

Volume Control Performance Standard Comparison Case Study – Shady Wood Residential Development

Introduction

The Environmental Resources Technical Advisory Committee (TAC) reviewed a summary of several existing volume control standards from around the country at their November 12, 2009 meeting. The group agreed that it would be useful to calculate and compare the runoff volumes and required volume control under each performance standard for a case study site. The proposed Shady Wood residential development in the City of Madison was selected for the analysis.

Site Information

The Urban Service Area Amendment application for Shady Wood included the following information for the site:

- 44.1 acres (22.5 acres residential, 15.4 acres street r-o-w, 6.2 acres open space)
- Hydrologic Soil Group (HSG) 'B' soils
- 135 housing units

The City of Madison - Engineering provided the following additional information:

- R-O-W = 51.66% street, 31.66% terrace, 16.68% sidewalk
- Lots = 46.4% yard, 40.5% roof, 13.1% driveway / walkway

Based on this information the following table shows the acreage of pervious (open space, terrace, yards) and impervious (driveways, roofs, sidewalks, streets) areas to be used in runoff volume modeling. The total site imperviousness is 51.2%.

Land Use Description	Area (acres)
Driveways	2.947
Open Space	6.200
Roofs	9.113
Sidewalks	2.569
Streets	7.956
Terrace	4.876
Yards	10.440

Performance Standard Modeling

The volume control performance standards to be compared include some standards based on rainfall series (which were modeled with SLAMM) and some standards based on event based design storms (which were modeled with HydroCAD). To facilitate comparison between the series and event-based standards, the maximum rainfall event within the series was also evaluated.

Comparison of Runoff Volume Control Standards

Standard	Pre-Development Runoff Volume (acre-foot)	Post-Development Runoff Volume Before Controls (acre-foot)	Volume Control Required (acre-foot)	Post-Development Runoff Volume After Controls (acre-foot)	Methodology
Rainfall Series Modeling					
1-yr series post = 60% pre	6.36	40.73	0	40.73	SLAMM
1-yr series post = 90% pre	6.36	40.73	24.33	16.40	SLAMM
1-yr series post = 100% pre	6.36	40.73	34.37	6.36	SLAMM
5-yr series post = 100% pre ¹	5.97	40.12	34.15	5.97	SLAMM
Event Based Modeling					
1-yr series max. event (2.59") post = 60% pre	1.90	4.80	0	4.80	SLAMM
1-yr series max. event (2.59") post = 90% pre	1.90	4.82	2.15	2.67	SLAMM
1-yr series max. event (2.59") post = 100% pre	1.90	4.82	2.92	1.90	SLAMM
5-yr series max. event (3.03") post = 100% pre	2.23	5.68	3.45	2.23	SLAMM
95 th percentile runoff - 1981 (1.27")	--	--	1.93		SLAMM
95 th percentile runoff - 1948-1999 (1.15")	--	--	1.74		SLAMM
First 1" depth impervious runoff	--	--	1.69		CRWD Formula ²
Design Storms - Post Development Soils Compacted to HSG 'C'					
Post = Pre 1yr 24hr (2.5")	1.43	4.57	3.14	1.43	HydroCAD
Post = Pre 2yr 24hr (2.9")	2.12	5.80	3.68	2.12	HydroCAD
Post = Pre 10yr 24hr (4.2")	4.90	10.03	5.13	4.90	HydroCAD
Post = Pre 100yr 24hr (6.0")	9.63	16.21	6.58	9.63	HydroCAD
Design Storms - Post Development Soils Uncompacted (HSG 'B')					
Post = Pre 1yr 24hr (2.5")	1.43	3.27	1.84	1.43	HydroCAD
Post = Pre 2yr 24hr (2.9")	2.12	4.32	2.20	2.12	HydroCAD
Post = Pre 10yr 24hr (4.2")	4.90	8.12	3.22	4.90	HydroCAD
Post = Pre 100yr 24hr (6.0")	9.63	13.90	4.27	9.63	HydroCAD

¹ Annual average of 5-yr series total

² Capitol Region Watershed District (Twin Cities) Formula: Required Volume (acre-ft) = Impervious surfaces (acres) x 1.0 (in) x 0.9 coefficient x 1/12 (ft/in)

Appendix A – Calculations & Model Output

SLAMM Modeling Assumptions:

- Silty soils
- Average annual rainfall per NR 151: Madison, 1981 (Mar. 12–Dec. 2) = 28.81”

Pre-Development Conditions

Annual pre-development total losses = 27.09” (see SLAMM output)

Annual pre-development runoff volume = 6.36 acre-ft (see SLAMM output)

Annual pre-development stay-on volume = 44.1 acres x 27.09” / 12 = 99.56 acre-ft

Post-Development Conditions

Annual post-development total losses = 17.76” (see SLAMM output)

Annual post-development runoff volume = 40.73 acre-ft (see SLAMM output)

Annual post-development stay-on volume = 44.1 acres x 17.76” / 12 = 65.27 acre-ft

60% Requirement

Maintain 60% of annual pre-development infiltration (stay-on)

60% x 99.56 = 59.74 acre-ft

Annual additional volume control required to meet the standard:

59.74 – 65.27 = 0 acre-ft

Annual runoff volume increase with standard

99.56 – 65.27 = 34.29 acre-ft

539% increase in annual runoff volume over pre-development conditions

90% Requirement

Maintain 90% of annual pre-development infiltration (stay-on)

90% x 99.56 = 89.60 acre-ft

Annual additional volume control required to meet the standard:

89.60 – 65.27 = 24.33 acre-ft

Annual runoff volume increase with standard

99.56 – 89.60 = 9.96 acre-ft

156% increase in annual runoff volume over pre-development conditions

Highest Single Event of Annual Series: June 15, 1981 = 2.59"

Pre-Development Conditions

Pre-development total losses = 2.07" (see SLAMM output)

Pre-development runoff volume = 1.90 acre-ft (see SLAMM output)

Pre-development stay-on volume = 44.1 acres x 2.07" / 12 = 7.61 acre-ft

Post-Development Conditions

Post-development total losses = 1.28" (see SLAMM output)

Post-development runoff volume = 4.82 acre-ft (see SLAMM output)

Post-development stay-on volume = 44.1 acres x 1.28" / 12 = 4.70 acre-ft

60% Requirement

Maintain 60% of pre-development infiltration (stay-on)

60% x 7.61 = 4.57 acre-ft

Additional volume control required to meet the standard:

4.57 – 4.70 = 0 acre-ft

Runoff volume increase with standard

7.61 – 4.70 = 2.91 acre-ft

153% increase in runoff volume over pre-development conditions

90% Requirement

Maintain 90% of pre-development infiltration (stay-on)

90% x 7.61 = 6.85 acre-ft

Additional volume control required to meet the standard:

6.85 – 4.70 = 2.15 acre-ft

Runoff volume increase with standard

7.61 – 6.85 = 0.76 acre-ft

40% increase in runoff volume over pre-development conditions

HydroCAD Modeling

Assumptions

- Predevelopment runoff curve number = 68 (HSG 'B')
- Weighted post-development curve number = 86 (based on above percentages & soil compacted to HSG 'C')
- Weighted post-development curve number = 80 (based on above percentages & uncompacted soil i.e. HSG 'B')

Data File: Shady_Wood.DAT

Rain File: WisReg - Madison WI 1981.RAN

Date: 12-02-09 Time: 9:16:13 AM

Site Description: Shady_Wood

Total Area, with Drainage and Outfall Controls - Runoff Volume (cu. ft)

Start Date	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls	Rv	Total Losses (in)	Calculated CN*	Peak Reduction Factor	Flushing Ratio	Det. Basin Out. Struct. Failed (I.u. #-src. area #)	Pre-Dev. Runoff Volume (cf)
01/01/81	-	-	-	-	-	-	-	-	-	-	-
01/06/81	-	-	-	-	-	-	-	-	-	-	-
01/06/81	-	-	-	-	-	-	-	-	-	-	-
01/15/81	-	-	-	-	-	-	-	-	-	-	-
01/31/81	-	-	-	-	-	-	-	-	-	-	-
02/05/81	-	-	-	-	-	-	-	-	-	-	-
02/06/81	-	-	-	-	-	-	-	-	-	-	-
02/08/81	-	-	-	-	-	-	-	-	-	-	-
02/09/81	-	-	-	-	-	-	-	-	-	-	-
02/10/81	-	-	-	-	-	-	-	-	-	-	-
02/21/81	-	-	-	-	-	-	-	-	-	-	-
02/23/81	-	-	-	-	-	-	-	-	-	-	-
02/27/81	-	-	-	-	-	-	-	-	-	-	-
03/10/81	-	-	-	-	-	-	-	-	-	-	-
03/25/81	0.07	2222	2222	2222	0.20	0.06	98.9	-	-	-	-
03/29/81	0.05	1340	1340	1340	0.17	0.04	99.1	-	-	-	-
03/29/81	0.06	1756	1756	1756	0.18	0.05	99.0	-	-	-	-
03/29/81	0.07	2222	2222	2222	0.20	0.06	98.9	-	-	-	-
04/03/81	0.02	129.7	129.7	129.7	0.04	0.02	99.4	-	-	-	-
04/03/81	0.26	12777	12777	12777	0.31	0.18	97.1	-	-	-	-
04/07/81	0.71	45056	45056	45056	0.40	0.43	94.1	-	-	-	-
04/08/81	0.41	22432	22432	22432	0.34	0.27	95.9	-	-	-	-
04/10/81	1.06	69169	69169	69169	0.41	0.63	91.7	-	-	-	-
04/12/81	0.13	5743	5743	5743	0.28	0.09	98.4	-	-	-	-
04/13/81	0.32	16430	16430	16430	0.32	0.22	96.6	-	-	-	-
04/16/81	0.01	10.50	10.50	10.50	0.01	0.01	99.6	-	-	-	-
04/19/81	0.04	973.6	973.6	973.6	0.15	0.03	99.2	-	-	-	-
04/22/81	0.01	10.50	10.50	10.50	0.01	0.01	99.6	-	-	-	-
04/22/81	0.02	129.7	129.7	129.7	0.04	0.02	99.4	-	-	-	-
04/23/81	0.05	1340	1340	1340	0.17	0.04	99.1	-	-	-	-
04/28/81	0.30	15183	15183	15183	0.32	0.21	96.7	-	-	-	-
04/28/81	0.06	1756	1756	1756	0.18	0.05	99.0	-	-	-	-
04/30/81	0.02	129.7	129.7	129.7	0.04	0.02	99.4	-	-	-	-
05/04/81	0.09	3303	3303	3303	0.23	0.07	98.7	-	-	-	-
05/10/81	0.08	2737	2737	2737	0.21	0.06	98.8	-	-	-	-
05/13/81	0.01	10.50	10.50	10.50	0.01	0.01	99.6	-	-	-	-
05/23/81	0.02	129.7	129.7	129.7	0.04	0.02	99.4	-	-	-	-
05/24/81	0.10	3919	3919	3919	0.24	0.08	98.6	-	-	-	-
05/29/81	0.34	17706	17706	17706	0.33	0.23	96.4	-	-	-	-
06/02/81	0.01	10.50	10.50	10.50	0.01	0.01	99.6	-	-	-	-

