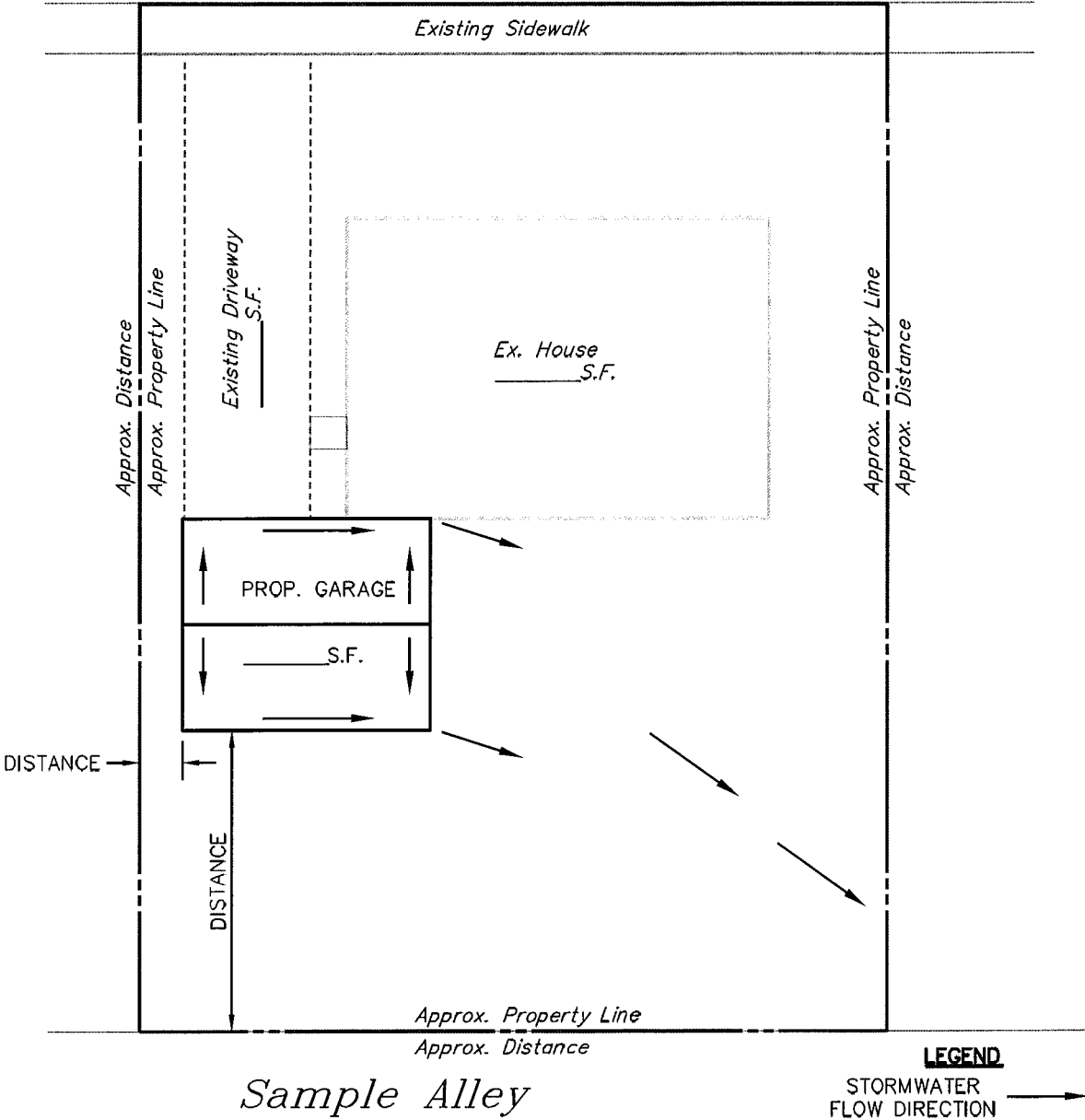


# **Stormwater Management Small Projects Guide**



NOTE:  
THIS PLAN CAN  
BE HAND DRAWN.

