WORKSHEET 4. - COLLECTED ROOF RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: Bell Bend Nuclear Power Plant POI 1
Drainage Area: 762.06 (acres)
2-Year Rainfall: 3.00 **in.**

Total Site Area: 1218.00 **acres**
Protected Site Area: 382.29 **acres**
Managed Area: 835.71 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	741043	17.01	98.00	0.20	0.04	2.77	170950.44
Standing Water	NA	117176	2.69	98.00	0.20	0.04	2.77	27031.31
Woods-A	A	3194995	73.35	30.00	23.33	4.67	0.13	34134.57
Meadow-A	A	3607988	82.83	30.00	23.33	4.67	0.13	38546.88
Woods-C	C	10818474	248.36	70.00	4.29	0.86	0.71	643956.81
Meadow-C	C	7583578	174.10	71.00	4.08	0.82	0.76	480549.31
Woods-C/D	C/D	909010	20.87	74.00	3.51	0.70	0.91	68799.47
Meadow-C/D	C/D	885575	20.33	75.00	3.33	0.67	0.96	70903.86
Steep Slopes in A(C)	A	1608671	36.93	70.00	4.29	0.86	0.71	95754.21
Steep Slopes in C(D)	C	978358	22.46	77.00	2.99	0.60	1.07	87321.46
Woods-B/D	B/D	2058646	47.26	66.00	5.15	1.03	0.54	93464.19
Meadow-B/D	B/D	609579	13.99	68.00	4.71	0.94	0.63	31830.09
Cultivated Field A(C)	A	2258934	51.86	71.00	4.08	0.82	0.76	143142.11
Impervious Converted to Meadow A	A	52931	1.22	30.00	23.33	4.67	0.13	565.50
Standing Water Converted to Meadow A	A	7841	0.18	30.00	23.33	4.67	0.13	83.77
Impervious Converted to Meadow C	C	110240	2.53	71.00	4.08	0.82	0.76	6985.58
Standing Water Converted to Meadow C	C	17424	0.40	71.00	4.08	0.82	0.76	1104.11
Impervious Converted to Meadow C/D	C/D	13123	0.30	75.00	3.33	0.67	0.96	1050.67
Standing Water Converted to Meadow C/D	C/D	2178	0.05	75.00	3.33	0.67	0.96	174.38
Impervious Converted to Meadow B/D	B/D	9185	0.21	68.00	4.71	0.94	0.63	479.62
Standing Water Converted to Meadow B/D	B/D	1307	0.03	68.00	4.71	0.94	0.63	68.24
TOTAL:		**35372027**	**816.95**					**1996896.61**

Developed Conditions:

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	4540825	104.24	98.00	0.20	0.04	2.77	1047518.62
Woods-A	A	1417007	32.53	30.00	23.33	4.67	0.13	15138.96
Meadow-A	A	2861892	65.7	30.00	23.33	4.67	0.13	30575.77
Open Space-B	B	2855706	65.558	61.00	6.39	1.28	0.37	86891.22
Woods-C	C	9633730	221.16	70.00	4.29	0.86	0.71	573436.29
Meadow-C	C	7685291	176.43	71.00	4.08	0.82	0.76	486994.54
Woods-B/D	B/D	1943212	44.61	67.00	4.93	0.99	0.58	94728.06
Meadow B/D	B/D	572814	13.15	68.00	4.71	0.94	0.63	29910.36
Woods C/D	C/D	246114	5.65	74.00	3.51	0.70	0.91	18627.42
Meadow C/D	C/D	248292	5.7	74.00	3.51	0.70	0.91	18792.27
Const, Laydow Converted to Open Space B	B	459558	10.55	61.00	6.39	1.28	0.37	13983.07
Construction Laydown	NA	828076	19.01	85.00	1.76	0.35	1.59	109598.24
Rock Fill	NA	1681416	38.6	71.00	4.08	0.82	0.76	106546.45
TOTAL:		**34973932**	**802.89**					**2632741.27**

2-Year Volume Increase (cubic feet): 635844.66

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = Q = $(P-0.2S)^2$ / (P+0.8S) where

   P = 2-Year Rainfall (in)

   S = (1000/CN) - 10

2. Runoff Volume (CF) = Q x Area x 1/12 x 43,560 ft^2/acres

   Q = Runoff (in)

   Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. STRUCTURAL BMP VOLUME CREDITS

PROJECT: Bell Bend Nuclear Power Plant POI 1
SUB-BASIN: Walker Run & unnamed tributaries of Susquehanna River

Required Control Volume (cubic feet) - from Worksheet 4:		635844.66
Non-structural Volume Credit (cubic feet) - from Worksheet 3:	-	0.00
Strucutral Volume Reqmt (cubic feet):		635844.66

(Required Control Volume minus Non-structural Credit)

Proposed BMP		Area (ft^2)	Storage Volume (ft^3)
6.4.1	Porous Pavement		
6.4.2	Infiltation Basin		1,064,312.93
6.4.3	Infiltation Bed		
6.4.4	Infiltation Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well / Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond / Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration / Reforestation		
6.7.3	Soil Amendment		
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other			