Data File: Shady_Wood.DAT

10/13/81	1.20	79357	79357	79357	0.41	0.70	90.8					
10/15/81	0.02	129.7	129.7	129.7	0.04	0.02	99.4					
10/17/81	0.95	61416	61416	61416	0.40	0.57	92.4					
10/18/81	0.06	1756	1756	1756	0.18	0.05	99.0					
10/21/81	0.06	1756	1756	1756	0.18	0.05	99.0					
10/21/81	0.01	10.50	10.50	10.50	0.01	0.01	99.6					
10/24/81	0.01	10.50	10.50	10.50	0.01	0.01	99.6					
10/31/81	0.01	10.50	10.50	10.50	0.01	0.01	99.6					
11/05/81	0.04	973.6	973.6	973.6	0.15	0.03	99.2					
11/15/81	0.07	2222	2222	2222	0.20	0.06	98.9					
11/18/81	0.05	1340	1340	1340	0.17	0.04	99.1					
11/19/81	0.26	12777	12777	12777	0.31	0.18	97.1					
11/23/81	0.18	8308	8308	8308	0.29	0.13	97.8					
11/25/81	0.89	57441	57441	57441	0.40	0.53	92.8					
11/30/81	0.37	19676	19676	19676	0.33	0.25	96.2					
12/03/81	-	-	-	-	-	-	-					
12/14/81	-	-	-	-	-	-	-					
12/20/81	-	-	-	-	-	-	-					
12/26/81	-	-	-	-	-	-	-					
12/31/81	-	-	-	-	-	-	-					

Summary for All Events *Note: NRCS does not recommend using CN method for rains < 0.5 in. See 'PreDevelopment Areas and CN' Help for more info.

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls	Rv	Total Losses (in)	Calculated CN*	Peak Reduction Factor	Flushing Ratio		Pre-Dev. Runoff Volume (cf)		
Number of Rains:		90	90	90									
Minimum:	0.01	10.50	10.50	10.50	0.01	0.01	85.9						
Maximum:	2.59	209962	209962	209962	0.51	1.28	99.6						
Average:	0.32	19706	19706	19706	0.38	0.16	97.6						
Total:	28.81	1.774E+06	1.774E+06	1.774E+06		17.76							

Data File: Shady_Wood_pre.DAT

Rain File: WisReg - Madison WI 1981.RAN

Date: 12-02-09 Time: 9:36:52 AM

Site Description: Shady_Wood

Total Area, with Drainage and Outfall Controls - Runoff Volume (cu. ft)

Start Date	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls	Rv	Total Losses (in)	Calculated CN*	Peak Reduction Factor	Flushing Ratio	Det. Basin Out. Struct. Failed (I.u. #-src. area #)	Pre-Dev. Runoff Volume (cf)
01/01/81	-	-	-	-	-	-	-	-	-	-	-
01/06/81	-	-	-	-	-	-	-	-	-	-	-
01/06/81	-	-	-	-	-	-	-	-	-	-	-
01/15/81	-	-	-	-	-	-	-	-	-	-	-
01/31/81	-	-	-	-	-	-	-	-	-	-	-
02/05/81	-	-	-	-	-	-	-	-	-	-	-
02/06/81	-	-	-	-	-	-	-	-	-	-	-
02/08/81	-	-	-	-	-	-	-	-	-	-	-
02/09/81	-	-	-	-	-	-	-	-	-	-	-
02/10/81	-	-	-	-	-	-	-	-	-	-	-
02/21/81	-	-	-	-	-	-	-	-	-	-	-
02/23/81	-	-	-	-	-	-	-	-	-	-	-
02/27/81	-	-	-	-	-	-	-	-	-	-	-
03/10/81	-	-	-	-	-	-	-	-	-	-	-
03/25/81	0.07	0	0	0	0.00	0.07	N/A				0
03/29/81	0.05	0	0	0	0.00	0.05	N/A				0
03/29/81	0.06	0	0	0	0.00	0.06	N/A				0
03/29/81	0.07	0	0	0	0.00	0.07	N/A				0
04/03/81	0.02	0	0	0	0.00	0.02	N/A				0
04/03/81	0.26	280.4	280.4	280.4	0.01	0.26	90.3				0
04/07/81	0.71	4237	4237	4237	0.04	0.68	81.6				0
04/08/81	0.41	1427	1427	1427	0.02	0.40	87.3				0
04/10/81	1.06	7989	7989	7989	0.05	1.01	75.9				468.5
04/12/81	0.13	0	0	0	0.00	0.13	N/A				0
04/13/81	0.32	673.0	673.0	673.0	0.01	0.32	89.0				0
04/16/81	0.01	0	0	0	0.00	0.01	N/A				0
04/19/81	0.04	0	0	0	0.00	0.04	N/A				0
04/22/81	0.01	0	0	0	0.00	0.01	N/A				0
04/22/81	0.02	0	0	0	0.00	0.02	N/A				0
04/23/81	0.05	0	0	0	0.00	0.05	N/A				0
04/28/81	0.30	528.5	528.5	528.5	0.01	0.30	89.4				0
04/28/81	0.06	0	0	0	0.00	0.06	N/A				0
04/30/81	0.02	0	0	0	0.00	0.02	N/A				0
05/04/81	0.09	0	0	0	0.00	0.09	N/A				0
05/10/81	0.08	0	0	0	0.00	0.08	N/A				0
05/13/81	0.01	0	0	0	0.00	0.01	N/A				0
05/23/81	0.02	0	0	0	0.00	0.02	N/A				0
05/24/81	0.10	0	0	0	0.00	0.10	N/A				0
05/29/81	0.34	831.2	831.2	831.2	0.02	0.33	88.7				0
06/02/81	0.01	0	0	0	0.00	0.01	N/A				0

Data File: Shady_Wood_pre.DAT

06/03/81	0.01	0	0	0	0.00	0.01	N/A	0
06/08/81	0.01	0	0	0	0.00	0.01	N/A	0
06/08/81	0.33	750.4	750.4	750.4	0.01	0.33	88.9	0
06/09/81	0.07	0	0	0	0.00	0.07	N/A	0
06/12/81	0.43	1560	1560	1560	0.02	0.42	86.8	0
06/15/81	2.59	82923	82923	82923	0.20	2.07	70.5	68485
06/20/81	0.34	831.2	831.2	831.2	0.02	0.33	88.7	0
06/21/81	0.32	673.0	673.0	673.0	0.01	0.32	89.0	0
06/23/81	0.51	2149	2149	2149	0.03	0.50	85.1	0
06/25/81	0.13	0	0	0	0.00	0.13	N/A	0
06/28/81	0.24	176.9	176.9	176.9	0.00	0.24	N/A	0
07/04/81	0.05	0	0	0	0.00	0.05	N/A	0
07/11/81	0.50	2070	2070	2070	0.03	0.49	85.3	0
07/12/81	0.14	0	0	0	0.00	0.14	N/A	0
07/12/81	0.86	5884	5884	5884	0.04	0.82	79.1	0
07/13/81	1.32	11137	11137	11137	0.05	1.25	72.3	4518
07/14/81	0.12	0	0	0	0.00	0.12	N/A	0
07/15/81	0.07	0	0	0	0.00	0.07	N/A	0
07/18/81	0.12	0	0	0	0.00	0.12	N/A	0
07/20/81	0.54	2394	2394	2394	0.03	0.53	84.5	0
07/20/81	0.10	0	0	0	0.00	0.10	N/A	0
07/23/81	0.09	0	0	0	0.00	0.09	N/A	0
07/25/81	0.24	176.9	176.9	176.9	0.00	0.24	N/A	0
07/27/81	0.66	3617	3617	3617	0.03	0.64	82.4	0
08/02/81	0.58	2741	2741	2741	0.03	0.56	83.7	0
08/03/81	0.04	0	0	0	0.00	0.04	N/A	0
08/05/81	0.01	0	0	0	0.00	0.01	N/A	0
08/07/81	0.02	0	0	0	0.00	0.02	N/A	0
08/14/81	2.09	66915	66915	66915	0.20	1.67	74.8	36087
08/26/81	0.49	1993	1993	1993	0.03	0.48	85.5	0
08/26/81	1.63	19432	19432	19432	0.07	1.51	70.2	14080
08/28/81	0.62	3156	3156	3156	0.03	0.60	83.0	0
08/28/81	0.04	0	0	0	0.00	0.04	N/A	0
08/31/81	0.03	0	0	0	0.00	0.03	N/A	0
08/31/81	1.52	13072	13072	13072	0.05	1.44	69.5	10149
09/07/81	0.89	6132	6132	6132	0.04	0.85	78.5	0
09/11/81	0.08	0	0	0	0.00	0.08	N/A	0
09/16/81	0.03	0	0	0	0.00	0.03	N/A	0
09/21/81	0.45	1698	1698	1698	0.02	0.44	86.4	0
09/24/81	0.90	6216	6216	6216	0.04	0.86	78.4	0
09/26/81	0.12	0	0	0	0.00	0.12	N/A	0
09/28/81	0.10	0	0	0	0.00	0.10	N/A	0
09/29/81	0.16	0	0	0	0.00	0.16	N/A	0
09/30/81	0.36	1003	1003	1003	0.02	0.35	88.3	0
10/01/81	0.01	0	0	0	0.00	0.01	N/A	0
10/04/81	0.15	0	0	0	0.00	0.15	N/A	0
10/05/81	0.04	0	0	0	0.00	0.04	N/A	0
10/05/81	0.02	0	0	0	0.00	0.02	N/A	0
10/09/81	0.14	0	0	0	0.00	0.14	N/A	0