*Main Street*



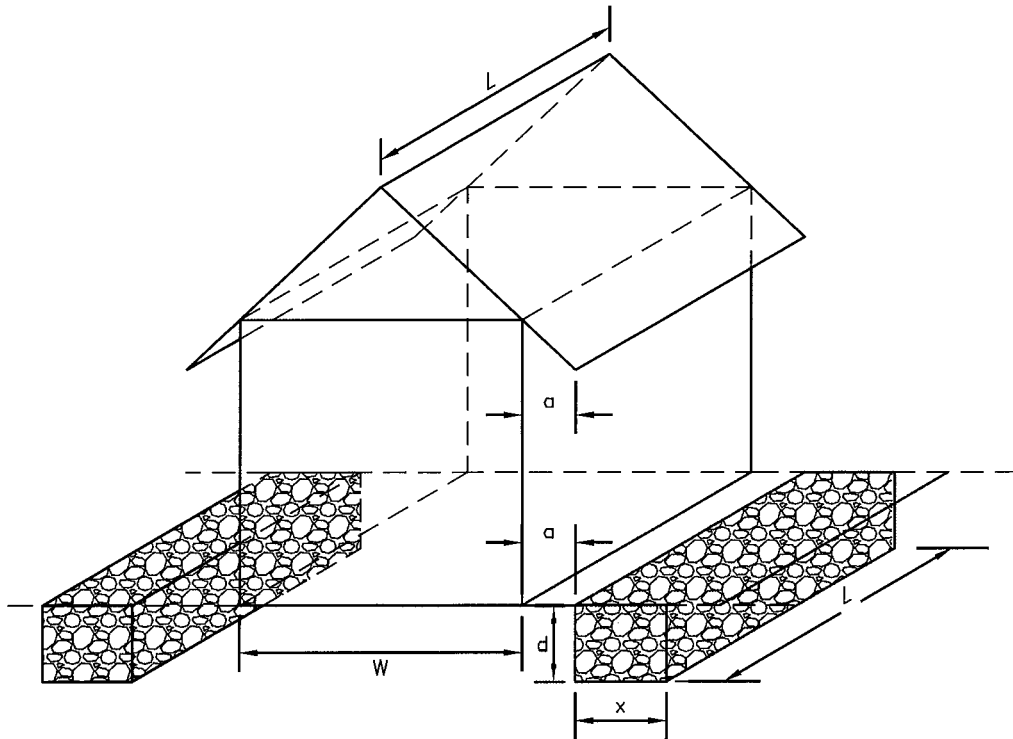
*Sample Alley*

**LEGEND**

STORMWATER  
FLOW DIRECTION →

**SAMPLE SKETCH/ SITE PLAN**





**KEY**

- L = LENGTH OF STRUCTURE = LENGTH OF SEEPAGE TRENCH (FT.)
- W = WIDTH STRUCTURE (FT)
- a = EAVE OVERHANG (FT) = TRENCH DISTANCE FROM STRUCTURE (FT)
- x = WIDTH OF SEEPAGE TRENCH (FT)
- d = DEPTH OF SEEPAGE TRENCH (FT) = 2'

**REQUIRED STORAGE VOLUME**

Impervious Area (SF)	500	750	1000	1250	1500	1750	2000	2250	2500
Total Required Storage (CF)	83	125	167	208	250	292	333	375	417
Required Storage Volume Per Pit (CF)	42	63	83	104	125	146	167	188	208

