

Backyard Buffers that Work for People and Nature by Restoring Ecological Function



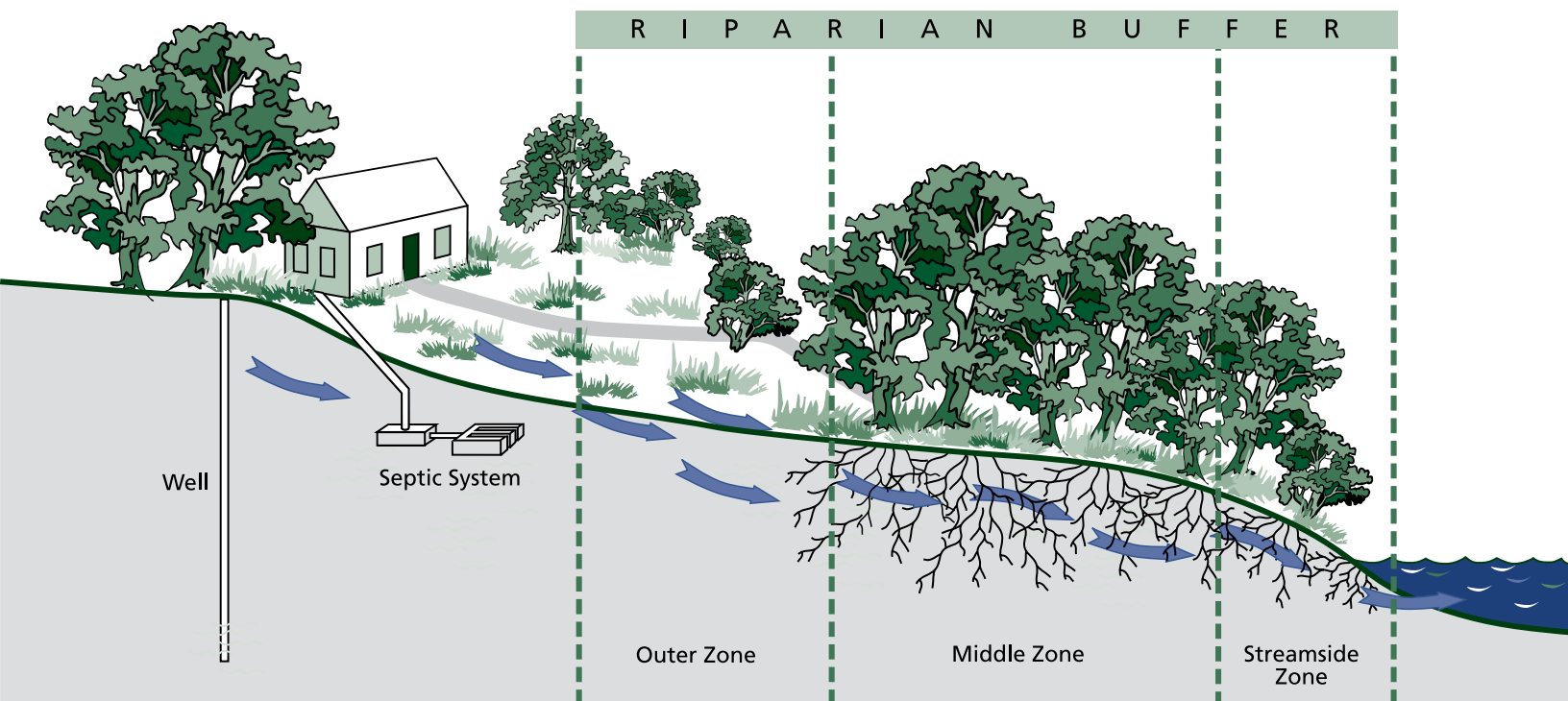
What is a Wetland Buffer?

A wetland buffer is a simple land management practice that is employed by municipalities to protect property and conserve natural resources. Since 1995 the City of Portsmouth has restricted land uses in its wetland buffer area. Currently, the city limits activities within 100 feet of most wetland areas. Buffers are the least expensive way for municipalities to protect homes and roadways from flood damage, manage floodwater, and to protect water quality.

A properly designed buffer puts distance between a stream, river, or wetland and any upland development and maintains the natural vegetation cover along the waterway, an essential part of the aquatic ecosystem. However, the ability of a municipality to realize these economic and environmental benefits is dependent on good planning, design, and maintenance of buffer areas.

