

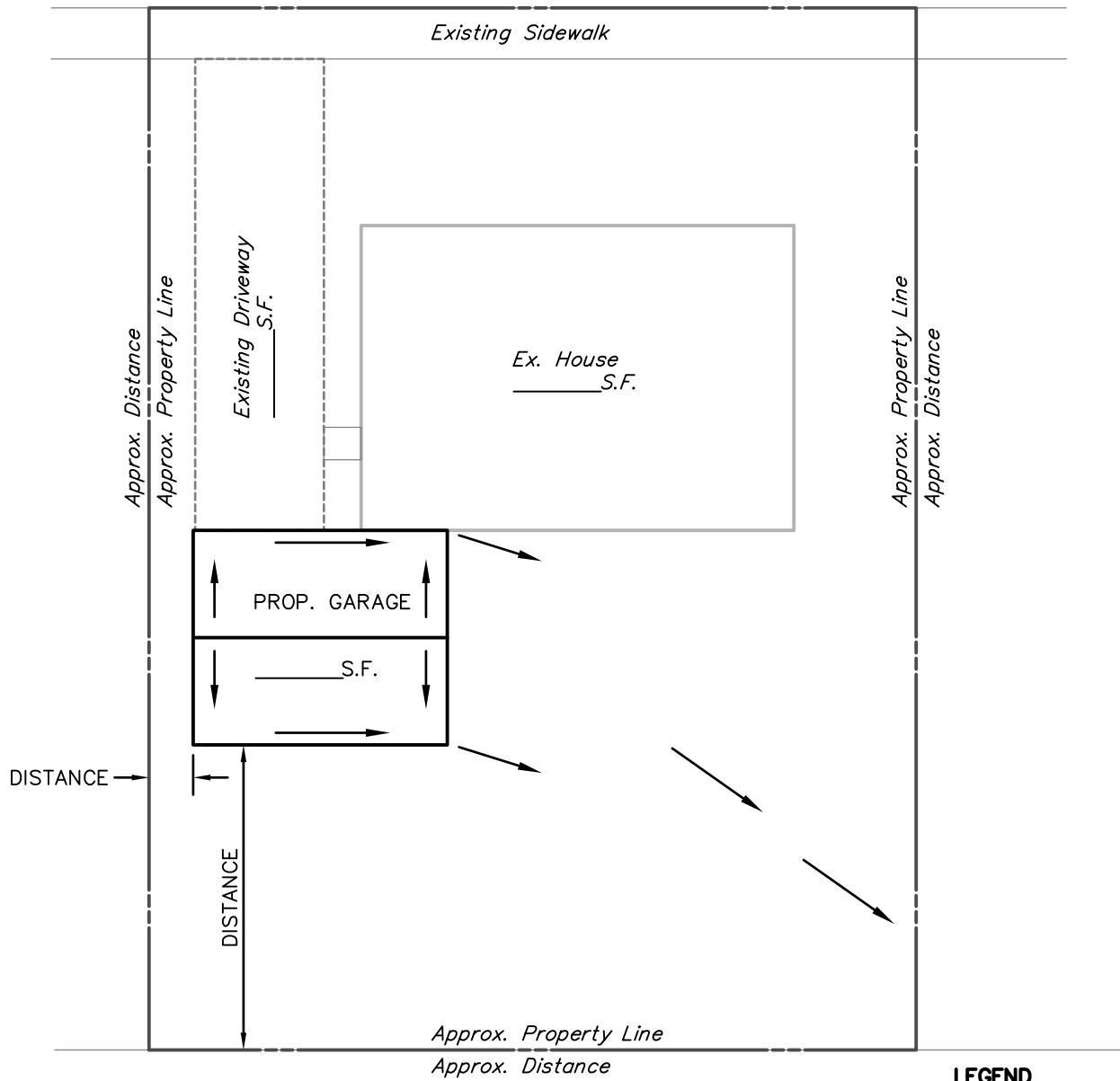
Spring Garden Township York County

Stormwater Management Small Projects Guide



NOTE:
THIS PLAN CAN
BE HAND DRAWN.