**Required Pit Size**

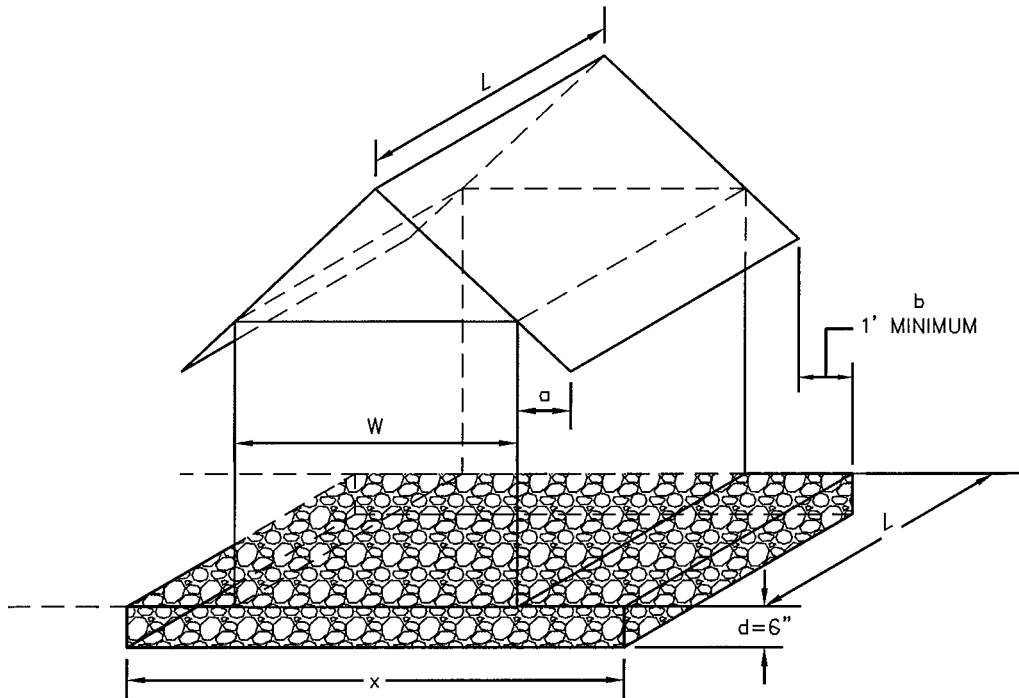
		Pit Width (x)									
		1	2	3	4	5	6	7	8	9	10
Pit Length (L)	10	8	16	24	32	40	48	56	64	72	80
	15	12	24	36	48	60	72	84	96	108	120
	20	16	32	48	64	80	96	112	128	144	160
	25	20	40	60	80	100	120	140	160	180	200
	30	24	48	72	96	120	144	168	192	216	240
	35	28	56	84	112	140	168	196	224	-	-
	40	32	64	96	128	160	192	224	-	-	-
	45	36	72	108	144	180	216	-	-	-	-
	50	40	80	120	160	200	240	-	-	-	-
	55	44	88	132	176	220	-	-	-	-	-

**NOTES**

1. TRENCH MUST BE PROVIDED ON EACH SIDE OF STRUCTURE.
2. SIDE OF TRENCH TO BE WRAPPED IN CLASS 1 GEOTEXTILE.
3. TRENCH TO BE FILLED WITH CLEAN STONE (3/4" MIN. SIZE).
4. TRENCH TO BE CONSTRUCTED AT 0% SLOPE ON UNDISTURBED SOIL.
5. TRENCH TO BE CHECKED REGULARLY TO MAINTAIN PROPER OPERATION.

**STRUCTURES WITHOUT GUTTERS A**





**KEY**

- L = LENGTH OF STRUCTURE = LENGTH OF SEEPAGE BED (FT.)
- W = WIDTH OF STRUCTURE (FT)
- a = EAVE OVERHANG (FT)
- b = DISTANCE FROM EAVE OVERHANG TO EDGE OF SEEPAGE BED (FT) = 1' MINIMUM
- x = WIDTH OF SEEPAGE BED (FT)
- x = W + 2 FT
- d = DEPTH OF SEEPAGE BED = 6"

**REQUIRED STORAGE VOLUME**

Impervious Area (SF)	500	750	1000	1250	1500	1750	2000	2250	2500
Required Storage Volume Per Pit (CF)	42	63	83	104	125	146	167	188	208