Data File: Shady_Wood_pre.DAT

10/13/81	1.20	10008	10008	10008	0.05	1.14	74.1				2160
10/15/81	0.02	0	0	0	0.00	0.02	N/A				0
10/17/81	0.95	6639	6639	6639	0.04	0.91	77.5				2.643
10/18/81	0.06	0	0	0	0.00	0.06	N/A				0
10/21/81	0.06	0	0	0	0.00	0.06	N/A				0
10/21/81	0.01	0	0	0	0.00	0.01	N/A				0
10/24/81	0.01	0	0	0	0.00	0.01	N/A				0
10/31/81	0.01	0	0	0	0.00	0.01	N/A				0
11/05/81	0.04	0	0	0	0.00	0.04	N/A				0
11/15/81	0.07	0	0	0	0.00	0.07	N/A				0
11/18/81	0.05	0	0	0	0.00	0.05	N/A				0
11/19/81	0.26	280.4	280.4	280.4	0.01	0.26	90.3				0
11/23/81	0.18	0	0	0	0.00	0.18	N/A				0
11/25/81	0.89	6132	6132	6132	0.04	0.85	78.5				0
11/30/81	0.37	1094	1094	1094	0.02	0.36	88.1				0
12/03/81	-	-	-	-	-	-	-				-
12/14/81	-	-	-	-	-	-	-				-
12/20/81	-	-	-	-	-	-	-				-
12/26/81	-	-	-	-	-	-	-				-
12/31/81	-	-	-	-	-	-	-				-

Summary for All Events *Note: NRCS does not recommend using CN method for rains < 0.5 in. See 'PreDevelopment Areas and CN' Help for more info.

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls	Rv	Total Losses (in)	Calculated CN*	Peak Reduction Factor	Flushing Ratio		Pre-Dev. Runoff Volume (cf)
Number of Rains:		90	90	90							
Minimum:	0.01	0	0	0	0.00	0.01	N/A				0
Maximum:	2.59	82923	82923	82923	0.20	2.07	90.3				68485
Average:	0.32	3076	3076	3076	0.06	0.25	93.1				0
Total:	28.81	276820	276820	276820		27.09					135950

Data File: Shady_Wood.DAT

Rain File: WisReg - Madison Five Year Rainfall.RAN

Date: 12-02-09 Time: 11:15:47 AM

Site Description: Shady_Wood

Total Area, with Drainage and Outfall Controls - Runoff Volume (cu. ft)

Start Date	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls	Rv	Total Losses (in)	Calculated CN*	Peak Reduction Factor	Flushing Ratio	Det. Basin Out. Struct. Failed (I.u. #-src. area #)	Pre-Dev. Runoff Volume (cf)
01/02/80	-	-	-	-	-	-	-	-	-		
01/06/80	-	-	-	-	-	-	-	-	-		
01/09/80	-	-	-	-	-	-	-	-	-		
01/11/80	-	-	-	-	-	-	-	-	-		
01/13/80	-	-	-	-	-	-	-	-	-		
01/15/80	-	-	-	-	-	-	-	-	-		
01/24/80	-	-	-	-	-	-	-	-	-		
01/24/80	-	-	-	-	-	-	-	-	-		
01/31/80	-	-	-	-	-	-	-	-	-		
02/05/80	-	-	-	-	-	-	-	-	-		
02/15/80	-	-	-	-	-	-	-	-	-		
02/21/80	-	-	-	-	-	-	-	-	-		
02/21/80	-	-	-	-	-	-	-	-	-		
02/25/80	-	-	-	-	-	-	-	-	-		
02/27/80	-	-	-	-	-	-	-	-	-		
03/04/80	-	-	-	-	-	-	-	-	-		
03/06/80	-	-	-	-	-	-	-	-	-		
03/09/80	-	-	-	-	-	-	-	-	-		
03/10/80	-	-	-	-	-	-	-	-	-		
03/13/80	0.18	8308	8308	8308	0.29	0.13	97.8				
03/23/80	0.11	4585	4585	4585	0.26	0.08	98.6				
04/03/80	0.63	39396	39396	39396	0.39	0.38	94.6				
04/06/80	0.08	2737	2737	2737	0.21	0.06	98.8				
04/07/80	0.09	3303	3303	3303	0.23	0.07	98.7				
04/08/80	0.63	39396	39396	39396	0.39	0.38	94.6				
04/08/80	0.20	9388	9388	9388	0.29	0.14	97.6				
04/11/80	0.06	1756	1756	1756	0.18	0.05	99.0				
04/14/80	0.46	26106	26106	26106	0.35	0.30	95.6				
04/29/80	0.17	7779	7779	7779	0.29	0.12	97.9				
04/29/80	0.04	973.6	973.6	973.6	0.15	0.03	99.2				
05/10/80	0.01	10.50	10.50	10.50	0.01	0.01	99.6				
05/10/80	0.05	1340	1340	1340	0.17	0.04	99.1				
05/12/80	0.10	3919	3919	3919	0.24	0.08	98.6				
05/13/80	0.47	26865	26865	26865	0.36	0.30	95.5				
05/14/80	0.07	2222	2222	2222	0.20	0.06	98.9				
05/17/80	0.36	19012	19012	19012	0.33	0.24	96.3				
05/18/80	0.12	5253	5253	5253	0.27	0.09	98.5				
05/28/80	0.58	35755	35755	35755	0.39	0.36	95.0				
05/29/80	0.18	8308	8308	8308	0.29	0.13	97.8				
05/30/80	0.14	6240	6240	6240	0.28	0.10	98.3				

04/23/81	0.05	1340	1340	1340	0.17	0.04	99.1							
04/28/81	0.30	15183	15183	15183	0.32	0.21	96.7							
04/28/81	0.06	1756	1756	1756	0.18	0.05	99.0							
04/30/81	0.02	129.7	129.7	129.7	0.04	0.02	99.4							
05/04/81	0.09	3303	3303	3303	0.23	0.07	98.7							
05/10/81	0.08	2737	2737	2737	0.21	0.06	98.8							
05/13/81	0.01	10.50	10.50	10.50	0.01	0.01	99.6							
05/23/81	0.02	129.7	129.7	129.7	0.04	0.02	99.4							
05/24/81	0.10	3919	3919	3919	0.24	0.08	98.6							
05/29/81	0.34	17706	17706	17706	0.33	0.23	96.4							
06/02/81	0.01	10.50	10.50	10.50	0.01	0.01	99.6							
06/03/81	0.01	10.50	10.50	10.50	0.01	0.01	99.6							
06/08/81	0.01	10.50	10.50	10.50	0.01	0.01	99.6							
06/08/81	0.33	17064	17064	17064	0.32	0.22	96.5							
06/09/81	0.07	2222	2222	2222	0.20	0.06	98.9							
06/12/81	0.43	23877	23877	23877	0.35	0.28	95.8							
06/15/81	2.59	209962	209962	209962	0.51	1.28	85.9							
06/20/81	0.34	17706	17706	17706	0.33	0.23	96.4							
06/21/81	0.32	16430	16430	16430	0.32	0.22	96.6							
06/23/81	0.51	29983	29983	29983	0.37	0.32	95.3							
06/25/81	0.13	5743	5743	5743	0.28	0.09	98.4							
06/28/81	0.24	11618	11618	11618	0.30	0.17	97.3							
07/04/81	0.05	1340	1340	1340	0.17	0.04	99.1							
07/11/81	0.50	29192	29192	29192	0.36	0.32	95.4							
07/12/81	0.14	6240	6240	6240	0.28	0.10	98.3							
07/12/81	0.86	55458	55458	55458	0.40	0.51	93.0							
07/13/81	1.32	87369	87369	87369	0.41	0.77	90.0							
07/14/81	0.12	5253	5253	5253	0.27	0.09	98.5							
07/15/81	0.07	2222	2222	2222	0.20	0.06	98.9							
07/18/81	0.12	5253	5253	5253	0.27	0.09	98.5							
07/20/81	0.54	32408	32408	32408	0.37	0.34	95.1							
07/20/81	0.10	3919	3919	3919	0.24	0.08	98.6							
07/23/81	0.09	3303	3303	3303	0.23	0.07	98.7							
07/25/81	0.24	11618	11618	11618	0.30	0.17	97.3							
07/27/81	0.66	41501	41501	41501	0.39	0.40	94.4							
08/02/81	0.58	35755	35755	35755	0.39	0.36	95.0							
08/03/81	0.04	973.6	973.6	973.6	0.15	0.03	99.2							
08/05/81	0.01	10.50	10.50	10.50	0.01	0.01	99.6							
08/07/81	0.02	129.7	129.7	129.7	0.04	0.02	99.4							
08/14/81	2.09	168837	168837	168837	0.50	1.04	88.3							
08/26/81	0.49	28408	28408	28408	0.36	0.31	95.4							
08/26/81	1.63	111394	111394	111394	0.43	0.93	88.4							
08/28/81	0.62	38699	38699	38699	0.39	0.38	94.7							
08/28/81	0.04	973.6	973.6	973.6	0.15	0.03	99.2							
08/31/81	0.03	468.7	468.7	468.7	0.10	0.03	99.3							
08/31/81	1.52	100753	100753	100753	0.41	0.89	88.7							
09/07/81	0.89	57441	57441	57441	0.40	0.53	92.8							
09/11/81	0.08	2737	2737	2737	0.21	0.06	98.8							
09/16/81	0.03	468.7	468.7	468.7	0.10	0.03	99.3							