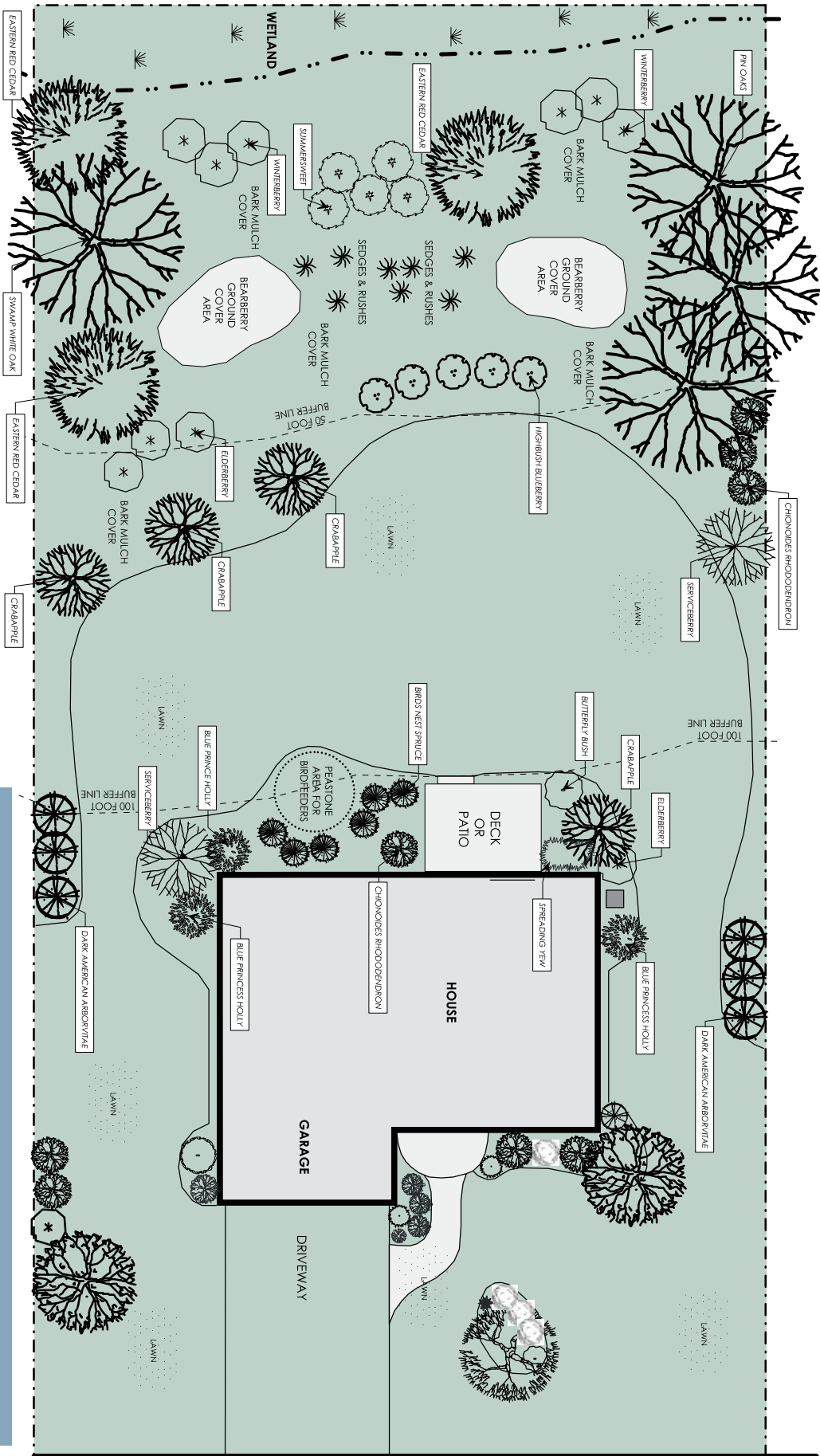
Most municipal buffer ordinances address the distance from the water in which structures can be built; few address the design and maintenance of buffers. Some residents and businesses that own buffers do not understand why buffers are important to their property and for natural resources, and often do not know how to create or maintain a functional buffer. Stewardship of buffers is an important role individual landowners can play. This is the role we hope to address with this brochure. If part or all of your property is in a wetland buffer consider some of the ideas provided in this brochure to enhance the use and enjoyment of your property as well as to enhance the ecological function of the adjacent wetland areas.