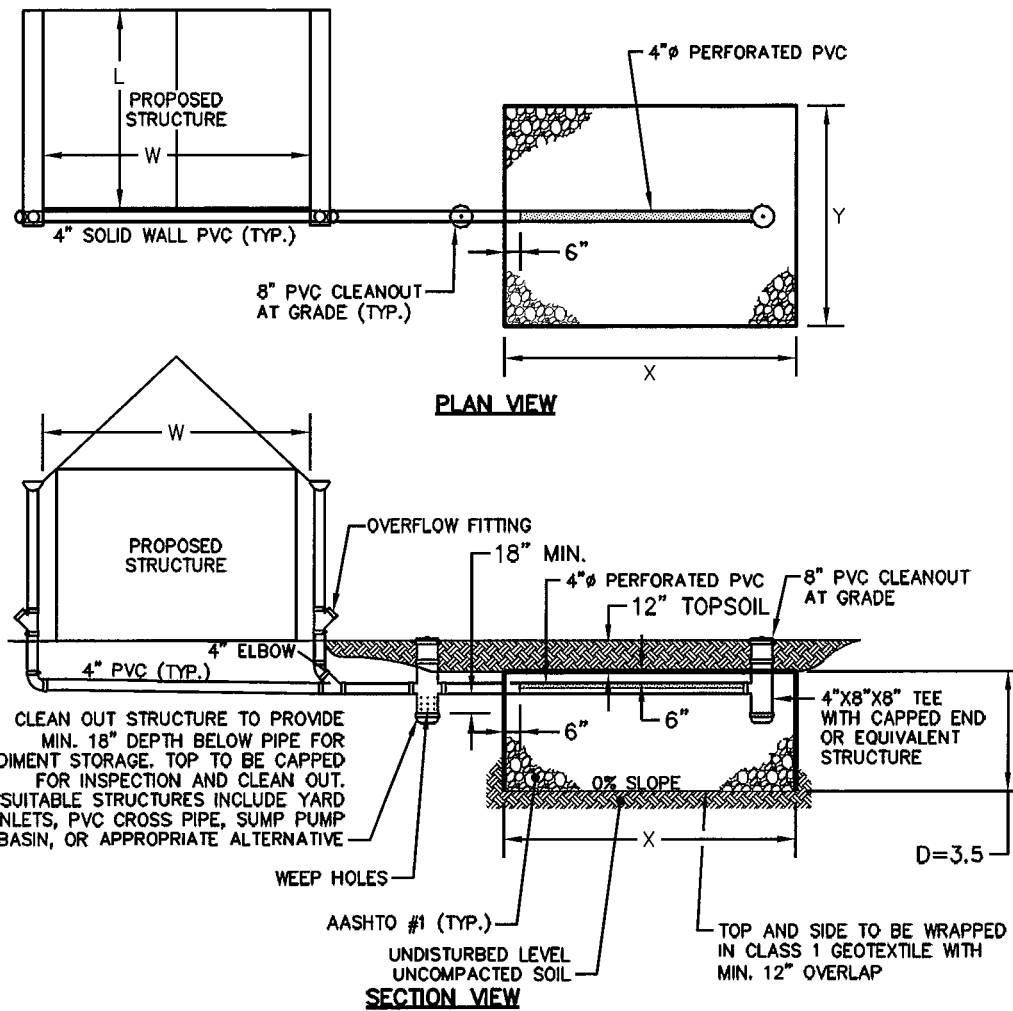
**NOTES**

- 1.) SIDE OF BED TO BE WRAPPED IN CLASS 1 GEOTEXTILE.
- 2.) BED TO BE FILLED WITH CLEAN STONE (3/4" MIN. SIZE).
- 3.) BED TO BE CONSTRUCTED AT SLOPE ON UNDISTURBED SOIL.
- 4.) BED TO BE CHECKED REGULARLY 0% MAINTAIN PROPER OPERATION.