Total Structural Volume (cubic feet):	1064312.93
Structural Volume Requirement (cubic feet):	635844.66
DIFFERENCE	428468.27

WORKSHEET 4. - COLLECTED ROOF RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: Bell Bend Nuclear Power Plant POI 2
Drainage Area: 347.70 (acres)
2-Year Rainfall: 3.00 **in.**

Total Site Area: 1218.00 **acres**
Protected Site Area: 382.29 **acres**
Managed Area: 835.71 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Woodland	A	2793503	64.13	30.00	23.33	4.67	0.13	29845.12
Meadow	A	1609542	36.95	30.00	23.33	4.67	0.13	17195.96
Impervious	NA	680843	15.63	98.00	0.20	0.04	2.77	157062.98
Woodland	C	3629419	83.32	70.00	4.29	0.86	0.71	216036.86
Meadow	C	5181898	118.96	71.00	4.08	0.82	0.76	328361.79
Cultivated Field A as Meadow	C	1080288	24.80	71.00	4.08	0.82	0.76	
Impervious Converted to Meadow	A	34848	0.80	30.00	23.33	4.67	0.13	372.31
Impervious Converted to Meadow	C	111949	2.57	71.00	4.08	0.82	0.76	7093.90
Impervious Converted to Meadow C - In Cultivated Fields A	C	23522	0.54	71.00	4.08	0.82	0.76	1490.55
TOTAL:		**15145812**	**347.70**					**757459.45**

Developed Conditions:

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	1478426	33.94	98.00	0.20	0.04	2.77	341056.78
Construction Laydown	NA	1276308	29.30	85.00	1.76	0.35	1.59	168923.12
Open Space	B	913889	20.98	61.00	6.39	1.28	0.37	27807.10
Woodland	A	1649182	37.86	30.00	23.33	4.67	0.13	17619.46
Meadow	A	1152162	26.45	30.00	23.33	4.67	0.13	12309.42
Woodland	C	3297928	75.71	70.00	4.29	0.86	0.71	196305.21
Meadow	C	4020588	92.30	71.00	4.08	0.82	0.76	254772.98
Construction Laydown converted to Open Space	B	213444	4.90	61.00	6.39	1.28	0.37	6494.51
TOTAL:		**14001926**	**321.44**					**1025288.58**

2-Year Volume Increase (cubic feet): 267829.13

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = $Q = (P-0.2S)^2 / (P+0.8S)$ where

   P = 2-Year Rainfall (in)

   S = (1000/CN) - 10

2. Runoff Volume (CF) = Q x Area x 1/12 x 43,560 ft^2/acres

   Q = Runoff (in)

   Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. STRUCTURAL BMP VOLUME CREDITS

PROJECT: Bell Bend Nuclear Power Plant POI 2
SUB-BASIN: Walker Run & unnamed tributaries of Susquehanna River

Required Control Volume (cubic feet) - from Worksheet 4:		267829.13
Non-structural Volume Credit (cubic feet) - from Worksheet 3:	-	0.00
Strucutral Volume Reqmt (cubic feet):		267829.13

(Required Control Volume minus Non-structural Credit)

Proposed BMP		Area (ft^2)	Storage Volume (ft^3)
6.4.1	Porous Pavement		
6.4.2	Infiltation Basin		190387.73
6.4.3	Infiltation Bed		
6.4.4	Infiltation Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well / Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond / Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration / Reforestation		
6.7.3	Soil Amendment		
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other			

Total Structural Volume (cubic feet):	190387.73
Structural Volume Requirement (cubic feet):	267829.13
DIFFERENCE	-77441.40

WORKSHEET 4. - COLLECTED ROOF RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: Bell Bend Nuclear Power Plant POI 3A
Drainage Area: 53.12 (acres)
2-Year Rainfall: 3.00 **in.**

Total Site Area: 1218.00 **acres**
Protected Site Area: 382.29 **acres**
Managed Area: 835.71 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	33454	0.77	98.00	0.20	0.04	2.77	7717.49
Standing Water	NA	6098	0.14	98.00	0.20	0.04	2.77	1406.83
Woodland	A	273034	6.27	30.00	23.33	4.67	0.13	2917.03
Meadow	A	281833	6.47	30.00	23.33	4.67	0.13	3011.04
Woodland	C	14375	0.33	70.00	4.29	0.86	0.71	855.64
Meadow	C	31799	0.73	71.00	4.08	0.82	0.76	2015.00
Meadow - In Steep Slopes	A	845848	19.42	71.00	4.08	0.82	0.76	53598.93
Woodland - In Steep Slopes	A	819059	18.80	70.00	4.29	0.86	0.71	48753.49
Impervious Converted to Meadow	A	836	0.02	30.00	23.33	4.67	0.13	8.94
Impervious Converted to Meadow	C	7527	0.17	71.00	4.08	0.82	0.76	476.97
TOTAL:		**2305500**	**53.12**					**120761.37**

