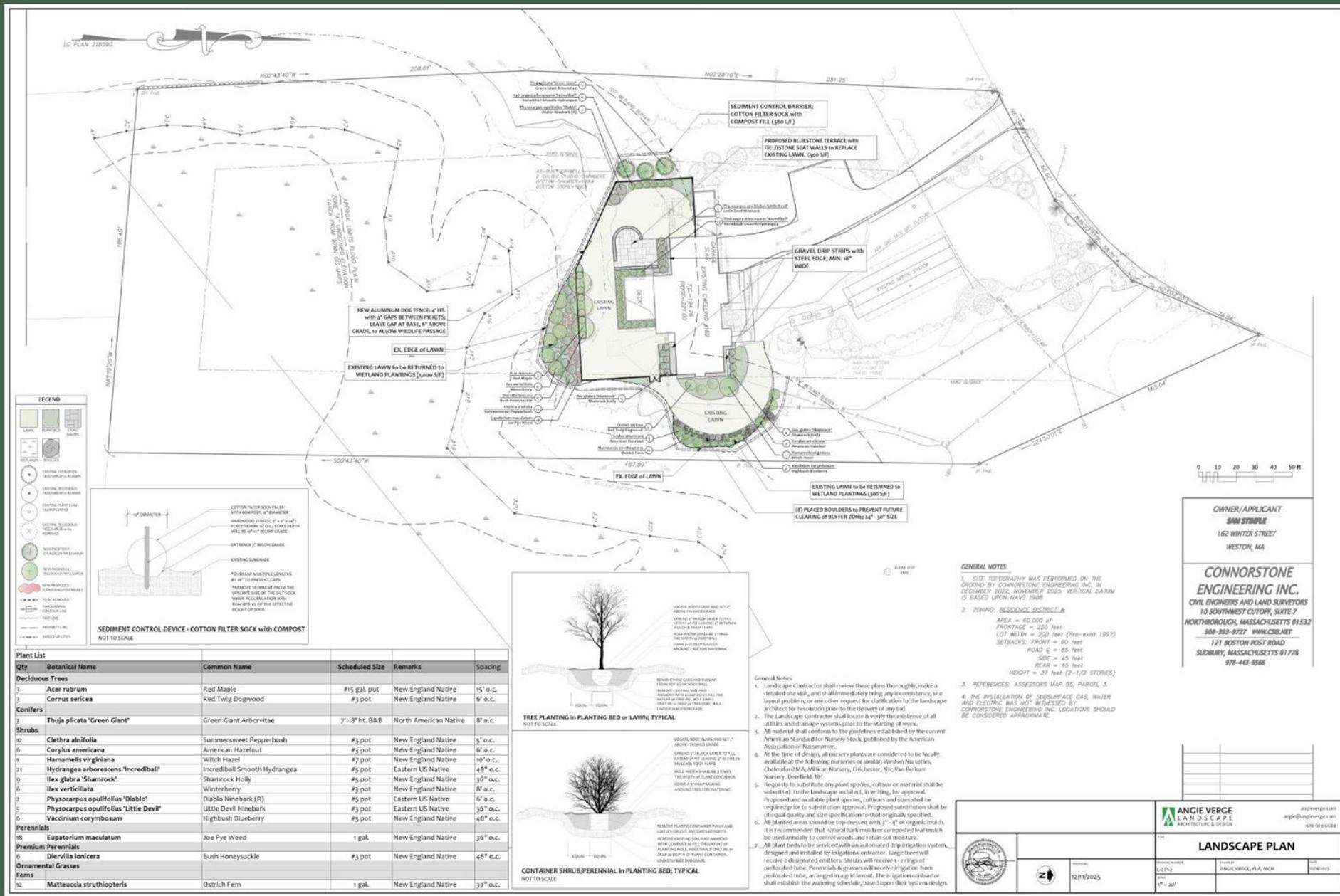
PLANTS

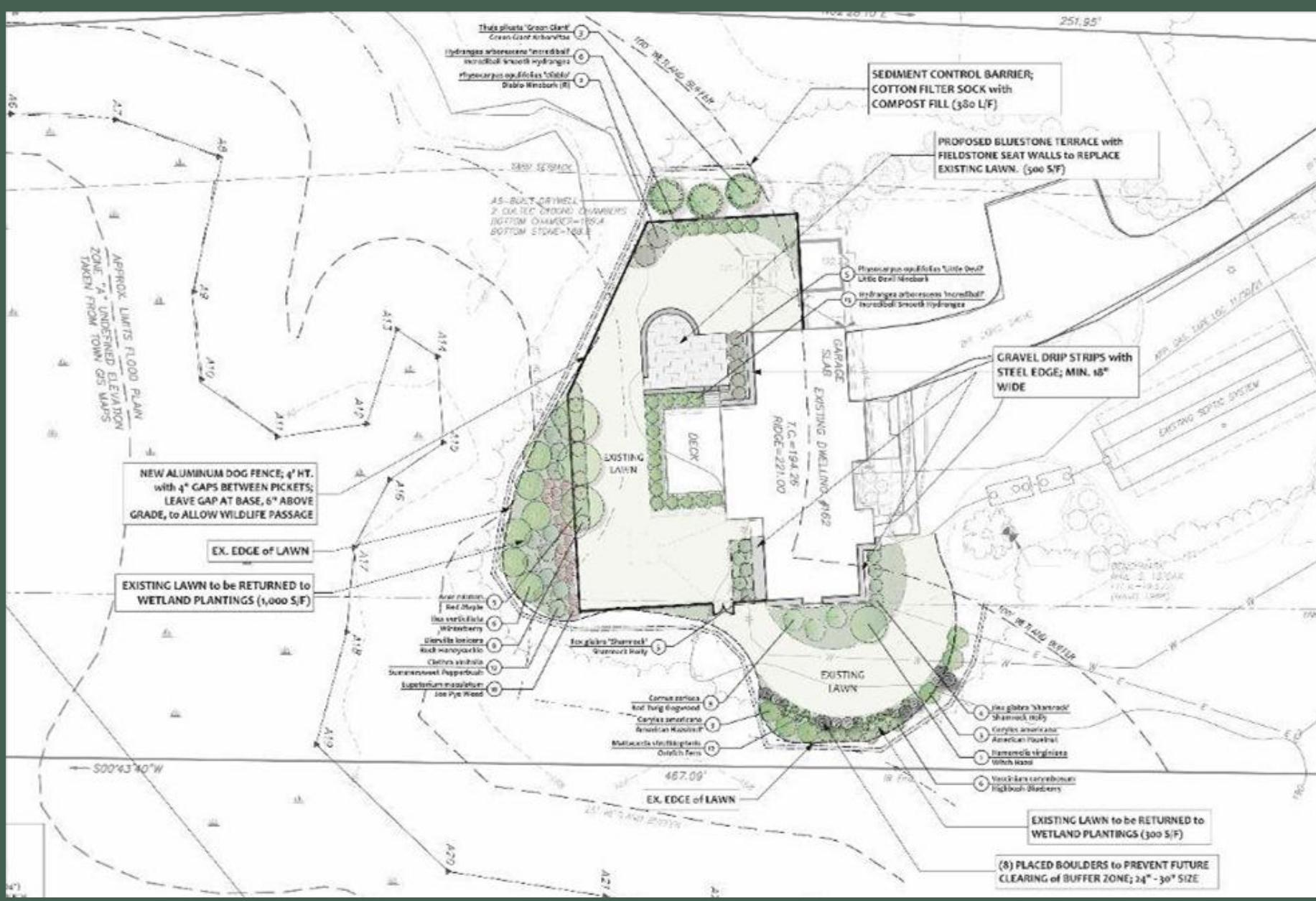
MAINTENANCE and
MONITORING

Post- Installation

- Provide a Maintenance Plan for the landscape maintenance company
- Propose Multi-year Invasive Plant Management Programs, if required
- Submit Annual monitoring Reports to confirm plants are established







THE PUBLIC HEARING



CONGRATULATIONS!

YOU GOT YOUR
WETLAND PERMIT!

HELPFUL RESOURCES

- **Mass Municipal Mapper GIS**
<https://maps.massgis.digital.mass.gov/MassMapper/MassMapper.html>
- **MA Wetland Protection Act** <https://www.mass.gov/doc/310-cmr-1000-the-wetlands-protection-act/download>
- **MA Association of Conservation Commissioners**
<https://www.maccweb.org/>
- **Approved Plant List for Jurisdictional Projects (Town of Carlisle)**
<https://www.carlislema.gov/DocumentCenter/View/2158/Plant-List-for-Jurisdictional-Projects-CONDENSED?bidId=>
- **Vascular Plants of MA by County; NHESP**
<https://www.mass.gov/doc/the-vascular-plants-of-massachusetts-a-county-checklist/download>