03/12/84	0.03	468.7	468.7	468.7	0.10	0.03	99.3							
03/15/84	0.47	26865	26865	26865	0.36	0.30	95.5							
03/15/84	0.08	2737	2737	2737	0.21	0.06	98.8							
03/17/84	0.04	973.6	973.6	973.6	0.15	0.03	99.2							
03/19/84	0.03	468.7	468.7	468.7	0.10	0.03	99.3							
03/20/84	0.28	13965	13965	13965	0.31	0.19	96.9							
03/21/84	0.10	3919	3919	3919	0.24	0.08	98.6							
04/04/84	0.01	10.50	10.50	10.50	0.01	0.01	99.6							
04/12/84	0.75	47942	47942	47942	0.40	0.45	93.8							
04/12/84	0.20	9388	9388	9388	0.29	0.14	97.6							
04/14/84	0.02	129.7	129.7	129.7	0.04	0.02	99.4							
04/14/84	0.12	5253	5253	5253	0.27	0.09	98.5							
04/14/84	0.26	12777	12777	12777	0.31	0.18	97.1							
04/22/84	0.43	23877	23877	23877	0.35	0.28	95.8							
04/23/84	0.28	13965	13965	13965	0.31	0.19	96.9							
04/27/84	0.01	10.50	10.50	10.50	0.01	0.01	99.6							
04/29/84	1.74	125948	125948	125948	0.45	0.95	88.5							
04/30/84	0.02	129.7	129.7	129.7	0.04	0.02	99.4							
04/30/84	0.02	129.7	129.7	129.7	0.04	0.02	99.4							
05/02/84	0.99	64104	64104	64104	0.40	0.59	92.1							
05/07/84	0.03	468.7	468.7	468.7	0.10	0.03	99.3							
05/09/84	0.01	10.50	10.50	10.50	0.01	0.01	99.6							
05/13/84	0.38	20347	20347	20347	0.33	0.25	96.1							
05/17/84	0.01	10.50	10.50	10.50	0.01	0.01	99.6							
05/18/84	0.04	973.6	973.6	973.6	0.15	0.03	99.2							
05/22/84	0.01	10.50	10.50	10.50	0.01	0.01	99.6							
05/22/84	0.01	10.50	10.50	10.50	0.01	0.01	99.6							
05/24/84	1.25	82694	82694	82694	0.41	0.73	90.5							
05/25/84	0.04	973.6	973.6	973.6	0.15	0.03	99.2							
05/27/84	0.55	33232	33232	33232	0.38	0.34	95.1							
06/06/84	0.74	47217	47217	47217	0.40	0.45	93.9							
06/07/84	1.13	74304	74304	74304	0.41	0.67	91.3							
06/09/84	2.43	196508	196508	196508	0.51	1.20	86.6							
06/13/84	0.28	13965	13965	13965	0.31	0.19	96.9							
06/16/84	0.02	129.7	129.7	129.7	0.04	0.02	99.4							
06/17/84	0.24	11618	11618	11618	0.30	0.17	97.3							
06/17/84	1.38	91380	91380	91380	0.41	0.81	89.6							
06/22/84	0.30	15183	15183	15183	0.32	0.21	96.7							
06/26/84	0.49	28408	28408	28408	0.36	0.31	95.4							
07/03/84	0.12	5253	5253	5253	0.27	0.09	98.5							
07/05/84	0.45	25355	25355	25355	0.35	0.29	95.6							
07/09/84	0.50	29192	29192	29192	0.36	0.32	95.4							
07/10/84	0.49	28408	28408	28408	0.36	0.31	95.4							
07/14/84	0.19	8845	8845	8845	0.29	0.13	97.7							
07/16/84	0.12	5253	5253	5253	0.27	0.09	98.5							
07/22/84	0.01	10.50	10.50	10.50	0.01	0.01	99.6							
07/23/84	0.02	129.7	129.7	129.7	0.04	0.02	99.4							
07/25/84	0.02	129.7	129.7	129.7	0.04	0.02	99.4							
07/26/84	0.01	10.50	10.50	10.50	0.01	0.01	99.6							

07/26/84	0.03	468.7	468.7	468.7	0.10	0.03	99.3						
08/07/84	1.13	74304	74304	74304	0.41	0.67	91.3						
08/09/84	0.14	6240	6240	6240	0.28	0.10	98.3						
08/21/84	0.16	7258	7258	7258	0.28	0.11	98.1						
08/27/84	0.07	2222	2222	2222	0.20	0.06	98.9						
08/31/84	0.41	22432	22432	22432	0.34	0.27	95.9						
09/02/84	0.08	2737	2737	2737	0.21	0.06	98.8						
09/06/84	0.07	2222	2222	2222	0.20	0.06	98.9						
09/08/84	0.10	3919	3919	3919	0.24	0.08	98.6						
09/10/84	0.08	2737	2737	2737	0.21	0.06	98.8						
09/14/84	0.04	973.6	973.6	973.6	0.15	0.03	99.2						
09/22/84	0.12	5253	5253	5253	0.27	0.09	98.5						
09/24/84	0.03	468.7	468.7	468.7	0.10	0.03	99.3						
09/24/84	2.20	177724	177724	177724	0.50	1.09	87.7						
09/28/84	0.05	1340	1340	1340	0.17	0.04	99.1						
10/07/84	0.38	20347	20347	20347	0.33	0.25	96.1						
10/07/84	0.01	10.50	10.50	10.50	0.01	0.01	99.6						
10/12/84	0.04	973.6	973.6	973.6	0.15	0.03	99.2						
10/15/84	0.33	17064	17064	17064	0.32	0.22	96.5						
10/16/84	0.56	34065	34065	34065	0.38	0.35	95.1						
10/16/84	0.15	6745	6745	6745	0.28	0.11	98.2						
10/18/84	2.78	226021	226021	226021	0.51	1.37	85.1						
10/21/84	0.20	9388	9388	9388	0.29	0.14	97.6						
10/25/84	0.20	9388	9388	9388	0.29	0.14	97.6						
10/27/84	0.01	10.50	10.50	10.50	0.01	0.01	99.6						
10/27/84	0.52	30783	30783	30783	0.37	0.33	95.3						
10/31/84	1.15	75784	75784	75784	0.41	0.68	91.1						
11/07/84	0.07	2222	2222	2222	0.20	0.06	98.9						
11/09/84	0.68	42916	42916	42916	0.39	0.41	94.3						
11/17/84	0.01	10.50	10.50	10.50	0.01	0.01	99.6						
11/26/84	0.30	15183	15183	15183	0.32	0.21	96.7						
11/27/84	0.03	468.7	468.7	468.7	0.10	0.03	99.3						
11/30/84	0.04	973.6	973.6	973.6	0.15	0.03	99.2						
12/02/84	0.30	15183	15183	15183	0.32	0.21	96.7						
12/11/84	-	-	-	-	-	-	-						
12/12/84	-	-	-	-	-	-	-						
12/14/84	-	-	-	-	-	-	-						
12/15/84	-	-	-	-	-	-	-						
12/16/84	-	-	-	-	-	-	-						
12/21/84	-	-	-	-	-	-	-						
12/23/84	-	-	-	-	-	-	-						
12/26/84	-	-	-	-	-	-	-						
12/27/84	-	-	-	-	-	-	-						
12/31/84	-	-	-	-	-	-	-						

Summary for All Events *Note: NRCS does not recommend using CN method for rains < 0.5 in. See 'PreDevelopment Areas and CN' Help for more info.

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls	Rv	Total Losses (in)	Calculated CN*	Peak Reduction Factor	Flushing Ratio		Pre-Dev. Runoff Volume (cf)		
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Data File: Shady_Wood.DAT

Number of Rains:		439	439	439									
Minimum:	0.01	10.50	10.50	10.50	0.01	0.01	84.1						
Maximum:	3.03	247287	247287	247287	0.51	1.49	99.6						
Average:	0.33	19904	19904	19904	0.38	0.15	97.7						
Total:	143.08	8.738E+06	8.738E+06	8.738E+06		88.55							

Data File: Shady_Wood_pre.DAT

Rain File: WisReg - Madison Five Year Rainfall.RAN

Date: 12-02-09 Time: 11:06:22 AM

Site Description: Shady_Wood

Total Area, with Drainage and Outfall Controls - Runoff Volume (cu. ft)