Main Street

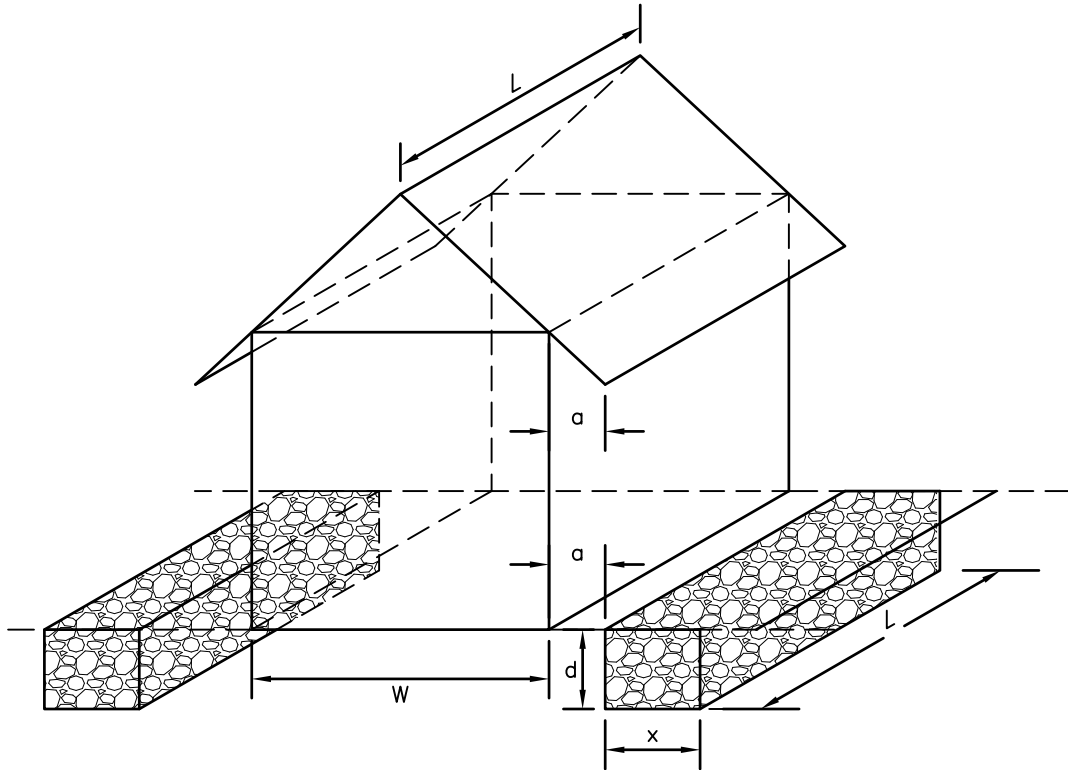


LEGEND

STORMWATER
FLOW DIRECTION →

Sample Alley

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 (Square Feet)	25	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
Total Required Storage Volume (Cubic Feet)	2	4	8	13	17	21	25	29	33	38	42	46	50	54	58	63	67	71	75	79	83
Required Storage Volume Per Pit (Cubic Feet)	1	2	4	6	8	10	13	15	17	19	21	23	25	27	29	31	33	35	38	40	42

