February 12, 2021

Mr. David Whitney, P.E.
David F. Whitney Consulting Engineers, LLC
PO Box 1605
Avon, CT 06001

RE: Angeloni Residence
4 Vermillion Drive
Avon, CT

Dear Mr. Whitney:

I am writing to report the results of investigations conducted by this office at the referenced site. This 4.424-acre parcel of land proposed for development as a single-family residence is located at the northeast corner of the intersection of Vermillion Drive and Oak Bluff. The lot slopes down from a high point of 506' along the eastern property line to a low point of 386' at a headwall at the northwest corner.

The parcel is currently wooded. I marked the wetland boundary at the site on September 21, 2020. A copy of my report is attached. An intermittent watercourse with a narrow flanking wetland is delineated by wetland flags WL 1-22, labelled Wetland Area #2 on the site plan. The watercourse largely follows the southern property line and discharges to the street drainage system in Vermillion Drive. The wetland limit is along the top of the bank. Vegetation in this area consists of typical deciduous wetland species such as red maple, white ash, spicebush, cinnamon fern and various sedges, with the addition of thickets of the invasive species multi-flora rose and Japanese barberry.

The western-most portion of Wetland Area #2 (flags WL 36-41) is a narrow strip (10-30' wide) adjacent to Oak Bluff consisting of smaller red maples, multi-flora rose, barberry, and spicebush. It is likely that this is small wetland remnant or fragment that remained after the adjacent roadways were constructed, with associated drainage. The hydrologic regime is of Wetland Area #2 is seasonally saturated. The principal functions of this overall area are flow conveyance, bank stabilization, and groundwater discharge, although these functions are only minimally present in the area of flags 36-41.

Wetland flags 23-35 mark the limit of a groundwater slope/seepage wetland (aka Wetland Area #1) in an area of concave topography in the east-central portion of the site. There is an open canopy of red maple, a scattered shrub layer, and a herbaceous layer with sedges, skunk

cabbage, sensitive and royal fern common. The principal functions of this area are groundwater discharge and nutrient transformation.

Wetland Area #2 narrows downslope to the west and where the topography steepens, it terminates in an intermittent watercourse (flagged IWC 1-15 and labelled Wetland Area #3). The watercourse drains westerly through the center of the site. It is deeply eroded in many areas, flanking wetland soils are absent, and it terminates at an inlet to the drainage system in Vermillion Drive and Oak Bluff. This resource area functions to convey drainage across the site, but it also contributes to sediment loads in the downstream receiving waters.

Due to the sloping nature of the property, the site plan requires regrading most the center of the site. Wetland Areas 1 and 2 will not be altered, but the western portion of the intermittent watercourse (Wetland Area 3) will be diverted to the north and south in a bench on the cut slope. Groundwater seepage and storm flows will be conveyed to the street drainage in Vermillion Drive as they currently are. The larger trees in the narrow strip of wetland soil at the intersection of Vermillion Drive and Oak Bluff will be removed.

After reviewing the site plan, we had the following recommendations:

- Remove dead trees and invasive plants from Wetland Areas 2 and 3.
- Stabilize the cut slopes east of the house with New England Roadside Matrix Mix and erosion control blankets.
- Seed the proposed drainage swale east of the house with New England Erosion Control/Restoration Mix.
- Plant the area of wetland at the Vermillion Drive/Oak Bluff intersection with wetland wildflowers and ferns with plugs or containerized plants at 12-18” o.c.

The attached plant list and planting notes provide additional detail..

The proposed site plan incorporates our recommendations on Sheet 8, Wetland Mitigation Plan. In my opinion, the proposed development of the site as shown will not have a significant adverse impact on wetland functions and values, and will reduce erosion and resultant sedimentation to the drainage system and downstream resources.