Start Date	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls	Rv	Total Losses (in)	Calculated CN*	Peak Reduction Factor	Flushing Ratio	Det. Basin Out. Struct. Failed (I.u. #-src. area #)	Pre-Dev. Runoff Volume (cf)
01/02/80	-	-	-	-	-	-	-	-	-	-	-
01/06/80	-	-	-	-	-	-	-	-	-	-	-
01/09/80	-	-	-	-	-	-	-	-	-	-	-
01/11/80	-	-	-	-	-	-	-	-	-	-	-
01/13/80	-	-	-	-	-	-	-	-	-	-	-
01/15/80	-	-	-	-	-	-	-	-	-	-	-
01/24/80	-	-	-	-	-	-	-	-	-	-	-
01/24/80	-	-	-	-	-	-	-	-	-	-	-
01/31/80	-	-	-	-	-	-	-	-	-	-	-
02/05/80	-	-	-	-	-	-	-	-	-	-	-
02/15/80	-	-	-	-	-	-	-	-	-	-	-
02/21/80	-	-	-	-	-	-	-	-	-	-	-
02/21/80	-	-	-	-	-	-	-	-	-	-	-
02/25/80	-	-	-	-	-	-	-	-	-	-	-
02/27/80	-	-	-	-	-	-	-	-	-	-	-
03/04/80	-	-	-	-	-	-	-	-	-	-	-
03/06/80	-	-	-	-	-	-	-	-	-	-	-
03/09/80	-	-	-	-	-	-	-	-	-	-	-
03/10/80	-	-	-	-	-	-	-	-	-	-	-
03/13/80	0.18	0	0	0	0.00	0.18	N/A				0
03/23/80	0.11	0	0	0	0.00	0.11	N/A				0
04/03/80	0.63	3268	3268	3268	0.03	0.61	82.9				0
04/06/80	0.08	0	0	0	0.00	0.08	N/A				0
04/07/80	0.09	0	0	0	0.00	0.09	N/A				0
04/08/80	0.63	3268	3268	3268	0.03	0.61	82.9				0
04/08/80	0.20	10.76	10.76	10.76	0.00	0.20	N/A				0
04/11/80	0.06	0	0	0	0.00	0.06	N/A				0
04/14/80	0.46	1770	1770	1770	0.02	0.45	86.2				0
04/29/80	0.17	0	0	0	0.00	0.17	N/A				0
04/29/80	0.04	0	0	0	0.00	0.04	N/A				0
05/10/80	0.01	0	0	0	0.00	0.01	N/A				0
05/10/80	0.05	0	0	0	0.00	0.05	N/A				0
05/12/80	0.10	0	0	0	0.00	0.10	N/A				0
05/13/80	0.47	1842	1842	1842	0.02	0.46	85.9				0
05/14/80	0.07	0	0	0	0.00	0.07	N/A				0
05/17/80	0.36	1003	1003	1003	0.02	0.35	88.3				0
05/18/80	0.12	0	0	0	0.00	0.12	N/A				0
05/28/80	0.58	2741	2741	2741	0.03	0.56	83.7				0
05/29/80	0.18	0	0	0	0.00	0.18	N/A				0
05/30/80	0.14	0	0	0	0.00	0.14	N/A				0

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06/01/80	0.06	0	0	0	0.00	0.06	N/A	0
06/02/80	0.49	1993	1993	1993	0.03	0.48	85.5	0
06/04/80	0.38	1189	1189	1189	0.02	0.37	87.9	0
06/05/80	0.75	4769	4769	4769	0.04	0.72	81.0	0
06/07/80	1.01	7283	7283	7283	0.05	0.96	76.5	158.8
06/09/80	0.11	0	0	0	0.00	0.11	N/A	0
06/15/80	0.05	0	0	0	0.00	0.05	N/A	0
06/18/80	0.06	0	0	0	0.00	0.06	N/A	0
06/27/80	0.52	2229	2229	2229	0.03	0.51	84.9	0
07/05/80	0.81	5476	5476	5476	0.04	0.78	80.0	0
07/09/80	0.38	1189	1189	1189	0.02	0.37	87.9	0
07/14/80	0.01	0	0	0	0.00	0.01	N/A	0
07/15/80	0.08	0	0	0	0.00	0.08	N/A	0
07/16/80	0.79	5315	5315	5315	0.04	0.76	80.4	0
07/20/80	0.09	0	0	0	0.00	0.09	N/A	0
07/20/80	0.03	0	0	0	0.00	0.03	N/A	0
07/25/80	0.06	0	0	0	0.00	0.06	N/A	0
07/26/80	0.36	1003	1003	1003	0.02	0.35	88.3	0
07/30/80	0.06	0	0	0	0.00	0.06	N/A	0
08/02/80	0.59	2831	2831	2831	0.03	0.57	83.5	0
08/04/80	0.18	0	0	0	0.00	0.18	N/A	0
08/07/80	3.03	97010	97010	97010	0.20	2.42	67.1	102796
08/09/80	0.16	0	0	0	0.00	0.16	N/A	0
08/11/80	1.02	7422	7422	7422	0.05	0.97	76.4	207.9
08/13/80	0.20	10.76	10.76	10.76	0.00	0.20	N/A	0
08/16/80	0.46	1770	1770	1770	0.02	0.45	86.2	0
08/19/80	0.93	6469	6469	6469	0.04	0.89	77.8	0
08/20/80	0.58	2741	2741	2741	0.03	0.56	83.7	0
08/27/80	0.65	3499	3499	3499	0.03	0.63	82.5	0
08/29/80	0.84	5720	5720	5720	0.04	0.80	79.4	0
08/30/80	0.35	915.4	915.4	915.4	0.02	0.34	88.5	0
08/31/80	0.50	2070	2070	2070	0.03	0.49	85.3	0
09/01/80	0.02	0	0	0	0.00	0.02	N/A	0
09/01/80	0.07	0	0	0	0.00	0.07	N/A	0
09/04/80	0.16	0	0	0	0.00	0.16	N/A	0
09/06/80	1.82	42225	42225	42225	0.14	1.56	73.8	22139
09/09/80	0.80	5395	5395	5395	0.04	0.77	80.2	0
09/12/80	1.50	12875	12875	12875	0.05	1.42	69.7	9496
09/12/80	0.25	226.9	226.9	226.9	0.01	0.25	90.5	0
09/13/80	0.01	0	0	0	0.00	0.01	N/A	0
09/14/80	0.02	0	0	0	0.00	0.02	N/A	0
09/16/80	0.61	3045	3045	3045	0.03	0.59	83.2	0
09/20/80	1.00	7146	7146	7146	0.04	0.96	76.7	116.3
09/21/80	1.33	11232	11232	11232	0.05	1.26	72.1	4750
09/25/80	0.09	0	0	0	0.00	0.09	N/A	0
09/28/80	0.11	0	0	0	0.00	0.11	N/A	0
09/28/80	0.05	0	0	0	0.00	0.05	N/A	0
10/02/80	0.08	0	0	0	0.00	0.08	N/A	0
10/13/80	0.03	0	0	0	0.00	0.03	N/A	0

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10/14/80	0.04	0	0	0	0.00	0.04	N/A	0
10/16/80	0.04	0	0	0	0.00	0.04	N/A	0
10/16/80	0.46	1770	1770	1770	0.02	0.45	86.2	0
10/23/80	0.02	0	0	0	0.00	0.02	N/A	0
10/24/80	0.46	1770	1770	1770	0.02	0.45	86.2	0
11/07/80	0.02	0	0	0	0.00	0.02	N/A	0
11/08/80	0.01	0	0	0	0.00	0.01	N/A	0
11/12/80	0.02	0	0	0	0.00	0.02	N/A	0
11/13/80	0.84	5720	5720	5720	0.04	0.80	79.4	0
11/23/80	0.21	47.16	47.16	47.16	0.00	0.21	N/A	0
11/27/80	0.13	0	0	0	0.00	0.13	N/A	0
11/28/80	0.10	0	0	0	0.00	0.10	N/A	0
12/01/80	0.58	2741	2741	2741	0.03	0.56	83.7	0
12/06/80	-	-	-	-	-	-	-	-
12/07/80	-	-	-	-	-	-	-	-
12/22/80	-	-	-	-	-	-	-	-
12/23/80	-	-	-	-	-	-	-	-
12/26/80	-	-	-	-	-	-	-	-
12/28/80	-	-	-	-	-	-	-	-
12/31/80	-	-	-	-	-	-	-	-
01/01/81	-	-	-	-	-	-	-	-
01/06/81	-	-	-	-	-	-	-	-
01/06/81	-	-	-	-	-	-	-	-
01/15/81	-	-	-	-	-	-	-	-
01/31/81	-	-	-	-	-	-	-	-
02/05/81	-	-	-	-	-	-	-	-
02/06/81	-	-	-	-	-	-	-	-
02/08/81	-	-	-	-	-	-	-	-
02/09/81	-	-	-	-	-	-	-	-
02/10/81	-	-	-	-	-	-	-	-
02/21/81	-	-	-	-	-	-	-	-
02/23/81	-	-	-	-	-	-	-	-
02/27/81	-	-	-	-	-	-	-	-
03/10/81	-	-	-	-	-	-	-	-
03/25/81	0.07	0	0	0	0.00	0.07	N/A	0
03/29/81	0.05	0	0	0	0.00	0.05	N/A	0
03/29/81	0.06	0	0	0	0.00	0.06	N/A	0
03/29/81	0.07	0	0	0	0.00	0.07	N/A	0
04/03/81	0.02	0	0	0	0.00	0.02	N/A	0
04/03/81	0.26	280.4	280.4	280.4	0.01	0.26	90.3	0
04/07/81	0.71	4237	4237	4237	0.04	0.68	81.6	0
04/08/81	0.41	1427	1427	1427	0.02	0.40	87.3	0
04/10/81	1.06	7989	7989	7989	0.05	1.01	75.9	468.5
04/12/81	0.13	0	0	0	0.00	0.13	N/A	0
04/13/81	0.32	673.0	673.0	673.0	0.01	0.32	89.0	0
04/16/81	0.01	0	0	0	0.00	0.01	N/A	0
04/19/81	0.04	0	0	0	0.00	0.04	N/A	0
04/22/81	0.01	0	0	0	0.00	0.01	N/A	0
04/22/81	0.02	0	0	0	0.00	0.02	N/A	0