**STRUCTURES WITHOUT GUTTERS B**







REQUIRED STORAGE VOLUME									
Impervious Area (SF)	500	750	1000	1250	1500	1750	2000	2250	2500
Required Storage Volume Per Pit (CF)	42	63	83	104	125	146	167	188	208

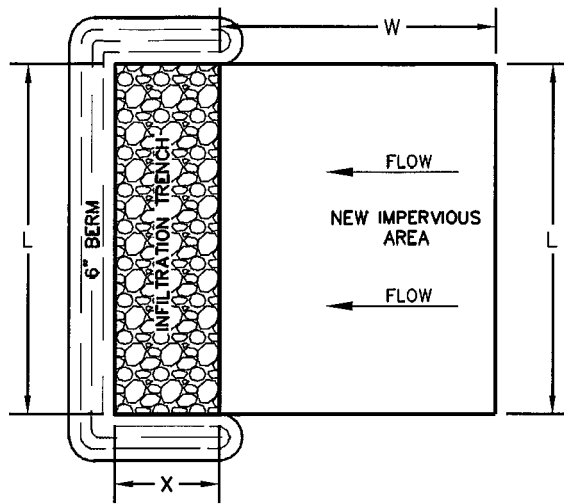
Required Pit Size											
		Pit Width (x)									
		5	6	7	8	9	10	11	12	15	20
Pit Length (y)	5	35	42	49	56	63	70	77	84	105	140
	6	42	50	59	67	76	84	92	101	126	168
	7	49	59	69	78	88	98	108	118	147	196
	8	56	67	78	90	101	112	123	134	168	224
	9	63	76	88	101	113	126	139	151	189	252
	10	70	84	98	112	126	140	154	168	210	-
	11	77	92	108	123	139	154	169	185	231	-
	12	84	101	118	134	151	168	185	201	252	-
	15	105	126	147	168	189	210	231	252	-	-
	20	140	168	196	224	252	-	-	-	-	-

**NOTES**

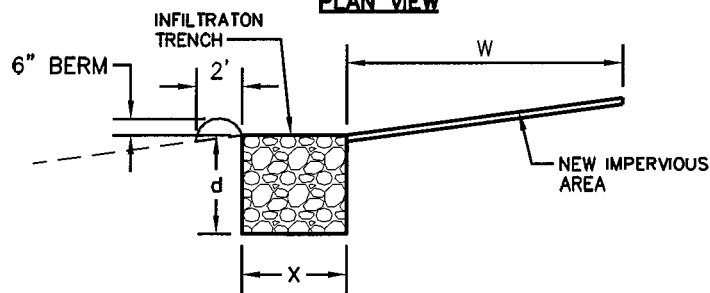
1. BOTTOM OF BED ELEVATION TO BE 4.5' BELOW SURFACE TO ACCOUNT FOR 1' OF TOPSOIL OVER INFILTRATION BED.
2. PIPE TO BE APPROPRIATELY SIZED TO CARRY ROOF WATER. PVC PIPE SHALL HAVE A MIN. DIAMETER OF 4".
3. PIPING AND CLEANOUTS TO BE CENTERED WITHIN INFILTRATION BED.
4. BED TO BE CHECKED REGULARLY TO MAINTAIN PROPER OPERATION.

**STRUCTURES WITH GUTTERS**





**PLAN VIEW**



**SECTION VIEW**

**KEY**

- L = LENGTH OF NEW IMPERVIOUS SURFACE (FT) = LENGTH OF INFILTRATION TRENCH
- W = WIDTH OF NEW IMPERVIOUS SURFACE TRENCH
- X = WIDTH OF SEEPAGE TRENCH (FT)
- d = DEPTH OF SEEPAGE TRENCH (FT) =