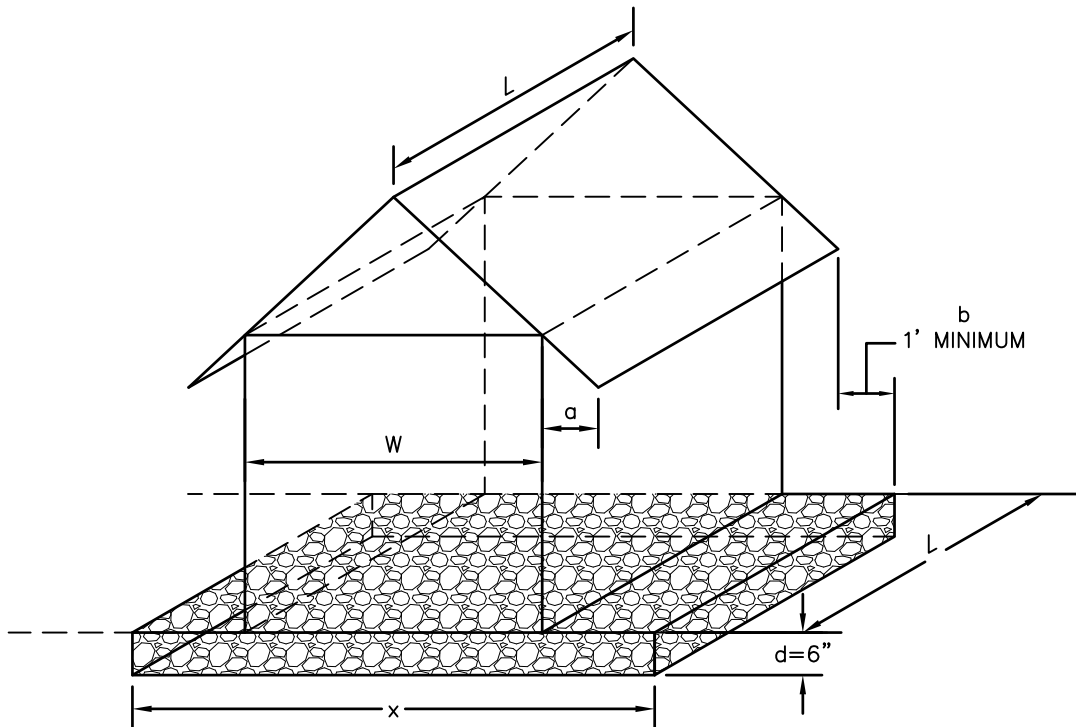
REQUIRED PIT SIZE

		Pit Width (x)									
		1	2	3	4	5	6	7	8	9	10
Pit Length (L)	5	4	8	12	16	20	24	28	32	36	40
	6	4.8	9.6	14	19	24	29	34	38	43.2	--
	7	5.6	11	17	22	28	34	39	45	--	--
	8	6.4	13	19	26	32	38	45	--	--	--
	9	7.2	14	22	29	36	43	--	--	--	--
	10	8	16	24	32	40	48	--	--	--	--
	15	12	24	36	48	--	--	--	--	--	--
	20	16	32	48	--	--	--	--	--	--	--
	25	20	40	--	--	--	--	--	--	--	--
	30	24	48	--	--	--	--	--	--	--	--
40	32	64	--	--	--	--	--	--	--	--	
50	40	80	--	--	--	--	--	--	--	--	

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 (Square Feet)	25	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
Required Volume of Pit (Cubic Feet)	2	4	8	13	17	21	25	29	33	38	42	46	50	54	58	63	67	71	75	79	83