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04/23/81	0.05	0	0	0	0.00	0.05	N/A	0
04/28/81	0.30	528.5	528.5	528.5	0.01	0.30	89.4	0
04/28/81	0.06	0	0	0	0.00	0.06	N/A	0
04/30/81	0.02	0	0	0	0.00	0.02	N/A	0
05/04/81	0.09	0	0	0	0.00	0.09	N/A	0
05/10/81	0.08	0	0	0	0.00	0.08	N/A	0
05/13/81	0.01	0	0	0	0.00	0.01	N/A	0
05/23/81	0.02	0	0	0	0.00	0.02	N/A	0
05/24/81	0.10	0	0	0	0.00	0.10	N/A	0
05/29/81	0.34	831.2	831.2	831.2	0.02	0.33	88.7	0
06/02/81	0.01	0	0	0	0.00	0.01	N/A	0
06/03/81	0.01	0	0	0	0.00	0.01	N/A	0
06/08/81	0.01	0	0	0	0.00	0.01	N/A	0
06/08/81	0.33	750.4	750.4	750.4	0.01	0.33	88.9	0
06/09/81	0.07	0	0	0	0.00	0.07	N/A	0
06/12/81	0.43	1560	1560	1560	0.02	0.42	86.8	0
06/15/81	2.59	82923	82923	82923	0.20	2.07	70.5	68485
06/20/81	0.34	831.2	831.2	831.2	0.02	0.33	88.7	0
06/21/81	0.32	673.0	673.0	673.0	0.01	0.32	89.0	0
06/23/81	0.51	2149	2149	2149	0.03	0.50	85.1	0
06/25/81	0.13	0	0	0	0.00	0.13	N/A	0
06/28/81	0.24	176.9	176.9	176.9	0.00	0.24	N/A	0
07/04/81	0.05	0	0	0	0.00	0.05	N/A	0
07/11/81	0.50	2070	2070	2070	0.03	0.49	85.3	0
07/12/81	0.14	0	0	0	0.00	0.14	N/A	0
07/12/81	0.86	5884	5884	5884	0.04	0.82	79.1	0
07/13/81	1.32	11137	11137	11137	0.05	1.25	72.3	4518
07/14/81	0.12	0	0	0	0.00	0.12	N/A	0
07/15/81	0.07	0	0	0	0.00	0.07	N/A	0
07/18/81	0.12	0	0	0	0.00	0.12	N/A	0
07/20/81	0.54	2394	2394	2394	0.03	0.53	84.5	0
07/20/81	0.10	0	0	0	0.00	0.10	N/A	0
07/23/81	0.09	0	0	0	0.00	0.09	N/A	0
07/25/81	0.24	176.9	176.9	176.9	0.00	0.24	N/A	0
07/27/81	0.66	3617	3617	3617	0.03	0.64	82.4	0
08/02/81	0.58	2741	2741	2741	0.03	0.56	83.7	0
08/03/81	0.04	0	0	0	0.00	0.04	N/A	0
08/05/81	0.01	0	0	0	0.00	0.01	N/A	0
08/07/81	0.02	0	0	0	0.00	0.02	N/A	0
08/14/81	2.09	66915	66915	66915	0.20	1.67	74.8	36087
08/26/81	0.49	1993	1993	1993	0.03	0.48	85.5	0
08/26/81	1.63	19432	19432	19432	0.07	1.51	70.2	14080
08/28/81	0.62	3156	3156	3156	0.03	0.60	83.0	0
08/28/81	0.04	0	0	0	0.00	0.04	N/A	0
08/31/81	0.03	0	0	0	0.00	0.03	N/A	0
08/31/81	1.52	13072	13072	13072	0.05	1.44	69.5	10149
09/07/81	0.89	6132	6132	6132	0.04	0.85	78.5	0
09/11/81	0.08	0	0	0	0.00	0.08	N/A	0
09/16/81	0.03	0	0	0	0.00	0.03	N/A	0

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09/21/81	0.45	1698	1698	1698	0.02	0.44	86.4					0
09/24/81	0.90	6216	6216	6216	0.04	0.86	78.4					0
09/26/81	0.12	0	0	0	0.00	0.12	N/A					0
09/28/81	0.10	0	0	0	0.00	0.10	N/A					0
09/29/81	0.16	0	0	0	0.00	0.16	N/A					0
09/30/81	0.36	1003	1003	1003	0.02	0.35	88.3					0
10/01/81	0.01	0	0	0	0.00	0.01	N/A					0
10/04/81	0.15	0	0	0	0.00	0.15	N/A					0
10/05/81	0.04	0	0	0	0.00	0.04	N/A					0
10/05/81	0.02	0	0	0	0.00	0.02	N/A					0
10/09/81	0.14	0	0	0	0.00	0.14	N/A					0
10/13/81	1.20	10008	10008	10008	0.05	1.14	74.1					2160
10/15/81	0.02	0	0	0	0.00	0.02	N/A					0
10/17/81	0.95	6639	6639	6639	0.04	0.91	77.5					2.643
10/18/81	0.06	0	0	0	0.00	0.06	N/A					0
10/21/81	0.06	0	0	0	0.00	0.06	N/A					0
10/21/81	0.01	0	0	0	0.00	0.01	N/A					0
10/24/81	0.01	0	0	0	0.00	0.01	N/A					0
10/31/81	0.01	0	0	0	0.00	0.01	N/A					0
11/05/81	0.04	0	0	0	0.00	0.04	N/A					0
11/15/81	0.07	0	0	0	0.00	0.07	N/A					0
11/18/81	0.05	0	0	0	0.00	0.05	N/A					0
11/19/81	0.26	280.4	280.4	280.4	0.01	0.26	90.3					0
11/23/81	0.18	0	0	0	0.00	0.18	N/A					0
11/25/81	0.89	6132	6132	6132	0.04	0.85	78.5					0
11/30/81	0.37	1094	1094	1094	0.02	0.36	88.1					0
12/03/81	-	-	-	-	-	-	-					-
12/14/81	-	-	-	-	-	-	-					-
12/20/81	-	-	-	-	-	-	-					-
12/26/81	-	-	-	-	-	-	-					-
12/31/81	-	-	-	-	-	-	-					-
01/02/82	-	-	-	-	-	-	-					-
01/03/82	-	-	-	-	-	-	-					-
01/10/82	-	-	-	-	-	-	-					-
01/13/82	-	-	-	-	-	-	-					-
01/14/82	-	-	-	-	-	-	-					-
01/15/82	-	-	-	-	-	-	-					-
01/15/82	-	-	-	-	-	-	-					-
01/16/82	-	-	-	-	-	-	-					-
01/17/82	-	-	-	-	-	-	-					-
01/20/82	-	-	-	-	-	-	-					-
01/22/82	-	-	-	-	-	-	-					-
01/23/82	-	-	-	-	-	-	-					-
01/25/82	-	-	-	-	-	-	-					-
01/29/82	-	-	-	-	-	-	-					-
01/31/82	-	-	-	-	-	-	-					-
02/02/82	-	-	-	-	-	-	-					-
02/05/82	-	-	-	-	-	-	-					-
02/24/82	-	-	-	-	-	-	-					-

03/02/82	-	-	-	-	-	-	-	-	-
03/04/82	-	-	-	-	-	-	-	-	-
03/08/82	-	-	-	-	-	-	-	-	-
03/09/82	-	-	-	-	-	-	-	-	-
03/11/82	-	-	-	-	-	-	-	-	-
03/12/82	0.34	831.2	831.2	831.2	0.02	0.33	88.7		0
03/16/82	0.56	2564	2564	2564	0.03	0.54	84.1		0
03/19/82	0.03	0	0	0	0.00	0.03	N/A		0
03/19/82	0.24	176.9	176.9	176.9	0.00	0.24	N/A		0
03/20/82	0.02	0	0	0	0.00	0.02	N/A		0
03/30/82	0.27	337.3	337.3	337.3	0.01	0.27	90.1		0
03/31/82	0.01	0	0	0	0.00	0.01	N/A		0
04/02/82	1.98	63393	63393	63393	0.20	1.58	75.8		30072
04/03/82	0.01	0	0	0	0.00	0.01	N/A		0
04/05/82	0.60	2937	2937	2937	0.03	0.58	83.4		0
04/08/82	0.03	0	0	0	0.00	0.03	N/A		0
04/14/82	0.01	0	0	0	0.00	0.01	N/A		0
04/16/82	0.08	0	0	0	0.00	0.08	N/A		0
04/17/82	0.15	0	0	0	0.00	0.15	N/A		0
04/19/82	0.15	0	0	0	0.00	0.15	N/A		0
04/26/82	0.25	226.9	226.9	226.9	0.01	0.25	90.5		0
05/04/82	0.01	0	0	0	0.00	0.01	N/A		0
05/05/82	0.36	1003	1003	1003	0.02	0.35	88.3		0
05/05/82	1.05	7845	7845	7845	0.05	1.00	76.0		393.7
05/06/82	0.18	0	0	0	0.00	0.18	N/A		0
05/11/82	0.10	0	0	0	0.00	0.10	N/A		0
05/15/82	0.11	0	0	0	0.00	0.11	N/A		0
05/16/82	0.51	2149	2149	2149	0.03	0.50	85.1		0
05/17/82	0.12	0	0	0	0.00	0.12	N/A		0
05/18/82	0.14	0	0	0	0.00	0.14	N/A		0
05/19/82	0.61	3045	3045	3045	0.03	0.59	83.2		0
05/21/82	0.21	47.16	47.16	47.16	0.00	0.21	N/A		0
05/22/82	0.11	0	0	0	0.00	0.11	N/A		0
05/26/82	0.19	0	0	0	0.00	0.19	N/A		0
05/27/82	0.26	280.4	280.4	280.4	0.01	0.26	90.3		0
05/29/82	0.38	1189	1189	1189	0.02	0.37	87.9		0
06/06/82	0.04	0	0	0	0.00	0.04	N/A		0
06/07/82	0.52	2229	2229	2229	0.03	0.51	84.9		0
06/11/82	0.04	0	0	0	0.00	0.04	N/A		0
06/14/82	1.36	11519	11519	11519	0.05	1.29	71.7		5479
06/15/82	0.02	0	0	0	0.00	0.02	N/A		0
06/17/82	0.29	461.3	461.3	461.3	0.01	0.29	89.7		0
06/20/82	0.26	280.4	280.4	280.4	0.01	0.26	90.3		0
06/25/82	0.35	915.4	915.4	915.4	0.02	0.34	88.5		0
06/26/82	0.13	0	0	0	0.00	0.13	N/A		0
06/29/82	0.39	1286	1286	1286	0.02	0.38	87.7		0
07/02/82	0.05	0	0	0	0.00	0.05	N/A		0
07/03/82	0.07	0	0	0	0.00	0.07	N/A		0
07/06/82	0.42	1493	1493	1493	0.02	0.41	87.1		0