**NOTES**

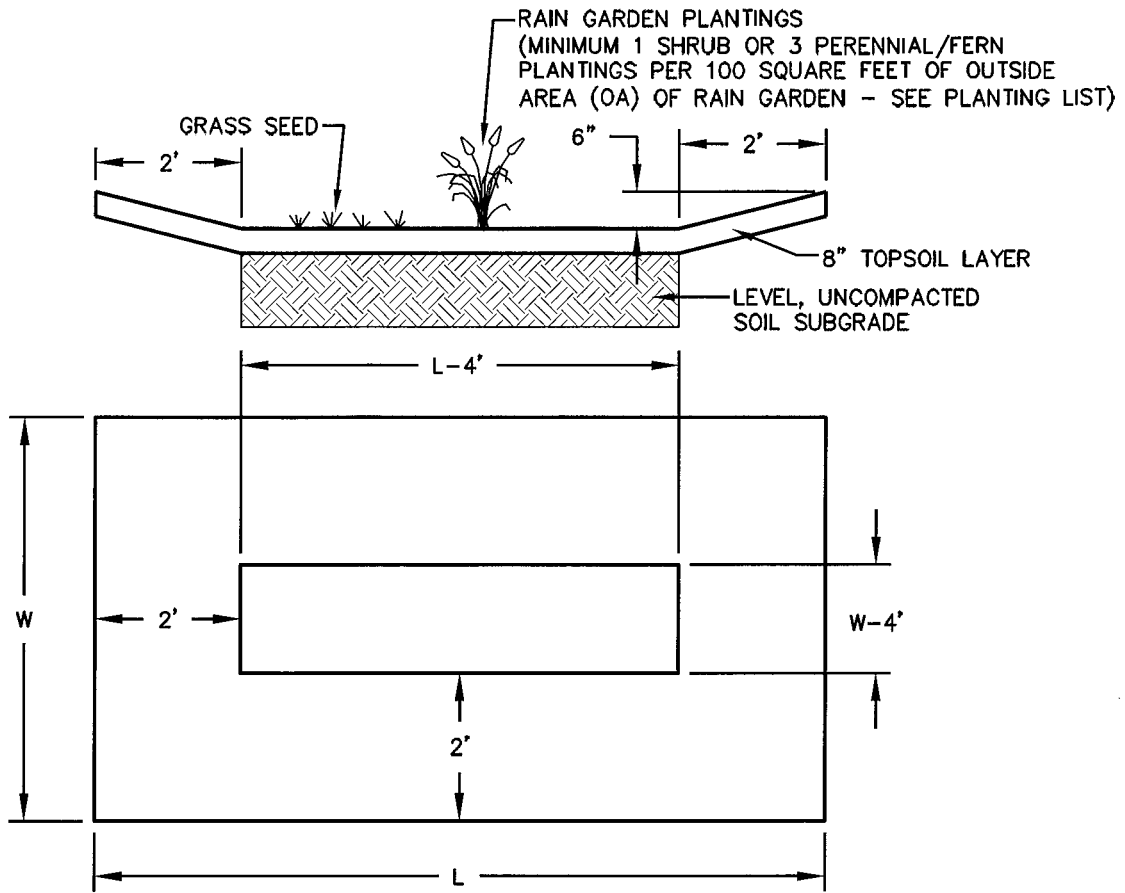
3'

- 1.) SIDE OF TRENCH TO BE WRAPPED IN PENNDOT CLASS 1 GEOTEXTILE.
- 2.) TRENCH TO BE FILLED WITH CLEAN STONE (3/4" MIN. SIZE).
- 3.) TRENCH TO BE CONSTRUCTED AT 0% SLOPE ON UNDISTURBED SOIL.
- 4.) TRENCH TO BE CHECKED REGULARLY TO MAINTAIN PROPER OPERATION.
- 5.) 6" BERM MAY BE REMOVED AS DEEMED APPROPRIATE BY THE MUNICIPALITY

Required Storage Volume															
Impervious Area Width (Ft) - W	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
Required Pit Width (Ft) - X	0.7	1.4	2.1	2.8	3.5	4.2	4.9	5.6	6.3	7.0	7.7	8.4	9.1	9.8	10.5

**AT GRADE IMPERVIOUS**





REQUIRED STORAGE VOLUME									
Impervious Area (SF)	500	750	1000	1250	1500	1750	2000	2250	2500
Required Storage Volume of Rain Garden (CF)	42	63	83	104	125	146	167	188	208