Yours truly,

Michael S. Klein, Principal
Professional Soil Scientist
Professional Wetland Scientist

DAVISON ENVIRONMENTAL

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Biodiversity Studies • Wetland Delineation & Assessment • Habitat Management • GIS Mapping • Permitting • Forestry

WETLANDS / WATERCOURSES DELINEATION REPORT

Date of Work: *9/21/2020*

Project Location: *4 Vermillion Drive, Avon, CT*

Client:
Mr. David Whitney
2 Arch Rd
Avon, CT

IDENTIFICATION OF WETLANDS AND WATERCOURSES RESOURCES

Wetlands and watercourses present on property? Yes ☒ No ☐

Wetlands:		Watercourses:		Identification Method:	
Inland Wetlands	☒	Perennial Streams	☐	Auger and Spade	☒
Tidal Wetlands	☐	Intermittent Watercourses	☒	Backhoe Pits	☐

Numbering Sequences:

Wetlands:	Intermittent
WL 1-22	Watercourses:
WL 23-35	IWC 1-15
WL 36-41	

Wetland Plant Communities Present:

Forest ☒
Sapling/Shrub ☐
Wet Meadow ☒
Marsh ☐
Field/Lawn ☐

Definitions and methodology for identification of state regulated wetlands & watercourses

Wetlands and watercourses are regulated in the State of Connecticut General Statutes, Chapter 440, sections 22a-28 to 22a-45. The Statutes are divided into the Inland Wetlands and Watercourses Act (sections 22a-36 to 22a-45) and the Tidal Wetlands Act (sections 22a-28 to 22a-35). Inland Wetlands "means land, including submerged land, not regulated pursuant to sections 22a-28 to 22a-35, inclusive, which consists of any of the soil types designated as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soils Survey, as may be amended from time to time, of the National Resources Conservation Service (NRCS) of the United States Department of Agriculture" section 22a-38(15). Watercourses "means rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private which are contained within, flow through or border upon this state or any portion thereof, not regulated pursuant to sections 22a-28 to 22a-35, inclusive. Intermittent watercourses shall be delineated by a defined permanent channel and bank and the occurrence of two or more of the following characteristics: (A) Evidence of scour or deposits of recent alluvium or detritus, (B) the presence of standing or flowing water for a duration longer than a particular storm incident, and (C) the presence of hydrophytic vegetation" section 22a-38(16). Tidal Wetlands are defined as "those areas which border on or lie beneath tidal waters, such as, but not limited to banks, bogs, salt marsh, swamps, meadows, flats, or other low lands subject to tidal action, including those areas now or formerly connected to tidal waters, and whose surface is at or below an elevation of one foot above local extreme high water; and upon which may grow or be capable of growing some, but not necessarily all of the following" (includes plant list) section 22a-29(2).

WETLAND SOIL TYPES

Wetland soils consist of Wilbraham silt loam. The Wilbraham series consists of poorly drained loamy soils formed in subglacial till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level to gently sloping soils in drainageways and low-lying positions of till hills. Wilbraham soils have a water table at or near the surface much of the year. They have an aquic moisture regime.