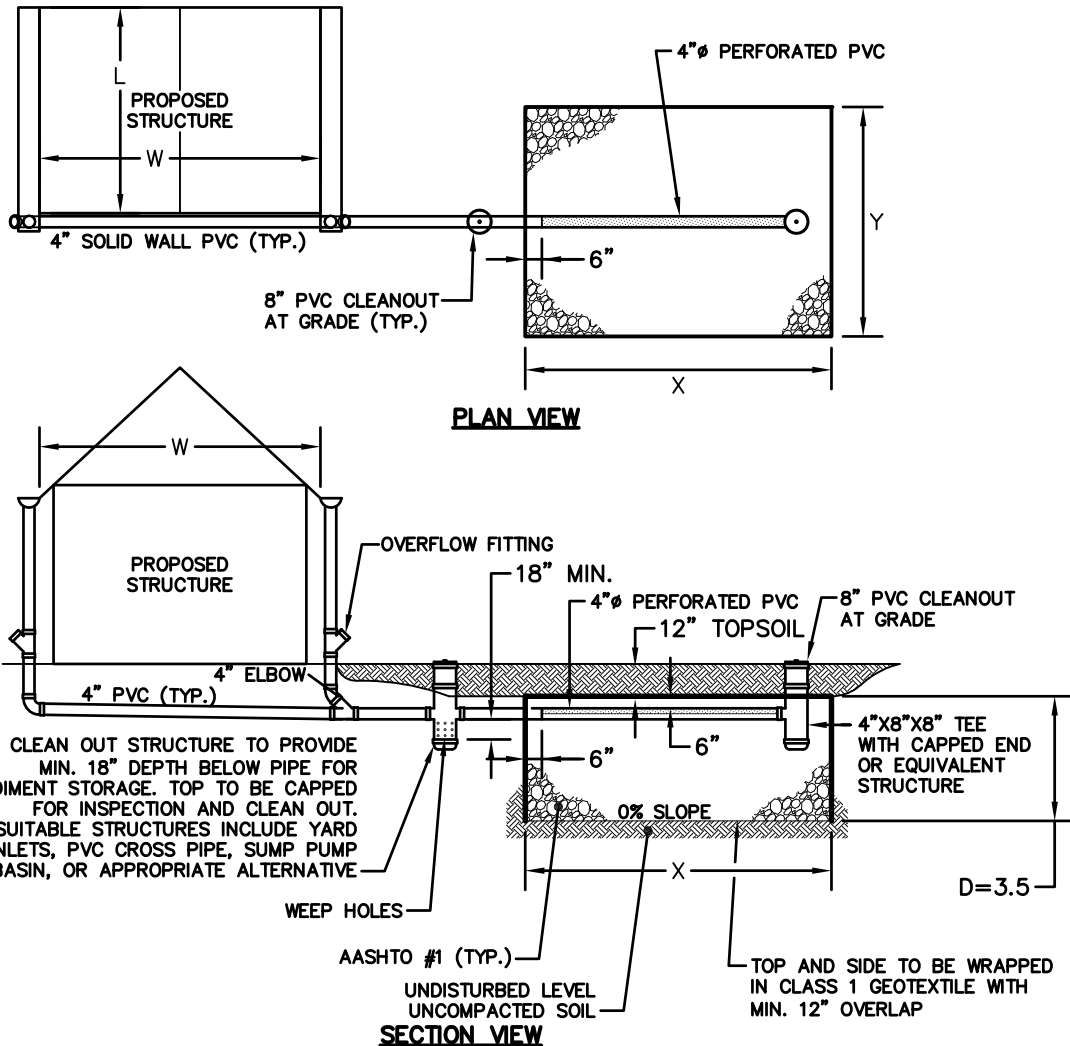
REQUIRED PIT SIZE

		Pit Width (x)										
		5	6	7	8	9	10	15	20	25	30	40
Pit Length (L)	5	5	6	7	8	9	10	15	20	25	30	40
	6	6	7.2	8.4	9.6	11	12	18	24	30	36	48
	7	7	8.4	9.8	11	13	14	21	28	35	42	56
	8	8	9.6	11	13	14	16	24	32	40	48	64
	9	9	11	13	14	16	18	27	36	45	54	72
	10	10	12	14	16	18	20	30	40	50	60	80
	12	12	14	17	19	22	24	36	48	60	72	96
	15	15	18	21	24	27	30	45	60	75	90	120
	18	18	22	25	29	32	36	54	72	90	108	144
	20	20	24	28	32	36	40	60	80	100	120	160
25	25	30	35	40	45	50	75	100	125	150	200	
30	30	36	42	48	54	60	90	120	150	180	--	
35	35	42	49	56	63	70	105	140	175	--	--	
40	40	48	56	64	72	80	120	160	200	--	--	
45	45	54	63	72	81	90	135	180	--	--	--	
50	50	60	70	80	90	100	150	200	--	--	--	

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 0%% SLOPE ON UNDISTURBED SOIL.
- 4.) BED TO BE CHECKED REGULARLY TO MAINTAIN PROPER OPERATION.

STRUCTURES WITHOUT GUTTERS B



REQUIRED STORAGE VOLUME

Impervious Area (Square Feet)	25	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
Required Volume of Pit (Cubic Feet)	2	4	8	13	17	21	25	29	33	38	42	46	50	54	58	63	67	71	75	79	83