Required Rain Garden Size											
		Width (x)									
		10	11	12	13	14	15	18	20	25	30
Length (L)	10	34	38	42	46	50	54	66	74	94	114
	11	38	43	47	52	56	61	74	83	106	128
	12	42	47	52	57	62	67	82	92	117	142
	13	46	52	57	63	68	74	90	101	129	156
	14	50	56	62	68	74	80	98	110	140	170
	15	54	61	67	74	80	87	106	119	152	183
	18	66	74	82	90	98	106	130	146	186	225
	20	74	83	92	101	110	119	146	164	208	-
	25	94	106	117	129	140	152	186	208	-	-
	30	114	128	142	156	170	183	225	-	-	-

**RAIN GARDEN**



## Rain Garden Native Planting List

### **Perennials and Ferns:**

Blue false indigo (*Baptisia australis*)  
Blue flag iris (*Iris versicolor*)  
Blue star (*Amsonia tabernaemontana*)  
Blue vervain (*Verbena hastata*)  
Boltonia (*Boltonia asteroides*)  
Boneset (*Eupatorium perfoliatum*)  
Bottlebrush grass (*Hystrix patula*)  
Broomsedge (*Andropogon virginicus*)  
Cardinal flower (*Lobelia cardinalis*)  
Cinnamon fern (*Osmunda cinnamomea*)  
Culvers root (*Veronicastrum virginicum*)  
Golden ragwort (*Senecio aureus*)  
Goldenrod (*Solidago patula*, *S. rugosa*)  
Great blue lobelia (*Lobelia siphilitica*)  
Green bullrush (*Scirpus atrovirens*)  
Horsetail (*Equisetum* species)  
Marsh marigold (*Caltha palustris*)  
Mistflower (*Eupatorium coelestinum*)  
Monkey flower (*Mimulus ringens*)  
New England aster (*Aster novae-angliae*)  
New York aster (*Aster novi-belgii*)  
Obedient plant (*Physotegia virginiana*)  
Royal fern (*Osmunda regalis*)  
Seedbox (*Ludwigia alternifolia*)  
Sensitive fern (*Onoclea sensibilis*)  
Sneezeweed (*Helenium autumnale*)  
Soft rush (*Juncus effusus*)  
Swamp milkweed (*Asclepias incarnata*)  
Swamp rose mallow (*Hibiscus moscheutos*)  
Swamp sunflower (*Helianthus angustifolius*)  
Switchgrass (*Panicum virgatum*)  
Threadleaf coreopsis (*Coreopsis verticillata*)  
Tussock sedge (*Carex stricta*)  
White turtlehead (*Chelone glabra*)  
Woolgrass (*Scirpus cyperinus*)

### **Shrubs:**

American beautyberry (*Callicarpa americana*)  
Arrowwood (*Viburnum dentatum*)  
Black chokeberry (*Aronia melanocarpa*)  
Broad-leaved meadowsweet (*Spirea latifolia*)  
Buttonbush (*Cephalanthus occidentalis*)  
Elderberry (*Sambucus canadensis*)  
Inkberry (*Ilex glabra*)  
Narrow-leaved meadowsweet (*Spirea alba*)  
Ninebark (*Physocarpus opulifolius*)  
Possumhaw (*Viburnum nudum*)  
Red-osier dogwood (*Cornus sericea*)  
St. Johnswort (*Hypericum densiflorum*)  
Silky dogwood (*Cornus amomum*)  
Smooth alder (*Alnus serrulata*)  
Spicebush (*Lindera benzoin*)  
Swamp azalea (*Rhododendron viscosum*)  
Swamp rose (*Rosa palustris*)  
Sweet pepperbush (*Clethra alnifolia*)  
Wild raisin (*Viburnum cassinoides*)  
Winterberry (*Ilex verticillata*)  
Virginia sweetspire (*Itea virginica*)