NON-WETLAND SOILS

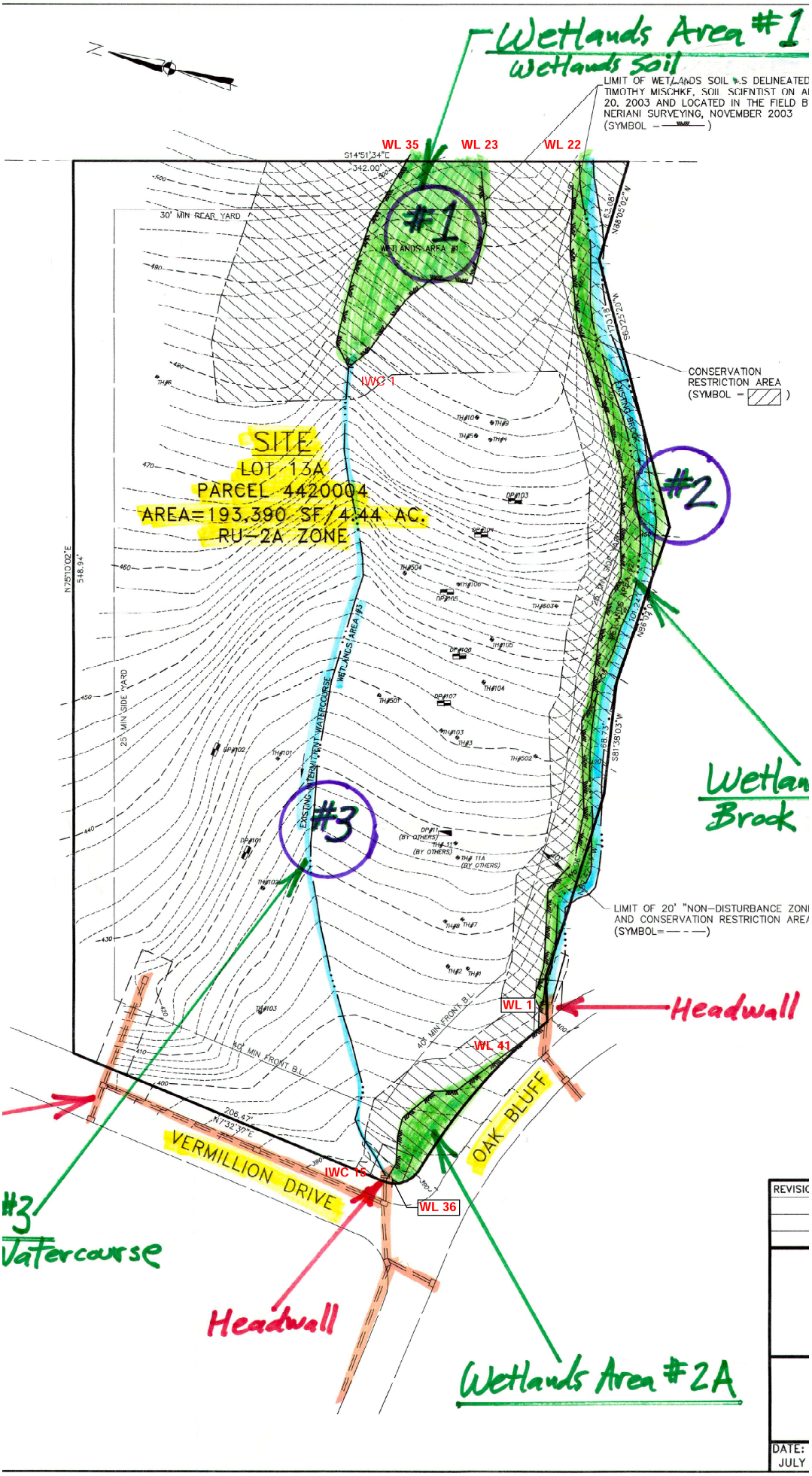
The non-wetland soils were not examined in detail, except as was necessary to determine the wetland boundary. Non-wetland soils consist of Wethersfield loam and Ludlow silt loam. The Wethersfield series consists of very deep, well drained loamy soils formed in dense glacial till on uplands. The soils are moderately deep to dense basal till or hardpan. They are nearly level to steep soils on till plains, low ridges, and drumlins. Depth to bedrock is commonly more than 6 feet, although a shallower perched water table may be present during the late fall, winter and early spring.

The Ludlow series consists of moderately well drained soils formed in loamy subglacial till. They are very deep to bedrock and moderately deep to a densic contact or hardpan. They are nearly level to strongly sloping soils on till plains, hills, and drumlins. Ludlow soils have a seasonal high water table at a depth of about 20”-42” from November through May.