Developed Conditions:

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
CONST. LAYDOWN	NA	1647875	37.83	85.00	1.76	0.35	1.59	218101.08
IMPERVIOUS	NA	323869	7.44	98.00	0.20	0.04	2.77	74712.94
Woodland - good	A	202554	4.65	30.00	23.33	4.67	0.13	2164.04
Meadow	A	1113394	25.56	30.00	23.33	4.67	0.13	11895.23
Open space (Lawns,parks etc.) - Good condition; grass cover > 75%	B	1921170	44.10	61.00	6.39	1.28	0.37	58455.88
Woodland	C	10890	0.25	70.00	4.29	0.86	0.71	648.21
TOTAL:		**5219751**	**119.83**					**365977.37**

2-Year Volume Increase (cubic feet): 245216.00

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = $Q = (P-0.2S)^2 / (P+0.8S)$ where

   P = 2-Year Rainfall (in)

   S = (1000/CN) - 10

2. Runoff Volume (CF) = Q x Area x 1/12 x 43,560 ft^2/acres

   Q = Runoff (in)

   Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. STRUCTURAL BMP VOLUME CREDITS

PROJECT: Bell Bend Nuclear Power Plant POI 3A
SUB-BASIN: Walker Run & unnamed tributaries of Susquehanna River

Required Control Volume (cubic feet) - from Worksheet 4:		245216.00
Non-structural Volume Credit (cubic feet) - from Worksheet 3:	-	0.00
Strucutral Volume Reqmt (cubic feet):		245216.00

(Required Control Volume minus Non-structural Credit)

Proposed BMP		Area (ft^2)	Storage Volume (ft^3)
6.4.1	Porous Pavement		
6.4.2	Infiltation Basin		368,680.07
6.4.3	Infiltation Bed		
6.4.4	Infiltation Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well / Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond / Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration / Reforestation		
6.7.3	Soil Amendment		
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other			

Total Structural Volume (cubic feet):	368680.07
Structural Volume Requirement (cubic feet):	245216.00
DIFFERENCE	123464.07

WORKSHEET 4. - COLLECTED ROOF RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: Bell Bend Nuclear Power Plant POI 3B
Drainage Area: 25.00 (acres)
2-Year Rainfall: 3.00 **in.**

Total Site Area: 1218.00 **acres**
Protected Site Area: 382.29 **acres**
Managed Area: 835.71 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	33454	0.77	98.00	0.20	0.04	2.77	7717.49
Woodland	A	853776	19.60	30.00	23.33	4.67	0.13	9121.54
Meadow	A	193406	4.44	30.00	23.33	4.67	0.13	2066.31
Impervious Converted to Meadow	A	8364	0.19	30.00	23.33	4.67	0.13	89.35
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
TOTAL:		**1089000**	**25.00**					**18994.69**

Developed Conditions:

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	0	0.00		0.00	0.00	3.00	0.00
Woodland	A	0	0.00		0.00	0.00	3.00	0.00
Meadow	A	0	0.00		0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
TOTAL:		**0**	**0.00**					**0.00**

2-Year Volume Increase (cubic feet): -18994.69

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = $Q = (P-0.2S)^2 / (P+0.8S)$ where

   P = 2-Year Rainfall (in)

   S = (1000/CN) - 10

2. Runoff Volume (CF) = Q x Area x 1/12 x 43,560 ft^2/acres

   Q = Runoff (in)

   Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. STRUCTURAL BMP VOLUME CREDITS

PROJECT: Bell Bend Nuclear Power Plant POI 3B
SUB-BASIN: Walker Run & unnamed tributaries of Susquehanna River

Required Control Volume (cubic feet) - from Worksheet 4:	-18994.69
Non-structural Volume Credit (cubic feet) - from Worksheet 3:	- 0.00
Strucutral Volume Reqmt (cubic feet):	-18994.69

(Required Control Volume minus Non-structural Credit)

Proposed BMP		Area (ft^2)	Storage Volume (ft^3)
6.4.1	Porous Pavement		
6.4.2	Infiltation Basin		
6.4.3	Infiltation Bed		
6.4.4	Infiltation Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well / Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond / Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration / Reforestation		
6.7.3	Soil Amendment		
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other			

Total Structural Volume (cubic feet):	0.00
Structural Volume Requirement (cubic feet):	-18994.69
DIFFERENCE	18994.69

WORKSHEET 4. - COLLECTED ROOF RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: Bell Bend Nuclear Power Plant POI 3C
Drainage Area: 6.73 (acres)
2-Year Rainfall: 3.00 **in.**

Total Site Area: 1218.00 **acres**
Protected Site Area: 382.29 **acres**
Managed Area: 835.71 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	37984	0.87	98.00	0.20	0.04	2.77	8762.57
Woodland	A	5227	0.12	30.00	23.33	4.67	0.13	55.85
Meadow	A	240451	5.52	30.00	23.33	4.67	0.13	2568.92
Impervious Converted to Meadov	A	9496	0.22	30.00	23.33	4.67	0.13	101.45
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
TOTAL:		**293159**	**6.73**					**11488.79**