A functional wetland buffer maintains the ecology of the water body by stabilizing the banks, providing shade to help control temperature pollution, removing pollutants, creating wildlife habitat, protecting wetlands, and providing flood and erosion control. Buffer areas purify the water that flows through them by filtering sediments, nutrients, and toxins. Buffers act as a right-of-way for streams and rivers, allowing water to move naturally in the floodplain and guiding it safely downstream.



This project is designed to increase awareness about the importance of buffers in the community, provide property owners with buffer designs that meet their land use needs, provide natural resource protection benefits, and restore ecological function to buffers. Although this project was initiated in Portsmouth, New Hampshire, these outreach materials have direct applicability to all New Hampshire municipalities.

Wildlife Enhancement Plan



RECOMMENDATIONS:

IF NEEDED APPLY ORGANIC SLOW RELEASE FERTILIZERS TO LAWN AREAS. PLACE WEED BARRIER FABRIC BELOW ALL BARK MULCH AND PEATONE OR STONE MULCH AREAS.

APPLY ALL MULCHES TO A THICKNESS OF 3 INCHES MINIMUM.

PERENNIAL SUGGESTIONS TO ATTRACT BIRDS/BUTTERFLIES:

ACHILLEA, AGUILEGIA, ANEMONE, CAMPANULA, DIANTHUS, ECHINACEA, HEMEROCALLIS, HEUCHERA, IBERIS, LIATIS, MONARDA, NEPETA, PENSTEMON, PLATYCODON, RUDEBECKIA, SALVIA, SCABIOSA, VERONICA.

SCHEME # 1

WILDLIFE ENHANCEMENT
WETLAND BUFFER PLAN

TITLE

DRAWN BY: LSE MCNAUGHTON

DATE: NOVEMBER, 2006

SCALE: 1" = 20' - 0"