NOTES:

Respectfully submitted,

Michael S. Klein
Certified Professional Wetland Scientist
Registered Soil Scientist


Wetlands Area #1
Wetlands Soil
LIMIT OF WETLANDS SOIL AS DELINEATED
TIMOTHY MISCHKE, SOIL SCIENTIST ON A
20, 2003 AND LOCATED IN THE FIELD B
NERIANI SURVEYING, NOVEMBER 2003
(SYMBOL – WW)
WL 35
WL 23
WL 22
S14°51'34"E
342.00'
30' MIN REAR YARD
#1
WETLANDS AREA #1
IWC 1
CONSERVATION
RESTRICTION AREA
(SYMBOL –)
SITE
LOT 13A
PARCEL 4420004
AREA=193,390 SF/4.44 AC.
RU-2A ZONE
#2
#3
N75°10'02"E
548.94'
25' MIN SIDE YARD
WETLANDS AREA #3
EXISTING INTERMITTENT WATERCOURSE
Wetlan
Brook
LIMIT OF 20' "NON-DISTURBANCE ZONI
AND CONSERVATION RESTRICTION AREA
(SYMBOL= — - —)
WL 1
Headwall
WL 41
40' MIN FRONT B.L.
OAK BLUFF
206.47'
N73°32'37"E
VERMILLION DRIVE
IWC 15
WL 36
#3
Watercourse
Headwall
Wetlands Area #2A
REVISIO
DATE:
JULY

WETLAND MITIGATION PLANTING PLAN
4 Vermillion Drive, Avon, CT
Prepared by
Davison Environmental

WETLAND MITIGATION PLANTING PLAN GOALS

- REMOVE JAPANESE BARBERRY & OTHER INVASIVES
- INCREASE NATIVE PLANT BIODIVERSITY
- PROVIDE HABITAT FOR NATIVE POLLINATORS & BUTTERFLIES
- STABILIZE DISTURBED SOILS
- ENHANCE AESTHETIC VALUES

NOTE: REMOVAL OF JAPANESE BARBERRY WILL REDUCE DEER TICK POPULATION WHICH CARRIES LYME DISEASE

PLANT NOTES

1. A pre-construction meeting shall be conducted including site contractor, landscape contractor, and project wetland scientist to coordinate invasive removal with site preparation and planting.
2. Invasive non-native plant species in wetland & upland review areas shall be identified and tagged by project wetland scientist and eradicated or removed.
3. Herbicide application shall be performed by a licensed professional.
4. Any herbicide used for invasive eradication or control shall be approved by project wetland scientist.
5. A marker dye shall be added to any herbicides used for selective invasive plant removal.
6. Disposal of invasive plant material shall comply with CT DEEP "Guidelines for Disposal of Terrestrial Invasive Plants" http://cipwg.uconn.edu/wp-content/uploads/sites/244/2014/01/InvasivePlantDisposal_2014-01-23 . Such material may be chipped and composted on site if done prior to flowering. If after flowering shall be disposed of off site by being bagged, transported securely, and incinerated.
7. Flush cut trees and shrubs in proposed wet meadow and remove. Leave stumps in place.
8. Selectively remove logs, boulders, and coarse woody debris from stream corridor under the direction of project wetland scientist. Leave in place logs which provide habitat value.
9. Soil shall be amended to provide a suitable growing medium for seeding/planting swale & slopes.
10. Any soil amendments shall be approved by project wetland scientist.
11. Soil amendments shall be free from Purple Loosestrife *(Lythrum salicaria)*, Common Reed *(Phragmites australis)*, Common Mugwort *(Artemisia vulgaris),*or Reed Canarygrass *(Phalaris arundinacea)*.
12. Plantings will be field located and installed around existing native vegetation.
13. Plant wet meadow with specified grasses, herbs, ferns, & low shrubs at an average density of 1 foot on center. Mulch with weed-free straw.