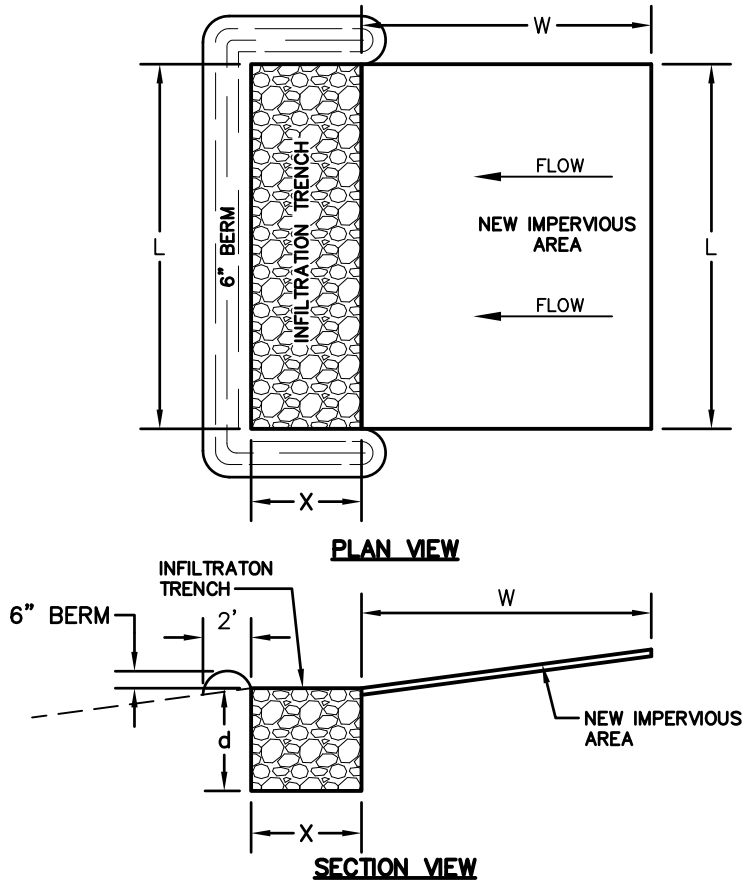
REQUIRED PIT SIZE

		Pit Width (X)										
		2	3	4	5	6	7	8	9	10	15	20
Pit Length (Y)	2	11	13	16	19	22	25	27	30	33	47	61
	3	13	18	22	26	30	34	39	43	47	68	89
	4	16	22	27	33	39	44	50	55	61	89	--
	5	19	26	33	40	47	54	61	68	75	--	--
	6	22	30	39	47	55	64	72	81	89	--	--
	7	25	34	44	54	64	74	83	93	--	--	--
	8	27	39	50	61	72	83	95	--	--	--	--
	9	30	43	55	68	81	93	--	--	--	--	--
	10	33	47	61	75	89	--	--	--	--	--	--
	15	47	68	89	--	--	--	--	--	--	--	--
20	61	89	--	--	--	--	--	--	--	--	--	

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



KEY

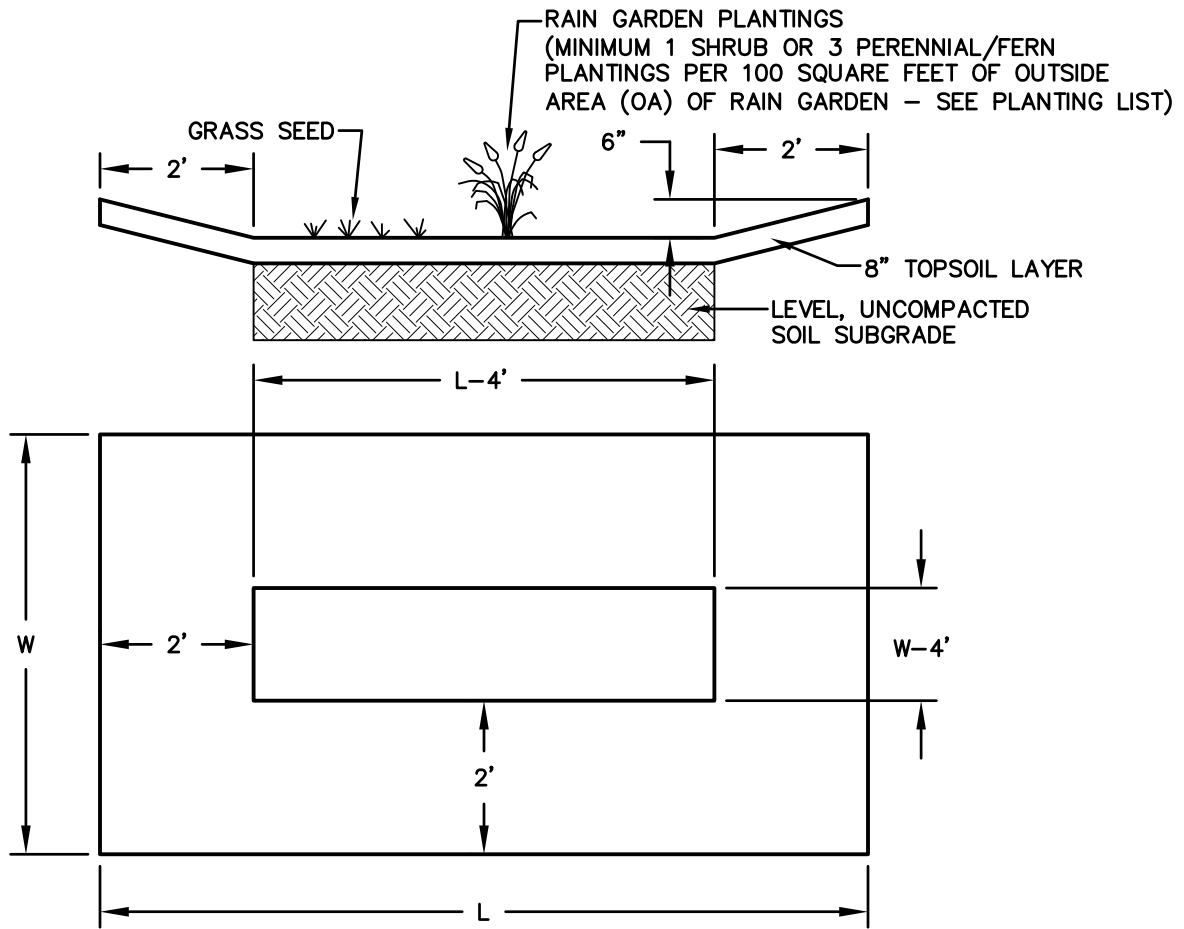
- L = LENGTH OF NEW IMPERVIOUS SURFACE (FT) = LENGTH OF INFILTRATION TRENCH
- W = WIDTH OF NEW IMPERVIOUS SURFACE TRENCH
- X = WIDTH OF SEEPAGE TRENCH (FT)
- d = DEPTH OF SEEPAGE TRENCH (FT) = 2'