Developed Conditions:

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	25265	0.58	98.00	0.20	0.04	2.77	5828.31
Woodland	A	37026	0.85	30.00	23.33	4.67	0.13	395.58
Meadow	A	104980	2.41	30.00	23.33	4.67	0.13	1121.58
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
TOTAL:		**167270**	**3.84**					**7345.47**

2-Year Volume Increase (cubic feet): -4143.32

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = $Q = (P-0.2S)^2 / (P+0.8S)$ where

   P = 2-Year Rainfall (in)

   S = (1000/CN) - 10

2. Runoff Volume (CF) = Q x Area x 1/12 x 43,560 ft^2/acres

   Q = Runoff (in)

   Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. STRUCTURAL BMP VOLUME CREDITS

PROJECT: Bell Bend Nuclear Power Plant POI 3C
SUB-BASIN: Walker Run & unnamed tributaries of Susquehanna River

Required Control Volume (cubic feet) - from Worksheet 4:		-4143.32
Non-structural Volume Credit (cubic feet) - from Worksheet 3:	-	0.00
Strucutral Volume Reqmt (cubic feet):		-4143.32

(Required Control Volume minus Non-structural Credit)

Proposed BMP		Area (ft^2)	Storage Volume (ft^3)
6.4.1	Porous Pavement		
6.4.2	Infiltation Basin		
6.4.3	Infiltation Bed		
6.4.4	Infiltation Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well / Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond / Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration / Reforestation		
6.7.3	Soil Amendment		
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other			

Total Structural Volume (cubic feet):	0.00
Structural Volume Requirement (cubic feet):	-4143.32
DIFFERENCE	4143.32

WORKSHEET 4. - COLLECTED ROOF RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: Bell Bend Nuclear Power Plant POI 4
Drainage Area: 103.00 (acres)
2-Year Rainfall: 3.00 **in.**

Total Site Area: 1218.00 **acres**
Protected Site Area: 382.29 **acres**
Managed Area: 835.71 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	43560	1.00	98.00	0.20	0.04	2.77	10048.82
Standing Water	NA	33977	0.78	98.00	0.20	0.04	2.77	7838.08
Woodland	A	913453	20.97	30.00	23.33	4.67	0.13	9759.12
Meadow	A	1729332	39.70	30.00	23.33	4.67	0.13	18475.77
Woodland	C	317552	7.29	70.00	4.29	0.86	0.71	18901.93
Meadow	C	1157389	26.57	71.00	4.08	0.82	0.76	73340.39
Woodland	B\D	219107	5.03	66.00	5.15	1.03	0.54	9947.63
Meadow	B\D	61420	1.41	68.00	4.71	0.94	0.63	3207.12
Impervious Conveted to Meadow	A	6316	0.15	30.00	23.33	4.67	0.13	67.48
Impervious Conveted to Meadow	C	4247	0.10	71.00	4.08	0.82	0.76	269.13
Impervious Conveted to Meadow	B\D	327	0.01	68.00	4.71	0.94	0.63	17.06
TOTAL:		**4475790**	**103.00**					**151872.51**

Developed Conditions:

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	105851	2.43	98.00	0.20	0.04	2.77	24418.62
Woodland	A	766220	17.59	30.00	23.33	4.67	0.13	8186.12
Meadow	A	1242331	28.52	30.00	23.33	4.67	0.13	13272.77
Woodland	C	132422	3.04	70.00	4.29	0.86	0.71	7882.29
Meadow	C	466963	10.72	70.00	4.29	0.86	0.71	27795.43
Woodland	B\D	199069	4.57	69.00	4.49	0.90	0.67	11109.60
Meadow	B\D	60548	1.39	68.00	4.71	0.94	0.63	3161.63
Construction Laydown	NA	530561	12.18	85.00	1.76	0.35	1.59	70221.28
Construction Laydown - Convert to Open Space B	NA	341075	7.83	61.00	6.39	1.28	0.37	10377.96
Open Space	B	40075	0.92	61.00	6.39	1.28	0.37	1219.38
TOTAL:		**3885116**	**89.19**					**177645.06**

2-Year Volume Increase (cubic feet): 25772.56

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = $Q = (P-0.2S)^2 / (P+0.8S)$ where

P = 2-Year Rainfall (in)

S = (1000/CN) - 10

2. Runoff Volume (CF) = Q x Area x 1/12 x 43,560 ft^2/acres

Q = Runoff (in)

Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. STRUCTURAL BMP VOLUME CREDITS

PROJECT: Bell Bend Nuclear Power Plant POI 4
SUB-BASIN: Walker Run & unnamed tributaries of Susquehanna River