14. Train vines onto adjacent shrubs or trees to the extent feasible.
15. Plants shall be native species from New England sources to the extent feasible. Cultivars or hybrids are not acceptable.
16. Final plant & seed mix locations should be determined in the field by project wetland scientist.
17. Prior to seeding, topsoil and amendments shall be tested for fertility & Ph. Test results should be compared with seed supplier's soil specifications.
18. Do not add lime or fertilizer unless soil testing indicates a deficiency based on test results.
19. Before seeding, refracture any compacted soils to promote root development and infiltration
20. Seed swales with New England Erosion Control/Restoration Mix at 1 lb/1250 s.f.
21. Seed disturbed soils in upland review areas and edges of swales with "No Mow" Lawn Seed Mix or equivalent.
22. Seed slopes with New England Showy Wildflower Mix at 1900 sq ft/lb or equivalent.
23. No substitutions without review by project wetland scientist.
24. Plantings shall be monitored by project wetland scientist for 3 years. Remedial measures may be required and shall be implemented as directed by project wetland scientist.

Meadow Maintenance

1. During the first growing season, mow/cut as needed to prevent annual weeds from going to seed. Minimum mowing height is 3.5 to 4 inches.
2. Controlling or eradication invasive non-native plants and woody species will be an ongoing issue. Resources are: CT Invasive Plants Working Group http://www.hort.uconn.edu/cipwg/ and New England Invasive Plant Atlas http://nbii-nin.ciesin.columbia.edu/ipane/
3. Herbicide application shall be performed by a licensed professional.
4. Disposal of invasive plant material shall comply with CT DEEP "Guidelines for Disposal of Terrestrial Invasive Plants" http://cipwg.uconn.edu/wp-content/uploads/sites/244/2014/01/InvasivePlantDisposal_2014-01-23 . Such material may be chipped and composted on site if done prior to flowering. If after flowering shall be disposed of off site by being bagged, transported securely, and incinerated.
5. Optional annual mowing/cutting of the meadow is recommended in late winter or early spring. Some butterfly larvae do not go into the ground until late November and birds feed on grass and wildflower seeds through the winter. Minimum mowing height is 3.5 to 4 inches.
6. No Mow Lawn Seed Mix can be mowed annually in late fall; or biannually (spring & fall) as needed. Do not mow during the summer. Minimum mowing height is 3.5 to 4 inches

Grass Swale Maintenance

1. Avoid use of heavy equipment which can cause compaction of soils.
2. Remove sediment greater than 1” deep in a manner to minimize damage to vegetation in March-April.
3. Remove excess leaves as necessary and cut or mow meadow grasses between November 15 - April 1. Plant matter shall be left in place over winter months to insulate the soil and add organic matter to the soil. Removal criteria shall include when plant matter is smothering or killing vegetation and aesthetics.
4. Cut or mow swales between November 15 - April 1.
5. Prune trees and shrubs as needed.
6. Add supplemental plantings or seed as needed to maintain 80% areal cover.
7. Do not add lime, fertilizer, herbicide or pesticides. The use of herbicide is restricted to invasive non-native plant control under the direction of a qualified environmental professional.