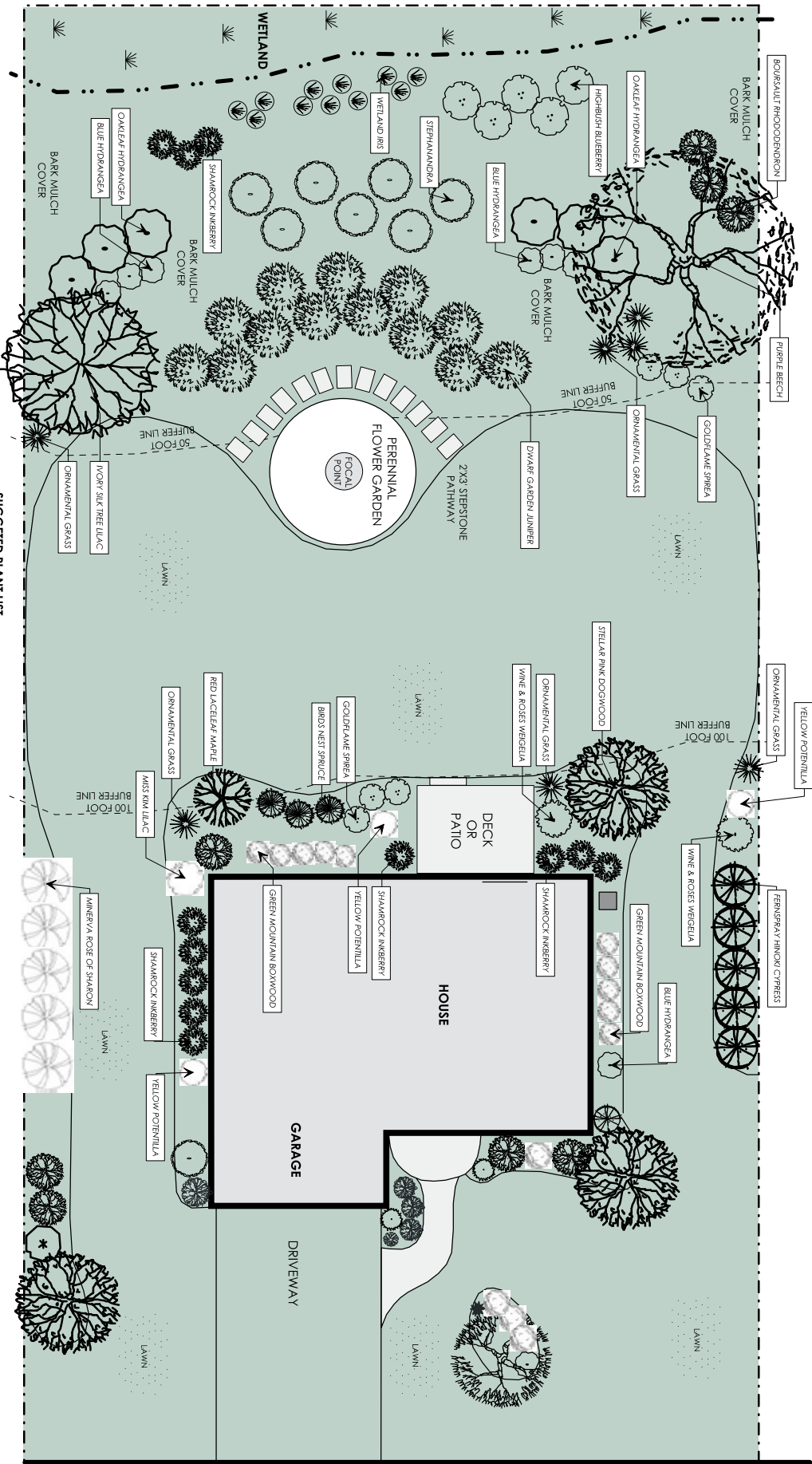
JOB # 650

SUGGESTED PLANT LIST

SEVIERBERRY* (JAMELANCHER CANADENSIS)
EASTERN RED CEDAR* (JUNIPERUS VIRGINIANA)
BUTTERFLY BUSH (BUDDLEIA DAVIDII)
SUMMERSWEET* (CLETHRA ALNIFOLIA)
BLUE PRINCESS HOLLY (ILEX MES. BLUE PRINCESS)
WINTERBERRY* (ILEX VERTICILLATA)
CRABAPPLE (MALUS FLORIBUNDA)
PIN OAK* (QUERCUS PALUSTRIS)
FIN OAK* (QUERCUS PRINCEA)
CHONODUS RHODODENDRON (RHODODENDRON)
ELDERBERRY* (SARALICUS CANADENSIS)
SPREADING YEW (TAXUS NIGRA)
DARK AMERICAN ARBOVITAE (TAXUS NIGRA)
HIGHLIGHT BLUEBERRY* (VACCINIUM CORNIBOSUM)
* DENOTES NORTHEAST NATIVE

This plan is for the buffer owner that enjoys wildlife and wants to enhance their property to support wildlife. The recommended plant species produce seeds, nuts, berries, fruit or flowers that directly support wildlife. The mixed plant cover types provide cover and nesting habitat for wildlife. The plan uses a wide range of plants and perennials to encourage wildlife diversity.

Stylish Gardener Plan



RECOMMENDATIONS:

IF NEEDED APPLY ORGANIC SLOW RELEASE FERTILIZERS TO LAWN AREAS. PLACE WEED BARRIER FABRIC BELOW ALL BARK MULCH AND PEASSTONE OR STONE MULCH AREAS. APPLY ALL MULCHES TO A THICKNESS OF 3 INCHES MINIMUM.

PERENNIAL SUGGESTIONS:

EARLY SUMMER COLOR - AQUILEGIA, ASTILBE, CAMPANULA, DIANTHUS, HEMEROCALLIS, LILIES, MONARDA, PAEONIA, SALVIA, STACHYS, TIARELLA, LATE SUMMER COLOR - ALLIUM, ANEMONE, ASTER, ECHINACEA, HOSTA, LIGULARIA, PEROVSKIA, RUDBECKIA, SCABIOSA, SEDUM, VERONICA.