Required Control Volume (cubic feet) - from Worksheet 4:		25772.56
Non-structural Volume Credit (cubic feet) - from Worksheet 3:	-	0.00
Strucutral Volume Reqmt (cubic feet):		25772.56

(Required Control Volume minus Non-structural Credit)

Proposed BMP		Area (ft^2)	Storage Volume (ft^3)
6.4.1	Porous Pavement		
6.4.2	Infiltation Basin		
6.4.3	Infiltation Bed		
6.4.4	Infiltation Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well / Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond / Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration / Reforestation		
6.7.3	Soil Amendment		
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other			

Total Structural Volume (cubic feet):	0.00
Structural Volume Requirement (cubic feet):	25772.56
DIFFERENCE	-25772.56

WORKSHEET 4. - COLLECTED ROOF RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: Bell Bend Nuclear Power Plant POI 5
Drainage Area: 59.99 (acres)
2-Year Rainfall: 3.00 **in.**

Total Site Area: 1218.00 **acres**
Protected Site Area: 382.29 **acres**
Managed Area: 835.71 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	63075	1.45	98.00	0.20	0.04	2.77	14550.68
Woodland	A	119137	2.74	30.00	23.33	4.67	0.13	1272.83
Meadow	A	1026709	23.57	30.00	23.33	4.67	0.13	10969.12
Woodland	C	5663	0.13	70.00	4.29	0.86	0.71	337.07
Meadow	C	236966	5.44	71.00	4.08	0.82	0.76	15015.87
Woodland - In Steep Slopes	A	119137	2.74	70.00	4.29	0.86	0.71	7091.46
Meadow - In Steep Slopes	A	1026709	23.57	71.00	4.08	0.82	0.76	65059.58
Impervious Converted to Meadow	A	7096	0.16	30.00	23.33	4.67	0.13	75.81
Impervious Converted to Meadow	C	1577	0.04	71.00	4.08	0.82	0.76	99.92
Impervious Converted to Meadow A - In Steep Slopes	C	7096	0.16	71.00	4.08	0.82	0.76	449.65
TOTAL:		**2613164**	**59.99**					**114921.99**

Developed Conditions:

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Construction Laydown	NA	933491	21.43	85.00	1.76	0.35	1.59	123550.25
Impervious	NA	379408	8.71	98.00	0.20	0.04	2.77	87525.18
Woodland	A	192971	4.43	30.00	23.33	4.67	0.13	2061.65
Open Space	B	730066	16.76	61.00	6.39	1.28	0.37	22213.87
Meadow	A	359370	8.25	30.00	23.33	4.67	0.13	3839.42
Woodland	C	4792	0.11	70.00	4.29	0.86	0.71	285.21
Meadow	C	30928	0.71	71.00	4.08	0.82	0.76	1959.79
		0			0.00	0.00	3.00	0.00
TOTAL:		**2631024**	**60.40**					**241435.38**

2-Year Volume Increase (cubic feet): 126513.39

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = $Q = (P-0.2S)^2 / (P+0.8S)$ where

   P = 2-Year Rainfall (in)

   S = (1000/CN) - 10

2. Runoff Volume (CF) = Q x Area x 1/12 x 43,560 ft^2/acres

   Q = Runoff (in)

   Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. STRUCTURAL BMP VOLUME CREDITS

PROJECT: Bell Bend Nuclear Power Plant POI 5
SUB-BASIN: Walker Run & unnamed tributaries of Susquehanna River

Required Control Volume (cubic feet) - from Worksheet 4:		126513.39
Non-structural Volume Credit (cubic feet) - from Worksheet 3:	-	0.00
Strucutral Volume Reqmt (cubic feet):		126513.39

(Required Control Volume minus Non-structural Credit)

Proposed BMP		Area (ft^2)	Storage Volume (ft^3)
6.4.1	Porous Pavement		
6.4.2	Infiltation Basin		241092.68
6.4.3	Infiltation Bed		
6.4.4	Infiltation Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well / Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond / Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration / Reforestation		
6.7.3	Soil Amendment		
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other			

Total Structural Volume (cubic feet):	241092.68
Structural Volume Requirement (cubic feet):	126513.39
DIFFERENCE	114579.29

WORKSHEET 4. - COLLECTED ROOF RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: Bell Bend Nuclear Power Plant POI 6
Drainage Area: 175.82 (acres)
2-Year Rainfall: 3.00 **in.**