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07/10/82	0.46	1770	1770	1770	0.02	0.45	86.2				0
07/15/82	0.07	0	0	0	0.00	0.07	N/A				0
07/15/82	0.02	0	0	0	0.00	0.02	N/A				0
07/18/82	0.05	0	0	0	0.00	0.05	N/A				0
07/21/82	2.15	68836	68836	68836	0.20	1.72	74.2				39549
07/27/82	0.09	0	0	0	0.00	0.09	N/A				0
07/29/82	0.09	0	0	0	0.00	0.09	N/A				0
08/03/82	0.79	5315	5315	5315	0.04	0.76	80.4				0
08/05/82	0.15	0	0	0	0.00	0.15	N/A				0
08/22/82	0.09	0	0	0	0.00	0.09	N/A				0
08/23/82	0.28	397.6	397.6	397.6	0.01	0.28	89.9				0
08/24/82	0.05	0	0	0	0.00	0.05	N/A				0
08/24/82	0.26	280.4	280.4	280.4	0.01	0.26	90.3				0
08/29/82	0.10	0	0	0	0.00	0.10	N/A				0
08/29/82	0.95	6639	6639	6639	0.04	0.91	77.5				2.643
09/01/82	0.31	599.0	599.0	599.0	0.01	0.31	89.2				0
09/02/82	0.03	0	0	0	0.00	0.03	N/A				0
09/05/82	0.01	0	0	0	0.00	0.01	N/A				0
09/06/82	0.01	0	0	0	0.00	0.01	N/A				0
09/13/82	0.02	0	0	0	0.00	0.02	N/A				0
09/15/82	0.75	4769	4769	4769	0.04	0.72	81.0				0
09/16/82	0.14	0	0	0	0.00	0.14	N/A				0
09/17/82	0.06	0	0	0	0.00	0.06	N/A				0
09/20/82	0.04	0	0	0	0.00	0.04	N/A				0
09/23/82	0.05	0	0	0	0.00	0.05	N/A				0
10/06/82	0.43	1560	1560	1560	0.02	0.42	86.8				0
10/09/82	0.39	1286	1286	1286	0.02	0.38	87.7				0
10/15/82	0.06	0	0	0	0.00	0.06	N/A				0
10/17/82	0.08	0	0	0	0.00	0.08	N/A				0
10/19/82	0.08	0	0	0	0.00	0.08	N/A				0
10/19/82	0.23	130.2	130.2	130.2	0.00	0.23	N/A				0
10/28/82	0.19	0	0	0	0.00	0.19	N/A				0
11/01/82	0.93	6469	6469	6469	0.04	0.89	77.8				0
11/01/82	0.93	6469	6469	6469	0.04	0.89	77.8				0
11/08/82	0.88	6049	6049	6049	0.04	0.84	78.7				0
11/11/82	0.82	5557	5557	5557	0.04	0.79	79.8				0
11/14/82	0.01	0	0	0	0.00	0.01	N/A				0
11/19/82	0.16	0	0	0	0.00	0.16	N/A				0
11/20/82	0.10	0	0	0	0.00	0.10	N/A				0
11/26/82	0.01	0	0	0	0.00	0.01	N/A				0
11/28/82	0.37	1094	1094	1094	0.02	0.36	88.1				0
12/02/82	1.55	13368	13368	13368	0.05	1.47	69.1				11165
12/02/82	0.09	0	0	0	0.00	0.09	N/A				0
12/04/82	-	-	-	-	-	-	-				-
12/07/82	-	-	-	-	-	-	-				-
12/15/82	-	-	-	-	-	-	-				-
12/19/82	-	-	-	-	-	-	-				-
12/23/82	-	-	-	-	-	-	-				-
12/24/82	-	-	-	-	-	-	-				-

Data File: Shady_Wood_pre.DAT

05/19/83	0.15	0	0	0	0.00	0.15	N/A	0
05/21/83	0.68	3859	3859	3859	0.04	0.66	82.0	0
05/22/83	0.18	0	0	0	0.00	0.18	N/A	0
05/24/83	0.18	0	0	0	0.00	0.18	N/A	0
05/27/83	0.13	0	0	0	0.00	0.13	N/A	0
05/28/83	0.57	2652	2652	2652	0.03	0.55	83.9	0
05/29/83	0.34	831.2	831.2	831.2	0.02	0.33	88.7	0
05/29/83	0.04	0	0	0	0.00	0.04	N/A	0
05/30/83	0.11	0	0	0	0.00	0.11	N/A	0
05/31/83	0.08	0	0	0	0.00	0.08	N/A	0
06/03/83	0.03	0	0	0	0.00	0.03	N/A	0
06/05/83	0.12	0	0	0	0.00	0.12	N/A	0
06/10/83	0.02	0	0	0	0.00	0.02	N/A	0
06/12/83	0.11	0	0	0	0.00	0.11	N/A	0
06/14/83	0.18	0	0	0	0.00	0.18	N/A	0
06/15/83	0.07	0	0	0	0.00	0.07	N/A	0
06/26/83	0.23	130.2	130.2	130.2	0.00	0.23	N/A	0
06/27/83	0.49	1993	1993	1993	0.03	0.48	85.5	0
06/28/83	0.01	0	0	0	0.00	0.01	N/A	0
06/28/83	0.09	0	0	0	0.00	0.09	N/A	0
06/29/83	0.01	0	0	0	0.00	0.01	N/A	0
06/29/83	0.17	0	0	0	0.00	0.17	N/A	0
06/30/83	0.66	3617	3617	3617	0.03	0.64	82.4	0
07/03/83	0.48	1917	1917	1917	0.02	0.47	85.7	0
07/17/83	0.02	0	0	0	0.00	0.02	N/A	0
07/17/83	0.72	4367	4367	4367	0.04	0.69	81.4	0
07/18/83	0.07	0	0	0	0.00	0.07	N/A	0
07/19/83	0.25	226.9	226.9	226.9	0.01	0.25	90.5	0
07/28/83	0.02	0	0	0	0.00	0.02	N/A	0
07/28/83	0.02	0	0	0	0.00	0.02	N/A	0
08/03/83	0.28	397.6	397.6	397.6	0.01	0.28	89.9	0
08/16/83	1.93	57380	57380	57380	0.19	1.57	75.4	27486
08/21/83	0.44	1628	1628	1628	0.02	0.43	86.6	0
08/25/83	0.86	5884	5884	5884	0.04	0.82	79.1	0
08/26/83	0.60	2937	2937	2937	0.03	0.58	83.4	0
08/27/83	0.62	3156	3156	3156	0.03	0.60	83.0	0
08/28/83	0.32	673.0	673.0	673.0	0.01	0.32	89.0	0
09/05/83	0.10	0	0	0	0.00	0.10	N/A	0
09/05/83	0.37	1094	1094	1094	0.02	0.36	88.1	0
09/05/83	0.84	5720	5720	5720	0.04	0.80	79.4	0
09/10/83	0.11	0	0	0	0.00	0.11	N/A	0
09/12/83	0.06	0	0	0	0.00	0.06	N/A	0
09/15/83	0.01	0	0	0	0.00	0.01	N/A	0
09/15/83	0.62	3156	3156	3156	0.03	0.60	83.0	0
09/17/83	0.15	0	0	0	0.00	0.15	N/A	0
09/19/83	0.13	0	0	0	0.00	0.13	N/A	0
09/20/83	0.19	0	0	0	0.00	0.19	N/A	0
09/24/83	0.27	337.3	337.3	337.3	0.01	0.27	90.1	0
10/03/83	0.43	1560	1560	1560	0.02	0.42	86.8	0