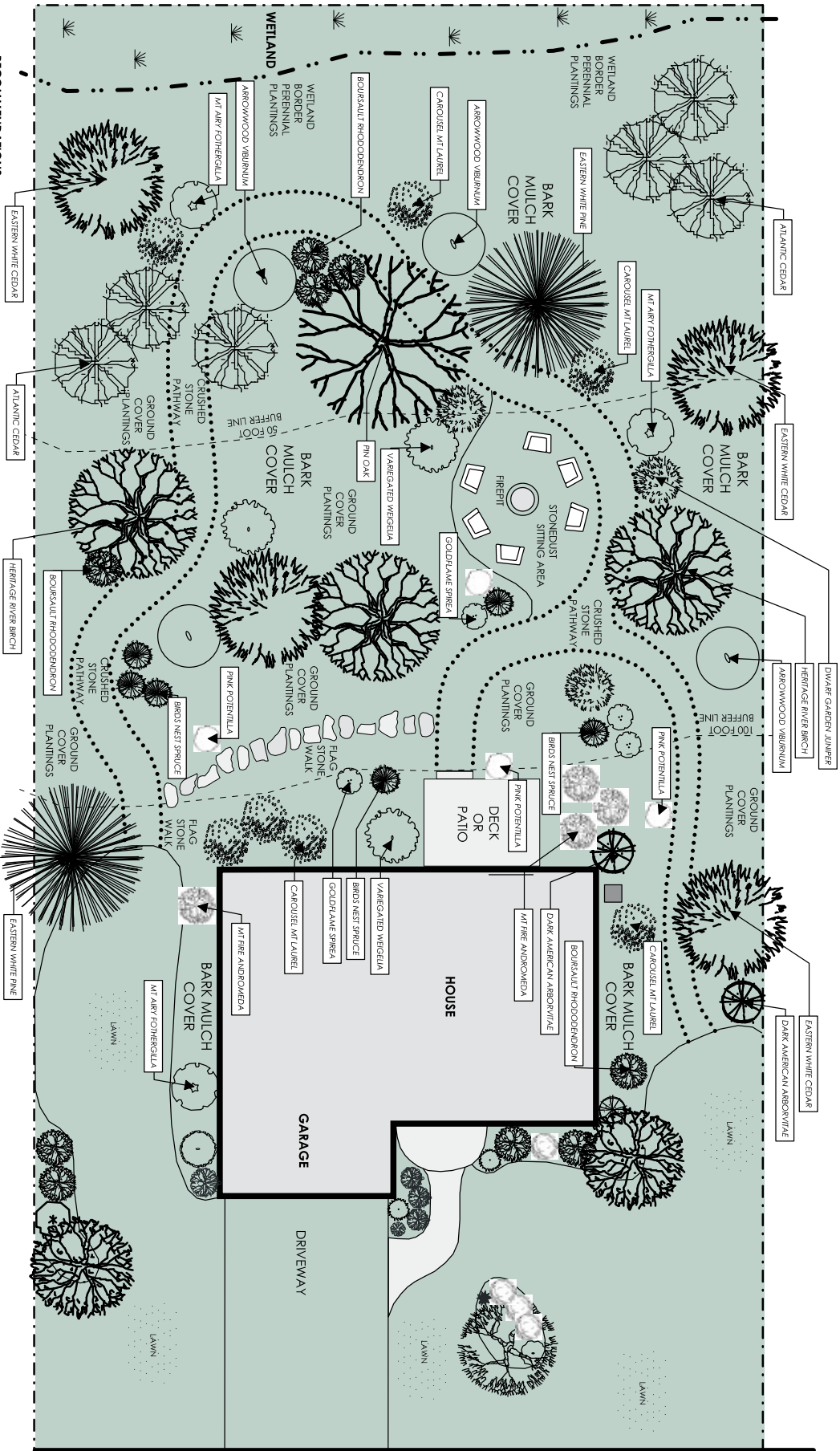
SUGGESTED PLANT LIST

RED LACELEAF MAPLE (ACER PALMATICUM)
GREEN MOUNTAIN BOXWOOD (BUXUS GREEN MOUNTAIN)
FERNSPRAY HINOKI CYPRESS (CHAMAECYPARIS O. FILICOIDES)
PURPLE BEECH TREE (FAGUS S. RIVERSII)
MINERVA ROSE OF SHARON (HIBISCUS MINERVA)
BLUE HYDRANGEA (HYDRANGEA BLUE WAVE)
OAKLEAF HYDRANGEA* (HYDRANGEA QUERCIFOLIA)
SHAMROCK INKBERRY* (ILEX GLABRA)
ORNAMENTAL GRASS* (Panicum VIRGATUM)
DWARF GARDEN JUNIFER* (JUNIPERUS HORIZONTALIS)
BIRDS NEST SPRUCE (PICEA INDIFORMIS)
YELLOW POTENTILLA* (POTENTILLA FRUTICOSA)
BOURSAULT RHODODENDRON (RHODODENDRON)
GOLDFLAME SPIREA (SPIREA GOLDFLAME)
STEPHANANDRA (STEPHANANDRA CRISPA)
IVORY SILK TREE LILAC (SYRINGA MISS KIM)
MISS KIM LILAC (SYRINGA MISS KIM)
HIGHBUSH BLUEBERRY* (VACCINIUM CORNIBOSUM)
WINE AND ROSES WEGEGLIA (WEGEGLIA F. WINE AND ROSES)
* DENOTES NORTHEAST NATIVE