Total Site Area: 1218.00 **acres**
Protected Site Area: 382.29 **acres**
Managed Area: 835.71 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	3346802	76.83	98.00	0.20	0.04	2.77	772070.55
Standing Water	NA	19863	0.46	98.00	0.20	0.04	2.77	4582.26
Woodland	A	896900	20.59	30.00	23.33	4.67	0.13	9582.27
Meadow	A	919987	21.12	30.00	23.33	4.67	0.13	9828.92
Woodland	C	820670	18.84	70.00	4.29	0.86	0.71	48849.43
Meadow	C	540144	12.40	71.00	4.08	0.82	0.76	34227.36
Woodland	B\D	86249	1.98	66.00	5.15	1.03	0.54	3915.77
Meadow	B\D	20909	0.48	68.00	4.71	0.94	0.63	1091.79
Impervious Converted to Meadow (Meadow A observed as C)	C	165528	3.80	71.00	4.08	0.82	0.76	
Impervious Converted to Meadow	A	470264	10.80	30.00	23.33	4.67	0.13	5024.19
Impervious Converted to Meadow	C	276102	6.34	71.00	4.08	0.82	0.76	17495.79
Impervious Converted to Meadow	B\D	10688	0.25	68.00	4.71	0.94	0.63	
Impervious Converted to Meadow (Meadow A observed as C)	C	84612	1.94	71.00	4.08	0.82	0.76	5361.61
TOTAL:		**6651525**	**175.82**					**912029.94**

Developed Conditions:

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Construction Laydown as Open Space	NA	328007	7.53	61.00	6.39	1.28	0.37	9980.34
Impervious	NA	4321785	99.21	98.00	0.20	0.04	2.77	996988.46
Open space (Lawns,parks etc.) - Good condition; grass cover > 75%	B	284447	6.53	61.00	6.39	1.28	0.37	8654.93
Woodland	A	816480	18.74	30.00	23.33	4.67	0.13	8723.08
Meadow	A	1018912	23.39	30.00	23.33	4.67	0.13	10885.81
Woodland	C	561227	12.88	70.00	4.29	0.86	0.71	33406.37
Meadow	C	453093	10.40	71.00	4.08	0.82	0.76	28711.20
Meadow	B\D	18295	0.42	68.00	4.71	0.94	0.63	955.31
Rail Subbase / Laydown	NA	33106	0.76	85.00	1.76	0.35	1.59	4381.62
Woodland	B\D	86249	1.98	66.00	5.15	1.03	0.54	3915.77
Standing Water	NA	24829	0.57	98.00	0.20	0.04	2.77	5727.82
TOTAL:		**7946430**	**182.42**					**1112330.71**

2-Year Volume Increase (cubic feet):	200300.77

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = $Q = (P-0.2S)^2 / (P+0.8S)$ where

P = 2-Year Rainfall (in)

S = (1000/CN) - 10

2. Runoff Volume (CF) = Q x Area x 1/12 x 43,560 ft^2/acres

Q = Runoff (in)

Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. STRUCTURAL BMP VOLUME CREDITS

PROJECT: Bell Bend Nuclear Power Plant POI 6
SUB-BASIN: Walker Run & unnamed tributaries of Susquehanna River

Required Control Volume (cubic feet) - from Worksheet 4:		200300.77
Non-structural Volume Credit (cubic feet) - from Worksheet 3:	-	0.00
Strucutral Volume Reqmt (cubic feet):		200300.77

(Required Control Volume minus Non-structural Credit)

Proposed BMP		Area (ft^2)	Storage Volume (ft^3)
6.4.1	Porous Pavement		
6.4.2	Infiltation Basin		43220.15
6.4.3	Infiltation Bed		
6.4.4	Infiltation Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well / Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond / Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration / Reforestation		
6.7.3	Soil Amendment		
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other			

Total Structural Volume (cubic feet):	43220.15
Structural Volume Requirement (cubic feet):	200300.77
DIFFERENCE	-157080.62

WORKSHEET 4. - COLLECTED ROOF RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: Bell Bend Nuclear Power Plant POI 7
Drainage Area: 22.40 (acres)
2-Year Rainfall: 3.00 **in.**

Total Site Area: 1218.00 **acres**
Protected Site Area: 382.29 **acres**
Managed Area: 835.71 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	45302	1.04	98.00	0.20	0.04	2.77	10450.77
Woodland	A	352836	8.10	30.00	23.33	4.67	0.13	3769.62
Meadow	A	540144	12.40	30.00	23.33	4.67	0.13	5770.77
Standing Water	NA	20909	0.48	98.00	0.20	0.04	2.77	4823.43
Impervious Converted to Meadow	A	16553	0.38	30.00	23.33	4.67	0.13	176.85
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
TOTAL:		**975744**	**22.40**					**24991.43**

Developed Conditions:

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	47916	1.10	98.00	0.20	0.04	2.77	11053.70
Woodland	A	339768	7.80	30.00	23.33	4.67	0.13	3630.00
Meadow	A	374616	8.60	30.00	23.33	4.67	0.13	4002.31
Open space (Lawns,parks etc.) - Good condition; grass cover > 75%	A	34848	0.80	39.00	15.64	3.13	0.00	3.08
Standing Water	NA	26136	0.60	98.00	0.20	0.04	2.77	6029.29
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
TOTAL:		**823284**	**18.90**					**24718.37**

2-Year Volume Increase (cubic feet): -273.06

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = $Q = (P-0.2S)^2 / (P+0.8S)$ where

P = 2-Year Rainfall (in)