NOTES

- 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 (Feet) - W	4	5	6	7	8	9	10	11	12	13	14	15	20	25	30
Required Pit Width (Feet) - X	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.3	1.4	1.5	1.6	2.1	2.6	3.1

AT GRADE IMPERVIOUS



REQUIRED STORAGE VOLUME																					
Impervious Area (Square Feet)	25	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
Required Volume of Rain Garden (Cubic Feet)	2	4	8	13	17	21	25	29	33	38	42	46	50	54	58	63	67	71	75	79	83

		REQUIRED RAIN GARDEN SIZE													
		Width (W)													
		4	5	6	7	8	9	10	15	20	25	30	35	40	
Length (L)	4	4	5	6	7	8	9	10	15	20	25	30	35	40	
	5	5	7	8	10	11	13	14	22	29	37	44	52	59	
	6	6	8	10	12	14	16	18	28	38	48	58	68	78	
	7	7	10	12	15	17	20	22	35	47	60	72	85	97	
	8	8	11	14	17	20	23	26	41	56	71	86	--	--	
	9	9	13	16	20	23	27	30	48	65	83	--	--	--	
	10	10	14	18	22	26	30	34	54	74	94	--	--	--	
	15	15	22	28	35	41	48	54	87	--	--	--	--	--	
	20	20	29	38	47	56	65	74	--	--	--	--	--	--	
	25	25	37	48	60	71	83	--	--	--	--	--	--	--	
	30	30	44	58	72	86	--	--	--	--	--	--	--	--	
35	35	52	68	85	--	--	--	--	--	--	--	--	--		
40	40	59	78	97	--	--	--	--	--	--	--	--	--		

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*)

Small Projects Guide - Sample Operation & Maintenance Plan**Construction:**

1. Install erosion and sedimentation control facilities.
2. Stormwater Management Facility shall be installed before impervious areas are completed. If earthwork is involved during the construction of the impervious area, then extreme caution shall be taken so that sediment does not wash into the SWM Facility.
3. Mark the locations of the SWM facility.
4. Excavate the SWM Facility to the required depth. Contact municipality for inspection prior to filling. If standing water is encountered, a SWM Site Plan may need to be submitted; contact Municipal Engineer. All excavated materials shall be removed from the site or stabilized.

For Stone Infiltration Structures

5. Line excavation with Geotextile.
6. Backfill SWM Facility with required stone. If required: Install piping, cleanouts and associated facilities as detailed.
7. If required: Close geotextile material over stone bedding.
8. If required: Place topsoil over trench.
9. Stabilize and seed all disturbed areas.

For Rain Gardens

5. Place topsoil over excavated area.
6. Install plantings as shown on the plan.
7. Stabilize and seed all disturbed areas.

Maintenance:

1. The SWM Facility shall be checked regularly to ensure that no standing water exists in the facility 3 days after a rain event. If water is encountered, the facility may need to be modified. Notification of the municipality is required if facility is not functioning before any modifications are made.
2. Monitor the SWM facility to ensure that no sediment, grass clippings, leaves, and other similar accumulations occur on top of, and/or within, the SWM Facility.
3. Homeowner to submit an inspection report to the Township one year after construction and every 3rd year thereafter.

I have read and agree to the above Operation and Maintenance Plan. I, as the property owner, am responsible for the proper construction and operation and maintenance for the SWM Facilities. If I fail to adhere to any of these tasks, the Township may perform the services required and charge the appropriate fees. Nonpayment of the fees may result in a lien against my property.

 Applicant Name (Printed)

 Signature

 Date