10/03/83	0.01	0	0	0	0.00	0.01	N/A					0
10/06/83	0.03	0	0	0	0.00	0.03	N/A					0
10/07/83	0.06	0	0	0	0.00	0.06	N/A					0
10/07/83	0.14	0	0	0	0.00	0.14	N/A					0
10/11/83	1.29	10853	10853	10853	0.05	1.22	72.7					3854
10/19/83	0.10	0	0	0	0.00	0.10	N/A					0
10/20/83	0.19	0	0	0	0.00	0.19	N/A					0
10/21/83	0.15	0	0	0	0.00	0.15	N/A					0
10/22/83	0.18	0	0	0	0.00	0.18	N/A					0
10/23/83	0.01	0	0	0	0.00	0.01	N/A					0
11/01/83	0.18	0	0	0	0.00	0.18	N/A					0
11/09/83	0.67	3737	3737	3737	0.03	0.65	82.2					0
11/14/83	0.20	10.76	10.76	10.76	0.00	0.20	N/A					0
11/15/83	0.02	0	0	0	0.00	0.02	N/A					0
11/19/83	0.42	1493	1493	1493	0.02	0.41	87.1					0
11/20/83	0.24	176.9	176.9	176.9	0.00	0.24	N/A					0
11/23/83	0.40	1363	1363	1363	0.02	0.39	87.5					0
11/27/83	0.04	0	0	0	0.00	0.04	N/A					0
11/27/83	0.95	6639	6639	6639	0.04	0.91	77.5					2.643
11/28/83	0.06	0	0	0	0.00	0.06	N/A					0
12/01/83	0.01	0	0	0	0.00	0.01	N/A					0
12/01/83	0.10	0	0	0	0.00	0.10	N/A					0
12/05/83	-	-	-	-	-	-	-					-
12/05/83	-	-	-	-	-	-	-					-
12/08/83	-	-	-	-	-	-	-					-
12/11/83	-	-	-	-	-	-	-					-
12/14/83	-	-	-	-	-	-	-					-
12/21/83	-	-	-	-	-	-	-					-
12/21/83	-	-	-	-	-	-	-					-
12/28/83	-	-	-	-	-	-	-					-
01/01/84	-	-	-	-	-	-	-					-
01/03/84	-	-	-	-	-	-	-					-
01/08/84	-	-	-	-	-	-	-					-
01/09/84	-	-	-	-	-	-	-					-
01/23/84	-	-	-	-	-	-	-					-
01/26/84	-	-	-	-	-	-	-					-
01/28/84	-	-	-	-	-	-	-					-
01/28/84	-	-	-	-	-	-	-					-
01/30/84	-	-	-	-	-	-	-					-
02/04/84	-	-	-	-	-	-	-					-
02/05/84	-	-	-	-	-	-	-					-
02/11/84	-	-	-	-	-	-	-					-
02/12/84	-	-	-	-	-	-	-					-
02/13/84	-	-	-	-	-	-	-					-
02/16/84	-	-	-	-	-	-	-					-
02/18/84	-	-	-	-	-	-	-					-
02/19/84	-	-	-	-	-	-	-					-
03/04/84	-	-	-	-	-	-	-					-
03/07/84	-	-	-	-	-	-	-					-

Data File: Shady_Wood_pre.DAT

03/12/84	0.03	0	0	0	0.00	0.03	N/A	0
03/15/84	0.47	1842	1842	1842	0.02	0.46	85.9	0
03/15/84	0.08	0	0	0	0.00	0.08	N/A	0
03/17/84	0.04	0	0	0	0.00	0.04	N/A	0
03/19/84	0.03	0	0	0	0.00	0.03	N/A	0
03/20/84	0.28	397.6	397.6	397.6	0.01	0.28	89.9	0
03/21/84	0.10	0	0	0	0.00	0.10	N/A	0
04/04/84	0.01	0	0	0	0.00	0.01	N/A	0
04/12/84	0.75	4769	4769	4769	0.04	0.72	81.0	0
04/12/84	0.20	10.76	10.76	10.76	0.00	0.20	N/A	0
04/14/84	0.02	0	0	0	0.00	0.02	N/A	0
04/14/84	0.12	0	0	0	0.00	0.12	N/A	0
04/14/84	0.26	280.4	280.4	280.4	0.01	0.26	90.3	0
04/22/84	0.43	1560	1560	1560	0.02	0.42	86.8	0
04/23/84	0.28	397.6	397.6	397.6	0.01	0.28	89.9	0
04/27/84	0.01	0	0	0	0.00	0.01	N/A	0
04/29/84	1.74	32105	32105	32105	0.12	1.54	72.4	18557
04/30/84	0.02	0	0	0	0.00	0.02	N/A	0
04/30/84	0.02	0	0	0	0.00	0.02	N/A	0
05/02/84	0.99	7010	7010	7010	0.04	0.95	76.8	80.26
05/07/84	0.03	0	0	0	0.00	0.03	N/A	0
05/09/84	0.01	0	0	0	0.00	0.01	N/A	0
05/13/84	0.38	1189	1189	1189	0.02	0.37	87.9	0
05/17/84	0.01	0	0	0	0.00	0.01	N/A	0
05/18/84	0.04	0	0	0	0.00	0.04	N/A	0
05/22/84	0.01	0	0	0	0.00	0.01	N/A	0
05/22/84	0.01	0	0	0	0.00	0.01	N/A	0
05/24/84	1.25	10475	10475	10475	0.05	1.18	73.3	3045
05/25/84	0.04	0	0	0	0.00	0.04	N/A	0
05/27/84	0.55	2478	2478	2478	0.03	0.53	84.3	0
06/06/84	0.74	4633	4633	4633	0.04	0.71	81.1	0
06/07/84	1.13	9031	9031	9031	0.05	1.07	75.0	1166
06/09/84	2.43	77800	77800	77800	0.20	1.94	71.8	57281
06/13/84	0.28	397.6	397.6	397.6	0.01	0.28	89.9	0
06/16/84	0.02	0	0	0	0.00	0.02	N/A	0
06/17/84	0.24	176.9	176.9	176.9	0.00	0.24	N/A	0
06/17/84	1.38	11711	11711	11711	0.05	1.31	71.4	5992
06/22/84	0.30	528.5	528.5	528.5	0.01	0.30	89.4	0
06/26/84	0.49	1993	1993	1993	0.03	0.48	85.5	0
07/03/84	0.12	0	0	0	0.00	0.12	N/A	0
07/05/84	0.45	1698	1698	1698	0.02	0.44	86.4	0
07/09/84	0.50	2070	2070	2070	0.03	0.49	85.3	0
07/10/84	0.49	1993	1993	1993	0.03	0.48	85.5	0
07/14/84	0.19	0	0	0	0.00	0.19	N/A	0
07/16/84	0.12	0	0	0	0.00	0.12	N/A	0
07/22/84	0.01	0	0	0	0.00	0.01	N/A	0
07/23/84	0.02	0	0	0	0.00	0.02	N/A	0
07/25/84	0.02	0	0	0	0.00	0.02	N/A	0
07/26/84	0.01	0	0	0	0.00	0.01	N/A	0

07/26/84	0.03	0	0	0	0.00	0.03	N/A				0
08/07/84	1.13	9031	9031	9031	0.05	1.07	75.0				1166
08/09/84	0.14	0	0	0	0.00	0.14	N/A				0
08/21/84	0.16	0	0	0	0.00	0.16	N/A				0
08/27/84	0.07	0	0	0	0.00	0.07	N/A				0
08/31/84	0.41	1427	1427	1427	0.02	0.40	87.3				0
09/02/84	0.08	0	0	0	0.00	0.08	N/A				0
09/06/84	0.07	0	0	0	0.00	0.07	N/A				0
09/08/84	0.10	0	0	0	0.00	0.10	N/A				0
09/10/84	0.08	0	0	0	0.00	0.08	N/A				0
09/14/84	0.04	0	0	0	0.00	0.04	N/A				0
09/22/84	0.12	0	0	0	0.00	0.12	N/A				0
09/24/84	0.03	0	0	0	0.00	0.03	N/A				0
09/24/84	2.20	70437	70437	70437	0.20	1.76	73.8				42529
09/28/84	0.05	0	0	0	0.00	0.05	N/A				0
10/07/84	0.38	1189	1189	1189	0.02	0.37	87.9				0
10/07/84	0.01	0	0	0	0.00	0.01	N/A				0
10/12/84	0.04	0	0	0	0.00	0.04	N/A				0
10/15/84	0.33	750.4	750.4	750.4	0.01	0.33	88.9				0
10/16/84	0.56	2564	2564	2564	0.03	0.54	84.1				0
10/16/84	0.15	0	0	0	0.00	0.15	N/A				0
10/18/84	2.78	89006	89006	89006	0.20	2.22	69.0				82706
10/21/84	0.20	10.76	10.76	10.76	0.00	0.20	N/A				0
10/25/84	0.20	10.76	10.76	10.76	0.00	0.20	N/A				0
10/27/84	0.01	0	0	0	0.00	0.01	N/A				0
10/27/84	0.52	2229	2229	2229	0.03	0.51	84.9				0
10/31/84	1.15	9340	9340	9340	0.05	1.09	74.7				1420
11/07/84	0.07	0	0	0	0.00	0.07	N/A				0
11/09/84	0.68	3859	3859	3859	0.04	0.66	82.0				0
11/17/84	0.01	0	0	0	0.00	0.01	N/A				0
11/26/84	0.30	528.5	528.5	528.5	0.01	0.30	89.4				0
11/27/84	0.03	0	0	0	0.00	0.03	N/A				0
11/30/84	0.04	0	0	0	0.00	0.04	N/A				0
12/02/84	0.30	528.5	528.5	528.5	0.01	0.30	89.4				0
12/11/84	-	-	-	-	-	-	-				-
12/12/84	-	-	-	-	-	-	-				-
12/14/84	-	-	-	-	-	-	-				-
12/15/84	-	-	-	-	-	-	-				-
12/16/84	-	-	-	-	-	-	-				-
12/21/84	-	-	-	-	-	-	-				-
12/23/84	-	-	-	-	-	-	-				-
12/26/84	-	-	-	-	-	-	-				-
12/27/84	-	-	-	-	-	-	-				-
12/31/84	-	-	-	-	-	-	-				-

Summary for All Events *Note: NRCS does not recommend using CN method for rains < 0.5 in. See 'PreDevelopment Areas and CN' Help for more info.

	Rain Total (inches)	Total Before Drainage System	Total After Drainage System	Total After Outfall Controls	Rv	Total Losses (in)	Calculated CN*	Peak Reduction Factor	Flushing Ratio		Pre-Dev. Runoff Volume (cf)
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Data File: Shady_Wood_pre.DAT

Number of Rains:		439	439	439						
Minimum:	0.01	0	0	0	0.00	0.01	N/A			0
Maximum:	3.03	97010	97010	97010	0.20	2.42	90.5			102796
Average:	0.33	2963	2963	2963	0.06	0.24	93.4			0
Total:	143.08	1.301E+06	1.301E+06	1.301E+06		134.99				609720