S = (1000/CN) - 10

2. Runoff Volume (CF) = Q x Area x 1/12 x 43,560 ft^2/acres

Q = Runoff (in)

Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. STRUCTURAL BMP VOLUME CREDITS

PROJECT: Bell Bend Nuclear Power Plant POI 7
SUB-BASIN: Walker Run & unnamed tributaries of Susquehanna River

Required Control Volume (cubic feet) - from Worksheet 4:		-273.06
Non-structural Volume Credit (cubic feet) - from Worksheet 3:	-	0.00
Strucutral Volume Reqmt (cubic feet):		-273.06

(Required Control Volume minus Non-structural Credit)

Proposed BMP		Area (ft^2)	Storage Volume (ft^3)
6.4.1	Porous Pavement		
6.4.2	Infiltation Basin		
6.4.3	Infiltation Bed		
6.4.4	Infiltation Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well / Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond / Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration / Reforestation		
6.7.3	Soil Amendment		
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other			

Total Structural Volume (cubic feet):	0.00
Structural Volume Requirement (cubic feet):	-273.06
DIFFERENCE	273.06

WORKSHEET 4. - COLLECTED ROOF RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: Bell Bend Nuclear Power Plant POI 8
Drainage Area: 67.01 (acres)
2-Year Rainfall: 3.00 **in.**

Total Site Area: 1218.00 **acres**
Protected Site Area: 382.29 **acres**
Managed Area: 835.71 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	56105	1.29	98.00	0.20	0.04	2.77	12942.87
Woodland	A	39640	0.91	30.00	23.33	4.67	0.13	423.50
Woodland	C	1779426	40.85	70.00	4.29	0.86	0.71	105918.21
Meadow	C	1029758	23.64	71.00	4.08	0.82	0.76	65252.80
Impervious Converted to Meadow	C	14026	0.32	71.00	4.08	0.82	0.76	888.81
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
TOTAL:		**2918956**	**67.01**					**185426.19**

Developed Conditions:

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Impervious	NA	70132	1.61	98.00	0.20	0.04	2.77	16178.59
Woodland	A	14375	0.33	30.00	23.33	4.67	0.13	153.58
Woodland	C	1536361	35.27	70.00	4.29	0.86	0.71	91450.07
Meadow	C	1133867	26.03	71.00	4.08	0.82	0.76	71849.84
Open Space	B	62726	1.44	61.00	6.39	1.28	0.37	1908.59
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
TOTAL:		**2817461**	**64.68**					**181540.67**

2-Year Volume Increase (cubic feet): -3885.52

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = $Q = (P-0.2S)^2 / (P+0.8S)$ where

   P = 2-Year Rainfall (in)

   S = (1000/CN) - 10

2. Runoff Volume (CF) = Q x Area x 1/12 x 43,560 ft^2/acres

   Q = Runoff (in)

   Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. STRUCTURAL BMP VOLUME CREDITS

PROJECT: Bell Bend Nuclear Power Plant POI 8
SUB-BASIN: Walker Run & unnamed tributaries of Susquehanna River

Required Control Volume (cubic feet) - from Worksheet 4:	-3885.52
Non-structural Volume Credit (cubic feet) - from Worksheet 3:	- 0.00
Strucutral Volume Reqmt (cubic feet):	-3885.52

(Required Control Volume minus Non-structural Credit)

Proposed BMP		Area (ft^2)	Storage Volume (ft^3)
6.4.1	Porous Pavement		
6.4.2	Infiltation Basin		
6.4.3	Infiltation Bed		
6.4.4	Infiltation Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well / Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond / Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration / Reforestation		
6.7.3	Soil Amendment		
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other			

Total Structural Volume (cubic feet):	0.00
Structural Volume Requirement (cubic feet):	-3885.52
DIFFERENCE	3885.52

WORKSHEET 4. - COLLECTED ROOF RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: Bell Bend Nuclear Power Plant POI 9
Drainage Area: 64.23 (acres)
2-Year Rainfall: 3.00 **in.**

Total Site Area: 1218.00 **acres**
Protected Site Area: 382.29 **acres**
Managed Area: 835.71 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Woodland	C	1854785	42.58	70.00	4.29	0.86	0.71	110403.86
Meadow	C	566280	13.00	71.00	4.08	0.82	0.76	35883.52
Impervious	NA	29272	0.67	98.00	0.20	0.04	2.77	6752.80
Impervious Converted to Meadow	C	7318	0.17	71.00	4.08	0.82	0.76	463.73
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
TOTAL:		**2457655**	**56.42**					**153503.90**

Developed Conditions:

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Construction Laydown	NA	323651	7.43	85.00	1.76	0.35	1.59	42836.14
Impervious	NA	87120	2.00	98.00	0.20	0.04	2.77	20097.63
Woodland	C	1503256	34.51	70.00	4.29	0.86	0.71	89479.50
Meadow	C	417305	9.58	71.00	4.08	0.82	0.76	26443.39
Open Space	B	292288	6.71	61.00	6.39	1.28	0.37	8893.50
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
TOTAL:		**2623619**	**60.23**					**187750.16**