This plan introduces exciting plant color and texture into the buffer to enhance the visual landscape. It creates view corridors towards the wetlands to maximize enjoyment of outdoor space. The plantings are in groups to create interest, depth and dimension through the landscape. The mix of plants provides bloom characteristics to provide color throughout the growing season.

SCHEME # 2		LANDSCAPERS	
CITY OF PORTSMOUTH		DEPT	
WETLAND BUFFER PLANTING		NOVEMBER, 2006	
TITLE: STYLISH GARDENER		SHEET: 2	
WETLAND BUFFER PLAN		SCALE: 1" = 20' - 0"	
JOB # 650		OF 3 SHEETS	

Natural Landscape Plan



RECOMMENDATIONS:
IF NEEDED APPLY ORGANIC SLOW RELEASE FERTILIZERS TO LAWN AREAS.
PLACE WEED BARRIER FABRIC BELOW ALL BARK MULCH AND STONE
DUST OR CRUSHED STONE PATHWAY AREAS.
APPLY ALL MULCHES TO A THICKNESS OF 3 INCHES MINIMUM.

WETLAND BORDER PERENNIAL SUGGESTIONS:
AJUGA, CIMICIFUGA, EUPATORIUM, FERNS, IBERIS, SIBERIAN IRIS,
HEMEROCALLIS, HOSTA, LIGULARIA, MONARDA, PHLOX.

GROUND COVER PLANTING SUGGESTIONS:
BUNCH BERRY, WINTERCREPPER, PARTRIDGE BERRY.

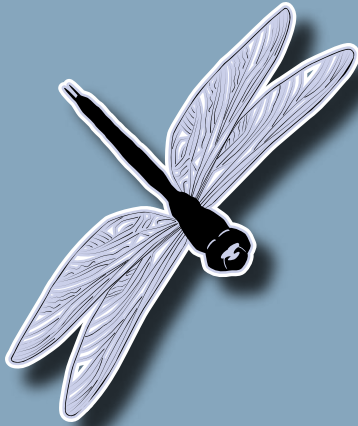
SUGGESTED PLANT LIST
HERITAGE RIVER BIRCH* (BETULA NIGRA)
EASTERN RED CEDAR* (JUNIPERUS VIRGINIANA)
BLUE ATLANTIC CEDAR* (CHAMAECYPARIS THYROIDES)
MT. AIRY FOTHERGILLA* (FOTHERGILLA MAJOR)
DWARF GARDEN JUNIPER* (JUNIPERUS HORIZONTALIS)
CAROUSEL MT. LAUREL* (KALAMIA LATIFOLIA)
PIN OAK OR RED OAK* (QUERCUS PALUSTRIS)
BIRDS NEST SPRUCE (PICEA NIDIFORMIS)
MT. FIRE ANDROMEDA (PHEROS MA FIRE)
EASTERN WHITE PINE* (PINUS STROBUS)
PINK POTENTILLA* (POTENTILLA FRUTICOSA)
BOURSAULT RHODODENDRON (RHODODENDRON)
GOLDFLAME SPREA (SPREA GOLDFLAME) (NGRA)
ARROWWOOD VIBURNUM* (VIBURNUM DENTATUM)
VAREGATED WIGELIA (WIGELIA VAREGATA)
* DENOTES NORTHEAST NATIVE

SCHEME # 3 CITY OF PORTSMOUTH WETLAND BUFFER PLANNING			
TITLE NATURAL ENTHUSIAST WETLAND BUFFER PLAN	DRAWN BY LIFE MCKNAUGHTON	SHEET 3	
DATE NOVEMBER, 2006	SCALE 1" = 20' - 0"	of 3 SHEETS	
SHEET # 650			

This plan eliminates all lawn within the 100 foot wetland buffer and devotes a majority of plant selections to Northeast Native evergreen, deciduous and coniferous plants. This plan creates a multi-storied canopy to encourage plant diversity and a natural feel.