Wetland Mitigation Plant List						
4 Vermillion Drive, Avon, CT						
	Scientific Name	**Common Name**	**Quantity**		**Size**	**Root**
Trees			**Meadow**	**Swale/Slope**		
AR	Acer rubrum	Red Maple			6'	Cont
AL	Amelanchier laevis	Smooth Shadbush		3	6'	Cont
BP	Betula papyrifera	Paper Birch			6'	Cont
COA	Cornus alternifolia	Alternate-leaf Dogwood		3	6'	Cont
CF	Cornus florida	Flowering Dogwood		3	6'	Cont
NS	Nyssa sylvatica	Black Gum		3	6'	Cont
Pv	Prunus virginiana	Chokecherry		3	4-6'	Cont
QB	Quercus bicolor	Swamp White Oak			6'	Cont
Shrubs						
Ac	Amelanchier canadensis	Shadblow		3	3-4'	Cont
AA	Aronia arbutifolia	Red Chokeberry		6	3-4'	Cont
CA	Cephalanthus occidentalis	Buttonbush		3	18-24"	Cont
CL	Clethra alnifolia	Sweet Pepperbush		3	3-4'	Cont
CS	Cornus sericea	Red-osier Dogwood		3	3-4'	Cont
DL	Diervilla lonicera	Northern Bush Honeysuckle		6	3-4'	Cont
HV	Hamamelis virginiana	Witchhazel			3-4'	Cont
Iv	Ilex verticillata	Winterberry		6	3-4'	Cont
KL	Kalmia latifolia	Mountain Laurel			3-4'	Cont
Mp	Morella pensylvanica	Northern Bayberry			18-24"	Cont
SC	Sambucus canadensis	Common Elderberry		3	3-4'	Cont
SD	Salix discolor	Pussy Willow		3	3-4'	Cont
SL	Spiraea latifolia	Meadowsweet	6	12	3-4'	Cont
VA	Vaccinium angustifolium	Lowbush Blueberry			18-24"	Cont
Vc	Vaccinium corymbosum	Highbush Blueberry			3-4'	Cont
VD	Viburnum dentatum	Arrowwood		6	3-4'	Cont
VL	Viburnum lentago	Nannyberry		6	3-4'	Cont

Ferns						
	Adiantum pedatum	Maidenhair fern	12		#1	Cont
	Polystichum acrostichoides	Christmas Fern	24		#1	Cont
	Osmunda regalis	Royal Fern	12		#1	Cont
	Thelyteris novaboracensis	New York Fern	24		#1	Cont
Vines						
CV	Clematis virginiana	Virgins Bower		3	#1	Cont
LS	Lonicera sempervirens	Trumpet Honeysuckle		3	#1	Cont
PQ	Parthenocissus quinquefolia	Virginia Creeper		3	#1	Cont
Herbs					2" plugs	
	Aquilegia canadensis	Wild Columbine	50			
	Asclepias incarnata	Swamp Milkweed	50	50		
	Asclepias tuberosa	Butterfly Weed		50		
	Aster novae angliae	New England Aster		50		
	Aster umbellatus	Flat-topped Aster				
	Caltha palustris	Marsh Marigold	50			
	Carex crinita	Fringed Sedge	25	25		
	Carex lurida	Lurid Sedge	50			
	Carex vulpinoidea	Fox Sedge	50			
	Deschampsia cespitosa	Tufted Hairgrass	50			
	Erigeron pulchellus	Robin's Plaintain	50			
	Eupatorium maculatum	Spotted Joe-pye Weed		50		
	Eurybia divaricata	White Wood Aster	50			
	Geranium maculatum	Spotted Crane's Bill	24		#1	Cont
	Gentiana clausa	Bottle Gentian	50			
	Iris versicolor	Blue Flag	50			
	Juncus effusus	Soft Rush	50	50		
	Juncus tenuis	Path Rush	50			
	Liatris spicata	Marsh Blazing Star	50			
	Lobelia cardinalis	Cardinal Flower	50			

	Lupinus perennis	Lupine		50		
	Monarda fistulosa	Wild Bergamot		50		
	Packera aurea	Golden Ragwort	50			
	Penstemon digitalis	Foxglove Beardtonge	50			
	Rudbeckia laciniata	Cut-leaf Coneflower		50		
	Solidago caesia	Bluestem Goldenrod	50			
	Vernonia noveboracensis	Ironweed		50		
	Zizia aurea	Golden Alexanders	50			
			1021			
Seed Mixes						
	New England Erosion Control/Restoration Mix for Moist Sites					
	Application Rate: 1 LB/1250 sq. ft.					
	New England Showy Wildflower Mix					
	Application Rate: 1 LB/1900 sq. ft.					
	Seed mixes are available from New England Wetland Plants, Inc (newp.com)					
	No Mow" Lawn Mix "					
	6 Festuca spp.	fine fescues				
	Application Rate: 5 LB./100sq					
	available from PrairieNursery.					