2-Year Volume Increase (cubic feet):	34246.25

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = Q = $(P-0.2S)^2 / (P+0.8S)$ where

P = 2-Year Rainfall (in)

S = (1000/CN) - 10

2. Runoff Volume (CF) = Q x Area x 1/12 x 43,560 ft^2/acres

Q = Runoff (in)

Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. STRUCTURAL BMP VOLUME CREDITS

PROJECT: Bell Bend Nuclear Power Plant POI 9
SUB-BASIN: Walker Run & unnamed tributaries of Susquehanna River

Required Control Volume (cubic feet) - from Worksheet 4:		34246.25
Non-structural Volume Credit (cubic feet) - from Worksheet 3:	-	0.00
Strucutral Volume Reqmt (cubic feet):		34246.25

(Required Control Volume minus Non-structural Credit)

Proposed BMP		Area (ft^2)	Storage Volume (ft^3)
6.4.1	Porous Pavement		
6.4.2	Infiltation Basin		29937.68
6.4.3	Infiltation Bed		
6.4.4	Infiltation Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well / Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond / Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration / Reforestation		
6.7.3	Soil Amendment		
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other			

Total Structural Volume (cubic feet):	29937.68
Structural Volume Requirement (cubic feet):	34246.25
DIFFERENCE	-4308.57

WORKSHEET 4. - COLLECTED ROOF RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: Bell Bend Nuclear Power Plant POI 10
Drainage Area: 260.29 (acres)
2-Year Rainfall: 3.00 **in.**

Total Site Area: 1218.00 **acres**
Protected Site Area: 382.29 **acres**
Managed Area: 835.71 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Woodland	C	7523683	172.72	70.00	4.29	0.86	0.71	447838.29
Meadow	C	3387661	77.77	71.00	4.08	0.82	0.76	214666.25
Impervious	NA	192012	4.41	98.00	0.20	0.04	2.77	44295.18
Woodland	C/D	110207	2.53	74.00	3.51	0.70	0.91	8341.13
Standing Water	NA	61332	1.41	98.00	0.20	0.04	2.77	14148.73
Impervious Converted to Meadow	C	63249	1.45	71.00	4.08	0.82	0.76	4007.91
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
TOTAL:		**11338145**	**260.29**					**733297.48**

Developed Conditions:

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Woodland	C	7343345	168.58	70.00	4.29	0.86	0.71	437103.86
Meadow	C	3447774	79.15	71.00	4.08	0.82	0.76	218475.42
Impervious/Standing Water	NA	332363	7.63	98.00	0.20	0.04	2.77	76672.46
Woodland	C/D	110207	2.53	74.00	3.51	0.70	0.91	8341.13
Open Space	B	51401	1.18	61.00	6.39	1.28	0.37	1563.98
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
		0			0.00	0.00	3.00	0.00
TOTAL:		**11285089**	**259.07**					**742156.85**

2-Year Volume Increase (cubic feet):	8859.37

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = $Q = (P-0.2S)^2 / (P+0.8S)$ where

   P = 2-Year Rainfall (in)

   S = (1000/CN) - 10

2. Runoff Volume (CF) = Q x Area x 1/12 x 43,560 ft^2/acres

   Q = Runoff (in)

   Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

Worksheet 5. STRUCTURAL BMP VOLUME CREDITS

PROJECT: Bell Bend Nuclear Power Plant POI 10
SUB-BASIN: Walker Run & unnamed tributaries of Susquehanna River

Required Control Volume (cubic feet) - from Worksheet 4:		8859.37
Non-structural Volume Credit (cubic feet) - from Worksheet 3:	-	0.00
Strucutral Volume Reqmt (cubic feet):		8859.37

(Required Control Volume minus Non-structural Credit)

Proposed BMP		Area (ft^2)	Storage Volume (ft^3)
6.4.1	Porous Pavement		
6.4.2	Infiltation Basin		
6.4.3	Infiltation Bed		
6.4.4	Infiltation Trench		
6.4.5	Rain Garden/Bioretention		
6.4.6	Dry Well / Seepage Pit		
6.4.7	Constructed Filter		
6.4.8	Vegetated Swale		
6.4.9	Vegetated Filter Strip		
6.4.10	Berm		
6.5.1	Vegetated Roof		
6.5.2	Capture and Re-use		
6.6.1	Constructed Wetlands		
6.6.2	Wet Pond / Retention Basin		
6.6.3	Dry Extended Detention Basin		
6.6.4	Water Quality Filters		
6.7.1	Riparian Buffer Restoration		
6.7.2	Landscape Restoration / Reforestation		
6.7.3	Soil Amendment		
6.8.1	Level Spreader		
6.8.2	Special Storage Areas		
Other			

Total Structural Volume (cubic feet):	0.00
Structural Volume Requirement (cubic feet):	8859.37
DIFFERENCE	-8859.37