WHAT ARE THE BENEFITS OF FUNCTIONAL BUFFERS?

WETLAND BUFFERS PROVIDE A LONG LIST OF BENEFITS TO SOCIETY AND THE BUFFER LANDOWNER. HERE IS A PARTIAL LIST:



- **Provide erosion and flood control**
- **Prevent water damage to homes and buildings**
- **Filter sediments and debris**
- **Absorb and transform nutrients that would pollute surface waters**
- **Regulate stream flows**
- **Stabilize the banks of waterways**
- **Protect in-water habitats**
- **Enhance wildlife habitats and corridors**
- **Provide recreation and aesthetics**

ONLINE RESOURCES

- New England Wetland Plants, Inc. www.newp.com
- New England Wildflower Society www.newfs.org
- NH State Forest Nursery www.dred.state.nh.us/nhnursery/index.htm
- Pennsylvania Pride Plant Nursery www.pennsylvaniapride.com
- Wayside Gardens Catalog www.waysidegardens.com
- Pest Resources Online for New England www.pronewengland.org
- New Hampshire Moose Plate Program www.mooseplate.com
- City of Portsmouth www.cityofportsmouth.com
- Riparian Buffers www.crjc.org/riparianbuffers.htm

BOOKS

- Dirr's Hardy Trees and Shrubs by Michael Dirr
- Native Plants of the Northeast by Donald J. Leopold
 - Landscaping with Nature by Jeff Cox
- Sunset Northeastern Landscaping edited by Ken Druse

This project was a collaborative effort. The project Directors would like to thank the City of Portsmouth Conservation Commission, GBNERR Coastal Training Program, Tracy Degnan, Rockingham County Conservation District, Landscaper's Depot, the N.H. State Conservation (Moose Plate) Grant Program, MillerWorks Graphic Design, and the residents of the Nathaniel Drive neighborhood.

This project is supported by funds from the sale of the Conservation License Plate (Moose Plate) under the NH State Conservation Committee grant program. The project was administered by the City of Portsmouth, N.H. in partnership with the Great Bay National Estuarine Research Reserve Coastal Training Program and the Rockingham County Conservation District. Project Directors: Steve J. Miller, Coastal Training Program Coordinator, GBNERR and Peter Britz, Environmental Planner, City of Portsmouth.

For more information, contact steve@greatbay.org or plbritz@ch.cityofportsmouth.com
Landscape designs are by Lise McNaughton of Landscapers Depot, Kingston NH.

Become a Wetland Buffer Steward

This project was designed to protect conservation values and restore ecological function in wetland buffers by putting the stewardship of wetland buffer habitat in the hands of the individual property owners and providing them with assistance through a demonstration project and educational outreach. This brochure includes landscape designs that use native plant species that are adapted to wetland areas and NH climate, provide ecological function, and address human aesthetics and land use concerns. Three landscape plans are included for landowners to use themselves or to use with landscape companies to create functional and attractive buffers on their property.

Stewardship is the active care and concern for something. It can be used in reference to our retirement funds, our institutions, or the planet we live on that provides all of our natural resources. A steward is someone to whom a trust has been given to care for a thing. To land and resource managers, stewardship refers to the active care and management of our forest, public lands, and water resources for the long-term sustainability of these resources. Wetland buffers are a critical part of the stewardship of our water resources and protect our properties. It is the belief of this project that the stewardship of wetland buffers is best achieved by those who own them and those who benefit most directly from the landscape. The stewardship of wetland buffers by landowners provides direct benefits to the landowner, helps municipal government hold down public works costs, and protects the natural resources of our community.

Buffer enhancement projects must comply with local and state wetland regulations. In Portsmouth projects require a conditional use permit for work in a wetland buffer area. The demonstration project created through this grant received a conditional use permit from the city. For more information please contact the City of Portsmouth Environmental Planner Peter Britz at 610-7215 or plbritz@ch.cityofportsmouth.com.



City of Portsmouth
Conservation Commission
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Portsmouth, NH 03801